DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

WATER-SUPPLY PAPER 330

# SURFACE WATER SUPPLY OF THE UNITED STATES

## 1912

## PART X. THE GREAT BASIN

BY

F. F. HENSHAW, E. A. PORTER,
AND G. C. STEVENS

WASHINGTON
GOVERNMENT PRINTING OFFICE
1914

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# SURFACE WATER SUPPLY OF THE GREAT BASIN, 1912.

By F. F. HENSHAW, E. A. PORTER, and G. C. STEVENS.

## AUTHORIZATION AND SCOPE OF WORK.

This volume is one of a series of twelve reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1912.

The data presented in these reports were collected by the United States Geological Survey under authority implied in the organic law (20 Stat. L., p. 394) which contains the following paragraph:

*Provided*, That this officer [the Director] shall have the direction of the geological survey and the classification of public lands and examination of the geological structure, mineral resources, and products of the national domain.

The work was begun in 1888 in connection with special studies of water supply for irrigation. Since the fiscal year ending June 30, 1895, successive sundry civil bills passed by Congress have carried the following item and appropriations:

For gaging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and for the preparation of reports upon the best methods of utilizing the water resources.

Annual appropriations for the fiscal year ending June 30—

| | |
|---|---|
| 1895 | $12,500 |
| 1896 | 20,000 |
| 1897 to 1900, inclusive | 50,000 |
| 1901 to 1902, inclusive | 100,000 |
| 1903 to 1906, inclusive | 200,000 |
| 1907 | 150,000 |
| 1908 to 1910, inclusive | 100,000 |
| 1911 to 1913, inclusive | 150,000 |

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected, and of the second kind on page 16.

Measurements of stream flow have been made at about 2,000 points in the United States and also at many points in small areas in Seward Peninsula and the Yukon-Tanana region, Alaska, and in the Hawaiian Islands. During 1912 gaging stations were maintained by the

Survey and the cooperating organizations at about 1,500 points, and many discharge measurements were made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in the regular water supply papers from time to time.

## PUBLICATIONS.

A report has been prepared for each year embodying the stream-flow data collected during that year. An index to the reports containing stream-flow measurements prior to 1904 has been published as Water-Supply Paper 119. Circulars are also available giving complete lists of the gaging stations maintained by the Survey to date, and a list of the reports relating to the water supply of the country.

Prior to 1901 gage heights and discharge measurements were published in water-supply papers or bulletins and estimates of monthly discharge in annual reports; since 1901 both classes of data have been published in water-supply papers and they are now being published in twelve parts, as shown in the following table:

*Papers on surface water supply of the United States, 1912.*

| Part.[a] | No. | Title. |
|---|---|---|
| I | 321 | North Atlantic coast basins. |
| II | 322 | South Atlantic coast and eastern Gulf of Mexico basins. |
| III | 323 | Ohio River basin. |
| IV | 324 | St. Lawrence River basin. |
| V | 325 | Upper Mississippi River and Hudson Bay basin |
| VI | 326 | Missouri River basin. |
| VII | 327 | Lower Mississippi River basin. |
| VIII | 328 | Western Gulf of Mexico basins. |
| IX | 329 | Colorado River basin. |
| X | 330 | Great Basin. |
| XI | 331 | Pacific coast basins in California. |
| XII | 332 | North Pacific coast basins. |

[a] For the purpose of uniformity in the presentation of reports, a general plan has been agreed upon by the United States Reclamation Service, the United States Forest Service, the United States Weather Bureau, and the United States Geological Survey, according to which the area of the United States has been divided into 12 parts, whose boundaries coincide with natural drainage lines indicated by the parts of the report.

A list of reports containing stream-flow data is presented in the following table:

*Stream-flow data in reports of the United States Geological Survey.*

[A=Annual Report; B=Bulletin; WS=Water-Supply Paper.]

| Report. | Character of data. | Year. |
|---|---|---|
| 10th A, pt. 2 | Descriptive information only | |
| 11th A, pt. 2 | Monthly discharge | 1884 to Sept., 1890. |
| 12th A, pt. 2 | do | 1884 to June 30, 1891. |
| 13th A, pt. 3 | Mean discharge in second-feet | 1884 to Dec. 31, 1892. |
| 14th A, pt. 2 | Monthly discharge (long-time records, 1871 to 1893) | 1888 to Dec. 31, 1893. |
| B 131 | Description, measurements, gage heights, and ratings | 1893 and 1894. |
| 16th A, pt. 2 | Descriptive information only | |
| B 140 | Description, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years). | 1895. |
| WS 11 | Gage heights (also gage heights for earlier years) | 1896. |
| 18th A, pt. 4 | Description, measurements, ratings, and monthly discharge (also similar data for some earlier years). | 1895 and 1896. |
| WS 15 | Description, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas. | 1897. |
| WS 16 | Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte, and western United States. | 1897. |
| 19th A, pt. 4 | Descriptions, measurements, ratings, and monthly discharge (also some long-time records). | 1897. |
| WS 27 | Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River. | 1898. |
| WS 28 | Measurements, ratings, and gage heights, Arkansas River and western United States. | 1898. |
| 20th A, pt. 4 | Monthly discharge (also for many earlier years) | 1898. |
| WS 35 to 39 | Descriptions, measurements, gage heights, and ratings | 1899. |
| 21st A, pt. 4 | Monthly discharge | 1899. |
| WS 47 to 52 | Descriptions, measurements, gage heights, and ratings | 1900. |
| 22d A, pt. 4 | Monthly discharge | 1900. |
| WS 65, 66 | Descriptions, measurements, gage heights, and ratings | 1901. |
| WS 75 | Monthly discharge | 1901. |
| WS 82 to 85 | Complete data | 1902. |
| WS 97 to 100 | do | 1903. |
| WS 124 to 135 | do | 1904. |
| WS 165 to 178 | do | 1905. |
| WS 201 to 214 | do | 1906. |
| WS 241 to 252 | do | 1907–8. |
| WS 261 to 272 | do | 1909. |
| WS 281 to 292 | do | 1910. |
| WS 301 to 312 | do | 1911. |
| WS 321 to 332 | do | 1912. |

NOTE.—No data regarding stream flow are given in the 15th and 17th annual reports.

The table which follows gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1912. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data for any station in the area covered by Part I are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, and 321, which contain records for the New England streams from 1903 to 1912. The year covered by the report is indicated at the head of the column in which the paper is listed.

*Numbers of water-supply papers containing results of stream measurements, 1899–1912.*

| | 1899 [a] | 1900 [b] | 1901 | 1902 | 1903 | 1904 | 1905 | 1906 | 1907–8 | 1909 | 1910 | 1911 | 1912 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| North Atlantic coast (St. John River to York River) | 35 | 47, [c] 48 | 65, 75 | 82 | 97 | [d] 124, [e] 125, [f] 126 | [d] 165, [e] 166, [f] 167 | [d] 201, [e] 202, [f] 203 | 241 | 261 | 281 | 301 | 321 |
| South Atlantic coast and eastern Gulf of Mexico (James River to the Mississippi) | [g] 35, 36 | 48 | 65, 75 | [g] 82, 83 | [g] 97, 98 | [f] 126, 127 | [f] 167, 168 | [f] 203, 204 | 242 | 262 | 282 | 302 | 322 |
| Ohio River basin | 36 | 48, [h] 49 | 65, 75 | 83 | 98 | 128 | 169 | 205 | 243 | 263 | 283 | 303 | 323 |
| St. Lawrence River and Great Lakes | 36 | 49 | 65, 75 | [i] 82, 83 | 97 | 129 | 170 | 206 | 244 | 264 | 284 | 304 | 324 |
| Hudson Bay and upper Mississippi River | 36 | 49 | [j] 65, 66, 75 | [j] 83, 85 | [j] 98, 99, [k] 100 | [j] 128, 130 | 171 | 207 | 245 | 265 | 285 | 305 | 325 |
| Missouri River | [l] 36, 37 | 49, [m] 50 | 66, 75 | 84 | 99 | 130, [n] 131 | 172 | 208 | 246 | 266 | 286 | 306 | 326 |
| Lower Mississippi River | 37 | 50 | [j] 65, 66, 75 | [j] 83 84 | [j] 98, 99 | [j] 128, 131 | [j] 169, 173 | [j] 205, 209 | 247 | 267 | 287 | 307 | 327 |
| Western Gulf of Mexico | 37 | 50 | 66, 75 | 84 | 99 | 132 | 174 | 210 | 248 | 268 | 288 | 308 | 328 |
| Colorado River | [o] 37, 38 | 50 | 66, 75 | 85 | 100 | 133 | 175, [p] 177 | 211 | 249 | 269 | 289 | 309 | 329 |
| Great Basin | 38, [q] 39 | 51 | 66, 75 | 85 | 100 | 133, [r] 134 | 176, [r] 177 | 212, [r] 213 | 250, [r] 251 | 270, [r] 271 | 290 | 310 | 330 |
| Pacific coast in California | 38, [s] 39 | 51 | 66, 75 | 85 | 100 | 134 | 177 | 213 | 251 | 271 | 291 | 311 | 331 |
| North Pacific coast | 38 | 51 | 66, 75 | 85 | 100 | 135 | [t] 177, 178 | 214 | 252 | 272 | 292 | 312 | 332 |

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Estimates for 1899 in Twenty-first Annual Report, part 4.
[b] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Estimates for 1900 in Twenty-second Annual Report, part 4.
[c] Wissahickon and Schuylkill rivers to James River.
[d] New England rivers only.
[e] Hudson River to Delaware River, inclusive.
[f] Susquehanna River to Yadkin River, inclusive.
[g] James River only.
[h] Scioto River.
[i] Lake Ontario and tributaries to St. Lawrence River proper.
[j] Tributaries of Mississippi from east.
[k] Hudson Bay only.
[l] Gallatin River.
[m] Loup and Platte rivers near Columbus, Nebr., and all tributaries below junction with Platte.
[n] Platte and Kansas rivers.
[o] Green and Gunnison rivers and Grand River above junction with Gunnison.
[p] Below junction with Gila.
[q] Mohave River only.
[r] Great Basin in California, except Truckee and Carson drainage basins.
[s] Kings and Kern rivers and south Pacific coast drainage basins.
[t] Rogue, Umpqua, and Siletz rivers only.

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below:

1. Copies may be obtained free of charge by applying to the Director of the Geological Survey, Washington, D. C. The edition printed for free distribution is, however, small and is soon exhausted.

2. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will on application furnish lists giving prices.

3. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

4. Complete sets are available for consultation in the local offices of the water-resources branch of the Geological Survey, as follows:

Albany, N. Y., room 18, Federal Building.
Atlanta, Ga., Post Office Building.
St. Paul, Minn., Old Capitol Building.
Madison, Wis., Capitol Building.
Helena, Mont., Montana National Bank Building.
Denver, Colo., 302 Chamber of Commerce Building.
Salt Lake City, Utah, 421 Federal Building.
Boise, Idaho, 615 Idaho Building.
Portland, Oreg., 416 Couch Building.
Tacoma, Wash., Federal Building.
San Francisco, Cal., 328 Customhouse.
Los Angeles, Cal., Federal Building.
Santa Fe, N. Mex., Capitol Building.
Honolulu, Hawaii, Kapiolani Building.

A list of the Geological Survey's publications will be sent on application to the Director of the United States Geological Survey, Washington, D. C.

## DEFINITION OF TERMS.

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those which represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those which represent the actual quantity of water, as run-off in depth in inches, and acre-feet. The units used in this series of reports are second-feet, second-feet per square mile, run-off in depth in inches, and acre-feet. They may be defined as follows:

"Second-foot" is an abbreviation for cubic foot per second and is the unit for the rate of discharge of water flowing in a stream 1 foot wide, 1 foot deep, at a rate of 1 foot a second. It is generally used as a fundamental unit from which others are computed by the use of the factors given in the following table of equivalents.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off (depth in inches)" is the depth to which the drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

An "acre-foot" is equivalent to 43,560 cubic feet, and is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

## CONVENIENT EQUIVALENTS.

The following is a list of convenient equivalents for use in hydraulic computations:

*Table for converting discharge in second-feet per square mile into run-off in depth in inches over the area.*

| Discharge in second-feet per square mile. | Run-off in inches. | | | | |
|---|---|---|---|---|---|
| | 1 day. | 28 days. | 29 days. | 30 days. | 31 days. |
| 1 | 0.03719 | 1.041 | 1.079 | 1.116 | 1.153 |
| 2 | .07438 | 2.083 | 2.157 | 2.231 | 2.306 |
| 3 | .11157 | 3.124 | 3.236 | 3.347 | 3.459 |
| 4 | .14876 | 4.165 | 4.314 | 4.463 | 4.612 |
| 5 | .18595 | 5.207 | 5.393 | 5.578 | 5.764 |
| 6 | .22314 | 6.248 | 6.471 | 6.694 | 6.917 |
| 7 | .26033 | 7.289 | 7.550 | 7.810 | 8.070 |
| 8 | .29752 | 8.331 | 8.628 | 8.926 | 9.223 |
| 9 | .33471 | 9.372 | 9.707 | 10.041 | 10.376 |

NOTE.—For part of a month multiply the values for one day by the number of days.

*Table for converting discharge in second-feet into run-off in acre-feet.*

| Discharge in second-feet. | Run-off in acre-feet. | | | | |
|---|---|---|---|---|---|
| | 1 day. | 28 days. | 29 days. | 30 days. | 31 days. |
| 1 | 1.983 | 55.54 | 57.52 | 59.50 | 61.49 |
| 2 | 3.967 | 111.1 | 115.0 | 119.0 | 123.0 |
| 3 | 5.950 | 166.6 | 172.6 | 178.5 | 184.5 |
| 4 | 7.934 | 222.1 | 230.1 | 238.0 | 246.0 |
| 5 | 9.917 | 277.7 | 287.6 | 297.5 | 307.4 |
| 6 | 11.90 | 333.2 | 345.1 | 357.0 | 368.9 |
| 7 | 13.88 | 388.8 | 402.6 | 416.5 | 430.4 |
| 8 | 15.87 | 444.3 | 460.2 | 476.0 | 491.9 |
| 9 | 17.85 | 499.8 | 517.7 | 535.5 | 553.4 |

NOTE.—For part of a month multiply values for one day by the number of days.

1 second-foot equals 40 California miner's inches (law of March 23, 1901).

1 second-foot equals 38.4 Colorado miner's inches.

1 second-foot equals 40 Arizona miner's inches.

1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,317 gallons for one day.

1 second-foot for one year covers 1 square mile 1.131 feet or 13.572 inches deep.
1 second-foot for one year equals 31,536,000 cubic feet.
1 second-foot equals about 1 acre-inch per hour.
1 second-foot for one day equals 86,400 cubic feet.
1,000,000,000 (1 United States billion) cubic feet equals 11,570 second-feet for one day.
1,000,000,000 cubic feet equals 414 second-feet for one 28-day month.
1,000,000,000 cubic feet equals 399 second-feet for one 29-day month.
1,000,000,000 cubic feet equals 386 second-feet for one 30-day month.
1,000,000,000 cubic feet equals 373 second-feet for one 31-day month.
100 California miner's inches equals 18.7 United States gallons per second.
100 California miner's inches for one day equals 4.96 acre-feet.
100 Colorado miner's inches equals 2.60 second-feet.
100 Colorado miner's inches equals 19.5 United States gallons per second.
100 Colorado miner's inches for one day equals 5.17 acre-feet.
100 United States gallons per minute equals 0.223 second-foot.
100 United States gallons per minute for one day equals 0.442 acre-foot.
1,000,000 United States gallons per day equals 1.55 second-feet.
1,000,000 United States gallons equals 3.07 acre-feet.
1,000,000 cubic feet equals 22.95 acre-feet.
1 acre-foot equals 325,850 gallons.
1 inch deep on 1 square mile equals 2,323,200 cubic feet.
1 inch deep on 1 square mile equals 0.0737 second-foot per year.
1 foot equals 0.3048 meter.
1 mile equals 1.60935 kilometers.
1 mile equals 5,280 feet.
1 acre equals 0.4047 hectare.
1 acre equals 43,560 square feet.
1 acre equals 209 feet square, nearly.
1 square mile equals 2.59 square kilometers.
1 cubic foot equals 0.0283 cubic meter.
1 cubic foot of water weighs 62.5 pounds.
1 cubic meter per minute equals 0.5886 second-foot.
1 horsepower equals 550 foot-pounds per second.
1 horsepower equals 76.0 kilogram-meters per second.
1 horsepower equals 746 watts.
1 horsepower equals 1 second-foot falling 8.80 feet.
1½ horsepower equal about 1 kilowatt.

To calculate water power quickly: $\frac{\text{Sec.-ft.} \times \text{fall in feet}}{11}$ = net horsepower on water wheel realizing 80 per cent of theoretical power.

## EXPLANATION OF DATA.

The data presented in this report cover the year beginning October, 1911, and ending September 30, 1912, and not, as in previous reports, the calendar year. On the first of January, in most parts of the country, a large amount of precipitation for the preceding three months is stored, either as ground water in the form of snow or in lakes. This stored water passes off in the streams during the spring break-up. At the end of September the only stored water available for run-off in the streams is possibly a small amount held in ground storage. Therefore, the run-off for a year beginning with October 1

is practically all derived from precipitation occurring within that year.

For each regular current-meter gaging station the following data, so far as available, are given: Description of the station, list of discharge measurements, table of daily gage heights, table of daily discharge, and table of monthly and yearly discharge and run-off. For stations located at weirs or dams the gage-height table is omitted.

In addition to statements regarding the location and installation of current-meter stations, the descriptions give information in regard to any conditions which may affect the constancy of the relation of gage height to discharge, covering such points as ice, logging, shifting channels, and backwater; also information regarding diversions which decrease the total flow at the measuring section. Statements are also made regarding the accuracy and reliability of the data.

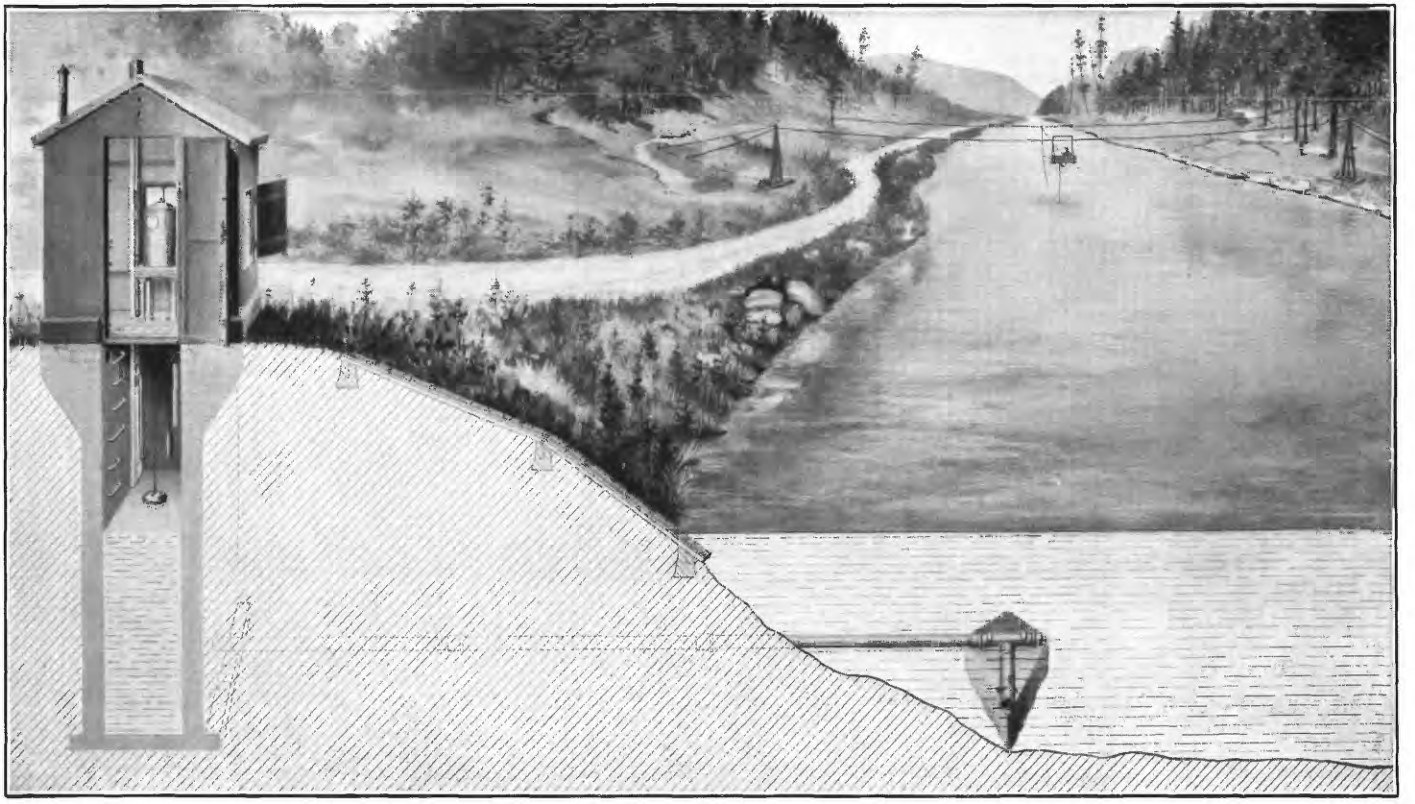
The table of daily gage heights records the daily fluctuations of the surface of the river as found from the mean of the gage readings taken each day, usually in the morning and in the evening. The gage height given in the table represents the elevation of the surface of the water above the zero of the gage. All gage heights affected by the presence of ice in the streams or by backwater from obstructions are published as recorded, with suitable footnotes. The rating table is not applicable for such periods unless the proper corrections to the gage heights are known and applied. Attention is called to the fact that the zero of the gage is placed at an arbitrary datum and has no relation to zero flow or the bottom of the river. In general the zero is located somewhat below the lowest known flow, so that negative readings shall not occur.

The discharge measurements and gage heights are the base data from which rating tables, daily discharge tables, and monthly discharge tables are computed.

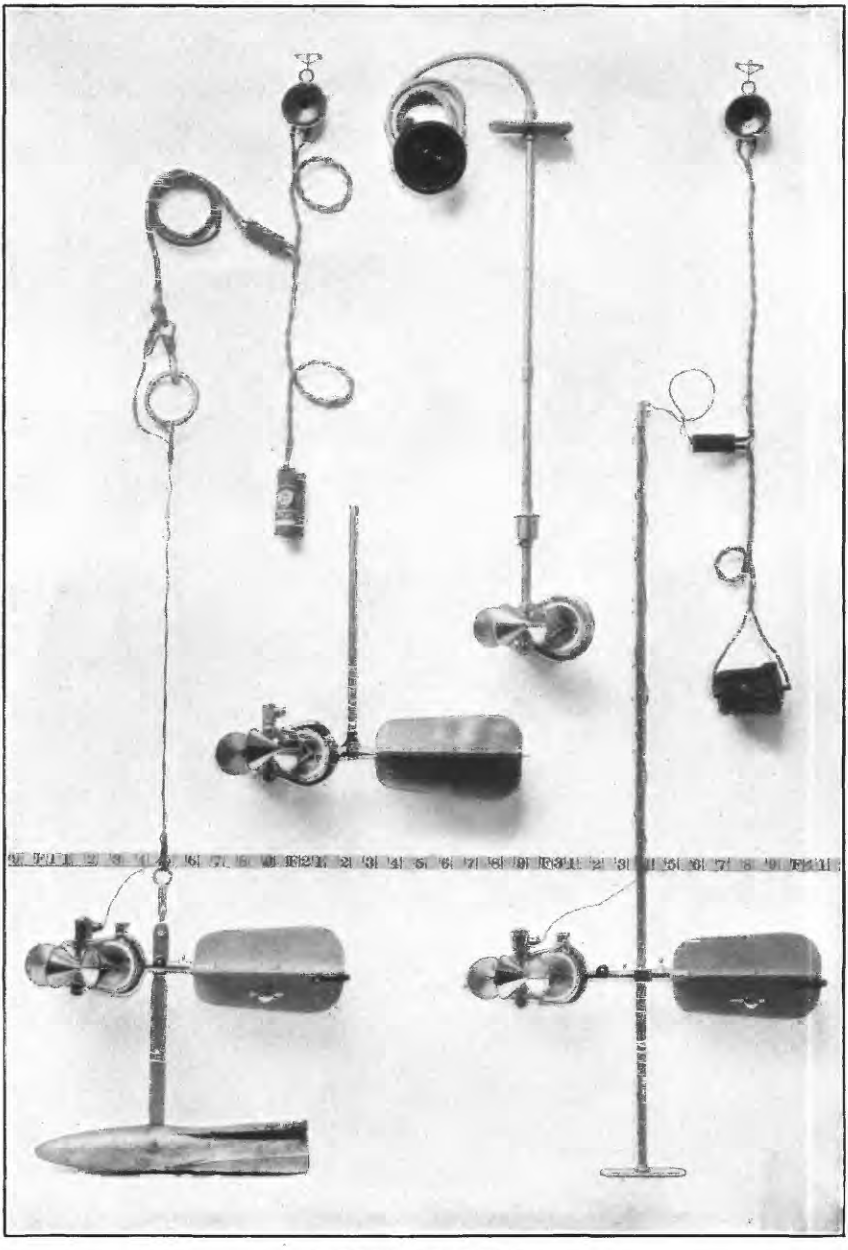
The rating table gives, either directly or by interpolation, the discharge in second-feet corresponding to every stage of the river recorded during the period for which it is applicable. It is not published in this report, but can be determined from the tables of daily gage heights and daily discharge by plotting gage heights in feet as ordinates and discharge in second-feet as abscissas.

The table of daily discharge gives the discharge in second-feet corresponding to the observed gage heights as determined from the rating tables.

In the table of monthly discharge the column headed "Maximum" gives the mean flow, as determined from the rating table, for the day when the mean gage height was highest. As the gage height is the mean for the day, it does not indicate correctly the stage when the water surface was at crest height and the corresponding discharge was consequently larger than given in the maximum column. Like-



TYPICAL GAGING STATIONS.



PRICE CURRENT METERS.

wise in the column headed "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow in cubic feet for each second during the month. On this the computations for the remaining columns, which are defined on pages 11 and 12, are based.

The base data presented in this report, unless otherwise stated in description of station, have been collected by the methods commonly used at current-meter gaging stations and described in standard text books. Plate I shows typical gaging stations. Plate II shows current meters used in the work.

## ACCURACY OF FIELD DATA AND COMPUTED RESULTS.

The accuracy of stream-flow data depends primarily on the natural conditions at the gaging station and on the methods and care with which the data are collected. Errors of the first group depend on the degree of permanency of channel and of permanency of the relation between discharge and stage.

Errors of the second class are due, first, to errors in observation of stage; second, to errors in measurements of flow; and, third, to errors due to misinterpretation of stage-and-flow data.

In order to give engineers and others information regarding the probable accuracy of the computed results, footnotes are added to the daily discharge tables, stating the probable accuracy of the rating tables used, and an accuracy column is inserted in the monthly discharge table. For the rating tables, "well defined" indicates, in general, that the rating is probably accurate within 5 per cent; "fairly well defined," within 10 per cent; "poorly defined" or "approximate," within 15 to 25 per cent. These notes are very general and are based on the plotting of the individual measurements with reference to the mean rating curve.

The accuracy column in the monthly discharge table does not apply to the maximum or minimum nor to any individual day, but to the monthly mean. It is based on the accuracy of the rating, the probable reliability of the observer, and knowledge of local conditions. A indicates that the mean monthly flow is probably accurate within 5 per cent; B, within 10 per cent; C, within 15 per cent; D, within 25 per cent. Special conditions are covered by footnotes.

Even though the monthly means for any station may represent with a high degree of accuracy the quantity of water flowing past the gage, the figures showing discharge per square mile and depth of runoff in inches may be subject to gross errors which result from including in the measured drainage area large noncontributing districts or omitting estimates of water diverted for irrigation or other use, and they should, therefore, be considered as only approximate, particu-

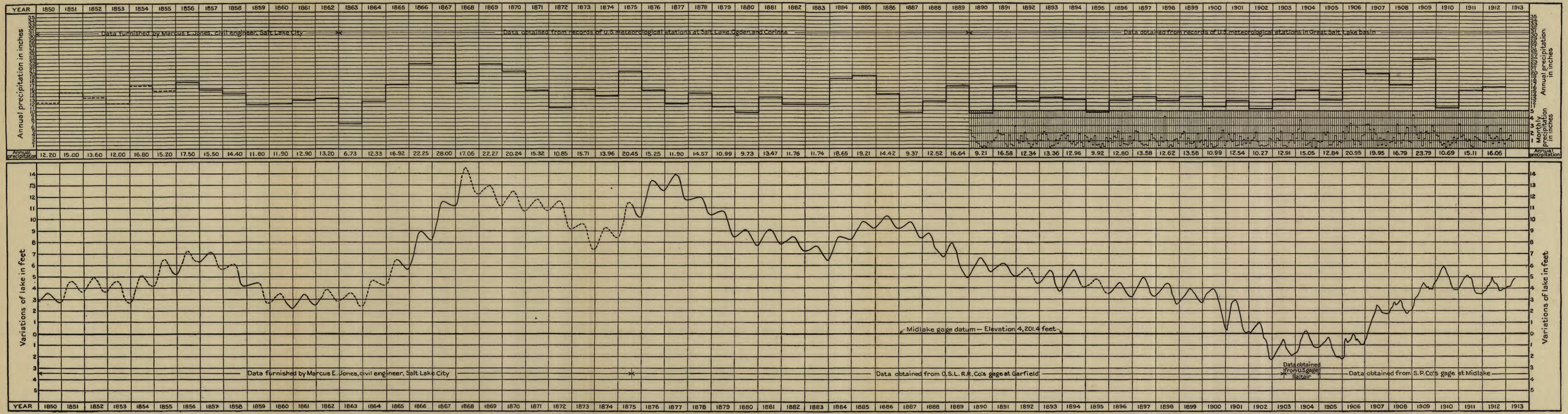



CHART SHOWING VARIATION IN LEVEL OF GREAT SALT LAKE AND IN MONTHLY AND ANNUAL PRECIPITATION IN GREAT SALT LAKE BASIN.

From chart prepared in the office of the chief engineer of the Oregon Short Line Railroad, Salt Lake City, Utah.

larly for periods of irrigation or of low water. For these errors it is as a rule not feasible to make adequate correction.

In general, the base data collected each year by the Survey engineers are published, not only to comply with the law, but also to afford any engineer the means of examining and adjusting to his own needs the results of the computations. The table of monthly discharge is so arranged as to give only a general idea of the flow at the station and should not be used for other than preliminary estimates. The determinations of daily discharge allow more detailed studies of the variation in flow by which the period of deficiency may be determined.

It should be borne in mind that the observations in each succeeding year may be expected to throw new light on data already collected and published, and the engineer who makes use of the figures presented in these papers should verify all ratings and make such adjustments for earlier years as may seem necessary.

## COOPERATION.

*Idaho.*—The work in Idaho has been carried on in cooperation with the State since 1909. The State Land Board provides funds on behalf of the State and the State engineer, A. E. Robinson, acts as the agent for the State. In general, contracts were entered into between the Director of the Geological Survey and the State engineer at the beginning of each fiscal year.

*Utah.*—The stream-gaging work in Utah was carried on by the Geological Survey in cooperation with the State of Utah through Caleb Tanner, State engineer.

Records on Sevier River and canals above Gunnison were obtained in cooperation with the State Land Board. Special acknowledgments are also due to S. Q. Cannon, city engineer of Salt Lake City.

*Oregon.*—The State Legislature of Oregon makes an annual appropriation for investigating water resources in the State, contingent on the allotment of an equal amount by the United State Geological Survey for similar investigations.

The State engineer, John H. Lewis, represents the State in this cooperation and each year enters into a contract with the Director of the United States Geological Survey.

*California and Nevada.*—The work in California was maintained in accordance with the contract with W. F. McClure, State engineer, and a special agreement with the State Conservation Commission. In Nevada assistance was furnished by W. M. Kearney, State engineer, in maintaining the stations in the Humboldt drainage basin.

## DIVISION OF WORK.

The field data in Idaho were collected under the direction of G. C. Baldwin, district engineer, assisted by A. B. Purton, Lynn Crandall, R. C. Pierce, H. L. Stoner, and T. A. Purton. The computations were made and data prepared for publication under the direction of G. C. Stevens, assistant engineer, by A. B. Purton, Lynn Crandall, H. D. Padgett, and C. L. Batchelder.

The field data in Utah were collected under the direction of E. C. LaRue and E. A. Porter, district engineers, by J. C. Dort, G. H. Russell, and Leonard Tanner. The data were reviewed and computations made under the direction of G. C. Stevens, assistant engineer, by Lynn Crandall, B. E. Jones, H. D. Padgett, and A. W. Harrington.

The field data in Oregon were collected under the direction of Fred F. Henshaw, district engineer, by Howard Kimble and W. O. Harmon. The records were compiled and computed under the direction of Fred F. Henshaw by E. S. Fuller, office engineer, and A. H. Tuttle.

The field data in California and Nevada were collected under the direction of H. D. McGlashan, district engineer, by H. J. Tompkins, J. E. Jones, and J. E. Stewart. The records were compiled and recommendations for estimates made by H. D. McGlashan, district engineer, and R. C. Rice, office engineer. The data were reviewed and computations made under the direction of G. C. Stevens, assistant engineer, assisted by Lynn Crandall, B. E. Jones, H. D. Padgett, A. W. Harrington, M. I. Walters, and W. R. King.

The report was edited by Mrs. B. D. Wood.

## LEVEL OF GREAT SALT LAKE.

The relation between the fluctuations in the level of Great Salt Lake and the mean monthly and annual precipitation in its drainage basin is shown graphically in Plate III.

## GAGING-STATION RECORDS.

### GREAT SALT LAKE BASIN.

#### BEAR RIVER BASIN.

##### BEAR RIVER AT DINGLE, IDAHO.

**Location.**—In sec. 7, T. 14 S., R. 45 E., Boise meridian, about half a mile southeast of Dingle railway station and 100 yards south of the Oregon Short Line Railroad track; about 10 miles above the outlet to Bear Lake.

**Records available.**—May 9, 1903, to September 30, 1912.

**Drainage area.**—2,890 square miles.

**Gage.**—Inclined staff on right bank. On March 12, 1912, the lower end of the gage was found to be reading almost 1 foot too low and the upper end about one-fourth foot too low. Records for 1912 have been reduced to original datum. Records prior to 1912 have not been changed, although gage has apparently been in its shifted position for some time.

**Channel.**—Gravel; shifting; both banks fairly high and not subject to overflow.

**Discharge measurements.**—Made from the cable about 30 feet below the gage.

**Winter flow.**—River is usually frozen over from about December to March, ice reaching a thickness of about 15 inches; ice smooth, neither anchor nor needle ice known to form in the stream.

**Diversions.**—Several canals divert water above the station for irrigation. During the spring of 1911 the Telluride Power Co. began to divert water from a point about 2 miles above the station for storage in a branch of Bear Lake, known as Mud or North Lake. This water, when released, returns to the river above the Alexander station. A station was established on this canal in May, 1911. (See p. 20.) On June 21, 1911, the Pegleg Canal was carrying about 10 second-feet of water, the Dingle Canal about 25, and the Preston-Montpelier Canal about 10 second-feet—all diverting around the Dingle station.

**Accuracy.**—Open-water records good; fairly accurate estimates of the flow under ice have been made. To make the records for 1911 and 1912 comparable with those obtained in previous years the water diverted by the Telluride Power Co. through Bear Lake inlet canal must be added to the determined discharge of the river.

**Cooperation.**—The Telluride Power Co. has furnished a number of the discharge measurements.

*Discharge measurements of Bear River at Dingle, Idaho, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Oct. 3 | H. L. Stoner | 3.49 | 207 | June 25[b] | Schaub and Gilgen | 6.98 | 1,890 |
| | | | | July 25[b] | Gilgen and Bird | 5.47 | 715 |
| 1912. | | | | Aug. 8[b] | Karl Gilgen | 5.55 | 757 |
| Mar. 13[a] | do | 5.12 | 255 | 17[b] | Gilgen and Bird | 4.93 | 494 |
| May 21[b] | R. E. Hughes | 6.10 | 1,250 | Sept. 6[b] | do | 4.67 | 363 |
| 31 | T. A. Purton | 7.32 | 2,080 | 12 | G. C. Baldwin | 4.77 | 426 |
| 31 | do | 7.32 | 2,060 | 21[b] | Karl Gilgen | 4.80 | 419 |
| June 15 | G. C. Baldwin | 8.28 | 3,050 | 30[b] | do | 4.70 | 380 |

[a] Ice measurement. [b] Made by engineers of Telluride Power Co.

*Daily gage height, in feet, of Bear River at Dingle, Idaho, for year ending Sept. 30, 1912.*

[M. K. Hopkins, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.50 | | | | | | | | | | 5.1 | 4.8 |
| 2 | | 3.50 | 3.50 | 4.9 | | 4.75 | 5.45 | 5.4 | 7.6 | 6.7 | | |
| 3 | 3.49 | | 3.48 | | 4.9 | | | | | | 5.8 | |
| 4 | 3.45 | 3.45 | | 4.9 | | 4.65 | 5.6 | 5.4 | 7.7 | 6.4 | | 4.65 |
| 5 | | | 3.48 | | 5.0 | | 6.0 | 5.4 | 7.8 | 6.4 | 6.0 | |
| 6 | | 3.50 | | 4.9 | | | | | 7.9 | | | 4.65 |
| 7 | 3.45 | | 3.52 | 4.9 | 5.0 | 4.9 | 5.7 | 5.4 | 7.8 | 6.2 | | |
| 8 | 3.45 | 3.50 | | | | | | | | 6.2 | 5.6 | 4.65 |
| 9 | | | 3.60 | 4.9 | 5.1 | 5.0 | 5.6 | | 7.9 | | | |
| 10 | 3.50 | 3.50 | | | | | | 5.6 | 8.0 | 5.9 | 5.4 | |
| 11 | | | 3.62 | | 5.1 | 5.1 | 5.3 | | 8.1 | 5.8 | 5.3 | 4.75 |
| 12 | 3.50 | 3.50 | | 5.0 | | | | 5.8 | | 5.6 | | 4.75 |
| 13 | | 3.60 | 3.70 | | 5.1 | 5.1 | 5.3 | | 8.3 | | 5.0 | |
| 14 | | | | 5.0 | | | | 5.8 | | 5.6 | | 4.85 |
| 15 | 3.50 | | 3.70 | | 5.05 | 5.1 | 4.9 | | 8.3 | | 5.0 | 4.9 |

*Daily gage height, in feet, of Bear River at Dingle, Idaho, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | ..... | 3.55 | ..... | 5.0 | ..... | ..... | ..... | 5.9 | 8.3 | 5.6 | ..... | ..... |
| 17 | ..... | ..... | 3.75 | ..... | ..... | 5.2 | 5.4 | ..... | ..... | ..... | 4.9 | ..... |
| 18 | ..... | 3.55 | ..... | 5.05 | 5.05 | ..... | ..... | 6.0 | 8.4 | ..... | ..... | 4.9 |
| 19 | 3.45 | 3.60 | ..... | ..... | ..... | 5.0 | 5.4 | 6.2 | ..... | 5.35 | ..... | ..... |
| 20 | ..... | 4.10 | 3.80 | 5.1 | 5.05 | ..... | ..... | ..... | 8.2 | ..... | 4.9 | ..... |
| 21 | 3.50 | ..... | ..... | ..... | ..... | 4.85 | 5.3 | 6.2 | ..... | 5.6 | 5.0 | 4.8 |
| 22 | 3.45 | 3.90 | 3.72 | ..... | ..... | ..... | ..... | ..... | 7.4 | ..... | ..... | 4.75 |
| 23 | ..... | ..... | ..... | 5.1 | 5.0 | 4.65 | 5.3 | 6.2 | 7.1 | 5.6 | 4.9 | ..... |
| 24 | ..... | 3.50 | 3.85 | ..... | ..... | ..... | 5.3 | ..... | 7.1 | ..... | ..... | ..... |
| 25 | 3.50 | 5.00 | ..... | 5.2 | 4.9 | 4.85 | ..... | 6.7 | 7.0 | 5.45 | 4.85 | 4.75 |
| 26 | ..... | ..... | ..... | ..... | ..... | ..... | 5.2 | 6.9 | 7.0 | ..... | ..... | ..... |
| 27 | 3.50 | 3.40 | 3.95 | 5.2 | 4.75 | 4.75 | ..... | ..... | 7.1 | 5.3 | 4.85 | 4.75 |
| 28 | ..... | ..... | ..... | ..... | ..... | ..... | 5.2 | 7.1 | ..... | 5.1 | ..... | ..... |
| 29 | ..... | 3.40 | 3.90 | 5.15 | 4.85 | 4.85 | ..... | ..... | 7.1 | ..... | ..... | 4.7 |
| 30 | 3.50 | ..... | ..... | ..... | ..... | ..... | 5.4 | 7.2 | 7.1 | 5.0 | 4.85 | ..... |
| 31 | ..... | ..... | 3.90 | 5.2 | ..... | 5.3 | ..... | 7.3 | ..... | ..... | ..... | ..... |

NOTE.—Relation of gage height to discharge affected by ice Dec. 1 to about Mar. 31. The difference between gage heights in December and January is due to corrections for error in gage discovered in 1912. See station description.

*Daily discharge, in second-feet, of Bear River at Dingle, Idaho, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | 207 | 207 | 600 | 668 | 2,180 | 1,690 | 518 | 436 |
| 2 | 206 | 207 | 695 | 668 | 2,330 | 1,530 | 707 | 416 |
| 3 | 204 | 200 | 736 | 668 | 2,380 | 1,410 | 896 | 395 |
| 4 | 194 | 194 | 778 | 668 | 2,430 | 1,300 | 958 | 374 |
| 5 | 194 | 200 | 1,020 | 668 | 2,530 | 1,300 | 1,020 | 374 |
| 6 | 194 | 207 | 928 | 668 | 2,640 | 1,230 | 939 | 374 |
| 7 | 194 | 207 | 836 | 668 | 2,540 | 1,160 | 857 | 374 |
| 8 | 194 | 207 | 807 | 705 | 2,590 | 1,160 | 778 | 374 |
| 9 | 200 | 207 | 778 | 741 | 2,640 | 1,060 | 732 | 388 |
| 10 | 207 | 207 | 697 | 778 | 2,750 | 958 | 695 | 402 |
| 11 | 207 | 207 | 616 | 837 | 2,850 | 896 | 652 | 415 |
| 12 | 207 | 207 | 616 | 896 | 2,960 | 778 | 589 | 415 |
| 13 | 207 | 236 | 616 | 896 | 3,070 | 778 | 526 | 437 |
| 14 | 207 | 231 | 522 | 896 | 3,070 | 778 | 526 | 458 |
| 15 | 207 | 227 | 428 | 927 | 3,070 | 778 | 526 | 480 |
| 16 | 204 | 222 | 548 | 958 | 3,070 | 778 | 503 | 480 |
| 17 | 201 | 222 | 668 | 989 | 3,120 | 732 | 480 | 480 |
| 18 | 198 | 222 | 668 | 1,020 | 3,180 | 687 | 480 | 480 |
| 19 | 194 | 236 | 668 | 1,160 | 3,070 | 642 | 480 | 466 |
| 20 | 200 | 420 | 642 | 1,160 | 2,960 | 710 | 480 | 451 |
| 21 | 207 | 380 | 616 | 1,160 | 2,550 | 778 | 526 | 436 |
| 22 | 194 | 340 | 616 | 1,160 | 2,140 | 778 | 503 | 415 |
| 23 | 198 | 296 | 616 | 1,160 | 1,860 | 778 | 480 | 415 |
| 24 | 202 | 252 | 616 | 1,340 | 1,860 | 736 | 469 | 415 |
| 25 | 207 | 207 | 591 | 1,530 | 1,780 | 695 | 458 | 415 |
| 26 | 207 | 194 | 566 | 1,690 | 1,780 | 656 | 458 | 415 |
| 27 | 207 | 180 | 566 | 1,780 | 1,860 | 616 | 458 | 415 |
| 28 | 207 | 180 | 566 | 1,860 | 1,860 | 518 | 458 | 405 |
| 29 | 207 | 180 | 617 | 1,900 | 1,860 | 495 | 458 | 394 |
| 30 | 207 | 189 | 668 | 1,950 | 1,860 | 472 | 458 | 394 |
| 31 | 207 | ..... | ..... | 2,040 | ..... | 495 | 447 | ..... |

NOTE.—Discharge determined from three fairly well defined curves applicable Oct. 1 to Nov. 30, Apr. 1 to Aug. 8, and Aug. 13 to Sept. 30. Indirect method for shifting channels used Aug. 9–12. Discharge interpolated for days on which gage was not read.

*Monthly discharge of Bear River at Dingle, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 207 | 194 | 202 | 12,400 | A. |
| November | ..... | 80 | 229 | 13,600 | A. |
| December | ..... | ..... | 200 | 12,300 | C. |
| January | ..... | ..... | 250 | 15,400 | C. |
| February | ..... | ..... | 225 | 12,900 | C. |
| March | ..... | ..... | 225 | 13,800 | C. |
| April | 1,020 | 428 | 664 | 39,500 | B. |
| May | 2,040 | 668 | 1,100 | 67,600 | A. |
| June | 3,180 | 1,780 | 2,490 | 148,000 | A. |
| July | 1,690 | 472 | 883 | 54,300 | B. |
| August | 1,020 | 447 | 597 | 36,700 | B. |
| September | 480 | 374 | 420 | 25,000 | A. |
| The year | 3,180 | ..... | 624 | 452,000 | |

NOTE.—Monthly means December to March estimated, because of ice, from discharge measurements, climatologic records, and observer's notes regarding ice.

### BEAR (MUD) LAKE INLET CANAL AT DINGLE, IDAHO.

**Location.**—In sec. 13, T. 14 S., R. 44 E., Boise meridian, about three-fourths of a mile south of Dingle, Idaho, and about 2½ miles below the intake of the canal which diverts from Bear River about 2 miles above the gaging station at Dingle.

**Records available.**—May 24, 1911, to September 30, 1912.

**Gage.**—Schaub automatic, installed April 7, 1912, about half a mile above the point at which the canal crosses the road leading south from Dingle and about one-fourth mile above the staff gage used in 1911. Zero of the staff gage corresponds to 52.18 feet automatic gage datum, to which all gage heights read in 1912 have been reduced.

**Channel.**—Gravel; shifts almost continuously. Both banks are high.

**Discharge measurements.**—Made by wading at different sections or from flumes or bridges across the canal.

**Accuracy.**—Because of instability of channel, records are only fairly reliable.

**Cooperation.**—Gage heights and most of the discharge measurements have been furnished by the Telluride Power Co.

The records at this station will indicate the amount of water diverted by the Telluride Power Co. from Bear River for storage in the branch of Bear Lake known as Mud Lake. The amount of water thus diverted should be added to the discharge of the Bear at Dingle to make the records for that station comparable with those obtained previous to 1911.

*Discharge measurements of Bear Lake inlet canal at Dingle, Idaho, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 28*a* | Telluride Power Co. | 55.68 | 47.0 | Apr. 12 | Telluride Power Co. | 56.31 | 292 |
| Mar. 5 | do | 54.78 | 13.3 | 13 | do | 56.34 | 353 |
| 6*a* | do | 56.03 | 83.2 | 15 | do | 56.13 | 374 |
| 12 | H. L. Stoner | 55.74 | 32.7 | May 22 | do | 56.53 | 583 |
| 13 | do | 55.62 | 29.6 | 24 | do | 55.85 | 409 |
| Apr. 4 | Telluride Power Co. | 55.91 | 94.1 | 27 | G. C. Baldwin | 53.91 | 29.3 |
| 11 | do | 56.06 | 173 | | | | |

*a* Made by floats.

*Daily gage height, in feet, of Bear Lake inlet canal at Dingle, Idaho, for year ending Sept. 30, 1912.*

[Eugene Schaub, observer.]

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 55.8 | 55.5 | 54.15 | 54.05 | 54.25 | 54.1 |
| 2 | ..... | 55.9 | 55.7 | 54.15 | 54.10 | 54.2 | 54.05 |
| 3 | ..... | ..... | 55.9 | 54.15 | 54.15 | 54.25 | 54.1 |
| 4 | ..... | 55.9 | 55.4 | 54.2 | 54.2 | 54.25 | 54.1 |
| 5 | ..... | 56.2 | 54.8 | 55.0 | 54.2 | 54.25 | 54.1 |
| 6 | ..... | 56.0 | 55.1 | 55.0 | 54.25 | 54.25 | 54.1 |
| 7 | ..... | 56.0 | 54.8 | 54.15 | 54.25 | 54.25 | 54.05 |
| 8 | ..... | 56.0 | 54.8 | 54.15 | 54.3 | 54.25 | 54.0 |
| 9 | ..... | 55.9 | 54.75 | 54.15 | 54.3 | 54.2 | 53.95 |
| 10 | ..... | ..... | 54.55 | 54.15 | 54.35 | 54.15 | 53.7 |
| 11 | ..... | 55.8 | 55.5 | 54.15 | 54.35 | 54.2 | 53.7 |
| 12 | ..... | 55.8 | 56.25 | 54.15 | 54.3 | 54.15 | 53.7 |
| 13 | ..... | 55.6 | 56.35 | 54.15 | 54.3 | 54.15 | 53.85 |
| 14 | ..... | 55.5 | 56.25 | 54.15 | 54.25 | 54.15 | 53.9 |
| 15 | ..... | 55.4 | 56.15 | 54.15 | 54.2 | 54.2 | 53.95 |
| 16 | 55.4 | 55.5 | 56.1 | 54.15 | 54.2 | 54.25 | 53.95 |
| 17 | 55.4 | 55.5 | 55.1 | 54.15 | 54.2 | 54.3 | 54.0 |
| 18 | 55.4 | 55.4 | 54.25 | 54.15 | 54.2 | 54.3 | 53.85 |
| 19 | 55.4 | 55.4 | 54.25 | 54.15 | 54.15 | 54.15 | 53.85 |
| 20 | 55.4 | 55.4 | 54.2 | 54.15 | 54.15 | 54.05 | 53.9 |
| 21 | 55.4 | 55.3 | 54.2 | 55.30 | 54.15 | 54.05 | 53.7 |
| 22 | 55.4 | 55.4 | 54.2 | 56.30 | 54.1 | 54.05 | 53.7 |
| 23 | ..... | 55.2 | 54.15 | 56.3 | 54.1 | 54.05 | 53.7 |
| 24 | 55.2 | 55.4 | 54.15 | 55.85 | 54.1 | 54.05 | 53.7 |
| 25 | 55.6 | 55.4 | 54.15 | 55.75 | 54.1 | 54.05 | 53.7 |
| 26 | 55.6 | 55.3 | 54.15 | 55.35 | 54.1 | 54.1 | 53.7 |
| 27 | 55.7 | 55.3 | 54.15 | 54.5 | 54.15 | 54.1 | 53.7 |
| 28 | 55.7 | 55.3 | 54.15 | 54.05 | 54.2 | 54.05 | 53.7 |
| 29 | 55.6 | 55.3 | 54.1 | 54.1 | 54.25 | 54.05 | 53.7 |
| 30 | ..... | 55.4 | 54.15 | 54.05 | 54.25 | 54.05 | ..... |
| 31 | ..... | ..... | ..... | 54.0 | ..... | 54.1 | ..... |

NOTE.—Water turned into canal Feb. 16. Canal dry Feb. 23, Aug. 10–12, and after Aug. 21.

*Daily discharge, in second-feet, of Bear Lake inlet canal at Dingle, Idaho, for year ending Sept. 30, 1912.*

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 55 | 19 | 12 | 43 | 70 | 50 |
| 2 | ..... | 66 | 30 | 12 | 50 | 64 | 43 |
| 3 | ..... | 66 | 41 | 12 | 57 | 70 | 50 |
| 4 | ..... | 66 | 38 | 17 | 64 | 70 | 50 |
| 5 | ..... | 105 | 15 | 140 | 64 | 70 | 50 |
| 6 | ..... | 78 | 19 | 150 | 70 | 70 | 50 |
| 7 | ..... | 78 | 7 | 33 | 70 | 70 | 43 |
| 8 | ..... | 78 | 7 | 33 | 78 | 70 | 36 |
| 9 | ..... | 58 | 6 | 33 | 78 | 64 | 30 |
| 10 | ..... | 48 | 2 | 33 | 87 | 57 | 0 |
| 11 | ..... | 39 | 81 | 33 | 87 | 64 | 0 |
| 12 | ..... | 39 | 275 | 33 | 78 | 57 | 0 |
| 13 | ..... | 25 | 350 | 33 | 78 | 57 | 17 |
| 14 | ..... | 19 | 362 | 33 | 70 | 57 | 24 |
| 15 | ..... | 14 | 374 | 33 | 64 | 64 | 30 |
| 16 | 12 | 19 | 360 | 33 | 64 | 70 | 30 |
| 17 | 25 | 19 | 145 | 33 | 64 | 78 | 36 |
| 18 | 25 | 14 | 22 | 33 | 64 | 78 | 17 |
| 19 | 25 | 14 | 22 | 33 | 57 | 57 | 17 |
| 20 | 25 | 14 | 17 | 33 | 57 | 43 | 24 |
| 21 | 25 | 10 | 17 | 250 | 57 | 43 | 0 |
| 22 | 25 | 14 | 17 | 518 | 50 | 43 | 0 |
| 23 | 0 | 6 | 12 | 518 | 50 | 43 | 0 |
| 24 | 14 | 14 | 12 | 405 | 50 | 43 | 0 |
| 25 | 38 | 14 | 12 | 380 | 50 | 43 | 0 |
| 26 | 38 | 10 | 12 | 286 | 50 | 50 | 0 |
| 27 | 47 | 10 | 12 | 112 | 57 | 50 | 0 |
| 28 | 47 | 10 | 12 | 43 | 64 | 43 | 0 |
| 29 | 38 | 10 | 8 | 50 | 70 | 43 | 0 |
| 30 | ..... | 14 | 12 | 43 | 70 | 43 | 0 |
| 31 | ..... | 16 | ..... | 36 | ..... | 50 | 0 |

NOTE.—Discharge determined from a number of poorly defined rating curves, which were used for short periods, and by the indirect method for shifting channels.

*Monthly discharge of Bear Lake inlet canal at Dingle, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| February 16–29 | 47 | 0 | 27.4 | 762 | C. |
| March | 105 | 6 | 33.6 | 2,070 | C. |
| April | 374 | 2 | 77.3 | 4,600 | C. |
| May | 518 | 12 | 111 | 6,820 | C. |
| June | 87 | 43 | 63.7 | 3,790 | C. |
| July | 78 | 43 | 57.9 | 3,560 | C. |
| August | 50 | 0 | 19.3 | 1,190 | C. |
| The period | | | | 22,800 | |

### BEAR RIVER AT ALEXANDER, IDAHO.

**Location.**—In secs. 17 and 18, T. 9 S., R. 41 E., Boise meridian, about half a mile upstream from the post office at Alexander, Idaho, 6 miles above the plant of the Telluride Power Co. near Grace, 4 miles above the intake of the Last Chance Canal, and 30 miles below the point at which the outlet of Bear Lake flows into Bear River.

**Records available.**—March 27, 1911, to September 30, 1912.

**Drainage area.**—Not measured.

**Gages.**—The gage used during 1912 is about 1,000 feet downstream from the original gage which was used during 1911—an inclined staff on the right bank near the house of C. B. Wilson.

**Channel.**—Bed composed of fine gravel and sand; moss grows at the measuring section during the summer and fall and causes backwater at the old gage.

**Discharge measurements.**—Made from a cable and car near old gage.

**Winter flow.**—Ice present during winter months.

**Accuracy.**—Open-channel records good. Estimates during winter months believed to be fairly reliable.

**Cooperation.**—Maintained in cooperation with Telluride Power Co.

*Discharge measurements of Bear River at Alexander, Idaho, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Oct. 4 | H. L. Stoner | [a] 3.90 | 687 | May 21 | Lynn Crandall | 7.74 | 2,380 |
| 30 | Lynn Crandall | [a] 3.55 | 466 | June 16 | G. C. Baldwin | 9.29 | 3,790 |
| 1912. | | | | July 29 | Lynn Crandall | 6.67 | 1,370 |
| Jan. 25 | H. L. Stoner | 5.46 | 505 | Aug. 19 | do | 6.36 | 1,210 |
| Mar. 14 | do | 5.39 | 486 | Sept. 11 | G. C. Baldwin | 5.86 | 842 |

[a] Gage heights refer to the old gage. Gage heights for all 1912 measurements refer to the lower or new gage.

*Daily gage height, in feet, of Bear River at Alexander, Idaho, for year ending Sept. 30, 1912.*

[Chas. B. Wilson, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.85 | 3.60 | 3.32 | ..... | 5.55 | 5.25 | 5.65 | 6.9 | 8.2 | 8.0 | 6.7 | 6.0 |
| 2 | 3.85 | 3.60 | 3.30 | ..... | 5.55 | 5.3 | 5.8 | 6.9 | 8.2 | 8.0 | 6.9 | 6.0 |
| 3 | 3.85 | 3.60 | 3.35 | ..... | 5.55 | 5.3 | 5.95 | 6.9 | 8.3 | 8.0 | 7.0 | 5.95 |
| 4 | 3.85 | 3.60 | 3.52 | ..... | 5.65 | 5.25 | 6.2 | 6.8 | 8.5 | 8.0 | 7.2 | 5.95 |
| 5 | 3.85 | 3.60 | 3.55 | ..... | 5.65 | 5.25 | 6.6 | 6.7 | 8.6 | 8.0 | 7.2 | 5.95 |
| 6 | 3.85 | 3.60 | 3.50 | ..... | 5.55 | 5.2 | 6.7 | 6.7 | 8 6 | 7.9 | 7.0 | 5.9 |
| 7 | 3.85 | 3.60 | 3.50 | ..... | 5.65 | 5.25 | 6.9 | 6.6 | 8.7 | 7.9 | 6.9 | 5.9 |
| 8 | 3.82 | 3.60 | 4.38 | ..... | 5.55 | 5.35 | 7.1 | 6.7 | 8.8 | 7.8 | 6.8 | 5.9 |
| 9 | 3.80 | 3.60 | 4.40 | ..... | 5.45 | 5.3 | 7.3 | 6.8 | 8.8 | 7.7 | 6.8 | 5.9 |
| 10 | 3.80 | 3.60 | 4.40 | ..... | 5.45 | 5.15 | 7.3 | 6.9 | 8.8 | 7.6 | 6.7 | 5.9 |
| 11 | 3.85 | 3.50 | 4.45 | ..... | 5.45 | 5.25 | 7.4 | 7.0 | 8.8 | 7.6 | 6.6 | 5.85 |
| 12 | 3.85 | 3.50 | 4.38 | ..... | 5.45 | 5.25 | 7.3 | 7.0 | 8.9 | 7.4 | 6.4 | 5.85 |
| 13 | 3.85 | 3.50 | 4.39 | ..... | 5.4 | 5.25 | 7.2 | 7.1 | 9.0 | 7.4 | 6.4 | 5.85 |
| 14 | 3.85 | 3.50 | 4.30 | ..... | 5.35 | 5.25 | 7.0 | 7.2 | 9.1 | 7.3 | 6.4 | 5.9 |
| 15 | 3.90 | 3.85 | 4.60 | ..... | 5.35 | 5.3 | 6.8 | 7.2 | 9.2 | 7.2 | 6.4 | 5.9 |
| 16 | 3.90 | 4.20 | 4.35 | ..... | 5.35 | 5.25 | 6.8 | 7.2 | 9.3 | 7.2 | 6.4 | 5.9 |
| 17 | 3.90 | 4.20 | 4.40 | ..... | 5.35 | 5.25 | 6.8 | 7.2 | 9.4 | 7.1 | 6.4 | 5.9 |
| 18 | 3.90 | 3.90 | 4.30 | ..... | 5.35 | 5.25 | 6.8 | 7.3 | 9.4 | 7.0 | 6.4 | 5.9 |
| 19 | 3.90 | 3.30 | 4.38 | ..... | 5.3 | 5.35 | 6.8 | 7.4 | 9.4 | 7.0 | 6.4 | 5.95 |
| 20 | 3.90 | 3.30 | 4.90 | ..... | 5.35 | 5.45 | 6.9 | 7.5 | 9.4 | 7.0 | 6.4 | 5.9 |
| 21 | 3.90 | 3.30 | 4.95 | ..... | 5.3 | 5.45 | 6.9 | 7.6 | 9.3 | 7.0 | 6.4 | 5.9 |
| 22 | 3.90 | 3.10 | 4.92 | ..... | 5.3 | 5.45 | 6.9 | 7.7 | 9.3 | 7.0 | 6.3 | 5.9 |
| 23 | 3.85 | 3.22 | 4.90 | 5.65 | 5.3 | 5.45 | 6.7 | 7.6 | 9.2 | 7.0 | 6.2 | 5.9 |
| 24 | 3.85 | 3.30 | 4.90 | 5.65 | 5.3 | 5.45 | 6.6 | 7.7 | 9.0 | 7.0 | 6.2 | 5.9 |
| 25 | 3.85 | 3.30 | 4.80 | 5.55 | 5.25 | 5.45 | 6.7 | 7.7 | 8.8 | 7.0 | 6.0 | 5.9 |
| 26 | 3.80 | 3.20 | 4.80 | 5.55 | 5.25 | 5.45 | 6.7 | 7.6 | 8.5 | 6.9 | 6.0 | 5.85 |
| 27 | 3.70 | 3.20 | 4.85 | 5.6 | 5.3 | 5.5 | 6.7 | 7.6 | 8.4 | 6.9 | 6.0 | 5.85 |
| 28 | 3.65 | 3.20 | 5.90 | 5.45 | 5.25 | 5.55 | 6.7 | 7.7 | 8.2 | 6.8 | 6.0 | 5.85 |
| 29 | 3.60 | 3.30 | 5.90 | 5.45 | 5.25 | 5.55 | 6.7 | 8.1 | 8.0 | 6.7 | 6.0 | 5.8 |
| 30 | 3.60 | 3.32 | 5.92 | 5.45 | ..... | 5.55 | 6.8 | 8.2 | 8.0 | 6.7 | 6.0 | 5.8 |
| 31 | 3.60 | ..... | 5.92 | 5.55 | ..... | 5.65 | ..... | 8.3 | ..... | 6.7 | 6.0 | ..... |

NOTE.—Relation of gage height to discharge affected by moss growth Oct. 1 to Nov. 10, and by ice Nov. 15 to Jan. 24. Gage heights Oct. 1 to Dec. 31 refer to old gage. Gage heights Jan. 23 to Sept. 30 refer to new gage.

*Daily discharge, in second-feet, of Bear River at Alexander, Idaho, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 660 | 506 | ..... | 568 | 422 | 622 | 1,580 | 2,740 | 2,550 | 1,430 | 927 |
| 2 | 660 | 506 | ..... | 568 | 444 | 712 | 1,580 | 2,740 | 2,550 | 1,580 | 927 |
| 3 | 660 | 506 | ..... | 568 | 444 | 807 | 1,580 | 2,830 | 2,550 | 1,670 | 895 |
| 4 | 660 | 506 | ..... | 622 | 422 | 980 | 1,500 | 3,020 | 2,550 | 1,840 | 895 |
| 5 | 660 | 506 | ..... | 622 | 422 | 1,270 | 1,430 | 3,120 | 2,550 | 1,840 | 895 |
| 6 | 660 | 506 | ..... | 568 | 400 | 1,360 | 1,430 | 3,120 | 2,460 | 1,670 | 863 |
| 7 | 660 | 506 | ..... | 622 | 422 | 1,520 | 1,350 | 3,210 | 2,460 | 1,580 | 863 |
| 8 | 640 | 506 | ..... | 568 | 468 | 1,720 | 1,430 | 3,310 | 2,370 | 1,500 | 863 |
| 9 | 627 | 506 | ..... | 516 | 444 | 1,880 | 1,500 | 3,310 | 2,280 | 1,500 | 863 |
| 10 | 627 | 506 | ..... | 516 | 380 | 1,900 | 1,580 | 3,310 | 2,180 | 1,430 | 863 |
| 11 | 660 | 450 | ..... | 516 | 422 | 1,990 | 1,670 | 3,310 | 2,180 | 1,350 | 832 |
| 12 | 660 | 450 | ..... | 516 | 422 | 1,920 | 1,670 | 3,410 | 2,010 | 1,200 | 832 |
| 13 | 660 | 450 | ..... | 491 | 422 | 1,830 | 1,750 | 3,510 | 2,010 | 1,200 | 832 |
| 14 | 660 | 450 | ..... | 468 | 422 | 1,670 | 1,830 | 3,600 | 1,920 | 1,200 | 863 |
| 15 | 692 | ..... | ..... | 468 | 444 | 1,500 | 1,830 | 3,700 | 1,840 | 1,200 | 863 |
| 16 | 692 | ..... | ..... | 468 | 422 | 1,500 | 1,830 | 3,800 | 1,840 | 1,200 | 863 |
| 17 | 692 | ..... | ..... | 468 | 422 | 1,500 | 1,830 | 3,900 | 1,750 | 1,200 | 863 |
| 18 | 692 | ..... | ..... | 468 | 422 | 1,500 | 1,920 | 3,900 | 1,670 | 1,200 | 863 |
| 19 | 692 | ..... | ..... | 444 | 468 | 1,500 | 2,010 | 3,900 | 1,670 | 1,200 | 895 |
| 20 | 692 | ..... | ..... | 468 | 516 | 1,580 | 2,100 | 3,900 | 1,670 | 1,200 | 863 |

*Daily discharge, in second-feet, of Bear River at Alexander, Idaho, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 692 | ..... | ..... | 444 | 516 | 1,580 | 2,180 | 3,800 | 1,670 | 1,200 | 863 |
| 22 | 692 | ..... | ..... | 444 | 516 | 1,580 | 2,270 | 3,800 | 1,670 | 1,130 | 863 |
| 23 | 660 | ..... | ..... | 444 | 516 | 1,430 | 2,180 | 3,700 | 1,670 | 1,060 | 863 |
| 24 | 660 | ..... | ..... | 444 | 516 | 1,350 | 2,270 | 3,500 | 1,670 | 1,060 | 863 |
| 25 | 660 | ..... | 505 | 422 | 516 | 1,430 | 2,270 | 3,310 | 1,670 | 927 | 863 |
| 26 | 627 | ..... | 505 | 422 | 516 | 1,430 | 2,180 | 3,020 | 1,580 | 927 | 832 |
| 27 | 565 | ..... | 510 | 444 | 541 | 1,430 | 2,180 | 2,930 | 1,580 | 927 | 832 |
| 28 | 536 | ..... | 516 | 422 | 568 | 1,430 | 2,270 | 2,740 | 1,500 | 927 | 832 |
| 29 | 506 | ..... | 516 | 422 | 568 | 1,430 | 2,640 | 2,550 | 1,430 | 927 | 801 |
| 30 | 506 | ..... | 516 | ..... | 568 | 1,500 | 2,740 | 2,550 | 1,430 | 927 | 801 |
| 31 | 506 | ..... | 568 | ..... | 622 | ..... | 2,830 | ..... | 1,430 | 927 | ..... |

NOTE.—Discharge determined from three fairly well defined curves, applicable Oct. 1 to Nov. 14, Jan. 25 to Apr. 1, and Apr. 12 to Sept. 30. Discharge Apr. 2–11 computed by indirect method for shifting channels. Mean discharge estimated, because of ice, as follows: Nov. 15–30, 400 second-feet; Jan. 1–24, 500 second-feet.

*Monthly discharge of Bear River at Alexander, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 692 | 506 | 642 | 39,500 | B. |
| November | 506 | ..... | 442 | 26,300 | D. |
| December | ..... | ..... | 500 | 30,700 | D. |
| January | ..... | ..... | 504 | 31,000 | C. |
| February | 622 | 422 | 497 | 28,600 | B. |
| March | 622 | 380 | 471 | 29,000 | B. |
| April | 1,990 | 622 | 1,460 | 86,900 | B. |
| May | 2,830 | 1,350 | 1,920 | 118,000 | A. |
| June | 3,900 | 2,550 | 3,320 | 198,000 | A. |
| July | 2,550 | 1,430 | 1,950 | 120,000 | A. |
| August | 1,840 | 927 | 1,260 | 77,500 | A. |
| September | 927 | 801 | 861 | 51,200 | A. |
| The year | 3,900 | ..... | 1,150 | 837,000 | |

NOTE.—Discharge estimated on account of ice Nov. 15 to Jan. 24.

### BEAR RIVER NEAR PRESTON, IDAHO.

**Location.**—In sec. 9, T. 15 S., R. 39 E. Boise meridian, 100 yards below Battle Creek bridge, about half a mile above the mouth of Battle Creek, and about 4½ miles northwest of Preston.

**Records available.**—October 11, 1889, to September 30, 1912.

**Drainage area.**—4,500 square miles.

**Gage.**—Inclined staff on right bank at O. M. Seamon's barn. This gage was installed April 3, 1909, to replace the old one 200 feet above, on the left bank. Both gages read the same on that date, 3.3 feet, and the datum of the new gage has remained unchanged.

**Channel.**—Bed of stream composed of clay and gravel; fairly permanent except during flood stages; water about 2.5 feet deep during low stages; does not overflow banks at any stage.

**Discharge measurements.**—Made from a cable and car about 300 feet below the bridge.

**Winter flow.**—The river seldom freezes over at the station, but the relation between gage height and discharge is at times slighly affected by the presence of slush ice.

**Diversions.**—Numerous ditches divert water for irrigation above the station. The Last Chance canal, which takes out about 4 miles below the Alexander station, was carrying 270 second-feet May 25, 1911 (measurement by Telluride Power Co.'s engineer). The West Cache canal, which takes out several miles above the station, had a measured flow of 26 second-feet July 14, 1911, and 5 second-feet August 15, 1911. Water to be used in power development only is diverted by the Telluride Power Co. near Grace, Idaho, at a point about 6 miles below the Alexander station; this water is returned to the river.

The records derived from observations at this station show practically the amount of water passing from Idaho into Utah and will be of value in the final adjudication of water rights.

The following discharge measurement was made by A. B. Purton:
April 12, 1912: Gage height, 3.67 feet; discharge, 2,700 second-feet.

*Daily gage height, in feet, of Bear River near Preston, Idaho, for year ending Sept. 30, 1912.*

[O. M. Seamons, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.18 | 2.00 | 2.29 | 2.25 | 2.0 | 2.0 | 2.4 | 3.2 | 4.0 | 3.4 | 2.6 | 2.3 |
| 2 | 2.20 | 2.00 | 2.22 | 2.2 | 2.0 | 2.1 | 2.5 | 3.2 | 4.0 | 3.4 | 2.6 | 2.3 |
| 3 | 2.30 | 2.00 | 2.18 | 2.2 | 2.2 | 2.2 | 2.75 | 3.2 | 4.1 | 3.4 | 2.6 | 2.3 |
| 4 | 2.30 | 2.00 | 2.15 | 2.05 | 2.05 | 2.2 | 3.0 | 3.1 | 4.2 | 3.4 | 2.65 | 2.25 |
| 5 | 2.30 | 2.00 | 2.10 | 2.1 | 2.05 | 2.2 | 3.2 | 3.1 | 4.2 | 3.4 | 2.75 | 2.2 |
| 6 | 2.25 | 2.00 | 2.10 | 2.2 | 2.05 | 2.0 | 3.2 | 3.1 | 4.3 | 3.4 | 2.8 | 2.2 |
| 7 | 2.25 | 2.00 | 2.10 | 2.5 | 2.05 | 2.1 | 3.3 | 3.1 | 4.3 | 3.4 | 2.85 | 2.2 |
| 8 | 2.25 | 2.12 | 2.05 | 2.5 | 2.05 | 2.05 | 3.6 | 3.1 | 4.3 | 3.3 | 2.9 | 2.25 |
| 9 | 2.25 | 2.10 | 2.08 | 2.35 | 2.1 | 2.0 | 3.7 | 3.3 | 4.3 | 3.2 | 2.8 | 2.25 |
| 10 | 2.30 | 2.10 | 2.08 | 2.45 | 2.1 | 2.0 | 3.7 | 3.4 | 4.3 | 3.2 | 2.75 | 2.25 |
| 11 | 2.30 | 2.10 | 2.08 | 2.4 | 2.1 | 2.05 | 3.6 | 3.4 | 4.3 | 3.1 | 2.7 | 2.3 |
| 12 | 2.30 | 1.90 | 2.01 | 2.4 | 2.1 | 2.1 | 3.5 | 3.4 | 4.2 | 3.1 | 2.75 | 2.3 |
| 13 | 2.30 | 1.95 | 2.10 | 2.25 | 2.1 | 2.05 | 3.3 | 3.4 | 4.3 | 3.0 | 2.5 | 2.3 |
| 14 | 2.30 | 2.10 | 2.08 | 2.1 | 2.0 | 2.0 | 3.2 | 3.4 | 4.3 | 2.9 | 2.4 | 2.35 |
| 15 | 2.30 | 2.25 | 2.08 | 2.05 | 2.1 | 2.0 | 3.2 | 3.4 | 4.4 | 2.9 | 2.45 | 2.35 |
| 16 | 2.30 | 2.22 | 2.10 | 2.2 | 2.2 | 2.1 | 3.1 | 3.5 | 4.4 | 2.9 | 2.4 | 2.4 |
| 17 | 2.25 | 2.22 | 2.12 | 2.2 | 2.25 | 2.1 | 3.1 | 3.6 | 4.5 | 2.85 | 2.4 | 2.4 |
| 18 | 2.25 | 2.25 | 2.15 | 2.2 | 2.2 | 2.1 | 3.2 | 3.7 | 4.5 | 2.8 | 2.4 | 2.45 |
| 19 | 2.25 | 2.22 | 2.00 | 2.05 | 2.1 | 2.25 | 3.2 | 3.7 | 4.5 | 2.9 | 2.45 | 2.4 |
| 20 | 2.25 | 2.20 | 2.25 | 2.05 | 2.0 | 2.2 | 3.2 | 3.9 | 4.5 | 3.0 | 2.45 | 2.4 |
| 21 | 2.25 | 2.18 | 2.22 | 2.0 | 2.0 | 2.15 | 3.2 | 4.0 | 4.4 | 2.9 | 2.4 | 2.4 |
| 22 | 2.25 | 2.15 | 2.12 | 2.0 | 2.0 | 2.0 | 3.1 | 4.0 | 4.4 | 2.85 | 2.4 | 2.35 |
| 23 | 2.20 | 2.10 | 2.02 | 2.0 | 2.0 | 2.0 | 3.0 | 4.9 | 4.4 | 2.85 | 2.35 | 2.3 |
| 24 | 2.15 | 2.10 | 2.08 | 2.0 | 2.0 | 2.05 | 3.0 | 3.8 | 4.2 | 2.8 | 2.3 | 2.35 |
| 25 | 2.05 | 2.07 | 2.08 | 2.0 | 2.0 | 2.05 | 3.0 | 3.8 | 4.1 | 2.75 | 2.3 | 2.3 |
| 26 | 2.00 | 2.20 | 1.65 | 2.0 | 2.0 | 2.2 | 3.0 | 3.8 | 3.9 | 2.7 | 2.25 | 2.25 |
| 27 | 2.00 | 2.00 | 2.20 | 2.0 | 2.1 | 2.3 | 3.1 | 3.9 | 3.8 | 2.7 | 2.3 | 2.25 |
| 28 | 2.00 | 1.91 | 2.19 | 2.05 | 2.0 | 2.4 | 3.2 | 3.8 | 3.8 | 2.5 | 2.2 | 2.2 |
| 29 | 2.00 | 1.89 | 2.25 | 2.05 | 1.9 | 2.3 | 3.2 | 3.9 | 3.6 | 2.45 | 2.3 | 2.25 |
| 30 | 2.00 | 2.11 | 2.25 | 2.0 | ..... | 2.3 | 3.2 | 4.0 | 3.5 | 2.5 | 2.3 | 2.25 |
| 31 | 2.00 | ..... | 2.18 | 2.0 | ..... | 2.35 | ..... | 4.0 | ..... | 2.55 | 2.3 | ..... |

*Daily discharge, in second-feet, of Bear River near Preston, Idaho, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 827 | 670 | 930 | 892 | 670 | 670 | 1,040 | 2,030 | 3,240 | 2,310 | 1,260 | 940 |
| 2 | 845 | 670 | 864 | 845 | 670 | 755 | 1,150 | 2,030 | 3,240 | 2,310 | 1,260 | 940 |
| 3 | 940 | 670 | 827 | 845 | 845 | 845 | 1,440 | 2,030 | 3,400 | 2,310 | 1,260 | 940 |
| 4 | 940 | 670 | 800 | 712 | 712 | 845 | 1,760 | 1,890 | 3,560 | 2,310 | 1,320 | 892 |
| 5 | 940 | 670 | 755 | 755 | 712 | 845 | 2,030 | 1,890 | 3,560 | 2,310 | 1,440 | 845 |
| 6 | 892 | 670 | 755 | 845 | 712 | 670 | 2,030 | 1,890 | 3,720 | 2,310 | 1,500 | 845 |
| 7 | 892 | 670 | 755 | 1,150 | 712 | 755 | 2,170 | 1,890 | 3,720 | 2,310 | 1,560 | 845 |
| 8 | 892 | 773 | 712 | 1,150 | 712 | 712 | 2,610 | 1,890 | 3,720 | 2,170 | 1,630 | 892 |
| 9 | 892 | 755 | 738 | 990 | 755 | 670 | 2,760 | 2,170 | 3,720 | 2,030 | 1,500 | 892 |
| 10 | 940 | 755 | 738 | 1,100 | 755 | 670 | 2,760 | 2,310 | 3,720 | 2,030 | 1,440 | 892 |
| 11 | 940 | 755 | 738 | 1,040 | 755 | 712 | 2,610 | 2,310 | 3,720 | 1,890 | 1,380 | 940 |
| 12 | 940 | 590 | 678 | 1,040 | 755 | 755 | 2,460 | 2,310 | 3,560 | 1,890 | 1,440 | 940 |
| 13 | 940 | 630 | 755 | 892 | 755 | 712 | 2,170 | 2,310 | 3,720 | 1,760 | 1,150 | 940 |
| 14 | 940 | 755 | 738 | 755 | 670 | 670 | 2,030 | 2,310 | 3,720 | 1,630 | 1,040 | 990 |
| 15 | 940 | 892 | 738 | 712 | 755 | 670 | 2,030 | 2,310 | 3,880 | 1,630 | 1,100 | 990 |
| 16 | 940 | 864 | 755 | 845 | 845 | 755 | 1,890 | 2,460 | 3,880 | 1,630 | 1,040 | 1,040 |
| 17 | 892 | 864 | 773 | 845 | 892 | 755 | 1,890 | 2,610 | 4,050 | 1,560 | 1,040 | 1,040 |
| 18 | 892 | 892 | 800 | 845 | 845 | 755 | 2,030 | 2,760 | 4,050 | 1,500 | 1,040 | 1,100 |
| 19 | 892 | 864 | 670 | 712 | 755 | 892 | 2,030 | 2,760 | 4,050 | 1,630 | 1,100 | 1,040 |
| 20 | 892 | 845 | 892 | 712 | 670 | 845 | 2,030 | 3,080 | 4,050 | 1,760 | 1,100 | 1,040 |
| 21 | 892 | 827 | 864 | 670 | 670 | 800 | 2,030 | 3,240 | 3,880 | 1,630 | 1,040 | 1,040 |
| 22 | 892 | 800 | 773 | 670 | 670 | 670 | 1,890 | 3,240 | 3,880 | 1,560 | 1,040 | 990 |
| 23 | 845 | 755 | 687 | 670 | 670 | 670 | 1,760 | 4,730 | 3,880 | 1,560 | 990 | 940 |
| 24 | 800 | 755 | 738 | 670 | 670 | 712 | 1,760 | 2,920 | 3,560 | 1,500 | 940 | 990 |
| 25 | 712 | 730 | 738 | 670 | 670 | 712 | 1,760 | 2,920 | 3,400 | 1,440 | 940 | 940 |
| 26 | 670 | 845 | 792 | 670 | 670 | 845 | 1,760 | 2,920 | 3,080 | 1,380 | 892 | 892 |
| 27 | 670 | 670 | 845 | 670 | 755 | 940 | 1,890 | 3,080 | 2,920 | 1,380 | 940 | 892 |
| 28 | 670 | 598 | 836 | 712 | 670 | 1,040 | 2,030 | 2,920 | 2,920 | 1,150 | 845 | 845 |
| 29 | 670 | 583 | 892 | 712 | 590 | 940 | 2,030 | 3,080 | 2,610 | 1,100 | 940 | 892 |
| 30 | 670 | 764 | 892 | 670 | ..... | 940 | 2,030 | 3,240 | 2,460 | 1,150 | 940 | 892 |
| 31 | 670 | ..... | 827 | 670 | ..... | 990 | ..... | 3,240 | ..... | 1,200 | 940 | ..... |

NOTE.—Discharge determined from a well-defined rating curve. Discharge Dec. 26 interpolated as gage height on that date believed to be in error.

*Monthly discharge of Bear River near Preston, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 940 | 670 | 851 | 52,300 | A. |
| November | 892 | 583 | 742 | 44,200 | A. |
| December | 930 | 670 | 784 | 48,200 | A. |
| January | 1,150 | 670 | 811 | 49,900 | B. |
| February | 892 | 590 | 724 | 41,600 | A. |
| March | 1,040 | 670 | 781 | 48,000 | A. |
| April | 2,760 | 1,040 | 2,000 | 119,000 | A. |
| May | 4,730 | 1,890 | 2,610 | 160,000 | A. |
| June | 4,050 | 2,460 | 3,560 | 212,000 | A. |
| July | 2,310 | 1,100 | 1,750 | 108,000 | A. |
| August | 1,630 | 845 | 1,160 | 71,300 | A. |
| September | 1,100 | 845 | 943 | 56,100 | A. |
| The year | 4,730 | 583 | 1,390 | 1,010,000 | |

### BEAR RIVER NEAR COLLINSTON, UTAH.

**Location.**—In the W. ½ sec. 34, T. 13 N., R. 2 W., Salt Lake base and meridian, about one-fourth mile below the power plant of the Utah Power & Light Co., at the railroad siding called Wheelon, about 4 miles north of the town of Collinston. Malad River, the only important tributary below, enters about 20 miles from the station. Station is below all diversions.

**Records available.**—July 1, 1889, to September 30, 1912.

**Drainage area.**—6,000 square miles.

**Gage.**—An inclined gage established in February, 1905, at the same datum as the original gage, which was a vertical iron bar driven into the river bed and supported at the top by timbers projecting from the bank.

**Channel.**—Fairly permanent; shifting occasionally during high water.

**Discharge measurements.**—Made from cable and car.

**Floods.**—The highest recorded stage of the river occurred June 7 to 10, 1909, when the gage height was 7.7, corresponding to a discharge of 11,600 second-feet.

**Winter flow.**—Some ice forms along the banks near the station, so that at times the open-channel rating curve is not applicable.

**Diversions.**—The West Side canal and Hammond ditch (East Side canal) divert from the west and east sides of the river about 2 miles above the station. Either canal can be used to furnish water to the power plant at Wheelon siding, below which the water is carried south and west for irrigation.

**Artificial control.**—Some variation in daily flow is occasionally caused by operation of the power plant just above the station.

**Accuracy.**—The measurements made at this station plot very consistently and the discharge record has a high accuracy rating.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of Bear River near Collinston, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Mar. 5 | J. C. Dort | 2.09 | 1,175 | June 7 | E. A. Porter | 5.28 | 5,990 |
| Apr. 21 | do | 3.64 | 3,390 | Sept. 17 | J. C. Dort | 2.50 | 1,680 |
| May 24 | E. A. Porter | 5.26 | 5,750 | | | | |

*Daily gage height, in feet, of Bear River near Collinston, Utah, for year ending Sept. 30, 1912.*

[R. A. Johnson, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.9 | 2.3 | 1.9 | 2.2 | 2.4 | 2.5 | 2.8 | 3.8 | 5.25 | 4.02 | 2.30 | 1.98 |
| 2 | 1.9 | 2.2 | 1.9 | 2.2 | 2.3 | 2.6 | 2.78 | 3.75 | 5.3 | 3.80 | 2.75 | 2.00 |
| 3 | 2.0 | 2.2 | 2.0 | 2.1 | 2.3 | 2.4 | 2.9 | 3.75 | 5.2 | 3.62 | 2.70 | 1.98 |
| 4 | 2.0 | 2.2 | 2.1 | 2.1 | 2.2 | 2.2 | 3.0 | 3.7 | 5.1 | 3.55 | 2.72 | 1.90 |
| 5 | 2.1 | 2.2 | 2.1 | 2.2 | 2.1 | 2.2 | 3.1 | 3.32 | 5.15 | 3.50 | 2.75 | 1.90 |
| 6 | 2.2 | 2.2 | 2.2 | 2.2 | 2.1 | 2.3 | 3.2 | 3.85 | 5.15 | 3.40 | 2.80 | 1.90 |
| 7 | 2.3 | 2.3 | 2.2 | 2.3 | 2.0 | 2.5 | 3.4 | 3.4 | 5.28 | 3.30 | 2.85 | 1.90 |
| 8 | 2.3 | 2.3 | 2.3 | 2.2 | 2.0 | 2.95 | 3.7 | 3.48 | 5.3 | 3.25 | 2.85 | 1.80 |
| 9 | 2.3 | 2.3 | 2.3 | 2.1 | 2.2 | 2.8 | 3.9 | 3.5 | 5.3 | 3.20 | 2.80 | 1.80 |
| 10 | 2.3 | 2.3 | 2.3 | 2.0 | 2.3 | 2.7 | 4.0 | 3.72 | 5.4 | 3.15 | 2.78 | 1.85 |
| 11 | 2.3 | 2.3 | 2.2 | 2.0 | 2.4 | 2.7 | 4.15 | 3.9 | 5.4 | 3.00 | 2.65 | 2.20 |
| 12 | 2.4 | 2.3 | 2.2 | 2.1 | 2.5 | 2.6 | 4.2 | 4.05 | 5.35 | 2.90 | 2.62 | 2.20 |
| 13 | 2.4 | 2.2 | 2.2 | 2.2 | 2.6 | 2.6 | 4.2 | 4.2 | 5.32 | 2.80 | 2.60 | 2.22 |
| 14 | 2.4 | 2.2 | 2.2 | 2.4 | 2.6 | 2.6 | 4.0 | 4.3 | 5.3 | 2.78 | 2.42 | 2.25 |
| 15 | 2.5 | 2.3 | 2.2 | 2.3 | 2.5 | 2.55 | 3.9 | 4.4 | 5.4 | 2.70 | 2.42 | 2.25 |

*Daily gage height, in feet, of Bear River near Collinston, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 2.4 | 2.3 | 2.2 | 2.3 | 2.5 | 2.55 | 3.6 | 4.6 | 5.48 | 2.60 | 2.35 | 2.25 |
| 17 | 2.3 | 2.3 | 2.3 | 2.3 | 2.4 | 2.55 | 3.5 | 4.5 | 5.5 | 2.58 | 2.35 | 2.55 |
| 18 | 2.3 | 2.4 | 2.2 | 2.3 | 2.6 | 2.55 | 3.7 | 4.6 | 5.48 | 2.60 | 2.40 | 2.40 |
| 19 | 2.3 | 2.3 | 2.2 | 2.3 | 2.9 | 2.5 | 3.9 | 4.7 | 5.42 | 2.60 | 2.45 | 2.40 |
| 20 | 2.3 | 2.3 | 2.1 | 2.2 | 2.8 | 2.6 | 3.8 | 4.75 | 5.38 | 2.78 | 2.55 | 2.38 |
| 21 | 2.3 | 2.3 | 2.2 | 2.2 | 2.8 | 2.5 | 3.7 | 5.0 | 5.2 | 2.75 | 2.50 | 2.35 |
| 22 | 2.3 | 2.3 | 2.2 | 2.2 | 2.7 | 2.45 | 3.65 | 5.2 | 5.15 | 2.80 | 2.40 | 2.35 |
| 23 | 2.3 | 2.3 | 2.3 | 2.3 | 2.4 | 2.45 | 3.5 | 5.3 | 5.02 | 2.75 | 2.38 | 2.38 |
| 24 | 2.3 | 2.2 | 2.1 | 2.3 | 2.2 | 2.5 | 3.3 | 5.4 | 4.98 | 2.68 | 2.30 | 2.35 |
| 25 | 2.3 | 2.2 | 2.1 | 2.3 | 2.2 | 2.5 | 3.2 | 5.25 | 4.88 | 2.62 | 2.15 | 2.35 |
| 26 | 2.3 | 2.2 | 2.2 | 2.2 | 2.2 | 2.5 | 3.3 | 5.2 | 4.75 | 2.58 | 2.05 | 2.35 |
| 27 | 2.3 | 2.2 | 2.2 | 2.2 | 2.3 | 2.65 | 3.45 | 5.0 | 4.6 | 2.50 | 2.10 | 2.35 |
| 28 | 2.3 | 2.2 | 2.2 | 2.3 | 2.4 | 2.75 | 3.6 | 4.9 | 4.5 | 2.30 | 1.98 | 2.35 |
| 29 | 2.3 | 2.1 | 2.2 | 2.4 | 2.5 | 2.8 | 3.7 | 4.8 | 4.25 | 2.20 | 1.98 | 2.35 |
| 30 | 2.2 | 2.0 | 2.2 | 2.4 | ..... | 2.9 | 3.85 | 4.8 | 4.1 | 2.00 | 1.82 | 2.35 |
| 31 | 2.2 | ..... | 2.2 | 2.4 | ..... | 2.9 | ..... | 5.0 | ..... | 2.20 | 1.88 | ..... |

*Daily discharge, in second-feet, of Bear River near Collinston, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 995 | 1,390 | 995 | 1,290 | 1,500 | 1,610 | 1,960 | 3,550 | 5,930 | 3,880 | 1,390 | 1,070 |
| 2 | 995 | 1,290 | 995 | 1,290 | 1,390 | 1,720 | 1,940 | 3,480 | 6,020 | 3,550 | 1,900 | 1,090 |
| 3 | 1,090 | 1,290 | 1,090 | 1,190 | 1,390 | 1,500 | 2,080 | 3,480 | 5,840 | 3,300 | 1,840 | 1,070 |
| 4 | 1,090 | 1,290 | 1,190 | 1,190 | 1,290 | 1,290 | 2,200 | 3,410 | 5,670 | 3,200 | 1,860 | 995 |
| 5 | 1,190 | 1,290 | 1,190 | 1,290 | 1,190 | 1,290 | 2,320 | 2,880 | 5,760 | 3,130 | 1,900 | 995 |
| 6 | 1,290 | 1,290 | 1,290 | 1,290 | 1,190 | 1,390 | 2,440 | 3,620 | 5,760 | 2,850 | 1,960 | 995 |
| 7 | 1,390 | 1,390 | 1,290 | 1,390 | 1,090 | 1,610 | 2,750 | 2,990 | 5,980 | 2,740 | 2,020 | 995 |
| 8 | 1,390 | 1,390 | 1,390 | 1,290 | 1,090 | 2,140 | 3,250 | 3,100 | 6,020 | 2,670 | 2,020 | 905 |
| 9 | 1,390 | 1,390 | 1,390 | 1,190 | 1,290 | 1,960 | 3,600 | 3,130 | 6,020 | 2,550 | 1,960 | 905 |
| 10 | 1,390 | 1,390 | 1,390 | 1,090 | 1,390 | 1,840 | 3,850 | 3,440 | 6,200 | 2,500 | 1,940 | 950 |
| 11 | 1,390 | 1,390 | 1,390 | 1,090 | 1,500 | 1,840 | 4,080 | 3,700 | 6,200 | 2,350 | 1,780 | 1,290 |
| 12 | 1,500 | 1,390 | 1,290 | 1,190 | 1,610 | 1,720 | 4,160 | 3,920 | 6,110 | 2,190 | 1,740 | 1,290 |
| 13 | 1,500 | 1,290 | 1,290 | 1,290 | 1,720 | 1,720 | 4,160 | 4,160 | 6,060 | 2,040 | 1,720 | 1,310 |
| 14 | 1,500 | 1,290 | 1,290 | 1,500 | 1,720 | 1,720 | 3,850 | 4,320 | 6,020 | 2,000 | 1,520 | 1,340 |
| 15 | 1,610 | 1,390 | 1,290 | 1,390 | 1,610 | 1,660 | 3,700 | 4,480 | 6,200 | 1,890 | 1,520 | 1,340 |
| 16 | 1,500 | 1,390 | 1,290 | 1,390 | 1,610 | 1,660 | 3,270 | 4,820 | 6,340 | 1,720 | 1,440 | 1,340 |
| 17 | 1,390 | 1,390 | 1,390 | 1,390 | 1,500 | 1,660 | 3,130 | 4,650 | 6,380 | 1,700 | 1,440 | 1,660 |
| 18 | 1,390 | 1,500 | 1,290 | 1,390 | 1,720 | 1,660 | 3,410 | 4,820 | 6,340 | 1,720 | 1,500 | 1,500 |
| 19 | 1,390 | 1,390 | 1,290 | 1,390 | 2,080 | 1,610 | 3,700 | 4,990 | 6,240 | 1,720 | 1,560 | 1,500 |
| 20 | 1,390 | 1,390 | 1,190 | 1,290 | 1,960 | 1,720 | 3,550 | 5,080 | 6,160 | 1,940 | 1,660 | 1,480 |
| 21 | 1,390 | 1,390 | 1,290 | 1,290 | 1,960 | 1,610 | 3,410 | 5,500 | 5,840 | 1,900 | 1,610 | 1,440 |
| 22 | 1,390 | 1,390 | 1,290 | 1,290 | 1,840 | 1,560 | 3,340 | 5,840 | 5,760 | 1,960 | 1,500 | 1,440 |
| 23 | 1,390 | 1,390 | 1,390 | 1,390 | 1,500 | 1,560 | 3,130 | 6,020 | 5,530 | 1,900 | 1,480 | 1,480 |
| 24 | 1,390 | 1,290 | 1,190 | 1,390 | 1,290 | 1,610 | 2,850 | 6,200 | 5,470 | 1,820 | 1,390 | 1,440 |
| 25 | 1,390 | 1,290 | 1,190 | 1,390 | 1,290 | 1,610 | 2,720 | 5,930 | 5,300 | 1,740 | 1,240 | 1,440 |
| 26 | 1,390 | 1,290 | 1,290 | 1,290 | 1,290 | 1,610 | 2,850 | 5,840 | 5,080 | 1,700 | 1,140 | 1,440 |
| 27 | 1,390 | 1,290 | 1,290 | 1,290 | 1,390 | 1,780 | 3,060 | 5,500 | 4,820 | 1,610 | 1,190 | 1,440 |
| 28 | 1,390 | 1,290 | 1,290 | 1,390 | 1,500 | 1,900 | 3,270 | 5,330 | 4,650 | 1,390 | 1,070 | 1,440 |
| 29 | 1,390 | 1,090 | 1,290 | 1,500 | 1,610 | 1,960 | 3,410 | 5,160 | 4,240 | 1,290 | 1,070 | 1,440 |
| 30 | 1,290 | 1,190 | 1,290 | 1,500 | ..... | 2,080 | 3,620 | 5,160 | 4,000 | 1,090 | 923 | 1,440 |
| 31 | 1,290 | ..... | 1,290 | 1,500 | ..... | 2,080 | ..... | 5,500 | ..... | 1,290 | 977 | ..... |

NOTE.—Discharge determined from two well-defined rating curves, one applicable Oct. 1, 1911, to Apr. 5, 1912, and July 16 to Sept. 30, 1912, the other Apr. 10 to July 5, 1912. Discharge Apr. 6-9 and July 6-15 determined by indirect method for shifting channels.

*Monthly discharge of Bear River near Collinston, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 1,610 | 995 | 1,350 | 83,000 | A. |
| November | 1,500 | 1,090 | 1,340 | 79,700 | A. |
| December | 1,390 | 995 | 1,260 | 77,500 | B. |
| January | 1,500 | 1,090 | 1,320 | 81,200 | B. |
| February | 2,080 | 1,090 | 1,500 | 86,300 | B. |
| March | 2,140 | 1,290 | 1,700 | 105,000 | B. |
| April | 4,160 | 1,940 | 3,170 | 189,000 | A. |
| May | 6,200 | 2,880 | 4,530 | 279,000 | A. |
| June | 6,380 | 4,000 | 5,730 | 341,000 | A. |
| July | 3,880 | 1,090 | 2,170 | 133,000 | A. |
| August | 2,020 | 923 | 1,560 | 95,900 | A. |
| September | 1,660 | 905 | 1,280 | 76,200 | A. |
| The year | 6,380 | 905 | 2,240 | 1,627,000 | |

### WEST SIDE CANAL NEAR COLLINSTON, UTAH.

**Location.**—In the NW. ¼ sec. 26, T. 13 N., R. 2 W., Salt Lake base and meridian, about 600 feet below the penstock to the plant of the Utah Power & Light Co. at Wheelon siding on the Oregon Short Line Railroad, and about 1,000 feet northwest of the gaging station on Bear River near Collinston.

**Records available.**—June 1 to September 30, 1912.

**Gage.**—Sloping staff on the left bank.

**Channel.**—Permanent.

**Discharge measurements.**—Made from a footbridge at gage.

**Diversions.**—Considerable water is diverted above the station by the penstock of the power plant. The water passing the gage is available for the water users in and around the town of Garland.

**Accuracy.**—Records good.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of West Side canal near Collinston, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Apr. 21 | J. C. Dort | 3.62 | 113 |
| May 24 | E. A. Porter | 6.40 | 397 |
| June 7 | ....do | 7.65 | 525 |
| Sept. 17 | J. C. Dort | 6.08 | 321 |

*Daily gage height, in feet, and discharge, in second-feet, of West Side canal near Collinston, Utah, for year ending Sept. 30, 1912.*

[W. E. Phelps, observer.]

| Day. | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 1.78 | 17 | 7.86 | 563 | 3.94 | 128 | 6.25 | 355 |
| 2 | 1.67 | 14 | 7.33 | 494 | 4.40 | 164 | 6.40 | 373 |
| 3 | 6.58 | 396 | 7.21 | 478 | 5.57 | 276 | 6.28 | 359 |
| 4 | 7.35 | 496 | 7.30 | 490 | 5.56 | 275 | 6.48 | 383 |
| 5 | 7.53 | 520 | 7.52 | 519 | 5.56 | 275 | 6.56 | 394 |
| 6 | 7.50 | 516 | 7.53 | 520 | 5.30 | 246 | 6.66 | 407 |
| 7 | 7.65 | 536 | 7.52 | 519 | 5.3 | 246 | 6.70 | 412 |
| 8 | 7.75 | 548 | 7.66 | 537 | 5.30 | 246 | 6.77 | 421 |
| 9 | 7.72 | 545 | 7.45 | 510 | 5.50 | 268 | 6.70 | 412 |
| 10 | 7.75 | 548 | 7.42 | 506 | 5.50 | 268 | 6.78 | 422 |
| 11 | 7.72 | 545 | 7.40 | 503 | 5.50 | 268 | 6.76 | 420 |
| 12 | 7.74 | 547 | 7.39 | 502 | 5.70 | 290 | 6.88 | 435 |
| 13 | 7.72 | 545 | 7.45 | 510 | 5.98 | 323 | 6.72 | 415 |
| 14 | 7.70 | 542 | 7.30 | 490 | 5.95 | 319 | 6.26 | 356 |
| 15 | 7.55 | 522 | 7.28 | 487 | 5.62 | 281 | 6.35 | 367 |
| 16 | 7.25 | 484 | 7.35 | 496 | 5.63 | 282 | 6.06 | 332 |
| 17 | 6.95 | 444 | 7.34 | 495 | 5.62 | 281 | 6.08 | 335 |
| 18 | 6.97 | 447 | 7.29 | 489 | 5.64 | 283 | 6.08 | 335 |
| 19 | 6.61 | 400 | 7.40 | 503 | 5.64 | 283 | 6.25 | 355 |
| 20 | 6.60 | 399 | 7.07 | 460 | 5.29 | 245 | 5.55 | 274 |
| 21 | 6.58 | 396 | 7.03 | 455 | 5.30 | 246 | 5.62 | 281 |
| 22 | 6.57 | 395 | 6.55 | 392 | 5.30 | 246 | 5.65 | 284 |
| 23 | 6.73 | 416 | 6.71 | 413 | 5.30 | 246 | 5.52 | 270 |
| 24 | 6.64 | 404 | 6.84 | 430 | 5.80 | 301 | 5.30 | 246 |
| 25 | 6.60 | 399 | 6.83 | 429 | 5.76 | 297 | 5.30 | 246 |
| 26 | 6.59 | 398 | 6.80 | 425 | 6.16 | 344 | 5.32 | 248 |
| 27 | 6.60 | 399 | 6.79 | 424 | 6.16 | 344 | 5.45 | 262 |
| 28 | 6.83 | 429 | 6.86 | 433 | 6.53 | 390 | 5.40 | 257 |
| 29 | 7.05 | 458 | 6.87 | 434 | 6.52 | 389 | 5.22 | 237 |
| 30 | 6.98 | 448 | 6.90 | 438 | 6.55 | 392 | 5.05 | 220 |
| 31 | ..... | ..... | 6.78 | 422 | 6.35 | 367 | ..... | ..... |

NOTE.—Discharge determined from a fairly well defined curve.

*Monthly discharge of West Side canal near Collinston, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June | 548 | 14 | 438 | 26,100 | A. |
| July | 563 | 392 | 476 | 29,300 | A. |
| August | 392 | 128 | 284 | 17,500 | A. |
| September | 435 | 220 | 337 | 20,100 | A. |
| The period | ..... | ..... | ..... | 93,000 | |

### HAMMOND DITCH (EAST SIDE CANAL) NEAR COLLINSTON, UTAH.

**Location.**—In sec. 34, T. 13 N., R. 2 W., Salt Lake base and meridian, about 400 feet below the penstock which diverts water for the Utah Power & Light Co.'s plant at Wheelon siding, about 4 miles north of Collinston, Utah.

**Records available.**—June 1 to October 28, 1912.

**Gage.**—Sloping staff on right bank.

**Channel.**—Dirt and rock section.

**Discharge measurements.**—Made from footbridge at the gage.

**Winter flow.**—Canal is usually dry from about October 31 until the beginning of the next irrigation season.

**Diversions.**—The Utah Power & Light Co. diverts water from the canal about 400 feet above the gage, the water returning to the river just above Bear River gaging station at this point.

**Artificial control.**—Considerable diurnal fluctuation is caused by the operation of the power plant.

**Accuracy.**—Records fair. Relation of gage height to discharge is affected by moss growth and possibly also by the operation of the power plant.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of Hammond ditch near Collinston, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 24 | E. A. Porter | 3.00 | 43.7 |
| June 7 | do | 3.80 | 78.6 |
| Sept. 17 | J. C. Dort | 3.30 | 48.8 |

*Daily gage height, in feet, and discharge, in second-feet, of Hammond ditch near Collinston, Utah, for 1912.*

[W. E. Phelps, observer.]

| Day. | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 3.70 | 74 | 4.20 | 98 | 3.64 | 70 | 4.10 | 82 | 2.2 | 18 |
| 2 | 3.84 | 80 | 3.90 | 83 | 3.54 | 66 | 4.06 | 80 | 2.2 | 18 |
| 3 | 3.63 | 70 | 4.00 | 88 | 3.54 | 66 | 3.84 | 71 | 3.0 | 38 |
| 4 | 3.60 | 69 | 4.00 | 88 | 3.53 | 65 | 4.14 | 84 | 2.82 | 33 |
| 5 | 3.72 | 74 | 3.96 | 86 | 3.51 | 64 | 3.78 | 68 | 2.2 | 18 |
| 6 | 3.85 | 80 | 4.05 | 90 | 3.46 | 62 | 3.85 | 71 | 1.88 | 12 |
| 7 | 3.72 | 74 | 4.15 | 96 | 3.50 | 63 | 3.74 | 67 | 1.9 | 12 |
| 8 | 3.80 | 78 | 4.18 | 97 | 3.57 | 65 | 3.97 | 76 | 1.9 | 12 |
| 9 | 3.83 | 80 | 3.84 | 80 | 3.52 | 63 | 3.68 | 64 | 1.86 | 12 |
| 10 | 3.82 | 79 | 4.13 | 94 | 3.72 | 71 | 3.68 | 64 | 1.86 | 12 |
| 11 | 3.80 | 78 | 4.14 | 95 | 3.77 | 73 | 3.68 | 64 | 1.86 | 12 |
| 12 | 3.76 | 76 | 4.16 | 96 | 3.80 | 74 | 3.67 | 64 | 1.86 | 12 |
| 13 | 4.05 | 90 | 4.40 | 108 | 3.83 | 75 | 3.68 | 64 | 1.87 | 12 |
| 14 | 3.90 | 83 | 3.45 | 63 | 3.78 | 73 | 3.48 | 56 | 1.22 | 3.2 |
| 15 | 3.76 | 76 | 3.80 | 78 | 3.83 | 75 | 3.57 | 60 | 1.2 | 3 |
| 16 | 3.80 | 78 | 3.88 | 82 | 3.83 | 74 | 3.60 | 61 | 1.2 | 3 |
| 17 | 3.53 | 66 | 3.87 | 82 | 3.82 | 74 | 3.30 | 49 | 1.2 | 3 |
| 18 | 3.55 | 67 | 4.50 | 113 | 3.84 | 74 | 3.40 | 53 | 1.2 | 3 |
| 19 | 3.60 | 69 | 4.15 | 96 | 3.87 | 75 | 3.46 | 55 | 1.2 | 3 |
| 20 | 3.58 | 68 | 4.00 | 88 | 3.86 | 75 | 3.35 | 51 | 1.2 | 3 |
| 21 | 3.54 | 67 | 4.15 | 96 | 3.86 | 74 | 3.36 | 51 | 1.2 | 3 |
| 22 | 3.53 | 66 | 3.97 | 86 | 3.94 | 78 | 2.90 | 36 | 1.18 | 2.8 |
| 23 | 3.80 | 78 | 4.03 | 90 | 3.88 | 75 | 2.90 | 36 | 1.2 | 3 |
| 24 | 3.83 | 80 | 4.06 | 91 | 3.87 | 74 | 2.90 | 36 | 1.2 | 3 |
| 25 | 3.78 | 77 | 4.08 | 92 | 3.90 | 75 | 2.90 | 36 | 1.2 | 3 |
| 26 | 3.69 | 73 | 4.05 | 90 | 3.90 | 75 | 2.90 | 36 | 1.2 | 3 |
| 27 | 3.85 | 80 | 4.17 | 96 | 3.90 | 74 | 2.25 | 19 | 1.2 | 3 |
| 28 | 3.76 | 76 | 4.02 | 89 | 4.05 | 82 | 2.20 | 18 | 1.2 | 3 |
| 29 | 3.86 | 81 | 4.18 | 97 | 4.05 | 81 | 2.22 | 18 | ..... | ..... |
| 30 | 3.85 | 80 | 4.15 | 96 | 4.02 | 79 | 2.22 | 18 | ..... | ..... |
| 31 | ..... | ..... | 4.30 | 103 | 4.05 | 80 | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined from two rating curves which are fairly well defined above 20 second-feet, one applicable June 1 to July 31, the other Sept. 1 to Oct. 28. Discharge computed by the indirect method for shifting channels from Aug. 1–31.

*Monthly discharge of Hammond ditch near Collinston, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June | 90 | 66 | 75.6 | 4,500 | A. |
| July | 113 | 63 | 91.2 | 5,610 | B. |
| August | 82 | 62 | 72.4 | 4,450 | B. |
| September | 84 | 18 | 53.6 | 3,190 | B. |
| October 1-28 | 38 | 2.8 | 9.5 | 528 | D. |
| The period | | | | 18,300 | |

### GEORGETOWN CREEK NEAR GEORGETOWN, IDAHO.

**Location.**—In sec. 4, T. 11 S., R. 44 E., Boise meridian, 50 feet below the power plant of the Bear Lake Power Co., 3 miles northeast of Georgetown, Idaho, which is 1 mile from Georgetown station on the Oregon Short Line Railroad.

**Records available.**—October 20, 1911, to September 30, 1912.

**Drainage area.**—22 square miles (Forest Service records).

**Gage.**—Staff nailed to alder stumps on right bank.

**Channel.**—In general rocky and clean; shifts occasionally.

**Discharge measurements.**—Made by wading at all except extremely high stages.

**Winter flow.**—Stream is spring fed, and relation of gage height to discharge is not appreciably affected by ice.

**Diversions.**—Water is probably diverted above the station at certain times of the year.

**Accuracy.**—Rating curves fairly well defined. Determination of daily discharge subject to errors on account of small amount of pondage possible at company's dam and also on account of infrequent gage readings. Monthly summaries believed to be fairly reliable because of uniformity in stream flow.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

*Discharge measurements of Georgetown Creek near Georgetown, Idaho, for year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-feet.* | 1912. | | *Feet.* | *Sec.-feet.* |
| Oct. 23 | J. P. Martin | 0.99 | 27.4 | Jan. 28 | J. P. Martin | .88 | 22.6 |
| Nov. 27 | do | 1.02 | 25.2 | May 23 | George Bentz | 1.25 | 60.2 |
| | | | | Sept. 13 | G. C. Baldwin | 1.15 | 40.7 |

*Daily gage height, in feet, of Georgetown Creek near Georgetown, Idaho, for year ending Sept. 30, 1912.*

[J. A. Ferguson, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 1.5 | | | |
| 2 | | | | | | 0.88 | 0.95 | | | | | |
| 3 | | | | | 0.95 | | .95 | | | | | |
| 4 | | | | | | | | 0.95 | | | | |
| 5 | | | 1.00 | 0.98 | | | .95 | | | | | |
| 6 | | | | | | | | | | | 1.20 | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | .95 | 1.75 | | | |
| 9 | | | | | | .92 | | | | | | |
| 10 | | | | | | | | | | | | |

*Daily gage height, in feet, of Georgetown Creek near Georgetown, Idaho, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | | | | | | 0.95 | | 0.95 | | | | |
| 12 | | | | 1.0 | 0.95 | .95 | 0.92 | | | | | |
| 13 | | | 1.00 | | | .95 | | | | 1.22 | | 1.15 |
| 14 | | | | | | .95 | | | 1.55 | | | |
| 15 | | | | | | .95 | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | .95 | | | | | | 1.20 | |
| 18 | | | | | | | | 1.0 | 1.4 | | | |
| 19 | | | | | | .92 | | | | | | |
| 20 | | | | 1.0 | | | | | | 1.20 | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | .9 | | | | | | |
| 23 | 0.99 | | 1.00 | | | .9 | | 1.25 | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | .98 | | | | | | | | |
| 26 | | | | | .95 | 1.0 | | | | 1.20 | | |
| 27 | | 1.02 | | | | | | | | | | |
| 28 | | | | .88 | | | | | | | | |
| 29 | | | | | | .92 | | | 1.25 | | | 1.1 |
| 30 | | | 0.98 | | | .92 | | | | | 1.15 | |
| 31 | | | | | | | | | | | | |

*Daily discharge, in second-feet, of Georgetown Creek near Georgetown, Idaho, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | 103 | | | |
| 2 | | | | | | 23 | 28 | | | | | |
| 3 | | | | | 28 | | 28 | | | | | |
| 4 | | | | | | | | 28 | | | | |
| 5 | | | 27 | 26 | | | 28 | | | | | |
| 6 | | | | | | | | | | | 46 | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | 28 | 162 | | | |
| 9 | | | | | | 26 | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | 28 | | 28 | | | | |
| 12 | | | | 27 | 28 | 28 | 26 | | | | | |
| 13 | | | 27 | | | 28 | | | | 49 | | 41 |
| 14 | | | | | | 28 | | | 102 | | | |
| 15 | | | | | | 28 | | | | | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | 28 | | | | | | 46 | |
| 18 | | | | | | | | 32 | 74 | | | |
| 19 | | | | | | 26 | | | | | | |
| 20 | | | | 27 | | | | | | 46 | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | 24 | | | | | | |
| 23 | 26 | | 27 | | | 24 | | 61 | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | 26 | | | | | | | | |
| 26 | | | | | 28 | 32 | | | | 46 | | |
| 27 | | 29 | | | | | | | | | | |
| 28 | | | | 23 | | | | | | | | |
| 29 | | | | | | 26 | | | 52 | | | 36 |
| 30 | | | 26 | | | 26 | | | | | 41 | |
| 31 | | | | | | | | | | | | |

NOTE.—Discharge determined from two curves fairly well defined below 75 second-feet, one applicable Oct. 23 to Jan. 27 and June 8 to Sept. 30, the other Jan. 28 to June 7.

*Monthly discharge of Georgetown Creek near Georgetown, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October 23–31 | ..... | ..... | a 26 | 464 | B. |
| November | ..... | ..... | a 28 | 1,670 | C. |
| December | 28 | 26 | 26.9 | 1,650 | B. |
| January | 27 | 23 | 26.2 | 1,610 | B. |
| February | 28 | 28 | 27.8 | 1,600 | B. |
| March | 32 | 23 | 26.3 | 1,620 | B. |
| April | 28 | 26 | 26.5 | 1,580 | C. |
| May | 98 | 28 | 45.5 | 2,800 | B. |
| June | 162 | 52 | 96.3 | 5,730 | C. |
| July | 49 | 46 | 48.1 | 2,960 | C. |
| August | 46 | 41 | 44.7 | 2,750 | C. |
| September | 41 | 36 | 39.4 | 2,340 | C. |
| The period | 162 | 23 | 38.5 | 26,800 | |

a Estimated.

NOTE.—Low accuracy rating because of infrequent gage heights. Monthly maximum and minimum refer only to days on which gage readings were obtained. Monthly means computed by interpolating discharge between days when gage was read.

### LOGAN RIVER NEAR LOGAN, UTAH.

**Location.**—In the center of the NW. ¼ sec. 36, T. 12 N., R. 1 E., Salt Lake base and meridian, 2½ miles east of Logan, Utah, 50 feet below bridge over river at mouth of canyon, and about 800 feet below plant of the Utah Power & Light Co., below all tributaries except Blacksmith Fork and Cache River, which enter about 5 and 10 miles, respectively, below the station.

**Records available.**—June 1, 1896, to September 30, 1912.

**Drainage area.**—218 square miles.

**Gage.**—Sloping staff gage on right bank.

**Channel.**—Shifts more or less, especially during high water.

**Discharge measurements.**—Made from car and cable.

**Floods.**—During May and June, 1907, the river reached a discharge of 2,450 second-feet, the maximum flow since the station was established.

**Winter flow.**—Ice does not usually form at this station.

**Diversions.**—The Logan, Hyde Park, and Smithfield canal diverts water above the Utah Power & Light Co.'s plant. The maximum capacity of the canal is a little over 100 second-feet, but the average discharge during the irrigation season is about 75 second-feet. Water is also diverted and used for power development, but is returned to the river above the station.

**Artificial control.**—None.

**Accuracy.**—Records fair.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of Logan River near Logan, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Oct. 7 | G. M. Gilkison | 2.0 | 168 |
| 1912. | | | |
| Mar. 6 | J. C. Dort | 1.75 | 125 |
| Apr. 22 | .....do | 2.14 | 204 |
| Sept. 18 | .....do | 2.24 | 213 |

*Daily gage height, in feet, of Logan River near Logan, Utah, for year ending Sept. 30, 1912.*

[Telluride Power Co., observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.05 | 1.95 | 1.8 | 1.80 | 1.76 | 1.70 | 1.85 | 2.36 | 3.80 | 3.57 | 2.53 | 2.12 |
| 2 | 2.05 | 1.95 | 1.8 | 1.80 | 1.76 | 1.75 | 1.91 | 2.30 | 4.00 | 3.55 | 2.53 | 2.12 |
| 3 | 2.05 | 1.95 | 1.8 | 1.80 | 1.75 | 1.76 | 2.28 | 2.28 | 4.12 | 3.53 | 2.52 | 2.11 |
| 4 | 2.05 | 1.95 | 1.8 | 1.78 | 1.75 | 1.75 | 2.27 | 2.27 | 4.16 | 3.40 | 2.52 | 2.10 |
| 5 | 2.05 | 2.0 | 1.8 | 1.78 | 1.75 | 1.75 | 2.22 | 2.28 | 4.20 | 3.36 | 2.52 | 2.10 |
| 6 | 2.0 | 1.95 | 1.8 | 1.80 | 1.75 | 1.74 | 2.22 | 2.30 | 4.25 | 3.30 | 2.50 | 2.10 |
| 7 | 2.05 | 1.95 | 1.8 | 1.78 | 1.77 | 1.74 | 2.02 | 2.50 | 4.27 | 3.24 | 2.50 | 2.11 |
| 8 | 2.0 | 1.95 | 1.8 | 1.80 | 1.78 | 1.74 | 2.20 | 2.80 | 4.29 | 3.20 | 2.50 | 2.14 |
| 9 | 2.0 | 1.95 | 1.8 | 1.80 | 1.79 | 1.75 | 2.29 | 3.10 | 4.32 | 3.15 | 2.46 | 2.15 |
| 10 | 2.0 | 1.95 | 1.8 | 1.81 | 1.80 | 1.75 | 2.39 | 3.00 | 4.32 | 3.08 | 2.40 | 2.15 |
| 11 | 2.0 | 1.85 | 1.8 | 1.80 | 1.79 | 1.75 | 2.25 | 2.95 | 4.36 | 3.05 | 2.36 | 2.17 |
| 12 | 2.0 | 1.85 | 1.8 | 1.80 | 1.77 | 1.76 | 2.25 | 2.96 | 4.40 | 3.05 | 2.35 | 2.20 |
| 13 | 2.0 | 1.85 | 1.8 | 1.80 | 1.77 | 1.76 | 2.20 | 3.00 | 4.43 | 3.00 | 2.30 | 2.20 |
| 14 | 2.0 | 1.9 | 1.8 | 1.82 | 1.78 | 1.76 | 2.18 | 3.10 | 4.50 | 2.98 | 2.28 | 2.17 |
| 15 | 2.0 | 1.95 | 1.8 | 1.82 | 1.78 | 1.76 | 2.15 | 3.40 | 4.20 | 2.95 | 2.25 | 2.18 |
| 16 | 2.0 | 1.95 | 1.8 | 1.80 | 1.78 | 1.75 | 2.20 | 3.40 | 3.95 | 2.92 | 2.25 | 2.20 |
| 17 | 2.0 | 1.95 | 1.8 | 1.82 | 1.78 | 1.75 | 2.20 | 3.40 | 3.72 | 2.90 | 2.30 | 2.15 |
| 18 | 2.0 | 1.95 | 1.8 | 1.81 | 1.78 | 1.76 | 2.30 | 3.50 | 3.59 | 2.88 | 2.32 | 2.15 |
| 19 | 2.0 | 1.9 | 1.8 | 1.79 | 1.77 | 1.78 | 2.27 | 3.60 | 3.52 | 2.85 | 2.30 | 2.20 |
| 20 | 2.0 | 1.95 | 1.82 | 1.78 | 1.74 | 1.78 | 2.22 | 3.60 | 3.60 | 2.80 | 2.29 | 2.24 |
| 21 | 2.0 | 1.95 | 1.82 | 1.80 | 1.75 | 1.76 | 2.00 | 3.50 | 3.68 | 2.80 | 2.26 | 2.30 |
| 22 | 2.0 | 1.95 | 1.8 | 1.80 | 1.75 | 1.76 | 2.10 | 3.38 | 3.75 | 2.78 | 2.28 | 2.40 |
| 23 | 2.0 | 1.85 | 1.82 | 1.80 | 1.76 | 1.76 | 2.12 | 3.26 | 3.73 | 2.75 | 2.32 | 2.40 |
| 24 | 2.0 | 1.9 | 1.8 | 1.80 | 1.77 | 1.75 | 2.14 | 3.17 | 3.72 | 2.70 | 2.35 | 2.50 |
| 25 | 2.0 | 1.9 | 1.8 | 1.79 | 1.76 | 1.77 | 2.19 | 3.28 | 3.70 | 2.65 | 2.40 | 2.47 |
| 26 | 2.0 | 1.9 | 1.81 | 1.78 | 1.70 | 1.82 | 2.20 | 3.51 | 3.70 | 2.62 | 2.10 | 2.30 |
| 27 | 2.0 | 1.85 | 1.82 | 1.79 | 1.70 | 1.83 | 2.25 | 3.50 | 3.68 | 2.60 | 2.10 | 2.10 |
| 28 | 1.95 | 1.85 | 1.83 | 1.79 | 1.68 | 1.85 | 2.35 | 3.60 | 3.65 | 2.58 | 2.00 | 2.10 |
| 29 | 1.95 | 1.85 | 1.81 | 1.78 | 1.68 | 1.88 | 2.38 | 3.50 | 3.60 | 2.55 | 2.00 | 2.10 |
| 30 | 1.95 | 1.8 | 1.8 | 1.78 | ..... | 1.92 | 2.42 | 3.60 | 3.60 | 2.53 | 2.10 | 2.10 |
| 31 | 1.95 | ..... | 1.8 | 1.78 | ..... | 1.90 | ..... | 3.70 | ..... | 2.50 | 2.10 | ..... |

*Daily discharge, in second-feet, of Logan River near Logan, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 186 | 152 | 105 | 105 | 94 | 112 | 157 | 306 | 1,410 | 1,150 | 358 | 171 |
| 2 | 186 | 152 | 105 | 105 | 94 | 126 | 178 | 275 | 1,590 | 1,130 | 358 | 171 |
| 3 | 186 | 152 | 105 | 105 | 91 | 129 | 340 | 266 | 1,700 | 1,120 | 352 | 168 |
| 4 | 186 | 152 | 105 | 99 | 91 | 126 | 335 | 262 | 1,730 | 1,000 | 352 | 164 |
| 5 | 186 | 168 | 105 | 99 | 91 | 126 | 310 | 266 | 1,770 | 971 | 352 | 164 |
| 6 | 168 | 152 | 105 | 105 | 91 | 123 | 310 | 275 | 1,820 | 920 | 340 | 164 |
| 7 | 186 | 152 | 105 | 99 | 102 | 123 | 218 | 385 | 1,830 | 872 | 340 | 168 |
| 8 | 168 | 152 | 105 | 105 | 112 | 123 | 300 | 585 | 1,850 | 840 | 340 | 178 |
| 9 | 168 | 152 | 105 | 105 | 120 | 126 | 345 | 820 | 1,880 | 800 | 318 | 182 |
| 10 | 168 | 152 | 105 | 108 | 132 | 126 | 395 | 740 | 1,880 | 744 | 286 | 182 |
| 11 | 168 | 120 | 105 | 105 | 137 | 126 | 301 | 700 | 1,910 | 720 | 268 | 189 |
| 12 | 168 | 120 | 105 | 105 | 132 | 129 | 285 | 708 | 1,950 | 720 | 263 | 200 |
| 13 | 168 | 120 | 105 | 105 | 132 | 129 | 252 | 740 | 1,980 | 680 | 240 | 200 |
| 14 | 168 | 135 | 105 | 111 | 134 | 129 | 230 | 820 | 2,040 | 664 | 232 | 189 |
| 15 | 168 | 152 | 105 | 111 | 134 | 129 | 210 | 1,060 | 1,760 | 640 | 220 | 193 |
| 16 | 168 | 152 | 105 | 105 | 134 | 126 | 230 | 1,060 | 1,530 | 616 | 220 | 200 |
| 17 | 168 | 152 | 105 | 111 | 134 | 126 | 230 | 1,060 | 1,300 | 600 | 240 | 182 |
| 18 | 168 | 152 | 105 | 108 | 134 | 129 | 275 | 1,150 | 1,180 | 586 | 249 | 182 |
| 19 | 168 | 135 | 105 | 102 | 132 | 134 | 262 | 1,240 | 1,120 | 565 | 240 | 200 |
| 20 | 168 | 152 | 111 | 99 | 123 | 134 | 239 | 1,240 | 1,180 | 530 | 236 | 216 |
| 21 | 168 | 152 | 111 | 105 | 126 | 129 | 154 | 1,150 | 1,240 | 530 | 224 | 240 |
| 22 | 168 | 152 | 105 | 105 | 126 | 129 | 190 | 1,050 | 1,300 | 516 | 232 | 286 |
| 23 | 168 | 120 | 111 | 105 | 129 | 129 | 198 | 948 | 1,290 | 495 | 249 | 286 |
| 24 | 168 | 135 | 105 | 105 | 132 | 126 | 206 | 876 | 1,280 | 460 | 263 | 340 |
| 25 | 168 | 135 | 105 | 102 | 129 | 132 | 226 | 964 | 1,260 | 430 | 286 | 324 |
| 26 | 168 | 135 | 108 | 99 | 112 | 147 | 230 | 1,160 | 1,260 | 412 | 164 | 240 |
| 27 | 168 | 120 | 111 | 102 | 112 | 150 | 252 | 1,150 | 1,240 | 400 | 164 | 164 |
| 28 | 152 | 120 | 114 | 102 | 107 | 157 | 301 | 1,240 | 1,220 | 388 | 134 | 164 |
| 29 | 152 | 120 | 108 | 99 | 107 | 167 | 317 | 1,150 | 1,180 | 370 | 134 | 164 |
| 30 | 152 | 105 | 105 | 99 | ..... | 181 | 339 | 1,240 | 1,180 | 358 | 164 | 164 |
| 31 | 152 | ..... | 105 | 99 | ..... | 174 | ..... | 1,320 | ..... | 340 | 164 | ..... |

NOTE.—Daily discharge determined from four poorly defined rating curves applicable Sept. 1 to Feb. 6, Feb. 11 to Apr. 10; Apr. 16 to June 14; June 20 to Sept. 30. Discharge Feb. 7–10; Apr. 11–15, and June 15–19 was determined by indirect method for shifting channels.

*Monthly discharge of Logan River near Logan, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 186 | 152 | 169 | 10,400 | A. |
| November | 168 | 105 | 141 | 8,390 | B. |
| December | 114 | 105 | 106 | 6,520 | B. |
| January | 111 | 99 | 104 | 6,400 | B. |
| February | 137 | 91 | 118 | 6,790 | B. |
| March | 181 | 112 | 134 | 8,240 | B. |
| April | 395 | 157 | 260 | 15,500 | B. |
| May | 1,320 | 262 | 845 | 52,000 | C. |
| June | 2,040 | 120 | 1,530 | 91,000 | C. |
| July | 1,150 | 340 | 663 | 40,800 | C. |
| August | 358 | 134 | 257 | 15,800 | B. |
| September | 340 | 164 | 201 | 10,700 | B. |
| The year | 2,040 | 91 | 377 | 273,000 | |

NOTE.—The water diverted past the station by the Logan, Hyde Park, and Smithfield canal is not included in the above totals.

### LOGAN, HYDE PARK, AND SMITHFIELD CANAL NEAR LOGAN, UTAH.

**Location.**—In the NW. ¼ sec. 36, T. 12 N., R. 1 E., Salt Lake base and meridian, about 2½ miles above the town of Logan, one-fourth mile below the plant of the Utah Power & Light Co., and opposite the station on Logan River.

**Records available.**—1904 to 1912, intermittent.

**Gage.**—Vertical staff.

**Channel.**—Fairly permanent.

**Discharge measurements.**—Made by wading or from foot plank.

**Winter flow.**—The canal carries water during the entire year, as it furnishes the domestic water supply for the city of Logan. The water has sufficient velocity, however, so that ice does not usually form to an extent sufficient to affect the relation of gage height to discharge.

**Diversions.**—The canal spills water into Logan River just above the gage, the amount probably averaging 2 second-feet. The station is above all diversions, however, and the discharge added to that at the river station will show practically the total flow of Logan River.

**Artificial control.**—None.

**Accuracy.**—Records rather poor, owing to lack of discharge measurements.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of Logan, Hyde Park, and Smithfield Canal near Logan, Utah, for year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Apr. 22 | J. C. Dort | 1.90 | 8.1 |
| Sept. 18 | ....do | 1.80 | 36.6 |

*Daily gage height, in feet, and discharge, in second-feet, of Logan, Hyde Park, and Smithfield Canal near Logan, Utah, for year ending Sept. 30, 1912.*

[B. A. Oleson, observer.]

| Day. | April. | | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | ..... | 8 | 2.50 | 83 | ..... | 86 | 2.57 | 88 | ..... | 69 |
| 2 | ..... | ..... | 1.20 | 10 | ..... | 84 | 2.56 | 87 | ..... | 72 | ..... | 69 |
| 3 | ..... | ..... | ..... | 13 | ..... | 84 | ..... | 88 | 2.10 | 55 | 2.30 | 69 |
| 4 | ..... | ..... | 1.38 | 16 | 2.53 | 85 | 2.57 | 88 | ..... | 55 | ..... | 68 |
| 5 | ..... | ..... | ..... | 16 | ..... | 86 | ..... | 89 | ..... | 55 | 2.26 | 66 |
| 6 | ..... | ..... | ..... | 17 | 2.55 | 86 | 2.6 | 90 | 2.10 | 55 | ..... | 65 |
| 7 | ..... | ..... | 1.39 | 17 | ..... | 88 | ..... | 91 | ..... | 57 | 2.22 | 63 |
| 8 | ..... | ..... | ..... | 17 | 2.60 | 90 | ..... | 92 | 2.16 | 59 | ..... | 60 |
| 9 | ..... | ..... | 1.40 | 17 | ..... | 85 | 2.65 | 94 | ..... | 60 | ..... | 57 |
| 10 | ..... | ..... | ..... | 18 | ..... | 80 | ..... | 95 | 2.20 | 62 | 2.10 | 55 |
| 11 | ..... | ..... | 1.42 | 18 | 2.39 | 75 | 2.68 | 96 | ..... | 64 | ..... | 49 |
| 12 | ..... | ..... | ..... | 29 | ..... | 67 | ..... | 96 | ..... | 66 | 1.90 | 43 |
| 13 | ..... | ..... | ..... | 40 | 2.18 | 61 | 2.70 | 97 | 2.30 | 69 | ..... | 42 |
| 14 | ..... | ..... | 2.05 | 52 | ..... | 55 | ..... | 96 | ..... | 67 | 1.86 | 41 |
| 15 | ..... | ..... | ..... | 52 | 2.00 | 49 | ..... | 94 | 2.25 | 65 | ..... | 40 |
| 16 | ..... | ..... | 2.05 | 52 | ..... | 48 | 2.63 | 92 | ..... | 61 | ..... | 38 |
| 17 | ..... | ..... | ..... | 46 | ..... | 46 | ..... | 90 | 2.13 | 57 | 1.78 | 36 |
| 18 | ..... | ..... | 1.86 | 41 | 1.92 | 44 | 2.58 | 89 | ..... | 54 | 1.80 | 37 |
| 19 | ..... | ..... | ..... | 43 | ..... | 43 | ..... | 87 | 2.05 | 52 | 1.85 | 40 |
| 20 | ..... | ..... | ..... | 46 | 1.88 | 42 | 2.53 | 85 | ..... | 54 | ..... | 42 |
| 21 | ..... | ..... | 2.00 | 49 | ..... | 41 | ..... | 87 | ..... | 56 | 1.90 | 43 |
| 22 | 1.90 | 8 | ..... | 53 | 1.85 | 40 | ..... | 89 | 2.14 | 58 | ..... | 43 |
| 23 | ..... | 10 | 2.15 | 58 | ..... | 44 | 2.61 | 91 | ..... | 60 | ..... | 42 |
| 24 | ..... | 12 | ..... | 62 | ..... | 49 | ..... | 92 | 2.20 | 62 | 1.87 | 41 |
| 25 | 1.33 | 14 | 2.27 | 67 | 2.08 | 54 | 2.65 | 94 | ..... | 62 | ..... | 41 |
| 26 | ..... | 12 | ..... | 68 | ..... | 61 | ..... | 96 | ..... | 64 | ..... | 40 |
| 27 | ..... | 10 | ..... | 70 | 2.30 | 69 | 2.72 | 99 | 2.24 | 65 | 1.85 | 40 |
| 28 | ..... | 8 | 2.35 | 72 | ..... | 76 | ..... | 100 | ..... | 66 | ..... | 40 |
| 29 | ..... | 6 | ..... | 75 | 2.52 | 84 | ..... | 102 | 2.26 | 66 | 1.83 | 39 |
| 30 | 1.00 | 5 | 2.44 | 79 | ..... | 85 | 2.80 | 105 | ..... | 68 | ..... | 39 |
| 31 | ..... | ..... | ..... | 81 | ..... | ..... | ..... | 96 | 2.30 | 69 | ..... | ..... |

NOTE.—Canal cleaned and repaired Apr. 22 to May 3. Discharge determined from a poorly defined rating curve applicable Apr. 25 to Sept. 29. Discharge interpolated on days on which gage was not read.

*Monthly discharge of Logan, Hyde Park, and Smithfield Canal near Logan, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 22-30 | 14 | 5 | 9.4 | 168 | C. |
| May | 81 | 8 | 42.0 | 2,580 | B. |
| June | 90 | 40 | 66.1 | 3,930 | B. |
| July | 105 | 85 | 92.7 | 5,700 | B. |
| August | 88 | 52 | 62.0 | 3,810 | B. |
| September | 69 | 36 | 48.6 | 2,890 | B. |
| The period | ..... | ..... | ..... | 19,100 | |

### LITTLE MALAD RIVER NEAR MALAD, IDAHO.

**Location.**—In sec. 36, T. 12 S., R. 34 E., Boise meridian, at Schwartz ranch, about three-fourths of a mile below the Kerns & Tovey reservoir site, about 2½ miles above the Elkhorn reservoir site, and about 14 miles northwest of Malad.

**Records available.**—August 2, 1911, to September 30, 1912.

**Drainage area.**—Not measured.
**Gage.**—Inclined staff about 175 feet above a 3-foot fall in the river.
**Channel.**—Small bowlders embedded in clay and hardpan; shifts occasionally; right bank may overflow at extremely high stages.
**Discharge measurements.**—Made by wading about 150 feet above the gage.
**Winter flow.**—Relation of gage height to discharge affected by ice for short periods during the coldest part of the winter.
**Accuracy.**—Good.

The records at this point will indicate the amount of water available for storage at one of several proposed reservoir sites.

*Discharge measurements of Little Malad River near Malad, Idaho, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 12 | H. L. Stoner | 3.00 | 13.0 |
| 1912. | | | |
| Apr. 10 | A. B. Purton | 3.30 | 27.1 |
| 11 | do | 3.32 | 27.8 |
| May 27 | H. L. Stoner | 3.32 | 26.0 |

*Daily gage height, in feet, of Little Malad River near Malad, Idaho, for year ending Sept. 30, 1912.*

[N. W. Lewis, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 3.0 | 3.0 | 3.1 | 3.1 | 3.1 | 3.65 | 3.35 | 3.45 | 3.25 | 3.65 | ..... |
| 2 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 | 3.15 | 3.75 | 3.35 | ..... | 3.25 | 3.85 | 3.05 |
| 3 | 3.0 | 3.0 | ..... | 3.1 | 3.1 | ..... | 3.55 | 3.25 | 3.35 | 3.25 | 3.45 | 3.05 |
| 4 | 3.0 | 3.0 | 3.0 | 3.0 | ..... | 3.2 | 3.55 | 3.25 | 3.35 | 3.25 | ..... | 3.05 |
| 5 | 3.0 | ..... | 3.0 | 3.0 | 3.1 | 3.2 | 3.45 | ..... | 3.35 | 3.25 | 3.25 | 3.15 |
| 6 | 3.0 | 3.0 | 3.0 | 3.2 | 3.1 | 3.3 | 3.35 | 3.25 | 3.35 | 3.25 | 3.25 | 3.15 |
| 7 | 3.0 | 3.0 | 3.0 | ..... | 3.1 | 3.3 | ..... | 3.25 | 3.35 | ..... | 3.25 | 3.15 |
| 8 | ..... | 3.05 | 3.0 | 3.1 | 3.1 | 3.2 | 3.55 | 3.25 | 3.45 | 3.25 | 3.15 | ..... |
| 9 | 3.0 | 3.05 | 3.0 | 3.1 | 3.1 | 3.3 | 3.55 | 3.55 | ..... | 3.15 | 3.25 | 3.15 |
| 10 | 3.1 | 3.1 | ..... | 3.1 | 3.1 | ..... | 3.55 | 3.35 | 3.45 | 3.15 | 3.15 | 3.15 |
| 11 | 3.0 | 3.1 | 3.0 | 3.15 | ..... | 3.2 | 3.55 | 3.55 | 3.35 | 3.15 | ..... | 3.15 |
| 12 | 3.0 | ..... | 3.0 | 3.1 | 3.1 | 3.1 | 3.65 | ..... | 3.35 | 3.25 | 3.25 | 3.15 |
| 13 | 3.0 | 3.05 | 3.0 | 3.1 | 3.15 | 3.1 | 3.65 | 3.35 | 3.35 | 3.25 | 3.25 | 3.15 |
| 14 | 3.0 | 3.1 | 3.0 | ..... | 3.2 | 3.1 | ..... | 3.35 | 3.45 | ..... | 3.25 | 3.15 |
| 15 | ..... | 3.05 | 3.0 | 3.1 | 3.15 | 3.15 | 3.45 | 3.45 | 3.35 | 3.15 | 3.25 | ..... |
| 16 | 3.0 | 3.05 | 3.0 | 3.1 | 3.1 | 3.2 | 3.45 | 3.35 | ..... | 3.15 | 3.25 | 3.15 |
| 17 | 3.0 | 3.05 | ..... | 3.2 | 3.1 | ..... | 3.35 | 3.35 | 3.25 | 3.15 | 3.25 | 3.15 |
| 18 | 3.0 | 3.0 | 3.0 | 3.2 | ..... | 3.45 | 3.35 | 3.45 | 3.25 | 3.25 | ..... | 3.15 |
| 19 | 3.0 | ..... | 3.0 | 3.1 | 3.1 | 3.45 | 3.45 | ..... | 3.25 | 3.15 | 3.25 | 3.15 |
| 20 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 | 3.45 | 3.35 | 3.45 | 3.25 | 3.25 | 3.15 | 3.15 |
| 21 | 3.0 | 3.0 | 3.0 | ..... | 3.1 | 3.4 | ..... | 3.45 | 3.25 | ..... | 3.15 | 3.15 |
| 22 | ..... | 3.0 | 3.0 | 3.1 | 3.1 | 3.45 | 3.45 | 3.45 | 3.25 | 3.25 | 3.15 | ..... |
| 23 | 3.0 | 3.0 | 3.0 | 3.1 | 3.1 | 3.45 | 3.45 | 3.45 | ..... | 3.25 | 3.15 | 3.15 |
| 24 | 3.0 | 3.0 | ..... | 3.1 | 3.1 | ..... | 3.35 | 3.35 | 3.25 | 3.25 | 3.15 | 3.15 |
| 25 | 3.0 | 3.0 | 3.0 | 3.1 | ..... | 3.45 | 3.45 | 3.35 | 3.15 | 3.15 | ..... | 3.15 |
| 26 | 3.0 | ..... | 3.0 | 3.1 | 3.2 | 3.45 | 3.35 | ..... | 3.25 | 3.15 | 3.15 | 3.15 |
| 27 | 3.0 | 3.0 | 3.0 | 3.1 | 3.2 | 3.55 | 3.45 | 3.45 | 3.15 | 3.15 | 3.25 | 3.15 |
| 28 | 3.0 | 3.0 | 3.1 | ..... | 3.1 | 3.55 | ..... | 3.35 | 3.15 | ..... | 3.15 | 3.15 |
| 29 | ..... | 3.0 | 3.05 | 3.1 | 3.1 | 3.65 | 3.35 | 3.45 | 3.15 | 3.25 | 3.15 | ..... |
| 30 | 3.0 | 3.0 | 3.2 | 3.1 | ..... | 3.55 | 3.35 | 3.45 | ..... | 3.25 | 3.05 | 3.15 |
| 31 | 3.0 | ..... | ..... | 3.1 | ..... | ..... | ..... | 3.45 | ..... | 3.65 | 3.15 | ..... |

NOTE.—Relation of gage height to discharge affected by ice Dec. 28, 1911, to Jan. 13, 1912.

*Daily discharge, in second-feet, of Little Malad River near Malad, Idaho, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 13 | 13 | 13 | 13 | 17.5 | 17.5 | 50 | 27 | 32 | 22 | 46 | 15.5 |
| 2 | 13 | 13 | 13 | 13 | 17.5 | 20 | 57 | 27 | 30 | 22 | 61 | 13.5 |
| 3 | 13 | 13 | 13 | 13 | 17.5 | 21 | 42 | 22 | 27 | 22 | 32 | 13.5 |
| 4 | 13 | 13 | 13 | 13 | 17.5 | 22 | 42 | 22 | 27 | 22 | 27 | 13.5 |
| 5 | 13 | 13 | 13 | 13 | 17.5 | 22 | 36 | 22 | 27 | 22 | 22 | 17.5 |
| 6 | 13 | 13 | 13 | 13 | 17.5 | 27 | 30 | 22 | 27 | 22 | 22 | 17.5 |
| 7 | 13 | 13 | 13 | 13 | 17.5 | 27 | 36 | 22 | 27 | 22 | 22 | 17.5 |
| 8 | 13 | 16 | 13 | 13 | 17.5 | 22 | 42 | 22 | 32 | 22 | 17.5 | 17.5 |
| 9 | 13 | 16 | 13 | 13 | 17.5 | 27 | 42 | 39 | 32 | 17.5 | 22 | 17.5 |
| 10 | 18 | 18 | 13 | 13 | 17.5 | 24 | 42 | 27 | 32 | 17.5 | 17.5 | 17.5 |
| 11 | 13 | 18 | 13 | 13 | 17.5 | 22 | 42 | 39 | 27 | 17.5 | 20 | 17.5 |
| 12 | 13 | 17 | 13 | 13 | 17.5 | 17.5 | 50 | 33 | 27 | 22 | 22 | 17.5 |
| 13 | 13 | 16 | 13 | 13 | 20 | 17.5 | 50 | 27 | 27 | 22 | 22 | 17.5 |
| 14 | 13 | 18 | 13 | 15 | 22 | 17.5 | 41 | 27 | 32 | 20 | 22 | 17.5 |
| 15 | 13 | 16 | 13 | 17.5 | 20 | 20 | 32 | 32 | 27 | 17.5 | 22 | 17.5 |
| 16 | 13 | 16 | 13 | 17.5 | 17.5 | 22 | 32 | 27 | 24 | 17.5 | 22 | 17.5 |
| 17 | 13 | 16 | 13 | 22 | 17.5 | 29 | 27 | 27 | 22 | 17.5 | 22 | 17.5 |
| 18 | 13 | 13 | 13 | 22 | 17.5 | 36 | 27 | 32 | 22 | 22 | 22 | 17.5 |
| 19 | 13 | 13 | 13 | 17.5 | 17.5 | 36 | 32 | 32 | 22 | 17.5 | 22 | 17.5 |
| 20 | 13 | 13 | 13 | 17.5 | 17.5 | 36 | 27 | 32 | 22 | 22 | 17.5 | 17.5 |
| 21 | 13 | 13 | 13 | 17.5 | 17.5 | 33 | 30 | 32 | 22 | 22 | 17.5 | 17.5 |
| 22 | 13 | 13 | 13 | 17.5 | 17.5 | 36 | 32 | 32 | 22 | 22 | 17.5 | 17.5 |
| 23 | 13 | 13 | 13 | 17.5 | 17.5 | 36 | 32 | 32 | 22 | 22 | 17.5 | 17.5 |
| 24 | 13 | 13 | 13 | 17.5 | 17.5 | 36 | 27 | 27 | 22 | 22 | 17.5 | 17.5 |
| 25 | 13 | 13 | 13 | 17.5 | 20 | 36 | 32 | 27 | 17.5 | 17.5 | 17.5 | 17.5 |
| 26 | 13 | 13 | 13 | 17.5 | 22 | 36 | 27 | 30 | 22 | 17.5 | 17.5 | 17.5 |
| 27 | 13 | 13 | 13 | 17.5 | 22 | 42 | 32 | 32 | 17.5 | 17.5 | 22 | 17.5 |
| 28 | 13 | 13 | 13 | 17.5 | 17.5 | 42 | 30 | 27 | 17.5 | 20 | 17.5 | 17.5 |
| 29 | 13 | 13 | 13 | 17.5 | 17.5 | 50 | 27 | 32 | 17.5 | 22 | 17.5 | 17.5 |
| 30 | 13 | 13 | 13 | 17.5 | ..... | 42 | 27 | 32 | 20 | 22 | 13.5 | 17.5 |
| 31 | 13 | ..... | 13 | 17.5 | ..... | 46 | ..... | 32 | ..... | 46 | 17.5 | ..... |

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable Oct. 1 to Apr. 13, the other Apr. 15 to Sept. 30. Discharge interpolated for days on which gage was not read. Discharge estimated Dec. 28, 1911, to Jan. 13, 1912.

*Monthly discharge of Little Malad River near Malad, Idaho, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 18 | 13 | 13.2 | 812 | A. |
| November | 18 | 13 | 14.2 | 845 | A. |
| December | 13 | 13 | 13.0 | 799 | A. |
| January | 22 | 13 | 15.8 | 972 | B. |
| February | 22 | 17.5 | 18.2 | 1,050 | A. |
| March | 50 | 17.5 | 29.6 | 1,820 | B. |
| April | 57 | 27 | 35.8 | 2,130 | B. |
| May | 39 | 22 | 28.9 | 1,780 | B. |
| June | 32 | 17.5 | 24.8 | 1,480 | B. |
| July | 46 | 17.5 | 21.2 | 1,300 | A. |
| August | 61 | 13.5 | 22.4 | 1,380 | B. |
| September | 17.5 | 13.5 | 17.0 | 1,010 | A. |
| The year | 61 | 13 | 21.2 | 15,400 | |

### BOX ELDER CREEK AT BRIGHAM, UTAH.

**Location.**—In sec. 13, T. 9 N., R. 2 W., Salt Lake base and meridian, at highway bridge three blocks west and five blocks north of the courthouse at Brigham, Utah.

**Records available.**—May 20, 1909, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff. Datum was lowered 2 feet February 24, 1910.

**Channel.**—Shifting.

**Discharge measurements.**—Made by wading or from bridge at the gage.

**Floods.**—On February 1, 1911, the creek reached a gage height of 4.9 feet, the corresponding discharge being 159 second-feet.

**Winter flow.**—Ice forms at this station and affects the relation of gage height to discharge during certain periods.

**Diversions.**—During the summer months the entire flow of the creek is used for irrigation above the station.

**Accuracy.**—Records poor, because of constantly shifting stream bed and unreliable gage heights.

*Discharge measurements of Box Elder Creek at Brigham, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Nov. 4 | J. C. Dort | 4.20 | 6.0 | Mar. 7 | J. C. Dort | 4.50 | 25 |
| Dec. 12 | Leonard Tanner | 4.35 | 14.2 | Apr. 1 | do | 4.50 | 20 |
| | | | | 20 | do | 4.6 | 33.4 |
| | | | | May 27 | E. A. Porter | 4.5 | 45.6 |

*Daily gage height, in feet, of Box Elder Creek, at Brigham, Utah, for year ending Sept. 30, 1912.*

[Woodruff Nelson, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.1 | 4.2 | 4.3 | 4.2 | 4.3 | 4.3 | 4.6 | 4.7 | 4.0 |
| 2 | 4.2 | 4.2 | 4.3 | 4.2 | 4.3 | 4.3 | 4.6 | 4.6 | 3.5 |
| 3 | 4.1 | 4.2 | 4.3 | 4.2 | 4.3 | 4.4 | 4.6 | 4.4 | 3.2 |
| 4 | 4.1 | 4.2 | 4.4 | 4.2 | 4.3 | 4.4 | 4.7 | 4.5 | ..... |
| 5 | 4.1 | 4.2 | 4.4 | 4.2 | 4.3 | 4.4 | 4.7 | 4.6 | ..... |
| 6 | 4.1 | 4.2 | 4.4 | 4.2 | 4.3 | 4.5 | 4.7 | 4.6 | ..... |
| 7 | 4.1 | 4.3 | 4.4 | 4.2 | 4.3 | 4.5 | 4.7 | 4.7 | ..... |
| 8 | 4.1 | 4.3 | 4.5 | 4.2 | 4.3 | 4.5 | 4.7 | 4.8 | ..... |
| 9 | 4.1 | 4.3 | 4.5 | 4.2 | 4.3 | 4.5 | 4.8 | 4.8 | ..... |
| 10 | 4.1 | 4.3 | 4.5 | 4.2 | 4.3 | 4.5 | 4.8 | 4.9 | ..... |
| 11 | 4.1 | 4.3 | 4.4 | 4.2 | 4.3 | 4.5 | 4.9 | 5.0 | ..... |
| 12 | 4.1 | 4.3 | 4.4 | 4.2 | 4.3 | 4.5 | 4.9 | 5.3 | 4.7 |
| 13 | 4.1 | 4.3 | 4.4 | 4.2 | 4.3 | 4.5 | 4.9 | 5.2 | 4.7 |
| 14 | 4.1 | 4.3 | 4.3 | 4.2 | 4.3 | 4.4 | 4.8 | 5.3 | 4.5 |
| 15 | 4.1 | 4.3 | 4.3 | 4.2 | 4.3 | 4.5 | 4.6 | 5.4 | 4.4 |
| 16 | 4.1 | 4.4 | 4.3 | 4.2 | 4.4 | 4.5 | 4.6 | 5.5 | 4.3 |
| 17 | 4.1 | 4.3 | 4.3 | 4.3 | 4.4 | 4.5 | 4.5 | 5.6 | 4.2 |
| 18 | 4.1 | 4.4 | 4.3 | 4.3 | 4.4 | 4.5 | 4.6 | 5.6 | 4.1 |
| 19 | 4.1 | 4.3 | 4.3 | 4.3 | 4.4 | 4.5 | 4.6 | 5.5 | 4.0 |
| 20 | 4.1 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.6 | 5.2 | ..... |
| 21 | 4.2 | 4.3 | 4.2 | 4.3 | 4.3 | 4.5 | 4.6 | 5.0 | ..... |
| 22 | 4.2 | 4.4 | 4.2 | 4.3 | 4.3 | 4.6 | 4.6 | 4.7 | ..... |
| 23 | 4.2 | 4.3 | 4.2 | 4.3 | 4.3 | 4.6 | 4.6 | 4.6 | ..... |
| 24 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.6 | 4.6 | ..... |
| 25 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.6 | 4.5 | ..... |
| 26 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.6 | 4.5 | ..... |
| 27 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.6 | 4.4 | ..... |
| 28 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.6 | 4.7 | 4.4 | ..... |
| 29 | 4.2 | 4.3 | 4.3 | 4.3 | 4.3 | 4.5 | 4.6 | 4.3 | ..... |
| 30 | 4.2 | 4.3 | 4.3 | 4.3 | ..... | 4.6 | 4.6 | 4.3 | ..... |
| 31 | 4.2 | ..... | 4.3 | 4.3 | ..... | 4.6 | ..... | 4.2 | ..... |

NOTE.—Creek dry June 3 to 11, June 20 to Sept. 30. Probably no effect from ice.

*Daily discharge, in second-feet, of Box Elder Creek at Brigham, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 5 | 7 | 10 | 9 | 12 | 15 | 26 | 41 | 16 |
| 2 | 7 | 7 | 10 | 9 | 12 | 15 | 26 | 34 | 3 |
| 3 | 5 | 7 | 10 | 9 | 12 | 20 | 26 | 23 | 0 |
| 4 | 5 | 7 | 13 | 9 | 12 | 20 | 33 | 28 | 0 |
| 5 | 5 | 7 | 13 | 9 | 12 | 20 | 34 | 34 | 0 |
| 6 | 5 | 7 | 13 | 9 | 12 | 25 | 35 | 34 | 0 |
| 7 | 5 | 10 | 13 | 9 | 12 | 25 | 36 | 41 | 0 |
| 8 | 5 | 10 | 18 | 9 | 12 | 25 | 38 | 48 | 0 |
| 9 | 5 | 10 | 18 | 9 | 12 | 25 | 45 | 48 | 0 |
| 10 | 5 | 10 | 18 | 9 | 12 | 24 | 46 | 56 | 0 |
| 11 | 5 | 10 | 13 | 9 | 12 | 24 | 55 | 64 | 0 |
| 12 | 5 | 10 | 13 | 9 | 12 | 24 | 56 | 91 | 17 |
| 13 | 5 | 10 | 13 | 9 | 12 | 24 | 56 | 82 | 17 |
| 14 | 5 | 10 | 10 | 9 | 12 | 19 | 48 | 91 | 9 |
| 15 | 5 | 10 | 10 | 9 | 12 | 24 | 34 | 100 | 7 |
| 16 | 5 | 13 | 10 | 9 | 17 | 24 | 34 | 110 | 5 |
| 17 | 5 | 10 | 10 | 12 | 18 | 23 | 28 | 120 | 3 |
| 18 | 5 | 13 | 10 | 12 | 18 | 23 | 34 | 122 | 2 |
| 19 | 5 | 10 | 10 | 12 | 20 | 23 | 34 | 115 | 1 |
| 20 | 5 | 10 | 10 | 12 | 15 | 28 | 34 | 88 | 0 |
| 21 | 7 | 10 | 7 | 12 | 15 | 22 | 34 | 73 | 0 |
| 22 | 7 | 13 | 7 | 12 | 15 | 27 | 34 | 50 | 0 |
| 23 | 7 | 10 | 7 | 12 | 15 | 27 | 34 | 44 | 0 |
| 24 | 7 | 10 | 10 | 12 | 15 | 27 | 34 | 47 | 0 |
| 25 | 7 | 10 | 10 | 12 | 15 | 26 | 34 | 42 | 0 |
| 26 | 7 | 10 | 10 | 12 | 15 | 26 | 34 | 43 | 0 |
| 27 | 7 | 10 | 10 | 12 | 15 | 26 | 34 | 38 | 0 |
| 28 | 7 | 10 | 10 | 12 | 15 | 26 | 41 | 38 | 0 |
| 29 | 7 | 10 | 10 | 12 | 15 | 21 | 34 | 32 | 0 |
| 30 | 7 | 10 | 10 | 12 | ..... | 26 | 34 | 32 | 0 |
| 31 | 7 | ..... | 10 | 12 | ..... | 26 | ..... | 26 | ..... |

NOTE.—Discharge determined from several poorly defined rating curves and by the indirect method for shifting channels.

*Monthly discharge of Box Elder Creek at Brigham, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 7 | 5 | 5.8 | 360 | D. |
| November | 13 | 7 | 9.7 | 580 | D. |
| December | 18 | 7 | 11.2 | 689 | D. |
| January | 12 | 9 | 10.5 | 646 | D. |
| February | 20 | 12 | 13.9 | 800 | D. |
| March | 28 | 15 | 23.5 | 1,440 | C. |
| April | 56 | 26 | 36.8 | 2,190 | C. |
| May | 122 | 23 | 59.2 | 3,640 | D. |
| June | 17 | 0 | 2.7 | 161 | D. |
| July | 0 | 0 | 0 | 0 | |
| August | 0 | 0 | 0 | 0 | |
| September | 0 | 0 | 0 | 0 | |
| The year | 122 | 0 | 14.4 | 10,500 | |

## WEBER RIVER BASIN.

### WEBER RIVER NEAR OAKLEY, UTAH.

**Location.**—In the SW. ¼ NE. ¼ sec. 15, T. 1 S., R. 6 E., Salt Lake base and meridian, near the mouth of the canyon, 3 miles above Oakley post office, below the South Fork of Weber River and above Kamas Creek.

**Records available.**—October 22, 1904, to September 30, 1912.

**Drainage area.**—163 square miles.

**Gage.**—An inclined iron rod firmly bolted to a limestone ridge at the left end of the cable; datum unchanged.

**Channel.**—One channel at all stages; fairly permanent, but may shift during extreme high water.

**Discharge measurements.**—Made from car and cable during medium to high water; by wading just below the cable during low water.

**Winter flow.**—The river freezes across at the station and the relation of gage height to discharge is also affected by needle and anchor ice.

**Diversions.**—No water is diverted above the station, but several canals head just below, diverting water for the Kamas prairie region.

**Accuracy.**—Results are believed to be fairly reliable, though the measurements plot rather scattering owing to poor measuring conditions.

The following measurement was made by J. C. Dort:

April 19: Gage height, 4.14 feet; discharge, 110 second-feet.

*Daily gage height, in feet, of Weber River near Oakley, Utah, for year ending Sept. 30, 1912.*

[John Franson, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.1 | ..... | ..... | ..... | ..... | ..... | 3.95 | 4.15 | 6.3 | 5.7 | 4.6 | 4.2 |
| 2 | 4.25 | 4.0 | 5.1 | ..... | ..... | ..... | 3.95 | 4.15 | 6.6 | 5.6 | 4.6 | 4.2 |
| 3 | 4.20 | 4.0 | 5.1 | ..... | ..... | ..... | 4.0 | 4.2 | 7.1 | 5.5 | 4.6 | 4.2 |
| 4 | 4.15 | 4.0 | 4.8 | 4.6 | ..... | ..... | 4.05 | 4.2 | 7.2 | 5.3 | 4.5 | 4.2 |
| 5 | 4.10 | 4.0 | 4.4 | ..... | ..... | ..... | 4.0 | 4.2 | 7.3 | 5.3 | 4.5 | 4.2 |
| 6 | 4.10 | 4.0 | 4.6 | ..... | ..... | 3.9 | 4.05 | 4.3 | 7.5 | 5.2 | 4.5 | 4.2 |
| 7 | 4.05 | 4.0 | 4.6 | ..... | 3.9 | ..... | 4.05 | 4.35 | 8.0 | 5.1 | 4.45 | 4.2 |
| 8 | 4.05 | ..... | ..... | ..... | ..... | ..... | 4.1 | 4.4 | 7.9 | 5.05 | 4.4 | 4.2 |
| 9 | 4.05 | 4.05 | 4.4 | ..... | ..... | ..... | 4.15 | 4.5 | 8.4 | 5.0 | 4.4 | 4.3 |
| 10 | 4.05 | 4.2 | 4.4 | 5.3 | ..... | ..... | 4.2 | 4.6 | 7.6 | 5.0 | 4.35 | 4.3 |
| 11 | 4.05 | 4.2 | 4.5 | ..... | ..... | ..... | 4.2 | 4.65 | 7.0 | 5.0 | 4.35 | 4.25 |
| 12 | 4.05 | 4.3 | 4.4 | ..... | ..... | ..... | 4.15 | 4.75 | 6.9 | 4.9 | 4.35 | 4.25 |
| 13 | 4.05 | 4.3 | 4.6 | ..... | ..... | ..... | 4.15 | 4.8 | 7.3 | 4.9 | 4.3 | 4.25 |
| 14 | 4.05 | 4.2 | ..... | ..... | ..... | 3.95 | 4.15 | 4.9 | 6.7 | 4.9 | 4.3 | 4.25 |
| 15 | 4.05 | ..... | 4.6 | ..... | 3.95 | ..... | 4.1 | 5.1 | 6.6 | 4.8 | 4.5 | 4.25 |
| 16 | 4.05 | 4.15 | 4.8 | ..... | ..... | ..... | 4.1 | 5.2 | 6.1 | 4.75 | 4.4 | 4.2 |
| 17 | 4.05 | 4.0 | 4.8 | 4.05 | ..... | ..... | 4.1 | 5.4 | 6.0 | 4.7 | 4.35 | 4.2 |
| 18 | ..... | 4.0 | 5.0 | ..... | ..... | ..... | 4.1 | 5.6 | 5.9 | 4.7 | 4.35 | 4.2 |
| 19 | 4.05 | 4.0 | ..... | ..... | ..... | ..... | 4.1 | 5.8 | 5.9 | 4.7 | 4.3 | 4.2 |
| 20 | 4.0 | 4.0 | 5.0 | ..... | ..... | ..... | 4.1 | 6.0 | 6.2 | 4.7 | 4.3 | 4.2 |
| 21 | 4.0 | 4.0 | 5.3 | ..... | 4.0 | 4.1 | 4.1 | 6.0 | 6.5 | 4.65 | 4.3 | ..... |
| 22 | 4.0 | 4.1 | 5.3 | ..... | ..... | ..... | 4.15 | 5.8 | ..... | 4.65 | 4.25 | ..... |
| 23 | 4.0 | 4.1 | 5.7 | ..... | ..... | ..... | 4.15 | 5.6 | 6.6 | 4.6 | 4.25 | 4.15 |
| 24 | ..... | 4.15 | 5.8 | ..... | ..... | ..... | 4.15 | 5.6 | 6.8 | 4.6 | 4.25 | 4.15 |
| 25 | 4.0 | 4.2 | 5.6 | 3.95 | ..... | ..... | 4.2 | 5.9 | 6.4 | 4.55 | 4.25 | 4.15 |
| 26 | 4.0 | 4.3 | 5.6 | ..... | ..... | ..... | 4.15 | 6.0 | 6.3 | 4.55 | 4.25 | 4.15 |
| 27 | 4.0 | 4.3 | 5.4 | ..... | ..... | ..... | 4.15 | 6.0 | 6.2 | 4.5 | 4.25 | 4.15 |
| 28 | 4.0 | 4.5 | 5.0 | ..... | ..... | 3.95 | 4.2 | 5.8 | 6.1 | 4.5 | 4.3 | 4.15 |
| 29 | 4.0 | 4.7 | 4.9 | ..... | 4.1 | ..... | 4.2 | 6.1 | 6.0 | 4.5 | 4.25 | 4.15 |
| 30 | 4.0 | 5.0 | 4.7 | ..... | ..... | ..... | 4.2 | 6.6 | ..... | 4.5 | 4.25 | 4.15 |
| 31 | 4.0 | ..... | 4.7 | 3.95 | ..... | ..... | ..... | 6.4 | ..... | 4.5 | 4.2 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Nov. 10–16 and Nov. 24 to Mar. 17.

*Daily discharge, in second-feet, of Weber River near Oakley, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 96 | 74 | ..... | 64 | 108 | 1,250 | 811 | 240 | 120 |
| 2 | 133 | 74 | ..... | 64 | 108 | 1,510 | 747 | 240 | 120 |
| 3 | 120 | 74 | ..... | 74 | 120 | 1,990 | 685 | 240 | 120 |
| 4 | 108 | 74 | ..... | 85 | 120 | 2,100 | 568 | 205 | 120 |
| 5 | 96 | 74 | ..... | 74 | 120 | 2,220 | 568 | 205 | 120 |
| 6 | 96 | 74 | ..... | 85 | 146 | 2,490 | 514 | 205 | 120 |
| 7 | 85 | 74 | ..... | 85 | 160 | 3,220 | 462 | 190 | 120 |
| 8 | 85 | 80 | ..... | 96 | 174 | 3,070 | 438 | 174 | 120 |
| 9 | 85 | 85 | ..... | 108 | 205 | 3,850 | 412 | 174 | 146 |
| 10 | 85 | ..... | ..... | 120 | 240 | 2,630 | 412 | 160 | 146 |
| 11 | 85 | ..... | ..... | 120 | 259 | 1,890 | 412 | 160 | 133 |
| 12 | 85 | ..... | ..... | 108 | 299 | 1,790 | 364 | 160 | 133 |
| 13 | 85 | ..... | ..... | 108 | 320 | 2,220 | 364 | 146 | 133 |
| 14 | 85 | ..... | ..... | 108 | 364 | 1,600 | 364 | 146 | 133 |
| 15 | 85 | ..... | ..... | 96 | 462 | 1,510 | 320 | 205 | 133 |
| 16 | 85 | ..... | ..... | 96 | 514 | 1,090 | 299 | 174 | 120 |
| 17 | 85 | 74 | ..... | 96 | 625 | 1,020 | 278 | 160 | 120 |
| 18 | 85 | 74 | 200 | 96 | 747 | 948 | 278 | 160 | 120 |
| 19 | 85 | 74 | 150 | 96 | 878 | 948 | 278 | 146 | 120 |
| 20 | 74 | 74 | 100 | 96 | 1,020 | 1,170 | 278 | 146 | 120 |
| 21 | 74 | 74 | 96 | 96 | 1,020 | 1,420 | 259 | 146 | 116 |
| 22 | 74 | 96 | 90 | 108 | 878 | 1,460 | 259 | 133 | 112 |
| 23 | 74 | 96 | 85 | 108 | 747 | 1,510 | 240 | 133 | 108 |
| 24 | 74 | ..... | 80 | 108 | 747 | 1,690 | 240 | 133 | 108 |
| 25 | 74 | ..... | 75 | 120 | 948 | 1,330 | 222 | 133 | 108 |
| 26 | 74 | ..... | 70 | 108 | 1,020 | 1,250 | 222 | 133 | 108 |
| 27 | 74 | ..... | 65 | 108 | 1,020 | 1,170 | 205 | 133 | 108 |
| 28 | 74 | ..... | 64 | 120 | 878 | 1,090 | 205 | 146 | 108 |
| 29 | 74 | ..... | 64 | 120 | 1,090 | 1,020 | 205 | 133 | 108 |
| 30 | 74 | ..... | 64 | 120 | 1,510 | 900 | 205 | 133 | 108 |
| 31 | 74 | ..... | 64 | ..... | 1,330 | ..... | 205 | 120 | ..... |

NOTE.—Discharge estimated as follows because of ice: Nov. 10–16, 75 second-feet; Nov. 24 to Dec. 31, 75 second-feet; Jan. 1–31, 65 second-feet; Feb. 1 to Mar. 17, 75 second-feet. Discharge interpolated for days on which gage was not read except Mar. 18–20, which was estimated.

*Monthly discharge of Weber River near Oakley, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 163 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 133 | 74 | 85.2 | 0.523 | 0.60 | 5,240 | A. |
| November | 96 | 74 | 76.5 | .469 | .52 | 4,550 | C. |
| December | ..... | ..... | a 75 | .460 | .53 | 4,610 | D. |
| January | ..... | ..... | a 65 | .399 | .46 | 4,000 | D. |
| February | ..... | ..... | a 75 | .460 | .50 | 4,310 | D. |
| March | ..... | ..... | 82 | .503 | .58 | 5,040 | D. |
| April | 120 | 64 | 100 | .614 | .68 | 5,950 | B. |
| May | 1,510 | 108 | 587 | 3.60 | 4.15 | 36,100 | B. |
| June | 3,850 | 900 | 1,710 | 10.5 | 11.71 | 102,000 | B. |
| July | 811 | 205 | 365 | 2.24 | 2.58 | 22,400 | B. |
| August | 240 | 120 | 165 | 1.01 | 1.16 | 10,100 | A. |
| September | 146 | 108 | 120 | .736 | .82 | 7,140 | A. |
| The year | 1,510 | ..... | 292 | 1.79 | 24.29 | 211,000 | |

a Estimated.

