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SURFACE WATER SUPPLY OF THE
UNITED STATES
1912

PART XI. PACIFIC COAST BASINS IN CALIFORNIA

BY

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SURFACE WATER SUPPLY OF THE PACIFIC COAST IN CALIFORNIA, 1912.

By H. D. McGLASHAN and G. C. STEVENS.

AUTHORIZATION AND SCOPE OF WORK.

This volume is one of a series of 12 reports presenting results of measurements of flow made on streams in the United States during the year October 1, 1911, to 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 (a) furnishing data or (b) by assisting in collecting the data. Acknowledgments for cooperation under class "a" are made in connection with the description of each station affected, and for class "b" on page 18.

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.

For each calendar year there has been prepared a report 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 1902 gage heights and discharge measurements were published in water-supply papers or bulletins and estimates of monthly discharge in annual reports; since 1902 both classes of data have been published in water-supply papers, and they are now being published in 12 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.
II	322	South Atlantic coast and eastern Gulf of Mexico.
III	323	Ohio River basin.
IV	324	St. Lawrence River basin.
V	325	Upper Mississippi River and Hudson Bay basins.
VI	326	Missouri River basin.
VII	327	Lower Mississippi River basin.
VIII	328	Western Gulf of Mexico.
IX	329	Colorado River basin.
X	330	Great Basin.
XI	331	Pacific coast in California.
XII	332	North Pacific coast.

^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	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, 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	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years)	1895 and 1896.
WS 15	Descriptions, 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	Complete data, except descriptions	1906.
WS 241 to 252	Complete data	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 1911. 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).....	35, 36	48	65, 75	82, 83	97, 98	f 126, 127	f 167, 168	f 203, 204	242	262	282	302	322
Ohio River basin.....	36	48, A 49	65, 75	83	98	128	169	205	243	263	283	303	323
St. Lawrence River and Great Lakes.....	36	49	65, 75	82, 83	97	129	170	206	244	264	284	304	324
Hudson Bay and upper Mississippi River.....	36	49	f 65, 66, 75	f 83, 85	f 98, 99, k 100	f 128, 130	171	207	245	265	285	305	325
Missouri River.....	36, 37	49, m 50	66, 75	84	99	130, n 131	172	208	246	266	286	306	326
Lower Mississippi River.....	37	50	f 65, 66, 75	f 83, 84	f 98, 99	f 128, 131	f 169, 173	f 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.....	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	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 21st Ann. Rept., Pt. IV.

^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 22d Ann. Rept., Pt. IV.

^c Wisconsin and Schuylkill rivers to James River.

^d New England rivers only.

^e Hudson River to Delaware River, inclusive.

^f Susquehanna River to York River, inclusive.

^g James River only.

^h Lake Ontario and tributaries to St. Lawrence River proper.

ⁱ Tributaries of Mississippi from east.

^j Hudson Bay only.

^k Gallatin River.

^l Loup and Platte rivers near Columbus, Nebr., and all tributaries below junction with Platte.

^m Plate and Kansas rivers.

ⁿ Green and Gunnison Rivers and Grand River above junction with Gunnison.

^o Below junction with Gila.

^p Colorado River only.

^q Great Basin in California.

^r Kings and Kern rivers and south Pacific coast drainage basins.

^s 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.

Madison, Wis., care of the Railroad Commission, Capitol Building.

St. Paul, Minn., Old Capitol Building.

Helena, Mont., Montana National Bank Building.

Denver, Colo., 302 Chamber of Commerce Building.

Salt Lake City, Utah, 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 (second-feet per square mile).	Run-off (depth 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 partial month multiply the values for 1 day by the number of days.

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

Discharge (second- feet).	Run-off (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 partial month multiply the values for 1 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 1 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 equal 4.96 acre-feet.

100 Colorado miner's inches equal 2.60 second-feet.

100 Colorado miner's inches equal 19.5 United States gallons per second.

100 Colorado miner's inches for one day equal 5.17 acre-feet.

100 United States gallons per minute equal 0.223 second-foot.

100 United States gallons per minute for one day equal 0.442 acre-foot.

1,000,000 United States gallons per day equal 1.55 second-feet.

1,000,000 United States gallons equal 3.07 acre-feet.

1,000,000 cubic feet equal 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 equals about 1 kilowatt.

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

EXPLANATION OF DATA.

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, table of monthly and yearly discharges and run-off. For stations located at weirs or dams the gage-height table is usually 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 height shows 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.

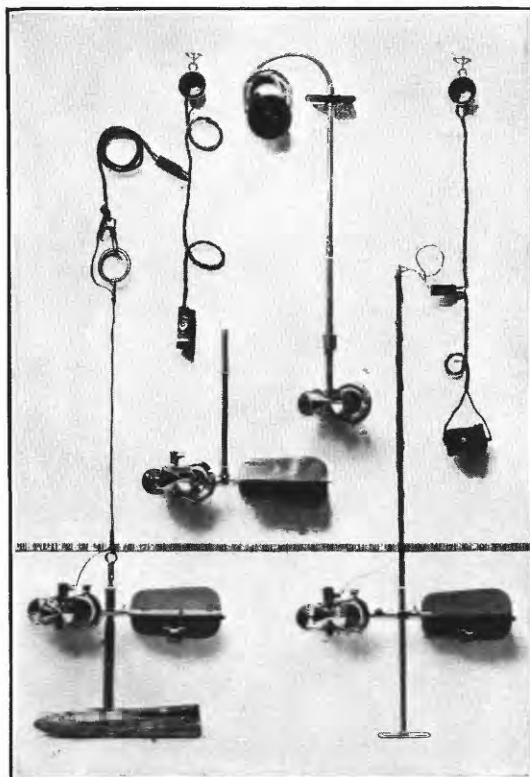
The discharge measurements and gage heights are the base data from which rating tables, daily discharge tables, and monthly discharge tables are computed.

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 height and daily discharge by plotting gage heights in feet as ordinates and discharge in second-feet as abscissas.

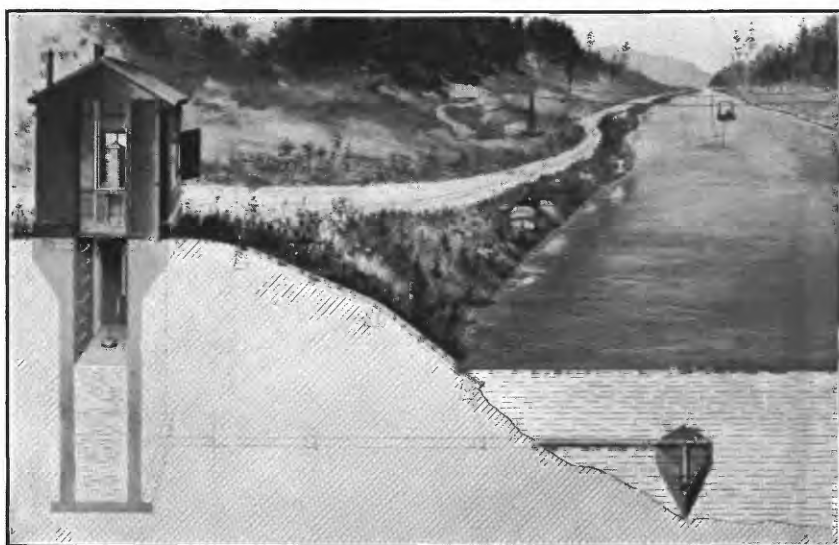
The table of daily discharge gives the discharge in second-feet corresponding to the observed gage heights as determined from the rating tables.

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. Likewise, in the column of "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 13 and 14, are based.

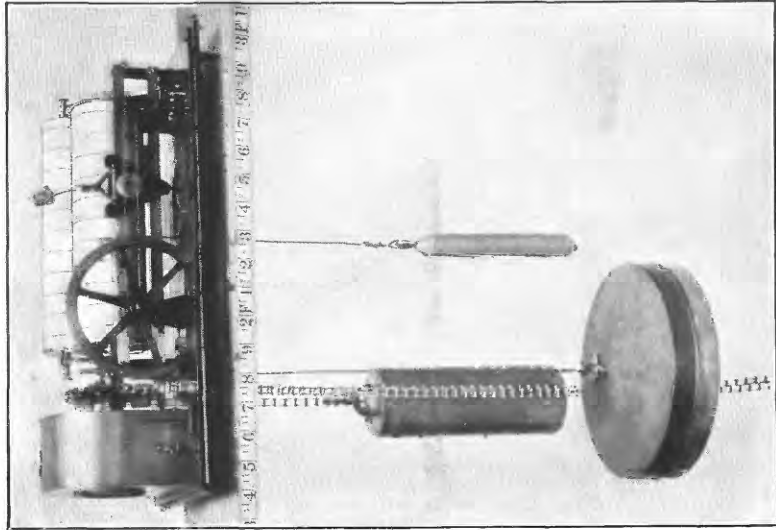
The base data presented in this report, unless otherwise stated in description of station, have been collected by the methods commonly used at current-meter gaging stations and described in standard text books.



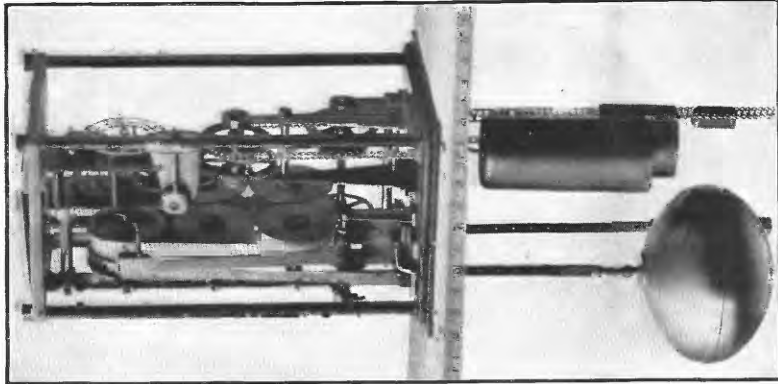
A. PRICE CURRENT METERS.



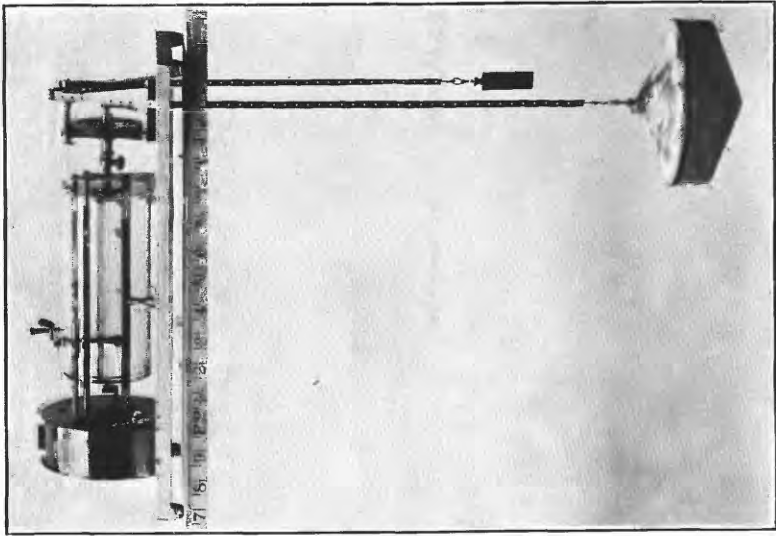
B. TYPICAL GAGING STATIONS.



A. STEVENS.



B. GURLEY.
AUTOMATIC GAGES.



C. FRIEZ.

Plate I shows typical gaging stations and current meters used in the work. Plate II shows types of automatic gages.

ACCURACY AND RELIABILITY OF FIELD DATA AND COMPARATIVE 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 of 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. In this column 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 run-off 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 particularly 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 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.

The hydrographic work of the United States Geological Survey in California is being carried on in cooperation with the State in accordance with acts of the State legislature, approved March 16, 1903, March 20, 1905, March 11, 1907, and April 22, 1909, empowering the State authorities to enter into contracts with the Director of the United States Geological Survey for the purpose of making topographic maps, gaging streams, surveying reservoir sites and canal locations, for the conservation and utilization of the flood and storm waters of the State.

The Conservation Commission and the State Board of Control (Water Power) of the State of California, in September, 1911, arranged for cooperation with the United States Geological Survey. This agreement provides for a complete digest of all available data concerning the flow of the streams in the State of California; records of streams not hitherto investigated; surveys of the streams, showing slope, topography, and such other data as may be necessary to determine water power and storage possibilities along the streams.

The reports containing these data have been published by the Geological Survey as Water-Supply Papers 295-300, inclusive.

The members of the Conservation Commission are George C. Pardee, chairman; Francis Cuttle, and J. P. Baumgartner. The members of the State Water Commission are Hiram W. Johnson, governor; Charles D. Marx, chairman; S. C. Graham, Harold T. Power, and W. F. McClure, State engineer.

In addition, many complete estimates of run-off, gage-height records, and discharge measurements are furnished by various Federal bureaus, private companies, and individuals who are interested in the water resources of California. This cooperation is acknowledged and explained in the separate station descriptions which precede the data.

DIVISION OF WORK.

The field work in California was carried on under the direction of H. D. McGlashan, district engineer, by E. O. Christiansen, F. C. Ebert, Lasley Lee, Charles Leidl, G. T. Peekema, R. C. Rice, J. E. Stewart, and H. J. Tompkins.

The ratings and special estimates were made by H. D. McGlashan, R. H. Bolster, R. C. Rice, G. C. Stevens, and C. L. Batchelder.

The field work in the Klamath River basin in Oregon was carried on under the direction of W. W. Patch, project engineer, United States Reclamation Service, and the field data furnished to the United States Geological Survey. The ratings and special estimates for the Oregon stations were made by F. F. Henshaw, E. S. Fuller, and G. C. Stevens.

The computations were made and the completed data prepared for publication under the direction of G. C. Stevens and C. L. Batchelder by H. D. Padgett, H. J. Dean, A. H. Tuttle, J. G. Mathers, W. R. King, C. F. Walker, M. I. Walters, and G. A. Wallace.

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

SOUTHERN PACIFIC OCEAN DRAINAGE BASINS.

TIA JUANA RIVER BASIN.

COTTONWOOD CREEK NEAR JAMUL, CAL.

Location.—At Barrett dam site, $6\frac{1}{2}$ miles below intake of Dulzura conduit, in the SW. $\frac{1}{4}$ sec. 15, T. 17 S., R. 3 E., about 12 miles southeast of Jamul. Pine Valley Creek enters 1 mile and Lyons Creek half a mile above the station.

Records available.—December 15, 1905, to September 30, 1912.

Drainage area.—Approximately 270 square miles.

Gage.—Two vertical staffs. Upper gage is on left bank near end of dam and indicates depth of water on the crest; lower gage, which is on upstream side of dam between flume and right bank, is read when no water is flowing over crest of dam; its datum is 2.50 feet lower than that of the upper gage. The upper gage was not used during 1911 and 1912.

Channel.—Shifting sand above dam.

Discharge measurements.—Made at low concrete dam back of which sand and gravel have been deposited to the level of its crest. At low stages the flow is restricted to a rectangular wooden flume through the wall of the dam, but at high stages the flow is over the entire length of the dam, which is 61 feet. Measurements are made by wading, except at high stages, when only float velocities are obtained.

Diversions.—Dulzura conduit diverts water from Cottonwood and Pine Valley creeks about half a mile above their junction into the Dulzura Creek drainage basin. From the end of the conduit the water flows down the natural channel of Dulzura Creek into the Lower Otay reservoir. The water is used for municipal purposes at San Diego. The conduit is 13.38 miles long and is concrete lined except 4,490 feet of flume and 9,219 feet of tunnel. The average width is about 5 feet and the depth 4 feet 2 inches. The grade is 4 feet in 5,000 and the capacity 40,000,000 gallons in 24 hours. The seepage loss between intake and measuring weir is estimated at about 3 per cent.

Storage.—The Morena reservoir, about 9 miles above the Barrett dam site, has a capacity of 46,000 acre-feet. During 1911, 1,530 acre-feet were impounded in this reservoir, not 10,500 acre-feet as published in Water Supply Paper 311, page 19. On October 1, 1912, there were 3,710 acre-feet impounded in the reservoir.

Accuracy.—No discharge measurements were made during 1911 and 1912. The range of stage was small and results are considered good.

Cooperation.—Estimates of daily discharge for 1911 and 1912 furnished by Southern California Mountain Water Co. No daily gage heights were furnished, but daily discharge is said to have been determined from the rating curve developed by the United States Geological Survey.