### WEBER RIVER AT DEVILS SLIDE,[1] UTAH.

**Location.**—In the center of the SW. ¼ sec. 19, T. 4 N., R. 4 E., Salt Lake base and meridian, about half a mile east of the railroad station at Devils Slide, about 2,000 feet upstream from the Union Pacific Railroad bridge. Lost Creek enters one-fourth mile above the station and Chalk Creek about 15 miles above.

**Records available.**—February 1, 1905, to September 30, 1912.

**Drainage area.**—1,090 square miles.

**Gage.**—Inclined staff on left bank; datum unchanged.

**Channel.**—Gravel; shifts at various periods.

**Discharge measurements.**—Made from car and cable.

**Winter flow.**—The river does not usually freeze over at this station, but a little ice often forms along the banks.

**Diversions.**—Some water is diverted from Weber River for the Kamas Prairie Valley above.

**Accuracy.**—Records fair.

*Discharge measurements of Weber River at Devils Slide, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Ft.* | *Sec.-ft.* | | | *Ft.* | *Sec.-ft.* |
| Mar. 10 | J. C. Dort | 2.55 | 234 | June 5 | E. A. Porter | 5.65 | 3,160 |
| Apr. 20 | do | 3.31 | 666 | Sept. 19 | J. C. Dort | 2.42 | 234 |
| June 5 | E. A. Porter | 5.65 | 3,180 | | | | |

*Daily gage height, in feet, of Weber River at Devils Slide, Utah, for year ending Sept. 30, 1912.*

[E. T. Crouch and Millard Toone, observers.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 2.9 | 3.3 | 5.15 | 3.42 | 2.82 | ..... |
| 2 | 2.3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.05 | 3.25 | 5.15 | 3.25 | 2.8 | ..... |
| 3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.3 | 3.25 | ..... | 3.02 | 2.78 | 2.38 |
| 4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.5 | 3.25 | 5.72 | ..... | ..... | 2.35 |
| 5 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.6 | ..... | 5.7 | 3.01 | 2.7 | 2.38 |
| 6 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.6 | 3.3 | 3.22 | 5.6 | 2.92 | 2.58 | 2.4 |
| 7 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.8 | 3.3 | 3.3 | 5.75 | ..... | 2.58 | 2.35 |
| 8 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.7 | 3.48 | 3.68 | 5.95 | 2.7 | 2.52 | ..... |
| 9 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.6 | 3.7 | 6.08 | 2.6 | 2.45 | 2.55 |
| 10 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.55 | 3.7 | 3.75 | 5.82 | 2.55 | 2.4 | 2.55 |
| 11 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.55 | 3.4 | 4.0 | 5.2 | 2.45 | ..... | 2.52 |
| 12 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.52 | 3.22 | 4.0 | 5.08 | 2.4 | ..... | 2.55 |
| 13 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.55 | 3.3 | 4.0 | 5.15 | 2.45 | 2.38 | ..... |
| 14 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | ..... | 3.05 | 3.9 | 5.15 | ..... | 2.32 | 2.45 |
| 15 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.45 | 3.05 | 4.38 | 5.1 | 2.42 | 2.45 | 2.45 |
| 16 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.52 | ..... | 4.5 | ..... | 2.38 | 2.45 | 2.45 |
| 17 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 3.25 | 4.65 | 4.1 | 2.35 | 2.4 | 2.45 |
| 18 | 2.4 | 2.4 | 2.4 | 2.4 | 2.7 | 2.45 | 3.35 | 4.9 | 4.0 | 2.3 | ..... | 2.45 |
| 19 | 2.4 | 2.4 | 2.4 | 2.4 | 2.6 | 2.75 | 3.3 | 5.15 | ..... | 2.4 | 2.5 | 2.42 |
| 20 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.82 | 3.1 | 5.6 | 4.0 | 2.6 | 2.48 | 2.4 |
| 21 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.68 | 3.05 | 5.6 | 4.1 | ..... | 2.42 | 2.4 |
| 22 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 3.05 | 5.45 | 4.15 | 2.48 | ..... | 2.42 |
| 23 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.48 | 2.95 | 4.68 | 4.15 | 2.4 | 2.4 | 2.42 |
| 24 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.48 | 3.05 | 4.55 | 4.25 | 2.4 | 2.4 | 2.4 |
| 25 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.65 | 3.2 | 5.0 | 4.0 | 2.35 | ..... | 2.4 |
| 26 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.8 | 3.1 | 4.75 | 3.92 | 2.32 | 2.38 | 2.4 |
| 27 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 2.8 | 3.15 | ..... | 3.8 | 2.28 | 2.4 | 2.38 |
| 28 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 2.82 | 3.3 | 4.9 | ..... | ..... | 2.45 | 2.38 |
| 29 | 2.4 | 2.4 | 2.4 | 2.4 | 2.5 | 2.85 | 3.3 | 5.0 | 3.6 | 2.38 | 2.45 | 2.38 |
| 30 | 2.4 | 2.4 | 2.4 | 2.4 | ..... | 2.85 | 3.2 | 5.5 | ..... | 2.38 | 2.4 | 2.35 |
| 31 | 2.4 | ..... | 2.4 | 2.4 | ..... | ..... | ..... | 5.28 | ..... | 2.4 | 2.38 | ..... |

NOTE.—Relation of gage height to discharge Jan. 1 to Mar. 4 probably affected by ice.

[1] Formerly called Croydon.

*Daily discharge, in second-feet, of Weber River at Devils Slide, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 129 | 157 | 157 | ..... | 412 | 655 | 2,430 | 740 | 408 | 221 |
| 2 | 129 | 157 | 157 | ..... | 500 | 624 | 2,430 | 639 | 398 | 221 |
| 3 | 157 | 157 | 157 | ..... | 655 | 624 | 2,860 | 511 | 389 | 221 |
| 4 | 157 | 157 | 157 | ..... | 788 | 624 | 3,290 | 508 | 371 | 211 |
| 5 | 157 | 157 | 157 | 214 | 852 | 614 | 3,260 | 506 | 353 | 221 |
| 6 | 157 | 157 | 157 | 256 | 655 | 604 | 3,090 | 458 | 300 | 228 |
| 7 | 157 | 157 | 157 | 358 | 655 | 655 | 3,340 | 406 | 300 | 211 |
| 8 | 157 | 157 | 157 | 306 | 774 | 906 | 3,680 | 353 | 276 | 248 |
| 9 | 157 | 157 | 157 | 214 | 852 | 920 | 3,910 | 308 | 248 | 288 |
| 10 | 157 | 157 | 157 | 235 | 920 | 955 | 3,460 | 288 | 228 | 288 |
| 11 | 157 | 157 | 157 | 235 | 720 | 1,160 | 2,500 | 248 | 226 | 276 |
| 12 | 157 | 157 | 157 | 222 | 605 | 1,160 | 2,330 | 228 | 224 | 288 |
| 13 | 157 | 157 | 157 | 235 | 655 | 1,160 | 2,430 | 248 | 221 | 268 |
| 14 | 157 | 157 | 157 | 214 | 500 | 1,080 | 2,430 | 242 | 202 | 248 |
| 15 | 157 | 157 | 157 | 194 | 500 | 1,510 | 2,360 | 236 | 248 | 248 |
| 16 | 157 | 157 | 157 | 222 | 562 | 1,640 | 1,800 | 221 | 248 | 248 |
| 17 | 157 | 157 | 157 | 175 | 624 | 1,805 | 1,250 | 211 | 228 | 248 |
| 18 | 157 | 157 | 157 | 194 | 688 | 2,100 | 1,160 | 194 | 248 | 248 |
| 19 | 157 | 157 | 157 | 332 | 655 | 2,430 | 1,160 | 228 | 268 | 236 |
| 20 | 157 | 157 | 157 | 369 | 530 | 3,090 | 1,160 | 308 | 260 | 228 |
| 21 | 157 | 157 | 157 | 296 | 500 | 3,090 | 1,250 | 284 | 236 | 228 |
| 22 | 157 | 157 | 157 | 214 | 500 | 2,860 | 1,300 | 260 | 232 | 236 |
| 23 | 157 | 157 | 157 | 206 | 441 | 1,840 | 1,300 | 228 | 228 | 236 |
| 24 | 157 | 157 | 157 | 206 | 500 | 1,700 | 1,380 | 228 | 228 | 228 |
| 25 | 157 | 157 | 157 | 281 | 592 | 2,230 | 1,160 | 211 | 224 | 228 |
| 26 | 157 | 157 | 157 | 358 | 530 | 1,920 | 1,100 | 202 | 221 | 228 |
| 27 | 157 | 157 | 157 | 358 | 561 | 2,010 | 1,010 | 187 | 228 | 221 |
| 28 | 157 | 157 | 157 | 369 | 655 | 2,100 | 920 | 204 | 248 | 221 |
| 29 | 157 | 157 | 157 | 385 | 655 | 2,230 | 852 | 221 | 248 | 221 |
| 30 | 157 | 157 | 157 | 385 | 592 | 2,930 | 796 | 221 | 228 | 211 |
| 31 | 157 | ..... | 157 | 398 | ..... | 2,610 | ..... | 228 | 221 | ..... |

NOTE.—Discharge determined from four fairly well defined rating curves, applicable Oct. 1 to Dec. 31, Mar. 5 to May 8, May 9 to June 30, and July 1 to Sept. 30. Discharge Mar. 1 to 4 estimated at 160 second-feet. Discharge interpolated for days for which gage heights are missing.

*Monthly discharge of Weber River at Devils Slide, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 1,090 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 157 | 129 | 155 | 0.142 | 0.16 | 9,530 | C. |
| November | 157 | 157 | 157 | .144 | .16 | 9,340 | C. |
| December | 157 | 157 | 157 | .144 | .17 | 9,650 | C. |
| January | ..... | ..... | [a] 140 | .128 | .15 | 8,610 | C. |
| February | ..... | ..... | [a] 160 | .147 | .16 | 9,200 | C. |
| March | 398 | ..... | 260 | .239 | .28 | 16,000 | B. |
| April | 920 | 412 | 621 | .570 | .64 | 37,000 | A. |
| May | 3,090 | 604 | 1,610 | 1.48 | 1.70 | 99,000 | A. |
| June | 3,910 | 796 | 2,050 | 1.88 | 2.10 | 122,000 | A. |
| July | 740 | 187 | 308 | .282 | .33 | 18,900 | B. |
| August | 408 | 202 | 264 | .242 | .28 | 16,200 | B. |
| September | 288 | 211 | 238 | .218 | .24 | 14,200 | B. |
| The year | 3,910 | ..... | 510 | .468 | 6.37 | 370,000 | |

[a] Estimated.

### WEBER RIVER NEAR PLAIN CITY, UTAH.

**Location.**—In the SW. ¼ SE. ¼ sec. 5, T. 6 N., R. 2 W., Salt Lake base and meridian, at the county highway bridge about 6 miles above the mouth of Weber River, on the road from Ogden to Plain City and West Weber, about 6 miles below the mouth of Ogden River, 2 miles below the mouth of Mill Creek, and 1 mile below Fourmile Creek.

**Records available.**—January 1, 1904, to September 30, 1912.

**Drainage area.**—2,060 square miles.

**Gage.**—Vertical staff painted on upstream side of center pier of bridge; datum unchanged.

**Channel.**—Shifts occasionally during extreme floods.

**Discharge measurements.**—Made from bridge or by wading.

**Winter flow.**—Very little ice forms at this station, but the river has occasionally frozen over in the later part of December or early part of January.

**Diversions.**—Practically the entire flow of Weber River above the station is used for irrigation during the summer months.

**Artificial control.**—The operation of the power plants in Weber Canyon above the city of Ogden probably has no effect in controlling the natural flow of the stream at the station.

**Accuracy.**—Records excellent.

*Discharge measurements of Weber River near Plain City, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Mar. 8 | J. C. Dort | 6.02 | 765 |
| May 25 | E. A. Porter | 15.70 | 4,630 |

*Daily gage height, in feet, of Weber River near Plain City, Utah, for year ending Sept. 30, 1912.*

[W. E. Davies, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.1 | 4.6 | 4.6 | 5.4 | 4.7 | 4.6 | 8.3 | 11.0 | 16.7 | 6.4 | 3.7 | 3.0 |
| 2 | 3.3 | 4.4 | 4.8 | 5.3 | 4.5 | 4.5 | 8.7 | 10.4 | 16.1 | 6.0 | 5.7 | 3.0 |
| 3 | 3.6 | 4.5 | 4.8 | 5.0 | 4.5 | 4.7 | 9.8 | 10.1 | 16.3 | 5.7 | 4.9 | 2.9 |
| 4 | 4.3 | 4.5 | 4.5 | 4.8 | 4.5 | 5.0 | 11.0 | 9.9 | 16.3 | 5.3 | 5.0 | 2.9 |
| 5 | 4.3 | 4.6 | 4.5 | 4.8 | 4.5 | 4.9 | 12.5 | 9.7 | 16.2 | 5.5 | 5.2 | 2.9 |
| 6 | 4.3 | 4.6 | 4.7 | 4.7 | 4.5 | 4.9 | 13.0 | 9.4 | 16.0 | 5.3 | 4.8 | 2.9 |
| 7 | 4.2 | 4.5 | 4.5 | 5.0 | 4.5 | 6.0 | 11.1 | 9.9 | 15.5 | 4.9 | 4.4 | 2.9 |
| 8 | 4.2 | 4.5 | 4.6 | 4.9 | 4.7 | 5.8 | 10.8 | 10.7 | 15.5 | 4.7 | 4.3 | 3.0 |
| 9 | 4.4 | 4.7 | 4.3 | 4.9 | 4.8 | 5.7 | 12.7 | 11.9 | 15.7 | 4.3 | 3.7 | 3.4 |
| 10 | 4.4 | 4.7 | 4.6 | 5.0 | 4.9 | 5.6 | 13.7 | 13.4 | 15.8 | 4.7 | 3.5 | 3.8 |
| 11 | 4.5 | 4.8 | 4.5 | 5.1 | 4.9 | 5.7 | 12.5 | 14.1 | 15.6 | 4.3 | 3.4 | 4.1 |
| 12 | 4.4 | 4.6 | 4.3 | 4.9 | 5.1 | 5.9 | 11.6 | 14.7 | 14.3 | 3.0 | 3.3 | 4.3 |
| 13 | 4.6 | 4.5 | 4.1 | 5.3 | 5.0 | 5.8 | 10.7 | 15.0 | 13.4 | 3.0 | 3.0 | 4.3 |
| 14 | 4.6 | 4.6 | 4.1 | 5.6 | 4.9 | 5.6 | 9.7 | 14.5 | 13.9 | 3.0 | 3.0 | 4.3 |
| 15 | 4.6 | 4.6 | 4.0 | 5.8 | 4.8 | 5.5 | 9.0 | 13.7 | 13.7 | 3.0 | 3.0 | 4.3 |
| 16 | 4.6 | 4.6 | 4.3 | 5.1 | 4.9 | 5.5 | 8.9 | 14.0 | 12.4 | 3.0 | 2.9 | 4.3 |
| 17 | 4.6 | 4.9 | 4.3 | 5.0 | 5.0 | 5.3 | 9.6 | 15.1 | 11.4 | 3.0 | 2.9 | 4.3 |
| 18 | 4.6 | 4.8 | 4.3 | 5.0 | 6.0 | 5.2 | 10.0 | 16.1 | 10.4 | 2.9 | 3.0 | 4.4 |
| 19 | 4.6 | 4.8 | 4.5 | 4.8 | 6.0 | 6.7 | 10.2 | 16.8 | 9.7 | 2.9 | 3.3 | 4.5 |
| 20 | 4.5 | 4.7 | 4.3 | 4.5 | 5.4 | 5.9 | 10.0 | 17.2 | 9.3 | 3.3 | 3.8 | 4.3 |

*Daily gage height, in feet, of Weber River near Plain City, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 4.5 | 4.8 | 4.6 | 4.6 | 5.0 | 5.5 | 9.8 | 17.7 | 8.8 | 4.5 | 3.6 | 4.2 |
| 22 | 4.4 | 4.8 | 5.7 | 4.6 | 5.0 | 5.5 | 9.3 | 18.0 | 8.7 | 4.4 | 3.5 | 4.2 |
| 23 | 4.4 | 4.7 | 5.0 | 4.6 | 5.1 | 5.7 | 9.0 | 17.1 | 8.5 | 4.0 | 3.8 | 4.3 |
| 24 | 4.3 | 4.5 | 5.4 | 4.7 | 5.1 | 5.9 | 8.9 | 15.4 | 8.5 | 3.7 | 3.5 | 4.5 |
| 25 | 4.3 | 4.3 | 5.8 | 4.8 | 4.9 | 6.4 | 9.5 | 15.8 | 8.2 | 3.3 | 3.4 | 4.4 |
| 26 | 4.4 | 4.4 | 5.5 | 4.8 | 4.6 | 6.9 | 9.3 | 16.0 | 8.0 | 3.1 | 3.1 | 4.3 |
| 27 | 4.0 | 4.5 | 5.3 | 4.8 | 4.5 | 7.4 | 9.0 | 16.4 | 7.8 | 3.0 | 3.0 | 4.4 |
| 28 | 4.6 | 4.6 | 5.3 | 4.7 | 4.6 | 7.8 | 9.7 | 15.9 | 7.4 | 2.9 | 3.3 | 4.4 |
| 29 | 4.3 | 4.5 | 5.4 | 4.7 | 4.6 | 8.4 | 10.0 | 15.7 | 6.8 | 2.9 | 3.0 | 4.3 |
| 30 | 4.5 | 4.4 | 5.3 | 4.8 | ..... | 8.5 | 10.7 | 16.0 | 6.5 | 2.8 | 3.1 | 4.4 |
| 31 | 4.4 | ..... | 5.2 | 4.8 | ..... | 8.1 | ..... | 16.7 | ..... | 2.8 | 3.1 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice during nearly all of period Dec. 16 to Mar. 4.

*Daily discharge, in second-feet, of Weber River near Plain City, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 104 | 392 | 392 | 370 | 1,510 | 2,560 | 5,320 | 846 | 196 | 84 |
| 2 | 136 | 348 | 438 | 370 | 1,650 | 2,320 | 4,880 | 726 | 642 | 84 |
| 3 | 190 | 370 | 438 | 370 | 2,080 | 2,200 | 5,020 | 642 | 442 | 70 |
| 4 | 326 | 370 | 370 | 370 | 2,560 | 2,120 | 5,020 | 538 | 466 | 70 |
| 5 | 326 | 392 | 370 | 462 | 3,190 | 2,040 | 4,950 | 588 | 514 | 70 |
| 6 | 326 | 392 | 414 | 462 | 3,400 | 1,920 | 4,820 | 538 | 418 | 70 |
| 7 | 306 | 370 | 370 | 750 | 2,600 | 2,120 | 4,540 | 442 | 328 | 70 |
| 8 | 306 | 370 | 392 | 694 | 2,480 | 2,440 | 4,540 | 394 | 308 | 84 |
| 9 | 348 | 414 | 326 | 668 | 3,270 | 2,940 | 4,640 | 308 | 196 | 142 |
| 10 | 348 | 414 | 392 | 642 | 3,710 | 3,580 | 4,700 | 394 | 160 | 214 |
| 11 | 370 | 438 | 370 | 668 | 3,190 | 3,880 | 4,590 | 308 | 142 | 268 |
| 12 | 348 | 392 | 326 | 722 | 2,810 | 4,150 | 3,970 | 84 | 126 | 308 |
| 13 | 392 | 370 | 286 | 694 | 2,440 | 4,280 | 3,580 | 84 | 84 | 308 |
| 14 | 392 | 392 | 286 | 642 | 2,040 | 4,060 | 3,800 | 84 | 84 | 308 |
| 15 | 392 | 392 | 266 | 616 | 1,770 | 3,710 | 3,710 | 84 | 84 | 308 |
| 16 | 392 | 392 | ..... | 616 | 1,730 | 3,840 | 3,150 | 84 | 70 | 308 |
| 17 | 392 | 462 | ..... | 564 | 2,000 | 4,330 | 2,730 | 84 | 70 | 308 |
| 18 | 392 | 438 | ..... | 538 | 2,160 | 4,880 | 2,320 | 70 | 84 | 328 |
| 19 | 392 | 438 | ..... | 956 | 2,240 | 5,400 | 2,040 | 70 | 126 | 350 |
| 20 | 370 | 414 | ..... | 722 | 2,160 | 5,720 | 1,880 | 126 | 214 | 308 |
| 21 | 370 | 438 | ..... | 616 | 2,080 | 6,160 | 1,690 | 350 | 178 | 288 |
| 22 | 348 | 438 | ..... | 616 | 1,880 | 6,450 | 1,650 | 328 | 160 | 288 |
| 23 | 348 | 414 | ..... | 668 | 1,770 | 5,640 | 1,580 | 250 | 214 | 308 |
| 24 | 326 | 370 | ..... | 722 | 1,730 | 4,480 | 1,580 | 196 | 160 | 350 |
| 25 | 326 | 326 | ..... | 866 | 1,960 | 4,700 | 1,470 | 126 | 142 | 328 |
| 26 | 348 | 348 | ..... | 1,020 | 1,880 | 4,820 | 1,400 | 98 | 98 | 308 |
| 27 | 266 | 370 | ..... | 1,190 | 1,770 | 5,090 | 1,290 | 84 | 84 | 328 |
| 28 | 392 | 392 | ..... | 1,330 | 2,040 | 4,760 | 1,150 | 70 | 126 | 328 |
| 29 | 326 | 370 | ..... | 1,540 | 2,160 | 4,640 | 956 | 70 | 84 | 308 |
| 30 | 370 | 348 | ..... | 1,580 | 2,440 | 4,820 | 866 | 58 | 98 | 328 |
| 31 | 348 | ..... | ..... | 1,440 | ..... | 5,320 | ..... | 58 | 98 | ..... |

NOTE.—Discharge determined from two well-defined curves, one applicable Oct. 1 to June 17, the other July 1 to Sept. 30. Discharge computed by indirect method for shifting channels June 18–30. Discharge estimated, because of ice, Dec. 16–31, 300 second-feet; Mar. 1–4, 370 second-feet.

*Monthly discharge of Weber River near Plain City, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 392 | 104 | 333 | 20,500 | A. |
| November | 438 | 326 | 392 | 23,300 | A. |
| December | ..... | ..... | 330 | 20,300 | D. |
| January | ..... | ..... | a 330 | 20,300 | C. |
| February | ..... | ..... | a 370 | 21,300 | C. |
| March | 1,580 | 370 | 758 | 46,600 | A. |
| April | 3,710 | 1,510 | 2,290 | 136,000 | A. |
| May | 6,450 | 1,920 | 4,040 | 248,000 | A. |
| June | 5,320 | 866 | 3,130 | 186,000 | A. |
| July | 846 | 58 | 264 | 16,200 | A. |
| August | 642 | 70 | 200 | 12,300 | A. |
| September | 350 | 70 | 241 | 14,300 | A. |
| The year | 6,450 | 58 | 1,060 | 765,000 | |

a Estimated.

### OGDEN RIVER NEAR OGDEN, UTAH.

**Location.**—In the NW. ¼ SW. ¼ sec. 16, T. 6 N., R. 1 E., Salt Lake base and meridian, at the dam of the Utah Light & Railway Co., 2½ miles above the terminus of the Ogden Canyon Electric Railroad, and about 8 miles from Ogden.

**Records available.**—January, 1904, to October 29, 1912.

**Drainage area.**—Not measured.

**Gage.**—Hook gage.

**Discharge measurements.**—The river discharge is measured by a weir with eleven 5-foot openings, each crested as a separate weir. The water diverted through the power plant is measured by two Venturi meters, each having a 24-inch throat. At the mouth of the canyon is a waste pipe having a maximum capacity of 2 second-feet. The published records show the total flow of the stream.

**Accuracy.**—Records considered excellent by the Utah Light & Railway Co.

**Cooperation.**—Records of daily discharge furnished by the Utah Light & Railway Co.

*Daily discharge, in second-feet, of Ogden River near Ogden, Utah, from October, 1911, to October, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 46.8 | 66.4 | 53.8 | 67 | 62 | 66 | 542 | 873 | 1,257 | 193 | 87 | 80 | 66 |
| 2 | 48.7 | 53.9 | 52.9 | 57 | 68 | 60 | 641 | 825 | 1,456 | 153 | 85 | 83 | 60 |
| 3 | 66.5 | 62.3 | 51 | 43 | 72 | 67 | 803 | 785 | 1,450 | 152 | 90 | 73 | 60 |
| 4 | 46.2 | 67.2 | 57 | 54 | 64 | 73 | 923 | 699 | 1,520 | 179 | 91 | 72 | 63 |
| 5 | 58.6 | 59.6 | 48.3 | 56 | 63 | 64 | 1,036 | 646 | 1,405 | 148 | 92 | 74 | 69 |
| 6 | 46 | 64.7 | 58.3 | 44 | 54 | 70 | 1,296 | 616 | 1,209 | 145 | 72 | 76 | 83 |
| 7 | 45.1 | 64.3 | 53.7 | 70 | 76 | 70 | 1,125 | 601 | 1,172 | 151 | 85 | 78 | 73 |
| 8 | 50.2 | 66.6 | 58.1 | 54 | 63 | 103 | 977 | 685 | 1,089 | 133 | 84 | 76 | 65 |
| 9 | 39.8 | 66.2 | 54.2 | 52 | 62 | 92 | 1,065 | 926 | 1,030 | 111 | 72 | 69 | 67 |
| 10 | 73.2 | 85.4 | 48.1 | 60 | 61 | 95 | 1,138 | 1,377 | 971 | 121 | 72 | 87 | 73 |
| 11 | 59 | 75.8 | 56 | 59 | 67 | 129 | 1,338 | 1,308 | 742 | 129 | 67 | 85 | 73 |
| 12 | 52.8 | 61.4 | 54.8 | 61 | 78 | 93 | 1,185 | 1,459 | 683 | 122 | 74 | 87 | 73 |
| 13 | 53.9 | 57.8 | 60.7 | 59 | 85 | 108 | 951 | 1,537 | 779 | 114 | 64 | 75 | 74 |
| 14 | 53 | 64.1 | 57.7 | 64 | 155 | 93 | 856 | 1,501 | 673 | 117 | 69 | 72 | 69 |
| 15 | 49.6 | 62 | 59 | 64 | 71 | 102 | 760 | 1,200 | 605 | 111 | 80 | 73 | 77 |
| 16 | 55.8 | 62.8 | 62 | 59 | 63 | 100 | 718 | 1,387 | 538 | 108 | 74 | 68 | 75 |
| 17 | 54.6 | 66.8 | 53.7 | 66 | 79 | 89 | 653 | 1,603 | 524 | 103 | 81 | 68 | 71 |
| 18 | 59.6 | 69.2 | 57.9 | 71 | 76 | 98 | 687 | 1,808 | 494 | 96 | 77 | 75 | 74 |
| 19 | 59.3 | 67.3 | 52 | 70 | 100 | 92 | 794 | 2,135 | 349 | 109 | 83 | 72 | 66 |
| 20 | 55.6 | 60.3 | 54.4 | 73 | 87 | 144 | 798 | 2,206 | 318 | 218 | 81 | 74 | 68 |

*Daily discharge, in second-feet, of Ogden River near Ogden, Utah, from October, 1911, to October, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 60.8 | 68.5 | 57.9 | 64 | 68 | 180 | 758 | 1,774 | 294 | 111 | 94 | 67 | 81 |
| 22 | 46.5 | 58.8 | 49 | 65 | 81 | 149 | 726 | 2,469 | 271 | 124 | 84 | 76 | 79 |
| 23 | 57 | 59.6 | 59 | 66 | 70 | 136 | 600 | 1,822 | 234 | 93 | 88 | 76 | 75 |
| 24 | 57.4 | 57.9 | 55.1 | 66 | 62 | 143 | 544 | 1,590 | 238 | 92 | 85 | 73 | 77 |
| 25 | 51.1 | 64.3 | 54.6 | 67 | 89 | 169 | 523 | 1,367 | 234 | 87 | 86 | 69 | 77 |
| 26 | 56.3 | 54.4 | 49.5 | 66 | 64 | 283 | 621 | 1,526 | 213 | 85 | 81 | 68 | 70 |
| 27 | 56.6 | 56.6 | 55.9 | 66 | 62 | 330 | 571 | 1,618 | 184 | 80 | 66 | 65 | 81 |
| 28 | 48.6 | 52.4 | 62.2 | 66 | 59 | 361 | 590 | 1,585 | 221 | 76 | 64 | 62 | 101 |
| 29 | 61.1 | 61.1 | 54 | 52 | 67 | 482 | 659 | 1,454 | 177 | 79 | 83 | 60 | 101 |
| 30 | 50.6 | 62.1 | 62.9 | 57 | ..... | 583 | 706 | 1,499 | 176 | 77 | 88 | 63 | ..... |
| 31 | 60 | ..... | 67 | 56 | ..... | 528 | ..... | 1,750 | ..... | 84 | 73 | ..... | ..... |

NOTE.—Discharge Jan. 23 estimated.

*Monthly discharge of Ogden River near Ogden, Utah, from October, 1911, to October 29, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | |
| October | 73 | 40 | 54.2 | 3,330 |
| November | 85 | 52 | 63.3 | 3,770 |
| December | 67 | 48 | 55.8 | 3,430 |
| January | 73 | 43 | 61.1 | 3,760 |
| February | 155 | 54 | 73.4 | 4,220 |
| March | 583 | 60 | 166 | 10,200 |
| April | 1,338 | 523 | 819 | 48,700 |
| May | 2,469 | 601 | 1,380 | 84,800 |
| June | 1,520 | 176 | 684 | 40,700 |
| July | 218 | 76 | 119 | 7,320 |
| August | 94 | 64 | 79.7 | 4,900 |
| September | 87 | 60 | 73.2 | 4,360 |
| The year | 2,469 | 40 | 302 | 219,000 |
| October 1–29 | 101 | 60 | 73.9 | 4,250 |

NOTE.—Monthly values computed by engineers of the United States Geological Survey.

## JORDAN RIVER BASIN.

### SUMMIT CREEK NEAR SANTAQUIN, UTAH.

**Location.**—At the power plant of the Knight Power Co. near Santaquin, Utah. Records are obtained from two weirs, one in the creek and one in the power-plant tailrace.

**Records available.**—March 8, 1910, to September 30, 1912.

**Drainage area.**—27.5 square miles.

**Gage.**—Hook gage at each weir.

**Discharge measurements.**—Made by wading.

**Accuracy.**—Records fair.

**Cooperation.**—Since December 31, 1910, data have been furnished by the United States Reclamation Service.

*Daily discharge, in second-feet, of Summit Creek near Santaquin, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910-11. | | | | | | | | | | | | |
| 1 | 8.7 | 8.3 | 7.5 | 6.2 | 10.3 | 6.6 | 9.0 | 13.5 | 21.1 | 9.8 | 7.5 | 6.3 |
| 2 | 13 | 8.3 | 7.5 | 6.2 | 10.3 | 6.6 | 9.0 | 13.5 | 21.1 | 9.7 | 7.4 | 6.3 |
| 3 | 8.9 | 8.3 | 7.5 | 6.2 | 8.2 | 6.6 | 9.0 | 14.8 | 21.1 | 9.6 | 7.4 | 6.3 |
| 4 | 8.4 | 8.3 | 7.5 | 6.2 | 8.2 | 6.6 | 9.4 | 17.5 | 21.1 | 9.6 | 7.3 | 6.2 |
| 5 | 8.6 | 8.3 | 7.5 | 6.2 | 7.6 | 6.6 | 9.4 | 19.9 | 21.5 | 9.5 | 7.2 | 6.2 |
| 6 | 8.7 | 8.3 | 7.5 | 7.1 | 7.8 | 6.8 | 8.1 | 21.1 | 19.4 | 9.4 | 7.2 | 6.2 |
| 7 | 8.0 | 8.3 | 7.5 | 7.1 | 6.6 | 6.8 | 8.1 | 21.1 | 19.2 | 9.4 | 7.1 | 6.3 |
| 8 | 7.9 | 8.3 | 7.5 | 7.1 | 5.5 | 6.8 | 8.1 | 23.1 | 17.7 | 9.3 | 7.0 | 6.3 |
| 9 | 8.7 | 8.3 | 7.5 | 7.1 | 7.2 | 6.8 | 8.2 | 23.1 | 17.8 | 9.3 | 7.0 | 6.3 |
| 10 | 8.6 | 7.7 | 7.5 | 7.2 | 7.2 | 8.6 | 7.8 | 23.1 | 15.6 | 9.2 | 6.9 | 6.3 |
| 11 | 8.5 | 7.7 | 7.5 | 7.2 | 5.5 | 7.9 | 7.4 | 21.3 | 16.0 | 9.1 | 6.8 | 6.3 |
| 12 | 8.5 | 7.7 | 7.5 | 7.2 | 7.2 | 7.7 | 7.8 | 21.1 | 16.0 | 9.1 | 6.7 | 6.3 |
| 13 | 8.6 | 7.6 | 7.5 | 7.2 | 5.6 | 7.7 | 7.7 | 19.9 | 16.0 | 9.0 | 6.7 | 6.3 |
| 14 | 8.6 | 7.6 | 7.1 | 7.2 | 5.5 | 7.7 | 7.6 | 20.2 | 14.9 | 8.9 | 6.6 | 6.3 |
| 15 | 8.7 | 7.5 | 7.1 | 7.2 | 6.2 | 7.7 | 7.6 | 17.6 | 13.5 | 8.9 | 6.6 | 6.3 |
| 16 | 8.9 | 7.5 | 7.1 | 7.2 | 7.3 | 7.5 | 9.2 | 20.3 | 13.4 | 8.8 | 6.6 | 6.3 |
| 17 | 12 | 7.5 | 7.1 | 7.2 | 6.3 | 7.5 | 9.2 | 20.5 | 13.3 | 8.7 | 6.6 | 6.3 |
| 18 | 13 | 7.5 | 7.1 | 7.6 | 6.8 | 7.2 | 9.3 | 20.5 | 13.3 | 8.7 | 6.6 | 6.3 |
| 19 | 10.4 | 7.6 | 6.7 | 7.6 | 6.4 | 7.3 | 10.1 | 20.5 | 11.9 | 8.6 | 6.6 | 6.3 |
| 20 | 9.7 | 7.6 | 6.7 | 7.6 | 6.4 | 7.3 | 9.8 | 19.9 | 11.9 | 8.5 | 6.6 | 6.3 |
| 21 | 9.4 | 7.6 | 6.7 | 7.6 | 6.4 | 7.5 | 9.9 | 19.9 | 11.9 | 8.4 | 6.6 | 6.3 |
| 22 | 9.1 | 7.6 | 6.3 | 6.5 | 6.5 | 7.5 | 10.2 | 20.4 | 11.3 | 8.4 | 6.7 | 6.3 |
| 23 | 8.4 | 7.6 | 6.3 | 6.5 | 6.5 | 7.8 | 11.0 | 20.2 | 11.3 | 8.3 | 6.7 | 6.3 |
| 24 | 8.4 | 7.6 | 6.3 | 7.3 | 6.6 | 8.2 | 12.5 | 20.0 | 10.5 | 8.3 | 6.6 | 6.3 |
| 25 | 8.3 | 7.6 | 6.3 | 7.7 | 6.6 | 8.2 | 15.8 | 20.8 | 10.5 | 8.2 | 6.7 | 6.1 |
| 26 | 8.3 | 7.6 | 6.3 | 7.7 | 6.5 | 7.6 | 16.1 | 21.1 | 10.6 | 8.1 | 6.3 | 6.3 |
| 27 | 8.3 | 7.6 | 5.2 | 7.3 | 6.6 | 7.6 | 15.7 | 21.4 | 10.6 | 8.1 | 6.4 | 6.4 |
| 28 | 8.3 | 7.5 | 5.2 | 7.3 | 6.6 | 7.5 | 15.8 | 21.1 | 10.6 | 8.0 | 6.4 | 6.4 |
| 29 | 8.3 | 7.5 | 5.2 | 7.3 | ..... | 7.5 | 14.6 | 21.1 | 10.6 | 7.9 | 6.4 | 7.3 |
| 30 | 8.3 | 7.5 | 6.0 | 7.3 | ..... | 7.6 | 13.5 | 21.1 | 9.8 | 7.8 | 6.4 | 6.4 |
| 31 | 8.3 | ..... | 6.1 | 8.1 | ..... | 8.4 | ..... | 21.1 | ..... | 7.7 | 6.4 | ..... |
| 1911-12. | | | | | | | | | | | | |
| 1 | 6.5 | 5.9 | 7.8 | 5.4 | 4.7 | 5.6 | 6.0 | 10.1 | 121.0 | 22.8 | 12.6 | 8.8 |
| 2 | 6.5 | 5.8 | 5.9 | 4.2 | 4.8 | 5.6 | 6.4 | 12.1 | 98.0 | 22.8 | 12.3 | 8.7 |
| 3 | 6.6 | 5.6 | 5.5 | 5.5 | 5.5 | 5.1 | 6.7 | 8.8 | 87.0 | 21.6 | 11.8 | 8.7 |
| 4 | 6.6 | 5.8 | 5.8 | 5.9 | 5.2 | 5.2 | 7.2 | 7.9 | 84.0 | 25.3 | 11.0 | 8.7 |
| 5 | 6.5 | 5.8 | 5.5 | 5.4 | 5.2 | 5.5 | 7.2 | 7.9 | 94.0 | 18.9 | 11.0 | 9.1 |
| 6 | 6.4 | 5.7 | 5.5 | 5.1 | 5.1 | 5.1 | 7.2 | 10.1 | 80.0 | 17.3 | 10.9 | 8.7 |
| 7 | 6.5 | 6.0 | 5.6 | 6.2 | 5.1 | 5.5 | 7.2 | 10.5 | 80.0 | 15.7 | 11.3 | 8.6 |
| 8 | 6.1 | 6.0 | 5.7 | 4.0 | 5.3 | 5.5 | 8.7 | 10.5 | 97.3 | 15.0 | 11.1 | 8.6 |
| 9 | 6.4 | 5.9 | 5.8 | 5.8 | 5.4 | 5.1 | 9.1 | 16.4 | 99.1 | 13.5 | 10.7 | 9.2 |
| 10 | 6.1 | 5.9 | 5.7 | 6.1 | 5.4 | 5.7 | 9.3 | 25.9 | 134.8 | 13.8 | 10.0 | 9.3 |
| 11 | 6.7 | 2.3 | 5.7 | 5.3 | 4.9 | 5.6 | 9.2 | 26.5 | 117.0 | 13.8 | 10.3 | 9.1 |
| 12 | 6.5 | 3.2 | 5.5 | 5.5 | 5.1 | 5.0 | 9.1 | 27.7 | 67.8 | 14.4 | 10.1 | 8.6 |
| 13 | 6.1 | 4.1 | 5.9 | 5.5 | 4.9 | 4.9 | 8.8 | 28.9 | 54.1 | 14.4 | 10.1 | 8.8 |
| 14 | 6.7 | 3.7 | 5.4 | 5.2 | 5.2 | 5.3 | 8.9 | 30.9 | 79.7 | 14.1 | 10.6 | 8.8 |
| 15 | 6.2 | 7.3 | 5.5 | 5.6 | 5.3 | 5.2 | 7.5 | 28.4 | 41.2 | 14.1 | 9.8 | 8.8 |
| 16 | 6.6 | 4.7 | 5.2 | 5.4 | 5.2 | 3.6 | 7.7 | 29.0 | 41.7 | 13.7 | 9.9 | 8.8 |
| 17 | 6.3 | 4.9 | 5.8 | 5.6 | 5.0 | 3.6 | 7.8 | 82.3 | 67.7 | 14.0 | 9.8 | 8.7 |
| 18 | 6.3 | 5.0 | 5.9 | 5.3 | 5.0 | 7.8 | 8.4 | 75.0 | 67.1 | 13.9 | 10.0 | 8.7 |
| 19 | 5.7 | 6.6 | 5.3 | 5.2 | 4.7 | 6.3 | 8.5 | 88.0 | 67.7 | 13.8 | 9.5 | 8.9 |
| 20 | 5.7 | 6.5 | 5.3 | 5.1 | 4.5 | 6.0 | 8.2 | 107.0 | 60.6 | 12.7 | 10.0 | 8.9 |
| 21 | 6.1 | 6.5 | 5.2 | 5.4 | 5.2 | 5.4 | 7.9 | 115.0 | 60.6 | 13.4 | 9.2 | 9.0 |
| 22 | 6.0 | 6.5 | 5.9 | 5.5 | 5.1 | 5.4 | 7.2 | 118.0 | 47.5 | 12.6 | 9.2 | 8.9 |
| 23 | 6.0 | 5.0 | 5.6 | 5.2 | 5.1 | 5.1 | 7.1 | 126.0 | 41.7 | 12.2 | 9.2 | 8.9 |
| 24 | 6.0 | 5.8 | 5.8 | 5.3 | 5.1 | 5.6 | 7.9 | 128.0 | 53.6 | 12.2 | 9.7 | 9.0 |
| 25 | 5.8 | 5.9 | 5.0 | 5.3 | 5.0 | 5.8 | 8.0 | 125.0 | 60.4 | 12.1 | 9.7 | 8.9 |
| 26 | 5.9 | 6.1 | 4.9 | 5.2 | 5.6 | 5.9 | 7.9 | 109.0 | 53.6 | 12.1 | 9.7 | 8.9 |
| 27 | 6.3 | 5.8 | 6.0 | 5.3 | 5.3 | 6.1 | 7.8 | 73.0 | 67.7 | 11.5 | 9.1 | 8.9 |
| 28 | 6.1 | 3.5 | 6.1 | 5.1 | 5.1 | 5.8 | 9.2 | 75.0 | 53.0 | 11.7 | 9.0 | 8.9 |
| 29 | 5.8 | 3.8 | 5.6 | 5.5 | 5.7 | 6.1 | 9.1 | 72.0 | 53.0 | 11.7 | 9.1 | 8.7 |
| 30 | 5.7 | 7.4 | 4.5 | 5.3 | ..... | 6.1 | 9.8 | 70.0 | 43.6 | 11.7 | 9.0 | 8.4 |
| 31 | 6.0 | ..... | 5.4 | 5.4 | ..... | 5.9 | ..... | 89.0 | ..... | 12.3 | 9.0 | ..... |

NOTE.—Discharge from May 18 to June 7, 1912, based on ratio of discharge of Summit Creek to Peteetneet Creek during 1911.

*Monthly discharge of Summit Creek near Santaquin, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910–11. | | | | | 1911–12. | | | | |
| October | 13 | 8.3 | 9.03 | 555 | October | 6.7 | 5.7 | 6.2 | 382.2 |
| November | 8.3 | 7.5 | 7.80 | 464 | November | 7.4 | 2.3 | 5.4 | 323.3 |
| December | 7.5 | 5.2 | 6.85 | 421 | December | 7.8 | 4.5 | 5.6 | 345.7 |
| January | 8.1 | 6.2 | 7.1 | 437.2 | January | 6.2 | 4.0 | 5.3 | 328.8 |
| February | 10.3 | 5.5 | 6.9 | 385.6 | February | 5.7 | 4.5 | 5.1 | 294.9 |
| March | 8.6 | 6.6 | 7.4 | 455.6 | March | 7.8 | 3.6 | 5.5 | 338.0 |
| April | 16.1 | 7.4 | 10.2 | 608.7 | April | 9.8 | 6.0 | 8.0 | 478.0 |
| May | 23.1 | 13.5 | 20.0 | 1,231.2 | May | 128.0 | 7.9 | 56.2 | 3,459.0 |
| June | 21.5 | 9.8 | 14.8 | 879.7 | June | 134.8 | 41.2 | 72.5 | 4,314.0 |
| July | 9.8 | 7.7 | 8.8 | 540.1 | July | 25.3 | 11.5 | 14.8 | 910.6 |
| August | 7.5 | 6.3 | 6.8 | 416.5 | August | 12.6 | 9.0 | 10.2 | 624.2 |
| September | 7.3 | 6.1 | 6.3 | 376.5 | September | 9.3 | 8.4 | 8.8 | 525.6 |
| The year. | 23.1 | 5.2 | 9.33 | 6,770 | The year. | 134.8 | 2.3 | 17.0 | 12,300 |

NOTE.—The estimate of discharge from May 18 to June 7, 1912, is based on the ratio of the discharge of Summit Creek to Peteetneet Creek during 1911. Records October to December, 1910, and yearly totals were computed by engineers of the United States Geological Survey.

### PETEETNEET[1] CREEK NEAR PAYSON, UTAH.

**Location.**—In the SE. ¼ SW. ¼ sec. 29, T. 9 S., R. 2 E., Salt Lake base and meridian, about 3 miles from Payson and half a mile above the power canal intake.

**Records available.**—August 1, 1910, to September 30, 1912; miscellaneous measurements, 1909–10.

**Drainage area.**—28 square miles.

**Gage.**—Inclined staff on left bank.

**Discharge measurements.**—By wading or from footbridge.

**Winter flow.**—Relation of gage height to discharge affected by ice for short periods during the winter months.

**Artificial control.**—The town of Payson has constructed several small storage reservoirs above the station to increase the low-water flow for power and irrigation demands.

**Accuracy.**—Records rated good.

**Cooperation.**—All records since December 31, 1910, have been furnished by the United States Reclamation Service.

*Discharge measurements of Peteetneet Creek near Payson, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Apr. 7 | G. H. Canfield | 1.63 | 11.5 | Jan. 26 | W. J. Lamon | 1.45 | 4.7 |
| May 4 | do | 2.08 | 32.9 | Apr. 6 | do | 1.56 | 7.0 |
| 17 | A. B. Larson | 1.86 | 20.75 | May 13 | do | 2.21 | 40.4 |
| June 7 | W. J. Lamon | 1.65 | 9.71 | 27 | do | 2.76 | 66.1 |
| July 17 | do | 1.60 | 8.21 | June 16 | do | 2.08 | 18.1 |
| Aug. 9 | do | 1.58 | 7.73 | 19 | do | 2.03 | 16.2 |
| Sept. 4 | do | 1.48 | 4.57 | July 6 | do | 1.91 | 12.0 |
| Dec. 13 | do | 1.48 | 4.80 | Aug. 9 | do | 1.85 | 9.3 |
| | | | | 20 | do | 1.86 | 9.7 |
| | | | | Sept. 9 | do | 1.85 | 10.8 |

[1] Called Payson Creek in Water-Supply Paper 270, p. 88.

*Daily gage height, in feet, of Peteetneet Creek near Payson, Utah, for years ending Sept. 30, 1911 and 1912.*

[Edwin Cushing, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | | 1.56 | 1.57 | | 1.55 | 1.52 | | | 1.70 | 1.58 | | 1.59 |
| 2 | 1.68 | | | 1.50 | | | 1.61 | 1.98 | | | 1.56 | |
| 3 | | 1.56 | 1.58 | | 1.54 | 1.53 | | | 1.75 | 1.58 | | 1.50 |
| 4 | 1.60 | | | 1.51 | | | 1.65 | 2.00 | | | 1.57 | |
| 5 | | 1.57 | 1.59 | | 1.51 | 1.53 | | | 1.70 | 1.57 | | 1.51 |
| 6 | 1.60 | | | 1.50 | | | 1.68 | 2.01 | | | 1.56 | |
| 7 | | 1.59 | 1.57 | | 1.52 | 1.54 | 1.63 | | 1.65 | 1.62 | | 1.50 |
| 8 | 1.58 | | | 1.52 | | | 1.69 | 2.05 | | | 1.65 | |
| 9 | | 1.57 | 1.56 | | 1.55 | 1.56 | | | 1.64 | 1.60 | 1.58 | 1.49 |
| 10 | 1.56 | | | 1.54 | | | 1.74 | 2.18 | | | 1.62 | |
| 11 | | 1.58 | 1.56 | | 1.55 | 1.57 | | | 1.62 | 1.58 | | 1.50 |
| 12 | 1.56 | | | 1.54 | | | 1.71 | 2.00 | | | 1.61 | |
| 13 | | 1.57 | 1.60 | | 1.55 | 1.54 | | | 1.61 | 1.59 | | 1.52 |
| 14 | 1.57 | | | 1.53 | | | 1.70 | 1.98 | | | 1.64 | |
| 15 | 1.57 | 1.56 | 1.58 | | 1.50 | 1.56 | | | 1.65 | 1.57 | | 1.50 |
| 16 | | | | 1.50 | | | 1.73 | 1.97 | | | 1.62 | |
| 17 | | 1.58 | 1.57 | | 1.49 | 1.52 | | 1.86 | 1.67 | 1.60 | | 1.50 |
| 18 | 1.62 | | | 1.50 | | | 1.72 | 1.89 | | | 1.59 | |
| 19 | | 1.67 | 1.57 | | 1.56 | 1.52 | | | 1.64 | 1.60 | | 1.50 |
| 20 | 1.58 | | | 1.51 | | | 1.75 | 1.87 | | | 1.60 | |
| 21 | | 1.59 | 1.58 | | 1.58 | 1.53 | | | 1.66 | 1.62 | | 1.51 |
| 22 | 1.57 | | | 1.50 | | | 1.76 | 1.84 | | | 1.60 | |
| 23 | | 1.58 | 1.56 | | 1.57 | 1.55 | | | 1.64 | 1.79 | | 1.52 |
| 24 | 1.56 | | | 1.49 | | | 1.98 | 1.82 | | | 1.62 | |
| 25 | | 1.58 | 1.50 | | 1.55 | 1.58 | | | 1.62 | 1.77 | | 1.51 |
| 26 | 1.55 | | | 1.50 | | | 2.00 | 1.85 | | | 1.63 | |
| 27 | | 1.60 | 1.51 | | 1.54 | 1.55 | | | 1.60 | 1.70 | | 1.51 |
| 28 | 1.55 | | | 1.51 | | | 2.00 | 1.82 | | | 1.62 | |
| 29 | | 1.58 | 1.52 | | | 1.56 | | | 1.59 | 1.65 | | 1.54 |
| 30 | 1.55 | | | 1.54 | | | 2.10 | 1.85 | | | 1.60 | |
| 31 | | | 1.54 | | | 1.57 | | | | 1.55 | | |
| 1911–12. | | | | | | | | | | | | |
| 1 | 1.55 | | | 1.46 | | 1.46 | | | 2.86 | 1.85 | | 1.85 |
| 2 | | 1.52 | 1.47 | | 1.53 | | 1.51 | 1.69 | | | 1.87 | |
| 3 | 1.57 | | | 1.42 | | 1.50 | | | 2.75 | 1.86 | | 1.81 |
| 4 | | 1.51 | 1.50 | | 1.54 | | 1.50 | 1.67 | | | 1.81 | |
| 5 | 1.53 | | | 1.40 | | 1.53 | | | 2.58 | 1.82 | | 1.83 |
| 6 | | 1.51 | 1.51 | | 1.53 | | 1.54 | 1.70 | | 1.91 | 1.80 | |
| 7 | 1.52 | | | 1.42 | | 1.52 | | | 2.42 | 1.80 | | 1.82 |
| 8 | | 1.52 | 1.53 | | 1.50 | | 1.60 | 1.78 | | | 1.80 | |
| 9 | 1.52 | | | 1.40 | | 1.50 | | | 2.28 | 1.82 | 1.85 | 1.85 |
| 10 | | 1.54 | 1.54 | | 1.49 | | 1.61 | 1.89 | | | 1.79 | |
| 11 | 1.54 | | | 1.38 | | 1.53 | | | 2.32 | 1.81 | | 1.86 |
| 12 | | 1.55 | 1.52 | | 1.46 | | 1.60 | 1.90 | | | 1.80 | |
| 13 | 1.52 | | 1.48 | 1.39 | | 1.52 | | 2.21 | 2.17 | 1.88 | | 1.88 |
| 14 | | 1.55 | 1.53 | | 1.48 | | 1.58 | 2.63 | | | 1.79 | |
| 15 | 1.53 | | | 1.40 | | 1.50 | | | 2.13 | 1.88 | | 1.87 |
| 16 | | 1.57 | 1.50 | | 1.47 | | 1.61 | 2.96 | 2.08 | | 1.80 | |
| 17 | 1.53 | | | 1.42 | | 1.50 | | | 2.60 | 1.89 | | 1.85 |
| 18 | | 1.56 | 1.52 | | 1.54 | | 1.60 | 3.00 | | | 1.81 | |
| 19 | 1.52 | | | 1.41 | | 1.49 | | | 2.16 | 1 90 | | 1.84 |
| 20 | | 1.55 | 1.51 | | 1.50 | | 1.59 | 3.55 | | | 1.85 | |
| 21 | 1.52 | | | 1.43 | | 1.50 | | | 2.00 | 1.87 | | 1.83 |
| 22 | | 1.54 | 1.52 | | 1.49 | | 1.62 | 3.67 | | | 1.82 | |
| 23 | 1.53 | | | 1.46 | | 1.51 | | | 1.98 | 1.86 | | 1.80 |
| 24 | | 1.53 | 1.50 | | 1.47 | | 1.60 | 3.74 | | | 1.80 | |
| 25 | 1.52 | | | 1.45 | | 1.51 | | | 1.95 | 1.84 | | 1.75 |
| 26 | | 1.50 | 1.51 | 1.45 | 1.48 | | 1.62 | 3.43 | | | 1.82 | |
| 27 | 1.51 | | | 1.46 | | 1.54 | | 2.76 | 1.90 | 1.85 | | 1.70 |
| 28 | | 1.49 | 1.49 | | 1.47 | | 1.62 | 2.74 | | | 1.84 | |
| 29 | 1.53 | | | 1.48 | | 1.55 | | | 1.87 | 1 86 | | 1.72 |
| 30 | | 1.48 | 1.48 | | | | 1.65 | 2.81 | | | 1.86 | |
| 31 | 1.52 | | | 1.50 | | 1.53 | | | | 1.87 | | |

*Daily discharge, in second-feet, of Peteetneet Creek near Payson, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910-11. | | | | | | | | | | | | |
| 1 | 10.5 | 9.6 | 9.7 | 5.2 | 6.6 | 5.7 | 7.9 | 30.6 | 12.4 | 7.5 | 6.8 | 7.8 |
| 2 | 11.0 | 9.6 | 9.8 | 5.2 | 6.4 | 5.8 | 8.6 | 27.3 | 14.0 | 7.5 | 6.9 | 6.5 |
| 3 | 10.5 | 9.6 | 9.8 | 5.3 | 6.3 | 6.0 | 9.4 | 27.8 | 15.0 | 7.5 | 7.0 | 5.2 |
| 4 | 10.0 | 9.6 | 9.8 | 5.4 | 5.8 | 6.0 | 10.2 | 28.4 | 14.0 | 7.4 | 7.2 | 5.3 |
| 5 | 10.0 | 9.7 | 9.9 | 5.3 | 5.4 | 6.0 | 10.8 | 28.7 | 12.4 | 7.2 | 7.0 | 5.4 |
| 6 | 10.0 | 9.8 | 9.8 | 5.2 | 5.6 | 6.2 | 11.5 | 29.0 | 11.3 | 8.0 | 6.9 | 5.3 |
| 7 | 9 9 | 9.9 | 9.7 | 5.4 | 5.7 | 6.3 | 11.8 | 30.1 | 10.2 | 8.9 | 8.6 | 5.2 |
| 8 | 9.8 | 9.8 | 9.6 | 5.7 | 6.2 | 6.6 | 12.0 | 31.2 | 10.0 | 8.6 | 10.2 | 5.1 |
| 9 | 9.7 | 9.7 | 9.6 | 6.0 | 6.6 | 6.9 | 13.2 | 35.0 | 9.7 | 8.2 | 9.6 | 5.0 |
| 10 | 9.6 | 9.8 | 9.6 | 6.3 | 6.6 | 7.0 | 14.5 | 38.7 | 9.3 | 7.8 | 8.9 | 5.1 |
| 11 | 9.6 | 9.8 | 9.6 | 6.3 | 6.6 | 7.2 | 13.7 | 33.6 | 8.9 | 7.5 | 8.8 | 5.2 |
| 12 | 9.6 | 9.8 | 9.8 | 6.3 | 6.6 | 6.8 | 12.9 | 28.4 | 8.8 | 7.6 | 8.6 | 5.4 |
| 13 | 9.6 | 9.7 | 10.0 | 6.2 | 6.6 | 6.3 | 12.6 | 27.8 | 8.6 | 7.8 | 9.2 | 5.7 |
| 14 | 9.7 | 9.6 | 9.9 | 6.0 | 5.9 | 6.6 | 12.4 | 27.3 | 9.4 | 7.5 | 9.7 | 5.4 |
| 15 | 9.7 | 9.6 | 9.8 | 5.6 | 5.2 | 6.9 | 13.2 | 27.0 | 10.2 | 7.2 | 9.3 | 5.2 |
| 16 | 9.9 | 9.7 | 9.8 | 5.2 | 5.1 | 6.3 | 14.0 | 26.8 | 10.7 | 7.7 | 8.9 | 5.2 |
| 17 | 10.1 | 9.8 | 9.7 | 5.2 | 5.0 | 5.7 | 13.7 | 24.6 | 11.0 | 8.2 | 8.4 | 5.2 |
| 18 | 10.3 | 10.4 | 9.7 | 5.2 | 6.0 | 5.7 | 13.4 | 22.4 | 10.4 | 8.2 | 7.8 | 5.2 |
| 19 | 10.0 | 10.9 | 9.7 | 5.3 | 6.9 | 5.7 | 14.2 | 21.8 | 9.7 | 8.2 | 8.0 | 5.2 |
| 20 | 9.8 | 10.4 | 9.8 | 5.4 | 7.2 | 5.8 | 15.0 | 21.2 | 10.2 | 8.6 | 8.2 | 5.3 |
| 21 | 9.8 | 9.9 | 9.8 | 5.3 | 7.5 | 6.0 | 15.2 | 20.4 | 10.6 | 8 9 | 8.2 | 5.4 |
| 22 | 9.7 | 9.8 | 9.7 | 5.2 | 7.4 | 6.3 | 15.5 | 19.7 | 10.2 | 13.0 | 8.2 | 5.6 |
| 23 | 9.6 | 9.8 | 9.6 | 5.1 | 7.2 | 6.6 | 21.4 | 19.2 | 9.7 | 17.0 | 8.6 | 5.7 |
| 24 | 9.6 | 9.8 | 9.2 | 5.0 | 6.9 | 7.0 | 27.3 | 18.6 | 9.3 | 16.5 | 8.9 | 5.6 |
| 25 | 9.6 | 9.8 | 8.9 | 5.1 | 6.6 | 7.5 | 27.8 | 19.4 | 8.9 | 16.0 | 9.1 | 5.4 |
| 26 | 9.5 | 9.9 | 9.0 | 5.2 | 6.4 | 7.0 | 28.4 | 20.2 | 8.6 | 14.2 | 9.3 | 5.4 |
| 27 | 9.5 | 10.0 | 9.0 | 5.3 | 6.3 | 6.6 | 28.4 | 19.4 | 8.2 | 12.4 | 9.1 | 5.4 |
| 28 | 9.5 | 9.9 | 9.1 | 5.4 | 6.0 | 6.8 | 28.4 | 18.6 | 8.0 | 11.3 | 8.9 | 5.8 |
| 29 | 9.5 | 9.8 | 9.2 | 5.8 | ..... | 6.9 | 31.2 | 19.4 | 7.8 | 10.2 | 8.6 | 6.3 |
| 30 | 9.5 | 9.8 | 9.3 | 6.3 | ..... | 7.0 | 34.0 | 20.2 | 7.6 | 8.4 | 8.2 | 6.3 |
| 31 | 9.6 | ..... | 9.4 | 6.4 | ..... | 7.2 | ..... | 16.3 | ..... | 6.6 | 8.0 | ..... |
| 1911-12. | | | | | | | | | | | | |
| 1 | 6.6 | 5.7 | 4.7 | 4.2 | 5.4 | 4.2 | 5.6 | 10.8 | 69.1 | 8.8 | 10.0 | 8.8 |
| 2 | 6 9 | 5.7 | 4.6 | 3.8 | 5.9 | 4.6 | 5.3 | 11.6 | 65.4 | 9.0 | 10.0 | 8.1 |
| 3 | 7.2 | 5.6 | 4.9 | 3.4 | 6.0 | 5.0 | 5.2 | 11.2 | 61.8 | 9.2 | 8.9 | 7.4 |
| 4 | 6.6 | 5.4 | 5.2 | 3.2 | 6.2 | 5.4 | 5.0 | 10.8 | 56.5 | 8.6 | 7.7 | 7.7 |
| 5 | 6.0 | 5.4 | 5.3 | 3.0 | 6.0 | 5.9 | 5.6 | 11.4 | 51.2 | 8.0 | 7.6 | 8.0 |
| 6 | 5.8 | 5.4 | 5.4 | 3.2 | 5.9 | 5.8 | 6.2 | 12.0 | 46.4 | 11.6 | 7.4 | 7.8 |
| 7 | 5.7 | 5.6 | 5.7 | 3.4 | 5.4 | 5.6 | 7.1 | 14.0 | 41.6 | 7.4 | 7.4 | 7.7 |
| 8 | 5.7 | 5.7 | 6.0 | 3.2 | 5.0 | 5.4 | 8.0 | 16.0 | 37.1 | 7.7 | 7.4 | 8.2 |
| 9 | 5.7 | 6.0 | 6.2 | 3.0 | 4.9 | 5.0 | 8.2 | 19.0 | 32.7 | 8.0 | 9.2 | 8.8 |
| 10 | 6.0 | 6.3 | 6.3 | 2.9 | 4.8 | 5.4 | 8.4 | 22.0 | 33.0 | 7.8 | 7.1 | 9.0 |
| 11 | 6.3 | 6.4 | 6.0 | 2.8 | 4.5 | 5.9 | 8.2 | 22.3 | 33.2 | 7.7 | 7.2 | 9.2 |
| 12 | 6.0 | 6.6 | 5.7 | 2.8 | 4.2 | 5.8 | 8.0 | 22.6 | 28.5 | 9.0 | 7.4 | 9.6 |
| 13 | 5.7 | 6.6 | 4.8 | 2.9 | 4.4 | 5.6 | 7.7 | 40.0 | 23.7 | 10.4 | 7.2 | 10.0 |
| 14 | 5.8 | 6.6 | 6.0 | 2.9 | 4.6 | 5.3 | 7.4 | 62.9 | 22.3 | 10.4 | 7.1 | 9.8 |
| 15 | 6.0 | 6.9 | 5.6 | 3.0 | 4.5 | 5.0 | 7.9 | 71.9 | 20.9 | 10.4 | 7.2 | 9.6 |
| 16 | 6.0 | 7.2 | 5.2 | 3.2 | 4.4 | 5.0 | 8.4 | 80.8 | 18.1 | 10.6 | 7.4 | 9.2 |
| 17 | 6.0 | 7.0 | 5.4 | 3.4 | 5.3 | 5.0 | 8.2 | 81.6 | 46.7 | 10.8 | 7.4 | 8.8 |
| 18 | 5.9 | 6.9 | 5.7 | 3.3 | 6.2 | 4.9 | 8.0 | 82.5 | 34.6 | 11.0 | 7.4 | 8.6 |
| 19 | 5.7 | 6.8 | 5.6 | 3.2 | 5.6 | 4.8 | 7.8 | 97.3 | 22.6 | 11.2 | 8.1 | 8.4 |
| 20 | 5.7 | 6.6 | 5.4 | 3.4 | 5.0 | 4.9 | 7.7 | 112.2 | 18.8 | 10.6 | 8.8 | 8.2 |
| 21 | 5.7 | 6.4 | 5.6 | 3.6 | 4.9 | 5.0 | 8.2 | 115.3 | 15.0 | 10.0 | 8.2 | 8.0 |
| 22 | 5.8 | 6.3 | 5.7 | 3.9 | 4.8 | 5.2 | 8.8 | 118.4 | 14.5 | 9.8 | 7.7 | 7.6 |
| 23 | 6.0 | 6.2 | 5.4 | 4.2 | 4.6 | 5.3 | 8.4 | 120.0 | 14.0 | 9.6 | 7.4 | 7.1 |
| 24 | 5.8 | 6.0 | 5.2 | 4.1 | 4.4 | 5.3 | 8.0 | 121.7 | 13.5 | 9.2 | 7.1 | 6.4 |
| 25 | 5.7 | 5.6 | 5.3 | 4.0 | 4.5 | 5.3 | 8.4 | 112.8 | 13.0 | 8.8 | 7.4 | 5.6 |
| 26 | 5.6 | 5.2 | 5.4 | 4.0 | 4.6 | 5.8 | 8.8 | 103.8 | 11.9 | 9.0 | 7.7 | 5.0 |
| 27 | 5.4 | 5.1 | 5.2 | 4.2 | 4.5 | 6.2 | 8.8 | 65.7 | 10.8 | 9.2 | 8.0 | 4.4 |
| 28 | 5.7 | 5.0 | 5.0 | 4.4 | 4.4 | 6.4 | 8.8 | 64.0 | 10.2 | 9.4 | 8.4 | 4.6 |
| 29 | 6.0 | 4.9 | 4.9 | 4.6 | 4.3 | 6.5 | 9.4 | 65.4 | 9.6 | 9.6 | 8.8 | 4.8 |
| 30 | 5.8 | 4.8 | 4.8 | 4.8 | ..... | 6.2 | 10.0 | 66.8 | 9.2 | 9.8 | 9.2 | 4.9 |
| 31 | 5.7 | ..... | 4.8 | 5.0 | ..... | 5.9 | ..... | 67.9 | ..... | 10.0 | 9.0 | ..... |

*Monthly discharge of Peteetneet Creek near Payson, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910–11. | | | | | 1911–12. | | | | |
| October | 11.0 | 9.5 | 9.83 | 604 | October | 7.2 | 5.4 | 5.95 | 365.95 |
| November | 10.9 | 9.6 | 9.84 | 586 | November | 7.2 | 4.8 | 6.0 | 356.83 |
| December | 10.0 | 8.9 | 9.59 | 590 | December | 6.3 | 4.6 | 5.39 | 331.24 |
| January | 6.4 | 5.0 | 5.54 | 340.75 | January | 5.0 | 2.8 | 3.6 | 220.2 |
| February | 7.5 | 5.0 | 6.31 | 350.29 | February | 6.2 | 4.2 | 5.0 | 288.0 |
| March | 7.5 | 5.7 | 6.46 | 397.49 | March | 6.5 | 4.2 | 5.4 | 332.4 |
| April | 34.0 | 7.9 | 16.67 | 991.95 | April | 10.0 | 5.0 | 7.7 | 459.2 |
| May | 38.7 | 16.3 | 25.01 | 1,537.61 | May | 121.7 | 10.8 | 59.2 | 3,639.1 |
| June | 15.0 | 7.6 | 10.17 | 605.17 | June | 69.1 | 9.2 | 29.5 | 1,757.2 |
| July | 17.0 | 6.6 | 9.41 | 578.39 | July | 11.6 | 7.4 | 9.4 | 580.4 |
| August | 10.2 | 6.8 | 8.35 | 513.73 | August | 10.0 | 7.1 | 8.0 | 489.5 |
| September | 7.8 | 5.0 | 5.52 | 328.87 | September | 10.0 | 4.4 | 7.7 | 458.8 |
| The year. | 38.7 | 5.0 | 10.2 | 7,420 | The year. | 121.7 | 2.8 | 12.7 | 9,280 |

NOTE.—Records Oct. to Dec., 1910, and yearly totals have been computed by engineers of the United States Geological Survey.

### SPANISH FORK AT THISTLE, UTAH.

**Location.**—About half a mile below Thistle and 1 mile below the confluence of Soldier Fork and Thistle Creek, which unite to form Spanish Fork, and 2 miles above Diamond Fork.

**Records available.**—December 3, 1907, to September 30, 1912.

**Drainage area.**—490 square miles.

**Gage.**—Vertical staff; datum unchanged.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made by wading or from cable.

**Winter flow.**—Ice affects the relation of gage height to discharge for periods during the winter months.

**Diversions.**—No important diversions are made above the station.

**Accuracy.**—Records fair.

**Cooperation.**—Since December 31, 1910, records have been furnished by the United States Reclamation Service.

*Discharge measurements of Spanish Fork at Thistle, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Feb. 13 | A. B. Purton | 2.53 | 51.83 | Jan. 12 | W. J. Lamon | 3.50 | 38.6 |
| Apr. 2 | J. C. Dort | 2.65 | 76.5 | 19 | do | 2.35 | 36.4 |
| 3 | G. H. Canfield | 2.64 | 74.1 | 30 | do | 2.36 | 41.5 |
| May 7 | do | 3.04 | 149.6 | Mar. 1 | do | 2.39 | 41.5 |
| June 11 | W. J. Lamon | 2.70 | 70.7 | Apr. 8 | do | 2.61 | 61.4 |
| 15 | do | 2.78 | 83.1 | May 10 | do | 2.92 | 110.0 |
| 25 | do | 2.69 | 71.8 | 25 | do | 3.88 | 311.8 |
| Aug. 2 | do | 2.28 | 34.5 | June 12 | do | 3.33 | 142.7 |
| 17 | do | 2.18 | 26.3 | 22 | do | 2.93 | 81.2 |
| 29 | do | 2.14 | 21.85 | 23 | do | 2.94 | 82.1 |
| Sept. 28 | do | 2.31 | 34.92 | July 16 | do | 2.79 | 60.5 |
| Oct. 28 | do | 2.28 | 32.29 | Aug. 7 | do | 2.61 | 40.4 |
| Dec. 18 | do | 2.23 | 29.68 | Sept. 5 | do | 2.53 | 32.5 |

*Daily gage height, in feet, of Spanish Fork at Thistle, Utah, for years ending Sept. 30, 1911 and 1912.*

[E. T. Cluff, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 2.6 | | 2.7 | | 2.80 | 2.55 | 2.60 | 2.80 | | 2.60 | | 2.30 |
| 2 | | 2.7 | | 2.75 | | | | | 2.90 | | 2.40 | 2.25 |
| 3 | 2.5 | | 2.7 | | 2.80 | 2.55 | 2.60 | 2.85 | 2.90 | 2.55 | | |
| 4 | | 2.7 | | 2.80 | 2.75 | 2.55 | 2.70 | | | | 2.35 | 2.24 |
| 5 | 2.5 | 2.7 | 2.7 | | | | | 2.90 | 2.80 | 2.55 | 2.30 | |
| 6 | | | | 3.30 | 2.70 | 2.60 | 2.70 | 2.90 | | | | 2.22 |
| 7 | 2.5 | 2.7 | 2.7 | 3.35 | | | | 3.05 | 2.75 | 2.50 | 2.20 | |
| 8 | 2.5 | | | | 2.70 | 2.80 | 2.65 | 3.20 | | 2.50 | | 2.20 |
| 9 | | 2.7 | 2.7 | 2.75 | | 3.00 | | | 2.70 | | 2.20 | |
| 10 | | | 2.7 | | 2.70 | 3.10 | 2.70 | 3.15 | 2.70 | 2.50 | | |
| 11 | 2.5 | 2.7 | | 2.75 | 2.70 | 3.00 | | | 2.70 | | 2.20 | 2.20 |
| 12 | | 2.7 | 2.7 | | | | 2.70 | 3.10 | 2.70 | 2.45 | 2.30 | 2.40 |
| 13 | 2.5 | | | 2.70 | 2.55 | 2.60 | | 3.15 | | | | |
| 14 | 2.6 | 2.7 | 2.7 | 2.70 | | | 2.70 | | 2.80 | 2.45 | 2.30 | 2.30 |
| 15 | | | | 2.70 | 2.70 | 2.60 | 2.65 | 3.20 | | 2.50 | | |
| 16 | 2.75 | 2.7 | 2.7 | | | | | | 2.80 | | 2.25 | 2.20 |
| 17 | | | 2.7 | 2.70 | 2.70 | 2.60 | 2.70 | 3.20 | 2.80 | 2.55 | 2.20 | |
| 18 | 2.8 | 2.7 | | | 2.70 | 2.60 | | | | 2.50 | 2.20 | 2.20 |
| 19 | | 2.7 | 2.7 | 2.65 | | | 2.65 | 3.20 | 2.80 | | 2.20 | |
| 20 | | | | | 2.60 | 2.55 | | 3.20 | | 2.50 | | 2.20 |
| 21 | 2.65 | 2.7 | 2.7 | 2.65 | | 2.50 | 2.65 | | 2.80 | 2.55 | 2.20 | |
| 22 | | | | | 2.60 | | 2.70 | 3.15 | | 2.55 | | |
| 23 | 2.7 | 2.7 | 2.7 | 3.10 | | 2.60 | | | 2.70 | | 2.50 | 2.20 |
| 24 | | | 2.7 | 3.30 | 2.55 | 2.70 | 2.70 | 3.10 | 2.65 | 2.55 | | |
| 25 | 2.65 | 2.7 | | 4.20 | 2.50 | 2.60 | | | 2.69 | | 2.30 | 2.10 |
| 26 | 2.7 | 2.7 | 2.7 | 2.80 | | | 2.80 | 3.10 | 2.60 | 2.50 | | 2.15 |
| 27 | | | | 2.65 | 2.55 | 2.50 | | 3.10 | | | | |
| 28 | 2.7 | 2.7 | 2.65 | 2.70 | | | 2.80 | | 2.60 | 2.50 | 2.30 | 2.20 |
| 29 | 2.7 | | | 3.70 | | 2.50 | 2.90 | 3.00 | | 2.50 | 2.14 | 2.25 |
| 30 | | 2.7 | 2.65 | 3.70 | | | | | 2.60 | | 2.30 | 2.20 |
| 31 | 2.7 | | 2.65 | | | 2.60 | | 2.90 | | 2.45 | | |
| 1911–12. | | | | | | | | | | | | |
| 1 | | 2.25 | | | 2.35 | 2.39 | 2.45 | 2.60 | 4.00 | | | |
| 2 | 2.30 | | | | | | | | | | 2.70 | 2.60 |
| 3 | | 2.25 | | | 2.30 | 2.35 | 2.50 | 2.70 | 4.00 | | | |
| 4 | 2.30 | | | | | | | 2.70 | | 2.90 | | 2.54 |
| 5 | | | | | 2.35 | 2.37 | 2.50 | | 4.00 | 2.85 | 2.65 | 2.53 |
| 6 | 2.20 | 2.30 | | | | | 2.50 | 2.65 | | 2.85 | | |
| 7 | 2.20 | | | | 2.35 | 2.52 | | | 3.85 | | 2.61 | 2.55 |
| 8 | | 2.30 | | | | | 2.60 | 2.75 | 3.70 | 2.80 | | |
| 9 | 2.30 | | | | 2.35 | 2.40 | | | | | 2.58 | 2.55 |
| 10 | | | | | 2.35 | | 2.60 | 2.91 | 3.60 | 2.80 | 2.55 | |
| 11 | 2.29 | 2.35 | | | | 2.50 | | 3.05 | 3.33 | 2.75 | | 2.60 |
| 12 | | | | 2.38 | 2.35 | | 2.60 | | 3.33 | 2.75 | 2.55 | |
| 13 | 2.29 | | | | | 2.35 | 2.60 | 3.10 | | 2.80 | | 2.60 |
| 14 | 2.28 | | | | 2.40 | | | | 3.25 | | 2.50 | 2.60 |
| 15 | | | | | | 2.39 | 2.55 | 3.10 | | | | |
| 16 | 2.26 | | | | 2.40 | | | | | 2.80 | 2.55 | 2.60 |
| 17 | | | | 2.30 | | 2.39 | 2.55 | 3.35 | 3.15 | | 2.60 | |
| 18 | 2.25 | | 2.23 | | | | | 3.60 | | | | 2.60 |
| 19 | | | | 2.32 | 2.30 | 2.35 | 2.50 | | 3.15 | 2.80 | 2.60 | |
| 20 | 2.25 | | | | | | 2.50 | 3.80 | | 2.80 | | 2.60 |
| 21 | | | | 2.30 | 2.35 | | | 3.90 | 3.00 | | 2.60 | 2.60 |
| 22 | | | | 2.30 | | 2.35 | 2.50 | 3.80 | 2.93 | 2.75 | | |
| 23 | 2.25 | | | | 2.35 | | | | 2.94 | | 2.60 | 2.60 |
| 24 | | | | 2.30 | 2.35 | | 2.50 | 3.70 | 2.90 | 2.80 | | |
| 25 | 2.25 | | | | | 2.45 | | 3.88 | | | | 2.60 |
| 26 | | | | 2.30 | 2.35 | | 2.55 | | 2.90 | 2.70 | 2.60 | |
| 27 | 2.24 | | | | | 2.50 | | 3.90 | | 2.70 | | 2.60 |
| 28 | 2.26 | | | 2.40 | 2.35 | | | | 2.90 | | 2.60 | 2.60 |
| 29 | | | | | | 2.45 | 2.55 | 4.00 | 2.90 | | | |
| 30 | | | | 2.38 | | 2.50 | | | | | 2.60 | 2.60 |
| 31 | 2.25 | | | | | | | | | 2.75 | 2.60 | |

*Daily discharge, in second-feet, of Spanish Fork at Thistle, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 44 | 56 | 56 | 60.5 | 87.5 | 54.1 | 59.5 | 87.5 | 106.0 | 59.5 | 42.5 | 33.5 |
| 2 | 39 | 56 | 56 | 60.5 | 87.5 | 54.1 | 59.5 | 91.9 | 106.0 | 56.8 | 40.5 | 30.3 |
| 3 | 34 | 56 | 56 | 63.9 | 87.5 | 54.1 | 59.5 | 96.4 | 106.0 | 54.1 | 38.7 | 30.0 |
| 4 | 34 | 56 | 56 | 67.3 | 79.3 | 54.1 | 72.0 | 101.2 | 96.8 | 54.1 | 36.9 | 29.7 |
| 5 | 34 | 56 | 56 | 118.4 | 75.6 | 56.8 | 72.0 | 106.0 | 87.5 | 54.1 | 33.5 | 29.2 |
| 6 | 34 | 56 | 56 | 169.5 | 72.0 | 59.5 | 72.0 | 106.0 | 83.4 | 51.6 | 30.5 | 28.6 |
| 7 | 34 | 56 | 56 | 194.0 | 72.0 | 73.5 | 68.5 | 139.4 | 79.3 | 49.0 | 27.5 | 28.0 |
| 8 | 34 | 56 | 56 | 127.2 | 72.0 | 87.5 | 65.0 | 180.0 | 75.6 | 49.0 | 27.5 | 27.5 |
| 9 | 34 | 56 | 56 | 60.5 | 72.0 | 127.5 | 68.5 | 172.8 | 72.0 | 49.0 | 27.5 | 27.5 |
| 10 | 34 | 56 | 56 | 60.5 | 72.0 | 152.0 | 72.0 | 165.5 | 72.0 | 49.0 | 27.5 | 27.5 |
| 11 | 34 | 56 | 56 | 60.5 | 72.0 | 127.5 | 72.0 | 158.8 | 72.0 | 46.8 | 27.5 | 27.5 |
| 12 | 34 | 56 | 56 | 57.4 | 63.0 | 93.5 | 72.0 | 152.0 | 72.0 | 44.5 | 33.5 | 40.5 |
| 13 | 34 | 56 | 56 | 54.3 | 54.1 | 59.5 | 72.0 | 165.5 | 79.8 | 44.5 | 33.5 | 37.0 |
| 14 | 44 | 56 | 56 | 54.3 | 63.0 | 59.5 | 72.0 | 172.8 | 87.5 | 44.5 | 33.5 | 33.5 |
| 15 | 53 | 56 | 56 | 54.3 | 72.0 | 59.5 | 65.0 | 180.0 | 87.5 | 49.0 | 31.9 | 30.5 |
| 16 | 62 | 56 | 56 | 54.3 | 72.0 | 59.5 | 68.5 | 180.0 | 87.5 | 51.6 | 30.3 | 27.5 |
| 17 | 66 | 56 | 56 | 54.3 | 72.0 | 59.5 | 72.0 | 180.0 | 87.5 | 54.1 | 27.5 | 27.5 |
| 18 | 69 | 56 | 56 | 51.5 | 72.0 | 59.5 | 68.5 | 180.0 | 87.5 | 49.0 | 27.5 | 27.5 |
| 19 | 62 | 56 | 56 | 48.8 | 65.8 | 56.8 | 65.0 | 180.0 | 87.5 | 49.0 | 27.5 | 27.5 |
| 20 | 56 | 56 | 56 | 48.8 | 59.5 | 54.1 | 65.0 | 180.0 | 87.5 | 49.0 | 27.5 | 27.5 |
| 21 | 50 | 56 | 56 | 48.8 | 59.5 | 49.0 | 65.0 | 172.8 | 87.5 | 54.1 | 27.5 | 27.5 |
| 22 | 53 | 56 | 56 | 84.9 | 59.5 | 54.2 | 72.0 | 165.5 | 79.8 | 54.1 | 38.2 | 27.5 |
| 23 | 56 | 56 | 56 | 121.0 | 56.8 | 59.5 | 72.0 | 158.8 | 72.0 | 54.1 | 49.0 | 27.5 |
| 24 | 53 | 56 | 56 | 169.5 | 54.1 | 72.0 | 72.0 | 152.0 | 65.0 | 54.1 | 41.2 | 25.2 |
| 25 | 50 | 56 | 56 | 522.0 | 49.0 | 59.5 | 79.8 | 152.0 | 70.7 | 51.6 | 33.5 | 22.8 |
| 26 | 56 | 56 | 56 | 87.5 | 51.5 | 54.2 | 87.5 | 152.0 | 59.5 | 49.0 | 33.5 | 25.0 |
| 27 | 56 | 56 | 53 | 65.0 | 54.1 | 49.0 | 87.5 | 152.0 | 59.5 | 49.0 | 33.5 | 26.2 |
| 28 | 56 | 56 | 50 | 72.0 | 54.1 | 49.0 | 87.5 | 139.8 | 59.5 | 49.0 | 33.5 | 27.5 |
| 29 | 56 | 56 | 50 | 350.0 | ..... | 49.0 | 106.0 | 127.5 | 59.5 | 49.0 | 24.5 | 30.3 |
| 30 | 56 | 56 | 50 | 350.0 | ..... | 54.2 | 96.8 | 116.8 | 59.5 | 46.8 | 33.5 | 27.5 |
| 31 | 56 | ..... | 50 | 218.7 | ..... | 59.5 | ..... | 106.0 | ..... | 44.5 | 33.5 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 30.5 | 30.3 | ..... | 39.2 | 36.5 | 40.1 | 46.0 | 62.0 | 313.4 | 75.4 | 51.6 | 38.3 |
| 2 | 33.5 | 30.3 | ..... | 39.2 | 34.2 | 38.3 | 48.5 | 68.0 | 312.0 | 75.4 | 49.0 | 38.3 |
| 3 | 33.5 | 30.3 | ..... | 39.2 | 32.0 | 36.5 | 51.0 | 74.0 | 310.6 | 75.4 | 47.3 | 35.6 |
| 4 | 33.5 | 31.4 | ..... | 39.3 | 34.2 | 37.4 | 51.0 | 74.0 | 307.8 | 75.4 | 45.6 | 32.9 |
| 5 | 30.5 | 32.4 | ..... | 39.2 | 36.5 | 38.3 | 51.0 | 71.0 | 305.0 | 68.0 | 44.0 | 33.2 |
| 6 | 27.5 | 33.5 | ..... | 39.2 | 36.5 | 45.7 | 51.0 | 68.0 | 283.2 | 68.0 | 41.6 | 33.5 |
| 7 | 27.5 | 33.5 | ..... | 39.2 | 36.5 | 53.2 | 56.5 | 74.5 | 261.5 | 65.0 | 39.2 | 33.8 |
| 8 | 30.5 | 33.5 | ..... | 39.2 | 36.5 | 47.1 | 62.0 | 81.0 | 222.9 | 62.0 | 37.8 | 33.8 |
| 9 | 33.5 | 34.6 | ..... | 39.2 | 36.5 | 41.0 | 62.0 | 92.7 | 210.6 | 62.0 | 36.5 | 33.8 |
| 10 | 33.2 | 35.8 | ..... | 39.2 | 36.5 | 46.0 | 62.0 | 104.5 | 198.4 | 62.0 | 33.8 | 36.0 |
| 11 | 32.9 | 36.9 | ..... | 39.2 | 36.5 | 51.0 | 62.0 | 126.5 | 144.0 | 56.5 | 33.8 | 38.3 |
| 12 | 32.9 | ..... | ..... | 39.2 | 36.5 | 43.7 | 62.0 | 130.7 | 142.2 | 55.4 | 33.8 | 38.3 |
| 13 | 32.9 | ..... | ..... | 37.7 | 38.7 | 36.5 | 62.0 | 135.0 | 135.2 | 60.9 | 31.5 | 38.3 |
| 14 | 32.3 | ..... | ..... | 36.2 | 41.0 | 38.3 | 59.2 | 135.0 | 128.2 | 60.9 | 29.3 | 38.3 |
| 15 | 31.6 | ..... | ..... | 34.8 | 41.0 | 40.1 | 56.5 | 135.0 | 122.8 | 60.9 | 31.5 | 38.3 |
| 16 | 30.9 | ..... | ..... | 33.4 | 41.0 | 40.1 | 56.5 | 159.2 | 117.4 | 60.9 | 33.8 | 38.3 |
| 17 | 30.6 | ..... | ..... | 32.0 | 38.0 | 40.1 | 56.5 | 183.5 | 112.0 | 60.5 | 38.3 | 38.3 |
| 18 | 30.3 | ..... | ..... | 32.9 | 35.0 | 38.3 | 53.7 | 239.0 | 112.0 | 60.1 | 38.3 | 38.3 |
| 19 | 30.3 | ..... | ..... | 33.8 | 32.0 | 36.5 | 51.0 | 265.0 | 112.0 | 59.8 | 38.3 | 38.3 |
| 20 | 30.3 | ..... | ..... | 32.9 | 34.2 | 36.5 | 51.0 | 291.0 | 101.5 | 59.8 | 38.3 | 38.3 |
| 21 | 30.3 | ..... | ..... | 32.0 | 36.5 | 36.5 | 51.0 | 319.0 | 91.0 | 57.0 | 38.3 | 38.3 |
| 22 | 30.3 | ..... | ..... | 32.0 | 36.5 | 36.5 | 51.0 | 291.0 | 81.0 | 54.3 | 38.3 | 38.3 |
| 23 | 30.3 | ..... | ..... | 32.0 | 36.5 | 39.6 | 51.0 | 277.5 | 82.4 | 57.0 | 38.3 | 38.3 |
| 24 | 30.3 | ..... | ..... | 32.0 | 36.5 | 42.8 | 51.0 | 264.0 | 76.8 | 59.8 | 38.3 | 38.3 |
| 25 | 30.3 | ..... | ..... | 32.0 | 36.5 | 46.0 | 53.7 | 313.4 | 76.8 | 54.4 | 38.3 | 38.3 |
| 26 | 30.0 | ..... | ..... | 32.0 | 36.5 | 48.5 | 56.5 | 309.2 | 76.8 | 49.0 | 38.3 | 38.3 |
| 27 | 29.8 | ..... | ..... | 36.5 | 36.5 | 51.0 | 56.5 | 305.0 | 76.1 | 49.0 | 38.3 | 38.3 |
| 28 | 30.9 | ..... | ..... | 41.0 | 36.5 | 48.5 | 56.5 | 316.2 | 75.4 | 50.3 | 38.3 | 38.3 |
| 29 | 30.7 | ..... | ..... | 40.1 | 38.3 | 46.0 | 56.5 | 327.4 | 75.4 | 51.6 | 38.3 | 38.3 |
| 30 | 30.5 | ..... | ..... | 39.2 | ..... | 51.0 | 59.2 | 322.7 | 75.4 | 52.9 | 38.3 | 38.3 |
| 31 | 30.3 | ..... | ..... | 37.8 | ..... | 48.5 | ..... | 318.0 | ..... | 54.3 | 38.3 | ..... |

*Monthly discharge of Spanish Fork at Thistle, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910–11. | | | | | 1911–12 | | | | |
| October | 69 | 34 | 47.3 | 2,910 | October | 33.5 | 27.5 | 31.0 | 1,908.9 |
| November | 56 | 56 | 56.0 | 3,330 | November | ..... | ..... | [a] 33.1 | 1,969.5 |
| December | 56 | 50 | 55.1 | 3,390 | December | ..... | ..... | [a] 27.8 | 1,707.4 |
| January | 522.0 | 48.8 | 116.5 | 7,160.8 | January | 41.0 | 32.0 | 36.5 | 2,242.7 |
| February | 87.5 | 49.0 | 67.2 | 3,731.8 | February | 41.0 | 32.0 | 36.6 | 2,102.7 |
| March | 152.0 | 49.0 | 66.8 | 4,108.2 | March | 53.2 | 36.5 | 42.6 | 2,617.4 |
| April | 106.0 | 59.5 | 72.9 | 4,337.1 | April | 62.0 | 46.0 | 55.1 | 3,281.3 |
| May | 180.0 | 87.5 | 147.4 | 9,066.6 | May | 327.4 | 62.0 | 191.4 | 11,768.1 |
| June | 106.0 | 59.5 | 79.8 | 4,747.3 | June | 313.4 | 75.4 | 157.9 | 9,401.4 |
| July | 59.5 | 44.5 | 50.4 | 3,101.2 | July | 75.4 | 49.0 | 60.4 | 3,716.9 |
| August | 49.0 | 24.5 | 32.7 | 2,011.6 | August | 51.6 | 29.3 | 38.5 | 2,369.5 |
| September | 40.5 | 22.8 | 28.8 | 1,716.3 | September | 38.3 | 32.9 | 37.2 | 2,212.0 |
| The year. | 522.0 | 22.8 | 68.4 | 49,600 | The year. | 327.4 | ..... | 62.3 | 45,300 |

[a] Discharge Nov. 11 to Dec. 31, 1911, estimated from records at station near Spanish Fork and United States Reclamation Service power canal.

NOTE.—Records October to December, 1910, and yearly totals were computed by engineers of the United States Geological Survey.

### SPANISH FORK NEAR SPANISH FORK, UTAH.

**Location.**—About 5 miles southeast of Spanish Fork, Utah, and 600 feet above the diversion dam of the East Bench Irrigation Co.

**Records available.**—May 23, 1900, to November 30, 1901; March 26, 1903, to September 30, 1912.

**Drainage area.**—670 square miles.

**Channel.**—Sand and gravel; shifting.

**Discharge measurements.**—Made from a cable or by wading.

**Winter flow.**—Very little ice forms at this station.

**Diversions.**—Above all diversions except the United States Reclamation Service power canal, which diverts about a mile above the station. Part of the water diverted by this canal is returned to the river after passing the power house; the remainder is turned into the Salem canal and used for irrigation.

**Accuracy.**—Records considered fair.

**Cooperation.**—Since December 31, 1910, records have been furnished by the United States Reclamation Service.

*Discharge measurements of Spanish Fork near Spanish Fork, Utah, in years ending Sept. 30, 1911 and 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 21[a] | A. B. Purton | −0.50 | 3.24 | May 4 | W. J. Lamon | 0.04 | 56.5 |
| Apr. 8 | G. H. Canfield | − .07 | 43.60 | 14 | do | .56 | 149.0 |
| May 8 | do | .62 | 164.00 | 17 | do | 1.24 | 289.0 |
| 24 | W. J. Lamon | .49 | 145.16 | 19 | do | 1.70 | 386.0 |
| June 19 | do | .10 | 64.61 | 30 | do | 2.15 | 495 |
| July 14 | do | − .33 | 15.94 | June 4 | do | 1.75 | 404 |
| 29 | do | − .31 | 14.92 | 17 | do | .29 | 102.3 |
| Aug. 17 | do | − .47 | 6.72 | July 15 | do | − .08 | 39.7 |
| Sept. 9[b] | do | − .50 | 5.25 | 25 | do | − .26 | 18.5 |
| 1912. | | | | Aug. 2 | do | [c].40 | 19.6 |
| Jan. 10[a] | W. J. Lamon | .45 | 6.1 | 5 | do | [c].34 | 12.9 |
| 18[a] | do | − .28 | 8.0 | 9 | do | [c].03 | 7.86 |
| 22 | do | − .35 | 11.9 | 12 | do | .11 | 8.37 |
| 30 | do | − .38 | 10.6 | 14 | do | [c].42 | 15.69 |
| Feb. 2 | do | − .39 | 10.7 | 15 | do | [d] 1.13 | 18.3 |
| Apr. 8 | do | − .10 | 38.5 | 19 | do | [d] 1.00 | 12.1 |
| | | | | 28 | do | [d] 1.02 | 13.1 |

[a] Ice at the station.
[b] Measurement made on East Bench weir.
[c] Backwater from East Bench dam.
[d] Taken at low-water gaging station.

*Daily gage height, in feet, of Spanish Fork near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

[Geo. H. Lewis, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910-11. | | | | | | | | | | | | |
| 1 | −0.34 | −0.30 | −0.46 | −0.50 | ..... | −0.46 | 0.02 | 0.30 | 0.28 | −0.16 | −0.35 | −0.46 |
| 2 | − .06 | − .32 | − .46 | − .50 | 0.65 | − .49 | .01 | .28 | .42 | − .15 | − .38 | − .48 |
| 3 | − .10 | − .32 | − .44 | − .50 | − .05 | − .40 | .01 | .30 | .34 | − .16 | − .41 | − .48 |
| 4 | − .16 | − .34 | − .44 | − .50 | − .08 | − .31 | .02 | .32 | .32 | − .17 | − .43 | − .48 |
| 5 | − .16 | − .36 | − .48 | − .50 | − .08 | .21 | .02 | .38 | .10 | − .18 | − .43 | − .54 |
| 6 | − .16 | − .38 | − .49 | − .50 | − .11 | .22 | .06 | .52 | .10 | − .18 | − .39 | − .48 |
| 7 | − .19 | − .40 | − .49 | − .50 | − .16 | − .05 | .02 | .58 | .12 | − .18 | − .45 | − .46 |
| 8 | − .22 | − .40 | − .49 | − .49 | − .29 | .24 | .08 | .60 | .10 | − .24 | − .48 | − .44 |
| 9 | − .22 | − .42 | − .48 | − .49 | − .46 | .52 | .06 | .66 | .09 | − .23 | − .52 | − .49 |
| 10 | − .24 | − .41 | − .45 | − .44 | − .47 | .46 | .01 | .71 | .02 | − .26 | .52 | − .49 |
| 11 | − .30 | − .39 | − .42 | − .44 | − .42 | ..... | .03 | .68 | .00 | − .30 | − .49 | − .50 |
| 12 | − .30 | − .35 | − .41 | − .44 | − .31 | .00 | .02 | .64 | − .01 | − .34 | − .51 | − .56 |
| 13 | − .30 | − .37 | − .50 | − .47 | − .35 | − .12 | .10 | .60 | .01 | − .34 | − .50 | − .38 |
| 14 | − .29 | − .36 | − .49 | − .46 | − .36 | − .15 | .24 | .60 | .06 | − .33 | − .39 | − .42 |
| 15 | − .27 | − .36 | − .50 | − .44 | − .49 | − .12 | .12 | .60 | .09 | − .32 | − .36 | − .42 |
| 16 | − .18 | − .40 | − .50 | − .36 | − .48 | − .11 | .08 | .52 | .10 | − .29 | − .40 | − .44 |
| 17 | − .18 | − .35 | − .49 | − .40 | − .49 | − .09 | .01 | .51 | .08 | − .32 | − .42 | − .42 |
| 18 | − .16 | − .40 | − .50 | − .46 | − .49 | − .08 | .02 | .56 | .10 | − .34 | − .39 | − .40 |
| 19 | − .16 | − .25 | − .50 | − .46 | − .48 | .10 | .02 | .53 | .08 | − .11 | − .38 | − .38 |
| 20 | − .20 | − .30 | − .49 | − .43 | − .48 | .08 | .02 | .53 | .06 | − .24 | − .37 | − .38 |
| 21 | − .24 | − .36 | − .45 | − .44 | − .48 | .08 | .03 | .49 | .01 | − .12 | − .36 | − .40 |
| 22 | − .24 | − .32 | − .50 | − .50 | − .48 | .07 | .04 | .44 | .01 | − .17 | − .36 | − .42 |
| 23 | − .24 | − .28 | − .50 | − .49 | − .50 | .04 | .04 | .47 | .02 | − .21 | − .29 | − .40 |
| 24 | − .26 | − .34 | − .50 | − .48 | − .48 | .01 | .08 | .43 | .02 | − .26 | − .34 | − .43 |
| 25 | − .26 | − .36 | − .50 | .75 | − .50 | .09 | .18 | .48 | .01 | − .24 | − .36 | − .43 |
| 26 | − .26 | ..... | − .50 | .76 | − .49 | .09 | .28 | .49 | .00 | − .06 | − .40 | − .44 |
| 27 | − .25 | − .45 | − .50 | − .08 | − .49 | .16 | .31 | .48 | − .04 | − .22 | − .46 | − .34 |
| 28 | − .27 | − .48 | − .50 | − .14 | − .48 | .17 | .33 | .40 | − .08 | − .26 | − .50 | − .31 |
| 29 | − .26 | − .44 | − .50 | 1.69 | ..... | .14 | .36 | .36 | − .12 | − .26 | − .50 | − .34 |
| 30 | − .28 | − .43 | − .50 | .86 | ..... | .12 | .36 | .22 | − .15 | − .28 | − .46 | − .21 |
| 31 | − .30 | ..... | − .50 | 2.55 | ..... | .09 | ..... | .32 | ..... | − .30 | − .46 | ..... |
| 1911-12. | | | | | | | | | | | | |
| 1 | −0.24 | −0.44 | ..... | ..... | −0.48 | −0.36 | −0.26 | 0.04 | 1.82 | −0.03 | ..... | 0.98 |
| 2 | − .32 | − .48 | −0.42 | ..... | ..... | − .34 | − .24 | .11 | 1.81 | − .02 | ..... | 1.00 |
| 3 | − .32 | − .50 | − .41 | ..... | ..... | − .30 | − .20 | .12 | 1.80 | − .04 | ..... | .98 |
| 4 | − .36 | − .48 | − .45 | ..... | ..... | − .31 | − .16 | .06 | 1.79 | − .05 | ..... | .98 |
| 5 | − .38 | − .48 | − .35 | ..... | − .38 | − .28 | − .14 | .02 | 1.68 | − .04 | ..... | 1.01 |
| 6 | − .38 | − .50 | − .33 | ..... | − .40 | − .15 | − .21 | .00 | 1.48 | − .06 | ..... | 1.00 |
| 7 | − .38 | − .48 | − .36 | −0.53 | − .36 | − .09 | − .15 | .08 | 1.32 | − .07 | ..... | 1.04 |
| 8 | − .42 | − .45 | − .40 | ..... | − .32 | − .22 | − .10 | .16 | 1.18 | − .08 | ..... | 1.04 |
| 9 | − .41 | − .42 | ..... | ..... | − .34 | − .28 | − .04 | .28 | 1.01 | − .10 | ..... | 2.30 |
| 10 | − .22 | − .41 | − .43 | ..... | − .32 | − .28 | .10 | .29 | .86 | − .12 | ..... | 1.22 |
| 11 | − .36 | − .46 | − .41 | ..... | − .32 | − .24 | − .04 | .62 | .71 | − .12 | ..... | 1.14 |
| 12 | − .38 | ..... | − .44 | ..... | − .33 | − .25 | − .09 | .66 | .52 | − .09 | ..... | 1.10 |
| 13 | − .38 | ..... | − .32 | ..... | − .37 | − .32 | − .10 | .68 | .53 | − .06 | ..... | 1.10 |
| 14 | − .39 | − .56 | ..... | ..... | − .38 | − .30 | − .18 | .56 | .51 | − .08 | ..... | 1.10 |
| 15 | − .41 | − .46 | ..... | ..... | − .32 | − .32 | − .14 | .65 | .47 | − .10 | 1.13 | 1.10 |
| 16 | − .40 | − .38 | − .49 | ..... | − .32 | − .29 | − .12 | .90 | .40 | − .10 | 1.08 | 1.09 |
| 17 | − .38 | − .42 | − .46 | ..... | − .36 | − .32 | − .14 | 1.15 | .32 | − .12 | 1.04 | 1.06 |
| 18 | − .39 | − .42 | − .46 | ..... | − .20 | − .30 | − .10 | 1.52 | .16 | − .12 | 1.02 | 1.07 |
| 19 | − .42 | − .41 | − .49 | − .42 | − .32 | − .28 | − .12 | 1.78 | .19 | − .09 | 1.00 | 1.08 |
| 20 | − .43 | − .43 | − .52 | − .42 | − .34 | − .22 | − .12 | 1.80 | .14 | − .11 | .98 | 1.04 |
| 21 | − .48 | − .42 | − .51 | − .39 | − .40 | − .28 | − .16 | 1.95 | .14 | − .16 | .98 | 1.04 |
| 22 | − .49 | − .42 | ..... | − .34 | − .40 | − .32 | − .18 | 1.73 | .09 | − .22 | .93 | 1.06 |
| 23 | − .47 | − .46 | ..... | − .40 | − .35 | − .31 | − .20 | 1.50 | .08 | − .22 | .92 | 1.07 |
| 24 | − .44 | − .45 | ..... | − .39 | − .34 | − .32 | − .14 | 1.48 | .04 | − .26 | .93 | 1.01 |
| 25 | − .44 | − .45 | ..... | − .37 | − .38 | − .35 | − .08 | 1.75 | .01 | − .27 | .95 | 1.00 |
| 26 | − .44 | − .45 | ..... | − .42 | − .42 | − .30 | − .14 | 1.74 | .01 | − .24 | .95 | .96 |
| 27 | − .42 | − .41 | ..... | − .38 | − .36 | − .24 | − .13 | 1.80 | .01 | − .22 | 1.00 | .97 |
| 28 | − .52 | ..... | ..... | − .41 | − .35 | − .22 | − .10 | 1.69 | − .01 | − .26 | 1.02 | .98 |
| 29 | − .54 | ..... | ..... | − .40 | − .47 | − .24 | − .04 | 1.83 | .00 | − .26 | 1.00 | 1.00 |
| 30 | − .54 | ..... | ..... | − .40 | ..... | − .20 | .00 | 2.16 | − .01 | − .12 | 1.02 | .98 |
| 31 | − .55 | ..... | ..... | − .40 | ..... | − .26 | ..... | 1.92 | ..... | − .18 | 1.02 | ..... |

NOTE.—Dry Nov. 26, 1910; Nov. 12-13, 28-30, Dec. 1, 9, 14-15, 22-31, 1911; Jan. 1-6, 1912. Relation of gage height to discharge affected by ice Jan. 8-19, Feb. 2-4, 1912. Dry during part of day owing to power canal diversion above on following days: Nov. 14, 23-25, Dec. 2-6, 19-21, 1911; Jan. 7-9, Feb. 2-4, 20, 26, 1912. Commencing Aug. 15 readings refer to a temporary gage farther upstream which was installed because of backwater at regular gage from the East Bench Dam.

*Daily discharge, in second-feet, of Spanish Fork near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 16 | 19 | 8.4 | 5.3 | 433.2 | 7.5 | 55.4 | 101.6 | 98.0 | 31.6 | 14.6 | 7.5 |
| 2 | 44 | 18 | 8.4 | 5.3 | 172.4 | 5.8 | 54.0 | 98.0 | 124.6 | 32.8 | 12.3 | 6.4 |
| 3 | 39 | 18 | 9.6 | 5.3 | 45.4 | 11.2 | 54.0 | 101.6 | 109.1 | 31.6 | 10.5 | 6.4 |
| 4 | 32 | 16 | 9.6 | 5.3 | 41.4 | 17.6 | 55.4 | 105.3 | 105.3 | 30.5 | 9.3 | 6.4 |
| 5 | 32 | 15 | 7.2 | 5.3 | 41.4 | 85.7 | 55.4 | 116.8 | 67.6 | 29.4 | 9.3 | 3.1 |
| 6 | 32 | 13 | 6.6 | 5.3 | 37.6 | 87.4 | 61.4 | 145.1 | 67.6 | 29.4 | 11.8 | 6.4 |
| 7 | 29 | 12 | 6.6 | 5.3 | 31.6 | 45.4 | 55.4 | 157.7 | 70.8 | 29.4 | 8.1 | 7.5 |
| 8 | 26 | 12 | 6.6 | 5.8 | 19.1 | 90.9 | 64.5 | 161.9 | 67.6 | 23.4 | 6.4 | 8.7 |
| 9 | 26 | 11 | 7.2 | 5.8 | 7.5 | 145.1 | 61.4 | 174.5 | 66.0 | 24.4 | 4.2 | 5.8 |
| 10 | 24 | 11 | 9.0 | 8.7 | 7.0 | 132.7 | 54.0 | 185.0 | 55.4 | 21.6 | 4.2 | 5.8 |
| 11 | 19 | 13 | 11 | 8.7 | 9.9 | 92.6 | 56.9 | 178.7 | 52.5 | 18.3 | 5.8 | 5.3 |
| 12 | 19 | 16 | 11 | 8.7 | 17.6 | 52.5 | 55.4 | 170.3 | 50.8 | 15.3 | 4.8 | 2.0 |
| 13 | 19 | 14 | 6.0 | 7.0 | 14.6 | 36.3 | 67.6 | 161.9 | 54.0 | 15.3 | 5.3 | 12.3 |
| 14 | 20 | 15 | 6.6 | 7.5 | 13.9 | 32.8 | 90.9 | 161.9 | 61.4 | 16.0 | 11.8 | 9.9 |
| 15 | 22 | 15 | 6.0 | 8.7 | 5.8 | 36.3 | 70.8 | 161.9 | 66.0 | 16.8 | 13.9 | 9.9 |
| 16 | 30 | 12 | 6.0 | 13.9 | 6.4 | 37.6 | 64.5 | 145.1 | 67.6 | 19.1 | 11.2 | 8.7 |
| 17 | 30 | 16 | 6.6 | 11.2 | 5.8 | 40.1 | 54.0 | 143.0 | 64.5 | 16.8 | 9.9 | 9.9 |
| 18 | 32 | 12 | 6.0 | 7.5 | 5.8 | 41.4 | 55.4 | 153.5 | 67.6 | 15.3 | 11.8 | 11.2 |
| 19 | 32 | 24 | 6.0 | 7.5 | 6.4 | 67.6 | 55.4 | 147.2 | 64.5 | 37.6 | 12.3 | 12.3 |
| 20 | 28 | 19 | 6.6 | 9.3 | 6.4 | 64.5 | 55.4 | 147.2 | 61.4 | 23.4 | 13.0 | 12.3 |
| 21 | 24 | 15 | 9.0 | 8.7 | 6.4 | 64.5 | 56.9 | 138.8 | 54.0 | 36.3 | 13.9 | 11.2 |
| 22 | 24 | 18 | 6.0 | 5.3 | 6.4 | 63.0 | 58.4 | 128.6 | 54.0 | 30.5 | 13.9 | 9.9 |
| 23 | 24 | 21 | 6.0 | 5.8 | 5.3 | 58.4 | 58.4 | 134.7 | 55.4 | 26.3 | 19.2 | 11.2 |
| 24 | 23 | 16 | 6.0 | 6.4 | 6.4 | 54.0 | 64.5 | 126.6 | 55.4 | 21.6 | 15.3 | 9.3 |
| 25 | 23 | 15 | 6.0 | 193.6 | 5.3 | 66.0 | 80.7 | 136.8 | 54.0 | 23.4 | 13.9 | 9.3 |
| 26 | 23 | 0 | 6.0 | 195.7 | 5.8 | 66.0 | 98.0 | 138.9 | 52.5 | 44.1 | 11.2 | 8.7 |
| 27 | 24 | 9.0 | 6.0 | 41.4 | 5.8 | 77.3 | 103.4 | 136.8 | 46.8 | 25.3 | 7.5 | 15.3 |
| 28 | 22 | 7.2 | 6.0 | 33.9 | 6.4 | 79.0 | 107.2 | 120.6 | 41.4 | 21.6 | 5.3 | 17.6 |
| 29 | 23 | 9.6 | 6.0 | 445.0 | ..... | 74.0 | 112.9 | 112.9 | 36.3 | 21.6 | 5.3 | 15.3 |
| 30 | 21 | 10 | 6.0 | 230.0 | ..... | 70.8 | 112.9 | 87.4 | 32.8 | 19.9 | 7.5 | 26.3 |
| 31 | 19 | ..... | 6.0 | 694.0 | ..... | 66.0 | ..... | 105.3 | ..... | 18.3 | 7.5 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 23.4 | 8.7 | .0 | .0 | 4.2 | 11.8 | 20.0 | 59.0 | 419.6 | 48.5 | 24.0 | 11.3 |
| 2 | 16.8 | 6.4 | 5.0 | .0 | 10.7 | 13.2 | 22.0 | 69.6 | 417.3 | 50.0 | 19.6 | 12.0 |
| 3 | 16.8 | 5.3 | 5.3 | .0 | 10.6 | 16.0 | 26.0 | 71.2 | 415.0 | 47.0 | 17.3 | 11.3 |
| 4 | 13.9 | 6.4 | 4.2 | .0 | 10.5 | 15.3 | 30.8 | 62.0 | 412.7 | 45.5 | 15.1 | 11.3 |
| 5 | 12.3 | 6.4 | 7.3 | .0 | 10.4 | 18.0 | 33.2 | 56.0 | 387.4 | 47.0 | 12.9 | 12.4 |
| 6 | 12.3 | 5.3 | 8.0 | .0 | 9.0 | 32.0 | 25.0 | 53.0 | 341.6 | 44.0 | 11.6 | 12.0 |
| 7 | 12.3 | 6.4 | 13.9 | 2.0 | 11.8 | 39.5 | 32.0 | 65.0 | 306.4 | 42.5 | 10.4 | 13.7 |
| 8 | 9.9 | 8.1 | 11.2 | 3.4 | 14.6 | 24.0 | 38.0 | 77.6 | 275.6 | 41.0 | 9.1 | 13.7 |
| 9 | 10.6 | 9.9 | .0 | 4.8 | 13.2 | 18.0 | 47.0 | 97.6 | 238.2 | 38.0 | 7.9 | 110.0 |
| 10 | 25.3 | 10.6 | 9.3 | 6.1 | 14.6 | 18.0 | 68.0 | 99.3 | 207.0 | 35.6 | 8.1 | 22.9 |
| 11 | 13.9 | 7.5 | 10.6 | 6.1 | 14.6 | 22.0 | 47.0 | 159.8 | 177.0 | 35.6 | 8.2 | 18.4 |
| 12 | 12.3 | .0 | 8.7 | 0 | 13.9 | 21.0 | 39.5 | 167.4 | 140.8 | 39.5 | 8.4 | 16.3 |
| 13 | 12.3 | .0 | 16.8 | 8.0 | 11.1 | 14.6 | 38.0 | 171.2 | 142.7 | 44.0 | 12.0 | 16.3 |
| 14 | 11.8 | 1.1 | .0 | 8.0 | 10.4 | 16.0 | 28.4 | 148.4 | 138.9 | 41.0 | 15.7 | 16.3 |
| 15 | 10.6 | 7.5 | .0 | 8.0 | 14.6 | 14.6 | 33.2 | 165.5 | 131.6 | 38.0 | 17.9 | 16.3 |
| 16 | 11.2 | 12.3 | 5.8 | 8.0 | 14.6 | 17.0 | 35.6 | 215.0 | 119.0 | 38.0 | 15.4 | 15.9 |
| 17 | 12.3 | 9.9 | 7.5 | 8.0 | 11.8 | 14.6 | 33.2 | 269.0 | 104.6 | 35.6 | 13.7 | 14.6 |
| 18 | 11.8 | 9.9 | 7.5 | 8.0 | 26.0 | 16.0 | 38.0 | 350.6 | 77.6 | 35.6 | 12.9 | 15.0 |
| 19 | 9.9 | 10.6 | 2.9 | 7.8 | 14.6 | 18.0 | 35.6 | 410.4 | 82.4 | 39.5 | 12.0 | 15.4 |
| 20 | 9.3 | 9.3 | 2.1 | 7.8 | 13.2 | 24.0 | 33.2 | 415.0 | 74.4 | 36.8 | 11.3 | 13.7 |
| 21 | 6.4 | 9.9 | 2.4 | 9.7 | 9.0 | 18.0 | 30.8 | 450.0 | 74.4 | 30.8 | 11.3 | 13.7 |
| 22 | 5.8 | 9.9 | .0 | 13.2 | 9.0 | 14.6 | 28.4 | 398.9 | 66.5 | 24.0 | 9.6 | 14.6 |
| 23 | 7.0 | 3.8 | .0 | 9.0 | 12.5 | 15.3 | 26.0 | 346.0 | 65.0 | 24.0 | 9.3 | 15.0 |
| 24 | 8.7 | 4.2 | .0 | 9.7 | 13.2 | 14.6 | 33.2 | 341.6 | 59.0 | 20.0 | 9.6 | 12.4 |
| 25 | 8.7 | 4.2 | .0 | 11.1 | 10.4 | 12.5 | 41.0 | 403.5 | 54.5 | 19.0 | 10.3 | 12.0 |
| 26 | 8.7 | 8.1 | .0 | 7.8 | 7.8 | 16.0 | 33.2 | 401.2 | 54.5 | 22.0 | 10.3 | 10.6 |
| 27 | 9.9 | 10.6 | .0 | 10.4 | 11.8 | 22.0 | 34.4 | 415.0 | 54.5 | 24.0 | 12.0 | 11.0 |
| 28 | 4.2 | .0 | .0 | 8.4 | 12.5 | 24.0 | 38.0 | 389.7 | 51.5 | 20.0 | 12.9 | 11.3 |
| 29 | 3.2 | .0 | .0 | 9.0 | 4.8 | 22.0 | 47.0 | 421.9 | 53.0 | 20.0 | 12.0 | 12.0 |
| 30 | 3.2 | .0 | .0 | 9.0 | ..... | 26.0 | 53.0 | 500.4 | 51.5 | 35.6 | 12.9 | 11.3 |
| 31 | 2.7 | .0 | .0 | 9.0 | ..... | 20.0 | ..... | 442.8 | ..... | 28.4 | 12.9 | ..... |

NOTE.—To obtain total flow from drainage area add above discharge to discharge of the United States Reclamation Service power canal. Discharge Aug. 1 to 14, 1912, based on meter measurements.

*Monthly discharge of Spanish Fork near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910–11. | | | | | 1911–12. | | | | |
| October | 44 | 16 | 25.8 | 1,590 | October | 25.3 | 2.7 | 10.9 | 669.4 |
| November | 24 | 0 | 14.1 | 839 | November | 12.3 | 0 | 6.4 | 381.4 |
| December | 11 | 6 | 7.1 | 437 | December | 16.8 | 0 | 4.1 | 254.9 |
| January | 694.0 | 5.3 | 64.7 | 3,981.3 | January | 13.2 | 0 | 6.0 | 371.3 |
| February | 433.2 | 5.3 | 34.9 | 1,937.9 | February | 26.0 | 4.2 | 11.0 | 632.7 |
| March | 145.1 | 5.8 | 60.3 | 3,709.1 | March | 39.5 | 11.8 | 19.0 | 1,167.5 |
| April | 112.9 | 54.0 | 68.3 | 4,067.2 | April | 68.0 | 20.0 | 35.6 | 2,119.8 |
| May | 185.0 | 87.4 | 138.5 | 8,500.5 | May | 500.4 | 53.0 | 248.2 | 15,260.3 |
| June | 124.6 | 32.8 | 64.4 | 3,818.0 | June | 419.6 | 51.5 | 173.1 | 10,302.7 |
| July | 44.1 | 15.3 | 24.7 | 1,521.4 | July | 50.0 | 19.0 | 35.2 | 2,163.0 |
| August | 19.2 | 4.2 | 10.0 | 616.9 | August | 24.0 | 7.9 | 12.5 | 766.8 |
| September | 26.3 | 2.0 | 9.7 | 578.9 | September | 110.0 | 10.6 | 17.1 | 1,016.9 |
| The year. | 694.0 | 0 | 43.5 | 31,600 | The year. | 500.4 | 0 | 48.3 | 35,100 |

NOTE.—To obtain total monthly discharge of river at mouth of canyon, add above discharge to discharge of United States Reclamation Service power canal. Records Oct. to Dec., 1910, and yearly totals were computed by engineers of the United States Geological Survey.

### UNITED STATES RECLAMATION SERVICE POWER CANAL NEAR SPANISH FORK, UTAH.

**Location.**—At mouth of canyon about half a mile below canal headgates and 5 miles southeast of Spanish Fork, Utah.

**Records available.**—January 1, 1909, to September 30, 1912.

**Channel.**—Concrete-lined canal section.

**Artificial control.**—Flow is controlled by the canal headgates half a mile above.

**Winter flow.**—Relation of gage height to discharge is at times affected by ice.

**Accuracy.**—Records considered good.

**Cooperation.**—All records since December 31, 1910, have been furnished by the United States Reclamation Service.

*Discharge measurements of United States Reclamation Service power canal near Spanish Fork, Utah, in years ending Sept. 30, 1911 and 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912 | | *Feet.* | *Sec.-ft.* |
| Apr. 8 | G. H. Canfield | 2.74 | 89.8 | June 26 | W. J. Lamon | 2.84 | 79.4 |
| Sept. 12 | W. J. Lamon | 2.13 | 52.5 | July 1 | do | 2.72 | 74.7 |
| Nov. 7 | do | 2.33 | 60.8 | 3 | do | 2.71 | 74.3 |
| | | | | 7 | do | 2.70 | 73.1 |
| 1912. | | | | 9 | do | 2.66 | 69.6 |
| Jan. 4[a] | W. J. Lamon | 3.22 | 60.3 | 12 | A. B. Larson | 2.70 | 72.5 |
| 10 | do | 2.31 | 62.0 | 25 | W. J. Lamon | 2.69 | 71.5 |
| Feb. 9 | do | 2.39 | 67.0 | Aug. 5 | do | 2.62 | 73.9 |
| May 12 | do | 2.78 | 94.2 | 14 | do | 2.36 | 57.6 |
| June 15 | do | 3.00 | 78.6 | Sept. 4 | do | 2.38 | 56.8 |

[a] Relation of gage height to discharge affected by ice.

*Daily gage height, in feet, of United States Reclamation Service power canal near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

[Geo. H. Lewis, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 2.39 | 2.32 | 2.51 | 2.35 | 2.60 | 2.70 | 2.82 | 2.03 | 2.36 | 2.30 | 2.11 | 2.03 |
| 2 | 2.52 | 2.34 | 2.50 | 2.30 | 2.60 | 2.65 | 2.85 | 2.03 | 2.35 | 2.32 | 2.10 | 2.01 |
| 3 | 2.05 | 2.36 | 2.54 | 2.00 | 2.60 | 2.70 | 2.81 | 2.06 | 2.58 | 2.32 | 2.10 | 2.02 |
| 4 | 2.05 | 2.39 | 2.58 | 2.30 | 2.55 | 2.70 | 2.80 | 2.10 | 2.45 | 2.28 | 2.07 | 2.02 |
| 5 | 2.02 | 2.36 | 2.38 | 2.25 | 2.55 | 2.80 | 2.82 | 2.18 | 2.54 | 2.28 | 2.08 | 2.06 |
| 6 | 2.05 | 2.42 | 2.38 | 2.35 | 2.50 | 2.75 | 2.84 | 2.30 | 2.52 | 2.28 | 2.10 | 2.05 |
| 7 | 2.08 | 2.48 | 2.50 | 2.35 | 2.50 | 2.70 | 2.76 | 2.32 | 2.56 | 2.28 | 2.04 | 2.10 |
| 8 | 2.10 | 2.52 | 2.48 | 2.40 | 2.45 | 2.70 | 2.75 | 2.46 | 2.58 | 2.21 | 2.02 | 2.06 |
| 9 | 2.12 | 2.46 | 2.50 | 2.40 | 2.55 | 2.95 | 2.76 | 2.47 | 2.46 | 2.21 | 2.02 | 2.10 |
| 10 | 2.15 | 2.46 | 2.55 | 2.60 | 2.60 | 2.95 | 2.82 | 2.45 | 2.59 | 2.15 | 2.02 | 2.11 |
| 11 | 2.25 | 2.48 | 2.56 | 2.60 | 2.60 | 2.85 | 2.73 | 2.36 | 2.48 | 2.11 | 2.06 | 2.04 |
| 12 | 2.25 | 2.40 | 2.59 | 2.55 | 2.60 | 2.64 | 2.68 | 2.32 | 2.39 | 2.09 | 2.04 | 2.18 |
| 13 | 2.28 | 2.42 | 2.54 | 2.50 | 2.55 | 2.62 | 2.60 | 2.32 | 2.38 | 2.12 | 2.03 | 2.20 |
| 14 | 2.28 | 2.46 | 2.53 | 2.45 | 2.50 | 2.66 | 2.66 | 2.32 | 2.45 | 2.14 | 1.92 | 2.19 |
| 15 | 2.26 | 2.42 | 2.46 | 2.55 | 2.40 | 2.66 | 2.72 | 2.48 | 2.49 | 2.15 | 1.84 | 2.24 |
| 16 | 2.34 | 2.4 | 2.45 | 2.60 | 2.25 | 2.79 | 2.58 | 2.56 | 2.50 | 2.19 | 1.88 | 2.31 |
| 17 | 2.34 | 2.4 | 2.45 | 2.60 | 2.30 | 2.76 | 2.59 | 2.69 | 2.44 | 2.17 | 1.99 | 2.20 |
| 18 | 2.44 | 2.35 | 2.40 | 2.50 | 2.36 | 2.76 | 2.61 | 2.73 | 2.41 | 2.17 | 1.94 | 2.14 |
| 19 | 2.34 | 2.4 | 2.42 | 2.50 | 2.40 | 2.71 | 2.56 | 2.80 | 2.36 | 2.26 | 1.92 | 2.12 |
| 20 | 2.31 | 2.38 | 2.46 | 2.60 | 2.45 | 2.76 | 2.54 | 2.71 | 2.36 | 2.21 | 1.94 | 2.10 |
| 21 | 2.25 | 2.39 | 2.52 | 2.60 | 2.45 | 2.76 | 2.46 | 2.63 | 2.60 | 2.22 | 1.98 | 2.12 |
| 22 | 2.24 | 2.46 | 2.39 | 2.35 | 2.50 | 2.68 | 2.47 | 2.56 | 2.56 | 2.14 | 2.00 | 2.12 |
| 23 | 2.28 | 2.52 | 2.24 | 2.40 | 2.60 | 2.88 | 2.51 | 2.42 | 2.45 | 2.09 | 2.08 | 2.13 |
| 24 | 2.26 | 2.49 | 2.38 | 2.50 | 2.60 | 2.80 | 2.42 | 2.41 | 2.34 | 2.16 | 2.06 | 2.16 |
| 25 | 2.26 | 2.48 | 2.42 | 2.85 | 2.55 | 2.69 | 2.30 | 2.42 | 2.35 | 2.16 | 1.99 | 2.16 |
| 26 | 2.26 | 2.65 | 2.32 | 2.50 | 2.50 | 2.64 | 2.01 | 2.44 | 2.38 | 2.26 | 1.99 | 2.16 |
| 27 | 2.29 | 2.38 | 2.18 | 2.55 | 2.28 | 2.61 | 2.01 | 2.39 | 2.35 | 2.09 | 1.99 | 2.26 |
| 28 | 2.30 | 2.42 | 2.44 | 2.55 | 2.52 | 2.62 | 2.02 | 2.32 | 2.33 | 2.10 | 2.01 | 2.28 |
| 29 | 2.33 | 2.48 | 2.28 | 2.80 | ..... | 2.71 | 2.06 | 2.29 | 2.30 | 2.14 | 2.00 | 2.20 |
| 30 | 2.32 | 2.45 | 2.35 | 2.85 | ..... | 2.74 | 2.06 | 2.56 | 2.30 | 2.16 | 2.02 | 2.34 |
| 31 | 2.35 | ..... | 2.38 | 2.75 | ..... | 2.80 | ..... | 2.35 | ..... | 2.09 | 2.02 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 2.30 | 2.32 | 2.09 | 2.25 | 2.30 | 2.36 | 2.38 | 2.51 | 2.98 | 2.70 | 2.64 | 2.34 |
| 2 | 2.23 | 2.30 | 2.14 | 2.22 | 2.29 | 2.38 | 2.40 | 2.56 | 2.96 | 2.70 | 2.64 | 2.36 |
| 3 | 2.20 | 2.24 | 2.12 | 2.22 | 2.19 | 2.41 | 2.42 | 2.58 | 2.92 | 2.70 | 2.62 | 2.34 |
| 4 | 2.19 | 2.28 | 2.26 | 2.25 | 2.26 | 2.35 | 2.47 | 2.53 | 2.88 | 2.72 | 2.62 | 2.36 |
| 5 | 2.18 | 2.32 | 2.28 | 2.25 | 2.32 | 2.44 | 2.47 | 2.49 | 3.00 | 2.70 | 2.62 | 2.39 |
| 6 | 2.18 | 2.37 | 2.30 | 2.25 | 2.37 | 2.54 | 2.42 | 2.48 | 3.00 | 2.68 | 2.60 | 2.36 |
| 7 | 2.18 | 2.34 | 2.30 | 2.36 | 2.42 | 2.49 | 2.48 | 2.51 | 3.03 | 2.68 | 2.60 | 2.39 |
| 8 | 2.21 | 2.36 | 2.26 | 2.26 | 2.40 | 2.44 | 2.52 | 2.56 | 3.00 | 2.67 | 2.62 | 2.42 |
| 9 | 2.20 | 2.37 | 2.21 | 2.30 | 2.40 | 2.42 | 2.55 | 2.62 | 3.02 | 2.66 | 2.60 | 2.68 |
| 10 | 2.32 | 2.40 | 2.30 | 2.32 | 2.41 | 2.42 | 2.59 | 2.76 | 3.06 | 2.66 | 2.50 | 2.50 |
| 11 | 2.26 | 2.34 | 2.32 | 2.32 | 2.42 | 2.50 | 2.44 | 2.64 | 3.02 | 2.66 | 2.44 | 2.42 |
| 12 | 2.24 | 1.88 | 2.30 | 2.22 | 2.40 | 2.48 | 2.50 | 2.73 | 3.28 | 2.69 | 2.43 | 2.42 |
| 13 | 2.24 | 2.05 | 2.30 | 2.30 | 2.38 | 2.40 | 2.46 | 2.76 | 3.14 | 2.75 | 2.40 | 2.40 |
| 14 | 2.22 | 2.32 | 2.30 | 2.34 | 2.36 | 2.38 | 2.38 | 2.67 | 2.91 | 2.74 | 2.35 | 2.42 |
| 15 | 2.22 | 2.35 | 2.11 | 2.40 | 2.36 | 2.38 | 2.40 | 2.71 | 3.02 | 2.69 | 2.40 | 2.46 |
| 16 | 2.20 | 2.40 | 2.28 | 2.34 | 2.38 | 2.40 | 2.41 | 2.77 | 2.92 | 2.68 | 2.40 | 2.43 |
| 17 | 2.22 | 2.36 | 2.31 | 2.38 | 2.36 | 2.38 | 2.39 | 2.85 | 3.14 | 2.66 | 2.43 | 2.43 |
| 18 | 2.23 | 2.39 | 2.32 | 2.36 | 2.52 | 2.39 | 2.42 | 2.74 | 3.41 | 2.64 | 2.44 | 2.41 |
| 19 | 2.23 | 2.40 | 2.24 | 2.36 | 2.40 | 2.42 | 2.42 | 2.81 | 2.92 | 2.70 | 2.40 | 2.41 |
| 20 | 2.24 | 2.39 | 2.16 | 2.34 | 2.29 | 2.48 | 2.40 | 2.77 | 3.00 | 2.65 | 2.40 | 2.41 |
| 21 | 2.23 | 2.38 | 2.14 | 2.30 | 2.34 | 2.38 | 2.38 | 2.94 | 3.04 | 2.66 | 2.38 | 2.42 |
| 22 | 2.20 | 2.38 | 2.02 | 2.32 | 2.36 | 2.34 | 2.38 | 2.80 | 2.94 | 2.73 | 2.39 | 2.42 |
| 23 | 2.23 | 2.24 | 2.30 | 2.36 | 2.38 | 2.43 | 2.34 | 2.92 | 2.91 | 2.71 | 2.39 | 2.42 |
| 24 | 2.24 | 2.24 | 2.08 | 2.38 | 2.36 | 2.50 | 2.40 | 2.93 | 2.86 | 2.66 | 2.35 | 2.39 |
| 25 | 2.26 | 2.23 | 2.03 | 2.40 | 2.38 | 2.54 | 2.48 | 2.94 | 2.83 | 2.66 | 2.31 | 2.39 |
| 26 | 2.26 | 2.36 | 2.14 | 2.40 | 2.30 | 2.50 | 2.40 | 2.92 | 2.84 | 2.68 | 2.31 | 2.43 |
| 27 | 2.24 | 2.33 | 2.29 | 2.40 | 2.38 | 2.46 | 2.40 | ..... | 2.80 | 2.72 | 2.35 | 2.43 |
| 28 | 2.33 | 2.01 | 2.25 | 2.38 | 2.38 | 2.48 | 2.42 | 3.04 | 2.80 | 2.67 | 2.36 | 2.44 |
| 29 | 2.32 | 2.01 | 2.22 | 2.38 | 2.30 | 2.44 | 2.44 | 3.06 | 2.76 | 2.67 | 2.36 | 2.44 |
| 30 | 2.34 | 2.03 | 2.30 | 2.39 | ..... | 2.48 | 2.48 | 3.03 | 2.71 | 2.67 | 2.38 | 2.42 |
| 31 | 2.37 | ..... | 2.30 | 2.36 | ..... | 2.40 | ..... | 2.96 | ..... | 2.69 | 2.36 | ..... |

*Daily discharge, in second-feet, of United States Reclamation Service power canal near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 78.0 | 73.5 | 86.2 | 64.2 | 79.9 | 86.9 | 95.8 | 47.4 | 64.8 | 61.3 | 51.3 | 47.4 |
| 2 | 86.9 | 74.8 | 85.5 | 61.3 | 79.9 | 83.4 | 98.2 | 47.4 | 64.2 | 62.5 | 50.8 | 46.5 |
| 3 | 57.3 | 76.1 | 88.3 | 46.0 | 79.9 | 86.9 | 95.1 | 48.9 | 78.6 | 62.5 | 50.8 | 47.0 |
| 4 | 57.3 | 78.0 | 91.1 | 61.3 | 76.6 | 86.9 | 94.3 | 50.8 | 70.2 | 60.2 | 49.4 | 47.0 |
| 5 | 55.6 | 76.1 | 77.4 | 58.6 | 76.6 | 94.3 | 95.9 | 54.9 | 75.9 | 60.2 | 49.9 | 48.9 |
| 6 | 57.3 | 80.1 | 77.4 | 64.2 | 73.3 | 90.6 | 97.4 | 61.3 | 74.6 | 60.2 | 50.8 | 48.4 |
| 7 | 59.0 | 84.1 | 85.5 | 64.2 | 73.3 | 86.9 | 91.3 | 62.5 | 77.3 | 60.2 | 47.9 | 50.8 |
| 8 | 60.1 | 86.9 | 84.1 | 67.1 | 70.2 | 86.9 | 90.6 | 70.8 | 78.6 | 56.4 | 47.0 | 48.9 |
| 9 | 61.3 | 82.8 | 85.5 | 67.1 | 76.6 | 104.2 | 91.3 | 71.4 | 70.9 | 56.4 | 47.0 | 50.8 |
| 10 | 63.0 | 82.8 | 89.0 | 79.9 | 79.9 | 104.2 | 95.9 | 70.2 | 79.2 | 53.4 | 47.0 | 51.3 |
| 11 | 69.1 | 84.1 | 89.7 | 79.9 | 79.9 | 98.2 | 89.1 | 64.8 | 72.1 | 51.3 | 49.4 | 47.9 |
| 12 | 69.1 | 78.7 | 91.8 | 76.6 | 79.9 | 82.7 | 85.5 | 62.5 | 66.5 | 50.3 | 47.9 | 54.9 |
| 13 | 71.0 | 80.1 | 88.3 | 73.3 | 76.6 | 81.3 | 79.9 | 62.5 | 65.9 | 51.8 | 47.4 | 55.9 |
| 14 | 71.0 | 82.8 | 87.6 | 70.2 | 73.3 | 84.1 | 84.1 | 62.5 | 70.2 | 52.8 | 42.4 | 55.4 |
| 15 | 69.7 | 80.1 | 82.8 | 76.6 | 67.1 | 84.1 | 88.4 | 72.1 | 72.7 | 53.4 | 38.9 | 58.0 |
| 16 | 74.8 | 78.7 | 82.1 | 79.9 | 58.6 | 86.2 | 78.6 | 77.3 | 73.3 | 55.4 | 40.7 | 61.9 |
| 17 | 74.8 | 78.7 | 82.1 | 79.9 | 61.3 | 91.3 | 79.2 | 86.2 | 69.6 | 54.2 | 45.5 | 55.9 |
| 18 | 81.4 | 75.4 | 78.7 | 73.3 | 64.8 | 91.3 | 80.6 | 89.1 | 67.7 | 54.2 | 43.3 | 52.8 |
| 19 | 74.8 | 78.7 | 80.1 | 73.3 | 67.1 | 87.6 | 77.3 | 94.3 | 64.8 | 59.1 | 42.4 | 51.8 |
| 20 | 72.8 | 77.4 | 82.8 | 79.9 | 70.2 | 91.3 | 75.9 | 87.6 | 64.8 | 56.4 | 43.3 | 50.8 |
| 21 | 69.1 | 78.0 | 86.9 | 79.9 | 70.2 | 91.3 | 70.8 | 82.0 | 79.9 | 57.0 | 45.1 | 51.8 |
| 22 | 68.5 | 82.8 | 78.0 | 64.2 | 73.3 | 85.5 | 71.4 | 77.3 | 75.9 | 52.8 | 46.0 | 51.8 |
| 23 | 71.0 | 86.9 | 68.5 | 67.1 | 79.9 | 100.6 | 74.0 | 68.4 | 70.2 | 50.3 | 49.8 | 52.3 |
| 24 | 69.7 | 84.8 | 77.4 | 73.3 | 79.9 | 94.3 | 68.3 | 67.7 | 63.6 | 53.9 | 48.9 | 53.9 |
| 25 | 69.7 | 84.1 | 80.1 | 98.2 | 76.6 | 86.2 | 61.3 | 68.3 | 64.2 | 53.9 | 45.5 | 53.9 |
| 26 | 69.7 | 96.1 | 73.5 | 73.3 | 73.3 | 82.7 | 46.5 | 69.6 | 66.0 | 59.1 | 45.5 | 53.9 |
| 27 | 71.6 | 77.4 | 64.8 | 76.6 | 60.2 | 80.6 | 46.5 | 66.5 | 64.2 | 50.3 | 45.5 | 59.1 |
| 28 | 72.2 | 80.1 | 81.4 | 76.6 | 74.6 | 81.3 | 47.0 | 62.5 | 68.0 | 50.8 | 46.5 | 60.2 |
| 29 | 74.2 | 84.1 | 71.0 | 94.3 | ..... | 87.6 | 48.9 | 60.8 | 61.3 | 52.8 | 46.0 | 55.9 |
| 30 | 73.5 | 82.1 | 75.4 | 98.2 | ..... | 89.9 | 48.9 | 77.3 | 61.3 | 53.9 | 47.0 | 63.6 |
| 31 | 75.4 | ..... | 77.4 | 90.6 | ..... | 94.3 | ..... | 64.2 | ..... | 50.3 | 47.0 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 61.3 | 62.5 | 50.3 | 58.6 | 61.3 | 64.8 | 65.9 | 74.0 | 77.3 | 73.3 | 72.7 | 56.4 |
| 2 | 57.5 | 61.3 | 52.8 | 57.0 | 60.8 | 65.9 | 67.1 | 77.3 | 75.9 | 73.3 | 73.3 | 57.5 |
| 3 | 55.9 | 58.1 | 51.8 | 57.0 | 55.4 | 67.7 | 68.3 | 78.6 | 73.3 | 73.3 | 72.7 | 56.4 |
| 4 | 55.4 | 60.2 | 59.2 | 58.6 | 59.1 | 64.2 | 71.4 | 75.3 | 70.8 | 74.6 | 72.7 | 57.5 |
| 5 | 54.9 | 62.5 | 60.2 | 58.6 | 62.5 | 69.6 | 71.4 | 72.7 | 78.6 | 73.3 | 73.3 | 59.1 |
| 6 | 54.9 | 65.4 | 61.3 | 58.6 | 65.4 | 75.9 | 68.3 | 72.1 | 78.6 | 72.1 | 72.1 | 57.5 |
| 7 | 54.9 | 63.6 | 61.3 | 64.8 | 68.3 | 72.7 | 72.1 | 74.0 | 80.6 | 72.1 | 72.1 | 59.1 |
| 8 | 56.4 | 64.8 | 59.2 | 59.1 | 67.1 | 69.6 | 74.6 | 77.3 | 78.6 | 70.8 | 73.3 | 60.8 |
| 9 | 55.9 | 65.4 | 56.4 | 61.3 | 67.1 | 68.3 | 76.6 | 81.3 | 79.9 | 69.6 | 72.1 | 76.6 |
| 10 | 62.4 | 67.1 | 61.3 | 62.5 | 67.7 | 68.3 | 79.2 | 91.3 | 82.7 | 69.6 | 65.9 | 65.4 |
| 11 | 59.1 | 63.6 | 62.5 | 62.5 | 68.3 | 73.3 | 69.6 | 82.7 | 79.9 | 69.6 | 61.9 | 60.8 |
| 12 | 58.1 | 40.6 | 61.3 | 57.0 | 67.1 | 72.1 | 73.3 | 89.1 | 99.0 | 71.4 | 61.3 | 60.8 |
| 13 | 58.1 | 48.4 | 61.3 | 61.3 | 65.9 | 67.1 | 70.8 | 91.3 | 88.4 | 75.3 | 59.7 | 59.7 |
| 14 | 57.0 | 62.5 | 61.3 | 63.6 | 64.8 | 65.9 | 65.9 | 84.8 | 72.7 | 74.6 | 56.4 | 60.8 |
| 15 | 57.0 | 64.2 | 51.3 | 67.1 | 64.8 | 65.9 | 67.1 | 87.6 | 79.9 | 71.4 | 59.1 | 63.0 |
| 16 | 55.9 | 67.1 | 60.2 | 63.6 | 65.9 | 67.1 | 67.7 | 92.1 | 73.3 | 70.8 | 59.1 | 61.3 |
| 17 | 57.0 | 64.8 | 61.9 | 65.9 | 64.8 | 65.9 | 66.5 | 98.2 | 89.1 | 69.6 | 60.8 | 61.3 |
| 18 | 57.5 | 66.5 | 62.5 | 64.8 | 74.6 | 66.5 | 68.3 | 89.9 | 111.0 | 68.3 | 61.9 | 60.2 |
| 19 | 57.5 | 67.1 | 58.1 | 64.8 | 67.1 | 68.3 | 68.3 | 95.1 | 75.3 | 72.1 | 59.7 | 60.2 |
| 20 | 58.1 | 66.5 | 53.9 | 63.6 | 60.8 | 72.1 | 67.1 | 92.1 | 83.4 | 69.0 | 59.7 | 60.2 |
| 21 | 57.5 | 65.9 | 52.8 | 61.3 | 63.6 | 65.9 | 65.9 | 105.3 | 87.6 | 69.6 | 58.6 | 60.8 |
| 22 | 55.9 | 65.9 | 47.0 | 62.5 | 64.8 | 63.5 | 65.9 | 94.3 | 82.7 | 74.0 | 59.1 | 60.8 |
| 23 | 57.5 | 58.1 | 61.3 | 64.8 | 65.9 | 69.0 | 63.5 | 103.7 | 82.7 | 72.7 | 59.1 | 60.8 |
| 24 | 58.1 | 58.1 | 49.8 | 65.9 | 64.8 | 73.3 | 67.1 | 104.5 | 81.3 | 69.6 | 57.0 | 59.1 |
| 25 | 59.1 | 57.5 | 47.4 | 67.1 | 65.9 | 75.9 | 72.1 | 105.3 | 80.6 | 69.6 | 54.9 | 59.1 |
| 26 | 59.1 | 64.8 | 52.8 | 67.1 | 61.3 | 73.3 | 67.1 | 103.7 | 84.1 | 71.4 | 54.9 | 61.3 |
| 27 | 58.1 | 63.0 | 60.8 | 67.1 | 65.9 | 70.8 | 67.1 | 92.5 | 81.3 | 74.6 | 57.0 | 61.3 |
| 28 | 63.0 | 46.5 | 58.6 | 65.9 | 65.9 | 72.1 | 68.3 | 81.3 | 80.6 | 72.1 | 57.5 | 61.9 |
| 29 | 62.4 | 46.5 | 57.0 | 65.9 | 61.3 | 69.6 | 69.6 | 82.7 | 77.9 | 72.7 | 57.5 | 61.9 |
| 30 | 63.6 | 47.4 | 61.3 | 65.9 | ..... | 72.1 | 72.1 | 80.6 | 74.0 | 73.3 | 58.6 | 60.8 |
| 31 | 65.4 | ..... | 61.3 | 64.8 | ..... | 67.1 | ..... | 75.9 | ..... | 75.3 | 57.5 | ..... |

*Monthly discharge of United States Reclamation Service power canal near Spanish Fork, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910–11. | | | | | 1911–12. | | | | |
| October | 86.9 | 55.6 | 69.3 | 4,260 | October | 65.4 | 54.9 | 58.2 | 3,579.2 |
| November | 96.1 | 73.5 | 80.9 | 4,810 | November | 67.1 | 40.6 | 60.5 | 3,601.8 |
| December | 91.8 | 64.8 | 81.6 | 5,020 | December | 62.5 | 47.0 | 57.4 | 3,527.1 |
| January | 98.2 | 46.0 | 73.8 | 4,540.4 | January | 67.1 | 57.0 | 62.9 | 3,865.1 |
| February | 79.9 | 58.6 | 73.3 | 4,072.1 | February | 74.6 | 55.4 | 64.7 | 3,725.4 |
| March | 104.2 | 80.6 | 89.1 | 5,481.6 | March | 75.9 | 63.5 | 69.2 | 4,252.2 |
| April | 98.2 | 46.5 | 78.3 | 4,657.3 | April | 79.2 | 63.5 | 69.3 | 4,122.1 |
| May | 94.3 | 47.4 | 68.0 | 4,183.4 | May | 105.3 | 72.1 | 87.3 | 5,368.5 |
| June | 79.9 | 61.3 | 69.7 | 4,148.5 | June | 111.0 | 70.8 | 81.4 | 4,841.9 |
| July | 62.5 | 50.3 | 55.4 | 3,406.3 | July | 75.3 | 68.3 | 71.9 | 4,421.2 |
| August | 51.3 | 38.9 | 46.6 | 2,867.9 | August | 73.3 | 54.9 | 63.0 | 3,870.8 |
| September | 63.6 | 46.5 | 53.0 | 3,151.2 | September | 76.6 | 56.4 | 60.7 | 3,614.7 |
| The year | 104.2 | 38.9 | 69.9 | 50,600 | The year | 111.0 | 40.6 | 67.2 | 48,800 |

NOTE.—Records for October to December, 1910, and yearly totals have been computed by engineers of the United States Geological Survey. The above monthly discharges should be added to those of the station on Spanish Fork near Spanish Fork to obtain the total run-off at mouth of canyon.

### SPANISH FORK NEAR LAKE SHORE, UTAH.

**Location.**—About one-fourth mile downstream from the wagon bridge on the road from Spanish Fork to Lake Shore, 3 miles west of Spanish Fork, 1 mile east of Lake Shore, and 3 miles above the mouth. Below all tributaries or diversions.

**Records available.**—December 10, 1903, to July 10, 1907; March 10, 1909, to September 30, 1912.

**Drainage area.**—700 square miles.

**Gage.**—Vertical staff; datum unchanged since March 10, 1909. The gage used from 1903 to 1907 was located half a mile farther upstream.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made from cable or by wading.

**Diversions.**—During the irrigation season practically the entire flow of the stream is diverted above the station; during such periods only the waste and return waters pass the gage.

**Winter flow.**—Ice forms at the station for short periods during very cold weather.

**Accuracy.**—Fair.

**Cooperation.**—Records since December 31, 1910, have been furnished by the United States Reclamation Service.

*Discharge measurements of Spanish Fork near Lake Shore, Utah, in years ending Sept. 30, 1911 and 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec-ft.* | 1912 | | *Feet.* | *Sec-ft.* |
| Feb. 21 | A. B. Purton | 3.35 | 91.51 | Jan. 16 | W. J. Lamon | 2.88 | 60.0 |
| Apr. 6 | G. H. Canfield | 4.31 | 146.00 | 31 | do | 3.24 | 80.2 |
| May 16 | A. B. Larson | 1.24 | 2.03 | Mar. 12 | do | 3.51 | 103.3 |
| July 3 | W. J. Lamon | 1.22 | 1.58 | Apr. 5 | do | 3.90 | 130.2 |
| Aug. 5 | do | 1.15 | .83 | May 31 | do | 4.62 | 166.1 |
| Nov. 29 | do | 2.70 | 47.47 | June 6 | do | 2.50 | 53.5 |
| Dec. 13 | do | 2.91 | 65.22 | 21 | do | 1.20 | 1.3 |
| 1912. | | | | Aug. 1 | do | 1.22 | 1.4 |
| Jan. 6[a] | W. J. Lamon | 3.70 | 73.1 | Aug. 5 | do | 1.17 | 1.0 |
| 10[a] | do | 3.65 | 79.2 | | | | |

[a] Relation of gage height to discharge affected by ice.

*Daily gage height, in feet, of Spanish Fork near Lake Shore, Utah, for years ending Sept. 30, 1911 and 1912.*

[Geo. J. Hansen, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | | | | | | 3.70 | 4.15 | 1.20 | | | | 1.18 |
| 2 | | 2.25 | 3.15 | 3.10 | 4.95 | | 4.10 | | 1.22 | | 1.15 | |
| 3 | 1.37 | | | | 4.40 | 3.95 | 4.20 | 1.20 | | 1.22 | | |
| 4 | | 2.25 | | 3.05 | | | 4.15 | | | | 1.15 | 1.20 |
| 5 | 1.3 | | 3.2 | | | 5.45 | 4.05 | 1.20 | 1.22 | 1.22 | | |
| 6 | | | | 3.20 | 4.05 | 5.30 | 4.70 | | | | | 1.20 |
| 7 | 1.3 | 2.9 | 3.1 | | | | 4.20 | | 1.22 | 1.22 | 1.15 | |
| 8 | | | | | 3.70 | 4.40 | 4.05 | 1.20 | | | | 1.20 |
| 9 | | 3.05 | 3.2 | 3.20 | | | 3.80 | | 1.22 | | 1.15 | |
| 10 | 1.3 | | | | 3.75 | 5.65 | 4.05 | 1.20 | | 1.22 | | |
| 11 | | 2.22 | 3.3 | 3.65 | | | 3.65 | | | | 1.15 | 1.20 |
| 12 | 1.3 | | | | | 4.50 | 3.55 | 1.20 | 1.22 | 1.22 | | |
| 13 | | | 3.3 | 3.62 | 3.80 | 4.30 | 3.65 | | | | | 1.20 |
| 14 | 1.41 | 2.65 | | | | 4.05 | 3.75 | | 1.22 | 1.22 | 1.15 | |
| 15 | | | 3.3 | | 3.70 | 4.30 | 3.60 | 1.22 | | | | 1.20 |
| 16 | | 2.4 | | 3.70 | | 4.25 | 3.45 | | 1.22 | | 1.15 | |
| 17 | 2.25 | | 3.2 | | 3.30 | 4.65 | 3.35 | 1.22 | | 1.20 | | |
| 18 | | 2.32 | 3.1 | 3.65 | | 4.30 | 3.25 | | | | 1.15 | 1.20 |
| 19 | 2.60 | | | | | 4.50 | 3.25 | 1.22 | 1.22 | 1.20 | | |
| 20 | | | | 3.80 | 3.30 | 4.70 | 3.30 | | | | | 1.20 |
| 21 | 2.5 | 2.9 | 3.25 | | | 4.60 | 3.12 | | 1.22 | 1.20 | 1.15 | |
| 22 | | | | | 3.30 | 4.50 | 3.10 | 1.22 | | | | 1.20 |
| 23 | | 3.0 | 2.8 | 3.35 | | 4.65 | 2.75 | | 1.25 | | 1.15 | |
| 24 | 2.5 | | | | 3.45 | 4.95 | 2.65 | 1.22 | | 1.20 | | |
| 25 | | 3.0 | | 4.05 | | 4.60 | 1.90 | | | | 1.15 | 1.20 |
| 26 | 2.48 | | 3.2 | 8.05 | | 4.02 | 1.30 | 1.25 | 1.25 | 1.15 | | |
| 27 | | | | 4.45 | 3.30 | 4.10 | 1.20 | | | | | 1.20 |
| 28 | 2.48 | 3.1 | 3.0 | | | 4.30 | 1.20 | | 1.25 | 1.15 | 1.15 | |
| 29 | | | | 5.20 | | 3.95 | 1.20 | 1.22 | | | | 1.20 |
| 30 | | 3.05 | 3.05 | 7.90 | | 4.10 | | | 1.25 | | 1.15 | |
| 31 | 2.85 | | | 11.95 | | 4.15 | | 1.22 | | 1.15 | | |
| 1911–12. | | | | | | | | | | | | |
| 1 | | 1.20 | 2.50 | 2.70 | | 3.05 | 3.45 | 2.85 | 4.50 | 1.20 | | |
| 2 | 1.20 | | | | 2.95 | | | 3.35 | 4.35 | | 1.22 | 1.22 |
| 3 | | 1.20 | | 2.75 | | | 3.55 | 3.35 | 4.30 | 1.20 | | |
| 4 | 1.20 | | 2.60 | | | 3.25 | 3.90 | 3.20 | 4.00 | | | 1.22 |
| 5 | | | | 2.75 | 3.20 | | 3.90 | 2.95 | 3.55 | | 1.22 | |
| 6 | 1.20 | 1.50 | 2.65 | | | 3.30 | | 2.85 | 2.90 | 1.20 | | 1.22 |
| 7 | | | | | 3.27 | | | 2.45 | 1.90 | | 1.20 | |
| 8 | | 2.00 | 2.85 | 3.70 | | 3.60 | 4.00 | 2.60 | 1.60 | 1.20 | | |
| 9 | 1.20 | | | | 3.30 | | 4.10 | 2.00 | | | 1.20 | 1.30 |
| 10 | | 1.95 | | 3.65 | | | 4.90 | 2.20 | 1.22 | 1.20 | | |
| 11 | 1.20 | | 2.90 | | | 3.70 | 4.25 | 2.75 | | | | 1.27 |
| 12 | | | | 3.35 | 3.37 | | 3.75 | 3.75 | 1.22 | 1.20 | 1.20 | |
| 13 | 1.20 | 2.50 | 2.91 | | | 3.55 | 3.70 | 3.90 | | | | 1.27 |
| 14 | | | | | 3.21 | | 3.50 | 3.10 | | | 1.20 | |
| 15 | | 3.00 | 2.85 | 2.90 | | 3.25 | 3.60 | 2.75 | 1.21 | 1.20 | | |
| 16 | 1.20 | | | | 3.24 | | 3.45 | 2.80 | 1.21 | | 1.20 | 1.27 |
| 17 | | 2.95 | | 3.25 | | | 3.35 | 3.25 | | 1.20 | | |
| 18 | 1.20 | | 2.90 | | | 3.40 | 3.45 | 3.90 | | | | 1.25 |
| 19 | | | | 3.05 | 3.35 | | 3.25 | 4.45 | 1.21 | 1.20 | 1.20 | |
| 20 | 1.20 | 2.90 | 2.80 | | | 3.85 | 3.30 | 4.85 | | | | 1.25 |
| 21 | | | | | 3.30 | | 3.30 | 5.25 | | | 1.20 | |
| 22 | | 2.90 | 2.75 | 3.20 | | 3.30 | 3.25 | 4.60 | 1.21 | 1.22 | | |
| 23 | 1.20 | | | | 3.40 | | 3.20 | 3.90 | 1.20 | | 1.20 | 1.25 |
| 24 | | 2.75 | | 3.25 | | | 3.20 | 3.30 | | 1.22 | | |
| 25 | 1.20 | | 2.60 | | | 3.40 | 3.50 | 3.68 | | | | 1.25 |
| 26 | | | | 3.25 | 3.21 | | 3.60 | 3.80 | 1.20 | 1.22 | 1.22 | |
| 27 | 1.20 | 2.75 | 2.65 | | | 3.60 | 3.55 | 3.82 | | | | 1.25 |
| 28 | | | | | 3.30 | | 3.60 | 3.70 | | | 1.22 | |
| 29 | | 2.65 | 2.70 | 3.25 | | 3.45 | 3.55 | 3.80 | 1.20 | 1.22 | | |
| 30 | 1.20 | | | | | | 3.15 | 5.00 | | | 1.22 | 1.27 |
| 31 | | | | 3.25 | | | | 5.40 | | 1.22 | | |

NOTE.—Relation of gage height to discharge affected by ice Jan. 4–15, 1912.

*Daily discharge, in second-feet, of Spanish Fork near Lake Shore, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 1.9 | 40 | 67 | 71.0 | 525.8 | 102.0 | 129.0 | 1.4 | 1.7 | 2.0 | 0.9 | 1.2 |
| 2 | 2.3 | 27 | 70 | 71.0 | 181.5 | 109.5 | 126.0 | 1.4 | 1.7 | 1.8 | .9 | 1.2 |
| 3 | 2.7 | 27 | 70 | 69.8 | 144.4 | 117.0 | 132.0 | 1.4 | 1.7 | 1.7 | .9 | 1.3 |
| 4 | 2.4 | 27 | 71 | 68.5 | 137.3 | 166.7 | 129.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 5 | 2.0 | 37 | 72 | 72.2 | 130.1 | 216.5 | 123.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 6 | 2.0 | 47 | 70 | 76.0 | 123.0 | 206.0 | 164.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 7 | 2.0 | 57 | 67 | 76.0 | 112.5 | 175.0 | 132.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 8 | 2.0 | 60 | 70 | 76.0 | 102.0 | 144.0 | 123.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 9 | 2.0 | 64 | 72 | 76.0 | 103.5 | 188.0 | 108.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 10 | 2.0 | 45 | 75 | 87.5 | 105.0 | 232.0 | 123.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 11 | 2.0 | 26 | 78 | 99.0 | 106.0 | 191.0 | 99.0 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 12 | 2.0 | 32 | 78 | 98.1 | 107.0 | 150.0 | 93.5 | 1.4 | 1.7 | 1.7 | .9 | 1.4 |
| 13 | 2.6 | 38 | 78 | 97.2 | 108.0 | 138.0 | 99.0 | 1.5 | 1.7 | 1.7 | .9 | 1.4 |
| 14 | 3.1 | 44 | 73 | 98.8 | 105.0 | 123.0 | 105.0 | 1.6 | 1.7 | 1.7 | .9 | 1.4 |
| 15 | 11 | 39 | 78 | 100.4 | 102.0 | 138.0 | 96.0 | 1.7 | 1.7 | 1.6 | .9 | 1.4 |
| 16 | 19 | 33 | 75 | 102.0 | 91.5 | 135.0 | 88.5 | 1.7 | 1.7 | 1.5 | .9 | 1.4 |
| 17 | 27 | 31 | 72 | 100.5 | 81.0 | 160.5 | 83.5 | 1.7 | 1.7 | 1.4 | .9 | 1.4 |
| 18 | 34 | 30 | 67 | 99.0 | 81.0 | 138.0 | 78.5 | 1.7 | 1.7 | 1.4 | .9 | 1.4 |
| 19 | 42 | 39 | 69 | 103.5 | 81.0 | 150.0 | 78.5 | 1.7 | 1.7 | 1.4 | .9 | 1.4 |
| 20 | 40 | 48 | 72 | 108.0 | 81.0 | 164.0 | 81.0 | 1.7 | 1.7 | 1.4 | .9 | 1.4 |
| 21 | 37 | 57 | 75 | 99.9 | 81.0 | 157.0 | 72.0 | 1.7 | 1.7 | 1.4 | .9 | 1.4 |
| 22 | 37 | 60 | 63 | 91.7 | 81.0 | 150.0 | 71.0 | 1.7 | 1.9 | 1.4 | .9 | 1.4 |
| 23 | 37 | 62 | 52 | 83.5 | 84.8 | 160.5 | 54.0 | 1.7 | 2.1 | 1.4 | .9 | 1.4 |
| 24 | 37 | 62 | 58 | 103.2 | 88.5 | 181.5 | 50.0 | 1.7 | 2.1 | 1.4 | .9 | 1.4 |
| 25 | 36 | 62 | 65 | 123.0 | 86.0 | 157.0 | 20.2 | 1.9 | 2.1 | 1.2 | .9 | 1.4 |
| 26 | 36 | 63 | 72 | 443.0 | 83.5 | 121.2 | 2.9 | 2.1 | 2.1 | .9 | .9 | 1.4 |
| 27 | 36 | 65 | 67 | 147.0 | 81.0 | 126.0 | 1.4 | 2.0 | 2.1 | .9 | .9 | 1.4 |
| 28 | 36 | 67 | 62 | 173.0 | 91.5 | 138.0 | 1.4 | 1.8 | 2.1 | .9 | .9 | 1.4 |
| 29 | 42 | 65 | 63 | 199.0 | ..... | 117.0 | 1.4 | 1.7 | 2.1 | .9 | .9 | 1.4 |
| 30 | 48 | 64 | 64 | 428.0 | ..... | 126.0 | 1.4 | 1.7 | 2.1 | .9 | .9 | 1.4 |
| 31 | 54 | ..... | 65 | 870.0 | ..... | 129.0 | ..... | 1.7 | ..... | .9 | .9 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 1.4 | 1.4 | 44.0 | 52.0 | 71.0 | 68.5 | 88.5 | 58.5 | 150.0 | 1.4 | 1.7 | 1.7 |
| 2 | 1.4 | 1.4 | 45.3 | 53.0 | 63.5 | 71.8 | 91.0 | 83.5 | 141.0 | 1.4 | 1.7 | 1.7 |
| 3 | 1.4 | 1.4 | 46.7 | 54.0 | 67.7 | 75.2 | 93.5 | 83.5 | 138.0 | 1.4 | 1.7 | 1.7 |
| 4 | 1.4 | 3.4 | 48.0 | 54.0 | 71.8 | 78.5 | 114.0 | 76.0 | 120.0 | 1.4 | 1.7 | 1.7 |
| 5 | 1.4 | 5.4 | 49.0 | 54.0 | 76.0 | 79.7 | 114.0 | 63.5 | 93.5 | 1.4 | 1.7 | 1.7 |
| 6 | 1.4 | 7.4 | 50.0 | 61.7 | 77.7 | 81.0 | 116.0 | 58.5 | 61.0 | 1.4 | 1.6 | 1.7 |
| 7 | 1.4 | 15.7 | 54.2 | 69.3 | 79.5 | 88.5 | 118.0 | 42.0 | 20.2 | 1.4 | 1.4 | 2.1 |
| 8 | 1.4 | 24.0 | 58.5 | 77.0 | 80.2 | 96.0 | 120.0 | 48.0 | 10.1 | 1.4 | 1.4 | 2.5 |
| 9 | 1.4 | 23.4 | 59.3 | 78.0 | 81.0 | 98.0 | 126.0 | 24.0 | 5.9 | 1.4 | 1.4 | 2.9 |
| 10 | 1.4 | 22.7 | 60.2 | 79.0 | 82.2 | 100.0 | 178.0 | 32.0 | 1.7 | 1.4 | 1.4 | 2.6 |
| 11 | 1.4 | 29.8 | 61.0 | 74.2 | 83.3 | 102.0 | 135.0 | 54.0 | 1.7 | 1.4 | 1.4 | 2.4 |
| 12 | 1.4 | 36.9 | 61.2 | 69.5 | 84.5 | 97.7 | 105.0 | 105.0 | 1.7 | 1.4 | 1.4 | 2.4 |
| 13 | 1.4 | 44.0 | 61.5 | 65.3 | 80.5 | 93.5 | 102.0 | 114.0 | 1.6 | 1.4 | 1.4 | 2.4 |
| 14 | 1.4 | 35.0 | 60.0 | 61.2 | 76.5 | 86.0 | 91.0 | 71.0 | 1.5 | 1.4 | 1.4 | 2.4 |
| 15 | 1.4 | 66.0 | 58.5 | 57.0 | 77.2 | 78.5 | 96.0 | 54.0 | 1.5 | 1.4 | 1.4 | 2.4 |
| 16 | 1.4 | 64.7 | 59.3 | 67.8 | 78.0 | 81.0 | 88.5 | 56.0 | 1.5 | 1.4 | 1.4 | 2.4 |
| 17 | 1.4 | 63.5 | 60.2 | 78.5 | 79.8 | 83.5 | 83.5 | 78.5 | 1.5 | 1.4 | 1.4 | 2.3 |
| 18 | 1.4 | 62.7 | 61.0 | 73.5 | 81.7 | 86.0 | 88.5 | 114.0 | 1.5 | 1.4 | 1.4 | 2.2 |
| 19 | 1.4 | 61.8 | 58.5 | 68.5 | 83.5 | 98.5 | 78.5 | 147.0 | 1.5 | 1.4 | 1.4 | 2.2 |
| 20 | 1.4 | 61.0 | 56.0 | 71.0 | 82.2 | 111.0 | 81.0 | 174.5 | 1.5 | 1.5 | 1.4 | 2.2 |
| 21 | 1.4 | 61.0 | 55.0 | 73.5 | 81.0 | 96.0 | 81.0 | 202.5 | 1.5 | 1.6 | 1.4 | 2.2 |
| 22 | 1.4 | 61.0 | 54.0 | 76.0 | 83.5 | 81.0 | 78.5 | 157.0 | 1.5 | 1.7 | 1.4 | 2.2 |
| 23 | 1.4 | 57.5 | 52.0 | 77.2 | 86.0 | 82.7 | 76.0 | 114.0 | 1.4 | 1.7 | 1.4 | 2.2 |
| 24 | 1.4 | 54.0 | 50.0 | 78.5 | 82.8 | 84.3 | 76.0 | 81.0 | 1.4 | 1.7 | 1.5 | 2.2 |
| 25 | 1.4 | 54.0 | 48.0 | 78.5 | 79.7 | 86.0 | 91.0 | 100.8 | 1.4 | 1.7 | 1.6 | 2.2 |
| 26 | 1.4 | 54.0 | 49.0 | 78.5 | 76.5 | 91.0 | 96.0 | 108.0 | 1.4 | 1.6 | 1.7 | 2.2 |
| 27 | 1.4 | 54.0 | 50.0 | 78.5 | 78.7 | 96.0 | 93.5 | 109.2 | 1.4 | 1.7 | 1.7 | 2.2 |
| 28 | 1.4 | 52.0 | 51.0 | 78.5 | 81.0 | 92.2 | 96.0 | 102.0 | 1.4 | 1.7 | 1.7 | 2.3 |
| 29 | 1.4 | 50.0 | 52.0 | 78.5 | 74.7 | 88.5 | 93.5 | 108.0 | 1.4 | 1.7 | 1.7 | 2.3 |
| 30 | 1.4 | 47.0 | 52.0 | 78.5 | ..... | 88.5 | 73.5 | 185.0 | 1.4 | 1.7 | 1.7 | 2.4 |
| 31 | 1.4 | ..... | 52.0 | 78.5 | ..... | 88.5 | ..... | 213.0 | ..... | 1.7 | 1.7 | ..... |

Note.—Discharge Jan. 4–15 estimated because of ice.

*Monthly discharge of Spanish Fork near Lake Shore, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910-11. | | | | | 1911-12. | | | | |
| October | 54 | 1.9 | 20.6 | 1,270 | October | 1.4 | 1.4 | 1.4 | 86.08 |
| November | 67 | 26 | 47.3 | 2,810 | November | 66.0 | 1.4 | 39.87 | 2,372.50 |
| December | 78 | 52 | 69.5 | 4,270 | December | 61.5 | 44.0 | 54.1 | 3,327.11 |
| January | 870.0 | 68.5 | 145.5 | 8,949.15 | January | 79.0 | 52.0 | 70.1 | 4,310.5 |
| February | 525.8 | 81.0 | 117.3 | 6,517.58 | February | 86.0 | 63.5 | 78.7 | 4,525.8 |
| March | 232.0 | 102.0 | 151.8 | 9,337.13 | March | 111.0 | 68.5 | 88.1 | 5,414.2 |
| April | 164.0 | 1.4 | 82.2 | 4,893.69 | April | 178.0 | 73.5 | 98.8 | 5,877.1 |
| May | 2.0 | 1.4 | 1.6 | 98.77 | May | 213.0 | 24.0 | 97.3 | 5,986.2 |
| June | 2.1 | 1.7 | 1.8 | 107.00 | June | 150.0 | 1.4 | 25.7 | 1,529.5 |
| July | 2.0 | .9 | 1.5 | 89.45 | July | 1.7 | 1.4 | 1.5 | 92.6 |
| August | .9 | .9 | .9 | 55.34 | August | 1.7 | 1.4 | 1.5 | 93.6 |
| September | 1.4 | 1.2 | 1.4 | 82.31 | September | 2.9 | 1.7 | 2.2 | 130.9 |
| The year. | 870.0 | .9 | 53.5 | 38,500 | The year. | 213.0 | 1.4 | 46.6 | 33,700. |

NOTE.—Records Oct. to Dec., 1910, and yearly totals were computed by engineers of the United States Geological Survey.

### HOBBLE CREEK NEAR SPRINGVILLE, UTAH.

**Location.**—Four miles southeast of Springville, 1 mile above mouth of canyon, and just below the Springville power plant.

**Records available.**—March 23, 1904, to September 30, 1912.

**Drainage area.**—120 square miles.

**Gage.**—Vertical staff; location and datum unchanged since June 1, 1909.

**Discharge measurements.**—Made from cable or by wading.

**Winter flow.**—Practically no ice forms at this station, the winter flow being largely from springs.

**Diversions.**—Above all irrigation diversions.

**Accuracy.**—Records are good.

**Cooperation.**—Records since December 31, 1910, are furnished by the United States Reclamation Service.

*Discharge measurements of Hobble Creek near Springville, Utah, in years ending Sept. 30, 1911 and 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Feb. 17 | A. B. Purton | 3.40 | 30.18 | Jan 13 | W. J. Lamon | 3.29 | 22.2 |
| 21 | do | 3.38 | 26.58 | Mar. 7 | do | 3.32 | 21.9 |
| Apr. 6 | G. H. Canfield | 4.00 | 77.30 | Apr. 9 | do | 3.62 | 40.0 |
| May 16 | W. J. Lamon | 3.89 | 65.60 | May 17 | do | 4.82 | [a] 155.9 |
| 25 | do | 3.69 | 49.5 | June 4 | do | 4.48 | [a] 117.7 |
| June 8 | do | 3.75 | 51.6 | 13 | do | 4.08 | [a] 77.7 |
| July 8 | do | 3.39 | 25.65 | 25 | do | 3.71 | 46.0 |
| 31 | do | 3.28 | 19.97 | July 13 | do | 3.49 | 31.5 |
| Aug. 16 | do | 3.25 | 20.11 | Aug. 16 | do | 3.33 | 20.9 |
| Sept. 5 | do | 3.21 | 17.76 | Sept. 11 | do | 3.35 | 21.8 |
| 27 | do | 3.28 | 19.28 | | | | |
| Nov. 8 | do | 3.29 | 21.00 | | | | |

[a] Combined discharge of Hobble Creek at highway bridge at mouth of canyon and the upper canal.