Daily discharge, in second-feet, of Cottonwood Creek near Jamul, Cal., for 1911-12.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	0.1	2.0	1.3	2.0	3.0	1.7	0.4	0.4
2.....	.1	1.8	1.5	1.5	2.0	1.7	.4	.9
3.....	.1	1.8	1.3	1.5	2.0	1.5	.5	1.5
4.....	.1	1.7	1.5	1.5	2.0	1.5	.4	1.3
5.....	.6	1.7	1.3	1.5	2.0	1.5	.4	.4
6.....	.6	1.7	1.3	2.4	2.0	1.5	.4	.3
7.....	.6	1.7	1.3	1.7	1.8	1.7	.5	.5
8.....	.6	1.5	1.3	1.7	1.7	2.4	.5	.5
9.....	.6	1.7	1.3	2.7	2.0	3.8	.5	.1
10.....	.9	1.7	1.3	221	2.0	2.4	.5
11.....	.9	2.0	1.3	11.6	32.9	1.8	.5
12.....	.9	2.0	1.3	5.0	113	1.7	.5
13.....	.9	1.7	1.3	39.2	73.0	1.5	.5
14.....	.9	1.7	1.5	8.6	54.0	1.3	.4
15.....	.9	2.0	1.5	4.2	48.0	1.3	.4
16.....	.9	2.2	1.5	3.0	40.0	1.3	.4
17.....	1.5	2.4	1.3	2.0	25.0	1.3	.4
18.....	1.5	3.0	1.3	1.8	16.0	.9	.3
19.....	1.5	4.2	1.3	1.7	10.1	.9	.3
20.....	1.5	3.0	1.2	1.8	4.2	.7	.4
21.....	1.5	2.0	1.3	1.8	3.0	.7	.4
22.....	1.5	1.8	1.3	2.2	2.7	.9	.3
23.....	1.5	1.5	1.3	1.7	2.5	.9	.9
24.....	1.5	1.7	1.3	1.7	2.0	.9	.7
25.....	1.5	1.5	1.3	1.7	1.7	.9	.7
26.....	1.5	1.7	1.2	2.0	1.7	.9	.5
27.....	1.5	1.7	1.2	2.0	2.0	.9	.5
28.....	1.5	1.7	1.2	2.0	2.0	.7	.3
29.....	1.5	1.5	1.0	2.0	2.0	.6	.5
30.....	1.5	1.5	26.5	1.7	.6	.3
31.....	1.5	1.5	5.25

NOTE.—Channel dry from Oct. 1 to Nov. 30, 1911, and from July 10 to Sept. 30, 1912.

Monthly discharge of Cottonwood Creek near Jamul, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	0.0	0.0	0.00	0.0
November.....	.0	.0	.00	.0
December.....	1.5	.1	1.04	64.0
January.....	4.2	1.5	1.92	118
February.....	1.5	1.0	1.31	75.4
March.....	221	1.5	11.8	726
April.....	113	1.7	15.3	910
May.....	3.8	.5	1.32	81.2
June.....	.9	.3	.46	27.4
July.....	1.5	.0	.19	11.7
August.....	.0	.0	.00	.0
September.....	.0	.0	.00	.0
The year.....	221	.0	2.77	2,010

DULZURA CONDUIT¹ NEAR JAMUL, CAL.

Location.—About 12 miles below intake and 9 miles southeast of Jamul. During 1909 and 1910 station was located $1\frac{1}{2}$ miles below intake.

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

Gage.—Lietz water stage register at weir.

Discharge.—Computed from gage-height record at an 8-foot steel plate weir about $1\frac{1}{2}$ miles above lower end of conduit.

Accuracy.—Automatic gage is checked twice each day by patrolman. Results are believed to be excellent.

Cooperation.—Estimates of daily discharge furnished by Southern California Mountain Water Co.

Daily discharge, in second-feet, of Dulzura conduit near Jamul, Cal., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....		3.6	5.3	38.5	16.1	4.2	16.....	38.5	2.9	20.0	41.4	11.9
2.....		3.6	8.2	30.8	15.8	3.6	17.....	40.9	2.9	17.8	45.7	11.3
3.....		3.6	7.8	24.0	15.8	2.9	18.....	40.1	2.9	15.8	44.7	10.7
4.....		3.6	8.5	21.1	14.4	2.4	19.....	41.4	2.9	14.4	41.8	9.9
5.....		3.6	7.2	20.0	14.4	1.8	20.....	38.9	2.9	13.5	40.9	9.2
6.....		3.6	16.1	20.7	13.2	1.8	21.....	7.2	2.6	17.8	37.3	9.2
7.....		4.2	12.9	17.8	13.2	1.5	22.....	5.3	2.9	22.4	31.8	9.2
8.....		4.2	8.8	15.8	26.8	1.5	23.....	4.8	2.9	16.1	27.7	8.5
9.....		4.2	10.7	17.8	40.9	1.5	24.....	4.2	2.9	14.8	24.4	8.5
10.....		3.6	39.7	21.5	29.7	1.5	25.....	4.2	2.9	13.2	22.0	7.8
11.....		3.6	35.0	37.3	22.4	1.5	26.....	3.9	2.9	13.8	21.5	7.8
12.....		3.6	22.4	47.5	19.2	1.2	27.....	4.8	2.9	20.4	22.8	7.2
13.....		2.9	42.8	43.8	16.8	1.2	28.....	4.5	2.9	17.2	20.7	7.2
14.....		2.9	38.1	43.8	14.8	29.....	4.2	2.8	15.8	18.1	5.9
15.....	20.7	2.9	29.7	42.8	13.2	30.....	4.2	33.9	17.2	5.3
							31.....	4.2	42.8	4.8

NOTE.—No flow from Oct. 1, 1911, to Jan. 14, 1912; and from June 14 to Sept. 30, 1912.

Monthly discharge of Dulzura conduit near Jamul, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	0.0	0.0	0.00	0.0
November.....	.0	.0	.00	.0
December.....	.0	.0	.00	.0
January.....	41.4	.0	8.77	539
February.....	4.2	2.6	3.24	186
March.....	42.8	5.3	19.4	1,190
April.....	47.5	15.8	30.0	1,790
May.....	40.9	4.8	13.6	836
June.....	4.2	.0	.89	53.0
July.....	.0	.0	.00	.0
August.....	.0	.0	.00	.0
September.....	.0	.0	.00	.0
The year.....	47.5	.0	6.33	4,590

¹ For description of conduit see Cottonwood Creek near Jamul, "Diversions," p. 19.

Daily discharge, in second-feet, of Cottonwood Creek and Dulzura conduit near Jamul, Cal., for 1911-12.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	0.1	2.0	4.9	7.3	41.5	17.8	4.6	0.4
2.....	.1	1.8	5.1	9.7	32.8	17.5	4.0	.9
3.....	.1	1.8	4.9	9.3	26.0	17.3	3.4	1.5
4.....	.1	1.7	5.1	10.0	23.1	15.9	2.8	1.3
5.....	.6	1.7	4.9	8.7	22.0	15.9	2.2	.4
6.....	.6	1.7	4.9	18.5	22.7	14.7	2.2	.3
7.....	.6	1.7	5.5	14.6	19.6	14.9	2.0	.5
8.....	.6	1.5	5.5	10.5	17.5	29.2	2.0	.5
9.....	.6	1.7	5.5	13.4	19.8	44.7	2.0	.1
10.....	.9	1.7	4.9	261	23.5	32.1	2.0
11.....	.9	2.0	4.9	46.6	70.2	24.2	2.0
12.....	.9	2.0	4.9	27.4	160.5	20.9	1.7
13.....	.9	1.7	4.2	82.0	116.8	18.3	1.7
14.....	.9	1.7	4.4	46.7	97.8	16.1	.4
15.....	.9	22.7	4.4	33.9	90.8	14.5	.4
16.....	.9	40.7	4.4	23.0	81.4	13.2	.4
17.....	1.5	43.3	4.2	19.8	70.7	12.6	.4
18.....	1.5	43.1	4.2	17.6	60.7	11.6	.3
19.....	1.5	45.6	4.2	16.1	51.9	10.8	.3
20.....	1.5	41.9	4.1	15.3	45.1	9.9	.4
21.....	1.5	9.2	3.9	19.6	40.3	9.9	.4
22.....	1.5	7.1	4.2	24.6	34.5	10.1	.3
23.....	1.5	6.3	4.2	17.8	30.2	9.4	.9
24.....	1.5	5.9	4.2	16.5	26.4	9.4	.7
25.....	1.5	5.7	4.2	14.9	23.7	8.7	.7
26.....	1.5	5.6	4.1	15.8	23.2	8.7	.5
27.....	1.5	6.5	4.1	22.4	24.8	8.1	.5
28.....	1.5	6.2	4.1	19.2	22.7	7.9	.3
29.....	1.5	5.7	3.8	17.8	20.1	6.5	.5
30.....	1.5	5.7	60.4	18.9	5.9	.3
31.....	1.5	5.7	48.0	5.3

Monthly discharge of Cottonwood Creek and Dulzura conduit near Jamul, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1911.				
October.....	0.0	0.0	0.0	0.0
November.....	.0	.0	.0	.0
December.....	1.5	.1	1.04	64.0
January.....	45.6	1.5	10.7	658
February.....	5.5	3.8	4.55	262
March.....	261	7.3	31.2	1,920
April.....	160.5	17.5	45.3	2,700
May.....	44.7	5.3	14.9	916
June.....	4.6	.3	1.34	79.7
July.....	1.5	.0	.19	11.7
August.....	.0	.0	.0	.0
September.....	.0	.0	.0	.0
The year.....	261	.0	9.10	6,610

SWEETWATER RIVER BASIN.

SWEETWATER RIVER NEAR DESCANSO, CAL.

Location.—At the Ellis ranch, in the SE. $\frac{1}{4}$ sec. 25, T. 15 S., R. 3 E., 2 miles below mouth of Guatay Creek, and about $1\frac{1}{2}$ miles below Descanso.

Records available.—November 21, 1905, to September 30, 1912.

Drainage area.—40 square miles.

Gage.—Staff in three sections on left bank.

Channel.—Sand and gravel; shifting.

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

Diversions.—A small irrigation ditch (capacity, about one-third second-foot) heads about 1,000 feet above station.

Accuracy.—Results are fair.

Discharge measurements of Sweetwater River near Descanso, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 9	F. C. Ebert.....	3.58	0.7	Mar. 28	F. C. Ebert.....	4.12	14
				29	do.....	4.14	15
1912.				May 6	do.....	4.12	9.1
Jan. 16	F. C. Ebert.....	3.62	.6	7	do.....	4.12	10
Mar. 4	do.....	3.52	3.2	June 28	do.....	3.74	.8
5	do.....	3.73	1.9	29	do.....	3.78	1.6

NOTE.—Made by wading, except Nov. 9, when discharge was estimated.

Daily gage height, in feet, of Sweetwater River near Descanso, Cal., for 1911-12.

[C. H. Ellis, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.54	3.58	3.60	3.65	3.6	3.7	4.25	4.15	3.95	3.75	3.55	3.6
2.....	3.52	3.58	3.60	3.65	3.6	4.0	4.2	4.15	3.95	3.75	3.55	3.6
3.....	3.52	3.58	3.60	3.65	3.6	3.8	4.1	4.1	4.0	3.7	3.55	3.7
4.....	3.53	3.58	3.60	3.65	3.6	3.6	4.1	4.1	3.95	3.7	3.55	3.6
5.....	3.53	3.58	3.60	3.6	3.6	4.1	4.1	4.1	3.95	3.7	3.55	3.6
6.....	3.54	3.58	3.65	3.6	3.6	4.4	4.0	4.1	3.95	3.65	3.55	3.6
7.....	3.54	3.58	3.69	3.6	3.6	4.3	3.95	4.1	3.9	3.65	3.55	3.6
8.....	3.54	3.58	3.65	3.6	3.6	5.75	4.0	4.5	3.9	3.6	3.55	3.6
9.....	3.54	3.58	3.64	3.65	3.6	5.2	4.05	4.4	3.9	3.6	3.55	3.6
10.....	3.54	3.58	3.62	3.65	3.6	4.2	4.15	4.2	3.9	3.6	3.55	3.6
11.....	3.54	3.58	3.62	3.65	3.6	4.15	4.3	4.15	3.9	3.55	3.55	3.6
12.....	3.54	3.59	3.62	3.6	3.6	4.1	4.6	4.15	3.9	3.55	3.55	3.6
13.....	3.54	3.60	3.62	3.6	3.6	4.1	4.55	4.1	3.85	3.55	3.55	3.6
14.....	3.54	3.60	3.62	3.6	3.6	4.2	4.7	4.05	3.85	3.55	3.55	3.6
15.....	3.54	3.60	3.62	3.6	3.6	4.1	4.6	4.0	3.85	3.55	3.55	3.6
16.....	3.54	3.60	3.62	3.6	3.6	4.0	4.6	4.0	3.85	3.55	3.55	3.6
17.....	3.54	3.60	3.68	3.6	3.6	3.95	4.55	4.0	3.85	3.55	3.55	3.6
18.....	3.54	3.60	3.66	3.6	3.6	3.95	4.5	4.05	3.85	3.55	3.55	3.6
19.....	3.54	3.60	3.64	3.6	3.6	3.95	4.45	4.05	3.8	3.55	3.55	3.6
20.....	3.54	3.60	3.64	3.6	3.6	4.1	4.4	4.05	3.8	3.55	3.55	3.6
21.....	3.54	3.60	3.64	3.6	3.6	4.05	4.3	4.05	3.8	3.55	3.55	3.6
22.....	3.54	3.60	3.64	3.6	3.6	4.1	4.25	4.05	3.8	3.55	3.55	3.6
23.....	3.54	3.60	3.64	3.6	3.6	4.1	4.2	4.05	3.8	3.55	3.55	3.6
24.....	3.54	3.60	3.64	3.6	3.6	4.0	4.2	4.05	3.8	3.55	3.55	3.6
25.....	3.54	3.60	3.68	3.6	3.6	3.95	4.2	4.05	3.8	3.55	3.55	3.6
26.....	3.54	3.60	3.66	3.6	3.6	4.3	4.15	4.05	3.8	3.55	3.55	3.6
27.....	3.62	3.60	3.65	3.65	3.6	4.2	4.15	4.05	3.8	3.55	3.55	3.6
28.....	3.60	3.60	3.70	3.6	3.6	4.15	4.15	4.05	3.8	3.55	3.6	3.6
29.....	3.60	3.60	3.78	3.6	3.6	4.15	4.15	4.05	3.8	3.55	3.6	3.6
30.....	3.60	3.60	3.71	3.6	-----	4.3	4.15	4.05	3.75	3.55	3.6	3.6
31.....	3.58	-----	3.68	3.6	-----	4.3	-----	4.0	-----	3.55	3.6	-----

Daily discharge, in second-feet, of Sweetwater River near Descanso, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.6	0.7	0.8	1.2	0.8	1.5	26	12	3.8	1.4	0.4	0.6
2.....	.5	.7	.8	1.2	.8	12.6	20	12	3.8	1.4	.4	.6
3.....	.5	.7	.8	1.2	.8	2.7	12	8.5	4.9	1.1	.4	1.1
4.....	.5	.7	.8	1.2	.8	.8	12	8.5	3.8	1.1	.4	.6
5.....	.5	.7	.8	.8	.8	22	12	8.5	3.8	1.1	.4	.6
6.....	.6	.7	1.2	.8	.8	58	7	8.5	3.8	.8	.4	.6
7.....	.6	.7	1.4	.8	.8	44	5.4	8.5	2.7	.8	.4	.6
8.....	.6	.7	1.2	.8	.8	380	7	57	2.7	.6	.4	.6
9.....	.6	.7	1.1	1.2	.8	209	9.8	41	2.7	.6	.4	.6
10.....	.6	.7	.9	1.2	.8	20	16	16	2.7	.6	.4	.6
11.....	.6	.7	.9	1.2	.8	16	31	12	2.7	.4	.4	.6
12.....	.6	.8	.9	.8	.8	12	75	12	2.7	.4	.4	.6
13.....	.6	.8	.9	.8	.8	12	67	8.5	2.2	.4	.4	.6
14.....	.6	.8	.9	.8	.8	20	94	6.7	2.2	.4	.4	.6
15.....	.6	.8	.9	.8	.8	12	74	4.9	2.2	.4	.4	.6
16.....	.6	.8	.9	.8	.8	7	74	4.9	2.2	.4	.4	.6
17.....	.6	.8	1.4	.8	.8	5.4	66	4.9	2.2	.4	.4	.6
18.....	.6	.8	1.2	.8	.8	5.4	57	6.7	2.2	.4	.4	.6
19.....	.6	.8	1.1	.8	.8	5.4	49	6.7	1.7	.4	.4	.6
20.....	.6	.8	1.1	.8	.8	12	41	6.7	1.7	.4	.4	.6
21.....	.6	.8	1.1	.8	.8	9.8	27	6.7	1.7	.4	.4	.6
22.....	.6	.8	1.1	.8	.8	12	22	6.7	1.7	.4	.4	.6
23.....	.6	.8	1.1	.8	.8	12	16	6.7	1.7	.4	.4	.6
24.....	.6	.8	1.1	.8	.8	7.0	16	6.7	1.7	.4	.4	.6
25.....	.6	.8	1.4	.8	.8	5.4	16	6.7	1.7	.4	.4	.6
26.....	.6	.8	1.2	.8	.8	31	12	6.7	1.7	.4	.4	.6
27.....	.9	.8	1.2	1.2	.8	20	12	6.7	1.7	.4	.4	.6
28.....	.8	.8	1.5	.8	.8	16	12	6.7	1.7	.4	.6	.6
29.....	.8	.8	2.5	.8	.8	16	12	6.7	1.7	.4	.6	.6
30.....	.8	.8	1.6	.8	31	12	6.7	1.4	.4	.6	.6
31.....	.7	1.4	.8	31	4.94	.6

NOTE.—Daily discharge determined from rating curves applicable as follows: Mar. 8, 1911, to Mar. 8, 1912, fairly well defined; Mar. 9 to Apr. 14, 1912, fairly well defined; Apr. 15 to June 12, 1912, fairly well defined; June 13 to Sept. 30, 1912, fairly well defined. Estimates for June supersede those published in Water Supply Paper 300, p. 500.

Monthly discharge of Sweetwater River near Descanso, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	0.9	0.5	0.62	38	C.
November.....	.8	.7	.76	45	C.
December.....	2.5	.8	1.14	70	C.
January.....	1.2	.8	.90	55	B.
February.....	.8	.8	.80	46	B.
March.....	380	.8	33.8	2,080	B.
April.....	94	5.4	30.4	1,810	B.
May.....	57	4.9	10.5	646	B.
June.....	4.9	1.4	2.45	146	B.
July.....	1.4	.4	.58	36	C.
August.....	.6	.4	.43	26	D.
September.....	1.1	.6	.62	37	C.
The year.....	380	.4	6.94	5,040	

SAN DIEGO RIVER BASIN.

SAN DIEGO RIVER AT LAKESIDE, CAL.

Location.—On the El Cajon grant, just above ford on Lakeside and Padre Barona Valley road, three-fourths of a mile above Cuyamaca & Eastern Railroad bridge, and three-fourths of a mile north of Lakeside.

Records available.—December 3, 1905, to September 30, 1912.

Drainage area.—208 square miles.

Gage.—Staff in three sections on left bank 100 feet above ford.

Channel.—Shifting sand.

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

Diversions.—San Diego flume heads at diverting dam about 1,000 feet below Boulder Creek and about 15 miles above the station. Several pumping plants, 1 to 3 miles above the station, obtain water for irrigation from wells along the banks of the stream. Cuyamaca reservoir, on the headwaters of Boulder Creek, has a capacity of 11,410 acre-feet. See also, Boulder Creek at Cuyamaca reservoir (pp. 27-28).

Accuracy.—Results are fair.

Discharge measurements of San Diego River at Lakeside, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 27	F. C. Ebert	3.52	98	May 4	F. C. Ebert	2.88	21
28	do.	3.30	68	7	do.	2.86	16
29	do.	3.20	46	25	do.	2.87	13
30	do.	3.62	153	June 6	do.	2.80	.7
Apr. 13	do.	3.94	240	29	do.	2.78	.6
May 1	do.	2.93	27				

NOTE.—Made by wading.

Daily gage height, in feet, and discharge, in second-feet, of San Diego River at Lakeside, Cal., for 1912.

[J. H. Beadle, observer.]

Day.	March.		April.		May.		June.		July.		August.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.			3.6	150	2.95	29	2.8	2	2.7	0.2	2.3	0.1
2.			3.4	103	3.0	35	2.75	.5	2.7	.2	2.3	.1
3.			3.3	82	3.0	35	2.75	.5	2.7	.2	2.3	.1
4.			3.2	64	2.95	29	2.75	.5	2.7	.2	2.2	
5.			3.2	64	2.9	23	2.75	.5	2.7	.2	2.2	
6.			3.2	64	2.9	20	2.75	.5	2.7	.2	2.2	
7.			3.15	56	2.85	16	2.8	1.5	2.7	.2	2.2	
8.			3.05	42	3.6	145	2.8	1.5	2.7	.2	2.2	
9.			3.05	42	3.8	195	2.8	1.5	2.7	.2		
10.	4.2	285	3.25	73	3.4	95	2.75	.5	2.7	.2		
11.	3.5	100	3.8	202	3.2	55	2.75	.5	2.65	.2		
12.	2.8	6	4.15	307	3.2	55	2.75	.5	2.55	.2		
13.	3.85	184	4.0	260	3.1	38	2.75	.5	2.55	.2		
14.	3.7	146	3.95	245	3.1	38	2.75	.5	2.55	.2		
15.	3.2	46	4.0	260	3.0	26	2.7	.2	2.55	.2		
16.	3.05	26	3.95	245	3.0	26	2.7	.2	2.6	.2		
17.	3.0	21	3.8	202	2.9	16	2.7	.2	2.6	.2		
18.	2.95	16	3.5	125	2.9	16	2.75	.5	2.6	.2		
19.	2.9	12	3.4	103	2.9	16	2.7	.2	2.55	.1		
20.	2.85	9	3.3	82	2.9	16	2.75	.5	2.55	.1		
21.	2.9	12	3.3	82	2.85	12	2.75	.5	2.5	.1		
22.	3.2	46	3.2	64	2.9	15	2.75	.5	2.5	.1		
23.	3.5	100	3.2	64	2.9	15	2.75	.5	2.4	.1		
24.	3.0	21	3.1	48	2.9	15	2.7	.2	2.3	.1		
25.	2.95	16	3.1	48	2.9	15	2.7	.2	2.35	.1		
26.	3.3	62	3.05	42	2.9	14	2.7	.2	2.4	.1		
27.	3.7	146	3.0	35	2.9	13	2.7	.2	2.4	.1		
28.	3.3	62	3.0	35	2.85	8	2.7	.2	2.4	.1		
29.	3.2	46	3.0	35	2.85	7	2.8	1.0	2.45	.1		
30.	3.6	150	3.0	35	2.85	6	2.75	.5	2.4	.1		
31.	3.8	202			2.8	2			2.35	.1		

NOTE.—Daily discharge computed by indirect method for shifting channels. No flow Jan. 1 to Mar. 9, 1912, and Aug. 9 to Sept. 30, 1912.

Monthly discharge of San Diego River at Lakeside, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
March.....	285	0.0	55.3	3,400	C.
April.....	307	35	109	6,490	C.
May.....	195	2	33.7	2,070	C.
June.....	2.0	.2	.58	34.5	D.
July.....	.2	.1	.16	9.8	D.
August.....	.1	.0	.01	.6	D.
September.....	.0	.0	.00	.0	
The period.....				12,000	

SAN DIEGO RIVER NEAR SANTEE, CAL.

Location.—At old Mission dam on tract T, El Cajon grant, below Sycamore Canyon, and about 3 miles below Santee.

Records available.—May 25 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections. Lower section is bolted to upstream face of old dam to the right of the break. Remaining sections are on left bank just above dam.

Channel.—Sand and shifting. The old dam serves as a partial control.

Discharge measurements.—Made from car and cable about 500 feet above gage or by wading.

Diversions.—See San Diego River at Lakeside. Below Lakeside water for irrigation is pumped from wells along the river.

Accuracy.—Results are fair.

Cooperation.—Maintained in cooperation with Cuyamaca Water Co., through W. S. Post, engineer.

Discharge measurements of San Diego River near Santee, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
May 1	F. C. Ebert.....	7.66	33	May 25	F. C. Ebert.....	7.39	14
5do.....	7.47	23	June 6	E. A. Bartl.....	7.15	.2
11	E. W. Case.....	8.79	126	Aug. 17	F. C. Ebert.....	7.08	.05

NOTE.—Made by wading, except Aug. 17, when discharge was estimated.

Daily gage height, in feet, and discharge, in second-feet, of San Diego River near Santee, Cal., for 1912.

[Carrol Kemp, observer.]

Day.	May.		June.		July.		August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.			7.21	1.7	7.1		7.05			
2.			7.27	5.0	7.1		7.05			
3.			7.19	.9	7.05		7.05			
4.			7.19	.9	7.05		7.05			
5.			7.17	.4	7.05		7.05			
6.			7.13	.1	7.0		7.05			
7.			7.11	.1	7.0		7.05		7.1	
8.			7.10	.1	7.0		7.05			
9.			7.11	.1	7.0		7.05			
10.			7.10	.1	7.0		7.05			
11.			7.10	.1	7.0		7.05			
12.			7.10	.1	7.0		7.05			
13.			7.10	.1	7.0		7.05			
14.			7.10	.1	7.0		7.1			
15.			7.10	.1	7.0		7.1			
16.			7.09	.1	7.0		7.1			
17.			7.05		7.05		7.1			
18.			7.01		7.05		7.1			
19.			7.01		7.05		7.1			
20.			7.00		7.05		7.1			
21.			7.00		7.05		7.1		7.1	
22.			7.00		7.05		7.1			
23.			7.00		7.05		7.1			
24.			7.00		7.05		7.1			
25.	7.39	14	7.00		7.05					
26.	7.39	14	7.00		7.05					
27.	7.39	14	7.00		7.05					
28.	7.31	7.8	7.00		7.05				7.15	
29.	7.31	7.8	7.10		7.05					
30.	7.30	7.0	7.10		7.05					
31.	7.30	7.0			7.05		7.1			

NOTE.—Practically no flow after June 20, but gage heights were continued in order to obtain measurements of water plane. Daily discharge determined from a fairly well defined curve. No flow June 20 to Sept. 30, 1912.

BOULDER CREEK AT CUYAMACA RESERVOIR, NEAR LAKESIDE, CAL.

Location.—At outlet of Cuyamaca reservoir, 12 miles above mouth of Boulder Creek and 22 miles northeast of Lakeside.

Records available.—June 19 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff about 6 feet above weir; read three times each day.

Discharge measurements.—Made by wading 100 feet below gage.

Diversions and storage.—The Cuyamaca dam, completed in 1886, was one of the first earth dams built in California for irrigation storage. The height, as originally constructed, was 35 feet. In 1894 the dam was enlarged, increasing the capacity of the reservoir to 11,400 acre-feet. The present dam is 635 feet long and 41½ feet high, having an inner slope of 2:1 and an outer slope of 1½:1. From the reservoir the water flows down the natural channel of Boulder Creek and San Diego River to the intake of San Diego flume, a distance of 12½ miles. The San Diego flume is more than 30 miles long, 6 feet wide, and 16 inches deep, and its capacity is about 16 second-feet. It discharges into La Mesa reservoir, about 8 miles northeast of San Diego. This system supplied the city of San Diego with water until 1906, when the Southern California Mountain Water Co.

extended its system to the city. It now supplies water for irrigation and domestic service. Area irrigated is about 4,000 acres. Seven per cent of the flow is used for domestic service. Water from the South Fork of San Diego River is diverted into this flume. The Capitan Grande Indian Reservation has a water right of 0.8 second-foot from this flume.

Accuracy.—Rating curve is well defined and results are excellent.

Cooperation.—Weir installed and gage-height record furnished by Cuyamaca Water Co., through W. S. Post, engineer.

Discharge measurements of Boulder Creek at Cuyamaca reservoir, near Lakeside, Cal., in 1912.

[Case and McFadden, hydrographers.]

Date.	Gage height.	Discharge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
July 25.....	0.58	12
25.....	.73	16
26.....	.26	4.1
26.....	.41	6.9

Daily gage height, in feet, and discharge, in second-feet, of Boulder Creek at Cuyamaca reservoir, near Lakeside, Cal., for 1912.

[Weir gage, E. A. Bartl and E. A. Case, observers.]

Day.	June.		July.		August.		September.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1.....			0.42	7.5	0.42	7.5	0.42	7.5
2.....			.42	7.5	.58	12	.42	7.5
3.....			.42	7.5	.58	12	.33	5.5
4.....			.38	6.6	.58	12	.33	5.5
5.....			.33	5.5	.58	12	.25	3.7
6.....			.42	7.5	.58	12	.25	3.7
7.....			.50	9.5	.58	12	.25	3.7
8.....			.33	5.5	.58	12	.25	3.7
9.....			.42	7.5	.58	12	.33	5.5
10.....			.42	7.5	.58	12	.25	3.7
11.....			.46	8.5	.58	12	.25	3.7
12.....			.50	9.5		.0	.29	4.6
13.....			.50	9.5	.50	9.5	.33	5.5
14.....			.60	9.5	.50	9.5	.38	6.6
15.....			.50	9.5	.50	9.5	.33	5.5
16.....			.54	11	.49	9.2	.29	4.6
17.....			.58	12	.50	9.5	.29	4.6
18.....			.50	9.5	.50	9.5	.33	5.5
19.....	0.29	4.6	.54	11	.50	9.5	.29	4.6
20.....	.35	5.9	.58	12	.43	7.8	.29	4.6
21.....	.35	5.9	.58	12	.33	5.5	.29	4.6
22.....	.50	9.5	.58	12	.33	5.5	.29	4.6
23.....	.50	9.5	.58	12	.33	5.5	.29	4.6
24.....	.50	9.5	.58	12	.58	12	.29	4.6
25.....	.43	7.8	.44	8.0	.58	12	.29	4.6
26.....	.42	7.5	.58	12		.0	.29	4.6
27.....	.50	9.5	.58	12		.0	.29	4.6
28.....	.50	9.5	.58	12	.12	1.3	.29	4.6
29.....	.50	9.5	.58	12	.25	3.7	.25	3.7
30.....	.25	3.7	.42	7.5	.25	3.7	.25	3.7
31.....			.42	7.5	.29	4.6		

NOTE.—Water shut off Aug. 12, 26, and 27.

Monthly discharge of Boulder Creek at Cuyamaca reservoir, near Lakeside, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
June 19-30.....	9.5	3.7	7.70	183	A.
July.....	12	5.5	9.45	581	A.
August.....	12	.0	8.24	507	A.
September.....	7.5	3.7	4.80	286	A.

BOULDER CREEK AT MOUTH, NEAR LAKESIDE, CAL.

Location.—300 feet above junction with San Diego River, in the NW. $\frac{1}{4}$ sec. 12, T. 14, S., R. 2 E., about 14 miles northeast of Lakeside.

Records available.—August 12 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in pool about 8 feet above crest of weir.

Discharge.—Computed from gage-height read three times each day, record showing depth of water over sharp-crested 6-foot weir without end contractions.

Storage.—While water is being stored at Cuyamaca reservoir, 12 miles above the station, the record shows only the run-off from the drainage area below the reservoir. A comparison of the flow at the outlet of the reservoir and at the mouth during the release of stored water will show approximately the loss by evaporation and seepage. There is practically no run-off from the intervening drainage area during the summer season. See also Boulder Creek at Cuyamaca reservoir, near Lakeside, Cal.

Accuracy.—The weir is especially well constructed and results are considered excellent.

Cooperation.—Weir was installed and gage-height record furnished by Cuyamaca Water Co., through W. S. Post, engineer.

The following discharge measurement was made by F. C. Ebert, August 16, 1912:

Gage height, 0.53 foot; discharge, 7.3 second-feet.

Daily gage height, in feet, and discharge, in second-feet, of Boulder Creek at mouth, near Lakeside, Cal., for 1912.

[E. A. Bartl and E. A. Case, observers.]

Day.	August.		September.		Day.	August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.		Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.....			0.35	4.1	16.....	0.50	7.1	0.40	5.1
2.....			.38	4.7	17.....	.55	8.1	.35	4.1
3.....			.43	5.6	18.....	.55	8.1	.35	4.1
4.....			.42	5.5	19.....	.56	8.4	.35	4.1
5.....			.32	3.6	20.....	.42	5.5	.31	3.4
6.....			.34	4.0	21.....	.38	4.7	.35	4.1
7.....			.33	3.8	22.....	.36	4.3	.33	3.8
8.....			.36	4.3	23.....	.38	4.7	.28	3.0
9.....			.36	4.3	24.....	.59	9.1	.34	4.0
10.....			.38	4.7	25.....	.60	9.3	.36	4.3
11.....			.35	4.1	26.....	.26	2.6	.34	4.0
12.....	0.27	2.8	.38	4.7	27.....	.16	1.3	.33	3.8
13.....	.51	7.3	.36	4.3	28.....	.12	.83	.33	3.8
14.....	.51	7.3	.40	5.1	29.....	.34	4.0	.33	3.8
15.....	.50	7.1	.38	4.7	30.....	.36	4.3	.29	3.1
					31.....	.33	3.8		

NOTE.—Daily discharge determined by weir formula $Q=3.33L H^{3/2}$.

Monthly discharge of Boulder Creek at mouth, near Lakeside, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
August 12-31.....	9.3	0.83	5.53	219	A.
September.....	5.6	3.00	4.20	250	A.