*Daily gage height, in feet, of Hobble Creek near Springville, Utah, for years ending Sept. 30, 1911 and 1912.*

[John S. Groesbeck, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 3.30 | 3.35 | 3.35 | 3.35 | 3.80 | 3.40 | 4.00 | 3.90 | 3.80 | 3.45 | ..... | ..... |
| 2 | 3.35 | 3.35 | 3.35 | 3.35 | ..... | 3.40 | 4.05 | 3.95 | 3.80 | ..... | 3.27 | 3.21 |
| 3 | 3.35 | 3.35 | 3.40 | 3.35 | ..... | 3.40 | ..... | 4.00 | 3.80 | 3.44 | ..... | ..... |
| 4 | 3.35 | 3.35 | 3.35 | 3.35 | ..... | 3.40 | 4.00 | 4.00 | 3.80 | ..... | 3.27 | 3.21 |
| 5 | 3.35 | 3.35 | 3.35 | 3.35 | ..... | ..... | 4.00 | 4.00 | ..... | 3.44 | ..... | 3.22 |
| 6 | 3.35 | 3.35 | 3.35 | 3.35 | 3.45 | ..... | 4.00 | ..... | ..... | ..... | 3.26 | ..... |
| 7 | 3.35 | 3.35 | 3.35 | 3.35 | 3.45 | ..... | 3.95 | 4.00 | 3.80 | ..... | ..... | 3.21 |
| 8 | 3.35 | 3.35 | 3.35 | ..... | 3.40 | 3.40 | ..... | 4.10 | 3.80 | 3.39 | 3.26 | ..... |
| 9 | 3.30 | 3.35 | 3.35 | ..... | 3.40 | 3.45 | 4.00 | 4.10 | 3.80 | 3.45 | ..... | 3.22 |
| 10 | 3.30 | 3.35 | 3.40 | 3.35 | 3.40 | 3.70 | 4.00 | 4.15 | 3.80 | ..... | 3.25 | 3.21 |
| 11 | 3.30 | 3.35 | 3.40 | 3.35 | 3.40 | 3.60 | 4.00 | 4.10 | 3.75 | 3.44 | ..... | ..... |
| 12 | 3.30 | 3.35 | 3.40 | 3.35 | 3.40 | 3.50 | 4.00 | ..... | ..... | ..... | 3.26 | 3.23 |
| 13 | 3.30 | 3.35 | 3.40 | ..... | 3.40 | ..... | 3.95 | ..... | 3.70 | 3.44 | ..... | ..... |
| 14 | 3.35 | 3.35 | 3.35 | ..... | 3.40 | 3.60 | 3.95 | 4.00 | ..... | ..... | 3.25 | 3.22 |
| 15 | 3.35 | 3.35 | 3.30 | ..... | ..... | 3.60 | ..... | 3.95 | 3.70 | 3.44 | ..... | ..... |
| 16 | 3.35 | 3.35 | 3.30 | ..... | ..... | 3.60 | 3.95 | 3.90 | 3.70 | ..... | 3.24 | 3.22 |
| 17 | 3.35 | 3.35 | 3.30 | ..... | 3.40 | 3.60 | 3.95 | 3.90 | 3.70 | 3.43 | ..... | ..... |
| 18 | 3.35 | 3.35 | 3.30 | ..... | 3.40 | 3.60 | 3.95 | 3.90 | 3.70 | ..... | 3.24 | 3.23 |
| 19 | 3.35 | 3.40 | 3.30 | ..... | ..... | 3.60 | 3.90 | 3.90 | ..... | 3.44 | ..... | ..... |
| 20 | 3.40 | 3.40 | 3.30 | ..... | ..... | ..... | 3.90 | 3.85 | ..... | ..... | 3.23 | 3.23 |
| 21 | 3.40 | 3.35 | 3.30 | ..... | ..... | 3.70 | 3.90 | 3.85 | 3.60 | 3.45 | ..... | ..... |
| 22 | 3.35 | 3.35 | 3.30 | 3.35 | 3.40 | 3.75 | ..... | ..... | ..... | ..... | 3.23 | 3.22 |
| 23 | 3.35 | 3.40 | 3.30 | ..... | 3.40 | 3.80 | 3.95 | ..... | ..... | 3.43 | ..... | ..... |
| 24 | 3.35 | 3.35 | 3.30 | ..... | 3.40 | 3.90 | 4.00 | ..... | 3.55 | ..... | 3.22 | ..... |
| 25 | 3.35 | 3.35 | 3.30 | ..... | 3.40 | 3.80 | 4.00 | 3.85 | 3.50 | 3.42 | ..... | 3.23 |
| 26 | 3.35 | 3.40 | 3.30 | 3.40 | 3.40 | 3.80 | 4.00 | 3.85 | 3.45 | ..... | ..... | ..... |
| 27 | 3.35 | 3.35 | 3.30 | ..... | ..... | ..... | 4.00 | 3.85 | ..... | 3.42 | 3.22 | 3.30 |
| 28 | 3.35 | 3.35 | 3.30 | ..... | ..... | 3.80 | ..... | 3.85 | 3.45 | ..... | ..... | ..... |
| 29 | 3.35 | 3.35 | 3.30 | ..... | ..... | 3.85 | 3.90 | ..... | 3.45 | 3.42 | 3.22 | 3.30 |
| 30 | 3.35 | 3.35 | 3.30 | ..... | ..... | 3.90 | 3.90 | ..... | 3.45 | ..... | ..... | ..... |
| 31 | 3.35 | ..... | 3.30 | ..... | ..... | 3.95 | ..... | 3.80 | ..... | 3.28 | 3.22 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | ..... | 3.30 | ..... | 3.20 | ..... | 3.29 | 3.36 | 4.43 | ..... | 3.65 | 3.65 | ..... |
| 2 | 3.32 | ..... | ..... | ..... | 3.25 | 3.29 | ..... | ..... | ..... | ..... | ..... | 3.30 |
| 3 | ..... | 3.30 | ..... | 3.15 | ..... | ..... | 3.40 | 4.15 | 4.50 | 3.65 | 3.50 | ..... |
| 4 | 3.32 | ..... | 3.28 | ..... | ..... | ..... | ..... | ..... | 4.48 | ..... | ..... | 3.25 |
| 5 | ..... | ..... | ..... | 3.20 | 3.28 | ..... | 3.40 | ..... | 4.60 | ..... | 3.40 | ..... |
| 6 | 3.30 | 3.30 | 3.28 | ..... | ..... | ..... | ..... | 3.95 | ..... | 3.60 | ..... | 3.28 |
| 7 | ..... | ..... | ..... | ..... | 3.29 | 3.31 | ..... | ..... | 4.60 | ..... | 3.40 | ..... |
| 8 | 3.32 | 3.29 | 3.28 | 3.23 | ..... | ..... | 3.50 | 4.40 | ..... | ..... | ..... | ..... |
| 9 | ..... | ..... | ..... | ..... | 3.28 | 3.31 | 3.64 | ..... | ..... | 3.60 | 3.35 | 3.45 |
| 10 | 3.45 | 3.32 | ..... | 3.25 | ..... | ..... | 3.95 | 4.70 | 4.35 | 3.60 | ..... | ..... |
| 11 | ..... | ..... | 3.28 | ..... | ..... | 3.32 | ..... | 4.75 | ..... | ..... | ..... | 3.36 |
| 12 | 3.38 | ..... | ..... | 3.28 | 3.28 | ..... | 3.50 | ..... | 4.15 | ..... | 3.30 | ..... |
| 13 | ..... | 3.30 | 3.28 | 3.29 | ..... | 3.31 | ..... | 4.70 | 4.08 | 3.49 | ..... | 3.35 |
| 14 | 3.40 | ..... | ..... | ..... | 3.28 | ..... | ..... | ..... | 4.10 | ..... | ..... | ..... |
| 15 | ..... | 3.30 | 3.26 | 3.30 | ..... | 3.32 | 3.55 | 4.55 | 4.00 | 3.45 | 3.33 | ..... |
| 16 | 3.30 | ..... | ..... | ..... | 3.28 | ..... | ..... | ..... | ..... | ..... | 3.33 | 3.35 |
| 17 | ..... | 3.32 | ..... | 3.29 | ..... | ..... | ..... | 4.91 | 3.90 | 3.45 | ..... | ..... |
| 18 | 3.30 | ..... | 3.28 | ..... | ..... | 3.31 | 3.70 | 5.10 | ..... | ..... | ..... | 3.35 |
| 19 | ..... | ..... | ..... | 3.29 | 3.28 | ..... | ..... | ..... | 3.90 | ..... | ..... | ..... |
| 20 | ..... | 3.30 | 3.24 | ..... | ..... | 3.30 | 3.65 | 5.10 | ..... | 3.50 | 3.40 | 3.33 |
| 21 | 3.30 | ..... | ..... | ..... | 3.28 | ..... | ..... | ..... | 3.90 | ..... | ..... | ..... |
| 22 | ..... | 3.30 | 3.24 | 3.29 | ..... | 3.31 | 3.50 | 4.90 | ..... | 3.50 | 3.38 | ..... |
| 23 | 3.30 | ..... | ..... | ..... | 3.28 | ..... | ..... | ..... | ..... | ..... | ..... | 3.30 |
| 24 | ..... | ..... | ..... | 3.28 | ..... | ..... | ..... | 4.75 | 3.90 | 3.45 | 3.30 | ..... |
| 25 | ..... | 3.30 | ..... | ..... | ..... | 3.30 | 3.70 | ..... | 3.72 | ..... | ..... | 3.30 |
| 26 | 3.30 | ..... | 3.24 | 3.28 | 3.28 | ..... | ..... | ..... | ..... | 3.40 | 3.30 | ..... |
| 27 | ..... | 3.30 | ..... | ..... | ..... | 3.32 | 3.75 | 4.75 | 3.70 | ..... | ..... | 3.28 |
| 28 | 3.30 | ..... | 3.24 | ..... | 3.28 | ..... | ..... | ..... | ..... | ..... | 3.28 | ..... |
| 29 | 3.30 | 3.28 | ..... | 3.28 | ..... | 3.35 | 4.05 | 4.75 | 3.65 | 3.38 | ..... | ..... |
| 30 | ..... | 3.26 | 3.23 | ..... | ..... | ..... | 4.20 | ..... | ..... | ..... | 3.30 | ..... |
| 31 | 3.30 | ..... | ..... | 3.27 | ..... | ..... | ..... | 4.70 | ..... | 3.55 | ..... | ..... |

*Daily discharge, in second-feet, of Hobble Creek near Springville, Utah, for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | 18 | 22 | 22 | 23.8 | 57.0 | 26.5 | 76.9 | 67.0 | 57.0 | 29.6 | 20.1 | 17.7 |
| 2 | 22 | 22 | 22 | 23.8 | 51.6 | 26.5 | 81.8 | 71 8 | 57.0 | 29.3 | 19.9 | 17.5 |
| 3 | 22 | 22 | 26 | 23.8 | 46.7 | 26.5 | 79.4 | 76.9 | 57.0 | 29.0 | 19.9 | 17.5 |
| 4 | 22 | 22 | 22 | 23.8 | 40.6 | 26.5 | 76.9 | 76.9 | 57.0 | 29.0 | 19.9 | 17.5 |
| 5 | 22 | 22 | 22 | 23.8 | 35.1 | 26.5 | 76.9 | 76.9 | 57.0 | 29.0 | 19.7 | 17.9 |
| 6 | 22 | 22 | 22 | 23.8 | 29.6 | 26.5 | 76.9 | 76.9 | 57.0 | 28.0 | 19.5 | 17.7 |
| 7 | 22 | 22 | 22 | 23.8 | 29.6 | 26.5 | 71.8 | 76.9 | 57.0 | 27.0 | 19.5 | 17.5 |
| 8 | 22 | 22 | 22 | 23.8 | 26.5 | 26.5 | 74.3 | 87.0 | 57.0 | 26.0 | 19.5 | 17.7 |
| 9 | 18 | 22 | 22 | 23.8 | 26.5 | 29.6 | 76.9 | 87.0 | 57.0 | 29.6 | 19.2 | 17.9 |
| 10 | 18 | 22 | 26 | 23.8 | 26.5 | 48.3 | 76 9 | 92.0 | 57.0 | 29.3 | 19.0 | 17.5 |
| 11 | 18 | 22 | 26 | 23.8 | 26.5 | 40.1 | 76.9 | 87.0 | 52.4 | 29.0 | 19.3 | 17.8 |
| 12 | 18 | 22 | 26 | 23.8 | 26.5 | 32.9 | 76 9 | 83.7 | 50.4 | 29.0 | 19.5 | 18.2 |
| 13 | 18 | 22 | 26 | 23.8 | 26.5 | 36.5 | 71.8 | 80.3 | 48.3 | 29.0 | 19.2 | 18.0 |
| 14 | 22 | 22 | 22 | 23.8 | 26.5 | 40.1 | 71.8 | 76.9 | 48.3 | 29.0 | 19.0 | 17.9 |
| 15 | 22 | 22 | 18 | 23.8 | 26.5 | 40.1 | 71.8 | 71.8 | 48.3 | 29.0 | 18.8 | 17.9 |
| 16 | 22 | 22 | 18 | 23.8 | 26.5 | 40.1 | 71.8 | 67.0 | 48.3 | 28.7 | 18.6 | 17.9 |
| 17 | 22 | 22 | 18 | 23.8 | 26.5 | 40.1 | 71.8 | 67.0 | 48.3 | 28.4 | 18.6 | 18.0 |
| 18 | 22 | 22 | 18 | 23.8 | 26.5 | 40.1 | 71.8 | 67.0 | 48.3 | 28.7 | 18.6 | 18.2 |
| 19 | 22 | 26 | 18 | 23.8 | 26.5 | 40.1 | 67.0 | 67.0 | 45.5 | 29.0 | 18.4 | 18.2 |
| 20 | 26 | 26 | 18 | 23.8 | 26.5 | 44.2 | 67.0 | 62.0 | 42.8 | 29.3 | 18.2 | 18.2 |
| 21 | 26 | 22 | 18 | 23.8 | 26.5 | 48.3 | 67.0 | 62.0 | 40.1 | 29.6 | 18.2 | 18.0 |
| 22 | 22 | 22 | 18 | 23.8 | 26.5 | 52.4 | 69.4 | 62.0 | 38.8 | 29.0 | 18.2 | 17.9 |
| 23 | 22 | 26 | 18 | 24.5 | 26.5 | 57.0 | 71.8 | 62.0 | 37.5 | 28.4 | 18.0 | 18.0 |
| 24 | 22 | 22 | 18 | 25.2 | 26.5 | 67.0 | 76.9 | 62.0 | 36.2 | 28.0 | 17.9 | 18.1 |
| 25 | 22 | 22 | 18 | 25.9 | 26.5 | 57.0 | 76.9 | 62.0 | 32.9 | 27.7 | 17.9 | 18.2 |
| 26 | 22 | 26 | 18 | 26.5 | 26.5 | 57.0 | 76.9 | 62.0 | 29.6 | 27.7 | 17.9 | 19.8 |
| 27 | 22 | 22 | 18 | 31.6 | 26.5 | 57.0 | 76.9 | 62.0 | 29.6 | 27.7 | 17.9 | 21.3 |
| 28 | 22 | 22 | 18 | 36.7 | 26.5 | 57.0 | 72.0 | 62.0 | 29.6 | 27.7 | 17.9 | 21.3 |
| 29 | 22 | 22 | 18 | 41.9 | ..... | 62.0 | 67.0 | 60.4 | 29.6 | 27.7 | 17.9 | 21.3 |
| 30 | 22 | 22 | 18 | 46.9 | ..... | 67.0 | 67.0 | 58.7 | 29.6 | 24.0 | 17.9 | 21.3 |
| 31 | 22 | ..... | 18 | 52.0 | ..... | 71.8 | ..... | 57.0 | ..... | 20.3 | 17.9 | ..... |
| 1911–12. | | | | | | | | | | | | |
| 1 | 21.8 | 21.3 | 19.7 | 16.0 | 19.0 | 20.5 | 24.0 | 112.3 | 134.6 | 41.5 | 41.5 | 21.0 |
| 2 | 22.2 | 21.3 | 19.9 | 15.0 | 18.5 | 20.5 | 25.0 | 98.1 | 127.3 | 41.5 | 36.7 | 21.0 |
| 3 | 22.2 | 21.3 | 20.1 | 14.0 | 19.0 | 20.7 | 26.0 | 84.0 | 120.0 | 41.5 | 32.0 | 19.7 |
| 4 | 22.2 | 21.3 | 20.3 | 15.0 | 19.5 | 20.9 | 26.0 | 77.9 | 117.8 | 40.3 | 29.0 | 18.5 |
| 5 | 21.8 | 21 3 | 20.3 | 16.0 | 20.0 | 21.1 | 26.0 | 71.7 | 131.0 | 39.1 | 26.0 | 19.2 |
| 6 | 21.3 | 21.3 | 20.3 | 16.5 | 20.2 | 21.3 | 28.0 | 65.5 | 131.0 | 38.0 | 26.0 | 20.0 |
| 7 | 21.7 | 21.0 | 20.3 | 17.0 | 20.5 | 21.5 | 30.0 | 87.2 | 131.0 | 38.0 | 26.0 | 23.0 |
| 8 | 22.2 | 20.8 | 20.3 | 17.5 | 20.3 | 21.5 | 32.0 | 109.0 | 122.0 | 38.0 | 24.7 | 26.0 |
| 9 | 25.9 | 21.5 | 20.3 | 18.0 | 20.0 | 21.5 | 40.8 | 125.5 | 113.0 | 38.0 | 23.5 | 29.0 |
| 10 | 29.6 | 22.2 | 20.3 | 18.5 | 20.0 | 21.8 | 65.5 | 142.0 | 104.0 | 38.0 | 22.6 | 26.5 |
| 11 | 27.5 | 21.9 | 20.3 | 19.2 | 20.0 | 22.0 | 48.7 | 147.5 | 94.0 | 35.8 | 21.8 | 24.0 |
| 12 | 25.4 | 21.6 | 20.3 | 20.0 | 20.0 | 21.7 | 32.0 | 144.7 | 84.0 | 33.6 | 21.0 | 23.7 |
| 13 | 26.0 | 21.3 | 20.3 | 20.5 | 20.0 | 21.5 | 33.0 | 142.0 | 77.2 | 31.4 | 21.5 | 23.5 |
| 14 | 26.5 | 21.3 | 19.9 | 20.8 | 20.0 | 21.8 | 34.0 | 133.7 | 79.0 | 30.2 | 22.0 | 23.5 |
| 15 | 23.9 | 21.3 | 19.5 | 21.0 | 20.0 | 22.0 | 35.0 | 125.5 | 70.0 | 29.0 | 22.5 | 23.5 |
| 16 | 21.3 | 21.8 | 19.8 | 20.7 | 20.0 | 21.8 | 38.3 | 145.8 | 65.4 | 29.0 | 22.5 | 23.5 |
| 17 | 21.3 | 22.2 | 20.0 | 20.5 | 20.0 | 21.6 | 41.6 | 166.2 | 61.0 | 29.0 | 23.3 | 23.5 |
| 18 | 21.3 | 21.9 | 20.3 | 20.5 | 20.0 | 21.5 | 45.0 | 189.0 | 61.0 | 30.0 | 24.2 | 23.5 |
| 19 | 21.3 | 21.6 | 19.5 | 20.5 | 20.0 | 21.2 | 43.2 | 189.0 | 61,0 | 31.0 | 25.1 | 23.0 |
| 20 | 21.3 | 21.3 | 18.6 | 20.5 | 20.0 | 21.0 | 41.5 | 189.0 | 61.0 | 32.0 | 26.0 | 22.5 |
| 21 | 21.3 | 21.3 | 18.6 | 20.5 | 20.0 | 21.3 | 36.7 | 177.0 | 61.0 | 32.0 | 25.5 | 22.0 |
| 22 | 21.3 | 21.3 | 18.6 | 20.5 | 20.0 | 21.5 | 32.0 | 165.0 | 61.0 | 32.0 | 25.0 | 21.5 |
| 23 | 21.3 | 21.3 | 18.6 | 20.3 | 20.0 | 21.3 | 36.3 | 156.2 | 61.0 | 30.5 | 23.0 | 21.0 |
| 24 | 21.3 | 21.3 | 18.6 | 20.0 | 20.0 | 21.1 | 40.6 | 147.5 | 61.0 | 29.0 | 21.0 | 21.0 |
| 25 | 21.3 | 21.3 | 18.6 | 20.0 | 20.0 | 21.0 | 45.0 | 147.5 | 46.6 | 27.5 | 21.0 | 21.0 |
| 26 | 21.3 | 21.3 | 18.6 | 20.0 | 20.0 | 21.5 | 47.0 | 147.5 | 45.8 | 26.0 | 21.0 | 20.5 |
| 27 | 21.3 | 21.3 | 18.6 | 20.0 | 20.0 | 22.0 | 49.0 | 147.5 | 45.0 | 25.6 | 20.5 | 20.0 |
| 28 | 21.3 | 20.8 | 18.6 | 20.0 | 20.0 | 22.7 | 61.7 | 147.5 | 43.3 | 25.3 | 20.0 | 20.0 |
| 29 | 21.3 | 20.3 | 18.4 | 20.0 | 20.2 | 23.5 | 74.5 | 147.5 | 41.5 | 25.0 | 20.5 | 20.0 |
| 30 | 21.3 | 19.5 | 18.2 | 19.8 | ..... | 23.6 | 89.0 | 144.8 | 41.5 | 30.0 | 21.0 | 20.0 |
| 31 | 21.3 | ..... | 18.2 | 19.5 | ..... | 23.8 | ..... | 142.0 | ..... | 35.0 | 21.0 | ..... |

*Monthly discharge of Hobble Creek near Springville, Utah, for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | | Maximum. | Minimum. | Mean. | |
| 1910-11. | | | | | 1911-12. | | | | |
| October | 26 | 18 | 21.5 | 1,320 | October | 29.6 | 21.3 | 22.6 | 1,390.43 |
| November | 26 | 22 | 22.5 | 1,340 | November | 22.2 | 19.5 | 21.3 | 1,267.85 |
| December | 26 | 18 | 20.5 | 1,260 | December | 20.3 | 18.2 | 19.5 | 1,197.84 |
| January | 52.0 | 23.8 | 26.93 | 1,655.63 | January | 21.0 | 14.0 | 19.0 | 1,166.9 |
| February | 57.0 | 26.5 | 30.24 | 1,679.40 | February | 20.5 | 18.5 | 19.9 | 1,144.9 |
| March | 71.8 | 26.5 | 43.15 | 2,653.33 | March | 23.8 | 20.5 | 21.6 | 1,330.3 |
| April | 81.8 | 67.0 | 73.64 | 4,381.75 | April | 89.0 | 24.0 | 40.9 | 2,434.6 |
| May | 92.0 | 57.0 | 70.70 | 4,346.05 | May | 189.0 | 65.5 | 136.0 | 8,361.6 |
| June | 57.0 | 29.6 | 46.15 | 2,745.96 | June | 134.6 | 41.5 | 81.8 | 4,865.5 |
| July | 29.6 | 20.3 | 28.15 | 1,731.00 | July | 41.5 | 25.0 | 33.0 | 2,028.7 |
| August | 20.1 | 17.9 | 18.80 | 1,154.40 | August | 41.5 | 20.0 | 24.4 | 1,502.3 |
| September | 21.3 | 17.5 | 18.40 | 1,094.70 | September | 29.0 | 18.5 | 22.2 | 1,319.2 |
| The year. | 92.0 | 17.5 | 35.0 | 25,360 | The year. | 189.0 | 14.0 | 38.5 | 28,000 |

NOTE.—Records October to December, 1910, and yearly totals computed by engineers of the United States Geological Survey.

### MAPLE CREEK NEAR SPRINGVILLE, UTAH.

**Location.**—In the NW. ¼ sec. 13, T. 8 S., R. 3 E., Salt Lake base and meridian, about half a mile above the mouth of Maple Creek Canyon, and 4 miles southeast of the Springville post office.

**Records available.**—November 10, 1910, to September 30, 1912.

**Drainage area.**—Approximately 6,880 acres.

**Gage.**—Gage marked on inside of rating flume.

**Channel.**—Rectangular wooden rating flume with free fall of 1 foot at downstream end.

**Discharge measurements.**—By wading or from board across top of flume.

**Winter flow.**—Creek freezes nearly to bottom at times.

**Diversions.**—Above all diversions.

**Artificial control.**—None.

**Accuracy.**—Records considered excellent.

**Cooperation.**—Maintained in cooperation with the United States Weather Bureau.

No discharge measurements were made during 1912.

*Daily gage height, in feet, of Maple Creek near Springville, Utah, for year ending Sept. 30, 1912.*

[Lewis W. Gillilan, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.22 | 0.21 | 0.12 | 0.19 | 0.15 | 0.22 | 0.20 | 0.30 | 0.80 | 0.16 | 0.36 | 0.28 |
| 2 | .29 | .20 | .15 | .20 | .11 | .22 | .20 | .30 | .85 | .16 | .26 | .28 |
| 3 | .24 | .20 | .15 | .03 | .11 | .16 | .23 | .32 | .90 | .15 | .28 | .28 |
| 4 | .23 | .20 | .15 | .03 | .15 | .22 | .23 | .30 | 1.00 | .27 | .30 | .28 |
| 5 | .22 | .21 | .15 | .05 | .20 | .22 | .24 | .29 | 1.00 | .20 | .30 | .32 |
| 6 | .22 | .20 | .15 | .09 | .20 | .22 | .25 | .29 | .99 | .17 | .30 | .30 |
| 7 | .21 | .20 | .15 | .12 | .20 | .22 | .25 | .33 | .98 | .15 | .30 | .29 |
| 8 | .21 | .21 | .15 | .12 | .20 | .21 | .25 | .37 | .98 | .15 | .30 | .29 |
| 9 | .20 | .21 | .13 | .15 | .20 | .22 | .26 | .44 | .96 | .15 | .29 | .36 |
| 10 | .23 | .20 | .15 | .18 | .20 | .23 | .27 | .40 | .90 | .13 | .29 | .30 |

*Daily gage height, in feet, of Maple Creek near Springville, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0.23 | 0.09 | 0.15 | 0.18 | 0.20 | 0.23 | 0.27 | 0.44 | 0.81 | 0.12 | 0.28 | 0.30 |
| 12 | .22 | .12 | .17 | .18 | .20 | .22 | .27 | .54 | .78 | .14 | .28 | .30 |
| 13 | .20 | .15 | .17 | .19 | .21 | .22 | .25 | .53 | .75 | .18 | .28 | .28 |
| 14 | .20 | .17 | .17 | .19 | .21 | .22 | .22 | .50 | .71 | .18 | .28 | .28 |
| 15 | .20 | .21 | .18 | .17 | .21 | .22 | .22 | .53 | .64 | .19 | .29 | .30 |
| 16 | .20 | .23 | .18 | .18 | .21 | .19 | .22 | .61 | .51 | .19 | .28 | .28 |
| 17 | .20 | .23 | .12 | .18 | .21 | .20 | .22 | .66 | .46 | .17 | .28 | .23 |
| 18 | .20 | .22 | .15 | .19 | .21 | .20 | .24 | .78 | .43 | .16 | .28 | .25 |
| 19 | .20 | .22 | .13 | .19 | .21 | .20 | .26 | .85 | .42 | .20 | .28 | .25 |
| 20 | .20 | .22 | .11 | .20 | .12 | .19 | .27 | .91 | .41 | .19 | .28 | .26 |
| 21 | .20 | .22 | .10 | .20 | .18 | .19 | .26 | .89 | .40 | .18 | .28 | .27 |
| 22 | .20 | .22 | .08 | .20 | .22 | .19 | .28 | .79 | .40 | .18 | .28 | .27 |
| 23 | .20 | .23 | .05 | .20 | .22 | .19 | .26 | .86 | .39 | .18 | .28 | .27 |
| 24 | .20 | .23 | .06 | .20 | .21 | .19 | .25 | .90 | .38 | .18 | .27 | .27 |
| 25 | .20 | .23 | .08 | .20 | .15 | .19 | .28 | .90 | .36 | .18 | .27 | .26 |
| 26 | .20 | .21 | .10 | .20 | .12 | .19 | .27 | .90 | .35 | .18 | .27 | .26 |
| 27 | .20 | .13 | .10 | .20 | .18 | .19 | .24 | .90 | .32 | .18 | .27 | .26 |
| 28 | .20 | .10 | .10 | .20 | .21 | .19 | .28 | .88 | .35 | .18 | .27 | .26 |
| 29 | .20 | .10 | .11 | .20 | .22 | .19 | .30 | .91 | .29 | .16 | .29 | .26 |
| 30 | .19 | .10 | .14 | .20 | ..... | .21 | .32 | .93 | .20 | .18 | .28 | .26 |
| 31 | .19 | ..... | .18 | .20 | ..... | .20 | ..... | .88 | ..... | .34 | .28 | .26 |

*Daily discharge, in second-feet, of Maple Creek near Springville, Utah, for the year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.71 | 0.63 | ..... | 0.5 | 0.3 | 0.7 | 0.5 | 1.3 | 11 | 0.3 | 1.9 | 1.1 |
| 2 | 1.27 | .55 | ..... | .5 | .1 | .7 | .5 | 1.3 | 12 | .3 | 1.0 | 1.1 |
| 3 | .87 | .55 | ..... | .03 | .1 | .3 | .7 | 1.5 | 14 | .3 | 1.1 | 1.1 |
| 4 | .79 | .55 | ..... | .03 | .3 | .7 | .7 | 1.3 | 17 | 1.1 | 1.3 | 1.1 |
| 5 | .71 | .63 | ..... | .05 | .5 | .7 | .8 | 1.2 | 17 | .5 | 1.3 | 1.5 |
| 6 | .71 | .55 | ..... | .1 | .5 | .7 | .9 | 1.2 | 16 | .4 | 1.3 | 1.3 |
| 7 | .63 | .55 | ..... | .2 | .5 | .7 | .9 | 1.6 | 16 | .3 | 1.3 | 1.2 |
| 8 | .63 | .63 | ..... | .2 | .5 | .6 | .9 | 2.0 | 16 | .3 | 1.3 | 1.2 |
| 9 | .55 | .63 | ..... | .3 | .5 | .7 | 1.0 | 2.9 | 16 | .3 | 1.2 | 1.9 |
| 10 | .79 | .55 | ..... | .4 | .5 | .7 | 1.1 | 2.3 | 14 | .2 | 1.2 | 1.3 |
| 11 | .79 | .02 | ..... | .4 | .5 | .7 | 1.1 | 2.9 | 11 | .2 | 1.1 | 1.3 |
| 12 | .71 | .09 | ..... | .4 | .5 | .7 | 1.1 | 4.6 | 10 | .3 | 1.1 | 1.3 |
| 13 | .55 | .22 | ..... | .5 | .6 | .7 | .9 | 4.4 | 9.5 | .4 | 1.1 | 1.1 |
| 14 | .55 | .33 | ..... | .5 | .6 | .7 | .7 | 3.8 | 8.5 | .4 | 1.1 | 1.1 |
| 15 | .55 | .63 | ..... | .4 | .6 | .7 | .7 | 4.4 | 6.8 | .5 | 1.2 | 1.3 |
| 16 | .55 | .79 | ..... | .4 | .6 | .5 | .7 | 6.0 | 4.0 | .5 | 1.1 | 1.1 |
| 17 | .55 | .79 | ..... | .4 | .6 | .5 | .7 | 7.2 | 3.2 | .4 | 1.1 | .7 |
| 18 | .55 | .71 | ..... | .5 | .6 | .5 | .8 | 10 | 2.8 | .3 | 1.1 | .9 |
| 19 | .55 | .71 | ..... | .5 | .6 | .5 | 1.0 | 12 | 2.6 | .5 | 1.1 | .9 |
| 20 | .55 | .71 | ..... | .5 | .2 | .5 | 1.1 | 14 | 2.4 | .5 | 1.1 | 1.0 |
| 21 | .55 | .71 | ..... | .5 | .4 | .5 | 1.0 | 13 | 2.3 | .4 | 1.1 | 1.1 |
| 22 | .55 | .71 | ..... | .5 | .7 | .5 | 1.1 | 11 | 2.3 | .4 | 1.1 | 1.1 |
| 23 | .55 | .79 | ..... | .5 | .7 | .5 | 1.0 | 13 | 2.2 | .4 | 1.1 | 1.1 |
| 24 | .55 | .79 | ..... | .5 | .6 | .5 | .9 | 14 | 2.1 | .4 | 1.1 | 1.1 |
| 25 | .55 | .79 | ..... | .5 | .3 | .5 | 1.1 | 14 | 1.9 | .4 | 1.1 | 1.0 |
| 26 | .55 | .63 | ..... | .5 | .2 | .5 | 1.1 | 14 | 1.8 | .4 | 1.1 | 1.0 |
| 27 | .55 | .13 | ..... | .5 | .4 | .5 | .8 | 14 | 1.5 | .4 | 1.1 | 1.0 |
| 28 | .55 | .06 | ..... | .5 | .6 | .5 | 1.1 | 13 | 1.8 | .4 | 1.1 | 1.0 |
| 29 | .55 | .06 | ..... | .5 | .7 | .5 | 1.3 | 14 | 1.2 | .3 | 1.2 | 1.0 |
| 30 | .47 | .06 | ..... | .5 | ..... | .6 | 1.5 | 15 | .5 | .4 | 1.1 | 1.0 |
| 31 | .47 | ..... | ..... | .5 | ..... | .5 | ..... | 13 | ..... | 1.7 | 1.1 | ..... |

*Monthly discharge of Maple Creek near Springville, Utah, for the year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 1.27 | 0.47 | 0.625 | 38.4 | B. |
| November | .79 | .06 | .518 | 30.8 | C. |
| December | ..... | ..... | a.15 | 9.22 | D. |
| January | .5 | .03 | .40 | 24.6 | B. |
| February | .7 | .1 | .48 | 27.6 | B. |
| March | .7 | .3 | .58 | 35.7 | B. |
| April | 1.5 | .5 | .92 | 54.7 | B. |
| May | 15 | 1.2 | 7.55 | 464 | B. |
| June | 17 | .5 | 7.58 | 451 | B. |
| July | 1.7 | .2 | .44 | 27.1 | B. |
| August | 1.9 | 1.0 | 1.17 | 71.9 | B. |
| September | 1.9 | .7 | 1.13 | 67.2 | B. |
| The year | 17 | ..... | 1.79 | 1,300 | |

a Estimated because of ice.

### PROVO RIVER AT FORKS, UTAH.

**Location.**—In the SW. ¼ NE. ¼ sec. 26, T. 5 S., R. 3 E., Salt Lake base and meridian, at Forks, Utah, 12 miles up Provo Canyon from Provo, Utah, on the highway and railroad from Provo to Heber, and about 1½ miles above the dam of the Utah Power & Light Co. About 600 feet above the mouth of South Fork of Provo River, which enters on the left, and about 1 mile below the mouth of North Fork, entering on the right.

**Records available.**—November 16, 1911, to September 30, 1912. Records have been obtained on Provo River since 1890. By adding the discharge of the South Fork to that obtained at this station the total flow of Provo River will be obtained.

**Drainage area.**—600 square miles.

**Gage.**—Sloping gage on the left bank, 10 feet upstream from the cable.

**Channel.**—Velocity moderate and uniformly distributed across the section; bed of stream composed of small gravel and likely to shift during medium or high stages. One channel at all stages. Both banks are fairly high and not liable to overflow. The maximum depth of the water at gage height 1 foot is 1.7 feet.

**Discharge measurements.**—Made from cable and car.

**Winter flow.**—Ice forms at this station, but ordinarily has no effect on relation of gage height to discharge.

**Diversions.**—Some water is used for irrigation in Heber Valley above the station. Station is above all diversions in the vicinity of Provo.

**Artificial control.**—None.

**Accuracy.**—Records fair. Drift lodging on the bents of the wagon bridge below the gage may at times cause backwater.

**Cooperation.**—Maintained in cooperation with the Utah Power & Light Co.

*Discharge measurements of Provo River at Forks, Utah, year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911 | | *Feet.* | *Sec.-ft.* | 1912 | | *Feet.* | *Sec.-ft.* |
| Oct. 31 | Dort and Gilkison..... | 0.84 | 228 | Apr. 24 | J. C. Dort..... | 1.05 | 337 |
| | | | | May 21 | Pharis and Gilkison.... | 2.66 | 997 |
| 1912 | | | | 24 | G. M. Gilkison..... | 2.07 | 736 |
| Jan. 20 | G. M. Gilkison..... | .85 | 256 | 31 | Dort and Pharis..... | 3.23 | 1,400 |
| Mar. 2 | J. C. Dort..... | .82 | 287 | June 7 | J. C. Dort..... | 3.85 | 1,940 |
| Apr. 3 | .....do..... | 1.30 | 437 | July 4 | .....do..... | 1.10 | 332 |

*Daily gage height, in feet, of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

[Frank Dusenberry, observer.]

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 0.75 | 0.8 | 0.8 | 0.85 | 1.30 | 1.28 | 2.86 | 1.30 | 0.90 | 0.86 |
| 2 | ..... | .75 | .8 | .75 | .80 | 1.20 | 1.25 | 3.01 | 1.18 | .90 | .86 |
| 3 | ..... | .75 | .75 | .7 | .75 | 1.30 | 1.20 | 3.25 | 1.13 | 1.04 | .85 |
| 4 | ..... | .75 | .75 | .8 | .75 | 1.34 | 1.20 | 3.60 | 1.10 | .98 | .85 |
| 5 | ..... | .75 | .9 | .8 | .75 | 1.47 | 1.17 | 3.72 | 1.05 | .92 | .88 |
| 6 | ..... | .75 | .9 | .8 | .95 | 1.37 | 1.14 | 3.70 | 1.00 | .88 | .90 |
| 7 | ..... | .8 | 1.0 | .75 | 1.15 | 1.33 | 1.16 | 3.82 | .90 | .88 | .88 |
| 8 | ..... | .85 | .9 | .7 | 1.15 | 1.40 | 1.33 | 4.03 | .90 | .86 | .88 |
| 9 | ..... | .8 | 1.0 | .8 | 1.15 | 1.40 | 1.40 | 4.00 | .85 | .82 | 1.10 |
| 10 | ..... | .85 | 1.05 | .8 | 1.15 | 1.55 | 1.52 | 3.95 | .85 | .80 | 1.10 |
| 11 | ..... | .9 | 1.1 | .8 | 1.1 | 1.38 | 1.71 | 3.50 | .83 | .79 | 1.10 |
| 12 | ..... | .95 | 1.1 | .8 | 1.1 | 1.30 | 1.78 | 3.15 | .86 | .78 | 1.05 |
| 13 | ..... | .9 | 1.1 | .8 | 1.1 | 1.23 | 1.75 | 3.01 | .94 | .78 | 1.05 |
| 14 | ..... | .85 | 1.15 | .8 | 1.1 | 1.15 | 1.52 | 3.15 | .96 | .78 | 1.07 |
| 15 | ..... | .85 | 1.1 | .8 | .95 | 1.12 | 1.58 | 2.80 | .95 | .83 | 1.10 |
| 16 | 1.05 | .9 | 1.1 | .85 | 3.0 | 1.11 | 1.82 | 2.45 | .95 | .81 | 1.10 |
| 17 | 1.0 | .95 | 1.1 | .85 | 1.0 | 1.08 | 1.95 | 2.25 | .90 | .80 | 1.12 |
| 18 | 1.0 | .95 | 1.1 | .85 | 1.1 | 1.15 | 2.10 | 1.83 | .88 | .85 | 1.10 |
| 19 | 1.0 | .9 | 1.15 | .85 | 1.2 | 1.10 | 2.33 | 1.70 | .89 | .84 | 1.08 |
| 20 | 1.0 | .75 | .85 | .85 | 1.35 | 1.10 | 2.50 | 1.80 | .96 | .82 | 1.02 |
| 21 | 1.0 | .7 | .85 | .85 | 1.1 | 1.08 | 2.62 | 1.82 | .93 | .83 | 1.05 |
| 22 | 1.0 | .7 | .8 | .85 | 1.1 | 1.05 | 2.55 | 2.05 | .90 | .80 | 1.04 |
| 23 | 1.0 | .7 | .8 | .85 | 1.13 | 1.03 | 2.18 | 2.10 | .87 | .80 | 1.02 |
| 24 | .95 | .7 | .8 | .85 | 1.0 | 1.05 | 2.05 | 2.10 | .84 | .80 | 1.01 |
| 25 | .9 | .7 | .85 | .8 | 1.1 | 1.12 | 2.15 | 2.15 | .85 | .80 | 1.00 |
| 26 | .95 | .7 | .85 | .8 | 1.1 | 1.12 | 2.33 | 1.90 | .80 | .80 | 1.00 |
| 27 | .95 | .7 | .85 | .85 | 1.1 | 1.10 | 2.39 | 1.80 | .82 | .92 | 1.00 |
| 28 | .8 | .8 | .85 | .85 | 1.2 | 1.15 | 2.38 | 1.72 | .82 | .95 | .99 |
| 29 | .7 | .8 | .85 | .85 | 1.3 | 1.20 | 2.30 | 1.55 | .83 | .90 | .99 |
| 30 | .7 | .8 | .85 | ..... | 1.3 | 1.22 | 2.72 | 1.43 | .83 | .90 | .98 |
| 31 | ..... | .8 | .8 | ..... | 1.3 | ..... | 3.81 | ..... | .87 | .90 | ..... |

NOTE.—Snowslide Mar. 16.

*Daily discharge, in second-feet, of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 215 | 236 | 251 | 287 | 424 | 417 | 1,130 | 396 | 266 | 255 |
| 2 | ..... | 215 | 236 | 241 | 274 | 390 | 407 | 1,230 | 355 | 266 | 255 |
| 3 | ..... | 215 | 226 | 229 | 261 | 424 | 390 | 1,410 | 338 | 309 | 252 |
| 4 | ..... | 215 | 226 | 253 | 261 | 438 | 390 | 1,710 | 328 | 290 | 252 |
| 5 | ..... | 217 | 264 | 256 | 261 | 487 | 380 | 1,820 | 312 | 272 | 260 |
| 6 | ..... | 217 | 264 | 256 | 314 | 449 | 371 | 1,800 | 296 | 260 | 266 |
| 7 | ..... | 229 | 290 | 243 | 374 | 435 | 377 | 1,910 | 266 | 260 | 260 |
| 8 | ..... | 241 | 264 | 231 | 374 | 460 | 435 | 2,110 | 266 | 255 | 260 |
| 9 | ..... | 229 | 290 | 258 | 374 | 460 | 460 | 2,070 | 252 | 244 | 328 |
| 10 | ..... | 241 | 306 | 258 | 374 | 518 | 506 | 2,010 | 252 | 238 | 328 |
| 11 | ..... | 253 | 320 | 258 | 358 | 453 | 582 | 1,600 | 246 | 235 | 328 |
| 12 | ..... | 269 | 320 | 261 | 358 | 424 | 610 | 1,310 | 255 | 232 | 312 |
| 13 | ..... | 256 | 320 | 261 | 358 | 400 | 598 | 1,200 | 278 | 232 | 312 |
| 14 | ..... | 243 | 334 | 261 | 358 | 374 | 598 | 1,300 | 284 | 232 | 318 |
| 15 | ..... | 243 | 320 | 261 | 314 | 364 | 530 | 1,050 | 281 | 246 | 328 |
| 16 | 284 | 256 | 322 | 277 | 321 | 361 | 626 | 867 | 281 | 241 | 328 |
| 17 | 271 | 269 | 322 | 277 | 328 | 352 | 679 | 776 | 266 | 238 | 335 |
| 18 | 271 | 269 | 322 | 277 | 358 | 374 | 742 | 598 | 260 | 252 | 328 |
| 19 | 271 | 258 | 337 | 279 | 390 | 358 | 840 | 542 | 263 | 249 | 322 |
| 20 | 271 | 222 | 256 | 279 | 442 | 358 | 922 | 580 | 284 | 244 | 302 |
| 21 | 274 | 211 | 256 | 279 | 358 | 352 | 985 | 588 | 275 | 246 | 312 |
| 22 | 274 | 211 | 246 | 279 | 358 | 343 | 948 | 680 | 266 | 238 | 309 |
| 23 | 274 | 211 | 246 | 282 | 368 | 337 | 776 | 700 | 258 | 238 | 302 |
| 24 | 261 | 211 | 246 | 282 | 328 | 343 | 721 | 700 | 249 | 238 | 299 |
| 25 | 248 | 211 | 258 | 269 | 358 | 364 | 763 | 720 | 252 | 238 | 296 |
| 26 | 261 | 211 | 261 | 271 | 358 | 364 | 840 | 620 | 238 | 238 | 296 |
| 27 | 261 | 213 | 261 | 284 | 358 | 358 | 867 | 580 | 244 | 272 | 296 |
| 28 | 226 | 236 | 261 | 284 | 390 | 374 | 863 | 548 | 244 | 281 | 293 |
| 29 | 204 | 236 | 264 | 284 | 424 | 390 | 826 | 482 | 246 | 266 | 293 |
| 30 | 204 | 236 | 264 | ..... | 424 | 397 | 1,040 | 440 | 246 | 266 | 290 |
| 31 | ..... | 236 | 251 | ..... | 424 | ..... | 1,900 | ..... | 258 | 266 | ..... |

NOTE.—Discharge determined from two fairly well defined curves, one applicable Mar. 1 to June 8 and the other June 20 to Sept, 30. Indirect method for shifting channels used Nov. 16 to Feb. 29, and June 9–19. Discharge interpolated Mar. 16.

*Monthly discharge of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 600 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| November 16-30 | 284 | 204 | 257 | 0.428 | 0.24 | 7,600 | B. |
| December | 269 | 211 | 232 | .387 | .45 | 14,300 | B. |
| January | 337 | 226 | 277 | .462 | .53 | 17,000 | C. |
| February | 284 | 229 | 265 | .442 | .48 | 15,200 | B. |
| March | 442 | 261 | 351 | .585 | .67 | 21,600 | A. |
| April | 518 | 337 | 398 | .663 | .74 | 23,700 | A. |
| May | 1,900 | 371 | 687 | 1.14 | 1.31 | 42,200 | A. |
| June | 2,110 | 440 | 1,100 | 1.83 | 2.04 | 65,400 | B. |
| July | 396 | 238 | 275 | .458 | .53 | 16,900 | A. |
| August | 309 | 232 | 253 | .422 | .49 | 15,600 | A. |
| September | 335 | 252 | 297 | .495 | .55 | 17,700 | A. |
| The period | | | | | | 257,000 | |

### SOUTH FORK OF PROVO RIVER AT FORKS, UTAH.

**Location.**—In the NW. ¼ SE. ¼ sec. 26, T. 5 S., R. 3 E., Salt Lake base and meridian, at Forks, Utah, 12 miles up Provo Canyon from Provo, on highway and railroad from Provo to Heber. It is at a point about 150 feet above the confluence of the South Fork with Provo River.

**Records available.**—November 17, 1911, to September 30, 1912.

**Drainage area.**—30 square miles.

**Gage.**—Vertical staff gage driven into the stream bed at the right bank, 150 feet above the mouth and 40 feet southeast of the Denver & Rio Grande Railroad Co.'s tracks.

**Channel.**—One channel at all stages. The left bank is liable to overflow in extreme floods.

**Discharge measurements.**—Made by wading about 30 feet below the gage.

**Winter flow.**—No ice forms at this station.

**Diversions.**—None.

**Artificial control.**—None.

**Accuracy.**—Poor, owing to backwater caused by growth of weeds and by high water on Provo River.

**Cooperation.**—Gage heights furnished by the Utah Power & Light Co.

The discharge of the South Fork added to that of Provo River at Forks represents the total flow of Provo River available for diversion at the Utah Power & Light Co.'s dam, 2 miles downstream.

*Discharge measurements of South Fork of Provo River at Forks, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Oct. 31 | Dort and Gilkison | 2.36 | 35.3 | Apr. 24 | J. C. Dort | 2.13 | 29.0 |
| | | | | May 21 | Gilkison and Pharis | 2.30 | 35.0 |
| 1912. | | | | 31 | Dort and Pharis | 2.78 | 44.9 |
| Jan. 30 | G. M. Gilkison | 2.20 | 30.0 | June 7 | J. C. Dort | 3.63 | 63.4 |
| Mar. 2 | J. C. Dort | 2.18 | 27.7 | July 4 | ....do | 2.15 | 30.4 |
| Apr. 3 | Dort and Gilkison | 2.19 | 30.4 | | | | |

*Daily gage height, in feet, of South Fork of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

[Frank Dusenbery, observer.]

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 2.25 | 2.3 | 2.2 | 2.2 | 2.20 | 2.18 | 2.50 | 2.20 | 2.20 | 2.24 |
| 2 | ..... | 2.25 | 2.3 | 2.2 | 2.2 | 2.20 | 2.18 | 2.60 | 2.20 | 2.20 | 2.24 |
| 3 | ..... | 2.25 | 2.3 | 2.2 | 2.1 | 2.20 | 2.18 | 2.87 | 2.15 | 2.20 | 2.28 |
| 4 | ..... | 2.25 | 2.3 | 2.2 | 2.1 | 2.19 | 2.18 | 3.35 | 2.15 | 2.20 | 2.26 |
| 5 | ..... | 2.3 | 2.25 | 2.2 | 2.1 | 2.20 | 2.17 | 3.60 | 2.15 | 2.20 | 2.26 |
| 6 | ..... | 2.3 | 2.25 | 2.2 | 2.2 | 2.20 | 2.17 | 3.50 | 2.15 | 2.20 | 2.28 |
| 7 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.20 | 2.15 | 3.60 | 2.15 | 2.22 | 2.28 |
| 8 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.20 | 2.15 | 3.75 | 2.15 | 2.24 | 2.28 |
| 9 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.20 | 2.29 | 4.00 | 2.15 | 2.20 | 2.30 |
| 10 | ..... | 2.35 | 2.3 | 2.2 | 2.2 | 2.22 | 2.21 | 4.05 | 2.15 | 2.20 | 2.40 |
| 11 | ..... | 2.35 | 2.3 | 2.2 | 2.2 | 2.19 | 2.20 | 3.55 | 2.15 | 2.20 | 2.30 |
| 12 | ..... | 2.35 | 2.3 | 2.2 | 2.2 | 2.18 | 2.25 | 3.15 | 2.15 | 2.22 | 2.30 |
| 13 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.18 | 2.23 | 2.95 | 2.15 | 2.20 | 2.40 |
| 14 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.18 | 2.20 | 3.00 | 2.15 | 2.20 | 2.32 |
| 15 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.15 | 2.20 | 2.72 | 2.15 | 2.30 | 2.30 |
| 16 | ..... | 2.3 | 2.3 | 2.2 | 2.2 | 2.15 | 2.20 | 2.50 | 2.15 | 2.22 | 2.28 |
| 17 | 2.35 | 2.3 | 2.3 | 2.2 | 2.2 | 2.15 | 2.22 | 2.40 | 2.15 | 2.22 | 2.29 |
| 18 | 2.35 | 2.3 | 2.3 | 2.2 | 2.2 | 2.18 | 2.24 | 2.30 | 2.15 | 2.24 | 2.30 |
| 19 | 2.35 | 2.3 | 2.3 | 2.2 | 2.2 | 2.18 | 2.21 | 2.30 | 2.15 | 2.22 | 2.28 |
| 20 | 2.35 | 2.25 | 2.2 | 2.2 | 2.2 | 2.18 | 2.25 | 2.30 | 2.15 | 2.22 | 2.28 |
| 21 | 2.35 | 2.25 | 2.2 | 2.2 | 2.2 | 2.15 | 2.30 | 2.30 | 2.15 | 2.25 | 2.28 |
| 22 | 2.35 | 2.25 | 2.2 | 2.2 | 2.2 | 2.18 | 2.25 | 2.30 | 2.12 | 2.23 | 2.29 |
| 23 | 2.35 | 2.25 | 2.25 | 2.2 | 2.2 | 2.18 | 2.23 | 2.40 | 2.12 | 2.23 | 2.28 |
| 24 | 2.35 | 2.25 | 2.2 | 2.2 | 2.2 | 2.18 | 2.21 | 2.30 | 2.12 | 2.22 | 2.29 |
| 25 | 2.35 | 2.3 | 2.25 | 2.2 | 2.2 | 2.15 | 2.22 | 2.25 | 2.13 | 2.22 | 2.29 |
| 26 | 2.35 | 2.3 | 2.25 | 2.2 | 2.2 | 2.15 | 2.22 | 2.20 | 2.13 | 2.22 | 2.30 |
| 27 | 2.35 | 2.3 | 2.25 | 2.2 | 2.2 | 2.15 | 2.22 | 2.10 | 2.15 | 2.23 | 2.30 |
| 28 | 2.35 | 2.3 | 2.2 | 2.2 | 2.2 | 2.15 | 2.28 | 2.20 | 2.18 | 2.42 | 2.30 |
| 29 | 2.35 | 2.3 | 2.2 | 2.2 | 2.2 | 2.15 | 2.29 | 2.20 | 2.18 | 2.24 | 2.29 |
| 30 | 2.25 | 2.3 | 2.2 | ..... | 2.2 | 2.18 | 2.35 | 2.20 | 2.18 | 2.25 | 2.30 |
| 31 | ..... | 2.3 | 2.2 | ..... | 2.2 | ..... | 2.81 | ..... | 2.20 | 2.25 | ..... |

*Daily discharge, in second-feet, of South Fork of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

[Frank Dusenbery, observer.]

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 32 | 34 | 30 | 28 | 30 | 31 | 40 | 32 | 33 | 35 |
| 2 | ..... | 32 | 34 | 30 | 28 | 30 | 31 | 42 | 32 | 33 | 35 |
| 3 | ..... | 32 | 34 | 30 | 26 | 30 | 31 | 47 | 30 | 33 | 36 |
| 4 | ..... | 32 | 34 | 30 | 26 | 30 | 31 | 56 | 30 | 33 | 36 |
| 5 | ..... | 34 | 32 | 30 | 26 | 30 | 31 | 62 | 30 | 33 | 36 |
| 6 | ..... | 34 | 32 | 30 | 29 | 30 | 31 | 60 | 30 | 33 | 37 |
| 7 | ..... | 34 | 34 | 30 | 29 | 30 | 30 | 62 | 30 | 33 | 37 |
| 8 | ..... | 34 | 34 | 30 | 29 | 30 | 30 | 66 | 30 | 34 | 37 |
| 9 | ..... | 34 | 34 | 29 | 29 | 30 | 32 | 72 | 30 | 33 | 37 |
| 10 | ..... | 35 | 34 | 29 | 29 | 31 | 32 | 74 | 30 | 33 | 42 |
| 11 | ..... | 35 | 34 | 29 | 29 | 30 | 32 | 61 | 30 | 33 | 38 |
| 12 | ..... | 35 | 34 | 29 | 29 | 30 | 33 | 52 | 30 | 34 | 38 |
| 13 | ..... | 34 | 34 | 29 | 29 | 30 | 33 | 48 | 30 | 33 | 42 |
| 14 | ..... | 34 | 34 | 29 | 29 | 30 | 32 | 50 | 30 | 33 | 39 |
| 15 | ..... | 34 | 34 | 29 | 29 | 29 | 32 | 44 | 30 | 36 | 38 |
| 16 | ..... | 34 | 34 | 29 | 29 | 29 | 32 | 40 | 30 | 34 | 37 |
| 17 | 35 | 34 | 34 | 29 | 29 | 29 | 32 | 38 | 30 | 34 | 38 |
| 18 | 35 | 34 | 34 | 29 | 29 | 30 | 33 | 35 | 30 | 35 | 38 |
| 19 | 35 | 34 | 34 | 29 | 29 | 30 | 32 | 35 | 30 | 34 | 37 |
| 20 | 35 | 32 | 30 | 29 | 29 | 30 | 33 | 35 | 30 | 34 | 37 |
| 21 | 35 | 32 | 30 | 29 | 29 | 29 | 35 | 35 | 31 | 35 | 37 |
| 22 | 35 | 32 | 30 | 29 | 29 | 30 | 33 | 35 | 30 | 34 | 38 |
| 23 | 35 | 32 | 32 | 29 | 30 | 30 | 33 | 38 | 30 | 34 | 37 |
| 24 | 35 | 32 | 30 | 29 | 30 | 31 | 32 | 35 | 30 | 34 | 38 |
| 25 | 35 | 34 | 32 | 29 | 30 | 32 | 33 | 30 | 30 | 34 | 38 |
| 26 | 35 | 34 | 32 | 29 | 30 | 30 | 32 | 32 | 30 | 34 | 38 |
| 27 | 35 | 34 | 32 | 29 | 30 | 30 | 32 | 32 | 31 | 34 | 38 |
| 28 | 35 | 34 | 30 | 29 | 30 | 30 | 34 | 32 | 32 | 42 | 38 |
| 29 | 32 | 34 | 30 | 28 | 30 | 30 | 35 | 32 | 32 | 35 | 38 |
| 30 | 32 | 34 | 30 | ..... | 30 | 31 | 37 | 32 | 32 | 35 | 38 |
| 31 | ..... | 34 | 30 | ..... | 30 | ..... | 46 | ..... | 33 | 35 | ..... |

NOTE.—Discharge determined by the use of several fairly well defined curves, applicable for short periods and by indirect method for shifting channels.

*Monthly discharge of South Fork of Provo River at Forks, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 30 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| November 17-30 | 35 | 32 | 34.6 | 1.15 | 0.16 | 961 | B. |
| December | 35 | 32 | 33.5 | 1.12 | 1.29 | 2,000 | B. |
| January | 34 | 30 | 32.6 | 1.09 | 1.26 | 2,000 | B. |
| February | 30 | 28 | 29.2 | .973 | 1.05 | 1,080 | B. |
| March | 30 | 26 | 28.9 | .964 | 1.11 | 1,780 | B. |
| April | 31 | 29 | 30.0 | 1.00 | 1.12 | 1,790 | B. |
| May | 46 | 30 | 32.7 | 1.09 | 1.26 | 2,010 | A. |
| June | 74 | 32 | 45.2 | 1.51 | 1.68 | 2,690 | B. |
| July | 33 | 30 | 30.5 | 1.02 | 1.18 | 1,880 | B. |
| August | 42 | 33 | 34.1 | 1.14 | 1.31 | 2,100 | B. |
| September | 42 | 35 | 37.6 | 1.25 | 1.40 | 2,240 | A. |
| The period | | | | | | 21,200 | |

### AMERICAN FORK NEAR AMERICAN FORK, UTAH.

**Location.**—In the NW. ¼ NW. ¼ sec. 30, T. 4 S., R. 3 E., Salt Lake base and meridian, at the ranger station about 50 feet above mouth of South Fork, 3 miles above the Utah Power & Light Co.'s American Fork plant No. 2, 4½ miles above plant No. 1, at the mouth of the canyon, and 11½ miles from the town of American Fork.

**Records available.**—February 15, 1912, to September 30, 1912.

**Drainage area.**—Approximately 43 square miles.

**Gage.**—Inclined staff on left bank.

**Channel.**—Rocky; permanent except during high floods.

**Discharge measurements.**—Made by wading.

**Winter flow.**—Shore ice exists for periods during the winter months, but does not ordinarily affect the relation of gage height to discharge.

**Diversions.**—Above all diversions.

**Artificial control.**—None.

**Accuracy.**—Records rather poor, owing to infrequent discharge measurements and fragmentary gage heights during certain periods.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

*Discharge measurements of American Fork near American Fork, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Feb. 15 | Dort and Manville | 1.86 | 16.9 |
| 15 | J. P. Martin | 1.86 | 15.3 |

*Daily gage height, in feet, and discharge, in second-feet, of American Fork near American Fork, Utah, for year ending Sept. 30, 1912.*

[John V. Manville, observer.]

| Day. | Apr. | | May. | | June. | | July. | | Aug. | | Sept. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | | | | | 2.80 | 162 | 2.32 | 70 | 2.10 | 40 |
| 2 | | | | | | | 2.70 | 140 | 2.28 | 64 | 2.10 | 40 |
| 3 | | | | | | | 2.66 | 132 | 2.28 | 64 | 2.10 | 40 |
| 4 | | | | | | | 2.60 | 120 | 2.24 | 58 | 2.20 | 52 |
| 5 | | | | | 3.62 | 349 | 2.68 | 136 | 2.20 | 52 | 2.10 | 40 |
| 6 | | | | | | | 2.70 | 140 | 2.18 | 50 | 2.10 | 40 |
| 7 | | | | | | | 2.72 | 144 | 2.18 | 50 | 2.00 | 29 |
| 8 | | | | | | | 2.60 | 120 | | | | |
| 9 | | | | | | | 2.62 | 124 | 2.16 | 47 | | |
| 10 | | | 2.52 | 104 | | | 2.58 | 116 | | | 2.20 | 52 |
| 11 | | | 2.56 | 112 | 3.40 | 297 | 2.60 | 120 | | | 2.20 | 52 |
| 12 | | | | | 3.24 | 260 | 2.62 | 124 | 2.16 | 47 | 2.00 | 29 |
| 13 | | | | | | | 2.56 | 112 | 2.14 | 45 | 2.10 | 40 |
| 14 | | | | | 2.96 | 197 | | | 2.14 | 45 | | |
| 15 | | | 2.76 | 153 | 3.00 | 206 | 2.54 | 108 | 2.12 | 42 | | |
| 16 | 2.00 | 29 | 3.00 | 206 | 2.94 | 193 | 2.46 | 93 | 2.12 | 42 | 2.00 | 29 |
| 17 | | | 3.20 | 251 | 2.90 | 184 | 2.52 | 104 | 2.10 | 40 | 2.00 | 29 |
| 18 | | | 2.98 | 202 | 2.96 | 197 | 2.44 | 90 | 2.10 | 40 | | |
| 19 | | | | | 2.98 | 202 | 2.46 | 93 | 2.10 | 40 | 1.98 | 27 |
| 20 | | | | | 2.98 | 202 | 2.44 | 90 | 2.00 | 29 | 2.00 | 29 |
| 21 | | | | | 3.00 | 206 | | | 2.00 | 29 | | |
| 22 | | | | | 3.06 | 219 | 2.40 | 83 | 1.98 | 27 | | |
| 23 | | | | | 3.06 | 219 | 2.36 | 77 | 1.98 | 27 | | |
| 24 | | | | | 3.08 | 223 | 2.34 | 73 | 2.20 | 52 | 1.98 | 27 |
| 25 | | | | | | | 2.32 | 70 | 2.10 | 40 | 1.98 | 27 |
| 26 | | | | | 3.12 | 233 | | | 2.10 | 40 | 1.96 | 25 |
| 27 | | | 3.10 | 228 | 3.20 | 251 | | | 2.60 | 120 | 1.96 | 25 |
| 28 | | | | | 3.10 | 228 | 2.30 | 67 | 2.20 | 52 | 1.94 | 23 |
| 29 | 2.08 | 38 | 3.20 | 251 | | | 2.30 | 67 | 2.20 | 52 | | |
| 30 | | | 3.36 | 288 | | | 2.32 | 70 | 2.10 | 40 | | |
| 31 | | | | | | | 2.30 | 67 | 2.10 | 40 | | |

NOTE.—Discharge computed from a well-defined rating curve.

*Monthly discharge of American Fork near American Fork, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 43 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| February 15-29 | | | a16 | 0.372 | 0.21 | 476 | D. |
| March | | | a20 | .465 | .54 | 1,230 | D. |
| April | | | a30 | .698 | .78 | 1,790 | D. |
| May | | | 164 | 3.81 | 4.30 | 10,100 | C. |
| June | | | 254 | 5.91 | 6.59 | 15,100 | C. |
| July | 162 | 67 | 102 | 2.37 | 2.73 | 6,270 | B. |
| August | 120 | 27 | 47.9 | 1.11 | 1.28 | 2,950 | B. |
| September | | | 33.2 | .772 | .86 | 1,980 | B. |
| The period | | | | | | 39,900 | |

a Estimated.

NOTE.—Monthly means computed by interpolating discharge for days for which gage heights are missing. Accuracy low, because of infrequent gage heights.

### SOUTH FORK OF AMERICAN FORK NEAR AMERICAN FORK, UTAH.

**Location.**—In the NW. ¼ NW. ¼ sec. 30, T. 4 S., R. 3 E., Salt Lake base and meridian, about 150 feet above the confluence of the South Fork with American Fork, 3 miles above the Utah Power & Light Co.'s American Fork plant No. 2, 4½ miles above plant No. 1 at the mouth of the canyon, and 11½ miles from the town of American Fork.

**Records available.**—February 15, 1912, to September 30, 1912.

**Drainage area.**—Approximately 5.8 square miles.

**Gage.**—Vertical staff.

**Channel.**—Fairly permanent.

**Discharge measurements.**—Made by wading near gage.

**Winter flow.**—Shore ice forms at times, but probably has very little effect on gage heights. Winter flow is very low at times, owing to the stream freezing near the headwaters.

**Diversions.**—Above all diversions.

**Artificial control.**—None.

**Accuracy.**—Records rather poor, owing to infrequent discharge measurements and fragmentary gage heights for parts of the year.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

The following measurement was made by Martin and Gery:
February 15, 1912: Gage height, 0.21 foot; discharge, 1.26 second-feet.

*Daily gage height, in feet, and discharge, in second-feet, of South Fork of American Fork near American Fork, Utah, for year ending Sept. 30, 1912.*

| Day. | April. | | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | | | | | 0.92 | 33 | 0.62 | 16 | 0.48 | 9.3 |
| 2 | | | | | | | .88 | 31 | .60 | 15 | .48 | 9.3 |
| 3 | | | | | | | .86 | 29 | .60 | 15 | .48 | 9.3 |
| 4 | | | | | | | .80 | 25 | .58 | 14 | .48 | 9.3 |
| 5 | | | | | 1.24 | 58 | .78 | 24 | .58 | 14 | .48 | 9.3 |
| 6 | | | | | | | .78 | 24 | .56 | 13 | .48 | 9.3 |
| 7 | | | | | | | .78 | 24 | .56 | 13 | .46 | 8.6 |
| 8 | | | | | | | .78 | 24 | | | | |
| 9 | | | | | | | .78 | 24 | .56 | 13 | | |
| 10 | | | 0.62 | 16 | | | .78 | 24 | | | .48 | 9.3 |
| 11 | | | .66 | 18 | 1.30 | 63 | .76 | 23 | | | .48 | 9.3 |
| 12 | | | | | 1.20 | 54 | .78 | 24 | .54 | 12 | .46 | 8.6 |
| 13 | | | | | | | .78 | 24 | .54 | 12 | .48 | 9.3 |
| 14 | | | | | .98 | 38 | | | .54 | 12 | | |
| 15 | | | .78 | 24 | .96 | 36 | .76 | 23 | .52 | 11 | | |
| 16 | 0.30 | 3.5 | .96 | 36 | .92 | 33 | .70 | 20 | .52 | 11 | .46 | 8.6 |
| 17 | | | 1.02 | 40 | .86 | 29 | .70 | 20 | .52 | 11 | .46 | 8.6 |
| 18 | | | .98 | 38 | .88 | 31 | .70 | 20 | .50 | 10 | | |
| 19 | | | | | .90 | 32 | .70 | 20 | .50 | 10 | .46 | 8.6 |
| 20 | | | | | .90 | 32 | .68 | 19 | .50 | 10 | .46 | 8.6 |
| 21 | | | | | .94 | 35 | | | .50 | 10 | | |
| 22 | | | | | .96 | 36 | .68 | 19 | .48 | 9.3 | | |
| 23 | | | | | .96 | 36 | .66 | 18 | .48 | 9.3 | | |
| 24 | | | | | .98 | 38 | .66 | 18 | .50 | 10 | .46 | 8.6 |
| 25 | | | | | | | .64 | 17 | .50 | 10 | .46 | 8.6 |
| 26 | | | | | 1.02 | 40 | | | .52 | 11 | .44 | 7.9 |
| 27 | | | 1.00 | 39 | 1.08 | 45 | | | .56 | 13 | .44 | 7.9 |
| 28 | | | | | 1.00 | 39 | .60 | 15 | .54 | 12 | .42 | 7.2 |
| 29 | .36 | 5.3 | 1.06 | 43 | | | .60 | 15 | .54 | 12 | | |
| 30 | | | 1.28 | 61 | | | .62 | 16 | .52 | 11 | | |
| 31 | | | | | | | .60 | 15 | .48 | 9.3 | | |

NOTE.—Discharge determined from a well-defined curve.

*Monthly discharge of South Fork of American Fork near American Fork, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 5.8 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| February 15-29 | | | [a]1.2 | 0.207 | 0.12 | 35.7 | D. |
| March | | | [a]2.5 | .431 | .50 | 154 | D. |
| April | | | [a]4.5 | .776 | .87 | 268 | D. |
| May | | | 28.2 | 4.86 | 5.60 | 1,730 | C. |
| June | | | 45.7 | 7.88 | 8.79 | 2,720 | C. |
| July | 33 | 15 | 21.4 | 3.69 | 4.25 | 1,320 | B. |
| August | 16 | 9.3 | 11.8 | 2.03 | 2.34 | 726 | B. |
| September | | | 8.68 | 1.50 | 1.67 | 516 | B. |
| The period | | | | | | 7,470 | |

[a] Estimated.

NOTE.—Monthly means computed by interpolating discharge for days for which gage heights are missing.

### LITTLE COTTONWOOD CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—At the mouth of the canyon, about one-fourth mile below the county bridge, half a mile below Flagstaff smelting works, 1½ miles above Armstrong Creek, about one-fourth mile west of the SE. ¼ sec. 2, T. 3 S., R. 1 E., Salt Lake base and meridian.

**Records available.**—Fall of 1898 to September 30, 1912.

**Drainage area.**—27.7 square miles.

**Gage.**—Hub set level with weir crest; depth of water measured with carpenter's rule.

**Discharge measurements.**—Flow measured by two 15-foot Cippoletti wires.

**Winter flow.**—No ice at the weir.

**Diversions.**—The Despain ditches, one on each side of the stream, divert water about 1½ miles above the weir. These ditches irrigate one small farm and their flow is not included in the record. Nearly all the water is used below the station during the irrigating season.

**Artificial control.**—None.

**Cooperation.**—Records are furnished by the city engineer of Salt Lake City.

*Daily gage height, in feet, of Little Cottonwood Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | May. | June. | July. | Day. | May. | June. | July. | Day. | May. | June. | July. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 1.8 | 1.5 | 11 | ..... | 3.2 | 0.8 | 21 | ..... | 2.8 | ..... |
| 2 | ..... | 1.9 | 1.3 | 12 | ..... | 3.0 | .7 | 22 | ..... | 2.9 | ..... |
| 3 | ..... | 2.1 | 1.2 | 13 | ..... | 3.2 | .7 | 23 | ..... | 2.7 | ..... |
| 4 | ..... | 2.2 | 1.1 | 14 | ..... | 2.8 | .7 | 24 | ..... | 2.6 | ..... |
| 5 | ..... | 2.4 | 1.0 | 15 | ..... | 2.2 | ..... | 25 | ..... | 2.15 | ..... |
| 6 | ..... | 2.8 | 1.0 | 16 | ..... | 1.2 | ..... | 26 | ..... | 2.3 | 0.25 |
| 7 | ..... | 3.0 | 1.0 | 17 | ..... | 1.2 | ..... | 27 | ..... | 2.0 | ..... |
| 8 | ..... | 3.3 | 1.0 | 18 | ..... | 2.3 | ..... | 28 | ..... | 2.0 | ..... |
| 9 | ..... | 2.8 | .8 | 19 | ..... | 2.6 | ..... | 29 | 1.5 | 1.7 | ..... |
| 10 | ..... | 2.7 | .8 | 20 | ..... | 2.8 | ..... | 30 | 1.6 | 1.3 | ..... |
| | | | | | | | | 31 | 1.7 | ..... | ..... |

*Daily discharge, in second-feet, of Little Cottonwood Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 15.8 | 40 | 282 | 240 | | 38 |
| 2 | | | | 15.8 | | 295 | 217 | 65 | 36 |
| 3 | | | 12.6 | 16.2 | | 320 | 205 | | 35 |
| 4 | | | | 16.6 | | 340 | 192 | | 36 |
| 5 | | | | 16.6 | | 390 | 180 | | 35 |
| 6 | | | | 17 | | 510 | 180 | | 34 |
| 7 | 13.7 | | | 17.5 | | 585 | 180 | | 34 |
| 8 | | | | 18.3 | | 705 | 180 | | 28 |
| 9 | | | | 21.9 | | 510 | 156 | 40 | 27 |
| 10 | | | | 25.6 | | 480 | 156 | 58 | 29 |
| 11 | | 12.6 | | 33.7 | | 665 | 156 | 59 | 29 |
| 12 | | | | 33.7 | | 585 | 145 | 58 | 28 |
| 13 | | | 13.1 | 31.6 | 106 | 665 | 145 | 58 | 27 |
| 14 | | | | 32.6 | | 510 | 145 | 59 | 27 |
| 15 | 13.9 | | | 29.6 | | 335 | | 57 | 29 |
| 16 | | | | 29.1 | | 205 | | 60 | 28 |
| 17 | | | 13.4 | 29.2 | | 205 | | 58 | 30 |
| 18 | | 12.2 | 13.4 | 31.3 | | 360 | | 68 | 31 |
| 19 | 12.6 | | 13.4 | 31.3 | | 446 | | 66 | 29 |
| 20 | | | 13.8 | 29.2 | | 510 | | 64 | 28 |
| 21 | | | 13.8 | 29.2 | | 510 | | 63 | 27 |
| 22 | | | 13.8 | 29.2 | | 545 | | 53 | 27 |
| 23 | | | 14.2 | | | 480 | | 45 | 28 |
| 24 | | | 14.2 | | | 440 | 100 | 36 | 27 |
| 25 | | | 14.2 | | | 330 | | 32 | 27 |
| 26 | | | 15.0 | | | 360 | 89 | 32 | 26 |
| 27 | | | 15.0 | | | 308 | | 144 | 26 |
| 28 | | | 15.4 | | | 308 | | 74 | 25 |
| 29 | 12.9 | | 15.4 | | 244 | 235 | | 60 | 23 |
| 30 | | | 15.8 | | 255 | 217 | | 55 | 21 |
| 31 | | | 15.8 | | 238 | | 70 | 53 | |

NOTE.—Discharge May 1 to Aug. 9 computed by engineers of the United States Geological Survey from gage heights and discharge measurements, as the flow over the weirs was so obstructed by sand and gravel fills behind, that weir formula was not applicable. Daily discharge records during latter part of 1911 as published in Water-Supply Paper 310, p. 48, are of doubtful accuracy because of failure to consider leakage underneath weir in making dischargecomputations.

*Monthly discharge of Little Cottonwood Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 27.7 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| January | 13.9 | 12.9 | 13.3 | 0.480 | 0.55 | 818 | B. |
| February | 12.8 | 12.2 | 12.5 | .451 | .49 | 719 | B. |
| March | 15.8 | 12.5 | 13.6 | .491 | .57 | 836 | B. |
| April | 39 | 15.8 | 27.7 | 1.00 | 1.12 | 1,650 | A. |
| May | 268 | 40 | 141 | 5.09 | 5.87 | 8,670 | D. |
| June | 705 | 205 | 422 | 15.2 | 16.96 | 25,100 | B. |
| July | 240 | 70 | 137 | 4.95 | 5.71 | 8,420 | B. |
| August | 144 | 32 | 58.2 | 2.10 | 2.42 | 3,580 | A. |
| September | 38 | 21 | 29.2 | 1.05 | 1.17 | 1,740 | A. |
| The period | | | | | | | |

NOTE.—Monthly discharge computed by engineers of the United States Geological Survey. Records during latter part of 1911 as published in Water-Supply Paper 310, p. 48, are of doubtful accuracy. See note to table of daily discharge.

### BIG COTTONWOOD CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—In the SW. ¼ NE. ¼ sec. 25, T. 2 S., R. 1 E., Salt Lake base and meridian, at the mouth of the canyon, just below the county bridge.

**Records available.**—Fall of 1898 to September 30, 1912.

**Drainage area.**—48.5 square miles.

**Gage.**—Vertical graduated glass tube set on lower side of dam.

**Discharge measurements.**—Made with two 15-foot Cippoletti weirs.

**Floods.**—The maximum discharge record is 835 second-feet, which occurred June 6, 1909.

**Winter flow.**—No ice forms at the weir.

**Diversions.**—The Butler ditch, entitled to about 2 second-feet during irrigating season, takes out water from the left bank about three-fourths of a mile above the weir. Its flow is included in discharge record to show total run-off from the drainage area.

**Artificial control.**—None.

**Cooperation.**—Records furnished by the city engineer of Salt Lake City.

The water of the stream is used for irrigation and for municipal supply in Salt Lake City.

*Daily discharge, in second-feet, of Big Cottonwood Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 49.31 | 34.64 | 26.52 | 24 | 23 | 24 | 36 | 78 | 380 | 238 | 88 | 58 |
| 2 | 50.50 | 29.47 | 26.52 | 23 | 23 | 25 | 41 | 75 | 444 | 196 | 88 | 57 |
| 3 | 48.12 | 29.47 | 26.52 | 20 | 23 | 25 | 48 | 72 | 479 | 184 | 87 | 53 |
| 4 | 46.94 | 29.47 | 25.55 | 22 | 24 | 24 | 55 | 69 | 575 | 170 | 83 | 58 |
| 5 | 45.77 | 34.64 | 26.52 | 23 | 24 | 24 | 58 | 68 | 570 | 141 | 78 | 55 |
| 6 | 43.46 | 31.51 | 26.52 | 26 | 24 | 23 | 55 | 79 | 642 | 155 | 73 | 54 |
| 7 | 43.46 | 28.48 | 25.55 | 26 | 24 | 23 | 55 | 90 | 636 | 142 | 72 | 56 |
| 8 | 40.08 | 30.49 | 25.55 | 23 | 23 | 22 | 62 | 105 | 730 | 146 | 70 | 52 |
| 9 | 38.97 | 31.51 | 25.55 | 27 | 24 | 23 | 78 | 122 | 588 | 144 | 69 | 62 |
| 10 | 43.46 | 31.51 | 26.52 | 29 | 25 | 25 | 90 | 184 | 532 | 138 | 67 | 60 |
| 11 | 44.61 | 28.48 | 26.52 | 27 | 25 | 30 | 80 | 146 | 472 | 140 | 66 | 58 |
| 12 | 42.33 | 30.49 | 25.55 | 26 | 24 | 28 | 72 | 162 | 450 | 136 | 65 | 56 |
| 13 | 42.33 | 29.47 | 25.55 | 26 | 24 | 26 | 70 | 158 | 512 | 126 | 66 | 55 |
| 14 | 35.71 | 29.47 | 23.66 | 26 | 25 | 26 | 68 | 159 | 418 | 124 | 68 | 53 |
| 15 | 37.87 | 28.48 | 25.55 | 26 | 24 | 25 | 70 | 178 | 366 | 124 | 70 | 53 |
| 16 | 37.87 | 32.54 | 25.55 | 26 | 25 | 26 | 66 | 210 | 305 | 113 | 69 | 52 |
| 17 | 36.79 | 31.51 | 25.55 | 25 | 24 | 22 | 66 | 232 | 272 | 116 | 68 | 51 |
| 18 | 35.71 | 31.51 | 25.55 | 24 | 26 | 28 | 68 | 278 | 267 | 108 | 66 | 49 |
| 19 | 34.64 | 30.49 | 23.66 | 24 | 26 | 27 | 68 | 320 | 306 | 110 | 70 | 48 |
| 20 | 34.64 | 29.47 | 24.60 | 24 | 23 | 27 | 67 | 359 | 326 | 102 | 64 | 46 |
| 21 | 33.59 | 30.49 | 24.60 | 24 | 26 | 26 | 58 | 330 | 349 | 102 | 63 | 45 |
| 22 | 33.59 | 29.47 | 23.66 | 25 | 25 | 26 | 66 | 266 | 374 | 100 | 68 | 45 |
| 23 | 34.64 | 26.52 | 24.60 | 25 | 25 | 26 | 57 | 244 | 388 | 94 | 64 | 46 |
| 24 | 34.64 | 28.48 | 24.60 | 25 | 25 | 28 | 59 | 259 | 367 | 92 | 59 | 46 |
| 25 | 32.54 | 27.49 | 23.66 | 25 | 25 | 29 | 62 | 292 | 349 | 98 | 59 | 45 |
| 26 | 32.54 | 28.48 | 21.82 | 25 | 20 | 32 | 59 | 313 | 320 | 88 | 62 | 45 |
| 27 | 34.64 | 27.49 | 25.55 | 25 | 24 | 31 | 60 | 313 | 297 | 79 | 67 | 45 |
| 28 | 32.54 | 20.91 | 24.60 | 24 | 23 | 35 | 64 | 334 | 286 | 76 | 69 | 45 |
| 29 | 31.51 | 22.73 | 24.60 | 24 | 20 | 38 | 64 | 386 | 296 | 73 | 66 | 44 |
| 30 | 29.47 | 23.66 | 24.60 | 24 | ..... | 38 | 74 | 475 | 272 | 98 | 63 | 42 |
| 31 | 31.51 | ..... | 23.66 | 24 | ..... | 35 | ..... | 428 | ..... | 72 | 61 | ..... |

Discharge interpolated Mar. 3–7, 9, May 31, Aug. 2, 4–5, 7–11, 13–14, 16.

*Monthly discharge of Big Cottonwood Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 48.5 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October | 50.5 | 29.5 | 38.4 | 0.792 | 0.91 | 2,360 |
| November | 34.6 | 20.9 | 29.3 | .604 | .67 | 1,740 |
| December | 26.5 | 21.8 | 25.1 | .518 | .60 | 1,540 |
| January | 29 | 20 | 24.7 | .509 | .59 | 1,520 |
| February | 26 | 20 | 24.0 | .495 | .53 | 1,380 |
| March | 38 | 22 | 27.3 | .563 | .65 | 1,680 |
| April | 90 | 36 | 63.2 | 1.30 | 1.45 | 3,760 |
| May | 475 | 68 | 219 | 4.52 | 5.21 | 13,500 |
| June | 730 | 267 | 419 | 8.64 | 9.64 | 24,900 |
| July | 238 | 72 | 123 | 2.54 | 2.93 | 7,560 |
| August | 88 | 59 | 69.3 | 1.43 | 1.65 | 4,260 |
| September | 62 | 42 | 51.1 | 1.05 | 1.17 | 3,040 |
| The year | 730 | 20 | 92.8 | 1.91 | 26.00 | 67,200 |

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey.

### MILL CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—Near the mouth of the canyon, at a weir in the creek in the SW. ¼ NW. ¼ sec. 31, T. 1 S., R. 2 E., Salt Lake base and meridian, and at a weir in the power-plant tailrace in the SE. ¼ NE. ¼ sec. 36, T. 1 S., R. 1 E.

**Records available.**—Autumn of 1898 to September 30, 1912.

**Drainage area.**—21.3 square miles.

**Gage.**—Depth of water measured with a carpenter's rule from a hub set level with crest in creek and by a hook gage in tailrace.

**Discharge measurements.**—Computed flow over a 12.5-foot Cippoletti weir in the main stream and a 5-foot rectangular weir in the tailrace of the power plant.

**Floods.**—On June 17 and 18, 1909, the discharge of the creek was 112 second-feet.

**Winter flow.**—No ice forms at the weir.

**Diversions.**—Most of the water is used for irrigation below the station during the summer season. Records include flow in the power-plant tailrace, thus giving total run-off from the drainage area.

**Artificial control.**—None.

**Cooperation.**—Records furnished by the city engineer of Salt Lake City.

*Daily discharge, in second-feet, of Mill Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.5 | 10.5 | 9.2 | 16.6 | 25 | 62 | 29 | 22 | 17.4 |
| 2 | 11.5 | 10.5 | 9.2 | 17.6 | 25 | 69 | 29 | 24 | 17.4 |
| 3 | 10.4 | 10.5 | 9.2 | 24.2 | 25 | 68 | 34 | 24 | 17.4 |
| 4 | 10.4 | 10.5 | 9.2 | 24.6 | 29 | 72 | 34 | 24 | 17.4 |
| 5 | 10.4 | 10.9 | 9.2 | 17.0 | 29 | 76 | 28 | 24 | 17.4 |
| 6 | 11.2 | 9.4 | 9.2 | 17.6 | 26 | 74 | 21 | 24 | 17.4 |
| 7 | 11.2 | 9.4 | 9.2 | 18.0 | 26 | 86 | 21 | 22 | 16.8 |
| 8 | 11.1 | 9.4 | 9.3 | 28 | 26 | 92 | 21 | 21 | 16.8 |
| 9 | 11.0 | 9.4 | 9.3 | 30.9 | 25 | 92 | 23 | 21 | 16.8 |
| 10 | 11.9 | 9.5 | 9.3 | 24.5 | 29 | 85 | 24 | 21 | 16.8 |

*Daily discharge, in second-feet, of Mill Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 11.9 | 9.5 | 9.7 | 24.5 | 36 | 81 | 26 | 21 | 16.8 |
| 12 | 12.4 | 9.5 | 9.7 | 24.5 | 36 | 78 | 28 | 21 | 16.8 |
| 13 | 12.4 | 9.5 | 9.7 | 24.5 | 37 | 77 | 27 | 21 | 16.8 |
| 14 | 12.4 | 9.3 | 9.7 | 24.5 | 37 | 73 | 27 | 23 | 16.7 |
| 15 | 10.9 | 9.3 | 9.7 | 24.5 | 37 | 72 | 27 | 23 | 16.7 |
| 16 | 10.9 | 9.3 | 10.3 | 24.5 | 39 | 69 | 26 | 22 | 16.7 |
| 17 | 10.9 | 9.9 | 11.0 | 24.5 | 39 | 45 | 27 | 23 | 17.0 |
| 18 | 10.9 | 9.8 | 11.7 | 24.5 | 42 | 44 | 23 | 23 | 17.0 |
| 19 | 10.9 | 9.2 | 11.7 | 27.7 | 42 | 46 | 26 | 20 | 17.0 |
| 20 | 10.6 | 9.0 | 11.7 | 27.7 | 42 | 46 | 24 | 18 | 17.0 |
| 21 | 10.6 | 9.0 | 11.7 | 27.7 | 40 | 45 | 24 | 18 | 16.9 |
| 22 | 10.6 | 9.0 | 11.7 | 27.7 | 40 | 43 | 22 | 18 | 16.9 |
| 23 | 10.5 | 9.4 | 11.7 | 26.1 | 40 | 44 | 22 | 18 | 16.9 |
| 24 | 10.5 | 9.4 | 11.7 | 26.1 | 42 | 39 | 20 | 18 | 18.4 |
| 25 | 10.3 | 9.4 | 11.7 | 26.1 | 56 | 37 | 20 | 18 | 18.4 |
| 26 | 10.3 | 9.4 | 12.9 | 22.3 | 56 | 34 | 20 | 18 | 18.4 |
| 27 | 10.3 | 9.4 | 13.7 | 22.3 | 56 | 35 | 20 | 18 | 18.4 |
| 28 | 10.8 | 9.2 | 14.8 | 22.3 | 56 | 33 | 19 | 18 | 16.1 |
| 29 | 11.5 | 9.2 | 13.7 | 20.9 | 106 | 32 | 19 | 18 | 16.1 |
| 30 | 11.3 | ..... | 12.5 | 20.9 | 115 | 32 | 22 | 18 | 18.0 |
| 31 | 10.9 | ..... | 13.8 | ..... | 121 | ..... | 22 | 17 | ..... |

NOTE.—Discharge interpolated Mar. 16-17. The daily discharge includes both the flow in the creek and in the tailrace. Daily discharge for 1911 as published in Water Supply Paper 310, p. 50, probably unreliable.

*Monthly discharge of Mill Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 21.3 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| January | 12.4 | 10.3 | 11.0 | 0.516 | 0.59 | 676 | A. |
| February | 10.9 | 9.0 | 9.58 | .450 | .49 | 551 | A. |
| March | 14.8 | 9.2 | 10.9 | .512 | .59 | 670 | A. |
| April | 30.9 | 16.6 | 23.8 | 1.12 | 1.25 | 1,420 | A. |
| May | 121 | 25 | 44.5 | 2.09 | 2.41 | 2,740 | A. |
| June | 92 | 32 | 59.4 | 2.79 | 3.11 | 3,530 | A. |
| July | 34 | 19 | 24.4 | 1.15 | 1.33 | 1,500 | A. |
| August | 24 | 17 | 20.6 | .967 | 1.11 | 1,270 | A. |
| September | 18.4 | 16.1 | 17.2 | .807 | .90 | 1,020 | A. |
| The period | ..... | ..... | ..... | ..... | ..... | 13,400 | |

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey. Records for 1911 as published in Water-Supply Paper No. 310, p. 50, are of doubtful accuracy.

### PARLEYS CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—In the northwest corner of the NW. ¼ NW. ¼ sec. 25, T. 1 S., R. 1 E., Salt Lake base and meridian, at the mouth of the canyon, just above the intakes of the city waterworks.

**Records available.**—Autumn of 1898 to September 30, 1912.

**Drainage area.**—50.1 square miles.

**Gage.**—Hook.

**Discharge measurements.**—Determined by means of two 10-foot Cippoletti weirs.

**Floods.**—On June 6 and 7, 1909, there was a maximum flow of 274 second-feet.

**Winter flow.**—No ice forms at the weir.

**Diversions.**—Part of the city water supply is taken from this creek and any surplus water is used for irrigation during the summer season. The Parley's surplus ditch diverts water from the left bank about 1 mile above the weir and its flow is included in the records of daily discharge.

**Artificial control.**—None.

**Cooperation.**—Records furnished by the city engineer of Salt Lake City.

*Daily discharge, in second-feet, of Parleys Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.06 | 7.92 | 6.48 | 7.4 | 8.9 | 8.4 | 17.7 | 78.7 | 178 | 52 | 34 | 18.3 |
| 2 | 12.76 | 7.92 | 6.48 | 7.4 | 6.4 | 7.4 | 20.3 | 70.4 | 187 | 51 | 31 | 17.7 |
| 3 | 10.52 | 7.92 | 6.48 | 5.0 | 8.9 | 11.6 | 21.7 | 64.3 | 189 | 49 | 33 | 17.7 |
| 4 | 11.06 | 7.92 | 7.43 | 5.0 | 6.4 | 8.4 | 32.1 | 60.4 | 188 | 46 | 29 | 18.3 |
| 5 | 11.06 | 7.92 | 8.42 | 4.8 | 7.4 | 8.4 | 40.3 | 49.1 | 181 | 46 | 27.5 | 18.3 |
| 6 | 11.62 | 8.42 | 10.52 | 6.4 | 8.9 | 8.4 | 42.0 | 70.3 | 175 | 43 | 26.0 | 17.7 |
| 7 | 11.62 | 8.42 | 12.76 | 6.4 | 8.9 | 10.5 | 42 | 77 | 175 | 36 | 25.2 | 17.0 |
| 8 | 11.62 | 8.93 | 11.06 | 3.8 | 5.0 | 9.4 | 50.9 | 99 | 169 | 36 | 24.5 | 17.0 |
| 9 | 11.62 | 9.45 | 10.89 | 8.9 | 6.9 | 9.4 | 56.5 | 120 | 168 | 32 | 24.5 | 21.7 |
| 10 | 11.62 | 8.93 | 10.72 | 8.9 | 10.5 | 10.0 | 108 | 120 | 162 | 32 | 24.5 | 19.0 |
| 11 | 12.19 | 6.95 | 10.55 | 8.9 | 15.8 | 9.4 | 74.5 | 149 | 152 | 29 | 23.1 | 17.7 |
| 12 | 12.76 | 4.31 | 10.38 | 9.5 | 8.9 | 10.5 | 56.5 | 156 | 132 | 29 | 22.4 | 17.7 |
| 13 | 12.19 | 9.45 | 10.21 | 9.5 | 8.9 | 10.5 | 54.6 | 164 | 145 | 30 | 21.7 | 17.7 |
| 14 | 11.06 | 9.45 | 10.04 | 9.5 | 8.4 | 10.5 | 43.7 | 143 | 129 | 30 | 21.0 | 17.7 |
| 15 | 10.52 | 8.93 | 9.86 | 10.0 | 7.9 | 10.5 | 43.7 | 156 | 124 | 30 | 27.5 | 17.7 |
| 16 | 9.98 | 8.93 | 9.68 | 9.5 | 8.4 | 10.5 | 54.6 | 168 | 123 | 28 | 20.3 | 17.0 |
| 17 | 9.45 | 8.93 | 9.50 | 10.6 | 8.4 | 10.5 | 54.6 | 168 | 116 | 28 | 19.6 | 17.7 |
| 18 | 8.93 | 9.45 | 8.93 | 9.5 | 24.5 | 10.5 | 49.1 | 172 | 110 | 28 | 23.1 | 17.0 |
| 19 | 8.93 | 9.45 | 4.60 | 9.5 | 10.5 | 11.6 | 49.1 | 177 | 105 | 76 | 20.3 | 17.0 |
| 20 | 8.42 | 9.45 | 4.81 | 7.9 | 13.9 | 12.8 | 49.1 | 226 | 93 | 44 | 20.3 | 17.0 |
| 21 | 8.42 | 9.45 | 7.38 | 8.9 | 11.6 | 10.5 | 47.3 | 207 | 74 | 40 | 20.3 | 17.0 |
| 22 | 7.92 | 8.42 | 5.22 | 8.9 | 9.4 | 13.9 | 44.6 | 177 | 72 | 40 | 19.6 | 17.0 |
| 23 | 7.92 | 6.48 | 8.42 | 8.9 | 8.4 | 12.2 | 47.3 | 143 | 71 | 44 | 19.6 | 17.0 |
| 24 | 8.42 | 6.02 | 8.42 | 8.9 | 8.4 | 11.6 | 49.1 | 171 | 68 | 35 | 19.0 | 16.4 |
| 25 | 8.42 | 6.08 | 8.42 | 8.9 | 2.5 | 12.8 | 49.1 | 149 | 63 | 34 | 19.0 | 16.4 |
| 26 | 8.93 | 6.14 | 6.38 | 8.9 | 3.9 | 12.8 | 49.1 | 154 | 59 | 34 | 18.3 | 16.4 |
| 27 | 8.93 | 6.20 | 5.22 | 8.9 | 8.9 | 14.5 | 52.8 | 149 | 56 | 34 | 22.4 | 16.4 |
| 28 | 8.93 | 6.26 | 11.74 | 8.9 | 6.5 | 14.5 | 54.6 | 141 | 56 | 37 | 21.0 | 16.4 |
| 29 | 8.93 | 6.33 | 6.38 | 8.9 | 2.5 | 20.3 | 60.4 | 147 | 59 | 37 | 19.0 | 15.8 |
| 30 | 8.42 | 6.40 | 6.38 | 8.9 | ..... | 20.3 | 70.4 | 199 | 55 | 37 | 19.0 | 15.8 |
| 31 | 8.42 | ..... | 6.38 | 8.9 | ..... | 19.0 | ..... | 187 | ..... | 37 | 19.0 | ..... |

*Monthly discharge of Parleys Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 50.1 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October | 12.8 | 7.9 | 10.1 | 0.202 | 0.23 | 621 |
| November | 9.4 | 4.3 | 7.89 | .157 | .18 | 469 |
| December | 12.8 | 4.6 | 8.39 | .167 | .19 | 516 |
| January | 10.6 | 5.0 | 8.27 | .165 | .19 | 508 |
| February | 24.5 | 2.5 | 8.82 | .176 | .19 | 507 |
| March | 20.3 | 7.4 | 11.7 | .234 | .27 | 719 |
| April | 108 | 17.7 | 49.5 | .988 | 1.10 | 2,950 |
| May | 226 | 49.1 | 139 | 2.77 | 3.19 | 8,550 |
| June | 189 | 55.0 | 121 | 2.42 | 2.70 | 7,200 |
| July | 76 | 28.0 | 38.2 | .762 | .88 | 2,350 |
| August | 34 | 18.3 | 23.1 | .461 | .53 | 1,420 |
| September | 21.7 | 15.8 | 17.4 | .347 | .39 | 1,040 |
| The year | 226 | 2.5 | 36.9 | .737 | 10.04 | 26,800 |

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey.

### EMIGRATION CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—In the SW. ¼ NW. ¼ sec. 11, T. 1 S., R. 1 E., Salt Lake base and meridian, about half a mile below the mouth of canyon and below Wagener's brewery. The weir in the pipe line is about half a mile east of Wagener's brewery, in a tank house.

**Records available.**—Autumn of 1898 to September 30, 1912.

**Drainage area.**—29 square miles.

**Gage.**—Graduated copper plates used as staff gages in pipe line and in creek.

**Discharge measurements.**—Computed from flow over two Cippoletti weirs, 2.5 and 5 feet long, in creek, and a 2-foot rectangular weir in pipe line from spring just inside mouth of canyon.

**Diversions.**—The city has obtained a small part of its water supply by developing a spring a short distance up the canyon, keeping the water out of the creek by means of a pipe line. This water is included in the total run-off record.

**Artificial control.**—None.

**Cooperation.**—Records furnished by city engineer of Salt Lake City.

*Daily discharge, in second-feet, of Emigration Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 1.72 | 2.22 | ..... | 28 | 10.4 | 7.7 | 6.2 |
| 2 | 2.0 | 1.72 | 2.22 | ..... | 24 | 10.4 | 7.7 | 6.2 |
| 3 | 2.0 | 1.72 | 2.22 | ..... | 24 | 10.9 | 7.7 | 6.2 |
| 4 | 2.0 | 1.72 | 2.22 | ..... | 20 | 10.9 | 7.2 | 6.2 |
| 5 | 2.0 | 1.72 | 2.22 | ..... | 22 | 10.4 | 7.2 | 6.2 |
| 6 | 2.0 | 1.72 | 2.22 | ..... | 20 | 10.9 | 7.0 | 6.2 |
| 7 | 2.0 | 2.04 | 2.22 | ..... | 20 | 10.4 | 7.0 | 6.2 |
| 8 | 2.0 | 2.36 | 2.22 | 30 | 20 | 10.4 | 6.6 | 6.2 |
| 9 | 2.0 | 2.31 | 2.22 | 36 | 20 | 10.4 | 6.6 | 7.7 |
| 10 | 2.0 | 2.26 | 2.22 | 38 | 19 | 10.1 | 6.6 | 7.0 |
| 11 | 2.0 | 2.22 | 2.22 | 40 | 18 | 10.1 | 6.6 | 6.6 |
| 12 | 2.0 | 2.22 | 2.22 | 42 | 18 | 9.6 | 6.6 | 6.2 |
| 13 | 2.0 | 2.22 | 2.22 | 45 | 21 | 8.9 | 6.6 | 6.2 |
| 14 | 2.0 | 2.22 | 2.22 | 43 | 18 | 8.6 | 6.6 | 6.2 |
| 15 | 2.0 | 2.22 | 2.47 | 44 | 18 | 8.4 | 8.4 | 6.2 |
| 16 | 2.0 | 2.22 | 2.54 | 45 | 17 | 8.4 | 7.0 | 6.2 |
| 17 | 2.0 | 2.22 | 2.60 | 46 | 15.9 | 8.4 | 7.7 | 6.2 |
| 18 | 2.0 | 2.22 | 2.60 | 45 | 15.9 | 8.4 | 8.4 | 6.2 |
| 19 | 1.72 | 2.22 | 2.60 | 43 | 14.7 | 8.4 | 7.0 | 6.2 |
| 20 | 1.72 | 2.22 | 2.60 | 41 | 13.5 | 9.9 | 6.6 | 6.2 |
| 21 | 1.72 | 2.22 | 2.60 | 40 | 14.7 | 8.4 | 6.2 | 6.2 |
| 22 | 1.72 | 2.22 | 2.64 | 37 | 14.7 | 7.7 | 6.2 | 6.1 |
| 23 | 1.72 | 2.22 | 2.68 | 33 | 12.2 | 7.7 | 6.2 | 6.1 |
| 24 | 1.72 | 2.22 | 2.72 | 30 | 12.2 | 7.7 | 6.2 | 6.1 |
| 25 | 1.72 | 2.22 | 2.92 | 30 | 12.2 | 7.2 | 6.2 | 6.1 |
| 26 | 1.72 | 2.22 | 3.12 | 29 | 11.1 | 7.2 | 6.2 | 6.1 |
| 27 | 1.72 | 2.22 | 3.32 | 23 | 11.1 | 7.2 | 8.4 | 6.1 |
| 28 | 1.72 | 2.22 | 3.32 | 23 | 11.1 | 7.2 | 6.2 | 6.1 |
| 29 | 1.72 | 2.22 | 3.32 | 24 | 11.1 | 7.2 | 6.6 | 6.1 |
| 30 | 1.72 | ..... | 4.07 | 27 | 10.2 | 7.2 | 6.2 | 6.1 |
| 31 | 1.72 | ..... | 4.82 | 25 | ..... | 7.2 | 6.2 | ..... |

NOTE.—The record includes both the flow in the creek and in the city pipe line. No records Apr. 1 to May 7. Daily discharge records for later part of 1911 as published in Water-Supply Paper 310, pp. 52–53, are believed to be unreliable.

*Monthly discharge of Emigration Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Month. | Mean (discharge in second-feet). | Run-off (total in acre-feet). | Month. | Mean (discharge in second-feet). | Run-off (total in acre-feet). |
|---|---|---|---|---|---|
| January | 1.88 | 116 | June | 16.9 | 1,010 |
| February | 2.12 | 122 | July | 8.91 | 548 |
| March | 2.64 | 162 | August | 6.89 | 424 |
| May 8–31 | 35.8 | 1,700 | September | 6.26 | 372 |

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey. Records for later part of 1911 of doubtful accuracy.

### CITY CREEK NEAR SALT LAKE CITY, UTAH.

**Location.**—In the southeast corner of the SE. ¼ sec. 16, T. 1 N., R. 1 E., Salt Lake base and meridian, about 4 miles above the mouth of canyon and just above the highest point of diversion into the city water system.

**Records available.**—Fall of 1898 to September 30, 1912.

**Drainage area.**—19.2 square miles.

**Gage.**—Hook.

**Discharge measurements.**—Computed by means of two 5-foot Cippoletti weirs.

**Floods.**—There was a maximum discharge of 132 second-feet in May, 1907.

**Winter flow.**—No ice forms at the weirs.

**Diversions.**—All the water is diverted below the weirs for city water supply except during the spring floods, when the surplus water wastes through the streets of Salt Lake City to Jordan River.

**Artificial control.**—None.

**Cooperation.**—Records are furnished by the city engineer of Salt Lake City.

*Daily discharge, in second-feet, of City Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 6.97 | 6.09 | 5.53 | 5.3 | 5.3 | 5.0 | 8.5 | 17.8 | 79.2 | 30.7 | 16.4 | 11.2 |
| 2 | 6.67 | 6.09 | 5.53 | 5.3 | 5.3 | 5.0 | 9.3 | 17.6 | 77.9 | 29.5 | 16.2 | 11.0 |
| 3 | 6.67 | 6.09 | 5.53 | 5.3 | 5.3 | 5.0 | 11.5 | 17.6 | 81.0 | 28.5 | 15.8 | 10.8 |
| 4 | 6.52 | 6.09 | 5.53 | 5.0 | 5.3 | 5.1 | 12.8 | 16.8 | 85.7 | 27.6 | 15.6 | 10.8 |
| 5 | 6.52 | 6.09 | 5.53 | 5.0 | 5.3 | 5.3 | 13.0 | 16.0 | 88.2 | 26.6 | 15.4 | 10.8 |
| 6 | 6.52 | 6.09 | 5.53 | 5.0 | 5.3 | 5.3 | 11.9 | 16.8 | 89.6 | 26.1 | 15.3 | 10.8 |
| 7 | 6.52 | 6.09 | 5.53 | 5.1 | 5.3 | 5.5 | 11.9 | 20.0 | 91.3 | 25.6 | 15.1 | 10.7 |
| 8 | 6.38 | 6.38 | 5.53 | 5.3 | 5.3 | 5.5 | 14.5 | 23.0 | 92.4 | 25.2 | 14.7 | 10.5 |
| 9 | 6.38 | 6.38 | 5.53 | 5.3 | 5.3 | 5.5 | 16.8 | 25.8 | 90.6 | 24.3 | 14.5 | 11.2 |
| 10 | 6.97 | 6.38 | 5.53 | 5.3 | 5.5 | 5.5 | 19.3 | 28.0 | 85.0 | 23.8 | 14.5 | 10.5 |
| 11 | 6.67 | 5.95 | 5.53 | 5.3 | 5.3 | 5.8 | 16.0 | 31.8 | 79.6 | 23.4 | 14.3 | 10.3 |
| 12 | 6.67 | 5.81 | 5.53 | 5.3 | 5.3 | 5.5 | 14.9 | 34.7 | 74.0 | 23.0 | 14.1 | 10.2 |
| 13 | 6.52 | 5.81 | 5.53 | 5.3 | 5.3 | 5.5 | 14.1 | 33.7 | 71.7 | 22.1 | 13.9 | 10.2 |
| 14 | 6.38 | 5.81 | 5.53 | 5.3 | 5.3 | 5.5 | 13.2 | 33.7 | 67.8 | 21.6 | 13.7 | 10.2 |
| 15 | 6.38 | 5.81 | 5.53 | 5.3 | 5.3 | 5.3 | 12.6 | 36.4 | 64.6 | 21.4 | 13.7 | 10.0 |
| 16 | 6.38 | 5.81 | 5.53 | 5.3 | 5.3 | 5.5 | 12.6 | 40.2 | 60.3 | 20.8 | 13.4 | 9.8 |
| 17 | 6.38 | 5.81 | 5.53 | 5.3 | 5.3 | 5.7 | 13.0 | 46.8 | 54.9 | 20.4 | 13.4 | 9.8 |
| 18 | 6.38 | 5.81 | 5.53 | 5.3 | 5.7 | 5.8 | 14.5 | 54.9 | 51.6 | 19.9 | 13.6 | 9.6 |
| 19 | 6.38 | 5.81 | 5.53 | 5.3 | 5.5 | 5.8 | 14.6 | 62.7 | 48.8 | 20.4 | 13.2 | 9.5 |
| 20 | 6.38 | 5.81 | 5.26 | 5.3 | 5.3 | 5.8 | 14.1 | 70.7 | 46.4 | 19.9 | 12.8 | 9.5 |
| 21 | 6.38 | 5.95 | 5.26 | 5.3 | 5.3 | 5.5 | 13.4 | 74.3 | 44.0 | 19.5 | 12.4 | 9.5 |
| 22 | 6.38 | 6.09 | 5.26 | 5.3 | 5.3 | 5.5 | 13.0 | 69.8 | 42.6 | 19.0 | 12.4 | 9.5 |
| 23 | 6.38 | 6.09 | 5.26 | 5.3 | 5.3 | 5.5 | 12.6 | 63.0 | 41.3 | 18.6 | 12.4 | 9.3 |
| 24 | 6.38 | 5.81 | 5.26 | 5.3 | 5.0 | 6.1 | 13.7 | 58.5 | 39.7 | 18.2 | 12.1 | 9.2 |
| 25 | 6.38 | 5.81 | 5.26 | 5.3 | 5.0 | 6.7 | 14.5 | 60.3 | 38.6 | 17.8 | 11.9 | 9.2 |
| 26 | 6.38 | 5.81 | 5.26 | 5.3 | 5.0 | 7.6 | 14.1 | 63.4 | 36.9 | 17.4 | 11.9 | 9.2 |
| 27 | 6.09 | 5.81 | 5.26 | 5.3 | 5.0 | 4.7 | 14.1 | 67.2 | 35.2 | 17.2 | 11.9 | 9.0 |
| 28 | 6.09 | 5.81 | 5.26 | 5.3 | 5.0 | 8.5 | 15.0 | 69.1 | 33.9 | 17.2 | 11.7 | 8.8 |
| 29 | 6.09 | 5.53 | 5.26 | 5.3 | 5.0 | 6.1 | 16.0 | 72.2 | 32.9 | 17.2 | 11.6 | 8.8 |
| 30 | 6.09 | 5.53 | 5.26 | 5.3 | ..... | 9.2 | 16.4 | 78.6 | 31.9 | 17.0 | 11.4 | 8.8 |
| 31 | 6.09 | ..... | 5.26 | 5.3 | ..... | 8.8 | ..... | 79.6 | ..... | 16.6 | 11.2 | ..... |

*Monthly discharge of City Creek near Salt Lake City, Utah, for year ending Sept. 30, 1912.*

[Drainage area, 19.2 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October | 6.97 | 6.09 | 6.43 | 0.334 | 0.39 | 395 |
| November | 6.38 | 5.53 | 5.94 | .309 | .34 | 353 |
| December | 5.53 | 5.26 | 5.42 | .282 | .33 | 333 |
| January | 5.3 | 5.0 | 5.26 | .274 | .32 | 323 |
| February | 5.7 | 5.0 | 5.26 | .274 | .30 | 303 |
| March | 9.2 | 4.7 | 5.91 | .308 | .36 | 363 |
| April | 19.3 | 8.5 | 13.7 | .714 | .80 | 815 |
| May | 79.6 | 16.0 | 45.2 | 2.35 | 2.71 | 2,780 |
| June | 92.4 | 31.9 | 61.9 | 3.22 | 3.59 | 3,680 |
| July | 30.7 | 16.6 | 21.8 | 1.14 | 1.31 | 1,340 |
| August | 16.4 | 11.2 | 13.6 | .708 | .82 | 836 |
| September | 11.2 | 8.8 | 9.96 | .519 | .58 | 593 |
| The year | 92.4 | 5.0 | 16.7 | .87 | 11.85 | 12,100 |

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey.

## SEVIER LAKE BASIN.

### SEVIER RIVER NEAR HATCH, UTAH.

**Location.**—In the SE. ¼ sec. 28, T. 36 S., R. 5 W., Salt Lake base and meridian, at county bridge below the Hatchtown reservoir, about one-fourth mile east of J. C. Barnhurst's house near Hatch, Utah.

**Records available.**—June 3 to November 4, 1911, December 10 to 31, 1911, and May 1 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on middle pier of bridge has been used since May 8, 1912, before which time the gage was located just below the outlet of the reservoir, one-eighth mile above.

**Channel.**—Fairly permanent except at sudden high water.

**Discharge measurements.**—Made from car and cable or bridge at high water and by wading at low stages.

**Winter flow.**—Ice forms at this station during extreme cold weather

**Diversions.**—Water is diverted for the Hatchtown project just below the station.

**Artificial control.**—The flow is controlled by the gates in the Hatchtown reservoir, above the station.

**Accuracy.**—Records good except for winter months.

*Discharge measurements of Sevier River near Hatch, Utah, for year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 8 | G. H. Russell | 2.48 | 144 | July 25 | G. H. Russell | 2.90 | 244 |
| June 4 | do | 5.10 | 947 | 25 | do | 2.51 | 167 |
| July 6 | do | 2.68 | 206 | 27 | do | 2.68 | 185 |
| 24 | do | 2.63 | 183 | Aug. 28 | do | 1.80 | 46.8 |

NOTE.—Gage heights of all measurements refer to the new gage installed May 8, 1912.

*Daily gage height, in feet, of Sevier River near Hatch, Utah, for year ending Sept. 30, 1912.*

[J. C. Barnhurst, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.8 | 1.6 | ..... | 1.7 | 2.3 | 1.2 | 1.0 | 1.2 | 5.3 | 2.8 | 2.7 | 2.5 |
| 2 | 1.6 | 1.6 | ..... | 1.8 | 2.3 | 1.2 | 1.0 | 2.8 | 5.3 | 2.8 | 2.7 | 2.5 |
| 3 | 1.6 | 1.6 | ..... | 2.4 | 2.3 | 1.2 | 1.7 | 2.8 | 5.6 | 2.8 | 2.7 | 2.5 |
| 4 | 1.6 | 1.6 | ..... | 2.4 | 1.05 | 1.2 | 1.7 | 2.8 | 5.4 | 2.75 | 2.7 | 2.5 |
| 5 | 1.6 | ..... | ..... | 2.5 | 1.05 | 1.2 | 1.5 | 2.8 | 5.8 | 2.6 | 2.7 | 2.5 |
| 6 | 1.6 | ..... | ..... | 2.5 | 1.05 | 1.1 | 1.5 | 2.8 | 4.85 | 2.62 | 2.7 | 2.5 |
| 7 | 1.6 | ..... | ..... | 2.6 | 1.05 | 1.1 | 1.5 | 2.5 | 4.8 | 2.45 | 2.7 | 2.5 |
| 8 | 2.3 | ..... | ..... | 2.6 | 1.05 | 1.1 | 1.2 | 2.5 | 4.75 | 2.45 | 2.7 | 2.5 |
| 9 | 2.3 | ..... | ..... | 2.7 | 2.0 | 1.1 | 1.2 | 2.5 | 4.7 | 2.45 | 2.7 | 2.45 |
| 10 | 2.3 | ..... | 1.9 | 2.7 | 2.0 | 1.1 | 1.2 | 2.5 | 4.7 | 2.45 | 2.7 | 2.4 |
| 11 | 2.3 | ..... | 1.9 | 2.8 | 2.2 | 1.4 | 1.2 | 2.5 | 4.6 | 2.55 | 2.7 | 2.4 |
| 12 | 2.3 | ..... | 1.03 | 2.9 | 2.9 | 1.4 | 1.2 | 2.5 | 4.25 | 2.6 | 2.7 | 2.4 |
| 13 | 2.3 | ..... | .7 | 3.0 | 3.0 | 1.4 | 1.2 | 2.5 | 4.2 | 2.6 | 2.7 | 2.4 |
| 14 | 2.3 | ..... | .7 | 3.0 | 2.6 | 1.4 | 1.2 | 2.5 | 3.3 | 2.6 | 2.6 | 2.4 |
| 15 | 3.0 | ..... | .7 | 3.0 | 1.2 | 1.4 | 1.2 | 2.5 | 3.3 | 2.6 | 2.6 | 2.4 |
| 16 | 3.0 | ..... | .7 | 3.1 | 1.2 | 1.4 | 1.02 | 2.75 | 3.3 | 2.6 | 2.6 | 2.4 |
| 17 | 2.99 | ..... | 1.7 | 3.1 | 1.2 | 1.1 | 1.2 | 3.2 | 2.8 | 2.6 | 2.6 | 2.35 |
| 18 | 2.98 | ..... | 1.7 | 3.2 | 1.2 | 1.0 | 1.2 | 3.3 | 2.8 | 2.6 | 2.6 | 2.35 |
| 19 | 2.97 | ..... | .7 | 3.3 | 2.2 | 1.0 | 1.2 | 3.4 | 2.8 | 2.6 | 2.6 | 2.35 |
| 20 | 2.96 | ..... | 2.5 | 3.4 | 2.2 | 1.0 | 1.2 | 3.4 | 2.8 | 2.7 | 2.6 | 2.35 |
| 21 | 2.95 | ..... | 2.0 | 3.0 | 2.2 | 1.0 | 2.4 | 3.8 | 2.8 | 2.7 | 2.6 | 2.35 |
| 22 | 1.6 | ..... | 1.8 | 2.6 | 1.2 | 1.0 | 2.5 | 5.5 | 2.8 | 2.7 | 2.6 | 2.35 |
| 23 | 1.6 | ..... | 1.8 | 2.5 | 1.2 | 1.0 | 2.5 | 5.5 | 2.8 | 2.7 | 2.6 | 2.35 |
| 24 | 1.6 | ..... | 1.7 | 2.4 | 1.2 | 1.0 | 2.6 | 4.75 | 2.8 | 2.66 | 2.6 | 2.35 |
| 25 | 1.6 | ..... | 1.7 | 2.2 | 1.2 | 1.0 | 3.4 | 4.1 | 2.8 | 2.7 | 2.55 | 2.35 |
| 26 | 1.6 | ..... | 1.7 | 1.0 | 1.2 | 1.0 | 3.6 | 4.1 | 2.8 | 2.7 | 2.5 | 2.35 |
| 27 | 1.6 | ..... | 1.7 | 1.0 | 1.2 | 1.0 | 4.0 | 4.1 | 2.8 | 2.7 | 2.5 | 2.33 |
| 28 | 1.6 | ..... | 1.6 | 2.4 | 1.2 | 1.0 | 4.5 | 4.1 | 2.8 | 2.7 | 2.4 | 2.33 |
| 29 | 1.6 | ..... | 1.6 | 2.3 | 2.12 | 1.0 | 4.0 | 4.95 | 2.8 | 2.7 | 2.5 | 2.3 |
| 30 | 1.6 | ..... | 1.6 | 2.3 | ..... | 1.0 | 3.0 | 5.7 | 2.8 | 2.7 | 2.5 | 2.3 |
| 31 | 1.6 | ..... | 1.6 | 2.3 | ..... | 1.0 | ..... | 5.3 | ..... | 2.7 | 2.5 | ..... |

NOTE.—Relation of gage height to discharge affected by ice Dec. 20 to Jan. 25, Jan. 28 to Feb. 3, Feb. 11–14, 18–21, 29. New gage installed May 8, one-eighth mile below old gage to read same as old gage on that day.

*Daily discharge, in second-feet, of Sevier River near Hatch, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 120 | 96 | ..... | 80 | 25 | 20 | 10 | 20 | 1,020 | 218 | 196 | 154 |
| 2 | 96 | 96 | ..... | 80 | 25 | 20 | 10 | 194 | 1,020 | 218 | 196 | 154 |
| 3 | 96 | 96 | ..... | 80 | 25 | 20 | 53 | 194 | 1,130 | 218 | 196 | 154 |
| 4 | 96 | 96 | ..... | 80 | 12 | 20 | 53 | 194 | 1,060 | 207 | 196 | 154 |
| 5 | 96 | ..... | ..... | 70 | 12 | 20 | 37 | 194 | 1,210 | 174 | 196 | 154 |
| 6 | 96 | ..... | ..... | 70 | 12 | 15 | 37 | 194 | 859 | 178 | 196 | 154 |
| 7 | 96 | ..... | ..... | 70 | 12 | 15 | 37 | 154 | 841 | 144 | 196 | 154 |
| 8 | 196 | ..... | ..... | 70 | 12 | 15 | 20 | 154 | 823 | 144 | 196 | 154 |
| 9 | 196 | ..... | ..... | 60 | 82 | 15 | 20 | 154 | 835 | 144 | 196 | 144 |
| 10 | 196 | ..... | 133 | 60 | 82 | 15 | 20 | 154 | 835 | 144 | 196 | 134 |
| 11 | 196 | ..... | 133 | 60 | 88 | 31 | 20 | 154 | 770 | 164 | 196 | 134 |
| 12 | 196 | ..... | 44 | 60 | 120 | 31 | 20 | 154 | 648 | 174 | 196 | 134 |
| 13 | 196 | ..... | 22 | 60 | 120 | 31 | 20 | 154 | 630 | 174 | 196 | 134 |
| 14 | 196 | ..... | 22 | 60 | 120 | 31 | 20 | 154 | 344 | 174 | 174 | 134 |
| 15 | 331 | ..... | 22 | 60 | 20 | 31 | 20 | 154 | 344 | 174 | 174 | 134 |
| 16 | 331 | ..... | 22 | 70 | 20 | 31 | 11 | 207 | 344 | 174 | 174 | 134 |
| 17 | 329 | ..... | 108 | 70 | 20 | 15 | 20 | 317 | 218 | 174 | 174 | 125 |
| 18 | 327 | ..... | 108 | 70 | 20 | 10 | 20 | 344 | 218 | 174 | 174 | 125 |
| 19 | 325 | ..... | 22 | 70 | 20 | 10 | 20 | 374 | 218 | 174 | 174 | 125 |
| 20 | 323 | ..... | 80 | 70 | 20 | 10 | 20 | 374 | 218 | 196 | 174 | 125 |

*Daily discharge, in second-feet, of Sevier River near Hatch, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 320 | ..... | 80 | 70 | 20 | 10 | 132 | 498 | 218 | 196 | 174 | 125 |
| 22 | 96 | ..... | 80 | 70 | 20 | 10 | 146 | 1,100 | 218 | 196 | 174 | 125 |
| 23 | 96 | ..... | 80 | 80 | 20 | 10 | 146 | 1,100 | 218 | 196 | 174 | 125 |
| 24 | 96 | ..... | 80 | 80 | 20 | 10 | 162 | 823 | 218 | 187 | 174 | 125 |
| 25 | 96 | ..... | 80 | 80 | 20 | 10 | 306 | 596 | 218 | 196 | 164 | 125 |
| 26 | 96 | ..... | 80 | 10 | 20 | 10 | 346 | 596 | 218 | 196 | 154 | 125 |
| 27 | 96 | ..... | 80 | 10 | 20 | 10 | 438 | 596 | 218 | 196 | 154 | 121 |
| 28 | 96 | ..... | 80 | 25 | 20 | 10 | 558 | 596 | 218 | 196 | 134 | 121 |
| 29 | 96 | ..... | 80 | 25 | 20 | 10 | 438 | 895 | 218 | 196 | 154 | 116 |
| 30 | 96 | ..... | 80 | 25 | ..... | 10 | 230 | 1,170 | 218 | 196 | 154 | 116 |
| 31 | 96 | ..... | 80 | 25 | ..... | 10 | ..... | 1,020 | ..... | 196 | 154 | ..... |

NOTE.—Discharge computed from three fairly well defined curves, applicable Oct. 1 to Dec. 19, Jan. 26 to May 7 and May 8 to Sept. 30. Discharge estimated because of ice Dec. 20 to Jan. 25, Jan. 28 to Feb. 3, Feb. 11–14, 18–21, 29; based on observer's notes about ice and gate openings at dam.

*Monthly discharge of Sevier River near Hatch, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 331 | 96 | 171 | 10,500 | C. |
| November 1-4 | 96 | 96 | 96 | 760 | C. |
| December 10-31 | 133 | 22 | 72.5 | 3,160 | C. |
| January | 80 | 10 | 60.3 | 3,710 | C. |
| February | 120 | 12 | 36.1 | 2,080 | C. |
| March | 31 | 10 | 16.6 | 1,020 | B. |
| April | 558 | 10 | 113 | 6,720 | A. |
| May | 1,170 | 20 | 419 | 25,800 | B. |
| June | 1,210 | 218 | 523 | 31,100 | B. |
| July | 218 | 144 | 183 | 11,300 | B. |
| August | 196 | 134 | 178 | 10,900 | B. |
| September | 154 | 116 | 135 | 8,030 | B. |

## SEVIER RIVER NEAR CIRCLEVILLE, UTAH.

**Location.**—In canyon, 8 miles above Circleville.

**Records available.**—May 10 to September 19, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—Bowlders and gravel; probably permanent.

**Discharge measurements.**—Made from bridge or by wading.

**Artificial control.**—The flow at the station is partly controlled by the Hatchtown reservoir above. Water is diverted above the station and used on the Hatchtown project and in Panguitch Valley.

**Accuracy.**—Records fair.

*Discharge measurements of Sevier River near Circleville, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| June 2 | G. H. Russell | 3.18 | 678 | July 29 | G. H. Russell | 1.42 | 168 |
| July 3 | do | 1.15 | 132 | Aug. 30 | do | 1.10 | [a] 122 |
| 23 | do | 1.30 | 153 | | | | |

[a] Average of two measurements, one 5 miles above, one 5 miles below station.

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River near Circleville, Utah, for year ending Sept. 30, 1912.*

[J. W. Barton, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 3.4 | 750 | 1.2 | 133 | 1.5 | 184 | 1.3 | 152 |
| 2 | | | 3.2 | 682 | 1.2 | 138 | 1.5 | 184 | 1.3 | 152 |
| 3 | | | 3.3 | 716 | 1.2 | 138 | 1.4 | 167 | 1.3 | 152 |
| 4 | | | 3.2 | 682 | 1.2 | 138 | 1.3 | 152 | 1.3 | 152 |
| 5 | | | 3.4 | 750 | 1.2 | 138 | 1.2 | 138 | 1.3 | 152 |
| 6 | | | 3.3 | 716 | 1.2 | 138 | 1.1 | 127 | 1.4 | 167 |
| 7 | | | 3.2 | 682 | 1.1 | 127 | 1.1 | 127 | 1.3 | 152 |
| 8 | | | 3.2 | 682 | 1.1 | 127 | 1.0 | 116 | 1.3 | 152 |
| 9 | | | 2.9 | 580 | 1.0 | 116 | 1.0 | 116 | 1.4 | 167 |
| 10 | 2.2 | 358 | 2.9 | 580 | 1.1 | 127 | 1.0 | 116 | 1.5 | 184 |
| 11 | 2.2 | 358 | 2.8 | 546 | 1.2 | 138 | 1.0 | 116 | 1.5 | 184 |
| 12 | 2.2 | 358 | 2.9 | 580 | 1.2 | 138 | 1.0 | 116 | 1.6 | 204 |
| 13 | 2.2 | 358 | 2.9 | 580 | 1.0 | 116 | 1.0 | 116 | 1.6 | 204 |
| 14 | 2.2 | 358 | 2.7 | 514 | 1.0 | 116 | 1.0 | 116 | 1.6 | 204 |
| 15 | 2.2 | 358 | 1.8 | 248 | 1.1 | 127 | 1.0 | 116 | 1.7 | 225 |
| 16 | 2.2 | 358 | 1.8 | 248 | 1.0 | 116 | 1.0 | 116 | 1.7 | 225 |
| 17 | 2.2 | 358 | 1.4 | 167 | 1.1 | 127 | 1.0 | 116 | 1.7 | 225 |
| 18 | 2.2 | 358 | 1.4 | 167 | 1.1 | 127 | 1.0 | 116 | 1.6 | 204 |
| 19 | 2.2 | 358 | 1.4 | 167 | 1.6 | 204 | 1.0 | 116 | 1.6 | 204 |
| 20 | 2.2 | 358 | 1.3 | 152 | 1.7 | 225 | 1.0 | 116 | ..... | ..... |
| 21 | 2.3 | 388 | 1.3 | 152 | 1.5 | 184 | 1.0 | 116 | ..... | ..... |
| 22 | 2.3 | 388 | 1.3 | 152 | 1.5 | 184 | 1.0 | 116 | ..... | ..... |
| 23 | 2.4 | 418 | 1.4 | 167 | 1.5 | 184 | 1.0 | 116 | ..... | ..... |
| 24 | 3.3 | 716 | 1.2 | 138 | 1.6 | 204 | 1.0 | 116 | ..... | ..... |
| 25 | 3.4 | 750 | 1.3 | 152 | 1.5 | 184 | 1.0 | 116 | ..... | ..... |
| 26 | 2.6 | 482 | 1.3 | 152 | 1.6 | 204 | 1.1 | 127 | ..... | ..... |
| 27 | 2.5 | 450 | 1.3 | 152 | 1.6 | 204 | 1.1 | 127 | ..... | ..... |
| 28 | 2.6 | 482 | 1.3 | 152 | 1.6 | 204 | 1.1 | 127 | ..... | ..... |
| 29 | 3.1 | 648 | 1.3 | 152 | 1.6 | 204 | 1.2 | 138 | ..... | ..... |
| 30 | 3.7 | 860 | 1.2 | 138 | 1.5 | 184 | 1.2 | 138 | ..... | ..... |
| 31 | 3.6 | 820 | ..... | ..... | 1.5 | 184 | 1.3 | 152 | ..... | ..... |

NOTE.—Discharge determined from a fairly well defined rating curve.

*Monthly discharge of Sevier River near Circleville, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 10–31 | 860 | 358 | 470 | 20,500 | B. |
| June | 750 | 138 | 390 | 23,200 | B. |
| July | 225 | 116 | 158 | 9,780 | B. |
| August | 184 | 116 | 128 | 7,930 | A. |
| September 1–19 | 225 | 152 | 182 | 6,860 | A. |
| The period | | | | 68,300 | |

## SEVIER RIVER NEAR JUNCTION, UTAH.

**Location.**—In the SE. ¼ sec. 34, T. 29 S., R. 3 W., Salt Lake base and meridian, at Harris's ranch, about 1,000 feet below the junction of the East and South Forks of Sevier River, and about 1½ miles east of the town of Junction, Utah; just above the backwater contour to present high water in the Piute reservoir.

**Records available.**—June 1 to September 2, 1911, and May 1, 1912, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Sloping staff gage on right bank used until May 1, 1912, when a Friez automatic gage was installed at same datum.

**Channel.**—Shifts during sudden high stages.

**Discharge measurements.**—Made from car and cable at high water; by wading at low water.

**Winter flow.**—Relation of gage heights to discharge affected by ice.

**Diversions.**—Considerable water is stored and diverted from the main river for the Hatchtown project, about 50 miles above, and from canals during the irrigation season on the East Fork of the Sevier a few miles above the station.

**Artificial control.**—The flow is controlled to a large degree by the Otter Creek reservoir on the East Fork and the Hatchtown reservoir on the South Fork or main river.

**Accuracy.**—Records good during the period covered.

*Discharge measurements of Sevier River near Junction, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Nov. 27 | J. C. Dort | 0.96 | 307 | June 15 | G. H. Russell | 0.72 | 253 |
| | | | | 23 | do | .55 | 213 |
| 1912. | | | | July 8 | do | 1.10 | 339 |
| May 22 | G. H. Russell | 3.44 | 1,100 | 30 | do | 1.37 | 389 |
| June 1 | do | 2.88 | 872 | Aug. 14 | do | .80 | 275 |
| 5 | do | 2.32 | 673 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River near Junction, Utah, for year ending Sept. 30, 1912.*

[Charles Harris, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 2.2 | 640 | 3.00 | 920 | 0.90 | 292 | 1.38 | 409 | 1.15 | 352 |
| 2 | 2.3 | 670 | 2.06 | 790 | .94 | 302 | 1.35 | 401 | 1.11 | 342 |
| 3 | 2.4 | 702 | 2.55 | 751 | .96 | 306 | 1.32 | 393 | 1.12 | 345 |
| 4 | 2.2 | 640 | 2.39 | 699 | 1.01 | 318 | 1.00 | 316 | 1.17 | 357 |
| 5 | ..... | 530 | 2.32 | 676 | 1.11 | 342 | .85 | 281 | 1.19 | 362 |
| 6 | 1.42 | 419 | 2.29 | 667 | 1.10 | 340 | .78 | 266 | 1.18 | 359 |
| 7 | 1.4 | 414 | 2.04 | 592 | 1.12 | 345 | .68 | 244 | 1.22 | 369 |
| 8 | 1.2 | 364 | 1.82 | 530 | 1.11 | 342 | .63 | 234 | 1.21 | 366 |
| 9 | 1.2 | 364 | 1.70 | 496 | 1.05 | 328 | .61 | 230 | 1.29 | 386 |
| 10 | 1.3 | 388 | 1.71 | 499 | .96 | 306 | .61 | 230 | 1.37 | 406 |
| 11 | 1.5 | 440 | 1.72 | 502 | .94 | 302 | .56 | 220 | 1.42 | 419 |
| 12 | 1.7 | 496 | 1.76 | 513 | .95 | 304 | .51 | 210 | 1.39 | 411 |
| 13 | 2.1 | 610 | 1.62 | 474 | .99 | 314 | .68 | 244 | 1.43 | 422 |
| 14 | 2.2 | 640 | 1.35 | 401 | 1.04 | 326 | .81 | 272 | 1.41 | 417 |
| 15 | 1.9 | 552 | .73 | 255 | 1.00 | 316 | .87 | 285 | 1.38 | 409 |
| 16 | 1.9 | 552 | .45 | 198 | 1.00 | 316 | .90 | 292 | 1.36 | 404 |
| 17 | 2.2 | 640 | .31 | 172 | .98 | 311 | .93 | 299 | 1.33 | 396 |
| 18 | 2.6 | 768 | .17 | 147 | .94 | 302 | .85 | 281 | 1.28 | 383 |
| 19 | ..... | 1,260 | .14 | 141 | .96 | 306 | .86 | 283 | 1.21 | 366 |
| 20 | ..... | 1,160 | .14 | 141 | 1.09 | 338 | .85 | 281 | 1.03 | 323 |
| 21 | ..... | 1,300 | .34 | 177 | 1.16 | 354 | .85 | 281 | .57 | 222 |
| 22 | ..... | 1,060 | .44 | 196 | 1.17 | 357 | .84 | 279 | .45 | 198 |
| 23 | ..... | 955 | .52 | 212 | 1.07 | 333 | .84 | 279 | .42 | 192 |
| 24 | ..... | 1,110 | .50 | 208 | 1.02 | 321 | .86 | 283 | .41 | 190 |
| 25 | ..... | 1,120 | .52 | 212 | 1.06 | 330 | .90 | 292 | .38 | 184 |
| 26 | ..... | 883 | .49 | 206 | 1.19 | 362 | .97 | 309 | .37 | 183 |
| 27 | ..... | 785 | .50 | 208 | 1.22 | 369 | 1.00 | 316 | .35 | 179 |
| 28 | ..... | 873 | .72 | 252 | 1.28 | 383 | .97 | 309 | .32 | 174 |
| 29 | ..... | 978 | .80 | 270 | 1.29 | 386 | 1.05 | 328 | .22 | 156 |
| 30 | ..... | 1,050 | .88 | 288 | 1.39 | 411 | 1.15 | 352 | .21 | 154 |
| 31 | ..... | 1,080 | ..... | ..... | 1.47 | 432 | 1.20 | 364 | ..... | ..... |

NOTE.—Discharge determined from a well-defined rating curve. Discharge May 5 and 19–31 estimated by comparison with records at Hatch and Piute dam.

*Monthly discharge of Sevier River near Junction, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May | 1,300 | 364 | 756 | 46,500 | B. |
| June | 920 | 141 | 393 | 23,400 | A. |
| July | 432 | 292 | 335 | 20,600 | A. |
| August | 409 | 210 | 292 | 18,000 | A. |
| September | 422 | 154 | 314 | 18,700 | A. |
| The period | | | | 127,000 | |

## SEVIER RIVER BELOW PIUTE DAM, NEAR MARYSVALE, UTAH.

**Location.**—In the NE. ¼ SW. ¼ sec. 34, T. 28 S., R. 4 W., Salt Lake base and meridian, about 700 yards below the dam for the Piute reservoir, and 11 miles south of Marysvale.

**Records available.**—May 17 to August 31, 1911; May 1, 1912, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Sloping gage on right bank used until May 4, 1912, when a Friez automatic gage was installed at new datum and location, about 500 feet below former site of gage.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made from car and cable at high water and by wading at low water.

**Winter flow.**—No ice forms on the control at this station.

**Diversions.**—No water is diverted between this station and the station near Junction.

**Artificial control.**—The flow past the station is controlled by the gates in the dam.

**Accuracy.**—Records for 1912 excellent.

*Discharge measurements of Sevier River below Piute dam, near Marysvale, Utah, for year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 25 | J. C. Dort | 1.93 | 171 | Apr. 30 | G. H. Russell | 0.43 | 78.8 |
| Apr. 28 | G. H. Russell | 1.42 | 306 | 30 | do | .37 | 5.0 |
| 28 | do | .36 | 6.8 | May 11 | do | 1.46 | 328 |
| 29 | do | 2.35 | 878 | 27 | do | 2.65 | 1,100 |
| 29 | do | 2.08 | 702 | June 15 | do | 1.80 | 470 |
| 29 | do | 1.82 | 540 | July 9 | do | 1.83 | 473 |
| 29 | do | 1.42 | 306 | Aug. 1 | do | 1.76 | 475 |
| 30 | do | .92 | 152 | 16 | do | 1.57 | 371 |
| 30 | do | 1.21 | 220 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River below Piute dam, near Marysvale, Utah, for year ending Sept. 30, 1912.*

[Silas Munson, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | 327 | 2.30 | 832 | 1.77 | 442 | 1.80 | 500 | 1.71 | 448 |
| 2 | ..... | 327 | 2.30 | 832 | 1.77 | 442 | 1.82 | 512 | 1.77 | 483 |
| 3 | ..... | 327 | 2.22 | 774 | 1.77 | 442 | 1.82 | 512 | 1.80 | 500 |
| 4 | ..... | 327 | 2.20 | 760 | 1.77 | 442 | 1.71 | 448 | 1.78 | 488 |
| 5 | 1.47 | 327 | 2.19 | 753 | 1.76 | 436 | 1.64 | 410 | 1.74 | 465 |
| 6 | 1.47 | 327 | 2.19 | 753 | 1.78 | 447 | 1.56 | 369 | 1.70 | 442 |
| 7 | 1.47 | 327 | 2.07 | 672 | 1.89 | 512 | 1.43 | 311 | 1.68 | 431 |
| 8 | 1.47 | 327 | 2.03 | 646 | 1.87 | 500 | 1.38 | 290 | 1.67 | 426 |
| 9 | 1.47 | 327 | 1.99 | 613 | 1.83 | 476 | 1.38 | 290 | 1.67 | 426 |
| 10 | 1.46 | 323 | 1.86 | 525 | 1.82 | 470 | 1.55 | 364 | 1.67 | 426 |
| 11 | 1.46 | 323 | 1.80 | 483 | 1.78 | 447 | 1.62 | 399 | 1.68 | 431 |
| 12 | 1.46 | 323 | 1.80 | 477 | 1.74 | 425 | 1.60 | 388 | 1.68 | 431 |
| 13 | 1.46 | 323 | 1.80 | 471 | 1.73 | 420 | 1.60 | 388 | 1.68 | 431 |
| 14 | 1.47 | 327 | 1.80 | 465 | 1.73 | 420 | 1.59 | 383 | 1.69 | 437 |
| 15 | 1.67 | 426 | 1.70 | 403 | 1.73 | 420 | 1.58 | 378 | 1.68 | 431 |
| 16 | 1.70 | 442 | 1.38 | 273 | 1.72 | 414 | 1.57 | 374 | 1.68 | 431 |
| 17 | 1.92 | 575 | 1.24 | 229 | 1.72 | 414 | 1.57 | 374 | 1.67 | 426 |
| 18 | 2.05 | 659 | 1.50 | 318 | 1.71 | 408 | 1.57 | 374 | 1.66 | 420 |
| 19 | 2.28 | 818 | 1.67 | 390 | 1.70 | 403 | 1.61 | 393 | 1.65 | 415 |
| 20 | 2.50 | 990 | 1.47 | 307 | 1.70 | 403 | 1.68 | 431 | 1.62 | 399 |
| 21 | 2.65 | 1,110 | 1.45 | 299 | 1.70 | 403 | 1.69 | 437 | 1.56 | 369 |
| 22 | 2.65 | 1,110 | 1.70 | 403 | 1.76 | 442 | 1.68 | 431 | 1.48 | 332 |
| 23 | 2.65 | 1,110 | 1.84 | 482 | 1.79 | 464 | 1.67 | 426 | 1.35 | 279 |
| 24 | 2.65 | 1,110 | 1.69 | 398 | 1.78 | 458 | 1.67 | 426 | 1.24 | 238 |
| 25 | 2.65 | 1,110 | 1.69 | 398 | 1.74 | 442 | 1.66 | 420 | 1.20 | 224 |
| 26 | 2.65 | 1,110 | 1.77 | 442 | 1.73 | 442 | 1.57 | 374 | 1.18 | 218 |
| 27 | 2.62 | 1,090 | 1.77 | 442 | 1.73 | 442 | 1.69 | 437 | 1.18 | 218 |
| 28 | 2.40 | 908 | 1.77 | 442 | 1.73 | 447 | 1.74 | 465 | 1.16 | 212 |
| 29 | 2.30 | 832 | 1.77 | 442 | 1.72 | 442 | 1.74 | 465 | 1.13 | 203 |
| 30 | 2.30 | 832 | 1.78 | 447 | 1.76 | 470 | 1.73 | 459 | 1.10 | 194 |
| 31 | 2.30 | 832 | ..... | ..... | 1.77 | 482 | 1.72 | 454 | ..... | ..... |

NOTE.—Discharge determined from two well-defined rating curves, one applicable from May 5 to June 8 and Aug. 1 to Sept. 30, 1912, the other from June 15 to July 21, 1912. Discharge determined by indirect method for shifting channels June 9–14 and July 22–31, 1912. Discharge estimated May 1–4 from gate openings at the Piute dam.

*Monthly discharge of Sevier River below Piute dam, near Marysvale, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May | 1,110 | 323 | 633 | 38,900 | A. |
| June | 832 | 229 | 506 | 30,100 | A. |
| July | 512 | 403 | 442 | 27,200 | A. |
| August | 512 | 290 | 409 | 25,100 | A. |
| September | 500 | 194 | 376 | 22,400 | A. |
| The period | ..... | ..... | ..... | 144,000 | |

## SEVIER RIVER AT MARYSVALE, UTAH.

**Location.**—In the SE. ¼ sec. 20, T. 27 S., R. 3 E., Salt Lake base and meridian, at county bridge on road from Marysvale to Monroe, about 300 feet east of the Denver & Rio Grande Railroad station at Marysvale. Tenmile and Cottonwood creeks enter Sevier River above the station; Pine Creek enters 150 feet below the gage.

**Records available.**—May 21 to September 20, 1912, also February 18, 1906, to December 31, 1911, at station about 6 miles above Marysvale, at Pitts ranch.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff attached to lower face of east concrete pier.

**Channel.**—Permanent except at high stages.

**Discharge measurements.**—Made from bridge at high water; wading at low stages.

**Winter flow.**—No data.

**Diversions.**—No diversions between the Piute dam and the station.

**Artificial control.**—Since the construction of the Piute reservoir, about 9½ miles above, the river is controlled by the outlet gates.

**Accuracy.**—Records good.

*Discharge measurements of Sevier River at Marysvale, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 21 | G. H. Russell | 5.30 | 1,060 | Aug. 2 | G. H. Russell | 2.75 | 473 |
| June 14 | do | 2.85 | 517 | 8 | do | 1.75 | 301 |
| 18 | do | 1.58 | 273 | 13 | do | 2.15 | 387 |
| July 2 | do | 2.45 | 468 | 23 | do | 2.30 | 425 |
| 12 | do | 2.50 | 474 | Oct. 8 | do | 1.20 | 196.6 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River at Marysvale, Utah, for year ending Sept. 30, 1912.*

[J. W. Anderton, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 4.45 | 868 | 2.45 | 456 | 2.65 | 470 | 2.35 | 434 |
| 2 | | | 4.50 | 880 | 2.45 | 456 | 2.72 | 470 | 2.42 | 450 |
| 3 | | | 4.55 | 892 | 2.50 | 468 | 2.72 | 482 | 2.48 | 463 |
| 4 | | | 4.45 | 868 | 2.48 | 463 | 2.55 | 454 | 2.55 | 480 |
| 5 | | | 4.50 | 880 | 2.45 | 456 | 2.30 | 411 | 2.50 | 468 |
| 6 | | | 4.25 | 822 | 2.50 | 468 | 2.15 | 389 | 2.42 | 450 |
| 7 | | | 4.05 | 776 | 2.65 | 502 | 1.92 | 338 | 2.40 | 445 |
| 8 | | | 3.85 | 730 | 2.75 | 526 | 1.72 | 294 | 2.38 | 440 |
| 9 | | | 3.85 | 730 | 2.60 | 491 | 1.70 | 290 | 2.38 | 440 |
| 10 | | | 3.40 | 627 | 2.60 | 491 | 1.88 | 330 | 2.38 | 440 |
| 11 | | | 2.95 | 524 | 2.55 | 480 | 2.20 | 400 | 2.38 | 440 |
| 12 | | | 2.85 | 500 | 2.48 | 463 | 2.20 | 400 | 2.38 | 440 |
| 13 | | | 2.85 | 500 | 2.50 | 468 | 2.12 | 382 | 2.40 | 445 |
| 14 | | | 2.92 | 517 | 2.48 | 463 | 2.10 | 378 | 2.35 | 434 |
| 15 | | | 2.85 | 512 | 2.45 | 456 | 2.10 | 378 | 2.40 | 445 |
| 16 | | | 2.10 | 354 | 2.48 | 463 | 2.10 | 378 | 2.40 | 445 |
| 17 | | | 1.50 | 240 | 2.42 | 450 | 2.10 | 378 | 2.40 | 445 |
| 18 | | | 1.69 | 288 | 2.40 | 445 | 2.10 | 378 | 2.40 | 445 |
| 19 | | | 2.45 | 456 | 2.45 | 456 | 2.10 | 378 | 2.40 | 445 |
| 20 | | | 2.35 | 434 | 2.40 | 445 | 2.22 | 404 | 2.30 | 422 |
| 21 | 5.28 | 1,070 | 1.95 | 345 | 2.42 | 450 | 2.40 | 445 | | |
| 22 | 5.44 | 1,110 | 2.10 | 378 | 2.48 | 463 | 2.38 | 440 | | |
| 23 | 5.35 | 1,080 | 2.80 | 537 | 2.60 | 491 | 2.30 | 422 | | |
| 24 | 5.38 | 1,090 | 2.65 | 502 | 2.60 | 491 | 2.30 | 422 | | |
| 25 | 5.45 | 1,110 | 2.35 | 434 | 2.58 | 486 | 2.32 | 427 | | |
| 26 | 5.40 | 1,100 | 2.60 | 491 | 2.50 | 468 | 2.30 | 422 | | |
| 27 | 5.45 | 1,110 | 2.55 | 480 | 2.50 | 468 | 2.30 | 422 | | |
| 28 | 5.33 | 1,080 | 2.50 | 468 | 2.48 | 463 | 2.40 | 445 | | |
| 29 | 4.68 | 923 | 2.50 | 468 | 2.50 | 468 | 2.48 | 463 | | |
| 30 | 4.68 | 923 | 2.50 | 468 | 2.50 | 468 | 2.42 | 450 | | |
| 31 | 4.40 | 857 | | | 2.60 | 475 | 2.50 | 468 | | |

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable May 21 to June 14, 1912, the other June 18 to July 30 and Aug. 6 to Sept. 20, 1912. Discharge June 15–17 and Aug. 1–5, 1912, determined by indirect method for shifting channels. Gage was lowered 2.00 feet on June 18 and all previous gage heights have been corrected.

*Monthly discharge of Sevier River at Marysvale, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 21–31 | 1,110 | 857 | 1,040 | 22,700 | A. |
| June | 892 | 240 | 566 | 33,700 | A. |
| July | 526 | 445 | 470 | 28,900 | A. |
| August | 482 | 290 | 407 | 25,000 | B. |
| September 1–20 | 480 | 422 | 446 | 17,700 | A. |
| The period | | | | 128,000 | |

## SEVIER RIVER AT SEVIER, UTAH.

**Location.**—In the NE. ¼ SE. ¼ sec. 32, T. 25 S., R. 4 W., Salt Lake base and meridian, at the town of Sevier, about 100 yards above the railroad bridge on the Y spur 50 yards west of the Denver & Rio Grande main line, and about 45 yards above mouth of Clear Creek.

**Records available.**—May 20, 1911, to September 30, 1912.

**Drainage area.**—2,700 square miles.

**Gage.**—Originally a vertical staff gage driven into the stream bed and nailed to an overhanging cottonwood tree. This gage was replaced in February, 1912, by a sloping gage with the same datum, and on May 16, 1912, a Friez automatic gage was installed and referred to the same datum.

**Channel.**—Permanent except at sudden high stages.

**Discharge measurements.**—Made from car and cable or by wading.

**Winter flow.**—Ice forms at the station for short periods during the winter months.

**Diversions.**—No water is diverted between this station and that at Marysvale, but a number of canals head 2 or 3 miles downstream. These canals irrigate the whole Sevier Valley as far north as Gunnison.

**Artificial control.**—The natural flow past the station is affected by the operation of the gates of the Piute Reservoir, approximately 27 miles above.

**Accuracy.**—Records very good.

*Discharge measurements of Sevier River at Sevier, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 24 | J. C. Dort | 1.00 | 130 | July 13 | G. H. Russell | 2.03 | 478 |
| May 1 | G. H. Russell | .89 | 95 | Aug. 5 | do | 1.95 | 426 |
| 19 | do | 2.59 | 710 | 7 | do | 1.84 | 376 |
| 20 | do | 2.82 | 865 | 9 | do | 1.67 | 314 |
| June 7 | do | 2.92 | 934 | 19 | do | 1.85 | 367 |
| 17 | do | 1.80 | 366 | Sept. 1 | do | 1.97 | 458 |
| July 6 | Porter and Tanner | 2.05 | 478 | 10 | do | 1.96 | 427 |
| 13 | G. H. Russell | 2.04 | 476 | | | | |

NOTE.—All gage heights refer to the outside gage.

*Daily gage height, in feet, of Sevier River at Sevier, Utah, for year ending Sept. 30, 1912.*

[O. A. Anderson, observer.]

| Day. | Oct. | Nov. | Dec. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 1.8 | 1.75 | 0.90 | 2.96 | 2.10 | 2.06 | 1.96 |
| 2 | 2.5 | 1.8 | 1.75 | 1.50 | 2.95 | 2.10 | 2.10 | 1.98 |
| 3 | 2.6 | 1.8 | 1.7 | 1.75 | 2.99 | 2.09 | 2.10 | 2.02 |
| 4 | 2.5 | 1.8 | 1.7 | 1.70 | 3.00 | 2.09 | 2.10 | 2.04 |
| 5 | 2.5 | 1.8 | 1.7 | 1.65 | 2.99 | 2.07 | 1.97 | 2.02 |
| 6 | 2.45 | 1.8 | 1.7 | 1.70 | 2.93 | 2.05 | 1.94 | 1.99 |
| 7 | 2.4 | 1.8 | 1.7 | 1.80 | 2.90 | 2.11 | 1.83 | 1.96 |
| 8 | 2.4 | 1.8 | 1.7 | 1.80 | 2.82 | 2.18 | 1.68 | 1.95 |
| 9 | 2.4 | 1.8 | 1.65 | 1.80 | 2.82 | 2.12 | 1.67 | 1.96 |
| 10 | 2.3 | 1.8 | 1.65 | 1.75 | 2.70 | 2.09 | 1.66 | 1.96 |
| 11 | 2.3 | 1.8 | 1.6 | 1.75 | 2.45 | 2.08 | 1.85 | 1.96 |
| 12 | 2.3 | 1.8 | 1.6 | 1.80 | 2.37 | 2.04 | 1.86 | 1.97 |
| 13 | 2.3 | 1.8 | 1.55 | 1.80 | 2.34 | 2.03 | 1.86 | 1.97 |
| 14 | 2.3 | 1.8 | 1.55 | 1.80 | 2.40 | 2.02 | 1.86 | 1.97 |
| 15 | 2.3 | 1.8 | 1.55 | 2.00 | 2.40 | 2.01 | 1.86 | 1.97 |
| 16 | 2.3 | 1.8 | 1.5 | 2.10 | 2.18 | 2.01 | 1.85 | 1.96 |
| 17 | 2.25 | 1.8 | 1.4 | 2.30 | 1.85 | 2.00 | 1.85 | 1.96 |
| 18 | 2.15 | 1.8 | 1.4 | 2.51 | 1.77 | 2.00 | 1.85 | 1.95 |
| 19 | 2.1 | 1.8 | 1.4 | 2.57 | 2.00 | 2.00 | 1.85 | 1.94 |
| 20 | 2.0 | 1.8 | 1.4 | 2.82 | 2.02 | 2.00 | 1.92 | 1.91 |
| 21 | 2.0 | 1.8 | 1.4 | 2.97 | 1.91 | 2.00 | 1.96 | 1.85 |
| 22 | 2.0 | 1.8 | 1.4 | 3.10 | 1.90 | 2.00 | 1.96 | 1.82 |
| 23 | 2.0 | 1.8 | 1.4 | 3.13 | 2.22 | 2.07 | 1.96 | 1.72 |
| 24 | 2.0 | 1.8 | 1.4 | 3.14 | 2.20 | 2.07 | 1.95 | 1.58 |
| 25 | 1.9 | 1.8 | 1.4 | 3.17 | 2.02 | 2.06 | 1.95 | 1.48 |
| 26 | 1.9 | 1.8 | 1.4 | 3.18 | 2.10 | 2.02 | 1.94 | 1.44 |
| 27 | 1.8 | 1.8 | 1.4 | 3.20 | 2.12 | 2.00 | 1.91 | 1.42 |
| 28 | 1.8 | 1.8 | 1.4 | 3.20 | 2.11 | 2.00 | 1.96 | 1.40 |
| 29 | 1.8 | 1.8 | 1.4 | 3.07 | 2.10 | 2.00 | 1.97 | 1.41 |
| 30 | 1.8 | 1.8 | 1.3 | 2.99 | 2.10 | 2.00 | 1.97 | 1.37 |
| 31 | 1.8 | ..... | 1.2 | 2.87 | ..... | 2.05 | 1.97 | ..... |

NOTE.—Gage heights May 16 to Sept. 30, 1912, obtained from Friez automatic gage and corrected to correspond with readings on the outside staff gage.

*Daily discharge, in second-feet, of Sevier River at Sevier, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | 400 | 315 | 295 | 104 | 947 | 492 | 474 | 432 |
| 2 | 680 | 315 | 295 | 236 | 941 | 492 | 492 | 440 |
| 3 | 750 | 315 | 275 | 352 | 966 | 488 | 492 | 457 |
| 4 | 680 | 315 | 275 | 334 | 972 | 488 | 492 | 466 |
| 5 | 680 | 315 | 275 | 317 | 966 | 479 | 436 | 457 |
| 6 | 648 | 315 | 275 | 334 | 929 | 470 | 424 | 444 |
| 7 | 615 | 315 | 275 | 370 | 910 | 496 | 381 | 432 |
| 8 | 615 | 315 | 275 | 370 | 862 | 527 | 327 | 428 |
| 9 | 615 | 315 | 258 | 370 | 852 | 501 | 324 | 432 |
| 10 | 555 | 315 | 258 | 352 | 792 | 488 | 320 | 432 |
| 11 | 555 | 315 | 240 | 352 | 656 | 483 | 389 | 432 |
| 12 | 555 | 315 | 240 | 370 | 616 | 466 | 393 | 436 |
| 13 | 555 | 315 | 225 | 370 | 601 | 461 | 393 | 436 |
| 14 | 555 | 315 | 225 | 370 | 630 | 457 | 393 | 436 |
| 15 | 555 | 315 | 225 | 448 | 630 | 452 | 393 | 436 |
| 16 | 555 | 315 | 210 | 492 | 527 | 452 | 389 | 432 |
| 17 | 528 | 315 | 190 | 582 | 389 | 448 | 389 | 432 |
| 18 | 475 | 315 | 190 | 687 | 359 | 448 | 389 | 428 |
| 19 | 450 | 315 | 190 | 720 | 448 | 448 | 389 | 424 |
| 20 | 400 | 315 | 190 | 862 | 457 | 448 | 416 | 412 |

*Daily discharge, in second-feet, of Sevier River at Sevier, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 21 | 400 | 315 | 190 | 953 | 412 | 448 | 432 | 389 |
| 22 | 400 | 315 | 190 | 1,040 | 408 | 448 | 432 | 378 |
| 23 | 400 | 315 | 190 | 1,060 | 545 | 479 | 432 | 341 |
| 24 | 400 | 315 | 190 | 1,060 | 536 | 479 | 428 | 293 |
| 25 | 355 | 315 | 190 | 1,080 | 457 | 474 | 428 | 260 |
| 26 | 355 | 315 | 190 | 1,090 | 492 | 457 | 424 | 248 |
| 27 | 315 | 315 | 190 | 1,100 | 501 | 448 | 412 | 242 |
| 28 | 315 | 315 | 190 | 1,100 | 496 | 448 | 432 | 236 |
| 29 | 315 | 315 | 190 | 1,020 | 492 | 448 | 436 | 239 |
| 30 | 315 | 315 | 175 | 966 | 492 | 448 | 436 | 228 |
| 31 | 315 | ..... | 160 | 953 | ..... | 470 | 436 | ..... |

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable Oct. 1 to Dec. 31, 1911, the other May 1 to Sept. 30, 1912.

*Monthly discharge of Sevier River at Sevier, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 750 | 315 | 494 | 30,400 | A. |
| November | 315 | 315 | 315 | 18,700 | A. |
| December | 295 | 160 | 223 | 13,700 | B. |
| May | 1,100 | 104 | 640 | 39,400 | A. |
| June | 972 | 359 | 643 | 38,300 | A. |
| July | 527 | 448 | 469 | 28,800 | A. |
| August | 492 | 320 | 414 | 25,500 | A. |
| September | 466 | 228 | 386 | 23,000 | A. |

## SEVIER RIVER NEAR VERMILION, UTAH.

**Location.**—In the NE. ¼ sec. 19, T. 22 S., R. 1 W., Salt Lake base and meridian, about 3 miles below Vermilion post office, and 1 mile below the Rocky Ford dam.

**Records available.**—July 15 to September 23, 1912, as station was maintained only during part of the irrigation season of 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff gage on left bank.

**Channel.**—Probably permanent.

**Discharge measurements.**—Made by wading.

**Diversions.**—A large part of the flow of Sevier River is diverted above the station during the irrigation season.

**Artificial control.**—The flow past the station is regulated to a large extent by dams and reservoirs above.

**Accuracy.**—Records fair.

*Discharge measurements of Sevier River near Vermilion, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| July 15 | G. H. Russell | 1.80 | 12.4 |
| Aug. 22 | Porter and Russell | 1.65 | 7.0 |
| Sept. 19 | Leonard Tanner | 2.62 | 164 |
| Oct. 21[a] | .....do | 2.75 | 207 |

[a] River in two channels.

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River near Vermilion, Utah, for year ending Sept. 30, 1912.*

[James Kane, observer.]

| Day. | July. | | August. | | September. | | Day. | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 1.8 | 12 | 1.7 | 8 | 16 | 1.85 | 15 | 1.75 | 10 | 2.8 | 224 |
| 2 | ..... | ..... | 1.7 | 8 | 1.8 | 12 | 17 | 1.8 | 12 | 1.8 | 12 | 2.8 | 224 |
| 3 | ..... | ..... | 1.7 | 8 | 1.8 | 12 | 18 | 1.8 | 12 | 1.8 | 12 | 2.8 | 224 |
| 4 | ..... | ..... | 2.5 | 128 | 1.9 | 18 | 19 | 1.8 | 12 | 2.45 | 115 | 2.6 | 158 |
| 5 | ..... | ..... | 3.3 | 408 | 1.9 | 18 | 20 | 1.75 | 10 | 2.45 | 115 | 2.6 | 158 |
| 6 | ..... | ..... | 2.9 | 258 | 1.9 | 18 | 21 | 1.8 | 12 | 2.5 | 128 | 2.6 | 158 |
| 7 | ..... | ..... | 2.75 | 207 | 1.8 | 12 | 22 | 1.8 | 12 | 1.7 | 8 | 2.6 | 158 |
| 8 | ..... | ..... | 2.6 | 158 | 1.8 | 12 | 23 | 1.8 | 12 | 1.8 | 12 | 2.6 | 158 |
| 9 | ..... | ..... | 1.9 | 18 | 2.0 | 27 | 24 | 1.8 | 12 | 1.8 | 12 | ..... | ..... |
| 10 | ..... | ..... | 2.3 | 78 | 2.0 | 27 | 25 | 1.8 | 12 | 1.8 | 12 | ..... | ..... |
| 11 | ..... | ..... | 1.9 | 18 | 2.15 | 49 | 26 | 1.8 | 12 | 1.8 | 12 | ..... | ..... |
| 12 | ..... | ..... | 1.8 | 12 | 2.4 | 102 | 27 | 1.8 | 12 | 1.8 | 12 | ..... | ..... |
| 13 | ..... | ..... | 1.8 | 12 | 2.8 | 224 | 28 | 1.8 | 12 | 1.7 | 8 | ..... | ..... |
| 14 | ..... | ..... | 2.15 | 49 | 2.8 | 224 | 29 | 1.75 | 10 | 1.75 | 10 | ..... | ..... |
| 15 | 1.8 | 12 | 1.8 | 12 | 2.8 | 224 | 30 | 1.75 | 10 | 1.75 | 10 | ..... | ..... |
| | | | | | | | 31 | 1.75 | 10 | 1.8 | 12 | ..... | ..... |

NOTE.—Daily discharge determined from a fairly well defined rating curve.

*Monthly discharge of Sevier River near Vermilion, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| July 15–31 | 15 | 10 | 11.7 | 394 | A. |
| August | 408 | 8 | 60.8 | 3,740 | A. |
| September 1–23 | 224 | 8 | 106 | 4,830 | A. |

## SEVIER RIVER NEAR GUNNISON, UTAH.

**Location.**—About 60 rods west of the southeast corner of sec. 14, T. 19 S., R. 1 W., Salt Lake base and meridian, at the bridge on the county road leading from Gunnison to West View precinct, about 3 miles west of Gunnison post office. San Pitch River flows into the Sevier from the east about half a mile below the station.

**Records available.**—June 29, 1900, to September 30, 1912.

**Drainage area.**—3,990 square miles.

**Gage.**—Vertical staff on right bridge abutment; datum of gage was lowered 1 foot in September, 1910.

**Channel.**—Sand and gravel; shifting.

**Discharge measurements.**—Measurements are made from the downstream side of the bridge during high water and by wading at the riffle about 50 yards below the bridge during low water.

**Winter flow.**—The river freezes from bank to bank for short periods during December and January.

**Artificial control.**—There are three storage reservoirs on the headwaters of Sevier River, which during certain seasons of the year hold a large part of the stream flow. Numerous diversions for irrigation are also made above the station.

**Accuracy.**—Records obtained at this station are good except during extreme low-water periods.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Sevier River near Gunnison, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911 | | *Feet.* | *Sec.-ft.* | 1912 | | *Feet.* | *Sec.-ft.* |
| Nov. 25 | J. C. Dort | 3.89 | 504 | May 11 | J. C. Dort | 3.11 | 257 |
| | | | | June 18 | E. A. Porter | 3.40 | 354 |
| 1912 | | | | Aug. 5 | J. C. Dort | 2.66 | 118 |
| Feb. 21 | do | 3.45 | 354 | 6 | do | 3.31 | 280 |
| 22 | do | 3.48 | 363 | Sept. 18 | Leonard Tanner | 3.30 | 280 |

*Daily gage height, in feet, of Sevier River near Gunnison, Utah, for year ending Sept. 30, 1912.*

[Leroy H. Lund, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.95 | 4.50 | 3.90 | 5.45 | 3.2 | 3.54 | 3.54 | 3.05 | 5.25 | 1.70 | 3.10 | 2.43 |
| 2 | 4.00 | 3.80 | 3.90 | 5.25 | 3.5 | 3.55 | 3.54 | 3.05 | 5.01 | 1.70 | 3.10 | 2.43 |
| 3 | 4.05 | 3.70 | 3.80 | 5.15 | 3.5 | 3.55 | 3.54 | 3.05 | 5.30 | 1.70 | 3.10 | 2.43 |
| 4 | 4.35 | 3.70 | 3.70 | 5.1 | 3.5 | 3.59 | 3.54 | 3.04 | 5.30 | 1.65 | 2.90 | 2.43 |
| 5 | 4.35 | 3.70 | 3.70 | 5.5 | 3.5 | 3.59 | 3.65 | 3.04 | 5.19 | 1.65 | 2.77 | 2.43 |
| 6 | 4.00 | 3.70 | 3.50 | 4.9 | 3.5 | 3.58 | 3.64 | 3.04 | 5.17 | 1.63 | 3.34 | 2.60 |
| 7 | 4.00 | 3.70 | 4.30 | 4.9 | 3.5 | 3.58 | 3.65 | 3.04 | 5.15 | 1.60 | 3.55 | 2.45 |
| 8 | 4.00 | 3.70 | 4.50 | 4.9 | 3.7 | 3.58 | 3.65 | 3.04 | 5.17 | 1.60 | 3.51 | 2.60 |
| 9 | 4.00 | 3.70 | 4.00 | 4.75 | 3.7 | 3.58 | 3.65 | 3.10 | 5.17 | 1.60 | 3.25 | 3.50 |
| 10 | 4.00 | 3.70 | 3.90 | 4.75 | 3.7 | 3.58 | 3.65 | 3.10 | 5.05 | 1.57 | 2.53 | 3.10 |
| 11 | 4.15 | 3.70 | 3.90 | 4.6 | 3.7 | 3.58 | 3.65 | 3.11 | 5.01 | 1.55 | 2.50 | 2.95 |
| 12 | 4.00 | 3.70 | 3.90 | 4.6 | 3.7 | 3.57 | 3.65 | 3.15 | 3.75 | 1.33 | 2.49 | 2.70 |
| 13 | 4.00 | 3.70 | 3.80 | 4.6 | 3.7 | 3.52 | 3.75 | 3.15 | 3.72 | 1.30 | 2.49 | 2.65 |
| 14 | 4.00 | 3.70 | 3.70 | 4.6 | 3.6 | 3.52 | 3.74 | 3.40 | 3.45 | 1.25 | 2.65 | 2.60 |
| 15 | 4.00 | 3.70 | 3.70 | 4.6 | 3.6 | 3.48 | 3.74 | 3.45 | 3.45 | 1.25 | 2.60 | 3.25 |
| 16 | 4.00 | 3.70 | 3.60 | 4.6 | 3.6 | 3.48 | 3.74 | 3.45 | 3.45 | 1.25 | 2.73 | 3.17 |
| 17 | 3.95 | 3.70 | 3.60 | 4.6 | 3.6 | 3.48 | 3.74 | 3.50 | 2.93 | 1.50 | 2.40 | 3.17 |
| 18 | 3.95 | 3.70 | 3.70 | 3.75 | 3.58 | 3.48 | 3.74 | 3.60 | 3.08 | 1.50 | 2.43 | 3.28 |
| 19 | 3.95 | 3.70 | 3.95 | 3.75 | 3.48 | 3.51 | 3.52 | 3.60 | 2.75 | 1.50 | 2.43 | 3.30 |
| 20 | 3.90 | 3.70 | 3.95 | 3.5 | 3.42 | 3.51 | 3.52 | 3.60 | 2.65 | 1.50 | 2.54 | 3.31 |
| 21 | 3.95 | 3.85 | 4.05 | 3.5 | 3.44 | 3.52 | 3.52 | 4.00 | 2.65 | 1.50 | 2.80 | 3.30 |
| 22 | 3.90 | 3.90 | 4.15 | 3.5 | 3.52 | 3.52 | 3.52 | 4.05 | 2.63 | 1.50 | 2.61 | 3.25 |
| 23 | 4.00 | 3.90 | 4.20 | 3.5 | 3.57 | 3.52 | 3.52 | 4.20 | 2.61 | 1.50 | 2.65 | 3.35 |
| 24 | 4.00 | 3.85 | 4.20 | 3.5 | 3.57 | 3.55 | 3.25 | 4.32 | 2.45 | 1.50 | 2.35 | 3.37 |
| 25 | 4.00 | 3.90 | 4.50 | 3.5 | 3.59 | 3.55 | 3.25 | 4.40 | 2.45 | 1.50 | 2.35 | 3.40 |
| 26 | 3.95 | 3.90 | 4.50 | 3.5 | 3.57 | 3.52 | 3.15 | 4.43 | 2.45 | 1.50 | 2.33 | 3.81 |
| 27 | 4.00 | 3.90 | 4.70 | 3.5 | 3.52 | 3.50 | 3.15 | 4.45 | 2.45 | 1.50 | 2.40 | 3.45 |
| 28 | 4.00 | 3.90 | 5.05 | 3.2 | 3.55 | 3.51 | 2.94 | 4.60 | 2.45 | 2.10 | 2.40 | 3.47 |
| 29 | 4.00 | 3.90 | 5.05 | 3.2 | 3.55 | 3.50 | 2.97 | 4.82 | 2.45 | 2.43 | 2.37 | 3.45 |
| 30 | 4.00 | 3.85 | 5.40 | 3.2 | ..... | 3.50 | 2.97 | 5.61 | 2.40 | 2.57 | 2.37 | 3.45 |
| 31 | 4.00 | ..... | 5.40 | 3.2 | ..... | 3.49 | ..... | 5.40 | ..... | 3.45 | 2.35 | ..... |

NOTE.—Relation of gage height to discharge affected by ice Dec. 19, 1911, to Jan. 17, 1912.

*Daily discharge, in second-feet, of Sevier River near Gunnison, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 490 | 715 | 470 | 350 | 280 | 386 | 386 | 235 | 1,140 | 14 | 220 | 73 |
| 2 | 510 | 435 | 470 | 350 | 372 | 389 | 386 | 235 | 1,020 | 14 | 220 | 73 |
| 3 | 530 | 400 | 435 | 350 | 372 | 389 | 386 | 235 | 1,160 | 14 | 220 | 73 |
| 4 | 650 | 400 | 400 | 350 | 372 | 403 | 386 | 232 | 1,160 | 12 | 172 | 73 |
| 5 | 650 | 400 | 400 | 350 | 372 | 403 | 423 | 232 | 1,100 | 12 | 142 | 73 |
| 6 | 510 | 400 | 330 | 350 | 372 | 399 | 420 | 232 | 1,100 | 12 | 289 | 105 |
| 7 | 510 | 400 | 630 | 350 | 372 | 399 | 423 | 232 | 1,080 | 11 | 356 | 73 |
| 8 | 510 | 400 | 715 | 350 | 440 | 399 | 423 | 232 | 1,100 | 11 | 343 | 105 |
| 9 | 510 | 400 | 510 | 350 | 440 | 399 | 423 | 250 | 1,100 | 11 | 261 | 340 |
| 10 | 510 | 400 | 470 | 350 | 440 | 399 | 423 | 250 | 1,040 | 10 | 91 | 220 |

*Daily discharge, in second-feet, of Sevier River near Gunnison, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 570 | 400 | 470 | 350 | 440 | 399 | 423 | 253 | 1,020 | 10 | 85 | 184 |
| 12 | 510 | 400 | 470 | 350 | 440 | 396 | 423 | 265 | 458 | 4 | 83 | 127 |
| 13 | 510 | 400 | 435 | 350 | 440 | 379 | 458 | 265 | 447 | 3 | 83 | 116 |
| 14 | 510 | 400 | 400 | 350 | 406 | 379 | 454 | 340 | 356 | 2 | 116 | 105 |
| 15 | 510 | 400 | 400 | 350 | 406 | 366 | 454 | 356 | 356 | 2 | 105 | 261 |
| 16 | 510 | 400 | 365 | 350 | 406 | 366 | 454 | 356 | 356 | 2 | 134 | 238 |
| 17 | 490 | 400 | 365 | 350 | 406 | 366 | 454 | 372 | 200 | 8 | 68 | 238 |
| 18 | 490 | 400 | 400 | 458 | 399 | 366 | 454 | 406 | 244 | 8 | 73 | 270 |
| 19 | 490 | 400 | 400 | 458 | 366 | 375 | 379 | 406 | 154 | 8 | 73 | 276 |
| 20 | 470 | 400 | 400 | 372 | 346 | 375 | 379 | 406 | 131 | 8 | 93 | 279 |
| 21 | 490 | 452 | 400 | 372 | 353 | 379 | 379 | 552 | 131 | 8 | 149 | 276 |
| 22 | 470 | 470 | 400 | 372 | 379 | 379 | 379 | 572 | 127 | 8 | 107 | 261 |
| 23 | 510 | 470 | 400 | 372 | 396 | 379 | 379 | 634 | 122 | 8 | 116 | 292 |
| 24 | 510 | 452 | 400 | 372 | 396 | 389 | 295 | 687 | 91 | 8 | 61 | 298 |
| 25 | 510 | 470 | 400 | 372 | 403 | 389 | 295 | 724 | 91 | 8 | 61 | 308 |
| 26 | 490 | 470 | 400 | 372 | 396 | 379 | 265 | 738 | 91 | 8 | 58 | 446 |
| 27 | 510 | 470 | 400 | 372 | 379 | 372 | 265 | 748 | 91 | 8 | 68 | 324 |
| 28 | 510 | 470 | 400 | 280 | 389 | 375 | 203 | 820 | 91 | 39 | 68 | 330 |
| 29 | 510 | 470 | 400 | 280 | 389 | 372 | 212 | 926 | 91 | 80 | 64 | 324 |
| 30 | 510 | 452 | 400 | 280 | ..... | 372 | 212 | 1,320 | 82 | 102 | 64 | 324 |
| 31 | 510 | ..... | 400 | 280 | ..... | 369 | ..... | 1,210 | ..... | 331 | 61 | ..... |

NOTE.—Discharge determined from two rating curves which are fairly well defined above 70 second-feet, one curve applicable Oct. 1, 1911, to July 27, 1912, the other from Aug. 1 to Sept. 30, 1912. Discharge July 28–31 determined by indirect method for shifting channels. Discharge estimated because of ice as follows: Dec. 19–31, 1911, 400 second-feet; Jan. 1–17, 1912, 350 second-feet.

*Monthly discharge of Sevier River near Gunnison, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 650 | 470 | 515 | 31,700 | B. |
| November | 715 | 400 | 433 | 25,800 | B. |
| December | 715 | 330 | 430 | 26,400 | C. |
| January | 458 | 280 | 354 | 21,800 | C. |
| February | 440 | 280 | 392 | 22,500 | B. |
| March | 403 | 366 | 383 | 23,600 | A. |
| April | 458 | 203 | 376 | 22,400 | A. |
| May | 1,320 | 232 | 475 | 29,200 | A. |
| June | 1,160 | 82 | 524 | 31,200 | A. |
| July | 331 | 2 | 25.3 | 1,560 | B. |
| August | 356 | 58 | 132 | 8,120 | A. |
| September | 446 | 73 | 216 | 12,900 | A. |
| The year | 1,320 | 2 | 355 | 257,000 | |

NOTE.—Records for December, 1911, supersede those published in Water-Supply Paper 310, p. 65.

## SEVIER RIVER NEAR JUAB, UTAH.

**Location.**—In the NE. ¼ sec. 2, T. 17 S., R. 2 W., Salt Lake base and meridian, about 1,000 feet downstream from the Sevier bridge dam, and about 14 miles southwest of Juab, Utah.

**Records available.**—September 23, 1911, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Sloping staff on right bank; datum unchanged.

**Channel.**—Practically permanent except at sudden high stages.

**Discharge measurements.**—Made from car and cable during high water and by wading at low stages of the river.

**Winter flow.**—Relation of gage heights to discharge probably is not affected by ice during winter months.

**Diversions.**—No diversions between this station and the station near Gunnison.

**Artificial control.**—The flow in the river is controlled by the gates in the dam just above the station.

**Accuracy.**—Good.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Sevier River near Juab, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Sept. 23 | R. R. Lyman | 3.13 | 225 |
| 1912. | | | |
| Aug. 12 | J. C. Dort | 3.30 | 269 |
| 12 | ....do | 3.89 | 416 |
| 13 | Porter and Dort | 3.86 | 404 |

*Daily gage height, in feet, of Sevier River near Juab, Utah, for year ending Sept. 30, 1912.*

[F. M. Fisher, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.13 | 1.62 | 1.56 | 4.05 | 3.40 | 3.42 | 4.52 | 3.43 | 4.8 | 3.7 | 3.95 | 4.24 |
| 2 | 3.16 | 1.62 | 1.56 | 4.05 | 3.40 | 3.65 | 4.52 | 3.35 | 4.8 | 3.2 | 3.95 | 4.20 |
| 3 | 3.18 | 1.62 | 1.56 | 4.05 | 3.40 | 3.65 | 4.50 | 3.35 | 4.8 | 3.2 | 3.95 | 4.05 |
| 4 | 3.18 | 1.62 | 1.72 | 4.05 | 3.41 | 3.65 | 4.48 | 3.35 | 4.6 | 3.2 | 3.90 | 4.00 |
| 5 | 3.20 | 1.55 | 1.72 | 4.05 | 3.41 | 3.65 | 4.46 | 3.35 | 4.4 | 3.8 | 3.90 | 3.90 |
| 6 | 3.22 | 1.55 | 1.72 | 4.05 | 3.41 | 3.65 | 4.45 | 3.35 | 4.4 | 3.8 | 3.90 | 3.80 |
| 7 | 3.24 | 1.55 | 1.72 | 4.05 | 3.41 | 3.90 | 4.45 | 3.30 | 4.4 | 3.8 | 3.90 | 3.80 |
| 8 | 3.26 | 1.55 | 1.72 | 4.05 | 1.76 | 3.90 | 4.45 | 3.30 | 4.4 | 3.8 | 3.90 | 3.65 |
| 9 | 3.28 | 1.55 | 1.72 | 4.05 | 1.76 | 4.25 | 4.45 | 3.30 | 4.4 | 4.2 | 3.90 | 3.50 |
| 10 | 3.30 | 1.55 | 1.72 | 4.45 | 1.76 | 4.30 | 4.10 | 3.30 | 4.6 | 4.53 | 3.90 | 3.50 |
| 11 | 3.31 | 1.55 | 1.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.30 | 4.6 | 4.53 | 3.90 | 4.00 |
| 12 | 3.32 | 1.55 | 1.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.30 | 4.6 | 4.53 | 3.90 | 3.70 |
| 13 | 3.33 | 1.55 | 1.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.55 | 4.6 | 4.53 | 3.88 | 3.50 |
| 14 | 1.35 | 1.55 | 2.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.55 | 4.9 | 4.53 | 3.88 | 3.50 |
| 15 | 1.55 | 1.55 | 2.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.95 | 4.9 | 4.8 | 4.11 | 3.68 |
| 16 | 1.64 | 1.55 | 2.72 | 4.45 | 1.76 | 4.30 | 3.83 | 3.95 | 4.9 | 4.8 | 4.11 | 3.65 |
| 17 | 1.75 | 1.55 | 2.72 | 4.45 | 1.76 | 4.53 | 3.83 | 4.33 | 4.9 | 4.8 | 4.11 | 3.65 |
| 18 | 1.75 | 1.55 | 2.72 | 4.45 | 1.76 | 4.53 | 3.83 | 4.70 | 4.9 | 4.8 | 4.10 | 3.60 |
| 19 | 1.75 | 1.56 | 3.15 | 4.45 | 1.76 | 4.53 | 3.83 | 4.70 | 4.9 | 4.8 | 4.10 | 3.65 |
| 20 | 1.75 | 1.56 | 3.15 | 4.45 | 1.76 | 4.53 | 3.91 | 4.90 | 4.9 | 4.8 | 4.41 | 3.65 |
| 21 | 1.75 | 1.56 | 3.15 | 4.45 | 1.76 | 4.53 | 3.91 | 5.20 | 4.9 | 4.4 | 4.41 | 3.65 |
| 22 | 1.75 | 1.56 | 3.15 | 4.45 | 1.76 | 4.53 | 3.91 | 5.50 | 4.85 | 4.4 | 4.60 | 3.65 |
| 23 | 1.75 | 1.56 | 3.15 | 4.45 | 1.76 | 4.52 | 3.91 | 5.50 | 4.82 | 4.4 | 4.60 | 3.65 |
| 24 | 1.62 | 1.56 | 3.60 | 4.04 | 1.76 | 4.52 | 3.91 | 5.50 | 4.8 | 4.4 | 4.60 | 3.65 |
| 25 | 1.62 | 1.56 | 3.60 | 3.84 | 1.76 | 4.52 | 3.83 | 5.50 | 4.55 | 4.4 | 4.60 | 3.65 |
| 26 | 1.62 | 1.56 | 3.60 | 3.62 | 2.63 | 4.52 | 3.83 | 5.73 | 4.3 | 4.0 | 4.60 | 3.78 |
| 27 | 1.62 | 1.56 | 3.60 | 3.62 | 3.14 | 4.52 | 3.66 | 5.73 | 4.3 | 4.0 | 4.60 | 3.90 |
| 28 | 1.62 | 1.56 | 4.05 | 3.60 | 3.14 | 4.52 | 3.53 | 5.73 | 4.3 | 4.0 | 4.35 | 3.90 |
| 29 | 1.62 | 1.56 | 4.05 | 3.60 | 3.14 | 4.52 | 3.53 | 5.20 | 4.1 | 4.0 | 4.35 | 3.88 |
| 30 | 1.62 | 1.56 | 4.05 | 3.50 | ..... | 4.52 | 3.43 | 5.20 | 4.1 | 3.95 | 4.30 | 3.88 |
| 31 | 1.62 | ..... | 4.05 | 3.50 | ..... | 4.52 | ..... | 5.20 | ..... | 3.95 | 4.28 | ..... |

NOTE.—Relation of gage height to discharge not affected by ice.

*Daily discharge, in second-feet, of Sevier River near Juab, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 230 | 8 | 5.4 | 458 | 295 | 300 | 584 | 302 | 661 | 367 | 432 | 509 |
| 2 | 237 | 8 | 5.4 | 458 | 295 | 355 | 584 | 283 | 661 | 247 | 432 | 498 |
| 3 | 242 | 8 | 5.4 | 458 | 295 | 355 | 579 | 283 | 661 | 247 | 432 | 458 |
| 4 | 242 | 8 | 14 | 458 | 297 | 355 | 574 | 283 | 606 | 247 | 419 | 445 |
| 5 | 247 | 5 | 14 | 458 | 297 | 355 | 568 | 283 | 552 | 393 | 419 | 419 |
| 6 | 252 | 5 | 14 | 458 | 297 | 355 | 566 | 283 | 552 | 393 | 419 | 393 |
| 7 | 257 | 5 | 14 | 458 | 297 | 419 | 566 | 271 | 552 | 393 | 419 | 393 |
| 8 | 261 | 5 | 14 | 458 | 17 | 419 | 566 | 271 | 552 | 393 | 419 | 355 |
| 9 | 266 | 5 | 14 | 458 | 17 | 512 | 566 | 271 | 552 | 498 | 419 | 319 |
| 10 | 271 | 5 | 14 | 566 | 17 | 525 | 471 | 271 | 606 | 587 | 419 | 319 |
| 11 | 273 | 5 | 14 | 566 | 17 | 525 | 401 | 271 | 606 | 587 | 419 | 445 |
| 12 | 276 | 5 | 14 | 566 | 17 | 525 | 401 | 271 | 606 | 587 | 419 | 367 |
| 13 | 278 | 5 | 14 | 566 | 17 | 525 | 401 | 331 | 606 | 587 | 414 | 319 |
| 14 | .5 | 5 | 139 | 566 | 17 | 525 | 401 | 331 | 689 | 587 | 414 | 319 |
| 15 | 5 | 5 | 139 | 566 | 17 | 525 | 401 | 432 | 689 | 661 | 474 | 362 |
| 16 | 9 | 5 | 139 | 566 | 17 | 525 | 401 | 432 | 689 | 661 | 474 | 355 |
| 17 | 16 | 5 | 139 | 566 | 17 | 587 | 401 | 533 | 689 | 661 | 474 | 355 |
| 18 | 16 | 5 | 139 | 566 | 17 | 587 | 401 | 633 | 689 | 661 | 471 | 343 |
| 19 | 16 | 5.4 | 235 | 566 | 17 | 587 | 401 | 633 | 689 | 661 | 471 | 355 |
| 20 | 16 | 5.4 | 235 | 566 | 17 | 587 | 422 | 689 | 689 | 661 | 555 | 355 |
| 21 | 16 | 5.4 | 235 | 566 | 17 | 587 | 422 | 773 | 689 | 552 | 555 | 355 |
| 22 | 16 | 5.4 | 235 | 566 | 17 | 587 | 422 | 857 | 675 | 552 | 606 | 355 |
| 23 | 16 | 5.4 | 235 | 566 | 17 | 584 | 422 | 857 | 667 | 552 | 606 | 355 |
| 24 | 8 | 5.4 | 343 | 455 | 17 | 584 | 422 | 857 | 661 | 552 | 606 | 355 |
| 25 | 8 | 5.4 | 343 | 403 | 17 | 584 | 401 | 857 | 592 | 552 | 606 | 355 |
| 26 | 8 | 5.4 | 343 | 348 | 121 | 584 | 401 | 921 | 525 | 445 | 606 | 388 |
| 27 | 8 | 5.4 | 343 | 348 | 233 | 584 | 357 | 921 | 525 | 445 | 606 | 419 |
| 28 | 8 | 5.4 | 458 | 343 | 233 | 584 | 326 | 921 | 525 | 445 | 538 | 419 |
| 29 | 8 | 5.4 | 458 | 343 | 233 | 584 | 326 | 773 | 471 | 445 | 538 | 414 |
| 30 | 8 | 5.4 | 458 | 319 | ..... | 584 | 302 | 773 | 471 | 432 | 525 | 414 |
| 31 | 8 | ..... | 458 | 319 | ..... | 584 | ..... | 773 | ..... | 432 | 520 | ..... |

NOTE.—Discharge determined from a well-defined rating curve based on measurements made 1911 to 1913.

*Monthly discharge of Sevier River near Juab, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 278 | 0.5 | 114 | 7,010 | A. |
| November | 8 | 5. | 5.56 | 331 | B. |
| December | 458 | 5.4 | 169 | 10,400 | B. |
| January | 566 | 319 | 481 | 29,600 | B. |
| February | 297 | 17 | 110 | 6,330 | B. |
| March | 587 | 300 | 512 | 31,500 | A. |
| April | 584 | 302 | 449 | 26,700 | A. |
| May | 921 | 271 | 537 | 33,000 | A. |
| June | 689 | 471 | 613 | 36,500 | A. |
| July | 661 | 247 | 499 | 30,700 | A. |
| August | 606 | 414 | 488 | 30,000 | A. |
| September | 509 | 319 | 384 | 22,800 | A. |
| The year | 921 | .5 | 364 | 265,000 | |

## SEVIER RIVER AT LEAMINGTON, UTAH.

**Location.**—In the NE. ¼ sec. 10, T. 15 S., R. 4 W., Salt Lake base and meridian, on the county bridge about one block north of the town hotel at Leamington, Utah, and about 400 feet north of the San Pedro, Los Angeles & Salt Lake Railroad.

**Records available.**—August 23, 1889, to December 31, 1893; May 18, 1912, to September 30, 1912.

**Drainage area.**—5,600 square miles.

**Gage.**—Vertical staff gage on upper side of south pier.

**Channel and control.**—Fairly permanent except at sudden extreme high stages of stream.

**Discharge measurements.**—Made by wading or from car and cable 3,000 feet above gage.

**Winter flow.**—Relation of gage heights to discharge affected by ice during short periods.

**Diversions.**—A number of canals which head below the Sevier bridge dam divert water above the station during the irrigation season. The water passing the station represents the amount available for the lands in and around Delta and Oasis, Utah.

**Accuracy.**—Records fair.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co. and the Sevier River Land & Water Co.

Data obtained during August, 1912, indicate a gain of about 45 second-feet from seepage and springs between the Sevier bridge dam and this station.

*Discharge measurements of Sevier River at Leamington, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 18. | C. S. Jarvis[a] | 4.50 | 531 |
| Aug. 14. | Porter and Dort | 3.85 | 395 |

[a] Measurement made by floats.

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River at Leamington, Utah, for year ending Sept. 30, 1912.*

[Walter Stout, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 5.6 | 882 | 4.0 | 431 | 4.0 | 431 | 4.3 | 505 |
| 2 | | | 5.4 | 820 | 3.9 | 407 | 4.0 | 431 | 4.2 | 480 |
| 3 | | | 5.0 | 700 | 3.3 | 268 | 4.0 | 431 | 4.2 | 480 |
| 4 | | | 4.6 | 584 | 3.3 | 268 | 3.9 | 407 | 4.0 | 431 |
| 5 | | | 4.4 | 530 | 3.3 | 268 | 3.9 | 407 | 4.0 | 431 |
| 6 | | | 4.2 | 480 | 3.5 | 314 | 3.9 | 407 | 4.0 | 431 |
| 7 | | | 4.4 | 530 | 3.7 | 360 | 3.9 | 407 | 4.0 | 431 |
| 8 | | | 4.5 | 556 | 3.8 | 383 | 3.9 | 407 | 3.8 | 383 |
| 9 | | | 4.4 | 530 | 3.8 | 383 | 3.9 | 407 | 3.8 | 383 |
| 10 | | | 4.4 | 530 | 3.9 | 407 | 3.9 | 407 | 3.6 | 337 |
| 11 | | | 4.4 | 530 | 4.4 | 530 | 3.9 | 407 | 4.0 | 431 |
| 12 | | | 4.6 | 584 | 4.5 | 556 | 3.9 | 407 | 4.0 | 431 |
| 13 | | | 4.6 | 584 | 4.5 | 556 | 3.8 | 383 | 3.8 | 383 |
| 14 | | | 4.5 | 556 | 4.5 | 556 | 3.8 | 383 | 3.6 | 337 |
| 15 | | | 4.8 | 640 | 4.5 | 556 | 3.8 | 383 | 3.6 | 337 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River at Leamington, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 16 | ..... | ..... | 4.9 | 670 | 4.7 | 612 | 4.2 | 480 | 4.0 | 431 |
| 17 | ..... | ..... | 4.9 | 670 | 4.9 | 670 | 4.2 | 480 | 3.8 | 383 |
| 18 | 4.0 | 431 | 4.9 | 670 | 4.9 | 670 | 4.1 | 455 | 3.8 | 383 |
| 19 | 4.4 | 530 | 4.9 | 670 | 4.8 | 640 | 4.1 | 455 | 3.8 | 383 |
| 20 | 5.5 | 850 | 4.9 | 670 | 4.7 | 612 | 4.1 | 455 | 3.8 | 383 |
| 21 | 5.5 | 850 | 4.8 | 640 | 4.7 | 612 | 4.3 | 505 | 3.8 | 383 |
| 22 | 5.5 | 850 | 4.9 | 670 | 4.5 | 556 | 4.5 | 556 | 3.8 | 383 |
| 23 | 5.5 | 850 | 4.8 | 640 | 4.4 | 530 | 4.7 | 612 | 3.8 | 383 |
| 24 | 5.5 | 850 | 4.9 | 670 | 4.3 | 505 | 4.7 | 612 | 3.8 | 383 |
| 25 | 5.5 | 850 | 5.0 | 700 | 4.3 | 505 | 4.7 | 612 | 3.8 | 383 |
| 26 | 5.5 | 850 | 4.9 | 670 | 4.2 | 480 | 5.2 | 760 | 3.8 | 383 |
| 27 | 5.5 | 850 | 4.9 | 670 | 4.1 | 455 | 4.7 | 612 | 3.9 | 407 |
| 28 | 5.3 | 790 | 4.5 | 556 | 4.0 | 431 | 4.5 | 556 | 4.0 | 431 |
| 29 | 5.3 | 790 | 4.4 | 530 | 4.0 | 431 | 4.5 | 556 | 4.0 | 431 |
| 30 | 5.3 | 790 | 4.0 | 431 | 4.0 | 431 | 4.4 | 530 | 4.0 | 431 |
| 31 | 5.3 | 790 | ..... | ..... | 3.9 | 407 | 4.4 | 530 | ..... | ..... |

NOTE.—Discharge determined from a fairly well defined rating curve based mainly on measurements in 1913.

*Monthly discharge of Sevier River at Leamington, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 18-31 | 850 | 431 | 780 | 21,700 | B. |
| June | 882 | 431 | 619 | 36,800 | B. |
| July | 670 | 268 | 477 | 29,300 | B. |
| August | 760 | 383 | 480 | 29,500 | A. |
| September | 505 | 337 | 406 | 24,200 | A. |
| The period | ..... | ..... | ..... | 142,000 | |

## SEVIER RIVER NEAR DELTA, UTAH.

**Location.**—In the NW. ¼ sec. 27, T. 16 S., R. 6 W., Salt Lake base and meridian, about 6½ miles northeast of the Delta town site and about 1½ miles west or below the Delta spillway and diversion dam for the Delta projects.

**Records available.**—May 16, 1912, to September 24, 1912.

**Drainage area.**—Not measured.

**Gage.**—Inclined staff gage on left bank.

**Channel and control.**—Shifts at sudden high water.

**Discharge measurements.**—Made from car and cable at high water and by wading at other times.

**Winter flow.**—Ice occasionally forms during very cold weather.

**Diversions.**—Canal "A" of the Delta projects diverts about 1½ miles above the station.

**Artificial control.**—Flow at the station is controlled by regulation of the Delta spillway and by four storage reservoirs on Sevier River above the station.

**Accuracy.**—Fair.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Sevier River near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 26 | J. C. Dort | 4.11 | 469 | Aug. 24 | H. O. Snow | 3.54 | 317 |
| July 29 | F. W. Cottrell | 2.60 | 159 | 26 | F. W. Cottrell | 3.97 | 364 |
| 30 | J. C. Dort | 2.56 | 155 | Sept. 7 | H. O. Snow | 4.03 | 297 |
| Aug. 14 | F. W. Cottrell | 2.53 | 166 | 12 | F. W. Cottrell | 3.74 | 251 |
| 15 | H. O. Snow | 2.67 | 176 | 23 | Port and Cottrell | 3.68 | 235 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River near Delta, Utah, for year ending Sept. 30, 1912.*

[Leslie D. Pace, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 4.35 | 526 | ..... | ..... | 2.60 | 160 | 4.15 | 359 |
| 2 | ..... | ..... | 4.38 | 533 | ..... | ..... | 2.53 | 150 | 4.20 | 363 |
| 3 | ..... | ..... | 4.22 | 495 | ..... | ..... | 2.56 | 154 | 4.22 | 361 |
| 4 | ..... | ..... | 4.20 | 490 | ..... | ..... | 2.53 | 150 | 4.15 | 340 |
| 5 | ..... | ..... | 3.80 | 398 | ..... | ..... | 2.51 | 146 | 4.12 | 328 |
| 6 | ..... | ..... | 3.50 | 332 | ..... | ..... | 2.47 | 140 | 3.95 | 290 |
| 7 | ..... | ..... | 3.40 | 310 | ..... | ..... | 2.46 | 139 | 4.03 | 300 |
| 8 | ..... | ..... | ..... | ..... | ..... | ..... | 2.46 | 139 | 3.91 | 277 |
| 9 | ..... | ..... | ..... | ..... | ..... | ..... | 2.44 | 136 | 4.01 | 296 |
| 10 | ..... | ..... | ..... | ..... | ..... | ..... | 2.44 | 136 | 3.99 | 292 |
| 11 | ..... | ..... | ..... | ..... | ..... | ..... | 2.40 | 130 | 3.73 | 243 |
| 12 | ..... | ..... | ..... | ..... | ..... | ..... | 2.40 | 130 | 3.75 | 247 |
| 13 | ..... | ..... | ..... | ..... | ..... | ..... | 2.40 | 130 | 4.04 | 302 |
| 14 | ..... | ..... | ..... | ..... | ..... | ..... | 2.46 | 139 | 4.12 | 317 |
| 15 | ..... | ..... | ..... | ..... | ..... | ..... | 2.72 | 180 | 3.99 | 292 |
| 16 | 2.25 | 109 | ..... | ..... | ..... | ..... | 2.58 | 156 | 3.86 | 267 |
| 17 | 2.31 | 116 | ..... | ..... | ..... | ..... | 2.60 | 157 | 3.90 | 275 |
| 18 | 2.31 | 116 | ..... | ..... | ..... | ..... | 2.67 | 165 | 4.01 | 296 |
| 19 | 3.35 | 299 | ..... | ..... | ..... | ..... | 2.74 | 174 | 4.21 | 334 |
| 20 | 3.40 | 310 | ..... | ..... | ..... | ..... | 2.76 | 176 | ..... | 309 |
| 21 | 3.45 | 321 | ..... | ..... | ..... | ..... | 2.84 | 189 | ..... | 284 |
| 22 | 3.50 | 332 | ..... | ..... | 3.07 | 243 | 2.98 | 212 | ..... | 259 |
| 23 | 3.70 | 376 | ..... | ..... | 2.93 | 217 | 3.41 | 292 | 3.68 | 234 |
| 24 | 3.92 | 424 | ..... | ..... | 2.87 | 207 | 3.59 | 330 | ..... | ..... |
| 25 | ..... | 448 | ..... | ..... | 2.80 | 194 | 3.78 | 347 | ..... | ..... |
| 26 | 4.12 | 471 | ..... | ..... | 2.80 | 194 | 4.07 | 387 | ..... | ..... |
| 27 | 4.25 | 502 | ..... | ..... | 2.77 | 189 | 4.29 | 429 | ..... | ..... |
| 28 | 4.48 | 557 | ..... | ..... | 2.63 | 165 | 4.34 | 434 | ..... | ..... |
| 29 | 4.60 | 586 | ..... | ..... | 2.60 | 160 | 4.21 | 393 | ..... | ..... |
| 30 | 4.75 | 622 | ..... | ..... | 2.53 | 150 | 4.19 | 381 | ..... | ..... |
| 31 | ..... | 574 | ..... | ..... | 2.52 | 148 | 4.21 | 379 | ..... | ..... |

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable May 16 to Aug. 15, the other Sept. 7 to Sept. 22. Discharge Aug. 16 to Sept. 6 determined by indirect method for shifting channels.

*Monthly discharge of Sevier River near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 16–31 | 622 | 109 | 385 | 12,200 | A. |
| June 1–7 | 533 | 310 | 441 | 6,120 | A. |
| July 22–31 | 243 | 148 | 187 | 3,710 | A. |
| August | 434 | 130 | 218 | 13,400 | B. |
| September 1–23 | 363 | 234 | 298 | 13,600 | B. |

## SEVIER RIVER AT OASIS, UTAH.

**Location.**—In the SW. ¼ sec. 22, T. 17 S., R. 7 W., Salt Lake base and meridian, on the county bridge about three-fourths of a mile west of Oasis, Utah, and about 400 yards below a flour mill on the right bank of Sevier River.

**Records available.**—April 13 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff gage on extreme southwest wooden pile of bridge. Sloping gage on right bank used for high water.

**Channel.**—Shifting.

**Discharge measurements.**—Made by wading at low and medium stages; can be made from the bridge at extreme high stages.

**Winter flow.**—Relation of gage heights to discharge probably not affected by ice.

**Diversions.**—During the irrigation season all the water in the river is diverted above. Records at the station during such periods represent seepage and return waters.

**Artificial control.**—Storage reservoirs and diversion dams above control the flow of the river at the station.

**Accuracy.**—Fair only, owing to shifting of control and the fact that one or two gage readings a day are probably not sufficient to give mean for the day.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Sevier River at Oasis, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 20 | J. C. Dort | 2.57 | 11.8 |
| July 30 | Dort and Cottrell | 2.66 | 11.1 |
| Sept. 23 | .....do | 4.18 | 197 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River at Oasis, Utah, for year ending Sept. 30, 1912.*

[W. W. Warnick, observer.]

| Day. | April. | | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 3.3 | 78 | 3.15 | 60 | 2.7 | 13 | 2.65 | 11 | 4.1 | 184 |
| 2 | ..... | ..... | 3.8 | 150 | 3.1 | 55 | 2.7 | 13 | 2.65 | 11 | 4.0 | 166 |
| 3 | ..... | ..... | 3.3 | 78 | 2.75 | 22 | 2.7 | 13 | 2.7 | 13 | 4.0 | 166 |
| 4 | ..... | ..... | 3.2 | 66 | 2.75 | 22 | 2.7 | 13 | 2.7 | 13 | 4.3 | 220 |
| 5 | ..... | ..... | 3.05 | 50 | 2.7 | 19 | 2.6 | 9 | 2.7 | 13 | 4.3 | 220 |
| 6 | ..... | ..... | 2.9 | 34 | 2.7 | 19 | 2.6 | 9 | 2.7 | 13 | 4.1 | 184 |
| 7 | ..... | ..... | 2.6 | 13 | 2.7 | 19 | 2.6 | 9 | 2.7 | 13 | 4.1 | 184 |
| 8 | ..... | ..... | 2.5 | 9 | 2.7 | 19 | 2.6 | 9 | 2.7 | 13 | 4.1 | 184 |
| 9 | ..... | ..... | 2.4 | 6 | 2.7 | 19 | 2.6 | 9 | 2.7 | 13 | 4.1 | 184 |
| 10 | ..... | ..... | 2.4 | 6 | 2.6 | 13 | 2.6 | 9 | 2.65 | 11 | 4.7 | 300 |
| 11 | ..... | ..... | 2.3 | 4.5 | 2.55 | 11 | 2.55 | 7.5 | 2.65 | 11 | 4.7 | 300 |
| 12 | ..... | ..... | 2.3 | 4.5 | 2.5 | 9 | 2.5 | 6 | 2.65 | 11 | 4.3 | 220 |
| 13 | 5.72 | 545 | 2.0 | .5 | 2.5 | 9 | 2.5 | 6 | 2.65 | 11 | 4.1 | 184 |
| 14 | 5.6 | 516 | 2.0 | .5 | 2.5 | 9 | 2.5 | 6 | 2.65 | 11 | 4.1 | 184 |
| 15 | 5.5 | 492 | 2.0 | .5 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.9 | 340 |
| 16 | 4.5 | 280 | 2.0 | .5 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.4 | 240 |
| 17 | 4.5 | 280 | 2.0 | .5 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.0 | 166 |
| 18 | 4.8 | 340 | 2.0 | .5 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.1 | 184 |
| 19 | 4.75 | 330 | 2.0 | .5 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.4 | 240 |
| 20 | 4.7 | 320 | 2.6 | 13 | 2.5 | 9 | 2.55 | 7.5 | 2.7 | 13 | 4.9 | 340 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier River at Oasis, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | April. | | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 21 | 4.1 | 202 | 2.6 | 13 | 2.5 | 9 | 2.55 | 7.5 | 2.7 | 13 | 4.7 | 300 |
| 22 | 4.5 | 280 | 2.6 | 13 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.1 | 184 |
| 23 | 4.32 | 244 | 2.6 | 13 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 4.05 | 175 |
| 24 | 3.87 | 161 | 2.6 | 13 | 2.5 | 9 | 2.55 | 7.5 | 2.65 | 11 | 3.7 | 120 |
| 25 | 4.1 | 202 | 2.6 | 13 | 2.5 | 9 | 2.65 | 11 | 2.65 | 11 | 3.6 | 106 |
| 26 | 4.95 | 371 | 2.65 | 16 | 2.5 | 9 | 2.65 | 11 | 2.75 | 16 | 4.1 | 184 |
| 27 | 4.4 | 260 | 2.75 | 22 | 3.5 | 92 | 2.65 | 11 | 4.5 | 260 | 4.1 | 184 |
| 28 | 4.0 | 184 | 2.6 | 13 | 2.5 | 6 | 2.65 | 11 | 4.5 | 260 | 4.0 | 166 |
| 29 | 3.9 | 166 | 2.6 | 13 | 2.6 | 9 | 2.65 | 11 | 4.3 | 220 | 4.1 | 184 |
| 30 | 3.2 | 66 | 2.6 | 13 | 2.7 | 13 | 2.65 | 11 | 4.1 | 184 | 4.1 | 184 |
| 31 | ..... | ..... | 3.1 | 55 | ..... | ..... | 2.65 | 11 | 4.3 | 220 | ..... | ..... |

NOTE.—Daily discharge determined from two fairly well defined rating curves, one applicable Apr. 13 to June 26, the other June 27 to Sept. 30, 1912.

*Monthly discharge of Sevier River at Oasis, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 13–30 | 545 | 66 | 291 | 10,400 | A. |
| May | 150 | .5 | 23.0 | 1,410 | B. |
| June | 92 | 6 | 17.8 | 1,060 | B. |
| July | 13 | 6 | 9.15 | 563 | B. |
| August | 260 | 11 | 46.9 | 2,880 | B. |
| September | 340 | 106 | 206 | 12,300 | A. |
| The period | ..... | ..... | ..... | 28,600 | |

## ASAY CREEK NEAR HATCH, UTAH.

**Location.**—About one-fourth mile above the backwater of the Hatchtown reservoir, on the road from Hatch to Knab.

**Records available.**—July 16 to September 20, 1912, also miscellaneous measurements during 1911 and spring of 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on right bank, 30 feet below cable.

**Channel.**—Gravel and rocks; should be fairly permanent.

**Discharge measurements.**—Made by wading or from cable.

**Winter flow.**—No data.

**Diversions.**—Above all diversions.

**Artificial control.**—None.

**Accuracy.**—Records fair.

Records show the run-off from this stream available for storage in the Hatchtown reservoir.

*Discharge measurements of Asay Creek near Hatch, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 9 | G. H. Russell | 1.94 | 178 | July 25 | G. H. Russell | 1.35 | 80.3 |
| June 3 | do | 2.40 | 256 | Aug. 28 | do | 1.30 | 71.4 |
| July 4 | do | 1.60 | 111 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Asay Creek near Hatch, Utah, for year ending Sept. 30, 1912.*

[A. W. Huntington, observer.]

| Day. | July. | | August. | | September. | | Day. | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 16 | 1.5 | 100 | 1.3 | 73 | 1.25 | 67 |
| 2 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 17 | 1.85 | 156 | 1.3 | 73 | 1.25 | 67 |
| 3 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 18 | 1.6 | 115 | 1.3 | 73 | 1.25 | 67 |
| 4 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 19 | 1.4 | 86 | 1.3 | 73 | 1.25 | 67 |
| 5 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 20 | 1.4 | 86 | 1.3 | 73 | 1.25 | 67 |
| 6 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 21 | 1.4 | 86 | 1.3 | 73 | ..... | ..... |
| 7 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 22 | 1.4 | 86 | 1.3 | 73 | ..... | ..... |
| 8 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 23 | 1.35 | 80 | 1.3 | 73 | ..... | ..... |
| 9 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 24 | 1.35 | 80 | 1.3 | 73 | ..... | ..... |
| 10 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 25 | 1.35 | 80 | 1.3 | 73 | ..... | ..... |
| 11 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 26 | 1.35 | 80 | 1.3 | 73 | ..... | ..... |
| 12 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 27 | 1.5 | 100 | 1.3 | 73 | ..... | ..... |
| 13 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 28 | 1.4 | 86 | 1.3 | 73 | ..... | ..... |
| 14 | ..... | ..... | 1.35 | 80 | 1.3 | 73 | 29 | 1.5 | 100 | 1.3 | 73 | ..... | ..... |
| 15 | ..... | ..... | 1.3 | 73 | 1.25 | 67 | 30 | 1.4 | 86 | 1.3 | 73 | ..... | ..... |
| | | | | | | | 31 | 1.4 | 86 | 1.3 | 73 | ..... | ..... |

NOTE.—Discharge determined from a fairly well defined rating curve.

*Monthly discharge of Asay Creek near Hatch, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| July 16–31 | 156 | 80 | 93 | 2,950 | B. |
| August | 80 | 73 | 76 | 4,670 | B. |
| September 1–20 | 73 | 67 | 71 | 2,820 | B. |
| The period | ..... | ..... | ..... | 10,400 | |

## MAMMOTH CREEK NEAR HATCH, UTAH.

**Location.**—Probably in sec. 3, T. 37 S., R. 6 W., Salt Lake base and meridian, about 4 miles by road above Hatch, Utah, 2½ miles above the high-water line of the Hatchtown reservoir. No surface tributaries between the station and the reservoir, but several small springs discharge into the creek.

**Records available.**—July 15 to September 20, 1912; also miscellaneous measurements during 1911 and the spring of 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on left bank.

**Channel.**—Fairly permanent. Water is very swift and left bank overflows at high stages.

**Discharge measurements.**—By wading or from cable just below gage.

**Winter flow.**—No data.

**Diversions.**—One small ditch diverts about half a mile above the gage. No diversions between the station and reservoir.

**Artificial control.**—None.

**Accuracy.**—Records fair.

*Discharge measurements of Mammoth Creek near Hatch, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 8 | G. H. Russell | 1.61 | 33.1 |
| July 5 | do | 2.22 | 72.9 |
| 26 | do | 1.92 | 40 |
| Aug. 26 | do | 1.68 | 25 |

*Daily gage height, in feet, and discharge, in second-feet, of Mammoth Creek near Hatch, Utah, for year ending Sept. 30, 1912.*

| Day. | July. | | August. | | September. | | Day. | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 1.95 | 43 | 1.65 | 23 | 16 | 1.95 | 43 | 1.65 | 23 | 1.6 | 20 |
| 2 | ..... | ..... | 1.9 | 40 | 1.65 | 23 | 17 | 2.1 | 52 | 1.65 | 23 | 1.6 | 20 |
| 3 | ..... | ..... | 1.9 | 40 | 1.65 | 23 | 18 | 2.1 | 52 | 1.65 | 23 | 1.6 | 20 |
| 4 | ..... | ..... | 1.9 | 40 | 1.65 | 23 | 19 | 2.0 | 46 | 1.65 | 23 | 1.6 | 20 |
| 5 | 2.22 | 73 | 1.9 | 40 | 1.65 | 23 | 20 | 1.9 | 40 | 1.65 | 23 | 1.6 | 20 |
| 6 | ..... | 70 | 1.9 | 40 | 1.65 | 23 | 21 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 7 | ..... | 67 | 1.85 | 36 | 1.65 | 23 | 22 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 8 | ..... | 65 | 1.85 | 36 | 1.65 | 23 | 23 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 9 | ..... | 62 | 1.7 | 26 | 1.65 | 23 | 24 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 10 | ..... | 59 | 1.65 | 23 | 1.65 | 23 | 25 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 11 | ..... | 56 | 1.65 | 23 | 1.65 | 23 | 26 | 1.9 | 40 | 1.65 | 23 | ..... | ..... |
| 12 | ..... | 54 | 1.65 | 23 | 1.65 | 23 | 27 | 1.95 | 43 | 1.65 | 23 | ..... | ..... |
| 13 | ..... | 51 | 1.65 | 23 | 1.65 | 23 | 28 | 2.1 | 52 | 1.65 | 23 | ..... | ..... |
| 14 | ..... | 49 | 1.65 | 23 | 1.65 | 23 | 29 | 2.05 | 49 | 1.65 | 23 | ..... | ..... |
| 15 | 2.0 | 46 | 1.65 | 23 | 1.65 | 23 | 30 | 2.0 | 46 | 1.65 | 23 | ..... | ..... |
| | | | | | | | 31 | 2.0 | 46 | 1.7 | 26 | ..... | ..... |

NOTE.—Discharge determined from a fairly well defined rating curve. Discharge July 6-14 interpolated.

*Monthly discharge of Mammoth Creek near Hatch, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| July 5-31 | 73 | 40 | 50.4 | 2,700 | B. |
| August | 43 | 23 | 27.4 | 1,680 | A. |
| September 1-20 | 23 | 20 | 22.2 | 881 | A. |
| The period | ..... | ..... | ..... | 5,260 | |

## EAST FORK OF SEVIER RIVER NEAR KINGSTON, UTAH.

**Location.**—In the NE. ¼ sec. 10, T. 30 S., R. 4 W., Salt Lake base and meridian, about three-fourths of a mile north of Kingston, and about 1 mile above confluence with Sevier River.

**Records available.**—May 11 to September 20, 1912.

**Gage.**—Vertical staff gage on right bank about 250 feet below M. A. Nielsen's bridge, on road to Kingston.

**Channel and control.**—Probably permanent except at sudden high stages.

**Discharge measurements.**—Made by wading or from bridge above gage.

**Diversions.**—Several small canals divert from the river above the station, but none below.

**Artificial control.**—The Otter Creek reservoir regulates the flow of the river to a large extent.

**Accuracy.**—Records good.

*Discharge measurements of East Fork of Sevier River near Kingston, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 22 | G. H. Russell | 5.70 | [a] 753 | July 8 | G. H. Russell | 4.53 | 289 |
| June 5 | do | 3.49 | 102 | 30 | do | 4.64 | 281 |
| 15 | do | 2.83 | 27 | Aug. 14 | do | 4.32 | 250 |
| 23 | do | 3.90 | 166 | Oct. 6 | do | 2.02 | 15.2 |

[a] Obtained by difference between South Fork and Main River.

*Daily gage height, in feet, and discharge, in second-feet, of East Fork of Sevier River near Kingston, Utah, for year ending Sept. 30, 1912.*

[M. A. Neilsen, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 4.52 | 288 | 4.6 | 306 | 4.6 | 306 | 4.4 | 262 |
| 2 | ..... | ..... | 4.42 | 266 | 4.6 | 306 | 4.6 | 306 | 4.4 | 262 |
| 3 | ..... | ..... | 4.20 | 222 | 4.6 | 306 | 4.6 | 306 | 4.4 | 262 |
| 4 | ..... | ..... | 3.82 | 152 | 4.6 | 306 | 4.15 | 212 | 4.5 | 284 |
| 5 | ..... | ..... | 3.50 | 101 | 4.6 | 306 | 3.9 | 166 | 4.5 | 284 |
| 6 | ..... | ..... | 3.35 | 80 | 4.6 | 306 | 3.9 | 166 | 4.5 | 284 |
| 7 | ..... | ..... | 3.30 | 74 | 4.6 | 306 | 3.9 | 166 | 4.5 | 284 |
| 8 | ..... | ..... | 3.22 | 64 | 4.6 | 306 | 3.9 | 166 | 4.5 | 284 |
| 9 | ..... | ..... | 3.20 | 62 | 4.6 | 306 | 3.9 | 166 | 4.45 | 273 |
| 10 | ..... | ..... | 3.15 | 56 | 4.6 | 306 | 3.9 | 166 | 4.45 | 273 |
| 11 | 3.62 | 119 | 3.08 | 49 | 4.6 | 306 | 3.9 | 166 | 4.3 | 242 |
| 12 | 4.60 | 306 | 3.00 | 41 | 4.6 | 306 | 3.9 | 166 | 4.2 | 222 |
| 13 | 5.02 | 427 | 2.90 | 32 | 4.6 | 306 | 3.9 | 166 | 4.2 | 222 |
| 14 | 4.85 | 371 | 2.90 | 32 | 4.6 | 306 | 4.2 | 222 | 4.2 | 222 |
| 15 | 4.42 | 266 | 2.85 | 28 | 4.6 | 306 | 4.4 | 262 | 4.2 | 222 |
| 16 | 4.75 | 343 | 2.85 | 28 | 4.6 | 306 | 4.45 | 273 | 4.2 | 222 |
| 17 | 5.15 | 475 | 2.85 | 28 | 4.6 | 306 | 4.45 | 273 | 4.2 | 222 |
| 18 | 5.50 | 640 | 2.80 | 24 | 4.6 | 306 | 4.45 | 273 | 4.1 | 203 |
| 19 | 5.55 | 668 | 2.80 | 24 | 4.6 | 306 | 4.45 | 273 | 4.0 | 184 |
| 20 | 5.60 | 695 | 2.80 | 24 | 4.6 | 306 | 4.45 | 273 | 3.9 | 166 |
| 21 | 5.65 | 722 | 3.82 | 152 | 4.5 | 284 | 4.45 | 273 | ..... | ..... |
| 22 | 5.70 | 750 | 3.90 | 166 | 4.5 | 284 | 4.45 | 273 | ..... | ..... |
| 23 | 5.00 | 420 | 3.90 | 166 | 4.5 | 284 | 4.4 | 262 | ..... | ..... |
| 24 | 4.88 | 380 | 3.90 | 166 | 4.5 | 284 | 4.4 | 262 | ..... | ..... |
| 25 | 4.82 | 362 | 3.90 | 166 | 4.5 | 284 | 4.4 | 262 | ..... | ..... |
| 26 | 4.82 | 362 | 3.90 | 166 | 4.5 | 284 | 4.4 | 262 | ..... | ..... |
| 27 | 4.78 | 351 | 3.90 | 166 | 4.6 | 306 | 4.4 | 262 | ..... | ..... |
| 28 | 4.72 | 335 | 4.42 | 266 | 4.7 | 330 | 4.4 | 262 | ..... | ..... |
| 29 | 4.75 | 343 | 4.50 | 284 | 4.6 | 306 | 4.4 | 262 | ..... | ..... |
| 30 | 4.80 | 356 | 4.50 | 284 | 4.6 | 306 | 4.4 | 262 | ..... | ..... |
| 31 | 4.85 | 371 | ..... | ..... | 4.6 | 306 | 4.4 | 262 | ..... | ..... |

NOTE.—Gage heights May 20–23 estimated by observer, as water was over top of gage. Discharge computed from a fairly well defined rating curve.

*Monthly discharge of East Fork of Sevier River near Kingston, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 11–31 | 750 | 119 | 432 | 18,000 | A. |
| June | 288 | 24 | 122 | 7,260 | A. |
| July | 330 | 284 | 303 | 18,600 | A. |
| August | 306 | 166 | 238 | 14,600 | A. |
| September 1–20 | 284 | 166 | 244 | 9,680 | A. |
| The period | ..... | ..... | ..... | 68,100 | |

## CLEAR CREEK AT SEVIER, UTAH.

**Location.**—In sec. 32, T. 25 S., R. 4 W., Salt Lake base and meridian, at the town of Sevier, about 100 yards above confluence of the stream with Sevier River. Dry Creek enters from the right about 2½ miles above and Mill Creek about 8 miles above the station.

**Records available.**—February 23 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—Fairly permanent.

**Discharge measurements.**—Made by wading or from log bridge just above the gage.

**Winter flow.**—Ice does not affect the relation of gage height to discharge except for short periods during very cold weather.

**Diversions.**—Cove canal heads about three-fourths of a mile above the station.

**Artificial control.**—None.

**Accuracy.**—Records fair.

*Discharge measurements of Clear Creek at Sevier, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 23 | J. C. Dort | 0.44 | 13.2 | June 17 | G. H. Russell | 1.40 | 80.7 |
| May 1 | G. H. Russell | 1.09 | 59.6 | July 13 | do | .37 | 12.1 |
| 20 | do | 2.66 | 191 | Aug. 7 | do | .27 | 7.7 |
| June 7 | do | 2.72 | 201 | Sept. 1 | do | .20 | a6.0 |

aEstimated.

*Daily gage height, in feet, of Clear Creek at Sevier, Utah, for year ending Sept. 30, 1912.*

[O. A. Anderson, observer.]

| Day | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | | 0.4 | 0.55 | 1.15 | 2.75 | 1.25 | 0.55 | 0.15 |
| 2 | | .4 | .55 | 1.15 | 2.6 | 1.15 | .5 | .15 |
| 3 | | .4 | .65 | 1.05 | 2.7 | 1.1 | .5 | .2 |
| 4 | | .3 | .65 | 1.0 | 2.8 | 1.0 | .5 | .2 |
| 5 | | .4 | .7 | .9 | 2.9 | .85 | .35 | .25 |
| 6 | | .5 | .7 | 1.0 | 2.8 | .85 | .25 | .27 |
| 7 | | .5 | .8 | 1.2 | 2.75 | .85 | .25 | .27 |
| 8 | | .5 | 1.0 | 1.25 | 2.7 | .7 | .1 | .25 |
| 9 | | .5 | 1.0 | 1.25 | 2.7 | .7 | .15 | .2 |
| 10 | | .5 | 1.2 | 1.3 | 2.6 | .55 | .12 | .2 |
| 11 | | .5 | .95 | 1.55 | 2.0 | .4 | .12 | .2 |
| 12 | | .5 | .8 | 1.85 | 2.0 | .38 | .12 | .25 |
| 13 | | .45 | .8 | 1.85 | 1.85 | .35 | .3 | .3 |
| 14 | | .45 | .8 | 1.5 | 1.75 | .4 | .35 | .25 |
| 15 | | .4 | .75 | 1.5 | 1.7 | .4 | .2 | .25 |
| 16 | | .3 | .8 | 1.6 | 1.5 | .4 | .2 | .25 |
| 17 | | .3 | .8 | 1.9 | 1.45 | .42 | .2 | .25 |
| 18 | | .3 | .9 | 2.3 | 1.4 | .4 | .15 | .25 |
| 19 | | .5 | .9 | 2.75 | 1.25 | .8 | .15 | .25 |
| 20 | | .55 | .8 | 2.8 | 1.3 | .78 | .12 | .25 |
| 21 | | .5 | .7 | 2.9 | 1.45 | .7 | .2 | .2 |
| 22 | | .45 | .7 | 2.9 | 1.5 | .7 | .2 | .2 |
| 23 | 0.45 | .4 | .7 | 2.55 | 1.5 | .65 | .25 | .2 |
| 24 | .4 | .4 | .7 | 2.25 | 1.5 | .6 | .25 | .2 |
| 25 | .35 | .5 | .9 | 2.4 | 1.45 | .65 | .25 | .2 |
| 26 | .2 | .55 | .8 | 2.5 | 1.35 | .5 | .25 | .2 |
| 27 | .35 | .55 | .8 | 2.5 | 1.25 | .5 | .1 | .2 |
| 28 | .4 | .55 | .8 | 2.6 | 1.3 | .5 | .1 | .2 |
| 29 | .4 | .55 | .95 | 2.8 | 1.2 | .45 | .15 | .2 |
| 30 | | .6 | .9 | 3.0 | 1.35 | .4 | .2 | .2 |
| 31 | | .55 | | 2.9 | | .5 | .15 | |

*Daily discharge, in second-feet, of Clear Creek at Sevier, Utah, for year ending Sept. 30, 1912.*

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 13 | 20 | 62 | 201 | 70 | 20 | 6 |
| 2 | ..... | 13 | 20 | 62 | 187 | 62 | 17 | 6 |
| 3 | ..... | 13 | 25 | 54 | 196 | 58 | 17 | 7 |
| 4 | ..... | 9 | 25 | 50 | 206 | 50 | 17 | 7 |
| 5 | ..... | 13 | 28 | 42 | 216 | 38 | 11 | 8 |
| 6 | ..... | 17 | 28 | 50 | 206 | 38 | 8 | 9 |
| 7 | ..... | 17 | 35 | 66 | 201 | 38 | 8 | 9 |
| 8 | ..... | 17 | 50 | 70 | 196 | 28 | 4 | 8 |
| 9 | ..... | 17 | 50 | 70 | 196 | 28 | 6 | 7 |
| 10 | ..... | 17 | 66 | 74 | 187 | 20 | 5 | 7 |
| 11 | ..... | 17 | 46 | 94 | 133 | 13 | 5 | 7 |
| 12 | ..... | 17 | 35 | 120 | 133 | 12 | 5 | 8 |
| 13 | ..... | 15 | 35 | 120 | 120 | 11 | 9 | 9 |
| 14 | ..... | 15 | 35 | 90 | 110 | 13 | 11 | 8 |
| 15 | ..... | 13 | 32 | 90 | 106 | 13 | 7 | 8 |
| 16 | ..... | 9 | 35 | 98 | 90 | 13 | 7 | 8 |
| 17 | ..... | 9 | 35 | 124 | 86 | 14 | 7 | 8 |
| 18 | ..... | 9 | 42 | 150 | 82 | 13 | 6 | 8 |
| 19 | ..... | 17 | 42 | 201 | 70 | 35 | 6 | 8 |
| 20 | ..... | 20 | 35 | 206 | 74 | 34 | 5 | 8 |
| 21 | ..... | 17 | 28 | 216 | 86 | 28 | 7 | 7 |
| 22 | ..... | 15 | 28 | 216 | 90 | 28 | 7 | 7 |
| 23 | 15 | 13 | 28 | 182 | 90 | 25 | 8 | 7 |
| 24 | 13 | 13 | 28 | 156 | 90 | 22 | 8 | 7 |
| 25 | 11 | 17 | 42 | 169 | 86 | 25 | 8 | 7 |
| 26 | 7 | 20 | 35 | 178 | 78 | 17 | 8 | 7 |
| 27 | 11 | 20 | 35 | 178 | 70 | 17 | 4 | 7 |
| 28 | 13 | 20 | 35 | 187 | 74 | 17 | 4 | 7 |
| 29 | 13 | 20 | 46 | 206 | 66 | 15 | 6 | 7 |
| 30 | ..... | 22 | 42 | 226 | 78 | 13 | 7 | 7 |
| 31 | ..... | 20 | ..... | 216 | ..... | 17 | 6 | ..... |

NOTE.—Discharge determined from a well-defined rating curve.

*Monthly discharge of Clear Creek at Sevier, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| February 23–29 | 15 | 7 | 11.8 | 164 | C. |
| March | 22 | 9 | 15.6 | 959 | B. |
| April | 66 | 20 | 35.5 | 2,110 | B. |
| May | 226 | 42 | 130 | 7,990 | A. |
| June | 216 | 66 | 127 | 7,560 | A. |
| July | 70 | 11 | 26.6 | 1,640 | B. |
| August | 20 | 4 | 8.2 | 504 | B. |
| September | 9 | 6 | 7.5 | 446 | B. |
| The period | ..... | ..... | ..... | 21,400 | |

## SAN PITCH RIVER NEAR GUNNISON, UTAH.

**Location.**—In the NW. ¼ SW. ¼ sec. 13, T. 19 S., R. 2 W., Salt Lake base and meridian, about 3 miles west of Gunnison post office, half a mile above the confluence of San Pitch River with Sevier River, and one-fourth mile below a small earth and rock diversion dam.

**Records available.**—February 21, 1912, to September 30, 1912. Also from June 30, 1900, to December 31, 1905, at a point on the stream about 4 miles northeast of Gunnison.

**Drainage area.**—886 square miles.

**Gage.**—Vertical staff.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made by wading.

**Winter flow.**—Ice affects the relation of gage height to discharge.

**Diversions.**—Practically all the run-off of the stream is stored in the Gunnison reservoir, 7 miles northeast of Gunnison. Part of the water flowing past the gage at times is waste from the Kearns-Robbins canal.

**Accuracy.**—Records fair.

**Cooperation.**—Delta Land & Water Co.

*Discharge measurements of San Pitch River near Gunnison, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Feb. 21 | J. C. Dort | 1.61 | 2.8 |
| May 11 | .....do | 1.66 | 4.9 |
| Aug. 5 | .....do | 1.69 | 8.1 |
| Sept. 18 | Leonard Tanner | 1.83 | 13.2 |

*Daily gage height, in feet, of San Pitch River near Gunnison, Utah, for year ending Sept. 30, 1912.*

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 1.64 | 1.69 | 1.55 | 1.5 | 1.3 | 1.4 | 1.7 |
| 2 | ..... | 1.64 | 1.69 | 1.55 | 1.5 | 1.3 | 1.7 | 1.67 |
| 3 | ..... | 1.64 | 1.69 | 1.55 | 1.9 | 1.3 | 1.73 | 1.7 |
| 4 | ..... | 1.65 | 1.69 | 1.53 | 1.9 | 1.3 | 1.73 | 1.67 |
| 5 | ..... | 1.65 | 1.74 | 1.53 | 1.9 | 1.3 | 1.71 | 1.75 |
| 6 | ..... | 1.65 | 1.74 | 1.53 | 1.9 | 1.3 | 1.35 | 1.71 |
| 7 | ..... | 1.65 | 1.85 | 1.53 | 2.1 | 1.33 | 1.53 | 1.85 |
| 8 | ..... | 1.64 | 1.85 | 1.53 | 2.15 | 1.33 | 1.75 | 1.80 |
| 9 | ..... | 1.64 | 1.85 | 1.55 | 2.2 | 1.37 | 1.90 | 2.05 |
| 10 | ..... | 1.64 | 1.85 | 1.55 | 1.85 | 1.37 | 1.73 | 2.05 |
| 11 | ..... | 1.65 | 1.92 | 1.65 | 1.83 | 1.37 | 1.90 | 1.85 |
| 12 | ..... | 1.65 | 1.92 | 1.65 | 1.52 | 1.37 | 1.67 | 1.65 |
| 13 | ..... | 1.65 | 1.95 | 1.65 | 1.45 | 1.37 | 1.90 | 1.65 |
| 14 | ..... | 1.81 | 1.95 | 1.65 | 1.45 | 1.37 | 1.42 | 1.67 |
| 15 | ..... | 1.81 | 1.95 | 1.67 | 1.45 | 1.37 | 1.42 | 1.7 |
| 16 | ..... | 1.85 | 1.95 | 1.67 | 1.45 | 1.37 | 1.44 | 1.73 |
| 17 | ..... | 1.85 | 1.95 | 1.65 | 1.4 | 1.39 | 1.42 | 1.7 |
| 18 | ..... | 1.87 | 1.89 | 1.65 | 1.4 | 1.39 | 1.43 | 1.78 |
| 19 | ..... | 1.88 | 1.87 | 1.65 | 1.4 | 1.39 | 1.44 | 1.73 |
| 20 | ..... | 1.88 | 1.85 | 1.63 | 1.3 | 1.39 | 1.45 | 1.73 |
| 21 | 1.61 | 1.90 | 1.85 | 1.70 | 1.3 | 1.39 | 2.05 | 1.71 |
| 22 | 1.61 | 1.90 | 1.85 | 1.71 | 1.3 | 1.4 | 1.84 | 1.71 |
| 23 | 1.67 | 1.90 | 1.65 | 1.73 | 1.3 | 1.4 | 1.76 | 1.85 |
| 24 | 1.67 | 1.90 | 1.55 | 1.73 | 1.3 | 1.4 | 1.46 | 1.82 |
| 25 | 1.67 | 1.90 | 1.55 | 1.73 | 2.1 | 1.4 | 1.46 | 1.80 |
| 26 | 1.68 | 1.90 | 1.55 | 1.73 | 2.1 | 1.4 | 1.46 | 1.81 |
| 27 | 1.67 | 1.88 | 1.55 | 1.7 | 1.43 | 1.4 | 1.7 | 1.75 |
| 28 | 1.67 | 1.84 | 1.55 | 1.7 | 1.43 | 1.4 | 1.6 | 1.87 |
| 29 | 1.64 | 1.72 | 1.55 | 1.55 | 1.43 | 1.4 | 1.6 | 1.70 |
| 30 | ..... | 1.7 | 1.55 | 1.55 | 1.43 | 1.4 | 1.6 | 1.71 |
| 31 | ..... | 1.7 | ..... | 1.55 | ..... | 1.4 | 1.6 | ..... |

*Daily discharge, in second-feet, of San Pitch River near Gunnison, Utah, for year ending Sept. 30, 1912.*

[Leroy Lund, observer.]

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | | 3.6 | 5.6 | 1.2 | 0.5 | 0.1 | 0.5 | 9.0 |
| 2 | | 3.6 | 5.6 | 1.2 | .5 | .1 | 9.0 | 7.8 |
| 3 | | 3.6 | 5.6 | 1.2 | 19 | .1 | 11 | 9.0 |
| 4 | | 4.0 | 5.6 | 1.0 | 19 | .1 | 11 | 7.8 |
| 5 | | 4.0 | 8.4 | 1.0 | 19 | .1 | 9.6 | 12 |
| 6 | | 4.0 | 8.4 | 1.0 | 19 | .1 | .3 | 9.6 |
| 7 | | 4.0 | 16 | 1.0 | 39 | .2 | 2.9 | 19 |
| 8 | | 3.6 | 16 | 1.0 | 48 | .2 | 12 | 15 |
| 9 | | 3.6 | 16 | 1.2 | 57 | .4 | 23 | 36 |
| 10 | | 3.6 | 16 | 1.2 | 19 | .4 | 11 | 34 |
| 11 | | 4.0 | 21 | 4,0 | 17 | .4 | 23 | 16 |
| 12 | | 4.0 | 21 | 4.0 | 2.6 | .4 | 7.8 | 4.0 |
| 13 | | 4.0 | 24 | 4.0 | 1.2 | .4 | 23 | 4.0 |
| 14 | | 13 | 24 | 4.0 | 1.2 | .4 | .8 | 4.8 |
| 15 | | 13 | 24 | 4.8 | 1.2 | .4 | .8 | 6.0 |
| 16 | | 16 | 24 | 4.8 | 1.2 | .4 | 1.1 | 7.8 |
| 17 | | 16 | 24 | 4.0 | .5 | .5 | .8 | 6.0 |
| 18 | | 17 | 18 | 4.0 | .5 | .5 | 1.0 | 11 |
| 19 | | 18 | 17 | 4.0 | .5 | .5 | 1.1 | 7.8 |
| 20 | | 18 | 16 | 3.2 | .1 | .5 | 1.2 | 7.8 |
| 21 | 2.4 | 19 | 16 | 6.0 | .1 | .5 | 39 | 6.6 |
| 22 | 2.4 | 19 | 16 | 6.6 | .1 | .5 | 18 | 6.6 |
| 23 | 4.8 | 19 | 16 | 7.8 | .1 | .5 | 13 | 16 |
| 24 | 4.8 | 19 | 1.2 | 7.8 | .1 | .5 | 1.4 | 13 |
| 25 | 4.8 | 19 | 1.2 | 7.8 | 45 | .5 | 1.4 | 12 |
| 26 | 5.2 | 19 | 1.2 | 7.8 | 45 | .5 | 1.4 | 13 |
| 27 | 4.8 | 18 | 1.2 | 6.0 | 1.0 | .5 | 9.0 | 9 |
| 28 | 4.8 | 15 | 1.2 | 6.0 | 1.0 | .5 | 5.0 | 17 |
| 29 | 3.6 | 7.2 | 1.2 | 1.2 | 1.0 | .5 | 5.0 | 6 |
| 30 | | 6.0 | 1.2 | 1.2 | 1.0 | .5 | 5.0 | 6.6 |
| 31 | | 6.0 | | 1.2 | | .5 | 5.0 | |

NOTE.—Discharge determined from two fairly well defined rating curves, one applicable Feb. 21 to June 7 and Sept. 10–30, the other June 10 to Sept. 8. Discharge determined by indirect method for shifting channels June 8–9 and Sept. 9.

*Monthly discharge of San Pitch River near Gunnison, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| Feb. 21–29 | 5.2 | 2.4 | 4.18 | 74.6 | B. |
| March | 19 | 3.6 | 10.5 | 646 | A. |
| April | 24 | 1.2 | 12.4 | 738 | A. |
| May | 7.8 | 1.0 | 3.59 | 221 | B. |
| June | 57 | .1 | 12.0 | 714 | B. |
| July | 0.5 | .1 | .38 | 23.4 | C. |
| August | 39 | .3 | 8.20 | 504 | B. |
| September | 36 | 4.0 | 11.3 | 672 | A. |
| The period | | | | 3,590 | |

## BEAVER RIVER AT MINERSVILLE, UTAH.

**Location.**—Eighty rods east and 60 rods north of the southwest corner of sec. 1, T. 30 S., R. 10 W., Salt Lake base and meridian, half a mile northwest of the business district of Minersville, and about 2 miles below the head of the Minersville canal; below all tributaries, Indian Creek, North Creek, and South Creek entering 10, 12, and 15 miles, respectively, above the station.

**Records available.**—April 13, 1909, to September 30, 1912.

**Drainage area.**—549 square miles.

**Gage.**—Inclined staff; datum unchanged.

**Channel.**—Gravel; shifts during high stages.

**Discharge measurements.**—Made from a footbridge near gage.

**Winter flow.**—Ice affects the relation of gage heights to discharge for periods during the winter months.

**Floods.**—On January 2, 1910, the stream rose to a gage height of 4.7, corresponding to a discharge of 608 second-feet.

**Diversions.**—Practically all the water is diverted above the station during the irrigation season.

**Artificial control.**—A storage reservoir just above the town of Minersville impounds a large part of the flow; only the excess water passes the station.

**Accuracy.**—The discharge curve is well defined by the measurements and the record may be considered good.

*Discharge measurements of Beaver River at Minersville, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 29 | E. A. Porter | 3.73 | 273 |
| Aug. 1 | J. C. Dort | 2.02 | 22.1 |

*Daily gage height, in feet, of Beaver River at Minersville, Utah, for year ending Sept. 30, 1912.*

[Tus Gillins, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.65 | 2.2 | 2.4 | 2.75 | 2.4 | 2.2 | 2.2 | 0.65 | 3.8 | ..... | 2.4 |
| 2 | ..... | 2.2 | 2.4 | 2.85 | 2.4 | 2.2 | 2.2 | .95 | 3.9 | ..... | 1.9 |
| 3 | ..... | 2.2 | 2.4 | 3.1 | 2.4 | 2.2 | 2.1 | 1.0 | 3.95 | ..... | 1.9 |
| 4 | 2.1 | 2.2 | 2.4 | 3.05 | 2.4 | 2.2 | 2.1 | 1.2 | 3.95 | ..... | 1.8 |
| 5 | 2.2 | 2.3 | 2.5 | 3.15 | 2.4 | 2.2 | 2.1 | 1.0 | 3.9 | ..... | 1.7 |
| 6 | 2.2 | 2.3 | 2.5 | 3.2 | 2.3 | 2.2 | 2.0 | .9 | 3.8 | ..... | 1.65 |
| 7 | 2.2 | 2.3 | 2.5 | 2.9 | 2.3 | 2.3 | 1.6 | .8 | 3.7 | ..... | 1.6 |
| 8 | 2.1 | 2.3 | 2.4 | 3.2 | 2.3 | 2.3 | 1.6 | .6 | 3.7 | ..... | ..... |
| 9 | 2.1 | 2.3 | 2.4 | 3.25 | 2.3 | 2.3 | 1.6 | .6 | 3.5 | ..... | ..... |
| 10 | 2.1 | 2.3 | 2.4 | 3.45 | 2.3 | 2.3 | 2.1 | .6 | 3.4 | ..... | ..... |
| 11 | 2.05 | 2.3 | 2.5 | 3.15 | 2.3 | 2.3 | 2.1 | .6 | 3.2 | ..... | ..... |
| 12 | 2.05 | 2.7 | 2.4 | 3.2 | 2.3 | 2.3 | 2.25 | 2.0 | 3.1 | ..... | ..... |
| 13 | 2.05 | 2.5 | 2.4 | 3.3 | 2.3 | 2.3 | 2.3 | 2.0 | 2.7 | ..... | ..... |
| 14 | 2.1 | 2.5 | 2.4 | 3.0 | 2.3 | 2.3 | 2.3 | 1.8 | 2.3 | ..... | ..... |
| 15 | 2.1 | 2.5 | 2.4 | 2.5 | 2.3 | 2.3 | 2.3 | 1.8 | 1.7 | ..... | ..... |
| 16 | 2.1 | 2.5 | 2.4 | 2.4 | 2.25 | 2.3 | 2.3 | 1.8 | 1.8 | ..... | ..... |
| 17 | 2.1 | 2.5 | 2.4 | 2.4 | 2.2 | 2.3 | 2.05 | 2.05 | 1.8 | ..... | ..... |
| 18 | 2.0 | 2.5 | 2.4 | 2.4 | 2.2 | 2.3 | 2.0 | 2.6 | .9 | ..... | ..... |
| 19 | 2.1 | 2.5 | 2.4 | 2.4 | 2.2 | 2.4 | 2.0 | 2.9 | .6 | ..... | ..... |
| 20 | 2.1 | 2.5 | 2.4 | 2.4 | 2.2 | 2.4 | 2.0 | 3.0 | ..... | ..... | ..... |
| 21 | 2.1 | 2.5 | 2.4 | 2.5 | 2.2 | 2.4 | 2.0 | 3.35 | ..... | ..... | ..... |
| 22 | 2.1 | 2.5 | 2.4 | 2.4 | 2.2 | 2.4 | 2.0 | 3.4 | ..... | ..... | ..... |
| 23 | 2.0 | 2.35 | 2.4 | 2.4 | 2.2 | 2.4 | 1.9 | 3.35 | ..... | ..... | ..... |
| 24 | 2.2 | 2.45 | 2.4 | 2.4 | 2.2 | 2.3 | 1.6 | 3.3 | ..... | ..... | ..... |
| 25 | 2.2 | 2.4 | 2.4 | 2.45 | 2.2 | 2.2 | 1.5 | 3.3 | ..... | ..... | ..... |
| 26 | 2.2 | 2.4 | 2.55 | 2.75 | 2.2 | 2.2 | 1.45 | 3.55 | ..... | ..... | ..... |
| 27 | 2.2 | 2.4 | 2.75 | 2.8 | 2.2 | 2.2 | 1.4 | 3.6 | ..... | ..... | ..... |
| 28 | 2.2 | 2.4 | 2.65 | 2.5 | 2.2 | 2.2 | 1.4 | 3.6 | ..... | ..... | ..... |
| 29 | 2.2 | 2.4 | 2.6 | 2.5 | 2.2 | 2.2 | .9 | 3.75 | ..... | ..... | ..... |
| 30 | 2.2 | 2.4 | 2.6 | 2.4 | ..... | 2.2 | .8 | 4.2 | ..... | ..... | ..... |
| 31 | 2.2 | ..... | 2.6 | 2.4 | ..... | 2.2 | ..... | 4.15 | ..... | 4.22 | ..... |

NOTE.—Relation of gage height to discharge affected by ice Dec. 26 to Jan. 14. Water standing in pools Apr. 29 to May 11 and June 18–19. Dry June 20 to July 30 and Aug. 8 to Sept. 30.

*Daily discharge, in second-feet, of Beaver River at Minersville, Utah, for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 30 | 47 | ..... | 47 | 30 | 30 | 0 | 296 | ..... | 56 |
| 2 | ..... | 30 | 47 | ..... | 47 | 30 | 30 | 0 | 326 | ..... | 15 |
| 3 | ..... | 30 | 47 | ..... | 47 | 30 | 23 | 0 | 342 | ..... | 15 |
| 4 | 23 | 30 | 47 | ..... | 47 | 30 | 23 | 0 | 342 | ..... | 11 |
| 5 | 30 | 38 | 57 | ..... | 47 | 30 | 23 | 0 | 326 | ..... | 8 |
| 6 | 30 | 38 | 57 | ..... | 38 | 30 | 17 | 0 | 296 | ..... | 6 |
| 7 | 30 | 38 | 57 | ..... | 38 | 38 | 4 | 0 | 268 | ..... | 5 |
| 8 | 23 | 38 | 47 | ..... | 38 | 38 | 4 | 0 | 268 | ..... | ..... |
| 9 | 23 | 38 | 47 | ..... | 38 | 38 | 4 | 0 | 218 | ..... | ..... |
| 10 | 23 | 38 | 47 | ..... | 38 | 38 | 23 | 0 | 195 | ..... | ..... |
| 11 | 20 | 38 | 57 | ..... | 38 | 38 | 23 | 0 | 155 | ..... | ..... |
| 12 | 20 | 80 | 47 | ..... | 38 | 38 | 34 | 17 | 138 | ..... | ..... |
| 13 | 20 | 57 | 47 | ..... | 38 | 38 | 38 | 17 | 80 | ..... | ..... |
| 14 | 23 | 57 | 47 | ..... | 38 | 38 | 38 | 7 | 38 | ..... | ..... |
| 15 | 23 | 57 | 47 | 57 | 38 | 38 | 38 | 7 | 5 | ..... | ..... |
| 16 | 23 | 57 | 47 | 47 | 34 | 38 | 38 | 7 | 7 | ..... | ..... |
| 17 | 23 | 57 | 47 | 47 | 30 | 38 | 20 | 20 | 7 | ..... | ..... |
| 18 | 17 | 57 | 47 | 47 | 30 | 38 | 17 | 68 | 0 | ..... | ..... |
| 19 | 23 | 57 | 47 | 47 | 30 | 47 | 17 | 107 | 0 | ..... | ..... |
| 20 | 23 | 57 | 47 | 47 | 30 | 47 | 17 | 122 | ..... | ..... | ..... |
| 21 | 23 | 57 | 47 | 57 | 30 | 47 | 17 | 184 | ..... | ..... | ..... |
| 22 | 23 | 57 | 47 | 47 | 30 | 47 | 17 | 195 | ..... | ..... | ..... |
| 23 | 17 | 42 | 47 | 47 | 30 | 47 | 11 | 184 | ..... | ..... | ..... |
| 24 | 30 | 52 | 47 | 47 | 30 | 38 | 4 | 174 | ..... | ..... | ..... |
| 25 | 30 | 47 | 47 | 52 | 30 | 30 | 3 | 174 | ..... | ..... | ..... |
| 26 | 30 | 47 | 47 | 86 | 30 | 30 | 2 | 230 | ..... | ..... | ..... |
| 27 | 30 | 47 | 47 | 93 | 30 | 30 | 2 | 242 | ..... | ..... | ..... |
| 28 | 30 | 47 | 47 | 57 | 30 | 30 | 2 | 242 | ..... | ..... | ..... |
| 29 | 30 | 47 | 47 | 57 | 30 | 30 | 0 | 282 | ..... | ..... | ..... |
| 30 | 30 | 47 | 47 | 47 | ..... | 30 | 0 | 423 | ..... | ..... | ..... |
| 31 | 30 | ..... | 47 | 47 | ..... | 30 | ..... | 406 | ..... | 452 | ..... |

NOTE.—Discharge determined from a well-defined curve. Discharge estimated because of ice Dec. 26–31, at 47 second-feet; Jan. 1–14, 40 second-feet.

*Monthly discharge of Beaver River at Minersville, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 30 | 0 | 22.6 | 1,390 | C. |
| November | 80 | 30 | 47.1 | 2,800 | C. |
| December | 57 | 47 | 48.3 | 2,970 | C. |
| January | 93 | 40 | 48.0 | 2,950 | B. |
| February | 47 | 30 | 35.8 | 2,060 | B. |
| March | 47 | 30 | 36.1 | 2,220 | B. |
| April | 38 | 0 | 17.3 | 1,030 | B. |
| May | 423 | 0 | 100 | 6,150 | B. |
| June | 342 | 0 | 110 | 6,550 | B. |
| July | 452 | 0 | 14.6 | 898 | B. |
| August | 56 | 0 | 3.74 | 230 | B. |
| September | 0 | 0 | 0 | 0 | |
| The year | 452 | 0 | 40.3 | 29,200 | |

## CANALS IN SEVIER VALLEY.

### SEVIER VALLEY CANAL AT JOSEPH, UTAH.

**Location.**—In the SE. ¼ sec. 15, T. 25 S., R. 4 W., Salt Lake base and meridian, about 10 feet above the State weir, about 500 feet below Joseph post office.

**Records available.**—May 18 to September 21, 1912.

**Gage.**—Lietz automatic gage on left bank and vertical staff just below automatic gage.

**Discharge measurements.**—By wading at medium stages and from bridge about 500 feet below during other stages of canal.

**Diversions.**—One small lateral diverts above the station.

**Accuracy.**—Records good.

*Discharge measurements of Sevier Valley canal at Joseph, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| June 9 | G. H. Russell | 0.42 | 19.1 | July 19 | J. C. Dort | 2.48 | 201 |
| 10 | do | 1.37 | 99 | 19 | Leonard Tanner | 2.45 | 194 |
| 10 | do | 1.37 | 100 | 22 | do | 2.20 | 173 |
| 21 | do | 2.42 | 184 | 31 | G. H. Russell | 2.27 | 176 |
| 26 | do | 2.40 | 188 | Aug. 6 | do | .36 | 11.0 |
| 26 | do | 2.38 | 181 | 7 | do | .36 | 11.2 |
| 26 | J. C. Dort | 2.39 | 187 | 11 | do | .75 | 38.9 |
| July 5 | Porter and Tanner | 2.63 | 215 | 11 | do | 1.46 | 100 |
| 17 | G. H. Russell | 1.90 | 139 | 12 | do | 1.78 | 127 |
| 17 | do | 2.24 | 174 | 12 | do | 1.61 | 110 |
| 19 | do | 2.48 | 198 | 21 | do | 2.14 | 160 |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier Valley canal at Joseph, Utah, for year ending Sept. 30, 1912.*

[O. A. Anderson, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 2.85 | 243 | 2.65 | 218 | 2.26 | 175 | 2.07 | 156 |
| 2 | | | 2.87 | 246 | 2.65 | 218 | 2.24 | 173 | 2.08 | 157 |
| 3 | | | 2.88 | 247 | 2.65 | 218 | 1.20 | 169 | 2.13 | 162 |
| 4 | | | 2.85 | 243 | 2.65 | 218 | .40 | 14 | 2.15 | 164 |
| 5 | | | 2.87 | 246 | 2.64 | 217 | .39 | 14 | 2.13 | 162 |
| 6 | | | 2.87 | 246 | 2.58 | 210 | .38 | 13 | 2.14 | 163 |
| 7 | | | | 0 | 2.55 | 206 | .36 | 12 | 2.16 | 165 |
| 8 | | | | 0 | 2.55 | 206 | .48 | 19 | 2.16 | 165 |
| 9 | | | .30 | 8.5 | 2.56 | 208 | .64 | 30 | 1.92 | 141 |
| 10 | | | .38 | 12.9 | 2.54 | 205 | .63 | 29 | 1.51 | 101 |
| 11 | | | .88 | 48 | 2.54 | 205 | 1.07 | 64 | 1.50 | 100 |
| 12 | | | .57 | 25 | 2.52 | 203 | 1.77 | 126 | 1.86 | 135 |
| 13 | | | | 0 | 2.50 | 201 | 2.09 | 158 | 2.10 | 159 |
| 14 | | | | 0 | 2.50 | 201 | 2.13 | 162 | 2.12 | 161 |
| 15 | | | | 0 | 2.46 | 197 | 2.13 | 162 | 2.10 | 159 |
| 16 | | | | 0 | 2.44 | 194 | 2.05 | 154 | 2.13 | 162 |
| 17 | | | .55 | 24 | 2.31 | 180 | 2.01 | 150 | 2.15 | 164 |
| 18 | 2.15 | 164 | .91 | 51 | 2.43 | 193 | 1.93 | 142 | 2.17 | 166 |
| 19 | 2.20 | 169 | 1.60 | 109 | 2.45 | 196 | 1.92 | 141 | 2.12 | 161 |
| 20 | 2.25 | 174 | 2.30 | 179 | 2.45 | 196 | 1.92 | 141 | 2.10 | 159 |
| 21 | 2.25 | 174 | 2.44 | 194 | 2.43 | 193 | 2.10 | 159 | 1.00 | 58 |
| 22 | 2.25 | 174 | 2.43 | 193 | 2.32 | 181 | 2.13 | 162 | | |
| 23 | 2.25 | 174 | 2.40 | 190 | 2.26 | 175 | 2.15 | 164 | | |
| 24 | 2.25 | 174 | 2.40 | 190 | 2.26 | 175 | 2.10 | 159 | | |
| 25 | 2.50 | 201 | 2.40 | 190 | 2.26 | 175 | 2.10 | 159 | | |
| 26 | 2.70 | 224 | 2.38 | 188 | 2.22 | 171 | 2.08 | 157 | | |
| 27 | 2.80 | 236 | 2.39 | 189 | 2.22 | 171 | 2.03 | 152 | | |
| 28 | 2.72 | 226 | 2.46 | 197 | 2.23 | 172 | 2.11 | 160 | | |
| 29 | 2.50 | 201 | 2.51 | 202 | 2.23 | 172 | 2.14 | 163 | | |
| 30 | 2.66 | 219 | 2.65 | 218 | 2.23 | 172 | 2.14 | 163 | | |
| 31 | 2.85 | 243 | | | 2.24 | 173 | 2.11 | 160 | | |

NOTE.—Discharge determined from a well-defined rating curve. Canal dry June 7-8, 13-16.

*Monthly discharge of Sevier Valley canal at Joseph, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 18-31 | 243 | 164 | 197 | 5,470 | B. |
| June | 247 | 0 | 129 | 7,680 | A. |
| July | 218 | 171 | 194 | 11,900 | A. |
| August | 175 | 12 | 123 | 7,560 | A. |
| September | 166 | 58 | 149 | 6,210 | A. |
| The period | | | | 38,800 | |

### SEVIER VALLEY CANAL AT STATE WEIR NEAR RICHFIELD, UTAH.

**Location.**—In the SW. ¼ sec. 8, T. 23 S., R. 2 W., Salt Lake base and meridian, at the State weir or head of State extension canal. The station is about 100 feet below bridge on county road from Richfield to Aurora, and about 3½ miles northeast of Richfield.

**Records available.**—May 21, 1912, to September 20, 1912.

**Gage.**—Friez automatic gage on left bank.

**Channel.**—Permanent.

**Discharge measurements.**—Made from a bridge about 100 feet above the gage at high water and by wading above the gage at low stages.

**Diversions.**—A great number of laterals divert water above the station. The water passing the station is available for the State Piute project.

**Accuracy.**—Records excellent.

*Discharge measurements of Sevier Valley canal near Richfield, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| June 28 | G. H. Russell | 2.22 | 142 | July 20 | Leonard Tanner | 1.91 | 122 |
| 28 | J. C. Dort | 2.25 | 146 | 26 | do | 1.66 | 103 |
| 28 | do | 2.25 | 147 | Aug. 1 | do | 1.58 | 92.4 |
| July 5 | Leonard Tanner | 2.02 | 133 | 12 | do | .81 | 39.4 |
| 10 | G. H. Russell | 1.83 | 114 | 12 | do | .68 | 28 |
| 17 | Leonard Tanner | 1.57 | 91.9 | 13 | do | 1.32 | 77.9 |
| 17 | do | 1.64 | 97.9 | 21 | do | 1.50 | 89.7 |
| 17 | do | 1.71 | 103 | Sept. 16 | do | 1.08 | 58.9 |
| 20 | J. C. Dort | 1.91 | 129 | 19 | do | 1.18 | 62.4 |
| 20 | G. H. Russell | 1.88 | 118 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Sevier Valley canal near Richfield, Utah, for year ending Sept. 30, 1912.*

[W. M. Hyatt, observer.]

| Day. | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 1.93 | 123 | 1.84 | 115 | 1.58 | 93 | 1.26 | 68 |
| 2 | | | 1.95 | 124 | 1.89 | 119 | 1.40 | 79 | 1.33 | 73 |
| 3 | | | 2.03 | 132 | 1.96 | 125 | | 0 | 1.33 | 73 |
| 4 | | | 1.94 | 124 | 1.95 | 124 | | 0 | 1.46 | 84 |
| 5 | | | 2.00 | 129 | 1.97 | 126 | | 0 | 1.41 | 80 |
| 6 | | | 2.00 | 129 | 1.90 | 120 | | 0 | 1.40 | 79 |
| 7 | | | | 0 | 1.85 | 116 | | 0 | 1.33 | 73 |
| 8 | | | | 0 | 1.90 | 120 | | 0 | 1.30 | 71 |
| 9 | | | | 0 | 1.90 | 120 | | 0 | 1.33 | 73 |
| 10 | | | | 0 | 1.89 | 119 | | 0 | .95 | 46 |
| 11 | | | .66 | 28 | 1.90 | 120 | | 0 | .76 | 34 |
| 12 | | | .17 | 5 | 1.90 | 120 | .60 | 24 | .82 | 37 |
| 13 | | | | 0 | 1.90 | 120 | 1.27 | 69 | 1.34 | 74 |
| 14 | | | | 0 | 1.87 | 117 | 1.37 | 77 | 1.08 | 55 |
| 15 | | | | 0 | 1.82 | 113 | 1.47 | 85 | 1.01 | 50 |
| 16 | | | | 0 | 1.96 | 125 | 1.45 | 83 | 1.12 | 57 |
| 17 | | | | 0 | 1.77 | 109 | 1.48 | 85 | 1.19 | 62 |
| 18 | | | | 0 | 1.79 | 110 | 1.29 | 70 | 1.27 | 69 |
| 19 | | | .31 | 10 | 1.85 | 116 | 1.31 | 72 | 1.19 | 62 |
| 20 | | | 1.40 | 79 | 1.87 | 117 | 1.37 | 77 | 1.27 | 69 |
| 21 | | | 1.45 | 83 | 1.91 | 121 | 1.50 | 87 | 1.33 | 73 |
| 22 | | | 1.48 | 85 | 1.88 | 118 | 1.61 | 96 | | |
| 23 | | | 1.32 | 73 | 1.80 | 111 | 1.57 | 93 | | |
| 24 | | | 1.33 | 73 | 1.70 | 103 | 1.47 | 85 | | |
| 25 | 1.30 | 71 | 1.44 | 82 | 1.70 | 103 | 1.32 | 73 | | |
| 26 | 1.45 | 83 | 1.74 | 106 | 1.68 | 101 | 1.31 | 72 | | |
| 27 | 1.69 | 102 | 1.94 | 124 | 1.60 | 95 | 1.23 | 65 | | |
| 28 | 1.76 | 108 | 2.16 | 144 | 1.55 | 91 | 1.37 | 77 | | |
| 29 | 1.65 | 99 | 2.15 | 143 | 1.52 | 89 | 1.39 | 78 | | |
| 30 | 1.68 | 101 | 1.92 | 122 | 1.57 | 93 | 1.35 | 75 | | |
| 31 | 1.76 | 108 | | | 1.54 | 90 | 1.25 | 67 | | |

NOTE.—Discharge determined from a well-defined rating curve.

*Monthly discharge of Sevier Valley canal near Richfield, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May 25–31 | 108 | 71 | 96.0 | 1,330 | B. |
| June | 144 | 0 | 63.9 | 3,800 | B. |
| July | 126 | 89 | 112 | 6,890 | A. |
| August | 96 | 0 | 54.3 | 3,340 | A. |
| September 1–21 | 84 | 34 | 64.9 | 2,700 | A. |
| The period | | | | 18,100 | |

### CANAL A NEAR DELTA, UTAH.

**Location.**—In sec. 25, T. 16 S., R. 6 W., Salt Lake base and meridian, about 1,300 feet below the headgates of the canal, and 8 miles northeast of Delta; above all diversions from the canal.

**Records available.**—April 18 to October 11, 1912.

**Gage.**—Sloping gage on right bank.

**Channel.**—Dirt section.

**Discharge measurements.**—Made from cable about 80 feet below the gage.

**Accuracy.**—Records excellent.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

Records show the amount of water diverted from the Sevier River for use on the Delta and Melville projects.

*Discharge measurements of canal A near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Apr. 14 | J. C. Dort | 1.52 | 13.1 | May 27 | J. C. Dort | [a] 3.42 | 247 |
| May 22 | do | 4.28 | 314 | 27 | do | [a] 3.60 | 247 |
| 27 | do | [a] 2.3 | 49.2 | July 31 | Dort and Cottrell | 4.22 | 309 |
| 27 | do | 2.22 | 63.4 | Sept. 23 | F. W. Cottrell | 2.77 | 125 |

[a] Stage of canal changing during measurement.

*Daily gage height, in feet, of canal A near Delta, Utah, for year ending Sept. 30, 1912.*

[Abner Johnson, observer.]

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 2.90 | 4.45 | 4.62 | 4.20 | 3.15 | 2.88 |
| 2 | ..... | 3.05 | 4.48 | 4.50 | 4.02 | 2.98 | 2.88 |
| 3 | ..... | 3.10 | 4.50 | 4.40 | 4.05 | 2.98 | 2.88 |
| 4 | ..... | 3.10 | 4.50 | 3.48 | 4.05 | 2.85 | 2.88 |
| 5 | ..... | 3.05 | 4.60 | 3.40 | 4.05 | 2.80 | 2.85 |
| 6 | ..... | 3.05 | 4.60 | 3.45 | 4.10 | 2.70 | 2.75 |
| 7 | ..... | 3.10 | 4.60 | 3.80 | 4.02 | 2.45 | 2.65 |
| 8 | ..... | 3.10 | 4.60 | 3.75 | 4.05 | 2.55 | 2.62 |
| 9 | ..... | 3.40 | 4.60 | 4.08 | 4.00 | 2.60 | 2.62 |
| 10 | ..... | 3.50 | 4.60 | 4.40 | 4.00 | 2.60 | 2.58 |
| 11 | ..... | 3.50 | 4.62 | 4.52 | 4.00 | 2.60 | 2.55 |
| 12 | ..... | 3.50 | 4.65 | 4.65 | 4.05 | 2.60 | ..... |
| 13 | ..... | 3.50 | 4.33 | 4.75 | 4.05 | 2.45 | ..... |
| 14 | 1.52 | 3.45 | 4.68 | 4.75 | 4.05 | 2.25 | ..... |
| 15 | ..... | 3.40 | 4.78 | 4.70 | 4.08 | 2.32 | ..... |
| 16 | ..... | 3.50 | 4.95 | 4.75 | 3.92 | 2.50 | ..... |
| 17 | ..... | 3.60 | 4.95 | 4.55 | 3.95 | 2.32 | ..... |
| 18 | 1.90 | 3.80 | 4.95 | 4.50 | 4.00 | 2.15 | ..... |
| 19 | 2.25 | 3.90 | 4.95 | 4.50 | 3.90 | 2.05 | ..... |
| 20 | 2.35 | 3.90 | 4.92 | 4.50 | 3.90 | 2.48 | ..... |
| 21 | 2.52 | 4.22 | 4.92 | 4.47 | 3.72 | 2.55 | ..... |
| 22 | 2.75 | 4.25 | 4.92 | 4.40 | 3.72 | 2.55 | ..... |
| 23 | 2.75 | 4.25 | 4.92 | 4.45 | 3.65 | 2.85 | ..... |
| 24 | 2.65 | 4.40 | 4.92 | 4.40 | 3.60 | 2.78 | ..... |
| 25 | 2.65 | 4.40 | 4.88 | 4.35 | 3.55 | 2.80 | ..... |
| 26 | 2.75 | 4.40 | 4.88 | 4.30 | 3.50 | 2.82 | ..... |
| 27 | 2.75 | 4.40 | 4.85 | 4.30 | 3.45 | 2.85 | ..... |
| 28 | 2.90 | 4.40 | 4.80 | 4.15 | 3.45 | 2.88 | ..... |
| 29 | 2.90 | 4.50 | 4.76 | 4.15 | 3.45 | 2.90 | ..... |
| 30 | 2.90 | 4.10 | 4.70 | 4.20 | 3.38 | 2.85 | ..... |
| 31 | ..... | 4.38 | ..... | 4.20 | 3.15 | ..... | ..... |

*Daily discharge, in second-feet, of canal A near Delta, Utah, for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 134 | 339 | 363 | 304 | 164 | 132 |
| 2 | ..... | 152 | 343 | 346 | 279 | 144 | 132 |
| 3 | ..... | 158 | 346 | 332 | 283 | 144 | 132 |
| 4 | ..... | 158 | 346 | 204 | 283 | 128 | 132 |
| 5 | ..... | 152 | 360 | 194 | 283 | 122 | 128 |
| 6 | ..... | 152 | 360 | 200 | 290 | 112 | 117 |
| 7 | ..... | 158 | 360 | 248 | 279 | 87 | 107 |
| 8 | ..... | 158 | 360 | 241 | 283 | 97 | 104 |
| 9 | ..... | 194 | 360 | 287 | 276 | 102 | 104 |
| 10 | ..... | 206 | 360 | 332 | 276 | 102 | 100 |
| 11 | ..... | 206 | 363 | 349 | 276 | 102 | 97 |
| 12 | ..... | 206 | 367 | 367 | 283 | 102 | ..... |
| 13 | ..... | 206 | 322 | 381 | 283 | 87 | ..... |
| 14 | 13 | 200 | 371 | 381 | 283 | 68 | ..... |
| 15 | 18 | 194 | 385 | 374 | 287 | 74 | ..... |
| 16 | 28 | 206 | 409 | 381 | 265 | 92 | ..... |
| 17 | 35 | 220 | 409 | 353 | 269 | 74 | ..... |
| 18 | 38 | 248 | 409 | 346 | 276 | 58 | ..... |
| 19 | 68 | 262 | 409 | 346 | 262 | 50 | ..... |
| 20 | 77 | 262 | 405 | 346 | 262 | 90 | ..... |
| 21 | 94 | 307 | 405 | 342 | 237 | 97 | ..... |
| 22 | 117 | 311 | 405 | 332 | 237 | 97 | ..... |
| 23 | 117 | 311 | 405 | 339 | 227 | 128 | ..... |
| 24 | 107 | 332 | 405 | 332 | 220 | 120 | ..... |
| 25 | 107 | 332 | 399 | 325 | 213 | 122 | ..... |
| 26 | 117 | 332 | 399 | 318 | 206 | 124 | ..... |
| 27 | 117 | 332 | 395 | 318 | 200 | 128 | ..... |
| 28 | 134 | 332 | 388 | 297 | 200 | 132 | ..... |
| 29 | 134 | 346 | 382 | 297 | 200 | 134 | ..... |
| 30 | 134 | 290 | 374 | 304 | 192 | 128 | ..... |
| 31 | ..... | 329 | ..... | 304 | 164 | ..... | ..... |

NOTE.—Discharge determined from a rating curve well defined for all stages. Discharge estimated Apr. 15–17.

*Monthly discharge of canal A near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 14–30 | 134 | 13 | 85.6 | 2,890 | A. |
| May | 346 | 134 | 238 | 14,600 | A. |
| June | 409 | 322 | 378 | 22,500 | A. |
| July | 381 | 194 | 319 | 19,600 | A. |
| August | 304 | 164 | 254 | 15,600 | A. |
| September | 164 | 50 | 107 | 6,370 | A. |
| October 1–11 | 132 | 97 | 117 | 2,550 | A. |
| The period | ..... | ..... | ..... | 84,100 | |

### CANAL B NEAR DELTA, UTAH.

**Location.**—In sec. 31, T. 16 S., R. 6 W., Salt Lake base and meridian, about 250 feet below headgates at intake from main canal of Melville & Delta Land & Water Co., 1½ miles north of Delta.

**Records available.**—April 19 to October 11, 1912.

**Gage.**—Sloping gage on left bank.

**Channel.**—Dirt section.

**Discharge measurements.**—Made from cable about 25 feet below the gage.

**Accuracy.**—Records excellent.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

Records show the amount of water diverted from the main canal (canal A).

*Discharge measurements of canal B near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 25 | J. C. Dort | 4.54 | 186 | Sept. 6 | J. W. Thurston | 3.52 | 61.1 |
| July 26 | F. W. Cottrell | 4.59 | 178 | 14 | do | 3.22 | 33.7 |
| 29 | do | 4.37 | 155 | 23 | do | 3.60 | 63.4 |
| 31 | Cottrell and Dort | 4.38 | 154 | 28 | do | 3.55 | 64 |
| Aug. 27 | H. O. Snow | 3.98 | 112 | Oct. 13 | do | 3.35 | 44.8 |

*Daily gage height, in feet, of canal B near Delta, Utah, for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 3.90 | 4.62 | 4.78 | 4.42 | 3.80 | 3.55 |
| 2 | ..... | 3.90 | 4.66 | 4.64 | 4.38 | 3.60 | 3.55 |
| 3 | ..... | 3.90 | 4.66 | 4.58 | 4.40 | 3.65 | 3.55 |
| 4 | ..... | 4.00 | 4.65 | 3.92 | 4.40 | 3.60 | 3.55 |
| 5 | ..... | 4.00 | 4.65 | 3.90 | 4.40 | 3.58 | 3.58 |
| 6 | ..... | 4.00 | 4.65 | 3.90 | 4.40 | 3.58 | 3.55 |
| 7 | ..... | 4.00 | 4.62 | 4.20 | 4.38 | 3.35 | 3.40 |
| 8 | ..... | 4.00 | 4.62 | 4.08 | 4.40 | 3.35 | 3.40 |
| 9 | ..... | 4.30 | 4.66 | 4.18 | 4.38 | 3.40 | 3.40 |
| 10 | ..... | 4.48 | 4.70 | 4.55 | 4.38 | 3.45 | 3.38 |
| 11 | ..... | 4.50 | 4.75 | 4.56 | 4.42 | 3.45 | 3.35 |
| 12 | ..... | 4.55 | 4.75 | 4.68 | 4.45 | 3.50 | ..... |
| 13 | ..... | 4.55 | 4.50 | 4.86 | 4.38 | 3.35 | ..... |
| 14 | ..... | 4.35 | 4.75 | 4.90 | 4.38 | 3.20 | ..... |
| 15 | ..... | 4.42 | 4.78 | 4.85 | 4.38 | 3.25 | ..... |
| 16 | ..... | 4.32 | 4.84 | 4.88 | 4.25 | 3.30 | ..... |
| 17 | ..... | 4.52 | 4.88 | 4.82 | 4.25 | 3.22 | ..... |
| 18 | ..... | 4.70 | 4.88 | 4.82 | 4.28 | 3.05 | ..... |
| 19 | 2.55 | 4.67 | 4.88 | 4.82 | 4.25 | 3.05 | ..... |
| 20 | 3.20 | 4.25 | 4.88 | 4.80 | 4.25 | 3.20 | ..... |
| 21 | 3.35 | 4.60 | 4.88 | 4.80 | 4.20 | 3.35 | ..... |
| 22 | 3.55 | 4.55 | 4.88 | 4.70 | 4.15 | 3.35 | ..... |
| 23 | 3.55 | 4.46 | 4.88 | 4.75 | 4.15 | 3.60 | ..... |
| 24 | 3.50 | 4.50 | 4.88 | 4.70 | 4.08 | 3.58 | ..... |
| 25 | 3.55 | 4.56 | 4.90 | 4.70 | 4.00 | 3.58 | ..... |
| 26 | 3.55 | 4.55 | 4.92 | 4.55 | 4.00 | 3.55 | ..... |
| 27 | 3.55 | 4.55 | 4.88 | 4.60 | 3.98 | 3.55 | ..... |
| 28 | 3.90 | 4.52 | 4.85 | 4.40 | 3.98 | 3.55 | ..... |
| 29 | 3.90 | 4.56 | 4.85 | 4.38 | 3.95 | 3.55 | ..... |
| 30 | 3.90 | ..... | 4.85 | 4.38 | 3.95 | 3.55 | ..... |
| 31 | ..... | 4.52 | ..... | 4.38 | 3.80 | ..... | ..... |

*Daily discharge, in second-feet, of canal B near Delta, Utah, for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 102 | 189 | 209 | 163 | 91 | 64 |
| 2 | ..... | 102 | 194 | 191 | 158 | 69 | 64 |
| 3 | ..... | 102 | 194 | 183 | 160 | 74 | 64 |
| 4 | ..... | 113 | 192 | 104 | 160 | 69 | 64 |
| 5 | ..... | 113 | 192 | 102 | 160 | 67 | 67 |
| 6 | ..... | 113 | 192 | 102 | 160 | 67 | 64 |
| 7 | ..... | 113 | 189 | 136 | 158 | 43 | 48 |
| 8 | ..... | 113 | 189 | 122 | 160 | 43 | 48 |
| 9 | ..... | 148 | 194 | 134 | 158 | 48 | 48 |
| 10 | ..... | 170 | 199 | 180 | 158 | 53 | 46 |
| 11 | ..... | 173 | 206 | 181 | 163 | 53 | 43 |
| 12 | ..... | 180 | 206 | 196 | 166 | 58 | ..... |
| 13 | ..... | 180 | 173 | 220 | 158 | 43 | ..... |
| 14 | ..... | 154 | 206 | 225 | 158 | 30 | ..... |
| 15 | ..... | 163 | 209 | 218 | 158 | 34 | ..... |
| 16 | ..... | 150 | 217 | 222 | 142 | 38 | ..... |
| 17 | ..... | 176 | 222 | 215 | 142 | 32 | ..... |
| 18 | ..... | 199 | 222 | 215 | 146 | 18 | ..... |
| 19 | 2 | 195 | 222 | 215 | 142 | 18 | ..... |
| 20 | 30 | 142 | 222 | 212 | 142 | 30 | ..... |
| 21 | 43 | 186 | 222 | 212 | 136 | 43 | ..... |
| 22 | 64 | 180 | 222 | 199 | 130 | 43 | ..... |
| 23 | 64 | 168 | 222 | 206 | 130 | 69 | ..... |
| 24 | 58 | 173 | 222 | 199 | 122 | 67 | ..... |
| 25 | 64 | 181 | 225 | 199 | 113 | 67 | ..... |
| 26 | 64 | 180 | 228 | 180 | 113 | 64 | ..... |
| 27 | 64 | 180 | 222 | 186 | 111 | 64 | ..... |
| 28 | 102 | 176 | 218 | 160 | 111 | 64 | ..... |
| 29 | 102 | 181 | 218 | 158 | 108 | 64 | ..... |
| 30 | 102 | 178 | 218 | 158 | 108 | 64 | ..... |
| 31 | ..... | 176 | ..... | 158 | 91 | ..... | ..... |

NOTE.—Discharge determined from a well-defined rating curve. Discharge interpolated May 30.

*Monthly discharge of canal B near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 19–30 | 102 | 2 | 63.2 | 1,500 | A. |
| May | 199 | 102 | 157 | 9,650 | A. |
| June | 228 | 173 | 208 | 12,400 | A. |
| July | 225 | 102 | 181 | 11,100 | A. |
| August | 166 | 91 | 141 | 8,670 | A. |
| September | 91 | 18 | 52.9 | 3,150 | A. |
| October 1–11 | 67 | 43 | 56.4 | 1,230 | A. |
| The period | ..... | ..... | ..... | 47,700 | |

### CANAL C NEAR DELTA, UTAH.

**Location.**—In sec. 31, T. 16 S., R. 6 W., Salt Lake base and meridian, about 200 feet below headgates and about 1½ miles north of Delta.

**Records available.**—May 1 to October 11, 1912.

**Gage.**—Sloping gage on right bank.

**Channel.**—Dirt section.

**Discharge measurements.**—Made from cable about 30 feet below gage.

**Accuracy.**—Records fair.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

Records show the amount of water diverted from the main canal of the Melville & Delta Land & Water Co. (canal A).

*Discharge measurements of canal C near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec-ft.* | | | *Feet.* | *Sec-ft.* |
| May 26 | Cottrell and Dort | 3.94 | 166 | Sept. 18 | J. W. Thurston | 3.06 | 37.6 |
| July 31 | do | 4.30 | 111 | 20 | do | 3.13 | 42.3 |
| Sept. 1 | H. O. Snow | 3.47 | 60.6 | 28 | do | 3.23 | 50.6 |
| 6 | do | 2.88 | 29.9 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of canal C near Delta, Utah, for year ending Sept. 30, 1912.*

| Day. | May. | | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 3.00 | 48 | 3.95 | 102 | 4.16 | 103 | 4.30 | 112 | 3.45 | 60 | 3.25 | 49 |
| 2 | 3.15 | 56 | 3.96 | 102 | 4.10 | 99 | 4.10 | 99 | 3.42 | 58 | 3.28 | 51 |
| 3 | 3.20 | 59 | 3.98 | 103 | 4.10 | 99 | 4.10 | 99 | 3.40 | 57 | 3.28 | 51 |
| 4 | 3.15 | 56 | 3.98 | 102 | 3.70 | 75 | 4.10 | 99 | 3.10 | 41 | 3.28 | 51 |
| 5 | 3.15 | 56 | 4.06 | 106 | 3.68 | 74 | 4.10 | 99 | 3.10 | 41 | 3.22 | 47 |
| 6 | 3.15 | 56 | 4.18 | 114 | 3.68 | 74 | 4.12 | 100 | 2.88 | 30 | 3.20 | 46 |
| 7 | 3.15 | 56 | 4.18 | 113 | 3.92 | 88 | 3.98 | 92 | ..... | 30 | 3.18 | 45 |
| 8 | 3.15 | 56 | 4.18 | 113 | 3.90 | 87 | 3.98 | 92 | 3.00 | 36 | 3.15 | 44 |
| 9 | 3.20 | 59 | 4.18 | 112 | 4.02 | 94 | 3.95 | 90 | 3.02 | 37 | 3.22 | 47 |
| 10 | 3.40 | 70 | 4.15 | 109 | 4.28 | 111 | 3.95 | 90 | 3.00 | 36 | 3.20 | 46 |
| 11 | 3.40 | 70 | 4.10 | 105 | 4.28 | 111 | 3.90 | 87 | 3.00 | 36 | 3.18 | 45 |
| 12 | 3.40 | 70 | 4.10 | 104 | 4.32 | 113 | 3.95 | 90 | ..... | 30 | ..... | ..... |
| 13 | 3.40 | 70 | 3.89 | 91 | 4.30 | 112 | 4.00 | 93 | ..... | 30 | ..... | ..... |
| 14 | 3.40 | 70 | 4.10 | 103 | 4.42 | 119 | 4.00 | 93 | ..... | 35 | ..... | ..... |
| 15 | 3.40 | 70 | 4.20 | 109 | 4.35 | 115 | 4.00 | 93 | ..... | 35 | ..... | ..... |
| 16 | 3.40 | 70 | 4.35 | 118 | 4.35 | 115 | 4.00 | 93 | 3.15 | 44 | ..... | ..... |
| 17 | 3.40 | 70 | 4.35 | 117 | 4.20 | 105 | 4.05 | 96 | 3.10 | 41 | ..... | ..... |
| 18 | 3.55 | 79 | 4.35 | 117 | 4.18 | 104 | 4.00 | 93 | 3.06 | 39 | ..... | ..... |
| 19 | 3.75 | 91 | 4.35 | 116 | 4.20 | 105 | 4.05 | 96 | ..... | 35 | ..... | ..... |
| 20 | 3.75 | 91 | 4.35 | 115 | 4.22 | 106 | 4.05 | 96 | 3.10 | 41 | ..... | ..... |
| 21 | 3.52 | 77 | 4.35 | 115 | 4.20 | 105 | 3.80 | 81 | 3.15 | 44 | ..... | ..... |
| 22 | 3.52 | 77 | 4.35 | 115 | 4.18 | 104 | 3.78 | 80 | 3.10 | 41 | ..... | ..... |
| 23 | 3.62 | 83 | 4.35 | 115 | 4.20 | 105 | 3.75 | 78 | 3.20 | 46 | ..... | ..... |
| 24 | 3.85 | 97 | 4.35 | 115 | 4.15 | 102 | 3.75 | 78 | 3.15 | 44 | ..... | ..... |
| 25 | 3.90 | 100 | 4.29 | 111 | 4.18 | 104 | 3.75 | 78 | 3.20 | 46 | ..... | ..... |
| 26 | 3.90 | 100 | 4.21 | 106 | 4.15 | 102 | 3.72 | 76 | 3.20 | 46 | ..... | ..... |
| 27 | 3.92 | 102 | 4.20 | 105 | 4.20 | 105 | 3.78 | 80 | 3.15 | 44 | ..... | ..... |
| 28 | 3.95 | 103 | 4.20 | 105 | 4.20 | 105 | 3.78 | 80 | 3.20 | 46 | ..... | ..... |
| 29 | 3.95 | 103 | 4.21 | 106 | 4.20 | 105 | 3.75 | 78 | 3.25 | 49 | ..... | ..... |
| 30 | ..... | 100 | 4.21 | 105 | 4.25 | 108 | 3.55 | 66 | 3.25 | 49 | ..... | ..... |
| 31 | 3.88 | 98 | ..... | ..... | 4.25 | 108 | 3.45 | 60 | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined from a poorly defined rating curve May 1–26; by indirect method for shifting channels May 27 to June 19, and from a well-defined rating curve June 20 to Oct. 11. Discharge estimated Sept. 7, 12–15, and 19, as observer notes, "not registered" on those days. Discharge interpolated May 30.

*Monthly discharge of canal C near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| May | 103 | 48 | 76.2 | 4,690 | C. |
| June | 118 | 91 | 109 | 6,490 | C. |
| July | 119 | 74 | 102 | 6,270 | A. |
| August | 112 | 60 | 88.3 | 5,430 | A. |
| September | 60 | ..... | 41.6 | 2,480 | A. |
| October 1–11 | 51 | 44 | 47.5 | 1,040 | A. |
| The period | ..... | ..... | ..... | 26,400 | |

### LYMAN'S DITCH NEAR DELTA, UTAH.

**Location.**—In the NE. ¼ SE. ¼ sec. 31, T. 16 S., R. 6 W., Salt Lake base and meridian, about 200 feet below the point of diversion from canal B of the Delta Land & Water Co.'s project.

**Records available.**—June 5 to October 12, 1912.

**Gage.**—Vertical staff driven into bed of stream 200 feet below head of ditch.

**Channel.**—Permanent.

**Artificial control.**—The discharge in the ditch is controlled by the gate openings at the head.

**Accuracy.**—Records fair.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Lyman's ditch near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 25 | J. C. Dort | 3.10 | 2.97 |
| July 31 | Dort and Cottrell | 3.22 | 3.68 |

*Daily gage height, in feet, and discharge, in second-feet, of Lyman's ditch near Delta, Utah, for year ending Sept. 30, 1912.*

[Abner Johnson, observer.]

| Day. | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 3.02 | 2.5 | 3.25 | 3.9 | 2.90 | 1.8 | 3.10 | 3.0 |
| 2 | ..... | ..... | 3.07 | 2.8 | 2.55 | .4 | 2.90 | 1.8 | 3.25 | 3.9 |
| 3 | ..... | ..... | 3.10 | 3.0 | 2.55 | .4 | 2.90 | 1.8 | 3.25 | 3.9 |
| 4 | ..... | ..... | 2.70 | .9 | 2.55 | .4 | 3.00 | 2.4 | 3.25 | 3.9 |
| 5 | 3.25 | 3.9 | 2.65 | .7 | 2.55 | .4 | 3.00 | 2.4 | 3.25 | 3.9 |
| 6 | 3.25 | 3.9 | 2.55 | .4 | 2.55 | .4 | 3.00 | 2.4 | 2.55 | .4 |
| 7 | 3.20 | 3.6 | 2.55 | .4 | 2.55 | .4 | 2.90 | 1.8 | 2.55 | .4 |
| 8 | 2.55 | .4 | 2.55 | .4 | 2.55 | .4 | 2.95 | 2.1 | 2.55 | .4 |
| 9 | 2.55 | .4 | 2.55 | .4 | 2.55 | .4 | 3.00 | 2.4 | 2.55 | .4 |
| 10 | 2.55 | .4 | 2.55 | .4 | 2.55 | .4 | 2.90 | 1.8 | 2.55 | .4 |
| 11 | 2.82 | 1.4 | 2.55 | .4 | 2.55 | .4 | 3.05 | 2.7 | 2.55 | .4 |
| 12 | 3.20 | 3.6 | 2.88 | 1.7 | 2.55 | .4 | 3.00 | 2.4 | ..... | ..... |
| 13 | 2.98 | 2.3 | 2.55 | .4 | 2.55 | .4 | 3.00 | 2.4 | ..... | ..... |
| 14 | 3.22 | 3.7 | 2.60 | .5 | 2.55 | .4 | 2.90 | 1.8 | ..... | ..... |
| 15 | 3.25 | 3.9 | 3.10 | 3.0 | 3.12 | 3.1 | 2.55 | .4 | ..... | ..... |
| 16 | 3.25 | 3.9 | 3.10 | 3.0 | 3.10 | 3.0 | 2.55 | .4 | ..... | ..... |
| 17 | 3.25 | 3.9 | 3.10 | 3.0 | 3.10 | 3.0 | 2.55 | .4 | ..... | ..... |
| 18 | 2.60 | .5 | 3.10 | 3.0 | 3.10 | 3.0 | 2.55 | .4 | ..... | ..... |
| 19 | 2.60 | .5 | 3.10 | 3.0 | 2.55 | .4 | 2.55 | .4 | ..... | ..... |
| 20 | 2.60 | .5 | 3.10 | 3.0 | 2.55 | .4 | 2.55 | .4 | ..... | ..... |
| 21 | 2.60 | .5 | 2.55 | .4 | 2.55 | .4 | 2.55 | .4 | ..... | ..... |
| 22 | 2.60 | .5 | 2.55 | .4 | 3.05 | 2.7 | 2.55 | .4 | ..... | ..... |
| 23 | 2.60 | .5 | 2.55 | .4 | 3.05 | 2.7 | 2.55 | .4 | ..... | ..... |
| 24 | 2.60 | .5 | 2.55 | .4 | 3.05 | 2.7 | 2.55 | .4 | ..... | ..... |
| 25 | 2.60 | .5 | 3.05 | 2.7 | 3.05 | 2.7 | 2.55 | .4 | ..... | ..... |
| 26 | 3.25 | 3.9 | 3.00 | 2.4 | 3.05 | 2.7 | 3.00 | 2.4 | ..... | ..... |
| 27 | 3.25 | 3.9 | 3.00 | 2.4 | 3.10 | 3.0 | 3.00 | 2.4 | ..... | ..... |
| 28 | 3.20 | 3.6 | 2.90 | 1.8 | 3.10 | 3.0 | 3.00 | 2.4 | ..... | ..... |
| 29 | 3.00 | 2.4 | 3.20 | 3.6 | 3.05 | 2.7 | 3.00 | 2.4 | ..... | ..... |
| 30 | 3.00 | 2.4 | 3.20 | 3.6 | 3.05 | 2.7 | 3.00 | 2.4 | ..... | ..... |
| 31 | ..... | ..... | 3.20 | 3.6 | 2.85 | 1.6 | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined from a well-defined rating curve.

*Monthly discharge of Lyman's ditch near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June 5-30 | 3.9 | 0.4 | 2.13 | 110 | B. |
| July | 3.6 | .4 | 1.76 | 108 | B. |
| August | 3.9 | .4 | 1.58 | 97.2 | B. |
| September | 2.7 | .4 | 1.55 | 92.2 | B. |
| October 1-11 | 3.9 | .4 | 1.91 | 41.7 | B. |
| The period | | | | 449 | |

### MELVILLE MAIN CANAL NEAR DELTA, UTAH.

**Location.**—In sec. 7, T. 17 S., R. 6 W., Salt Lake base and meridian, 300 feet below the headgates and just east of the town site of Delta, Utah.

**Records available.**—June 1 to October 20, 1912.

**Gage.**—Sloping gage on right bank.

**Channel.**—Dirt section.

**Discharge measurements.**—Made by wading or from the county bridge below the gage on the road leading due east from Delta.

**Diversions.**—One small ditch diverts water between the gage and the bridge, but it is usually dry. Some waste water also spills into the canal about 350 feet below the gage.

**Accuracy.**—Records are rather poor, owing to lack of sufficient discharge measurements to accurately define the rating curve.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Melville main canal near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 27 | J. C. Dort | 2.83 | 58.2 |
| July 30 | .....do | 2.68 | 56.5 |

*Daily gage height, in feet, and discharge, in second-feet, of Melville main canal near Delta, Utah, for year ending Sept. 30, 1912.*

[C. A. Clawson, observer.]

| Day. | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 2.7 | 54 | 2.55 | 46 | 2.6 | 49 | 2.2 | 32 | 2.0 | 25 |
| 2 | 2.7 | 54 | 2.55 | 46 | 2.55 | 46 | 1.8 | 19 | 2.0 | 25 |
| 3 | 2.7 | 54 | 2.55 | 46 | 2.5 | 44 | 1.8 | 19 | 2.0 | 25 |
| 4 | 2.75 | 56 | 2.55 | 46 | 2.5 | 44 | 1.8 | 19 | 2.0 | 25 |
| 5 | 2.8 | 59 | 2.5 | 44 | 2.5 | 44 | 1.8 | 19 | 2.0 | 25 |
| 6 | 2.8 | 59 | 2.5 | 44 | 2.5 | 44 | 2.1 | 28 | 2.1 | 28 |
| 7 | 2.75 | 56 | 2.5 | 44 | 2.5 | 44 | 2.1 | 28 | 2.1 | 28 |
| 8 | 2.7 | 54 | 2.6 | 49 | 2.5 | 44 | 2.1 | 28 | 2.1 | 28 |
| 9 | 2.7 | 54 | 2.6 | 49 | 2.5 | 44 | 2.3 | 36 | 2.1 | 28 |
| 10 | 2.7 | 54 | 2.65 | 52 | 2.5 | 44 | 2.3 | 36 | 2.1 | 28 |

*Daily gage height, in feet, and discharge, in second-feet, of Melville main canal near Delta, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 11 | 2.78 | 58 | 2.7 | 54 | 2.5 | 44 | 2.1 | 28 | 2.1 | 28 |
| 12 | 2.75 | 56 | 2.7 | 54 | 2.5 | 44 | 2.0 | 25 | 2.1 | 28 |
| 13 | 2.65 | 52 | 2.65 | 52 | 2.55 | 46 | 2.0 | 25 | 2.1 | 28 |
| 14 | 2.75 | 56 | 2.6 | 49 | 2.55 | 46 | 2.0 | 25 | 2.1 | 28 |
| 15 | 2.75 | 56 | 2.6 | 49 | 2.5 | 44 | 2.0 | 25 | 2.2 | 32 |
| 16 | 2.7 | 54 | 2.6 | 49 | 2.55 | 46 | 1.8 | 19 | 2.2 | 32 |
| 17 | 2.7 | 54 | 2.55 | 46 | 2.5 | 44 | 1.8 | 19 | 2.2 | 32 |
| 18 | 2.75 | 56 | 2.6 | 49 | 2.5 | 44 | 1.85 | 20 | 2.2 | 32 |
| 19 | 2.75 | 56 | 2.6 | 49 | 2.4 | 40 | 1.9 | 22 | 2.2 | 32 |
| 20 | 2.75 | 56 | 2.55 | 46 | 2.4 | 40 | 2.0 | 25 | 2.2 | 32 |
| 21 | 2.75 | 56 | 2.55 | 46 | 2.3 | 36 | 2.0 | 25 | ..... | ..... |
| 22 | 2.7 | 54 | 2.55 | 46 | 2.3 | 36 | 2.0 | 25 | ..... | ..... |
| 23 | 2.75 | 56 | 2.5 | 44 | 2.3 | 36 | 2.1 | 28 | ..... | ..... |
| 24 | 2.75 | 56 | 2.5 | 44 | 2.3 | 36 | 2.2 | 32 | ..... | ..... |
| 25 | 2.75 | 56 | 2.5 | 44 | 2.3 | 36 | 2.2 | 32 | ..... | ..... |
| 26 | 2.6 | 49 | 2.5 | 44 | 2.35 | 38 | 1.9 | 22 | ..... | ..... |
| 27 | 2.65 | 52 | 2.5 | 44 | 2.35 | 38 | 1.9 | 22 | ..... | ..... |
| 28 | 2.65 | 52 | 2.6 | 49 | 2.3 | 36 | 1.9 | 22 | ..... | ..... |
| 29 | 2.65 | 52 | 2.65 | 52 | 2.3 | 36 | 1.9 | 22 | ..... | ..... |
| 30 | 2.65 | 52 | 2.7 | 54 | 2.25 | 34 | 1.9 | 22 | ..... | ..... |
| 31 | ..... | ..... | 2.65 | 52 | 2.2 | 32 | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined from a poorly defined rating curve.

*Monthly discharge of Melville main canal near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June | 59 | 49 | 54.8 | 3,260 | B. |
| July | 54 | 44 | 47.8 | 2,940 | C. |
| August | 49 | 32 | 41.3 | 2,540 | C. |
| September | 36 | 19 | 25.0 | 1,490 | C. |
| October 1-20 | 32 | 25 | 28.4 | 1,130 | C. |
| The period | ..... | ..... | ..... | 11,400 | |

### MELVILLE WEST SIDE CANAL NEAR DELTA, UTAH.

**Location.**—In the SE. ¼ SW. ¼ sec. 31, T. 16 S., R. 6 W., Salt Lake base and meridian, about 200 feet below headgates, just below intake of Canal B and 1½ miles north of Delta.

**Records available.**—April 18 to October 11, 1912.

**Gage.**—Sloping gage on left bank.

**Channel.**—Dirt section.

**Discharge measurements.**—Made from bridge about 5 feet upstream from gage.

**Diversions.**—None above the station.

**Accuracy.**—Records poor, owing to insufficient measurements. Gage heights are at times subject to backwater from a check 1,000 feet below. Discharge computed on the assumption that none of the recorded gage heights were affected by backwater.

**Cooperation.**—Maintained in cooperation with the Delta Land & Water Co.

*Discharge measurements of Melville West Side canal, near Delta, Utah, in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 26 | Dort and Cottrell | 1.87 | 28.5 |
| July 31 | .....do | 1.68 | 22.7 |

*Daily gage height, in feet, of Melville West Side canal near Delta, Utah, for year ending Sept. 30, 1912.*

[Abner Johnson, observer.]

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 1.0 | 1.69 | 1.80 | 1.55 | 1.40 | 1.40 |
| 2 | ..... | 1.3 | 1.45 | 1.90 | 1.50 | 1.35 | 1.35 |
| 3 | ..... | 1.35 | 1.68 | 1.92 | 1.50 | 1.45 | 1.35 |
| 4 | ..... | 1.45 | 1.70 | 1.22 | 1.50 | 1.50 | 1.45 |
| 5 | ..... | 1.3 | 1.80 | 1.22 | 1.50 | 1.45 | 1.48 |
| 6 | ..... | 1.3 | 1.85 | 1.22 | 1.70 | 1.35 | 1.42 |
| 7 | ..... | 1.45 | 1.85 | 1.62 | 1.65 | 1.30 | 1.45 |
| 8 | ..... | 1.5 | 1.85 | 1.62 | 1.68 | 1.40 | 1.40 |
| 9 | ..... | 1.6 | 1.88 | 1.81 | 1.65 | 1.50 | 1.30 |
| 10 | ..... | 1.6 | 1.85 | 1.99 | 1.60 | 1.25 | 1.32 |
| 11 | ..... | 1.65 | 1.89 | 1.92 | 1.68 | 1.35 | 1.20 |
| 12 | ..... | 1.65 | 1.90 | 1.98 | 1.72 | 1.40 | ..... |
| 13 | ..... | 1.6 | 1.50 | 1.96 | 1.75 | 1.35 | ..... |
| 14 | ..... | 1.72 | 1.88 | 1.70 | 1.78 | 1.10 | ..... |
| 15 | ..... | 1.75 | 1.91 | 1.80 | 1.80 | 1.25 | ..... |
| 16 | ..... | 1.75 | 1.98 | 1.80 | 1.68 | 1.35 | ..... |
| 17 | ..... | 1.78 | 2.00 | 1.65 | 1.68 | ..... | ..... |
| 18 | 0.9 | 1.9 | 2.03 | 1.70 | 1.72 | 1.00 | ..... |
| 19 | 1.05 | 1.95 | 2.02 | 1.48 | 1.62 | 1.02 | ..... |
| 20 | 1.1 | 1.88 | 2.02 | 1.6 | 1.70 | ..... | ..... |
| 21 | 1.1 | 1.99 | 2.02 | 1.65 | 1.65 | ..... | ..... |
| 22 | 1.35 | 1.99 | 2.02 | 1.65 | 1.68 | 1.25 | ..... |
| 23 | 1.35 | 2.02 | 2.02 | 1.65 | 1.55 | 1.40 | ..... |
| 24 | 1.3 | 1.98 | 2.02 | 1.55 | 1.55 | 1.35 | ..... |
| 25 | 1.5 | 1.9 | 2.0 | 1.45 | 1.60 | 1.38 | ..... |
| 26 | 1.5 | 1.85 | 1.96 | 1.65 | 1.50 | 1.35 | ..... |
| 27 | 1.5 | 1.85 | 1.90 | 1.65 | 1.20 | 1.55 | ..... |
| 28 | 1.0 | 1.85 | 1.85 | 1.68 | 1.20 | 1.50 | ..... |
| 29 | 1.0 | 1.85 | 1.82 | 1.65 | 1.50 | 1.50 | ..... |
| 30 | 1.0 | ..... | 1.82 | 1.65 | 1.50 | 1.45 | ..... |
| 31 | ..... | 1.7 | ..... | 1.68 | 1.35 | ..... | ..... |

*Daily discharge, in second-feet, of Melville West Side canal near Delta, Utah, for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 1 | ..... | 8 | 23 | 26 | 19 | 15 | 15 |
| 2 | ..... | 12 | 16 | 30 | 18 | 14 | 14 |
| 3 | ..... | 14 | 22 | 30 | 18 | 16 | 14 |
| 4 | ..... | 16 | 23 | 11 | 18 | 18 | 16 |
| 5 | ..... | 12 | 26 | 11 | 18 | 16 | 17 |
| 6 | ..... | 12 | 28 | 11 | 23 | 14 | 16 |
| 7 | ..... | 16 | 28 | 21 | 22 | 12 | 16 |
| 8 | ..... | 18 | 28 | 21 | 22 | 15 | 15 |
| 9 | ..... | 20 | 29 | 26 | 22 | 18 | 12 |
| 10 | ..... | 20 | 28 | 33 | 20 | 12 | 13 |

*Daily discharge, in second-feet, of Melville West Side canal near Delta, Utah, for year ending Sept. 30, 1912*—Continued.

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Oct. |
|---|---|---|---|---|---|---|---|
| 11 | ..... | 22 | 29 | 30 | 22 | 14 | 10 |
| 12 | ..... | 22 | 30 | 32 | 24 | 15 | ..... |
| 13 | ..... | 20 | 18 | 32 | 24 | 14 | ..... |
| 14 | ..... | 24 | 29 | 23 | 25 | 9 | ..... |
| 15 | ..... | 24 | 30 | 26 | 26 | 12 | ..... |
| 16 | ..... | 24 | 32 | 26 | 22 | 14 | ..... |
| 17 | ..... | 25 | 33 | 22 | 22 | 11 | ..... |
| 18 | 6 | 30 | 34 | 23 | 24 | 8 | ..... |
| 19 | 8 | 31 | 34 | 17 | 21 | 8 | ..... |
| 20 | 9 | 29 | 34 | 20 | 23 | 10 | ..... |
| 21 | 9 | 33 | 34 | 22 | 22 | 11 | ..... |
| 22 | 14 | 33 | 34 | 22 | 22 | 12 | ..... |
| 23 | 14 | 34 | 34 | 22 | 19 | 15 | ..... |
| 24 | 12 | 32 | 34 | 19 | 19 | 14 | ..... |
| 25 | 18 | 30 | 33 | 16 | 20 | 14 | ..... |
| 26 | 18 | 28 | 32 | 22 | 18 | 14 | ..... |
| 27 | 18 | 28 | 30 | 22 | 10 | 19 | ..... |
| 28 | 8 | 28 | 28 | 22 | 10 | 18 | ..... |
| 29 | 8 | 28 | 27 | 22 | 18 | 18 | ..... |
| 30 | 8 | 25 | 27 | 22 | 18 | 16 | ..... |
| 31 | ..... | 23 | ..... | 22 | 14 | ..... | ..... |

NOTE.—Discharge determined from a curve fairly well defined above 20 second-feet. Discharge interpolated for days on which gage was not read.

*Monthly discharge of Melville West Side canal near Delta, Utah, for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 18-30 | 18 | 6 | 11.5 | 297 | C. |
| May | 34 | 8 | 23.3 | 1,430 | B. |
| June | 34 | 16 | 28.9 | 1,720 | B. |
| July | 33 | 11 | 22.7 | 1,400 | B. |
| August | 26 | 10 | 20.1 | 1,240 | B. |
| September | 19 | 8 | 13.9 | 827 | C. |
| October 1-11 | 17 | 10 | 14.4 | 314 | C. |
| The period | ..... | ..... | ..... | 7,230 | |

## THOUSAND SPRINGS CREEK BASIN.

### THOUSAND SPRINGS CREEK NEAR TECOMA, NEV.

**Location.**—In the SE. ¼ sec. 31, T. 43 N., R. 67 E., Mount Diablo base and meridian, about three-fourths of a mile below the junction of Rock Springs and Thousand Springs creeks, one-fourth mile below the mouth of the canyon, and about 1½ miles from the lower H. D. ranch, which is 30 miles from Tecoma, Nev.

**Records available.**—November 1, 1910, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Friez automatic gage installed November 20, 1911, at datum 0.03 foot above zero of inclined gage which was used previous to that date.

**Channel.**—Liable to shift at high stages.

**Discharge measurements.**—Made by wading just below gage at low stages and from a car and cable at high stages.

**Winter flow.**—Gage records not obtained during winter, as the water in the gage well freezes and the relation of gage height to discharge is affected by ice. The winter flow is ordinarily low, and during very cold weather the stream freezes nearly to the bottom.

**Diversions.**—Thousand Springs Creek is used more or less for irrigation, but most of this water finds its way back to the main channel. During the summer the creek sinks at a point several miles above the lower H. D. ranch.

**Accuracy.**—Fair.

**Cooperation.**—Maintained in cooperation with the Vineyard Land & Stock Co., of Ogden, Utah.

*Discharge measurements of Thousand Springs Creek near Tecoma, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Mar. 26 | J. C. Dort | 0.70 | 5.49 |
| 27 | do | .70 | 5.25 |
| 28 | do | .73 | 8.08 |
| 28 | do | .72 | 7.41 |

*Daily gage height, in feet, of Thousand Springs Creek near Tecoma, Nev., for year ending Sept. 30, 1912.*

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | | | 0.83 | 1.54 | 1.78 | 0.62 | | 0.44 |
| 2 | | | .87 | 1.54 | 1.72 | .62 | | .43 |
| 3 | | | .96 | 1.49 | 1.67 | .62 | | .42 |
| 4 | | | 1.17 | 1.47 | 1.65 | .61 | 0.57 | .43 |
| 5 | | | 1.22 | 1.43 | 1.55 | .61 | .57 | .43 |
| 6 | | 1.40 | 1.21 | 1.42 | 1.48 | .60 | .57 | .43 |
| 7 | | 1.50 | 1.21 | 1.43 | 1.43 | .59 | .57 | .44 |
| 8 | | .98 | 1.21 | 1.48 | 1.35 | .59 | .87 | .45 |
| 9 | | .86 | 1.24 | 1.9 | 1.33 | .58 | .69 | .45 |
| 10 | | .75 | 1.30 | 2.1 | 1.41 | .58 | .65 | .46 |
| 11 | | .81 | 1.40 | 2.15 | 1.70 | .58 | .65 | .47 |
| 12 | | .86 | 1.37 | 2.20 | 1.65 | .58 | .65 | .47 |
| 13 | | .78 | 1.38 | 2.22 | 1.55 | .58 | .65 | .47 |
| 14 | | .85 | 1.15 | 2.22 | 1.42 | .58 | .65 | .46 |
| 15 | | .78 | 1.12 | 2.22 | 1.37 | .58 | .65 | .43 |
| 16 | | .78 | 1.12 | 2.22 | 1.32 | .58 | .65 | .44 |
| 17 | 0.83 | .85 | 1.13 | 2.22 | 1.25 | .58 | .65 | .46 |
| 18 | .93 | .90 | 1.15 | 2.22 | 1.17 | .58 | | .46 |
| 19 | .93 | 1.10 | 1.09 | 2.25 | 1.07 | .58 | | .46 |
| 20 | | .90 | 1.28 | 2.31 | .93 | .58 | .49 | .46 |
| 21 | | | 1.14 | 2.41 | .82 | .58 | .48 | .46 |
| 22 | | | 1.25 | 2.27 | .74 | .58 | .48 | .48 |
| 23 | | | 1.30 | 2.04 | .66 | .58 | .46 | .49 |
| 24 | | .79 | 1.30 | 1.93 | .64 | .58 | .45 | .49 |
| 25 | | .84 | 1.50 | 1.90 | .64 | .58 | .42 | .50 |
| 26 | | .94 | 1.50 | 1.90 | .63 | .58 | .41 | .51 |
| 27 | | .71 | 1.50 | 1.92 | .63 | .58 | .46 | .52 |
| 28 | | .70 | 1.49 | 1.90 | .62 | | .49 | .52 |
| 29 | | .75 | 1.58 | 1.82 | .62 | | .48 | .52 |
| 30 | | .85 | 1.57 | 1.82 | .62 | | .46 | .52 |
| 31 | | .86 | | 1.80 | | | .46 | |

*Daily discharge, in second-feet, of Thousand Springs Creek near Tecoma, Nev., for year ending Sept. 30, 1912.*

| Day. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|
| 1 | | 8 | 9.2 | 33 | 42 | 3.1 | 2.2 | 0.8 |
| 2 | | 8 | 10 | 33 | 40 | 3.1 | 2.2 | .7 |
| 3 | | 8 | 13 | 32 | 38 | 3.1 | 2.2 | .6 |
| 4 | | 8 | 20 | 31 | 37 | 2.8 | 2.2 | .7 |
| 5 | | 8 | 22 | 30 | 34 | 2.8 | 2.2 | .7 |
| 6 | | 28 | 22 | 29 | 32 | 2.6 | 2.2 | .7 |
| 7 | | 32 | 22 | 30 | 30 | 2.5 | 2.2 | .8 |
| 8 | | 14 | 22 | 32 | 27 | 2.5 | 10 | .8 |
| 9 | | 10 | 23 | 46 | 26 | 2.3 | 4.8 | .8 |
| 10 | | 6.6 | 25 | 55 | 29 | 2.3 | 3.8 | .9 |
| 11 | | 8.5 | 28 | 58 | 39 | 2.3 | 3.8 | 1.0 |
| 12 | | 10 | 27 | 60 | 37 | 2.3 | 3.8 | 1.0 |
| 13 | | 7.6 | 28 | 61 | 34 | 2.3 | 3.8 | 1.0 |
| 14 | | 9.8 | 20 | 61 | 29 | 2.3 | 3.8 | .9 |
| 15 | | 7.6 | 19 | 61 | 27 | 2.3 | 3.8 | .7 |
| 16 | | 7.6 | 19 | 61 | 26 | 2.3 | 3.8 | .8 |
| 17 | 9 | 9.8 | 19 | 61 | 23 | 2.3 | 3.8 | .9 |
| 18 | 12 | 12 | 20 | 61 | 20 | 2.3 | 3.0 | .9 |
| 19 | 12 | 18 | 18 | 62 | 17 | 2.3 | 2.0 | .9 |
| 20 | | 12 | 24 | 66 | 12 | 2.3 | 1.1 | .9 |
| 21 | | 10 | 19 | 71 | 8.9 | 2.3 | 1.1 | .9 |
| 22 | | 8 | 23 | 64 | 6.3 | 2.3 | 1.1 | 1.1 |
| 23 | | 8 | 25 | 52 | 4.0 | 2.3 | .9 | 1.1 |
| 24 | | 7.9 | 25 | 47 | 3.6 | 2.3 | .8 | 1.1 |
| 25 | | 9.5 | 32 | 46 | 3.6 | 2.3 | .6 | 1.2 |
| 26 | | 13 | 32 | 46 | 3.3 | 2.3 | .6 | 1.3 |
| 27 | | 5.3 | 32 | 47 | 3.3 | 2.3 | .9 | 1.5 |
| 28 | | 5.0 | 32 | 46 | 3.1 | 2.3 | 1.1 | 1.5 |
| 29 | | 6.6 | 35 | 43 | 3.1 | 2.3 | 1.1 | 1.5 |
| 30 | | 9.8 | 34 | 43 | 3.1 | 2.3 | .9 | 1.5 |
| 31 | | 10 | ..... | 42 | ..... | 2.3 | .9 | ..... |

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge estimated for days on which the automatic gage was not working properly.

*Monthly discharge of Thousand Springs Creek near Tecoma, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| March | 32 | 7.6 | 105 | 646 | B. |
| April | 35 | 9.2 | 23.3 | 1,390 | A. |
| May | 71 | 29 | 48.7 | 2,990 | A. |
| June | 42 | 3.1 | 21.4 | 1,270 | B. |
| July | 3.1 | 2.3 | 2.43 | 149 | C. |
| August | 10 | .6 | 2.47 | 152 | C. |
| September | 1.5 | .6 | .97 | 58 | C. |
| The period | ..... | ..... | ..... | 6,660 | |

NOTE.—Creek was practically dry October to December, 1911.

## SALTON SINK BASIN.

### SALTON SEA NEAR SALTON, CAL.

**Location.**—At a trestle bent of the Southern Pacific Co. across the mouth of Salt Creek, about 2½ miles east of Salton, Cal., about 7 miles east of Mecca, and 1 mile west of Durmid.

**Records available.**—November, 1904, to September 30, 1912.

**Gage.**—A graduated trestle bent; datum of gage 280.3 feet below sea level, Southern Pacific Co.'s datum, or 273.5 feet below sea level as determined from United States Geological Survey bench marks. The gage-height records kept by the New Liverpool Salt Co. from November, 1904, to February 26, 1906, show the actual depth of water above the lowest portion of the sink. On February 23, 1906, the Government installed a gage at the same datum as that of the Salt Co. gage about half a mile west of Salton railway station and 3 miles southeast of the old Salton station. This gage was destroyed by waves and the present gage has since been used. The values in the following table show the depth of Salton Sea.

. Practically all the water now received from Salton Sea enters through Alamo and New rivers, chiefly through the former. These rivers run through Imperial Valley and are drainage channels for excess and waste waters from the irrigation system and from the power plants.

*Daily depth, in feet, of Salton Sea near Salton, Cal., for year ending Sept. 30, 1912.*

[J. K. English, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 55.20 | 54.57 | 54.28 | 54.1 | 54.05 | 54.0 | 54.0 | 53.5 | 53.15 | 52.6 | 52.1 | 51.5 |
| 2 | 55.16 | 54.55 | 54.27 | 54.1 | 54.05 | 54.0 | 54.0 | 53.4 | 53.15 | 52.6 | 52.05 | 51.5 |
| 3 | 55.12 | 54.54 | 54.27 | 54.1 | 54.05 | 54.0 | 53.95 | 53.5 | 53.15 | 52.6 | 52.0 | 51.4 |
| 4 | 55.09 | 54.52 | 54.26 | 54.1 | 54.1 | 54.0 | 54.0 | 53.4 | 53.15 | 52.6 | 52.0 | 51.4 |
| 5 | 55.06 | 54.51 | 54.26 | 54.1 | 54.05 | 54.05 | 53.95 | 53.4 | 53.1 | 52.5 | 51.95 | 51.4 |
| 6 | 55.03 | 54.50 | 54.26 | 54.05 | 54.05 | 54.05 | 53.95 | 53.5 | 53.1 | 52.5 | 52.0 | 51.3 |
| 7 | 54.98 | 54.49 | 54.25 | 54.05 | 54.05 | 54.0 | 53.95 | 53.5 | 53.1 | 52.5 | 52.0 | 51.3 |
| 8 | 54.96 | 54.48 | 54.24 | 54.05 | 54.1 | 54.05 | 53.95 | 53.9 | 53.1 | 52.45 | 52.0 | 51.25 |
| 9 | 54.95 | 54.46 | 54.24 | 54.05 | 54.05 | 54.05 | 53.9 | 53.7 | 53.1 | 52.45 | 52.0 | 51.25 |
| 10 | 54.93 | 54.44 | 54.24 | 54.05 | 54.05 | 54.05 | 53.95 | 53.4 | 53.05 | 52.5 | 51.9 | 51.2 |
| 11 | 54.91 | 54.42 | 54.24 | 54.05 | 54.05 | 54.05 | 53.9 | 53.3 | 53.0 | 52.45 | 51.9 | 51.2 |
| 12 | 54.90 | 54.42 | 54.23 | 54.05 | 54.05 | 54.1 | 53.95 | 53.4 | 53.05 | 52.5 | 51.9 | 51.2 |
| 13 | 54.88 | 54.41 | 54.23 | 54.05 | 54.1 | 54.1 | 53.95 | 53.4 | 53.0 | 52.5 | 51.9 | 51.15 |
| 14 | 54.86 | 54.41 | 54.23 | 54.05 | 54.05 | 54 05 | 53.9 | 53.5 | 53.0 | 52.4 | 51.85 | 51.15 |
| 15 | 54.84 | 54.40 | 54.22 | 54.05 | 54.05 | 54.1 | 53.9 | 53.5 | 52.8 | 52.5 | 51.8 | 51.1 |
| 16 | 54.81 | 54.34 | 54.22 | 54.1 | 54.05 | 54.1 | 53.95 | 53.5 | 53.0 | 52.5 | 51.8 | 51.1 |
| 17 | 54.79 | 54.38 | 54.21 | 54.1 | 54.05 | 54.05 | 53.9 | 53.4 | 52.9 | 52.3 | 51.7 | 51.1 |
| 18 | 54.77 | 54.37 | 54.21 | 54.05 | 54.05 | 54.05 | 53.9 | 53.4 | 52.85 | 52.3 | 51.7 | 51.05 |
| 19 | 54.76 | 54.36 | 54.20 | 54.05 | 54.05 | 54.05 | 53.9 | 53.4 | 52.9 | 52.3 | 51.65 | 51.05 |
| 20 | 54.75 | 54.35 | 54.19 | 54.05 | 54.05 | 54.05 | 53.9 | 53.5 | 52.85 | 52.3 | 51.6 | 51.05 |
| 21 | 54.74 | 54.34 | 53.94 | 54.05 | 54.05 | 54.05 | 53.95 | 53.4 | 52.85 | 52.3 | 51.6 | 51.0 |
| 22 | 54.73 | 54.33 | 54.20 | 54.05 | 54.05 | 54.05 | 53.9 | 53.4 | 52.8 | 52.25 | 51.6 | 51.0 |
| 23 | 54.72 | 54.33 | 54.17 | 54.1 | 54.05 | 54.05 | 53.5 | 53.3 | 52.75 | 52.2 | 51.6 | 50.9 |
| 24 | 54.71 | 54.31 | 54.16 | 54.05 | 54.05 | 54.05 | 53.5 | 53.4 | 52.7 | 52.25 | 51.6 | 50.95 |
| 25 | 54.69 | 54.30 | 54.15 | 54.05 | 54.05 | 54.05 | 53.9 | 53.3 | 52.7 | 52.2 | 51.6 | 50.95 |
| 26 | 54.68 | 54.30 | 54.15 | 54.05 | 54.05 | 54.05 | 53.9 | 53.3 | 52.65 | 52.2 | 51.55 | 50.9 |
| 27 | 54.66 | 54.29 | 54.14 | 54.05 | 54.05 | 54.05 | 53.9 | 53.2 | 52.65 | 52.2 | 51.55 | 50.9 |
| 28 | 54.64 | 54.29 | 54.13 | 54.05 | 54.05 | 54.0 | 53.9 | 53.2 | 52.65 | 52.2 | 51.6 | 50.9 |
| 29 | 54.63 | 54.29 | 54.12 | 54.05 | 54.05 | 54.0 | 53.5 | 53.2 | 52.8 | 52.15 | 51.5 | 50.9 |
| 30 | 54.61 | 54.28 | 54.11 | 54.05 | 54.0 | 54.0 | 53.5 | 53.2 | 52.6 | 52.15 | 51.5 | 50.9 |
| 31 | 54.60 | ..... | 54.10 | 54.05 | ..... | 54.0 | ..... | 53.2 | ..... | 52.1 | 51.5 | ..... |

## OWENS LAKE BASIN.

### OWENS RIVER NEAR ROUND VALLEY, CAL.

**Location.**—At footbridge in sec. 10, T. 6 S., R. 31 E., 700 feet above mouth of Rock Creek, and 2 miles north of Round Valley.

**Records available.**—August 4, 1903, to September 30, 1912.

**Drainage area.**—Approximately 450 square miles.

**Gage.**—Vertical staff on left bank, in use since May 29, 1907. The datum differs from that of the previous gage, which was located 100 feet above the present one.

**Channel.**—Rock and bowlders; fairly permanent.

**Discharge measurements.**—Made from car and cable at the gage.

**Winter flow.**—Shore ice exists at times, but ordinarily does not affect the relation of gage height to discharge.

**Diversions.**—No water is diverted above the station.

**Accuracy.**—Discharge measurements plot somewhat scattering and an average rating curve has been used. Results are good.

**Cooperation.**—Maintained in cooperation with the city of Los Angeles.

*Discharge measurements of Owens River near Round Valley, Cal., in year ending Sept. 30, 1912.*

[Hydrographer J. E. Jones.]

| Date. | Gage height. | Discharge. | Date. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| 1911. | *Feet.* | *Sec.-ft.* | 1912. | *Feet.* | *Sec.-ft.* |
| Oct. 24 | 2.25 | 250 | Apr. 16 | 2.20 | 227 |
| Nov. 22 | 2.18 | 223 | May 9 | 2.08 | 192 |
| Dec. 13 | 2.10 | 201 | May 22 | 2.12 | 225 |
| | | | June 12 | 2.46 | 307 |
| 1912. | | | July 6 | 2.08 | 196 |
| Jan. 17 | 2.15 | 218 | July 18 | 2.41 | 286 |
| Feb. 21 | 2.10 | 199 | Aug. 13 | 2.05 | 186 |
| Mar. 20 | 2.12 | 212 | Sept. 18 | 1.95 | 159 |

*Daily gage height, in feet, of Owens River near Round Valley, Cal., for year ending Sept. 30, 1912.*

[L. L. Roberts, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.3 | | | 2.0 | 2.0 | 2.1 | | 2.0 | 2.9 | 2.25 | | 2.05 |
| 2 | | 2.25 | 2.18 | | | | 2.2 | | | | 2.0 | |
| 3 | 2.3 | | | 1.95 | 2.0 | | | 2.1 | 2.85 | 2.25 | | 2.0 |
| 4 | | | 2.1 | | | 2.15 | 2.25 | | | | 1.95 | 2.0 |
| 5 | 2.33 | 2.3 | | 1.95 | 1.98 | | | 1.8 | 2.75 | 2.15 | | |
| 6 | 2.3 | | 2.15 | | | 2.15 | 2.2 | | | 2.1 | 2.0 | 2.0 |
| 7 | 2.25 | 2.25 | | 1.97 | 2.0 | | | 1.75 | 2.7 | 2.0 | | |
| 8 | 2.3 | | 2.1 | | | 2.2 | 2.15 | | | | 2.05 | 2.0 |
| 9 | | 2.25 | | 1.93 | 1.95 | | | 2.1 | 2.55 | 2.05 | 2.1 | |
| 10 | 2.23 | | 2.13 | | | 2.2 | 2.1 | | | | | 2.0 |
| 11 | | 2.25 | | 2.0 | 2.0 | | | 1.95 | 2.5 | 2.15 | 2.1 | |
| 12 | 2.3 | | 2.1 | | | 2.15 | 2.05 | | 2.45 | | | 2.0 |
| 13 | | 2.3 | 2.1 | 1.98 | 2.0 | | | 1.9 | 2.45 | 2.2 | 2.05 | 2.05 |
| 14 | 2.3 | | 2.13 | | | 2.1 | 2.0 | | 2.45 | | 2.05 | |
| 15 | 2.3 | 2.15 | | 2.05 | 2.0 | | | 2.0 | | 2.15 | 2.0 | 2.1 |
| 16 | 2.3 | | 2.1 | | | 2.15 | 2.2 | | 2.4 | | 2.1 | |
| 17 | 2.3 | 2.19 | 2.1 | 2.0 | 2.1 | | | 2.0 | 2.45 | 2.1 | 2.15 | 2.1 |
| 18 | | | | 1.98 | | 2.1 | 2.1 | 2.05 | | 2.4 | | 1.95 |
| 19 | 2.3 | 2.2 | 2.13 | 1.98 | 2.1 | 2.15 | | | 2.4 | 2.1 | 2.0 | 2.1 |
| 20 | | | | | | | 2.2 | 2.0 | 2.35 | | | |
| 21 | 2.3 | 2.15 | 2.1 | 2.0 | 2.1 | 2.15 | | | 2.3 | 2.1 | 2.05 | 2.0 |
| 22 | | 2.18 | | | | | 2.15 | 2.1 | | | | 1.95 |
| 23 | 2.25 | | 2.1 | 2.0 | 2.1 | 2.1 | | 2.2 | 2.4 | 2.1 | 2.05 | |
| 24 | | 2.1 | 2.13 | | | | 2.1 | | 2.35 | | | 1.9 |
| 25 | 2.3 | | | 2.0 | 2.15 | 2.15 | | 2.35 | | 2.1 | 2.1 | |
| 26 | | 2.15 | | | | | 2.0 | | 2.4 | | | 1.93 |
| 27 | 2.2 | | 2.1 | 1.93 | 2.1 | 2.2 | | 2.45 | 2.3 | 2.0 | 2.1 | 1.9 |
| 28 | | 2.2 | 2.13 | | | | 2.05 | | 2.3 | | | |
| 29 | 2.25 | | | 2.0 | 2.1 | 2.2 | | 2.75 | | 2.0 | 2.1 | 1.9 |
| 30 | | 2.15 | 2.1 | 1.98 | | | 1.9 | | | | 2.0 | 1.9 |
| 31 | 2.2 | | | | | 2.2 | | 2.8 | | 2.0 | | |

*Daily discharge, in second-feet, of Owens River near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 253 | 233 | 217 | 176 | 176 | 200 | 228 | 176 | 485 | 243 | 176 | 188 |
| 2 | 253 | 240 | 221 | 170 | 176 | 205 | 228 | 188 | 474 | 243 | 176 | 182 |
| 3 | 253 | 244 | 210 | 164 | 176 | 205 | 236 | 200 | 462 | 243 | 170 | 176 |
| 4 | 258 | 248 | 200 | 164 | 174 | 214 | 243 | 165 | 440 | 228 | 164 | 176 |
| 5 | 262 | 253 | 206 | 164 | 171 | 214 | 236 | 130 | 418 | 214 | 170 | 176 |
| 6 | 253 | 246 | 213 | 166 | 174 | 214 | 228 | 126 | 406 | 200 | 176 | 176 |
| 7 | 240 | 240 | 206 | 169 | 176 | 221 | 221 | 121 | 395 | 176 | 182 | 176 |
| 8 | 253 | 240 | 200 | 164 | 170 | 228 | 214 | 160 | 368 | 182 | 188 | 176 |
| 9 | 244 | 240 | 204 | 159 | 164 | 228 | 207 | 200 | 340 | 188 | 200 | 176 |
| 10 | 234 | 240 | 208 | 167 | 170 | 228 | 200 | 182 | 331 | 201 | 200 | 176 |
| 11 | 244 | 240 | 204 | 176 | 176 | 221 | 194 | 164 | 322 | 214 | 200 | 176 |
| 12 | 253 | 246 | 200 | 174 | 176 | 214 | 188 | 158 | 306 | 221 | 194 | 176 |
| 13 | 253 | 253 | 200 | 171 | 176 | 207 | 182 | 152 | 306 | 228 | 188 | 188 |
| 14 | 253 | 233 | 208 | 180 | 176 | 200 | 176 | 164 | 306 | 221 | 188 | 194 |
| 15 | 253 | 213 | 204 | 188 | 176 | 207 | 200 | 176 | 298 | 214 | 176 | 200 |
| 16 | 253 | 218 | 200 | 182 | 188 | 214 | 228 | 176 | 290 | 207 | 200 | 200 |
| 17 | 253 | 223 | 200 | 176 | 200 | 207 | 214 | 176 | 306 | 200 | 214 | 200 |
| 18 | 253 | 224 | 204 | 171 | 200 | 200 | 200 | 188 | 298 | 290 | 195 | 164 |
| 19 | 253 | 226 | 208 | 171 | 200 | 214 | 214 | 182 | 290 | 200 | 176 | 200 |
| 20 | 253 | 220 | 204 | 174 | 200 | 214 | 228 | 176 | 274 | 200 | 182 | 188 |
| 21 | 253 | 213 | 200 | 176 | 200 | 214 | 221 | 188 | 258 | 200 | 188 | 176 |
| 22 | 246 | 221 | 200 | 176 | 200 | 207 | 214 | 200 | 274 | 200 | 188 | 164 |
| 23 | 240 | 210 | 200 | 176 | 200 | 200 | 207 | 228 | 290 | 200 | 188 | 158 |
| 24 | 246 | 200 | 208 | 176 | 207 | 207 | 200 | 251 | 274 | 200 | 194 | 152 |
| 25 | 253 | 206 | 206 | 176 | 214 | 214 | 188 | 274 | 282 | 200 | 200 | 156 |
| 26 | 240 | 213 | 204 | 168 | 207 | 221 | 176 | 290 | 290 | 188 | 200 | 159 |
| 27 | 226 | 220 | 200 | 159 | 200 | 228 | 182 | 306 | 258 | 176 | 200 | 152 |
| 28 | 233 | 226 | 208 | 168 | 200 | 228 | 188 | 362 | 258 | 176 | 200 | 152 |
| 29 | 240 | 220 | 204 | 176 | 200 | 228 | 170 | 418 | 258 | 176 | 200 | 152 |
| 30 | 233 | 213 | 200 | 171 | ..... | 228 | 152 | 429 | 258 | 176 | 176 | 152 |
| 31 | 226 | ..... | 200 | 174 | ..... | 228 | ..... | 440 | ..... | 176 | 182 | ..... |

NOTE.—Daily discharge determined from a fairly well defined curve. Discharge interpolated for days on which gage was not read. Open-water rating curve applied during winter months.

*Monthly discharge of Owens River near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 262 | 226 | 247 | 15,200 | B. |
| November | 253 | 200 | 229 | 13,600 | B. |
| December | 221 | 200 | 205 | 12,600 | B. |
| January | 188 | 159 | 172 | 10,600 | B. |
| February | 214 | 164 | 187 | 10,800 | B. |
| March | 228 | 200 | 215 | 13,200 | A. |
| April | 243 | 152 | 205 | 12,200 | A. |
| May | 440 | 121 | 218 | 13,400 | A. |
| June | 485 | 258 | 327 | 19,500 | A. |
| July | 290 | 176 | 206 | 12,700 | A. |
| August | 214 | 164 | 188 | 11,600 | B. |
| September | 200 | 152 | 175 | 10,400 | B. |
| The year | 485 | 121 | 214 | 156,000 | |

## OWENS RIVER NEAR BIGPINE,[1] CAL.

**Location.**—At Charlies Butte, in sec. 2, T. 11 S., R. 34 E., about 11 miles southeast of Bigpine.

**Records available.**—September 20, 1906, to September 30, 1912.

**Drainage area.**—Not measured.

[1] Published in former reports as "near Tinemaha."

**Gage.**—Vertical staff on left bank.
**Channel.**—Sand and gravel; shifts slightly.
**Discharge measurements.**—Made from car and cable at the gage or by wading.
**Diversions.**—On account of diversions above the station the record does not indicate the total run-off from the drainage area.
**Accuracy.**—Rating curve is well defined and results are good.
**Cooperation.**—Maintained in cooperation with the city of Los Angeles.

*Discharge measurements of Owens River near Bigpine, Cal., in year ending Sept. 30, 1912.*

[Hydrographer, J. E. Jones.]

| Date. | Gage height. | Discharge. | Date. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| 1911. | *Feet.* | *Sec.-ft.* | 1912. | *Feet.* | *Sec.-ft.* |
| Oct. 26 | 2.64 | 432 | Apr. 30 | 0.97 | 137 |
| Nov. 24 | 2.88 | 473 | May 11 | 1.36 | 194 |
| Dec. 14 | 2.78 | 477 | 21 | 1.13 | 177 |
| 1912. | | | June 10 | 3.00 | 495 |
| Jan. 18 | 3.05 | 514 | 14 | 2.41 | 358 |
| 30 | 2.82 | 452 | July 4 | .96 | 140 |
| Feb. 10 | 2.78 | 428 | 19 | 1.32 | 189 |
| 24 | 2.30 | 345 | 31 | .74 | 104 |
| Mar. 6 | 2.10 | 301 | Aug. 12 | .58 | 81 |
| 19 | 2.27 | 352 | 16 | .55 | 77 |
| Apr. 3 | 1.83 | 260 | Sept. 7 | .55 | 78 |
| 18 | 1.95 | 276 | 21 | .57 | 78 |

*Daily gage height, in feet, of Owens River near Bigpine, Cal., for year ending Sept. 30, 1912.*

[Ray Bowers, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | 2.82 | 2.9 | 2.7 | 2.8 | 2.3 | 1.85 | 0.95 | 1.9 | 1.1 | 0.7 | 0.55 |
| 2 | 2.6 | 2.85 | 2.9 | 2.8 | 2.8 | 2.2 | 1.85 | .85 | 2.2 | 1.05 | .68 | .54 |
| 3 | 2.6 | 2.88 | 2.9 | 2.8 | 2.8 | 2.1 | 1.85 | .75 | 2.5 | 1.0 | .65 | .54 |
| 4 | 2.6 | 2.88 | 2.88 | 2.7 | 2.8 | 2.0 | 1.85 | .7 | 2.8 | 1.0 | .62 | .54 |
| 5 | 2.6 | 2.86 | 2.88 | 2.7 | 2.8 | 2.0 | 1.85 | .65 | 3.1 | .98 | .6 | .55 |
| 6 | 2.58 | 2.85 | 2.88 | 2.7 | 2.8 | 2.1 | 1.9 | .6 | 3.0 | .9 | .58 | .55 |
| 7 | 2.55 | 2.82 | 2.88 | 2.8 | 2.8 | 2.2 | 1.9 | .7 | 3.0 | .9 | .55 | .55 |
| 8 | 2.55 | 2.85 | 2.88 | 2.9 | 2.8 | 2.1 | 1.95 | 1.0 | 3.0 | .9 | .58 | .57 |
| 9 | 2.55 | 2.85 | 2.88 | 3.0 | 2.8 | 2.1 | 2.0 | 1.4 | 3.0 | .9 | .58 | .57 |
| 10 | 2.5 | 2.82 | 2.85 | 3.0 | 2.8 | 2.1 | 2.1 | 1.4 | 3.0 | .85 | .58 | .57 |
| 11 | 2.53 | 2.8 | 2.85 | 3.0 | 2.8 | 2.2 | 2.2 | 1.35 | 2.9 | .78 | .58 | .56 |
| 12 | 2.6 | 2.8 | 2.8 | 3.0 | 2.8 | 2.2 | 2.2 | 1.35 | 2.6 | .75 | .58 | .55 |
| 13 | 2.6 | 2.82 | 2.75 | 3.0 | 2.7 | 2.3 | 2.2 | 1.3 | 2.4 | .7 | .58 | .56 |
| 14 | 2.6 | 2.85 | 2.75 | 3.0 | 2.6 | 2.2 | 2.1 | 1.3 | 2.4 | .72 | .58 | .57 |
| 15 | 2.6 | 2.95 | 2.78 | 3.1 | 2.6 | 2.2 | 2.0 | 1.2 | 2.3 | .72 | .55 | .56 |
| 16 | 2.58 | 3.0 | 2.8 | 3.1 | 2.5 | 2.3 | 2.0 | 1.15 | 2.1 | .72 | .55 | .57 |
| 17 | 2.55 | 3.0 | 2.75 | 3.1 | 2.6 | 2.3 | 1.95 | 1.15 | 1.9 | .75 | .55 | .57 |
| 18 | 2.55 | 2.98 | 2.7 | 3.0 | 2.6 | 2.2 | 1.95 | 1.15 | 1.85 | .95 | .55 | .58 |
| 19 | 2.55 | 2.93 | 2.68 | 3.0 | 2.7 | 2.3 | 1.9 | 1.3 | 1.8 | 1.3 | .53 | .57 |
| 20 | 2.56 | 2.9 | 2.75 | 3.0 | 2.6 | 2.3 | 1.8 | 1.2 | 1.8 | 1.7 | .50 | .57 |
| 21 | 2.5 | 2.9 | 2.7 | 3.0 | 2.4 | 2.2 | 1.8 | 1.1 | 1.8 | 2.0 | .53 | .56 |
| 22 | 2.5 | 2.9 | 2.6 | 2.9 | 2.3 | 2.2 | 1.7 | 1.0 | 1.7 | 1.7 | .55 | .56 |
| 23 | 2.55 | 2.88 | 2.65 | 2.9 | 2.3 | 2.1 | 1.65 | 1.0 | 1.65 | 1.6 | .55 | .57 |
| 24 | 2.6 | 2.88 | 2.65 | 2.9 | 2.3 | 2.0 | 1.5 | .95 | 1.7 | 1.4 | .53 | .57 |
| 25 | 2.65 | 2.88 | 2.65 | 2.9 | 2.2 | 2.0 | 1.25 | .95 | 1.7 | 1.2 | .55 | .58 |
| 26 | 2.63 | 2.9 | 2.63 | 2.9 | 2.2 | 2.0 | 1.15 | 1.0 | 1.6 | 1.15 | .55 | .6 |
| 27 | 2.6 | 2.95 | 2.68 | 2.9 | 2.2 | 2.0 | 1.05 | 1.25 | 1.5 | .9 | .55 | .6 |
| 28 | 2.7 | 2.9 | 2.70 | 2.9 | 2.3 | 1.95 | 1.0 | 1.4 | 1.4 | .85 | .55 | .6 |
| 29 | 2.8 | 2.88 | 2.72 | 2.8 | 2.3 | 1.9 | 1.0 | 1.4 | 1.3 | .8 | .55 | .6 |
| 30 | 2.8 | 2.88 | 2.75 | 2.8 | ..... | 1.9 | .95 | 1.5 | 1.25 | .75 | .55 | .62 |
| 31 | 2.8 | ..... | 2.7 | 2.8 | ..... | 1.9 | ..... | 1.6 | ..... | .74 | .55 | ..... |

*Daily discharge, in second-feet, of Owens River near Bigpine, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 410 | 474 | 490 | 428 | 450 | 347 | 268 | 137 | 277 | 153 | 99 | 80 |
| 2 | 430 | 480 | 490 | 450 | 450 | 329 | 268 | 125 | 329 | 146 | 96 | 78 |
| 3 | 430 | 486 | 490 | 450 | 450 | 311 | 268 | 114 | 386 | 139 | 92 | 78 |
| 4 | 430 | 486 | 486 | 428 | 450 | 294 | 268 | 108 | 450 | 139 | 89 | 78 |
| 5 | 430 | 482 | 486 | 428 | 450 | 294 | 268 | 103 | 517 | 136 | 86 | 80 |
| 6 | 426 | 480 | 486 | 428 | 450 | 311 | 277 | 98 | 494 | 125 | 83 | 80 |
| 7 | 420 | 474 | 486 | 450 | 450 | 329 | 277 | 108 | 494 | 125 | 80 | 80 |
| 8 | 420 | 480 | 486 | 472 | 450 | 311 | 286 | 143 | 494 | 125 | 83 | 82 |
| 9 | 420 | 480 | 486 | 494 | 450 | 311 | 294 | 197 | 494 | 125 | 83 | 82 |
| 10 | 410 | 474 | 480 | 494 | 450 | 311 | 311 | 197 | 494 | 118 | 83 | 82 |
| 11 | 416 | 470 | 480 | 494 | 450 | 329 | 329 | 190 | 472 | 109 | 83 | 81 |
| 12 | 430 | 470 | 470 | 494 | 450 | 329 | 329 | 190 | 406 | 106 | 83 | 80 |
| 13 | 430 | 474 | 460 | 494 | 428 | 347 | 329 | 183 | 366 | 99 | 83 | 81 |
| 14 | 430 | 480 | 460 | 494 | 406 | 329 | 311 | 183 | 366 | 102 | 83 | 82 |
| 15 | 430 | 500 | 466 | 517 | 406 | 329 | 294 | 169 | 347 | 102 | 80 | 81 |
| 16 | 426 | 510 | 470 | 517 | 386 | 347 | 294 | 162 | 311 | 102 | 80 | 82 |
| 17 | 420 | 510 | 460 | 517 | 406 | 347 | 286 | 162 | 277 | 106 | 80 | 82 |
| 18 | 420 | 506 | 450 | 494 | 406 | 329 | 286 | 162 | 268 | 132 | 80 | 83 |
| 19 | 420 | 496 | 446 | 494 | 428 | 347 | 277 | 183 | 260 | 183 | 77 | 82 |
| 20 | 422 | 490 | 460 | 494 | 406 | 347 | 260 | 169 | 260 | 244 | 73 | 82 |
| 21 | 410 | 490 | 450 | 494 | 366 | 329 | 260 | 156 | 260 | 294 | 77 | 81 |
| 22 | 410 | 490 | 430 | 472 | 347 | 329 | 244 | 143 | 244 | 244 | 80 | 81 |
| 23 | 420 | 486 | 440 | 472 | 347 | 311 | 236 | 143 | 236 | 228 | 80 | 82 |
| 24 | 430 | 486 | 440 | 472 | 347 | 294 | 212 | 137 | 244 | 198 | 77 | 82 |
| 25 | 440 | 486 | 440 | 472 | 329 | 294 | 176 | 137 | 244 | 168 | 80 | 83 |
| 26 | 436 | 490 | 436 | 472 | 329 | 294 | 162 | 143 | 228 | 160 | 80 | 86 |
| 27 | 430 | 500 | 446 | 472 | 329 | 294 | 150 | 176 | 212 | 125 | 80 | 86 |
| 28 | 450 | 490 | 450 | 472 | 347 | 286 | 143 | 197 | 197 | 118 | 80 | 86 |
| 29 | 470 | 486 | 454 | 450 | 347 | 277 | 143 | 197 | 183 | 112 | 80 | 86 |
| 30 | 470 | 486 | 460 | 450 | ..... | 277 | 137 | 212 | 176 | 106 | 80 | 89 |
| 31 | 470 | ..... | 450 | 450 | ..... | 277 | ..... | 228 | ..... | 104 | 80 | ..... |

NOTE.—Daily discharge determined from a well-defined rating curve.