SAN DIEGO FLUME AT DIVERTING DAM, NEAR LAKESIDE, CAL.

Location.—At diverting dam in the SE. $\frac{1}{4}$ sec. 11, T. 14 S., R. 2 E., about 14 miles northeast of Lakeside.

Records available.—May 4 to September 30, 1912.

Gage.—Vertical staff fastened to flume 500 feet below intake and a short distance above sand box.

Discharge measurements.—Made from foot plank across flume at gage.

Accuracy.—A well defined rating curve has been developed for period when there was no head on intake gate. Measurements obtained on May 24 were made under varying heads, after reservoir had been filled. Sufficient data are not available for the preparation of estimates while water was stored in reservoir. After May 31 it is believed that there was but little head, if any, on intake gate and results are good.

Cooperation.—Maintained in cooperation with Cuyamaca Water Co., through W. S. Post, engineer.

Discharge measurements of San Diego flume at diverting dam, near Lakeside, Cal., in 1912.

[Hydrographer, F. C. Ebert.]

Date.	Gage height.	Dis- charge.	Date.	Gage height.	Dis- charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
May 1.....	1.71	40	May 24.....	1.92	49
24.....	.50	4.6	July 15.....	.81	8.4
24.....	.68	8.2	15.....	.56	4.4
24.....	.96	16.5	15.....	.41	2.2
24.....	1.19	22	15.....	1.08	14.5
24.....	1.67	40	Aug. 16.....	.75	7.0

NOTE.—All made from foot plank at gage.

Daily gage height, in feet, and discharge, in second-feet, of San Diego flume at diverting dam, near Lakeside, Cal., for 1912.

[E. A. Bartl and E. A. Case, observers.]

Day.	May.		June.		July.		August.		September.	
	Gage height.	Dis- charge.	Gage height.	Dis- charge.	Gage height.	Dis- charge.	Gage height.	Dis- charge.	Gage height.	Dis- charge.
1.....			0.96	11.6	0.81	8.2	0.74	6.9	0.53	3.6
2.....			.92	10.7	.85	9.1	.76	7.2	.57	4.1
3.....			.85	9.1	.85	9.1	.90	10.2	.62	4.8
4.....	1.40		.83	8.7	.89	10.0	.89	10.0	.61	4.7
5.....	1.41		.79	7.8	.75	7.0	.91	10.4	.56	4.0
6.....	1.39		.79	7.8	.78	7.6	.88	9.8	.50	3.2
7.....	1.46		.77	7.4	.92	10.7	.85	9.1	.45	2.7
8.....	1.44		.76	7.2	.89	10.0	.79	7.8	.44	2.6
9.....	1.59		.74	6.9	.74	6.9	.77	7.4	.50	3.2
10.....	1.66		.76	7.2	.80	8.0	.90	10.2	.56	4.0

Daily gage height, in feet, and discharge, in second-feet, of San Diego flume at diverting dam, near Lakeside, Cal., for 1912—Continued.

Day.	May.		June.		July.		August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
11.....	1.61	0.74	6.9	0.77	7.4	0.90	10.2	0.47	2.9
12.....	1.6774	6.9	.84	8.9	.76	7.2	.50	3.2
13.....	1.9074	6.9	.85	9.1	.39	2.1	.49	3.1
14.....	1.6773	6.7	.86	9.3	.71	6.3	.56	4.0
15.....	1.6475	7.0	.86	9.3	.76	7.2	.46	2.8
16.....	1.5674	6.9	.81	8.2	.72	6.5	.50	3.2
17.....	1.4778	7.6	.88	9.8	.76	7.2	.52	3.5
18.....	1.4269	5.9	.86	9.3	.89	10.0	.51	3.3
19.....	1.3959	4.4	.86	9.3	.78	7.6	.47	2.9
20.....	1.3375	7.0	.92	10.7	.76	7.2	.46	2.8
21.....	1.3378	7.6	.92	10.7	.57	4.1	.46	2.8
22.....	1.3387	9.5	.92	10.7	.54	3.7	.44	2.6
23.....	1.2894	11.2	.90	10.2	.17	.6	.49	3.1
24.....	1.2297	11.9	.84	8.9	.64	5.1	.45	2.7
25.....	1.20	1.00	12.6	.90	10.2	.80	8.0	.45	2.7
26.....	1.2292	10.7	.76	7.2	.70	6.1	.44	2.6
27.....	1.1788	9.8	.74	6.9	.13	.4	.47	2.9
28.....	1.1294	11.2	.84	8.9	.05	.2	.45	2.7
29.....	1.0594	11.2	.92	10.7	.34	1.7	.46	2.8
30.....	1.02	1.00	12.6	.90	10.2	.49	3.1	.42	2.4
31.....	.9878	7.6	.46	2.8

NOTE.—No estimates made for May, when there were varying heads on the intake gates. Daily discharge June to September determined from a well-defined rating curve.

Monthly discharge of San Diego flume at diverting dam, near Lakeside, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
June.....	12.6	4.4	8.63	514	B.
July.....	10.7	6.9	9.04	556	B.
August.....	10.4	.2	6.33	389	B.
September.....	4.8	2.4	3.20	190	B.

SAN DIEGO FLUME NEAR LAKESIDE, CAL.

Location.—One-fourth mile above trestle crossing at Los Coches Creek, about 3 miles southeast of Lakeside.

Records available.—January 1, 1907, to September 30, 1912.

Gage.—Depth of water in flume is measured at reference point at patrolman's cabin.

Discharge measurements.—Made in flume at reference point.

Storage and diversions.—The Cuyamaca reservoir, on the headwaters of Boulder Creek, has a capacity of 11,400 acre-feet. From the reservoir the water flows down the natural channel of Boulder Creek and San Diego River to the intake of the San Diego flume, a distance of 12½ miles.

Accuracy.—Rating curve is fairly well defined. On account of leakage and diversion for irrigation on the Capitan Grande Indian Reservation the record does not show the total diversion. Results are good.

Cooperation.—Maintained in cooperation with the Cuyamaca Water Co., through W. S. Post, engineer.

Discharge measurements of San Diego flume near Lakeside, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
May 6	F. C. Ebert.....	<i>Feet.</i> 0.76	<i>Sec.-ft.</i> 12.8
June 29do.....	.68	10.4
Aug. 20	E. W. Case.....	.45	4.7

NOTE.—Wading at gage.

Daily gage height, in feet, of San Diego flume near Lakeside, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....				0.12	0.17	0.26	0.83	0.72	0.82	0.61	0.47	0.31
2.....				.04	.17	.44	.83	.44	.78	.56	.42	.38
3.....				.06	.17	.48	.80	.55	.74	.55	.56	.41
4.....	0.03			.17	.51	.77	.80	.70	.57	.58	.40	
5.....					.17	.62	.83	.77	.69	.56	.60	.38
6.....	.03			.05	.16	.65	.80	.85	.69	.51	.61	.30
7.....					.16	.58	.82	.78	.67	.59	.58	.27
8.....					.17	.46	.89	.74	.64	.67	.59	.28
9.....	.28				.18	.51	.85	.70	.62	.51	.38	.28
10.....				.22	.19	.41	.85	.69	.65	.56	.58	.34
11.....				.01	.19	.71	.83	.48	.64	.56	.61	.27
12.....				.12	.18	.73	.75	.47	.62	.58	.60	.23
13.....	.01			.17	.18	.70	.60	.45	.58	.60	.42	.26
14.....					.18	.81	.60	.60	.60	.60	.39	.31
15.....				.33	.17	.83	.65	.68	.60	.59	.48	.27
16.....				.02	.16	.83	.77	.52	.56	.54	.54	.30
17.....				.1	.16	.75	.76	.76	.51	.55	.52	.32
18.....				.31	.16	.81	.75	.86	.38	.52	.55	.34
19.....				.22	.16	.81	.78	.86	.47	.55	.56	.32
20.....				.15	.21	.80	.78	.85	.54	.60	.56	.30
21.....				.15	.25	.79	.77	.87	.58	.56	.45	.28
22.....				.15	.22	.81	.58	.84	.68	.58	.40	.28
23.....				.12	.19	.79	.60	.86	.69	.67	.26	.34
24.....				.08	.21	.72	.53	.77	.71	.60	.22	.31
25.....				.19	.19	.76	.82	.83	.68	.57	.58	.31
26.....				.17	.17	.75	.84	.83	.62	.50	.57	.31
27.....				.19	.19	.73	.84	.82	.62	.47	.19	.32
28.....				.24	.17	.79	.83	.81	.64	.53		.31
29.....			0.14	.22	.17	.81	.85	.81	.67	.58		
30.....			.33	.23		.84	.84	.84	.73	.58	.09	
31.....			.10	.17		.79		.83		.52	.28	

NOTE.—Flume was dry on days for which no gage height is given, except Sept. 29 and 30, when gage was not read.

Daily discharge, in second-feet, of San Diego flume near Lakeside, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.0	0.0	0.0	0.6	1.0	2.0	14.4	11.4	14.2	8.7	5.6	2.7
2.....	.0	.0	.0	.2	1.0	5.0	14.4	5.0	13.1	7.6	4.6	3.9
3.....	.0	.0	.0	.2	1.0	5.8	13.6	7.4	12.0	7.4	7.6	4.4
4.....	.1	.0	.0	.0	1.0	6.4	12.8	13.6	10.9	7.8	8.0	4.2
5.....	.0	.0	.0	.0	1.0	9.0	14.4	12.8	10.7	7.6	8.5	3.9
6.....	.1	.0	.0	.2	.9	9.7	13.6	15.0	10.7	6.4	8.7	2.5
7.....	.0	.0	.0	.0	.9	8.0	14.2	13.1	10.2	8.3	8.0	2.1
8.....	.0	.0	.0	.0	1.0	5.4	16.1	12.0	9.5	10.2	8.3	2.2
9.....	2.2	.0	.0	.0	1.0	6.4	15.0	10.9	9.0	6.4	3.9	2.2
10.....	.0	.0	.0	1.5	1.1	4.4	15.0	10.7	9.7	7.6	8.0	3.2
11.....	.0	.0	.0	.0	1.1	11.2	14.4	5.8	9.5	7.6	8.7	2.1
12.....	.0	.0	.0	.6	1.0	11.7	12.2	5.6	9.0	8.0	8.5	1.6
13.....	.0	.0	.0	1.0	1.0	10.9	8.5	5.2	8.0	8.5	4.6	2.0
14.....	.0	.0	.0	.0	1.0	13.9	8.5	8.5	8.5	8.5	4.0	2.7
15.....	.0	.0	.0	3.0	1.0	14.4	9.7	10.4	8.5	8.3	5.8	2.1

Daily discharge, in second-feet, of San Diego flume near Lakeside, Cal., for 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.
16.....	0.0	0.0	0.0	0.1	0.9	14.4	12.8	6.7	7.6	7.1	7.1	2.5
17.....	.0	.0	.0	.4	.9	12.2	12.5	12.5	6.4	7.4	6.7	2.8
18.....	.0	.0	.0	2.7	.9	13.9	12.2	15.3	3.9	6.7	7.4	3.2
19.....	.0	.0	.0	1.5	.9	13.9	13.1	15.3	5.6	7.4	7.6	2.8
20.....	.0	.0	.0	.8	1.3	13.6	13.1	15.0	7.1	8.5	7.6	2.5
21.....	.0	.0	.0	.8	1.8	13.3	12.8	15.6	8.0	7.6	5.2	2.2
22.....	.0	.0	.0	.8	1.5	13.9	8.0	14.7	10.4	8.0	4.2	2.2
23.....	.0	.0	.0	.6	1.1	13.3	8.5	15.3	10.7	7.8	2.0	3.2
24.....	.0	.0	.0	.3	1.3	11.4	14.4	12.8	11.2	8.5	1.5	2.7
25.....	.0	.0	.0	1.1	1.1	12.5	14.2	14.4	10.4	7.8	8.0	2.7
26.....	.0	.0	.0	1.0	1.0	12.2	14.7	14.4	9.0	6.2	7.8	2.7
27.....	.0	.0	.0	1.1	1.1	11.7	14.7	14.2	9.0	5.6	1.1	2.8
28.....	.0	.0	.0	1.7	1.0	13.3	14.4	13.9	9.5	6.9	.0	2.7
29.....	.0	.0	.7	1.5	1.0	13.9	15.0	13.9	10.2	8.0	.0	2.5
30.....	.0	.0	3.0	1.6	14.7	14.7	14.7	11.7	8.0	.4	2.5
31.....	.04	1.0	13.3	14.4	6.7	2.2

NOTE.—Daily discharge determined from rating curves applicable as follows: Jan. 1, 1910, to Dec. 31, 1911, fairly well defined; Jan. 1. to Sept. 30, 1912, fairly well defined. Discharge estimated for Sept. 29 and 30.

Monthly discharge of San Diego flume near Lakeside, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	2.2	0.0	0.08	5	D.
November.....	.0	.0	.0	0	
December.....	3.0	.0	.13	8	D.
January.....	3.0	.0	.73	48	C.
February.....	1.8	.9	1.06	61	C.
March.....	14.7	2.0	10.8	664	A.
April.....	16.1	8.0	13.1	780	A.
May.....	15.6	5.0	12.0	738	A.
June.....	14.2	3.9	9.47	564	A.
July.....	10.2	5.6	7.65	470	A.
August.....	8.7	.0	5.54	341	A.
September.....	4.4	1.6	2.73	162	A.
The year.....	16.1	.0	5.29	3,840	

Daily discharge, in second-feet, of San Diego River and flume near Lakeside, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.0	0.0	0.0	0.6	1.0	2.0	164	40	16.2	8.9	5.7	2.7
2.....	.0	.0	.0	.2	1.0	5.0	117	40	13.6	7.8	4.7	3.9
3.....	.0	.0	.0	.2	1.0	5.8	96	42	12.5	7.6	7.7	4.4
4.....	.1	.0	.0	.0	1.0	6.4	77	43	11.4	8.0	8.0	4.2
5.....	.0	.0	.0	.0	1.0	9.0	78	36	11.2	7.8	8.5	3.9
6.....	.1	.0	.0	.2	.9	9.7	78	35	11.2	6.6	8.7	2.5
7.....	.0	.0	.0	.0	.9	8.0	70	29	11.7	8.5	8.0	2.1
8.....	.0	.0	.0	.0	1.0	5.4	58	157	11.0	10.4	8.3	2.2
9.....	2.2	.0	.0	.0	1.0	6.4	57	206	10.5	6.6	3.9	2.2
10.....	.0	.0	.0	1.5	1.1	289	88	106	10.2	7.8	8.0	3.2
11.....	.0	.0	.0	.0	1.1	111	216	61	10.0	7.8	8.7	2.1
12.....	.0	.0	.0	.6	1.0	17.7	319	61	9.5	8.2	8.5	1.6
13.....	.0	.0	.0	1.0	1.0	195	268	43	8.5	8.7	4.6	2.0
14.....	.0	.0	.0	.0	1.0	160	254	46	9.0	8.7	4.0	2.7
15.....	.0	.0	.0	3.0	1.0	60	270	36	8.7	8.5	5.8	2.1

Daily discharge, in second-feet, of San Diego River and flume near Lakeside, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
16.....	0.0	0.0	0.0	0.1	0.9	40	258	33	7.8	7.3	7.1	2.5
17.....	.0	.0	.0	.4	.9	33	214	28	6.6	7.6	6.7	2.8
18.....	.0	.0	.0	2.7	.9	30	137	31	4.4	6.9	7.4	3.2
19.....	.0	.0	.0	1.5	.9	26	116	31	5.8	7.5	7.6	2.8
20.....	.0	.0	.0	.8	1.3	23	95	31	7.6	8.6	7.6	2.5
21.....	.0	.0	.0	.8	1.8	25	95	28	8.5	7.7	5.2	2.2
22.....	.0	.0	.0	.8	1.5	60	72	30	10.9	8.1	4.2	2.2
23.....	.0	.0	.0	.6	1.1	113	72	30	11.2	7.9	2.0	3.2
24.....	.0	.0	.0	.3	1.3	32	62	28	11.4	8.6	1.5	2.7
25.....	.0	.0	.0	1.1	1.1	28	62	29	10.6	7.9	8.0	2.7
26.....	.0	.0	.0	1.0	1.0	74	57	28	9.2	6.3	7.8	2.7
27.....	.0	.0	.0	1.1	1.1	158	50	27	9.2	5.7	1.1	2.8
28.....	.0	.0	.0	1.7	1.0	75	49	22	9.7	7.0	.0	2.7
29.....	.0	.0	.7	1.5	1.0	60	50	21	11.2	8.1	.0	2.5
30.....	.0	.0	3.0	1.6	165	50	21	12.2	8.1	.4	2.5
31.....	.04	1.0	215	16.4	6.8	2.2

NOTE.—These figures are the sum of those representing the discharge of the river and of the flume and give the total flow of the river. After Aug. 3 the river is dry, all of the flow being in flume.

Monthly discharge of San Diego River and flume near Lakeside, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	2.2	0.0	0.08	5	D.
November.....	.0	.0	.00	0	D.
December.....	3.0	.0	.13	8	C.
January.....	3.0	.0	.78	48	C.
February.....	1.8	.0	1.06	61	C.
March.....	289	2.0	66.0	4,080	B.
April.....	319	49	122	7,260	B.
May.....	206	16.4	45.7	2,810	B.
June.....	16.2	4.4	10.0	595	C.
July.....	10.4	5.7	7.81	480	C.
August.....	8.7	.0	5.55	341	B.
September.....	4.4	1.6	2.73	162	B.
The year.....	319	.0	21.8	15,800	

SAN DIEGUITO RIVER BASIN.

SANTA YSABEL CREEK NEAR RAMONA, CAL.

Location.—At Pamo, in the NE. $\frac{1}{4}$ sec. 27, T. 12 S., R. 1 E., 1 mile below mouth of Temescal Creek, and 4 miles north of Ramona, 5 miles above the site of the station maintained at mouth of canyon near Escondido from 1906 to 1910.

Records available.—February 5 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in four sections on left bank.

Channel.—Sand; somewhat shifting.

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

Diversions.—Water is diverted from Santa Ysabel Creek near the mouth of the canyon, 5 miles below the station, by East San Pasqual ditch, which takes out on the left bank, and West San Pasqual ditch, which takes out on the right bank and below the intake of the East San Pasqual. From August 15 to January 15 East San Pasqual ditch is entitled to the entire flow of the stream. During the remainder of the year it has a right to divert 16 second-feet for 10 consecutive

days out of each 30. From January 16 to August 14, if there is not sufficient water in the stream for both ditches, the West San Pasqual may take 16 second-feet for 20 consecutive days out of each 30.

Accuracy.—Rating curves are well defined and results are excellent.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of Santa Ysabel Creek near Ramona, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 5	H. L. Davis.....	0.30	3.3	Apr. 12	F. C. Ebert.....	2.22	206
5	do.....	.30	3.8	14	H. L. Davis.....	1.70	154
8	F. C. Ebert.....	.32	3.8	14	do.....	1.72	154
17	H. L. Davis.....	.28	3.0	15	do.....	1.68	141
Mar. 6	F. C. Ebert.....	.94	49	23	do.....	.84	53
8	do.....	.62	21	May 8	F. C. Ebert.....	.92	54
8	H. L. Davis.....	.60	18	27	H. L. Davis.....	.50	21
27	F. C. Ebert.....	.94	50	July 15	F. C. Ebert.....	.10	1.4
Apr. 1	do.....	1.01	50	Aug. 12	H. L. Davis.....	.10	.05
5	H. L. Davis.....	.85	41				

NOTE.—All made by wading except Aug. 12, when measurement was made by floats.

Daily gage height, in feet, of Santa Ysabel Creek near Ramona, Cal., for 1912.

[W. P. Ross, observer.]

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		0.43	1.04	0.68	0.40	0.17	0.02	—0.05
2.....		.56	.97	.68	.39	.19	.00	—0.06
3.....		.43	.88	.67	.39	.24	.00	—0.06
4.....		.51	.84	.64	.37	.30	—0.02	—0.04
5.....	0.30	.57	.85	.64	.36	.22	—0.07	—0.04
6.....	.30	1.00	.80	.63	.37	.18	—0.07	—0.04
7.....	.30	.72	.73	.80	.36	.17	—0.09	—0.06
8.....	.30	.63	.81	1.25	.34	.15	—0.09	—0.05
9.....	.32	.74	.87	1.38	.33	.12	—0.10	—0.04
10.....	.32	2.7	.90	1.15	.34	.11	—0.10	—0.05
11.....	.32	.99	2.3	1.03	.34	.07	—0.09	—0.11
12.....	.32	.97	2.5	.93	.34	.07	—0.10	—0.11
13.....	.30	2.05	2.0	.85	.34	.08	—0.10	—0.12
14.....	.30	1.13	1.85	.75	.35	.07	—0.10	—0.12
15.....	.30	.89	1.6	.67	.34	.07	—0.10	—0.13
16.....	.28	.82	1.45	.63	.34	.02	—0.10	—0.13
17.....	.27	.68	1.23	.56	.30	.05	—0.10	—0.14
18.....	.27	.59	1.19	.54	.26	.26	—0.06	—0.15
19.....	.27	.52	1.10	.52	.25	.19	—0.05	—0.15
20.....	.27	.46	1.01	.49	.24	.09	—0.05	—0.15
21.....	.29	.60	.94	.49	.23	.05	—0.07	—0.14
22.....	.28	.62	.88	.49	.23	.02	—0.08	—0.15
23.....	.27	.55	.82	.48	.24	.00	—0.09	—0.15
24.....	.27	.55	.78	.48	.24	.00	—0.10	—0.15
25.....	.27	.50	.76	.47	.23	.00	—0.11	—0.14
26.....	.27	.89	.74	.49	.20	—0.02	—0.11	—0.14
27.....	.27	1.00	.81	.48	.18	—0.02	—0.10	—0.15
28.....	.27	.80	.75	.47	.16	.00	—0.09	—0.15
29.....	.23	.90	.72	.45	.21	.02	.04	—0.15
30.....		1.6	.70	.45	.25	.04	.02	—0.14
31.....		1.164304	.00

NOTE.—Gage height, Mar. 5, 6, 9, 10, 12, 29, 30, Apr. 10-18, and May 7-10 determined by means of a graph and comparison with San Luis Rey River near Mesa Grande. Observer reads gage several times a day during flood stages.

Daily discharge, in second-feet, of Santa Ysabel Creek near Ramona, Cal., for 1912.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		9.5	59	34	14	4.2	1.3	0.5
2.....		17	52	34	14	4.8	1.0	.4
3.....		9.5	43	34	14	6.6	1.0	.4
4.....		14	40	31	12	9	.8	.6
5.....	4	17	40	31	12	5.8	.3	.6
6.....	4	55	36	30	12	4.5	.3	.6
7.....	4	29	30	45	12	4.2	.1	.4
8.....	4	21	37	92	11	3.8	.1	.5
9.....	4.8	31	42	106	10	3.0	.05	.6
10.....	4.8	278	45	80	11	2.8	.05	.5
11.....	4.8	54	218	68	11	2.0	.1	.04
12.....	4.8	52	252	58	11	2.0	.05	.04
13.....	4	182	185	50	11	2.2	.05	.04
14.....	4	69	166	40	12	2.0	.05	.04
15.....	4	44	133	34	11	2.0	.05	.04
16.....	3.4	38	114	30	11	1.3	.05	.04
17.....	3.1	25	89	25	9	1.8	.05	.03
18.....	3.1	18	85	24	7.4	7.4	.4	.02
19.....	3.1	14	75	22	7.0	4.8	.5	.02
20.....	3.1	11	66	20	6.6	2.4	.5	.02
21.....	3.7	19	59	20	6.2	1.8	.3	.03
22.....	3.4	21	53	20	6.2	1.3	.2	.02
23.....	3.1	16	47	20	6.6	1.0	.1	.02
24.....	3.1	16	43	20	6.6	1.0	.05	.02
25.....	3.1	13	41	19	6.2	1.0	.04	.03
26.....	3.1	44	40	20	5.0	.8	.04	.03
27.....	3.1	55	46	20	4.5	.8	.05	.02
28.....	3.1	36	40	19	4.0	1.0	.1	.02
29.....	1.9	45	38	18	5.4	1.3	1.6	.02
30.....		122	36	18	7.0	1.6	1.3	.03
31.....		73		16		1.6	1.0	

NOTE.—Daily discharge determined from two rating curves applicable as follows: Feb. 5 to Apr. 11, 1912, well defined above 3 second-feet, and Apr. 12 to Sept. 30, fairly well defined. Discharge values for June supersede those published in Water-Supply Paper 300, p. 531.

Monthly discharge of Santa Ysabel Creek near Ramona, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
February 5-29.....	4.8	1.9	3.62	180	A.
March.....	278	9.5	46.7	2,870	A.
April.....	252	30	75.0	4,460	A.
May.....	106	16	35.4	2,180	A.
June.....	14	4	9.22	549	B.
July.....	9	.8	2.90	178	B.
August.....	1.6	.04	.37	22.8	D.
September.....	.6	.02	.19	11.3	D.
The period.....				10,500	

SANTA YSABEL CREEK NEAR ESCONDIDO, CAL.

Location.—At the mouth of the canyon at the upper end of San Pasqual Valley in the SW. $\frac{1}{4}$ sec. 31, T. 12 S., R. 1 E., about 10 miles southeast of Escondido. Roden Canyon Creek enters $1\frac{1}{2}$ miles above and Santa Maria Creek 4 miles below the station.

Records available.—December 17, 1905, to September 30, 1912, when station was discontinued.

Drainage area.—128 square miles.

Gage.—Inclined staff on left bank.

Channel.—Shifting sand.

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

Accuracy.—The channel is somewhat shifting, but numerous discharge measurements have been made and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of Santa Ysabel Creek near Escondido, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 15	F. C. Ebert.....	0.06	0.2	Apr. 12	F. C. Ebert.....	0.75	266
				22	H. L. Davis.....	.18	62
1912.				May 8	F. C. Ebert.....	.10	53
Jan. 22	do.....	.12	3.7	15	E. W. Case.....	.0	36
Feb. 8	do.....	.14	4.2	23	F. C. Ebert.....	-.06	21
Mar. 6	do.....	.47	47	June 2	E. W. Case.....	-.14	5.1
8	do.....	.26	22	July 13	F. C. Ebert.....	-.19	1.0
Apr. 1	do.....	.12	49	Aug. 3	E. W. Case.....	-.33	.2

NOTE.—All made by wading except Oct. 15, 1911, and Aug. 3, 1912, when discharge was estimated.

Daily gage height, in feet, of Santa Ysabel Creek near Escondido, Cal., for 1911-12.

[E. R. Harris, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.			0.10	0.2	0.15	0.15	0.1	0.05	-0.1	-0.15	-0.3
2.			.10	.2	.15	.3	.15	.0	-1	-15	-.3
3.			.10	.2	.15	.15	.1	.05	-1	-1	-.35
4.			.11	.2	.2	.15	.1	.0	-15	-15	-.35
5.			.11	.2	.2	.2	.1	.0	-1	-15	-.35
6.			.17	.15	.15	.5	.05	.0	-.05	-15	-.35
7.			.20	.15	.15	.35	.05	.0	-1	-15	-.45
8.			.18	.15	.15	.25	.0	.1	-1	-15	
9.			.15	.15	.15	.3	.1	.2	-1	-15	
10.			.11	.3	.15	1.4	.2	.2	-1	-15	
11.			.12	.2	.15	.4	.85	.15	-1	-2	
12.			.10	.15	.15	.35	.85	.1	-1	-15	
13.		0.08	.09	.15	.15	.85	.6	.1	-1	-2	
14.		.09	.09	.15	.15	.35	.5	.05	-1	-25	
15.	0.06	.10	.10	.15	.15	.35	.5	.0	-1	-15	
16.		.10	.11	.2	.15	.35	.5	.0	-1	-15	
17.		.11	.12	.2	.15	.3	.45	.0	-15	-2	
18.		.10	.12	.2	.1	.3	.3	.0	-1	-15	
19.		.09	.10	.2	.15	.3	.25	-.05	-1	.0	
20.		.15	.10	.2	.1	.3	.2	-.05	-15	-2	
21.		.15	.11	.2	.1	.3	.15	-.05	-15	-2	
22.		.14	.20	.15	.15	.3	.15	-.05	-15	-2	
23.		.12	.21	.1	.15	.25	.15	-.05	-15	-2	
24.		.10	.19	.15	.15	.25	.1	-.05	-15	-2	
25.		.10	.17	.15	.15	.25	.1	-.05	-15	-25	
26.		.10	.15	.15	.15	.3	.1	-.05	-15	-25	
27.		.09	.15	.2	.15	.3	.1	-.05	-15	-25	
28.		.08	.16	.2	.15	.3	.1	-.05	-15	-3	
29.		.05	.20	.2	.15	.4	.1	-.05	-15	-25	
30.		.08	.21	.2		.6	.1	-1	-15	-.3	
31.			.19	.15		.45		-1		-.3	

NOTE.—Creek dry July 7 to Oct. 14, 1911, and Aug. 8 to Sept. 30, 1912.

Daily discharge, in second-feet, of Santa Ysabel Creek near Escondido, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....		1.0	2.4	10	5	5	51	40	12	6.5	0.3
2.....		1.0	2.4	10	5	20	63	30	12	6.5	.3
3.....		1.0	2.4	10	5	5	51	40	12	12	.0
4.....		1.0	3.2	10	10	5	51	30	6.5	6.5	.0
5.....		1.0	3.2	10	10	10	51	30	12	6.5	.0
6.....		1.0	8.1	5	5	5	40	30	21	6.5	.0
7.....		1.0	10	5	5	38	40	30	12	6.5	.0
8.....		1.0	8.9	5	5	24	30	51	12	6.5
9.....		1.0	6.4	5	5	30	51	75	12	6.5
10.....		1.0	3.2	10	5	630	75	75	12	6.5
11.....		1.0	4.0	10	5	133	315	63	12	1
12.....		1.0	2.4	5	5	118	315	51	12	6.5
13.....		1.4	1.9	5	5	315	205	51	12	1
14.....		1.9	1.9	5	5	118	168	40	12	.6
15.....	0.2	2.4	2.4	5	5	118	168	30	12	6.5
16.....	.05	2.4	3.2	10	5	118	168	30	12	6.5
17.....	.05	3.2	4.0	10	5	102	150	30	6.5	1
18.....	.05	2.4	4.0	10	2	102	102	30	12	6.5
19.....	.05	1.9	2.4	10	5	102	88	21	12	30
20.....	.05	6.4	2.4	10	2	102	75	21	6.5	1
21.....	.05	6.4	3.2	10	2	102	63	21	6.5	1
22.....	.05	5.6	10	5	5	102	63	21	6.5	1
23.....	.05	4.0	12	2	5	88	63	21	6.5	1
24.....	.05	2.4	9.7	5	5	88	51	21	6.5	1
25.....	.05	2.4	8.1	5	5	88	51	21	6.5	.6
26.....	.05	2.4	6.4	5	5	102	51	21	6.5	.6
27.....	.05	1.9	6.4	10	5	102	51	21	6.5	.6
28.....	.05	1.4	7.3	10	5	102	51	21	6.5	.3
29.....	.05	.0	10	10	5	133	51	21	6.5	.6
30.....	.05	1.4	12	10	205	51	12	6.5	.3
31.....	.05	9.7	5	150	123

NOTE.—Daily discharge determined from two rating curves applicable as follows: 1911 to Mar. 6, 1912, fairly well defined, and Mar. 10 to Sept. 30, 1912, well defined. Discharge values October, November, and March to June supersede those published in Water-Supply Paper 300, p. 528. Discharge values Oct. 16 to Nov. 12, 1911, estimated.

Monthly discharge of Santa Ysabel Creek near Escondido, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	0.0	0.032	2.0	D.
November.....	6.4	.0	2.06	123	C.
December.....	12	1.9	5.60	344	B.
January.....	10	5	7.65	470	B.
February.....	10	2	5.03	289	B.
March.....	630	5	108	6,640	B.
April.....	315	30	93.4	5,560	B.
May.....	75	12	32.6	2,000	B.
June.....	21	6.5	9.92	590	B.
July.....	30	.3	4.46	274	C.
August.....	.3	.0	.019	1.2	D.
September.....	.0	.0	.0	.0
The year.....	630	.0	22.5	16,300

NOTE.—Monthly values March to June supersede those published in Water-Supply Paper 300, p. 529.

SAN DIEGUITO RIVER AT BERNARDO, CAL.

Location.—At highway bridge at Bernardo, on San Bernardo grant, 5 miles below junction of Santa Ysabel and Santa Maria creeks, and 16 miles above mouth of river.

Records available.—April 17 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Standard chain gage, fastened to upstream side of bridge. Length of chain, 23.18 feet.

Channel.—Sand and shifting.

Discharge measurements.—Made from car and cable 30 feet above gage or by wading.

Diversions.—East and West San Pasqual ditches divert water for irrigation from the Santa Ysabel at the upper end of San Pasqual Valley (see Santa Ysabel Creek near Ramona). Water for irrigation is also pumped from wells along the river.