*Monthly discharge of Owens River near Bigpine, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 470 | 410 | 429 | 26,400 | B. |
| November | 510 | 470 | 486 | 28,900 | B. |
| December | 490 | 436 | 464 | 28,500 | B. |
| January | 517 | 428 | 474 | 29,100 | A. |
| February | 450 | 329 | 406 | 23,400 | A. |
| March | 347 | 277 | 316 | 19,400 | A. |
| April | 329 | 137 | 255 | 15,200 | A. |
| May | 228 | 98 | 160 | 9,840 | A. |
| June | 517 | 176 | 333 | 19,800 | A. |
| July | 294 | 99 | 144 | 8,850 | A. |
| August | 99 | 73 | 82.3 | 5,060 | A. |
| September | 89 | 78 | 81.9 | 4,870 | A. |
| The year | 517 | 73 | 303 | 219,000 | |

## OWENS RIVER NEAR LONE PINE, CAL.

**Location.**—At the Mount Whitney highway bridge, in sec. 23, T. 15 S., R. 36 E., about 2½ miles northeast of Lone Pine.

**Records available.**—January 1, 1909, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff at bridge.

**Channel.**—Sandy; fairly permanent.

**Discharge measurements.**—Made from car and cable about 1,000 feet below the bridge, or by wading.

**Winter flow.**—Ice forms at the station during very cold weather and may affect the relation of gage height to discharge.

**Diversions.**—Record does not show total run-off from drainage area on account of diversions above station.

**Accuracy.**—Range of stage well covered, but measurements plot a little scattering. Results are good.

**Cooperation.**—Maintained in cooperation with the city of Los Angeles.

*Discharge measurements of Owens River near Lone Pine, Cal., in year ending Sept. 30, 1912.*

[J. E. Jones, hydrographer.]

| Date. | Gage height. | Discharge. | Date. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| 1911. | *Feet.* | *Sec.-ft.* | 1912. | *Feet.* | *Sec.-ft.* |
| Oct. 30 | 6.00 | 478 | Apr. 20 | 5.08 | 296 |
| Nov. 27 | 6.44 | 543 | May 13 | 4.22 | 162 |
| Dec. 17 | 6.25 | 489 | 20 | 4.12 | 146 |
| 1912. | | | June 15 | 5.37 | 333 |
| Jan. 20 | 6.45 | 519 | July 3 | 3.94 | 130 |
| Feb. 27 | 5.54 | 382 | 22 | 4.76 | 243 |
| Mar. 15 | 5.57 | 376 | Aug. 19 | 3.33 | 60 |
| Apr. 1 | 5.10 | 307 | Sept. 11 | 3.35 | 62 |

*Daily gage height, in feet, of Owens River near Lone Pine, Cal., for year ending Sept. 30, 1912.*

[G. F. Marsh, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.9 | 6.05 | 6.4 | 6.0 | 6.2 | 5.2 | 5.0 | 4.2 | 4.25 | 4.25 | 3.5 | 3.2 |
| 2 | 5.5 | 6.15 | 6.4 | 6.0 | 6.1 | 5.3 | 5.0 | 4.15 | 4.35 | 4.1 | 3.5 | 3.2 |
| 3 | 5.6 | 6.15 | 6.4 | 6.0 | 6.1 | 5.4 | 5.0 | 4.1 | 4.8 | 4.0 | 3.45 | 3.25 |
| 4 | 5.65 | 6.2 | 6.4 | 6.0 | 6.1 | 5.4 | 5.0 | 4.05 | 5.2 | 3.95 | 3.45 | 3.25 |
| 5 | 5.7 | 6.2 | 6.4 | 6.0 | 6.2 | 5.4 | 4.9 | 4.0 | 5.0 | 3.8 | 3.4 | 3.3 |
| 6 | 5.75 | 6.25 | 6.4 | 6.0 | 6.2 | 5.3 | 4.9 | 4.0 | 5.7 | 3.8 | 3.4 | 3.3 |
| 7 | 5.75 | 6.3 | 6.4 | 6.0 | 6.1 | 5.3 | 4.9 | 3.95 | 6.0 | 3.8 | 3.35 | 3.35 |
| 8 | 5.75 | 6.3 | 6.4 | 6.0 | 6.0 | 5.2 | 5.0 | 3.95 | 5.9 | 3.75 | 3.3 | 3.35 |
| 9 | 5.7 | 6.3 | 6.4 | 6.2 | 6.0 | 5.3 | 5.2 | 3.8 | 6.0 | 3.75 | 3.3 | 3.35 |
| 10 | 5.7 | 6.3 | 6.4 | 6.4 | 6.0 | 5.4 | 5.2 | 3.95 | 6.0 | 3.75 | 3.25 | 3.35 |
| 11 | 5.7 | 6.25 | 6.35 | 6.4 | 6.0 | 5.4 | 5.4 | 4.2 | 6.0 | 3.6 | 3.25 | 3.35 |
| 12 | 5.7 | 6.25 | 6.35 | 6.4 | 6.0 | 5.4 | 5.4 | 4.3 | 6.3 | 3.65 | 3.25 | 3.4 |
| 13 | 5.75 | 6.2 | 6.35 | 6.4 | 6.0 | 5.5 | 5.4 | 4.2 | 5.8 | 3.6 | 3.25 | 3.4 |
| 14 | 5.8 | 6.25 | 6.35 | 6.4 | 6.0 | 5.5 | 5.4 | 4.15 | 5.5 | 3.6 | 3.2 | 3.4 |
| 15 | 5.85 | 6.3 | 6.3 | 6.4 | 6.0 | 5.5 | 5.3 | 4.1 | 5.4 | 3.55 | 3.2 | 3.4 |
| 16 | 5.9 | 6.4 | 6.3 | 6.5 | 5.5 | 5.5 | 5.2 | 4.05 | 5.1 | 3.55 | 3.2 | 3.35 |
| 17 | 5.9 | 6.4 | 6.3 | 6.6 | 5.4 | 5.5 | 5.2 | 4.05 | 5.0 | 3.55 | 3.2 | 3.35 |
| 18 | 5.9 | 6.45 | 6.3 | 6.6 | 5.3 | 5.4 | 5.2 | 4.05 | 4.8 | 3.55 | 3.2 | 3.35 |
| 19 | 5.85 | 6.45 | 6.25 | 6.6 | 5.5 | ..... | 5.2 | 4.1 | 4.8 | 3.75 | 3.2 | 3.4 |
| 20 | 5.85 | 6.5 | 6.25 | 6.6 | 5.5 | ..... | 5.1 | 4.1 | 4.7 | 4.6 | 3.35 | 3.4 |
| 21 | 5.85 | 6.45 | 6.2 | 6.5 | 5.5 | ..... | 5.0 | 4.15 | 4.5 | 4.6 | 3.35 | 3.4 |
| 22 | 5.8 | 6.4 | 6.2 | 6.4 | 5.4 | 5.3 | 5.0 | 4.15 | 4.5 | 4.6 | 3.35 | 3.4 |
| 23 | 5.85 | 6.4 | 6.2 | 6.4 | 5.4 | ..... | 5.0 | 4.05 | 4.5 | 4.6 | 3.3 | 3.4 |
| 24 | 5.85 | 6.4 | 6.15 | 6.4 | 5.4 | 5.3 | 4.8 | 4.0 | 4.5 | 4.7 | 3.3 | 3.4 |
| 25 | 5.85 | 6.4 | 6.15 | 6.4 | 5.4 | 5.4 | 4.8 | 3.95 | 4.45 | 4.7 | 3.3 | 3.4 |
| 26 | 5.9 | 6.4 | 6.15 | 6.3 | 5.4 | 5.4 | 4.6 | 3.95 | 4.4 | 4.3 | 3.3 | 3.4 |
| 27 | 5.95 | 6.4 | 6.1 | 6.3 | 5.4 | 5.3 | 4.5 | 4.0 | 4.35 | 3.8 | 3.3 | 3.4 |
| 28 | 5.9 | 6.4 | 6.1 | 6.3 | 5.3 | 5.3 | 4.45 | 4.0 | 4.3 | 3.6 | 3.3 | 3.4 |
| 29 | 5.9 | 6.4 | 6.05 | 6.3 | 5.2 | 5.3 | 4.35 | 4.1 | 4.3 | 3.55 | 3.25 | 3.4 |
| 30 | 5.95 | 6.4 | 6.0 | 6.2 | ..... | 5.4 | 4.25 | 4.25 | 4.3 | 3.5 | 3.25 | 3.4 |
| 31 | 6.0 | ..... | 6.0 | 6.2 | ..... | 5.4 | ..... | 4.2 | ..... | 3.5 | 3.25 | ..... |

NOTE.—Ice Jan. 1-7; relation of gage height and discharge probably not affected thereby.

*Daily discharge, in second-feet, of Owens River near Lone Pine, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 295 | 470 | 540 | 455 | 491 | 317 | 284 | 160 | 167 | 167 | 78 | 50 |
| 2 | 385 | 490 | 540 | 455 | 473 | 334 | 284 | 153 | 182 | 146 | 78 | 50 |
| 3 | 400 | 490 | 540 | 455 | 473 | 351 | 284 | 146 | 252 | 134 | 73 | 54 |
| 4 | 408 | 500 | 540 | 455 | 473 | 351 | 284 | 140 | 317 | 128 | 73 | 54 |
| 5 | 415 | 500 | 540 | 455 | 491 | 351 | 268 | 134 | 284 | 110 | 68 | 58 |
| 6 | 422 | 510 | 540 | 455 | 491 | 334 | 268 | 134 | 402 | 110 | 68 | 58 |
| 7 | 422 | 520 | 540 | 455 | 473 | 334 | 268 | 128 | 455 | 110 | 63 | 63 |
| 8 | 422 | 520 | 540 | 455 | 455 | 317 | 284 | 128 | 437 | 104 | 58 | 63 |
| 9 | 415 | 520 | 540 | 491 | 455 | 334 | 317 | 110 | 455 | 104 | 58 | 63 |
| 10 | 415 | 520 | 540 | 527 | 455 | 351 | 317 | 128 | 455 | 104 | 54 | 63 |
| 11 | 415 | 510 | 530 | 527 | 455 | 351 | 351 | 160 | 455 | 88 | 54 | 63 |
| 12 | 415 | 510 | 530 | 527 | 455 | 351 | 351 | 174 | 509 | 93 | 54 | 68 |
| 13 | 422 | 500 | 530 | 527 | 455 | 368 | 351 | 160 | 419 | 88 | 54 | 68 |
| 14 | 430 | 510 | 530 | 527 | 455 | 368 | 351 | 153 | 368 | 88 | 50 | 68 |
| 15 | 438 | 520 | 520 | 527 | 455 | 368 | 334 | 146 | 351 | 83 | 50 | 68 |
| 16 | 445 | 540 | 520 | 545 | 368 | 368 | 317 | 140 | 300 | 83 | 50 | 63 |
| 17 | 445 | 540 | 520 | 564 | 351 | 368 | 317 | 140 | 284 | 83 | 50 | 63 |
| 18 | 445 | 550 | 520 | 564 | 334 | 351 | 317 | 140 | 252 | 83 | 50 | 63 |
| 19 | 438 | 550 | 510 | 564 | 368 | 347 | 317 | 146 | 252 | 104 | 50 | 68 |
| 20 | 438 | 560 | 510 | 564 | 368 | 343 | 300 | 146 | 236 | 220 | 63 | 68 |
| 21 | 438 | 550 | 500 | 545 | 368 | 338 | 284 | 153 | 204 | 220 | 63 | 68 |
| 22 | 430 | 540 | 500 | 527 | 351 | 334 | 284 | 153 | 204 | 220 | 63 | 68 |
| 23 | 438 | 540 | 500 | 527 | 351 | 334 | 284 | 140 | 204 | 220 | 58 | 68 |
| 24 | 438 | 540 | 490 | 527 | 351 | 334 | 252 | 134 | 204 | 236 | 58 | 68 |
| 25 | 438 | 540 | 490 | 527 | 351 | 351 | 252 | 128 | 196 | 236 | 58 | 68 |
| 26 | 445 | 540 | 490 | 509 | 351 | 351 | 220 | 128 | 189 | 174 | 58 | 68 |
| 27 | 452 | 540 | 480 | 509 | 351 | 334 | 204 | 134 | 182 | 110 | 58 | 68 |
| 28 | 445 | 540 | 480 | 509 | 334 | 334 | 196 | 134 | 174 | 88 | 58 | 68 |
| 29 | 445 | 540 | 470 | 509 | 317 | 334 | 182 | 146 | 174 | 83 | 54 | 68 |
| 30 | 452 | 540 | 460 | 491 | ..... | 351 | 167 | 167 | 174 | 78 | 54 | 68 |
| 31 | 460 | ..... | 460 | 491 | ..... | 351 | ..... | 160 | ..... | 78 | 54 | ..... |

NOTE.—Daily discharge determined from two fairly well defined curves, one applicable Oct. 1 to Dec. 31, the other Jan. 1 to Sept. 30. Discharge interpolated for days on which gage was not read. Determinations for May and June supersede those published in Water-Supply Paper 300, p. 250.

*Monthly discharge of Owens River near Lone Pine, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 460 | 295 | 426 | 26,200 | B. |
| November | 560 | 470 | 525 | 31,200 | A. |
| December | 540 | 460 | 514 | 31,600 | A. |
| January | 564 | 455 | 509 | 31,300 | A. |
| February | 491 | 317 | 411 | 23,600 | A. |
| March | 368 | 317 | 345 | 21,200 | A. |
| April | 351 | 167 | 283 | 16,800 | A. |
| May | 174 | 110 | 143 | 8,790 | A. |
| June | 509 | 167 | 291 | 17,300 | A. |
| July | 236 | 78 | 128 | 7,870 | A. |
| August | 78 | 50 | 59.1 | 3,630 | A. |
| September | 68 | 50 | 63.9 | 3,800 | A. |
| The year | 564 | 50 | 308 | 223,000 | |

NOTE.—Records for May and June supersede those published in Water-Supply Paper No. 300, p. 251.

## ROCK CREEK NEAR ROUND VALLEY, CAL.

**Location.**—About 400 feet below highway bridge in sec. 9, T. 6 S., R. 31 E., a short distance above the mouth of Pine Creek, and 2 miles northwest of Round Valley.

**Records available.**—August 3, 1903, to September 30, 1912.

**Drainage area.**—Approximately 46 square miles.

**Gage.**—Vertical staff on left bank. Gage was located at highway bridge prior to July, 1906.

**Channel.**—Sand and cobblestone; somewhat shifting.

**Discharge measurements.**—Made from footbridge at gage or by wading.

**Winter flow.**—Shore ice forms at times, but probably does not affect the relation of gage height to discharge.

**Diversions.**—Water for irrigation is diverted above the station.

**Accuracy.**—Results are good.

**Cooperation.**—Maintained in cooperation with the city of Los Angeles.

*Discharge measurements of Rock Creek near Round Valley, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Oct. 24 | J. E. Jones | 1.44 | 38 | May 9 | J. E. Jones | 1.05 | 23 |
| Nov. 22 | do | 1.39 | 35 | 22 | do | 1.10 | 24 |
| Dec. 12 | do | 1.40 | 37 | June 12 | do | 1.77 | 59 |
| | | | | July 6 | do | 1.17 | 29 |
| 1912. | | | | 18 | do | 1.64 | 51 |
| Jan. 16 | do | 1.45 | 39 | 31 | H. J. Tompkins | 1.30 | 32 |
| Feb. 21 | do | 1.22 | 30 | Aug. 14 | J. E. Jones | 1.14 | 25 |
| Mar. 21 | do | 1.03 | 22 | Sept. 20 | do | 1.15 | 23 |
| Apr. 16 | do | 1.05 | 24 | | | | |

*Daily gage height, in feet, of Rock Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

[L. L. Roberts, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | | | 1.35 | 1.35 | | | 0.9 | 1.75 | 1.5 | | 1.2 |
| 3 | | 1.5 | 1.4 | | | 1.35 | 1.25 | | | | 1.3 | |
| 3 | 1.25 | | | 1.4 | 1.4 | | | .9 | 1.7 | 1.45 | | 1.2 |
| 4 | | | 1.4 | | | 1.33 | 1.25 | | | | 1.3 | 1.25 |
| 5 | 1.25 | 1.45 | | 1.33 | 1.4 | | | 1.0 | 1.65 | 1.25 | | |
| 6 | 1.2 | | 1.4 | | | 1.35 | 1.2 | | | 1.17 | 1.33 | 1.25 |
| 7 | 1.2 | 1.45 | | 1.38 | 1.4 | | | 1.0 | 1.7 | 1.35 | | |
| 8 | 1.3 | | 1.43 | | | 1.3 | 1.28 | 1.0 | | | 1.3 | 1.13 |
| 9 | | 1.5 | | 1.35 | 1.4 | | | 1.05 | 1.75 | 1.4 | 1.3 | |
| 10 | 1.35 | | 1.4 | | | 1.35 | 1.13 | | | | | 1.1 |
| 11 | | 1.45 | | 1.4 | 1.4 | | | 1.03 | 1.85 | 1.3 | 1.3 | |
| 12 | 1.4 | | 1.4 | | | 1.3 | 1.1 | | 1.77 | | | 1.1 |
| 13 | | 1.5 | | 1.45 | 1.4 | | | 1.15 | | 1.5 | 1.14 | 1.12 |
| 14 | 1.5 | | 1.38 | 1.45 | | 1.25 | 1.0 | | 1.7 | | 1.14 | |
| 15 | 1.5 | 1.45 | | 1.43 | 1.4 | | 1.03 | 1.23 | | 1.4 | 1.25 | 1.15 |
| 16 | 1.4 | | 1.4 | 1.45 | | 1.2 | 1.05 | | 1.65 | | 1.15 | 1.2 |
| 17 | 1.4 | 1.45 | 1.35 | 1.45 | 1.33 | | | 1.35 | 1.65 | 1.35 | 1.2 | |
| 18 | | | | 1.43 | | 1.15 | 1.0 | 1.45 | | 1.64 | | 1.15 |
| 19 | 1.4 | 1.4 | 1.3 | 1.45 | 1.3 | 1.17 | | | 1.53 | 1.4 | 1.1 | |
| 20 | | | | | | | 1.0 | 1.3 | 1.5 | | | 1.1 |
| 21 | 1.45 | 1.4 | 1.33 | 1.4 | 1.22 | 1.03 | | | 1.5 | 1.4 | 1.05 | 1.1 |
| 22 | | 1.39 | | | | | 1.03 | 1.1 | | | | |
| 23 | 1.45 | | 1.3 | 1.4 | 1.3 | 1.1 | | 1.3 | 1.53 | 1.35 | 1.13 | 1.13 |
| 24 | 1.44 | 1.38 | 1.35 | | | | 1.05 | | 1.5 | | | |
| 25 | 1.5 | | | 1.43 | 1.3 | 1.15 | | 1.37 | | 1.25 | 1.15 | 1.1 |
| 26 | | 1.39 | | | | | 1.0 | | 1.4 | | | 1.12 |
| 27 | 1.45 | | 1.3 | 1.4 | 1.3 | 1.2 | | 1.45 | 1.5 | 1.25 | 1.11 | |
| 28 | | 1.4 | 1.35 | | | | 1.0 | | 1.5 | | | 1.1 |
| 29 | 1.5 | | | 1.4 | 1.3 | 1.2 | | 1.45 | | 1.25 | 1.12 | |
| 30 | | 1.4 | 1.4 | 1.4 | | | 1.0 | | | | 1.1 | .97 |
| 31 | 1.45 | | | | | 1.2 | | 1.58 | | 1.2 | | |

*Daily discharge, in second-feet, of Rock Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 35 | 40 | 36 | 34 | 36 | 35 | 30 | 17 | 58 | 44 | 29 | 27 |
| 2 | 34 | 41 | 36 | 35 | 38 | 36 | 32 | 17 | 56 | 43 | 31 | 26 |
| 3 | 32 | 40 | 36 | 36 | 39 | 36 | 32 | 17 | 55 | 42 | 31 | 26 |
| 4 | 32 | 39 | 36 | 34 | 39 | 36 | 32 | 19 | 54 | 37 | 31 | 28 |
| 5 | 32 | 38 | 36 | 32 | 39 | 36 | 30 | 21 | 52 | 32 | 32 | 28 |
| 6 | 27 | 38 | 36 | 34 | 39 | 36 | 29 | 21 | 54 | 28 | 32 | 27 |
| 7 | 27 | 38 | 37 | 35 | 39 | 35 | 31 | 21 | 55 | 36 | 32 | 24 |
| 8 | 31 | 40 | 38 | 34 | 39 | 34 | 33 | 21 | 56 | 38 | 31 | 22 |
| 9 | 32 | 41 | 37 | 34 | 39 | 35 | 30 | 23 | 58 | 39 | 31 | 22 |
| 10 | 34 | 40 | 36 | 35 | 39 | 36 | 26 | 22 | 61 | 36 | 31 | 21 |
| 11 | 35 | 38 | 36 | 36 | 39 | 35 | 26 | 22 | 64 | 34 | 31 | 21 |
| 12 | 36 | 40 | 36 | 37 | 39 | 34 | 25 | 24 | 59 | 39 | 28 | 21 |
| 13 | 38 | 41 | 36 | 38 | 39 | 33 | 23 | 27 | 57 | 44 | 25 | 22 |
| 14 | 41 | 40 | 35 | 38 | 39 | 32 | 21 | 28 | 55 | 42 | 25 | 22 |
| 15 | 41 | 38 | 36 | 37 | 39 | 30 | 22 | 30 | 54 | 39 | 29 | 23 |
| 16 | 36 | 38 | 36 | 38 | 38 | 29 | 23 | 33 | 52 | 38 | 25 | 24 |
| 17 | 36 | 38 | 34 | 38 | 36 | 28 | 22 | 36 | 52 | 36 | 27 | 24 |
| 18 | 36 | 37 | 32 | 40 | 35 | 27 | 21 | 42 | 49 | 51 | 25 | 23 |
| 19 | 36 | 36 | 31 | 42 | 34 | 28 | 21 | 38 | 46 | 39 | 23 | 22 |
| 20 | 37 | 36 | 32 | 40 | 32 | 25 | 21 | 34 | 44 | 38 | 22 | 21 |
| 21 | 38 | 36 | 32 | 39 | 30 | 22 | 22 | 30 | 44 | 38 | 22 | 21 |
| 22 | 38 | 36 | 32 | 39 | 32 | 24 | 22 | 25 | 45 | 37 | 23 | 22 |
| 23 | 38 | 36 | 31 | 39 | 34 | 25 | 22 | 34 | 46 | 36 | 24 | 22 |
| 24 | 38 | 35 | 34 | 40 | 34 | 26 | 23 | 36 | 44 | 33 | 24 | 22 |
| 25 | 41 | 36 | 33 | 40 | 34 | 27 | 22 | 38 | 42 | 30 | 25 | 21 |
| 26 | 40 | 36 | 32 | 40 | 34 | 28 | 21 | 40 | 39 | 30 | 24 | 22 |
| 27 | 38 | 36 | 31 | 39 | 34 | 29 | 21 | 42 | 44 | 30 | 23 | 22 |
| 28 | 40 | 36 | 34 | 39 | 34 | 29 | 21 | 42 | 44 | 30 | 24 | 21 |
| 29 | 41 | 36 | 35 | 39 | 34 | 29 | 21 | 42 | 45 | 29 | 24 | 19 |
| 30 | 40 | 36 | 36 | 39 | ..... | 29 | 21 | 45 | 45 | 28 | 23 | 17 |
| 31 | 38 | ..... | 36 | 38 | ..... | 29 | ..... | 48 | ..... | 27 | 25 | ..... |

NOTE.—Discharge determined from five well defined rating curves applicable as follows: Oct. 1–5, Oct. 6 to Jan. 17, Jan. 18 to July 18, July 30 to Aug. 31, and Sept. 8–30. Indirect method for shifting channels used July 19–29 and Sept. 1–7. Discharge interpolated for days on which gage was not read.

*Monthly discharge of Rock Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 41 | 27 | 36.1 | 2,220 | B. |
| November | 41 | 35 | 37.9 | 2,260 | B. |
| December | 38 | 31 | 34.6 | 2,130 | B. |
| January | 42 | 32 | 37.4 | 2,300 | B. |
| February | 39 | 30 | 36.4 | 2,090 | A. |
| March | 36 | 22 | 30.7 | 1,890 | A. |
| April | 33 | 21 | 24.9 | 1,480 | A. |
| May | 48 | 17 | 30.2 | 1,860 | A. |
| June | 64 | 39 | 51.0 | 3,030 | A. |
| July | 51 | 27 | 36.2 | 2,230 | A. |
| August | 32 | 22 | 26.8 | 1,650 | A. |
| September | 28 | 17 | 22.8 | 1,360 | A. |
| The year | 64 | 17 | 33.8 | 24,500 | |

## PINE CREEK NEAR ROUND VALLEY, CAL.

**Location.**—At footbridge 300 feet above highway bridge in sec. 9, T. 6 S., R. 31 E., about 600 feet above junction with Rock Creek, and 2 miles northwest of Round Valley.

**Records available.**—August 3, 1903, to September 30, 1912.

**Drainage area.**—Approximately 32 square miles above mouth of canyon.
**Gage.**—Vertical staff on left bank, 300 feet above bridge. Prior to May 13, 1908, gage was located 150 feet below highway bridge.
**Channel.**—Lava rock and sand; fairly permanent.
**Discharge measurements.**—Made from footbridge at gage, or by wading.
**Diversions.**—Water is diverted above the station for irrigation.
**Accuracy.**—Rating curves are fairly well defined and results are good.
**Cooperation.**—Maintained in cooperation with the city of Los Angeles.

*Discharge measurements of Pine Creek near Round Valley, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | Apr. 16 | J. E. Jones | 3.45 | 2.4 |
| Oct. 24 | J. E. Jones | 3.72 | 10 | 16 | do | 3.45 | 1.8 |
| Nov. 22 | do | 3.65 | 8.0 | May 9 | do | 3.45 | 2.0 |
| Dec. 12 | do | 3.60 | 7.3 | 9 | do | 3.45 | 3.0 |
| 1912. | | | | 22 | do | 3.30 | .4 |
| | | | | June 12 | do | 4.58 | 74 |
| | | | | July 6 | do | 3.86 | 18 |
| Jan. 16 | J. E. Jones | 3.58 | 6.2 | 18 | do | 4.05 | 29 |
| Feb. 21 | do | 3.50 | 4.0 | 31 | H. J. Tompkins | 3.73 | 11 |
| Mar. 21 | do | 3.43 | 2.6 | Aug. 14 | J. E. Jones | 3.52 | 5.3 |
| 21 | do | 3.43 | 2.2 | Sept. 20 | do | 3.42 | 2.8 |

*Daily gage height, in feet, of Pine Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

[L. L. Roberts, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.3 | | | 3.5 | 3.5 | 3.2 | 3.4 | 3.0 | 5.0 | 4.0 | | 3.4 |
| 2 | | 3.7 | 3.65 | | | | | | | | 3.4 | |
| 3 | 4.0 | | | 3.5 | 3.55 | | | 3.1 | 4.9 | 4.0 | | 3.38 |
| 4 | | | 3.6 | | | 3.25 | 3.35 | | | | 3.37 | 3.4 |
| 5 | 3.9 | 3.7 | | 3.5 | 3.5 | | | 3.35 | 4.95 | 4.0 | | |
| 6 | 3.75 | | 3.65 | | | 3.35 | 3.3 | | | 3.86 | 3.4 | 3.4 |
| 7 | 3.75 | 3.63 | | 3.55 | 3.5 | | | 3.45 | 4.8 | 3.9 | | |
| 8 | 3.7 | | 3.53 | | | 3.4 | 3.35 | 3.4 | | | 3.4 | 3.4 |
| 9 | | 3.7 | | 3.5 | 3.53 | | | 3.45 | 4.7 | 4.0 | 3.4 | |
| 10 | 3.7 | | 3.6 | | | 3.4 | 3.3 | | | | | 3.5 |
| 11 | | 3.65 | | 3.6 | 3.5 | | | 3.4 | 4.65 | 4.0 | 3.35 | |
| 12 | 3.65 | | 3.6 | | | 3.45 | 3.35 | | 4.55 | | | 3.35 |
| 13 | | 3.7 | | 3.55 | 3.53 | | | 3.45 | | 4.1 | 3.48 | 3.3 |
| 14 | 3.63 | | 3.6 | | | 3.45 | 3.4 | | 4.5 | | 3.52 | |
| 15 | 3.7 | 3.65 | | 3.6 | 3.5 | | 3.35 | 3.5 | | 4.0 | 3.62 | 3.34 |
| 16 | 3.65 | | 3.6 | | | 3.5 | 3.45 | 3.45 | 4.5 | | 3.5 | |
| 17 | 3.75 | 3.65 | 3.55 | 3.65 | 3.5 | | | 3.45 | 4.55 | 4.0 | 3.45 | 3.35 |
| 18 | | | | 3.6 | | 3.45 | 3.4 | | | 4.05 | | |
| 19 | 3.7 | 3.65 | 3.6 | 3.65 | 3.5 | 3.5 | | 3.4 | 4.55 | 4.05 | 3.4 | 3.3 |
| 20 | | | | | | | 3.45 | | 4.6 | | | 3.42 |
| 21 | 3.7 | 3.65 | 3.6 | 3.6 | 3.5 | 3.43 | | 3.2 | 4.5 | 4.1 | 3.48 | 3.2 |
| 22 | | 3.65 | | | | | 3.4 | 3.3 | | | | 3.15 |
| 23 | 3.65 | | 3.6 | 3.55 | 3.5 | 3.45 | | | 4.15 | 3.9 | 3.4 | |
| 24 | | 3.7 | 3.6 | | | | 3.45 | 3.34 | 4.0 | | | 3.1 |
| 25 | 3.7 | | | 3.53 | 3.3 | 3.5 | | | | 3.75 | 3.37 | |
| 26 | | 3.65 | | | | | 3.35 | 4.5 | 4.0 | | | 3.13 |
| 27 | 3.65 | | 3.53 | 3.5 | 3.2 | 3.48 | | | 4.0 | 3.5 | 3.36 | 3.1 |
| 28 | | 3.7 | 3.6 | | | | 3.4 | 4.75 | 4.0 | | | |
| 29 | 3.7 | | | 3.5 | 3.25 | 3.48 | | | | 3.4 | 3.4 | 3.15 |
| 30 | | 3.65 | 3.55 | 3.5 | | | 3.4 | 4.9 | | | 3.38 | 3.1 |
| 31 | 3.6 | | | | | 3.45 | | | | 3.4 | | |

*Daily discharge, in second-feet, of Pine Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 45 | 8.2 | 8.2 | 3.6 | 3.6 | 0 | 1.6 | 0 | 118 | 25 | 2.2 | 2.2 |
| 2 | 34 | 9.5 | 8.2 | 3.6 | 4.2 | 0 | 1.4 | 0 | 112 | 25 | 2.2 | 2.1 |
| 3 | 23.5 | 9.5 | 7.5 | 3.6 | 4.8 | .1 | 1.2 | 0 | 107 | 25 | 2.0 | 2.0 |
| 4 | 21 | 9.5 | 6.8 | 3.6 | 4.2 | .2 | 1.0 | .5 | 110 | 25 | 1.8 | 2.2 |
| 5 | 18 | 9.5 | 7.5 | 3.6 | 3.6 | .6 | .7 | 1.0 | 112 | 25 | 2.0 | 2.2 |
| 6 | 11.2 | 8.6 | 8.2 | 4.2 | 3.6 | 1.0 | .4 | 1.8 | 104 | 17 | 2.2 | 2.2 |
| 7 | 11.2 | 7.6 | 6.8 | 4.8 | 3.6 | 1.3 | .7 | 2.6 | 96 | 19 | 2.2 | 2.2 |
| 8 | 9.5 | 8.6 | 5.5 | 4.2 | 4.0 | 1.6 | 1.0 | 1.6 | 90 | 22 | 2.2 | 2.2 |
| 9 | 9.5 | 9.5 | 6.2 | 3.6 | 4.3 | 1.6 | .7 | 2.6 | 85 | 25 | 2.2 | 3.2 |
| 10 | 9.5 | 8.8 | 6.8 | 4.8 | 4.0 | 1.6 | .4 | 2.1 | 82 | 25 | 1.9 | 4.2 |
| 11 | 8.8 | 8.2 | 6.8 | 6.0 | 3.6 | 2.1 | .7 | 1.6 | 80 | 25 | 1.6 | 2.9 |
| 12 | 8.2 | 8.8 | 6.8 | 5.4 | 4.0 | 2.6 | 1.0 | 2.1 | 70 | 28 | 2.7 | 1.6 |
| 13 | 7.9 | 9.5 | 6.8 | 4.8 | 4.3 | 2.6 | 1.3 | 2.6 | 68 | 32 | 3.8 | 1.0 |
| 14 | 7.6 | 8.8 | 6.8 | 5.4 | 4.0 | 2.6 | 1.6 | 3.1 | 66 | 28 | 4.8 | 1.2 |
| 15 | 9.5 | 8.2 | 6.8 | 6.0 | 3.6 | 3.1 | 1.0 | 3.6 | 66 | 25 | 7.7 | 1.5 |
| 16 | 8.2 | 8.2 | 6.8 | 6.8 | 3.6 | 3.6 | 2.6 | 2.6 | 66 | 25 | 4.2 | 1.6 |
| 17 | 11.2 | 8.2 | 5.9 | 7.6 | 3.6 | 3.1 | 2.1 | 2.6 | 70 | 25 | 3.2 | 1.6 |
| 18 | 10.4 | 8.2 | 6.4 | 6.0 | 3.6 | 2.6 | 1.6 | 2.1 | 70 | 28 | 2.7 | 1.3 |
| 19 | 9.5 | 8.2 | 6.8 | 7.6 | 3.6 | 3.6 | 2.1 | 1.6 | 70 | 28 | 2.2 | 1.0 |
| 20 | 9.5 | 8.2 | 6.8 | 6.8 | 3.6 | 2.9 | 2.6 | .8 | 75 | 30 | 3.0 | 2.6 |
| 21 | 9.5 | 8.2 | 6.8 | 6.0 | 3.6 | 2.2 | 2.1 | 0 | 66 | 32 | 3.8 | .4 |
| 22 | 8.8 | 8.2 | 6.8 | 5.4 | 3.6 | 2.4 | 1.6 | .4 | 51 | 26 | 3.0 | .3 |
| 23 | 8.2 | 8.8 | 6.8 | 4.8 | 3.6 | 2.6 | 2.1 | .6 | 36 | 19 | 2.2 | .2 |
| 24 | 8.8 | 9.5 | 6.8 | 4.6 | 2.0 | 3.1 | 2.6 | .9 | 25 | 16 | 2.0 | .2 |
| 25 | 9.5 | 8.8 | 6.4 | 4.3 | .4 | 3.6 | 1.8 | 32 | 25 | 12 | 1.8 | .2 |
| 26 | 8.8 | 8.2 | 6.0 | 4.0 | .2 | 3.4 | 1.0 | 62 | 25 | 8 | 1.8 | .3 |
| 27 | 8.2 | 8.8 | 5.5 | 3.6 | 0 | 3.2 | 1.3 | 74 | 25 | 4.2 | 1.7 | .2 |
| 28 | 8.8 | 9.5 | 6.8 | 3.6 | .1 | 3.2 | 1.6 | 86 | 25 | 3.2 | 2.0 | .2 |
| 29 | 9.5 | 8.8 | 6.4 | 3.6 | .2 | 3.2 | 1.6 | 94 | 25 | 2.2 | 2.2 | .3 |
| 30 | 8.2 | 8.2 | 5.9 | 3.6 | ..... | 2.9 | 1.6 | 102 | 25 | 2.2 | 2.0 | .2 |
| 31 | 6.8 | ..... | 6.0 | 3.6 | ..... | 2.6 | ..... | 108 | ..... | 2.2 | 2.1 | ..... |

NOTE.—Daily discharge determined from three fairly well defined rating curves applicable as follows: Oct. 1 to Dec. 31, Jan. 1 to May 31, and June 1 to Sept. 30. Discharge interpolated for days on which gage was not read. The low discharges are due to use of water for irrigation. Record for June supersedes that published in Water-Supply Paper 300, p. 274.

*Monthly discharge of Pine Creek near Round Valley, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 45 | 6.8 | 12.2 | 750 | B. |
| November | 9.5 | 7.6 | 8.69 | 517 | B. |
| December | 8.2 | 5.5 | 6.73 | 414 | B. |
| January | 7.6 | 3.6 | 4.81 | 296 | B. |
| February | 4.8 | .0 | 3.14 | 181 | C. |
| March | 3.6 | .0 | 2.23 | 137 | C. |
| April | 2.6 | .4 | 1.43 | 85 | C. |
| May | 108 | .0 | 19.2 | 1,180 | C. |
| June | 118 | 25 | 68.2 | 4,060 | B. |
| July | 32 | 2.2 | 20.5 | 1,260 | B. |
| August | 7.7 | 1.6 | 2.63 | 162 | C. |
| September | 4.2 | .2 | 1.45 | 86.3 | C. |
| The year | 118 | .0 | 12.6 | 9,130 | |

NOTE.—Record for June supersedes that published in Water-Supply Paper 300, p. 276.

## MONO LAKE BASIN.

### MONO LAKE NEAR MONO LAKE, CAL.

**Location.**—In lot 6, SE. ¼ NE. ¼ sec. 31, T. 2 N., R. 26 E., about 2 miles south of Mono Lake post office.
**Records available.**—June 15 to September 30, 1912.
**Gage.**—Vertical staff fastened to willow tree about 400 feet from Hammon's store.
**Cooperation.**—Gage-height record furnished by the United States Forest Service.

*Daily gage height, in feet, of Mono Lake near Mono Lake, Cal., for year ending Sept. 30, 1912.*

| Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 11 | | | | 8.73 | 21 | | | | |
| 2 | | | | | 12 | | | 9.19 | | 22 | 9.25 | | | |
| 3 | | 9.21 | 9.20 | | 13 | | | | | 23 | | | | |
| 4 | | | | | 14 | | | | | 24 | | 9.20 | 9.08 | |
| 5 | | | | | 15 | 9.25 | | | | 25 | | | | |
| 6 | | | | | 16 | | | | | 26 | | | | |
| 7 | | | | | 17 | | | | 8.70 | 27 | | | | |
| 8 | | | | | 18 | | | | | 28 | | | | |
| 9 | | | | | 19 | | | | | 29 | | | | 8.61 |
| 10 | | | | | 20 | | | | | 30 | 9.25 | | 8.93 | |
| | | | | | | | | | | 31 | | | | |

### RUSH CREEK NEAR MONO LAKE, CAL.

**Location.**—At highway bridge, one-fourth mile above mouth of creek, in the NE. ¼ sec. 13, T. 1 N., R. 26 E., 3 miles below mouth of Waller Creek, and about 8 miles southeast of Mono Lake post office.
**Records available.**—November 16, 1910, to September 30, 1912.
**Drainage area.**—Not measured.
**Gage.**—Original vertical staff was fastened to a cottonwood tree on right bank just above bridge. This gage was washed out on June 24, 1911, and a new gage was installed July 6, 1911, at an independent datum, as the bench mark was destroyed by the June flood. September 15, 1911, the gage was moved and the datum was raised 0.90 foot.
**Channel.**—Sand and fine gravel; will shift at high water.
**Discharge measurements.**—Made from highway bridge or by wading.
**Winter flow.**—Somewhat affected by ice.
**Artificial control.**—Water is diverted above the station for irrigation.
**Cooperation.**—Maintained in cooperation with the United States Forest Service.

Estimates are withheld until additional measurements are made.

*Discharge measurements of Rush Creek near Mono Lake, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| June 14 | H. J. Tompkins | 4.20 | 323 |
| July 9 | J. E. Jones | 3.27 | 148 |

*Daily gage height, in feet, of Rush Creek near Mono Lake, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | | | |
| 2 | 2.38 | | | | | 2.06 | | | | | | |
| 3 | | | | | 2.01 | | | | | 3.1 | 2.92 | |
| 4 | | 2.26 | | | | | | | | | | |
| 5 | | | | | | | | | 5.32 | | | |
| 6 | 2.31 | | | 2.4 | | | | | | 3.01 | | |
| 7 | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | | | | | 2.08 | | | | 3.27 | | 2.50 |
| 10 | | | | | 2.04 | | | | 4.53 | | 2.78 | |
| 11 | | 2.28 | 2.08 | | | | | | | | | |
| 12 | 2.30 | | | | | | | | | | | |
| 13 | | | | 2.12 | | | | | | | 2.78 | |
| 14 | | | | | | | | | 4.2 | | | |
| 15 | 2.25 | | | | | | | | | | | |
| 16 | | | 2.08 | | | | | | | | | |
| 17 | | | | | 2.05 | | | | | | 2.75 | 2.40 |
| 18 | | | | | | | | | | 3.58 | | |
| 19 | | 2.20 | | | | | | | 4.0 | | | |
| 20 | | | | 2.08 | | | | | | | | |
| 21 | 2.25 | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | | 2.12 | | | | | | | | 2.60 | |
| 24 | | | | | 1.95 | | | | | | | |
| 25 | | | | | | | | | | 3.08 | | |
| 26 | | | | | | | | | 3.18 | | 2.58 | |
| 27 | | | | 2.02 | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | 2.30 |
| 30 | | | 2.50 | | | | | | 3.2 | | | |
| 31 | | | | | | | | | | | 2.55 | |

NOTE.—Relation of gage height to discharge probably affected by ice Dec. 26 to Jan. 12. Observer absent Mar. 10 to June 4.

## LEEVINING CREEK NEAR MONO LAKE, CAL.

**Location.**—In the SE. ¼ SE. ¼ sec. 17, T. 1 N., R. 26 E., in the Mono National Forest, about 3¼ miles above the mouth, and about 4 miles south of Mono Lake post office.

**Records available.**—November 17, 1910, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff fastened to cottonwood tree on left bank, 250 feet below ranger station.

**Channel.**—Gravel; practically permanent.

**Discharge measurements.**—Made by wading near gage.

**Diversions.**—Less than 100 acres are irrigated from this stream above the station.

**Winter flow.**—Affected by ice.

**Accuracy.**—Rating curve is well defined and results are good.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

*Discharge measurements of Leevining Creek near Mono Lake, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| June 14 | H. J. Tompkins | 3.15 | 153 |
| July 9 | J. E. Jones | 2.87 | 98 |

*Daily gage height, in feet, of Leevining Creek near Mono Lake, Cal., for year ending Sept. 30, 1912.*

[Fred B. Clark, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.33 | ..... | ..... | ..... | 2.1 | 2.05 | ..... | 2.78 | 2.64 | 2.30 |
| 2 | 2.32 | 2.18 | ..... | ..... | 2.09 | 2.04 | ..... | ..... | 2.58 | 2.30 |
| 3 | 2.30 | 2.19 | ..... | ..... | 2.09 | 2.1 | 3.8 | 2.62 | 2.58 | 2.30 |
| 4 | 2.32 | 2.19 | ..... | ..... | 2.09 | ..... | 3.92 | 2.62 | 2.56 | 2.29 |
| 5 | 2.30 | 2.19 | ..... | ..... | 2.08 | 2.14 | 3.95 | 2.72 | 2.57 | 2.29 |
| 6 | 2.30 | 2.19 | ..... | 2.5 | 2.08 | 2.06 | 4.0 | 2.82 | ..... | ..... |
| 7 | 2.28 | 2.17 | ..... | 2.1 | 2.08 | 2.06 | 4.1 | 2.80 | ..... | 2.23 |
| 8 | 2.27 | 2.15 | ..... | 2.08 | 2.08 | 2.06 | 3.7 | 2.82 | ..... | 2.26 |
| 9 | 2.25 | 2.14 | ..... | 2.08 | 2.08 | 2.06 | 3.52 | 2.89 | 2.51 | 2.24 |
| 10 | 2.25 | 2.17 | 2.13 | 2.1 | 2.08 | 2.06 | 3.42 | ..... | 2.52 | 2.22 |
| 11 | 2.25 | 2.35 | 2.13 | 2.1 | 2.08 | 2.06 | 3.45 | ..... | 2.52 | 2.20 |
| 12 | 2.25 | 2.50 | 2.11 | 2.1 | 2.08 | 2.06 | 3.28 | ..... | 2.53 | 2.19 |
| 13 | 2.25 | 2.20 | 2.10 | 2.1 | 2.06 | ..... | 3.3 | 2.89 | 2.54 | 2.18 |
| 14 | ..... | 2.22 | 2.09 | 2.1 | 2.06 | ..... | 3.18 | 2.84 | 2.54 | 2.17 |
| 15 | 2.23 | 2.20 | 2.09 | 2.1 | 2.06 | ..... | 3.18 | 2.84 | 2.52 | 2.17 |
| 16 | 2.22 | 2.19 | 2.08 | 2.1 | 2.08 | ..... | 3.15 | 2.87 | 2.50 | 2.16 |
| 17 | 2.20 | 2.19 | 2.15 | 2.1 | 2.08 | ..... | 3.12 | 2.97 | 2.48 | 2.16 |
| 18 | 2.21 | 2.18 | 2.20 | 2.09 | 2.08 | ..... | 3.18 | 3.00 | 2.44 | 2.16 |
| 19 | 2.20 | 2.18 | 2.30 | 2.09 | 2.07 | ..... | 3.28 | 3.00 | 2.42 | 2.14 |
| 20 | 2.21 | 2.18 | 2.38 | 2.08 | 2.08 | ..... | 3.32 | 2.98 | 2.41 | 2.15 |
| 21 | 2.20 | 2.17 | 2.55 | 2.08 | 2.07 | ..... | 3.13 | 2.78 | 2.42 | ..... |
| 22 | ..... | ..... | 2.77 | 2.08 | 2.06 | ..... | 3.02 | 2.74 | 2.40 | ..... |
| 23 | 2.20 | ..... | 2.75 | 2.08 | 2.05 | ..... | 2.86 | 2.70 | 2.40 | ..... |
| 24 | 2.19 | ..... | 3.00 | 2.08 | 2.05 | ..... | 2.74 | 2.66 | 2.40 | ..... |
| 25 | 2.18 | ..... | 3.00 | 2.07 | 2.05 | ..... | 2.72 | 2.65 | 2.42 | ..... |
| 26 | 2.18 | ..... | 3.00 | 2.07 | 2.05 | ..... | 2.76 | 2.64 | 2.44 | 2.13 |
| 27 | 2.19 | ..... | 3.00 | 2.07 | 2.06 | ..... | 2.79 | 2.64 | 2.45 | 2.14 |
| 28 | 2.20 | ..... | 3.00 | 2.09 | 2.06 | ..... | 2.85 | 2.65 | ..... | 2.12 |
| 29 | ..... | ..... | 3.00 | 2.09 | 2.06 | ..... | 2.84 | 2.64 | 2.33 | 2.12 |
| 30 | 2.20 | ..... | 3.48 | 2.09 | ..... | ..... | 2.86 | 2.64 | 2.33 | 2.12 |
| 31 | 2.20 | ..... | 3.48 | 2.1 | ..... | ..... | ..... | 2.64 | 2.32 | ..... |

NOTE.—Relation of gage height to discharge affected to some extent by ice during the winter months. No records obtained Mar. 13 to June 2, 1912.

*Daily discharge, in second-feet, of Leevining Creek near Mono Lake, Cal., for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | ..... | ..... | 22 | 20 | 29 | 25 | 38 | 65 | 108 | 390 | 193 | 76 |
| 2 | ..... | ..... | 21 | 20 | 40 | 24 | 39 | 65 | 123 | 408 | 186 | 72 |
| 3 | ..... | ..... | 20 | 20 | 44 | 24 | 41 | 68 | 168 | 465 | 180 | 65 |
| 4 | ..... | ..... | 21 | 20 | 51 | 22 | 40 | 73 | 210 | 465 | 165 | 63 |
| 5 | ..... | ..... | 27 | 20 | 50 | 22 | 38 | 69 | 232 | 550 | 150 | 60 |
| 6 | ..... | ..... | 25 | 20 | 51 | 22 | 41 | 82 | 298 | 648 | 140 | 57 |
| 7 | ..... | ..... | 25 | 20 | 46 | 26 | 42 | 85 | 245 | 673 | 123 | 54 |
| 8 | ..... | ..... | 24 | 20 | 42 | 26 | 44 | 82 | 220 | 627 | 132 | 51 |
| 9 | ..... | ..... | 24 | 20 | 38 | 26 | 43 | 80 | 232 | 581 | 123 | 48 |
| 10 | ..... | ..... | 26 | 20 | 34 | 25 | 41 | 78 | 312 | 536 | 140 | 45 |
| 11 | ..... | ..... | 27 | 20 | 29 | 25 | 41 | 78 | 356 | 491 | 132 | 43 |
| 12 | ..... | ..... | 26 | 20 | 31 | 31 | 38 | 80 | 408 | 446 | 123 | 41 |
| 13 | ..... | ..... | 22 | 20 | 37 | 41 | 37 | 85 | 507 | 486 | 108 | 38 |
| 14 | ..... | ..... | 25 | 20 | 35 | 32 | 35 | 82 | 465 | 598 | 100 | 38 |
| 15 | ..... | ..... | 24 | 20 | 32 | 24 | 33 | 79 | 507 | 698 | 93 | 38 |
| 16 | ..... | ..... | 22 | 20 | 31 | 22 | 34 | 76 | 648 | 507 | 100 | 38 |
| 17 | ..... | 23 | 20 | 20 | 30 | 24 | 34 | 73 | 673 | 507 | 100 | 38 |
| 18 | ..... | 23 | 22 | 20 | 29 | 24 | 36 | 69 | 724 | 550 | 93 | 38 |
| 19 | ..... | 20 | 21 | 20 | 29 | 24 | 35 | 71 | 750 | 446 | 86 | 38 |
| 20 | ..... | 22 | 20 | 38 | 27 | 24 | 38 | 80 | 724 | 426 | 83 | 38 |
| 21 | ..... | 23 | 22 | 34 | 25 | 23 | 40 | 96 | 698 | 356 | 93 | 39 |
| 22 | ..... | 21 | 23 | 44 | 23 | 23 | 44 | 108 | 507 | 317 | 86 | 40 |
| 23 | ..... | 22 | 23 | 30 | 24 | 24 | 45 | 142 | 426 | 278 | 79 | 41 |
| 24 | ..... | 21 | 22 | 31 | 22 | 24 | 53 | 156 | 326 | 239 | 79 | 38 |
| 25 | ..... | 20 | 22 | 27 | 24 | 26 | 58 | 180 | 284 | 200 | 78 | 41 |
| 26 | ..... | 22 | 22 | 29 | 25 | 27 | 61 | 132 | 356 | 200 | 77 | 41 |
| 27 | ..... | 22 | 21 | 34 | 26 | 25 | 65 | 120 | 486 | 200 | 76 | 40 |
| 28 | ..... | 21 | 21 | 40 | 25 | 26 | 64 | 125 | 623 | 210 | 75 | 39 |
| 29 | ..... | 22 | 20 | 35 | ..... | 29 | 63 | 128 | 528 | 200 | 74 | 38 |
| 30 | ..... | 22 | 20 | 48 | ..... | 34 | 63 | 123 | 426 | 210 | 73 | 38 |
| 31 | ..... | ..... | 20 | 37 | ..... | 33 | ..... | 116 | ..... | 200 | 72 | ..... |

*Daily discharge, in second-feet, of Leevining Creek near Mono Lake, Cal., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911-12. | | | | | | | | | | | | |
| 1 | 36 | 24 | 23 | 20 | 20 | 18 | ..... | ..... | ..... | 90 | 71 | 33 |
| 2 | 35 | 24 | 23 | 20 | 20 | 17 | ..... | ..... | ..... | 79 | 63 | 33 |
| 3 | 33 | 24 | 23 | 20 | 20 | 20 | ..... | ..... | 298 | 68 | 63 | 33 |
| 4 | 35 | 24 | 23 | 20 | 20 | 21 | ..... | ..... | 332 | 68 | 60 | 32 |
| 5 | 33 | 24 | 23 | 20 | 19 | 22 | ..... | ..... | 341 | 82 | 61 | 32 |
| 6 | 33 | 24 | 23 | 20 | 19 | 18 | ..... | ..... | 356 | 96 | 59 | 30 |
| 7 | 31 | 24 | 23 | 20 | 19 | 18 | ..... | ..... | 391 | 93 | 57 | 28 |
| 8 | 31 | 22 | 23 | 19 | 19 | 18 | ..... | ..... | 270 | 96 | 55 | 30 |
| 9 | 29 | 22 | 23 | 19 | 19 | 18 | ..... | ..... | 225 | 106 | 54 | 29 |
| 10 | 29 | 24 | 22 | 20 | 19 | 18 | ..... | ..... | 204 | 106 | 55 | 27 |
| 11 | 29 | 38 | 22 | 20 | 19 | 18 | ..... | ..... | 210 | 106 | 55 | 26 |
| 12 | 29 | 53 | 20 | 20 | 19 | 18 | ..... | ..... | 176 | 106 | 57 | 25 |
| 13 | 29 | 25 | 20 | 20 | 18 | ..... | ..... | ..... | 180 | 106 | 58 | 25 |
| 14 | 28 | 27 | 20 | 20 | 18 | ..... | ..... | ..... | 156 | 99 | 58 | 24 |
| 15 | 27 | 25 | 20 | 20 | 18 | ..... | ..... | ..... | 156 | 99 | 55 | 24 |
| 16 | 27 | 24 | 19 | 20 | 19 | ..... | ..... | ..... | 150 | 104 | 53 | 24 |
| 17 | 25 | 24 | 20 | 20 | 19 | ..... | ..... | ..... | 142 | 118 | 51 | 24 |
| 18 | 26 | 24 | 20 | 20 | 19 | ..... | ..... | ..... | 156 | 123 | 47 | 24 |
| 19 | 25 | 24 | 20 | 20 | 18 | ..... | ..... | ..... | 176 | 123 | 45 | 22 |
| 20 | 26 | 24 | 20 | 19 | 19 | ..... | ..... | ..... | 184 | 120 | 44 | 23 |
| 21 | 25 | 24 | 20 | 19 | 18 | ..... | ..... | ..... | 144 | 90 | 45 | 23 |
| 22 | 25 | 24 | 20 | 19 | 18 | ..... | ..... | ..... | 126 | 85 | 43 | 23 |
| 23 | 25 | 24 | 20 | 19 | 18 | ..... | ..... | ..... | 102 | 79 | 43 | 22 |
| 24 | 24 | 24 | 20 | 19 | 18 | ..... | ..... | ..... | 85 | 73 | 43 | 22 |
| 25 | 24 | 24 | 20 | 18 | 18 | ..... | ..... | ..... | 82 | 72 | 45 | 22 |
| 26 | 24 | 24 | 20 | 18 | 18 | ..... | ..... | ..... | 87 | 71 | 47 | 22 |
| 27 | 24 | 24 | 20 | 18 | 18 | ..... | ..... | ..... | 92 | 71 | 48 | 22 |
| 28 | 25 | 24 | 20 | 20 | 18 | ..... | ..... | ..... | 100 | 72 | 42 | 21 |
| 29 | 25 | 24 | 20 | 20 | 18 | ..... | ..... | ..... | 99 | 71 | 36 | 21 |
| 30 | 25 | 24 | 20 | 20 | ..... | ..... | ..... | ..... | 102 | 71 | 36 | 21 |
| 31 | 25 | ..... | 20 | 20 | ..... | ..... | ..... | ..... | ..... | 71 | 35 | ..... |

NOTE.—Daily discharge computed from a fairly well defined rating curve based on measurements made during 1910-1913. Discharge estimated, because of ice, Dec. 19, 27-29, and 31, 1910; Jan. 1-19, Feb. 7, 8, 14-18, 20, 21, 26, and 28, Mar. 1, 2, and 8-10; Dec. 17-31, 1911; and Jan. 1-6, 1912. Discharge interpolated for days for which gage heights are missing, except Mar. 13 to June 2, 1912.

*Monthly discharge of Leevining Creek near Mono Lake, Cal., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910-11. | | | | | |
| November 17-30 | 23 | 20 | 21.7 | 603 | B. |
| December | 27 | 20 | 22.6 | 1,390 | B. |
| January | 48 | ..... | 26.0 | 1,600 | C. |
| February | 51 | 22 | 33.2 | 1,840 | C. |
| March | 41 | 22 | 26.0 | 1,600 | B. |
| April | 65 | 33 | 44.1 | 2,620 | B. |
| May | 180 | 65 | 95.0 | 5,840 | B. |
| June | 750 | 108 | 419 | 24,900 | B. |
| July | 698 | 200 | 423 | 26,000 | B. |
| August | 193 | 72 | 110 | 6,760 | B. |
| September | 76 | 38 | 45.8 | 2,730 | C. |
| The period | ..... | ..... | ..... | 75,900 | |
| 1911-12. | | | | | |
| October | 36 | 24 | 28.0 | 1,720 | B. |
| November | 53 | 22 | 25.5 | 1,520 | B. |
| December | ..... | ..... | 21.0 | 1,290 | B. |
| January | 20 | 18 | 19.6 | 1,210 | C. |
| February | 20 | 18 | 18.7 | 1,080 | B. |
| March 1-12 | 22 | 17 | 18.7 | 445 | B. |
| June 3-30 | 391 | 82 | 183 | 10,200 | B. |
| July | 106 | 68 | 90.8 | 5,580 | B. |
| August | 71 | 35 | 51.1 | 3,140 | B. |
| September | 33 | 21 | 25.6 | 1,520 | B. |

## WALKER LAKE BASIN.

### EAST WALKER RIVER NEAR BRIDGEPORT, CAL.

**Location.**—In the SW. ¼ SE. ¼ sec. 34, T. 6 N., R. 25 E., in the Mono National Forest, about 4¼ miles north of Bridgeport.

**Records available.**—July 29, 1911, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on left bank.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made by wading near gage. At high stages measurements may be made from bridge about 2 miles below gage.

**Winter flow.**—Somewhat affected by ice.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

Estimates are withheld until additional measurements are secured.

The following discharge measurement was made by H. J. Tompkins:

June 16: Gage height, 0.85 foot; discharge, 270 second-feet.

*Daily gage height, in feet, of East Walker River near Bridgeport, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0.41 | | | | | | | | | |
| 2 | 0.48 | | 0.88 | | | | | | | | |
| 3 | | | | | 1.00 | 0.02 | | | | | |
| 4 | | .40 | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 6 | | | | | | | −0.10 | | | | |
| 7 | .45 | | | | | | | | | | −0.15 |
| 8 | | | | | | | | | | | |
| 9 | | | 1.12 | | | | | | | | |
| 10 | .40 | | | | .20 | .16 | | | | | |
| 11 | | | | | | | | | | | |
| 12 | | | | | | | | | | | |
| 13 | | .45 | | | | | | | | | |
| 14 | .41 | | | | | | | | | | −.20 |
| 15 | | | | | | | | | | | |
| 16 | | | 1.20 | | | .02 | | 0.85 | | | |
| 17 | | | | | .49 | | | | | 0.10 | |
| 18 | | .00 | | | | | | | | | |
| 19 | | | | | | | | | | | |
| 20 | .36 | | | | | | | | 1.00 | | |
| 21 | | | | | | | | | | | −.35 |
| 22 | | | | | | | | | | | |
| 23 | | | | | | −.02 | | | | | |
| 24 | .39 | | | | .15 | | | | | | |
| 25 | | .99 | | | | | | | | | |
| 26 | | | | | | | | | | | |
| 27 | | | | 1.50 | | | | | | | |
| 28 | .42 | | | | | | | | | | |
| 29 | | | | | | | | | | | |
| 30 | .40 | | | | | | | | | | |
| 31 | | | | | | .00 | | | | .95 | |

NOTE.—Relation of gage height to discharge affected by ice Dec. 9, 1911, to Feb. 24, 1912. Water was below zero of gage during part of May, 1912.

### EAST WALKER RIVER NEAR MASON, NEV.

**Location.**—At highway bridge in the S. ½ NE. ¼ sec. 26, T. 12 N., R. 25 E., Mount Diablo base and meridian, 2½ miles above junction with West Walker River, and 7 miles above Mason.

**Records available.**—November 21, 1910, to September 15, 1912. From 1902 to 1908 a station was maintained at the Ross ranch, a short distance above the present station.

**Drainage area.**—Not measured.
**Gage.**—Vertical staff on the left bank, 100 feet below the bridge.
**Channel.**—Sand, and liable to shift at sudden high water.
**Discharge measurements.**—Made from highway bridge.
**Winter flow.**—Some ice forms along the banks, but does not usually affect the relation of gage height to discharge.
**Diversions.**—About 10,000 acres are irrigated above the station.
**Accuracy.**—As the channel is somewhat shifting, the results are considered only fair.

The records at this point show the amount of water contributed to Walker River.

*Discharge measurements of East Walker River near Mason, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Oct. 31 | J. E. Stewart | 4.31 | 162 |
| 1912. | | | |
| June 10 | H. J. Tompkins | 3.60 | 122 |
| 18 | .....do | 2.95 | 56 |

*Daily gage height, in feet, of East Walker River near Mason, Nev., for year ending Sept. 30, 1912.*

[Mrs. J. H. Hillbun, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.8 | 4.2 | 3.7 | 2.9 | 3.8 | 3.7 | 2.8 | 2.02 | 2.0 | 2.3 | 2.4 | 2.58 |
| 2 | 3.8 | 4.2 | 3.65 | 2.9 | 3.8 | 3.6 | 2.7 | 2.0 | 2.0 | 2.35 | 2.45 | 2.58 |
| 3 | 3.9 | 4.2 | 3.7 | 2.8 | 3.8 | 3.5 | 2.7 | 2.0 | 2.5 | 2.3 | 2.3 | 2.6 |
| 4 | 3.9 | 4.2 | 3.7 | 2.8 | 3.8 | 3.5 | 2.6 | 2.0 | 2.6 | 2.3 | 2.35 | 2.6 |
| 5 | 4.0 | 4.2 | 3.7 | 2.7 | 3.8 | 3.7 | 2.5 | 2.5 | 2.6 | 2.3 | 2.3 | 2.65 |
| 6 | 4.0 | 4.2 | 3.6 | 2.7 | 3.8 | 3.7 | 2.5 | 2.6 | 2.7 | 2.28 | 2.5 | 2.68 |
| 7 | 4.0 | 4.2 | 3.7 | 3.1 | 3.8 | 3.7 | 2.4 | 2.65 | 3.3 | 2.22 | 2.6 | 2.7 |
| 8 | 4.0 | 4.2 | 3.8 | 3.5 | 3.8 | 3.8 | 2.3 | 2.68 | 3.7 | 2.2 | 2.58 | 2.7 |
| 9 | 4.0 | 4.2 | 3.8 | 3.9 | 3.8 | 3.8 | 2.3 | 2.7 | 3.9 | 2.15 | 2.58 | 2.7 |
| 10 | 4.0 | 4.2 | 3.7 | 4.0 | 3.8 | 3.8 | 2.2 | 2.6 | 3.6 | 2.1 | 2.55 | 2.7 |
| 11 | 4.0 | 4.1 | 3.6 | 4.0 | 3.8 | 3.7 | 2.2 | 2.3 | 3.5 | 2.08 | 2.58 | 2.7 |
| 12 | 4.0 | 4.0 | 3.6 | 3.9 | 3.8 | 3.7 | 2.2 | 2.25 | 3.4 | 2.08 | 2.6 | 2.68 |
| 13 | 4.0 | 4.0 | 3.5 | 3.9 | 3.8 | 3.7 | 2.2 | 2.2 | 3.45 | 2.2 | 2.6 | 2.68 |
| 14 | 4.0 | 4.0 | 3.5 | 3.8 | 3.8 | 3.65 | 2.2 | 2.1 | 3.3 | 2.4 | 2.68 | 2.65 |
| 15 | 4.0 | 4.0 | 3.4 | 3.8 | 3.8 | 3.6 | 2.2 | 2.0 | 3.3 | 2.4 | 2.68 | 2.6 |
| 16 | 4.0 | 4.0 | 3.4 | 3.7 | 3.8 | 3.6 | 2.2 | 2.08 | 3.2 | 2.35 | 2.6 | ..... |
| 17 | 4.0 | 3.85 | 3.4 | 3.7 | 3.8 | 3.6 | 2.2 | 2.1 | 3.1 | 2.6 | 2.6 | ..... |
| 18 | 4.0 | 3.85 | 3.3 | 3.7 | 3.9 | 3.6 | 2.2 | 2.1 | 2.95 | 2.7 | 2.58 | ..... |
| 19 | 4.0 | 3.8 | 3.3 | 3.75 | 4.2 | 3.6 | 2.15 | 1.95 | 2.7 | 4.2 | 2.55 | ..... |
| 20 | 4.0 | 3.8 | 3.2 | 3.8 | 4.0 | 3.55 | 2.18 | 2.2 | 2.6 | 4.3 | 2.58 | ..... |
| 21 | 4.0 | 3.8 | 3.2 | 3.75 | 3.9 | 3.55 | 2.18 | 2.1 | 2.6 | 4.1 | 2.6 | ..... |
| 22 | 4.0 | 3.85 | 3.2 | 3.7 | 3.8 | 3.3 | 2.1 | 2.05 | 2.55 | 4.0 | 2.6 | ..... |
| 23 | 4.0 | 3.85 | 3.15 | 3.7 | 3.4 | 3.3 | 2.1 | 2.0 | 3.6 | 3.8 | 2.55 | ..... |
| 24 | 4.0 | 3.7 | 3.1 | 3.8 | 3.45 | 3.2 | 2.02 | 1.9 | 3.8 | 3.7 | 2.5 | ..... |
| 25 | 4.0 | 3.7 | 3.1 | 3.8 | 3.5 | 3.2 | 2.0 | 1.82 | 3.6 | 3.0 | 2.55 | ..... |
| 26 | 4.0 | 3.7 | 3.1 | 3.75 | 3.5 | 3.2 | 1.95 | 1.8 | 3.5 | 2.6 | 2.58 | ..... |
| 27 | 4.0 | 3.7 | 3.1 | 3.7 | 3.6 | 3.1 | 1.95 | 1.85 | 3.3 | 2.4 | 2.6 | ..... |
| 28 | 4.2 | 3.7 | 3.05 | 3.7 | 3.7 | 3.1 | 2.0 | 1.8 | 3.1 | 2.4 | 2.62 | ..... |
| 29 | 4.2 | 3.7 | 3.05 | 3.7 | 3.8 | 3.0 | 2.0 | 1.75 | 2.9 | 2.3 | 2.62 | ..... |
| 30 | 4.2 | 3.7 | 3.0 | 3.7 | ..... | 2.9 | 2.0 | 1.8 | 2.6 | 2.3 | 2.6 | ..... |
| 31 | 4.2 | ..... | 3.0 | 3.7 | ..... | 2.9 | ..... | 1.9 | ..... | 2.3 | 2.6 | ..... |

NOTE.—Some ice present during January and February; relation of gage height to discharge probably not affected thereby except Feb. 18–22.

*Daily discharge, in second-feet, of East Walker River near Mason, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 | 145 | 90 | 26 | 100 | 90 | 47 | 14 | 13 | 22 | 26 | 35 |
| 2 | 100 | 145 | 86 | 26 | 100 | 81 | 41 | 13 | 13 | 24 | 28 | 35 |
| 3 | 110 | 145 | 90 | 20 | 100 | 72 | 41 | 13 | 31 | 22 | 22 | 36 |
| 4 | 110 | 145 | 90 | 20 | 100 | 72 | 36 | 13 | 36 | 22 | 24 | 36 |
| 5 | 120 | 145 | 90 | 16 | 100 | 90 | 31 | 31 | 36 | 22 | 22 | 38 |
| 6 | 120 | 145 | 81 | 16 | 100 | 90 | 31 | 36 | 41 | 21 | 31 | 40 |
| 7 | 120 | 145 | 90 | 39 | 100 | 90 | 26 | 38 | 86 | 20 | 36 | 41 |
| 8 | 120 | 145 | 100 | 72 | 100 | 100 | 22 | 40 | 136 | 19 | 35 | 41 |
| 9 | 120 | 145 | 100 | 110 | 100 | 100 | 22 | 41 | 168 | 18 | 35 | 41 |
| 10 | 120 | 145 | 90 | 120 | 100 | 100 | 19 | 36 | 122 | 16 | 34 | 41 |
| 11 | 120 | 132 | 81 | 120 | 100 | 90 | 19 | 22 | 110 | 15 | 35 | 41 |
| 12 | 120 | 120 | 81 | 110 | 100 | 90 | 19 | 20 | 98 | 15 | 36 | 40 |
| 13 | 120 | 120 | 72 | 110 | 100 | 90 | 19 | 19 | 104 | 19 | 36 | 40 |
| 14 | 120 | 120 | 72 | 100 | 100 | 87 | 19 | 16 | 86 | 26 | 40 | 38 |
| 15 | 120 | 120 | 63 | 100 | 100 | 86 | 19 | 13 | 86 | 26 | 40 | 36 |
| 16 | 120 | 120 | 63 | 90 | 100 | 87 | 19 | 15 | 76 | 24 | 36 | ..... |
| 17 | 120 | 105 | 63 | 90 | 100 | 90 | 19 | 16 | 68 | 36 | 36 | ..... |
| 18 | 120 | 105 | 55 | 90 | 90 | 92 | 19 | 16 | 56 | 41 | 35 | ..... |
| 19 | 120 | 100 | 55 | 95 | 80 | 95 | 18 | 12 | 41 | 224 | 34 | ..... |
| 20 | 120 | 100 | 47 | 100 | 80 | 92 | 18 | 19 | 36 | 244 | 35 | ..... |
| 21 | 120 | 100 | 47 | 95 | 70 | 95 | 18 | 16 | 36 | 204 | 36 | ..... |
| 22 | 120 | 105 | 47 | 90 | 70 | 74 | 16 | 14 | 34 | 186 | 36 | ..... |
| 23 | 120 | 105 | 43 | 90 | 63 | 76 | 16 | 13 | 122 | 152 | 34 | ..... |
| 24 | 120 | 90 | 39 | 100 | 68 | 69 | 14 | 10 | 152 | 136 | 31 | ..... |
| 25 | 120 | 90 | 39 | 100 | 72 | 72 | 13 | 7.6 | 122 | 60 | 34 | ..... |
| 26 | 120 | 90 | 39 | 95 | 72 | 74 | 12 | 7 | 110 | 36 | 35 | ..... |
| 27 | 120 | 90 | 39 | 90 | 81 | 67 | 12 | 8.5 | 86 | 26 | 36 | ..... |
| 28 | 145 | 90 | 36 | 90 | 90 | 68 | 13 | 7 | 68 | 26 | 37 | ..... |
| 29 | 145 | 90 | 36 | 90 | 100 | 60 | 13 | 6 | 53 | 22 | 37 | ..... |
| 30 | 145 | 90 | 32 | 90 | ..... | 53 | 13 | 7 | 36 | 22 | 36 | ..... |
| 31 | 145 | ..... | 32 | 90 | ..... | 53 | ..... | 10 | ..... | 22 | 36 | ..... |

NOTE.—Daily discharge computed from two fairly well defined rating curves, applicable as follows: Oct. 1 to Mar. 13, and Mar. 29 to Sept. 30. Discharge computed by the indirect method for shifting channels Mar. 14–28. Discharge estimated, because of ice, Feb. 18–22.

*Monthly discharge of East Walker River near Mason, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 145 | 100 | 121 | 7,440 | B. |
| November | 145 | 90 | 118 | 7,020 | B. |
| December | 100 | 32 | 64.1 | 3,940 | B. |
| January | 120 | 16 | 80.3 | 4,940 | C. |
| February | 100 | 63 | 90.9 | 5,230 | C. |
| March | 100 | 53 | 82.1 | 5,050 | B. |
| April | 47 | 12 | 21.5 | 1,280 | B. |
| May | 41 | 6 | 17.7 | 1,090 | B. |
| June | 168 | 13 | 75.4 | 4,490 | A. |
| July | 244 | 15 | 57.0 | 3,500 | B. |
| August | 40 | 22 | 33.7 | 2,070 | B. |
| September 1–15 | 41 | 35 | 38.6 | 1,150 | B. |
| The period | ..... | ..... | ..... | 47,200 | |

## WALKER RIVER AT MASON, NEV.

**Location.**—At the highway bridge at Mason, in the SW. ¼ sec. 33, T. 13 N., R. 25 E., about 4½ miles below the junction of East Walker and West Walker rivers.
**Records available.**—November 21, 1910, to September 30, 1912.
**Drainage area.**—Not measured.
**Gage.**—Vertical staff fastened to second bent from right end of bridge.
**Channel.**—Shifting sand.
**Discharge measurements.**—Made from highway bridge.
**Winter flow.**—Relation of gage height to discharge is at times affected by ice.
**Diversions.**—A large part of the flow of both East Walker and Walker rivers is used for irrigation.
**Accuracy.**—Results are fair.

*Discharge measurements of Walker River at Mason, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911 | | *Feet.* | *Sec.-ft.* |
| Oct. 31 | J. E. Stewart | 4.28 | 274 |
| 1912. | | | |
| June 10 | H. J. Tompkins | 5.68 | 1,060 |
| June 18 | .....do | 4.85 | 468 |

*Daily gage height, in feet, of Walker River at Mason, Nev., for year ending Sept. 30, 1912.*

[W. E. Harmon, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.7 | 4.3 | 4.0 | 4.0 | 4.2 | 4.2 | 3.5 | 3.0 | 5.5 | 4.4 | 3.7 | 3.7 |
| 2 | 3.7 | 4.3 | 4.0 | 4.0 | 4.2 | 4.2 | 3.5 | 2.9 | 5.6 | 4.3 | 3.8 | 3.7 |
| 3 | 3.7 | 4.3 | 4.1 | 4.0 | 4.2 | 4.1 | 3.5 | 2.8 | 5.7 | 4.2 | 3.8 | 3.6 |
| 4 | 3.8 | 4.3 | 4.1 | 4.0 | 4.2 | 4.1 | 3.6 | 2.8 | 5.8 | 4.2 | 3.8 | 3.6 |
| 5 | 3.9 | 4.3 | 4.1 | 4.0 | 4.2 | 4.1 | 3.6 | 2.8 | 6.0 | 4.2 | 3.8 | 3.8 |
| 6 | 3.9 | 4.3 | 4.2 | 4.0 | 4.2 | 4.1 | 3.6 | 2.8 | 6.2 | 4.1 | 3.7 | 3.8 |
| 7 | 3.9 | 4.3 | 4.2 | 4.0 | 4.2 | 4.1 | 3.5 | 2.8 | 6.2 | 4.1 | 3.7 | 3.9 |
| 8 | 3.9 | 4.3 | 4.2 | 4.0 | 4.2 | 4.1 | 3.5 | 2.9 | 6.3 | 4.1 | 3.7 | 3.8 |
| 9 | 3.9 | 4.3 | 4.2 | 4.0 | 4.2 | 4.1 | 3.4 | 2.9 | 6.0 | 3.9 | 3.7 | 3.8 |
| 10 | 3.9 | 4.3 | 4.2 | 4.0 | 4.2 | 4.1 | 3.4 | 3.0 | 5.8 | 3.8 | 3.7 | 3.8 |
| 11 | 3.9 | 4.3 | 4.2 | 4.3 | 4.2 | 4.1 | 3.5 | 3.1 | 5.7 | 3.8 | 3.7 | 3.7 |
| 12 | 4.0 | 4.3 | 4.2 | 4.3 | 4.2 | 4.1 | 3.5 | 3.1 | 5.5 | 3.8 | 3.6 | 3.7 |
| 13 | 4.0 | 4.3 | 4.2 | 4.3 | 4.2 | 4.1 | 3.5 | 3.2 | 5.4 | 3.8 | 3.6 | 3.7 |
| 14 | 4.0 | 4.3 | 4.1 | 4.3 | 4.2 | 4.1 | 3.4 | 3.2 | 5.4 | 3.9 | 3.6 | 3.7 |
| 15 | 4.0 | 4.3 | 4.1 | 4.3 | 4.2 | 4.1 | 3.3 | 3.45 | 5.4 | 4.0 | 3.7 | 3.5 |
| 16 | 4.0 | 4.3 | 4.1 | 4.3 | 4.2 | 4.1 | 3.2 | 3.8 | 5.2 | 4.0 | 3.7 | ..... |
| 17 | 4.0 | 4.3 | 4.1 | 4.3 | 4.2 | 4.1 | 3.2 | 4.15 | 5.1 | 3.9 | 3.7 | ..... |
| 18 | 4.0 | 4.3 | 4.0 | 4.3 | 4.3 | 4.1 | 3.1 | 4.3 | 5.0 | 4.1 | 3.7 | ..... |
| 19 | 4.0 | 4.3 | 4.0 | 4.3 | 4.3 | 4.1 | 3.1 | 4.5 | 5.0 | 4.3 | 3.7 | ..... |
| 20 | 4.0 | 4.3 | 4.0 | 4.3 | 4.4 | 4.0 | 3.1 | 4.7 | 5.0 | 5.0 | 3.6 | ..... |
| 21 | 4.0 | 4.3 | 4.0 | 4.3 | 4.4 | 4.0 | 3.1 | 4.7 | 5.0 | 5.0 | 3.6 | ..... |
| 22 | 4.0 | 4.3 | 4.0 | 4.3 | 4.4 | 4.0 | 3.1 | 4.5 | 4.9 | 4.5 | 3.6 | ..... |
| 23 | 4.1 | 4.3 | 4.0 | 4.3 | 4.2 | 4.0 | 3.0 | 4.3 | 4.8 | 4.3 | 3.6 | ..... |
| 24 | 4.1 | 4.3 | 4.0 | 4.3 | 4.2 | 3.8 | 3.0 | 4.0 | 5.0 | 4.1 | 3.6 | ..... |
| 25 | 4.1 | 4.3 | 4.0 | 4.2 | 4.2 | 3.8 | 3.0 | 3.9 | 4.8 | 3.8 | 3.6 | ..... |
| 26 | 4.1 | 4.3 | 4.0 | 4.2 | 4.1 | 3.7 | 3.0 | 4.0 | 4.8 | 3.5 | 3.6 | ..... |
| 27 | 4.2 | 4.3 | 4.0 | 4.2 | 4.1 | 3.7 | 3.0 | 4.2 | 4.6 | 3.5 | 3.6 | ..... |
| 28 | 4.2 | 4.2 | 4.0 | 4.2 | 4.1 | 3.5 | 3.0 | 4.5 | 4.5 | 3.5 | 3.7 | ..... |
| 29 | 4.2 | 4.2 | 4.0 | 4.2 | 4.2 | 3.5 | 3.0 | 4.7 | 4.5 | 3.5 | 3.7 | ..... |
| 30 | 4.2 | 4.0 | 4.0 | 4.2 | ..... | 3.5 | 3.0 | 5.1 | 4.4 | 3.5 | 3.7 | ..... |
| 31 | 4.2 | ..... | 4.0 | 4.2 | ..... | 3.5 | ..... | 5.3 | ..... | 3.6 | 3.7 | ..... |

NOTE.—River frozen over Jan. 1–10. Discharge determined from a fairly well defined curve. Discharge Jan. 1–10 estimated because of ice.

*Daily discharge, in second-feet, of Walker River at Mason, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 120 | 275 | 190 | 165 | 245 | 245 | 95 | 40 | 825 | 310 | 125 | 125 |
| 2 | 120 | 275 | 190 | 165 | 245 | 245 | 95 | 32 | 885 | 275 | 144 | 125 |
| 3 | 120 | 275 | 215 | 165 | 245 | 215 | 95 | 25 | 945 | 245 | 144 | 109 |
| 4 | 140 | 275 | 215 | 165 | 245 | 215 | 109 | 25 | 1,010 | 245 | 144 | 109 |
| 5 | 165 | 275 | 215 | 165 | 245 | 215 | 109 | 25 | 1,140 | 245 | 144 | 144 |
| 6 | 165 | 275 | 245 | 165 | 245 | 215 | 109 | 25 | 1,280 | 215 | 125 | 144 |
| 7 | 165 | 275 | 245 | 165 | 245 | 215 | 95 | 25 | 1,280 | 215 | 125 | 166 |
| 8 | 165 | 275 | 245 | 165 | 245 | 215 | 95 | 32 | 1,350 | 215 | 125 | 144 |
| 9 | 165 | 275 | 245 | 165 | 245 | 215 | 82 | 32 | 1,140 | 166 | 125 | 144 |
| 10 | 165 | 275 | 245 | 165 | 245 | 215 | 82 | 40 | 1,010 | 144 | 125 | 144 |
| 11 | 165 | 275 | 245 | 275 | 245 | 215 | 95 | 49 | 945 | 144 | 125 | 125 |
| 12 | 190 | 275 | 245 | 275 | 245 | 215 | 95 | 49 | 825 | 144 | 109 | 125 |
| 13 | 190 | 275 | 245 | 275 | 245 | 215 | 95 | 59 | 770 | 144 | 109 | 125 |
| 14 | 190 | 275 | 215 | 275 | 245 | 215 | 82 | 59 | 770 | 166 | 109 | 125 |
| 15 | 190 | 275 | 215 | 275 | 245 | 215 | 70 | 88 | 770 | 190 | 125 | 95 |
| 16 | 190 | 275 | 215 | 275 | 245 | 215 | 59 | 144 | 660 | 190 | 125 | ..... |
| 17 | 190 | 275 | 215 | 275 | 245 | 215 | 59 | 230 | 610 | 166 | 125 | ..... |
| 18 | 190 | 275 | 190 | 275 | 275 | 215 | 49 | 275 | 560 | 215 | 125 | ..... |
| 19 | 190 | 275 | 190 | 275 | 275 | 215 | 49 | 345 | 560 | 275 | 125 | ..... |
| 20 | 190 | 275 | 190 | 275 | 310 | 190 | 49 | 425 | 560 | 560 | 109 | ..... |
| 21 | 190 | 275 | 190 | 275 | 310 | 190 | 49 | 425 | 560 | 560 | 109 | ..... |
| 22 | 190 | 275 | 190 | 275 | 310 | 190 | 49 | 345 | 515 | 345 | 109 | ..... |
| 23 | 215 | 275 | 190 | 275 | 245 | 190 | 40 | 275 | 470 | 275 | 109 | ..... |
| 24 | 215 | 275 | 190 | 275 | 245 | 144 | 40 | 190 | 560 | 215 | 109 | ..... |
| 25 | 215 | 275 | 190 | 245 | 245 | 144 | 40 | 166 | 470 | 144 | 109 | ..... |
| 26 | 215 | 275 | 190 | 245 | 215 | 125 | 40 | 190 | 470 | 95 | 109 | ..... |
| 27 | 245 | 275 | 190 | 245 | 215 | 125 | 40 | 245 | 385 | 95 | 109 | ..... |
| 28 | 245 | 245 | 190 | 245 | 215 | 95 | 40 | 345 | 345 | 95 | 125 | ..... |
| 29 | 245 | 245 | 190 | 245 | 245 | 95 | 40 | 425 | 345 | 95 | 125 | ..... |
| 30 | 245 | 190 | 190 | 245 | ..... | 95 | 40 | 610 | 310 | 95 | 125 | ..... |
| 31 | 245 | ..... | 190 | 245 | ..... | 95 | ..... | 715 | ..... | 109 | 125 | ..... |

*Monthly discharge of Walker River at Mason, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 245 | 120 | 188 | 11,600 | B. |
| November | 275 | 190 | 270 | 16,100 | B. |
| December | 245 | 190 | 210 | 12,900 | B. |
| January | 275 | 165 | 233 | 14,300 | B. |
| February | 310 | 215 | 251 | 14,400 | B. |
| March | 245 | 95 | 188 | 11,600 | B. |
| April | 109 | 40 | 69.5 | 4,140 | C. |
| May | 715 | 25 | 192 | 11,800 | B. |
| June | 1,350 | 310 | 744 | 44,300 | A. |
| July | 560 | 95 | 213 | 13,100 | B. |
| August | 144 | 109 | 122 | 7,500 | B. |
| September 1–15 | 166 | 95 | 130 | 3,870 | B. |
| The period | ..... | ..... | ..... | 166,000 | |

## ROBINSON CREEK NEAR BRIDGEPORT, CAL.

**Location.**—At the mouth of the canyon, in the SW. ¼ NW. ¼ sec. 15, T. 4 N., R. 24 E., 5 miles above junction with Buckeye Creek, and 5½ miles southwest of Bridgeport.
**Records available.**—November 18, 1910, to September 30, 1912.
**Drainage area.**—Not measured.
**Gage.**—Vertical staff fastened to pine tree on left bank.
**Channel.**—Gravel and small bowlders; practically permanent.
**Discharge measurements.**—Made by wading near gage.
**Winter flow.**—Affected by ice.
**Artificial control.**—The dam at the outlet of Twin Lakes partly regulates the flow at this station.
**Accuracy.**—Rating curve is well defined and results are good for days when gage was used.
**Cooperation.**—Maintained in cooperation with the United States Forest Service.

The following discharge measurement was made by H. J. Tompkins:
June 12, 1912: Gage height, 3.92 feet; discharge, 217 second-feet.

*Daily gage height, in feet, of Robinson Creek near Bridgeport, Cal., for year ending Sept. 30, 1912.*

[Clarence Wyatt, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 3.00 | | | | | | | 3.7 | | | |
| 2 | 2.99 | | 2.39 | | | 2.7 | | | | | | |
| 3 | | | | | 2.9 | | | | | | | |
| 4 | | 2.95 | | | | | | 2.65 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | 2.1 | | | 2.65 | | | 3.5 | | |
| 7 | 2.99 | | | | | | | | | | | 3.0 |
| 8 | | | | | | | | | 3.5 | | | |
| 9 | | | 2.40 | | | 2.69 | | | | | | |
| 10 | 2.95 | | | | 2.69 | | | | | | | |
| 11 | | | | | | | | 2.72 | | | | |
| 12 | | | | | | | | | 3.92 | | | |
| 13 | | | | 2.4 | | | 2.62 | | | | | |
| 14 | 3.04 | 2.36 | | | | | | | | | | 2.83 |
| 15 | | | | | | | | | | | | |
| 16 | | | 2.35 | | | 2.81 | | | | | | |
| 17 | | | | | 2.69 | | | | | | 3.38 | |
| 18 | | 2.37 | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | 3.02 | | | 2.05 | | | 2.6 | | | 3.6 | | |
| 21 | | | | | | | | | | | | 2.78 |
| 22 | | | | | | | | | 3.6 | | | |
| 23 | | | 2.30 | | | 2.7 | | | | | | |
| 24 | 2.95 | | | | 2.65 | | | | | | 3.25 | |
| 25 | | 2.35 | | | | | | 2.6 | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | 2.95 | | | 2.65 | | | | | |
| 28 | 3.01 | | | | | | | | | 3.5 | | 2.7 |
| 29 | | | | | | | | | 3.45 | | | |
| 30 | | | 2.00 | | | 2.72 | | | | | | |
| 31 | | | | | | | | | | | 3.13 | |

NOTE.—Ice exists to some extent at the station during the winter but probably does not seriously affect the relation of gage height to discharge.

*Daily discharge, in second-feet, of Robinson Creek near Bridgeport, Cal., for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | | | | | | | | | | 370 | | 123 |
| 2 | | | | | | | | 71 | | | 291 | |
| 3 | | | 7.9 | | | | | | 188 | 363 | | |
| 4 | | | | 6.8 | | | | | | | | |
| 5 | | | | | | | | | | | 347 | |
| 6 | | | | | | | | | 214 | 387 | | |
| 7 | | | 6.6 | 7.3 | | | | | | | | |
| 8 | | | | | | | 57 | | | | 130 | |
| 9 | | | | | | | | 47 | | | | |
| 10 | | | 7.0 | | | | | | 250 | | | |
| 11 | | | | 7.0 | | | | | | | | |
| 12 | | | | | | | 58 | | 291 | 387 | 164 | |
| 13 | | | | | | | | 123 | | | | 73 |
| 14 | | | 6.8 | | | | | | | | | |
| 15 | | | | | | | 52 | | | | | 70 |
| 16 | | | | | | | | 106 | | 499 | | |
| 17 | | | 6.0 | | | | | | 578 | | | |
| 18 | | 6.6 | | 17 | | | | | | | | 70 |
| 19 | | | | | | | 56 | | | | 141 | |
| 20 | | | | | | | | 91 | | 578 | | |
| 21 | | | 5.0 | | | | | | 660 | | | 70 |
| 22 | | | | | | | 58 | | | | 136 | |
| 23 | | 6.0 | | | | | | 123 | | | | 58 |
| 24 | | | | | | | 60 | | 461 | 387 | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | 134 | 136 |
| 27 | | | | | | | | 181 | 353 | | | |
| 28 | | | | | | 30 | | | | | | |
| 29 | | | | | | | | | | 306 | 128 | |
| 30 | | 5.4 | | | | 37 | 70 | | | | | 70 |
| 31 | | | 6.0 | | | | | 170 | | | | |
| 1911–12. | | | | | | | | | | | | |
| 1 | | 58 | | | | | | | 170 | | | |
| 2 | 57 | | 9.7 | | | 28 | | | | | | |
| 3 | | | | | 47 | | | | | | | |
| 4 | | 52 | | | | | | 24 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | 3.8 | | | 24 | | | 132 | | |
| 7 | 57 | | | | | | | | | | | 58 |
| 8 | | | | | | | | | 132 | | | |
| 9 | | | 10 | | | 27 | | | | | | |
| 10 | 52 | | | | 27 | | | | | | | |
| 11 | | | | | | | | 30 | | | | |
| 12 | | | | | | | | | 219 | | | |
| 13 | | | | 10 | | | 22 | | | | | |
| 14 | 63 | 8.8 | | | | | | | | | | 40 |
| 15 | | | | | | | | | | | | |
| 16 | | | 8.5 | | | 38 | | | | | | |
| 17 | | | | | 27 | | | | | | 111 | |
| 18 | | 9.1 | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | 60 | | | 3.3 | | | 20 | | | 150 | | |
| 21 | | | | | | | | | | | | 35 |
| 22 | | | | | | | | | 150 | | | |
| 23 | | | 7.0 | | | 28 | | | | | | |
| 24 | 52 | | | | 24 | | | | | | 91 | |
| 25 | | 8.5 | | | | | | 20 | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | 52 | | | 24 | | | | | |
| 28 | 59 | | | | | | | | | 132 | | 28 |
| 29 | | | | | | | | | 123 | | | |
| 30 | | | 2.8 | | | 30 | | | | | | |
| 31 | | | | | | | | | | | 74 | |

NOTE.—Daily discharge determined from a rating curve based on measurements made during 1910–1912 and well defined above 150 second-feet. No correction in discharge because of ice.

*Monthly discharge of Robinson Creek near Bridgeport, Cal., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| November 18–30 | 7.3 | 5.4 | 6.36 | 164 | C. |
| December | 7.9 | 5.0 | 6.24 | 384 | C. |
| January 1–18 | 17 | 6.8 | 9.0 | 322 | C. |
| April | 70 | 52 | 56 | 3,330 | C. |
| May | 181 | 47 | 106 | 6,520 | B. |
| June | 660 | 188 | 374 | 22,300 | B. |
| July | 578 | 306 | 409 | 25,100 | B. |
| August | 347 | 128 | 177 | 10,900 | B. |
| September | 136 | 58 | 87.2 | 5,190 | B. |
| 1911–12. | | | | | |
| October | 63 | 52 | 57.7 | 3,550 | C. |
| November | 58 | 8.5 | 21.1 | 1,260 | C. |
| December | 10 | 2.8 | 7.79 | 479 | C. |
| January | 52 | 3.3 | 15.3 | 941 | C. |
| February | 47 | 24 | 30.3 | 1,740 | C. |
| March | 38 | 27 | 30.4 | 1,870 | C. |
| April | 24 | 20 | 23.1 | 1,370 | C. |
| May | 30 | 20 | 35.8 | 2,200 | C. |
| June | 219 | 123 | 161 | 9,580 | C. |
| July | 150 | 132 | 135 | 8,300 | C. |
| August | 111 | 74 | 110 | 6,760 | C. |
| September | 58 | 28 | 45 | 2,680 | C. |
| The year | 219 | 2.8 | 56.0 | 40,700 | |

NOTE.—Monthly means computed by interpolating discharges between days when gage was read. Maximum and minimum values are for days when gage was read. Low accuracy because of lack of gage heights.

Estimates for June, 1912, supersede those published in Water-Supply Paper 300, p. 212.

## BUCKEYE CREEK NEAR BRIDGEPORT, CAL.

**Location.**—At the mouth of the canyon, in the SE. ¼ NW. ¼ sec. 3, T. 4 N., R. 24 E., in the Mono National Forest, half a mile below Hot Springs, and 4½ miles southwest of Bridgeport.

**Records available.**—November 18, 1910, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff fastened to large cottonwood tree on left bank about half a mile above mouth of canyon.

**Channel.**—Granite and bowlders, and rough; fairly permanent.

**Discharge measurements.**—Made by wading or from foot log 20 feet above gage.

**Winter flow.**—Somewhat affected by ice.

**Accuracy.**—Rating curve is fairly well defined and results are fair.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

The following discharge measurement was made by H. J. Tompkins:

June 12, 1912: Gage height, 3.87 feet; discharge, 170 second-feet.

*Daily gage height, in feet, of Buckeye Creek near Bridgeport, Cal., for year ending Sept. 30, 1912.*

[Clarence Wyatt, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 3.00 | | | | | | | 3.8 | | | |
| 2 | 3.05 | | 2.86 | | | 2.65 | | | | | | |
| 3 | | | | | 2.95 | | | | | | | |
| 4 | | 2.95 | | | | | | 2.82 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | 2.3 | | | 2.7 | | | 3.6 | | |
| 7 | 3.04 | | | | | | | | | | | 2.9 |
| 8 | | | | | | | | | 3.9 | | | |
| 9 | | | 2.85 | | | 2.72 | | | | | | |
| 10 | 2.90 | | | | 2.72 | | | | | | | |
| 11 | | | | | | | | 3.1 | | | | |
| 12 | | | | | | | | | 3.87 | | | |
| 13 | | | | 2.8 | | | 2.6 | | | | | |
| 14 | 3.00 | 2.93 | | | | | | | | | | 2.8 |
| 15 | | | | | | | | | | | | |
| 16 | | | 2.85 | | | 2.8 | | | | | | |
| 17 | | | | | 2.78 | | | | | | 2.95 | |
| 18 | | 2.92 | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | 2.90 | | | 2.8 | | | 2.55 | | | 3.35 | | |
| 21 | | | | | | | | | | | | 2.8 |
| 22 | | | | | | | | | 3.75 | | | |
| 23 | | | 2.85 | | | 2.68 | | | | | | |
| 24 | 2.95 | | | | 2.62 | | | | | | 2.95 | |
| 25 | | 2.85 | | | | | | 2.95 | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | 2.85 | | | 2.8 | | | | | |
| 28 | 2.97 | | | | | | | | | | | 2.7 |
| 29 | | | | | | | | | 3.5 | | | |
| 30 | | | 2.80 | | | 2.75 | | | | | | |
| 31 | | | | | | | | | | | 2.85 | |

NOTE.—Ice exists at the station during the winter but probably does not seriously affect the relation of gage height to discharge.

*Daily discharge, in second-feet, of Buckeye Creek near Bridgeport, Cal., for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | | |
| 1 | | | | | | | | | | 490 | | 82 |
| 2 | | | | | | | | 73 | | | 167 | |
| 3 | | | 34 | | | | | | 154 | 490 | | |
| 4 | | | | 28 | | | | | | | | |
| 5 | | | | | | | | | | | 154 | |
| 6 | | | | | | | | | 240 | 530 | | |
| 7 | | | 29 | 28 | | | | | | | | |
| 8 | | | | | | | 41 | | | | 136 | |
| 9 | | | | | | | | 85 | | | | |
| 10 | | | 35 | | | | | | 290 | | | |
| 11 | | | | 20 | | | | | | | | |
| 12 | | | | | | | 37 | | 420 | 420 | 118 | |
| 13 | | | | | | | | 84 | | | | 58 |
| 14 | | | 19 | | | | | | | | | |
| 15 | | | | | | | 35 | | 350 | | | 52 |
| 16 | | | | | | | | 72 | | 455 | | |
| 17 | | | 25 | | | | | | 530 | | | |
| 18 | | 28 | | 29 | | | | | | | | 51 |
| 19 | | | | | | | 47 | | | | 100 | |
| 20 | | | | | | | | 94 | | 455 | | |
| 21 | | | 30 | 32 | | | | | 860 | | | 50 |
| 22 | | | | | | | 52 | | | | 90 | |
| 23 | | 30 | | | | | | 167 | | | | 50 |
| 24 | | | | | | | | | 490 | 220 | | |
| 25 | | | | | | | 85 | | | | | |
| 26 | | 32 | | | | | | | | | 82 | 100 |
| 27 | | | | | | | | 109 | 570 | | | |
| 28 | | | | | | 30 | | | | | | |
| 29 | | | | | | | 66 | | | 265 | 85 | |
| 30 | | 24 | | | | 38 | | | | | | 60 |
| 31 | | | 35 | | | | | 100 | | | | |

*Daily discharge, in second-feet, of Buckeye Creek near Bridgewater,, Cal., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | | | |
| 1 | | 42 | | | | | | | 167 | | | |
| 2 | 46 | | 33 | | | 22 | | | | | | |
| 3 | | | | | 38 | | | | | | | |
| 4 | | 38 | | | | | | 30 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | | | 10 | | | 24 | | | 118 | | |
| 7 | 45 | | | | | | | | | | | 35 |
| 8 | | | | | | | | | 200 | | | |
| 9 | | | 32 | | | 25 | | | | | | |
| 10 | 35 | | | | 25 | | | | | | | |
| 11 | | | | | | | | 50 | | | | |
| 12 | | | | | | | | | 190 | | | |
| 13 | | | | 29 | | | 19 | | | | | |
| 14 | 42 | 37 | | | | | | | | | | 29 |
| 15 | | | | | | | | | | | | |
| 16 | | | 32 | | | 29 | | | | | | |
| 17 | | | | | 28 | | | | | | 38 | |
| 18 | | 36 | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
| 20 | 35 | | | 29 | | | 18 | | | 78 | | |
| 21 | | | | | | | | | | | | 29 |
| 22 | | | | | | | | | 154 | | | |
| 23 | | | 32 | | | 23 | | | | | | |
| 24 | 38 | | | | 20 | | | | | | 38 | |
| 25 | | 32 | | | | | | 38 | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | 32 | | | 29 | | | | | |
| 28 | 40 | | | | | | | | | | | 24 |
| 29 | | | | | | | | | 100 | | | |
| 30 | | | 29 | | | 26 | | | | | | |
| 31 | | | | | | | | | | | 32 | |

NOTE.—Daily discharge determined from a fairly well-defined rating curve based on measurements made in 1910 to 1912. Open-water rating curve applied during winter months.

*Monthly discharge of Buckeye Creek near Bridgeport, Cal., for years endng Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| November 18–30 | 32 | 24 | 29.0 | 748 | C. |
| December | 35 | 19 | 30.0 | 1,840 | C. |
| January 1–21 | 32 | 20 | 27.1 | 1,130 | C. |
| April | 85 | 35 | 49.5 | 2,950 | C. |
| May | 167 | 72 | 95.9 | 5,900 | C. |
| June | 860 | 154 | 432 | 25,700 | C. |
| July | 530 | 220 | 399 | 24,500 | C. |
| August | 167 | 82 | 115 | 7,070 | C. |
| September | 100 | 50 | 65.6 | 3,900 | C. |
| 1911–12. | | | | | |
| October | 46 | 35 | 40.2 | 2,470 | C. |
| November | 42 | 32 | 35.9 | 2,140 | C. |
| December | 33 | 29 | 31.8 | 1,960 | C. |
| January | 32 | 10 | 25.5 | 1,570 | C. |
| February | 38 | 20 | 27.0 | 1,550 | C. |
| March | 29 | 22 | 24.7 | 1,520 | C. |
| April | 29 | 18 | 22.8 | 1,360 | C. |
| May | 50 | 30 | 50.1 | 3,080 | C. |
| June | 200 | 100 | 163 | 9,700 | C. |
| July | 118 | 78 | 90 | 5,530 | C. |
| August | 38 | 32 | 44 | 2,710 | C. |
| September | 35 | 24 | 29 | 1,730 | C. |
| The year | 200 | 10 | 48.7 | 35,300 | |

NOTE.—Monthly means obtained by interpolating discharges for days when gage was not read. Maximum and minimum refer only to days when gage was actually read. Records for June, 1912, supersede those in Water-Supply Paper 300, p. 215.

## SWAGER CREEK NEAR BRIDGEPORT, CAL.

**Location.**—At highway bridge, in the NW. ¼ NW. ¼ sec. 23, T. 5 N., R. 24 E., three-fourths of a mile northwest of Mono ranger station, and 4¼ miles northwest of Bridgeport.

**Records available.**—June 1, 1911, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on right bank, 20 feet above bridge.

**Channel.**—Gravel and bowlders; fairly permanent.

**Discharge measurements.**—Made from highway bridge or by wading.

**Winter flow.**—Ice forms for short periods during the winter months, but does not usually affect the relation of gage height to discharge.

**Accuracy.**—Results are fair.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

The following measurement was made by H. J. Tompkins:

June 12, 1912: Gage height, 2.42 feet; discharge, 11 second-feet.

*Daily gage height, in feet, of Swager Creek near Bridgeport, Cal., for year ending Sept. 30, 1912.*

[Clarence Wyatt, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.52 | 2.52 | | | | | | | 2.5 | | | |
| 2 | | | 2.53 | | | 2.53 | | | | | | |
| 3 | | | | | 2.52 | | | | | | | |
| 4 | | 2.50 | | | | | | 2.52 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | 2.52 | | 2.2 | | | 2.5 | | | 2.32 | | |
| 7 | 2.07 | | | | | | | | | | | 1.7 |
| 8 | | | | | | | | | | | | |
| 9 | | | 2.35 | | | 2.5 | | | | | | |
| 10 | 2.05 | | | | 2.51 | | | | | | 2.25 | |
| 11 | | | | | | | | 2.7 | | | 1.7 | |
| 12 | | | | | | | | | 2.42 | | | |
| 13 | | 2.38 | | 2.0 | | | 2.2 | | | | | |
| 14 | 2.55 | | | | | | | | | | | 1.75 |
| 15 | | | | | | | | 2.65 | | | | |
| 16 | 2.52 | | 2.40 | | | 2.57 | | | | | | |
| 17 | | | | | 2.51 | | | | | | 2.15 | |
| 18 | | 2.38 | | | | | | 2.8 | | | | |
| 19 | 2.52 | | | | | | | | | | | |
| 20 | | | | 2.0 | | | 1.45 | | | 2.45 | | |
| 21 | 2.55 | | | | | | | | | | | 2.83 |
| 22 | | | | | | | | | 2.38 | | | |
| 23 | | | 2.45 | | | 2.59 | | | | | | |
| 24 | 2.55 | | | | 2.32 | | | | | | 2.1 | |
| 25 | | 2.38 | | | | | | 2.6 | | | | |
| 26 | 2.56 | | | | | | | | | | | |
| 27 | | | | 2.41 | | | 2.5 | | | | | |
| 28 | 2.52 | | | | | | | | | | | 1.95 |
| 29 | | | | | | | | | 2.23 | | | |
| 30 | | | 2.35 | | | 2.45 | | | | | | |
| 31 | | | | | | | | | | | 1.7 | |

NOTE.—Ice exists at the station during the winter but probably does not seriously affect the relation between gage height and discharge.

*Daily discharge, in second-feet, of Swager Creek near Bridgeport, Cal., for years ending Sept. 30, 1911 and 1912.*

| Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | | 1911. | | | | |
| 1 | 87 | 66 | | 15 | 16 | 151 | 51 | | |
| 2 | | | | | 17 | 139 | | | |
| 3 | | 56 | 25 | | 18 | | | | 14 |
| 4 | | | | | 19 | 144 | | 18 | 12 |
| 5 | 122 | | | | 20 | 142 | 42 | | |
| 6 | | 59 | 18 | | 21 | | | | |
| 7 | | 48 | | | 22 | 122 | | 17 | |
| 8 | 122 | | 21 | | 23 | | | | 12 |
| 9 | | | | | 24 | | 31 | | |
| 10 | | | | | 25 | 94 | | 14 | 15 |
| 11 | | | | | 26 | 87 | | | |
| 12 | 136 | 48 | | | 27 | | | | |
| 13 | | | 22 | 14 | 28 | | | | |
| 14 | | | | | 29 | | 32 | 16 | |
| 15 | | | | | 30 | | | | 18 |
| | | | | | 31 | | | | |

| Day. | Oct | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911-12. | | | | | | | | | | | | |
| 1 | 15 | 15 | | | | | | | 14 | | | |
| 2 | | | 15 | | | 15 | | | | | | |
| 3 | | | | | 15 | | | | | | | |
| 4 | | 14 | | | | | | 15 | | | | |
| 5 | | | | | | | | | | | | |
| 6 | | 15 | | 6.0 | | | 14 | | | 10 | | |
| 7 | 3.7 | | | | | | | | | | | 2 |
| 8 | | | | | | | | | | | | |
| 9 | | | 9.5 | | | 14 | | | | | | |
| 10 | 3.5 | | | | 14 | | | | | | 9 | |
| 11 | | | | | | | | 22 | | | 2 | |
| 12 | | | | | | | | | 11 | | | |
| 13 | | 10 | | 3.0 | | | 6.0 | | | | | |
| 14 | 16 | | | | | | | | | | | 2.4 |
| 15 | | | | | | | | 20 | | | | |
| 16 | 15 | | 11 | | | 17 | | | | | | |
| 17 | | | | | 14 | | | | | | 7 | |
| 18 | | 10 | | | | | | 27 | | | | |
| 19 | 15 | | | | | | | | | | | |
| 20 | | | | 3.0 | | | .5 | | | 14 | | |
| 21 | 16 | | | | | | | | | | | 28 |
| 22 | | | | | | | | | 10 | | | |
| 23 | | | 12 | | | 18 | | | | | | |
| 24 | 16 | | | | 8.6 | | | | | | 6 | |
| 25 | | 10 | | | | | | 18 | | | | |
| 26 | 16 | | | | | | | | | | | |
| 27 | | | | 11 | | | 14 | | | | | |
| 28 | 15 | | | | | | | | | | | 4.2 |
| 29 | | | | | | | | | 6.6 | | | |
| 30 | | | 9.5 | | | 12 | | | | | | |
| 31 | | | | | | | | | | | 2 | |

NOTE.—Daily discharge computed from two rating curves well defined above 8 second-feet, one applicable June 1, 1911, to June 30, 1912, the other July 1 to Sept. 30, 1912. The low discharge during April, 1912, was due to the use of water for irrigation. No corrections made for effect of ice on discharge relation.

*Monthly discharge of Swager Creek near Bridgeport, Cal., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| June | 144 | 87 | 117 | 6,960 | B. |
| July | 66 | 31 | 44.7 | 2,750 | B. |
| August | 25 | 14 | 19.2 | 1,180 | B. |
| September | 18 | 12 | 14.3 | 851 | B. |
| The period | | | | 11,700 | |
| 1911-12. | | | | | |
| October | 16 | 3.5 | 12.3 | 756 | C. |
| November | 15 | 10 | 11.5 | 684 | B. |
| December | 15 | 9.5 | 11.2 | 689 | C. |
| January | 11 | 3.0 | 6.23 | 383 | C. |
| February | 15 | 8.6 | 12.7 | 730 | B. |
| March | 18 | 12 | 15.3 | 941 | B. |
| April | 14 | 0.5 | 9.28 | 552 | C. |
| May | 27 | 15 | 19.1 | 1,170 | B. |
| June | 14 | 6.6 | 10.8 | 643 | C. |
| July | 14 | 10 | 11 | 676 | D. |
| August | 9 | 2 | 5.5 | 338 | D. |
| September | 28 | 2 | 3.5 | 208 | D. |
| The year | 28 | 0.5 | 10.7 | 7,770 | |

NOTE.—Monthly discharge computed by interpolating daily discharge for days on which gage was not read. Maximum and minimum represent discharge on days when gage was actually read.

## WEST WALKER RIVER NEAR COLEVILLE, CAL.

**Location.**—In the NE. ¼ sec. 28, T. 8 N., R. 23 E., about half a mile below the mouth of Ross Canyon Creek, 5 miles southeast of Coleville, and about half a mile below the site of the station formerly maintained.

**Records available.**—March 1, 1909, to August 31, 1910; October 5, 1902, to July 31, 1908, at station half a mile farther upstream.

**Drainage area.**—248 square miles.

**Gage.**—Vertical staff.

**Channel.**—Compact gravel; shifts slightly.

**Discharge measurements.**—Made from cable and car or from bridge.

**Accuracy.**—Results are excellent.

**Cooperation.**—Records of daily discharge are furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of West Walker River near Coleville, Cal., for years ending Sept. 30, 1909 and 1910.*

| Day. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|
| 1909. | | | | | | | |
| 1 | 70 | 92 | 680 | 1,500 | 1,500 | 315 | 120 |
| 2 | 70 | 110 | 840 | 1,950 | 1,590 | 335 | 110 |
| 3 | 85 | 150 | 920 | 2,040 | 1,860 | 335 | 120 |
| 4 | 85 | 150 | 1,000 | 2,225 | 1,860 | 315 | 120 |
| 5 | 60 | 135 | 1,000 | 2,225 | 1,240 | 315 | 110 |
| 6 | 85 | 120 | 1,080 | 2,130 | 920 | 300 | 110 |
| 7 | 70 | 135 | 1,120 | 1,590 | 760 | 300 | 100 |
| 8 | 70 | 150 | 1,160 | 1,590 | 760 | 300 | 100 |
| 9 | 70 | 180 | 1,080 | 1,410 | 840 | 300 | 100 |
| 10 | 60 | 210 | 1,000 | 1,410 | 840 | 285 | 90 |
| 11 | 60 | 180 | 880 | 1,590 | 920 | 285 | 90 |
| 12 | 55 | 195 | 680 | 1,770 | 1,080 | 285 | 90 |
| 13 | 60 | 240 | 575 | 1,590 | 1,080 | 270 | 90 |
| 14 | 70 | 330 | 540 | 1,590 | 1,000 | 225 | 90 |
| 15 | 85 | 335 | 645 | 2,040 | 920 | 195 | 90 |
| 16 | 85 | 380 | 680 | 1,500 | 920 | 195 | 90 |
| 17 | 85 | 425 | 680 | 1,320 | 720 | 195 | 77 |
| 18 | 85 | 475 | 720 | 1,240 | 680 | 195 | 77 |
| 19 | 85 | 510 | 760 | 1,000 | 680 | 210 | 77 |
| 20 | 85 | 510 | 920 | 1,000 | 540 | 210 | 77 |
| 21 | 77 | 380 | 1,160 | 1,160 | 540 | 210 | 70 |
| 22 | 77 | 335 | 920 | 1,410 | 610 | 225 | 70 |
| 23 | 85 | 335 | 680 | 1,950 | 610 | 210 | 70 |
| 24 | 77 | 335 | 610 | 1,860 | 540 | 180 | 70 |
| 25 | 85 | 380 | 645 | 1,860 | 540 | 150 | 70 |
| 26 | 85 | 475 | 920 | 1,590 | 475 | 150 | 70 |
| 27 | 77 | 610 | 1,080 | 1,500 | 335 | 150 | 77 |
| 28 | 77 | 610 | 1,080 | 1,590 | 335 | 135 | 70 |
| 29 | 85 | 610 | 840 | 1,500 | 335 | 135 | 70 |
| 30 | 60 | 610 | 840 | 1,680 | 335 | 135 | 70 |
| 31 | 85 | ..... | 1,320 | ..... | 355 | 150 | ..... |

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1909–10. | | | | | | | | | | | |
| 1 | 70 | 70 | 210 | 150 | 85 | 150 | 150 | 920 | 1,680 | 425 | 270 |
| 2 | 85 | 70 | 210 | 85 | 60 | 150 | 210 | 680 | 1,500 | 335 | 335 |
| 3 | 77 | 70 | 150 | 60 | 60 | 210 | 210 | 680 | 1,500 | 270 | 270 |
| 4 | 85 | 70 | 70 | 50 | 85 | 210 | 270 | 540 | 1,320 | 210 | 210 |
| 5 | 92 | 70 | 85 | 50 | 85 | 210 | 270 | 540 | 1,160 | 270 | 210 |
| 6 | 92 | 70 | 70 | 60 | 60 | 210 | 335 | 425 | 1,160 | 425 | 210 |
| 7 | 92 | 60 | 150 | 50 | 85 | 240 | 335 | 540 | 1,320 | 335 | 150 |
| 8 | 92 | 70 | 540 | 70 | 85 | 270 | 380 | 540 | 1,160 | 425 | 150 |
| 9 | 85 | 85 | 210 | 85 | 100 | 270 | 540 | 680 | 1,160 | 540 | 150 |
| 10 | 77 | 70 | 150 | 70 | 85 | 270 | 425 | 540 | 1,320 | 425 | 120 |
| 11 | 77 | 70 | 100 | 60 | 100 | 300 | 680 | 680 | 1,320 | 335 | 120 |
| 12 | 77 | 70 | 120 | 60 | 85 | 300 | 540 | 840 | 1,160 | 270 | 120 |
| 13 | 77 | 60 | 120 | 60 | 85 | 270 | 540 | 680 | 1,160 | 270 | 100 |
| 14 | 77 | 70 | 100 | 50 | 85 | 300 | 540 | 540 | 1,080 | 270 | 85 |
| 15 | 77 | 70 | 85 | 50 | 85 | 270 | 540 | 680 | 1,160 | 300 | 70 |
| 16 | 77 | 50 | 70 | 50 | 60 | 270 | 425 | 540 | 1,160 | 300 | 70 |
| 17 | 77 | 70 | 60 | 50 | 60 | 270 | 540 | 1,320 | 1,160 | 300 | 85 |
| 18 | 70 | 70 | 60 | 60 | 85 | 300 | 680 | 1,320 | 1,080 | 1,240 | 85 |
| 19 | 70 | 85 | 60 | 60 | 85 | 300 | 540 | 1,500 | 1,000 | 425 | 70 |
| 20 | 70 | 150 | 50 | 50 | 100 | 335 | 840 | 1,320 | 1,000 | 475 | 70 |
| 21 | 65 | 540 | 50 | 85 | 150 | 335 | 760 | 1,500 | 840 | 425 | 85 |
| 22 | 65 | 270 | 50 | 100 | 85 | 270 | 840 | 1,500 | 475 | 425 | 85 |
| 23 | 65 | 240 | 50 | 150 | 85 | 270 | 840 | 1,500 | 540 | 335 | 85 |
| 24 | 65 | 210 | 60 | 150 | 85 | 210 | 1,000 | 1,500 | 425 | 475 | 85 |
| 25 | 65 | 240 | 60 | 150 | 85 | 210 | 1,000 | 1,680 | 380 | 425 | 70 |
| 26 | 65 | 150 | 50 | 100 | 85 | 210 | 1,000 | 1,320 | 475 | 335 | 70 |
| 27 | 65 | 150 | 50 | 85 | 100 | 210 | 1,160 | 1,500 | 425 | 335 | 70 |
| 28 | 65 | 100 | 60 | 150 | 85 | 150 | 1,320 | 1,500 | 380 | 335 | 70 |
| 29 | 60 | 120 | 50 | 150 | ..... | 210 | 1,320 | 1,500 | 680 | 335 | 70 |
| 30 | 60 | 150 | 60 | 150 | ..... | 150 | 840 | 1,500 | 540 | 270 | 70 |
| 31 | 65 | ..... | 210 | 150 | ..... | 210 | ..... | 1,500 | ..... | 270 | 70 |

*Monthly discharge of West Walker River near Coleville, Cal., for years ending Sept. 30, 1909 and 1910.*

[Drainage area, 248 square miles.[a]]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| 1909. | | | | | | |
| March | 85 | 55 | 75.8 | 0.306 | 0.35 | 4,660 |
| April | 610 | 92 | 323 | 1.30 | 1.45 | 19,200 |
| May | 1,320 | 540 | 873 | 3.52 | 4.06 | 53,700 |
| June | 2,220 | 1,000 | 1,630 | 6.57 | 7.33 | 97,000 |
| July | 1,860 | 335 | 830 | 3.35 | 3.86 | 51,000 |
| August | 335 | 135 | 232 | .936 | 1.08 | 14,300 |
| September | 120 | 70 | 87.8 | .354 | .40 | 5,220 |
| The period | | | | | | 245,000 |
| 1909-10. | | | | | | |
| October | 92 | 60 | 74.2 | .299 | .34 | 4,560 |
| November | 540 | 50 | 121 | .488 | .54 | 7,200 |
| December | 540 | 50 | 110 | .444 | .51 | 6,760 |
| January | 150 | 50 | 87.1 | .351 | .40 | 5,360 |
| February | 150 | 60 | 85.0 | .343 | .36 | 4,720 |
| March | 335 | 150 | 243 | .980 | 1.13 | 14,900 |
| April | 1,320 | 150 | 636 | 2.57 | 2.87 | 37,800 |
| May | 1,680 | 425 | 1,030 | 4.15 | 4.78 | 63,300 |
| June | 1,680 | 380 | 991 | 4.00 | 4.46 | 59,000 |
| July | 1,240 | 210 | 381 | 1.54 | 1.78 | 23,400 |
| August | 335 | 70 | 122 | .492 | .57 | 7,500 |
| The period | | | | | | 234,000 |

[a] The difference between this value and that published for the station formerly maintained by the Survey is due to the difference in maps used in determining the area. This value is believed to be more nearly correct.

NOTE.—Monthly values computed by engineers of the U. S. Geological Survey.

## WEST WALKER RIVER NEAR WELLINGTON, NEV.

**Location.**—In sec. 19, T. 10 N., R. 23 E., Mount Diablo base and meridian, at the highway bridge about 3½ miles southwest of Wellington, Nev.

**Records available.**—April 26 to August 31, 1910.

**Gage.**—Vertical staff at the measuring section.

**Channel.**—Gravel and sand; shifting.

**Discharge measurements.**—Made from bridge at the gage.

**Accuracy.**—Results are good.

**Cooperation.**—Records of daily discharge are furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of West Walker River near Wellington, Nev., for year ending Sept. 30, 1910.*

| Day. | Apr. | May. | June. | July. | Aug. | Day. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 489 | 1,170 | 289 | 130 | 16 | ..... | 918 | 562 | 260 | 37 |
| 2 | ..... | 453 | 1,170 | 289 | 100 | 17 | ..... | 739 | 525 | 333 | 28 |
| 3 | ..... | 418 | 1,026 | 289 | 74 | 18 | ..... | 739 | 525 | 333 | 28 |
| 4 | ..... | 387 | 1,026 | 260 | 74 | 19 | ..... | 882 | 489 | 453 | 28 |
| 5 | ..... | 333 | 954 | 260 | 74 | 20 | ..... | 918 | 489 | 418 | 28 |
| 6 | ..... | 333 | 810 | 243 | 60 | 21 | ..... | 918 | 453 | 310 | 28 |
| 7 | ..... | 358 | 810 | 243 | 60 | 22 | ..... | 882 | 453 | 227 | 28 |
| 8 | ..... | 704 | 739 | 227 | 60 | 23 | ..... | 846 | 418 | 162 | 28 |
| 9 | ..... | 846 | 739 | 227 | 47 | 24 | ..... | 846 | 387 | 162 | 28 |
| 10 | ..... | 882 | 704 | 387 | 47 | 25 | ..... | 846 | 387 | 162 | 28 |
| 11 | ..... | 882 | 704 | 387 | 47 | 26 | 918 | 882 | 358 | 162 | 19 |
| 12 | ..... | 846 | 632 | 333 | 47 | 27 | 954 | 954 | 358 | 162 | 19 |
| 13 | ..... | 882 | 632 | 333 | 37 | 28 | 846 | 954 | 310 | 178 | 19 |
| 14 | ..... | 810 | 598 | 289 | 37 | 29 | 704 | 954 | 310 | 145 | 19 |
| 15 | ..... | 846 | 562 | 289 | 37 | 30 | 562 | 1,026 | 289 | 145 | 19 |
| | | | | | | 31 | ..... | 1,062 | ..... | 145 | 28 |

*Monthly discharge of West Walker River near Wellington, Nev., for year ending Sept. 30, 1910.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | |
| April 26–30 | 954 | 562 | 797 | 7,900 |
| May | 1,060 | 333 | 769 | 47,300 |
| June | 1,170 | 289 | 620 | 36,900 |
| July | 453 | 145 | 261 | 16,000 |
| August | 130 | 19 | 43.3 | 2,660 |

## WEST WALKER RIVER AT SMITH, NEV.

**Location.**—In sec. 18, T. 11 N., R. 24 E., Mount Diablo base and meridian, at Smith, about 16 miles above the confluence with East Walker River.

**Records available.**—April 25 to August 31, 1910.

**Gage.**—Vertical staff.

**Channel.**—Sand and gravel; shifting.

**Discharge measurements.**—Made near gage from cable and car, or by wading.

**Accuracy.**—Records considered good.

**Cooperation.**—Records of daily discharge furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of West Walker River at Smith, Nev., for year ending Sept. 30, 1910.*

| Day. | Apr. | May. | June. | July. | Aug. | Day. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 452 | 1,064 | 359 | 102 | 16 | | 740 | 521 | 144 | 4 |
| 2 | | 420 | 1,100 | 301 | 82 | 17 | | 740 | 559 | 122 | 4 |
| 3 | | 420 | 992 | 330 | 82 | 18 | | 632 | 521 | 144 | 4 |
| 4 | | 420 | 848 | 301 | 82 | 19 | | 702 | 487 | 359 | 4 |
| 5 | | 359 | 812 | 245 | 65 | 20 | | 740 | 521 | 330 | 4 |
| 6 | | 359 | 770 | 218 | 48 | 21 | | 702 | 487 | 389 | 14 |
| 7 | | 330 | 632 | 192 | 48 | 22 | | 740 | 420 | 301 | 14 |
| 8 | | 521 | 591 | 168 | 48 | 23 | | 812 | 389 | 245 | 14 |
| 9 | | 487 | 521 | 192 | 48 | 24 | | 812 | 359 | 192 | 23 |
| 10 | | 591 | 591 | 192 | 34 | 25 | 632 | 848 | 359 | 144 | 23 |
| 11 | | 668 | 559 | 192 | 23 | 26 | 591 | 884 | 389 | 122 | 23 |
| 12 | | 632 | 668 | 168 | 23 | 27 | 668 | 812 | 359 | 144 | 14 |
| 13 | | 632 | 632 | 144 | 23 | 28 | 740 | 848 | 420 | 122 | 14 |
| 14 | | 740 | 632 | 144 | 14 | 29 | 702 | 920 | 389 | 144 | 23 |
| 15 | | 632 | 632 | 144 | 14 | 30 | 559 | 992 | 359 | 122 | 14 |
| | | | | | | 31 | | 1,064 | | 102 | 23 |

*Monthly discharge of West Walker River at Smith, Nev., for year ending Sept. 30, 1910.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | |
| April 25–30 | 740 | 559 | 649 | 7,720 |
| May | 1,060 | 330 | 666 | 41,000 |
| June | 1,100 | 359 | 586 | 34,900 |
| July | 389 | 102 | 207 | 12,700 |
| August | 102 | 4 | 30.8 | 1,890 |

### EAST FORK OF WEST WALKER RIVER NEAR BRIDGEPORT, CAL.

**Location.**—At Blackburn's,[1] about 100 yards below mouth of Hot Creek, in the NE. ¼ sec. 28, T. 6 N., R. 23 E., about 3 miles above junction with West Walker River, and 14 miles northwest of Bridgeport.

**Records available.**—April 21 to August 31, 1910.

**Gage.**—Vertical staff at footbridge.

**Channel.**—Compact gravel and cobblestones; fairly permanent.

**Discharge measurements.**—Made from footbridge at gage.

**Accuracy.**—Results excellent.

**Cooperation.**—The following records were furnished by the Stone & Webster Engineering Corporation:

*Daily discharge, in second-feet, of East Fork of West Walker River near Bridgeport, Cal., for year ending Sept. 30, 1910.*

| Day. | Apr. | May. | June. | July. | Aug. | Day. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 112 | 325 | 112 | 49 | 16 | ..... | 208 | 180 | 58 | 35 |
| 2 | ..... | 90 | 325 | 112 | 49 | 17 | ..... | 180 | 180 | 71 | 35 |
| 3 | ..... | 112 | 301 | 112 | 49 | 18 | ..... | 180 | 180 | 160 | 30 |
| 4 | ..... | 112 | 278 | 90 | 49 | 19 | ..... | 208 | 160 | 90 | 30 |
| 5 | ..... | 90 | 278 | 90 | 41 | 20 | ..... | 208 | 160 | 112 | 30 |
| 6 | ..... | 90 | 254 | 90 | 41 | 21 | 112 | 208 | 160 | 112 | 30 |
| 7 | ..... | 90 | 254 | 90 | 41 | 22 | 112 | 231 | 136 | 90 | 30 |
| 8 | ..... | 112 | 208 | 90 | 41 | 23 | 112 | 254 | 136 | 71 | 30 |
| 9 | ..... | 160 | 208 | 90 | 35 | 24 | 112 | 301 | 136 | 71 | 30 |
| 10 | ..... | 160 | 254 | 90 | 35 | 25 | 136 | 254 | 136 | 58 | 30 |
| 11 | ..... | 160 | 254 | 90 | 35 | 26 | 136 | 254 | 136 | 58 | 30 |
| 12 | ..... | 160 | 231 | 71 | 35 | 27 | 160 | 278 | 136 | 58 | 30 |
| 13 | ..... | 180 | 231 | 71 | 35 | 28 | 180 | 301 | 112 | 58 | 30 |
| 14 | ..... | 180 | 231 | 71 | 35 | 29 | 136 | 301 | 112 | 58 | 26 |
| 15 | ..... | 208 | 208 | 71 | 35 | 30 | 112 | 325 | 112 | 49 | 26 |
| | | | | | | 31 | ..... | 325 | ..... | 49 | 26 |

*Monthly discharge of East Fork of West Walker River near Bridgeport, Cal., for year ending Sept. 30, 1910.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). |
|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | |
| April 21–30 | 180 | 112 | 131 | 2,600 |
| May | 325 | 90 | 195 | 12,000 |
| June | 325 | 112 | 200 | 11,900 |
| July | 160 | 49 | 82.7 | 5,080 |
| August | 49 | 26 | 34.9 | 2,150 |

NOTE.—Monthly values computed by engineers of the U. S. Geological Survey.

## HUMBOLDT-CARSON SINK DRAINAGE BASIN.

### CARSON RIVER BASIN.

### EAST FORK OF CARSON RIVER AT SILVER KING VALLEY, NEAR MARKLEEVILLE, CAL.

**Location.**—At lower end of Silver King Valley, in the NE. ¼ sec. 2, T. 8 N., R. 21 E., in the Mono National Forest, 300 feet above mouth of Bagley Creek, and about 12 miles southeast of Markleeville.

[1] Hardy station, Bridgeport quadrangle, U. S. Geological Survey.

**Records available.**—November, 1910, to August, 1912 (fragmentary).

**Drainage area.**—Not measured.

**Gage.**—Vertical staff fastened to a tamarack tree on left bank near dam site. Previous to March 30, 1911, gage was located a short distance above present one. Original datum has not been maintained.

**Channel.**—Gravel and bowlders; fairly permanent.

**Discharge measurements.**—Made from car and cable 600 feet above gage.

**Winter flow.**—Affected by ice.

**Accuracy.**—Rating curves are fairly well defined. Monthly estimates have not been prepared on account of fragmentary gage-height record.

**Cooperation.**—Maintained in cooperation with the United States Forest Service and Stone & Webster Engineering Corporation.

*Discharge measurements of East Fork of Carson River at Silver King Valley, near Markleeville, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | | Discharge. |
|---|---|---|---|---|
| | | New gage. | Old gage. | |
| 1910. | | *Feet.* | *Feet.* | *Sec.-ft.* |
| Aug. 8 | Stone & Webster Engineering Corporation | ..... | 1.20 | 48 |
| Sept. 9 | .....do..... | ..... | 1.05 | 35 |
| Nov. 11 | .....do..... | ..... | 1.09 | 38 |
| Dec. 11 | .....do..... | ..... | 1.32 | 53 |
| 1911. | | | | |
| Mar. 30 | .....do..... | 2.45 | 2.17 | 184 |
| June 11 | .....do..... | 3.40 | 4.16 | 806 |
| July 21 | .....do..... | 3.00 | 3.08 | 475 |
| 1911. | | | | |
| July 29 | Murphy and Peekema..... | 2.62 | 2.50 | 278 |
| Sept. 20 | Stone & Webster Engineering Corporation..... | 1.49 | 1.45 | 54 |
| 1912. | | | | |
| June 22 | H. J. Tompkins... | 2.45 | ..... | 212 |

*Daily gage height, in feet, and discharge, in second-feet, of East Fork of Carson River at Silver King Valley, near Markleeville, Cal., for years ending Sept. 30, 1910–1912.*

| Date. | Gage height. | Discharge. | Date. | Gage height. | Discharge. | Date. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|---|
| 1910. | | | 1911. | | | 1911. | | |
| Aug. 8 | 1.20 | 47 | Mar. 18 | 1.50 | 63 | Sept. 22 | 1.85 | 86 |
| Sept. 9 | 1.05 | 36 | Mar. 25 | 2.00 | 150 | Oct. 31 | 1.79 | 79 |
| Nov. 11 | 1.09 | 38 | Mar. 30 | 2.45 | 199 | Nov. 21 | 1.70 | 70 |
| Nov. 19 | 1.00 | 33 | Apr. 7 | 2.50 | 214 | Dec. 14 | 2.20 | ..... |
| Nov. 26 | 1.00 | 33 | Apr. 14 | 2.40 | 184 | | | |
| Dec. 5 | 1.31 | 56 | Apr. 22 | 2.55 | 234 | 1912. | | |
| Dec. 11 | 1.26 | 52 | Apr. 29 | 2.40 | 184 | Jan. 3 | 3.10 | ..... |
| Dec. 17 | 1.28 | 53 | May 13 | 2.55 | 234 | Jan. 15 | 2.05 | ..... |
| Dec. 24 | 1.28 | 53 | May 20 | 3.00 | 482 | Mar. 1 | 1.70 | 70 |
| Dec. 31 | 1.30 | 45 | May 27 | 3.35 | 758 | Mar. 16 | 1.60 | 62 |
| | | | June 11 | 3.40 | 804 | June 11 | 2.85 | 388 |
| 1911. | | | June 23 | 3.85 | 1,260 | June 13 | 2.85 | 388 |
| Jan. 7 | 1.49 | ..... | June 29 | 3.20 | 628 | June 22 | 2.45 | 199 |
| Jan. 28 | 2.40 | 243 | July 21 | 3.00 | 482 | July 10 | 1.65 | 66 |
| Feb. 3 | 3.40 | 550 | July 26 | 2.80 | 358 | July 14 | 1.65 | 66 |
| Feb. 18 | 2.95 | ..... | July 29 | 2.62 | 264 | Aug. 12 | 1.65 | 66 |
| Feb. 27 | 2.70 | ..... | Aug. 14 | 2.10 | 120 | | | |
| Mar. 2 | 2.65 | ..... | Sept. 20 | 1.50 | 56 | | | |

NOTE.—Relation of gage height to discharge affected by ice Dec. 31, 1910; Jan. 7, Feb. 18, 27, Mar. 2, Dec. 14, 1911; Jan. 3, 15, 1912. Gage heights after Mar. 30, 1911, refer to the new gage established that date. Gage heights for Dec. 11, 1910, July 26, 29, Sept. 20, 1911, supersede the values published in Water-Supply Paper 300, p. 171, and Water-Supply Paper 310, p. 104.

Discharge determined from three fairly well defined curves applicable as follows: Aug. 8, 1910, to Jan. 7, 1911; Jan. 28 to Mar. 25, 1911; Mar. 30, 1911, to Aug. 12, 1912.

### EAST FORK OF CARSON RIVER NEAR MARKLEEVILLE, CAL.

**Location.**—At Hangman's bridge, in the NE. ¼ sec. 27, T. 10 N., R. 20 E., 2 miles east of Markleeville. Indian Creek enters 100 feet above gage and Markleeville Creek 1¼ miles below.

**Records available.**—November 13, 1910, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff, 75 feet below the bridge, bolted to rock on right bank.

**Channel.**—Composed of gravel and small bowlders; permanent.

**Discharge measurements.**—Made from car and cable at stamp mill 3 miles above station, where the Stone & Webster Engineering Corporation maintains a gage. At low and medium stages measurements are made by wading below the gage.

**Winter flow.**—Affected by ice.

**Storage.**—Low-water flow is augmented by storage developed on Silver Creek above the station.

**Accuracy.**—Results are good for periods carried by gage heights.

**Cooperation.**—Gage heights furnished by United States Forest Service.

*Discharge measurements of East Fork of Carson River near Markleeville, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 7 | J. E. Stewart | 2.87 | 78 |
| 1912. | | | |
| June 21 | H. J. Tompkins | 4.32 | 419 |

*Daily gage height, in feet, of East Fork of Carson River near Markleeville, Cal., for year ending Sept. 30, 1912.*

[John E. Smith, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | 2.75 | 2.8 | 2.91 | | | | |
| 2 | | | | 3.8 | 2.7 | | 3.0 | | 3.6 | | |
| 3 | | | | 3.7 | 2.75 | | 3.0 | | 3.75 | | |
| 4 | 3.10 | 2.80 | | 3.6 | | 2.8 | | | | | |
| 5 | | | | | 2.8 | | | | | | |
| 6 | | | | 3.6 | 2.8 | | 3.0 | | | | |
| 7 | 3.17 | 2.87 | | | 2.8 | 2.8 | | | 3.75 | | |
| 8 | | | | 3.3 | 2.85 | | | | | 3.0 | |
| 9 | | | | 3.5 | 2.8 | | | | | | 3.1 |
| 10 | | 2.80 | | 3.6 | 2.8 | | | | | | |
| 11 | 3.20 | 2.40 | | 3.3 | 2.8 | 2.8 | 2.9 | | | | |
| 12 | | | | 3.3 | 2.78 | | 3.0 | | | | 3.2 |
| 13 | | | | 3.25 | 2.8 | 2.8 | | 4.9 | | | |
| 14 | | | 2.40 | | 2.8 | | | | | 2.85 | |
| 15 | | | | 3.15 | 2.7 | 2.7 | | | | | |
| 16 | | | | 3.15 | 2.75 | 2.8 | | | | | |
| 17 | | | | 2.9 | 2.8 | | | 4.5 | | | |
| 18 | 2.90 | 2.80 | | 2.9 | | 2.8 | | | | | |
| 19 | | | | 2.9 | 2.82 | 2.8 | | 4.7 | | | |
| 20 | | | | 2.84 | | 2.82 | | | | | |
| 21 | 2.90 | 2.85 | | | 2.82 | 2.75 | | 4.3 | | | |
| 22 | | | | 2.8 | | 2.6 | | 3.9 | 3.18 | | |
| 23 | | | 3.65 | 2.8 | | | | | | | |
| 24 | | | | 2.8 | | | | | | | |
| 25 | | 2.75 | | 2.75 | | | | 4.0 | | | |
| 26 | | | | 2.8 | | 2.9 | | | 3.1 | | |
| 27 | | | | 2.75 | 2.85 | 2.85 | | | | | |
| 28 | | | | | | 2.85 | | | | | |
| 29 | | | | 2.95 | 2.75 | | | | | | |
| 30 | 2.90 | | | 2.7 | | | | | | | |
| 31 | | | 3.75 | 2.75 | | | | | | | |

NOTE.—Relation of gage height to discharge affected by ice for periods during the winter months.

*Daily discharge, in second-feet, of East Fork of Carson River near Markleeville, Cal., for the years ending Sept. 30, 1911 and 1912.*

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | |
| 1 | ..... | 54 | 33 | 418 | 114 | 652 | 794 | 900 | 1,470 | 444 | 160 |
| 2 | ..... | 58 | ..... | 285 | 106 | 723 | 745 | 1,570 | 1,420 | 421 | 156 |
| 3 | ..... | 146 | ..... | 285 | 99 | 794 | 900 | 1,570 | 1,380 | 398 | 153 |
| 4 | ..... | 60 | ..... | 215 | 99 | 698 | 1,010 | 1,570 | 1,380 | 376 | 149 |
| 5 | ..... | 49 | ..... | 194 | 99 | 745 | 1,250 | 1,570 | 1,380 | 354 | 146 |
| 6 | ..... | 72 | ..... | 174 | 99 | 608 | 846 | 1,610 | 1,380 | 338 | 146 |
| 7 | ..... | 75 | ..... | 129 | 97 | 566 | 794 | 1,650 | 1,380 | 323 | 146 |
| 8 | ..... | 77 | ..... | 146 | 94 | 526 | 794 | 1,690 | 1,320 | 308 | 146 |
| 9 | ..... | 78 | ..... | 129 | 92 | 566 | 900 | 1,730 | 1,250 | 293 | 146 |
| 10 | ..... | 93 | ..... | 165 | 99 | 470 | 900 | 1,770 | 1,250 | 278 | 144 |
| 11 | ..... | 99 | 56 | 138 | 99 | 418 | 1,010 | 2,000 | 1,250 | 263 | 141 |
| 12 | ..... | 85 | 40 | 126 | 99 | 370 | 1,010 | 2,240 | 1,250 | 248 | 138 |
| 13 | 60 | 72 | 39 | 114 | 99 | 340 | 1,010 | 2,150 | 1,250 | 233 | 135 |
| 14 | 62 | 50 | 72 | 92 | 99 | 326 | 956 | 2,060 | 1,230 | 219 | 132 |
| 15 | 60 | 49 | 80 | 114 | 114 | 312 | 794 | 1,970 | 1,210 | 204 | 129 |
| 16 | 58 | 44 | 88 | 99 | 129 | 326 | 698 | 2,180 | 1,190 | 215 | 126 |
| 17 | 58 | 50 | 96 | 85 | 146 | 354 | 698 | 2,380 | 1,640 | 226 | 123 |
| 18 | 61 | 46 | 94 | 100 | 204 | 418 | 698 | 1,900 | 1,570 | 218 | 120 |
| 19 | 33 | 60 | 91 | 114 | 210 | 566 | 846 | 1,900 | 1,010 | 210 | 117 |
| 20 | 42 | 55 | 90 | 114 | 215 | 488 | 956 | 1,900 | 1,010 | 202 | 114 |
| 21 | 60 | 50 | 88 | 72 | 215 | 526 | 1,250 | 1,770 | 955 | 194 | 118 |
| 22 | 60 | 56 | 86 | 92 | 260 | 698 | 1,250 | 1,640 | 900 | 189 | 122 |
| 23 | 61 | 60 | 85 | 114 | 312 | 698 | 1,510 | 1,510 | 822 | 184 | 122 |
| 24 | 68 | 65 | 184 | 106 | 340 | 900 | 1,640 | 1,420 | 745 | 179 | 122 |
| 25 | 62 | 56 | 129 | 111 | 354 | 1,010 | 1,250 | 1,340 | 636 | 174 | 122 |
| 26 | 40 | 46 | 99 | 85 | 385 | 1,250 | 1,190 | 1,250 | 526 | 169 | 122 |
| 27 | 54 | 43 | 99 | 104 | 326 | 1,010 | 1,130 | 1,380 | 567 | 165 | 122 |
| 28 | 52 | 40 | 99 | 122 | 370 | 794 | 1,160 | 1,420 | 608 | 174 | 122 |
| 29 | 54 | 40 | 99 | ..... | 435 | 698 | 1,190 | 1,470 | 548 | 171 | 122 |
| 30 | 49 | 33 | 956 | ..... | 522 | 698 | 1,100 | 1,510 | 488 | 168 | 122 |
| 31 | ..... | 33 | 846 | ..... | 608 | ..... | 1,010 | ..... | 466 | 165 | ..... |

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | | | |
| 1 | 123 | 93 | ..... | ..... | 78 | 85 | 100 | ..... | ..... | ..... | ..... | ..... |
| 2 | 125 | 90 | ..... | ..... | 72 | 85 | 114 | ..... | ..... | 226 | ..... | ..... |
| 3 | 127 | 87 | ..... | ..... | 78 | 85 | 114 | ..... | ..... | 260 | ..... | ..... |
| 4 | 129 | 85 | ..... | ..... | 82 | 85 | 114 | ..... | ..... | ..... | ..... | ..... |
| 5 | 132 | 88 | ..... | ..... | 85 | 85 | 114 | ..... | ..... | ..... | ..... | ..... |
| 6 | 135 | 92 | ..... | ..... | 85 | 85 | 114 | ..... | ..... | ..... | ..... | ..... |
| 7 | 138 | 95 | ..... | ..... | 85 | 85 | 111 | ..... | ..... | 260 | ..... | ..... |
| 8 | 140 | 92 | ..... | ..... | 92 | 85 | 108 | ..... | ..... | ..... | 114 | ..... |
| 9 | 142 | 88 | ..... | ..... | 85 | 85 | 105 | ..... | ..... | ..... | ..... | 129 |
| 10 | 144 | 85 | ..... | ..... | 85 | 85 | 102 | ..... | ..... | ..... | ..... | ..... |
| 11 | 146 | 40 | ..... | ..... | 85 | 85 | 99 | ..... | ..... | ..... | ..... | ..... |
| 12 | 140 | 46 | ..... | ..... | 82 | 85 | 114 | ..... | ..... | ..... | ..... | 146 |
| 13 | 133 | 53 | ..... | ..... | 85 | 85 | ..... | ..... | 652 | ..... | ..... | ..... |
| 14 | 126 | 59 | 40 | ..... | 85 | 78 | ..... | ..... | ..... | ..... | 92 | ..... |
| 15 | 119 | 66 | ..... | ..... | 72 | 72 | ..... | ..... | ..... | ..... | ..... | ..... |
| 16 | 112 | 72 | ..... | ..... | 78 | 85 | ..... | ..... | ..... | ..... | ..... | ..... |
| 17 | 105 | 79 | ..... | ..... | 85 | 85 | ..... | ..... | 488 | ..... | ..... | ..... |
| 18 | 99 | 85 | ..... | ..... | 86 | 85 | ..... | ..... | ..... | ..... | ..... | ..... |
| 19 | 99 | 87 | ..... | ..... | 88 | 85 | ..... | ..... | 566 | ..... | ..... | ..... |
| 20 | 99 | 90 | ..... | 91 | 88 | 88 | ..... | ..... | ..... | ..... | ..... | ..... |
| 21 | 99 | 92 | ..... | 88 | 88 | 78 | ..... | ..... | 418 | ..... | ..... | ..... |
| 22 | 99 | 88 | ..... | 85 | 88 | 60 | ..... | ..... | 298 | 146 | ..... | ..... |
| 23 | 99 | 85 | ..... | 85 | 89 | 70 | ..... | ..... | ..... | ..... | ..... | ..... |
| 24 | 99 | 81 | ..... | 85 | 90 | 80 | ..... | ..... | ..... | ..... | ..... | ..... |
| 25 | 99 | 78 | ..... | 78 | 91 | 90 | ..... | ..... | 326 | ..... | ..... | ..... |
| 26 | 99 | 78 | ..... | 85 | 92 | 99 | ..... | ..... | ..... | 129 | ..... | ..... |
| 27 | 99 | 78 | ..... | 78 | 92 | 92 | ..... | ..... | ..... | ..... | ..... | ..... |
| 28 | 99 | 78 | ..... | 92 | 85 | 92 | ..... | ..... | ..... | ..... | ..... | ..... |
| 29 | 99 | 78 | ..... | 106 | 78 | 94 | ..... | ..... | ..... | ..... | ..... | ..... |
| 30 | 99 | 78 | ..... | 72 | ..... | 96 | ..... | ..... | ..... | ..... | ..... | ..... |
| 31 | 96 | ..... | ..... | 78 | ..... | 98 | ..... | ..... | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined from a curve well defined between 40 and 1,500 second-feet. Daily discharge estimated, because of ice, Dec. 20 and 27, 1910; Jan. 18 and 21, 1911. Mean discharge estimated, because of ice, Jan. 2 to 10, 1911, at 45 second-feet; December, 1911, at 50 second-feet, and Jan. 1 to 19, 1912, at 50 second-feet. Discharge interpolated for days on which gage was not read, except during periods of infrequent gage heights. Above records of daily discharge supersede those published in Water-Supply Paper 300, p. 174.

*Monthly discharge of East Fork of Carson River near Markleeville, Cal., for the years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| Nov. 13–30 | 68 | 33 | 55.2 | 1,970 | A. |
| December | 146 | 33 | 61.1 | 3,760 | A. |
| January | 956 | 33 | 128 | 7,870 | C. |
| February | 418 | 72 | 144 | 8,000 | C. |
| March | 608 | 92 | 211 | 13,000 | A. |
| April | 1,250 | 312 | 618 | 36,800 | A. |
| May | 1,640 | 698 | 1,010 | 62,100 | A. |
| June | 2,380 | 900 | 1,700 | 101,000 | B. |
| July | 1,640 | 466 | 1,080 | 66,400 | B. |
| August | 444 | 165 | 248 | 15,200 | C. |
| September | 160 | 114 | 133 | 7,910 | C. |
| The period | | | | 324,000 | |
| 1911–12. | | | | | |
| October | 146 | 96 | 116 | 7,130 | C. |
| November | 95 | 40 | 79.5 | 4,730 | C. |
| December | | | 50.0 | 3,070 | D. |
| January | 106 | | 63.6 | 3,910 | D. |
| February | 92 | 72 | 84.6 | 4,870 | C. |
| March | 99 | 60 | 84.9 | 5,220 | B. |
| Apr. 1–12 | 114 | 99 | 109 | 2,590 | B. |
| The period | | | | 31,500 | |

NOTE.—These estimates supersede those published in Water-Supply Paper 300, p. 175.

### CARSON RIVER NEAR EMPIRE, NEV.

**Location.**—At highway bridge at Brunswick Mill, in the SE. ¼ sec. 12, T. 15 N. R. 20 E., one-fourth mile below diversion dam of Brunswick Mill Power Co., and 2 miles below Empire.

**Records available.**—June 25 to December 31, 1895; October 21, 1900, to September 30, 1912.

**Drainage area.**—988 square miles.

**Gage.**—A staff gage was installed on left abutment of bridge June 7, 1907. Previous to this time gages had been in use at other locations. On February 24, 1911, a staff gage was installed on left bank a short distance below tailrace of Brunswick Mill power canal and about 1,000 feet below bridge at an independent datum. The entire flow of the river passes this gage.

**Channel.**—Gravel and bowlders; fairly permanent. At the bridge gage the channel is sandy and somewhat shifting.

**Discharge measurements.**—Made from car and cable about 50 feet above bridge, or by wading. Brunswick Mill power canal is measured and its flow combined with that of the river at the bridge to give discharge at lower gage.

**Winter flow.**—Usually somewhat affected by ice.

**Diversions.**—A considerable part of the summer flow above this station is used for irrigation in Carson Valley.

**Accuracy.**—Records since the installation of the lower gage are excellent. On account of the uncertainty of the canal data, previous records are not so reliable.

**Cooperation.**—Gage heights furnished by the United States Reclamation Service.

Records at this station include the return water from irrigation in Carson Valley and show amount of water available for use in Dayton Valley.

*Discharge measurements of Carson River near Empire, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| 1911. Nov. 5 | J. E. Stewart | 3.66 | 164 |
| 1912. June 24 | H. J. Tompkins | 4.11 | 394 |

*Daily gage height, in feet, of Carson River near Empire, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.4 | 3.6 | 3.8 | 4.5 | 3.9 | 3.7 | 3.5 | 3.4 | 5.3 | 3.4 | 3.0 | 2.4 |
| 2 | 3.4 | 3.7 | 3.7 | 4.5 | 3.9 | 3.7 | 3.4 | 3.5 | 5.3 | 3.4 | 3.0 | 2.4 |
| 3 | 3.5 | 3.8 | 3.8 | 4.4 | 3.8 | 3.7 | 3.4 | 3.5 | 5.5 | 3.5 | 3.1 | 2.4 |
| 4 | 3.6 | 3.8 | 3.7 | 4.4 | 3.8 | 3.7 | 3.4 | 3.6 | 5.8 | 3.5 | 3.1 | 2.4 |
| 5 | 3.6 | 3.7 | 3.6 | 4.8 | 3.8 | 3.7 | 3.3 | 3.5 | 6.0 | 3.6 | 2.9 | 2.4 |
| 6 | 3.7 | 3.7 | 3.7 | 4.8 | 3.8 | 3.7 | 3.3 | 3.6 | 5.8 | 3.6 | 2.9 | 2.4 |
| 7 | 3.7 | 3.8 | 3.7 | 5.1 | 3.8 | 3.7 | 3.3 | 3.6 | 5.6 | 3.5 | 3.0 | 2.6 |
| 8 | 3.7 | 3.8 | 3.7 | 4.7 | 3.7 | 3.7 | 3.3 | 3.8 | 5.7 | 3.4 | 2.8 | 2.6 |
| 9 | 3.6 | 3.9 | 3.8 | 4.5 | 3.7 | 3.7 | 3.3 | 4.1 | 5.6 | 3.3 | 2.8 | 2.6 |
| 10 | 3.7 | 3.9 | 3.8 | 4.7 | 3.7 | 3.8 | 3.3 | 4.3 | 5.4 | 3.1 | 2.7 | 2.5 |
| 11 | 3.7 | 3.9 | 3.7 | 4.8 | 3.7 | 3.8 | 3.3 | 4.7 | 5.2 | 2.8 | 2.8 | 2.5 |
| 12 | 3.7 | 3.8 | 3.8 | 4.5 | 3.7 | 3.8 | 3.3 | 4.8 | 5.2 | 2.7 | 2.7 | 2.5 |
| 13 | 3.6 | 3.7 | 3.6 | 4.2 | 3.7 | 3.8 | 3.3 | 5.1 | 5.2 | 2.4 | 2.6 | 2.5 |
| 14 | 3.6 | 3.7 | 3.7 | 4.1 | 3.6 | 3.8 | 3.2 | 5.0 | 4.9 | 2.6 | 2.6 | 2.5 |
| 15 | 3.6 | 3.7 | 3.7 | 4.0 | 3.6 | 3.8 | 3.2 | 5.0 | 4.5 | 2.7 | 2.7 | 2.5 |
| 16 | 3.6 | 3.7 | 3.7 | 4.0 | 3.7 | 3.7 | 3.2 | 5.2 | 4.4 | 3.0 | 2.6 | 2.5 |
| 17 | 3.6 | 3.9 | 3.8 | 4.0 | 3.7 | 3.7 | 3.2 | 5.4 | 4.4 | 2.9 | 2.6 | 2.5 |
| 18 | 3.7 | 3.9 | 3.6 | 3.9 | 3.7 | 3.7 | 3.1 | 5.4 | 4.2 | 3.1 | 2.6 | 2.5 |
| 19 | 3.7 | 3.9 | 3.7 | 3.8 | 3.7 | 3.7 | 3.1 | 5.5 | 4.2 | 3.2 | 2.6 | 2.5 |
| 20 | 3.6 | 3.8 | 3.7 | 3.8 | 3.7 | 3.7 | 3.2 | 5.5 | 4.2 | 3.4 | 2.5 | 2.4 |
| 21 | 3.6 | 3.7 | 3.7 | 3.8 | 3.7 | 3.7 | 3.2 | 5.3 | 4.2 | 3.4 | 2.5 | 2.6 |
| 22 | 3.6 | 3.7 | 3.7 | 3.8 | 3.7 | 3.7 | 3.2 | 4.8 | 4.2 | 3.4 | 2.5 | 2.6 |
| 23 | 3.6 | 3.7 | 3.8 | 3.8 | 3.7 | 3.7 | 3.1 | 4.7 | 3.9 | 3.3 | 2.5 | 2.6 |
| 24 | 3.6 | 3.7 | 3.8 | 3.8 | 3.7 | 3.7 | 3.0 | 4.4 | 3.9 | 3.3 | 2.5 | 2.6 |
| 25 | 3.6 | 3.8 | 3.8 | 3.7 | 3.7 | 3.6 | 3.0 | 4.4 | 3.9 | 3.2 | 2.4 | 2.6 |
| 26 | 3.7 | 3.8 | 3.8 | 3.8 | 3.7 | 3.6 | 3.1 | 4.5 | 3.8 | 3.1 | 2.4 | 2.6 |
| 27 | 3.7 | 3.8 | 3.9 | 3.9 | 3.7 | 3.6 | 3.2 | 4.5 | 3.7 | 3.1 | 2.4 | 2.6 |
| 28 | 3.7 | 3.9 | 3.9 | 4.0 | 3.7 | 3.5 | 3.2 | 4.4 | 3.6 | 3.0 | 2.4 | 2.7 |
| 29 | 3.7 | 3.8 | 3.8 | 3.8 | 3.7 | 3.5 | 3.2 | 4.8 | 3.4 | 3.1 | 2.4 | 2.7 |
| 30 | 3.7 | 3.8 | 3.8 | 3.9 | ..... | 3.5 | 3.3 | 5.2 | 3.4 | 3.0 | 2.4 | 2.7 |
| 31 | 3.6 | ..... | 4.5 | 3.9 | ..... | 3.5 | ..... | 5.4 | ..... | 3.0 | 2.4 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Dec. 31 to Jan. 15.

*Daily discharge, in second-feet, of Carson River near Empire, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 93 | 155 | 236 | ..... | 285 | 194 | 117 | 88 | 1,270 | 88 | 40 | 11 |
| 2 | 93 | 194 | 194 | ..... | 285 | 194 | 88 | 117 | 1,270 | 88 | 40 | 11 |
| 3 | 122 | 236 | 236 | ..... | 236 | 194 | 88 | 117 | 1,470 | 117 | 50 | 11 |
| 4 | 155 | 236 | 194 | ..... | 236 | 194 | 88 | 155 | 1,800 | 117 | 50 | 11 |
| 5 | 155 | 194 | 155 | ..... | 236 | 194 | 73 | 117 | 2,030 | 155 | 33 | 11 |
| 6 | 194 | 194 | 194 | ..... | 236 | 194 | 73 | 155 | 1,800 | 155 | 33 | 11 |
| 7 | 194 | 236 | 194 | ..... | 236 | 194 | 73 | 155 | 1,580 | 117 | 40 | 18 |
| 8 | 194 | 236 | 194 | ..... | 194 | 194 | 73 | 236 | 1,690 | 88 | 27 | 18 |
| 9 | 155 | 285 | 236 | ..... | 194 | 194 | 73 | 391 | 1,580 | 73 | 27 | 18 |
| 10 | 194 | 285 | 236 | ..... | 194 | 236 | 73 | 512 | 1,370 | 50 | 22 | 14 |
| 11 | 194 | 285 | 194 | ..... | 194 | 236 | 73 | 780 | 1,180 | 27 | 27 | 14 |
| 12 | 194 | 236 | 236 | ..... | 194 | 236 | 73 | 860 | 1,180 | 22 | 22 | 14 |
| 13 | 155 | 194 | 155 | ..... | 194 | 236 | 73 | 1,100 | 1,180 | 11 | 18 | 14 |
| 14 | 155 | 194 | 194 | ..... | 155 | 236 | 60 | 1,020 | 940 | 18 | 18 | 14 |
| 15 | 155 | 194 | 194 | ..... | 155 | 236 | 60 | 1,020 | 640 | 22 | 22 | 14 |
| 16 | 155 | 194 | 194 | 335 | 194 | 194 | 60 | 1,180 | 575 | 40 | 18 | 14 |
| 17 | 155 | 285 | 236 | 335 | 194 | 194 | 60 | 1,370 | 575 | 33 | 18 | 14 |
| 18 | 194 | 285 | 155 | 285 | 194 | 194 | 50 | 1,370 | 450 | 50 | 18 | 14 |
| 19 | 194 | 285 | 194 | 236 | 194 | 194 | 50 | 1,470 | 450 | 60 | 18 | 14 |
| 20 | 155 | 236 | 194 | 236 | 194 | 194 | 60 | 1,470 | 450 | 88 | 14 | 11 |
| 21 | 155 | 194 | 194 | 236 | 194 | 194 | 60 | 1,270 | 450 | 88 | 14 | 18 |
| 22 | 155 | 194 | 194 | 236 | 194 | 194 | 60 | 860 | 450 | 88 | 14 | 18 |
| 23 | 155 | 194 | 236 | 236 | 194 | 194 | 50 | 780 | 285 | 73 | 14 | 18 |
| 24 | 155 | 194 | 236 | 236 | 194 | 194 | 40 | 575 | 285 | 73 | 14 | 18 |
| 25 | 155 | 236 | 236 | 194 | 194 | 155 | 40 | 575 | 285 | 60 | 11 | 18 |
| 26 | 194 | 236 | 236 | 236 | 194 | 155 | 50 | 640 | 236 | 50 | 11 | 18 |
| 27 | 194 | 236 | 285 | 285 | 194 | 155 | 60 | 640 | 194 | 50 | 11 | 18 |
| 28 | 194 | 285 | 285 | 335 | 194 | 117 | 60 | 575 | 155 | 40 | 11 | 22 |
| 29 | 194 | 236 | 236 | 236 | 194 | 117 | 60 | 860 | 88 | 50 | 11 | 22 |
| 30 | 194 | 236 | 236 | 285 | ..... | 117 | 73 | 1,180 | 88 | 40 | 11 | 22 |
| 31 | 155 | ..... | 200 | 285 | ..... | 117 | ..... | 1,370 | ..... | 40 | 11 | ..... |

NOTE.—Discharge computed from two fairly well defined curves are applicable Oct. 1 to Dec. 31, the other Jan. 1 to Sept. 30. The 1912 curve is the same above 3.6 gage height as that used for 1911. Discharge estimated, because of ice, Dec. 31, 200 second-feet and Jan. 1–15, 170 second-feet.

*Monthly discharge of Carson River near Empire, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 194 | 93 | 166 | 10,200 | A. |
| November | 285 | 155 | 229 | 13,600 | A. |
| December | 285 | 155 | 213 | 13,100 | A. |
| January | 335 | ..... | 219 | 13,500 | C. |
| February | 285 | 155 | 205 | 11,800 | A. |
| March | 236 | 117 | 188 | 11,600 | A. |
| April | 117 | 40 | 66.4 | 3,950 | B. |
| May | 1,470 | 88 | 742 | 45,600 | A. |
| June | 2,030 | 88 | 867 | 51,600 | A. |
| July | 155 | 11 | 66.8 | 4,110 | B. |
| August | 50 | 11 | 22.2 | 1,360 | B. |
| September | 22 | 11 | 15.4 | 916 | B. |
| The year | 2,030 | 11 | 250 | 181,000 | |

NOTE.—Records for December, 1911, supersede those in Water Supply Paper 310, p. 108.

### CARSON RIVER NEAR FORT CHURCHILL, NEV.

**Location.**—In sec. 5, T. 16 N., R. 23 E., 1 mile west of Clifton station, on Mound House-Churchill branch of Southern Pacific Railroad, 10 miles below Dayton, and about 9 miles west of Fort Churchill.

**Records available.**—April 13, 1911, to September 30, 1912.

**Drainage area.**—Not measured.
**Gage.**—Inclined staff on right bank, with vertical high-water section 100 feet south.
**Channel.**—Gravel and sand; fairly permanent.
**Discharge measurements.**—Made at suspension gaging bridge 500 feet above gage, or by wading.
**Winter flow.**—Somewhat affected by ice.
**Diversions.**—Carson and Dayton valleys are irrigated from this stream.
**Accuracy.**—Rating curve is well defined and results are good.
**Cooperation.**—Gage heights and discharge measurements furnished by United States Reclamation Service.

Station is maintained to show amount of water available from the Carson drainage basin for storage in the Lahontan reservoir, now being constructed by the United States Reclamation Service for the Truckee-Carson project.

*Discharge measurements of Carson River near Fort Churchill, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Apr. 1 | D. S. Stuver | 3.50 | 163 | Aug. 24 | D. S. Stuver | 2.70 | 11 |
| May 28 | do | 4.77 | 543 | 24 | do | 2.70 | 11 |
| 30 | do | 5.60 | 946 | | | | |

*Daily gage height, in feet, of Carson River near Fort Churchill, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3.25 | 3.55 | 3.85 | 3.7 | 3.95 | 3.75 | 3.5 | 3.1 | 6.2 | 4.5 | ..... | 2.7 |
| 2 | 3.27 | 3.55 | 3.80 | 5.7 | 3.92 | 3.75 | 3.42 | 3.2 | 6.0 | 3.95 | ..... | 2.73 |
| 3 | 3.35 | 3.58 | 3.90 | 4.7 | 3.88 | 3.75 | 3.3 | 3.28 | 6.2 | 3.95 | ..... | 2.73 |
| 4 | 3.50 | 3.60 | 3.88 | 4.5 | 3.9 | 3.7 | 3.28 | 3.3 | 6.6 | 3.9 | ..... | 2.75 |
| 5 | 3.50 | 3.62 | 3.85 | 4.3 | 3.88 | 3.7 | 3.2 | 3.4 | 6.7 | 3.93 | ..... | 2.75 |
| 6 | 3.60 | 3.63 | 3.83 | 4.45 | 3.9 | 3.7 | 3.3 | 3.5 | 6.6 | 3.95 | ..... | 2.75 |
| 7 | 3.62 | 3.65 | 3.85 | 4.5 | 3.88 | 3.7 | 3.23 | 3.5 | 6.4 | 3.85 | ..... | 2.75 |
| 8 | 3.62 | 3.65 | 3.85 | 4.55 | 3.88 | 3.7 | 3.25 | 3.6 | 6.6 | 3.78 | ..... | 2.77 |
| 9 | 3.52 | 3.65 | 3.85 | 4.0 | 3.88 | 3.7 | 3.2 | 3.65 | 6.5 | 3.68 | ..... | 2.78 |
| 10 | 3.55 | 3.70 | 3.78 | 4.8 | 3.88 | 3.7 | 3.17 | 4.0 | 6.2 | 3.6 | ..... | 2.78 |
| 11 | 3.55 | 3.70 | 3.73 | 4.5 | 3.85 | 3.7 | 3.3 | 4.3 | 5.8 | 3.47 | ..... | 2.8 |
| 12 | 3.57 | 3.75 | 3.70 | 4.6 | 3.8 | 3.7 | 3.15 | 4.55 | 5.6 | 3.3 | ..... | 2.8 |
| 13 | 3.60 | 3.70 | 3.60 | 4.45 | 3.8 | 3.7 | 3.1 | 4.35 | 5.7 | 3.25 | ..... | 2.77 |
| 14 | 3.52 | 3.70 | 3.57 | 4.3 | 3.8 | 3.7 | 3.15 | 4.2 | 5.5 | 3.15 | ..... | 2.75 |
| 15 | 3.50 | 3.78 | 3.63 | 4.2 | 3.8 | 3.7 | 3.2 | 5.3 | 5.4 | 3.08 | 2.9 | 2.77 |
| 16 | 3.48 | 3.78 | 3.70 | 4.2 | 3.8 | 3.7 | 3.18 | 5.4 | 5.0 | 3.1 | 2.92 | 2.78 |
| 17 | 3.50 | 3.85 | 3.70 | 4.15 | 3.8 | 3.7 | 3.18 | 5.9 | 5.0 | 3.15 | 2.88 | 2.8 |
| 18 | 3.53 | 3.87 | 3.65 | 4.1 | ..... | 3.7 | 3.15 | 6.0 | 4.9 | 3.2 | 2.87 | 2.82 |
| 19 | 3.52 | 3.88 | 3.63 | 4.0 | 3.75 | ..... | 3.12 | 6.0 | 4.8 | 3.25 | 2.87 | 2.8 |
| 20 | 3.53 | 3.80 | 3.70 | 3.98 | 3.75 | 3.65 | 3.08 | 6.2 | 4.7 | 3.32 | 2.87 | 2.8 |
| 21 | 3.52 | 3.82 | 3.58 | 3.95 | 3.75 | 3.67 | 3.07 | 6.0 | 4.8 | 3.38 | 2.83 | 2.77 |
| 22 | 3.55 | 3.82 | 3.55 | 3.9 | 3.75 | 3.63 | 3.15 | 5.5 | 4.7 | 3.37 | 2.77 | 2.77 |
| 23 | 3.57 | 3.80 | 3.52 | 3.87 | 3.75 | 3.6 | 3.15 | 5.0 | 4.6 | 3.2 | 2.7 | 2.77 |
| 24 | 3.55 | 3.75 | 3.52 | 3.85 | 3.75 | 3.6 | 3.03 | 4.9 | 4.55 | 3.18 | 2.73 | 2.77 |
| 25 | 3.55 | 3.75 | 3.80 | 3.83 | 3.75 | 3.62 | 3.0 | 4.8 | 4.6 | 3.03 | 2.67 | 2.77 |
| 26 | 3.50 | 3.80 | 3.55 | 3.88 | 3.75 | 3.6 | 2.95 | 4.9 | 4.5 | 3.0 | 2.75 | 2.78 |
| 27 | 3.55 | 3.88 | 3.65 | 3.95 | 3.75 | 3.58 | 3.0 | 4.9 | 4.4 | 3.0 | 2.73 | 2.78 |
| 28 | 3.57 | 3.88 | 3.50 | 4.0 | 3.75 | 3.55 | 3.0 | 4.85 | 4.35 | 2.9 | 2.7 | 2.75 |
| 29 | 3.58 | 3.85 | 4.58 | 3.95 | 3.75 | 3.5 | 3.07 | 5.2 | 4.2 | 2.93 | 2.68 | 2.78 |
| 30 | 3.50 | 3.83 | 4.40 | 3.95 | ..... | 3.47 | 3.2 | 5.6 | 4.1 | 3.0 | 2.68 | 2.8 |
| 31 | 3.55 | ..... | 3.55 | 3.97 | ..... | 3.5 | ..... | 6.1 | ..... | 2.93 | 2.68 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Dec. 29–30 and Jan. 2–18. Observer absent Aug. 1–14.