Accuracy.—Rating curve is well defined and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of San Dieguito River at Bernardo, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 17	F. C. Ebert.....	10.29	125	June 23	E. W. Case.....	9.15	0.2
22	H. L. Davis.....	9.92	66	July 1	F. C. Ebert.....	9.11	a .2
May 2	F. C. Ebert.....	9.48	14	13	do.....	9.10	a .1
8	do.....	9.88	53	Aug. 3	E. W. Case.....	9.08	a .04
15	E. W. Case.....	9.80	37	13	F. C. Ebert.....	8.95	b .0
23	F. C. Ebert.....	9.51	16	Sept. 24	do.....		Dry.
June 8	W. S. Post.....	9.19	.6				

a Estimated.

b Water in pools. Slight flow in morning.

Daily gage height, in feet, of San Dieguito River at Bernardo, Cal., for 1912.

[S. Carder Smith, observer.]

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		9.56	9.19	9.11	9.04	8.99	16.....		9.68	9.19	9.08	8.99	8.89
2.....		9.45	9.18	9.11	9.02	8.99	17.....	10.3	9.61	9.19	9.08	8.99	8.89
3.....		9.35	9.19	9.10	9.04	8.99	18.....	10.21	9.55	9.16	9.09	8.98	8.89
4.....		9.25	9.21	9.10	9.04	8.99	19.....	10.11	9.6	9.16	9.09	8.98	8.88
5.....		9.22	9.21	9.10	9.04	8.99	20.....	10.04	9.6	9.16	9.11	8.96	8.88
6.....		9.24	9.19	9.10	9.02	8.99	21.....	10.0	9.55	9.16	9.09	8.94	8.86
7.....		9.66	9.19	9.11	8.96	8.96	22.....	9.92	9.58	9.16	9.09	8.94	8.88
8.....		9.92	9.2	9.10	9.02	8.92	23.....	9.9	9.44	9.16	9.10	8.94	8.86
9.....		10.6	9.2	9.10	9.02	8.91	24.....	9.85	9.32	9.15	9.10	8.94	8.88
10.....		10.3	9.2	9.10	9.02	8.91	25.....	9.82	9.31	9.15	9.09	8.92	8.88
11.....		10.2	9.2	9.09	9.01	8.91	26.....	9.75	9.29	9.14	9.10	8.92	8.88
12.....		10.08	9.2	9.09	8.99	8.91	27.....	9.74	9.25	9.14	9.09	8.92	8.86
13.....		10.0	9.19	9.09	8.99	8.91	28.....	9.72	9.25	9.14	9.09	8.92	8.84
14.....		9.91	9.19	9.09	9.00	8.91	29.....	9.69	9.26	9.12	9.09	8.99	8.84
15.....		9.78	9.19	9.08	8.99	8.91	30.....	9.68	9.22	9.12	9.09	9.02	8.85
							31.....		9.22		9.09	8.99	

NOTE.—From July 1 to Sept. 30 the river was practically dry, but gage-height observations were continued to obtain measurements on water plane.

Daily discharge, in second-feet, of San Dieguito River at Bernardo, Cal., for 1912.

Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	
1.....		20	0.7	11.....		107	0.8	21.....		71	19	0.3
2.....		12	.5	12.....		85	.8	22.....		59	21	.3
3.....		6.5	.7	13.....		71	.7	23.....		56	11	.3
4.....		2.1	1.0	14.....		58	.7	24.....		50	5.0	.3
5.....		1.3	1.0	15.....		41	.7	25.....		46	4.5	.3
6.....		1.8	.7	16.....		30	.7	26.....		38	3.6	.3
7.....		28	.7	17.....		127	.7	27.....		36	2.1	.3
8.....		59	.8	18.....		109	.9	28.....		34	2.1	.3
9.....		192	.8	19.....		90	.3	29.....		31	2.5	.2
10.....		127	.8	20.....		78	.3	30.....		30	1.3	.2
								31.....			1.3	

NOTE.—Daily discharge determined from a fairly well defined rating curve. No flow July 1 to Sept. 30, 1912.

Monthly discharge of San Dieguito River at Bernardo, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
April 17-30.....	127	30	61.1	1,700	B.
May.....	192	1.3	32.4	1,990	B.
June.....	1.0	.2	.55	32.7	B.
July.....	.0	.0	.0	.0	
August.....	.0	.0	.0	.0	
September.....	.0	.0	.0	.0	

EAST SAN PASQUAL DITCH NEAR ESCONDIDO, CAL.¹

Location.—In the NE. $\frac{1}{4}$ sec. 36, T. 12 S., R. 1 W., at upper end of San Pasqual Valley, about 9 miles southeast of Escondido.

Records available.—June 9 to July 8, 1912.

Gage.—Vertical staff fastened to flume at measuring box.

Channel.—Considerable silt from the Santa Ysabel is deposited in the ditch.

Discharge measurements.—Made from foot plank across flume at gage.

Accuracy.—Data insufficient for estimates of discharge.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of East San Pasqual ditch near Escondido, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
May 2	F. C. Ebert.....	1.09	12.1
June 8	W. S. Post.....	.54	3.5
22	E. W. Case.....	.27	2.9

NOTE.—Made from foot plank across sand box.

Daily gage height, in feet, of East San Pasqual ditch near Escondido, Cal., for 1912.

[E. R. Harris, observer.]

Day.	June.	July.	Day.	June.	July.	Day.	June.	July.
1.....		0.25	11.....	0.46		21.....	0.25	
2.....		.21	12.....	.46		22.....	.25	
3.....		.29	13.....	.42		23.....	.31	
4.....		.21	14.....	.57		24.....	.29	
5.....		.23	15.....	.60		25.....	.25	
6.....		.16	16.....	.58		26.....	.26	
7.....		.12	17.....	.46		27.....	.25	
8.....			18.....	.31		28.....	.17	
9.....	0.54		19.....	.25		29.....	.29	
10.....	.50		20.....	.27		30.....	.26	
						31.....		

NOTE.—In 1912 water was turned in on Mar. 3 and continued to flow until May 14. After this date the discharge of the Santa Ysabel was so low that it became necessary to apportion the water according to the terms of the water right. Ditch went dry July 8.

¹ See Santa Ysabel Creek near Ramona, "Diversions," p. 34.

WEST SAN PASQUAL DITCH NEAR ESCONDIDO, CAL.¹

Location.—In sec. 34, T. 12 S., R. 1 W., at upper end of San Pasqual Valley, about 7 miles southeast of Escondido.

Records available.—May 6 to June 23, 1912.

Gage.—Vertical staff fastened to side of old culvert about 800 feet below headgate.

Channel.—Considerable silt from the Santa Ysabel is deposited in the ditch.

Discharge measurements.—Made from foot plank across ditch near gage.

Accuracy.—Data insufficient for estimates of discharge.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of West San Pasqual ditch near Escondido, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
May 2 ^a	F. C. Ebert.....	2.42	11.1
15 ^b	E. W. Case.....	2.40	7.0
23 ^b	F. C. Ebert.....	2.40	9.0
June 23 ^b	E. W. Case.....	1.95	.9

^a Made from foot plank 100 feet above gage.

^b Made by wading.

Daily gage height, in feet, of West San Pasqual ditch near Escondido, Cal., for 1912.

[J. H. Hall, observer.]

Day.	May.	June.	Day.	May.	June.	Day.	May.	June.
1.....		2.4	11.....			21.....		
2.....			12.....			22.....	2.4	
3.....			13.....			23.....	2.4	1.95
4.....			14.....	2.3	2.1	24.....	2.6	
5.....			15.....	2.4	2.2	25.....	2.6	
6.....	2.6		16.....	2.5	2.2	26.....	2.6	
7.....	2.5		17.....		2.2	27.....	2.55	
8.....			18.....	2.5	2.1	28.....	2.55	
9.....			19.....		2.1	29.....	2.35	
10.....			20.....		2.0	30.....	2.45	
						31.....	2.4	

NOTE.—For the season of 1912 water was turned into this ditch on Mar. 5 and continued to flow until May 8. Flow apportioned according to the water right after May 14. No water in ditch May 8-14, 17, 19-21, and June 4-13. Gage not read June 2, 3, 21, and 22.

SAN LUIS REY RIVER BASIN.

SAN LUIS REY RIVER NEAR MESA GRANDE, CAL.

Location.—At concrete weir in the NE. $\frac{1}{4}$ sec. 9, T. 11 S., R. 2 E. San Bernardino meridian, 1 mile below Warner dam site, and about 5 miles north of Mesa Grande.

Records available.—October 3, 1911, to September 30, 1912.

Drainage area.—208 square miles.

Gage.—Barrett & Lawrence automatic gage on left bank just above weir.

Channel.—Sand and gravel and somewhat shifting. Weir acts as control for gage.

Discharge measurements.—Made from car and cable about 1 mile above gage or by wading.

Accuracy.—Frequent discharge measurements are made and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

¹ See Santa Ysabel Creek near Ramona, "Diversions," p. 34.

Discharge measurements of San Luis Rey River near Mesa Grande, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 11	F. C. Ebert.....	0.09	1.8	Mar. 31	F. C. Ebert.....	0.64	48
Oct. 11	H. L. Davis.....	.09	1.7	Apr. 3	H. L. Davis.....	.52	29
Dec. 13	do.....	.11	2.2	Apr. 4	do.....	.50	28
20	do.....	.21	2.4	11	do.....	2.15	420
22	do.....	.12	2.6	12	do.....	2.28	496
22	do.....	.12	2.4	13	do.....	1.14	146
29	do.....	.50	20	24	do.....	.56	32
1912.				May 4	do.....	.46	21
Jan. 17	F. C. Ebert.....	.32	4.4	9	do.....	.76	62
18	do.....	.32	4.4	20	do.....	.41	12
27	C. B. Ireland.....	.33	6.5	28	do.....	.36	9.4
Feb. 6	H. L. Davis.....	.27	3.4	June 6	do.....	.32	3.3
10	F. C. Ebert.....	.25	3.5	8	do.....	.32	3.1
10	H. L. Davis.....	.25	3.6	14	do.....	.28	3.4
16	do.....	.25	3.2	18	do.....	.27	1.8
16	do.....	.22	3.0	July 4	do.....	.26	2.8
Mar. 2	do.....	.40	11	9	do.....	.22	1.2
6	do.....	.92	84	13	do.....	.24	1.8
11	do.....	.90	85	21	do.....	.24	1.4
12	do.....	.68	56	Aug. 10	do.....	.26	1.4
13	do.....	1.45	184	14	do.....	.22	1.4
14	do.....	.87	90	17	do.....	.22	1.2
15	do.....	.68	59	23	do.....	.19	1.5
23	do.....	.51	29	27	do.....	.16	.9
27	do.....	.61	43	31	do.....	.16	1.2
31	do.....	.64	46	Sept. 7	do.....	.13	1.1
				30	do.....	.17	1.3

NOTE.—All measurements made by wading.

Daily gage height, in feet, of San Luis Rey River near Mesa Grande, Cal., for 1911-12.

[H. L. Davis, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July.	Aug.	Sept.
1	-----	0.10	0.07	0.28	0.27	0.32	0.58	0.49	0.34	0.23	0.21	0.14
2	-----	.08	.06	.24	.28	.40	.55	.50	.37	.23	.23	.12
3	-----	0.10	.08	.07	.25	.30	.52	.46	.33	.25	.23	.15
4	-----	.09	.07	.08	.28	.29	.54	.50	.46	.33	.24	.23
5	-----	.10	.07	.10	.25	.28	.50	.50	.47	.32	.24	.21
6	-----	.10	.06	.10	.30	.27	1.08	.50	.47	.32	.23	.22
7	-----	.11	.09	.16	.30	.26	.58	.47	.48	.34	.27	.24
8	-----	.09	.09	.13	.30	.26	.47	.44	.78	.32	.25	.24
9	-----	.09	.10	.12	.30	.25	-----	.52	.87	.34	.23	.24
10	-----	.09	.09	.10	.30	.25	3.2	.61	.61	.34	.23	.24
11	-----	.09	.09	.11	.30	.27	.84	1.90	.51	.34	.22	.25
12	-----	.09	.07	.11	.31	.28	.99	2.0	.49	.34	.22	.23
13	-----	.09	.08	.11	.31	.27	1.55	1.18	.48	.30	.22	.20
14	-----	.09	.10	.10	.30	.26	.85	1.14	.45	.28	.22	.20
15	-----	.09	.09	.10	.30	.26	.87	1.21	.44	.32	.22	.21
16	-----	.09	.08	.10	.30	.25	.64	1.20	.43	.29	.24	.21
17	-----	.09	.08	.26	.34	.26	.61	1.07	.42	.26	.26	.22
18	-----	.09	.07	.26	.32	.24	.56	.94	.42	.28	.30	.23
19	-----	.10	.06	.23	.32	.25	.54	.81	.41	.27	.26	.23
20	-----	.10	.07	.21	.31	.23	.54	.71	.41	.28	.21	.19
21	-----	.09	.07	.24	.30	.23	.56	.66	.41	.26	.26	.23
22	-----	.10	.08	.12	.30	.24	.58	.62	.41	.26	.24	.21
23	-----	.12	.08	.13	.30	.23	.50	.62	.40	.28	.24	.18
24	-----	.12	.09	.16	.30	.23	.50	.56	.40	.27	.21	.17
25	-----	.12	.09	.13	.30	.23	.48	.56	.38	-----	.23	.16
26	-----	.13	.09	.10	.30	.21	.68	.53	.38	.26	.18	.16
27	-----	.18	.09	.10	.33	.22	.61	.60	.41	.25	.20	.15
28	-----	.16	.08	.20	.28	.22	.55	.53	.36	.26	.20	.26
29	-----	.09	.08	.45	.26	.22	.64	.52	.34	.28	.23	.25
30	-----	.09	.07	.29	.27	-----	1.13	.49	.37	.23	.23	.23
31	-----	.09	-----	.27	.27	-----	.65	-----	.36	-----	.23	.19

NOTE.—Maximum, Mar. 6, 1.32 feet; Mar. 10, 5.10 feet; night of Mar. 12-13, 3.0 feet; night of Mar. 29-30, 1.60 feet. Gage heights for Mar. 5-7, 9, 10, 12, 13, 26, 29, and 30 computed from graph comparison with record on Santa Ysabel River near Ramona, Cal.

Daily discharge in second-feet of San Luis Rey River near Mesa Grande, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.8	1.8	1.6	4.3	4.1	5.8	37	24	6.2	2.0	1.1	1.7
2.....	1.8	1.7	1.6	3.4	4.3	10	32	25	8.2	2.0	1.2	1.4
3.....	1.8	1.7	1.6	3.6	4.7	7.4	28	20	4.8	2.4	1.2	1.4
4.....	1.7	1.6	1.7	4.3	4.5	25	25	20	4.4	2.5	1.2	1.8
5.....	1.8	1.6	1.8	3.6	4.3	20	25	21	3.8	2.2	1.1	1.6
6.....	1.8	1.6	1.8	4.7	4.1	119	25	21	3.3	1.8	1.1	1.7
7.....	1.9	1.7	2.3	4.7	3.9	30	21	22	4.0	2.3	1.3	1.2
8.....	1.7	1.7	2.0	4.7	3.9	17	17	70	3.1	1.7	1.3	1.4
9.....	1.7	1.8	2.0	4.7	3.6	46	28	88	4.3	1.3	1.3	1.7
10.....	1.7	1.7	1.8	4.7	3.6	790	42	42	4.8	1.4	1.2	1.7
11.....	1.7	1.7	1.9	4.7	4.1	71	360	26	5.3	1.3	1.3	1.7
12.....	1.7	1.6	1.9	5.2	4.3	113	392	24	5.5	1.4	1.2	1.7
13.....	1.7	1.7	1.9	5.2	4.1	254	157	22	4.0	1.6	1.1	1.7
14.....	1.7	1.8	1.8	4.7	3.9	84	148	18	3.4	1.6	1.1	1.6
15.....	1.7	1.7	1.8	4.7	3.9	51	164	17	4.6	1.5	1.2	1.6
16.....	1.7	1.7	1.8	4.7	3.6	46	162	16	3.0	1.7	1.2	1.5
17.....	1.7	1.7	3.9	6.8	3.9	42	131	15	2.0	1.9	1.2	1.4
18.....	1.7	1.6	3.9	5.8	3.4	34	102	15	2.2	2.6	1.5	1.3
19.....	1.8	1.6	3.2	5.8	3.6	31	76	13	1.8	1.8	1.5	1.2
20.....	1.8	1.6	2.8	5.2	3.2	31	58	13	2.1	1.3	1.4	1.2
21.....	1.7	1.6	3.4	4.7	3.2	34	50	13	1.9	1.6	1.8	1.3
22.....	1.8	1.7	2.0	4.7	3.4	37	43	13	1.9	1.4	1.6	1.3
23.....	2.0	1.7	2.0	4.7	3.2	25	43	12	2.4	1.4	1.4	1.4
24.....	2.0	1.7	2.3	4.7	3.2	25	34	12	2.3	1.2	1.3	1.5
25.....	2.0	1.7	2.0	4.7	3.2	22	34	11	2.2	1.3	1.2	1.5
26.....	2.0	1.7	1.8	4.7	2.8	53	30	11	2.2	1.0	1.0	1.6
27.....	2.4	1.7	1.8	6.3	3.0	42	40	15	2.2	1.1	.8	1.6
28.....	2.3	1.7	2.6	4.3	3.0	32	30	9.4	2.4	1.1	2.2	1.6
29.....	1.7	1.7	15	3.9	3.0	46	28	7.0	2.9	1.3	2.1	1.5
30.....	1.7	1.6	4.5	4.1	145	24	9.8	1.8	1.3	1.5	1.5
31.....	1.7	4.1	4.1	48	8.2	1.3	1.3

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: Oct. 3, 1911, to Mar. 11, 1912, and Mar. 12 to May 20, 1912. Discharge estimated Oct. 1 and 2, 1911, and Mar. 9, 1912. Indirect method for shifting channels used May 21 to Aug. 31, 1912. For September the discharge was determined from a 2-foot Cipolletti weir installed 66 feet above gage and by interpolating. Discharge for May and June supersede those published in Water-Supply Paper 300, p. 537.

Monthly discharge of San Luis Rey River near Mesa Grande, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	2.4	1.7	1.81	111	C.
November.....	1.8	1.6	1.68	100	C.
December.....	15	1.6	2.73	168	C.
January.....	6.8	3.4	4.72	290	B.
February.....	4.7	2.8	3.69	212	B.
March.....	790	5.8	75.4	4,640	B.
April.....	392	17	79.5	4,730	B.
May.....	88	7.0	21.1	1,300	B.
June.....	8.2	1.0	3.43	204	B.
July.....	2.6	1.0	1.62	99.6	C.
August.....	2.2	.8	1.32	81.2	C.
September.....	1.8	1.2	1.51	89.8	C.
The year.....	790	.8	16.6	12,000	

NOTE.—Monthly values for May and June supersede those published in Water-Supply Paper 300, p. 537.

SAN LUIS REY RIVER NEAR PALA, CAL.

Location.—At ford on road to Sickler's mill, in the NW. $\frac{1}{4}$ sec. 31, T. 9 S., R. 1 W., about 4 miles southeast of Pala.

Records available.—October 9, 1903, to June 30, 1911. No gage-height record secured since June 30, 1911, as an observer was not available.

Drainage area.—318 square miles.

Gage.—Staff in two sections on left bank. The gage datum was lowered 4.66 feet on November 13, 1906.

Channel.—Sand, gravel, and bowlders; shifting.

Discharge measurements.—Made from car and cable 75 feet below gage or by wading.

Diversions and storage.—Water is diverted for irrigation on the Rincon Indian Reservation. The Escondido Mutual Water Co. diverts water from San Luis Rey River about 10 miles above the station. This water, which is stored at the Escondido reservoir, about 6 miles northeast of Escondido, is used for irrigation and municipal purposes at Escondido and vicinity. The capacity of the reservoir is 3,120 acre-feet. A small ditch diverts water from Pauma Creek for irrigation on the Pauma Indian Reservation.

Discharge measurements of San Luis Rey River near Pala, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 14	F. C. Ebert.....	5.70	5.8	June 25	E. W. Case.....	5.72	5.8
1912.				July 12	F. C. Ebert.....	5.72	3.3
Jan. 21	F. C. Ebert.....	5.78	8.8	Aug. 4	E. W. Case.....	5.71	3.4
Feb. 12	do.....	5.75	7.0	17	F. C. Ebert.....	5.73	2.8
13	do.....	5.77	7.5	Sept. 10	do.....	5.67	3.4
Mar. 7	do.....	6.52	66	11	do.....	5.67	3.1
29	H. L. Davis.....	6.50	48	12	do.....	5.68	3.4
Apr. 2	F. C. Ebert.....	6.58	64	14	do.....	5.68	3.6
4	H. L. Davis.....	7.13	132	15	do.....	5.66	3.2
May 2	F. C. Ebert.....	6.33	38	16	do.....	5.66	3.1
22	do.....	6.08	18	17	do.....	5.67	3.1
June 15	H. L. Davis.....	5.83	7.4	18	do.....	5.68	3.4
				20	do.....	5.68	3.4

NOTE.—Measurements from October, 1911, to August, 1912, made by wading. All those made during September made from foot plank.

SAN LUIS REY RIVER AT PALA, CAL.

Location.—At highway bridge at Pala, on Escondido-Pala road, in the NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 26, T. 9 S., R. 2 W.

Records available.—April 1 to June 18, 1912 (temporary station).

Drainage area.—Not measured.

Gage.—Painted on right wing wall just above bridge.

Channel.—Sand; shifting.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Pala Indian Reservation canal diverts water for irrigation three-fourths mile above bridge. See also San Luis Rey near Pala.

Accuracy.—Results are fair.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co. and United States Indian Office.

Discharge measurements of San Luis Rey River (at Pala bridge) at Pala, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
Mar. 28	H. L. Davis.....	<i>Feet.</i>	<i>Sec.-ft.</i>	May 14	E. W. Case.....	<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 2	F. C. Ebert.....	2.92	61	June 15	H. L. Davis.....	3.00	29
20	H. L. Davis.....	3.45	126			2.80	.5

^a Not referenced.

NOTE.—Measurements made by wading in vicinity of gage.

Daily gage height, in feet, and discharge, in second-feet, of San Luis Rey River at Pala, Cal., for 1912.

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....	3.00	78	50	2.80	0.5	16....	3.55	183	2.80	0.5	1.0
2....	2.90	58	3.10	485	17....	3.58	184	12	2.81	1.6
3....	53	3.00	29	2.80	.5	18....	3.53	163	2.97	24
4....	2.84	48	2.95	20	2.80	.5	19....	3.48	143	24
5....	2.85	50	2.90	12	2.80	.5	20....	3.40	114	2.97	24
6....	2.83	46	2.90	12	2.81	1.6	21....	3.33	97	2.90	12
7....	2.70	29	2.90	12	2.80	.5	22....	90	2.88	10
8....	2.70	29	3.45	127	2.80	.5	23....	3.27	83	2.85	6.2
9....	2.75	35	3.70	2005	24....	3.20	68	2.85	6.2
10....	2.83	46	3.50	1405	25....	3.17	62	2.80	.5
11....	3.50	205	3.33	975	26....	3.17	625
12....	3.40	168	3.25	795	27....	3.16	60	2.80	.5
13....	3.30	133	3.10	485	28....	3.15	58	2.80	.5
14....	3.40	154	3.00	295	29....	3.15	58	2.80	.5
15....	3.40	147	2.95	20	2.80	.5	30....	3.12	52	2.80	.5
							31....	2.80	.5

NOTE.—Daily discharge determined from rating curves applicable as follows: Apr. 1-10, 1912, poorly defined; Apr. 20 to June 17, 1912, fairly well defined. Used indirect method for shifting channels Apr. 11-19.

Monthly discharge of San Luis Rey River at Pala, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
April.....	205	29	91.9	5,470	C.
May.....	200	.5	33.7	2,070	C.
June 1-17.....	1.6	.5	.66	22.3	D.

SAN LUIS REY RIVER AT BONSALL, CAL.

Location.—150 feet below concrete highway bridge at Bonsall in the SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 13, T. 10 S., R. 3 W., just below Moosa Canyon, about 14 miles below gaging station near Pala, and 14 miles above mouth of river.

Records available.—April 16 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections on right bank.

Channel.—Sand, and somewhat shifting.

Discharge measurements.—Made from bridge above gage or by wading.

Diversions.—See San Luis Rey River near Pala. In addition, Morena ditch and Pala Indian Reservation canal divert water in the vicinity of Pala for irrigation. Water for irrigation is also pumped from wells along the river.

Accuracy.—Rating curve fairly well defined and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of San Luis Rey River at Bonsall, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 16	F. C. Ebert.....	1.88	219	May 14	E. W. Case.....	1.60	44
19	H. L. Davis.....	1.93	174	22	F. C. Ebert.....	1.53	16
May 3	F. C. Ebert.....	1.61	48	June 15	E. W. Case.....	1.29	3

NOTE.—All made by wading.

Daily gage height, in feet, of San Luis Rey River at Bonsall, Cal., for 1912.

[Edward Stratton, observer.]

Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	Day.	Apr.	May.	June.
1.....		1.65	1.32	11.....		1.78	1.3	21.....	1.82	1.5	1.25
2.....		1.52	1.32	12.....		1.65	1.3	22.....	1.78	1.5	1.25
3.....		1.55	1.32	13.....		1.6	1.3	23.....	1.68	1.48	1.25
4.....		1.5	1.3	14.....		1.6	1.3	24.....	1.68	1.4	
5.....		1.5	1.3	15.....		1.65	1.3	25.....	1.68	1.4	
6.....	1.5	1.3	1.6	16.....	1.85	1.62	1.3	26.....	1.62	1.4	
7.....	1.5	1.28	1.7	17.....	1.92	1.5	1.3	27.....	1.7	1.4	
8.....	1.7	1.25	1.8	18.....	2.0	1.5	1.25	28.....	1.58	1.35	
9.....	1.92	1.3	1.9	19.....	1.88	1.5	1.25	29.....	1.55	1.35	
10.....	1.9	1.3		20.....	1.8	1.5	1.25	30.....	1.68	1.32	
								31.....		1.3	

NOTE.—Water reported standing in pools from June 18 to July 7, and river dry July 8 to Sept. 30.

Daily discharge, in second-feet, of San Luis Rey River at Bonsall, Cal., for 1912.

Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	Day.	Apr.	May.	June.
1.....		58	1.8	11.....		109	1.0	21.....	126	14	0.0
2.....		19	1.8	12.....		58	1.0	22.....	109	14	.0
3.....		27	1.8	13.....		40	1.0	23.....	70	12	.0
4.....		14	1.0	14.....		40	1.0	24.....	70	5.0	.0
5.....		14	1.0	15.....		58	1.0	25.....	70	5.0	.0
6.....	14	1.0	1.6	16.....	202	47	1.0	26.....	47	5.0	.0
7.....	14	.6	1.7	17.....	218	14	1.0	27.....	77	5.0	.0
8.....	77	.0	1.8	18.....	228	14	.0	28.....	35	3.0	.0
9.....	170	1.0	1.9	19.....	151	14	.0	29.....	27	3.0	.0
10.....	160	1.0		20.....	117	14	.0	30.....	70	1.8	.0
								31.....		1.0	

NOTE.—Daily discharge determined from a fairly well defined rating curve. Indirect method for shifting channels used Apr. 16-18, 1912. No flow June 18 to Sept. 30.

Monthly discharge of San Luis Rey River at Bonsall, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
April 16-30.....	228	27	108	3,210	B.
May.....	170	1.0	33.7	2,070	B.
June.....	1.8	.0	.60	35.7	C.
July.....	.0	.0	.0	.0	
August.....	.0	.0	.0	.0	
September.....	.0	.0	.0	.0	

SAN LUIS REY RIVER NEAR OCEANSIDE, CAL.

Location.—Opposite Oceanside pumping plant, just above ford, in the SE. $\frac{1}{4}$ NE. $\frac{1}{4}$, sec. 22, T. 11 S., R. 5 W., $1\frac{1}{2}$ miles above mouth of river, and about 2 miles north-east of Oceanside.

Records available.—April 17 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections on right bank.

Channel.—Sand and somewhat shifting.

Discharge measurements.—Made from concrete highway bridge three-fourths mile below gage or by wading.

Diversions.—Several small canals divert water for irrigation in Mission Valley. See also San Luis Rey River at Bonsall. Water is also pumped from wells at various points in the valley. Record at this station shows amount of water wasted into the ocean.

Accuracy.—Rating curve well defined and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co., through W. S. Post, engineer.

Discharge measurements of San Luis Rey River near Oceanside, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 17	F. C. Ebert.....	2.55	215
May 3do.....	2.24	33
13	E. W. Case.....	2.28	46
21	F. C. Ebert.....	2.06	9.1

NOTE.—All made by wading.

Daily gage height, in feet, of San Luis Rey River near Oceanside, Cal., for 1912.

[Alex. Peters, observer.]

Day.	Apr.	May.	Day.	Apr.	May.	Day.	Apr.	May.
1.....		2.28	11.....		2.31	21.....	2.54	2.1
2.....		2.25	12.....		2.26	22.....	2.44	2.04
3.....		2.22	13.....		2.22	23.....	2.41	2.0
4.....		2.19	14.....		2.22	24.....	2.38	1.98
5.....		2.15	15.....		2.19	25.....	2.36	1.9
6.....		2.15	16.....		2.16	26.....	2.32	1.9
7.....		2.14	17.....		2.52	27.....	2.34	1.9
8.....		2.26	18.....		2.54	28.....	2.31	1.9
9.....		2.48	19.....		2.55	29.....	2.31	
10.....		2.44	20.....		2.54	30.....	2.3	
						31.....		

NOTE.—River dry May 31 to Sept. 30, 1912.

Daily discharge, in second-feet, of San Luis Rey River near Oceanside, Cal., for 1912.

Day.	Apr.	May.	Day.	Apr.	May.	Day.	Apr.	May.
1.....		47	11.....		58	21.....	208	12
2.....		39	12.....		42	22.....	128	8.4
3.....		31	13.....		31	23.....	107	6
4.....		24	14.....		31	24.....	91	5.2
5.....		18	15.....		24	25.....	81	2
6.....		18	16.....		20	26.....	62	2
7.....		17	17.....		189	27.....	72	2
8.....		42	18.....		208	28.....	58	2
9.....		156	19.....		218	29.....	58	2
10.....		128	20.....		208	30.....	53	1
						31.....		.0

NOTE.—Daily discharge determined from a rating curve well defined above 8 second-feet. Discharge interpolated May 29-30, 1912. No flow May 31 to Sept. 30.

Monthly discharge of San Luis Rey River near Oceanside, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
April 17-30.....	218	53	124	3,440	A.
May.....	156	0	26.6	1,640	A.
June.....	0	0	0	0	
July.....	0	0	0	0	
August.....	0	0	0	0	
September.....	0	0	0	0	

ESCONDIDO MUTUAL WATER CO.'S CANAL NEAR NELLIE, CAL.

Location.—In the SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 33, T. 10 S., R. 1 E., about $3\frac{1}{2}$ miles above Rincon Indian Reservation, 15 miles northeast of Escondido, and 5 miles south-west of Nellie.

Records available.—March 1, 1905 to June 1, 1912.

Discharge.—Measured by 6-foot weir, 500 feet below intake.

Cooperation.—Record furnished by Escondido Mutual Water Co., through A. W. Wohlford, president.

The canal, which is 5.6 miles long, consists of flume, ditch, and tunnel sections constructed through a very rough, mountainous country. It has a capacity of 28 second-feet and discharges into a reservoir about 6 miles northeast of Escondido. The dam, which is 76 feet high and 380 feet long, is of the usual rock-fill type, with a facing of redwood planks. The reservoir, which has a capacity of 3,120 acre-feet, supplies water for irrigation and domestic purposes at Escondido and vicinity.