*Daily discharge, in second-feet, of Carson River near Fort Churchill, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 93 | 158 | 236 | 196 | 266 | 210 | 146 | 66 | 1,290 | 440 | ..... | 11 |
| 2 | 97 | 158 | 222 | ..... | 258 | 210 | 128 | 83 | 1,170 | 266 | ..... | 15 |
| 3 | 113 | 166 | 250 | ..... | 246 | 210 | 103 | 99 | 1,290 | 266 | ..... | 15 |
| 4 | 146 | 171 | 244 | ..... | 252 | 196 | 99 | 103 | 1,570 | 252 | ..... | 17 |
| 5 | 146 | 176 | 236 | ..... | 246 | 196 | 83 | 123 | 1,640 | 260 | ..... | 17 |
| 6 | 171 | 178 | 230 | ..... | 252 | 196 | 103 | 146 | 1,570 | 266 | ..... | 17 |
| 7 | 176 | 184 | 236 | ..... | 246 | 196 | 89 | 146 | 1,430 | 238 | ..... | 17 |
| 8 | 176 | 184 | 236 | ..... | 246 | 196 | 93 | 170 | 1,570 | 218 | ..... | 19 |
| 9 | 151 | 184 | 236 | ..... | 246 | 196 | 83 | 183 | 1,500 | 191 | ..... | 21 |
| 10 | 158 | 196 | 217 | ..... | 246 | 196 | 78 | 280 | 1,290 | 170 | ..... | 21 |
| 11 | 158 | 196 | 204 | ..... | 238 | 196 | 103 | 370 | 1,050 | 139 | ..... | 23 |
| 12 | 164 | 209 | 196 | ..... | 224 | 196 | 74 | 459 | 940 | 103 | ..... | 23 |
| 13 | 171 | 196 | 171 | ..... | 224 | 196 | 66 | 387 | 990 | 93 | ..... | 19 |
| 14 | 151 | 196 | 164 | ..... | 224 | 196 | 74 | 338 | 890 | 74 | ..... | 17 |
| 15 | 146 | 217 | 178 | ..... | 224 | 196 | 83 | 790 | 840 | 63 | 37 | 19 |
| 16 | 141 | 217 | 196 | ..... | 224 | 196 | 80 | 840 | 646 | 66 | 40 | 21 |
| 17 | 146 | 236 | 196 | ..... | 224 | 196 | 80 | 1,110 | 646 | 74 | 34 | 23 |
| 18 | 154 | 242 | 184 | ..... | 217 | 196 | 74 | 1,170 | 602 | 83 | 33 | 26 |
| 19 | 151 | 244 | 178 | 280 | 210 | 190 | 69 | 1,170 | 560 | 93 | 33 | 23 |
| 20 | 154 | 222 | 196 | 274 | 210 | 183 | 63 | 1,290 | 518 | 107 | 33 | 23 |
| 21 | 151 | 228 | 166 | 266 | 210 | 188 | 62 | 1,170 | 560 | 119 | 27 | 19 |
| 22 | 158 | 228 | 158 | 252 | 210 | 178 | 74 | 890 | 518 | 117 | 19 | 19 |
| 23 | 164 | 222 | 151 | 244 | 210 | 170 | 74 | 646 | 478 | 83 | 11 | 19 |
| 24 | 158 | 209 | 151 | 238 | 210 | 170 | 56 | 602 | 459 | 80 | 15 | 19 |
| 25 | 158 | 209 | 222 | 232 | 210 | 175 | 51 | 560 | 478 | 56 | 9 | 19 |
| 26 | 146 | 222 | 158 | 246 | 210 | 170 | 44 | 602 | 440 | 51 | 17 | 21 |
| 27 | 158 | 244 | 184 | 266 | 210 | 165 | 51 | 602 | 404 | 51 | 15 | 21 |
| 28 | 164 | 244 | 146 | 280 | 210 | 158 | 51 | 581 | 387 | 37 | 11 | 17 |
| 29 | 166 | 236 | 150 | 266 | 210 | 146 | 62 | 740 | 338 | 41 | 10 | 21 |
| 30 | 146 | 230 | 154 | 266 | ..... | 139 | 83 | 940 | 308 | 51 | 10 | 23 |
| 31 | 158 | ..... | 158 | 272 | ..... | 146 | ..... | 1,230 | ..... | 41 | 10 | ..... |

NOTE.—Discharge determined from a fairly well defined curve. Discharge interpolated Dec. 29–30. Mean discharge estimated as follows: Jan. 2–18, 150 second-feet; Aug. 1–14, 39 second-feet.

*Monthly discharge of Carson River near Fort Churchill, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 176 | 93 | 151 | 9,280 | A. |
| November | 244 | 158 | 207 | 12,300 | A. |
| December | 250 | 146 | 193 | 11,900 | A. |
| January | 280 | ..... | 198 | 12,200 | C. |
| February | 266 | 210 | 228 | 13,100 | B. |
| March | 210 | 139 | 185 | 11,400 | A. |
| April | 146 | 44 | 79.3 | 4,720 | A. |
| May | 1,290 | 66 | 577 | 35,500 | A. |
| June | 1,640 | 308 | 879 | 52,300 | A. |
| July | 440 | 37 | 135 | 8,300 | A. |
| August | 40 | 9 | 29.4 | 1,810 | B. |
| September | 26 | 11 | 19.5 | 1,160 | A. |
| The year | 1,640 | 9 | 240 | 174,000 | |

### SILVER CREEK NEAR MARKLEEVILLE, CAL.

**Location.**—In the SE. ¼ sec. 14, T. 9 N., R. 20 E., in the Mono National Forest, at Silver Creek, an abandoned post office, about 10 miles above Markleeville.

**Records available.**—November 12, 1910, to August 9, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff fastened to a juniper tree on right bank, 75 feet below footbridge.
**Channel.**—Gravel and bowlders; fairly permanent.
**Discharge measurements.**—Made from footbridge above gage or by wading.
**Winter flow.**—Affected by ice.
**Storage.**—Small reservoirs have been constructed at the Upper and Lower Kinney lakes and Kinney Meadows for use in irrigation.
**Accuracy.**—Results are fair.
**Cooperation.**—Maintained in cooperation with the United States Forest Service.

*Discharge measurements of Silver Creek near Markleeville, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 7 | J. E. Stewart | 2.77 | 5.7 |
| 1912. | | | |
| June 22 | H. J. Tompkins | 4.00 | 94 |

*Daily gage height, in feet, of Silver Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 2.80 | | | | | | | | | |
| 2 | | 2.20 | | 3.5 | | | | | | | |
| 3 | | | | | | 3.0 | | | | | |
| 4 | | | | | 3.0 | 3.0 | 3.0 | 3.4 | 5.0 | 3.5 | |
| 5 | | 2.00 | | | | | | | | | |
| 6 | | 2.00 | | 3.5 | | 3.0 | | | | | |
| 7 | | 2.77 | | | | | | | | | |
| 8 | | | | | 3.0 | | | 3.5 | | | |
| 9 | | | | | | | 3.3 | | | 3.0 | 3.17 |
| 10 | | | | 3.5 | | 3.0 | | | | | |
| 11 | 3.10 | | | | 3.0 | | | | | | |
| 12 | | | | | | | | 4.0 | | | |
| 13 | | | | 3.0 | | 3.0 | 3.0 | | 4.4 | | |
| 14 | | | | | | | | | | 3.0 | |
| 15 | | | | | 3.0 | | | 5.0 | | | |
| 16 | | | | 3.0 | | 3.0 | | | | | |
| 17 | | | | | 3.0 | | 3.0 | | | | |
| 18 | | | | | | | | | | 6.0 | |
| 19 | | | | | | | | | | | |
| 20 | | | | | 3.0 | | | 4.5 | | | |
| 21 | | | | 3.0 | | 3.0 | 3.0 | | | | |
| 22 | | | | | | | | | 4.0 | | |
| 23 | | | | 3.0 | | | | | | | |
| 23 | | | | | | | 3.3 | | | | |
| 25 | | | | | 3.0 | 3.0 | | 4.0 | | | |
| 26 | | | | | | 2.98 | | | | | |
| 27 | | | | 3.0 | 3.0 | | | | | | |
| 28 | | | | | | | | | | | |
| 29 | | | | 2.9 | | | 3.4 | 4.3 | | | |
| 30 | 2.80 | | | | | 2.9 | | | | | |
| 31 | 3.00 | | 3.00 | | | | | | | | |

NOTE.—Ice existed at the station during portions of January and February, 1912, but it is believed that only records for Jan. 1–11, 1912, were affected thereby. Cloudburst on July 19.

*Daily discharge, in second-feet, of Silver Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 7 | | | 14 | | | | | |
| 2 | | 1 | | 14 | | | | | | |
| 3 | | | | | | 14 | | | | |
| 4 | | | | | 14 | 14 | 14 | 36 | 292 | 43 |
| 5 | | 1 | | | | | | | | |
| 6 | | 1 | | 14 | | 14 | | | | |
| 7 | | 5.7 | | | | | | | | |
| 8 | | | | | 14 | | | 43 | | |
| 9 | | | | | | | 30 | | | 14 |
| 10 | | | | 14 | | 14 | | | | |
| 11 | 19 | | | | 14 | | | | | |
| 12 | | | | | | | | 92 | | |
| 13 | | | | 14 | | 14 | 14 | | 152 | |
| 14 | | | | | | | | | | 14 |
| 15 | | | | | 14 | | | 292 | | |
| 16 | | | | 14 | | 14 | | | | |
| 17 | | | | | 14 | | 14 | | | |
| 18 | | | | | | | | | | 653 |
| 19 | | | | | | | | | | |
| 20 | | | | | 14 | | | 172 | | |
| 21 | | | | 14 | | 14 | 14 | | | |
| 22 | | | | | | | | | 92 | |
| 23 | | | | 14 | | | | | | |
| 24 | | | | | | | 30 | | | |
| 25 | | | | | 14 | 14 | | 92 | | |
| 26 | | | | | | 13 | | | | |
| 27 | | | | 14 | 14 | | | | | |
| 28 | | | | | | | | | | |
| 29 | | | | 10 | | | 36 | 135 | | |
| 30 | 7 | | | | | 10 | | | | |
| 31 | 14 | | 14 | | | | | | | |

NOTE.—Daily discharge determined from a rating curve fairly well defined between 70 and 350 second-feet, applicable Oct. 1, 1911, to July 18, 1912. Discharge estimated Jan. 1–11, 1912, on account of ice. Discharge on July 18 probably is not the mean for the day. No estimate for Aug. 9, owing to probable shift in channel July 18.

*Monthly discharge of Silver Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 19 | 7 | 11.4 | 701 | D. |
| November | | | a 10.0 | 595 | D. |
| December | | | a 8.0 | 492 | D. |
| January | 14 | 10 | 13.6 | 836 | C. |
| February | 14 | 14 | 14.0 | 805 | C. |
| March | 14 | 10 | 13.5 | 830 | C. |
| April | 36 | 14 | 21.1 | 1,260 | C. |
| May | 292 | 36 | 123 | 7,560 | B. |
| June | 292 | 92 | 157 | 9,340 | B. |
| The period | | | | 22,400 | |

a Estimated.

NOTE.—Monthly means computed by interpolating for days on which gage was not read. Maximum and minimum refer only to days when gage was actually read.

### MARKLEEVILLE CREEK[1] NEAR MARKLEEVILLE, CAL.

**Location.**—At highway bridge above mouth of Pleasant Valley Creek and three-fourths of a mile above Markleeville.

**Records available.**—November 7, 1911, to September 9, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on left abutment of bridge.

**Channel.**—Gravel and small bowlders; fairly permanent.

**Discharge measurements.**—Made from bridge or by wading.

**Winter flow.**—Somewhat affected by ice.

**Diversions.**—Town ditch, which heads above the gage, furnishes water for irrigation and domestic supply at Markleeville. In addition a small ditch diverts water for irrigation on Hot Springs ranch.

**Accuracy.**—Rating curve fairly well defined; results are fair.

**Cooperation.**—Maintained in cooperation with the United States Forest Service.

*Discharge measurement of Markleeville Creek near Markleeville, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 7 | J. E. Stewart | 5.60 | 2.6 |
| 1912. | | | |
| June 21 | H. J. Tompkins | 6.30 | 34 |

*Daily gage height, in feet, of Markleeville Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

[John E. Smith and W. S. McMillan, observers.]

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | 5.85 | | | 5.9 | | |
| 2 | | | 5.88 | 5.85 | 5.78 | 5.88 | | | | | |
| 3 | | | | 5.8 | | 5.9 | 6.0 | | | | |
| 4 | | | | | 5.8 | | 6.0 | | | | |
| 5 | | | | 5.9 | 5.8 | 5.9 | | | | | |
| 6 | | | | 5.8 | | | | | | 5.6 | |
| 7 | 5.6 | | | 5.8 | 5.8 | 6.05 | 6.2 | | 5.9 | | |
| 8 | | | | 5.81 | 5.8 | | | | | | |
| 9 | | | | 5.8 | 5.8 | | 6.7 | | | | 5.1 |
| 10 | | | | 5.82 | | | 6.6 | | | | |
| 11 | | | | 5.81 | 5.8 | 6.1 | 6.4 | | | | |
| 12 | | 6.0 | 5.9 | 5.9 | | 6.1 | | | | | |
| 13 | | | 5.88 | 5.82 | 5.8 | 6.0 | 6.68 | | | | |
| 14 | | | | 5.82 | 5.88 | | 6.8 | | | 5.4 | |
| 15 | | 5.2 | | 5.89 | | 6.08 | 6.9 | 6.68 | | | |
| 16 | | | 5.8 | 5.89 | 5.82 | 6.02 | 7.0 | | 5.58 | | |
| 17 | | | 5.75 | 5.89 | | 6.0 | 7.0 | | | | |
| 18 | 5.8 | | 5.78 | 5.9 | 5.85 | | | 6.18 | | | |
| 19 | | | 5.8 | 5.84 | 5.82 | | | | | | |
| 20 | | | 5.8 | 5.88 | 5.85 | | | | | | |
| 21 | | | | | 5.9 | | | 6.3 | | | |
| 22 | | | 5.8 | 5.9 | 5.86 | | | | | | |
| 23 | | | 5.8 | 5.82 | 5.85 | | | | | | |
| 24 | | 5.8 | 5.8 | 5.82 | | | | | 5.45 | | |
| 25 | 6.0 | | 5.8 | 5.9 | 5.83 | | | | | | |
| 26 | | | 5.85 | 5.85 | | | | | | | |
| 27 | | | 6.00 | | 5.82 | | | | | | |
| 28 | | | | 5.85 | | | | | | | |
| 29 | | | 6.0 | 5.8 | | | | 6.42 | | | |
| 30 | | | | | 5.85 | | | | | 5.2 | |
| 31 | | | 5.85 | | | | | | | | |

NOTE.—Ice existed at the station Nov. 25 to Jan. 30. Gage height Dec. 15 probably recorded 1 foot too low.

[1] Locally known as Hot Springs Creek.

*Daily discharge, in second-feet, of Markleeville Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 9.2 | 7.0 | 9.2 | 15 | | 11 | | |
| 2 | | 9.2 | 6.7 | 10 | 15 | | | | |
| 3 | | 7.3 | 7.0 | 11 | 15 | | | | |
| 4 | | 9.2 | 7.3 | 11 | 15 | | | | |
| 5 | | 11 | 7.3 | 11 | 19 | | | | |
| 6 | | 7.3 | 7.3 | 14 | 22 | | | 2.6 | |
| 7 | | 7.3 | 7.3 | 18 | 26 | | 11 | | |
| 8 | | 7.7 | 7.3 | 18 | 50 | | | | |
| 9 | | 7.3 | 7.3 | 19 | 74 | | | | 0.4 |
| 10 | | 8.0 | 7.3 | 20 | 64 | | | | |
| 11 | | 7.7 | 7.3 | 20 | 44 | | | | |
| 12 | | 11 | 7.3 | 20 | 58 | | | | |
| 13 | | 8.0 | 7.3 | 15 | 72 | | | | |
| 14 | | 8.0 | 10 | 17 | 85 | | | 1.3 | |
| 15 | | 11 | 9.0 | 19 | 97 | 72 | | | |
| 16 | 7.3 | 11 | 8.0 | 16 | 110 | | 2.4 | | |
| 17 | 5.9 | 11 | 8.6 | 15 | 110 | | | | |
| 18 | 6.7 | 11 | 9.2 | | | | | | |
| 19 | 7.3 | 8.8 | 8.0 | | | | | | |
| 20 | 7.3 | 10 | 9.2 | | | | | | |
| 21 | 7.3 | 10 | 11 | | | 34 | | | |
| 22 | 7.3 | 11 | 9.5 | | | | | | |
| 23 | 7.3 | 8.0 | 9.2 | | | 25 | | | |
| 24 | 7.3 | 8.0 | 8.8 | | | | 1.6 | | |
| 25 | 7.3 | 11 | 8.4 | | | | | | |
| 26 | 7.3 | 9.2 | 8.2 | | | | | | |
| 27 | 7.3 | 9.2 | 8.0 | | | | | | |
| 28 | 7.3 | 9.2 | 8.3 | | | | | | |
| 29 | 7.3 | 7.3 | 8.9 | | | 46 | | | |
| 30 | 7.3 | | 9.2 | | | | | .7 | |
| 31 | 9.2 | | 9.2 | | | | | | |

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge estimated, because of ice, Jan. 1–15, 60 second-feet, Jan. 26–30, 7.3 second-feet. Discharge interpolated for days for which gage heights are missing from Jan. 1 to May 17.

*Monthly discharge of Markleeville Creek near Markleeville, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| January | 9.2 | | 6.67 | 410 | C. |
| February | 11 | 7.3 | 9.10 | 523 | C. |
| March | 11 | 6.7 | 8.21 | 505 | B. |
| April 1–17 | 20 | 9.2 | 15.5 | 523 | B. |
| May 1–17 | 110 | 15 | 52.4 | 1,770 | B. |
| June 15–30 | 72 | 25 | 42.3 | 1,340 | D. |
| July | 11 | 1.6 | 5.12 | 315 | D. |
| August | | | [a] 1.5 | 92.2 | D. |

[a] Estimated. Data for November and December, 1911, insufficient for estimates.

### MARKLEEVILLE CREEK AT MARKLEEVILLE, CAL.

**Location.**—At the highway bridge at Markleeville, in the SE. ¼ sec. 21, T. 10 N. R. 20 E.

**Records available.**—November 11, 1910, to August 2, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on left abutment of highway bridge.

**Channel.**—Composed of gravel and bowlders; banks high and not subject to overflow.

**Discharge measurements.**—Made from bridge.

**Winter flow.**—Probably affected by ice at times.

**Diversions.**—Two ditches divert water from Hot Springs Creek (the union of which with Pleasant Valley Creek forms Markleeville Creek, three-fourths mile above the station); the upper ditch, which is small, irrigated the Hot Springs ranch; the lower, known as the Town ditch, was built in the early days to furnish water for domestic use at Markleeville, then a mining camp; later this ditch was rebuilt and extended to irrigate land below the town.

**Accuracy.**—Rating curve is well defined and records are fair.

**Cooperation.**—Station maintained in cooperation with the United States Forest Service.

*Discharge measurements of Markleeville Creek at Markleeville, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 6 | J. E. Stewart | 1.88 | 9.4 |
| 1912. | | | |
| June 21 | H. J. Tompkins | 3.00 | 96 |

*Daily gage height, in feet, of Markleeville Creek at Markleeville, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2.1 | 2.35 | 2.05 | 2.0 | 2.12 | | | 2.45 | |
| 2 | | | | 2.05 | 2.1 | 1.98 | 2.22 | | | | 1.8 |
| 3 | | | | 2.2 | 2.1 | 2.0 | 2.28 | 2.5 | | | |
| 4 | 1.9 | 1.9 | | 2.48 | 2.1 | 2.0 | 2.3 | 2.5 | | | |
| 5 | | | | 2.4 | 2.0 | 2.0 | 2.32 | 2.55 | | | |
| 6 | | 1.88 | | 2.1 | 2.0 | 2.1 | 2.3 | 2.55 | | | |
| 7 | 1.92 | | | 2.0 | 2.0 | 2.0 | 2.3 | 2.7 | | 2.3 | |
| 8 | | | | 2.0 | 2.02 | 2.0 | | 3.0 | | | |
| 9 | | | | 2.0 | 2.02 | 2.0 | | 3.3 | | | |
| 10 | | | | 2.05 | 2.03 | 2.0 | | 3.4 | | | |
| 11 | | 2.0 | | 2.0 | 2.08 | 2.0 | 2.5 | 3.4 | | | |
| 12 | | | 2.2 | 2.0 | 2.0 | 2.0 | 2.4 | | | | |
| 13 | | | | 2.0 | 2.0 | 2.0 | 2.4 | 3.6 | | | |
| 14 | | | | 2.0 | 2.05 | 2.05 | 2.4 | 3.7 | | | |
| 15 | | | 2.0 | 2.0 | 2.03 | 2.0 | 2.4 | 3.95 | 3.15 | | |
| 16 | | | | 2.02 | 2.02 | 2.0 | 2.42 | 4.0 | | 2.09 | |
| 17 | | | | 1.98 | 2.05 | 2.02 | 2.41 | 4.1 | | | |
| 18 | 1.78 | 1.8 | | 1.97 | 2.1 | 2.02 | | 4.1 | | | |
| 19 | | | | 1.96 | 2.02 | 2.02 | | | | | |
| 20 | | | | 1.98 | 2.1 | 2.05 | | | | | |
| 21 | | | | 2.0 | 2.04 | 2.0 | | | | | |
| 22 | 1.98 | | 2.2 | 2.0 | 2.05 | 2.02 | | | | | |
| 23 | | | | 2.0 | 2.0 | 2.02 | | | 2.75 | | |
| 24 | | | | 2.0 | 2.0 | 2.06 | | | | 1.78 | |
| 25 | | 1.95 | | 2.0 | 2.05 | 2.04 | | | | | |
| 26 | | | | 2.1 | 2.1 | 2.1 | | | | | |
| 27 | | | | 2.1 | 2.0 | 2.04 | | | | | |
| 28 | | | | 2.1 | 2.0 | 2.1 | | | | | |
| 29 | | | | 2.1 | 2.0 | 2.12 | | | 2.86 | | |
| 30 | | 1.97 | | 2.1 | | 2.12 | | | | | |
| 31 | 1.92 | | 2.4 | 2.08 | | 2.12 | | | | | |

NOTE.—Ice existed at this station during December and January, but it is believed that records from Dec. 16 to Jan. 6 only were affected thereby.

*Daily discharge, in second-feet, of Markleeville Creek at Markleeville, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 20 | 15 | 18 | 16 | 21 | | | 40 | |
| 2 | | | | 15 | 20 | 15 | 26 | | | | 9 |
| 3 | | | | 15 | 20 | 16 | 30 | 44 | | | |
| 4 | 12 | 12 | | 15 | 20 | 16 | 31 | 44 | | | |
| 5 | | | | 15 | 16 | 16 | 32 | 48 | | | |
| 6 | | 9.4 | | 15 | 16 | 20 | 31 | 48 | | | |
| 7 | 13 | | | 16 | 16 | 16 | 31 | 60 | | 31 | |
| 8 | | | | 16 | 17 | 16 | 34 | 95 | | | |
| 9 | | | | 16 | 17 | 16 | 37 | 140 | | | |
| 10 | | | | 18 | 17 | 16 | 40 | 158 | | | |
| 11 | | 16 | | 16 | 19 | 16 | 44 | 158 | | | |
| 12 | | | 25 | 16 | 16 | 16 | 37 | 179 | | | |
| 13 | | | | 16 | 16 | 16 | 37 | 200 | | | |
| 14 | | | | 16 | 18 | 18 | 37 | 222 | | | |
| 15 | | | 20 | 16 | 17 | 16 | 37 | 290 | 116 | | |
| 16 | | | | 17 | 17 | 16 | 38 | 305 | | 20 | |
| 17 | | | | 15 | 18 | 17 | 38 | 338 | | | |
| 18 | 8.6 | 9 | | 15 | 20 | 17 | | 338 | | | |
| 19 | | | | 14 | 17 | 17 | | | | | |
| 20 | | | | 15 | 20 | 18 | | | | | |
| 21 | | | | 16 | 18 | 16 | | | | | |
| 22 | 15 | | 15 | 16 | 18 | 17 | | | 71 | | |
| 23 | | | | 16 | 16 | 17 | | | | | |
| 24 | | | | 16 | 16 | 18 | | | | | |
| 25 | | 14 | | 16 | 18 | 18 | | | | | |
| 26 | | | | 20 | 20 | 20 | | | | | |
| 27 | | | | 20 | 16 | 18 | | | | | |
| 28 | | | | 20 | 16 | 20 | | | 75 | | |
| 29 | | | | 20 | 16 | 21 | | | | | |
| 30 | | 15 | | 20 | | 21 | | | | | |
| 31 | 13 | | 15 | 19 | | 21 | | | | | |

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge estimated Dec. 16 to Jan. 6 because of ice.

*Monthly discharge of Markleeville Creek at Markleeville, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 15 | 8.6 | 12.1 | 744 | C. |
| November | 16 | 9 | 12.8 | 762 | C. |
| December | 25 | | 18.5 | 1,140 | C. |
| January | 20 | 14 | 16.5 | 1,010 | B. |
| February | 20 | 16 | 17.6 | 1,010 | B. |
| March | 21 | 15 | 17.3 | 1,060 | B. |
| April 1–17 | 44 | 21 | 34.2 | 1,150 | B. |
| May 3–18 | 338 | 44 | 167 | 5,300 | B. |
| June 15–30 | 116 | 65 | 82.6 | 2,620 | B. |
| July | 40 | 9 | 20.7 | 1,270 | D. |

### WEST FORK OF CARSON RIVER AT WOODFORDS, CAL.

**Location.**—Above highway bridge at Woodfords, in the SE. ¼ sec. 34, T. 11 N., R. 19 E.

**Records available.**—April, 1890, to March, 1892; October 18, 1900, to September 30, 1912.

**Drainage area.**—70 square miles.

**Gage.**—October 18, 1900, to May 18, 1907, gage located at cable. June 8, 1907, to date gage just above highway bridge at Woodfords, half a mile below site previously used. During portions of 1910 and 1911 gage records secured by the Stone & Webster Engineering Corporation are also available; these were read on a gage one-fourth mile above the cable.

**Channel.**—Fine gravel and bowlders; section rough but fairly permanent.

**Discharge measurements.**—Made from car and cable half a mile above lower gage or by wading.

**Winter flow.**—Somewhat affected by ice.

**Diversions.**—Three irrigation ditches head between cable and lower gage.

**Accuracy.**—Measurements plot rather scattering, but results are believed to be fairly reliable.

**Cooperation.**—Gage-height record furnished by the United States Reclamation Service.

*Discharge measurements of West Fork of Carson River at Woodfords, Cal., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Oct. 10 | Stone & Webster Engineering Corporation | 0.60 | 26 |
| Nov. 6 | J. E. Stewart | *a*.68 | 30 |
| 1912. | | | |
| Feb 22 | Stone & Webster Engineering Corporation | 1.10 | 40 |
| 23 | ....do | .81 | 22 |
| June 23 | H. J. Tompkins | 2.03 | 119 |

*a* Refers to Stone & Webster gage above cable. The gage heights of the other measurements refer to the gage at highway bridge.

*Daily gage height, in feet, of West Fork of Carson River at Woodfords, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.20 | 1.10 | 1.60 | ..... | 1.3 | 1.3 | 1.65 | 1.5 | 3.7 | 2.0 | ..... | 0.6 |
| 2 | 1.20 | ..... | 1.60 | ..... | 1.3 | 1.3 | 1.7 | ..... | ..... | 1.95 | 0.8 | ..... |
| 3 | 1.20 | 1.10 | 1.55 | 1.2 | 1.3 | 1.2 | ..... | 1.6 | ..... | 1.9 | ..... | ..... |
| 4 | 1.20 | 1.10 | 1.50 | 1.2 | ..... | 1.1 | ..... | 1.7 | 3.4 | ..... | .8 | .65 |
| 5 | 1.20 | 1.10 | 1.50 | 1.2 | 1.3 | 1.0 | 1.8 | 1.8 | 3.4 | ..... | .8 | .7 |
| 6 | 1.15 | 1.10 | 1.40 | 1.25 | 1.3 | .9 | 1.9 | 1.95 | 3.3 | 1.9 | .8 | .85 |
| 7 | 1.10 | 1.15 | 1.40 | 1.3 | 1.3 | ..... | 2.0 | 2.1 | 3.4 | 1.8 | .7 | 1.2 |
| 8 | 1.10 | 1.20 | 1.40 | ..... | ..... | 1.0 | 2.2 | 2.6 | 3.3 | 1.6 | ..... | 1.3 |
| 9 | 1.10 | 1.20 | 1.40 | 1.3 | ..... | 1.2 | 2.3 | 3.0 | 3.2 | ..... | ..... | ..... |
| 10 | 1.10 | 1.20 | 1.35 | 1.3 | 1.3 | 1.3 | 2.2 | 3.6 | 3.1 | 1.6 | .7 | 1.1 |
| 11 | 1.10 | 1.20 | 1.30 | 1.3 | 1.3 | 1.4 | 2.0 | 3.8 | 3.0 | 1.6 | .6 | 1.1 |
| 12 | 1.10 | 1.20 | 1.30 | 1.3 | 1.3 | ..... | 1.9 | 3.9 | ..... | 1.8 | .6 | 1.1 |
| 13 | 1.10 | 1.20 | 1.30 | ..... | ..... | 1.4 | ..... | 4.0 | ..... | 1.7 | ..... | 1.1 |
| 14 | 1.10 | 1.30 | 1.30 | ..... | 1.3 | 1.4 | 1.8 | 4.2 | 2.9 | 1.9 | ..... | .95 |
| 15 | 1.10 | 1.30 | 1.20 | 1.3 | 1.3 | 1.3 | 1.7 | 4.4 | 2.8 | ..... | .7 | ..... |
| 16 | 1.10 | 1.30 | 1.20 | 1.3 | 1.3 | 1.35 | 1.7 | 4.0 | 2.7 | 1.7 | .7 | 1.0 |
| 17 | 1.10 | 1.30 | 1.20 | ..... | 1.3 | 1.3 | ..... | 4.3 | 2.6 | 1.6 | .7 | 1.0 |
| 18 | 1.10 | 1.35 | 1.20 | 1.3 | ..... | ..... | ..... | 4.0 | ..... | 1.6 | .7 | 1.0 |
| 19 | 1.10 | 1.38 | 1.20 | 1.3 | 1.4 | 1.3 | 1.6 | 4.0 | ..... | 1.5 | .7 | ..... |
| 20 | 1.10 | 1.40 | 1.20 | 1.25 | 1.5 | ..... | 1.6 | 3.8 | 2.7 | ..... | .7 | 1.0 |
| 21 | 1.10 | 1.40 | 1.20 | 1.2 | 1.5 | 1.35 | 1.5 | ..... | 2.8 | ..... | .7 | 1.0 |
| 22 | 1.10 | 1.40 | 1.10 | 1.2 | 1.1 | 1.4 | 1.5 | 3.6 | 2.9 | 1.3 | ..... | 1.0 |
| 23 | 1.10 | 1.45 | 1.10 | ..... | .81 | 1.4 | ..... | 3.4 | 2.03 | 1.2 | .7 | .9 |
| 24 | 1.10 | 1.50 | 1.10 | 1.3 | 1.35 | 1.45 | 1.55 | 3.0 | ..... | ..... | .6 | .9 |
| 25 | 1.10 | 1.55 | 1.10 | 1.35 | 1.35 | 1.45 | ..... | 3.0 | 2.7 | 1.0 | ..... | ..... |
| 26 | 1.10 | 1.58 | 1.10 | 1.3 | 1.3 | ..... | 1.4 | 3.2 | 2.5 | ..... | .6 | ..... |
| 27 | 1.10 | 1.60 | 1.10 | ..... | 1.35 | ..... | 1.4 | 3.4 | ..... | .9 | .6 | .9 |
| 28 | 1.10 | 1.60 | 1.10 | 1.3 | 1.3 | 1.5 | 1.4 | 3.6 | ..... | .9 | ..... | .9 |
| 29 | 1.10 | 1.60 | 1.10 | 1.25 | ..... | 1.5 | ..... | 3.7 | 2.2 | .9 | .6 | 1.0 |
| 30 | 1.10 | 1.65 | 1.10 | 1.25 | ..... | 1.6 | 1.4 | 3.8 | 2.1 | .9 | .6 | ..... |
| 31 | 1.10 | ..... | 1.15 | ..... | ..... | ..... | ..... | 3.8 | ..... | .85 | .6 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Feb. 19–21.

*Daily discharge, in second-feet, of West Fork of Carson River at Woodfords, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47 | 41 | 79 | 44 | 54 | 54 | 84 | 70 | 489 | 117 | 27 | 17 |
| 2 | 47 | 41 | 79 | 46 | 54 | 54 | 88 | 74 | 460 | 112 | 26 | 18 |
| 3 | 47 | 41 | 74 | 47 | 54 | 47 | 91 | 79 | 432 | 107 | 26 | 18 |
| 4 | 47 | 41 | 70 | 47 | 54 | 41 | 94 | 88 | 403 | 107 | 26 | 19 |
| 5 | 47 | 41 | 70 | 47 | 54 | 36 | 97 | 97 | 403 | 107 | 26 | 21 |
| 6 | 44 | 41 | 62 | 50 | 54 | 31 | 107 | 112 | 375 | 107 | 26 | 28 |
| 7 | 41 | 44 | 62 | 54 | 54 | 34 | 117 | 130 | 403 | 97 | 21 | 47 |
| 8 | 41 | 47 | 62 | 54 | 54 | 36 | 145 | 210 | 375 | 79 | 21 | 54 |
| 9 | 41 | 47 | 62 | 54 | 54 | 47 | 160 | 296 | 347 | 79 | 21 | 48 |
| 10 | 41 | 47 | 58 | 54 | 54 | 54 | 145 | 460 | 321 | 79 | 21 | 41 |
| 11 | 41 | 47 | 54 | 54 | 54 | 62 | 117 | 519 | 296 | 79 | 17 | 41 |
| 12 | 41 | 47 | 54 | 54 | 54 | 62 | 107 | 549 | 288 | 97 | 17 | 41 |
| 13 | 41 | 47 | 54 | 54 | 54 | 62 | 102 | 580 | 281 | 88 | 18 | 41 |
| 14 | 41 | 54 | 54 | 54 | 54 | 62 | 97 | 643 | 273 | 107 | 20 | 34 |
| 15 | 41 | 54 | 47 | 54 | 54 | 54 | 88 | 710 | 250 | 98 | 21 | 35 |
| 16 | 41 | 54 | 47 | 54 | 54 | 58 | 88 | 580 | 230 | 88 | 21 | 36 |
| 17 | 41 | 54 | 47 | 54 | 54 | 54 | 85 | 676 | 210 | 79 | 21 | 36 |
| 18 | 41 | 58 | 47 | 54 | 51 | 54 | 82 | 580 | 216 | 79 | 21 | 36 |
| 19 | 41 | 60 | 47 | 54 | 48 | 54 | 79 | 580 | 223 | 70 | 21 | 36 |
| 20 | 41 | 62 | 47 | 50 | 46 | 56 | 79 | 519 | 230 | 65 | 21 | 36 |
| 21 | 41 | 62 | 47 | 47 | 44 | 58 | 70 | 490 | 250 | 59 | 21 | 36 |
| 22 | 41 | 62 | 41 | 47 | 41 | 62 | 70 | 460 | 273 | 54 | 21 | 36 |
| 23 | 41 | 66 | 41 | 50 | 26 | 62 | 72 | 403 | 121 | 47 | 21 | 31 |
| 24 | 41 | 70 | 41 | 54 | 58 | 66 | 74 | 296 | 176 | 42 | 17 | 31 |
| 25 | 41 | 74 | 41 | 58 | 58 | 66 | 68 | 296 | 230 | 36 | 17 | 31 |
| 26 | 41 | 77 | 41 | 54 | 54 | 67 | 62 | 347 | 192 | 34 | 17 | 31 |
| 27 | 41 | 79 | 41 | 54 | 58 | 68 | 62 | 403 | 176 | 31 | 17 | 31 |
| 28 | 41 | 79 | 41 | 54 | 54 | 70 | 62 | 460 | 161 | 31 | 17 | 31 |
| 29 | 41 | 79 | 41 | 50 | 54 | 70 | 62 | 489 | 145 | 31 | 17 | 36 |
| 30 | 41 | 84 | 41 | 50 | ..... | 79 | 62 | 519 | 130 | 31 | 17 | 38 |
| 31 | 41 | ..... | 44 | 52 | ..... | 82 | ..... | 519 | ..... | 28 | 17 | ..... |

NOTE.—Daily discharge determined from a fairly well defined curve. Discharge estimated Feb. 19–21. Discharge interpolated for days on which gage was not read.

*Monthly discharge of West Fork of Carson River at Woodfords, Cal., for year ending Sept. 30, 1912.*

[Drainage area, 70 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 47 | 41 | 42 | 0.600 | 0.69 | 2,580 | B. |
| November | 84 | 41 | 57 | .814 | .91 | 3,390 | B. |
| December | 79 | 41 | 53 | .757 | .87 | 3,260 | B. |
| January | 58 | 44 | 51.7 | .739 | .85 | 3,180 | B. |
| February | 58 | 26 | 52.1 | .744 | .80 | 3,000 | B. |
| March | 82 | 31 | 56.8 | .811 | .94 | 3,490 | B. |
| April | 160 | 62 | 90.5 | 1.29 | 1.44 | 5,390 | B. |
| May | 710 | 70 | 395 | 5.64 | 6.50 | 24,300 | B. |
| June | 489 | 121 | 279 | 3.99 | 4.45 | 16,600 | B. |
| July | 117 | 28 | 73.1 | 1.04 | 1.20 | 4,490 | B. |
| August | 27 | 17 | 20.6 | .294 | .34 | 1,270 | B. |
| September | 54 | 17 | 33.8 | .483 | .54 | 2,010 | B. |
| The year | 710 | 17 | 100 | 1.43 | 19.53 | 73,000 | |

## HUMBOLDT RIVER BASIN.

### HUMBOLDT RIVER AT PALISADE, NEV.

**Location.**—At highway bridge at Palisade, about 5 miles above mouth of Pine Creek, and 100 feet below Southern Pacific Railroad bridge.

**Records available.**—November 27, 1902, to October 19, 1906; July 26, 1911, to September 30, 1912.

**Drainage area.**—5,010 square miles.

**Gage.**—Chain gage installed December 1, 1911, at highway bridge at same datum as inclined staff installed July 26, 1911. The original vertical staff gage at a different datum, which was nailed to the bridge abutment, was destroyed during the high water of 1910.

**Channel.**—Sand and gravel; fairly permanent.

**Discharge measurements.**—Made from car and cable about one-eighth mile above gage.

**Winter flow.**—Affected by ice.

**Accuracy.**—Records fair.

**Cooperation.**—Maintained in cooperation with Office of Experiment Stations, United States Department of Agriculture, through F. L. Peterson, irrigation engineer.

*Discharge measurements of Humboldt River at Palisade, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 19 | F. L. Peterson | 2.10 | 158 | May 29 | F. L. Peterson | 4.80 | 1,180 |
| Mar. 25 | do | 2.65 | 269 | July 19 | do | 2.98 | 404 |
| Apr. 14 | do | 3.38 | 588 | | | | |

*Daily gage height, in feet, of Humboldt River at Palisade, Nev., for year ending Sept. 30, 1912.*

[Miss Albina Siri, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | 1.6 | 1.6 | ..... | 2.0 | 2.4 | 2.9 | 4.0 | 5.0 | 4.4 | 2.5 | 1.6 |
| 2 | 1.5 | 1.6 | 1.6 | ..... | 2.0 | 2.4 | 2.9 | 3.9 | 5.0 | 4.3 | 2.5 | 1.6 |
| 3 | 1.5 | 1.6 | 1.6 | ..... | 1.9 | 2.4 | 2.9 | 3.9 | 5.0 | 4.2 | 2.5 | 1.6 |
| 4 | 1.5 | 1.6 | 1.6 | ..... | 1.9 | 2.4 | 2.9 | 3.9 | 5.0 | 4.1 | 2.4 | 1.6 |
| 5 | 1.5 | 1.6 | 1.6 | ..... | 1.95 | 2.5 | 3.0 | 3.9 | 5.4 | 3.9 | 2.5 | 1.6 |
| 6 | 1.5 | 1.6 | 1.6 | ..... | 2.0 | 2.5 | 3.1 | 3.9 | 5.6 | 3.9 | 2.5 | 1.6 |
| 7 | 1.5 | 1.7 | 1.6 | ..... | 2.05 | 2.7 | 3.1 | 3.9 | 5.8 | 3.8 | 2.5 | 1.6 |
| 8 | 1.5 | 1.7 | 1.6 | ..... | 2.1 | 2.5 | 3.2 | 3.9 | 6.0 | 3.7 | 2.4 | 1.6 |
| 9 | 1.5 | 1.7 | 1.6 | ..... | 2.1 | 2.5 | 3.2 | 3.9 | 6.2 | 3.6 | 2.3 | 1.6 |
| 10 | 1.5 | 1.7 | 1.6 | ..... | 2.1 | 2.6 | 3.2 | 4.0 | 6.6 | 3.5 | 2.3 | 1.6 |
| 11 | 1.6 | 1.8 | 1.6 | ..... | 2.1 | 2.7 | 3.3 | 4.1 | 6.8 | 3.4 | 2.3 | 1.6 |
| 12 | 1.6 | 1.8 | 1.7 | ..... | 2.1 | 2.7 | 3.3 | 4.1 | 7.0 | 3.4 | 2.2 | 1.6 |
| 13 | 1.6 | 1.8 | 1.7 | 1.8 | 2.1 | 2.7 | 3.4 | 4.2 | 7.1 | 3.3 | 2.2 | 1.6 |
| 14 | 1.6 | 1.8 | 1.7 | 1.7 | 2.15 | 2.7 | 3.4 | 4.2 | 7.2 | 3.2 | 2.1 | 1.6 |
| 15 | 1.6 | 1.8 | 1.7 | 1.7 | 2.2 | 2.6 | 3.45 | 4.3 | 7.5 | 3.1 | 2.1 | 1.6 |
| 16 | 1.6 | 1.8 | 1.8 | 1.8 | 2.2 | 2.6 | 3.5 | 4.4 | 7.2 | 3.1 | 2.0 | 1.6 |
| 17 | 1.6 | 1.8 | 1.8 | 1.8 | 2.2 | 2.6 | 3.5 | 4.5 | 7.0 | 3.1 | 2.0 | 1.6 |
| 18 | 1.6 | 1.8 | 1.7 | 1.8 | 2.2 | 2.6 | 3.6 | 4.6 | 6.8 | 3.0 | 2.0 | 1.6 |
| 19 | 1.6 | 1.8 | 1.9 | 1.8 | 2.3 | 2.6 | 3.6 | 4.7 | 6.6 | 3.0 | 2.0 | 1.6 |
| 20 | 1.6 | 1.8 | 1.8 | 1.8 | 2.3 | 2.6 | 3.6 | 4.8 | 6.3 | 3.5 | 2.0 | 1.6 |
| 21 | 1.6 | 1.7 | 1.7 | 1.8 | 2.3 | 2.6 | 3.7 | 4.8 | 6.0 | 3.4 | 1.9 | 1.6 |
| 22 | 1.6 | 1.7 | 1.7 | 1.9 | 2.3 | 2.6 | 3.7 | 5.0 | 5.8 | 3.4 | 1.9 | 1.6 |
| 23 | 1.6 | 1.7 | 1.7 | 1.9 | 2.3 | 2.7 | 3.7 | 5.0 | 5.6 | 3.3 | 1.9 | 1.6 |
| 24 | 1.6 | 1.7 | 1.8 | 1.9 | 2.3 | 2.7 | 3.8 | 5.0 | 5.3 | 3.2 | 1.8 | 1.7 |
| 25 | 1.6 | 1.7 | 1.7 | 2.0 | 2.3 | 2.7 | 4.0 | 4.9 | 5.0 | 3.1 | 1.8 | 1.7 |
| 26 | 1.6 | 1.6 | 1.7 | 2.0 | 2.3 | 2.7 | 4.1 | 4.9 | 5.0 | 3.0 | 1.8 | 1.7 |
| 27 | 1.6 | 1.6 | 1.8 | 2.0 | 2.3 | 2.7 | 4.1 | 4.9 | 5.0 | 2.9 | 1.7 | 1.8 |
| 28 | 1.6 | 1.6 | 1.7 | 2.0 | 2.3 | 2.7 | 4.1 | 4.9 | 4.8 | 2.8 | 1.7 | 1.8 |
| 29 | 1.6 | 1.6 | ..... | 2.0 | 2.3 | 2.75 | 4.2 | 4.8 | 4.7 | 2.7 | 1.7 | 1.8 |
| 30 | 1.6 | 1.6 | ..... | 2.0 | ..... | 2.8 | 4.2 | 4.9 | 4.6 | 2.6 | 1.7 | 1.8 |
| 31 | 1.6 | ..... | ..... | 2.0 | ..... | 2.8 | ..... | 5.0 | ..... | 2.5 | 1.6 | ..... |

NOTE.—Stream frozen Dec. 29 to Jan. 12.

*Daily discharge, in second-feet, of Humboldt River at Palisade, Nev., for years ending Sept. 30, 1911 and 1912.*

| Day. | July. | Aug. | Sept. | Day. | July. | Aug. | Sept. | Day. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | 1911. | | | | 1911. | | | |
| 1 | ..... | 106 | 55 | 11 | ..... | 65 | 55 | 21 | ..... | 65 | 55 |
| 2 | ..... | 91 | 55 | 12 | ..... | 65 | 55 | 22 | ..... | 65 | 55 |
| 3 | ..... | 91 | 55 | 13 | ..... | 65 | 55 | 23 | ..... | 55 | 55 |
| 4 | ..... | 91 | 55 | 14 | ..... | 65 | 55 | 24 | ..... | 55 | 55 |
| 5 | ..... | 77 | 55 | 15 | ..... | 65 | 55 | 25 | ..... | 55 | 55 |
| 6 | ..... | 77 | 55 | 16 | ..... | 65 | 55 | 26 | 139 | 55 | 55 |
| 7 | ..... | 77 | 55 | 17 | ..... | 65 | 55 | 27 | 139 | 55 | 55 |
| 8 | ..... | 77 | 55 | 18 | ..... | 65 | 55 | 28 | 122 | 55 | 55 |
| 9 | ..... | 65 | 55 | 19 | ..... | 65 | 55 | 29 | 122 | 55 | 55 |
| 10 | ..... | 65 | 55 | 20 | ..... | 65 | 55 | 30 | 106 | 55 | 55 |
| | | | | | | | | 31 | 106 | 55 | ..... |

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 65 | 77 | 77 | ..... | 139 | 227 | 376 | 814 | 1,280 | 996 | 254 | 77 |
| 2 | 65 | 77 | 77 | ..... | 139 | 227 | 376 | 770 | 1,280 | 950 | 254 | 77 |
| 3 | 65 | 77 | 77 | ..... | 122 | 227 | 376 | 770 | 1,280 | 904 | 254 | 77 |
| 4 | 65 | 77 | 77 | ..... | 122 | 227 | 376 | 770 | 1,280 | 859 | 227 | 77 |
| 5 | 65 | 77 | 77 | ..... | 130 | 254 | 410 | 770 | 1,480 | 770 | 254 | 77 |
| 6 | 65 | 77 | 77 | ..... | 139 | 254 | 446 | 770 | 1,580 | 770 | 254 | 77 |
| 7 | 65 | 91 | 77 | ..... | 148 | 313 | 446 | 770 | 1,680 | 726 | 254 | 77 |
| 8 | 65 | 91 | 77 | ..... | 158 | 254 | 483 | 770 | 1,790 | 683 | 227 | 77 |
| 9 | 65 | 91 | 77 | ..... | 158 | 254 | 483 | 770 | 1,900 | 641 | 202 | 77 |
| 10 | 65 | 91 | 77 | ..... | 158 | 283 | 483 | 814 | 2,130 | 600 | 202 | 77 |
| 11 | 77 | 106 | 77 | ..... | 158 | 313 | 521 | 859 | 2,240 | 560 | 202 | 77 |
| 12 | 77 | 106 | 91 | ..... | 158 | 313 | 521 | 859 | 2,360 | 560 | 179 | 77 |
| 13 | 77 | 106 | 91 | 106 | 158 | 313 | 560 | 904 | 2,420 | 521 | 179 | 77 |
| 14 | 77 | 106 | 91 | 91 | 168 | 313 | 560 | 904 | 2,480 | 483 | 158 | 77 |
| 15 | 77 | 106 | 91 | 91 | 179 | 283 | 580 | 950 | 2,650 | 446 | 158 | 77 |
| 16 | 77 | 106 | 106 | 106 | 179 | 283 | 600 | 996 | 2,480 | 446 | 139 | 77 |
| 17 | 77 | 106 | 106 | 106 | 179 | 283 | 600 | 1,040 | 2,360 | 446 | 139 | 77 |
| 18 | 77 | 106 | 91 | 106 | 179 | 283 | 641 | 1,090 | 2,240 | 410 | 139 | 77 |
| 19 | 77 | 106 | 122 | 106 | 202 | 283 | 641 | 1,140 | 2,130 | 410 | 139 | 77 |
| 20 | 77 | 106 | 106 | 106 | 202 | 283 | 641 | 1,180 | 1,960 | 600 | 139 | 77 |
| 21 | 77 | 91 | 91 | 106 | 202 | 283 | 683 | 1,180 | 1,790 | 560 | 122 | 77 |
| 22 | 77 | 91 | 91 | 122 | 202 | 283 | 683 | 1,280 | 1,680 | 560 | 122 | 77 |
| 23 | 77 | 91 | 91 | 122 | 202 | 313 | 683 | 1,280 | 1,580 | 521 | 122 | 77 |
| 24 | 77 | 91 | 106 | 122 | 202 | 313 | 726 | 1,280 | 1,430 | 483 | 106 | 91 |
| 25 | 77 | 91 | 91 | 139 | 202 | 313 | 814 | 1,230 | 1,280 | 446 | 106 | 91 |
| 26 | 77 | 77 | 91 | 139 | 202 | 313 | 859 | 1,230 | 1,280 | 410 | 106 | 91 |
| 27 | 77 | 77 | 106 | 139 | 202 | 313 | 859 | 1,230 | 1,280 | 376 | 91 | 106 |
| 28 | 77 | 77 | 91 | 139 | 202 | 313 | 859 | 1,230 | 1,180 | 344 | 91 | 106 |
| 29 | 77 | 77 | 90 | 139 | 202 | 328 | 904 | 1,180 | 1,140 | 313 | 91 | 106 |
| 30 | 77 | 77 | 90 | 139 | ..... | 344 | 904 | 1,230 | 1,090 | 283 | 91 | 106 |
| 31 | 77 | ..... | 90 | 139 | ..... | 344 | ..... | 1,280 | ..... | 254 | 77 | ..... |

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge estimated, because of ice, Dec. 29–31, 90 second-feet, and Jan. 1–12, 100 second-feet.

*Monthly discharge of Humboldt River at Palisade, Nev., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| July 26-31 | 139 | 106 | 122 | 1,450 | C. |
| August | 106 | 55 | 67.5 | 4,150 | C. |
| September | 55 | 55 | 55 | 3,270 | C. |
| The period | | | | 8,870 | |
| 1911-12. | | | | | |
| October | 77 | 65 | 73.1 | 4,490 | C. |
| November | 106 | 77 | 90.9 | 5,410 | C. |
| December | 122 | 77 | 89.4 | 5,500 | C. |
| January | 139 | | 112 | 6,890 | C. |
| February | 202 | 122 | 172 | 9,890 | A. |
| March | 344 | 227 | 288 | 17,700 | B. |
| April | 904 | 376 | 603 | 35,900 | B. |
| May | 1,280 | 770 | 1,010 | 62,100 | A. |
| June | 2,650 | 1,090 | 1,760 | 105,000 | B. |
| July | 996 | 254 | 559 | 34,400 | A. |
| August | 254 | 77 | 164 | 10,100 | A. |
| September | 106 | 77 | 82.3 | 4,900 | B. |
| The year | 2,650 | 65 | 417 | 302,000 | |

### HUMBOLDT RIVER NEAR GOLCONDA, NEV.

**Location.**—At highway bridge at extreme lower end of central valley of the Humboldt, 1¼ miles north of Golconda, and about 12 miles above the mouth of Little Humboldt River.

**Records available.**—October 24, 1894, to December 31, 1909; September 8, 1910, to September 30, 1912.

**Drainage area.**—10,800 square miles.

**Gage.**—Several gages at various datums and in various locations have been used at this station. November 5, 1910, the present chain gage was installed at the highway bridge.

**Channel.**—Sand and gravel and somewhat shifting.

**Discharge measurements.**—Made from highway bridge.

**Winter flow.**—Affected but little by ice.

**Diversions.**—Diversions for irrigation above the station.

**Artificial control.**—The Taylor & Sheehan dam, about 2 miles above, and Pinson's dam, 5 miles above, regulate the flow at low stages.

**Accuracy.**—Fair during 1912. Poor during 1911, owing to lack of discharge measurements.

**Cooperation.**—Gage heights and discharge measurements are furnished by the Office of Experiment Stations, United States Department of Agriculture, through F. L. Peterson, irrigation engineer.

*Discharge measurements of Humboldt River near Golconda, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Nov. 3 | J. E. Stewart | 1.78 | 0.8 | May 20 | F. L. Peterson | 5.80 | 346 |
| Dec. 3 | F. L. Peterson | 2.00 | 12 | July 7 | do | 7.61 | 835 |
| 1912. | | | | 18 | do | 5.91 | 414 |
| Mar. 24 | do | 4.33 | 137 | Aug. 20 | do | 3.54 | 90 |
| Apr. 12 | do | 4.97 | 205 | Sept. 7 | do | 3.00 | 59 |

*Daily gage height, in feet, of Humboldt River near Golconda, Nev., for year ending Sept. 30, 1912.*

[Florence Bernard, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | 1.7 | 2.0 | 2.2 | 2.7 | 3.65 | 4.2 | 6.0 | 6.4 | 8.8 | 4.9 | 3.1 |
| 2 | 1.6 | 1.7 | 2.0 | 2.2 | 2.6 | 3.7 | 4.4 | 6.0 | 6.4 | 8.6 | 4.9 | 2.95 |
| 3 | 1.5 | 1.8 | 2.0 | 2.2 | 2.55 | 3.75 | 4.5 | 6.0 | 6.4 | 8.4 | 4.7 | 2.95 |
| 4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.6 | 3.75 | 4.6 | 6.1 | 6.4 | 8.2 | 4.7 | 3.0 |
| 5 | 1.7 | 1.8 | 2.0 | 2.3 | 2.75 | 3.8 | 4.7 | 6.2 | 6.4 | 8.0 | 4.5 | 3.0 |
| 6 | 1.7 | 1.8 | 2.0 | 2.3 | 2.9 | 3.8 | 5.0 | 6.4 | 6.4 | 7.8 | 4.5 | 2.9 |
| 7 | 1.8 | 1.8 | 2.0 | 2.3 | 3.0 | 3.8 | 4.9 | 6.4 | 6.4 | 7.8 | 4.3 | 2.9 |
| 8 | 1.7 | 1.8 | 2.0 | 2.3 | 3.0 | 3.75 | 5.0 | 6.3 | 6.4 | 7.6 | 4.2 | 2.9 |
| 9 | 1.8 | 1.8 | 2.0 | 2.3 | 3.1 | 3.75 | 4.9 | 6.2 | 6.6 | 7.3 | 4.2 | 2.8 |
| 10 | 1.8 | 1.9 | 2.0 | 2.25 | 3.1 | 3.8 | 5.0 | 6.2 | 7.0 | 7.2 | 4.0 | 2.7 |
| 11 | 1.7 | 1.9 | 2.0 | 2.2 | 3.1 | 3.8 | 5.0 | 6.1 | 7.4 | 6.9 | 4.0 | 2.6 |
| 12 | 1.8 | 1.9 | 2.0 | 2.2 | 3.1 | 3.85 | 5.0 | 5.8 | 7.2 | 6.8 | 4.0 | 2.5 |
| 13 | 1.7 | 1.9 | 2.0 | 2.25 | 3.1 | 3.9 | 5.0 | 5.6 | 7.2 | 6.6 | 3.8 | 2.4 |
| 14 | 1.8 | 1.9 | 2.0 | 2.3 | 3.1 | 4.0 | 5.1 | 5.6 | 7.4 | 6.2 | 3.75 | 2.4 |
| 15 | 1.7 | 1.9 | 2.0 | 2.3 | 3.1 | 4.1 | 5.3 | 5.4 | 7.4 | 6.0 | 3.8 | 2.4 |
| 16 | 1.6 | 1.9 | 2.0 | 2.3 | 3.1 | 4.2 | 5.4 | 5.4 | 7.6 | 6.1 | 3.65 | 2.4 |
| 17 | 1.7 | 1.8 | 2.0 | 2.25 | 3.1 | 4.2 | 5.6 | 5.5 | 7.6 | 5.9 | 3.6 | 2.4 |
| 18 | 1.6 | 1.7 | 2.0 | 2.2 | 3.1 | 4.2 | 5.6 | 5.6 | 7.8 | 5.9 | 3.65 | 2.4 |
| 19 | 1.7 | 1.7 | 2.0 | 2.2 | 3.15 | 4.2 | 5.7 | 5.6 | 7.9 | ..... | 3.5 | 2.4 |
| 20 | 1.7 | 1.8 | 2.0 | 2.15 | 3.2 | 4.2 | 5.6 | 5.6 | 8.0 | ..... | 3.45 | 2.4 |
| 21 | 1.6 | 1.9 | 2.2 | 2.2 | 3.25 | 4.2 | 5.8 | 5.7 | 8.1 | 5.7 | 3.35 | 2.4 |
| 22 | 1.7 | 2.0 | 2.2 | 2.25 | 3.35 | 4.2 | 5.8 | 5.6 | 8.2 | 5.7 | 3.4 | 2.4 |
| 23 | 1.6 | 2.0 | 2.2 | 2.3 | 3.4 | 4.2 | 5.8 | 5.7 | 8.4 | 5.6 | 3.2 | 2.35 |
| 24 | 1.7 | 2.1 | 2.2 | 2.3 | 3.45 | 4.4 | 6.0 | 5.8 | 8.4 | 5.6 | 3.15 | 2.3 |
| 25 | 1.7 | 2.1 | 2.2 | 2.35 | 3.45 | ..... | 6.0 | 5.8 | 8.4 | 5.4 | 3.15 | 2.25 |
| 26 | 1.5 | 2.1 | 2.2 | 2.35 | 3.5 | 4.3 | 6.0 | 6.0 | 8.6 | 5.4 | 3.25 | 2.2 |
| 27 | 1.6 | 2.1 | 2.2 | 2.35 | 3.55 | 4.3 | 6.0 | 6.0 | 8.6 | 5.4 | 3.1 | 2.15 |
| 28 | 1.6 | 2.1 | 2.2 | 2.4 | 3.6 | 4.3 | 6.0 | 6.2 | 9.0 | 5.4 | 3.1 | 2.1 |
| 29 | 1.5 | 2.0 | 2.2 | 2.5 | 3.6 | 4.3 | 6.0 | 6.2 | 9.0 | 5.2 | 2.95 | 2.1 |
| 30 | 1.7 | 2.0 | 2.2 | 2.55 | ..... | 4.3 | 6.0 | 6.4 | 9.0 | 5.1 | 3.1 | 2.0 |
| 31 | 1.7 | ..... | 2.2 | 2.6 | ..... | 4.2 | ..... | 6.6 | ..... | 5.0 | 3.0 | ..... |

NOTE.—Relation of gage height to discharge Dec. 21–31 probably affected by ice.

*Daily discharge, in second-feet, of Humboldt River near Golconda, Nev., for years ending Sept. 30, 1911 and 1912.*

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | | |
| 1 | 1.3 | 1.0 | 20 | 192 | 258 | 776 | 410 | 189 | 538 | 47 | 7 |
| 2 | 1.3 | 1.0 | 20 | 198 | 226 | 776 | 430 | 189 | 516 | 47 | 9 |
| 3 | 1.3 | 1.0 | 22 | 205 | 226 | 752 | 390 | 189 | 494 | 42 | 9 |
| 4 | 1.3 | 1.0 | 24 | 212 | 198 | 752 | 370 | 189 | 450 | 42 | 5 |
| 5 | 1.3 | 1.0 | 24 | 242 | 198 | 704 | 352 | 213 | 450 | 42 | 5 |
| 6 | 1.0 | 1.0 | 24 | 242 | 212 | 704 | 352 | 213 | 430 | 37 | 5 |
| 7 | 1.0 | 1.0 | 24 | 226 | 212 | 680 | 284 | 213 | 390 | 37 | 4 |
| 8 | 1.0 | 1.0 | 28 | 234 | 212 | 680 | 268 | 226 | 213 | 32 | 5 |
| 9 | 1.0 | 1.0 | 28 | 242 | 242 | 680 | 284 | 240 | 201 | 32 | 5 |
| 10 | 1.0 | 1.0 | 33 | 274 | 242 | 656 | 268 | 240 | 177 | 27 | 5 |
| 11 | 1.0 | 1.0 | 33 | 310 | 250 | 656 | 268 | 268 | 177 | 27 | 5 |
| 12 | 1.0 | 1.0 | 38 | 310 | 258 | 632 | 268 | 284 | 165 | 27 | 5 |
| 13 | 1.3 | 1.0 | 38 | 328 | 292 | 632 | 254 | 284 | 153 | 23 | 5 |
| 14 | 1.3 | 1.0 | 38 | 346 | 310 | 632 | 226 | 300 | 153 | 20 | 4 |
| 15 | 1.3 | 1.3 | 43 | 346 | 328 | 632 | 226 | 316 | 142 | 20 | 5 |
| 16 | 1.3 | 1.6 | 43 | 386 | 346 | 656 | 226 | 334 | 142 | 17 | 5 |
| 17 | 1.3 | 1.6 | 43 | 366 | 346 | 608 | 213 | 352 | 132 | 14 | 5 |
| 18 | 1.3 | 3 | 49 | 366 | 366 | 584 | 213 | 352 | 132 | 14 | 4 |
| 19 | 1.3 | 5 | 49 | 366 | 386 | 560 | 213 | 390 | 122 | 11 | 5 |
| 20 | 1.3 | 5 | 54 | 366 | 386 | 560 | 213 | 410 | 104 | 7 | 5 |
| 21 | 1.3 | 5 | 67 | 346 | 386 | 560 | 213 | 430 | 104 | 7 | 4 |
| 22 | 1.3 | 8 | 103 | 346 | 406 | 560 | 213 | 430 | 82 | 5 | 5 |
| 23 | 1.3 | 11 | 103 | 337 | 426 | 538 | 201 | 450 | 82 | 3 | 5 |
| 24 | 1.3 | 14 | 111 | 328 | 448 | 538 | 201 | 450 | 82 | 3 | 5 |
| 25 | 1.3 | 17 | 111 | 310 | 492 | 516 | 189 | 450 | 75 | 2 | 4 |
| 26 | 1.0 | 20 | 139 | 292 | 516 | 494 | 189 | 450 | 75 | 0 | 5 |
| 27 | 1.0 | 20 | 150 | 292 | 560 | 483 | 189 | 472 | 82 | 0 | 5 |
| 28 | 1.0 | 20 | 161 | 258 | 608 | 472 | 189 | 494 | 60 | 0 | 5 |
| 29 | 1.0 | 20 | 161 | ..... | 656 | 430 | 189 | 494 | 59 | 7 | 7 |
| 30 | 1.0 | 20 | 173 | ..... | 656 | 430 | 189 | 516 | 56 | 9 | 7 |
| 31 | ..... | 24 | 173 | ..... | 704 | ..... | 189 | ..... | 54 | 9 | ..... |

*Daily discharge, in second-feet, of Humboldt River near Golconda, Nev., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | | | |
| 1 | 5 | 3 | 10 | 8 | 24 | 78 | 120 | 386 | 470 | 1,180 | 240 | 63 |
| 2 | 7 | 1 | 10 | 8 | 20 | 81 | 139 | 386 | 470 | 1,120 | 240 | 54 |
| 3 | 5 | 1 | 10 | 8 | 18 | 84 | 150 | 386 | 470 | 1,060 | 213 | 54 |
| 4 | 7 | 1 | 10 | 8 | 20 | 84 | 161 | 406 | 470 | 1,000 | 213 | 57 |
| 5 | 9 | 1 | 10 | 11 | 26 | 88 | 173 | 426 | 470 | 940 | 188 | 57 |
| 6 | 9 | 1 | 10 | 11 | 33 | 88 | 212 | 470 | 470 | 880 | 188 | 51 |
| 7 | 11 | 1 | 10 | 11 | 38 | 88 | 198 | 470 | 470 | 880 | 164 | 51 |
| 8 | 9 | 1 | 10 | 11 | 38 | 84 | 212 | 448 | 470 | 822 | 153 | 51 |
| 9 | 11 | 1 | 10 | 11 | 43 | 84 | 198 | 426 | 516 | 740 | 153 | 45 |
| 10 | 11 | 2 | 10 | 9.5 | 43 | 88 | 212 | 426 | 616 | 714 | 133 | 39 |
| 11 | 9 | 2 | 10 | 8 | 43 | 88 | 212 | 406 | 730 | 638 | 133 | 34 |
| 12 | 11 | 2 | 10 | 8 | 43 | 92 | 212 | 346 | 672 | 614 | 133 | 29 |
| 13 | 9 | 2 | 10 | 9.5 | 43 | 95 | 212 | 310 | 672 | 566 | 115 | 24 |
| 14 | 11 | 2 | 10 | 11 | 43 | 103 | 226 | 310 | 730 | 476 | 111 | 24 |
| 15 | 9 | 2 | 10 | 11 | 43 | 111 | 258 | 274 | 730 | 432 | 115 | 24 |
| 16 | 7 | 2 | 10 | 11 | 43 | 120 | 274 | 274 | 790 | 454 | 103 | 24 |
| 17 | 9 | 1 | 10 | 9.5 | 43 | 120 | 310 | 292 | 790 | 412 | 99 | 24 |
| 18 | 7 | 0 | 10 | 8 | 43 | 120 | 310 | 310 | 850 | 412 | 103 | 24 |
| 19 | 9 | 0 | 10 | 8 | 46 | 120 | 328 | 310 | 880 | 399 | 91 | 24 |
| 20 | 9 | 1 | 10 | 6.5 | 49 | 120 | 310 | 310 | 910 | 385 | 88 | 24 |
| 21 | 7 | 3 | 10 | 8 | 52 | 120 | 346 | 328 | 940 | 372 | 80 | 24 |
| 22 | 9 | 6 | 10 | 9.5 | 57 | 120 | 346 | 310 | 970 | 372 | 84 | 24 |
| 23 | 7 | 7 | 10 | 11 | 60 | 120 | 346 | 328 | 1,030 | 354 | 70 | 22 |
| 24 | 9 | 12 | 10 | 11 | 64 | 139 | 386 | 346 | 1,030 | 354 | 66 | 20 |
| 25 | 9 | 13 | 10 | 12.5 | 64 | 134 | 386 | 346 | 1,030 | 318 | 66 | 18 |
| 26 | 5 | 13 | 10 | 12.5 | 67 | 129 | 386 | 386 | 1,090 | 318 | 74 | 16 |
| 27 | 7 | 13 | 10 | 12.5 | 70 | 129 | 386 | 386 | 1,090 | 318 | 63 | 14 |
| 28 | 7 | 13 | 10 | 14 | 74 | 129 | 386 | 426 | 1,220 | 318 | 63 | 13 |
| 29 | 5 | 10 | 10 | 17 | 74 | 129 | 386 | 426 | 1,220 | 286 | 54 | 13 |
| 30 | 6 | 10 | 10 | 18 | ..... | 129 | 386 | 470 | 1,240 | 270 | 63 | 10 |
| 31 | 4 | ..... | 10 | 20 | ..... | 120 | ..... | 516 | ..... | 254 | 57 | ..... |

NOTE.—Discharge determined by indirect method for shifting channels and from several rating curves which are fairly well defined except during 1911. Discharge estimated Dec. 21–31, 1911. Discharge interpolated Nov. 8, 24, and Dec. 23, 1911; Mar. 25 and July 19–20, 1912. Estimates for November and December supersede those published in Water-Supply Paper 290, p. 173.

*Monthly discharge of Humboldt River near Golconda, Nev., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | ..... | ..... | [a] 1.3 | 79.9 | C. |
| November [b] | 1.3 | 1.0 | 1.18 | 70.2 | B. |
| December [b] | 24 | 1.0 | 6.79 | 418 | B. |
| January | 173 | 20 | 68.6 | 4,220 | D. |
| February | 386 | 192 | 295 | 16,400 | D. |
| March | 704 | 198 | 366 | 22,500 | C. |
| April | 776 | 430 | 611 | 36,400 | D. |
| May | 430 | 189 | 254 | 15,600 | D. |
| June | 516 | 189 | 334 | 19,900 | D. |
| July | 538 | 54 | 197 | 12,100 | C. |
| August | 47 | 0 | 19.7 | 1,210 | D. |
| September | 9 | 4 | 5.30 | 315 | D. |
| The year | 776 | 0 | 180 | 129,000 | |
| 1911–12. | | | | | |
| October | 11 | 4 | 8.03 | 494 | D. |
| November | 13 | 0 | 4.23 | 252 | D. |
| December | ..... | ..... | 10 | 615 | D. |
| January | 20 | 6.5 | 10.7 | 658 | D. |
| February | 74 | 18 | 45.7 | 2,630 | C. |
| March | 139 | 78 | 108 | 6,640 | B. |
| April | 386 | 120 | 272 | 16,200 | A. |
| May | 516 | 274 | 375 | 23,100 | A. |
| June | 1,240 | 470 | 784 | 46,700 | B. |
| July | 1,180 | 254 | 570 | 35,000 | A. |
| August | 240 | 54 | 120 | 7,380 | A. |
| September | 63 | 10 | 31.7 | 1,890 | C. |
| The year | 1,240 | 0 | 195 | 142,000 | |

[a] Monthly mean estimated.
[b] These results supersede those published in Water-Supply Paper No. 290, p. 173.

### HUMBOLDT RIVER NEAR OREANA, NEV.

**Location.**—At highway bridge at head of Lovelock Valley, about 1½ miles southwest of Oreana railroad station, about 25 miles northeast of mouth of river at Humboldt Lake, and 12 miles northeast of Lovelock, the nearest post office.

**Records available.**—January 27, 1896, to December 31, 1909; September 7, 1910, to September 30, 1912.

**Drainage area.**—13,800 square miles.

**Gage.**—Vertical staff fastened to center pile of bridge. Gage has been at same location and datum since November 9, 1910, before which date several gages at various locations and datums were used.

**Channel.**—Shifting sand and gravel.

**Discharge measurements.**—Made from bridge at gage.

**Winter flow.**—Affected by ice.

**Diversions.**—Water diverted for irrigation above the stations.

**Accuracy.**—Relation between gage height and discharge affected by shifting channe and, during winter, by ice; records are only fair.

**Cooperation.**—Discharge measurements and gage readings were furnished by the Office of Experiment Stations, United States Department of Agriculture, through F. L. Peterson, irrigation engineer.

*Discharge measurements of Humboldt River near Oreana, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Nov. 4 | J. E. Stewart | 2.41 | 21 | May 16 | F. L. Peterson | 4.08 | 271 |
| Dec. 4 | F. L. Peterson | 2.40 | 18 | 20 | do | 3.40 | 125 |
| | | | | June 9 | do | 4.42 | 332 |
| 1912. | | | | July 8 | do | 6.40 | 1,130 |
| Feb. 14 | do | 2.30 | 27 | 16 | do | 5.50 | 681 |
| Mar. 24 | do | 3.05 | 93 | Aug. 6 | do | 4.30 | 323 |
| Apr. 24 | do | 2.95 | 57 | 18 | do | 3.70 | 200 |

*Daily gage height, in feet, of Humboldt River near Oreana, Nev., for year ending Sept. 30, 1912.*

[J. J. McCarthy, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.0 | 2.4 | 2.4 | 2.8 | 2.8 | 3.0 | 3.25 | 3.85 | 4.4 | 6.0 | 4.35 | 3.3 |
| 2 | 2.5 | 2.4 | 2.4 | 2.8 | 2.85 | 3.0 | 3.3 | 4.5 | 4.3 | 6.2 | 4.3 | 3.3 |
| 3 | 2.15 | 2.4 | 2.4 | 2.85 | 2.85 | 2.75 | 3.35 | 4.2 | 4.35 | 6.2 | 4.4 | 3.3 |
| 4 | 2.15 | 2.4 | 2.45 | 2.85 | 2.7 | 2.75 | 3.3 | 4.2 | 4.7 | 6.4 | 4.45 | 3.4 |
| 5 | 2.25 | 2.45 | 2.5 | 2.9 | 2.65 | 2.8 | 3.25 | 4.15 | 4.6 | 6.4 | 4.3 | 3.35 |
| 6 | 2.25 | 2.45 | 2.5 | 3.0 | 2.4 | 2.8 | 3.25 | 4.15 | 4.8 | 6.4 | 4.3 | 3.3 |
| 7 | 2.25 | 2.4 | 2.55 | 3.0 | 2.4 | 2.75 | 3.3 | 4.2 | 4.7 | 6.4 | 4.3 | 3.35 |
| 8 | 2.35 | 2.5 | 2.6 | 2.9 | 2.4 | 2.7 | 3.35 | 4.5 | 4.6 | 6.6 | 4.3 | 3.4 |
| 9 | 2.35 | 2.5 | 2.65 | 3.0 | 2.3 | 2.7 | 3.4 | 4.25 | 4.5 | 6.4 | 4.2 | 3.4 |
| 10 | 2.35 | 2.55 | 2.6 | 3.1 | 2.3 | 2.7 | 3.35 | 4.35 | 4.5 | 6.2 | 4.15 | 3.4 |
| 11 | 2.35 | 2.65 | 2.55 | 3.2 | 2.3 | 2.75 | 3.25 | 4.25 | 4.4 | 6.1 | 4.1 | 3.4 |
| 12 | 2.4 | 2.6 | 2.55 | 3.25 | 2.3 | 2.75 | 3.2 | 4.15 | 4.3 | 6.0 | 4.05 | 3.3 |
| 13 | 2.4 | 2.55 | 2.5 | 3.3 | 2.25 | 2.85 | 3.15 | 4.3 | 4.0 | 6.0 | 4.0 | 3.3 |
| 14 | 2.4 | 2.55 | 2.55 | 3.35 | 2.2 | 2.95 | 3.05 | 4.25 | 4.1 | 5.8 | 3.9 | 3.25 |
| 15 | 2.4 | 2.5 | 2.55 | 3.35 | 2.25 | 2.95 | 3.0 | 4.1 | 4.6 | 5.5 | 3.85 | 3.25 |
| 16 | 2.4 | 2.45 | 2.7 | 3.3 | 2.35 | 3.0 | 3.0 | 4.1 | 5.1 | 5.5 | 3.8 | 3.2 |
| 17 | 2.4 | 2.45 | 2.65 | 3.3 | 2.4 | 3.0 | 3.0 | 4.05 | 5.2 | 5.4 | 3.75 | 3.15 |
| 18 | 2.4 | 2.4 | 2.65 | 3.25 | 2.4 | 3.0 | 3.0 | 4.0 | 5.2 | 5.3 | 3.7 | 3.15 |
| 19 | 2.4 | 2.4 | 2.5 | 3.25 | 2.45 | 3.0 | 3.0 | 3.45 | 5.2 | 5.5 | 3.7 | 3.1 |
| 20 | 2.45 | 2.35 | 2.5 | 3.2 | 2.55 | 3.0 | 3.05 | 3.4 | 5.4 | 5.4 | 3.7 | 3.1 |

*Daily gage height, in feet, of Humboldt River near Oreana, Nev., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 2.45 | 2.35 | 2.6 | 2.25 | 2.6 | 3.05 | 3.05 | 3.2 | 5.5 | 5.5 | 3.65 | 3.1 |
| 22 | 2.45 | 2.4 | 2.7 | 3.05 | 2.7 | 3.1 | 3.0 | 3.1 | 5.6 | 4.8 | 3.65 | 3.1 |
| 23 | 2.45 | 2.4 | 2.75 | 3.3 | 2.8 | 3.15 | 3.0 | 3.1 | 5.6 | 4.6 | 3.6 | 3.05 |
| 24 | 2.45 | 2.4 | 2.75 | 3.2 | 2.8 | 3.25 | 2.95 | 3.05 | 5.6 | 4.6 | 3.55 | 3.05 |
| 25 | 2.45 | 2.35 | 2.75 | 3.25 | 2.85 | 3.3 | 3.05 | 3.05 | 5.6 | 4.4 | 3.5 | 3.05 |
| 26 | 2.45 | 2.35 | 2.75 | 3.25 | 2.9 | 3.3 | 3.05 | 3.2 | 5.6 | 4.3 | 3.5 | 3.0 |
| 27 | 2.45 | 2.35 | 2.8 | 2.9 | 2.9 | 3.25 | 3.0 | 3.95 | 5.8 | 4.1 | 3.5 | 3.0 |
| 28 | 2.45 | 2.3 | 2.8 | 2.9 | 3.0 | 3.25 | 2.95 | 4.3 | 5.8 | 4.3 | 3.4 | 3.0 |
| 29 | 2.45 | 2.3 | 2.8 | 2.9 | 3.0 | 3.25 | 3.3 | 4.25 | 5.9 | 4.3 | 3.35 | 3.0 |
| 30 | 2.45 | 2.35 | 2.85 | 2.85 | ..... | 3.2 | 3.7 | 4.25 | 6.0 | 4.25 | 3.3 | 3.05 |
| 31 | 2.45 | ..... | 2.85 | 2.85 | ..... | 3.2 | ..... | 4.3 | ..... | 4.25 | 3.3 | ..... |

NOTE.—Relation of gage heights to discharge probably affected by ice from Dec. 16 to Feb. 5.

*Daily discharge, in second-feet, of Humboldt River near Oreana, Nev., for years ending Sept. 30, 1911 and 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | | | | | | |
| 1 | 14 | 146 | 164 | 518 | 496 | 208 | 154 | 159 | 36 |
| 2 | 14 | 155 | 164 | 518 | 451 | 199 | 172 | 139 | 36 |
| 3 | 12 | 164 | 155 | 588 | 451 | 190 | 190 | 135 | 36 |
| 4 | 12 | 164 | 146 | 588 | 436 | 181 | 208 | 124 | 33 |
| 5 | 12 | 173 | 146 | 606 | 421 | 181 | 228 | 118 | 33 |
| 6 | 10 | 173 | 146 | 624 | 421 | 172 | 250 | 100 | 30 |
| 7 | 6 | 173 | 138 | 662 | 391 | 172 | 261 | 100 | 27 |
| 8 | 6 | 182 | 138 | 681 | 391 | 163 | 284 | 100 | 24 |
| 9 | 10 | 202 | 138 | 681 | 376 | 163 | 309 | 100 | 21 |
| 10 | 12 | 212 | 138 | 681 | 376 | 163 | 335 | 100 | 15 |
| 11 | 14 | 222 | 130 | 700 | 348 | 154 | 362 | 88 | 15 |
| 12 | 14 | 222 | 130 | 740 | 335 | 146 | 391 | 88 | 15 |
| 13 | 16 | 222 | 138 | 760 | 309 | 129 | 421 | 88 | 15 |
| 14 | 19 | 232 | 146 | 760 | 284 | 114 | 406 | 83 | 15 |
| 15 | 19 | 232 | 155 | 760 | 284 | 114 | 391 | 78 | 15 |
| 16 | 19 | 242 | 173 | 760 | 261 | 101 | 376 | 73 | 15 |
| 17 | 22 | 266 | 202 | 720 | 261 | 89 | 335 | 68 | 15 |
| 18 | 24 | 290 | 212 | 681 | 261 | 83 | 272 | 63 | 15 |
| 19 | 27 | 290 | 222 | 662 | 284 | 83 | 228 | 58 | 15 |
| 20 | 30 | 266 | 232 | 624 | 309 | 83 | 228 | 58 | 15 |
| 21 | 34 | 242 | 242 | 570 | 322 | 83 | 228 | 54 | 15 |
| 22 | 34 | 242 | 290 | 535 | 322 | 73 | 228 | 49 | 15 |
| 23 | 38 | 232 | 356 | 518 | 309 | 73 | 218 | 49 | 15 |
| 24 | 42 | 212 | 370 | 475 | 296 | 73 | 208 | 49 | 12 |
| 25 | 46 | 182 | 370 | 498 | 296 | 73 | 199 | 49 | 12 |
| 26 | 54 | 182 | 384 | 504 | 284 | 95 | 190 | 49 | 9 |
| 27 | 76 | 173 | 398 | 528 | 284 | 107 | 181 | 44 | 9 |
| 28 | 114 | 164 | 412 | 501 | 261 | 121 | 172 | 44 | 9 |
| 29 | 122 | ..... | 440 | 491 | 250 | 129 | 168 | 40 | 7 |
| 30 | 122 | ..... | 454 | 491 | 250 | 146 | 165 | 40 | 7 |
| 31 | 130 | ..... | 501 | ..... | 228 | ..... | 170 | 40 | ..... |

| Day. | Oct. | Nov. | Dec. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | | |
| 1 | 14 | 20 | 20 | 35 | 92 | 123 | 199 | 322 | 920 | 334 | 130 |
| 2 | 49 | 20 | 20 | 35 | 92 | 130 | 348 | 296 | 1,030 | 322 | 130 |
| 3 | 19 | 20 | 20 | 35 | 67 | 138 | 272 | 309 | 1,030 | 346 | 130 |
| 4 | 18 | 20 | 24 | 35 | 67 | 130 | 272 | 406 | 1,140 | 359 | 146 |
| 5 | 22 | 24 | 27 | 35 | 72 | 123 | 261 | 376 | 1,140 | 322 | 138 |
| 6 | 20 | 24 | 27 | 34 | 72 | 123 | 261 | 436 | 1,140 | 322 | 130 |
| 7 | 19 | 24 | 31 | 34 | 67 | 130 | 272 | 406 | 1,140 | 322 | 138 |
| 8 | 24 | 27 | 35 | 34 | 62 | 138 | 348 | 376 | 1,240 | 322 | 146 |
| 9 | 22 | 27 | 39 | 26 | 62 | 146 | 289 | 348 | 1,140 | 300 | 146 |
| 10 | 21 | 31 | 35 | 26 | 62 | 135 | 317 | 348 | 1,030 | 289 | 146 |

*Daily discharge, in second-feet, of Humboldt River near Oreana, Nev., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 19 | 39 | 31 | 26 | 67 | 116 | 294 | 322 | 974 | 278 | 146 |
| 12 | 20 | 35 | 31 | 26 | 67 | 108 | 274 | 296 | 920 | 267 | 130 |
| 13 | 20 | 31 | 27 | 22 | 77 | 98 | 317 | 228 | 920 | 256 | 130 |
| 14 | 20 | 31 | 31 | 19 | 87 | 85 | 306 | 250 | 816 | 236 | 123 |
| 15 | 20 | 27 | 31 | 22 | 87 | 77 | 272 | 376 | 688 | 226 | 123 |
| 16 | 20 | 24 | ..... | 30 | 92 | 73 | 277 | 528 | 688 | 216 | 116 |
| 17 | 20 | 24 | ..... | 34 | 92 | 73 | 257 | 562 | 650 | 206 | 110 |
| 18 | 20 | 20 | ..... | 34 | 92 | 73 | 237 | 562 | 614 | 196 | 110 |
| 19 | 20 | 20 | ..... | 38 | 92 | 73 | 129 | 562 | 688 | 196 | 104 |
| 20 | 24 | 18 | ..... | 47 | 92 | 78 | 121 | 640 | 650 | 196 | 104 |
| 21 | 24 | 18 | ..... | 52 | 98 | 78 | 95 | 682 | 688 | 187 | 104 |
| 22 | 24 | 20 | ..... | 62 | 104 | 73 | 83 | 726 | 454 | 187 | 104 |
| 23 | 24 | 20 | ..... | 72 | 110 | 73 | 83 | 726 | 398 | 178 | 98 |
| 24 | 24 | 20 | ..... | 72 | 123 | 68 | 78 | 726 | 398 | 170 | 98 |
| 25 | 24 | 18 | ..... | 77 | 130 | 78 | 78 | 726 | 346 | 162 | 98 |
| 26 | 24 | 18 | ..... | 82 | 130 | 78 | 95 | 726 | 322 | 162 | 92 |
| 27 | 24 | 18 | ..... | 82 | 123 | 73 | 218 | 816 | 278 | 162 | 92 |
| 28 | 24 | 15 | ..... | 92 | 123 | 68 | 296 | 816 | 322 | 146 | 92 |
| 29 | 24 | 15 | ..... | 92 | 123 | 107 | 284 | 866 | 322 | 138 | 92 |
| 30 | 24 | 18 | ..... | ..... | 116 | 172 | 284 | 920 | 311 | 130 | 98 |
| 31 | 24 | ..... | ..... | ..... | 116 | ..... | 296 | ..... | 311 | 130 | ..... |

NOTE.—Discharge determined from several rather poorly defined rating curves and by the indirect method for shifting channels. Discharge estimated on account of ice as follows: Dec. 16–31, 1911, 30 second-feet; Jan. 1–31, 1912, 35 second-feet; Feb. 1–5, 1912, 35 second-feet.

*Monthly discharge of Humboldt River near Oreana, Nev., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | ..... | ..... | [a] 25 | 1,540 | C. |
| November | ..... | ..... | [a] 20 | 1,190 | C. |
| December | ..... | ..... | [a] 20 | 1,230 | D. |
| January | 130 | 6 | 36.3 | 2,230 | C. |
| February | 290 | 146 | 209 | 11,600 | D. |
| March | 591 | 130 | 240 | 14,800 | D. |
| April | 760 | 475 | 614 | 36,500 | D. |
| May | 496 | 228 | 331 | 20,400 | D. |
| June | 208 | 73 | 129 | 7,680 | C. |
| July | 421 | 154 | 256 | 15,700 | B. |
| August | 159 | 40 | 78.3 | 4,810 | D. |
| September | 36 | 7 | 18.4 | 1,090 | D. |
| The year | 760 | ..... | 165 | 119,000 | |
| 1911–12. | | | | | |
| October | 49 | 14 | 22.4 | 1,380 | D. |
| November | 39 | 15 | 22.8 | 1,360 | C. |
| December | 39 | ..... | 29.3 | 1,800 | D. |
| January | ..... | ..... | [a] 35 | 2,150 | D. |
| February | 92 | 19 | 45.2 | 2,600 | B. |
| March | 130 | 62 | 92.1 | 5,660 | B. |
| April | 172 | 68 | 101 | 6,010 | C. |
| May | 348 | 78 | 233 | 14,300 | C. |
| June | 920 | 228 | 523 | 31,100 | B. |
| July | 1,240 | 278 | 733 | 45,100 | B. |
| August | 359 | 130 | 234 | 14,400 | B. |
| September | 146 | 92 | 118 | 7,020 | C. |
| The year | 1,240 | ..... | 182 | 133,000 | |

[a] Monthly mean estimated.

### HUMBOLDT RIVER NEAR LOVELOCKS, NEV.

**Location.**—The station is located about 9 miles south of the town of Lovelocks, Nev., and about 1,500 feet below the dam and reservoir of the Big 5 ranch, the lowest diversion for irrigation on Humboldt River.

**Records available.**—February 7, 1912, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Temporary staff gage used and read from February 7 to June 17, 1912, when the present sloping staff gage was installed at same datum.

**Channel.**—Probably permanent.

**Discharge measurements.**—Made from car and cable at high stages and by wading at other stages of the stream.

**Winter flow.**—Ice has little effect on discharge during the winter.

**Accuracy.**—Records fair.

**Diversions.**—Water is stored and diverted above the station for irrigation.

**Cooperation.**—Maintained in cooperation with the United States Department of Agriculture, through F. L. Peterson, irrigation engineer.

Records represent the waste water entering Humboldt Sink.

*Discharge measurements of Humboldt River near Lovelocks, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| July 13[a] | C. L. Wilbur | 3.00 | 481 | July 24[a] | C. L. Wilbur | 1.95 | 246 |
| 15[a] | do | 2.70 | 477 | 26 | F. B. Hauck | 1.10 | 108 |
| 17 | F. L. Peterson | 1.45 | 226 | 29[a] | C. L. Wilbur | | 25 |
| 19[a] | C. L. Wilbur | 1.70 | 172 | 29 | F. L. Peterson | .65 | 20 |
| 21[a] | do | 2.05 | 266 | Aug. 19 | do | .40 | 3.3 |

[a] Measurements furnished by American Engineering Corporation and are referred to a temporary gage about 500 feet above the regular gage. The other measurements are furnished by the Irrigation Investigations Bureau of the Department of Agriculture and refer to the regular gage.

*Daily gage height, in feet, and discharge, in second-feet, of Humboldt River near Lovelocks, Nev., for year ending Sept. 30, 1912.*

[F. B. Hauck, observer.]

| Day. | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 3.0 | 640 | 0.2 | 0 | 0.55 | 12 |
| 2 | | | 3.0 | 640 | | 0 | .5 | 8 |
| 3 | | | 2.85 | 596 | | 0 | .5 | 8 |
| 4 | | | 2.7 | 553 | .3 | 1 | .6 | 16 |
| 5 | | | 2.55 | 510 | .4 | 3 | .6 | 16 |
| 6 | | | 2.4 | 466 | .3 | 1 | .6 | 16 |
| 7 | | | 2.2 | 408 | .2 | 0 | .6 | 16 |
| 8 | | | 2.45 | 480 | | 0 | .6 | 16 |
| 9 | | | 2.6 | 524 | | 0 | .6 | 16 |
| 10 | | | 2.6 | 524 | | 0 | .65 | 22 |
| 11 | | | 2.6 | 524 | | 0 | .8 | 41 |
| 12 | | | 2.7 | 553 | .3 | 1 | .9 | 60 |
| 13 | | | 2.8 | 582 | .4 | 3 | .9 | 60 |
| 14 | | | 2.2 | 408 | .4 | 3 | .9 | 60 |
| 15 | | | 2.9 | 611 | .4 | 3 | .9 | 60 |
| 16 | | | | 406 | .4 | 3 | .9 | 60 |
| 17 | | | 1.45 | 200 | .4 | 3 | .85 | 50 |
| 18 | | | 1.3 | 160 | .5 | 8 | .7 | 27 |
| 19 | | | 1.25 | 147 | .4 | 3 | .6 | 16 |
| 20 | | | 1.35 | 173 | .3 | 1 | .6 | 16 |

*Daily gage height, in feet, and discharge, in second-feet, of Humboldt River near Lovelocks, Nev., for year ending Sept. 30, 1912*—Continued.

| Day. | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 21 | ..... | ..... | 1.5 | 213 | ..... | 0 | 0.55 | 12 |
| 22 | ..... | ..... | 1.5 | 213 | ..... | 0 | .55 | 12 |
| 23 | ..... | ..... | 1.8 | 296 | ..... | 0 | .5 | 8 |
| 24 | ..... | ..... | 1.7 | 268 | ..... | 0 | .5 | 8 |
| 25 | ..... | ..... | 1.3 | 160 | 0.3 | 1 | .45 | 5.5 |
| 26 | ..... | ..... | 1.1 | 109 | .4 | 3 | .45 | 5.5 |
| 27 | 0.7 | 27 | .8 | 41 | .4 | 3 | .5 | 8 |
| 28 | 2.8 | 582 | .65 | 22 | .4 | 3 | .5 | 8 |
| 29 | 2.9 | 611 | .65 | 22 | .5 | 8 | .4 | 3 |
| 30 | 2.9 | 611 | .5 | 8 | .65 | 22 | .4 | 3 |
| 31 | ..... | ..... | .4 | 3 | .55 | 12 | ..... | ..... |

NOTE.—Discharge determined from a fairly well-defined rating curve. Discharge on July 16 interpolated. Water standing in pools Aug. 1-3, 7-11, 21-24. Channel dry Feb. 7 to June 26.

*Monthly discharge of Humboldt River near Lovelocks, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June 27-30 | 611 | 27 | 458 | 3,630 | B. |
| July | 640 | 3 | 337 | 20,700 | B. |
| August | 22 | 0 | 2.7 | 166 | B. |
| September | 60 | 3 | 22.3 | 1,330 | B. |
| The period | ..... | ..... | ..... | 25,800 | |

### MARYS RIVER NEAR DEETH, NEV.

**Location.**—The station is located about 20 miles north of Deeth, Nev., on the Malo Vista ranch of the Nevada Land & Live Stock Co., at bridge about 300 feet east of the ranch house.

**Records available.**—November 24, 1902, to July 14, 1903; January 17, 1912, to September 30, 1912. The record during 1902 and 1903 refers to the station located on Bradley's ranch at the wagon bridge, about 20 miles upstream from the mouth or from Deeth, Nev.

**Drainage area.**—Not known.

**Gage.**—Chain gage fastened on north end of bridge.

**Channel.**—Probably permanent, except at sudden floods on stream.

**Discharge measurements.**—Made from bridge or by wading above or below gage.

**Winter flow.**—Ice forms at the station during cold periods.

**Diversions.**—Several small canals divert water above the station during the irrigation period, when the water is used to irrigate wild hay meadows.

**Storage.**—None above station at present time.

**Accuracy.**—Records fair.

**Cooperation.**—Gage heights and discharge measurements for 1912 furnished by F. L. Peterson, irrigation engineer, United States Department of Agriculture.

*Discharge measurements of Marys River near Deeth, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Apr. 22 | F. L. Peterson | 5.1 | 178 |
| June 22 | do | 4.5 | 153 |

*Daily gage height, in feet, of Marys River near Deeth, Nev., for year ending Sept. 30, 1912.*

[A. J. Tucker, observer.]

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 2.6 | 2.7 | 3.75 | 5.0 | 6.1 | ..... | 3.2 | 2.4 |
| 2 | ..... | 2.5 | 2.6 | 4.0 | 5.0 | 6.2 | ..... | 3.3 | 2.4 |
| 3 | ..... | ..... | 2.8 | 4.05 | 4.95 | 6.3 | ..... | 3.4 | 2.4 |
| 4 | ..... | ..... | 2.6 | 4.15 | 4.95 | 6.3 | ..... | 3.35 | 2.4 |
| 5 | ..... | ..... | 2.5 | 4.5 | 4.9 | 6.3 | ..... | 3.3 | 2.35 |
| 6 | ..... | 2.6 | 2.7 | 4.55 | 4.8 | 6.3 | ..... | 3.2 | 2.35 |
| 7 | ..... | 2.7 | 3.2 | 4.65 | 4.95 | 6.3 | ..... | 3.1 | 2.4 |
| 8 | ..... | 2.6 | 2.9 | 4.7 | 4.9 | 6.2 | ..... | 3.05 | 2.7 |
| 9 | ..... | 2.4 | 3.1 | 4.95 | 5.1 | 6.2 | ..... | 3.0 | 2.5 |
| 10 | ..... | 2.5 | 3.0 | 5.15 | 5.15 | 6.2 | ..... | 3.0 | 2.5 |
| 11 | ..... | 2.5 | 2.9 | 5.15 | 5.3 | 6.1 | ..... | 3.0 | 2.5 |
| 12 | ..... | 2.6 | 2.8 | 4.9 | 5.45 | 6.1 | ..... | 2.95 | 2.6 |
| 13 | ..... | 2.6 | 2.9 | 4.85 | 5.8 | 6.0 | ..... | 2.95 | 2.6 |
| 14 | ..... | 2.5 | 2.7 | 4.7 | 5.9 | 6.0 | ..... | 2.9 | 2.6 |
| 15 | ..... | 2.6 | 2.9 | 4.7 | 5.8 | 5.5 | ..... | 2.9 | 2.55 |
| 16 | ..... | 2.7 | 2.8 | 4.6 | 5.9 | 5.3 | ..... | 2.9 | 2.55 |
| 17 | ..... | 2.6 | 2.7 | 4.65 | 5.85 | 5.0 | ..... | 2.9 | 2.55 |
| 18 | ..... | 2.7 | 2.8 | 4.6 | 5.95 | 4.9 | ..... | 2.9 | 2.5 |
| 19 | ..... | 3.0 | 2.9 | 4.55 | 6.3 | 4.8 | ..... | 2.9 | 2.5 |
| 20 | ..... | 2.9 | 2.9 | 4.6 | 6.2 | 4.8 | ..... | 2.9 | 2.5 |
| 21 | ..... | 2.8 | 2.9 | 4.6 | 6.1 | 4.7 | ..... | 2.9 | 2.5 |
| 22 | ..... | 2.8 | 2.8 | 4.55 | 6.0 | 4.5 | ..... | 2.8 | 2.5 |
| 23 | ..... | 2.8 | 3.1 | 4.5 | 5.9 | 4.9 | ..... | 2.75 | 2.5 |
| 24 | ..... | 2.7 | 3.1 | 4.6 | 5.8 | 4.85 | ..... | 2.7 | 2.55 |
| 25 | ..... | 2.6 | 3.2 | 4.8 | 5.8 | 4.9 | ..... | 2.5 | 2.55 |
| 26 | 2.5 | 2.7 | 3.3 | 4.8 | 5.8 | 4.8 | ..... | 2.4 | 2.6 |
| 27 | 2.6 | 2.8 | 3.8 | 4.8 | 5.8 | 4.75 | ..... | 2.4 | 2.6 |
| 28 | 2.6 | 2.6 | 4.05 | 4.75 | 5.75 | 4.55 | 3.05 | 2.4 | 2.6 |
| 29 | 2.4 | 2.9 | 4.15 | 4.85 | 5.65 | 4.3 | 3.0 | 2.4 | 2.7 |
| 30 | 2.7 | ..... | 4.45 | 4.95 | 5.8 | ..... | 3.0 | 2.4 | 2.7 |
| 31 | 2.5 | ..... | 3.85 | ..... | 5.95 | ..... | 3.1 | 2.4 | ..... |

NOTE.—Stream frozen Jan. 17–25. Observer absent June 30 to July 27.

*Daily discharge, in second-feet, of Marys River near Deeth, Nev., for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 3.5 | 4.0 | 40 | 165 | 403 | ..... | 28 | 2 |
| 2 | ..... | 3.0 | 3.5 | 57 | 165 | 421 | ..... | 34 | 2 |
| 3 | ..... | 3.0 | 4.5 | 61 | 158 | 439 | ..... | 40 | 2 |
| 4 | ..... | 3.0 | 3.5 | 69 | 158 | 439 | ..... | 37 | 2 |
| 5 | ..... | 3.0 | 3.0 | 103 | 151 | 439 | ..... | 34 | 2 |
| 6 | ..... | 3.5 | 4.0 | 108 | 138 | 439 | ..... | 28 | 2 |
| 7 | ..... | 4.0 | 14 | 120 | 158 | 439 | ..... | 22 | 2 |
| 8 | ..... | 3.5 | 6.5 | 126 | 151 | 421 | ..... | 20 | 7 |
| 9 | ..... | 2.5 | 11 | 158 | 179 | 421 | ..... | 17 | 3 |
| 10 | ..... | 3.0 | 8.5 | 186 | 186 | 421 | ..... | 17 | 3 |
| 11 | ..... | 3.0 | 6.5 | 186 | 207 | 403 | ..... | 17 | 3 |
| 12 | ..... | 3.5 | 4.5 | 151 | 228 | 403 | ..... | 15 | 5 |
| 13 | ..... | 3.5 | 6.5 | 144 | 293 | 385 | ..... | 15 | 5 |
| 14 | ..... | 3.0 | 4.0 | 126 | 320 | 385 | ..... | 13 | 5 |
| 15 | ..... | 3.5 | 6.5 | 126 | 312 | 300 | ..... | 13 | 4 |

*Daily discharge, in second-feet, of Marys River near Deeth, Nev., for year ending Sept. 30, 1912*—Continued.

| Day. | Jan | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 16 | ..... | 4.0 | 4.5 | 114 | 337 | 266 | ..... | 13 | 4 |
| 17 | ..... | 3.5 | 4.0 | 120 | 339 | 220 | ..... | 13 | 4 |
| 18 | ..... | 4.0 | 4.5 | 114 | 366 | 205 | ..... | 13 | 3 |
| 19 | ..... | 8.5 | 6.5 | 108 | 439 | 190 | ..... | 13 | 3 |
| 20 | ..... | 6.5 | 6.5 | 114 | 421 | 190 | ..... | 13 | 3 |
| 21 | ..... | 4.5 | 6.5 | 114 | 403 | 176 | ..... | 13 | 3 |
| 22 | ..... | 4.5 | 4.5 | 108 | 385 | 150 | ..... | 10 | 3 |
| 23 | ..... | 4.5 | 11 | 103 | 368 | 205 | ..... | 8.5 | 3 |
| 24 | ..... | 4.0 | 11 | 114 | 351 | 198 | ..... | 7 | 4 |
| 25 | ..... | 3.5 | 14 | 138 | 351 | 205 | ..... | 3 | 4 |
| 26 | 3.0 | 4.0 | 18 | 138 | 351 | 190 | ..... | 2 | 5 |
| 27 | 3.5 | 4.5 | 43 | 138 | 351 | 183 | ..... | 2 | 5 |
| 28 | 3.5 | 3.5 | 61 | 132 | 342 | 156 | 20 | 2 | 5 |
| 29 | 2.5 | 6.5 | 69 | 144 | 326 | 125 | 17 | 2 | 7 |
| 30 | 4.0 | ..... | 98 | 158 | 351 | 100 | 17 | 2 | 7 |
| 31 | 3.0 | ..... | 46 | ..... | 376 | ..... | 22 | 2 | ..... |

NOTE.—Discharge determined from two fairly well defined curves based on measurements in 1912–13, one applicable Jan. 26 to May 12, the other May 19 to Sept. 30. Discharge determined by indirect method for shifting channels May 13–18. Discharge estimated Feb. 3–5, 3 second-feet, June 30, 100 second-feet, and July 1–27, 50 second-feet, from climatologic data and comparison with records of flow of Humboldt River at Palisade.

*Monthly discharge of Marys River near Deeth, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| January | ..... | ..... | [a]3.0 | 184 | D. |
| February | 8.5 | 2.5 | 3.95 | 227 | D. |
| March | 98 | 3 | 16.1 | 990 | D. |
| April | 186 | 40 | 121 | 7,200 | C. |
| May | 439 | 138 | 285 | 17,500 | C. |
| June | 439 | 100 | 297 | 17,700 | B. |
| July | ..... | ..... | 46.0 | 2,830 | C. |
| August | 40 | 2 | 15.1 | 928 | B. |
| September | 7 | 2 | 3.7 | 220 | B. |
| The period | ..... | ..... | ..... | 47,800 | |

[a] Estimated monthly mean.

### NORTH FORK OF HUMBOLDT RIVER NEAR HALLECK, NEV.

**Location.**—About one-fourth mile above mouth, 2 miles west of Elburz station on Southern Pacific Railroad, and 6 miles west of Hallock.

**Records available.**—October 10, 1902, to December 31, 1909; October 1, 1910, to September 30, 1912.

**Drainage area.**—1,020 square miles.

**Gage.**—Staff in two sections on left bank installed August 5, 1909, at same datum as original inclined staff.

**Channel.**—Sand and gravel; somewhat shifting.

**Discharge measurements.**—Made from car and cable near gage.

**Winter flow.**—Affected by ice.

**Diversions.**—There are several diversions for irrigation above the station.

**Accuracy.**—Records rather poor, owing to lack of discharge measurements.

**Cooperation.**—Gage heights and discharge measurements are furnished by the Office of Experiment Stations, United States Department of Agriculture, through F. L. Peterson, irrigation engineer.

*Discharge measurements of North Fork of Humboldt River near Halleck, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 2[a] | J. E. Stewart | 2.97 | 9.9 |
| 1912. | | | |
| July 20 | F. L. Peterson | 4.30 | 139 |

[a] Ice along banks.

*Daily gage height, in feet, of North Fork of Humboldt River near Halleck, Nev., for year ending Sept. 30, 1912.*

[Frank E. Schroeder, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | 2.9 | 3.0 | 3.0 | 2.5 | 3.3 | 3.9 | 4.3 | 4.95 | 4.25 | 3.7 | 2.85 |
| 2 | 2.6 | 2.9 | 3.0 | 3.0 | 2.5 | 3.3 | 3.8 | 4.2 | 5.15 | 4.25 | 3.8 | 2.82 |
| 3 | 2.6 | 2.9 | 3.0 | 3.0 | 2.5 | 3.5 | 3.8 | 4.2 | 5.3 | 4.3 | 4.1 | 2.82 |
| 4 | 2.6 | 2.9 | 3.0 | 3.0 | 2.5 | 3.5 | 3.8 | 4.3 | 5.5 | 4.1 | 4.2 | 2.82 |
| 5 | 2.6 | 2.9 | 3.0 | 3.0 | 2.5 | 3.8 | 3.8 | 4.3 | 5.7 | 4.1 | 4.15 | 2.8 |
| 6 | 2.6 | 3.0 | 3.0 | 3.0 | 2.5 | 4.0 | 4.0 | 4.3 | 5.8 | 4.0 | 3.9 | 2.8 |
| 7 | 2.6 | 3.0 | 3.0 | 3.0 | 2.5 | 4.2 | 4.2 | 4.3 | 6.15 | 3.95 | 3.65 | 2.8 |
| 8 | 2.6 | 3.0 | 3.0 | 3.0 | 2.5 | 4.4 | 4.3 | 4.6 | 6.3 | 3.7 | 3.4 | 2.8 |
| 9 | 2.6 | 3.0 | 3.0 | 3.0 | 2.5 | 4.4 | 4.4 | 4.6 | 6.5 | 3.6 | 3.3 | 2.8 |
| 10 | 2.6 | 3.0 | 3.0 | 3.0 | 2.5 | 4.0 | 4.5 | 4.6 | 6.7 | 3.55 | 3.25 | 2.78 |
| 11 | 2.6 | 3.0 | 3.0 | 3.0 | 2.6 | 3.7 | 4.5 | 4.8 | 6.7 | 3.45 | 3.2 | 2.78 |
| 12 | 2.6 | 3.0 | 3.0 | 3.0 | 2.7 | 3.4 | 4.6 | 4.8 | 6.7 | 3.45 | 3.15 | 2.75 |
| 13 | 2.6 | 3.0 | 3.0 | 3.0 | 2.7 | 3.3 | 4.8 | 4.9 | 6.7 | 3.4 | 3.1 | 2.75 |
| 14 | 2.6 | 3.0 | 3.0 | 3.0 | 2.8 | 3.3 | 4.8 | 4.95 | 6.7 | 3.3 | 3.05 | 2.75 |
| 15 | 2.7 | 3.0 | 3.0 | 3.0 | 2.9 | 3.4 | 4.6 | 5.0 | 6.7 | 3.2 | 3.0 | 2.75 |
| 16 | 2.7 | 3.0 | 3.0 | 3.0 | 3.0 | 3.5 | 4.3 | 5.0 | 6.4 | 3.2 | 2.95 | 2.72 |
| 17 | 2.7 | 3.0 | 3.0 | 3.0 | 3.0 | 3.4 | 4.3 | 5.05 | 5.95 | 3.15 | 3.0 | 2.72 |
| 18 | 2.8 | 3.0 | 3.0 | 3.0 | 3.2 | 3.4 | 4.3 | 5.1 | 5.7 | 3.2 | 3.0 | 2.72 |
| 19 | 2.8 | 3.0 | 3.0 | 3.0 | 3.4 | 3.4 | 4.3 | 5.1 | 5.6 | 3.9 | 2.98 | 2.7 |
| 20 | 2.8 | 3.0 | 3.0 | 3.0 | 3.5 | 3.4 | 4.3 | 5.1 | 5.6 | 4.3 | 2.95 | 2.7 |
| 21 | 2.8 | 3.0 | 3.0 | 2.9 | 3.7 | 3.4 | 4.4 | 5.1 | 5.6 | 4.5 | 2.95 | 2.7 |
| 22 | 2.8 | 3.0 | 3.0 | 2.9 | 3.9 | 3.3 | 4.3 | 5.05 | 5.4 | 4.2 | 2.9 | 2.75 |
| 23 | 2.8 | 3.0 | 3.0 | 2.8 | 4.0 | 3.3 | 4.3 | 5.1 | 5.2 | 3.9 | 2.9 | 2.75 |
| 24 | 2.8 | 3.0 | 3.0 | 2.8 | 4.0 | 3.4 | 4.3 | 5.15 | 5.1 | 3.9 | 2.9 | 2.75 |
| 25 | 2.9 | 3.0 | 3.0 | 2.8 | 3.9 | 3.6 | 4.3 | 5.3 | 4.95 | 3.85 | 2.9 | 2.8 |
| 26 | 2.9 | 3.0 | 3.0 | 2.7 | 3.8 | 3.8 | 4.3 | 5.3 | 4.75 | 3.7 | 2.88 | 2.8 |
| 27 | 2.9 | 3.0 | 3.0 | 2.7 | 3.6 | 3.9 | 4.3 | 5.3 | 4.7 | 3.5 | 2.88 | 2.8 |
| 28 | 2.9 | 3.0 | 3.0 | 2.6 | 3.5 | 4.0 | 4.3 | 5.2 | 4.6 | 3.3 | 2.85 | 2.85 |
| 29 | 2.9 | 3.0 | 3.0 | 2.6 | 3.4 | 4.1 | 4.3 | 5.1 | 4.45 | 3.1 | 2.85 | 2.85 |
| 30 | 2.9 | 3.0 | 3.0 | 2.6 | ..... | 4.1 | 4.3 | 5.1 | 4.3 | 3.1 | 2.85 | 2.9 |
| 31 | 2.9 | ..... | 3.0 | 2.5 | ..... | 4.0 | ..... | 4.95 | ..... | 3.3 | 2.85 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Nov. 6 to Jan. 20 and Feb. 18–24.

*Daily discharge, in second-feet, of North Fork of Humboldt River near Halleck, Nev., for years ending Sept. 30, 1911 and 1912.*

| Day. | Mar. | Apr. | June. | July. | Aug. | Sept. | Day. | Mar. | Apr. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | | | | 1911. | | | | | | |
| 1 | 70 | 159 | 55 | 60 | 5 | 1 | 16 | 150 | ..... | 150 | 7 | 2 | 2 |
| 2 | 70 | 168 | 55 | 50 | 5 | 1 | 17 | 224 | ..... | 168 | 7 | 1 | 2 |
| 3 | 70 | 266 | 55 | 50 | 4 | 1 | 18 | 266 | ..... | 195 | 10 | 1 | 2 |
| 4 | 70 | 224 | 50 | 50 | 4 | 1 | 19 | 266 | ..... | 204 | 10 | 1 | 2 |
| 5 | 94 | 186 | 55 | 50 | 4 | 1 | 20 | 266 | ..... | 204 | 10 | 1 | 2 |
| 6 | 94 | 186 | 60 | 42 | 4 | 1 | 21 | 266 | ..... | 186 | 10 | 1 | 2 |
| 7 | 120 | 150 | 82 | 42 | 3 | 1 | 22 | 266 | ..... | 177 | 10 | 1 | 2 |
| 8 | 266 | 150 | 82 | 34 | 3 | 2 | 23 | 310 | ..... | 168 | 10 | 1 | 2 |
| 9 | 528 | 159 | 82 | 27 | 3 | 2 | 24 | 266 | ..... | 168 | 10 | 1 | 2 |
| 10 | 528 | 120 | 94 | 21 | 3 | 2 | 25 | 266 | ..... | 142 | 7 | 1 | 2 |
| 11 | 266 | 94 | 94 | 21 | 3 | 2 | 26 | 224 | ..... | 106 | 7 | 1 | 2 |
| 12 | 468 | 94 | 94 | 21 | 3 | 2 | 27 | 150 | ..... | 94 | 7 | 1 | 2 |
| 13 | 358 | 70 | 94 | 15 | 3 | 2 | 28 | 150 | ..... | 82 | 7 | 1 | 2 |
| 14 | 266 | 70 | 106 | 10 | 3 | 2 | 29 | 120 | ..... | 70 | 7 | 1 | 2 |
| 15 | 186 | 50 | 120 | 7 | 2 | 2 | 30 | 150 | ..... | 70 | 7 | 1 | 2 |
| | | | | | | | 31 | 150 | ..... | ..... | 7 | 1 | ..... |

| Day. | Oct. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | |
| 1 | 2 | ..... | 2 | 27 | 82 | 134 | 255 | 127 | 60 | 6 |
| 2 | 3 | ..... | 2 | 27 | 70 | 120 | 299 | 127 | 70 | 5 |
| 3 | 3 | ..... | 2 | 42 | 70 | 120 | 334 | 134 | 106 | 5 |
| 4 | 3 | ..... | 2 | 42 | 70 | 134 | 384 | 106 | 120 | 5 |
| 5 | 3 | ..... | 2 | 70 | 70 | 134 | 438 | 106 | 113 | 5 |
| 6 | 3 | ..... | 2 | 94 | 94 | 134 | 468 | 94 | 82 | 5 |
| 7 | 3 | ..... | 2 | 120 | 120 | 134 | 576 | 88 | 55 | 5 |
| 8 | 3 | ..... | 2 | 150 | 134 | 186 | 624 | 60 | 34 | 5 |
| 9 | 3 | ..... | 2 | 150 | 150 | 186 | 688 | 50 | 27 | 5 |
| 10 | 3 | ..... | 2 | 94 | 168 | 186 | 756 | 46 | 24 | 5 |
| 11 | 3 | ..... | 3 | 60 | 168 | 224 | 756 | 38 | 21 | 5 |
| 12 | 3 | ..... | 4 | 34 | 186 | 224 | 756 | 38 | 18 | 4 |
| 13 | 3 | ..... | 4 | 27 | 224 | 244 | 756 | 34 | 15 | 4 |
| 14 | 3 | ..... | 5 | 27 | 224 | 255 | 756 | 27 | 12 | 4 |
| 15 | 4 | ..... | 7 | 34 | 186 | 266 | 756 | 21 | 10 | 4 |
| 16 | 4 | ..... | 10 | 42 | 134 | 266 | 656 | 21 | 8 | 4 |
| 17 | 4 | ..... | 10 | 34 | 134 | 277 | 513 | 18 | 10 | 4 |
| 18 | 5 | ..... | 20 | 34 | 134 | 288 | 438 | 21 | 10 | 4 |
| 19 | 5 | ..... | 20 | 34 | 134 | 288 | 410 | 82 | 9 | 4 |
| 20 | 5 | ..... | 20 | 34 | 134 | 288 | 410 | 134 | 8 | 4 |
| 21 | 5 | 7 | 20 | 34 | 150 | 288 | 410 | 168 | 8 | 4 |
| 22 | 5 | 7 | 20 | 27 | 134 | 277 | 358 | 120 | 7 | 4 |
| 23 | 5 | 5 | 20 | 27 | 134 | 288 | 310 | 82 | 7 | 4 |
| 24 | 5 | 5 | 20 | 34 | 134 | 299 | 288 | 82 | 7 | 4 |
| 25 | 7 | 5 | 82 | 50 | 134 | 334 | 255 | 76 | 7 | 5 |
| 26 | 7 | 4 | 70 | 70 | 134 | 334 | 214 | 60 | 7 | 5 |
| 27 | 7 | 4 | 50 | 82 | 134 | 334 | 204 | 42 | 7 | 5 |
| 28 | 7 | 3 | 42 | 94 | 134 | 310 | 186 | 27 | 6 | 6 |
| 29 | 7 | 3 | 34 | 106 | 134 | 288 | 159 | 15 | 6 | 6 |
| 30 | 7 | 3 | ..... | 106 | 134 | 288 | 134 | 15 | 6 | 7 |
| 31 | 7 | 2 | ..... | 94 | ..... | 255 | ..... | 27 | 6 | ..... |

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge estimated as follows because of ice: Jan. 1–17, 1911, 5 second-feet; Jan. 18–31, 1911, 65 second-feet; Feb. 1–7, 1911, 140 second-feet; Feb. 8–28, 1911, 50 second-feet; Nov. 1–30, 1911, 8 second-feet; Dec. 1, 1911, to Jan. 20, 1912, 7 second-feet; Feb. 18–24, 1912, 20 second-feet. Discharge Mar. 1–3, Apr. 1 and June 1–3, 1911, estimated because of observer's absence. No records Apr. 16 to May 31, 1911.

*Monthly discharge of North Fork of Humboldt River near Halleck, Nev., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| January | | | 32.1 | 1,970 | D. |
| February | | | 72.5 | 4,030 | D. |
| March | 528 | 70 | 224 | 13,800 | C. |
| April 1–15 | 266 | 50 | 142 | 4,220 | C. |
| June | 204 | 50 | 112 | 6,660 | C. |
| July | 60 | 7 | 20.4 | 1,250 | C. |
| August | 5 | 1 | 2.23 | 137 | D. |
| September | 2 | 1 | 1.77 | 105 | D. |
| 1911–12. | | | | | |
| October | 7 | 2 | 4.42 | 272 | D. |
| November | | | [a]8.0 | 476 | D. |
| December | | | [a]7.0 | 430 | D. |
| January | | | 6.06 | 373 | D. |
| February | 82 | 2 | 16.6 | 955 | D. |
| March | 150 | 27 | 61.3 | 3,770 | C. |
| April | 224 | 70 | 135 | 8,030 | C. |
| May | 334 | 120 | 238 | 14,600 | C. |
| June | 756 | 134 | 452 | 26,900 | C. |
| July | 168 | 15 | 67.3 | 4,140 | B. |
| August | 120 | 6 | 28.6 | 1,760 | C. |
| September | 7 | 4 | 4.73 | 281 | C. |
| The year | 756 | 2 | 85.8 | 62,000 | |

[a] Monthly mean estimated.

NOTE.—Accuracy rated low because of lack of discharge measurements and possibility of channel shifting.

### SOUTH FORK OF HUMBOLDT RIVER NEAR ELKO, NEV.

**Location.**—About 12 miles southwest of Elko, below all tributaries, and 6 miles above the mouth.

**Records available.**—August 29, 1896, to December 31, 1909; September 9, 1910, to September 30, 1912.

**Drainage area.**—1,150 square miles.

**Gage.**—Inclined staff gage on left bank, located near the cable, about one-fourth mile above highway bridge; used since February 26, 1907.

**Channel.**—Sand. Somewhat shifting.

**Discharge measurements.**—Made from car and cable just below gage.

**Winter flow.**—Affected by ice.

**Accuracy.**—Records poor, owing to shifting character of stream bed and, in 1911, to lack of discharge measurements.

**Cooperation.**—Gage heights and discharge measurements are furnished by the Office of Experiment Stations, United States Department of Agriculture, F. L. Peterson, irrigation engineer.

*Discharge measurements of South Fork of Humboldt River near Elko, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Nov. 1 | J. E. Stewart | 1.07 | 12 |
| 1[a] | do | 1.07 | 11 |
| 1912. | | | |
| Mar. 26[b] | F. L. Peterson | 1.50 | 72 |
| June 29 | do | 3.00 | 447 |
| Sept. 6 | do | .70 | 18 |

[a] Made by wading one-half mile below gage. [b] Made from bridge one-fourth mile below gage.

*Daily gage height, in feet, of South Fork of Humboldt River near Elko, Nev., for year ending Sept. 30, 1912.*

[James Cowling, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.8 | 1.1 | 1.5 | 1.5 | 2.5 | 2.1 | 1.6 | 2.35 | 4.2 | 2.85 | 1.35 | 0.3 |
| 2 | .8 | 1.1 | 1.5 | 1.5 | 2.5 | 2.05 | 1.6 | 2.25 | 4.4 | 2.65 | 1.2 | .3 |
| 3 | .9 | 1.15 | 1.5 | 1.5 | 2.5 | 2.05 | 1.65 | 2.25 | 4.8 | 2.5 | 1.2 | .4 |
| 4 | .9 | 1.15 | 1.5 | 1.5 | 2.5 | 1.95 | 1.75 | 2.25 | 5.0 | 2.35 | 1.1 | .5 |
| 5 | .9 | 1.1 | 1.5 | 1.5 | 2.5 | 1.8 | 2.05 | 2.25 | 5.2 | 2.3 | 1.0 | .6 |
| 6 | .8 | 1.1 | 1.5 | 1.5 | 2.5 | 1.6 | 2.05 | 2.35 | 5.6 | 2.15 | 1.0 | .7 |
| 7 | .8 | 1.1 | 1.5 | 1.55 | 2.5 | 1.35 | 2.05 | 2.4 | 5.8 | 2.05 | .9 | .75 |
| 8 | .8 | 1.1 | 1.5 | 1.6 | 2.5 | 1.15 | 2.2 | 2.5 | 5.9 | 2.1 | .9 | .8 |
| 9 | .8 | 1.1 | 1.5 | 1.6 | 2.5 | 1.2 | 2.2 | 2.6 | 6.0 | 2.1 | .8 | .8 |
| 10 | .8 | 1.1 | 1.5 | 1.6 | 2.5 | 1.2 | 2.2 | 2.75 | 5.8 | 2.1 | ,8 | .8 |
| 11 | .9 | 1.3 | 1.5 | 1.6 | 2.5 | 1.2 | 2.05 | 2.85 | 5.6 | 2.1 | .8 | .8 |
| 12 | .9 | 1.3 | 1.5 | 1.7 | 2.5 | 1.2 | 2.05 | 2.85 | 5.6 | 2.1 | .8 | .8 |
| 13 | 1.0 | 1.2 | 1.5 | 1.7 | 2.5 | 1.2 | 2.0 | 2.85 | 5.8 | 2.1 | .8 | .85 |
| 14 | 1.0 | 1.15 | 1.5 | 1.95 | 2.5 | 1.2 | 2.05 | 2.95 | 6.0 | 2.0 | .8 | .9 |
| 15 | 1.0 | 1.15 | 1.5 | 2.05 | 2.4 | 1.2 | 2.05 | 3.05 | 5.8 | 2.0 | .8 | .9 |
| 16 | 1.0 | 1.15 | 1.5 | 2.15 | 2.4 | 1.2 | 2.05 | 3.05 | 5.4 | 1.85 | .8 | .9 |
| 17 | 1.1 | 1.15 | 1.5 | 2.25 | 2.4 | 1.2 | 2.05 | 3.3 | 4.6 | 1.95 | .7 | .9 |
| 18 | 1.1 | 1.15 | 1.5 | 2.35 | 2.4 | 1.2 | 2.05 | 3.6 | 3.9 | 2.0 | .7 | .9 |
| 19 | 1.1 | 1.15 | 1.5 | 2.5 | 2.4 | 1.2 | 2.1 | 3.7 | 3.6 | 2.65 | .6 | .9 |
| 20 | 1.1 | 1.15 | 1.5 | 2.5 | 2.4 | 1.2 | 2.15 | 3.8 | 3.5 | 2.35 | .6 | .9 |
| 21 | 1.1 | 1.2 | 1.5 | 2.5 | 2.4 | 1.3 | 2.05 | 4.0 | 3.6 | 2.15 | .5 | .9 |
| 22 | 1.1 | 1.25 | 1.5 | 2.5 | 2.4 | 1.3 | 2.05 | 3.9 | 3.45 | 2.0 | .45 | .9 |
| 23 | 1.1 | 1.4 | 1.5 | 2.5 | 2.4 | 1.4 | 2.2 | 3.8 | 3.45 | 1.9 | .4 | .8 |
| 24 | 1.1 | 1.35 | 1.5 | 2.5 | 2.4 | 1.5 | 2.35 | 3.6 | 3.55 | 1.85 | .4 | .8 |
| 25 | 1.1 | 1.25 | 1.5 | 2.5 | 2.4 | 1.5 | 2.65 | 3.6 | 3.45 | 1.8 | .35 | .8 |
| 26 | 1.1 | 1.3 | 1.5 | 2.5 | 2.35 | 1.5 | 2.45 | 3.5 | 3.45 | 1.75 | .3 | .75 |
| 27 | 1.1 | 1.35 | 1.5 | 2.5 | 2.35 | 1.5 | 2.35 | 3.35 | 3.35 | 1.65 | .3 | .7 |
| 28 | 1.1 | 1.4 | 1.5 | 2.5 | 2.25 | 1.5 | 2.35 | 3.2 | 3.15 | 1.6 | .3 | .7 |
| 29 | 1.1 | 1.5 | 1.5 | 2.5 | 2.25 | 1.55 | 2.35 | 3.35 | 3.05 | 1.4 | .3 | .7 |
| 30 | 1.1 | 1.5 | 1.5 | 2.5 | ..... | 1.6 | 2.35 | 3.6 | 3.0 | 1.25 | .3 | .7 |
| 31 | 1.1 | ..... | 1.5 | 2.5 | ..... | 1.6 | ..... | 4.0 | ..... | 1.2 | .3 | ..... |

NOTE.—Relation of gage height to discharge probably affected by ice Nov. 11 to Mar. 3.

*Daily discharge, in second-feet, of South Fork of Humboldt River near Elko, Nev., for years ending Sept. 30, 1911 and 1912.*

| Day. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|
| 1911. | | | | | | | |
| 1 | 30 | 128 | 94 | 204 | 119 | 10 | 0 |
| 2 | 40 | 110 | 94 | 274 | 110 | 10 | 0 |
| 3 | 60 | 119 | 94 | 300 | 110 | 10 | 0 |
| 4 | 80 | 128 | 102 | 326 | 110 | 10 | 0 |
| 5 | 68 | 146 | 128 | 366 | 94 | 10 | 0 |
| 6 | 56 | 146 | 164 | 451 | 94 | 7 | 0 |
| 7 | 41 | 137 | 184 | 496 | 80 | 7 | 0 |
| 8 | 41 | 119 | 204 | 528 | 62 | 5 | 0 |
| 9 | 62 | 110 | 204 | 528 | 56 | 5 | 0 |
| 10 | 94 | 102 | 204 | 528 | 51 | 3 | 0 |
| 11 | 110 | 94 | 184 | 576 | 46 | 3 | 0 |
| 12 | 87 | 87 | 174 | 720 | 41 | 3 | 0 |
| 13 | 87 | 87 | 164 | 839 | 36 | 3 | 0 |
| 14 | 62 | 94 | 164 | 856 | 36 | 3 | 1 |
| 15 | 62 | 102 | 164 | 839 | 28 | 2 | 1 |
| 16 | 87 | 94 | 164 | 805 | 28 | 2 | 1 |
| 17 | 87 | 87 | 164 | 737 | 20 | 2 | 1 |
| 18 | 87 | 87 | 164 | 688 | 20 | 2 | 1 |
| 19 | 87 | 80 | 157 | 656 | 20 | 2 | 1 |
| 20 | 87 | 74 | 146 | 656 | 14 | 2 | 2 |

*Daily discharge, in second-feet, of South Fork of Humboldt River near Elko, Nev., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|
| 21 | 87 | 74 | 146 | 624 | 17 | 2 | 3 |
| 22 | 87 | 74 | 146 | 512 | 20 | 2 | 3 |
| 23 | 87 | 74 | 164 | 422 | 20 | 2 | 3 |
| 24 | 128 | 74 | 164 | 366 | 20 | 2 | 3 |
| 25 | 102 | 74 | 184 | 313 | 14 | 2 | 3 |
| 26 | 87 | 87 | 204 | 300 | 14 | 2 | 3 |
| 27 | 87 | 102 | 226 | 262 | 10 | 0 | 3 |
| 28 | 87 | 119 | 215 | 226 | 10 | 0 | 3 |
| 29 | 87 | 102 | 194 | 194 | 10 | 0 | 3 |
| 30 | 87 | 94 | 184 | 155 | 10 | 0 | 5 |
| 31 | 110 | ..... | 184 | ..... | 10 | 0 | ..... |

| Day. | Oct. | Nov. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1911-12. | | | | | | | | | |
| 1 | 5 | 14 | 40 | 86 | 221 | 766 | 403 | 80 | 8 |
| 2 | 5 | 14 | 40 | 86 | 200 | 834 | 347 | 62 | 8 |
| 3 | 7 | 14 | 40 | 93 | 200 | 974 | 308 | 62 | 10 |
| 4 | 7 | 14 | 141 | 108 | 200 | 1,050 | 270 | 50 | 12 |
| 5 | 7 | 14 | 116 | 160 | 200 | 1,140 | 258 | 40 | 16 |
| 6 | 5 | 14 | 86 | 160 | 221 | 1,290 | 223 | 40 | 20 |
| 7 | 5 | 14 | 55 | 160 | 232 | 1,380 | 201 | 32 | 22 |
| 8 | 5 | 14 | 36 | 190 | 256 | 1,420 | 212 | 32 | 25 |
| 9 | 5 | 14 | 40 | 190 | 282 | 1,470 | 212 | 25 | 25 |
| 10 | 5 | 14 | 40 | 190 | 321 | 1,400 | 212 | 25 | 25 |
| 11 | 7 | ..... | 40 | 160 | 347 | 1,330 | 212 | 25 | 25 |
| 12 | 7 | ..... | 40 | 160 | 347 | 1,330 | 212 | 25 | 25 |
| 13 | 10 | ..... | 40 | 150 | 347 | 1,400 | 212 | 25 | 28 |
| 14 | 10 | ..... | 40 | 160 | 374 | 1,470 | 190 | 25 | 32 |
| 15 | 10 | ..... | 40 | 160 | 402 | 1,400 | 190 | 25 | 32 |
| 16 | 10 | ..... | 40 | 160 | 402 | 1,250 | 160 | 25 | 32 |
| 17 | 14 | ..... | 40 | 160 | 474 | 970 | 180 | 20 | 32 |
| 18 | 14 | ..... | 40 | 160 | 568 | 732 | 190 | 20 | 32 |
| 19 | 14 | ..... | 40 | 170 | 600 | 632 | 347 | 16 | 32 |
| 20 | 14 | ..... | 40 | 180 | 632 | 600 | 270 | 16 | 32 |
| 21 | 14 | ..... | 50 | 160 | 698 | 632 | 223 | 12 | 32 |
| 22 | 14 | ..... | 50 | 160 | 664 | 584 | 190 | 11 | 32 |
| 23 | 14 | ..... | 60 | 190 | 632 | 584 | 170 | 10 | 25 |
| 24 | 14 | ..... | 72 | 221 | 568 | 616 | 160 | 10 | 25 |
| 25 | 14 | ..... | 72 | 295 | 568 | 584 | 150 | 9 | 25 |
| 26 | 14 | ..... | 72 | 244 | 536 | 584 | 141 | 8 | 22 |
| 27 | 14 | ..... | 72 | 221 | 489 | 553 | 124 | 8 | 20 |
| 28 | 14 | ..... | 72 | 221 | 444 | 493 | 116 | 8 | 20 |
| 29 | 14 | ..... | 79 | 221 | 489 | 463 | 86 | 8 | 20 |
| 30 | 14 | ..... | 86 | 221 | 568 | 448 | 68 | 8 | 20 |
| 31 | 14 | ..... | 86 | ..... | 698 | ..... | 62 | 8 | ..... |

NOTE.—Discharge Mar. 4 to Nov. 10, 1911, Mar. 4 to June 3, 1912, and June 9 to Sept. 30, 1912, determined from three rating curves poorly defined during 1911 and fairly well defined during 1912. Discharge June 4–8, 1912, determined by the indirect method for shifting channels. Mean discharge estimated as follows, because of ice: Jan. 1–19, 1911, 10 second-feet; Jan. 20–31, 1911, 100 second-feet; Feb. 1–28, 1911, 25 second-feet; Nov. 11 to Dec. 31, 1911, 15 second-feet; Jan. 1–31, 1912, 20 second-feet; Feb. 1–29, 1912, 25 second-feet; Mar. 1–3, 1912, 40 second-feet. Discharge Mar. 1–3, 1911, estimated. Discharge on Apr. 14, 1911, interpolated because of mush ice. Water standing in pools Aug. 27 to Sept. 13, 1911. Discharge estimated Sept. 14–19, 1911.

*Monthly discharge of South Fork of Humboldt River near Elko, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | 13 | 13 | 13 | 799 | C. |
| November | | | 12 | 714 | C. |
| December | | | a 8 | 492 | D. |
| January | | | a 44.8 | 2,750 | D. |
| February | | | a 25 | 1,390 | D. |
| March | 128 | 30 | 79.1 | 4,860 | D. |
| April | 146 | 74 | 100 | 5,950 | D. |
| May | 226 | 94 | 165 | 10,100 | D. |
| June | 856 | 155 | 492 | 29,300 | D. |
| July | 119 | 10 | 42.9 | 2,640 | C. |
| August | 10 | 0 | 3.65 | 224 | D. |
| September | 5 | 0 | 1.33 | 79 | D. |
| The year | 856 | 0 | 82.2 | 59,300 | |
| 1911–12. | | | | | |
| October | 14 | 5 | 10.3 | 633 | C. |
| November | | | 14.7 | 875 | D. |
| December | | | a 15 | 922 | D. |
| January | | | a 20 | 1,230 | D. |
| February | | | a 25 | 1,440 | D. |
| March | 141 | 36 | 58.2 | 3,580 | C. |
| April | 295 | 86 | 173 | 10,300 | C. |
| May | 698 | 200 | 425 | 26,100 | C. |
| June | 1,470 | 448 | 946 | 56,300 | B. |
| July | 403 | 62 | 203 | 12,500 | B. |
| August | 80 | 8 | 24.8 | 1,520 | B. |
| September | 32 | 8 | 23.8 | 1,420 | B. |
| The year | 1,470 | 5 | 162 | 117,000 | |

a Monthly mean estimated.

### PINE CREEK NEAR PALISADE, NEV.

**Location.**—At the Eureka & Palisade Railroad bridge, about 1 mile southwest of the town of Palisade.

**Records available.**—November 27, 1902, to December 31, 1904; January 18 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff nailed to the middle pier on the upstream side of bridge, installed January 18, 1912, at a datum different from that of the vertical staff gage used during 1902 to 1904, which was destroyed by flood during 1910.

**Channel.**—Sand and gravel; shifts at sudden floods.

**Discharge measurements.**—Made by wading.

**Artificial control.**—None above gage.

**Winter flow.**—Ice forms at the station for short periods.

**Accuracy.**—Records fair.

**Cooperation.**—Gage heights and discharge measurements for 1912 furnished by F. L. Peterson, irrigation engineer, United States Department of Agriculture.

*Discharge measurements of Pine Creek near Palisade, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Mar. 25 | F. L. Peterson | 0.75 | 12 |
| Apr. 14 | .....do | .85 | 21 |
| July 17 | .....do | .30 | 1.5 |
| Aug. 31 | .....do | .35 | 1.6 |

*Daily gage height, in feet, of Pine Creek near Palisade, Nev., for year ending Sept. 30, 1912.*

[H. F. Ebert, observer.]

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 0.7 | 0.9 | 0.7 | 1.3 | 0.3 | 0.4 | 0.6 | 0.3 |
| 2 | ..... | .8 | 1.0 | .7 | 1.3 | .3 | .4 | .6 | .3 |
| 3 | ..... | 1.2 | 1.0 | .8 | 1.3 | .3 | .4 | .6 | .3 |
| 4 | ..... | .8 | .9 | .9 | 1.2 | .3 | .4 | .6 | .4 |
| 5 | ..... | .8 | .9 | .9 | 1.2 | .3 | .4 | .6 | .4 |
| 6 | ..... | .9 | .9 | .9 | 1.1 | .4 | .4 | .6 | .4 |
| 7 | ..... | .9 | .9 | .8 | 1.1 | .4 | .4 | .5 | .4 |
| 8 | ..... | .9 | .9 | .8 | 1.1 | .4 | .3 | .5 | .4 |
| 9 | ..... | .7 | .9 | .8 | 1.1 | .4 | .3 | .5 | .4 |
| 10 | ..... | .8 | .8 | .9 | 1.1 | .4 | .3 | .4 | .4 |
| 11 | ..... | .8 | .8 | 1.0 | 1.0 | .4 | .3 | .4 | .4 |
| 12 | ..... | .8 | .9 | 1.0 | 1.1 | .4 | .4 | .4 | .4 |
| 13 | ..... | .8 | .9 | .9 | 1.0 | .5 | .4 | .5 | .4 |
| 14 | ..... | .8 | .8 | .8 | 1.2 | .5 | .4 | .4 | .4 |
| 15 | ..... | .8 | .8 | 1.0 | 1.0 | .5 | .4 | .4 | .5 |
| 16 | ..... | .9 | .9 | 1.0 | .9 | .5 | .4 | .4 | .5 |
| 17 | ..... | 1.0 | .8 | 1.0 | .8 | .5 | .4 | .4 | .5 |
| 18 | 0.8 | 1.1 | .8 | 1.1 | .7 | .5 | .3 | .4 | .5 |
| 19 | .8 | 1.0 | .8 | 1.2 | .7 | .5 | .3 | .4 | .5 |
| 20 | .8 | 1.0 | .7 | 1.2 | .7 | .4 | .3 | .4 | .5 |
| 21 | .8 | .8 | .7 | 1.2 | .7 | .4 | .3 | .4 | .5 |
| 22 | .8 | .7 | .8 | 1.2 | .7 | .4 | .4 | .4 | .5 |
| 23 | .8 | .8 | .8 | 1.2 | .6 | .4 | .4 | .4 | .5 |
| 24 | .7 | .8 | .8 | 1.4 | .6 | .4 | .3 | .4 | .5 |
| 25 | .7 | 1.0 | .7 | 1.7 | .6 | .4 | .4 | .4 | .5 |
| 26 | .8 | .9 | .7 | 1.8 | .6 | .4 | .4 | .4 | .5 |
| 27 | .8 | 1.0 | .8 | 1.7 | .5 | .4 | .4 | .4 | .5 |
| 28 | .8 | .9 | .8 | 1.5 | .3 | .4 | .4 | .4 | .5 |
| 29 | .8 | .9 | .7 | 1.4 | .3 | .4 | .4 | .4 | .5 |
| 30 | .8 | ..... | .7 | 1.4 | .4 | .4 | .4 | .3 | .5 |
| 31 | .8 | ..... | .7 | ..... | .4 | ..... | .5 | .3 | ..... |

*Daily discharge, in second feet, of Pine Creek near Palisade, Nev., for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 10 | 18 | 10 | 46 | 1.4 | 2.8 | 7.0 | 1.4 |
| 2 | ..... | 14 | 23 | 10 | 46 | 1.4 | 2.8 | 7.0 | 1.4 |
| 3 | ..... | 33 | 23 | 14 | 46 | 1.4 | 2.8 | 7.0 | 1.4 |
| 4 | ..... | 14 | 18 | 20 | 39 | 1.4 | 2.8 | 7.0 | 2.8 |
| 5 | ..... | 14 | 18 | 20 | 39 | 1.4 | 2.8 | 7.0 | 2.8 |
| 6 | ..... | 18 | 18 | 21 | 32 | 2.8 | 2.8 | 7.0 | 2.8 |
| 7 | ..... | 18 | 18 | 17 | 32 | 2.8 | 2.8 | 4.2 | 2.8 |
| 8 | ..... | 18 | 18 | 18 | 31 | 2.8 | 1.4 | 4.2 | 2.8 |
| 9 | ..... | 10 | 18 | 18 | 31 | 2.8 | 1.4 | 4.2 | 2.8 |
| 10 | ..... | 14 | 14 | 24 | 30 | 2.8 | 1.4 | 2.8 | 2.8 |
| 11 | ..... | 14 | 14 | 28 | 24 | 2.8 | 1.4 | 2.8 | 2.8 |
| 12 | ..... | 14 | 18 | 28 | 29 | 2.8 | 2.8 | 2.8 | 2.8 |
| 13 | ..... | 14 | 18 | 23 | 24 | 4.2 | 2.8 | 4.2 | 2.8 |
| 14 | ..... | 14 | 14 | 19 | 34 | 4.2 | 2.8 | 2.8 | 2.8 |
| 15 | ..... | 14 | 14 | 28 | 23 | 4.2 | 2.8 | 2.8 | 4.2 |
| 16 | ..... | 18 | 18 | 28 | 18 | 4.2 | 2.8 | 2.8 | 4.2 |
| 17 | ..... | 23 | 14 | 28 | 14 | 4.2 | 2.8 | 2.8 | 4.2 |
| 18 | 14 | 28 | 14 | 34 | 10 | 4.2 | 1.4 | 2.8 | 4.2 |
| 19 | 14 | 23 | 14 | 40 | 10 | 4.2 | 1.4 | 2.8 | 4.2 |
| 20 | 14 | 23 | 10 | 40 | 10 | 2.8 | 1.4 | 2.8 | 4.2 |
| 21 | 14 | 14 | 10 | 40 | 10 | 2.8 | 1.4 | 2.8 | 4.2 |
| 22 | 14 | 10 | 14 | 40 | 10 | 2.8 | 2.8 | 2.8 | 4.2 |
| 23 | 14 | 14 | 14 | 40 | 7.0 | 2.8 | 2.8 | 2.8 | 4.2 |
| 24 | 10 | 14 | 14 | 53 | 7.0 | 2.8 | 1.4 | 2.8 | 4.2 |
| 25 | 10 | 23 | 10 | 74 | 7.0 | 2.8 | 2.8 | 2.8 | 4.2 |
| 26 | 14 | 18 | 10 | 82 | 7.0 | 2.8 | 2.8 | 2.8 | 4.2 |
| 27 | 14 | 23 | 14 | 74 | 4.2 | 2.8 | 2.8 | 2.8 | 4.2 |
| 28 | 14 | 18 | 14 | 60 | 1.4 | 2.8 | 2.8 | 2.8 | 4.2 |
| 29 | 14 | 18 | 10 | 53 | 1.4 | 2.8 | 2.8 | 2.8 | 4.2 |
| 30 | 14 | ..... | 10 | 53 | 2.8 | 2.8 | 2.8 | 1.4 | 4.2 |
| 31 | 14 | ..... | 10 | ..... | 2.8 | ..... | 4.2 | 1.4 | ..... |

NOTE.—Daily discharge determined from two rather poorly defined rating curves, one applicable Jan. 18, to Apr. 2 and May 16 to Sept. 30, the other from Apr. 11 to May 3. Discharge Apr. 3–10 and May 4–15 determined by indirect method for shifting channels.

*Monthly discharge of Pine Creek near Palisade, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| January 18–31 | 14 | 10 | 13.4 | 372 | B. |
| February | 33 | 10 | 17.2 | 989 | B. |
| March | 23 | 10 | 15.0 | 922 | B. |
| April | 82 | 10 | 34.6 | 2,060 | B. |
| May | 46 | 1.4 | 20.3 | 1,250 | B. |
| June | 4.2 | 1.4 | 2.89 | 172 | B. |
| July | 4.2 | 1.4 | 2.44 | 150 | B. |
| August | 7.0 | 1.4 | 3.70 | 228 | B. |
| September | 4.2 | 1.4 | 3.41 | 203 | B. |
| The period | | | | 6,350 | |

## PYRAMID AND WINNEMUCCA LAKES BASINS.

### LAKE TAHOE AT TAHOE, CAL.

**Location.**—Near the outlet of the lake, in the SE. ¼ sec. 6, T. 15 N., R. 17 E., at Tahoe.

**Records available.**—1900 to September 30, 1912.

**Drainage area.**—519 square miles (including water surface of lake).

**Gage.**—Vertical staff fastened to piling of boat landing near outlet. Datum is 6,220 feet above sea level. Mean low-water elevation of lake is 6,226.0 feet.

**Cooperation.**—Gage-height record furnished by the United States Reclamation Service.

*Daily gage height, in feet, of Lake Tahoe at Tahoe, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | ..... | 7.29 | ..... | 6.90 | 6.70 | 6.65 | ..... | 7.30 | ..... | 7.59 | ..... |
| 2 | ..... | ..... | 7.28 | 6.98 | 6.90 | ..... | 6.65 | 6.80 | 7.31 | 7.60 | ..... | ..... |
| 3 | ..... | ..... | 7.27 | 6.98 | 6.90 | 6.69 | ..... | 6.85 | 7.32 | ..... | 7.56 | 6.98 |
| 4 | ..... | 7.48 | 7.26 | 6.96 | 6.84 | 6.68 | 6.62 | 6.85 | 7.38 | 7.62 | 7.54 | 6.97 |
| 5 | ..... | ..... | 7.25 | 6.96 | 6.87 | ..... | 6.62 | 6.88 | 7.39 | 7.60 | 7.52 | ..... |
| 6 | 7.80 | ..... | 7.26 | 6.95 | 6.88 | ..... | 6.62 | ..... | 7.40 | 7.62 | 7.52 | ..... |
| 7 | ..... | 7.48 | ..... | ..... | 6.88 | 6.75 | ..... | ..... | 7.41 | 7.67 | 7.51 | 6.98 |
| 8 | ..... | ..... | ..... | ..... | 6.87 | 6.75 | ..... | 6.88 | 7.47 | 7.63 | 7.50 | 6.98 |
| 9 | ..... | ..... | 7.28 | ..... | 6.86 | ..... | ..... | 6.90 | 7.52 | 7.60 | ..... | ..... |
| 10 | ..... | ..... | 7.27 | ..... | 6.85 | ..... | ..... | 6.92 | 7.53 | 7.61 | 7.45 | ..... |
| 11 | 7.76 | ..... | 7.26 | 7.02 | 6.83 | ..... | ..... | 6.92 | 7.53 | 7.60 | 7.42 | 6.91 |
| 12 | ..... | ..... | ..... | 7.02 | 6.83 | ..... | 6.65 | ..... | ..... | 7.60 | 7.42 | 6.90 |
| 13 | ..... | ..... | 7.26 | 6.98 | ..... | ..... | ..... | 6.98 | ..... | 7.65 | 7.40 | 6.96 |
| 14 | ..... | ..... | 7.23 | 6.95 | ..... | 6.70 | 6.65 | 6.99 | ..... | 7.62 | 7.37 | 6.96 |
| 15 | ..... | ..... | 7.22 | 6.90 | ..... | ..... | 6.65 | 6.99 | ..... | 7.61 | ..... | ..... |
| 16 | ..... | ..... | 7.21 | ..... | 6.82 | ..... | ..... | 7.00 | ..... | 7.60 | ..... | 6.89 |
| 17 | 7.70 | 7.38 | ..... | 6.95 | ..... | ..... | 6.66 | 7.00 | 7.58 | 7.58 | 7.32 | 6.89 |
| 18 | 7.68 | 7.38 | ..... | ..... | 6.82 | 6.73 | 6.66 | 7.02 | 7.60 | 7.68 | ..... | 6.88 |
| 19 | 7.66 | 7.37 | 7.18 | ..... | ..... | 6.72 | 6.65 | 7.03 | 7.60 | 7.62 | 7.29 | 6.87 |
| 20 | 7.66 | 7.37 | ..... | 6.92 | 6.82 | ..... | ..... | ..... | ..... | 7.65 | 7.29 | 6.88 |
| 21 | 7.64 | 7.37 | ..... | ..... | 6.80 | ..... | ..... | ..... | ..... | ..... | 7.28 | 6.88 |
| 22 | 7.64 | 7.37 | 7.15 | ..... | 6.80 | 6.68 | ..... | ..... | ..... | ..... | 7.26 | 6.86 |
| 23 | 7.64 | 7.37 | 7.15 | ..... | ..... | 6.67 | ..... | ..... | ..... | 7.60 | 7.25 | 6.85 |
| 24 | 7.62 | 7.37 | ..... | ..... | ..... | 6.66 | ..... | 7.14 | 7.65 | 7.59 | 7.24 | ..... |
| 25 | 7.60 | 7.36 | 7.05 | ..... | ..... | 6.64 | ..... | ..... | 7.65 | 7.59 | 7.22 | 6.80 |
| 26 | ..... | 7.35 | 7.00 | ..... | 6.75 | ..... | ..... | ..... | ..... | 7.59 | 7.20 | 6.79 |
| 27 | ..... | 7.34 | ..... | 6.95 | 6.74 | 6.64 | 6.65 | 7.20 | 7.65 | 7.59 | ..... | 6.78 |
| 28 | 7.57 | 7.32 | ..... | 6.95 | 6.73 | 6.64 | ..... | 7.20 | 7.65 | 7.58 | ..... | 6.78 |
| 29 | 7.53 | 7.30 | 7.00 | 6.90 | 6.72 | 6.64 | ..... | ..... | 7.65 | 7.58 | ..... | 6.78 |
| 30 | 7.50 | 7.29 | 7.00 | 6.90 | ..... | ..... | ..... | 7.30 | 7.62 | 7.56 | ..... | 6.75 |
| 31 | ..... | ..... | ..... | 6.90 | ..... | 6.65 | ..... | 7.30 | ..... | 7.56 | 7.05 | ..... |

NOTE.—On days of missing gage heights the observer notes "Lake too rough for accurate reading."

## TRUCKEE RIVER AT TAHOE, CAL.

**Location.**—In the NW. ¼ sec. 7, T. 15 N., R. 17 E., at Tahoe, a short distance below dam at outlet of Lake Tahoe.

**Records available.**—July 3, 1895, to February 29, 1896; June 17, 1900, to September 30, 1912.

**Drainage area.**—519 square miles.

**Gage.**—Vertical staff on left bank, 200 feet below dam at outlet of Lake Tahoe. Gage was destroyed by dredging operations July 15, 1912. Temporary gage used during remainder of year.

**Channel.**—Gravel; practically permanent.

**Discharge measurements.**—Made from car and cable just above railroad bridge, about one-fourth mile below gage, or by wading.

**Winter flow.**—Affected but little by ice.

**Artificial control.**—Flow regulated by operation of gates in dam at Lake Tahoe.

**Accuracy.**—Records are considered excellent. Estimates July 15 to September 30, 1912, computed by United States Reclamation Service from data furnished by Stone & Webster Engineering Corporation.

**Cooperation.**—Gage heights furnished by United States Reclamation Service.

No discharge measurements furnished for 1912.

*Daily gage height, in feet, of Truckee River at Tahoe, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.00 | 2.07 | 1.99 | 2.7 | 1.8 | 1.6 | 1.15 | 0.64 | 0.43 | 0.47 | 1.44 | 2.35 |
| 2 | 2.00 | 2.07 | 1.99 | 2.6 | 1.8 | 1.6 | 1.15 | .64 | .43 | 1.00 | 1.44 | 2.35 |
| 3 | 1.98 | 2.07 | 1.99 | 2.6 | 1.7 | 1.6 | 1.2 | .65 | .43 | 1.00 | 1.44 | 2.35 |
| 4 | 1.98 | 2.07 | 1.99 | 2.6 | 1.8 | 1.6 | 1.0 | .68 | .43 | 1.00 | 1.44 | 2.35 |
| 5 | 1.98 | 2.07 | 1.99 | 2.6 | 1.8 | 1.7 | 1.0 | .67 | .43 | 1.00 | 1.44 | 2.35 |
| 6 | 1.98 | 2.07 | 1.99 | 2.6 | 1.8 | 1.7 | 1.0 | .67 | .43 | .60 | 1.44 | 2.35 |
| 7 | 1.98 | 2.07 | 1.99 | 2.6 | 1.8 | 1.7 | .84 | .47 | .43 | 1.00 | 1.44 | 2.20 |
| 8 | 1.98 | 2.07 | 1.98 | 2.6 | 1.8 | 1.7 | .84 | .41 | .43 | 1.00 | 1.47 | 2.00 |
| 9 | 1.98 | 2.07 | 1.98 | 2.6 | 1.8 | 1.7 | .84 | .42 | .43 | 1.03 | 2.18 | 1.95 |
| 10 | 2.05 | 2.07 | 1.97 | 2.6 | 1.8 | 1.7 | .84 | .42 | .43 | .80 | 2.20 | 1.95 |
| 11 | 2.05 | 2.07 | 1.97 | 2.6 | 1.7 | 1.7 | .84 | .42 | .43 | 1.00 | 2.20 | 1.86 |
| 12 | 2.05 | 2.07 | 1.97 | 2.6 | 1.7 | 1.7 | .95 | .42 | .43 | .80 | 2.20 | 1.65 |
| 13 | 2.05 | 2.07 | 1.97 | 2.6 | 1.7 | 1.7 | .78 | .42 | .48 | .80 | 2.20 | 1.30 |
| 14 | 2.05 | 2.06 | 1.96 | 2.6 | 1.7 | 1.7 | .78 | .42 | .49 | .80 | 2.30 | 1.50 |
| 15 | 2.05 | 2.05 | 1.94 | 2.6 | 1.7 | 1.7 | .78 | .42 | .51 | 1.40 | 2.30 | 1.60 |
| 16 | 2.05 | 2.05 | 1.93 | 2.0 | 1.7 | 1.7 | .78 | .42 | .51 | 1.40 | 2.30 | 1.60 |
| 17 | 2.05 | 2.04 | 1.94 | 2.0 | 1.7 | 1.7 | .78 | .43 | .51 | 1.50 | 2.25 | 1.57 |
| 18 | 2.05 | 2.04 | 1.95 | 1.7 | 1.65 | 1.7 | .78 | .43 | .51 | 1.23 | 2.25 | 1.53 |
| 19 | 2.03 | 2.04 | 1.90 | 1.7 | 1.7 | 1.6 | .78 | .43 | .51 | 1.18 | 2.25 | 1.53 |
| 20 | 2.03 | 2.04 | 1.90 | 1.7 | 1.7 | 1.6 | .78 | .43 | .51 | 1.15 | 2.25 | 1.53 |
| 21 | 2.03 | 2.03 | 1.95 | 1.7 | 1.7 | 1.6 | .78 | .43 | .49 | 1.30 | 2.25 | 1.60 |
| 22 | 2.02 | 2.02 | 1.90 | 1.7 | 1.7 | 1.55 | .78 | .43 | .47 | 1.30 | 2.25 | 1.71 |
| 23 | 2.00 | 2.01 | 1.88 | 1.7 | 1.7 | 1.55 | .89 | .43 | .47 | 1.30 | 2.25 | 1.60 |
| 24 | 2.00 | 2.01 | 2.26 | 1.7 | 1.7 | 1.55 | .68 | .43 | .47 | 1.40 | 2.25 | 1.60 |
| 25 | 2.00 | 2.00 | 2.65 | 1.7 | 1.65 | 1.55 | .68 | .43 | .47 | 1.40 | 2.25 | 1.60 |
| 26 | 2.07 | 2.00 | 2.65 | 1.7 | 1.65 | 1.55 | .60 | .43 | .48 | 1.40 | 2.25 | 1.60 |
| 27 | 2.07 | 2.00 | 2.65 | 1.75 | 1.65 | 1.45 | .60 | .43 | .48 | 1.65 | 2.25 | 1.60 |
| 28 | 2.07 | 2.00 | 2.65 | 1.75 | 1.6 | 1.45 | .60 | .43 | .48 | 1.39 | 2.25 | 1.65 |
| 29 | 2.07 | 1.99 | 2.70 | 1.8 | 1.4 | 1.28 | .60 | .43 | .48 | 1.39 | 2.23 | 1.79 |
| 30 | 2.07 | 1.99 | 2.70 | 1.8 | ..... | 1.15 | .62 | .43 | .47 | 1.44 | 2.22 | 1.72 |
| 31 | 2.07 | ..... | 2.70 | 1.8 | ..... | 1.15 | ..... | .43 | ..... | 1.44 | 2.21 | ..... |

NOTE.—Gage heights July 15 to Sept. 30 read on temporary gage at new location and datum.

*Daily discharge, in second-feet, of Truckee River at Tahoe, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 350 | 374 | 347 | 617 | 287 | 230 | 124 | 40 | 19 | 23 | 240 | 523 |
| 2 | 350 | 374 | 347 | 575 | 287 | 230 | 124 | 40 | 19 | 95 | 240 | 523 |
| 3 | 344 | 374 | 347 | 575 | 258 | 230 | 134 | 41 | 19 | 95 | 240 | 523 |
| 4 | 344 | 374 | 347 | 575 | 287 | 230 | 95 | 45 | 19 | 95 | 240 | 523 |
| 5 | 344 | 374 | 347 | 575 | 287 | 258 | 95 | 43 | 19 | 95 | 240 | 523 |
| 6 | 344 | 374 | 347 | 575 | 287 | 258 | 95 | 43 | 19 | 35 | 240 | 523 |
| 6 | 344 | 374 | 347 | 575 | 287 | 258 | 67 | 23 | 19 | 95 | 240 | 476 |
| 8 | 344 | 374 | 344 | 575 | 287 | 258 | 67 | 18 | 19 | 95 | 250 | 414 |
| 9 | 344 | 374 | 344 | 575 | 287 | 258 | 67 | 19 | 19 | 101 | 470 | 399 |
| 10 | 367 | 374 | 340 | 575 | 287 | 258 | 67 | 19 | 19 | 61 | 476 | 399 |
| 11 | 367 | 374 | 340 | 575 | 258 | 258 | 67 | 19 | 19 | 95 | 476 | 371 |
| 12 | 367 | 374 | 340 | 575 | 258 | 258 | 86 | 19 | 19 | 61 | 476 | 306 |
| 13 | 367 | 374 | 340 | 575 | 258 | 258 | 58 | 19 | 23 | 61 | 476 | 197 |
| 14 | 367 | 370 | 337 | 575 | 258 | 258 | 58 | 19 | 24 | 61 | 507 | 259 |
| 15 | 367 | 367 | 331 | 575 | 258 | 258 | 58 | 19 | 26 | 228 | 507 | 290 |
| 16 | 367 | 367 | 328 | 350 | 258 | 258 | 58 | 19 | 26 | 228 | 507 | 290 |
| 17 | 367 | 364 | 331 | 350 | 258 | 258 | 58 | 19 | 26 | 259 | 492 | 281 |
| 18 | 367 | 364 | 334 | 258 | 244 | 258 | 58 | 19 | 26 | 175 | 492 | 268 |
| 19 | 360 | 364 | 318 | 258 | 258 | 230 | 58 | 19 | 26 | 160 | 492 | 268 |
| 20 | 360 | 364 | 318 | 258 | 258 | 230 | 58 | 19 | 26 | 151 | 492 | 268 |
| 21 | 360 | 360 | 334 | 258 | 258 | 230 | 58 | 19 | 24 | 197 | 492 | 290 |
| 22 | 357 | 357 | 318 | 258 | 258 | 217 | 58 | 19 | 23 | 197 | 492 | 324 |
| 23 | 350 | 353 | 312 | 258 | 258 | 217 | 75 | 19 | 23 | 197 | 492 | 290 |
| 24 | 350 | 353 | 441 | 258 | 258 | 217 | 45 | 19 | 23 | 228 | 492 | 290 |
| 25 | 350 | 350 | 596 | 258 | 244 | 217 | 45 | 19 | 23 | 228 | 492 | 290 |
| 26 | 374 | 350 | 596 | 258 | 244 | 217 | 35 | 19 | 23 | 228 | 492 | 290 |
| 27 | 374 | 350 | 596 | 272 | 244 | 192 | 35 | 19 | 23 | 306 | 492 | 290 |
| 28 | 374 | 350 | 596 | 272 | 230 | 192 | 35 | 19 | 23 | 225 | 492 | 306 |
| 29 | 374 | 347 | 617 | 287 | 179 | 152 | 35 | 19 | 23 | 225 | 485 | 349 |
| 30 | 374 | 347 | 617 | 287 | ..... | 124 | 37 | 19 | 23 | 240 | 482 | 327 |
| 31 | 374 | ..... | 617 | 287 | ..... | 124 | ..... | 19 | ..... | 240 | 479 | ..... |

NOTE.—Discharge Oct. 1 to July 14 computed from a rating curve based on measurement in 1910–11 and well defined above 130 second-feet. Discharge July 15 to Sept. 30, computed by United States Reclamation Service from data furnished by Stone & Webster Engineering Corporation.

*Monthly discharge of Truckee River at Tahoe, Cal., for year ending Sept. 30, 1912.*

[Drainage area, 519 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 374 | 344 | 359 | 0.692 | 0.80 | 22,100 | A. |
| November | 374 | 347 | 365 | .703 | .78 | 21,700 | A. |
| December | 617 | 312 | 400 | .771 | .89 | 24,600 | A. |
| January | 617 | 258 | 422 | .813 | .94 | 25,900 | A. |
| February | 287 | 179 | 261 | .503 | .54 | 15,000 | A. |
| March | 258 | 124 | 229 | .441 | .51 | 14,100 | A. |
| April | 134 | 35 | 67.0 | .129 | .14 | 3,990 | B. |
| May | 45 | 18 | 23.5 | .045 | .05 | 1,440 | C. |
| June | 26 | 19 | 22.1 | .043 | .05 | 1,320 | C. |
| July | 306 | 23 | 154 | .297 | .34 | 9,470 | |
| August | 507 | 240 | 425 | .819 | .94 | 26,100 | |
| September | 523 | 197 | 356 | .686 | .77 | 21,200 | |
| The year | 617 | 18 | 257 | .495 | 6.75 | 187,000 | |

## TRUCKEE RIVER AT ICELAND, CAL.

**Location.**—Above dam of ice company, 400 feet northeast of Southern Pacific Co.'s railroad station at Iceland, and about 23 miles west of Reno.

**Records available.**—August 1 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Barrett & Lawrence hydrochronograph on right bank above dam; auxiliary vertical staff is fastened to gage well.

**Channel.**—Small bowlders; fairly smooth.

**Discharge measurements.**—Made from car and cable 130 feet above gage.

**Winter flow.**—Probably somewhat affected by ice during very cold weather.

**Cooperation.**—Records furnished by Stone & Webster Engineering Corporation.

This station was established to replace the station formerly maintained at the Nevada-California State line, about 3 miles downstream.

*Daily gage height, in feet, and discharge, in second feet, of Truckee River at Iceland, Cal., for year ending Sept. 30, 1912.*

| Day. | August. | | September. | | Day. | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | 1.49 | 405 | 1.77 | 585 | 16 | 1.82 | 620 | 1.43 | 375 |
| 2 | 1.48 | 400 | 1.77 | 585 | 17 | 1.81 | 610 | 1.48 | 400 |
| 3 | 1.48 | 400 | 1.79 | 600 | 18 | 1.80 | 605 | 1.42 | 370 |
| 4 | 1.48 | 400 | 1.79 | 600 | 19 | 1.80 | 605 | 1.41 | 365 |
| 5 | 1.46 | 390 | 1.78 | 590 | 20 | 1.80 | 605 | 1.41 | 365 |
| 6 | 1.43 | 375 | 1.82 | 620 | 21 | 1.80 | 605 | 1.42 | 370 |
| 7 | 1.40 | 360 | 1.99 | 755 | 22 | 1.79 | 600 | 1.54 | 435 |
| 8 | 1.40 | 360 | 1.85 | 645 | 23 | 1.79 | 600 | 1.41 | 365 |
| 9 | 1.68 | 520 | 1.69 | 525 | 24 | 1.78 | 590 | 1.41 | 365 |
| 10 | 1.73 | 560 | 1.67 | 515 | 25 | 1.78 | 590 | 1.41 | 365 |
| 11 | 1.78 | 590 | 1.69 | 525 | 26 | 1.78 | 590 | 1.39 | 355 |
| 12 | 1.79 | 600 | 1.71 | 545 | 27 | 1.78 | 590 | 1.41 | 365 |
| 13 | 1.78 | 590 | 1.42 | 370 | 28 | 1.77 | 585 | 1.39 | 355 |
| 14 | 1.82 | 620 | 1.42 | 370 | 29 | 1.76 | 580 | 1.40 | 360 |
| 15 | 1.83 | 630 | 1.42 | 370 | 30 | 1.75 | 575 | 1.40 | 360 |
| | | | | | 31 | 1.72 | 550 | ..... | ..... |

NOTE.—Daily discharge during August computed by engineers of the U. S. Geological Survey by applying same rating table as that used Sept. 1 to Dec. 31, 1912, by Stone & Webster Engineering Corporation.

*Monthly discharge of Truckee River at Iceland, Cal., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet) |
|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | |
| August | 630 | 360 | 539 | 33,100 |
| September | 755 | 355 | 459 | 27,300 |
| The period | ..... | ..... | ..... | 60,100 |

## TRUCKEE RIVER AT NEVADA-CALIFORNIA STATE LINE.

**Location.**—In the SE. ¼ sec. 6, T. 18 N., R. 18 E., 1 mile upstream from the State line, Calvada flag station.

**Records available.**—September 7, 1899, to August 31, 1912.

**Drainage area.**—955 square miles.

**Gage.**—Inclined staff on left bank with vertical section for low water. Original gage was at Farad, 3½ miles above the State line. Present gage was installed June 14, 1909.

**Channel.**—Gravel and small bowlders, which shift at high stages.

**Discharge measurements.**—Made from car and cable 50 feet above gage.

**Winter flow.**—Affected but little by ice. No correction has been made.

**Artificial control.**—Flow partly regulated by storage at Lake Tahoe and Donner Lake.

**Accuracy.**—Results are not very satisfactory at low stages. Station was moved 3 miles upstream to Iceland on September 1, 1912.

**Cooperation.**—Gage heights furnished by United States Reclamation Service and discharge measurements by Stone & Webster Engineering Corporation.

*Discharge measurements of Truckee River at Nevada-California State line for year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* |
| Oct. 30 | J. E. Stewart | 2.56 | 470 |
| 1912. | | | |
| Mar. 19 | Stone & Webster Engineering Corporation | 2.48 | 419 |
| June 25 | H. J. Tompkins | 2.51 | 470 |

*Daily gage height, in feet, of Truckee River at Nevada-California State line for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.6 | 2.6 | 2.6 | 3.0 | 2.4 | 2.35 | 2.5 | 2.8 | 3.8 | 2.4 | 2.3 |
| 2 | 2.6 | 2.6 | 2.6 | 3.0 | 2.4 | 2.3 | 2.55 | 2.8 | 3.9 | 2.4 | 2.3 |
| 3 | 2.6 | 2.6 | 2.6 | 3.0 | 2.4 | 2.3 | 2.7 | 2.8 | 4.0 | 2.5 | 2.35 |
| 4 | 2.6 | 2.6 | 2.6 | 3.0 | 2.3 | 2.3 | 2.6 | 2.8 | 4.2 | 2.5 | 2.3 |
| 5 | 2.6 | 2.6 | 2.6 | 3.0 | 2.4 | 2.4 | 2.6 | 2.9 | 4.1 | 2.4 | 2.3 |
| 6 | 2.6 | 2.65 | 2.6 | 3.0 | 2.4 | 2.45 | 2.6 | 2.9 | 3.9 | 2.3 | 2.3 |
| 7 | 2.6 | 2.65 | 2.6 | 3.05 | 2.4 | 2.4 | 2.7 | 2.95 | 3.9 | 2.4 | 2.2 |
| 8 | 2.6 | 2.65 | 2.6 | 3.1 | 2.4 | 2.4 | 2.8 | 3.15 | 3.8 | 2.4 | 2.3 |
| 9 | 2.6 | 2.65 | 2.6 | 3.1 | 2.4 | 2.35 | 2.8 | 3.3 | 3.5 | 2.3 | 2.25 |
| 10 | 2.6 | 2.7 | 2.6 | 3.0 | 2.4 | 2.5 | 2.75 | 3.4 | 3.3 | 2.3 | 2.8 |
| 11 | 2.55 | 2.65 | 2.7 | 3.0 | 2.4 | 2.5 | 2.6 | 3.8 | 3.4 | 2.3 | 2.6 |
| 12 | 2.55 | 2.65 | 2.65 | 3.0 | 2.4 | 2.4 | 2.55 | 3.8 | 3.4 | 2.3 | 2.7 |
| 13 | 2.55 | 2.65 | 2.6 | 3.0 | 2.4 | 2.4 | 2.45 | 4.0 | 3.7 | 2.3 | 2.7 |
| 14 | 2.55 | 2.6 | 2.5 | 2.9 | 2.4 | 2.5 | 2.35 | 4.0 | 3.4 | 2.3 | 2.8 |
| 15 | 2.55 | 2.6 | 2.55 | 2.9 | 2.4 | 2.4 | 2.4 | 4.0 | 3.2 | 2.3 | 2.75 |
| 16 | 2.55 | 2.65 | 2.6 | 2.9 | 2.4 | 2.4 | 2.35 | 4.2 | 3.0 | 2.4 | 2.7 |
| 17 | 2.6 | 2.65 | 2.55 | 2.65 | 2.4 | 2.5 | 2.5 | 4.0 | 3.0 | 2.6 | 2.7 |
| 18 | 2.6 | 2.65 | 2.5 | 2.6 | 2.45 | 2.5 | 2.6 | 4.1 | 3.0 | 2.6 | 2.65 |
| 19 | 2.6 | 2.65 | 2.55 | 2.35 | 2.5 | 2.5 | 2.6 | 4.1 | 2.9 | 2.4 | 2.8 |
| 20 | 2.6 | 2.65 | 2.5 | 2.4 | 2.45 | 2.55 | 2.45 | 3.7 | 2.9 | 2.3 | 2.6 |
| 21 | 2.6 | 2.65 | 2.6 | 2.4 | 2.45 | 2.4 | 2.3 | 3.6 | 2.8 | 2.3 | 2.7 |
| 22 | 2.55 | 2.65 | 2.5 | 2.4 | 2.4 | 2.4 | 2.45 | 3.3 | 2.8 | 2.3 | 2.7 |
| 23 | 2.55 | 2.6 | 2.6 | 2.4 | 2.45 | 2.4 | 2.35 | 3.2 | 2.6 | 2.3 | 2.7 |
| 24 | 2.55 | 2.65 | 2.6 | 2.35 | 2.4 | 2.3 | 2.45 | 3.1 | 2.7 | 2.3 | 2.7 |
| 25 | 2.55 | 2.6 | 2.9 | 2.4 | 2.45 | 2.5 | 2.5 | 3.1 | 2.6 | 2.3 | 2.65 |
| 26 | 2.55 | 2.6 | 2.9 | 2.4 | 2.4 | 2.55 | 2.5 | 3.1 | 2.5 | 2.3 | 2.7 |
| 27 | 2.6 | 2.6 | 2.9 | 2.4 | 2.4 | 2.6 | 2.5 | 3.1 | 2.5 | 2.3 | 2.7 |
| 28 | 2.6 | 2.65 | 2.9 | 2.3 | 2.4 | 2.6 | 2.6 | 3.3 | 2.5 | 2.4 | 2.7 |
| 29 | 2.6 | 2.6 | 2.9 | 2.45 | 2.4 | 2.7 | 2.7 | 3.65 | 2.5 | 2.2 | 2.7 |
| 30 | 2.6 | 2.65 | 2.9 | 2.4 | ..... | 2.6 | 2.8 | 3.9 | 2.4 | 2.25 | 2.7 |
| 31 | 2.6 | ..... | 2.85 | 2.4 | ..... | 2.3 | ..... | 3.75 | ..... | 2.3 | 2.7 |

*Daily discharge, in second-feet, of Truckee River at Nevada-California State line for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 498 | 498 | 498 | 815 | 376 | 353 | 432 | 645 | 1,710 | 408 | 364 |
| 2 | 498 | 498 | 498 | 815 | 376 | 330 | 465 | 645 | 1,840 | 408 | 364 |
| 3 | 498 | 498 | 498 | 815 | 376 | 330 | 570 | 645 | 1,970 | 462 | 386 |
| 4 | 498 | 498 | 498 | 815 | 330 | 330 | 498 | 645 | 2,230 | 462 | 364 |
| 5 | 498 | 498 | 498 | 815 | 376 | 376 | 498 | 730 | 2,100 | 408 | 364 |
| 6 | 498 | 534 | 498 | 815 | 376 | 404 | 498 | 730 | 1,840 | 364 | 364 |
| 7 | 498 | 534 | 498 | 862 | 376 | 376 | 570 | 772 | 1,840 | 408 | 330 |
| 8 | 498 | 534 | 498 | 910 | 376 | 376 | 645 | 960 | 1,710 | 408 | 364 |
| 9 | 498 | 534 | 498 | 910 | 376 | 353 | 645 | 1,110 | 1,360 | 364 | 347 |
| 10 | 498 | 570 | 498 | 815 | 376 | 432 | 608 | 1,220 | 1,140 | 364 | 684 |
| 11 | 465 | 534 | 570 | 815 | 376 | 432 | 498 | 1,710 | 1,250 | 364 | 530 |
| 12 | 465 | 534 | 534 | 815 | 376 | 376 | 465 | 1,710 | 1,250 | 364 | 604 |
| 13 | 465 | 534 | 498 | 815 | 376 | 376 | 404 | 1,970 | 1,590 | 364 | 604 |
| 14 | 465 | 498 | 432 | 730 | 376 | 432 | 353 | 1,970 | 1,250 | 364 | 684 |
| 15 | 465 | 498 | 465 | 730 | 376 | 376 | 376 | 1,970 | 1,040 | 364 | 644 |
| 16 | 465 | 534 | 498 | 730 | 376 | 376 | 353 | 2,230 | 856 | 408 | 604 |
| 17 | 498 | 534 | 465 | 534 | 376 | 432 | 432 | 1,970 | 856 | 530 | 604 |
| 18 | 498 | 534 | 432 | 498 | 404 | 432 | 498 | 2,100 | 856 | 530 | 567 |
| 19 | 498 | 534 | 465 | 353 | 432 | 432 | 498 | 2,100 | 770 | 408 | 684 |
| 20 | 498 | 534 | 432 | 376 | 404 | 465 | 404 | 1,580 | 770 | 364 | 530 |
| 21 | 498 | 534 | 498 | 376 | 404 | 376 | 330 | 1,450 | 684 | 364 | 604 |
| 22 | 465 | 534 | 432 | 376 | 376 | 376 | 404 | 1,110 | 684 | 364 | 604 |
| 23 | 465 | 498 | 498 | 376 | 404 | 376 | 353 | 1,010 | 530 | 364 | 604 |
| 24 | 465 | 534 | 498 | 353 | 376 | 330 | 404 | 910 | 604 | 364 | 604 |
| 25 | 465 | 498 | 730 | 376 | 404 | 432 | 432 | 910 | 530 | 364 | 567 |
| 26 | 465 | 498 | 730 | 376 | 376 | 465 | 432 | 910 | 462 | 364 | 604 |
| 27 | 498 | 498 | 730 | 376 | 376 | 498 | 432 | 910 | 462 | 364 | 604 |
| 28 | 498 | 534 | 730 | 330 | 376 | 498 | 498 | 1,110 | 462 | 408 | 604 |
| 29 | 498 | 498 | 730 | 404 | 376 | 570 | 570 | 1,520 | 462 | 330 | 604 |
| 30 | 498 | 534 | 730 | 376 | ..... | 498 | 645 | 1,840 | 408 | 347 | 604 |
| 31 | 498 | ..... | 688 | 376 | ..... | 330 | ..... | 1,640 | ..... | 364 | 604 |

NOTE.—Discharge determined from two fairly well defined curves, one applicable Oct. 1 to June 3, the other June 4 to Aug. 31. Daily discharge table for June supersedes that published in Water-Supply Paper 300, p. 105.

*Monthly discharge of Truckee River at Nevada-California State line for year ending Sept. 30, 1912.*

[Drainage area, 955 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 498 | 465 | 486 | 0.509 | 0.59 | 29,900 | B. |
| November | 570 | 498 | 521 | .546 | .61 | 31,000 | B. |
| December | 730 | 432 | 541 | .566 | .65 | 33,300 | B. |
| January | 910 | 330 | 609 | .638 | .74 | 37,400 | B. |
| February | 432 | 330 | 381 | .399 | .43 | 21,900 | B. |
| March | 570 | 330 | 404 | .423 | .49 | 24,800 | B. |
| April | 645 | 330 | 474 | .496 | .55 | 28,200 | B. |
| May | 2,230 | 645 | 1,310 | 1.37 | 1.58 | 80,600 | B. |
| June | 2,230 | 408 | 1,120 | 1.17 | 1.30 | 66,600 | B. |
| July | 530 | 330 | 391 | .409 | .47 | 24,000 | C. |
| August | 684 | 330 | 535 | .560 | .65 | 32,900 | C. |
| The period | ..... | ..... | ..... | ..... | ..... | 411,000 | |

## TRUCKEE RIVER AT RENO, NEV.

**Location.**—At Virginia Street Bridge in Reno, 6 miles above mouth of Steamboat Creek, and 12 miles below Nevada-California State line.

**Records available.**—July 1, 1906, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff fastened to retaining wall on left bank about 30 feet below Virginia Sreet Bridge; datum, 4,481.60 feet above sea level.

**Channel.**—Gravel and bowlders; fairly permanent.

**Discharge measurements.**—Made from Rock Street Bridge, about 1,000 feet below gage, or by wading.

**Winter flow.**—Affected but little by ice.

**Artificial control.**—Several power plants and storage above the station.

**Diversions.**—Water is diverted above and below the station for irrigation in the Truckee Valley.

**Accuracy.**—Results are good.

**Cooperation.**—Gage heights furnished by the United States Weather Bureau and occasional discharge measurements by the United States Reclamation Service.

*Discharge measurements of Truckee River at Reno, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| 1911. Oct. 30 | J. E. Stewart | 1.41 | 315 |
| 1912. Aug. 15 | D. S. Stuver | 1.50 | 365 |

*Daily gage height, in feet, of Truckee River at Reno, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.3 | 1.6 | 1.7 | 2.2 | 1.6 | 1.4 | 1.3 | 1.4 | 2.6 | 0.0 | 0.3 | 1.2 |
| 2 | 1.3 | 1.6 | 1.6 | 2.2 | 1.6 | 1.4 | 1.5 | 1.5 | 2.7 | .1 | .5 | 1.2 |
| 3 | 1.4 | 1.6 | 1.6 | 2.2 | 1.6 | 1.4 | 1.7 | 1.5 | 2.8 | .1 | .8 | 1.2 |
| 4 | 1.4 | 1.6 | 1.7 | 2.2 | 1.6 | 1.4 | 1.5 | 1.5 | 3.0 | 0.0 | .2 | 1.3 |
| 5 | 1.4 | 1.6 | 1.6 | 2.2 | 1.5 | 1.4 | 1.4 | 1.5 | 2.9 | .2 | .3 | 1.3 |
| 6 | 1.4 | 1.7 | 1.6 | 2.2 | 1.5 | 1.5 | 1.4 | 1.6 | 2.6 | .1 | .5 | 1.3 |
| 7 | 1.4 | 1.5 | 1.6 | 2.2 | 1.4 | 1.5 | 1.5 | 1.6 | 2.6 | 0.0 | .4 | 1.6 |
| 8 | 1.4 | 1.6 | 1.6 | 2.1 | 1.4 | 1.4 | 1.6 | 1.9 | 2.5 | 0.0 | .8 | 1.7 |
| 9 | 1.4 | 1.6 | 1.6 | 2.0 | 1.4 | 1.4 | 1.5 | 2.3 | 2.3 | .4 | .5 | 1.5 |
| 10 | 1.4 | 1.7 | 1.6 | 2.0 | 1.4 | 1.5 | 1.5 | 2.6 | 1.9 | .2 | 1.0 | 1.2 |
| 11 | 1.4 | 1.6 | 1.6 | 2.0 | 1.4 | 1.5 | 1.4 | 2.7 | 1.8 | .1 | 1.0 | 1.1 |
| 12 | 1.4 | 1.6 | 1.6 | 1.9 | 1.4 | 1.4 | 1.3 | 2.8 | 2.1 | 0.0 | 1.1 | 1.3 |
| 13 | 1.4 | 1.7 | 1.6 | 1.9 | 1.4 | 1.4 | 1.2 | 2.9 | 2.4 | .1 | 1.1 | 1.2 |
| 14 | 1.5 | 1.7 | 1.6 | 2.0 | 1.4 | 1.4 | 1.2 | 2.8 | 2.1 | .1 | 1.2 | .5 |
| 15 | 1.5 | 1.7 | 1.6 | 2.0 | 1.3 | 1.4 | 1.1 | 2.8 | 1.9 | .3 | 1.3 | .7 |
| 16 | 1.5 | 1.7 | 1.6 | 2.0 | 1.3 | 1.4 | 1.1 | 3.0 | 1.6 | .2 | 1.3 | .8 |
| 17 | 1.5 | 1.7 | 1.6 | 1.9 | 1.4 | 1.4 | 1.0 | 2.9 | 1.5 | .4 | 1.2 | .5 |
| 18 | 1.5 | 1.7 | 1.6 | 1.7 | 1.4 | 1.4 | 1.0 | 2.9 | 1.4 | .9 | 1.6 | .5 |
| 19 | 1.5 | 1.7 | 1.6 | 1.6 | 1.5 | 1.5 | 1.0 | 2.7 | 1.2 | 1.3 | 1.2 | .6 |
| 20 | 1.5 | 1.7 | 1.5 | 1.6 | 1.5 | 1.6 | .7 | 2.5 | 1.2 | .5 | 1.3 | .5 |
| 21 | 1.6 | 1.7 | 1.8 | 1.6 | 1.5 | 1.6 | .6 | 2.3 | 1.2 | .4 | 1.3 | .6 |
| 22 | 1.6 | 1.7 | 1.8 | 1.5 | 1.5 | 1.6 | .4 | 2.0 | 1.2 | .3 | 1.4 | .5 |
| 23 | 1.6 | 1.7 | 1.6 | 1.5 | 1.5 | 1.5 | .4 | 1.9 | 1.3 | .4 | 1.4 | .4 |
| 24 | 1.6 | 1.7 | 1.6 | 1.5 | 1.4 | 1.5 | .4 | 1.8 | 1.3 | .7 | 1.2 | .3 |
| 25 | 1.6 | 1.7 | 1.8 | 1.5 | 1.4 | 1.5 | .4 | 1.7 | 1.0 | .3 | 1.2 | .2 |
| 26 | 1.6 | 1.7 | 2.0 | 1.5 | 1.4 | 1.6 | .4 | 1.8 | .6 | .6 | 1.2 | .3 |
| 27 | 1.6 | 1.6 | 2.0 | 1.5 | 1.4 | 1.6 | .4 | 1.7 | .4 | .4 | 1.2 | .2 |
| 28 | 1.6 | 1.6 | 2.0 | 1.5 | 1.4 | 1.6 | .4 | 1.8 | .2 | .4 | 1.2 | .3 |
| 29 | 1.6 | 1.6 | 2.0 | 1.5 | 1.3 | 1.7 | .4 | 2.4 | .2 | .4 | 1.4 | .6 |
| 30 | 1.6 | 1.6 | 2.0 | 1.5 | ..... | 1.5 | 1.0 | 2.6 | 0.0 | .9 | 1.2 | .5 |
| 31 | 1.6 | ..... | 2.0 | 1.6 | ..... | 1.5 | ..... | 2.5 | ..... | .7 | 1.2 | ..... |

NOTE.—Relation of gage height to discharge probably not affected by ice.

*Daily discharge, in second feet, of Truckee River at Reno, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 293 | 441 | 500 | 818 | 412 | 312 | 270 | 312 | 1,170 | 20 | 42 | 232 |
| 2 | 293 | 441 | 441 | 818 | 412 | 312 | 360 | 360 | 1,270 | 18 | 70 | 232 |
| 3 | 338 | 441 | 441 | 818 | 412 | 312 | 468 | 360 | 1,370 | 18 | 124 | 232 |
| 4 | 338 | 441 | 500 | 818 | 412 | 312 | 360 | 360 | 1,570 | 20 | 32 | 270 |
| 5 | 338 | 441 | 441 | 818 | 360 | 312 | 312 | 360 | 1,470 | 32 | 42 | 270 |
| 6 | 338 | 500 | 441 | 818 | 360 | 360 | 312 | 412 | 1,170 | 24 | 70 | 270 |
| 7 | 338 | 388 | 441 | 818 | 312 | 360 | 360 | 412 | 1,170 | 20 | 55 | 412 |
| 8 | 338 | 441 | 441 | 740 | 312 | 312 | 412 | 596 | 1,080 | 20 | 124 | 468 |
| 9 | 338 | 441 | 441 | 666 | 312 | 312 | 360 | 900 | 900 | 55 | 70 | 360 |
| 10 | 338 | 500 | 441 | 666 | 312 | 360 | 360 | 1,170 | 596 | 32 | 168 | 232 |
| 11 | 338 | 441 | 441 | 666 | 312 | 360 | 312 | 1,270 | 530 | 24 | 168 | 198 |
| 12 | 338 | 441 | 441 | 596 | 312 | 312 | 270 | 1,370 | 740 | 20 | 198 | 270 |
| 13 | 338 | 500 | 441 | 596 | 312 | 312 | 232 | 1,470 | 986 | 24 | 198 | 232 |
| 14 | 388 | 500 | 441 | 666 | 312 | 312 | 232 | 1,370 | 740 | 24 | 232 | 70 |
| 15 | 388 | 500 | 441 | 666 | 270 | 312 | 198 | 1,370 | 596 | 42 | 270 | 104 |
| 16 | 388 | 500 | 441 | 666 | 270 | 312 | 198 | 1,570 | 412 | 32 | 270 | 124 |
| 17 | 388 | 500 | 441 | 596 | 312 | 312 | 168 | 1,470 | 360 | 55 | 232 | 70 |
| 18 | 388 | 500 | 441 | 468 | 312 | 312 | 168 | 1,470 | 312 | 144 | 412 | 70 |
| 19 | 388 | 500 | 441 | 412 | 360 | 360 | 168 | 1,270 | 232 | 270 | 232 | 87 |
| 20 | 388 | 500 | 388 | 412 | 360 | 412 | 104 | 1,080 | 232 | 70 | 270 | 70 |
| 21 | 441 | 500 | 562 | 412 | 360 | 412 | 87 | 900 | 232 | 55 | 270 | 87 |
| 22 | 441 | 500 | 562 | 360 | 360 | 412 | 55 | 666 | 232 | 42 | 312 | 70 |
| 23 | 441 | 500 | 441 | 360 | 360 | 360 | 55 | 596 | 270 | 55 | 312 | 55 |
| 24 | 441 | 500 | 441 | 360 | 312 | 360 | 55 | 530 | 270 | 104 | 232 | 42 |
| 25 | 441 | 500 | 562 | 360 | 312 | 360 | 55 | 468 | 168 | 42 | 232 | 32 |
| 26 | 441 | 500 | 700 | 360 | 312 | 412 | 55 | 530 | 87 | 87 | 232 | 42 |
| 27 | 441 | 441 | 700 | 360 | 312 | 412 | 55 | 468 | 55 | 55 | 232 | 32 |
| 28 | 441 | 441 | 700 | 360 | 312 | 412 | 55 | 530 | 32 | 55 | 232 | 42 |
| 29 | 441 | 441 | 700 | 360 | 270 | 468 | 55 | 986 | 32 | 55 | 312 | 87 |
| 30 | 441 | 441 | 700 | 360 | ..... | 360 | 168 | 1,170 | 20 | 144 | 232 | 70 |
| 31 | 441 | ..... | 700 | 412 | ..... | 360 | ..... | 1,080 | ..... | 104 | 232 | ..... |

NOTE.—Discharge determined from two fairly well defined curves based on measurements made 1908–1913, applicable as follows: Oct. 1 to Dec. 31 and Jan. 1 to Sept. 30.

*Monthly discharge of Truckee River at Reno, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 441 | 293 | 383 | 23,600 | |
| November | 500 | 388 | 454 | 27,000 | |
| December | 700 | 388 | 505 | 31,100 | |
| January | 818 | 360 | 568 | 34,900 | B. |
| February | 412 | 270 | 333 | 19,200 | A. |
| March | 468 | 312 | 352 | 21,600 | A. |
| April | 468 | 55 | 211 | 12,600 | A. |
| May | 1,570 | 312 | 867 | 53,300 | A. |
| June | 1,570 | 20 | 610 | 36,300 | A. |
| July | 270 | 18 | 56.8 | 3,490 | C. |
| August | 412 | 32 | 197 | 12,100 | B. |
| September | 468 | 32 | 161 | 9,580 | B. |
| The year | 1,570 | 18 | 392 | 285,000 | |

## TRUCKEE RIVER AT CLARKS, NEV.

**Location.**—At highway bridge in the SE. ¼ sec. 26, T. 20 N., R. 22 E., about 600 feet from the Southern Pacific Railroad station at Clarks.

**Records available.**—July 1, 1907, to June 6, 1910;[1] August 1, 1910, to September 30, 1912.

**Drainage area.**—1,740 square miles.

**Gage.**—Vertical staff on south abutment of bridge.

**Channel.**—Rock and gravel; permanent.

**Discharge measurements.**—Made from highway bridge.

**Winter flow.**—As the water is swift at the gage, the records are probably not much affected by ice.

**Artificial control.**—Several power plants above the station.

**Diversions.**—Water is used for irrigation in the Truckee Valley above the station.

**Accuracy.**—Results are good.

**Cooperation.**—Gage heights and discharge measurements furnished by the United States Reclamation Service.

Records at this station show the amount of water available for use by the United States Reclamation Service on the Truckee-Carson project.

*Discharge measurements of Truckee River at Clarks, Nev., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Aug. 1 | D. S. Stuver | 1.50 | 105 |
| Sept. 7 | do | 3.05 | 572 |

*Daily gage height, in feet, of Truckee River at Clarks, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.6 | 3.1 | 3.1 | 3.7 | 2.9 | 2.6 | 2.9 | 2.6 | 4.1 | 1.9 | 1.4 | 2.4 |
| 2 | 2.6 | 3.3 | 3.1 | 3.9 | 2.8 | 2.5 | 2.8 | 2.9 | 4.3 | 1.9 | 1.5 | 2.4 |
| 3 | 2.8 | 3.2 | 2.1 | 3.7 | 2.9 | 2.6 | 2.6 | 2.85 | 4.5 | 1.8 | 1.8 | 2.6 |
| 4 | 3.0 | 3.1 | 3.1 | 3.6 | 2.9 | 2.7 | 2.8 | 2.95 | 4.6 | 1.8 | 1.9 | 2.6 |
| 5 | 2.9 | 3.0 | 3.1 | 3.6 | 2.9 | 2.7 | 2.7 | 2.9 | 4.6 | 1.8 | 1.9 | 2.8 |
| 6 | 2.8 | 3.0 | 3.1 | 3.8 | 2.9 | 2.8 | 2.7 | 3.3 | 4.6 | 1.8 | 1.7 | 2.7 |
| 7 | 2.7 | 3.1 | 3.0 | 3.8 | 2.9 | 3.1 | 2.8 | 3.2 | 4.5 | 1.8 | 1.5 | 3.0 |
| 8 | 2.7 | 3.1 | 3.0 | 3.8 | 2.9 | 3.1 | 2.8 | 3.4 | 4.3 | 1.7 | 1.5 | 3.5 |
| 9 | 2.7 | 3.2 | 3.1 | 3.6 | 2.9 | 3.2 | 2.8 | 3.8 | 4.0 | 1.7 | 1.5 | 3.1 |
| 10 | 2.6 | 3.3 | 3.1 | 3.6 | 2.9 | 2.9 | 2.8 | 4.0 | 3.8 | 1.7 | 1.6 | 2.7 |
| 11 | 2.7 | 3.4 | 3.1 | 3.6 | 2.9 | 2.9 | 2.8 | 4.0 | 3.7 | 1.6 | 1.9 | 2.6 |
| 12 | 2.8 | 3.3 | 3.1 | 3.4 | 2.9 | 2.9 | 2.8 | 4.4 | 3.6 | 1.6 | 1.8 | 2.6 |
| 13 | 2.9 | 3.2 | 3.1 | 3.4 | 2.9 | 2.9 | 2.6 | 4.5 | 3.8 | 1.6 | 2.4 | 2.7 |
| 14 | 3.0 | 3.2 | 3.1 | 3.4 | 2.9 | 3.0 | 2.4 | 4.5 | 3.7 | 1.6 | 2.4 | 2.4 |
| 15 | 3.1 | 3.2 | 3.1 | 3.3 | 3.0 | 3.0 | 2.4 | 4.6 | 3.6 | 1.6 | 2.5 | 2.6 |
| 16 | 3.0 | 3.4 | 3.1 | 3.2 | 3.0 | 3.1 | 2.3 | 4.5 | 3.3 | 1.6 | 2.6 | 2.6 |
| 17 | 2.9 | 3.3 | 3.1 | 3.2 | 3.0 | 3.1 | 2.3 | 4.4 | 3.0 | 1.6 | 2.4 | 2.4 |
| 18 | 3.0 | 3.2 | 3.1 | 3.0 | 3.0 | 2.9 | 2.3 | 4.5 | 2.8 | 1.9 | 3.5 | 2.4 |
| 19 | 3.0 | 3.2 | 3.0 | 3.0 | 3.0 | 2.9 | 2.3 | 4.4 | 2.6 | 2.0 | 2.3 | 2.3 |
| 20 | 3.0 | 3.2 | 3.0 | 3.0 | 3.0 | 3.0 | 2.3 | 4.4 | 2.4 | 2.4 | 2.0 | 2.3 |
| 21 | 3.1 | 3.2 | 3.0 | 3.0 | 3.0 | 3.0 | 2.3 | 4.5 | 2.4 | 2.4 | 2.4 | 2.3 |
| 22 | 3.1 | 3.1 | 2.9 | 3.0 | 3.0 | 2.9 | 2.3 | 4.4 | 2.5 | 2.0 | 2.5 | 2.3 |
| 23 | 3.0 | 3.1 | 2.9 | 2.9 | 2.9 | 2.9 | 2.3 | 3.6 | 2.7 | 2.0 | 2.7 | 2.3 |
| 24 | 3.0 | 3.1 | 3.0 | 2.9 | 2.9 | 2.8 | 2.0 | 3.4 | 2.9 | 1.8 | 2.3 | 2.2 |
| 25 | 3.0 | 3.1 | 3.1 | 2.8 | 2.9 | 2.9 | 1.9 | 3.4 | 2.6 | 1.7 | 2.3 | 2.1 |
| 26 | 3.1 | 3.1 | 3.3 | 2.9 | 2.8 | 2.9 | 2.0 | 3.4 | 2.5 | 1.7 | 2.4 | 2.1 |
| 27 | 3.2 | 3.1 | 3.5 | 3.0 | 2.7 | 2.9 | 2.0 | 3.4 | 2.3 | 1.5 | 2.5 | 2.1 |
| 28 | 3.2 | 3.1 | 3.7 | 3.0 | 2.7 | 2.9 | 2.0 | 3.3 | 2.1 | 1.4 | 2.5 | 2.0 |
| 29 | 3.2 | 3.1 | 3.7 | 3.0 | 2.7 | 2.9 | 1.9 | 3.5 | 2.0 | 1.4 | 2.6 | 2.0 |
| 30 | 3.1 | 3.1 | 3.7 | 3.0 | ..... | 3.1 | 2.5 | 4.1 | 1.9 | 1.3 | 2.5 | 2.0 |
| 31 | 3.1 | ..... | 3.7 | 2.9 | ..... | 3.1 | ..... | 4.2 | ..... | 1.3 | 2.4 | ..... |

[1] At Derby Dam, where the discharge is practically the same as at Clarks.

*Daily discharge, in second-feet, of Truckee River at Clarks, Nev., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 380 | 580 | 580 | 900 | 500 | 380 | 500 | 380 | 1,140 | 180 | 90 | 320 |
| 2 | 380 | 680 | 580 | 1,020 | 460 | 350 | 460 | 500 | 1,280 | 180 | 105 | 320 |
| 3 | 460 | 630 | 580 | 900 | 500 | 380 | 380 | 480 | 1,430 | 160 | 160 | 380 |
| 4 | 540 | 580 | 580 | 840 | 500 | 420 | 460 | 520 | 1,510 | 160 | 180 | 380 |
| 5 | 500 | 540 | 580 | 840 | 500 | 420 | 420 | 500 | 1,510 | 160 | 180 | 460 |
| 6 | 460 | 540 | 580 | 960 | 500 | 460 | 420 | 680 | 1,510 | 160 | 140 | 420 |
| 7 | 420 | 580 | 540 | 960 | 500 | 580 | 460 | 630 | 1,430 | 160 | 105 | 540 |
| 8 | 420 | 580 | 540 | 960 | 500 | 580 | 460 | 730 | 1,280 | 140 | 105 | 780 |
| 9 | 420 | 630 | 580 | 840 | 500 | 630 | 460 | 960 | 1,080 | 140 | 105 | 580 |
| 10 | 380 | 680 | 580 | 840 | 500 | 500 | 460 | 1,080 | 960 | 140 | 120 | 420 |
| 11 | 420 | 730 | 580 | 840 | 500 | 500 | 460 | 1,080 | 900 | 120 | 180 | 380 |
| 12 | 460 | 680 | 580 | 730 | 500 | 500 | 460 | 1,350 | 840 | 120 | 160 | 380 |
| 13 | 500 | 630 | 580 | 730 | 500 | 500 | 380 | 1,430 | 960 | 120 | 320 | 420 |
| 14 | 540 | 630 | 580 | 730 | 500 | 540 | 320 | 1,430 | 900 | 120 | 320 | 320 |
| 15 | 580 | 630 | 580 | 680 | 540 | 540 | 320 | 1,510 | 840 | 120 | 350 | 380 |
| 16 | 540 | 730 | 580 | 630 | 540 | 580 | 290 | 1,430 | 680 | 120 | 380 | 380 |
| 17 | 500 | 680 | 580 | 630 | 540 | 580 | 290 | 1,350 | 540 | 120 | 320 | 320 |
| 18 | 540 | 630 | 580 | 540 | 540 | 500 | 290 | 1,430 | 460 | 180 | 780 | 320 |
| 19 | 540 | 630 | 540 | 540 | 540 | 500 | 290 | 1,350 | 380 | 205 | 290 | 290 |
| 20 | 540 | 630 | 540 | 540 | 540 | 540 | 290 | 1,350 | 320 | 320 | 205 | 290 |
| 21 | 580 | 630 | 540 | 540 | 540 | 540 | 290 | 1,430 | 320 | 320 | 320 | 290 |
| 22 | 580 | 580 | 500 | 540 | 540 | 500 | 290 | 1,350 | 350 | 205 | 350 | 290 |
| 23 | 540 | 580 | 500 | 500 | 500 | 500 | 290 | 840 | 420 | 205 | 420 | 290 |
| 24 | 540 | 580 | 540 | 500 | 500 | 460 | 205 | 730 | 500 | 160 | 290 | 260 |
| 25 | 540 | 580 | 580 | 460 | 500 | 500 | 180 | 730 | 380 | 140 | 290 | 230 |
| 26 | 580 | 580 | 680 | 500 | 460 | 500 | 205 | 730 | 350 | 140 | 320 | 230 |
| 27 | 630 | 580 | 780 | 540 | 420 | 500 | 205 | 730 | 290 | 105 | 350 | 230 |
| 28 | 630 | 580 | 900 | 540 | 420 | 500 | 205 | 680 | 230 | 90 | 350 | 205 |
| 29 | 630 | 580 | 900 | 540 | 420 | 500 | 180 | 780 | 205 | 90 | 380 | 205 |
| 30 | 580 | 580 | 900 | 540 | ..... | 580 | 350 | 1,140 | 180 | 80 | 350 | 205 |
| 31 | 580 | ..... | 900 | 500 | ..... | 580 | ..... | 1,210 | ..... | 80 | 320 | ..... |

NOTE.—Daily discharge determined from a well-defined rating curve. Open-water curve applied during the winter months.

*Monthly discharge of Truckee River at Clarks, Nev., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 630 | 380 | 514 | 31,600 | A. |
| November | 730 | 540 | 616 | 36,700 | A. |
| December | 900 | 500 | 618 | 38,000 | A. |
| January | 1,020 | 460 | 689 | 42,400 | A. |
| February | 540 | 420 | 500 | 28,800 | A. |
| March | 630 | 350 | 505 | 31,100 | A. |
| April | 500 | 180 | 342 | 20,400 | A. |
| May | 1,510 | 380 | 985 | 60,600 | A. |
| June | 1,510 | 180 | 772 | 45,900 | A. |
| July | 320 | 80 | 153 | 9,410 | A. |
| August | 780 | 90 | 269 | 16,500 | A. |
| September | 780 | 205 | 350 | 20,800 | A. |
| The year | 1,510 | 80 | 526 | 382,000 | |

## DONNER CREEK AT DONNER LAKE, NEAR TRUCKEE, CAL.

**Location.**—At outlet of Donner Lake, in the SW. ¼ NW. ¼ sec. 17, T. 17 N., R. 16 E., about half a mile above mouth of Cold Creek, and 3 miles west of Truckee.

**Records available.**—November 1, 1909, to August 31, 1910.

**Gage.**—Vertical staff at footbridge.

**Discharge measurements.**—Made from footbridge.

**Drainage area.**—13.6 square miles.

**Accuracy.**—Results are excellent except during winter season, when flow is affected by ice.

**Cooperation.**—Records furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of Donner Creek at Donner Lake, near Truckee, Cal., for year ending Sept. 30, 1910.*

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 113 | 17 | 7 | 7 | 73 | 104 | 65 | 9 | 1 |
| 2 | 1 | 113 | 14 | 7 | 5 | 73 | 104 | 65 | 7 | 1 |
| 3 | 1 | 113 | 14 | 7 | 7 | 73 | 100 | 60 | 7 | 1 |
| 4 | 1 | 113 | 11 | 7 | 9 | 78 | 100 | 60 | 7 | 1 |
| 5 | 1 | 113 | 11 | 7 | 43 | 78 | 100 | 56 | 7 | 1 |
| 6 | 1 | 113 | 11 | 7 | 43 | 78 | 100 | 17 | 7 | 1 |
| 7 | 1 | 113 | 11 | 7 | 43 | 78 | 95 | 17 | 5 | 1 |
| 8 | 1 | 108 | 11 | 7 | 52 | 82 | 95 | 17 | 5 | 1 |
| 9 | 1 | 108 | 11 | 7 | 52 | 82 | 95 | 17 | 5 | 1 |
| 10 | 1 | 104 | 11 | 5 | 56 | 87 | 95 | 17 | 5 | 1 |
| 11 | 2 | 95 | 11 | 5 | 60 | 91 | 100 | 17 | 5 | |
| 12 | 2 | 91 | 11 | 21 | 60 | 95 | 100 | 17 | 5 | 1 |
| 13 | 2 | 91 | 11 | 21 | 60 | 100 | 95 | 14 | 5 | 1 |
| 14 | 2 | 87 | 11 | 21 | 60 | 100 | 95 | 14 | 5 | 1 |
| 15 | 2 | 78 | 11 | 17 | 60 | 100 | 95 | 14 | 4 | 1 |
| 16 | 2 | 60 | 11 | 17 | 60 | 100 | 95 | 14 | 4 | 1 |
| 17 | 2 | 14 | 9 | 17 | 60 | 100 | 87 | 14 | 4 | 1 |
| 18 | 2 | 14 | 9 | 17 | 65 | 104 | 87 | 14 | 4 | 1 |
| 19 | 3 | 14 | 9 | 17 | 65 | 104 | 87 | 11 | 4 | 1 |
| 20 | 4 | 14 | 9 | 14 | 65 | 104 | 82 | 11 | 3 | 1 |
| 21 | 14 | 4 | 9 | 14 | 65 | 104 | 82 | 11 | 3 | 1 |
| 22 | 43 | 4 | 11 | 11 | 65 | 100 | 82 | 11 | 3 | 1 |
| 23 | 56 | 4 | 11 | 11 | 69 | 100 | 78 | 11 | 2 | 1 |
| 24 | 113 | 4 | 11 | 9 | 69 | 100 | 78 | 11 | 2 | 1 |
| 25 | 121 | 7 | 9 | 9 | 69 | 104 | 78 | 11 | 1 | 1 |
| 26 | 113 | 14 | 9 | 7 | 73 | 104 | 78 | 9 | 1 | 1 |
| 27 | 104 | 14 | 9 | 7 | 78 | 104 | 73 | 9 | 1 | 1 |
| 28 | 104 | 14 | 9 | 7 | 82 | 104 | 73 | 9 | 1 | 1 |
| 29 | 104 | 14 | 9 | ..... | 78 | 104 | 73 | 9 | 1 | 1 |
| 30 | 104 | 14 | 9 | ..... | 78 | 104 | 69 | 9 | 1 | 1 |
| 31 | ..... | 17 | 9 | ..... | 73 | ..... | 69 | ..... | 1 | 1 |

*Monthly discharge of Donner Creek at Donner Lake, near Truckee, Cal., for year ending Sept. 30, 1910.*

[Drainage area, 13.6 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| November | 121 | 1 | 30.3 | 2.23 | 2.49 | 1,800 |
| December | 113 | 4 | 57.4 | 4.22 | 4.86 | 3,530 |
| January | 17 | 9 | 10.6 | .779 | .90 | 652 |
| February | 21 | 5 | 11.1 | .816 | .85 | 616 |
| March | 82 | 5 | 55.8 | 4.10 | 4.73 | 3,430 |
| April | 104 | 73 | 93.6 | 6.88 | 7.68 | 5,570 |
| May | 104 | 69 | 88.7 | 6.52 | 7.52 | 5,450 |
| June | 65 | 9 | 21.0 | 1.54 | 1.72 | 1,250 |
| July | 9 | 1 | 4.0 | .294 | .34 | 246 |
| August | 1 | 1 | 1.0 | .074 | .09 | 61 |
| The period | ..... | ..... | ..... | ..... | ..... | 22,600 |

NOTE.—Monthly values computed by engineers of the United States Geological Survey.

## DONNER CREEK NEAR TRUCKEE, CAL.

**Location.**—Below the dam of the Donner Creek Ice Co., in the NE. ¼ sec. 17, T. 17 N., R. 16 E., below mouth of Cold Creek, and 1½ miles west of Truckee.

**Records available.**—October 23, 1902, to September 30, 1912.

**Drainage area.**—30 square miles.

**Gage.**—Inclined staff on left bank, 150 feet below dam. Beginning with June 1, 1909, all gage heights are referred to datum of present gage; before that date several gages were used.

**Channel.**—Gravel; shifting somewhat at high stages.

**Discharge measurements.**—Made from car and cable at gage, or by wading.

**Winter flow.**—Gage heights affected at times by ice.

**Artificial control.**—Flow is controlled by operation of outlet gates at dam.

**Accuracy.**—Low-water record is a little uncertain, as no discharge measurements were made during 1912; otherwise the results are good.

**Cooperation.**—Gage heights furnished by United States Reclamation Service.

*Daily gage height, in feet, of Donner Creek near Truckee, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | —0.25 | —0.2 | 0.0 | 0.7 | —0.1 | —0.1 | 0.2 | 0.4 | 1.5 | 0.2 | —0.1 | —0.5 |
| 2 | — .25 | — .2 | — .1 | 1.0 | .0 | — .1 | .2 | .5 | 1.7 | .1 | — .1 | — .5 |
| 3 | — .25 | — .2 | .0 | .8 | .0 | — .1 | .2 | .5 | 1.7 | .6 | — .1 | — .5 |
| 4 | — .25 | — .2 | — .1 | .8 | .0 | — .1 | .2 | .5 | 1.7 | .6 | — .2 | — .5 |
| 5 | — .25 | — .2 | — .1 | .9 | .0 | — .1 | .2 | .5 | 1.5 | .6 | — .2 | — .5 |
| 6 | — .25 | — .2 | — .1 | .9 | .0 | — .1 | .2 | .5 | 1.5 | .6 | — .2 | — .5 |
| 7 | — .25 | — .2 | — .1 | .0 | .0 | — .1 | .2 | .7 | 1.5 | .6 | — .2 | — .5 |
| 8 | — .25 | — .4 | — .1 | — .1 | .0 | — .1 | .2 | .7 | 1.2 | .6 | — .3 | — .4 |
| 9 | — .25 | — .3 | — .1 | .0 | — .1 | — .1 | .2 | 1.0 | 1.0 | .5 | — .3 | — .4 |
| 10 | — .25 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.2 | 1.0 | .5 | — .3 | — .4 |
| 11 | — .25 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.2 | 1.0 | .5 | — .3 | — .4 |
| 12 | — .25 | — .2 | .0 | .0 | — .1 | — .1 | .2 | 1.3 | 1.0 | .5 | — .3 | — .4 |
| 13 | — .2 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.6 | 1.0 | .5 | — .3 | — .4 |
| 14 | — .2 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.6 | 1.0 | .5 | — .3 | — .4 |
| 15 | — .2 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.6 | 1.0 | .4 | — .4 | — .4 |
| 16 | — .2 | — .2 | .0 | — .1 | — .1 | — .1 | .2 | 1.6 | 1.0 | .4 | — .4 | — .4 |
| 17 | — .2 | — .2 | .0 | — .1 | — .1 | — .2 | .2 | 1.5 | 1.0 | .4 | — .4 | — .5 |
| 18 | — .2 | — .1 | — .1 | — .1 | — .1 | — .2 | .2 | 1.5 | 1.0 | .4 | — .4 | — .5 |
| 19 | — .2 | — .1 | — .2 | — .1 | — .1 | — .2 | .2 | 1.5 | .8 | .4 | — .4 | — .5 |
| 20 | — .2 | .0 | — .2 | — .1 | — .1 | — .2 | .2 | 1.5 | .7 | .3 | — .4 | — .5 |
| 21 | — .2 | .0 | — .3 | — .1 | — .1 | — .2 | .2 | 1.4 | .6 | .3 | — .4 | — .5 |
| 22 | — .2 | .0 | — .2 | — .1 | — .1 | — .2 | .2 | 1.1 | .6 | .2 | — .4 | — .5 |
| 23 | — .2 | .0 | — .2 | — .1 | — .1 | — .2 | .2 | .75 | .5 | .2 | — .4 | — .5 |
| 24 | — .2 | .0 | — .2 | — .1 | — .1 | — .2 | .2 | .6 | .4 | .1 | — .4 | — .5 |
| 25 | — .2 | .0 | — .3 | — .05 | — .1 | — .2 | .2 | .7 | .4 | .1 | — .4 | — .5 |
| 26 | — .2 | .0 | — .2 | .65 | — .1 | — .2 | .2 | .7 | .3 | .1 | — .4 | — .4 |
| 27 | — .2 | .0 | — .2 | .8 | — .1 | — .2 | .2 | 1.0 | .3 | .1 | — .5 | — .4 |
| 28 | — .2 | .0 | — .2 | .7 | — .1 | — .2 | .2 | 1.0 | .3 | .0 | — .5 | — .4 |
| 29 | — .2 | .0 | — .2 | .6 | — .1 | — .2 | .2 | 1.0 | .3 | .0 | — .5 | — .4 |
| 30 | — .2 | .0 | — .3 | .4 | ..... | — .2 | .2 | 1.5 | .2 | — .1 | — .5 | — .4 |
| 31 | — .2 | ..... | — .2 | .0 | ..... | — .2 | ..... | 1.5 | ..... | — .1 | — .5 | ..... |

NOTE.—Gage heights Jan. 1–6, 1912, probably affected by ice.

*Daily discharge, in second-feet, of Donner Creek near Truckee, Cal., for June 1 to Sept. 30, 1911.*

| Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 422 | 262 | 28 | 6.5 | 11..... | 624 | 165 | 17 | 6.5 | 21..... | 565 | 87 | 11 | 6.5 |
| 2..... | 466 | 262 | 24 | 6.5 | 12..... | 664 | 142 | 17 | 6.5 | 22..... | 473 | 80 | 8.8 | 6.5 |
| 3..... | 538 | 278 | 24 | 6.5 | 13..... | 670 | 142 | 17 | 6.5 | 23..... | 410 | 73 | 8.8 | 6.5 |
| 4..... | 587 | 262 | 24 | 6.5 | 14..... | 618 | 142 | 17 | 6.5 | 24..... | 370 | 66 | 8.8 | 6.5 |
| 5..... | 612 | 246 | 24 | 6.5 | 15..... | 624 | 142 | 17 | 6.5 | 25..... | 332 | 60 | 6.5 | 5.0 |
| 6..... | 592 | 232 | 24 | 6.5 | 16..... | 607 | 132 | 11 | 6.5 | 26..... | 350 | 54 | 6.5 | 5.0 |
| 7..... | 602 | 217 | 24 | 6.5 | 17..... | 641 | 121 | 11 | 12 | 27..... | 389 | 49 | 6.5 | 5.0 |
| 8..... | 607 | 204 | 17 | 6.5 | 18..... | 647 | 112 | 11 | 15 | 28..... | 350 | 39 | 6.5 | 5.0 |
| 9..... | 587 | 190 | 17 | 6.5 | 19..... | 602 | 103 | 11 | 13 | 29..... | 332 | 31 | 6.5 | 5.0 |
| 10..... | 618 | 165 | 17 | 6.5 | 20..... | 582 | 95 | 11 | 6.5 | 30..... | 296 | 31 | 6.5 | 5.0 |
| | | | | | | | | | | 31..... | ..... | 31 | 6.5 | ..... |

*Daily discharge, in second-feet, of Donner Creek near Truckee, Cal., for the year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 5.0 | 6.5 | 17 | 18 | 11 | 11 | 31 | 49 | 278 | 31 | 11 | 0.8 |
| 2..... | 5.0 | 6.5 | 11 | 18 | 17 | 11 | 31 | 60 | 350 | 24 | 11 | .8 |
| 3..... | 5.0 | 6.5 | 17 | 18 | 17 | 11 | 31 | 60 | 350 | 73 | 11 | .8 |
| 4..... | 5.0 | 6.5 | 11 | 18 | 17 | 11 | 31 | 60 | 350 | 73 | 6.5 | .8 |
| 5..... | 5.0 | 6.5 | 11 | 18 | 17 | 11 | 31 | 60 | 278 | 73 | 6.5 | .8 |
| 6..... | 5.0 | 6.5 | 11 | 18 | 17 | 11 | 31 | 60 | 278 | 73 | 6.5 | .8 |
| 7..... | 5.0 | 6.5 | 11 | 17 | 17 | 11 | 31 | 87 | 278 | 73 | 6.5 | .8 |
| 8..... | 5.0 | 2.0 | 11 | 11 | 17 | 11 | 31 | 87 | 190 | 60 | 3.5 | 2.0 |
| 9..... | 5.0 | 3.5 | 11 | 17 | 11 | 11 | 31 | 142 | 142 | 60 | 3.5 | 2.0 |
| 10..... | 5.0 | 6.5 | 17 | 11 | 11 | 11 | 31 | 190 | 142 | 60 | 3.5 | 2.0 |
| 11..... | 5.0 | 6.5 | 17 | 11 | 11 | 11 | 31 | 190 | 142 | 60 | 3.5 | 2.0 |
| 12..... | 5.0 | 6.5 | 17 | 17 | 11 | 11 | 31 | 217 | 142 | 60 | 3.5 | 2.0 |
| 13..... | 6.5 | 6.5 | 17 | 11 | 11 | 11 | 31 | 313 | 142 | 60 | 3.5 | 2.0 |
| 14..... | 6.5 | 6.5 | 17 | 11 | 11 | 11 | 31 | 313 | 142 | 60 | 3.5 | 2.0 |
| 15..... | 6.5 | 6.5 | 17 | 11 | 11 | 11 | 31 | 313 | 142 | 49 | 2.0 | 2.0 |
| 16..... | 6.5 | 6.5 | 17 | 11 | 11 | 11 | 31 | 313 | 142 | 49 | 2.0 | 2.0 |
| 17..... | 6.5 | 6.5 | 17 | 11 | 11 | 6.5 | 31 | 278 | 142 | 49 | 2.0 | .8 |
| 18..... | 6.5 | 11 | 11 | 11 | 11 | 6.5 | 31 | 278 | 142 | 49 | 2.0 | .8 |
| 19..... | 6.5 | 11 | 6.5 | 11 | 11 | 6.5 | 31 | 278 | 103 | 49 | 2.0 | .8 |
| 20..... | 6.5 | 17 | 6.5 | 11 | 11 | 6.5 | 31 | 278 | 87 | 39 | 2.0 | .8 |
| 21..... | 6.5 | 17 | 3.5 | 11 | 11 | 6.5 | 31 | 246 | 73 | 39 | 2.0 | .8 |
| 22..... | 6.5 | 17 | 6.5 | 11 | 11 | 6.5 | 31 | 165 | 73 | 31 | 2.0 | .8 |
| 23..... | 6.5 | 17 | 6.5 | 11 | 11 | 6.5 | 31 | 95 | 60 | 31 | 2.0 | .8 |
| 24..... | 6.5 | 17 | 6.5 | 11 | 11 | 6.5 | 31 | 73 | 49 | 24 | 2.0 | .8 |
| 25..... | 6.5 | 17 | 3.5 | 14 | 11 | 6.5 | 31 | 87 | 49 | 24 | 2.0 | .8 |
| 26..... | 6.5 | 17 | 6.5 | 80 | 11 | 6.5 | 31 | 87 | 39 | 24 | 2.0 | 2.0 |
| 27..... | 6.5 | 17 | 6.5 | 103 | 11 | 6.5 | 31 | 142 | 39 | 24 | .8 | 2.0 |
| 28..... | 6.5 | 17 | 6.5 | 87 | 11 | 6.5 | 31 | 142 | 39 | 17 | .8 | 2.0 |
| 29..... | 6.5 | 17 | 6.5 | 73 | 11 | 6.5 | 31 | 142 | 39 | 17 | .8 | 2.0 |
| 30..... | 6.5 | 17 | 3.5 | 49 | ..... | 6.5 | 31 | 278 | 31 | 11 | .8 | 2.0 |
| 31..... | 6.5 | ..... | 6.5 | 17 | ..... | 6.5 | ..... | 278 | ..... | 11 | .8 | ..... |

NOTE.—Discharge computed from a rating curve well defined above 30 second-feet and fairly well below and applicable June 21, 1911, to Sept. 30, 1912. Discharge June 6 to 20, 1911, determined by shifting-channel methods. Discharge Jan. 1-6 estimated, because of apparent effect of ice on gage heights. Discharges after June 6, 1911, supersede those published in Water Supply Papers 300 and 310.

*Monthly discharge of Donner Creek near Truckee, Cal., for 1911–12.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| June | 670 | 296 | 526 | 31,300 | A. |
| July | 278 | 31 | 136 | 8,360 | A. |
| August | 28 | 6.5 | 14.4 | 885 | B. |
| September | 15 | 5.0 | 6.88 | 409 | C. |
| The period | | | | 41,000 | |
| 1911-12. | | | | | |
| October | 6.5 | 5.0 | 5.92 | 364 | C. |
| November | 17 | 2.0 | 10.4 | 619 | C. |
| December | 17 | 3.5 | 10.8 | 664 | C. |
| January | 103 | 11 | 24.1 | 1,480 | C. |
| February | 17 | 11 | 12.4 | 713 | C. |
| March | 11 | 6.5 | 8.82 | 542 | C. |
| April | 31 | 31 | 31.0 | 1,840 | B. |
| May | 313 | 49 | 173 | 10,600 | A. |
| June | 350 | 31 | 148 | 8,810 | A. |
| July | 73 | 11 | 44.8 | 2,750 | A. |
| August | 11 | .8 | 3.60 | 221 | C. |
| September | 2.0 | .8 | 1.36 | 80.9 | C. |
| The year | 350 | .8 | 39.6 | 28,700 | |

## PROSSER CREEK NEAR TRUCKEE,[1] CAL.

**Location.**—At highway bridge in SW. ¼ sec. 30, T. 18 N., R. 17 E., 2 miles above mouth, just below Alder Creek, and 4 miles north of Truckee.

**Records available.**—June 27, 1903, to October 15, 1904; September 23, 1907, to June 8, 1912.

**Drainage area.**—48 square miles.

**Gage.**—Several gages with independent datums have been in use at this station. The gage heights for 1912 are referred to datum of gage painted on left abutment of bridge, which was installed January 15, 1909.

**Channel.**—Gravel; subject to change during high water.

**Discharge measurements.**—Made from car and cable 150 feet below gage, or by wading.

**Winter flow.**—Relation of gage height to discharge affected by ice during very cold weather.

**Accuracy.**—Results are fair.

**Cooperation.**—Gage heights are furnished by the United States Reclamation Service.

No measurements were made during 1912.

*Daily gage height, in feet, of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.22 | 2.4 | 1.7 | 1.6 | 2.6 | 2.3 | 2.5 | 2.7 | 3.2 |
| 2 | 2.22 | 2.4 | 1.7 | 1.6 | 2.6 | 2.3 | 2.6 | ..... | ..... |
| 3 | 2.22 | 2.4 | 1.6 | 1.6 | 2.6 | 2.3 | 2.7 | 2.9 | 2.9 |
| 4 | 2.3 | 2.4 | 1.7 | 1.6 | 2.6 | 2.3 | 2.7 | 3.1 | 3.0 |
| 5 | 2.3 | 2.4 | 1.7 | 1.6 | 2.6 | 2.3 | 2.7 | ..... | ..... |
| 6 | 2.3 | 2.4 | 1.7 | 1.6 | 2.6 | 2.35 | 2.8 | ..... | 3.2 |
| 7 | 2.3 | 2.4 | 1.7 | 1.6 | 2.6 | 2.35 | 2.9 | ..... | 3.2 |
| 8 | ..... | 2.4 | 1.7 | 2.6 | 2.6 | 2.35 | 2.9 | 3.1 | 3.0 |
| 9 | ..... | 2.4 | 1.6 | 2.6 | 2.6 | 2.35 | 2.8 | 3.1 | ..... |
| 10 | ..... | 2.5 | 1.8 | 2.6 | 2.6 | 2.3 | 2.8 | ..... | ..... |

[1] Previous to 1911 report, published as "near Hobart Mills."

*Daily gage height, in feet, of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 11 | ..... | 2.5 | 1.8 | 2.6 | 2.6 | 2.3 | 2.8 | 3.1 | ..... |
| 12 | ..... | 2.2 | 1.7 | 2.6 | 2.6 | 2.3 | 2.8 | 3.2 | ..... |
| 13 | ..... | 2.3 | 1.8 | 2.7 | 2.6 | 2.3 | 2.8 | 2.9 | ..... |
| 14 | ..... | 2.6 | 1.7 | 2.7 | 2.6 | 2.3 | 2.8 | 3.2 | ..... |
| 15 | ..... | 2.3 | 1.8 | 2.7 | 2.6 | 2.3 | 2.8 | ..... | ..... |
| 16 | ..... | 2.4 | 1.8 | 2.6 | 2.6 | 2.3 | 2.8 | 3.0 | ..... |
| 17 | ..... | 2.2 | 1.6 | 2.6 | 2.3 | 2.3 | 2.8 | ..... | ..... |
| 18 | ..... | 2.4 | 1.6 | 2.6 | 2.3 | 2.3 | 2.8 | ..... | ..... |
| 19 | ..... | 2.2 | 1.6 | 2.6 | 2.3 | 2.4 | 2.7 | 3.1 | ..... |
| 20 | ..... | 2.5 | 1.6 | 2.6 | 2.3 | 2.5 | 2.7 | 3.1 | ..... |
| 21 | ..... | 2.3 | 1.6 | 2.6 | 2.3 | 2.3 | 2.7 | ..... | ..... |
| 22 | ..... | 2.4 | 1.6 | 2.6 | 2.3 | 2.5 | 2.8 | 3.0 | ..... |
| 23 | ..... | 2.4 | 1.6 | 2.6 | 2.3 | 2.4 | 2.8 | 3.1 | ..... |
| 24 | ..... | 2.4 | 1.6 | 2.6 | 2.3 | 2.4 | 2.8 | ..... | ..... |
| 25 | ..... | 2.4 | 1.6 | 2.7 | 2.3 | 2.4 | 2.8 | 3.1 | ..... |
| 26 | ..... | 2.4 | 1.6 | 2.5 | 2.3 | 2.5 | 2.8 | ..... | ..... |
| 27 | ..... | 2.4 | 1.6 | 2.6 | 2.3 | 2.5 | 2.8 | 3.1 | ..... |
| 28 | ..... | 2.3 | 1.6 | 2.6 | 2.3 | 2.7 | 2.8 | ..... | ..... |
| 29 | ..... | 2.2 | 1.6 | 2.6 | 2.3 | 2.3 | 2.8 | ..... | ..... |
| 30 | ..... | 2.1 | 1.6 | 2.6 | ..... | 2.4 | 2.8 | 3.0 | ..... |
| 31 | ..... | ..... | 1.6 | 2.6 | ..... | 2.5 | ..... | 2.9 | ..... |

NOTE.—Gage heights Dec. 1 to Feb. 16 probably unreliable.

*Daily discharge, in second-feet, of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 16 | 28 | 20 | ..... | ..... | 21 | 36 | 55 | 123 |
| 2 | 16 | 28 | 14 | ..... | ..... | 21 | 45 | 67 | 101 |
| 3 | 16 | 28 | 7 | ..... | ..... | 21 | 55 | 79 | 79 |
| 4 | 21 | 28 | 21 | ..... | ..... | 21 | 55 | 107 | 92 |
| 5 | 21 | 28 | 14 | ..... | ..... | 21 | 55 | 107 | 108 |
| 6 | 21 | 28 | 15 | ..... | ..... | 24 | 67 | 107 | 123 |
| 7 | 21 | 28 | 13 | ..... | ..... | 24 | 79 | 107 | 123 |
| 8 | 21 | 28 | 11 | ..... | ..... | 24 | 79 | 107 | 92 |
| 9 | 21 | 28 | 12 | ..... | ..... | 24 | 67 | 107 | ..... |
| 10 | 21 | 36 | 13 | ..... | ..... | 21 | 67 | 107 | ..... |
| 11 | 21 | 36 | 13 | ..... | ..... | 21 | 67 | 107 | ..... |
| 12 | 21 | 15 | 13 | ..... | ..... | 21 | 67 | 123 | ..... |
| 13 | 22 | 21 | 12 | ..... | ..... | 21 | 67 | 79 | ..... |
| 14 | 22 | 45 | 10 | ..... | ..... | 21 | 67 | 123 | ..... |
| 15 | 22 | 21 | 8 | ..... | ..... | 21 | 67 | 108 | ..... |
| 16 | 21 | 28 | 6 | ..... | ..... | 21 | 67 | 92 | ..... |
| 17 | 21 | 15 | 6 | ..... | 21 | 21 | 67 | 97 | ..... |
| 18 | 22 | 28 | 6 | ..... | 21 | 21 | 67 | 102 | ..... |
| 19 | 24 | 15 | 6 | ..... | 21 | 28 | 55 | 107 | ..... |
| 20 | 26 | 36 | 8 | ..... | 21 | 36 | 55 | 107 | ..... |
| 21 | 24 | 21 | 10 | ..... | 21 | 21 | 55 | 100 | ..... |
| 22 | 22 | 28 | 12 | ..... | 21 | 36 | 67 | 92 | ..... |
| 23 | 24 | 28 | 10 | ..... | 21 | 28 | 67 | 107 | ..... |
| 24 | 25 | 28 | 8 | ..... | 21 | 28 | 67 | 107 | ..... |
| 25 | 23 | 28 | 7 | ..... | 21 | 28 | 67 | 107 | ..... |
| 26 | 23 | 28 | 6 | ..... | 21 | 36 | 67 | 107 | ..... |
| 27 | 23 | 28 | 5 | ..... | 21 | 36 | 67 | 107 | ..... |
| 28 | 24 | 21 | 7 | ..... | 21 | 55 | 67 | 102 | ..... |
| 29 | 25 | 15 | 9 | ..... | 21 | 21 | 67 | 97 | ..... |
| 30 | 26 | 10 | 7 | ..... | ..... | 28 | 67 | 92 | ..... |
| 31 | 27 | ..... | 8 | ..... | ..... | 36 | ..... | 79 | ..... |

NOTE.—Discharge computed from a fairly well defined curve. Discharge for various days during October and December estimated from comparison of record with those on the Little Truckee, near Boca, Cal. Discharge interpolated for days on which gage was not read. Mean discharge Feb. 1-16 estimated 18 second-feet.

*Monthly discharge of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1912.*

[Drainage area, 48 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 27 | 16 | 22.0 | 0.458 | 0.53 | 1,350 | D. |
| November | 45 | 10 | 26.1 | .543 | .61 | 1,550 | C. |
| December | 21 | 5 | 10.2 | .212 | .24 | 627 | D. |
| January | ..... | ..... | a 16.0 | .333 | .38 | 984 | D. |
| February | ..... | ..... | 19.3 | .402 | .43 | 1,110 | C. |
| March | 55 | 21 | 26.0 | .542 | .62 | 1,600 | B. |
| April | 79 | 36 | 63.6 | 1.32 | 1.47 | 3,780 | B. |
| May | 123 | 55 | 99.7 | 2.08 | 2.40 | 6,130 | B. |
| June 1–8 | 123 | 79 | 105 | ..... | ..... | 1,670 | B. |
| The period | ..... | ..... | ..... | ..... | ..... | 18,800 | |

a Estimated.

## SOUTH FORK OF PROSSER CREEK NEAR TRUCKEE, CAL.

**Location.**—At the bridge at Euers Valley, in the SW. ¼ sec. 25, T. 18 N., R. 15 E., about 2 miles above junction with North Fork of Prosser Creek, and 6 miles northwest of Truckee.

**Records available.**—November 1, 1909, to August 31, 1910.

**Drainage area.**—5.8 square miles.

**Gage.**—Vertical staff at bridge.

**Channel.**—Sand and gravel; somewhat shifting.

**Discharge measurements.**—Made from bridge.

**Accuracy.**—Results excellent except when affected by ice.

**Cooperation.**—Records furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet of South Fork of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

| Day. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 7 | 175 | 26 | 21 | 21 | 26 | 65 | 65 | 13 | a 4 |
| 2 | 7 | 118 | 17 | 17 | 22 | 30 | 76 | 61 | 13 | a 4 |
| 3 | 7 | 69 | 10 | 19 | 23 | 32 | 65 | 56 | 13 | a 4 |
| 4 | 7 | 56 | 7 | 28 | 22 | 43 | 63 | 58 | 10 | 4 |
| 5 | 8 | 34 | 7 | 26 | 21 | 34 | 67 | 39 | 10 | 4 |
| 6 | 10 | 26 | 10 | 30 | 21 | 30 | 56 | 34 | 10 | 4 |
| 7 | 12 | 10 | 10 | 28 | 23 | 26 | 65 | 34 | 10 | 4 |
| 8 | 10 | 34 | 13 | 26 | 23 | 32 | 78 | 30 | 10 | 4 |
| 9 | 10 | 65 | 17 | 26 | 26 | 43 | 83 | 26 | 10 | 4 |
| 10 | 7 | 74 | 21 | 30 | 26 | 50 | 100 | 26 | 10 | 4 |
| 11 | 6 | 43 | 24 | 28 | 27 | 56 | 102 | 26 | 10 | 4 |
| 12 | 4 | 34 | 26 | 21 | 26 | 65 | 96 | 24 | 10 | 4 |
| 13 | 7 | 26 | 24 | 19 | 28 | 65 | 83 | a 25 | 7 | 4 |
| 14 | 10 | 34 | 24 | 17 | 30 | 72 | 74 | 26 | 7 | 4 |
| 15 | 7 | 30 | 19 | 17 | 28 | 74 | 67 | 28 | 4 | 4 |
| 16 | 7 | 39 | 17 | 13 | 28 | 76 | 65 | 26 | 4 | 4 |
| 17 | 56 | 30 | 13 | 13 | 30 | 78 | 56 | 21 | 4 | 4 |
| 18 | 78 | 21 | 13 | 13 | 32 | 85 | 47 | 21 | 4 | 4 |
| 19 | 100 | 26 | 21 | 10 | 45 | 96 | 56 | 21 | 4 | 4 |
| 20 | 153 | 17 | 21 | 10 | 34 | 87 | 54 | 21 | 4 | 4 |
| 21 | 144 | 10 | 24 | 10 | 28 | 83 | 56 | 24 | 4 | 4 |
| 22 | 162 | 10 | 26 | 17 | 26 | 80 | 52 | 21 | 4 | 4 |
| 23 | 166 | 21 | 28 | 13 | 26 | 91 | 56 | 21 | 4 | 4 |
| 24 | 158 | 17 | 26 | 13 | 24 | 96 | 56 | 19 | 4 | 4 |
| 25 | 164 | 17 | 21 | 17 | 21 | 113 | 47 | 17 | 4 | 4 |
| 26 | 144 | 26 | 19 | 18 | 19 | 109 | 58 | 17 | 4 | 4 |
| 27 | 104 | 26 | 21 | 17 | 21 | 100 | 56 | 17 | 4 | 4 |
| 28 | 52 | 30 | 24 | 19 | 26 | 78 | 61 | 17 | 4 | 4 |
| 29 | 30 | 39 | 28 | ..... | 23 | 74 | 65 | 17 | 4 | 4 |
| 30 | 52 | 34 | 30 | ..... | 26 | 47 | 58 | 13 | 4 | 4 |
| 31 | ..... | 30 | 24 | ..... | 28 | ..... | 56 | ..... | 4 | 4 |

a Interpolated by engineers of the U. S. Geological Survey.

*Monthly discharge of South Fork of Prosser Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

[Drainage area, 5.8 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| November | 166 | 4 | 56.3 | 9.71 | 10.83 | 3,350 |
| December | 175 | 10 | 39.4 | 6.79 | 7.83 | 2,420 |
| January | 30 | 7 | 19.7 | 3.40 | 3.92 | 1,210 |
| February | 30 | 10 | 19.1 | 3.29 | 3.43 | 1,060 |
| March | 45 | 19 | 25.9 | 4.47 | 5.15 | 1,590 |
| April | 113 | 26 | 65.7 | 11.30 | 12.61 | 3,910 |
| May | 102 | 47 | 65.8 | 11.30 | 13.03 | 4,050 |
| June | 65 | 13 | 28.4 | 4.90 | 5.47 | 1,690 |
| July | 13 | 4 | 6.8 | 1.71 | 1.35 | 418 |
| August | 4 | 4 | 4.0 | .690 | .80 | 246 |
| The period | | | | | | 19,900 |

NOTE.—Monthly value computed by engineers of the United States Geological Survey.

## LITTLE TRUCKEE RIVER NEAR TRUCKEE, CAL.

**Location.**—At trail crossing in the SW. ¼ sec. 26, T. 14 N., R. 14 E., about 4 miles above the mouth of Independence Creek, and 14 miles northwest of Truckee.

**Records available.**—October 20, 1909, to August 31, 1910.

**Drainage area.**—33.2 square miles.

**Gage.**—Vertical staff.

**Channel.**—Compact gravel; fairly permanent.

**Discharge measurements.**—Made from car and cable near gage.

**Accuracy.**—Results excellent except when affected by ice.

**Cooperation.**—Records furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of Little Truckee River near Truckee, Cal., for year ending Sept. 30, 1910.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 18 | 319 | 74 | 47 | 74 | 205 | 342 | 287 | 67 | 3 |
| 2 | ..... | 18 | 319 | 74 | 47 | 74 | 205 | 296 | 287 | 60 | 2 |
| 3 | ..... | 18 | 251 | 74 | 47 | 74 | 205 | 319 | 237 | 67 | 2 |
| 4 | ..... | 12 | 183 | 60 | 47 | 74 | 205 | 319 | 237 | 75 | 2 |
| 5 | ..... | 18 | 137 | 47 | 47 | 83 | 205 | 342 | 237 | 67 | 2 |
| 6 | ..... | 18 | 114 | 47 | 47 | 83 | 205 | 342 | 237 | 24 | 4 |
| 7 | ..... | 18 | 92 | 63 | 53 | 84 | 205 | 365 | 212 | 24 | 3 |
| 8 | ..... | 114 | 74 | 47 | 53 | 92 | 228 | 365 | 137 | 32 | 2 |
| 9 | ..... | 74 | 60 | 47 | 53 | 92 | 228 | 362 | 162 | 32 | 2 |
| 10 | ..... | 47 | 60 | 47 | 53 | 92 | 251 | 387 | 162 | 28 | 2 |
| 11 | ..... | 36 | 46 | 36 | 60 | 114 | 228 | 387 | 113 | 32 | 2 |
| 12 | ..... | 26 | 47 | 36 | 60 | 114 | 228 | 362 | 113 | 32 | 2 |
| 13 | ..... | 31 | 47 | 36 | 60 | 114 | 228 | 362 | 113 | 32 | 2 |
| 14 | ..... | 26 | 47 | 36 | 60 | 114 | 237 | 362 | 113 | 28 | 2 |
| 15 | ..... | 26 | 36 | 36 | 52 | 97 | 251 | 337 | 92 | 24 | 2 |
| 16 | ..... | 26 | 36 | 36 | 60 | 137 | 274 | 312 | 92 | 24 | 2 |
| 17 | ..... | 26 | 36 | 36 | 60 | 183 | 296 | 262 | 113 | 24 | 1 |
| 18 | ..... | 22 | 36 | 36 | 60 | 319 | 319 | 262 | 113 | 24 | 1 |
| 19 | ..... | 36 | 36 | 36 | 60 | 410 | 342 | 287 | 92 | 24 | 1 |
| 20 | 12 | 235 | 36 | 36 | 57 | 365 | 365 | 212 | 113 | 24 | 1 |
| 21 | 12 | 410 | 26 | 36 | 60 | 342 | 376 | 387 | 113 | 20 | 1 |
| 22 | 12 | 319 | 26 | 30 | 60 | 314 | 410 | 387 | 92 | 24 | 1 |
| 23 | 12 | 251 | 26 | 36 | 60 | 296 | 410 | 387 | 92 | 24 | 1 |
| 24 | 7 | 296 | 26 | 47 | 60 | 274 | 432 | 337 | 92 | 24 | 1 |
| 25 | 3 | 387 | 26 | 47 | 74 | 251 | 432 | 362 | 75 | 24 | 1 |
| 26 | 8 | 183 | 31 | 60 | 60 | 251 | 455 | 312 | 75 | 15 | 0 |
| 27 | 7 | 114 | 36 | 60 | 60 | 205 | 478 | 337 | 75 | 12 | 0 |
| 28 | 7 | 103 | 36 | 60 | 68 | 183 | 478 | 312 | 60 | 12 | 0 |
| 29 | 7 | 92 | 36 | 47 | ..... | 160 | 410 | 299 | 67 | 10 | 0 |
| 30 | 7 | 92 | 36 | 47 | ..... | 137 | 387 | 287 | 67 | 10 | 0 |
| 31 | 7 | ..... | [a] 55 | 45 | ..... | 132 | ..... | 287 | ..... | 8 | 0 |

[a] Interpolated by engineers of the United States Geological Survey.

*Monthly discharge of Little Truckee River near Truckee, Cal., for year ending Sept. 30, 1910.*

[Drainage area, 33.2 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October 20-31 | 12 | 3 | 8.4 | 0.253 | 0.11 | 200 |
| November | 410 | 12 | 103 | 3.10 | 3.46 | 6,130 |
| December | 319 | 26 | 76.5 | 2.31 | 2.66 | 4,700 |
| January | 74 | 30 | 46.9 | 1.41 | 1.63 | 2,880 |
| February | 74 | 47 | 56.6 | 1.71 | 1.78 | 3,140 |
| March | 410 | 74 | 172 | 5.18 | 5.97 | 10,600 |
| April | 478 | 205 | 306 | 9.22 | 10.29 | 18,200 |
| May | 387 | 212 | 332 | 10.00 | 11.53 | 20,400 |
| June | 287 | 60 | 136 | 4.10 | 4.57 | 8,090 |
| July | 75 | 8 | 29.9 | .901 | 1.04 | 1,840 |
| August | 4 | 0 | 1.5 | .045 | .05 | 92 |
| The period | | | | | | 76,300 |

NOTE.—Monthly values computed by engineers of the U. S. Geological Survey.

## LITTLE TRUCKEE RIVER AT BOCA, CAL.

**Location.**—At Boca, 500 feet below ice-pond dam, and 150 feet above mouth of stream.

**Records available.**—January 1, 1911, to September 30, 1912. At Pine Station and Starr, 1903 to 1910. The station on this river was originally located about 3 miles north of Boca at Pine station. It was moved to Starr, about 5 miles north of Boca, January 1, 1908, and discontinued at that point October 23, 1910.

**Drainage area.**—Not measured.

**Gage.**—Inclined staff on left bank 100 feet above railroad bridge.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made from car and cable at gage or by wading.

**Winter flow.**—Somewhat affected by ice.

**Artificial control.**—Flow regulated by dam. Water passing through small power plant, which is operated only during the night, does not pass gage.

**Accuracy.**—On account of the regulation at the dam and the operation of the power plant the record is not very satisfactory.

**Cooperation.**—Gage heights furnished by the United States Reclamation Service.

No discharge measurements made during 1912.

*Daily gage height, in feet, of Little Truckee River at Boca, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 0.85 | 1.05 | 0.6 | 0.75 | 0.85 | 1.25 | 1.9 | 2.4 | 1.25 | 0.75 | 0.35 |
| 2 | ..... | .8 | .9 | .7 | .75 | .85 | 1.3 | 1.8 | 2.4 | 1.25 | .85 | .35 |
| 3 | ..... | .75 | .75 | .65 | .7 | .7 | 1.45 | 1.7 | 2.45 | 1.25 | .75 | .35 |
| 4 | ..... | .75 | 1.1 | .7 | .75 | .85 | 1.4 | 1.85 | 2.6 | 1.20 | .8 | .5 |
| 5 | ..... | .8 | .9 | .65 | .7 | 1.0 | 1.35 | 1.8 | 2.6 | 1.20 | .7 | .5 |
| 6 | 0.8 | .75 | .95 | .75 | .7 | .9 | 1.4 | 1.75 | 2.55 | 1.20 | .65 | .5 |
| 7 | .75 | .8 | .9 | .7 | .6 | .85 | 1.5 | 1.8 | 2.5 | 1.15 | .7 | 1.0 |
| 8 | .75 | .8 | .75 | .75 | .8 | .8 | 1.55 | 1.85 | 2.35 | 1.0 | .7 | .75 |
| 9 | .75 | .85 | .8 | 1.05 | .8 | .8 | 1.6 | 2.0 | 2.2 | .9 | .65 | .7 |
| 10 | ..... | 1.0 | .8 | .8 | .8 | .95 | 1.5 | 2.05 | 2.1 | .85 | .5 | .65 |
| 11 | .75 | .75 | .85 | .75 | .8 | .9 | 1.35 | 2.2 | 2.05 | .85 | .45 | 1.35 |
| 12 | .75 | .85 | .75 | .8 | .75 | .9 | 1.3 | 2.3 | 2.2 | .85 | .4 | 1.2 |
| 13 | .8 | .9 | .7 | .95 | .75 | .9 | 1.3 | 2.4 | 2.1 | .85 | .4 | 1.2 |
| 14 | .8 | .9 | .75 | 1.0 | .8 | .95 | 1.3 | 2.45 | 2.1 | .9 | .35 | .7 |
| 15 | .75 | .95 | .65 | 1.0 | .8 | .85 | 1.3 | 2.45 | 1.95 | .8 | .3 | .7 |

*Daily gage height, in feet, of Little Truckee River at Boca, Cal., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.75 | 0.95 | 0.6 | 1.1 | 0.85 | 0.9 | 1.35 | 2.5 | 1.95 | 0.8 | 0.3 | 0.65 |
| 17 | .75 | .9 | .6 | 1.0 | 1.1 | .9 | 1.6 | 2.5 | 1.85 | .85 | .35 | .7 |
| 18 | .8 | .8 | .55 | .9 | 1.05 | 1.1 | 1.65 | 2.5 | 1.8 | .85 | .4 | .7 |
| 19 | .8 | .85 | .5 | .9 | .95 | 1.7 | 1.35 | 2.5 | 1.7 | .8 | .45 | .65 |
| 20 | .9 | .85 | .55 | .8 | .9 | 1.4 | 1.25 | 2.35 | 1.7 | .7 | .4 | .6 |
| 21 | .85 | .85 | .55 | .7 | .85 | 1.35 | 1.2 | 2.25 | 1.8 | .7 | .35 | .65 |
| 22 | .75 | .8 | .6 | .8 | .85 | 1.3 | 1.2 | 2.1 | 1.65 | .65 | .35 | .65 |
| 23 | .8 | .85 | .8 | .8 | .85 | 1.0 | 1.2 | 2.1 | 1.6 | .6 | .35 | .6 |
| 24 | .85 | .9 | .7 | .8 | .7 | 1.05 | 1.35 | 2.0 | 1.55 | .6 | .3 | .6 |
| 25 | .8 | .9 | .55 | .85 | .7 | 1.1 | 1.4 | 1.9 | 1.45 | .6 | .3 | .6 |
| 26 | .8 | 1.0 | .55 | .75 | .7 | 1.25 | 1.3 | 1.9 | 1.4 | .6 | .3 | .65 |
| 27 | .8 | .95 | .4 | .70 | .8 | 1.3 | 1.3 | 1.85 | 1.4 | .55 | .25 | .6 |
| 28 | .85 | .8 | .65 | .65 | .8 | 1.35 | 1.35 | 1.9 | 1.35 | .55 | .3 | .65 |
| 29 | .8 | .85 | .7 | .8 | .8 | 1.35 | 1.5 | 2.2 | 1.25 | .55 | .3 | .6 |
| 30 | .85 | .85 | .6 | .85 | ..... | 1.15 | 1.55 | 2.2 | 1.2 | .7 | .35 | .6 |
| 31 | .85 | ..... | .65 | .8 | ..... | 1.1 | ..... | 2.25 | ..... | .7 | .35 | ..... |

*Daily discharge, in second-feet, of Little Truckee River at Boca, Cal., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 32 | 50 | 15 | 24 | 32 | 78 | 275 | 525 | 104 | 37 | 14 |
| 2 | 0 | 28 | 36 | 21 | 24 | 32 | 86 | 235 | 525 | 104 | 46 | 14 |
| 3 | 0 | 24 | 24 | 18 | 21 | 21 | 119 | 197 | 552 | 104 | 37 | 14 |
| 4 | 0 | 24 | 56 | 21 | 24 | 32 | 107 | 255 | 635 | 93 | 41 | 21 |
| 5 | 0 | 28 | 36 | 18 | 21 | 45 | 96 | 235 | 635 | 93 | 33 | 21 |
| 6 | 28 | 24 | 40 | 24 | 21 | 36 | 107 | 216 | 659 | 93 | 30 | 21 |
| 7 | 24 | 28 | 36 | 21 | 15 | 32 | 131 | 235 | 630 | 84 | 33 | 61 |
| 8 | 24 | 28 | 24 | 24 | 28 | 28 | 146 | 255 | 546 | 61 | 33 | 37 |
| 9 | 24 | 32 | 28 | 50 | 28 | 28 | 162 | 320 | 464 | 50 | 30 | 33 |
| 10 | 0 | 45 | 28 | 28 | 28 | 40 | 131 | 342 | 412 | 46 | 21 | 30 |
| 11 | 24 | 24 | 32 | 24 | 28 | 36 | 96 | 415 | 387 | 46 | 18 | 126 |
| 12 | 24 | 32 | 24 | 28 | 24 | 36 | 86 | 470 | 464 | 46 | 16 | 93 |
| 13 | 28 | 36 | 21 | 40 | 24 | 36 | 86 | 525 | 412 | 46 | 16 | 93 |
| 14 | 28 | 36 | 24 | 45 | 28 | 40 | 86 | 552 | 412 | 50 | 14 | 33 |
| 15 | 24 | 40 | 18 | 45 | 28 | 32 | 86 | 552 | 338 | 41 | 13 | 33 |
| 16 | 24 | 40 | 15 | 56 | 32 | 36 | 96 | 580 | 338 | 41 | 13 | 30 |
| 17 | 24 | 36 | 15 | 45 | 56 | 36 | 162 | 580 | 294 | 46 | 14 | 33 |
| 18 | 28 | 28 | 12 | 36 | 50 | 56 | 180 | 580 | 273 | 46 | 16 | 33 |
| 19 | 28 | 32 | 10 | 36 | 40 | 197 | 96 | 580 | 234 | 41 | 18 | 30 |
| 20 | 36 | 32 | 12 | 28 | 36 | 107 | 78 | 498 | 234 | 33 | 16 | 26 |
| 21 | 32 | 32 | 12 | 21 | 32 | 96 | 70 | 442 | 273 | 33 | 14 | 30 |
| 22 | 24 | 28 | 15 | 28 | 32 | 86 | 70 | 365 | 217 | 30 | 14 | 30 |
| 23 | 28 | 32 | 28 | 28 | 32 | 45 | 70 | 365 | 200 | 26 | 14 | 26 |
| 24 | 32 | 36 | 21 | 28 | 21 | 50 | 96 | 320 | 184 | 26 | 13 | 26 |
| 25 | 28 | 36 | 12 | 32 | 21 | 56 | 107 | 275 | 154 | 26 | 13 | 26 |
| 26 | 28 | 45 | 12 | 24 | 21 | 78 | 86 | 275 | 139 | 26 | 13 | 30 |
| 27 | 28 | 40 | 6 | 21 | 28 | 86 | 86 | 255 | 139 | 24 | 12 | 26 |
| 28 | 32 | 28 | 18 | 18 | 28 | 96 | 96 | 275 | 126 | 24 | 13 | 30 |
| 29 | 28 | 32 | 21 | 28 | 28 | 96 | 131 | 415 | 104 | 24 | 13 | 26 |
| 30 | 32 | 32 | 15 | 32 | ..... | 63 | 146 | 415 | 93 | 33 | 14 | 26 |
| 31 | 32 | ..... | 18 | 28 | ..... | 56 | ..... | 442 | ..... | 33 | ..... | ..... |

NOTE.—Daily discharge computed from two fairly well defined rating curves based on measurements in 1910–14, one applicable Oct. 1 to June 5, the other June 6 to Sept. 30. Records for June supersede those published in Water-Supply Paper 300, p. 145.

*Monthly discharge of Little Truckee River at Boca, Cal., for year ending Sept. 30, 1912.*

[Drainage area, 186 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 36 | 0 | 22.3 | 0.120 | 0.14 | 1,370 | B. |
| November | 45 | 24 | 32.3 | .174 | .19 | 1,920 | B. |
| December | 56 | 6 | 23.2 | .125 | .14 | 1,430 | B. |
| January | 56 | 15 | 29.4 | .158 | .18 | 1,810 | B. |
| February | 56 | 15 | 28.4 | .153 | .16 | 1,630 | B. |
| March | 197 | 21 | 56.3 | .303 | .35 | 3,460 | B. |
| April | 180 | 70 | 106 | .570 | .64 | 6,310 | A. |
| May | 580 | 197 | 379 | 2.04 | 2.35 | 23,300 | A. |
| June | 659 | 93 | 353 | 1.90 | 2.12 | 21,000 | B. |
| July | 104 | 24 | 50.7 | .273 | .31 | 3,120 | B. |
| August | 46 | 12 | 20.7 | .111 | .13 | 1,270 | B. |
| September | 126 | 14 | 35.7 | .192 | .21 | 2,120 | B. |
| The year | 659 | 0 | 94.7 | .509 | 6.92 | 68,700 | |

NOTE.—Records for June supersede those published in Water Supply Paper 300, p. 146.

## WEBBER CREEK NEAR TRUCKEE, CAL.

**Location.**—At outlet of Webber Lake, in the SE. ¼ NE. ¼ sec. 28, T. 19 N., R. 14 E., about 1½ miles above junction with Little Truckee River and 16 miles northwest of Truckee.

**Records available.**—October 19, 1909, to August 31, 1910.

**Drainage area.**—14 square miles.

**Gage.**—Vertical staff at footbridge.

**Discharge measurements.**—Made from footbridge.

**Channel.**—Compact gravel and fairly permanent.

**Accuracy.**—Results are excellent except during winter season, when flow is affected by ice.

**Cooperation.**—Records of daily discharge were furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of Webber Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1 | 131 | 47 | 26 | 22 | 57 | 151 | 116 | 14 | 1 |
| 2 | | 1 | 197 | 45 | 25 | 23 | 62 | 138 | 101 | 12 | 1 |
| 3 | | 2 | 119 | 43 | 24 | 26 | 67 | 117 | 94 | 11 | 1 |
| 4 | | 3 | 88 | 38 | 23 | 28 | 65 | 104 | 78 | 10 | 1 |
| 5 | | 3 | 57 | 33 | 23 | 30 | 64 | 113 | 54 | 1 | 1 |
| 6 | | 3 | 53 | 30 | 22 | 33 | 67 | 119 | 33 | 1 | 1 |
| 7 | | 3 | 47 | 28 | 22 | 35 | 69 | 125 | 33 | 1 | 1 |
| 8 | | 122 | 48 | 26 | 21 | 36 | 82 | 144 | 34 | 1 | 1 |
| 9 | | 65 | 49 | 24 | 21 | 39 | 95 | 169 | 20 | 1 | 1 |
| 10 | | 41 | 40 | 24 | 21 | 41 | 108 | 183 | 20 | 1 | 1 |
| 11 | | 21 | 33 | 22 | 21 | 43 | 103 | 172 | 21 | 1 | 1 |
| 12 | | 15 | 27 | 22 | 21 | 49 | 98 | 164 | 21 | 1 | 1 |
| 13 | | 13 | 21 | 23 | 21 | 51 | 104 | 183 | 21 | 1 | 1 |
| 14 | | 12 | 16 | 26 | 21 | 54 | 113 | 169 | 21 | 1 | 1 |
| 15 | | 10 | 16 | 28 | 21 | 57 | 118 | 158 | 22 | 1 | 1 |
| 16 | | 8 | 21 | 30 | 21 | 59 | 127 | 144 | 22 | 1 | 1 |
| 17 | | 7 | 27 | 27 | 21 | 62 | 143 | 132 | 21 | 1 | 1 |
| 18 | | 6 | 24 | 24 | 20 | 69 | 158 | 117 | 21 | 1 | 1 |
| 19 | 1 | 11 | 24 | 21 | 20 | 90 | 183 | 127 | 21 | 1 | 1 |
| 20 | 1 | 57 | 24 | 19 | 20 | 114 | 207 | 143 | 21 | 1 | 1 |

*Daily discharge, in second-feet, of Webber Creek near Truckee, Cal., for year ending Sept. 30, 1910*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | 1 | 249 | 24 | 16 | 21 | 97 | 217 | 160 | 21 | 1 | 1 |
| 22 | 1 | 187 | 23 | 19 | 21 | 78 | 207 | 138 | 21 | 1 | 1 |
| 23 | 1 | 151 | 21 | 24 | 21 | 69 | 205 | 132 | 21 | 1 | 1 |
| 24 | 1 | 197 | 21 | 26 | 22 | 65 | 213 | 135 | 21 | 1 | 1 |
| 25 | 1 | 398 | 19 | 28 | 22 | 60 | 223 | 128 | 16 | 1 | 1 |
| 26 | 1 | 104 | 19 | 32 | 21 | 57 | 240 | 120 | 16 | 1 | 1 |
| 27 | 1 | 69 | 19 | 33 | 19 | 56 | 244 | 104 | 16 | 1 | 1 |
| 28 | 1 | 53 | 18 | 31 | 21 | 54 | 249 | 101 | 16 | 1 | 1 |
| 29 | 1 | 46 | 21 | 29 | ..... | 53 | 207 | 70 | 16 | 1 | 1 |
| 30 | 1 | 42 | 33 | 28 | ..... | 51 | 197 | 78 | 16 | 1 | 1 |
| 31 | 1 | ..... | 49 | 27 | ..... | 53 | ..... | 85 | ..... | 1 | 1 |

*Monthly discharge of Webber Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

[Drainage area, 14 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October 19–31 | 1 | 1 | 1.0 | 0.071 | 0.03 | 26 |
| November | 398 | 1 | 63.3 | 4.52 | 5.04 | 3,770 |
| December | 197 | 16 | 42.2 | 3.01 | 3.48 | 2,590 |
| January | 47 | 16 | 28.2 | 2.01 | 2.32 | 1,730 |
| February | 26 | 19 | 21.5 | 1.54 | 1.60 | 1,190 |
| March | 114 | 22 | 53.4 | 3.81 | 4.39 | 3,280 |
| April | 249 | 57 | 143 | 10.21 | 11.38 | 8,510 |
| May | 183 | 70 | 133 | 9.50 | 10.95 | 8,180 |
| June | 116 | 16 | 32.5 | 2.32 | 2.59 | 1,930 |
| July | 14 | 1 | 2.4 | .171 | .20 | 148 |
| August | 1 | 1 | 1.0 | .071 | .08 | 61 |
| The period | ..... | ..... | ..... | ..... | ..... | 31,400 |

NOTE.—Monthly values computed by engineers of the U. S. Geological Survey.

## INDEPENDENCE CREEK NEAR TRUCKEE, CAL.

**Location.**—At outlet of Independence Lake, in the SW. ¼ NW. ¼ sec. 35, T. 19 N., R. 15 E., about 4½ miles above junction with Little Truckee River and 10 miles northwest of Truckee.

**Records available.**—October 21, 1909, to July 19, 1910.

**Drainage area.**—8.4 square miles.

**Gage.**—Vertical staff.

**Channel.**—Gravel; fairly permanent.

**Discharge measurements.**—Made from car and cable near gage.

**Accuracy.**—Results are excellent except when affected by ice.

**Cooperation.**—Records of daily discharge furnished by the Stone & Webster Engineering Corporation.

*Daily discharge, in second-feet, of Independence Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 4 | 70 | 10 | 9 | 24 | 62 | 86 | 54 | 21 |
| 2 | ..... | 5 | 78 | 10 | 6 | 24 | 62 | 70 | 173 | 21 |
| 3 | ..... | 5 | 78 | 7 | 7 | 24 | 62 | 62 | 106 | 21 |
| 4 | ..... | 4 | 78 | 6 | 7 | 24 | 54 | 42 | 106 | 21 |
| 5 | ..... | 4 | 62 | 9 | 7 | 18 | 51 | 30 | 62 | 21 |
| 6 | ..... | 5 | 62 | 7 | 6 | 18 | 51 | 36 | 62 | 21 |
| 7 | ..... | 42 | 62 | 9 | 9 | 18 | 48 | 42 | 54 | 18 |
| 8 | ..... | 13 | 78 | 6 | 7 | 18 | 48 | 42 | 54 | 18 |
| 9 | ..... | 4 | 70 | 7 | 7 | 18 | 48 | 86 | 48 | 13 |
| 10 | ..... | 13 | 70 | 7 | 7 | 18 | 48 | 131 | 48 | 13 |
| 11 | ..... | 4 | 78 | 6 | 9 | 13 | 48 | 131 | 48 | 11 |
| 12 | ..... | 4 | 78 | 3 | 7 | 13 | 48 | 118 | 30 | 11 |
| 13 | ..... | 9 | 62 | 5 | 7 | 13 | 48 | 131 | 30 | 11 |
| 14 | ..... | 13 | 62 | 5 | 7 | 18 | 48 | 95 | 24 | 11 |
| 15 | ..... | 13 | 62 | 6 | 5 | 18 | 48 | 70 | 24 | 9 |
| 16 | ..... | 13 | 48 | 5 | 6 | 24 | 51 | 95 | 24 | 9 |
| 17 | ..... | 9 | 42 | 6 | 7 | 24 | 51 | 95 | 24 | 5 |
| 18 | ..... | 9 | 42 | 5 | 9 | 24 | 54 | 95 | 24 | 5 |
| 19 | ..... | 62 | 42 | 6 | 7 | 187 | 54 | 95 | 24 | 5 |
| 20 | ..... | 78 | 42 | 6 | 6 | 187 | 106 | 95 | 24 | ..... |
| 21 | 4 | 173 | 42 | 10 | 6 | 4 | 100 | 78 | 24 | ..... |
| 22 | 4 | 173 | 42 | 7 | 7 | 6 | 118 | 36 | 24 | ..... |
| 23 | 4 | 173 | 36 | 9 | 7 | 9 | 106 | 30 | 24 | ..... |
| 24 | 18 | 173 | 36 | 9 | 7 | 13 | 86 | 18 | 22 | ..... |
| 25 | 3 | 187 | 36 | 7 | 9 | 13 | 118 | 48 | 22 | ..... |
| 26 | 4 | 145 | 30 | 9 | 6 | 13 | 118 | 48 | 22 | ..... |
| 27 | 4 | 118 | 13 | 9 | 7 | 13 | 118 | 13 | 22 | ..... |
| 28 | 4 | 66 | 9 | 9 | 13 | 13 | 131 | 13 | 22 | ..... |
| 29 | 6 | 62 | 6 | 10 | ..... | 86 | 106 | 18 | 22 | ..... |
| 30 | 4 | 54 | 9 | 7 | ..... | 95 | 95 | 54 | 22 | ..... |
| 31 | 4 | ..... | 13 | 9 | ..... | 95 | ..... | 54 | ..... | ..... |

*Monthly discharge of Independence Creek near Truckee, Cal., for year ending Sept. 30, 1910.*

[Drainage area, 8.4 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | |
|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. |
| October 21–31 | 18 | 3 | 5.4 | 0.643 | 0.26 | 118 |
| November | 187 | 4 | 54.6 | 6.50 | 7.25 | 3,250 |
| December | 78 | 6 | 49.6 | 5.90 | 6.80 | 3,050 |
| January | 10 | 3 | 7.3 | .869 | 1.00 | 449 |
| February | 13 | 5 | 7.3 | .869 | .90 | 405 |
| March | 187 | 4 | 35.0 | 4.17 | 4.81 | 2,150 |
| April | 131 | 48 | 72.9 | 8.68 | 9.68 | 4,340 |
| May | 131 | 13 | 66.4 | 7.90 | 9.11 | 4,080 |
| June | 173 | 22 | 42.3 | 5.04 | 5.62 | 2,520 |
| July 1–19 | 21 | 5 | 14.0 | 1.67 | 1.18 | 528 |
| The period | ..... | ..... | ..... | ..... | ..... | 20,900 |

NOTE.—Monthly values computed by engineers of the United States Geological Survey.

## WARNER LAKE BASIN.

### TWENTYMILE CREEK NEAR WARNER LAKE, OREG.

**Location.**—About one-fourth mile above the bridge at the mouth of the canyon, in sec. 24, T. 40 S., R. 23 E., about 2 miles south of Warner Lake post office; below all tributaries.

**Records available.**—March 1, 1910, to September 30, 1912.

**Drainage area.**—126 square miles. The total drainage area is 169 square miles, but an area of 43 square miles tributary to Cowhead Lake has contributed no water to Twentymile Creek since about June 1, 1911.

**Gage.**—Staff. The original gage was located at the bridge, but as the gage heights were affected by backwater from a dam below it was removed to the present site on June 3, 1910. Gage readings during 1910 and 1911 at the present site were referred to the same datum. Readings for 1912 are referred to a datum 0.23 foot lower than that used during 1911.

**Channel.**—The bed is composed of bowlders and gravel, and probably shifts slightly.

**Discharge measurements.**—Made from the highway bridge or by wading.

**Winter flow.**—Ice forms in the stream but seldom at the control for the gage.

**Diversions.**—Except for a small amount of water diverted in two ditches just above the gage, the records show the total run-off from the drainage area above. Backwater from the diversion dam below the bridge may reach the gage.

**Accuracy.**—Gage heights show marked diurnal fluctuations at times during the spring, thus causing considerable inaccuracy in the records.

*Discharge measurements of Twentymile Creek near Warner Lake, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Oct. 1 | Stokes and Crower | 0.28 | 5.4 | Feb. 2 | W. O. Harmon | 0.56 | 5.7 |
| Nov. 7 | do | .43 | 5.7 | Mar. 3 | do | .73 | 6.9 |
| 17 | do | .50 | 7.0 | 27 | Stokes and Fox | 2.01 | 52.9 |
| | | | | May 16 | Stokes and Eaton | 2.06 | 64.2 |
| | | | | 23 | Stokes and Fox | 1.91 | 48.8 |

NOTE.—Gage heights for measurements in 1912 are referred to a datum 0.23 foot lower than that used for 1911.

*Daily gage height, in feet, of Twentymile Creek near Warner Lake, Oreg., for year ending Sept. 30, 1912.*

[Emily Houston, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.3 | 0.4 | 0.4 | 0.63 | 0.73 | 0.98 | 1.70 | 1.75 | 2.40 | 1.55 | 0.81 | ..... |
| 2 | .3 | .4 | .4 | .63 | .73 | .83 | 1.70 | 2.10 | 2.6 | 1.50 | ..... | ..... |
| 3 | .3 | .4 | .4 | .63 | .63 | .61 | 1.80 | 2.15 | 2.6 | 1.50 | .91 | ..... |
| 4 | .4 | .4 | .4 | .63 | .63 | .71 | 1.70 | 2.30 | 2.6 | 1.50 | ..... | 0.60 |
| 5 | .4 | .4 | .4 | .63 | .73 | .86 | 1.50 | 2.00 | 2.6 | ..... | ..... | ..... |
| 6 | .3 | .4 | .4 | .63 | .83 | 1.21 | 1.55 | 2.25 | 2.7 | 1.41 | .61 | ..... |
| 7 | .3 | .4 | .4 | .63 | .83 | .91 | 1.60 | 1.75 | 2.7 | ..... | ..... | .70 |
| 8 | .3 | .5 | .4 | .63 | 1.03 | .86 | 1.60 | 1.80 | 2.6 | 1.31 | ..... | ..... |
| 9 | .3 | .5 | .4 | .73 | 1.43 | .81 | 1.55 | 1.50 | 2.5 | ..... | ..... | ..... |
| 10 | .4 | .5 | .5 | .63 | 1.85 | .81 | 1.55 | 1.90 | 2.5 | 1.16 | .41 | ..... |
| 11 | .4 | .5 | .5 | .63 | 1.23 | .81 | 1.41 | 1.80 | 2.30 | ..... | ..... | .55 |
| 12 | .3 | .5 | .5 | .73 | .93 | .81 | 1.41 | 1.85 | 2.30 | 1.11 | ..... | ..... |
| 13 | .3 | .5 | .5 | 1.03 | .83 | .81 | 1.25 | 1.85 | 2.20 | ..... | ..... | ..... |
| 14 | .3 | .6 | .5 | 1.13 | .83 | .81 | 1.21 | 1.95 | 2.30 | 1.11 | .41 | .50 |
| 15 | .3 | .7 | .5 | .93 | .83 | .81 | 1.31 | 1.90 | 2.00 | ..... | ..... | ..... |

*Daily gage height, in feet, of Twentymile Creek near Warner Lake, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 0.2 | 0.7 | 0.5 | 0.83 | 0.83 | 0.71 | 1.31 | 2.10 | 2.00 | 1.01 | ..... | ..... |
| 17 | .2 | .5 | .5 | .73 | 2.8 | .76 | 1.21 | 2.05 | 2.00 | ..... | 0.49 | 0.50 |
| 18 | .2 | .5 | .6 | .73 | 2.15 | .73 | 1.11 | 2.25 | 1.90 | ..... | ..... | ..... |
| 19 | .2 | .5 | .7 | .73 | 1.33 | .81 | 1.01 | 2.15 | 1.85 | ..... | ..... | ..... |
| 20 | .2 | .5 | .4 | .73 | 1.13 | .81 | 1.11 | 2.15 | 1.95 | .96 | ..... | .50 |
| 21 | .2 | .5 | .4 | .63 | .93 | .71 | 1.21 | 2.05 | 1.95 | ..... | .41 | ..... |
| 22 | .2 | .5 | .4 | .63 | .93 | .71 | 1.01 | 1.95 | 1.90 | .81 | ..... | ..... |
| 23 | .2 | .5 | .4 | .63 | .98 | .96 | 1.21 | 1.90 | 1.90 | ..... | ..... | ..... |
| 24 | .2 | .5 | .4 | .63 | .83 | 1.70 | 1.41 | 1.80 | 1.80 | .71 | .41 | .50 |
| 25 | .3 | .4 | .4 | 1.43 | .83 | 1.80 | 1.41 | 1.90 | 1.50 | ..... | ..... | ..... |
| 26 | .3 | .4 | .4 | 1.33 | .93 | 3.2 | 1.23 | 2.05 | 1.80 | .61 | ..... | ..... |
| 27 | .3 | .4 | .4 | .83 | .88 | 2.10 | 1.23 | 2.05 | 1.50 | ..... | ..... | .50 |
| 28 | .3 | .5 | .4 | .73 | .73 | 2.00 | 1.27 | 2.20 | 1.70 | .61 | .39 | ..... |
| 29 | .3 | .5 | .4 | .73 | .83 | 1.70 | 1.31 | 2.6 | 1.65 | ..... | ..... | ..... |
| 30 | .4 | .4 | .4 | .73 | ..... | 1.41 | 1.41 | 2.45 | 1.65 | .81 | ..... | ..... |
| 31 | .4 | ..... | .4 | .73 | ..... | 1.46 | ..... | 2.5 | ..... | ..... | .41 | ..... |

NOTE.—Gage heights for 1912 are referred to a datum 0.23 foot lower than that for 1911. Ice existed in the stream during the winter of 1911–12, but the effect on the relation of gage height to discharge probably negligible.

*Daily discharge, in second-feet, of Twentymile Creek near Warner Lake, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | | | | | | |
| 1 | 7.2 | 23 | 8.6 | 809 | 86 | 132 | 42 | 7.2 | 3.4 |
| 2 | 7.2 | 19 | 8.6 | 749 | 92 | 164 | 42 | 7.2 | 3.4 |
| 3 | 7.2 | 19 | 8.6 | 516 | 110 | 164 | 42 | 7.2 | 3.4 |
| 4 | 7.2 | 19 | 8.6 | 413 | 117 | 148 | 36 | 6.0 | 3.4 |
| 5 | 7.2 | 19 | 8.6 | 629 | 148 | 164 | 36 | 6.0 | 4.1 |
| 6 | 7.2 | 16 | 8.6 | 464 | 98 | 148 | 31 | 6.0 | 5.0 |
| 7 | 7.2 | 16 | 10.6 | 438 | 80 | 181 | 31 | 6.0 | 5.0 |
| 8 | 7.2 | 19 | 8.6 | 543 | 92 | 181 | 27 | 6.0 | 4.1 |
| 9 | 7.2 | 23 | 7.2 | 413 | 80 | 181 | 27 | 6.0 | 3.4 |
| 10 | 6.0 | 16 | 13 | 321 | 66 | 148 | 27 | 5.0 | 3.4 |
| 11 | 6.0 | 8.6 | 13 | 248 | 66 | 164 | 19 | 5.0 | 3.4 |
| 12 | 6.0 | 8.6 | 13 | 80 | 70 | 164 | 23 | 5.0 | 3.4 |
| 13 | 6.0 | 7.2 | 13 | 104 | 70 | 148 | 23 | 5.0 | 3.4 |
| 14 | 6.0 | 16 | 19 | 98 | 66 | 181 | 23 | 4.1 | 3.4 |
| 15 | 6.0 | 13 | 27 | 92 | 62 | 164 | 19 | 4.1 | 3.4 |
| 16 | 6.0 | 10.6 | 39 | 132 | 80 | 132 | 19 | 4.1 | 3.4 |
| 17 | 6.0 | 10.6 | 58 | 181 | 98 | 132 | 23 | 4.1 | 3.4 |
| 18 | 7.2 | 8.6 | 86 | 164 | 148 | 132 | 23 | 4.1 | 3.4 |
| 19 | 7.2 | 7.2 | 148 | 70 | 70 | 132 | 19 | 3.4 | 3.4 |
| 20 | 6.0 | 7.2 | 238 | 75 | 62 | 132 | 19 | 3.4 | 3.4 |
| 21 | 6.0 | 7.2 | 332 | 132 | 62 | 117 | 16 | 3.4 | 3.4 |
| 22 | 6.0 | 8.6 | 516 | 140 | 70 | 80 | 16 | 4.1 | 3.4 |
| 23 | 6.0 | 8.6 | 809 | 132 | 70 | 70 | 16 | 4.1 | 3.4 |
| 24 | 7.2 | 8.6 | 516 | 156 | 92 | 62 | 13 | 4.1 | 4.1 |
| 25 | 7.2 | 8.6 | 464 | 164 | 80 | 55 | 13 | 4.1 | 4.1 |
| 26 | 7.2 | 8.6 | 321 | 148 | 80 | 55 | 13 | 4.1 | 5.0 |
| 27 | 7.2 | 8.6 | 343 | 117 | 80 | 48 | 10.6 | 3.4 | 6.0 |
| 28 | 7.2 | 8.6 | 629 | 124 | 70 | 48 | 10.6 | 3.4 | 5.0 |
| 29 | 7.2 | ..... | 689 | 110 | 80 | 42 | 8.6 | 3.4 | 5.0 |
| 30 | 19 | ..... | 809 | 86 | 92 | 36 | 7.2 | 3.4 | 5.0 |
| 31 | 31 | ..... | 809 | ..... | 92 | ..... | 7.2 | 3.4 | ..... |

*Daily discharge, in second-feet, of Twentymile Creek near Warner Lake, Oreg., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | | | | |
| 1 | 5.0 | 6.0 | 6.0 | 5.9 | 7.2 | 12 | 40 | 43 | 100 | 32 | 8.4 | 4.4 |
| 2 | 5.0 | 6.0 | 6.0 | 5.9 | 7.2 | 8.7 | 40 | 68 | 127 | 30 | 9.2 | 4.8 |
| 3 | 5.0 | 6.0 | 6.0 | 5.9 | 5.9 | 5.7 | 46 | 72 | 127 | 30 | 10.0 | 5.2 |
| 4 | 6.0 | 6.0 | 6.0 | 5.9 | 5.9 | 6.8 | 40 | 88 | 127 | 30 | 8.6 | 5.6 |
| 5 | 6.0 | 6.0 | 6.0 | 5.9 | 7.2 | 9.3 | 30 | 60 | 127 | 28 | 7.2 | 5.9 |
| 6 | 5.0 | 6.0 | 6.0 | 5.9 | 8.7 | 18 | 32 | 82 | 143 | 26 | 5.7 | 6.3 |
| 7 | 5.0 | 6.0 | 6.0 | 5.9 | 8.7 | 10 | 35 | 43 | 143 | 24 | 5.3 | 6.7 |
| 8 | 5.0 | 7.2 | 6.0 | 5.9 | 13 | 9.3 | 35 | 46 | 127 | 22 | 4.9 | 6.3 |
| 9 | 5.0 | 7.2 | 6.0 | 7.2 | 27 | 8.4 | 32 | 30 | 113 | 20 | 4.4 | 5.9 |
| 10 | 6.0 | 7.2 | 7.2 | 5.9 | 50 | 8.4 | 32 | 53 | 113 | 17 | 4.0 | 5.5 |
| 11 | 6.0 | 7.2 | 7.2 | 5.9 | 19 | 8.4 | 26 | 46 | 88 | 16 | 4.0 | 5.2 |
| 12 | 5.0 | 7.2 | 7.2 | 7.2 | 11 | 8.4 | 26 | 50 | 88 | 15 | 4.0 | 5.0 |
| 13 | 5.0 | 7.2 | 7.2 | 13 | 8.7 | 8.4 | 20 | 50 | 77 | 15 | 4.0 | 4.8 |
| 14 | 5.0 | 8.6 | 7.2 | 16 | 8.7 | 8.4 | 18 | 56 | 88 | 15 | 4.0 | 4.7 |
| 15 | 5.0 | 10.6 | 7.2 | 11 | 8.7 | 8.4 | 22 | 53 | 60 | 14 | 4.2 | 4.7 |
| 16 | 4.1 | 10.6 | 7.2 | 8.7 | 8.7 | 6.8 | 22 | 68 | 60 | 12 | 4.4 | 4.7 |
| 17 | 4.1 | 7.2 | 7.2 | 7.2 | 159 | 7.6 | 18 | 64 | 60 | 12 | 4.6 | 4.7 |
| 18 | 4.1 | 7.2 | 8.6 | 7.2 | 72 | 7.2 | 15 | 82 | 53 | 12 | 4.5 | 4.7 |
| 19 | 4.1 | 7.2 | 10.6 | 7.2 | 23 | 8.4 | 12 | 72 | 50 | 11 | 4.3 | 4.7 |
| 20 | 4.1 | 7.2 | 6.0 | 7.2 | 16 | 8.4 | 15 | 72 | 56 | 11 | 4.2 | 4.7 |
| 21 | 4.1 | 7.2 | 6.0 | 5.9 | 11 | 6.8 | 18 | 64 | 56 | 9.7 | 4.0 | 4.7 |
| 22 | 4.1 | 7.2 | 6.0 | 5.9 | 11 | 6.8 | 12 | 56 | 53 | 8.4 | 4.0 | 4.7 |
| 23 | 4.1 | 7.2 | 6.0 | 5.9 | 12 | 11 | 18 | 53 | 53 | 7.6 | 4.0 | 4.7 |
| 24 | 4.1 | 7.2 | 6.0 | 5.9 | 8.7 | 40 | 26 | 46 | 46 | 6.8 | 4.0 | 4.7 |
| 25 | 5.0 | 6.0 | 6.0 | 27 | 8.7 | 46 | 26 | 53 | 30 | 6.2 | 3.9 | 4.7 |
| 26 | 5.0 | 6.0 | 6.0 | 23 | 11 | 232 | 19 | 64 | 46 | 5.7 | 3.8 | 4.7 |
| 27 | 5.0 | 6.0 | 6.0 | 8.7 | 9.6 | 68 | 19 | 64 | 30 | 5.7 | 3.8 | 4.7 |
| 28 | 5.0 | 7.2 | 6.0 | 7.2 | 7.2 | 60 | 21 | 77 | 40 | 5.7 | 3.8 | 4.7 |
| 29 | 5.0 | 7.2 | 6.0 | 7.2 | 8.7 | 40 | 22 | 127 | 38 | 7.0 | 3.8 | 4.7 |
| 30 | 6.0 | 6.0 | 6.0 | 7.2 | ..... | 26 | 26 | 106 | 38 | 8.4 | 3.9 | 4.7 |
| 31 | 6.0 | ..... | 6.0 | 7.2 | ..... | 28 | ..... | 113 | ..... | 8.4 | 4.0 | ..... |

NOTE.—Daily discharge determined from a well-defined rating curve. Allowance has been made for difference in datum of 1912 and 1911 gage heights in making the computations of discharge. Daily and monthly discharges for 1911 supersede those published in Water-Supply Paper 310.

*Monthly discharge of Twentymile Creek near Warner Lake, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | 4 | 3 | 3.94 | 242 | B. |
| November | 15 | 4 | 6.53 | 389 | B. |
| December | 486 | 7 | 35.5 | 2,180 | B. |
| January | 31 | 6.0 | 7.88 | 485 | C. |
| February | 23 | 7.2 | 12.6 | 700 | C. |
| March | 809 | 7.2 | 225 | 13,800 | A. |
| April | 809 | 70 | 262 | 15,600 | A. |
| May | 148 | 62 | 84.8 | 5,210 | A. |
| June | 181 | 36 | 124 | 7,380 | A. |
| July | 42 | 7.2 | 22 | 1,350 | A. |
| August | 7.2 | 3.4 | 4.70 | 289 | B. |
| September | 6.0 | 3.4 | 3.90 | 232 | B. |
| The year | 809 | 3 | 66.1 | 47,900 | |
| 1911–12. | | | | | |
| October | 6.0 | 4.1 | 4.93 | 303 | B. |
| November | 10.6 | 6.0 | 7.03 | 418 | A. |
| December | 10.6 | 6.0 | 6.54 | 402 | C. |
| January | 27 | 5.9 | 8.45 | 520 | B. |
| February | 159 | 5.9 | 19.4 | 1,120 | C. |
| March | 232 | 5.7 | 23.9 | 1,470 | C. |
| April | 46 | 12 | 25.4 | 1,510 | B. |
| May | 127 | 30 | 65.2 | 4,010 | B. |
| June | 143 | 30 | 78.6 | 4,680 | B. |
| July | 32 | 5.7 | 15.2 | 935 | A. |
| August | 10 | 3.8 | 4.93 | 303 | A. |
| September | 6.7 | 4.4 | 5.05 | 300 | A. |
| The year | 232 | 3.8 | 22.0 | 16,000 | |

## DEEP CREEK AT BIG VALLEY, NEAR LAKEVIEW, OREG.

**Location.**—In sec. 4, T. 40 S., R. 22 E., near the Big Valley dam site, about 9 miles from Mud Creek stage station, and about 12 miles east of Lakeview.

**Records available.**—May 3, 1911, to September 30, 1912.

**Drainage area.**—71 square miles. (Revised since publication of 1911 report.)

**Gage.**—Barrett & Lawrence automatic, installed in December, 1911, and located about 100 feet above the cable. Readings during 1911 were made on a staff gage about one-fourth mile below the automatic. This gage was also used as a reference gage for the automatic gage until May 28, 1912. From May 28 to August 21, 1912, a staff gage at the cable was used as the reference gage. After August 22, 1912, a staff gage at the site of the automatic was used as a reference gage. By means of comparative readings the gage heights for 1912 previous to August 22 have been referred to the cable gage, and a rating curve derived by the same method.

**Channel.**—Composed of gravel and stone; not likely to shift.

**Discharge measurements.**—Made from the cable or by wading.

**Winter flow.**—Affected by ice.

**Storage.**—The dam site at Big Valley can probably be developed to any storage capacity warranted by the available water supply.

**Cooperation.**—Maintained in cooperation with the Warner Lake Irrigation Co.

*Discharge measurements of Deep Creek at Big Valley, near Lakeview, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | | | Discharge. |
|---|---|---|---|---|---|
| | | Old gage. | Cable gage. | Automatic staff gage. | |
| 1911. | | *Feet.* | *Feet.* | *Feet.* | *Sec.-ft.* |
| June 15 | John Dubuis | 2.67 | [a] 4.28 | ..... | 490 |
| July 25 | ....do | .30 | [a] 1.14 | ..... | 22.2 |
| Aug. 19 | R. W. Davenport | .06 | [a] .73 | ..... | 9.1 |
| Dec. 5 | W. O. Harmon | −.30 | ..... | ..... | 10.0 |
| 1912. | | | | | |
| Jan. 25 | ....do | .51 | [a] 1.48 | ..... | 49.5 |
| Feb. 21 | ....do | .70 | [a] 1.76 | ..... | 48.4 |
| May 28 | Howard Kimble | 2.25 | 3.80 | ..... | 356 |
| June 5 | John Dubuis | 2.72 | 4.38 | ..... | 574 |
| Aug. 22 | ....do | −.15 | ..... | 0.55 | 8.9 |

[a] Determined by relation curve for old gage and cable gage.

*Daily gage height, in feet, of Deep Creek at Big Valley, near Lakeview, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.10 | 0.30 | ..... | ..... | ..... | ..... | ..... | 2.10 | 4.42 | ..... | 0.81 | 0.60 |
| 2 | ..... | ..... | ..... | ..... | ..... | ..... | 1.80 | 2.22 | 4.56 | ..... | .84 | .60 |
| 3 | ..... | ..... | ..... | ..... | ..... | ..... | 1.89 | 2.33 | 4.60 | ..... | .90 | .60 |
| 4 | .15 | .35 | ..... | ..... | ..... | ..... | 1.78 | 2.49 | 4.51 | 1.60 | .85 | .62 |
| 5 | ..... | ..... | −0.30 | ..... | ..... | ..... | 1.76 | 2.19 | 4.56 | ..... | .82 | .64 |
| 6 | ..... | ..... | ..... | ..... | ..... | ..... | 1.84 | 2.32 | 4.62 | ..... | .78 | .65 |
| 7 | .18 | ..... | ..... | ..... | ..... | ..... | 2.21 | 2.55 | 4.54 | ..... | .77 | .62 |
| 8 | ..... | ..... | ..... | ..... | ..... | ..... | 2.36 | 2.85 | 4.32 | ..... | .75 | .59 |
| 9 | ..... | ..... | ..... | ..... | ..... | ..... | 2.54 | 3.25 | 4.22 | ..... | .74 | .59 |
| 10 | .20 | ..... | ..... | ..... | ..... | ..... | 2.81 | 3.62 | 3.90 | ..... | .73 | .57 |
| 11 | ..... | .25 | ..... | ..... | ..... | ..... | 2.39 | 3.65 | 3.65 | ..... | .71 | .56 |
| 12 | ..... | ..... | ..... | ..... | ..... | ..... | 2.18 | 3.65 | 3.64 | ..... | .68 | .56 |
| 13 | ..... | ..... | ..... | ..... | ..... | ..... | 1.90 | 3.76 | ..... | ..... | .67 | .55 |
| 14 | .21 | ..... | ..... | ..... | ..... | ..... | 1.83 | 3.84 | ..... | ..... | .67 | .56 |
| 15 | ..... | ..... | ..... | ..... | ..... | ..... | 1.69 | 3.98 | ..... | ..... | .67 | .55 |

*Daily gage height, in feet, of Deep Creek at Big Valley, near Lakeview, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | | | | | | | 1.71 | 4.08 | | | 0.67 | 0.54 |
| 17 | 0.21 | | | | | | 1.72 | 4.32 | 2.63 | | .67 | .53 |
| 18 | | 0.20 | | | | | 1.76 | 4.22 | 2.62 | | .67 | .55 |
| 19 | | | | | | | 1.88 | | 2.60 | | .67 | .55 |
| 20 | .25 | | | | | | 1.63 | | 2.67 | | .65 | .55 |
| 21 | | | | | 1.76 | | 1.55 | | 2.79 | | .64 | .55 |
| 22 | | | | | | | 1.43 | | 2.80 | 0.98 | .55 | .55 |
| 23 | .30 | | | | | | 1.32 | | 2.50 | .93 | .55 | .54 |
| 24 | | | | | | | | 3.22 | 2.25 | .88 | .53 | .54 |
| 25 | | .20 | | 1.48 | 1.46 | | | 3.40 | 2.17 | .87 | .50 | .53 |
| 26 | .30 | | | | | | | 3.68 | 2.10 | .85 | .50 | .53 |
| 27 | | | | | | | | | | .83 | .52 | .53 |
| 28 | | | | | 1.46 | 1.76 | | 3.94 | | .82 | .54 | .53 |
| 29 | | | | | | | | 4.87 | | .82 | .55 | .53 |
| 30 | .35 | .17 | | | | | | 5.03 | | .82 | .55 | .54 |
| 31 | | | | | | | | 4.44 | | .81 | .57 | |

NOTE.—Gage heights Oct. 1 to Dec. 5, 1911, were referred to original staff gage; gage heights for Jan. 25 to Aug. 21, 1912, were referred to staff gage at the cable; gage heights for Aug. 22 to Sept. 30 were referred to staff gage at the automatic gage location. No record of ice except that automatic gage float was frozen during most of the month of January.

*Daily discharge, in second-feet, of Deep Creek at Big Valley, near Lakeview, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 22 | | | | 59 | 86 | 524 | 61 | 11 | 10 |
| 2 | 12 | 23 | | | | 60 | 98 | 566 | 56 | 12 | 10 |
| 3 | 13 | 25 | | | | 67 | 111 | 578 | 51 | 14 | 10 |
| 4 | 14 | 26 | | | | 59 | 130 | 551 | 46 | 12 | 11 |
| 5 | 14 | 25 | | | | 57 | 95 | 566 | 45 | 12 | 11 |
| 6 | 15 | 24 | | | | 63 | 109 | 584 | 44 | 11 | 12 |
| 7 | 15 | 23 | | | | 97 | 138 | 560 | 42 | 10 | 11 |
| 8 | 15 | 22 | | | | 114 | 180 | 494 | 40 | 10 | 10 |
| 9 | 16 | 21 | | | | 136 | 245 | 466 | 38 | 10 | 10 |
| 10 | 16 | 20 | | | | 174 | 320 | 386 | 36 | 10 | 9 |
| 11 | 16 | 19 | | | | 118 | 326 | 326 | 34 | 9 | 9 |
| 12 | 16 | 19 | | | | 94 | 326 | 324 | 33 | 9 | 9 |
| 13 | 17 | 18 | | | | 68 | 352 | 290 | 32 | 8 | 9 |
| 14 | 17 | 18 | | | | 62 | 372 | 235 | 30 | 8 | 9 |
| 15 | 17 | 17 | | | | 52 | 405 | 220 | 28 | 8 | 9 |
| 16 | 17 | 17 | | | | 54 | 429 | 184 | 26 | 8 | 9 |
| 17 | 17 | 16 | | | | 54 | 494 | 148 | 24 | 8 | 9 |
| 18 | 18 | 16 | | | | 57 | 466 | 147 | 22 | 8 | 9 |
| 19 | 18 | 16 | | | | 66 | 500 | 144 | 20 | 8 | 9 |
| 20 | 19 | 16 | | | | 48 | 550 | 154 | 18 | 8 | 9 |
| 21 | 20 | 16 | | 57 | | 43 | 608 | 171 | 17 | 8 | 9 |
| 22 | 21 | 16 | | | | 36 | 500 | 172 | 16 | 9 | 9 |
| 23 | 22 | 16 | | | | 30 | 350 | 131 | 15 | 9 | 9 |
| 24 | 22 | 16 | | | | 37 | 240 | 102 | 13 | 9 | 9 |
| 25 | 22 | 16 | 39 | 38 | | 44 | 273 | 93 | 13 | 8 | 9 |
| 26 | 22 | 16 | | | | 51 | 333 | 86 | 12 | 8 | 9 |
| 27 | 23 | 15 | | | | 58 | 365 | 81 | 12 | 8 | 9 |
| 28 | 24 | 15 | | 38 | 57 | 65 | 396 | 76 | 12 | 9 | 9 |
| 29 | 25 | 15 | | | 57 | 72 | 662 | 71 | 12 | 9 | 9 |
| 30 | 26 | 14 | | | 58 | 79 | 714 | 66 | 12 | 9 | 9 |
| 31 | 24 | | | | 58 | | 530 | | 11 | 9 | |

NOTE.—Daily discharge for October and November, 1911, determined from a curve fairly well defined for the old gage; discharge for Jan. 25 to Aug. 21 determined from a fairly well defined curve for the cable gage, and for Aug. 22 to Sept. 30 from a fairly well defined curve for the automatic staff gage. Discharge interpolated for days for which gage heights are missing, Oct. 1 to Nov. 30, 1911, and after Mar. 28, except May 19 to 23, which were estimated. Mean discharge for December estimated from measurement on Dec. 5. Mean discharge for January, February, and March estimated by comparison with hydrograph for Deep Creek at Adel.

*Monthly discharge of Deep Creek at Big Valley, near Lakeview, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 71 square miles.a]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 26 | 11 | 18.2 | 0.253 | 0.29 | 1,120 | B. |
| November | 26 | 14 | 18.6 | .262 | .29 | 1,100 | B. |
| December | | | 10 | .141 | .16 | 615 | D. |
| January | | | 11.2 | .158 | .18 | 689 | D. |
| February | | | 24.4 | .344 | .37 | 1,400 | D. |
| March | | | 19.4 | .273 | .31 | 1,190 | D. |
| April | 174 | 30 | 69.1 | .973 | 1.09 | 4,110 | C. |
| May | 714 | 86 | 345 | 4.86 | 5.60 | 21,200 | B. |
| June | 584 | 66 | 284 | 4.00 | 4.46 | 16,900 | B. |
| July | 61 | 11 | 28.1 | .396 | .46 | 1,730 | D. |
| August | 14 | 8 | 9.3 | .131 | .15 | 572 | B. |
| September | 12 | 9 | 9.5 | .134 | .15 | 565 | B. |
| The year | 714 | | 70.6 | .994 | 13.51 | 51,200 | |

a Drainage area revised since publication of Water-Supply Paper 310.

NOTE.—See footnote to table of daily discharge.

## DEEP CREEK[1] AT ADEL, OREG.

**Location.**—In the SE. ¼ NW. ¼ sec. 21, T. 29 S., R. 24 E., about one-eighth mile above the wagon bridge crossing the creek at Adel; below all tributaries.

**Records available.**—May 11, 1909, to September 30, 1912.

**Drainage area.**—260 square miles. Revised since report for 1911. About 40 square miles in and near T. 40 S., R. 23 E., drains into Big Lake, which was formerly supposed to be a part of the Deep Creek drainage basin, but is now known to have no outlet.

**Gage.**—A vertical staff in two sections about 500 feet above the bridge and above a series of rapids; datum unchanged.

**Channel.**—Probably permanent; bed of stream composed of gravel and stone.

**Discharge measurements.**—Made from the wagon bridge.

**Diversions.**—Several small ditches divert water for irrigation near the headwaters of the stream and five ditches take out within 6 or 8 miles above the station and carry water around it to irrigate several hundred acres of land; 2,000 or 3,000 acres of land are watered by natural flooding near Big Valley and Crane Lake, but much of the water is probably returned to the stream. The combined capacity of the five ditches above mentioned is about 30 second-feet. Measurements of the combined discharge showed 25 second-feet of water in June, 1910; 20 second-feet in April, 1911; 18 second-feet in July, 1911. Below the bridge the grade of the stream is very flat, and water is diverted into the M. C. ditch by means of a temporary dam which is repaired at the beginning of each irrigating season.

**Winter flow.**—Relation between gage height and discharge affected by ice during periods of extreme cold weather and occasionally by backwater from ice jams.

**Accuracy.**—Determination of mean gage height is rendered rather difficult during the spring by the diurnal fluctuations.

**Cooperation.**—Station maintained in cooperation with the Warner Lake Irrigation Co.

[1] Formerly called Warner Creek.

*Discharge measurement of Deep Creek at Adel, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Feb. 2[a] | W. O. Harmon..... | 2.90 | 35.6 | May 3 | W. O. Harmon..... | 4.08 | 297 |
| Mar. 3 | .....do..... | 2.95 | 25.5 | 10 | .....do..... | 4.99 | 706 |
| 27 | C. K. Fox..... | 3.40 | 125 | 22 | John Dubuis..... | 4.70 | 549 |
| Apr. 11 | W. O. Harmon..... | 3.75 | 188 | | | | |

[a] Small amount of ice, but gage height probably not much affected.

*Daily gage height, in feet, of Deep Creek at Adel, Oreg., for year ending Sept. 30, 1912.*

[Myrtle Wible, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 2.8 | 2.9 | 3.0 | 2.90 | 2.90 | 2.95 | 4.05 | 4.50 | 5.5 | 3.91 | 2.88 | 2.65 |
| 2..... | 2.8 | 2.9 | 3.0 | 2.90 | 2.90 | 2.90 | 4.05 | 4.55 | 5.10 | 3.45 | 3.40 | 2.65 |
| 3..... | 2.8 | 2.9 | 3.0 | 2.90 | 2.90 | 2.90 | 4.00 | 4.45 | 5.00 | 3.40 | 3.31 | 2.65 |
| 4..... | 2.8 | 2.9 | 3.0 | 2.90 | 2.90 | 2.97 | 4.20 | 4.40 | 5.00 | 3.40 | 2.96 | 2.65 |
| 5..... | 2.8 | 2.9 | 3.0 | 2.90 | 3.05 | 3.18 | 4.55 | 4.35 | 5.00 | 3.40 | 2.74 | 2.65 |
| 6..... | 2.8 | 2.9 | 3.0 | 2.90 | 3.05 | 3.34 | 4.40 | 4.40 | 5.00 | 3.25 | 2.70 | 2.65 |
| 7..... | 2.8 | 2.9 | 3.0 | 2.90 | 3.00 | 3.29 | 4.50 | 4.30 | 4.90 | 3.20 | 2.70 | 2.65 |
| 8..... | 2.8 | 2.9 | 3.0 | 2.90 | 3.25 | 3.18 | 4.45 | 4.35 | 4.90 | 3.18 | 2.62 | 2.72 |
| 9..... | 2.8 | 3.0 | 2.9 | 2.80 | 3.40 | 3.11 | 4.30 | 4.70 | 4.90 | 3.09 | 2.60 | 2.60 |
| 10..... | 2.8 | 3.0 | 2.9 | 2.80 | 3.40 | 2.96 | 4.05 | 4.90 | 4.90 | 3.15 | 2.70 | 2.60 |
| 11..... | 2.8 | 3.0 | 2.9 | 2.80 | 3.25 | 2.94 | 4.00 | 5.40 | 4.90 | 3.00 | 2.70 | 2.60 |
| 12..... | 2.8 | 3.0 | 2.9 | 2.80 | 3.20 | 2.90 | 3.94 | 5.40 | 4.90 | 3.00 | 2.70 | 2.60 |
| 13..... | 2.8 | 3.0 | 2.9 | 2.90 | 3.20 | 3.32 | 4.15 | 5.7 | 4.90 | 3.00 | 2.68 | 2.60 |
| 14..... | 2.8 | 3.1 | 2.9 | 2.90 | 3.20 | 3.23 | 4.20 | 5.7 | 4.80 | 3.00 | 2.65 | 2.60 |
| 15..... | 2.8 | 3.1 | 2.9 | 2.90 | 3.20 | 3.10 | 4.20 | 5.7 | 4.80 | 3.00 | 2.62 | 2.60 |
| 16..... | 2.8 | 3.1 | 2.9 | 2.90 | 3.35 | 2.96 | 4.05 | 5.7 | 4.80 | 3.00 | 2.60 | 2.60 |
| 17..... | 2.8 | 2.9 | 2.9 | 2.90 | 3.50 | 2.90 | 3.96 | 5.30 | 4.75 | 3.00 | 2.60 | 2.60 |
| 18..... | 2.8 | 2.8 | 2.9 | 2.90 | 3.54 | 2.91 | 3.84 | 5.40 | 4.70 | 3.00 | 2.62 | 2.60 |
| 19..... | 2.8 | 2.8 | 2.9 | 2.90 | 3.52 | 3.03 | 3.80 | 5.35 | 4.60 | 3.00 | 2.62 | 2.60 |
| 20..... | 2.8 | 2.9 | 2.9 | 2.90 | 3.50 | 3.02 | 3.69 | 5.5 | 4.60 | 3.00 | 2.65 | 2.60 |
| 21..... | 2.8 | 2.9 | 2.9 | 2.90 | 3.50 | 3.00 | 3.61 | 5.7 | 4.70 | 2.95 | 2.65 | 2.60 |
| 22..... | 2.8 | 2.9 | 2.9 | 2.90 | 3.52 | 3.00 | 3.60 | 5.7 | 4.60 | 2.90 | 2.65 | 2.60 |
| 23..... | 2.8 | 2.8 | 2.9 | 2.90 | 3.55 | 3.04 | 3.74 | 5.7 | 4.45 | 2.90 | 2.65 | 2.60 |
| 24..... | 2.8 | 2.8 | 2.8 | 2.90 | 3.61 | 3.45 | 3.80 | 5.7 | 4.90 | 2.89 | 2.65 | 2.60 |
| 25..... | 2.8 | 2.8 | 2.8 | 2.90 | 3.60 | 3.46 | 3.71 | 5.7 | 4.80 | 2.84 | 2.65 | 2.60 |
| 26..... | 2.8 | 2.8 | 2.8 | 3.05 | 3.60 | 3.59 | 3.46 | 5.8 | 4.80 | 2.80 | 2.65 | 2.60 |
| 27..... | 2.8 | 2.9 | 2.8 | 3.30 | 3.52 | 3.75 | 3.38 | 5.8 | 4.45 | 2.80 | 2.65 | 2.60 |
| 28..... | 2.9 | 2.9 | 2.8 | 3.00 | 3.88 | 3.79 | 3.46 | 5.7 | 4.15 | 2.80 | 2.65 | 2.61 |
| 29..... | 2.9 | 2.9 | 2.8 | 2.90 | 3.56 | 3.71 | 3.81 | 5.6 | 4.05 | 2.76 | 2.65 | 2.62 |
| 30..... | 2.9 | 2.9 | 2.8 | 2.90 | ..... | 3.70 | 4.25 | 5.5 | 3.91 | ..... | 2.65 | 2.62 |
| 31..... | 2.9 | ..... | 2.8 | 2.90 | ..... | 3.72 | ..... | 5.5 | ..... | 2.70 | 2.65 | ..... |

NOTE.—Ice existed in the stream during December and January, but the control remained open and the ice apparently had little if any effect on the relation of gage height to discharge.

*Daily discharge, in second-feet, of Deep Creek at Adel, Oreg., for period Jan. 1 to Mar. 14, 1911.*

| Day. | Jan. | Feb. | Mar. | Day. | Jan. | Feb. | Mar. | Day. | Jan. | Feb. | Mar. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1..... | 44 | 44 | 44 | 11..... | 30 | 61 | 61 | 21..... | 52 | 44 | ..... |
| 2..... | 30 | 44 | 44 | 12..... | 30 | 90 | 44 | 22..... | 70 | 44 | ..... |
| 3..... | 30 | 44 | 44 | 13..... | 30 | 80 | 30 | 23..... | 70 | 44 | ..... |
| 4..... | 30 | 44 | 44 | 14..... | 30 | 61 | 24 | 24..... | 90 | 44 | ..... |
| 5..... | 30 | 44 | 44 | 15..... | 30 | 44 | ..... | 25..... | 90 | 44 | ..... |
| 6..... | 30 | 44 | 30 | 16..... | 30 | 44 | ..... | 26..... | 90 | 44 | ..... |
| 7..... | 30 | 44 | 30 | 17..... | 30 | 44 | ..... | 27..... | 80 | 30 | ..... |
| 8..... | 44 | 61 | 30 | 18..... | 30 | 44 | ..... | 28..... | 80 | 30 | ..... |
| 9..... | 37 | 61 | 44 | 19..... | 37 | 44 | ..... | 29..... | 80 | ..... | ..... |
| 10..... | 30 | 61 | 44 | 20..... | 52 | 44 | ..... | 30..... | 61 | ..... | ..... |
| | | | | | | | | 31..... | 61 | ..... | ..... |

NOTE.—These discharges have been determined from the open channel rating curve and supersede the estimates for the same period published in Water Supply Paper 310, p. 151. Recent data and information indicate that the control remained open during the above period, although ice was present at the gage.

*Daily discharge, in second-feet, of Deep Creek at Adel, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11 | 18 | 30 | 24 | 24 | 30 | 283 | 461 | 1,020 | 236 | 22 | 6 |
| 2 | 11 | 18 | 30 | 24 | 24 | 24 | 283 | 483 | 760 | 118 | 108 | 6 |
| 3 | 11 | 18 | 30 | 24 | 24 | 24 | 265 | 439 | 700 | 108 | 89 | 6 |
| 4 | 11 | 18 | 30 | 24 | 24 | 32 | 337 | 417 | 700 | 108 | 31 | 6 |
| 5 | 11 | 18 | 30 | 24 | 44 | 65 | 483 | 397 | 700 | 108 | 11 | 6 |
| 6 | 11 | 18 | 30 | 24 | 44 | 95 | 417 | 417 | 700 | 78 | 8 | 6 |
| 7 | 11 | 18 | 30 | 24 | 36 | 85 | 461 | 377 | 650 | 69 | 8 | 6 |
| 8 | 11 | 18 | 30 | 24 | 78 | 65 | 439 | 397 | 650 | 65 | 5 | 9 |
| 9 | 11 | 30 | 18 | 15 | 108 | 53 | 377 | 552 | 650 | 50 | 4 | 4 |
| 10 | 11 | 30 | 18 | 15 | 108 | 31 | 283 | 650 | 650 | 60 | 8 | 4 |
| 11 | 11 | 30 | 18 | 15 | 78 | 29 | 265 | 950 | 650 | 36 | 8 | 4 |
| 12 | 11 | 30 | 18 | 15 | 69 | 24 | 246 | 950 | 650 | 36 | 8 | 4 |
| 13 | 11 | 30 | 18 | 24 | 69 | 91 | 319 | 1,180 | 650 | 36 | 7 | 4 |
| 14 | 11 | 44 | 18 | 24 | 69 | 74 | 337 | 1,180 | 600 | 36 | 6 | 4 |
| 15 | 11 | 44 | 18 | 24 | 69 | 51 | 337 | 1,180 | 600 | 36 | 5 | 4 |
| 16 | 11 | 44 | 18 | 24 | 98 | 31 | 283 | 1,180 | 600 | 36 | 4 | 4 |
| 17 | 11 | 18 | 18 | 24 | 129 | 24 | 252 | 880 | 576 | 36 | 4 | 4 |
| 18 | 11 | 11 | 18 | 24 | 139 | 25 | 216 | 950 | 552 | 36 | 5 | 4 |
| 19 | 11 | 11 | 18 | 24 | 134 | 40 | 205 | 915 | 505 | 36 | 5 | 4 |
| 20 | 11 | 18 | 18 | 24 | 129 | 39 | 175 | 1,020 | 505 | 36 | 6 | 4 |
| 21 | 11 | 18 | 18 | 24 | 129 | 36 | 155 | 1,180 | 552 | 30 | 6 | 4 |
| 22 | 11 | 18 | 18 | 24 | 134 | 36 | 153 | 1,180 | 505 | 24 | 6 | 4 |
| 23 | 11 | 11 | 18 | 24 | 141 | 42 | 188 | 1,180 | 439 | 24 | 6 | 4 |
| 24 | 11 | 11 | 11 | 24 | 155 | 118 | 205 | 1,180 | 650 | 23 | 6 | 4 |
| 25 | 11 | 11 | 11 | 24 | 153 | 121 | 180 | 1,180 | 600 | 19 | 6 | 4 |
| 26 | 11 | 11 | 11 | 44 | 153 | 151 | 121 | 1,260 | 600 | 15 | 6 | 4 |
| 27 | 11 | 18 | 11 | 87 | 134 | 191 | 104 | 1,260 | 439 | 15 | 6 | 4 |
| 28 | 18 | 18 | 11 | 36 | 227 | 202 | 121 | 1,180 | 319 | 15 | 6 | 4 |
| 29 | 18 | 18 | 11 | 24 | 143 | 180 | 208 | 1,100 | 283 | 12 | 6 | 5 |
| 30 | 18 | 18 | 11 | 24 | ..... | 177 | 357 | 1,020 | 236 | 10 | 6 | 5 |
| 31 | 18 | ..... | 11 | 24 | ..... | 183 | ..... | 1,020 | ..... | 8 | 6 | ..... |

NOTE.—Discharge determined from rating curves well defined above 20 second-feet. The curves used for October to December, 1911, were revised slightly below gage height 5.5 feet and used for 1912.

*Monthly discharge of Deep Creek at Adel, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | 18 | 14 | 17.4 | 1,070 | B. |
| November | 99 | 18 | 42.1 | 2,510 | B. |
| December | 590 | 37 | 156 | 9,590 | B. |
| January | 90 | 30 | 48.0 | 2,950 | B. |
| February | 90 | 30 | 49.0 | 2,720 | B. |
| March | 1,260 | 24 | 298 | 18,300 | B. |
| April | 1,260 | 122 | 456 | 27,100 | B. |
| May | 810 | 244 | 445 | 27,400 | B. |
| June | 880 | 110 | 426 | 25,300 | B. |
| July | 99 | 11 | 55.1 | 3,390 | A. |
| August | 11 | 11 | 11.0 | 676 | D. |
| September | 18 | 11 | 11.6 | 690 | D. |
| The year | 1,260 | 11 | 168 | 122,000 | |
| 1911–12. | | | | | |
| October | 18 | 11 | 11.9 | 732 | D. |
| November | 44 | 11 | 21.2 | 1,260 | B. |
| December | 30 | 11 | 19.3 | 1,190 | D. |
| January | 87 | 15 | 25.9 | 1,590 | B. |
| February | 227 | 24 | 98.8 | 5,680 | C. |
| March | 202 | 24 | 76.4 | 4,700 | C. |
| April | 483 | 104 | 268 | 15,900 | A. |
| May | 1,260 | 377 | 894 | 55,000 | A. |
| June | 1,020 | 236 | 590 | 35,100 | A. |
| July | 236 | 8 | 50.2 | 3,090 | A. |
| August | 108 | 4 | 13.5 | 830 | B. |
| September | 9 | 4 | 4.7 | 280 | B. |
| The year | 1,260 | 4 | 173 | 125,000 | |

## CAMAS CREEK NEAR PLUSH, OREG.

**Location.**—In sec. 6, T. 39 S., R. 22 E., about half a mile above the mouth of Mud Creek, 20 miles east of Lakeview, and about 22 miles southeast of Plush.

**Records available.**—April 25, 1911, to August 31, 1912, when station was discontinued.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—In gravel and clay; shifting; banks soft; gradient moderate; valley open. At high stages a channel about one-fourth mile south of the gage carries considerable water.

**Discharge measurements.**—Made from a footbridge or by wading near gage.

**Winter flow.**—Ice present at times.

**Accuracy.**—Gage heights show large diurnal fluctuations during the spring and are affected by ice at times during the winter; high degree of accuracy is not possible.

**Cooperation.**—Station maintained in cooperation with the Warner Lake Irrigation Co.

*Discharge measurements of Camas Creek near Plush, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| May 11 | John Dubuis | 2.62 | 86.0 | Feb. 14 | W. O. Harmon | 2.02 | 18.2 |
| 18 | do | 2.77 | 89.8 | 22 | do | 2.60 | 22.5 |
| June 16 | do | 1.65 | 14.2 | Apr. 12 | do | 2.56 | 93.4 |
| July 26 | do | 1.00 | 1.1 | May 10 | do | 3.45 | 177.0 |
| Aug. 22 | R. W. Davenport | .92 | *a* .6 | 27 | Howard Kimble | 2.45 | 80.8 |
| Dec. 22 | W. O. Harmon | 1.49 | 18.5 | June 4 | John Dubuis | 2.09 | 56.6 |
| 1912. | | | | Aug. 25 | do | .85 | *a* 1.0 |
| Jan. 10 | do | 3.12 | 29.6 | | | | |
| 26 | do | 2.78 | 9.3 | | | | |

*a* Estimated.

NOTE.—Gage heights of measurements in 1912 are referred to a datum 1 foot lower than the datum used in 1911. Measurements between Jan. 10 and Feb. 22, 1912, were affected by ice.

*Daily gage height, in feet, of Camas Creek near Plush, Oreg., for year ending Sept. 30, 1912.*

[J. W. Nixon, observer.]

| Day. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | 2.58 | | | 2.30 | 2.15 | 2.50 | 1.32 | 0.85 |
| 2 | | | | 2.20 | 2.02 | 2.20 | 2.35 | 1.30 | .85 |
| 3 | | 2.65 | 2.40 | | 2.20 | 2.30 | 2.28 | 1.28 | 1.10 |
| 4 | | | | | 2.00 | 2.80 | 2.10 | 1.25 | .98 |
| 5 | | | | | 2.40 | 2.70 | 2.10 | 1.20 | .98 |
| 6 | | 2.65 | 2.40 | | 2.30 | 2.60 | 1.95 | 1.18 | .95 |
| 7 | | | | | 2.90 | 2.90 | 1.90 | 1.15 | .92 |
| 8 | | 2.65 | | | 3.00 | 3.60 | 1.88 | 1.10 | .90 |
| 9 | | | | 2.20 | 2.96 | 3.60 | 1.80 | 1.08 | .90 |
| 10 | | 3.11 | 2.90 | | 3.30 | 3.40 | 1.80 | 1.05 | .90 |
| 11 | | | | | 3.02 | 3.45 | 1.78 | 1.02 | .90 |
| 12 | | | | | 2.55 | 3.60 | 1.80 | 1.02 | .90 |
| 13 | | 3.30 | 2.50 | 2.28 | 2.22 | 3.55 | 1.90 | 1.02 | .90 |
| 14 | | | 2.02 | | 2.30 | 3.50 | 1.95 | .98 | .90 |
| 15 | | | | | 2.20 | 3.00 | 1.80 | .98 | .90 |
| 16 | | 3.30 | | 2.30 | 2.38 | 3.70 | 1.80 | .98 | .90 |
| 17 | | | 3.20 | | 2.10 | 3.60 | 1.65 | .98 | .90 |
| 18 | | | | | 2.22 | 3.80 | 1.58 | 1.00 | .90 |
| 19 | | | | 2.08 | 2.12 | 3.85 | 1.60 | 1.00 | .90 |
| 20 | | 3.30 | 3.10 | | 1.92 | 3.60 | 1.60 | .98 | .88 |
| 21 | | | | | 1.98 | 3.90 | 1.58 | .95 | .88 |
| 22 | | | 2.60 | | 2.00 | 3.40 | 1.62 | .92 | .85 |
| 23 | | 2.98 | | 2.32 | 2.05 | 3.00 | 1.52 | .90 | .85 |
| 24 | | | 2.80 | | 2.20 | 3.50 | 1.50 | .90 | .85 |
| 25 | 2.5 | | | | 2.25 | 2.95 | 1.50 | .90 | .85 |

*Daily gage height, in feet, of Camas Creek near Plush, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|
| 26 | | 2.78 | | | 2.15 | 2.80 | 1.48 | 0.90 | 0.85 |
| 27 | 2.5 | 2.80 | 2.55 | | 2.28 | 2.55 | 1.45 | .90 | .85 |
| 28 | | | | 2.12 | 2.10 | 2.60 | 1.40 | .90 | .85 |
| 29 | 2.5 | | | | 2.05 | 2.60 | 1.38 | .88 | .85 |
| 30 | | 2.55 | | | 2.10 | 2.95 | 1.35 | .88 | .85 |
| 31 | | | | 2.30 | | 2.50 | | .85 | .85 |

NOTE.—Gage heights for December have been corrected to datum used during 1912 by adding 1 foot. The relation of gage height to discharge affected by ice Dec. 25 to later part of March.

*Daily discharge, in second-feet, of Camas Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Day. | Apr. | May. | June. | Day. | Apr. | May. | June. | Day. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | 1911. | | | | 1911. | | | |
| 1 | | 194 | 68 | 11 | | 85 | 31 | 21 | | 68 | 9.5 |
| 2 | | 139 | 54 | 12 | | 77 | 23 | 22 | | 47 | 8 |
| 3 | | 182 | 40 | 13 | | 81 | 23 | 23 | | 61 | 8 |
| 4 | | 218 | 54 | 14 | | 77 | 20 | 24 | | 54 | 7 |
| 5 | | 194 | 47 | 15 | | 77 | 18 | 25 | | 50 | 6 |
| 6 | | 171 | 54 | 16 | | 93 | 18 | 26 | 230 | 40 | 6 |
| 7 | | 149 | 61 | 17 | | 85 | 16 | 27 | 242 | 61 | 6 |
| 8 | | 129 | 50 | 18 | | 93 | 14 | 28 | 218 | 64 | 6 |
| 9 | | 102 | 47 | 19 | | 68 | 12 | 29 | 194 | 68 | 6 |
| 10 | | 94 | 34 | 20 | | 61 | 11 | 30 | 171 | 61 | 6 |
| | | | | | | | | 31 | | 54 | |

NOTE.—Discharge determined from two curves fairly well defined and applicable Apr. 26 to May 17 and May 18 to June 30.

| Day. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|
| 1911–12. | | | | | | | | | |
| 1 | | 16 | | | 70 | 60 | 86 | 14 | 1.0 |
| 2 | | | | | 51 | 63 | 74 | 13 | 1.0 |
| 3 | | 15 | 6 | | 63 | 70 | 69 | 12 | 6.0 |
| 4 | | | | | 50 | 112 | 56 | 11 | 2.7 |
| 5 | | | | | 78 | 103 | 56 | 9 | 2.7 |
| 6 | | 11 | 6 | | 70 | 94 | 47 | 8.4 | 2.2 |
| 7 | | | | | 121 | 121 | 44 | 7.5 | 1.8 |
| 8 | | 11 | | | 130 | 193 | 43 | 6.0 | 1.5 |
| 9 | | | | | 126 | 193 | 38 | 5.4 | 1.5 |
| 10 | | 30 | 32 | | 160 | 171 | 38 | 4.5 | 1.5 |
| 11 | | | | | 132 | 176 | 37 | 3.6 | 1.5 |
| 12 | | | | | 90 | 193 | 38 | 3.6 | 1.5 |
| 13 | | 38 | 17 | | 64 | 188 | 44 | 3.6 | 1.5 |
| 14 | | | 18 | | 70 | 182 | 47 | 2.7 | 1.5 |
| 15 | | | | | 63 | 130 | 38 | 2.7 | 1.5 |
| 16 | | 38 | | | 76 | 204 | 38 | 2.7 | 1.5 |
| 17 | | | 19 | | 56 | 193 | 30 | 2.7 | 1.5 |
| 18 | | | | | 64 | 215 | 26 | 3.0 | 1.5 |
| 19 | | | | | 57 | 220 | 27 | 3.0 | 1.5 |
| 20 | | 32 | 21 | | 45 | 193 | 27 | 2.7 | 1.3 |
| 21 | | | | | 49 | 226 | 26 | 2.2 | 1.3 |
| 22 | | | 22 | | 50 | 171 | 28 | 1.8 | 1.0 |
| 23 | | 16 | | | 53 | 130 | 23 | 1.5 | 1.0 |
| 24 | | | 27 | | 63 | 182 | 22 | 1.5 | 1.0 |
| 25 | 18 | | | | 66 | 126 | 22 | 1.5 | 1.0 |
| 26 | | 8 | | 30 | 60 | 112 | 21 | 1.5 | 1.0 |
| 27 | 18 | 9 | 15 | 45 | 69 | 90 | 20 | 1.5 | 1.0 |
| 28 | | | | 57 | 56 | 94 | 17 | 1.5 | 1.0 |
| 29 | 18 | | | 61 | 53 | 94 | 16 | 1.3 | 1.0 |
| 30 | | 8 | | 66 | 56 | 126 | 15 | 1.3 | 1.0 |
| 31 | | | | 70 | | 86 | | 1.0 | 1.0 |

NOTE.—Discharge for period unaffected by ice determined from a well-defined rating curve. Daily discharge Dec. 25 to Mar. 27 estimated from discharge measurements, gage heights, and observer's notes. Mean discharge Mar. 1–25 estimated at 15 second-feet.

*Monthly discharge of Camas Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| May | 218 | 40 | 96.7 | 5,950 | C. |
| June | 68 | 6 | 25.4 | 1,510 | D. |
| 1912. | | | | | |
| January | | | 19.3 | 1,190 | D. |
| February | | | 18.3 | 1,050 | D. |
| March | | | 22.7 | 1,400 | D. |
| April | 160 | 45 | 73.7 | 4,390 | C. |
| May | 226 | 60 | 146 | 8,980 | B. |
| June | 86 | 15 | 37.1 | 2,210 | B. |
| July | 14 | 1.0 | 4.44 | 273 | C. |
| August | 6.0 | 1.0 | 1.55 | 95.3 | C. |
| The period | | | | 19,600 | |

## MUD CREEK NEAR PLUSH, OREG.

**Location.**—In sec. 32, T. 38 S., R. 22 E., just above the crossing of the road between Lakeview and Plush, about half a mile above the junction of Mud Creek with Camas Creek, and 22 miles from Plush.

**Records available.**—April 25, 1911, to August 31, 1912, when station was discontinued.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—Slightly shifting; bed composed of bowlders and gravel.

**Discharge measurements.**—Made from a footbridge or by wading.

**Winter flow.**—Gage heights may sometimes be affected by ice.

**Accuracy.**—Conditions are not favorable for accurate determination of discharge.

**Cooperation.**—Station maintained in cooperation with Warner Lake Irrigation Co.

*Discharge measurements of Mud Creek near Plush, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet* | *Sec.ft.* |
| Apr. 26 | Davenport and Dubuis. | 2.20 | 69.6 | Jan. 11 | W. O. Harmon | 0.68 | 6.1 |
| May 12 | John Dubuis | 2.02 | 86.8 | 26 | do | .77 | 6.4 |
| 19 | do | 1.55 | 43.7 | Feb. 13 | do | .70 | 5.8 |
| June 16 | do | 1.50 | 35.6 | [a]22 | do | .90 | 4.7 |
| July 26 | do | .80 | 6.8 | May 10 | do | 1.98 | 74.5 |
| Aug. 22 | R. W. Davenport | .72 | 3.8 | 27 | Howard Kimble | 1.95 | 80.6 |
| Dec. 24 | W. O. Harmon | .80 | 7.8 | June 4 | John Dubuis | 1.70 | 50.6 |
| | | | | Aug. 25 | do | .70 | 3.8 |

[a] Measurement discarded in drawing rating curve.

*Daily gage height, in feet, of Mud Creek near Plush, Oreg., for year ending Sept. 30, 1912.*

| Day. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 0.72 | ..... | ..... | 0.92 | 1.00 | 2.20 | 1.00 | 0.78 |
| 2 | ..... | .75 | ..... | 0.78 | .90 | 1.02 | 2.05 | 1.02 | .78 |
| 3 | ..... | ..... | 0.90 | ..... | .92 | 1.05 | 1.85 | 1.00 | .90 |
| 4 | ..... | ..... | ..... | ..... | .90 | 1.20 | 1.70 | 1.00 | .85 |
| 5 | ..... | .72 | ..... | ..... | .98 | 1.12 | 1.70 | 1.00 | .80 |
| 6 | ..... | ..... | .90 | ..... | .92 | 1.30 | 1.68 | 1.02 | .78 |
| 7 | ..... | ..... | ..... | ..... | 1.10 | 1.40 | 1.65 | 1.00 | .75 |
| 8 | ..... | .72 | ..... | ..... | 1.05 | 1.60 | 1.60 | .98 | .75 |
| 9 | ..... | .72 | ..... | .60 | 1.12 | 2.30 | 1.50 | .95 | .75 |
| 10 | ..... | ..... | .80 | ..... | 1.22 | 2.10 | 1.45 | .90 | .72 |
| 11 | ..... | .68 | ..... | ..... | 1.30 | 1.95 | 1.50 | .90 | .72 |
| 12 | ..... | ..... | ..... | ..... | 1.25 | 2.00 | 1.60 | .90 | .72 |
| 13 | ..... | .75 | .70 | .68 | 1.02 | 2.30 | 1.80 | .85 | .72 |
| 14 | ..... | ..... | .70 | ..... | 1.10 | 2.60 | 1.70 | .85 | .72 |
| 15 | ..... | ..... | ..... | ..... | 1.12 | 2.30 | 1.50 | .82 | .72 |
| 16 | ..... | .75 | ..... | .70 | 1.08 | 2.40 | 1.45 | .80 | .72 |
| 17 | ..... | ..... | .90 | ..... | 1.05 | 2.80 | 1.35 | .80 | .72 |
| 18 | ..... | ..... | ..... | ..... | 1.10 | 2.95 | 1.32 | .82 | .72 |
| 19 | ..... | ..... | ..... | .60 | 1.20 | 3.0 | 1.20 | .82 | .70 |
| 20 | ..... | .75 | .85 | ..... | 1.15 | 3.4 | 1.20 | .80 | .70 |
| 21 | ..... | ..... | ..... | ..... | 1.20 | 3.9 | 1.18 | .80 | .70 |
| 22 | ..... | ..... | .90 | ..... | 1.10 | 3.5 | 1.25 | .85 | .70 |
| 23 | ..... | .70 | ..... | .78 | 1.20 | 2.80 | 1.22 | .80 | .70 |
| 24 | 0.8 | ..... | .90 | ..... | 1.12 | 2.50 | 1.20 | .80 | .70 |
| 25 | .8 | ..... | ..... | ..... | 1.02 | 2.60 | 1.15 | .80 | .70 |
| 26 | ..... | .77 | ..... | ..... | 1.10 | 2.05 | 1.15 | .80 | .70 |
| 27 | .8 | .75 | .80 | ..... | 1.20 | 2.10 | 1.10 | .80 | .70 |
| 28 | ..... | ..... | ..... | .82 | 1.15 | 2.10 | 1.08 | .80 | .70 |
| 29 | .8 | ..... | ..... | ..... | 1.10 | 2.30 | 1.05 | .78 | .70 |
| 30 | ..... | .70 | ..... | ..... | 1.05 | 2.00 | 1.02 | .78 | .70 |
| 31 | .85 | ..... | ..... | .90 | ..... | 2.20 | ..... | .78 | .70 |

NOTE.—Ice existed in the stream during the winter, but relation of gage height to discharge was evidently unaffected thereby.

*Daily discharge, in second-feet, of Mud Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Day. | Apr. | May. | June. | Day. | Apr. | May. | June. | Day. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1911. | | | | 1911. | | | | 1911. | | | |
| 1 | ..... | 44 | 110 | 11 | ..... | 70 | 56 | 21 | ..... | 110 | 25 |
| 2 | ..... | 70 | 100 | 12 | ..... | 80 | 52 | 22 | ..... | 143 | 21 |
| 3 | ..... | 132 | 90 | 13 | ..... | 90 | 48 | 23 | ..... | 154 | 21 |
| 4 | ..... | 166 | 121 | 14 | ..... | 90 | 48 | 24 | ..... | 90 | 21 |
| 5 | ..... | 143 | 100 | 15 | ..... | 85 | 44 | 25 | ..... | 80 | 19 |
| 6 | ..... | 110 | 110 | 16 | ..... | 100 | 44 | 26 | 100 | 70 | 19 |
| 7 | ..... | 90 | 132 | 17 | ..... | 80 | 40 | 27 | 90 | 80 | 19 |
| 8 | ..... | 70 | 80 | 18 | ..... | 61 | 37 | 28 | 61 | 90 | 17 |
| 9 | ..... | 44 | 75 | 19 | ..... | 37 | 31 | 29 | 52 | 110 | 17 |
| 10 | ..... | 57 | 70 | 20 | ..... | 61 | 31 | 30 | 44 | 143 | 17 |
| | | | | | | | | 31 | ..... | 90 | ..... |

NOTE.—Discharge determined from a rating curve fairly well defined between 4 and 200 second-feet.

*Daily discharge, in second-feet, of Mud Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. |
|---|---|---|---|---|---|---|---|---|---|
| 1912. | | | | | | | | | |
| 1 | | 6.1 | | 7.8 | 12 | 15 | 100 | 13 | 5.9 |
| 2 | | 7.0 | | | 12 | 16 | 85 | 14 | 5.9 |
| 3 | | | 12 | | 12 | 17 | 66 | 13 | 9.6 |
| 4 | | | | | 12 | 23 | 52 | 13 | 8 |
| 5 | | 6.1 | | | 14 | 20 | 52 | 13 | 6.5 |
| 6 | | | 12 | | 12 | 28 | 50 | 14 | 5.9 |
| 7 | | | | | 19 | 34 | 48 | 13 | 5.0 |
| 8 | | 6.1 | | | 17 | 47 | 44 | 12 | 5.0 |
| 9 | | 6.1 | | 3.0 | 20 | 110 | 37 | 11 | 5.0 |
| 10 | | | 8.4 | | 24 | 90 | 34 | 9.6 | 4.2 |
| 11 | | 5.0 | | | 28 | 76 | 37 | 9.6 | 4.2 |
| 12 | | | | | 26 | 80 | 44 | 9.6 | 4.2 |
| 13 | | 7.0 | 5.5 | 5.0 | 16 | 110 | 61 | 8.0 | 4.2 |
| 14 | | | 5.5 | | 19 | 143 | 52 | 8.0 | 4.2 |
| 15 | | | | | 20 | 110 | 37 | 7.1 | 4.2 |
| 16 | | 7.0 | | 5.5 | 18 | 121 | 34 | 6.5 | 4.2 |
| 17 | | | 12 | | 17 | 166 | 28 | 6.5 | 4.2 |
| 18 | | | | | 19 | 184 | 26 | 7.1 | 4.2 |
| 19 | | | | 3.0 | 23 | 190 | 21 | 7.1 | 3.6 |
| 20 | | 7.0 | 10 | | 21 | 238 | 21 | 6.5 | 3.6 |
| 21 | | | | | 23 | 303 | 20 | 6.5 | 3.6 |
| 22 | | | 12 | | 19 | 251 | 23 | 8.0 | 3.6 |
| 23 | | 5.5 | | 7.8 | 23 | 166 | 22 | 6.5 | 3.6 |
| 24 | 8 | | 12 | | 20 | 132 | 21 | 6.5 | 3.6 |
| 25 | 8 | | | | 16 | 143 | 19 | 6.5 | 3.6 |
| 26 | | 7.5 | | | 19 | 85 | 19 | 6.5 | 3.6 |
| 27 | 8 | 7.0 | 8.4 | | 23 | 90 | 17 | 6.5 | 3.6 |
| 28 | | | | 9.0 | 21 | 90 | 16 | 6.5 | 3.6 |
| 29 | 8 | | | | 19 | 110 | 15 | 5.9 | 3.6 |
| 30 | | 5.5 | | | 17 | 80 | 14 | 5.9 | 3.6 |
| 31 | 10 | | | 12 | | 100 | | 5.9 | 3.6 |

NOTE.—Discharge determined from two rating curves fairly well defined between 4 and 200 second-feet.

*Monthly discharge of Mud Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1911. | | | | | |
| April 26–30 | 100 | 44 | 69.4 | 688 | C. |
| May | 166 | 44 | 91.6 | 5,630 | C. |
| June | 132 | 17 | 50.5 | 3,000 | B. |
| 1912. | | | | | |
| January | 7.5 | 5.0 | 6.38 | 392 | D. |
| February | 12 | 5.5 | 9.78 | 563 | D. |
| March | 12 | 3.0 | 6.64 | 408 | D. |
| April | 28 | 12 | 18.7 | 1,110 | B. |
| May | 303 | 15 | 109 | 6,700 | C. |
| June | 100 | 14 | 37.2 | 2,210 | B. |
| July | 14 | 5.9 | 8.80 | 541 | B. |
| August | 9.6 | 3.6 | 4.55 | 280 | B. |
| The period | | | | 12,200 | |

NOTE.—Means for January, February, and March are means of days for which gage readings were obtained.

## HONEY CREEK NEAR PLUSH, OREG.

**Location.**—In the SW. ¼ sec. 20, T. 36 S., R. 24 E., half a mile above the mouth of the canyon, 1½ miles northwest of Plush, and 1 mile above the wagon bridge near Plush; below all tributaries.

**Records available.**—May 13, 1909, to September 30, 1912.

**Drainage area.**—185 square miles. (Revised since report for 1911.)

**Gages.**—Automatic recording. The first gage was a vertical staff fastened to the wagon bridge, but as the gage heights were affected by backwater from a temporary diversion dam below the station a vertical staff gage, in two sections, was installed by the Warner Lake Irrigation Co. February 24, 1910, half a mile above the mouth of the canyon and 1 mile above the bridge. On March 10, 1911, the gage was reset on the opposite side of the river and the datum was lowered 1.0 foot. All 1910 and 1911 readings at this location were reduced to the new datum. The recording gage was installed January 13, 1912, near the gage set March 10, 1911. On March 29, 1912, the recording gage was reinstalled at a point about 50 feet below the staff gage.

**Channel.**—Bed composed of gravel; shifts slightly.

**Discharge measurements.**—At the original site measurements were made from the bridge; now made from cable near the gage; at times of extreme low water measurements are made by wading.

**Winter flow.**—Affected by ice.

**Diversions.**—A small amount of water is diverted near the head of the stream and used to irrigate a few hundred acres; with this exception the total run-off from the basin above the station is shown by the records.

**Accuracy.**—Conditions have proved unfavorable for accurate determination of flow and the results obtained are not wholly reliable.

**Cooperation.**—Station maintained in cooperation with the Warner Lake Irrigation Co.

*Discharge measurement of Honey Creek near Plush, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Jan. 13[a] | W. O. Harmon | 0.21 | 8.9 | Mar. 12 | W. O. Harmon | −0.17 | 5.6 |
| Feb. 1 | do | − .12 | 6.8 | 27 | do | .70 | 38.5 |
| Feb. 13 | do | − .12 | 6.8 | 28 | Chas. K. Fox | .48 | 33.5 |

[a] Affected by ice.

NOTE.—These measurements are referred to the staff gage.

*Daily gage height, in feet, of Honey Creek near Plush, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | −0.40 | | | | 0.24 | 1.16 | 1.59 | 0.40 | | −0.30 |
| 2 | | −0.30 | | | .53 | .98 | 1.52 | .39 | | |
| 3 | | | −0.20 | | .56 | 1.12 | 1.48 | .38 | | |
| 4 | − .35 | | | | .37 | 1.45 | 1.46 | .37 | 0.10 | |
| 5 | | − .30 | | | .30 | .91 | 1.37 | .37 | | |
| 6 | | | | | .31 | 1.14 | 1.37 | .36 | | − .32 |
| 7 | | | − .20 | | .53 | 1.40 | 1.38 | .36 | | |
| 8 | − .35 | | | | .73 | 1.71 | 1.40 | .38 | | − .10 |
| 9 | | − .25 | | | .94 | 1.90 | 1.35 | .37 | | |
| 10 | | | − .15 | | 1.12 | 2.13 | 1.26 | .35 | | |
| 11 | | | | | .76 | 2.01 | 1.08 | .34 | − .20 | |
| 12 | − .30 | − .20 | | | .58 | 2.00 | 1.00 | .32 | | |
| 13 | | | | | .42 | 2.09 | 1.21 | .30 | | |
| 14 | | | − .10 | | .39 | 2.20 | 1.29 | .30 | | |
| 15 | − .30 | | | | .33 | 2.23 | 1.06 | .30 | | − .25 |

*Daily gage height, in feet, of Honey Creek near Plush, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 16 | ..... | −0.20 | ..... | ..... | 0.36 | 2.26 | 0.95 | 0.30 | ..... | ..... |
| 17 | ..... | ..... | 0.70 | ..... | .40 | 2.12 | .85 | .30 | ..... | ..... |
| 18 | ..... | ..... | ..... | ..... | .38 | 2.05 | .72 | .32 | −0.35 | ..... |
| 19 | −0.30 | − .20 | ..... | ..... | .30 | 1.98 | .62 | .32 | ..... | ..... |
| 20 | ..... | ..... | ..... | ..... | .35 | 1.88 | .55 | .30 | ..... | ..... |
| 21 | ..... | ..... | 1.00 | ..... | .30 | 1.77 | .61 | .30 | ..... | ..... |
| 22 | − .35 | ..... | ..... | ..... | .18 | 1.57 | .81 | .30 | ..... | −0.35 |
| 23 | ..... | − .20 | ..... | ..... | .16 | 1.32 | .82 | .30 | ..... | ..... |
| 24 | ..... | ..... | .60 | ..... | .24 | 1.28 | .65 | .30 | ..... | ..... |
| 25 | ..... | ..... | ..... | ..... | .36 | 1.63 | .50 | .30 | − .40 | ..... |
| 26 | − .35 | − .20 | ..... | 0.50 | .40 | 1.64 | .40 | .30 | ..... | ..... |
| 27 | ..... | ..... | ..... | .63 | .48 | 1.62 | .39 | ..... | ..... | ..... |
| 28 | ..... | ..... | .60 | .48 | .52 | 1.56 | .39 | ..... | ..... | ..... |
| 29 | ..... | ..... | ..... | .23 | .70 | 1.74 | .40 | ..... | ..... | − .35 |
| 30 | − .30 | − .25 | ..... | .23 | 1.00 | 2.38 | .40 | ..... | ..... | ..... |
| 31 | ..... | ..... | .65 | .12 | ..... | 1.73 | ..... | ..... | ..... | ..... |

NOTE.—Gage heights for Oct. 1 to Dec. 31 and during August and September were read on the staff gage; Mar. 26 to July 26 readings were taken from an automatic gage at a different datum. Gage readings July 2 to 26 were affected by sand in the gage well and are of little value. Ice existed in the stream during the later part of December and in January.

*Daily discharge, in second-feet, of Honey Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1910–11. | | | | | | | | | | |
| 1 | 1.8 | 4.0 | 212 | ..... | 234 | 136 | 352 | 17 | 6 | 1.5 |
| 2 | 2.4 | 5.0 | 200 | ..... | 222 | 109 | 234 | 16 | 7 | 1.5 |
| 3 | 2.4 | 6.0 | 187 | ..... | 272 | 156 | 210 | 14 | 8 | 1.5 |
| 4 | 2.4 | 5.5 | 200 | ..... | 101 | 234 | 234 | 13 | 9 | 1.5 |
| 5 | 2.4 | 5.0 | 165 | ..... | 98 | 298 | 222 | 12 | 9 | 2 |
| 6 | 2.4 | 5.0 | 165 | ..... | 75 | 166 | 210 | 11 | 9 | 2 |
| 7 | 2.4 | 6.0 | 156 | ..... | 98 | 198 | 234 | 10 | 8 | 2 |
| 8 | 2.4 | 7.0 | 140 | ..... | 104 | 222 | 222 | 10 | 8 | 2 |
| 9 | 2.4 | 7.0 | 147 | ..... | 98 | 136 | 222 | 9 | 8 | 1.5 |
| 10 | 2.4 | 7.5 | 156 | ..... | 56 | 109 | 222 | 9 | 8 | 1.5 |
| 11 | 2.4 | 8.0 | 140 | ..... | 65 | 136 | 210 | 9 | 8 | 1.5 |
| 12 | 2.4 | 8.0 | 119 | ..... | 75 | 210 | 198 | 8 | 8 | 2 |
| 13 | 2.4 | 18 | 119 | 54 | 48 | 146 | 187 | 7 | 8 | 2 |
| 14 | 2.4 | 20 | 114 | 89 | 35 | 117 | 156 | 6 | 8 | 2 |
| 15 | 3.0 | 20 | 114 | 187 | 52 | 109 | 146 | 6 | 7 | 2 |
| 16 | 3.0 | 29 | 98 | 386 | 56 | 156 | 126 | 7 | 7 | 2.5 |
| 17 | 3.0 | 31 | 85 | 450 | 87 | 109 | 126 | 8 | 7 | 2.5 |
| 18 | 3.0 | 33 | 78 | 386 | 52 | 109 | 87 | 5 | 6 | 2.5 |
| 19 | 3.0 | 38 | 78 | 552 | 42 | 101 | 75 | 3 | 5 | 2.5 |
| 20 | 3.0 | 43 | 74 | 625 | 40 | 101 | 65 | .9 | 4 | 2.5 |
| 21 | 3.0 | 74 | 70 | 822 | 52 | 136 | 42 | 1.0 | 3 | 2.5 |
| 22 | 3.0 | 98 | 70 | 907 | 210 | 176 | 37 | 1.0 | 2.5 | 2 |
| 23 | 3.0 | 108 | 60 | 990 | 176 | 222 | 37 | 1.1 | 2.5 | 2 |
| 24 | 3.0 | 140 | 60 | 600 | 246 | 222 | 33 | 1.2 | 2 | 2 |
| 25 | 3.0 | 212 | 51 | 380 | 298 | 136 | 27 | 1.1 | 2 | 2 |
| 26 | 3.0 | 296 | 43 | 272 | 352 | 117 | 24 | 1.0 | 2 | 2 |
| 27 | 2.7 | 267 | 38 | 176 | 246 | 126 | 22 | .9 | 2 | 2 |
| 28 | 2.4 | 282 | 30 | 380 | 259 | 136 | 21 | .8 | 1 | 2 |
| 29 | 2.4 | 267 | 22 | 156 | 136 | 146 | 20 | 2.0 | 1 | 2 |
| 30 | 2.4 | 239 | 13 | 285 | 117 | 166 | 18 | 3.2 | 1 | 2 |
| 31 | 2.4 | ..... | 5 | 298 | ..... | 176 | ..... | 4.5 | 1 | ..... |
| 1911–12. | | | | | | | | | | |
| 1 | 1.8 | 3.0 | 4.3 | 6 | 23 | 72 | 112 | 28 | 13 | 7 |
| 2 | 2.0 | 3.0 | 4.7 | 6 | 33 | 59 | 104 | 26 | 15 | 7 |
| 3 | 2.2 | 3.0 | 5.0 | 6 | 34 | 69 | 100 | 25 | 17 | 7 |
| 4 | 2.4 | 3.0 | 5.0 | 6 | 27 | 97 | 98 | 24 | 19 | 7 |
| 5 | 2.4 | 3.0 | 5.0 | 6 | 25 | 54 | 89 | 23 | 18 | 7 |
| 6 | 2.4 | 3.2 | 5.0 | 6 | 25 | 70 | 89 | 22 | 17 | 7 |
| 7 | 2.4 | 3.5 | 5.0 | 6 | 33 | 92 | 90 | 21 | 16 | 10 |
| 8 | 2.4 | 3.8 | 5.3 | 6 | 43 | 129 | 92 | 20 | 14 | 13 |
| 9 | 2.6 | 4.0 | 5.6 | 6 | 56 | 171 | 88 | 19 | 13 | 12 |
| 10 | 2.7 | 4.3 | 6.0 | 6 | 69 | 253 | 80 | 18 | 12 | 12 |

*Daily discharge, in second-feet, of Honey Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 2.8 | 4.7 | 6.2 | 6 | 45 | 208 | 66 | 16 | 10 | 11 |
| 12 | 3.0 | 5.0 | 6.5 | 6 | 35 | 204 | 60 | 15 | 10 | 10 |
| 13 | 3.0 | 5.0 | 6.7 | 6 | 29 | 237 | 76 | 14 | 9 | 9 |
| 14 | 3.0 | 5.0 | 7.0 | 6 | 28 | 282 | 82 | 13 | 8 | 8 |
| 15 | 3.0 | 5.0 | 7.0 | 6 | 26 | 295 | 64 | 12 | 8 | 8 |
| 16 | 3.0 | 5.0 | 6.0 | 6 | 27 | 307 | 56 | 10 | 7 | 8 |
| 17 | 3.0 | 5.0 | ..... | 6 | 28 | 249 | 50 | 10 | 6 | 7 |
| 18 | 3.0 | 5.0 | ..... | 6 | 27 | 222 | 42 | 9 | 6 | 7 |
| 19 | 3.0 | 5.0 | ..... | 6 | 25 | 197 | 37 | 8 | 6 | 7 |
| 20 | 2.8 | 5.0 | ..... | 6 | 26 | 166 | 34 | 7 | 6 | 7 |
| 21 | 2.6 | 5.0 | ..... | 6 | 25 | 140 | 36 | 6 | 6 | 6 |
| 22 | 2.4 | 5.0 | ..... | 6 | 21 | 110 | 48 | 5 | 5 | 6 |
| 23 | 2.4 | 5.0 | ..... | 6 | 21 | 85 | 48 | 5 | 5 | 6 |
| 24 | 2.4 | 5.0 | ..... | 6 | 23 | 81 | 38 | 4 | 5 | 6 |
| 25 | 2.4 | 5.0 | ..... | 19 | 27 | 117 | 32 | 4 | 5 | 6 |
| 26 | 2.4 | 5.0 | ..... | 32 | 28 | 119 | 28 | 3 | 5 | 6 |
| 27 | 2.5 | 4.8 | ..... | 38 | 31 | 116 | 28 | 5 | 6 | 6 |
| 28 | 2.7 | 4.5 | ..... | 31 | 33 | 109 | 28 | 7 | 6 | 6 |
| 29 | 2.9 | 4.2 | ..... | 23 | 41 | 135 | 28 | 8 | 6 | 6 |
| 30 | 3.0 | 4.0 | ..... | 23 | 60 | 358 | 28 | 10 | 7 | 6 |
| 31 | 3.0 | ..... | ..... | 20 | ..... | 133 | ..... | 12 | 7 | ..... |

NOTE.—Daily discharge Oct. 1 to Dec. 31 and Mar. 13 to Sept. 30, 1911, determined from fairly well defined rating curves. Mean discharge estimated as follows: January, 7 second-feet; February, 4 second-feet; March 1–12, 25 second-feet. These estimates for Oct. 1, 1910, to Mar. 22, 1911, supersede those published in Water-Supply Papers 290 and 310.

Discharge for Oct. 1 to Dec. 16, 1912, determined from a fairly well defined rating curve. Mean discharge Dec. 17–31 estimated at 5 second-feet. Mean discharge for January and February estimated at 7 second-feet and Mar. 1–24 at 6 second-feet. Discharge for Mar. 26 to July 1 were determined from a curve for the automatic gage which was derived from the staff gage rating by means of a relation curve. The rating curve for the staff gage was used for August and September and the missing days supplied by interpolation.

*Monthly discharge of Honey Creek near Plush, Oreg., for years ending Sept. 30, 1911 and 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| 1910–11. | | | | | |
| October | 3.0 | 1.8 | 2.62 | 161 | B. |
| November | 296 | 4 | 76.3 | 4,540 | B. |
| December | 212 | 5 | 104 | 6,400 | B. |
| January | ..... | ..... | 7.0 | 430 | D. |
| February | ..... | ..... | 4.0 | 222 | D. |
| March | 990 | 25 | 268 | 16,500 | B. |
| April | 352 | 35 | 133 | 7,910 | B. |
| May | 298 | 101 | 155 | 9,530 | B. |
| June | 352 | 18 | 130 | 7,740 | C. |
| July | 17 | .8 | 6.41 | 394 | D. |
| August | 9 | 1.0 | 5.42 | 333 | D. |
| September | 2.5 | 1.5 | 1.98 | 118 | D. |
| The year | 990 | .8 | 74.9 | 54,300 | |
| 1911–12. | | | | | |
| October | 3.0 | 1.8 | 2.63 | 162 | D. |
| November | 5.0 | 3.0 | 4.37 | 260 | D. |
| December | 7.0 | 4.3 | 5.33 | 328 | D. |
| January | ..... | ..... | 7.0 | 430 | D. |
| February | ..... | ..... | 7.0 | 403 | D. |
| March | 38 | 6 | 10.6 | 652 | D. |
| April | 69 | 21 | 32.5 | 1,930 | D. |
| May | 358 | 59 | 159 | 9,780 | C. |
| June | 112 | 28 | 61.7 | 3,670 | C. |
| July | 28 | 3 | 13.2 | 812 | D. |
| August | 19 | 5 | 9.5 | 584 | D. |
| September | 13 | 6 | 7.7 | 458 | D. |
| The year | 358 | ..... | 26.8 | 19,500 | |

### CRUMP LAKE NEAR ADEL, OREG.

**Location.**—On the west shore of the lake, 8 miles north of Adel, in sec. 27, T. 38 S. R. 24 E., unsurveyed.

**Records available.**—May 21, 1910, to January 15, 1912.

**Gage.**—Vertical staff fastened to a large bowlder 50 feet east of the county road.

*Gage readings obtained during the year 1911–12.*

| Day. | Feet. | Day. | Feet. | Day. | Feet. |
|---|---|---|---|---|---|
| 1911. | | 1911. | | 1912. | |
| Oct. 1 | 1.15 | Oct. 29 | 1.05 | Jan. 1 | 1.5 |
| Oct. 8 | 1.15 | Nov. 15 | 1.2 | Jan. 15 | 1.7 |
| Oct. 15 | 1.1 | Dec. 1 | 1.4 | | |
| Oct. 22 | 1.1 | Dec. 15 | 1.5 | | |

### HART LAKE NEAR PLUSH, OREG.

**Location.**—On line between secs. 22 and 27, T. 36 S., R. 24 E., 2 miles northeast of Plush, and just north of the mouth of Honey Creek.

**Records available.**—June 8, 1910, to September 30, 1912.

**Gage.**—Vertical staff nailed to a post.

*Daily gage height, in feet, of Hart Lake near Plush, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.60 | 2.40 | 2.40 | 2.40 | 2.36 | 2.35 | 2.35 | | | 3.55 | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | 2.65 | | | | |
| 4 | | | | | | | | | 3.60 | | 3.25 | |
| 5 | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | |
| 8 | 2.55 | | | | | | | | | | | 3.00 |
| 9 | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | |
| 15 | 2.50 | 2.45 | 2.45 | 2.35 | 2.25 | 2.30 | 2.40 | | | 3.45 | | |
| 16 | | | | | | | | | | | | |
| 17 | | | | | | | | 3.25 | | | | |
| 18 | | | | | | | | | 3.80 | | 3.05 | |
| 19 | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | 2.95 |
| 23 | | | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | |

NOTE.—First ice period Nov. 15, 1911.

### FLAGSTAFF LAKE NEAR PLUSH, OREG.

**Location.**—In a slough at the south end of the lake, in sec. 5, T. 35 S., R. 25 E., 15 miles north of Plush.

**Records available.**—May 31 to June 30, 1910; April 30, 1911, to September 30, 1912.

**Gage.**—Vertical staff.

*Daily gage height, in feet, of Flagstaff Lake near Plush, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 1.75 | | | 1.60 | | 1.60 | | 1.30 | 1.20 | | 1.30 |
| 2 | | | | | | 1.60 | | 1.45 | | | 1.25 | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | 1.8 | | | | | | | | | | | |
| 6 | | | | | | | | | | | | |
| 7 | | | 1.7 | | | | | | | | | |
| 8 | | | | | | | | | | | | |
| 9 | | 1.75 | | | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | 1.85 | | | | | | | | | | | |
| 13 | | | | | | | | | | | | |
| 14 | | | 1.7 | | | | | | | | | |
| 15 | | | | | 1.60 | 1.60 | 1.55 | 1.30 | | | 1.25 | |
| 16 | | 1.75 | | | | | | | | 1.15 | | |
| 17 | | | | 1.60 | | | | | 1.40 | | | 1.30 |
| 18 | | | | | | | | | | | | |
| 19 | 1.85 | | | | | | | | | | | |
| 20 | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | |
| 23 | | 1.75 | | | | | | | | | | |
| 24 | | | | | | | | | | | | |
| 25 | | | | | | | | | | | | |
| 26 | 1.8 | | | | | | | | | | | |
| 27 | | | | | | | | | | | | |
| 28 | | | 1.65 | | | | | | | | | |
| 29 | | | | | | | | | | | | |
| 30 | | 1.7 | | | | | | | | | | |
| 31 | | | | | | | | | | | | |

## ABERT LAKE DRAINAGE BASIN.

### CHEWAUCAN RIVER AT DAM SITE NEAR PAISLEY, OREG.

**Location.**—At camp of Northwest Townsite Co., about one-fourth mile below reservoir dam site in the NW. ¼ sec. 10, T. 36 S., R. 18 E., about 20 miles above Paisley.

**Records available.**—June 25 to October 31, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on right bank.

**Channel.**—Permanent; rock riffle below gage.

**Discharge measurements.**—Made by wading.

**Winter flow.**—No data; probably much ice.

**Cooperation.**—Records of stage furnished by Northwest Townsite Co.

*Discharge measurements of Chewaucan River at dam site near Paisley, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| July 18 | Thomas Hawthorne | 2.70 | 61.1 |
| Aug. 6 | ....do | 2.54 | 41.5 |
| Nov. 7 | Howard Kimble | 2.59 | 51.2 |

*Daily gage height, in feet, and discharge, in second-feet, of Chewaucan River at dam site near Paisley, Oreg., for year ending Sept. 30, 1912.*

| Day. | June. | | July. | | August. | | September. | | October. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 3.1 | 104 | 2.5 | 43 | 2.6 | 51 | 2.5 | 43 |
| 2 | | | 3.1 | 104 | 2.6 | 51 | 2.6 | 51 | 2.5 | 43 |
| 3 | | | 3.1 | 104 | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 |
| 4 | | | 3.0 | 92 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 |
| 5 | | | 3.0 | 92 | 2.6 | 51 | 2.6 | 51 | 2.5 | 43 |
| 6 | | | 2.9 | 81 | 2.5 | 43 | 2.9 | 81 | 2.5 | 43 |
| 7 | | | 2.9 | 81 | 2.5 | 43 | 2.9 | 81 | 2.5 | 43 |
| 8 | | | 2.9 | 81 | 2.5 | 43 | 2.8 | 70 | 2.5 | 43 |
| 9 | | | 2.9 | 81 | 2.5 | 43 | 2.7 | 60 | 2.5 | 43 |
| 10 | | | 2.8 | 70 | 2.5 | 43 | 2.7 | 60 | 2.5 | 43 |
| 11 | | | 2.8 | 70 | 2.5 | 43 | 2.6 | 51 | 2.5 | 43 |
| 12 | | | 2.8 | 70 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 13 | | | 2.8 | 70 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 14 | | | 2.8 | 70 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 15 | | | 2.8 | 70 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 16 | | | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 17 | | | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 18 | | | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 19 | | | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 20 | | | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 21 | | | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.7 | 60 |
| 22 | | | 2.8 | 70 | 2.5 | 43 | 2.5 | 43 | 2.7 | 60 |
| 23 | | | 2.7 | 60 | 2.5 | 43 | 2.5 | 43 | 2.7 | 60 |
| 24 | | | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 25 | 3.3 | 134 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 26 | 3.2 | 118 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 27 | 3.2 | 118 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 28 | 3.2 | 118 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.5 | 43 |
| 29 | 3.2 | 118 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | 2.6 | 51 |
| 30 | 3.2 | 118 | 2.6 | 51 | 2.5 | 43 | 2.5 | 43 | | 51 |
| 31 | | | 2.5 | 43 | 2.6 | 51 | | | | 51 |

NOTE.—Discharge determined from a rating curve based on measurements made in 1912 and 1913 and well defined between 30 and 400 second-feet.

*Monthly discharge of Chewaucan River at dam site near Paisley, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| June 25–30 | 134 | 118 | 121 | 1,440 | A. |
| July | 104 | 43 | 68.1 | 4,190 | A. |
| August | 60 | 43 | 44.6 | 2,740 | A. |
| September | 81 | 43 | 48.6 | 2,890 | A. |
| October | 60 | 43 | 47.2 | 2,900 | A. |
| The period | | | | 14,200 | |

## CHEWAUCAN RIVER ABOVE CONN'S DITCH, NEAR PAISLEY, OREG.

**Location.**—Above intake of Conn's ditch, 2½ miles above Paisley, in the SW. ¼ sec. 27, T. 33 S., R. 18 E.

**Records available.**—April 3 to July 13, 1912.

**Drainage area.**—Not measured.

**Gage.**—Readings made by measuring down with a graduated stick from a reference point.

**Channel.**—Gravel and bowlders; fairly permanent.

**Discharge measurements.**—Made by wading or from the cable at Paisley; in the latter case discharge of Conn's ditch must be added to give total flow past gage.

**Winter flow.**—No records.

**Diversions.**—None above station; Conn's irrigation ditch takes water from the river between this station and the old one at Paisley.

**Accuracy.**—Results are poor, as gage readings are somewhat uncertain and those made after July 13 have been discarded altogether. The rating is based largely no comparative readings on the older (lower) gage, and is therefore subject to considerable error. The estimates at this point should be the same as those for the station at Paisley when Conn's ditch is not diverting.

*Discharge measurements of Chewaucan River above Conn's ditch, near Paisley, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Apr. 3 | Howard Kimble | 0.95 | 148 |
| May 6 | R. A. Harrower | [a] 1.20 | [b] 225 |
| June 3 | ....do | [a] 2.35 | [c] 720 |
| Nov. 6 | Howard Kimble | .74 | [d] 95.6 |

[a] Oberver's reading for the day.
[b] Computed from gage reading of 5 feet at Paisley.
[c] Computed from gage reading of 6.4 feet at Paisley.
[d] Measured above Mill Creek, discharge of which was negligible.

*Daily gage height, in feet, and discharge, in second-feet, of Chewaucan River above Conn's ditch, near Paisley, Oreg., for year ending Sept. 30, 1912.*

[James M. Bevel, observer.]

| Day. | April. | | May. | | June. | | July. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 1.30 | 260 | ..... | 750 | 1.10 | 195 |
| 2 | ..... | ..... | ..... | 266 | ..... | 750 | 1.05 | 180 |
| 3 | 0.95 | 150 | ..... | 272 | 2.4 | 750 | 1.05 | 180 |
| 4 | ..... | 136 | 1.35 | 278 | ..... | 750 | 1.00 | 165 |
| 5 | .85 | 122 | ..... | 252 | 2.4 | 750 | 1.00 | 165 |
| 6 | ..... | 144 | 1.20 | 225 | ..... | 700 | 1.00 | 165 |
| 7 | 1.00 | 165 | ..... | 300 | 2.2 | 650 | .88 | 130 |
| 8 | ..... | 230 | 1.6 | 375 | ..... | 634 | ..... | 120 |
| 9 | 1.40 | 295 | ..... | 440 | ..... | 617 | .80 | 110 |
| 10 | ..... | 252 | 1.9 | 505 | 2.1 | 600 | ..... | 110 |
| 11 | 1.15 | 210 | 1.9 | 505 | ..... | 575 | .80 | 110 |
| 12 | ..... | 235 | ..... | 505 | 2.0 | 550 | ..... | 108 |
| 13 | 1.30 | 260 | ..... | 505 | ..... | 575 | .78 | 105 |
| 14 | ..... | 198 | 1.9 | 505 | 2.1 | 600 | ..... | 88 |
| 15 | .90 | 135 | ..... | 550 | ..... | 458 | ..... | 71 |
| 16 | ..... | 180 | ..... | 600 | 1.45 | 315 | ..... | 70 |
| 17 | 1.20 | 225 | ..... | 650 | ..... | 305 | ..... | 70 |
| 18 | ..... | 168 | 2.3 | 700 | 1.40 | 295 | ..... | 69 |
| 19 | .80 | 110 | ..... | 725 | ..... | 315 | ..... | 68 |
| 20 | ..... | 110 | 2.4 | 750 | 1.50 | 335 | ..... | 68 |
| 21 | ..... | 110 | ..... | 650 | ..... | 298 | ..... | 67 |
| 22 | .80 | 110 | 2.0 | 550 | 1.30 | 260 | ..... | 66 |
| 23 | ..... | 126 | ..... | 505 | ..... | 228 | ..... | 65 |
| 24 | .92 | 141 | 1.8 | 460 | 1.10 | 195 | ..... | 64 |
| 25 | ..... | 124 | ..... | 530 | ..... | 195 | ..... | [a] 64 |
| 26 | ..... | 107 | ..... | 605 | 1.10 | 195 | ..... | 64 |
| 27 | .72 | 90 | ..... | 675 | ..... | 180 | ..... | 64 |
| 28 | ..... | 158 | 2.4 | 750 | 1.00 | 165 | ..... | 64 |
| 29 | 1.20 | 225 | ..... | 750 | 1.00 | 165 | ..... | 64 |
| 30 | ..... | 242 | 2.4 | 750 | ..... | 180 | ..... | 64 |
| 31 | ..... | ..... | ..... | 750 | ..... | ..... | ..... | 64 |

[a] Computed from measurement at Paisley by adding estimated discharge of Conn's ditch.

NOTE.—Discharge determined from a rating curve fairly well defined between 100 and 500 second-feet. Discharge estimated July 14 to 31 and interpolated for missing days between Apr. 3 and July 13.

*Monthly discharge of Chewaucan River above Conn's ditch, near Paisley, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 3–30 | 295 | 90 | 170 | 9,440 | B. |
| May | 750 | 225 | 521 | 32,000 | C. |
| June | 750 | 165 | 444 | 26,400 | C. |
| July | 195 | 64 | 98.6 | 6,060 | C. |
| August | | | 55.0 | 3,380 | D. |
| September | | | 59.0 | 3,510 | D. |
| The period | | | | 80,800 | |

NOTE.—Means for August and September were estimated by comparison with records for station and Chewaucan River at the dam site.

## CHEWAUCAN RIVER AT PAISLEY, OREG.

**Location.**—Half a mile above the town of Paisley, in the SE. ¼ sec. 23, T. 33 S., R. 18 E.

**Records available.**—January 4, 1905, to December 31, 1907; January 17, 1909, to April 15, 1912, when station was discontinued.

**Drainage area.**—272 square miles.

**Gage.**—Vertical staff.

**Channel.**—Probably permanent; bed composed of clean gravel; banks subject to some overflow at stages above gage height 8 feet.

**Discharge measurements.**—Made from cable 60 feet below gage, or by wading.

**Winter flow.**—Affected by ice.

**Diversions.**—The station is above all diversions except George Conn's irrigation ditch, which heads about 2½ miles above the gage on the left bank, and diverts water around the station. Conn's mill ditch diverts water from the left bank about 250 feet below the gage, where a low timber dam has been constructed. The current is fairly swift between the gage and the dam and practically no backwater was noticeable prior to 1910. During 1910 there was probably a little backwater. During the low water of 1911 flash boards were used on the dam, producing backwater at the gage. The Brattain ditch diverts water about 300 feet below the gage on the right bank; it follows the foothills for many miles down the river and supplies water for use in irrigating land immediately around Paisley and large areas of hay land in Chewaucan Marsh.

**Storage.**—It has been proposed to store the water of Chewaucan River at a point 20 miles upstream from Paisley to provide for the reclamation of a tract of 12,000 acres northeast of Paisley under the terms of the Carey Act. The development of this project, however, has been hindered by water-right claims of the owners of hay lands in Chewaucan Marsh. These lands have been flooded during the spring and winter to a depth of several feet, and as all the water is claimed for this flooding, development work can not proceed until water rights have been adjudicated.

*Discharge measurements of Chewaucan River at Paisley, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1912. | | *Feet.* | *Sec.-ft.* | 1913. | | *Feet.* | *Sec.-ft.* |
| Feb. 8 | W. O. Harmon | 4.06 | 73.6 | Apr. 22 | Howard Kimble | 5.60 | 411 |
| Apr. 3[a] | Howard Kimble | 4.65 | 148 | May 6 | R. A. Harrower | 6.05 | 551 |
| July 16 | Thomas Hawthorne | 4.05 | 46.6 | 7 | do | 6.32 | 678 |
| 25 | do | 3.96 | 39.2 | | | | |
| Nov. 6 | Howard Kimble | 4.81 | 95.6 | | | | |

[a] Measured 2 miles above gage. Probably some inflow between.

*Daily gage height, in feet, of Chewaucan River at Paisley, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. |
|---|---|---|---|---|---|---|---|
| 1 | 4.0 | 4.0 | 3.9 | 4.4 | 4.0 | 3.93 | 4.25 |
| 2 | 4.0 | 4.0 | 4.0 | 4.4 | 4.0 | 3.93 | 4.45 |
| 3 | 4.0 | 4.0 | 3.9 | 4.3 | 4.0 | 3.90 | 4.65 |
| 4 | 4.0 | 4.0 | 3.9 | 4.3 | 4.0 | 3.87 | 4.65 |
| 5 | 4.0 | ..... | 3.9 | 4.5 | 4.0 | 4.13 | 4.65 |
| 6 | 4.0 | 4.0 | ..... | 4.5 | 4.0 | 4.13 | 4.60 |
| 7 | 4.0 | 4.0 | 3.9 | 4.5 | 4.0 | 4.00 | 4.80 |
| 8 | 4.0 | 4.0 | 3.9 | 4.4 | 4.0 | 3.85 | 4.90 |
| 9 | 4.0 | 4.0 | 3.9 | 4.4 | 4.2 | 3.90 | 5.15 |
| 10 | 4.0 | 4.0 | 3.9 | 4.4 | 4.4 | 4.00 | 5.70 |
| 11 | 4.0 | 3.9 | 3.9 | 4.4 | 4.4 | 3.90 | 4.85 |
| 12 | 4.0 | 3.9 | 4.0 | 4.5 | 4.2 | 3.90 | 4.85 |
| 13 | 4.0 | 4.0 | 4.0 | 4.6 | 4.0 | 3.97 | 4.80 |
| 14 | ..... | 4.0 | 4.2 | 4.8 | 4.0 | 3.97 | 4.70 |
| 15 | 4.0 | 4.0 | 4.0 | ..... | 4.0 | 3.97 | 4.55 |
| 16 | 4.0 | 4.0 | 3.9 | 4.6 | 4.7 | 3.97 | ..... |
| 17 | 4.0 | 4.0 | 3.9 | 4.4 | 5.5 | 3.97 | ..... |
| 18 | 4.0 | 4.0 | 3.9 | 4.4 | 4.8 | 3.93 | ..... |
| 19 | 3.9 | ..... | 4.2 | 4.3 | 4.0 | 3.90 | ..... |
| 20 | 3.9 | 4.0 | 4.5 | 4.2 | 3.93 | 3.90 | ..... |
| 21 | 3.9 | 4.0 | 4.8 | 4.0 | 3.95 | 3.97 | ..... |
| 22 | 3.9 | 4.0 | 4.8 | 4.0 | 3.92 | 3.98 | ..... |
| 23 | 4.0 | 4.0 | 4.8 | 4.0 | 3.95 | 4.00 | ..... |
| 24 | 4.0 | 4.0 | 4.6 | 4.2 | 3.93 | 4.10 | ..... |
| 25 | 4.0 | 4.0 | 4.5 | 4.4 | 3.90 | 4.45 | ..... |
| 26 | 4.0 | 3.9 | 4.5 | 4.6 | 3.93 | 4.23 | ..... |
| 27 | 4.1 | 3.9 | 4.5 | 4.3 | 3.93 | 4.30 | ..... |
| 28 | 4.0 | 3.9 | 4.5 | 4.1 | 3.95 | 4.20 | ..... |
| 29 | 4.0 | 3.9 | 4.5 | 4.0 | 3.93 | 4.25 | ..... |
| 30 | 4.0 | 3.9 | 4.4 | 4.0 | ..... | 4.15 | ..... |
| 31 | 4.0 | ..... | 4.4 | 4.0 | ..... | ..... | ..... |

NOTE.—Affected by ice from about Dec. 14 to Jan. 20. Oct. 1 to Nov. 10 affected by backwater from temporary flashboards placed on dam below.

*Daily discharge, in second-feet, of Chewaucan River at Paisley, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. |
|---|---|---|---|---|---|---|---|
| 1 | 44 | 44 | 54 | 40 | 56 | 49 | 87 |
| 2 | 44 | 44 | 65 | 40 | 56 | 49 | 116 |
| 3 | 44 | 44 | 54 | 40 | 56 | 46 | 151 |
| 4 | 44 | 44 | 54 | 40 | 56 | 43 | 151 |
| 5 | 44 | 44 | 54 | 40 | 56 | 72 | 151 |
| 6 | 44 | 44 | 54 | 40 | 56 | 72 | 142 |
| 7 | 44 | 44 | 54 | 40 | 56 | 56 | 180 |
| 8 | 44 | 44 | 54 | 40 | 56 | 42 | 202 |
| 9 | 44 | 44 | 54 | 40 | 80 | 46 | 262 |
| 10 | 44 | 44 | 54 | 40 | 108 | 56 | 425 |
| 11 | 44 | 54 | 54 | 40 | 108 | 46 | 191 |
| 12 | 44 | 54 | 65 | 46 | 80 | 46 | 191 |
| 13 | 44 | 65 | 65 | 56 | 56 | 53 | 180 |
| 14 | 44 | 65 | ..... | 80 | 56 | 53 | 160 |
| 15 | 44 | 65 | ..... | 80 | 56 | 53 | 133 |
| 16 | 44 | 65 | ..... | 80 | 160 | 53 | ..... |
| 17 | 44 | 65 | ..... | 68 | 360 | 53 | ..... |
| 18 | 44 | 65 | ..... | 80 | 180 | 49 | ..... |
| 19 | 35 | 65 | ..... | 80 | 56 | 46 | ..... |
| 20 | 35 | 65 | ..... | 68 | 49 | 46 | ..... |
| 21 | 35 | 65 | ..... | 56 | 51 | 46 | ..... |
| 22 | 35 | 65 | ..... | 56 | 48 | 53 | ..... |
| 23 | 44 | 65 | ..... | 56 | 51 | 54 | ..... |
| 24 | 44 | 65 | ..... | 80 | 49 | 56 | ..... |
| 25 | 44 | 65 | ..... | 108 | 46 | 68 | ..... |
| 26 | 44 | 54 | ..... | 142 | 49 | 116 | ..... |
| 27 | 54 | 54 | ..... | 94 | 49 | 84 | ..... |
| 28 | 44 | 54 | ..... | 68 | 51 | 94 | ..... |
| 29 | 44 | 54 | ..... | 56 | 49 | 80 | ..... |
| 30 | 44 | 54 | ..... | 56 | ..... | 87 | ..... |
| 31 | 44 | ..... | ..... | 56 | ..... | 74 | ..... |

NOTE.—Discharge determined from two fairly well defined curves applicable Oct. 1 to Dec. 31, 1911, and Jan. 1 to Apr. 15, 1912. Mean discharge Dec. 14 to 31 estimated at 40 second-feet. Discharge Oct. 1 to Nov. 10 reduced to allow for probable backwater effect from diversion dam below.

*Monthly discharge of Chewaucan River at Paisley, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 54 | 35 | 43.2 | 2,660 | D. |
| November | 65 | 44 | 55.4 | 3,300 | C. |
| December | ..... | ..... | 47.0 | 2,890 | D. |
| January | 142 | 40 | 61.5 | 3,780 | D. |
| February | 360 | 46 | 77.2 | 4,440 | B. |
| March | 116 | 42 | 59.4 | 3,650 | B. |
| April 1-15 | 425 | 87 | 181 | 5,380 | B. |
| The period | ..... | ..... | ..... | 26,100 | |

## CROOKED CREEK NEAR VALLEY FALLS, OREG.

**Location.**—Just above highway bridge over Crooked Creek on road from Lakeview to Valley Falls, in sec. 30, T. 36 S., R. 21 E., about 7 miles south of Valley Falls.

**Records available.**—April 2 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on right bank, 50 feet above wagon bridge.

**Channel.**—Probably permanent; in pool with rocky riffle below.

**Discharge measurements.**—From bridge or by wading.

**Winter flow.**—Stream freezes almost solid in extremely cold weather and discharge becomes very small.

**Diversions.**—Probably none above station.

**Storage.**—There is a feasible reservoir site a few miles above the station in Antelope Valley.

**Accuracy.**—No rating.

**Cooperation.**—Station maintained in cooperation with Lakeview Irrigation & Power Co.

*Discharge measurements of Crooked Creek near Valley Falls, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Apr. 2 | Howard Kimble | 0.72 | 16.2 |
| July 29 | Thomas Hawthorne | .41 | 2.9 |

*Daily gage height, in feet, of Crooked Creek near Valley Falls, Oreg., for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | July. | Aug. | Sept. | Day. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 1.40 | 1.10 | 0.50 | 0.45 | ..... | 16 | 0.70 | 1.10 | ..... | 0.50 | 0.38 | 0.38 |
| 2 | 0.72 | .90 | ..... | .50 | .45 | 0.35 | 17 | .72 | 1.00 | 1.20 | .50 | .38 | .38 |
| 3 | ..... | .80 | 1.00 | .50 | .55 | .38 | 18 | .75 | 1.20 | 1.30 | .50 | ..... | .38 |
| 4 | .75 | .80 | 1.10 | .50 | ..... | .38 | 19 | .70 | ..... | .90 | .50 | .38 | .38 |
| 5 | .78 | ..... | 1.10 | .50 | .48 | .38 | 20 | .70 | 1.10 | .90 | .50 | .38 | .38 |
| 6 | .60 | .90 | 1.15 | .50 | .45 | .38 | 21 | ..... | 1.20 | 1.10 | ..... | .38 | .38 |
| 7 | ..... | .90 | 1.20 | ..... | .45 | .48 | 22 | .60 | 1.30 | 1.00 | .50 | .38 | ..... |
| 8 | .75 | .88 | 1.40 | .50 | .42 | ..... | 23 | .70 | 1.20 | ..... | .48 | .38 | .40 |
| 9 | .80 | .90 | ..... | .50 | .42 | .42 | 24 | .52 | 1.00 | .70 | .48 | .38 | .40 |
| 10 | .98 | .92 | 1.00 | .50 | .42 | .40 | 25 | .68 | 1.10 | .70 | .48 | ..... | .40 |
| 11 | .95 | .95 | .80 | .50 | ..... | .40 | 26 | .70 | ..... | .75 | .48 | .35 | .38 |
| 12 | .80 | ..... | .80 | .50 | .40 | .40 | 27 | .70 | 1.00 | .80 | .48 | .35 | .38 |
| 13 | .72 | .98 | .90 | .50 | .40 | .40 | 28 | ..... | 1.00 | .65 | ..... | .35 | .35 |
| 14 | ..... | 1.00 | 1.00 | ..... | .40 | .40 | 29 | .90 | 1.30 | .60 | .45 | .35 | ..... |
| 15 | .70 | 1.00 | 1.10 | .50 | .38 | ..... | 30 | .90 | 1.30 | ..... | .45 | .35 | .35 |
| | | | | | | | 31 | ..... | 1.20 | ..... | .45 | .35 | ..... |

## SILVER LAKE DRAINAGE BASIN.

### SILVER CREEK NEAR SILVER LAKE, OREG.

**Location.**—In sec. 28, T. 28 S., R. 14 E., 1½ miles southwest of Silver Lake post office.

**Records available.**—December 29, 1904, to March 31, 1907; January 11, 1909, to September 30, 1912.

**Drainage area.**—221 square miles.

**Gage.**—Originally inclined staff on the right bank. In April, 1910, the gage was found to have been raised from the true position and some of the gage readings in 1909 are, therefore, subject to error. On April 5, 1912, the lower end of the inclined gage was replaced by a vertical staff at original datum.

**Channel.**—Fairly permanent; bed composed of rocks and gravel.

**Discharge measurements.**—Made from a cable near the gage or by wading.

**Storage.**—As the normal summer flow of nearly all the streams in this region is appropriated for present irrigation requirements, any additional development will require storage. Several fairly good sites are available on Silver Creek above areas of agricultural land that could easily be irrigated from stored waters.

**Accuracy.**—Conditions favorable for good results. Records believed to be reliable.

*Discharge measurements of Silver Creek near Silver Lake, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| Feb. 6 | W. O. Harmon | 0.83 | 23.3 |
| Apr. 5 | Howard Kimble | 1.48 | 58.1 |
| Nov. 12 | ....do | .74 | 16.1 |

*Daily gage height, in feet, of Silver Creek near Silver Lake, Oreg., for year ending Sept. 30, 1912.*

[Jas. H. Gowdy, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.95 | 0.82 | 0.82 | 1.00 | 0.82 | 0.82 | 1.30 | 2.15 | 2.10 | 1.00 | 0.70 | 0.70 |
| 2 | .95 | .82 | .82 | 1.10 | .82 | .82 | 1.65 | 2.15 | 1.90 | 1.00 | .70 | .70 |
| 3 | .95 | .82 | .82 | 1.10 | .82 | .82 | 1.50 | 2.35 | 1.70 | .90 | .70 | .70 |
| 4 | .90 | .82 | .82 | .95 | .90 | .77 | 1.45 | 2.40 | 1.60 | .90 | .70 | .70 |
| 5 | .90 | .82 | .82 | 1.00 | .90 | .82 | 1.48 | 2.5 | 1.50 | .90 | .70 | .75 |
| 6 | .90 | .82 | .82 | 1.00 | 1.50 | .82 | 1.75 | 2.6 | 1.50 | .90 | .70 | .72 |
| 7 | .90 | .82 | .82 | 1.00 | 1.20 | .77 | 2.20 | 2.8 | 1.45 | .90 | .70 | .70 |
| 8 | .90 | .82 | .82 | 1.00 | 1.20 | .77 | 2.30 | 2.9 | 1.30 | .90 | .70 | .72 |
| 9 | .90 | .82 | .82 | 1.00 | 1.40 | .77 | 2.8 | 3.0 | 1.20 | .90 | .70 | .70 |
| 10 | .90 | .82 | .82 | .90 | 1.30 | .77 | 2.40 | 3.3 | 1.20 | .90 | .70 | .70 |
| 11 | .90 | .82 | .82 | 1.00 | 1.00 | .82 | 2.35 | 3.3 | 1.20 | .90 | .70 | .70 |
| 12 | .90 | .82 | .82 | 1.10 | .95 | .82 | 1.80 | 3.3 | 1.20 | .90 | .70 | .70 |
| 13 | .90 | .82 | .82 | 1.10 | .90 | .77 | 1.55 | 3.4 | 1.20 | .85 | .70 | .70 |
| 14 | .90 | .82 | .82 | 1.05 | 1.15 | .77 | 1.55 | 3.6 | 1.15 | .85 | .70 | .70 |
| 15 | .90 | .86 | .86 | 1.00 | 1.20 | .82 | 1.50 | 3.8 | 1.15 | .85 | .70 | .70 |
| 16 | .90 | .86 | .86 | .90 | 1.80 | .82 | 1.40 | 3.8 | 1.10 | .80 | .70 | .70 |
| 17 | .86 | .90 | .86 | .90 | 2.15 | .77 | 1.30 | 3.8 | 1.10 | .80 | .70 | .70 |
| 18 | .86 | .90 | .86 | .90 | 2.25 | .77 | 1.35 | 3.8 | 1.05 | .80 | .70 | .70 |
| 19 | .86 | .90 | .90 | .90 | 1.70 | .74 | 1.40 | 3.6 | 1.05 | .80 | .70 | .70 |
| 20 | .82 | .90 | .90 | .90 | 1.25 | .77 | 1.35 | 3.2 | 1.00 | .80 | .70 | .70 |
| 21 | .82 | .90 | .90 | .86 | .90 | .82 | 1.20 | 3.1 | .98 | .80 | .70 | .70 |
| 22 | .82 | .90 | .90 | .82 | .86 | .84 | 1.20 | 2.8 | .98 | .80 | .70 | .70 |
| 23 | .82 | .90 | .90 | .72 | .82 | .86 | 1.25 | 2.20 | .95 | .80 | .70 | .70 |
| 24 | .82 | .90 | .90 | 1.00 | 1.15 | 1.00 | 1.30 | 2.40 | .95 | .75 | .70 | .70 |
| 25 | .82 | .90 | .90 | 2.45 | 1.00 | 1.15 | 1.35 | 2.5 | .95 | .75 | .70 | .70 |
| 26 | .82 | .90 | .90 | 2.35 | .95 | 1.10 | 1.40 | 2.5 | .95 | .75 | .70 | .70 |
| 27 | .82 | .86 | .90 | 2.15 | .95 | 1.35 | 1.35 | 2.5 | 1.00 | .70 | .70 | .70 |
| 28 | .82 | .86 | .90 | 1.20 | .90 | 1.30 | 1.40 | 2.40 | 1.00 | .65 | .70 | .68 |
| 29 | .82 | .86 | .90 | .90 | .90 | 1.32 | 1.55 | 2.35 | 1.00 | .65 | .70 | .70 |
| 30 | .82 | .82 | .90 | .82 | ..... | 1.30 | 1.50 | 2.30 | 1.00 | .70 | .70 | .68 |
| 31 | .82 | ..... | .95 | .82 | ..... | 1.35 | ..... | 2.10 | ..... | .70 | .70 | ..... |

NOTE.—Ice at station from about Nov. 27 to Jan. 23.

*Daily discharge, in second-feet, of Silver Creek near Silver Lake, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 26 | 20 | 20 | 19 | 20 | 20 | 48 | 122 | 117 | 29 | 15 | 15 |
| 2 | 26 | 20 | 20 | 24 | 20 | 20 | 76 | 122 | 98 | 29 | 15 | 15 |
| 3 | 26 | 20 | 20 | 24 | 20 | 20 | 64 | 142 | 80 | 24 | 15 | 15 |
| 4 | 24 | 20 | 20 | 17 | 24 | 18 | 60 | 147 | 72 | 24 | 15 | 15 |
| 5 | 24 | 20 | 20 | 19 | 24 | 20 | 62 | 157 | 64 | 24 | 15 | 17 |
| 6 | 24 | 20 | 20 | 19 | 64 | 20 | 84 | 167 | 64 | 24 | 15 | 16 |
| 7 | 24 | 20 | 20 | 19 | 41 | 18 | 127 | 188 | 60 | 24 | 15 | 15 |
| 8 | 24 | 20 | 20 | 19 | 41 | 18 | 137 | 199 | 48 | 24 | 15 | 16 |
| 9 | 24 | 20 | 20 | 19 | 56 | 18 | 188 | 210 | 41 | 24 | 15 | 15 |
| 10 | 24 | 20 | 20 | 15 | 48 | 18 | 147 | 245 | 41 | 24 | 15 | 15 |
| 11 | 24 | 20 | 20 | 19 | 29 | 20 | 142 | 245 | 41 | 24 | 15 | 15 |
| 12 | 24 | 20 | 20 | 24 | 26 | 20 | 89 | 245 | 41 | 24 | 15 | 15 |
| 13 | 24 | 20 | 20 | 24 | 24 | 18 | 68 | 257 | 41 | 22 | 15 | 15 |
| 14 | 24 | 20 | 20 | 22 | 38 | 18 | 68 | 282 | 38 | 22 | 15 | 15 |
| 15 | 24 | 22 | ..... | 19 | 41 | 20 | 64 | 309 | 38 | 22 | 15 | 15 |
| 16 | 24 | 22 | ..... | 19 | 89 | 20 | 56 | 309 | 35 | 19 | 15 | 15 |
| 17 | 22 | 24 | ..... | 19 | 122 | 18 | 48 | 309 | 35 | 19 | 15 | 15 |
| 18 | 22 | 24 | ..... | 19 | 132 | 18 | 52 | 309 | 32 | 19 | 15 | 15 |
| 19 | 22 | 24 | ..... | 19 | 80 | 17 | 56 | 282 | 32 | 19 | 15 | 15 |
| 20 | 22 | 24 | ..... | 19 | 44 | 18 | 52 | 233 | 29 | 19 | 15 | 15 |
| 21 | 20 | 24 | ..... | 20 | 24 | 20 | 41 | 221 | 28 | 19 | 15 | 15 |
| 22 | 20 | 24 | ..... | 18 | 22 | 21 | 41 | 188 | 28 | 19 | 15 | 15 |
| 23 | 20 | 24 | ..... | 16 | 20 | 22 | 44 | 127 | 26 | 19 | 15 | 15 |
| 24 | 20 | 24 | ..... | 29 | 38 | 29 | 48 | 147 | 26 | 17 | 15 | 15 |
| 25 | 20 | 24 | ..... | 152 | 29 | 38 | 52 | 157 | 26 | 17 | 15 | 15 |
| 26 | 20 | 24 | ..... | 142 | 26 | 35 | 56 | 157 | 26 | 17 | 15 | 15 |
| 27 | 20 | 22 | ..... | 122 | 26 | 52 | 52 | 157 | 29 | 15 | 15 | 15 |
| 28 | 20 | 22 | ..... | 41 | 24 | 48 | 56 | 147 | 29 | 13 | 15 | 14 |
| 29 | 20 | 22 | ..... | 24 | 24 | 50 | 68 | 142 | 29 | 13 | 15 | 15 |
| 30 | 20 | 20 | ..... | 20 | ..... | 48 | 64 | 137 | 29 | 15 | 15 | 14 |
| 31 | 20 | ..... | ..... | 20 | ..... | 52 | ..... | 117 | ..... | 15 | 15 | ..... |

NOTE.—Discharge determined from a fairly well defined rating curve. Mean discharge Dec. 15–31 estimated at 16 second-feet. Discharge assumed unaffected by ice Nov. 27 to Dec. 14. Correction made for ice effect Jan. 1–22 before applying rating curve.

*Monthly discharge of Silver Creek near Silver Lake, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 221 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 26 | 20 | 22.5 | 0.102 | 0.12 | 1,380 | C. |
| November | 24 | 20 | 21.7 | .098 | .11 | 1,290 | C. |
| December | ..... | ..... | 17.8 | .080 | .09 | 1,090 | C. |
| January | 152 | 15 | 32.3 | .146 | .17 | 1,990 | C. |
| February | 132 | 20 | 41.9 | .190 | .20 | 2,410 | B. |
| March | 52 | 17 | 25.5 | .115 | .13 | 1,570 | B. |
| April | 188 | 41 | 73.7 | .333 | .37 | 4,390 | B. |
| May | 309 | 117 | 199 | .900 | 1.04 | 12,200 | B. |
| June | 117 | 26 | 44.1 | .200 | .22 | 2,620 | B. |
| July | 29 | 13 | 20.6 | .093 | .11 | 1,270 | B. |
| August | 15 | 15 | 15.0 | .068 | .08 | 922 | B. |
| September | 17 | 14 | 15.1 | .068 | .08 | 898 | B. |
| The year | 309 | ..... | 44.2 | .200 | 2.72 | 32,000 | |

## BRIDGE CREEK NEAR SILVER LAKE, OREG.

**Location.**—In the NE. ¼ sec. 30, T. 28 S., R. 14 E., 2½ miles west of Silver Lake, Oreg.

**Records available.**—June 3 to September 30, 1912; January 21, 1905, to July 21, 1906; and September 24, 1910, to September 2, 1911, records were obtained at the county bridge in SW. ¼ sec. 20, about half a mile downstream.

**Drainage area.**—45 square miles at old site. Not measured for new site.

**Gage.**—Vertical staff. The gages used at the county bridge were referred to the same datum.

**Channel.**—Shifting at old site. Character not known at new site.

**Discharge measurements.**—Made by wading.

**Diversions.**—Practically the entire flow is diverted above the station during the summer months.

**Accuracy.**—Rating curve not yet developed.

*Discharge measurements of Bridge Creek near Silver Lake, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | | Discharge. |
|---|---|---|---|---|
| | | Old gage. | New gage. | |
| | | *Feet.* | *Feet.* | *Sec.-ft.* |
| Feb. 6[a] | W. O. Harmon | 2.06 | ..... | 1.64 |
| Apr. 5 | Howard Kimble | 1.70 | 0.92 | 2.12 |
| Nov. 12 | .....do..... | 1.67 | .81 | 1.25 |

[a] Affected by ice.

*Daily gage height, in feet, of Bridge Creek near Silver Lake, Oreg., for year ending Sept. 30, 1912.*

| Day. | June. | July. | Aug. | Sept. | Day. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 2.2 | ..... | ..... | 16 | ..... | ..... | 0.3 | 1.0 |
| 2 | ..... | ..... | 0.2 | 0.06 | 17 | 2.7 | 1.5 | ..... | ..... |
| 3 | 3.0 | 2.2 | ..... | ..... | 18 | ..... | ..... | ..... | 1.0 |
| 4 | 3.0 | ..... | ..... | .7 | 19 | 2.5 | 1.5 | .4 | ..... |
| 5 | ..... | 2.0 | .2 | ..... | 20 | ..... | ..... | ..... | 1.0 |
| 6 | 3.1 | ..... | ..... | .8 | 21 | 2.5 | ..... | .5 | ..... |
| 7 | ..... | ..... | .2 | ..... | 22 | ..... | .3 | ..... | ..... |
| 8 | ..... | 1.9 | ..... | ..... | 23 | ..... | ..... | .4 | 1.0 |
| 9 | ..... | ..... | .3 | .9 | 24 | 2.6 | .3 | ..... | ..... |
| 10 | 3.3 | 1.8 | ..... | ..... | 25 | ..... | ..... | ..... | 1.0 |
| 11 | 3.0 | ..... | ..... | 1.0 | 26 | 2.3 | .4 | .5 | ..... |
| 12 | ..... | 1.6 | .3 | ..... | 27 | ..... | ..... | ..... | .8 |
| 13 | 3.0 | ..... | ..... | 1.0 | 28 | 2.3 | ..... | .5 | ..... |
| 14 | ..... | ..... | .3 | ..... | 29 | ..... | .3 | ..... | ..... |
| 15 | ..... | 1.5 | ..... | ..... | 30 | ..... | .2 | .5 | .8 |
| | | | | | 31 | ..... | .2 | ..... | ..... |

## MALHEUR AND HARNEY LAKES DRAINAGE BASIN.

### MALHEUR LAKE AT NARROWS, OREG.

**Location.**—In sec. 26, T. 26 S., R. 31 E., at the highway bridge across the channel connecting Malheur and Harney lakes, a few hundred feet north of Narrows.

**Records available.**—March 14, 1903, to July 21, 1903; March 22, 1911, to June 29, 1912.

**Gage.**—Vertical staff on highway bridge. The datum of this gage was 8.20 feet when installed in 1903, referred to a bench mark at the east end of the bridge, elevation 4,088 feet. On March 9, 1912, the datum was found to be 9.14 feet below the same bench mark. It is not known when or in what manner the change occurred.

**Channel.**—The gage is on a relatively narrow portion of a section of Malheur Lake. As nearly as can be learned by inquiry there is a dike or dam across Malheur Lake near the line between ranges 32 and 32½ east. Silvies and Donner und Blitzen rivers discharge their waters above or east of this dike, and maintain a perennial lake in this depression. West of this dike is a second body of water, which extends to and beyond the Narrows, probably to a second dike, perhaps even to the sand-spit between Mud Lake and Harney Lake. This portion of the Lake receives directly only a little surface inflow; it is fed by overflow from the upper portion, and after a long dry period may become entirely desiccated except for a few channels and potholes, as in the fall of 1911. In a wet period its level probably becomes the same as that of the upper section. Mud Lake probably has an elevation intermediate between that of this middle section and Harney Lake, but may at different times approach the level of either. The borders of Mud Lake, like those of Malheur, are thickly grown with swamp grasses and tules, indicating that the water is relatively fresh, while the shores of the brackish Harney are bare of vegetation.

The relative elevations of water surface in Malheur and Harney Lakes were determined in March, 1912, with the following results:

| | Feet. |
|---|---|
| Malheur Lake, 1 mile west of mouth of West Fork of Silvies River, near Lawen, Mar. 9 | 4,085.12 |
| General channel bed at Narrows bridge (equivalent to 0.34 on gage) | 4,081.2 |
| Harney Lake, Mar. 12 | 4,078.61 |
| Difference in level between Malheur and Harney | 6.51 |

Elevation referred to bench mark at east end of bridge at Narrows.

*Daily gage height, in feet, of Malheur Lake at Narrows, Oreg., for year ending Sept. 30, 1912.*

| Day. | Apr. | May. | June. | Day. | Apr. | May. | June. | Day. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 4.4 | 11 | | 3.7 | 5.0 | 21 | | | |
| 2 | | | | 12 | | | | 22 | | 4.1 | 5.3 |
| 3 | | | | 13 | 0.3 | 3.8 | | 23 | | | |
| 4 | | 0.9 | | 14 | | | | 24 | | | |
| 5 | | | | 15 | | 3.85 | 5.1 | 25 | | 4.2 | |
| 6 | | 1.3 | | 16 | | | | 26 | | | |
| 7 | | 1.9 | | 17 | | | | 27 | 0.7 | | |
| 8 | | 2.6 | 4.8 | 18 | | 3.9 | | 28 | | 4.3 | |
| 9 | | 3.3 | | 19 | | | | 29 | | | 5.6 |
| 10 | | 3.5 | | 20 | .5 | 4.0 | | 30 | | | |
| | | | | | | | | 31 | | | |

NOTE.—On Apr. 13 the water in the channel was merely seepage from the area directly tributary to it. It extended back only about a quarter mile to the higher ground between the channel and the lake. The water level continued to rise from seepage until about May 4, when Malheur Lake broke over the natural dike which held it back and the water in the connecting channel rose rapidly.

## SILVIES RIVER NEAR SILVIES, OREG.

**Location.**—At the site of a proposed dam about 3 miles southwest of Silvies, Oreg., in sec. 14, T. 20 S., R. 31 E., three-fourths mile below Trout Creek, and 1½ miles west of the Burns-Canyon City road.

**Records available.**—May 9, 1903, to December 31, 1904; January 1, 1909, to June 30, 1911; April 11 to June 9, 1912.

**Drainage area.**—450 square miles.

**Gage.**—An inclined staff on left bank, 50 feet below cable.

**Channel.**—Shifts somewhat at flood stages; bed composed of clean gravel; banks covered with heavy brush.

**Discharge measurements.**—Made from cable or by wading.

**Winter flow.**—Affected by ice.

**Storage.**—A dam constructed at the site of the station will impound all the run-off from the drainage basin above it and the water so stored could be diverted from this stream to irrigate lands in Harney Valley. The project was at one time under investigation by the United States Reclamation Service, but has since been taken up by the Silver Valley Irrigation Co.

**Accuracy.**—Conditions at this station are only fairly favorable for accurate determinations of discharge, owing to changes in conditions of flow. The relation between gage height and discharge is materially affected by ice during the winter, but allowance for this factor has been made.

**Cooperation.**—During 1911 and 1912 the station was maintained in cooperation with the Silver Valley Irrigation Co.

The following discharge measurement was made by Howard Kimble:

December 6, 1912: Gage height, 2.56 feet; discharge, 16.3 second-feet.

Stream almost frozen over at gage section; ice 5 inches thick at shore; narrow open channel in midstream. Water surface at or below bottom of ice, so gage height was not much, if any, affected.

*Daily gage height, in feet, and discharge, in second-feet, of Silvies River near Silvies, Oreg., for year ending Sept. 30, 1912.*

[David Craddock, observer.]

| Day. | April. | | May. | | June. | | Day. | April. | | May. | | June. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 9.7 | 1,090 | 8.0 | 620 | 16 | 6.8 | 451 | 9.2 | 905 | ..... | ..... |
| 2 | ..... | ..... | 9.6 | 1,050 | 7.2 | 504 | 17 | 6.6 | 425 | 8.9 | 820 | ..... | ..... |
| 3 | ..... | ..... | 9.6 | 1,050 | 6.6 | 425 | 18 | 6.5 | 412 | 8.9 | 820 | ..... | ..... |
| 4 | ..... | ..... | 9.0 | 845 | 6.5 | 412 | 19 | 6.5 | 412 | 8.8 | 795 | ..... | ..... |
| 5 | ..... | ..... | 8.4 | 700 | 6.4 | 400 | 20 | 6.6 | 425 | 8.7 | 770 | ..... | ..... |
| 6 | ..... | ..... | 8.4 | 700 | 6.2 | 376 | 21 | 6.6 | 425 | 8.6 | 745 | ..... | ..... |
| 7 | ..... | ..... | 8.3 | 680 | 6.2 | 376 | 22 | 6.6 | 425 | 8.4 | 700 | ..... | ..... |
| 8 | ..... | ..... | 8.5 | 720 | 6.3 | 388 | 23 | 6.4 | 400 | 8.0 | 620 | ..... | ..... |
| 9 | ..... | ..... | 8.7 | 770 | 6.5 | 412 | 24 | 6.2 | 376 | 7.9 | 605 | ..... | ..... |
| 10 | ..... | ..... | 9.5 | 1,010 | ..... | ..... | 25 | 6.6 | 425 | 8.2 | 660 | ..... | ..... |
| 11 | 9.4 | 975 | 9.6 | 1,050 | ..... | ..... | 26 | 6.6 | 425 | 8.3 | 680 | ..... | ..... |
| 12 | 9.0 | 845 | 9.7 | 1,090 | ..... | ..... | 27 | 6.7 | 438 | 8.4 | 700 | ..... | ..... |
| 13 | 8.5 | 720 | 9.6 | 1,050 | ..... | ..... | 28 | 6.8 | 451 | 8.7 | 770 | ..... | ..... |
| 14 | 8.0 | 620 | 9.5 | 1,010 | ..... | ..... | 29 | 7.8 | 590 | 8.9 | 820 | ..... | ..... |
| 15 | 7.0 | 477 | 9.4 | 975 | ..... | ..... | 30 | 9.9 | 1,190 | 8.8 | 795 | ..... | ..... |
| | | | | | | | 31 | ..... | ..... | 8.5 | 720 | ..... | ..... |

NOTE.—Discharge determined from a well defined rating curve.

*Monthly discharge of Silvies River near Silvies, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| April 11-30 | 1,190 | 376 | 545 | 21,600 | A. |
| May | 1,090 | 605 | 830 | 51,000 | A. |
| June 1-9 | 620 | 376 | 435 | 7,770 | A. |

## SILVIES RIVER NEAR BURNS, OREG.

**Location.**—In sec. 31, T. 21 S., R. 30 E., about 1 mile above Sylvester's ranch, and 12 miles northwest of Burns.

**Records available.**—May 10, 1903, to July 24, 1906; December 14, 1908, to September 30, 1912.

**Drainage area.**—865 square miles.

**Gage.**—Gurley automatic gage on left bank, installed December, 1911. Previous to December, 1911, station was located about 1¼ miles downstream, at wagon bridge near Parker's house, in sec. 7, T. 22 S., R. 30 E.

**Channel.**—Control is a gravel riffle about 25 feet below gage. Probably shifts in high water. Above gage height 13 feet river overflows a wide area.

**Discharge measurements.**—From a cable about one-fourth mile below the gage, or by wading.

**Winter flow.**—Not seriously affected by ice.

**Utilization.**—The waters of Silvies River are used largely for flood irrigation of hay lands in Harney Valley. Any irrigation project would require therefore the settlement of accrued water rights, as even the flood waters are so used.

**Accuracy.**—Accurate high-water measurements are difficult to obtain at the cable on account of the deep, crooked channel. During the irrigating season records are affected by backwater from irrigation dams.

**Cooperation.**—The gage-height record and most of the discharge measurements were furnished by the Silver Valley Irrigation Co., of Burns.

*Discharge measurements of Silvies River near Burns, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| Dec. 3 | Lynn Crandall | [a] 3.09 | 17.5 | Apr. 11 | M. V. Dodge | 12.82 | 1,010 |
| | | | | 11 | do | 12.96 | 1,030 |
| 1912. | | | | 12 | do | 13.34 | 1,140 |
| Apr. 7 | M. V. Dodge | 9.05 | 562 | 13 | do | 13.46 | 1,120 |
| 8 | do | 9.59 | 633 | May 2 | do | 15.01 | 1,520 |
| 8 | do | 9.82 | 687 | 11 | do | 15.12 | 1,510 |
| 9 | do | 10.74 | 771 | June 1 | do | 12.80 | 956 |
| 9 | do | 10.98 | 794 | July 2 | do | [b] 4.50 | 139 |
| 10 | do | 11.72 | 868 | Nov. 23 | Howard Kimble | 3.88 | 63.6 |

[a] Old gage at wagon bridge read 2.42.

[b] Gage affected by backwater from irrigation dam below. Height given is estimated open-channel reading.

NOTE.—Gage heights refer to automatic gage installed in December, 1911. Measurements between Apr. 7 and May 11 were made by six-tenths depth method, which gives too high results for this station. Discharges for these measurements have therefore been reduced by use of coefficients ranging from 0.91 to 0.96.

*Daily gage height, in feet, of Silvies River near Burns, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 865 square miles.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 2.50 | ..... | 3.50 | 3.94 | 3.98 | 5.87 | 14.1 | 12.8 |
| 2 | ..... | ..... | ..... | 3.50 | 3.82 | 3.88 | 6.4 | 15.0 | 12.3 |
| 3 | ..... | ..... | 3.09 | 3.42 | 3.76 | 3.80 | 7.2 | 14.7 | 11.2 |
| 4 | 2.40 | ..... | ..... | 3.47 | 3.72 | 3.80 | 7.8 | 14.4 | 10.4 |
| 5 | ..... | ..... | ..... | 3.53 | 3.74 | 3.89 | 8.3 | 13.9 | 9.7 |
| 6 | ..... | ..... | ..... | 3.60 | 3.73 | 3.76 | 8.4 | 13.7 | 9.0 |
| 7 | ..... | ..... | ..... | 3.68 | 3.74 | 4.00 | 8.8 | 13.6 | 9.1 |
| 8 | ..... | 2.55 | ..... | 3.70 | 3.74 | 4.06 | 9.6 | 14.0 | 9.0 |
| 9 | ..... | ..... | ..... | 3.71 | 3.84 | 4.13 | 10.7 | 14.4 | 9.4 |
| 10 | ..... | ..... | ..... | 3.75 | 4.16 | 3.98 | 11.8 | 14.8 | 9.8 |
| 11 | 2.40 | ..... | ..... | 3.77 | 4.75 | 3.93 | 12.8 | 15.1 | 9.2 |
| 12 | ..... | ..... | 3.32 | 3.83 | 4.85 | 3.95 | 13.5 | 15.2 | 8.6 |
| 13 | ..... | ..... | 3.23 | 3.88 | 4.48 | 3.84 | 13.3 | 15.2 | 8.5 |
| 14 | ..... | ..... | 3.14 | 3.92 | 4.21 | 3.90 | 12.6 | 15.2 | 8.4 |
| 15 | ..... | 2.60 | 3.25 | 3.93 | 4.08 | 3.86 | 11.7 | 15.0 | 8.5 |
| 16 | ..... | ..... | 3.20 | 3.88 | 4.14 | 3.86 | 11.1 | 15.0 | 8.6 |
| 17 | ..... | ..... | 3.38 | 3.81 | 4.55 | 3.75 | 10.7 | 14.8 | 8.4 |
| 18 | 2.45 | ..... | 3.27 | 3.82 | 5.82 | 3.78 | 10.6 | 14.5 | 7.6 |
| 19 | ..... | ..... | 3.30 | 3.86 | 5.77 | 3.68 | 10.5 | 14.2 | 6.8 |
| 20 | ..... | ..... | 3.26 | 3.86 | 4.90 | 3.65 | 10.4 | 13.9 | 6.5 |
| 21 | ..... | ..... | 3.14 | 3.86 | 4.80 | 3.62 | 10.2 | 13.7 | 6.0 |
| 22 | ..... | 2.63 | 3.20 | 3.82 | 4.50 | 3.64 | 10.1 | 13.6 | 5.80 |
| 23 | ..... | ..... | 3.24 | 3.74 | 4.36 | 3.67 | 10.0 | 13.3 | 5.55 |
| 24 | ..... | ..... | 3.23 | 3.73 | 4.50 | 4.33 | 9.6 | 13.0 | 5.60 |
| 25 | 2.50 | ..... | 3.22 | 3.85 | 4.31 | 4.75 | 9.6 | 12.7 | 5.30 |
| 26 | ..... | ..... | 3.31 | 3.95 | 4.09 | 5.40 | 10.0 | 13.0 | 4.85 |
| 27 | ..... | ..... | 3.34 | 4.18 | 3.98 | 5.90 | 10.6 | 13.4 | 4.85 |
| 28 | ..... | ..... | 3.36 | 4.36 | 4.01 | 6.1 | 10.6 | 13.7 | 4.70 |
| 29 | ..... | 2.63 | 3.39 | 4.31 | 3.96 | 5.95 | 11.4 | 13.5 | 4.60 |
| 30 | ..... | ..... | 3.42 | 4.22 | ..... | 5.70 | 12.7 | 13.3 | 4.50 |
| 31 | ..... | ..... | 3.47 | 4.08 | ..... | 5.60 | ..... | 13.0 | ..... |

NOTE.—Gage heights for October and November refer to the old gage at wagon bridge near Parker's house. Beginning Dec. 3, 1911, the records are from the Gurley automatic gage. After June 30 the records were affected by backwater from a temporary irrigating dam. The records for winter of 1911–12 are believed to have been not seriously affected by ice.

*Daily discharge, in second-feet, of Silvies River near Burns, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 12 | 21 | 22 | 40 | 69 | 72 | 255 | 1,270 | 1,020 |
| 2 | 13 | 21 | 20 | 40 | 60 | 65 | 308 | 1,490 | 950 |
| 3 | 13 | 21 | 18 | 35 | 56 | 59 | 388 | 1,410 | 809 |
| 4 | 14 | 22 | 19 | 38 | 53 | 59 | 448 | 1,340 | 719 |
| 5 | 14 | 22 | 20 | 42 | 55 | 65 | 498 | 1,220 | 643 |
| 6 | 14 | 23 | 22 | 46 | 54 | 56 | 508 | 1,180 | 570 |
| 7 | 14 | 23 | 23 | 51 | 55 | 73 | 549 | 1,160 | 580 |
| 8 | 14 | 24 | 24 | 52 | 55 | 78 | 633 | 1,250 | 570 |
| 9 | 14 | 24 | 25 | 53 | 62 | 84 | 792 | 1,340 | 612 |
| 10 | 14 | 25 | 27 | 56 | 86 | 72 | 882 | 1,440 | 654 |
| 11 | 14 | 25 | 28 | 57 | 143 | 68 | 1,020 | 1,520 | 591 |
| 12 | 15 | 26 | 29 | 61 | 153 | 70 | 1,140 | 1,550 | 528 |
| 13 | 15 | 27 | 24 | 65 | 116 | 62 | 1,110 | 1,550 | 518 |
| 14 | 16 | 27 | 20 | 67 | 91 | 66 | 992 | 1,550 | 508 |
| 15 | 16 | 28 | 26 | 68 | 79 | 63 | 869 | 1,490 | 518 |
| 16 | 17 | 28 | 23 | 65 | 85 | 63 | 797 | 1,490 | 528 |
| 17 | 17 | 28 | 33 | 60 | 123 | 56 | 752 | 1,440 | 508 |
| 18 | 18 | 29 | 26 | 60 | 250 | 58 | 741 | 1,360 | 428 |
| 19 | 18 | 29 | 28 | 63 | 245 | 51 | 730 | 1,290 | 348 |
| 20 | 18 | 30 | 26 | 63 | 158 | 49 | 719 | 1,220 | 318 |

*Daily discharge, in second-feet, of Silives River near Burns, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. |
|---|---|---|---|---|---|---|---|---|---|
| 21 | 19 | 30 | 20 | 63 | 148 | 47 | 697 | 1,180 | 268 |
| 22 | 19 | 30 | 23 | 60 | 118 | 48 | 686 | 1,160 | 248 |
| 23 | 20 | 30 | 25 | 55 | 104 | 50 | 675 | 1,110 | 223 |
| 24 | 20 | 30 | 24 | 54 | 118 | 102 | 633 | 1,050 | 228 |
| 25 | 21 | 30 | 24 | 62 | 100 | 143 | 633 | 1,010 | 198 |
| 26 | 21 | 30 | 29 | 70 | 80 | 208 | 675 | 1,050 | 153 |
| 27 | 21 | 30 | 30 | 88 | 72 | 258 | 741 | 1,120 | 153 |
| 28 | 21 | 30 | 32 | 104 | 74 | 278 | 741 | 1,180 | 138 |
| 29 | 21 | 30 | 33 | 100 | 70 | 263 | 833 | 1,140 | 128 |
| 30 | 21 | 26 | 35 | 92 | ..... | 238 | 1,010 | 1,110 | 118 |
| 31 | 21 | ..... | 38 | 79 | ..... | 228 | ..... | 1,050 | ..... |

NOTE.—Discharge for October and November determined from a fairly well defined rating curve. Discharge interpolated for days on which gage was not read. Discharge Dec. 1 to June 30 determined from a well-defined curve. Discharges for December, 1911, supersede those published in Water-Supply Paper 310.

*Monthly discharge of Silvies River near Burns, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | 21 | 12 | 16.9 | 1,040 | C. |
| November | 30 | 21 | 26.6 | 1,580 | C. |
| December | 38 | 18 | 25.7 | 1,580 | B. |
| January | 104 | 35 | 61.6 | 3,790 | B. |
| February | 250 | 53 | 101 | 5,810 | B. |
| March | 278 | 47 | 102 | 6,270 | B. |
| April | 1,140 | 255 | 714 | 42,500 | A. |
| May | 1,550 | 1,010 | 1,280 | 78,700 | A. |
| June | 1,020 | 118 | 459 | 27,300 | A. |
| July | ..... | ..... | 49.4 | 3,040 | |
| August | ..... | ..... | 10.0 | 615 | |
| September | ..... | ..... | 9.0 | 536 | |
| The year | 1,550 | ..... | 239 | 173,000 | |

NOTE.—Monthly means for July, August, and September estimated from records obtained in other years and are very uncertain.

## DONNER UND BLITZEN RIVER NEAR DIAMOND, OREG.

**Location.**—At the mouth of the canyon, in sec. 20, T. 32 S., R. 32½ E., on the P ranch, 2 miles above the ranch buildings, about 25 miles southwest of Diamond, and about 40 miles above Narrows.

**Records available.**—January 26, 1909, to July 31, 1910, and November 1 to 12, 1910, at old station below several diversion ditches; May 22, 1910, to September 30, 1912, at present station above all diversion ditches; records fragmentary part of period.

**Drainage area.**—200 square miles. Revised since 1911 report.

**Gages.**—The original gage was a vertical staff on the right bank just below the wagon bridge near the ranch buildings; the present gage is a vertical staff installed May 22, 1910, at the mouth of the canyon. It was read occasionally during the summer of 1910 and throughout 1911 and 1912.

**Channel.**—Slightly shifting; bed composed of gravel and sand; one channel at all stages. Banks of the stream covered with a dense growth of willows and underbrush; subject to overflow at flood stages.

**Discharge measurements.**—At the lower site measurements were made from the wagon bridge; at the present site measurements are made by wading or from a cable.

**Winter flow.**—Relation of gage height to discharge affected by ice.

**Diversions.**—The present gage is above all irrigation ditches. Five ditches divert water from the stream above the wagon bridge near the ranch buildings and about 300 feet below the bridge is a brush and rock dam which is used to divert water into a sixth ditch. When water is to be diverted the dams are repaired and raised by adding more rocks and brush. Two of the ditches carry water during the entire year, three of them during the irrigation season only. No record has been kept of the actual time of operation.

**Accuracy.**—Conditions at the upper station are fairly good. During the spring the river is subject to considerable diurnal fluctuations and much of the water from the melting snow may pass the station at night when no record would be obtained.

**Cooperation.**—Station maintained in cooperation with the William Hanley Co., which has furnished record of gage heights.

*Discharge measurements of Donner und Blitzen River near Diamond, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 23 | F. C. Dillard | 3.90 | 432 |
| 30 | ....do | 4.39 | 634 |
| June 3 | ....do | 5.30 | 986 |
| Nov. 27 | Howard Kimble | 2.75 | 53.3 |

*Daily gage height, in feet, of Donner und Blitzen River near Diamond, Oreg., for year ending Sept. 30, 1912.*

[Jesus Achurra, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.55 | | | | | 2.85 | 2.95 | 3.50 | 5.0 | 3.25 | 3.05 | |
| 2 | | | | | | 2.85 | 2.95 | 3.55 | 5.4 | 3.25 | 3.10 | |
| 3 | | | 2.50 | | | 2.90 | 2.95 | 3.70 | 5.3 | 3.20 | 3.05 | |
| 4 | | | | | 2.55 | 2.90 | 3.10 | 3.60 | 5.1 | 3.25 | 2.95 | 2.70 |
| 5 | | 2.50 | | | | 2.95 | 3.15 | 3.75 | 5.3 | 3.25 | 2.90 | |
| 6 | | | | | | 3.15 | 3.40 | 3.50 | 5.2 | 3.20 | 2.85 | |
| 7 | | | | 2.60 | | 5.2 | 3.65 | 3.80 | 5.0 | 3.20 | 2.80 | |
| 8 | 2.55 | | | | | 4.15 | 4.25 | 3.95 | 5.0 | 3.15 | | |
| 9 | | | | | | 3.10 | 4.6 | 3.95 | 5.0 | 3.10 | | |
| 10 | | | 2.50 | | | 3.05 | 4.15 | 4.05 | 5.0 | 3.05 | | |
| 11 | | | | | 2.60 | 3.00 | 3.85 | 4.6 | 4.8 | 3.05 | | 2.70 |
| 12 | | 2.50 | | | 2.60 | 2.95 | 3.70 | 4.6 | 4.8 | 3.00 | | |
| 13 | | | | | 2.60 | 2.95 | 3.65 | 4.6 | 5.1 | 3.00 | | |
| 14 | | | | 2.55 | 2.65 | 2.95 | 3.65 | 4.7 | 4.6 | 3.00 | 2.75 | |
| 15 | 2.55 | | | | 2.85 | 2.95 | 3.60 | 4.8 | 4.20 | 2.95 | | |
| 16 | | | | | 2.90 | 3.15 | 3.55 | 4.9 | 3.90 | 2.90 | | |
| 17 | | | 2.55 | | 6.00 | 3.55 | 3.60 | 5.0 | 4.00 | 2.85 | | |
| 18 | | | | | 4.05 | 3.40 | 3.65 | 5.0 | 4.00 | 2.85 | | 2.70 |
| 19 | | 2.50 | | | 3.75 | 3.35 | 3.60 | 5.0 | 3.90 | 2.80 | | |
| 20 | | | | | 3.20 | 3.15 | 3.55 | 4.6 | 3.90 | 2.75 | | |
| 21 | | | | 3.35 | 2.85 | 3.05 | 3.50 | 4.25 | 3.50 | 2.75 | 2.75 | |
| 22 | 2.60 | | | | 2.80 | 2.95 | 3.65 | 4.00 | 3.50 | 2.70 | | |
| 23 | | | | | 2.75 | 2.95 | 3.75 | 3.85 | 3.60 | 2.70 | | |
| 24 | | | 2.55 | | 2.65 | 2.95 | 3.90 | 3.70 | 3.70 | 2.70 | | |
| 25 | | | | | 2.60 | 2.95 | 3.75 | 3.75 | 3.60 | 2.65 | | 2.70 |
| 26 | | 2.50 | | | 2.55 | 2.90 | 3.55 | 3.70 | 3.60 | 2.65 | | |
| 27 | | | | | 2.55 | 3.05 | 2.95 | 4.15 | 3.60 | 2 65 | | |
| 28 | | | | 2.60 | 2.60 | 3.10 | 2.75 | 4.25 | 3.50 | 2.60 | 2.75 | |
| 29 | 2.60 | | | | 2.65 | 2.95 | 2.55 | 4.6 | 3.30 | 2.60 | | |
| 30 | | | 2.55 | | | 3.00 | 2.60 | 4.40 | 3.15 | 2.60 | | |
| 31 | | | | | | 2.95 | | 4.25 | | 3.05 | | |

NOTE.—Gage heights probably affected by ice during later part of December. No information reported concerning ice for January and February.

*Daily discharge, in second-feet, of Donner und Blitzen River near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | 40 | 32 | ..... | 41 | 94 | 119 | 288 | 905 | 168 | 116 | ..... |
| 2 | 38 | 38 | 32 | ..... | 40 | 94 | 119 | 305 | 1,080 | 168 | 128 | ..... |
| 3 | 38 | 36 | 32 | ..... | 39 | 106 | 119 | 358 | 990 | 154 | 116 | ..... |
| 4 | 38 | 34 | 32 | ..... | 38 | 106 | 160 | 322 | 900 | 168 | 93 | 46 |
| 5 | 38 | 32 | 32 | ..... | 39 | 119 | 175 | 376 | 990 | 168 | 82 | ..... |
| 6 | 38 | 32 | 32 | ..... | 40 | 175 | 254 | 288 | 945 | 154 | 72 | ..... |
| 7 | 38 | 32 | 32 | 45 | 41 | 995 | 340 | 394 | 855 | 154 | 62 | ..... |
| 8 | 38 | 32 | 32 | ..... | 42 | 532 | 574 | 452 | 855 | 141 | 60 | ..... |
| 9 | 38 | 32 | 32 | ..... | 43 | 160 | 725 | 452 | 855 | 128 | 59 | ..... |
| 10 | 38 | 32 | 32 | ..... | 44 | 146 | 532 | 492 | 855 | 116 | 58 | ..... |
| 11 | 38 | 32 | ..... | ..... | 45 | 132 | 414 | 725 | 766 | 116 | 57 | 46 |
| 12 | 38 | 32 | ..... | ..... | 45 | 119 | 358 | 725 | 766 | 104 | 56 | ..... |
| 13 | 38 | 32 | ..... | ..... | 45 | 119 | 340 | 725 | 900 | 104 | 55 | ..... |
| 14 | 38 | 32 | ..... | 38 | 54 | 119 | 340 | 770 | 679 | 104 | 54 | ..... |
| 15 | 38 | 32 | ..... | ..... | 94 | 119 | 322 | 815 | 514 | 93 | 54 | ..... |
| 16 | 39 | 32 | ..... | ..... | 106 | 175 | 305 | 860 | 394 | 82 | 54 | ..... |
| 17 | 40 | 32 | 38 | ..... | 1,360 | 305 | 322 | 905 | 434 | 72 | 54 | ..... |
| 18 | 41 | 32 | ..... | ..... | 492 | 254 | 340 | 905 | 434 | 72 | 54 | 46 |
| 19 | 42 | 32 | ..... | ..... | 376 | 238 | 322 | 905 | 394 | 62 | 54 | ..... |
| 20 | 43 | 32 | ..... | ..... | 190 | 175 | 305 | 725 | 394 | 54 | 54 | ..... |
| 21 | 44 | 32 | ..... | 238 | 94 | 146 | 288 | 574 | 248 | 54 | 54 | ..... |
| 22 | 45 | 32 | ..... | ..... | 83 | 119 | 340 | 472 | 248 | 46 | 54 | ..... |
| 23 | 45 | 32 | ..... | ..... | 72 | 119 | 376 | 414 | 283 | 46 | 54 | ..... |
| 24 | 45 | 32 | 38 | ..... | 54 | 119 | 433 | 358 | 319 | 46 | 54 | ..... |
| 25 | 45 | 32 | ..... | ..... | 45 | 119 | 376 | 376 | 283 | 40 | 54 | 46 |
| 26 | 45 | 32 | ..... | ..... | 38 | 106 | 305 | 358 | 283 | 40 | 54 | ..... |
| 27 | 45 | 32 | ..... | ..... | 38 | 146 | 119 | 532 | 283 | 40 | 54 | ..... |
| 28 | 45 | 32 | ..... | 45 | 45 | 160 | 72 | 572 | 248 | 33 | 54 | ..... |
| 29 | 45 | 32 | ..... | ..... | 54 | 119 | 38 | 725 | 183 | 33 | 53 | ..... |
| 30 | 44 | 32 | 38 | ..... | ..... | 132 | 45 | 637 | 141 | 33 | 52 | ..... |
| 31 | 42 | ..... | ..... | ..... | ..... | 119 | ..... | 574 | ..... | 116 | 50 | ..... |

NOTE.—Discharge October to December determined from a curve well defifined between 40 and 500 second-feet; Jan. 1 to June 2, from a well-defined curve June 3 to Sept. 30, from a fairly well defined curve. Mean discharges Dec. 11–15, estimated at 30 second-feet, and Dec. 16–31 at 25 second feet. No allowance made for effect of ice during 1912.

*Monthly discharge of Donner und Blitzen River near Diamond, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 200 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 45 | 38 | 40.8 | 0.204 | 0.24 | 2,510 | C. |
| November | 40 | 32 | 32.7 | .164 | .18 | 1,950 | C. |
| December | 38 | 32 | 35.5 | .178 | .21 | 2,180 | C. |
| January | ..... | ..... | [a]91.5 | .408 | .47 | 5,630 | C. |
| February | 1,360 | 38 | 129 | .645 | .70 | 7,420 | C. |
| March | 995 | 94 | 183 | .915 | 1.05 | 11,300 | A. |
| April | 725 | 38 | 296 | 1.48 | 1.65 | 17,600 | A. |
| May | 905 | 288 | 561 | 2.80 | 3.32 | 34,500 | A. |
| June | 1,080 | 141 | 581 | 2.90 | 3.24 | 34,600 | B. |
| July | 168 | 33 | 93.8 | .469 | .54 | 5,770 | B. |
| August | 128 | 50 | 63.8 | .319 | .37 | 3,920 | C. |
| September | ..... | ..... | [a]46.0 | .230 | .26 | 2,740 | C. |
| The year | 1,360 | ..... | 179 | .895 | 12.23 | 130,000 | |

[a] Mean determined from days on which gage was read.

## MUD CREEK NEAR DIAMOND, OREG.

**Location.**—In sec. 4, T. 32 S., R. 32½ E., about 2 miles east of the P ranch buildings, about one-fourth mile east of the ranch field, and about 23 miles southwest from Diamond.

**Records available.**—March 18, 1911, to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—A vertical staff.

**Channel.**—Shifts somewhat; bed composed of clean sand.

**Discharge measurements.**—Made from footbridge near the gage or by wading.

**Cooperation.**—Station was established by the Eastern Oregon Engineering Co. for the William Hanley Co.

The records show the total flow of the stream at the edge of the valley. As the stream is not spring fed, the channel is practically dry after the run-off from the melting snows on the steep slopes of Steens Mountain has passed.

*Discharge measurements of Mud Creek near Diamond, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 23 | F. C. Dillard | 3.95 | 49.7 |
| Nov. 26 | Howard Kimble | 1.77 | 1.1 |

*Daily gage height, in feet, of Mud Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

[Jesus Achurra, observer.]

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.75 | ..... | ..... | ..... | ..... | 1.80 | 2.20 | 3.30 | 4.2 | 1.85 | 1.90 | ..... |
| 2 | ..... | ..... | ..... | ..... | ..... | 1.80 | 2.10 | 3.20 | 4.2 | 1.85 | 1.90 | ..... |
| 3 | ..... | ..... | 1.75 | ..... | ..... | 1.80 | 2.20 | 4.5 | 4.2 | 1.90 | 1.80 | ..... |
| 4 | ..... | ..... | ..... | ..... | ..... | 1.85 | 2.30 | 3.20 | 4.0 | 1.90 | 1.80 | 1.70 |
| 5 | ..... | 1.7 | ..... | ..... | ..... | 1.90 | 2.50 | 2.90 | 4.0 | 1.90 | 1.75 | ..... |
| 6 | ..... | ..... | ..... | ..... | 2.10 | 2.20 | 2.40 | 2.90 | 3.8 | 1.85 | 1.70 | ..... |
| 7 | ..... | ..... | ..... | 1.75 | 2.00 | 2.00 | 2.50 | 3.20 | 3.6 | 1.85 | 1.70 | ..... |
| 8 | 1.75 | ..... | ..... | ..... | 2.00 | 1.80 | 2.90 | 3.7 | 3.6 | 1.80 | ..... | ..... |
| 9 | ..... | ..... | ..... | ..... | 2.00 | 1.80 | 3.00 | 4.5 | 3.6 | 1.85 | ..... | ..... |
| 10 | ..... | ..... | 1.75 | ..... | 2.50 | 1.80 | 3.15 | 4.5 | 2.90 | 1.85 | ..... | ..... |
| 11 | ..... | ..... | ..... | ..... | 2.20 | 1.80 | 2.80 | 4.5 | 2.80 | 1.85 | ..... | 1.70 |
| 12 | ..... | 1.7 | ..... | ..... | 2.00 | 1.80 | 2.60 | 4.5 | 3.20 | 1.80 | ..... | ..... |
| 13 | ..... | ..... | ..... | ..... | 3.00 | 1.80 | 2.30 | 4.4 | 3.40 | 1.80 | ..... | ..... |
| 14 | ..... | ..... | ..... | 1.75 | 2.00 | 1.80 | 2.40 | 4.3 | 3.40 | 1.75 | 1.70 | ..... |
| 15 | 1.75 | ..... | ..... | ..... | 1.90 | 1.80 | 2.40 | 4.6 | 3.00 | 1.75 | ..... | ..... |
| 16 | ..... | ..... | ..... | ..... | 2.00 | 1.90 | 2.50 | 4.5 | 2.90 | 1.70 | ..... | ..... |
| 17 | ..... | ..... | 1.75 | ..... | 2.50 | 1.90 | 3.00 | 4.8 | 2.90 | 1.70 | ..... | ..... |
| 18 | ..... | ..... | ..... | ..... | 2.60 | 1.80 | 2.40 | 5.2 | 2.80 | 1.70 | ..... | 1.70 |
| 19 | ..... | 1.75 | ..... | ..... | 2.30 | 1.80 | 2.30 | 4.6 | 2.40 | 1.70 | ..... | ..... |
| 20 | ..... | ..... | ..... | ..... | 2.00 | 1.80 | 2.40 | 4.6 | 2.40 | 1.70 | ..... | ..... |
| 21 | ..... | ..... | ..... | 3.05 | 2.00 | 1.80 | 2.60 | 4.5 | 2.40 | 1.70 | 1.70 | ..... |
| 22 | 1.75 | ..... | ..... | ..... | 1.90 | 1.80 | 4.1 | 3.9 | 2.30 | 1.65 | ..... | ..... |
| 23 | ..... | ..... | ..... | ..... | 1.80 | 1.80 | 4.0 | 4.0 | 2.30 | 1.65 | ..... | ..... |
| 24 | ..... | ..... | 1.75 | ..... | 1.80 | 1.90 | 4.5 | 3.8 | 2.30 | 1.65 | ..... | ..... |
| 25 | ..... | ..... | ..... | ..... | 1.80 | 2.00 | 3.8 | 4.5 | 2.30 | 1.65 | ..... | 1.70 |
| 26 | ..... | 1.75 | ..... | ..... | 1.80 | 2.20 | 3.7 | 4.2 | 2.30 | 1.60 | ..... | ..... |
| 27 | ..... | ..... | ..... | ..... | 1.80 | 2.10 | 3.6 | 4.3 | 2.20 | 1.60 | ..... | ..... |
| 28 | ..... | ..... | ..... | 1.80 | 1.80 | 2.15 | 3.30 | 4.3 | 2.20 | 1.60 | 1.70 | ..... |
| 29 | 1.75 | ..... | ..... | ..... | 1.80 | 2.00 | 2.20 | 4.8 | 2.20 | 1.60 | ..... | ..... |
| 30 | ..... | ..... | 1.75 | ..... | ..... | 2.10 | 2.10 | 4.7 | 2.10 | 1.60 | ..... | ..... |
| 31 | ..... | ..... | ..... | ..... | ..... | 2.20 | ..... | 4.5 | ..... | 1.90 | ..... | ..... |

*Daily discharge, in second-feet, of Mud Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | ..... | ..... | ..... | 1.0 | 0.4 | 2.7 | 28 | 59 | 1.4 | 1.7 | ..... |
| 2 | ..... | ..... | ..... | ..... | 1.2 | .4 | 1.9 | 25 | 59 | 1.4 | 1.7 | ..... |
| 3 | ..... | ..... | 0.2 | ..... | 1.3 | .4 | 2.7 | 70 | 59 | 1.7 | 1.2 | ..... |
| 4 | ..... | ..... | ..... | ..... | 1.5 | .6 | 3.6 | 25 | 52 | 1.7 | 1.2 | 0.8 |
| 5 | ..... | 0.2 | ..... | ..... | 1.7 | .8 | 6.0 | 17 | 52 | 1.7 | 1.0 | ..... |
| 6 | ..... | ..... | ..... | ..... | 1.9 | 2.7 | 4.7 | 17 | 44 | 1.4 | .8 | ..... |
| 7 | ..... | ..... | ..... | 0.3 | 1.3 | 1.3 | 6.0 | 25 | 37 | 1.4 | .8 | ..... |
| 8 | .2 | ..... | ..... | ..... | 1.3 | .4 | 14 | 41 | 37 | 1.2 | .8 | ..... |
| 9 | ..... | ..... | ..... | ..... | 1.3 | .4 | 16 | 70 | 37 | 1.4 | .8 | ..... |
| 10 | ..... | ..... | .2 | ..... | 6.0 | .4 | 19 | 70 | 17 | 1.4 | .8 | ..... |
| 11 | ..... | ..... | ..... | ..... | 2.7 | .4 | 12 | 70 | 15 | 1.4 | .8 | .8 |
| 12 | ..... | .2 | ..... | ..... | 1.3 | .4 | 7.7 | 70 | 25 | 1.2 | .8 | ..... |
| 13 | ..... | ..... | ..... | ..... | 1.3 | .4 | 3.6 | 66 | 31 | 1.2 | .8 | ..... |
| 14 | ..... | ..... | ..... | .3 | 1.3 | .4 | 4.7 | 63 | 31 | 1.0 | .8 | ..... |
| 15 | .2 | ..... | ..... | ..... | .8 | .4 | 4.7 | 74 | 20 | 1.0 | .8 | ..... |
| 16 | ..... | ..... | ..... | ..... | 1.3 | .8 | 6.0 | 70 | 17 | .8 | .8 | ..... |
| 17 | ..... | ..... | .2 | ..... | 6.0 | .8 | 16 | 82 | 17 | .8 | .8 | ..... |
| 18 | ..... | ..... | ..... | ..... | 7.7 | .4 | 4.7 | 98 | 15 | .8 | .8 | .8 |
| 19 | ..... | .2 | ..... | ..... | 3.6 | .4 | 3.6 | 74 | 7.0 | .8 | .8 | ..... |
| 20 | ..... | ..... | ..... | ..... | 1.3 | .4 | 4.7 | 74 | 7.0 | .8 | .8 | ..... |
| 21 | ..... | ..... | ..... | 1.7 | 1.3 | .4 | 7.7 | 70 | 7.0 | .8 | .8 | ..... |
| 22 | .2 | ..... | ..... | ..... | .8 | .4 | 47 | 48 | 5.5 | .6 | .8 | ..... |
| 23 | ..... | ..... | ..... | ..... | .4 | .4 | 44 | 52 | 5.5 | .6 | .8 | ..... |
| 24 | ..... | ..... | .2 | ..... | .4 | .8 | 61 | 44 | 5.5 | .6 | .8 | ..... |
| 25 | ..... | ..... | ..... | ..... | .4 | 1.3 | 44 | 70 | 5.5 | .6 | .8 | .8 |
| 26 | ..... | .2 | ..... | ..... | .4 | 2.7 | 41 | 59 | 5.5 | .4 | .8 | ..... |
| 27 | ..... | ..... | ..... | ..... | .4 | 1.9 | 37 | 63 | 4.2 | .4 | .8 | ..... |
| 28 | ..... | ..... | ..... | .4 | .4 | 2.3 | 28 | 63 | 4.2 | .4 | .8 | ..... |
| 29 | .2 | ..... | ..... | ..... | .4 | 1.3 | 4.2 | 82 | 4.2 | .4 | .8 | ..... |
| 30 | ..... | ..... | .2 | ..... | ..... | 1.9 | 3.2 | 78 | 3.2 | .4 | .8 | ..... |
| 31 | ..... | ..... | ..... | ..... | ..... | 2.7 | ..... | 70 | ..... | 1.7 | .8 | ..... |

NOTE.—Daily discharge October to December practically estimated. Discharge for 1912 determined from two fairly well defined curves. Accuracy is reduced because of diurnal fluctuation during the spring.

*Monthly discharge of Mud Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| October | ..... | ..... | 0.2 | 12 | D. |
| November | ..... | ..... | .2 | 12 | D. |
| December | ..... | ..... | .2 | 12 | D. |
| January | ..... | ..... | 4.52 | 278 | D. |
| February | 6.0 | 0.4 | 1.75 | 101 | D. |
| March | 2.7 | .4 | .93 | 57 | D. |
| April | 61 | 1.9 | 15.4 | 916 | D. |
| May | 98 | 17 | 59.0 | 3,630 | D. |
| June | 59 | 3.2 | 22.9 | 1,360 | D. |
| July | 1.7 | .4 | 1.01 | 62 | D. |
| August | 1.7 | .8 | .89 | 55 | D. |
| September | .8 | .8 | .80 | 48 | D. |
| The year | 98 | ..... | 9.04 | 6,540 | |

## BRIDGE CREEK NEAR DIAMOND, OREG.

**Location.**—In sec. 34, T. 31 S., R. 32½ E., about 4 miles northeast of the P ranch buildings, one-fourth mile east of the ranch field, and about 20 miles southwest from Diamond.

**Records available.**—March 18 to August 31, 1911, and January 1 to September 30, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—In alluvium and clay; shifts slightly.

**Discharge measurements.**—Made from footbridge near gage.

**Accuracy.**—The results obtained during the high-water stage in the spring are good, and the flow of the stream is so steady that the discharge can be estimated during the remainder of the year.

**Cooperation.**—Station established and records furnished by the Eastern Oregon Engineering Co. for the William Hanley Co.

The records show the total flow of the stream at the edge of the valley.

*Discharge measurements of Bridge Creek near Diamond, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| May 24 | F. C. Dillard | 2.60 | 33.4 | Nov. 26 | Howard Kimble | 1.92 | 13.4 |

*Daily gage height, in feet, of Bridge Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 1.95 | 2.05 | 2.55 | 2.85 | 1.95 | 2.05 | |
| 2 | | | 1.95 | 2.10 | 2.55 | 2.75 | 1.95 | 2.05 | |
| 3 | | | 1.90 | 2.15 | 3.25 | 2.70 | 1.95 | 2.00 | |
| 4 | | 1.95 | 1.90 | 2.10 | 2.50 | 2.55 | 1.95 | 1.95 | 1.90 |
| 5 | | | 1.95 | 2.30 | 2.30 | 2.75 | 1.95 | 1.95 | |
| 6 | | | 1.95 | 2.25 | 2.25 | 2.60 | 1.95 | 1.90 | |
| 7 | 2.00 | | 2.25 | 2.30 | 2.50 | 2.65 | 1.95 | 1.90 | |
| 8 | | | 2.05 | 2.65 | 2.65 | 2.50 | 1.95 | | |
| 9 | | | 2.00 | 2.70 | 3.1 | 2.60 | 1.95 | | |
| 10 | | | 1.95 | 2.75 | 3.0 | 2.55 | 1.95 | | |
| 11 | | | 2.00 | 2.60 | 3.0 | 2.50 | 1.95 | | 1.90 |
| 12 | | 1.90 | 2.00 | 2.45 | 3.0 | 2.50 | 1.95 | | |
| 13 | | 1.90 | 1.95 | 2.10 | 2.90 | 2.50 | 1.95 | | |
| 14 | 2.00 | 1.90 | 1.95 | 2.00 | 2.85 | 2.30 | 1.95 | 1.90 | |
| 15 | | 1.95 | 2.00 | 2.05 | 2.95 | 2.20 | 1.95 | | |
| 16 | | 2.05 | 2.05 | 2.00 | 2.80 | 2.25 | 1.95 | | |
| 17 | | 3.25 | 2.10 | 2.75 | 2.95 | 2.20 | 1.95 | | |
| 18 | | 3.05 | 2.05 | 2.05 | 3.4 | 2.15 | 1.95 | | 1.90 |
| 19 | | 2.50 | 1.95 | 2.05 | 2.95 | 2.15 | 1.95 | | |
| 20 | | 2.15 | 1.95 | 2.10 | 2.85 | 2.10 | 1.95 | | |
| 21 | 3.05 | 2.00 | 1.95 | 2.15 | 2.70 | 2.10 | 1.95 | 1.90 | |
| 22 | | 1.90 | 2.00 | 2.20 | 2.50 | 2.05 | 1.95 | | |
| 23 | | 1.90 | 2.00 | 2.80 | 2.60 | 2.05 | 1.95 | | |
| 24 | | 1.85 | 2.00 | 4.6 | 2.60 | 2.05 | 1.95 | | |
| 25 | | 1.85 | 1.95 | 4.2 | 2.95 | 1.95 | 1.95 | | 1.90 |
| 26 | | 1.90 | 1.95 | 4.0 | 2.80 | 1.95 | 1.95 | | |
| 27 | | 1.90 | 2.05 | 2.85 | 2.85 | 1.95 | 1.95 | | |
| 28 | 2.05 | 1.90 | 2.00 | 2.60 | 2.80 | 1.95 | 1.95 | 1.90 | |
| 29 | | 1.90 | 1.95 | 1.95 | 2.95 | 1.95 | 1.95 | | |
| 30 | | | 2.05 | 1.95 | 3.0 | 1.95 | 2.00 | | |
| 31 | | | 2.00 | | 3.0 | | 2.05 | | |

*Daily discharge, in second-feet, of Bridge Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 10 | 9 | 11 | 32 | 42 | 14 | 16 | ..... |
| 2 | ..... | 9 | 9 | 12 | 32 | 38 | 14 | 16 | ..... |
| 3 | ..... | 9 | 8 | 13 | 57 | 36 | 14 | 15 | ..... |
| 4 | ..... | 9 | 8 | 12 | 30 | 32 | 14 | 14 | 13 |
| 5 | ..... | 9 | 9 | 16 | 24 | 38 | 14 | 14 | ..... |
| 6 | ..... | 9 | 9 | 15 | 22 | 33 | 14 | 13 | ..... |
| 7 | 10 | 9 | 15 | 16 | 30 | 34 | 14 | 13 | ..... |
| 8 | ..... | 8 | 11 | 26 | 34 | 30 | 14 | 13 | ..... |
| 9 | ..... | 8 | 10 | 27 | 51 | 33 | 14 | 13 | ..... |
| 10 | ..... | 8 | 9 | 28 | 48 | 32 | 14 | 13 | ..... |
| 11 | ..... | 8 | 10 | 24 | 48 | 30 | 14 | 13 | 13 |
| 12 | ..... | 8 | 10 | 20 | 48 | 30 | 14 | 13 | ..... |
| 13 | ..... | 8 | 9 | 12 | 44 | 30 | 14 | 13 | ..... |
| 14 | 10 | 8 | 9 | 10 | 42 | 24 | 14 | 13 | ..... |
| 15 | ..... | 9 | 10 | 11 | 46 | 21 | 14 | 13 | ..... |
| 16 | ..... | 11 | 11 | 10 | 40 | 22 | 14 | 13 | ..... |
| 17 | ..... | 46 | 12 | 28 | 46 | 21 | 14 | 13 | ..... |
| 18 | ..... | 38 | 11 | 11 | 63 | 20 | 14 | 13 | 13 |
| 19 | ..... | 21 | 9 | 11 | 46 | 20 | 14 | 13 | ..... |
| 20 | ..... | 13 | 9 | 12 | 42 | 18 | 14 | 13 | ..... |
| 21 | 38 | 10 | 9 | 13 | 36 | 18 | 14 | 13 | ..... |
| 22 | ..... | 8 | 10 | 14 | 30 | 16 | 14 | 13 | ..... |
| 23 | ..... | 8 | 10 | 30 | 33 | 16 | 14 | 13 | ..... |
| 24 | ..... | 7 | 10 | 106 | 33 | 16 | 14 | 13 | ..... |
| 25 | ..... | 7 | 9 | 100 | 46 | 14 | 14 | 13 | 13 |
| 26 | ..... | 8 | 9 | 90 | 40 | 14 | 14 | 13 | ..... |
| 27 | ..... | 8 | 11 | 42 | 42 | 14 | 14 | 13 | ..... |
| 28 | 11 | 8 | 10 | 33 | 40 | 14 | 14 | 13 | ..... |
| 29 | ..... | 8 | 9 | 14 | 46 | 14 | 14 | 13 | ..... |
| 30 | ..... | ..... | 11 | 14 | 48 | 14 | 15 | 13 | ..... |
| 31 | ..... | ..... | 10 | ..... | 48 | ..... | 16 | 13 | ..... |

NOTE.—Discharge determined from two fairly well defined rating curves, the change being made during the high water of April. Means for January and September were determined from days for which the gage was read.

*Monthly discharge of Bridge Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| January | ..... | ..... | 17.2 | 1,060 | C. |
| February | 46 | 7 | 11.4 | 656 | C. |
| March | 15 | 8 | 9.8 | 603 | C. |
| April | 106 | 10 | 26.0 | 1,550 | C. |
| May | 63 | 22 | 40.9 | 2,510 | B. |
| June | 42 | 14 | 24.5 | 1,460 | B. |
| July | 16 | 14 | 14.1 | 867 | B. |
| August | 16 | 13 | 13.3 | 818 | B. |
| September | 13 | 13 | 13.0 | 774 | C. |
| The period | ..... | ..... | ..... | 10,300 | |

NOTE.—Discharge Oct. to Nov., 1911, was estimated at 10 second-feet, or 1,820 acre-feet, making total run-off for the year 12,100 acre-feet.

## KEIGER CREEK NEAR DIAMOND, OREG.

**Location.**—In sec. 10, T. 30 S., R. 33 E., about 100 yards above the point where the creek forks, about 2½ miles southeast of Diamond, and above all present diversions.

**Records available.**—January 26, 1909, to May 31, 1910, for old stations; May 14 to August 31, 1911, and February 14 to July 31, 1912, for new station.

**Drainage area.**—75 square miles. Revised since 1911 report.

**Gages.**—The original gage, established January 26, 1909, was about 3 miles south of Diamond, in sec. 10, T. 30 S., R. 33 E.; the present gage, established May 14, 1911, is a vertical staff a short distance from the site of the old gage.

**Channel.**—One at all stages; bed of stream is composed of gravel and is probably permanent.

**Discharge measurements.**—Made from a footbridge or by wading.

**Accuracy.**—The results obtained at the original site were rendered somewhat inaccurate by the flat grade of the stream and obstructions of the flow by willows and underbrush trailing in the water. Gage readings at the new site were rather fragmentary during 1911, but as the stream is spring fed and its flow very steady, records were in general good. During 1912 daily gage heights were obtained and record is excellent.

**Cooperation.**—Station established in 1911 by the Eastern Oregon Engineering Co. for the William Hanley Co.

*Discharge measurements of Keiger Creek near Diamond, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-feet.* |
| May 27[a] | F. C. Dillard | 3.60 | 179 |
| Nov. 28 | Howard Kimble | 1.32 | 14.6 |

[a] Measurement not considered in determining rating curve.

*Daily gage height, in feet, and discharge, in second-feet, of Keiger Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

[C. W. Frazier, observer.]

| Day. | February. | | March. | | April. | | May. | | June. | | July. | | August. | | September. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | ..... | ..... | 1.40 | 18 | 1.90 | 47 | 2.40 | 85 | 4.4 | 294 | 2.45 | 90 | ..... | ..... | 1.60 | 28 |
| 2 | ..... | ..... | 1.35 | 16 | 2.00 | 54 | 2.45 | 90 | 4.4 | 294 | 2.20 | 69 | ..... | ..... | ..... | ..... |
| 3 | ..... | ..... | 1.25 | 12 | 2.15 | 65 | 3.1 | 152 | 4.4 | 294 | 2.10 | 61 | ..... | ..... | ..... | ..... |
| 4 | ..... | ..... | 1.35 | 16 | 2.00 | 54 | 3.2 | 162 | 4.0 | 249 | 2.15 | 65 | 2.15 | 65 | ..... | ..... |
| 5 | ..... | ..... | 1.50 | 23 | 1.80 | 40 | 3.2 | 162 | 3.9 | 238 | 2.20 | 69 | ..... | ..... | ..... | ..... |
| 6 | ..... | ..... | 1.80 | 40 | 1.90 | 47 | 3.3 | 172 | 4.1 | 260 | 2.10 | 61 | ..... | ..... | ..... | ..... |
| 7 | ..... | ..... | 1.60 | 28 | 1.70 | 34 | 3.2 | 162 | 4.3 | 282 | 2.05 | 58 | ..... | ..... | 1.15 | 10 |
| 8 | ..... | ..... | 1.45 | 20 | 2.25 | 73 | 3.4 | 183 | 4.4 | 294 | 2.00 | 54 | ..... | ..... | ..... | ..... |
| 9 | ..... | ..... | 1.50 | 23 | 2.35 | 81 | 3.6 | 205 | 4.4 | 294 | 1.90 | 47 | ..... | ..... | ..... | ..... |
| 10 | ..... | ..... | 1.35 | 16 | 2.15 | 65 | 3.8 | 227 | 4.3 | 282 | 2.00 | 54 | ..... | ..... | ..... | ..... |
| 11 | ..... | ..... | 1.50 | 23 | 2.60 | 103 | 3.7 | 216 | 4.2 | 271 | 2.00 | 54 | 1.70 | 34 | ..... | ..... |
| 12 | 1.10 | 9 | 1.25 | 12 | 2.25 | 73 | 4.1 | 260 | 4.2 | 271 | 1.80 | 40 | ..... | ..... | ..... | ..... |
| 13 | ..... | 12 | 1.45 | 20 | 2.15 | 65 | 4.0 | 249 | 4.2 | 271 | 1.90 | 47 | ..... | ..... | 1.45 | 20 |
| 14 | 1.35 | 16 | 1.35 | 16 | 1.90 | 47 | 4.2 | 271 | 4.1 | 260 | 2.00 | 54 | ..... | ..... | ..... | ..... |
| 15 | 1.40 | 18 | 1.60 | 28 | 1.80 | 40 | 4.5 | 306 | 3.7 | 216 | 1.80 | 40 | ..... | ..... | ..... | ..... |
| 16 | 1.50 | 23 | 1.50 | 23 | 1.90 | 47 | 4.4 | 294 | 3.8 | 227 | 1.70 | 34 | ..... | ..... | ..... | ..... |
| 17 | 1.60 | 28 | 1.80 | 40 | 2.00 | 54 | 4.6 | 318 | 3.4 | 183 | 1.80 | 40 | ..... | ..... | ..... | ..... |
| 18 | 2.15 | 65 | 1.60 | 28 | 2.15 | 65 | 4.3 | 282 | 3.3 | 172 | 1.65 | 31 | 1.45 | 20 | ..... | ..... |
| 19 | 1.50 | 23 | 1.35 | 16 | 2.25 | 73 | 4.7 | 330 | 3.0 | 142 | 1.70 | 34 | ..... | ..... | 1.35 | 16 |
| 20 | 1.35 | 16 | 1.25 | 12 | 2.70 | 112 | 4.6 | 318 | 3.2 | 162 | 1.80 | 40 | ..... | ..... | ..... | ..... |
| 21 | 1.50 | 23 | 1.35 | 16 | 2.80 | 122 | 3.9 | 238 | 2.90 | 132 | 1.80 | 40 | ..... | ..... | ..... | ..... |
| 22 | 1.45 | 20 | 1.45 | 20 | 3.2 | 162 | 3.7 | 216 | 2.70 | 112 | 1.85 | 44 | ..... | ..... | ..... | ..... |
| 23 | 1.35 | 16 | 1.50 | 23 | 3.2 | 162 | 3.3 | 172 | 2.70 | 112 | 1.70 | 34 | ..... | ..... | ..... | ..... |
| 24 | 1.35 | 16 | 1.60 | 28 | 3.2 | 162 | 3.2 | 162 | 2.50 | 94 | 1.60 | 28 | ..... | ..... | ..... | ..... |
| 25 | 1.35 | 16 | 2.15 | 65 | 3.4 | 183 | 3.2 | 162 | 2.50 | 94 | 1.65 | 31 | 1.50 | 23 | 1.25 | 12 |
| 26 | 1.80 | 40 | 1.90 | 47 | 3.5 | 194 | 3.3 | 172 | 2.60 | 103 | 1.70 | 34 | ..... | ..... | ..... | ..... |
| 27 | 1.50 | 23 | 2.25 | 73 | 3.5 | 194 | 3.6 | 205 | 2.40 | 85 | 1.55 | 26 | ..... | ..... | ..... | ..... |
| 28 | 1.45 | 20 | 2.15 | 65 | 3.2 | 162 | 3.4 | 183 | 2.35 | 81 | 1.50 | 23 | ..... | ..... | ..... | ..... |
| 29 | 1.35 | 16 | 1.90 | 47 | 3.4 | 183 | 3.7 | 216 | 2.40 | 85 | 1.70 | 34 | ..... | ..... | ..... | ..... |
| 30 | ..... | ..... | 1.80 | 40 | 3.4 | 183 | 4.5 | 306 | 2.50 | 94 | 1.70 | 34 | ..... | ..... | 1.15 | 10 |
| 31 | ..... | ..... | 1.60 | 28 | ..... | ..... | 4.6 | 318 | ..... | ..... | 1.60 | 28 | 1.45 | 20 | ..... | ..... |

NOTE.—Discharge determined from a rating curve which is well defined below 180 second-feet.

*Monthly discharge of Keiger Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| February 14-29 | 65 | 9 | 22.2 | 793 | A. |
| March | 73 | 12 | 28.5 | 1,750 | A. |
| April | 194 | 34 | 98.2 | 5,840 | A. |
| May | 330 | 85 | 214 | 13,200 | B. |
| June | 294 | 81 | 198 | 11,800 | A. |
| July | 90 | 23 | 45.1 | 2,770 | A. |
| August | ..... | ..... | 32.4 | 1,990 | C. |
| September | ..... | ..... | 16 | 952 | C. |
| The period | ..... | ..... | ..... | 39,100 | |

NOTE.—Mean flow for Oct. 1, 1911, to Feb. 11, 1912, estimated at 10 second-feet, making total run-off for the year of 41,800 acre-feet.

## CUCAMONGA CREEK NEAR DIAMOND, OREG.

**Location.**—In sec. 8, T. 30 S., R. 33 E., about 2½ miles southwest of Diamond, and about 1 mile up the creek from the old Cummings place.

**Records available.**—March 20, 1911, to July 31, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—Sand; may shift.

**Discharge measurements.**—Made from footbridge.

**Accuracy.**—It has been found impossible to secure daily gage readings and no attempt has been made to estimate monthly discharge. Discharge is given only for days when gage was read in 1911 and 1912.

**Cooperation.**—Station established by the Eastern Oregon Engineering Co. for the William Hanley Co.

*Discharge measurements of Cucamonga Creek near Diamond, Oreg., in year ending Sept 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| 1911. | | *Feet.* | *Sec.-ft.* | 1912. | | *Feet.* | *Sec.-ft.* |
| July 19 | H. McLain | 0.95 | 1.7 | May 27 | F. C. Dillard | 2.05 | 20.3 |
| Aug. 5 | R. W. Davenport | .35 | .04 | Nov. 28[a] | Howard Kimble | .88 | 2.53 |

[a] Some shore ice at measuring section, but gage height not believed to be seriously affected thereby.

*Daily discharge, in second-feet, of Cucamonga Creek near Diamond, Oreg., for year ending Sept. 30, 1911.*

| Day. | Mar. | Apr. | May. | June. | July. | Day. | Mar. | Apr. | May. | June. | July. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ..... | 14 | ..... | ..... | ..... | 16 | ..... | ..... | 3.5 | ..... | ..... |
| 2 | ..... | 13 | ..... | 7.0 | ..... | 17 | ..... | 5.2 | 2.7 | ..... | ..... |
| 3 | ..... | ..... | ..... | ..... | 4.5 | 18 | ..... | 6.4 | ..... | ..... | ..... |
| 4 | ..... | ..... | 7.2 | ..... | ..... | 19 | ..... | ..... | ..... | ..... | ..... |
| 5 | ..... | ..... | ..... | 6.4 | ..... | 20 | 9.2 | ..... | ..... | ..... | ..... |
| 6 | ..... | ..... | 9.0 | ..... | 3.5 | 21 | ..... | ..... | 2.7 | ..... | ..... |
| 7 | ..... | 11 | ..... | ..... | ..... | 22 | ..... | ..... | ..... | ..... | ..... |
| 8 | ..... | 6.9 | ..... | ..... | 2.7 | 23 | 18 | ..... | 4.0 | 4.5 | ..... |
| 9 | ..... | ..... | ..... | 5.7 | ..... | 24 | ..... | 8.0 | ..... | ..... | ..... |
| 10 | ..... | ..... | 5.7 | ..... | ..... | 25 | ..... | ..... | ..... | ..... | ..... |
| 11 | ..... | ..... | 5.1 | ..... | ..... | 26 | ..... | ..... | ..... | ..... | ..... |
| 12 | ..... | 4.9 | ..... | ..... | 2.4 | 27 | 7.8 | ..... | ..... | ..... | ..... |
| 13 | ..... | 4.5 | ..... | 9.0 | ..... | 28 | 6.9 | 11 | ..... | ..... | ..... |
| 14 | ..... | ..... | ..... | ..... | ..... | 29 | ..... | 7.6 | 3.1 | 4.5 | ..... |
| 15 | ..... | ..... | ..... | ..... | ..... | 30 | ..... | ..... | ..... | ..... | ..... |
| | | | | | | 31 | ..... | ..... | ..... | ..... | ..... |

NOTE.—Discharge determined by a fairly well defined curve. Accuracy during the spring month is lessened by the diurnal fluctuation. Channel was dry August to December, 1911.

*Daily gage height, in feet, and discharge, in second-feet, of Cucamonga Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Gage height. | Discharge. | Day. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| Feb. 3 | 0.90 | 1.4 | June 26 | 1.15 | 5.1 |
| Feb. 11 | 1.20 | 3.5 | July 3 | .95 | 3.1 |
| Feb. 14 | .85 | 1.2 | July 10 | .80 | 2.0 |
| May 27 | 2.05 | 20 | July 17 | .70 | 1.4 |
| June 5 | 2.45 | 34 | July 24 | .45 | .4 |
| June 12 | 2.50 | 36 | July 31 | .60 | 1.0 |
| June 19 | 1.35 | 8.0 | | | |

NOTE.—Discharge determined from two fairly well defined curves, applicable before and after June 19.

## McCOY CREEK NEAR DIAMOND, OREG.

**Location.**—In sec. 12, T. 30 S., R. 32 E., about 5 miles southwest of Diamond, and about 1,000 feet above Kesterson's ranch house.

**Records available.**—January 27, 1909, to May 22, 1910; May 23, 1910 (new site), to September 30, 1912.

**Drainage area.**—45 square miles. Revised since 1911 report.

**Gages.**—A vertical staff installed May 23, 1910, 2½ miles above the original gage, which was 3 miles from Diamond post office.

**Channel.**—Clean gravel and sand; liable to shift.

**Discharge measurements.**—Made from a footbridge 25 yards above the gage, or by wading.

**Winter flow.**—Relation of gage height to discharge affected by ice.

**Diversions.**—The present station is above all diversions except one unimportant ditch. Several irrigation ditches divert water above the original site for use of hay lands in Diamond Swamp. No attempt was made to estimate the quantity of water carried by these ditches.

**Accuracy.**—Conditions at the new station favor accurate determination of discharge, but not enough measurements have been made to insure reliable results.

*Discharge measurements of McCoy Creek near Diamond, Oreg., in year ending Sept. 30, 1912.*

[Mrs. Grant Kesterson, observer.]

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* |
| May 29 | F. C. Dillard | 4.74 | 165 |
| Nov. 29 | Howard Kimble | 1.70 | 10.6 |

*Daily gage height, in feet, of McCoy Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.72 | 1.80 | ..... | 1.80 | 1.85 | 1.90 | 2.10 | 2.90 | 5.0 | 2.30 | 1.60 | 1.30 |
| 2 | 1.85 | 1.80 | ..... | 1.85 | 1.85 | 1.88 | 2.20 | 2.90 | 5.5 | 2.35 | 1.65 | 1.30 |
| 3 | 1.87 | 1.80 | ..... | 1.85 | 1.85 | 1.88 | 2.40 | 3.50 | 5.6 | 2.20 | 1.60 | ..... |
| 4 | 1.90 | 1.80 | ..... | 1.85 | ..... | 1.78 | 2.35 | 2.80 | 5.2 | 2.10 | 2.25 | 1.30 |
| 5 | 1.78 | ..... | ..... | 1.85 | 1.87 | 1.80 | 2.35 | 2.75 | 5.4 | 2.15 | 1.70 | 1.35 |
| 6 | 1.75 | 1.80 | ..... | 1.85 | 1.87 | 2.10 | 2.30 | 2.70 | 5.7 | 2.05 | 1.65 | 1.70 |
| 7 | 1.78 | 1.80 | 1.70 | 1.85 | 1.87 | 1.80 | ..... | 2.75 | 6.0 | ..... | 1.60 | 1.65 |
| 8 | 1.80 | 1.80 | 1.70 | 1.90 | 1.90 | 1.75 | 2.50 | 3.00 | 5.8 | ..... | 1.60 | 1.60 |
| 9 | ..... | ..... | 1.72 | 1.90 | 1.90 | 1.80 | 2.60 | 3.5 | 4.9 | ..... | 1.50 | ..... |
| 10 | 1.90 | 1.85 | 1.70 | 1.90 | 2.00 | 1.85 | 2.75 | 4.0 | 4.5 | 1.90 | 1.50 | 1.45 |

*Daily gage height, in feet, of McCoy Creek near Diamond, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 1.87 | 1.90 | 1.75 | 1.95 | ..... | 1.88 | 2.65 | 4.1 | 4.4 | 1.85 | 1.50 | 1.40 |
| 12 | 1.90 | ..... | 1.75 | 2.65 | 1.90 | 1.78 | 2.50 | 4.2 | 4.9 | 1.85 | 1.50 | 1.30 |
| 13 | 1.90 | 1.85 | 1.70 | 2.70 | 1.90 | 1.78 | 2.40 | 4.5 | 5.0 | 1.80 | 1.50 | 1.30 |
| 14 | 1.90 | 1.85 | 1.70 | 2.90 | ..... | 1.78 | 2.40 | 4.4 | 4.4 | 1.90 | 1.50 | 1.25 |
| 15 | 1.87 | 2.00 | 1.70 | 2.95 | 1.90 | 1.75 | 2.30 | 4.5 | 3.7 | 1.85 | 1.50 | 1.20 |
| 16 | ..... | 1.90 | 1.65 | 2.85 | 1.90 | 1.70 | 2.30 | 4.6 | 3.20 | 1.75 | 1.50 | 1.20 |
| 17 | 1.87 | ..... | ..... | 1.90 | 3.6 | ..... | 2.30 | 4.7 | 3.25 | 1.70 | 1.50 | 1.20 |
| 18 | 1.87 | 1.90 | 1.65 | 1.90 | 3.30 | 1.60 | 2.30 | 4.8 | 3.5 | 1.70 | 1.50 | ..... |
| 19 | 1.87 | 1.90 | 1.65 | 1.85 | 2.20 | 1.80 | ..... | 5.0 | 3.8 | ..... | ..... | 1.20 |
| 20 | 1.85 | 1.90 | 1.70 | 1.85 | 2.20 | 1.75 | 2.28 | 4.9 | 4.2 | 1.70 | 1.40 | 1.20 |
| 21 | 1.80 | 1.90 | 1.85 | 1.70 | 2.20 | 1.80 | 2.22 | 4.5 | 3.6 | 1.75 | ..... | 1.20 |
| 22 | 1.80 | 1.87 | 1.85 | 1.70 | ..... | ..... | 2.35 | 4.0 | 3.00 | 1.70 | 1.30 | 1.20 |
| 23 | 1.80 | 1.85 | 1.90 | 1.70 | 2.00 | ..... | 3.00 | 3.7 | 3.6 | 1.70 | 1.20 | 1.20 |
| 24 | 1.80 | ..... | 1.90 | 1.80 | 2.00 | ..... | 4.1 | 3.6 | 3.8 | 1.70 | 1.20 | 1.20 |
| 25 | 1.80 | 1.80 | 1.85 | 3.00 | 2.00 | 2.00 | 3.7 | 4.3 | 3.10 | 1.65 | 1.20 | 1.20 |
| 26 | 1.78 | 1.80 | 1.85 | 2.00 | ..... | 2.00 | 3.0 | 3.9 | 3.20 | 1.65 | ..... | 1.20 |
| 27 | 1.78 | 1.85 | 1.80 | 2.00 | 1.88 | 2.00 | 3.6 | 3.9 | 3.05 | 1.60 | 1.20 | 1.20 |
| 28 | 1.80 | 1.85 | 1.80 | 1.90 | 1.85 | 2.00 | 3.00 | 4.2 | 2.85 | 1.60 | 1.20 | 1.20 |
| 29 | 1.80 | ..... | ..... | 1.80 | 1.90 | 2.10 | ..... | 4 8 | 2.80 | 1.55 | 1.20 | 1.20 |
| 30 | 1.78 | ..... | 1.80 | 1.80 | ..... | 2.10 | 2.90 | 4.9 | 2.60 | 1.50 | 1.20 | 1.20 |
| 31 | ..... | ..... | 1.85 | 1.80 | ..... | 2.10 | ..... | 4.7 | ..... | 1.70 | 1.35 | ..... |

NOTE.—Gage heights affected by ice Dec. 20-31 and Jan. 1-16.

*Daily discharge, in second-feet, of McCoy Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

| Day. | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May. | June. | July. | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.4 | 6 | 6 | 3 | 7 | 8 | 13 | 45 | 175 | 32 | 8 | 3 |
| 2 | 7 | 6 | 6 | 3 | 7 | 7.6 | 16 | 45 | 210 | 34 | 9 | 3 |
| 3 | 7 | 6 | 5 | 3 | 7 | 7.6 | 24 | 77 | 217 | 28 | 8 | 3 |
| 4 | 8 | 6 | 5 | 3 | 7.2 | 5.6 | 22 | 40 | 189 | 24 | 30 | 3 |
| 5 | 5.6 | 6 | 4 | 3 | 7.4 | 6 | 22 | 38 | 203 | 26 | 10 | 3.5 |
| 6 | 5 | 6 | 4 | 3 | 7.4 | 13 | 20 | 36 | 224 | 22 | 9 | 10 |
| 7 | 5.6 | 6 | 4 | 3 | 7.4 | 6 | 24 | 38 | 266 | 20 | 8 | 9 |
| 8 | 6 | 6 | 4 | 3 | 8 | 5 | 28 | 50 | 252 | 19 | 8 | 8 |
| 9 | 7 | 7 | 4.4 | 3 | 8 | 6 | 32 | 77 | 189 | 18 | 6 | 6 |
| 10 | 8 | 7 | 4 | 3 | 10 | 7 | 38 | 107 | 161 | 16 | 6 | 5 |
| 11 | 7 | 8 | 5 | 7 | 9 | 7.6 | 34 | 113 | 154 | 14 | 6 | 4 |
| 12 | 8 | 7 | 5 | 30 | 8 | 5.6 | 28 | 119 | 189 | 14 | 6 | 3 |
| 13 | 8 | 7 | 4 | 32 | 8 | 5.6 | 24 | 140 | 196 | 13 | 6 | 3 |
| 14 | 8 | 7 | 4 | 40 | 8 | 5.6 | 24 | 133 | 154 | 16 | 6 | 2.5 |
| 15 | 7 | 10 | 4 | 29 | 8 | 5 | 20 | 140 | 107 | 14 | 6 | 2 |
| 16 | 7 | 8 | 3.5 | 19 | 8 | 4 | 20 | 147 | 77 | 12 | 6 | 2 |
| 17 | 7 | 8 | 3.5 | 8 | 83 | 4 | 20 | 154 | 80 | 10 | 6 | 2 |
| 18 | 7 | 8 | 3.5 | 8 | 65 | 3 | 20 | 161 | 95 | 10 | 6 | 2 |
| 19 | 7 | 8 | 3.5 | 7 | 16 | 6 | 20 | 175 | 113 | 10 | 5 | 2 |
| 20 | 7 | 8 | ..... | 7 | 16 | 5 | 19 | 168 | 140 | 10 | 4 | 2 |
| 21 | 6 | 8 | ..... | 4 | 16 | 6 | 17 | 140 | 101 | 12 | 4 | 2 |
| 22 | 6 | 7 | ..... | 4 | 13 | 7 | 22 | 107 | 65 | 10 | 3 | 2 |
| 23 | 6 | 7 | ..... | 4 | 10 | 8 | 50 | 89 | 101 | 10 | 2 | 2 |
| 24 | 6 | 6 | ..... | 6 | 10 | 9 | 113 | 83 | 113 | 10 | 2 | 2 |
| 25 | 6 | 6 | ..... | 50 | 10 | 10 | 89 | 126 | 71 | 9 | 2 | 2 |
| 26 | 5.6 | 6 | ..... | 10 | 9 | 10 | 50 | 101 | 77 | 9 | 2 | 2 |
| 27 | 5.6 | 7 | ..... | 10 | 7.6 | 10 | 83 | 101 | 68 | 8 | 2 | 2 |
| 28 | 6 | 7 | ..... | 8 | 7 | 10 | 50 | 119 | 58 | 8 | 2 | 2 |
| 29 | 6 | 7 | ..... | 6 | 8 | 13 | 49 | 161 | 55 | 7 | 2 | 2 |
| 30 | 5.6 | 6 | ..... | 6 | ..... | 13 | 48 | 168 | 45 | 6 | 2 | 2 |
| 31 | 5.8 | ..... | ..... | 6 | ..... | 13 | ..... | 154 | ..... | 10 | 3.5 | ..... |

NOTE.—Discharge Oct. 1 to June 6 determined from a well-defined rating curve; June 7 to Sept. 30 determined from a fairly well defined curve. Mean discharge estimated at 3 second-feet Dec. 20-31 and estimated for Jan. 1-16 on account of ice.

*Monthly discharge of McCoy Creek near Diamond, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 56 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| October | 8 | 4.4 | 6.49 | 0.116 | 0.13 | 399 | D. |
| November | 10 | 6 | 6.93 | .124 | .14 | 412 | D. |
| December | | | 3.82 | .068 | .08 | 235 | D. |
| January | 50 | 3 | 10.7 | .191 | .22 | 658 | D. |
| February | 83 | 7 | 13.7 | .245 | .26 | 788 | D |
| March | 13 | 13 | 7.49 | .134 | .15 | 461 | D. |
| April | 113 | 13 | 34.2 | .611 | .68 | 2,040 | D. |
| May | 175 | 36 | 108 | 1.93 | 2.22 | 6,640 | C. |
| June | 266 | 45 | 138 | 2.46 | 2.74 | 8,210 | C. |
| July | 34 | 6 | 14.9 | .266 | .31 | 916 | D. |
| August | 30 | 2 | 5.98 | .107 | .12 | 368 | D. |
| September | 10 | 2 | 3.27 | .058 | .08 | 195 | D. |
| The year | 266 | 2 | 29.4 | .525 | 7.13 | 21,300 | |

## SILVER CREEK ABOVE RILEY, OREG.

**Location.**—In sec. 30, T. 22 S., R. 26 E., 12 miles above Riley, 3 miles below the junction of Nichols Creek.

**Records available.**—April 19, 1904, to July 14, 1906; February 15 to December 12, 1909; April 6 to October 19, 1910; December 31, 1910, to April 22, 1911; March 22 to June 30, 1912.

**Drainage area.**—266 square miles.

**Gages.**—Vertical and inclined staff. At the point where this station has been located Silver Creek is divided into three channels by an earth and rock dam. The original gage, established in 1904, was placed in the third or left channel. When the station was reestablished in 1909 a new gage was installed on the right bank, and in December, 1910, a third gage was installed by the Silver Valley Irrigation Co. above the influence of the dam.

**Channel.**—Clean gravel; not likely to shift.

**Discharge measurements.**—At the original station masurements were made from the three bridges which cross the channels. After the station was reestablished in 1909 measurements were made from a cable which was installed 50 feet below the new gage, 300 feet above the bridges, and about 100 feet above the dam. The dam is rather unstable, as the brush, earth, and smaller stones are washed away by the first flood and are not replaced until the water subsides in the spring. The gage heights for 1909 were affected by these changes.

**Winter flow.**—Relation of gage height to discharge is affected by ice.

**Diversions and storage.**—The water of Silver Creek is used to irrigate hay lands in the upper Silver Creek valley. Below this point the valley narrows to a canyon and opens out again near Silver Lake into lower Silver Creek valley. During the years of low run-off no water from the upper valley reaches the lower. The Silver Creek reservoir site, which was investigated by the United States Reclamation Service and also by the Silver Valley Irrigation Co., is 3 or 4 miles above the gaging section. Water stored at this point could be used to irrigate large areas of agricultural lands on both sides of the stream.

**Accuracy.**—Results at this station are only approximately accurate.

**Cooperation.**—Station maintained in cooperation with the Silver Valley Irrigation Co.

*Discharge measurements of Silver Creek above Riley, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. | Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|---|---|---|---|
| | | *Feet.* | *Sec.-ft.* | | | *Feet.* | *Sec.-ft.* |
| Apr. 12 | C. B. McConnell | 4.00 | 363 | May 11 | R. D. Cooper | 4.08 | 386 |
| May 4 | H. K. Donnelly | 4.34 | 382 | Nov. 15 | Howard Kimble | .42 | 5.8 |
| 10 | R. D. Cooper | 4.56 | 390 | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Silver Creek above Riley, Oreg., for year ending Sept. 30, 1912.*

| Day. | March. | | April. | | May. | | June. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 3.3 | 248 | 5.3 | 535 | 1.80 | 81 |
| 2 | | | 3.5 | 274 | 4.7 | 445 | 1.70 | 72 |
| 3 | | | 3.8 | 314 | 4.5 | 415 | 1.70 | 72 |
| 4 | | | 4.1 | 356 | 4.3 | 385 | 1.65 | 68 |
| 5 | | | 4.3 | 385 | 4.3 | 385 | 1.45 | 51 |
| 6 | | | 4.6 | 430 | 4.2 | 370 | 1.40 | 47 |
| 7 | | | 4.9 | 475 | 4.1 | 356 | 1.35 | 44 |
| 8 | | | 5.1 | 505 | 4.6 | 430 | 1.30 | 40 |
| 9 | | | 5.3 | 535 | 4.7 | 445 | 1.25 | 37 |
| 10 | | | 5.5 | 565 | 4.6 | 430 | 1.20 | 34 |
| 11 | | | | 565 | 4.1 | 356 | 1.25 | 37 |
| 12 | | | 4.0 | 342 | 3.8 | 314 | 1.25 | 37 |
| 13 | | | | 340 | 3.5 | 274 | 1.25 | 37 |
| 14 | | | | 330 | 3.2 | 235 | 1.25 | 37 |
| 15 | | | | 330 | 2.90 | 198 | 1.20 | 34 |
| 16 | | | | 330 | 2.80 | 186 | 1.10 | 29 |
| 17 | | | | 320 | 2.50 | 152 | 1.05 | 26 |
| 18 | | | | 320 | 2.40 | 141 | 1.00 | 24 |
| 19 | | | | 315 | 2.25 | 125 | .90 | 20 |
| 20 | | | | 310 | 2.15 | 115 | .90 | 20 |
| 21 | | | | 305 | 2.15 | 115 | .90 | 20 |
| 22 | 0.50 | 6 | | 300 | 2.00 | 100 | .90 | 20 |
| 23 | .80 | 16 | | 295 | 1.90 | 90 | .85 | 18 |
| 24 | 1.10 | 29 | | 290 | 1.80 | 81 | .85 | 18 |
| 25 | 1.40 | 47 | | 290 | 1.95 | 95 | .75 | 14 |
| 26 | 1.60 | 63 | | 320 | 2.10 | 110 | .70 | 12 |
| 27 | 1.90 | 90 | | 340 | 2.20 | 120 | .70 | 12 |
| 28 | 2.10 | 110 | | 370 | 2.20 | 120 | .65 | 10 |
| 29 | 2.40 | 141 | | 420 | 2.00 | 120 | .65 | 10 |
| 30 | 2.70 | 174 | | 610 | 2.10 | 110 | .75 | 14 |
| 31 | 3.0 | 210 | | | 1.90 | 90 | | |

NOTE.—Discharge determined from a fairly well defined curve. Discharge for periods during which gage was not read—Apr. 11 and Apr. 13-30—estimated by comparison with records of stations on Silvies River at Burns and Silvies.

*Monthly discharge of Silver Creek above Riley, Oreg., for year ending Sept. 30, 1912.*

[Drainage area, 266 square miles.]

| Month. | Discharge in second-feet. | | | | Run-off. | | Accuracy. |
|---|---|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | Per square mile. | Depth in inches on drainage area. | Total in acre-feet. | |
| March 22-31 | 210 | 6 | 88.6 | 0.333 | 0.12 | 1,760 | C. |
| April | 610 | 248 | 371 | 1.39 | 1.55 | 22,100 | D. |
| May | 535 | 81 | 240 | .902 | 1.04 | 14,800 | C. |
| June | 81 | 10 | 33.2 | .125 | .14 | 1,980 | C. |
| The period | | | | | | 40,600 | |

## SILVER CREEK BELOW RILEY, OREG.

**Location.**—Original location in sec. 33, T. 23 S., R. 27 E., 2 miles southeast of Riley, near upper end of canyon below Silver Valley; later moved 2 miles downstream into sec. 10, T. 24 S., R. 27 E.

**Records available.**—March 12 to April 30, 1912, at first location; May 1 to June 21 1912. Water runs only a few weeks during spring of each year.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff on left bank.

**Channel.**—Gravel; probably fairly permanent at both locations.

**Discharge measurements.**—Made by wading.

**Diversions.**—A large percentage of the total run-off—practically all except during a short period of flood run-off in the spring—is diverted for irrigation in the Silver Valley above the station.

**Accuracy.**—Results are approximate, owing to the small number of measurements.

*Discharge measurements of Silver Creek below Riley, Oreg., in year ending Sept. 30, 1912.*

| Date. | Hydrographer. | Gage height. | Discharge. |
|---|---|---|---|
| 1912. | | *Feet.* | *Sec.-ft.* |
| Mar. 12 | Cooper and Dodge | 1.40 | 6.54 |
| Apr. 13 | Cooper and McConnell | 2.90 | 248 |
| 1913. | | | |
| May 6 | Howard Kimble | 1.82 | 67.2 |

*Daily gage height, in feet, and discharge, in second-feet, of Silver Creek below Riley, Oreg., in year ending Sept. 30, 1912.*

[J. L. Williams and A. D. Cryder, observers.]

| Day. | March. | | April. | | May. | | June. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | 2.00 | 76 | 3.30 | 344 | 1.95 | 86 |
| 2 | | | 2.10 | 92 | 3.40 | 368 | 1.80 | 65 |
| 3 | | | 2.35 | 135 | 3.40 | 368 | 1.75 | 58 |
| 4 | | | 2.65 | 194 | 3.30 | 344 | 1.60 | 39 |
| 5 | | | 2.75 | 215 | 3.30 | 344 | 1.60 | 39 |
| 6 | | | 2.80 | 226 | 3.28 | 339 | 1.50 | 27 |
| 7 | | | 2.90 | 248 | 3.18 | 318 | 1.45 | 22 |
| 8 | | | 3.00 | 272 | 3.20 | 322 | 1.48 | 25 |
| 9 | | | 3.10 | 296 | 3.30 | 344 | 1.45 | 22 |
| 10 | | | 3.20 | 320 | 3.32 | 349 | 1.40 | 17 |
| 11 | | | 3.45 | 381 | 3.30 | 344 | 1.30 | 9 |
| 12 | 1.40 | 7 | 3.30 | 344 | 3.18 | 318 | 1.28 | 8 |
| 13 | 1.40 | 7 | 2.90 | 248 | 3.00 | 278 | 1.35 | 13 |
| 14 | 1.35 | 5 | 2.80 | 226 | 2.85 | 246 | 1.30 | 9 |
| 15 | 1.35 | 5 | 2.70 | 204 | 2.70 | 216 | 1.30 | 9 |
| 16 | | 5 | 2.58 | 179 | 2.55 | 187 | 1.30 | 9 |
| 17 | | 5 | 2.50 | 163 | 2.45 | 169 | 1.25 | 7 |
| 18 | | 5 | 2.50 | 163 | 2.20 | 125 | 1.20 | 2 |
| 19 | | 5 | 2.50 | 163 | 2.15 | 117 | 1.10 | 1 |
| 20 | 1.35 | 5 | 2.40 | 144 | 2.10 | 109 | 1.00 | 5 |
| 21 | 1.35 | 5 | 2.30 | 126 | 2.08 | 106 | 1.00 | 1 |
| 22 | 1.35 | 5 | 2.20 | 109 | 2.05 | 101 | | 0 |
| 23 | 1.35 | 5 | 2.25 | 118 | 1.92 | 82 | | 0 |
| 24 | 1.35 | 5 | 2.30 | 126 | 1.85 | 72 | | 0 |
| 25 | 1.35 | 5 | 2.40 | 144 | 1.90 | 79 | | 0 |
| 26 | 1.40 | 7 | 2.50 | 163 | 2.32 | 146 | | 0 |
| 27 | 1.50 | 13 | 2.50 | 163 | 2.18 | 122 | | 0 |
| 28 | 1.70 | 34 | | 224 | 2.10 | 109 | | |
| 29 | 1.95 | 68 | | 284 | 2.05 | 101 | | 0 |
| 30 | 2.05 | 84 | 3.30 | 344 | 2.00 | 93 | | 0 |
| 31 | 1.90 | 61 | | | 2.00 | 93 | | |

NOTE.—Discharge computed from two fairly well defined curves, one applicable Mar. 12 to Apr. 30, the other May 1 to June 21. Creek dry June 22 to 30.

*Monthly discharge of Silver Creek below Riley, Oreg., for year ending Sept. 30, 1912.*

| Month. | Discharge in second-feet. | | | Run-off (total in acre-feet). | Accuracy. |
|---|---|---|---|---|---|
| | Maximum. | Minimum. | Mean. | | |
| March 12-31 | 84 | 5 | 17.0 | 674 | B. |
| April | 381 | 76 | 203 | 12,100 | B. |
| May | 368 | 72 | 214 | 13,200 | B. |
| June | 86 | 0 | 15.8 | 940 | B. |
| The period | | | | 26,900 | |

## ALVORD LAKE DRAINAGE BASIN.

### TROUT CREEK NEAR DENIO, OREG.

**Location.**—At the mouth of the canyon, just below a bridge, in sec. 26, T. 39 S., R. 36 E., 4½ miles east of Trout Creek ranch buildings, and 14 miles northeast of Denio.

**Records available.**—March 25, 1911, to March 31, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—May shift somewhat; bed composed of gravel and sand.

**Discharge measurements.**—Made by wading.

**Diversions and storage.**—The normal flow of the creek, which is derived chiefly from melting snow, is entirely appropriated for irrigation below the station. Water is diverted from the creek and its tributaries for use of the three or four small ranches in the canyon above the station, and after the creek enters the valley much of the water is diverted for use of the Trout Creek ranch. Further irrigation from this stream will depend on the storage of the winter flow and on more efficient use of the water. An unsurveyed reservoir site about 1½ miles above the mouth of the canyon would probably store 10,000 acre-feet by means of a 100-foot dam.

**Accuracy.**—The results obtained at this station in 1911 were reliable and conditions were fairly permanent; the flow was steady and the gage readings afforded a sufficiently accurate estimate of the discharge. Gage-height record for 1912 was fragmentary and results are only approximate.

**Cooperation.**—Station maintained in cooperation with Thomas & Walter, proprietors of the Trout Creek ranch.

*Daily gage height, in feet, and discharge, in second-feet, of Trout Creek near Denio, Oreg., for year ending Sept. 30, 1912.*

| Day. | Gage height. | Discharge. | Day. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| 1911. | | | 1912. | | |
| Sept. 10 | 0.62 | 1.4 | Jan. 11 | 1.30 | 18 |
| Sept. 20 | .6 | 1.0 | Jan. 14 | 1.30 | 24 |
| Sept. 30 | .72 | 3.8 | Jan. 28 | .80 | 7 |
| Oct. 15 | .82 | 8.0 | Feb. 4 | .82 | 8 |
| Oct. 22 | .82 | 8.0 | Feb. 16 | .78 | 6 |
| Oct. 29 | .82 | 8.0 | Feb. 25 | 1.00 | 18 |
| Nov. 13 | .97 | 16 | Mar. 28 | 1.00 | 18 |

NOTE.—Discharge determined from a curve which is not well defined at the stages used. Gage heights for Jan. 11 and 14 were affected by ice, and discharges have been estimated from observer's estimates of ice effect.

*Monthly discharge of Trout Creek near Denio, Oreg., for year ending Sept. 30, 1912.*

| Month. | Mean discharge in second-feet. | Run-off (total in acre-feet). |
|---|---|---|
| October | 7 | 430 |
| November | 16 | 952 |
| December | 18 | 1,110 |
| January | 12 | 738 |
| February | 10 | 575 |
| March | 20 | 1,230 |
| The period | | 5,040 |

NOTE.—Monthly means estimated from the few records which were obtained and by comparison with records on Little Cottonwood Creek. These estimates are only approximate but serve to make possible an estimate of total yearly run-off. The total for the 12 months April, 1911, to March, 1912, is 18,300 acre-feet.

## LITTLE COTTONWOOD CREEK NEAR DENIO, OREG.

**Location.**—Near mouth of the canyon, in sec. 28, T. 39 S., R. 35 E., about one-eighth mile above the crossing of the stage road to Andrews, and 13 miles northeast of Denio.

**Records available.**—March 27, 1911, to May 13, 1912.

**Drainage area.**—Not measured.

**Gage.**—Vertical staff.

**Channel.**—Probably permanent; bed composed of bowlders and stones.

**Discharge measurements.**—Made by wading.

**Accuracy.**—Results are good, although it is possible that some fluctuations in stage have occurred which have not been shown by the rather infrequent gage readings.

**Cooperation.**—Station maintained in cooperation with Thomas & Walter, proprietors of the Trout Creek ranch.

The records show the amount of water available in this stream for irrigation.

*Daily gage height, in feet, and discharge, in second-feet, of Little Cottonwood Creek near Denio, Oreg., for year ending Sept. 30, 1912.*

| Day. | February. | | March. | | April. | | May. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 1 | | | | | | | | |
| 2 | | | 0.30 | 0.9 | 0.58 | 2.8 | 0.70 | 5.0 |
| 3 | | | | | | | | |
| 4 | | | | | .60 | 3.0 | | |
| 5 | | | | | | | .75 | 6.0 |
| 6 | | | | | .58 | 2.8 | | |
| 7 | | | | | | | .95 | 10 |
| 8 | | | | | | | | |
| 9 | | | | | .65 | 4.0 | | |
| 10 | | | | | | | 1.20 | 20 |
| 11 | | | | | .64 | 3.8 | | |
| 12 | | | .36 | 1.3 | | | | |
| 13 | | | | | .56 | 2.6 | 1.00 | 12 |
| 14 | | | | | | | | |
| 15 | | | | | | | | |
| 16 | | | .32 | 1.0 | | | | |
| 17 | | | | | | | | |
| 18 | 0.65 | 4.0 | | | | | | |
| 19 | | | | | | | | |
| 20 | | | | | | | | |

*Daily gage height, in feet, and discharge, in second-feet, of Little Cottonwood Creek near Denio, Oreg., for year ending Sept. 30, 1912*—Continued.

| Day. | February. | | March. | | April. | | Moy. | |
|---|---|---|---|---|---|---|---|---|
| | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. | Gage height. | Discharge. |
| 21 | | | | | | | | |
| 22 | | | 0.32 | 1.0 | | | | |
| 23 | | | .32 | 1.0 | 0.60 | 3.0 | | |
| 24 | 0.40 | 1.5 | | | | | | |
| 25 | | | | | .70 | 5.0 | | |
| 26 | | | | | | | | |
| 27 | | | .36 | 1.3 | | | | |
| 28 | .35 | 1.2 | | | .65 | 4.0 | | |
| 29 | | | .54 | 2.4 | | | | |
| 30 | | | .50 | 2.0 | .70 | 5.0 | | |
| 31 | | | | | | | | |

NOTE.—Discharge determined from a rating curve well defined between 5 and 10 second-feet. Dry Feb. 1–16.

*Monthly discharge of Little Cottonwood Creek near Denio, Oreg., for year ending Sept. 30, 1912.*

| Month. | Mean discharge in second-feet. | Run-off (total in acre-feet). |
|---|---|---|
| February | 1.1 | 63 |
| March | 1.4 | 86 |
| April | 3.6 | 214 |
| May 1–13 | 10.6 | 273 |

NOTE.—Mean monthly discharge taken as mean of days for which records were obtained.

## MISCELLANEOUS MEASUREMENTS.

The following miscellaneous discharge measurements were made on streams and canals in the Great Basin during the year ending September 30, 1912:

*Miscellaneous discharge measurements made in the Great Basin during the year ending Sept. 30, 1912.*

**Great Salt Lake basin.**

| Date. | Stream. | Tributary to or diverting from— | Locality. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| | | | | *Feet.* | *Sec.-ft.* |
| July 28 | Soda Creek | Bear River | Road crossing 3 miles north of Soda Springs, Idaho. | | 81.5 |
| Feb. 13 | Battle Creek | Utah Lake | Pleasant Grove, Utah | | 1.5 |
| 15 | American Fork Creek. | do | At lower plant of Knight Power Co. | | 19.6 |

**Sevier Lake basin.**

| | | | | | |
|---|---|---|---|---|---|
| July 27 | Sevier River | Sevier Lake | 3½ miles below Hatch, Utah | | 182 |
| 27 | do | do | 7½ miles above Panguitch, Utah | | 196 |
| 28 | do | do | Mill 2 miles above Panguitch | | 90 |
| 29 | do | do | 13 miles below Panguitch | | 180 |
| 24 | do | do | 300 feet below heading of McCune canal, 3 miles below Panguitch. | 1.12 | 80 |
| 28 | do | do | do | 1.20 | 95.2 |
| Aug. 29 | do | do | do | .90 | 53.7 |

*Miscellaneous discharge measurements made in the Great Basin during the year ending Sept. 30, 1912*—Continued.

**Sevier Lake basin**—Continued.

| Date. | Stream. | Tributary to or diverting from— | Locality. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| | | | | *Feet.* | *Sec.-ft.* |
| July 29 | Sevier River | Sevier Lake | 1½ miles above Circleville, Utah | | 77 |
| May 22 | do | do | Above mouth of East Fork near Junction, Utah. | | 347 |
| Aug. 14 | do | do | do | | 33.9 |
| July 11 | do | do | At Pitt's ranch, 6 miles above Marysvale, 3½ miles below Piute dam. | 3.88 | 440 |
| Aug. 1 | do | do | do | 4.05 | 494 |
| 16 | do | do | do | 3.50 | 365 |
| 18 | do | do | do | 3.47 | 354 |
| 20 | do | do | do | 3.67 | 389 |
| July 11 | do | do | Tuft's ranch, 4 miles above Marysvale, Utah. | | 465 |
| Aug. 2 | do | do | 4 miles below Marysvale, Utah | 3.54 | 516 |
| 5 | do | do | do | 3.23 | 430 |
| 7 | do | do | do | 2.96 | 372 |
| 8 | do | do | do | 2.70 | 308 |
| 15 | do | do | do | 3.05 | 401 |
| July 12 | do | do | 5½ miles below Marysvale | | 511 |
| Aug. 13 | do | do | Below railroad bridge at Mills, Utah | | 419 |
| 14 | do | do | 400 feet below head of Leamington canal, near Leamington, Utah. | | 413 |
| July 28 | Panguitch Creek | Sevier River | 2 miles above Panguitch, Utah | | 34 |
| May 31 | Little Cottonwood Creek. | do | Mouth, near Marysvale, Utah | | *a* 4 |
| June 15 | do | do | do | | *a* 3 |
| May 31 | Big Cottonwood *b* | do | do | | *a* 2 |
| June 15 | do | do | do | | *a* 2 |
| July 14 | Pine Creek | do | Above all diversions, about 4 miles above mouth, near Marysvale. | | 24.5 |
| July 12 | do | do | Mouth, Marysvale, Utah | | .8 |
| 12 | Pine Creek (lower branch). | do | Fish screen near Marysvale | | 6.8 |
| 12 | Beaver Creek | do | 500 feet above mouth near Marysvale | | 3.5 |
| 12 | Deer Creek | do | Mouth 5½ miles below Marysvale | | 1.0 |
| Dec. 12 | Ephraim Creek | San Pitch River | Intake of power canal near Ephraim, Utah. | | 3.97 |
| 12 | do | do | Below power plant tail race near Ephraim. | | 3.70 |

**Canals diverting from Sevier River.**

| | | | | | |
|---|---|---|---|---|---|
| July 27 | Hillsdale ditch | Sevier River | 1 mile below intake near Hillsdale, Utah. | | 2.7 |
| 27 | State canal | do | Intake 6 miles above Panguitch | | 38 |
| 27 | Long canal | do | do | | 49 |
| 28 | Old River ditch | do | Intake 2 miles above Panguitch | | 7.2 |
| 28 | Mill ditch | do | 1½ miles above Panguitch | | 14.3 |
| 28 | McCune ditch | do | Intake 3 miles below Panguitch | | 25.9 |
| 28 | Houston ditch | do | do | | 7.2 |
| 29 | Circleville ditch | do | 1½ miles below Circleville, Utah | | 32.4 |
| Aug. 19 | Cove or Clear Creek canal. | do | Sevier, Utah | 1.21 | 7.8 |
| July 19 | Sevier Valley canal | do | Jericho Point, Utah | 14.63 | 199 |
| 19 | do | do | do | 14.64 | 192 |
| 19 | do | do | do | 14.62 | 188 |
| June 26 | do | do | Elsinore, Utah | | 193 |
| 26 | do | do | do | | 186 |
| July 19 | do | do | do | 18.64 | 171 |
| June 27 | do | do | Central Bridge, 1½ miles below Elsinore. | | 160 |
| 27 | do | do | do | | 166 |
| 27 | do | do | do | | 160 |
| 27 | do | do | do | | 160 |
| July 19 | do | do | do | 18.60 | 165 |
| 19 | do | do | do | 18.63 | 168 |
| 20 | do | do | do | 18.65 | 176 |
| 20 | do | do | do | 18.66 | 169 |
| 20 | do | do | do | 18.66 | 167 |
| Aug. 2 | do | do | do | 18.31 | 147 |
| Sept. 10 | do | do | do | 16.26 | 77 |
| July 5 | do | do | 1½ miles above weir near Richfield, Utah. | | 155 |
| 10 | do | do | do | | 119 |
| 26 | do | do | do | | 111 |

*a* Estimated. *b* Locally known as Tenmile creek.

*Miscellaneous discharge measurements made in the Great Basin during the year ending Sept. 30, 1912*—Continued.

**Canals diverting from Sevier River**—Continued.

| Date. | Stream. | Tributary to or diverting from— | Locality. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| | | | | *Feet.* | *Sec.-ft.* |
| June 28 | Sevier Valley canal. | Sevier River..... | City farm, station 911, near Richfield. | ..... | 166 |
| 28 | .....do..... | .....do..... | .....do..... | ..... | 152 |
| 28 | .....do..... | .....do..... | .....do..... | ..... | 169 |
| 27 | .....do..... | .....do..... | Jim Winn Bridge, at Richfield..... | ..... | 156 |
| 27 | .....do..... | .....do..... | .....do..... | ..... | 151 |
| 27 | .....do..... | .....do..... | .....do..... | ..... | 145 |
| July 20 | .....do..... | .....do..... | .....do..... | 21.61 | 156 |
| 20 | .....do..... | .....do..... | .....do..... | 21.63 | 157 |
| 20 | .....do..... | .....do..... | .....do..... | 21.65 | 160 |
| Aug. 1 | .....do..... | .....do..... | .....do..... | 21.01 | 112 |
| Sept. 10 | .....do..... | .....do..... | .....do..... | 20.34 | 73 |
| Aug. 13 | Wellington canal. | .....do..... | 2 miles below head near Mills, Utah. | ..... | 14 |
| 14 | Leamington canal. | .....do..... | Head, near Leamington, Utah..... | ..... | 23 |
| July 30 | Waste ditch..... | Melville canal..... | Just below gaging station at Oasis, Utah. | ..... | 7 |

**Owens River basin.**

| | | | | | |
|---|---|---|---|---|---|
| July 7 | Owens River [a]..... | Owens Lake..... | Bridge in sec. 19, T. 4 S., R. 30 E., at Long Valley, Cal. | −0.78 | 215 |
| Aug. 14 | .....do..... | .....do..... | .....do..... | − .79 | 219 |
| Sept. 19 | .....do..... | .....do..... | .....do..... | − .95 | 183 |
| Aug. 2 | Laurel Creek..... | Owens River..... | 400 feet above Charles Sumner ranch, at mouth of canyon above Long Valley. | ..... | 5.6 |
| 2 | Convict Creek..... | .....do..... | ½ mile below Convict Lake, at wagon ford below sheep camp. | ..... | 40 |
| July 17 | .....do..... | .....do..... | Sec. 6, T. 4 S., R. 29 E., near wagon bridge at Long Valley, Cal. | ..... | 42 |
| 8 | Glass Creek..... | .....do..... | 200 feet below bridge at Long Valley, Cal. | ..... | 8 |
| 8 | Hot Creek..... | .....do..... | Bridge on Long Valley road, 1 mile east of Casa Diablo, Cal. | ..... | 20 |
| Aug. 2 | McGee Creek..... | .....do..... | 300 feet above upper ditch at mouth of McGee Canyon. | ..... | 36 |
| 3 | Hilton Creek..... | .....do..... | 1 mile below Hilton Lake at lower end of Hilton Meadow. | ..... | 12 |
| 3 | Rock Creek..... | .....do..... | 100 feet below Rock Creek Lower Lake. | ..... | 30 |
| 1 | .....do..... | .....do..... | 300 feet below upper highway bridge at mouth of Rock Creek Canyon above Round Valley. | ..... | 38 |
| Apr. 16 | .....do..... | .....do..... | Sec. 10, T. 6 S., R. 31 E., below Pine Creek. | ..... | 47 |
| May 9 | .....do..... | .....do..... | .....do..... | ..... | 50 |
| 22 | .....do..... | .....do..... | .....do..... | ..... | 50 |
| June 12 | .....do..... | .....do..... | .....do..... | ..... | 175 |
| July 6 | .....do..... | .....do..... | .....do..... | ..... | 72 |
| Aug. 14 | .....do..... | .....do..... | .....do..... | ..... | 50 |
| Sept. 20 | .....do..... | .....do..... | .....do..... | ..... | 47 |
| Aug. 7 | Pine Creek..... | Rock Creek..... | 150 feet below lower Pine Lake..... | ..... | 16 |
| 6 | Morgan Creek..... | Pine Creek..... | 500 feet above junction with Pine Creek. | ..... | 6.7 |
| July 28 | South Fork of Bishop Creek. | Bishop Creek..... | Inflow to South Lake, or Hillside Reservoir, six creeks measured, total flow. | [b] | 45.5 |
| 28 | .....do..... | .....do..... | Outflow from South Lake, or Hillside Reservoir, includes flow of South Fork and leakage at four weirs, total. | ..... | 39.2 |
| 27 | Middle Fork of Bishop Creek. | .....do..... | Inflow to Lake Sebrina, measured in two inlet streams. | ..... | 59.5 |
| 27 | .....do..... | .....do..... | Leakage from Lake Sebrina dam, measured at highway bridge 300 feet below dam. No other outflow. | [c] | 8.1 |
| 26 | North Fork of Bishop Creek. | Middle Fork of Bishop Creek. | Below Lamarack Creek and above North Lake. No diversions above. | ..... | 26.5 |
| Aug. 12 | North Fork of Big Pine Creek. | Big Pine Creek.... | 1 mile above junction with South Fork. | ..... | 46 |
| 12 | South Fork of Big Pine Creek. | .....do..... | ¼ mile above junction with North Fork. | ..... | 43 |

[a] Silver Lake Power & Irrigation Co. station.
[b] Gage at Hillside Reservoir dam read 9.45 at 4.30 p. m.
[c] Gage at Sebrina dam read 57 feet at 8 a. m.

*Miscellaneous discharge measurements made in the Great Basin during the year ending Sept. 30, 1912*—Continued.

**Mono Lake basin.**

| Date. | Stream. | Tributary to or diverting from— | Locality. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| | | | | *Feet.* | *Sec.-ft.* |
| June 16 | Mill Creek | Mono Lake | Back of Taylor Hotel at Lundy, Cal., below diversions which approximate 5 second-feet. | | 65 |

**Carson River basin.**

| | | | | | |
|---|---|---|---|---|---|
| June 21 | Pleasant Valley Creek.[a] | Markleeville Creek | At former gaging station in NW. ¼ sec. 28, T. 10 N., R. 20 E., near Markleeville, Cal. | 3.60 | 45 |

**Humboldt Sink basin.**[b]

| | | | | | |
|---|---|---|---|---|---|
| July 26 | Starr Creek | Humboldt River | At mouth near Deeth, Nev. | | 31 |
| 26 | Lamoille Creek | do | At mouth near Halleck, Nev. | | 76 |
| 27 | Maggie Creek | do | At mouth near Carlin, Nev. | | 1.8 |
| 28 | Rock Creek | do | At mouth near Battle Mountain, Nev. | | 12 |

**Honey Lake basin.**

| | | | | | |
|---|---|---|---|---|---|
| July 26 | Susan River | Honey Lake | Near former gaging station at Susanville, Cal., and below point where power flume diversion is returned to river. | | 5.7 |
| 26 | Willow Creek | Susan River | Sec. 19, T. 30 N., R. 14 E., near Susanville, Cal. | | 26 |
| 26 | Ditch | do | Near intake at dam on opposite side of river from flume at Susanville, Cal. | | 2.3 |

**Truckee River basin.**

| | | | | | |
|---|---|---|---|---|---|
| June 26 | Truckee River | Pyramid Lake | At asylum, 3 miles below Reno, Nev. | | 147 |
| 26 | Ditch A | Truckee River | First ditch below Reno, Nev., on right bank. | | 22 |
| 26 | Ditch B | do | At asylum power house, 3 miles below Reno, Nev. | | 5.0 |
| 26 | Ditch C | do | At asylum field near power house, 3 miles below Reno, Nev. | | 3.8 |

**Surprise Valley.**

| | | | | | |
|---|---|---|---|---|---|
| Nov. 3 | Bidwell Creek | Upper Lake | Fort Bidwell, Cal. | 0.28 | 4.0 |

**Warner Lake basin.**

| | | | | | |
|---|---|---|---|---|---|
| 1911. May 2 | Fifteenmile Creek. | Twentymile Creek | At stage road crossing above junction with Twelvemile Creek. | 1.34 | 16 |
| Aug. 18 | do | do | do | .49 | 1.4 |
| Nov. 16 | do | do | do | .16 | 1.07 |
| May 2[c] | do | do | At Dave Young's near Oregon, Nevada, and California corner. | 1.97 | 62.3 |
| Aug. 18[c] | do | do | do | 1.0 | 3.9 |
| Oct. 8 | do | do | do | | 2.4 |
| Nov. 17[c] | do | do | do | 1.11 | 4.6 |

[a] The following gage heights were observed at this station during 1912:

| | Feet. | | Feet. | | Feet. |
|---|---|---|---|---|---|
| Jan. 5 | 3.02 | Jan. 8 | 2.94 | Jan. 10 | 3.00 |
| 6 | 3.00 | 9 | 2.98 | 11 | 3.00 |

[b] Measurements furnished by American Engineering Corporation.

[c] Published incorrectly as measurements on Twelvemile Creek in Water-Supply Paper 310, p. 195.

*Miscellaneous discharge measurements made in the Great Basin during the year ending Sept. 30, 1912*—Continued.

**Warner Lake basin**—Continued.

| Date. | Stream. | Tributary to or diverting from— | Locality. | Gage height. | Discharge. |
|---|---|---|---|---|---|
| | | | | *Feet.* | *Sec.-ft.* |
| May 2 | Twelvemile Creek. | Fifteenmile Creek. | At stage road crossing 1 mile west of Oregon, Nevada, and California corner. | 1.21 | 37.6 |
| Aug. 18 | .....do..... | .....do..... | .....do..... | .40 | 2.5 |
| Nov. 17 | .....do..... | .....do..... | .....do..... | .39 | 2.2 |
| May 1 | Cowhead Lake outlet. | Twelvemile Creek. | At dam site ¼ mile below lake..... | −1.35 | 21.3 |
| Aug. 18 | .....do..... | .....do..... | .....do..... | ..... | Dry. |
| May 1 | Rock Creek..... | Fifteenmile Creek. | 4 miles above mouth..... | ..... | 6.3 |
| Aug. 18 | .....do..... | .....do..... | At mouth..... | ..... | Dry. |
| 1912. | | | | | |
| Apr. 14 | Deep Creek..... | Crump Lake..... | Above falls above Adel, Oreg ..... | ..... | 195 |

**Abert Lake valley.**

| | | | | | |
|---|---|---|---|---|---|
| July 16 | Conn ditch ..... | Chewaucan River. | At headgates..... | ..... | 8.2 |
| 26 | .....do..... | .....do..... | .....do..... | 1.08 | [a] 21.3 |
| Sept. 13 | .....do..... | .....do..... | .....do..... | .70 | 3.3 |
| July 17 | McCall ditch..... | .....do..... | .....do..... | ..... | .2 |
| Aug. 1 | Red-House ditch.. | .....do..... | .....do..... | ..... | 10.2 |
| Sept. 13 | Brattain ditch..... | .....do..... | .....do..... | ..... | 5.6 |

**Summer Lake valley.**

| | | | | | |
|---|---|---|---|---|---|
| Feb. 7 | Ana River..... | Summer Lake..... | NW. ¼ SE. ¼ sec. 6, T. 30 S., R. 17 E.[b] | 3.53 | 140 |

**Silver Lake valley.**

| | | | | | |
|---|---|---|---|---|---|
| Feb. 6 | Bear Creek..... | Silver Creek..... | Sec. 17, T. 27 S., R. 14 E.[b]..... | 4.14 | 7.8 |
| Apr. 6 | .....do..... | .....do..... | .....do..... | 3.92 | 6.7 |
| Nov. 12 | .....do..... | .....do..... | .....do..... | ..... | 6.7 |

**Harney Lake valley.**

| | | | | | |
|---|---|---|---|---|---|
| May 28 | Riddle Creek..... | Donner und Blitzen River. | Below Smith Creek..... | ..... | 40.3 |

[a] Capacity. [b] At former gaging station.

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