Daily discharge, in second-feet, of Escondido Mutual Water Co.'s canal near Nellie, Cal., for 1905-1912.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1905.				1905.				1905.			
1.....	10	24.4	24.4	11.....	18.6	24.4	24.4	21.....		24.4
2.....	14.6	24.4	24.4	12.....	24.4	24.4	24.4	22.....		24.4
3.....	14.6	24.4	13.....	20.5	24.4	24.4	23.....		24.4
4.....	24	24.4	14.....	20.5	24.4	24.4	24.....		24.4
5.....	24.4	24.4	13.3	15.....	20.5	24.4	24.4	25.....	18.8	24.4
6.....	24.4	24.4	24	16.....	24.4	26.....	18.8	24.4
7.....	24.4	24.4	24.4	17.....	24.4	27.....	18.8	24.4
8.....	24.4	24.4	24.4	18.....	24.4	28.....	18.8	24.4
9.....	20.5	24.4	24.4	19.....	24.4	29.....	24.4	24.4
10.....	18.6	24.4	24.4	20.....	24.4	30.....	24.4	24.4
								31.....	24.4

Day.	Jan.	Feb.	Mar.	Day.	Jan.	Feb.	Mar.	Day.	Jan.	Feb.	Mar.
1906.				1906.				1906.			
1.....		10.2	24.4	11.....		20.5	13.3	21.....	18.6	24.4
2.....		10.2	24.4	12.....		24.4	22.....	22.4	24.4
3.....		8.6	24.4	13.....		24.4	23.....	22.4	24.4
4.....		8.6	14.....		24.4	24.....	16.8	22.4
5.....		8.6	15.....		24.4	25.....	15	22.4
6.....		10.2	16.....		24.4	26.....	13.2	20.5
7.....		20.5	10.2	17.....		7.3	24.4	27.....	13.2	18.6
8.....		22.4	8.6	18.....		7.3	24.4	28.....	11.7	22.4
9.....		24.4	8.6	19.....		24.4	29.....	11.7
10.....		16.8	13.3	20.....		13.3	24.4	30.....	11.7
								31.....	10.2

Daily discharge, in second-feet, of Escondido Mutual Water Co.'s canal near Nellie, Cal., for 1905-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1906-7.										
1.....			11.6	18.0		8	8	9	8.6	4.7
2.....			12	21.6		8	8	9	8.6	4.7
3.....		2.8	13.2	21.6		8	8	9	8.6	4.7
4.....		2.8	13.2	21.6			8	9	7.3	4.7
5.....		2.8	13.2	21.6			9	9	7.3	4.7
6.....	2.6	2.8	13.2				9	9	7.3	4.7
7.....	2.6	2.8	13.2				9	9	7.3	
8.....	2.6	2.8	13.2				9	9	7.3	
9.....	2.6	2.8	13.2				9	9	8.6	
10.....	2.6	2.8	13.2			8	9	9	8.6	
11.....	2.6	2.8	13.2			8	9	9	8.6	
12.....	2.6	2.8	16.8			8	9	9	7.2	
13.....	2.6	2.8	20.4			8	9	4.5	7.3	
14.....	2.6	2.8	20.4			8	9	4.5	7.3	
15.....	2.6	2.8	22.4			8	9	4.5	7.3	
16.....	2.6	2.8	22.4			8	9	4.5	7.3	
17.....	2.6	2.8	22.4			8	9	4.5	7.3	
18.....	2.6	2.8	22.4			8	9	4.5	7.3	
19.....	2.6	2.8	22.4			8	9	5.9	7.3	
20.....	2.6	2.8	22.4			8	9	5.9	7.3	
21.....	2.6	2.8	18				9	5.9	6.6	
22.....	2.6	2.8	14.6				9	5.9	6.6	
23.....	2.6	2.8	14.6		8		9	6.6	6.6	
24.....	2.6		14.6		8		9	6.6	6.6	
25.....	2.6		14.6		8		9	6.6	6.6	
26.....	2.6		14.6		8		9	6.6	5.9	
27.....	2.6		18		8		9	7.8	5.9	
28.....	2.6	8.0	18		8	8	9	7.8	5.9	
29.....	2.6	8.0	21.4			8	9	7.8	5.9	
30.....	2.6	13.3	21.4			8	9	8.6	5.3	
31.....	2.6		18			8		8.6		

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
1907-8.													
1.....	7.3	10.9	10.2	4.7	10	9.8	16.....	9.6	12.1	4.7	4.7	10	8
2.....	7.3	10.2	10.2	4.7	10	10	17.....	8.2	11.7	4.7	4.7	10	8
3.....	7.3	10.2		4.6	10	10	18.....	8.6	11.7	4.7	4.7	10	8
4.....	7.3	10.2			10	10	19.....	8.6	11.3	4.7	4.7	10	8
5.....	7.3	10.2	4.7		10	10	20.....	8.6	10.9	4.7	8	10	8
6.....	7.3	9	4.7		10	10	21.....	8.6	10.9	4.7	8	10	8
7.....	7.6	9	4.7	4.7	10	10	22.....	8.6		4.7	8	10	8
8.....	7.6	8.6	4.6	4.7	10	9.4	23.....	8.6		4.7	8	10	8
9.....	7.6	8.6		4.7	10	9.4	24.....	8.6		4.7	8.6	10	8
10.....	7.3	8.6		4.7	10	9.4	25.....	8.6		4.7	10	10	8
11.....	7.6	8.6	4.7	4.7	10	9.4	26.....	8.6		4.7	7.3	10	8
12.....	7.6	8.6	4.7	4.7	10	9.4	27.....	8.6		4.7	10	10	8
13.....	7.6	8.6	4.7	4.7	10	8	28.....	8.6		4.7	10	10	8
14.....	7.6	8.6	4.7	4.7	10	8	29.....	8.6		4.7	10	10	8
15.....	8.6	12.5	4.7	4.7	10	8	30.....	10.9				10	8
							31.....	10.9			10		8

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1908-9.									
1.....		5.3	5.3	20.5	16.8	14.9	8.6	8.6	2.1
2.....		5.3	5.3	20.5	16.8	16	8.6	8.6	1.7
3.....		5.9	5.3	20.5	16.8	16	8.6	8.6	1.7
4.....		5.9	5.3		16.8	14.2	8.6	7.3	2.1
5.....		5.9	5.3	20.5	18.6	16	8.6	6.6	2.1
6.....		5.9	5.3	13.3	18.6	16.4	8.6	5.9	2.1
7.....		7.5	5.3	13.3	18.6	16	8.6	5.9	1.7
8.....		5.9	5.3		18.6	16.8	8.6	5.3	1.7
9.....		5.9	8.6	18.6	20.5	16.4	8.6	5.3	1.7
10.....		5.3	7.3		20.5	16	8.6	5.3	1.7

Daily discharge, in second-feet, of Escondido Mutual Water Co.'s canal near Nellie, Cal., for 1905-1912—Continued.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1908-9.									
11.....		5.3	7.3	-----	11.7	16	8.6	5.3	1.7
12.....		5.3	9.4	-----	20.4	16	8.6	5.3	1.7
13.....		5.3	9.4	-----	20.4	8.6	8.6	5.3	1.7
14.....		5.3	14.2	-----	18.5	8.6	8.6	5.3	1.7
15.....		5.3	16.8	-----	18.5	8.6	8.6	5.3	1.7
16.....		8.6	10.2	-----	20.4	8.6	8.6	5.3	1.7
17.....		7.3	10.5	-----	18.5	8.6	8.6	5.3	1.7
18.....		7.3	10.5	-----		8.6	8.6	5.3	1.7
19.....		5.9	10.5	-----		8.6	8.6	5.3	1.7
20.....		5.3	10.5	-----		8.6	8.6	4.9	1.7
21.....		5.3		-----		8.6	8.6	4.7	1.7
22.....		5.3		-----		8.6	8.6	4.7	1.7
23.....	5.9	5.3		-----		8.5	8.6	4.2	1.7
24.....	5.9	5.3		-----	10.9	8.6	8.6	3.6	1.7
25.....	5.9	5.3		-----	12.5	8.5	8.6	3.6	-----
26.....	5.3	5.3	10.5	7.3	12.5	8.6	8.6	3.0	-----
27.....	5.3	5.3	16.8	10.2		8.6	8.6	3.0	-----
28.....	5.3	5.3	13.3	10.2		8.6	8.6	2.5	-----
29.....	5.3	5.3	13.3		10.2	8.6	8.6	2.5	-----
30.....	5.3	5.3	14.1		12.5	8.6	8.6	2.5	-----
31.....		5.3	14.1		13.3				-----

NOTE.—No record furnished for May 31, 1909. There was no flow in canal on the other days, for which no discharge is given.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1910.							1910.						
1.....		10.3	14.6	6.2	7.1	-----	16.....		13.4	14.6	6.2	7.1	1.9
2.....		10.3	14.6	6.2	7.1	3.1	17.....	10.3	13	14.6	6.2	7.1	2.5
3.....		10.3	14.6	6.2	7.1	3.1	18.....	10.3	14	14.6	6.2	7.1	2.5
4.....		10.3		6.2	7.1	3.1	19.....	10.3	14	14.6	6.2	7.1	1.9
5.....		10.3		6.2	7.1	2.5	20.....	10.3	14.6	14.6	6.2	7.1	1.9
6.....		10.3		6.2	7.1	2.5	21.....	10.3	14.6	14.6	6.2	7.1	1.9
7.....		10.3	14.6	6.2	7.1	2.5	22.....	10.3	14.6	14.6	6.2	7.1	-----
8.....	6.2	10.3	14.6	6.2	7.1	1.9	23.....	10.3	14.6	6.2	6.2	5	-----
9.....	6.2	10.9	12.2	6.2	7.1	1.9	24.....	10.3	14.6	6.2	6.2	5	-----
10.....	7.1	10.9	12.2	6.2	7.1	1.9	25.....	10.3	14.6	6.2	6.2	5	-----
11.....	7.1	10.9	12.2	6.2	7.1	1.9	26.....	10.3	14.6	6.2	7.1	5	-----
12.....	10.9	10.9	14.6	6.2	7.1	1.9	27.....	10.3	14.6	6.2	7.1	5	-----
13.....	11.4	10.8	14.6	6.2	7.1	1.4	28.....	10.3	14.6	6.2	7.1	4.6	-----
14.....	11.4	11.8	14.6	6.2	7.1	1.4	29.....	10.3		6.2	7.1	4.6	-----
15.....	10.3	11.8	14.6	6.2	7.1	1.4	30.....	10.3		6.2	7.1	-----	-----
							31.....	10.3		6.2		-----	-----

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.
1910-11.							1910-11.						
1.....		3.8			16.9	14.1	16.....		10.9	16.3	16.9	16.9	7.9
2.....		3.8		16.9	16.9	12.9	17.....		10.9	16.3	16.9	16.9	7.9
3.....		3.8		16.9	16.9	11.8	18.....		14.6	16.3	16.9	16.9	7.9
4.....		3.8		16.3	16.9	11.8	19.....		12.9	16.3	16.9	16.9	7.3
5.....		3.8		16.9	16.9	11.8	20.....		11.2	16.3	16.9	16.9	6.2
6.....		3.8			16.9	11.8	21.....	2	10.9	16.3	16.9	16.9	5.0
7.....		3.8		14.6	16.9	10.9	22.....	2	9.8	16.3	16.9	-----	4.6
8.....		3.1		16.9	16.9	10.9	23.....	2	9.8	16.3	16.9	14.6	4.6
9.....		6.8		16.9	16.9	9.8	24.....		10.9	16.9	16.9	16.3	-----
10.....				16.9	16.9	8.9	25.....		11.8	16.9	16.9	16.3	-----
11.....				16.9	16.9	7.9	26.....		14.6	16.9	16.9	16.9	-----
12.....				16.9	16.9	7.1	27.....		16.3	16.9	16.9	16.9	-----
13.....				16.9	16.9	7.1	28.....			16.9	16.9	16.3	-----
14.....		10.9		16.9	16.9	7.9	29.....				16.9	16.3	-----
15.....			14.6	16.9	16.9	8.9	30.....		16.3		16.9	16.3	-----
							31.....		14.6		16.9	-----	-----

Daily discharge, in second-feet, of Escondido Mutual Water Co.'s canal near Nellie, Cal., for 1905-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1912.							1912.						
1.....	9.9	5.8	9.9	12.5	17.6	5.6	16.....	6.2	5.4	12.0	18.1
2.....	10.9	5.4	9.9	12.5	18.1	17.....	5.4	5.4	12.5	17.0
3.....	10.4	5.0	9.9	13.6	18.1	18.....	11.9	5.0	12.5	19.3
4.....	9.9	4.6	10.4	18.1	19.....	7.1	4.8	12.5	19.3
5.....	8.0	5.4	10.4	16.4	18.1	20.....	6.2	4.6	12.5	19.3
6.....	8.0	5.4	13.0	17.0	18.1	21.....	6.2	4.2	12.5	19.3
7.....	8.0	6.2	15.3	17.0	18.7	22.....	6.2	4.8	12.5	19.3
8.....	8.0	7.1	17.0	18.7	23.....	5.4	4.6	12.5	19.3
9.....	8.0	7.1	18.1	18.7	24.....	5.4	4.2	12.5	19.3
10.....	8.0	6.2	18.1	18.1	25.....	5.4	4.2	12.5	19.3
11.....	9.9	6.2	19.2	18.1	26.....	8.0	4.2	12.5	11.8
12.....	8.9	6.2	18.1	27.....	8.0	4.6	12.5	11.8
13.....	7.1	5.4	18.1	28.....	7.1	4.6	12.5	9.9
14.....	6.2	5.4	18.1	29.....	7.1	4.6	12.5	7.2
15.....	6.2	5.4	10.4	18.1	30.....	6.2	12.5	17	5.6
							31.....	5.8	12.5	5.6

NOTE.—There was a break in canal Mar. 8-14 and Apr. 12-29, 1912. There was no flow in canal on the other days, for which no discharge is given.

Monthly discharge of Escondido Mutual Water Co.'s canal near Nellie, Cal., for 1905-1912.

Month.	Discharge in second-feet.			Run-off (total in acre- feet).	Month.	Discharge in second-feet.			Run-off (total in acre- feet).
	Maxi- mum.	Mini- mum.	Mean.			Maxi- mum.	Mini- mum.	Mean.	
1905.					1909.				
March (22 days).	24.4	10	20.6	899	January (26 days)	16.8	5.3	9.60	495
April.....	24.4	24.4	24.4	1,450	February (10 days).....	20.5	7.3	15.5	307
May (13 days)....	24.4	13.3	23.5	606	March (23 days).	20.5	10.2	16.6	757
1906.					April.....	16.8	8.5	11.5	684
January (14 days)	22.4	7.3	13.9	386	May 1-30.....	8.6	8.6	8.60	512
February.....	24.4	8.6	20.0	1,110	June.....	8.6	2.5	5.14	306
March (8 days)...	24.4	8.6	15.9	252	July 1-24.....	2.1	1.7	1.77	84.3
October (26 days)	2.6	2.6	2.60	134	1910.				
November (24 days).....	13.3	2.8	3.67	175	January (23 days)	11.4	6.2	9.79	447
December.....	22.4	11.6	16.8	1,030	February.....	14.6	10.3	12.4	689
1907.					March (28 days).	14.6	6.2	11.6	644
January (5 days)	21.6	18.0	20.9	207	April.....	7.1	6.2	6.35	378
February (6 days).....	8	8	8.0	95.2	May 1-29.....	7.1	4.6	6.57	378
March (18 days)...	8	8	8.0	286	June 2-21.....	3.1	1.4	2.16	85.7
April.....	9	8	8.9	530	December 21-23.....	2	2	2.0	12
May.....	9	4.5	7.28	448	1911.				
June.....	8.6	5.3	7.19	428	January (24 days)	16.3	3.1	9.29	442
July (6 days).....	4.7	4.7	4.70	55.9	February 15-28.....	16.9	14.6	16.4	455
December.....	10.9	7.3	8.25	507	March (29 days).	16.9	14.6	16.8	966
1908.					April (29 days)...	16.9	14.6	16.7	961
January 1-21.....	12.5	8.6	10.0	417	May 1-23.....	14.1	4.6	8.91	406
February (25 days).....	10.2	4.6	4.95	295	1912.				
March (28 days)...	10	4.6	6.54	363	January.....	11.9	5.4	7.58	466
April.....	10	10	10.0	595	February.....	7.1	4.2	5.24	301
May.....	10	8	8.67	533	March (24 days).	15.3	9.9	12.0	571
November (8 days).....	5.9	5.3	5.52	87.6	April (11 days)...	19.2	12.5	16.2	353
December.....	8.6	5.3	5.74	353	May.....	19.3	5.6	16.6	1,020

RINCON INDIAN RESERVATION DITCH NEAR VALLEY CENTER, CAL.

Location.—About 2,000 feet below intake, in sec. 35, T. 10 S., R. 1 W., in Rincon Indian Reservation, and about 6 miles northeast of Valley Center.

Records available.—1912.

Discharge.—Computed from gage heights giving head on 3-foot rectangular weir with end contractions.

Cooperation.—Record furnished by Indian farmer, Rincon Indian Reservation.

The canal heads on the right bank of San Luis Rey River, and was in operation May 6 to June 30, 1912. The water is used for irrigation on the reservation.

Daily discharge, in second-feet, of Rincon Indian Reservation ditch near Valley Center, Cal., for 1912.

Day.	May.	June.	Day.	May.	June.	Day.	May.	June.
1.....		1.0	11.....	0.9	0.8	21.....	0.9	0.6
2.....		1.0	12.....	.9	.9	22.....	1.0	.6
3.....		.8	13.....	.9	.8	23.....	.8	.6
4.....		.6	14.....	.9	.8	24.....	.8	.6
5.....		1.0	15.....	.8	.8	25.....	1.0	.6
6.....		.7	16.....	.9	.9	26.....	1.0	.5
7.....		.7	17.....	.9	.8	27.....	1.0	.4
8.....		.8	18.....	.9	.8	28.....	1.0	.4
9.....		.7	19.....	.8	.7	29.....	.9	.4
10.....	0.9	.7	20.....	.8	.7	30.....	1.0	.4
						31.....	.0	

NOTE.—Canal in operation May 6 to June 30, 1912, but no record was furnished for May 6-9.

Monthly discharge of Rincon Indian Reservation ditch near Valley Center, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
May 10-31.....	1.0	0.0	0.86	38.5
June.....	1.0	.4	.70	41.7

PALA INDIAN RESERVATION CANAL AT PALA, CAL.

Location.—At sand box, 300 feet above highway bridge, in the NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 26, T. 9 S., R. 2 W., half a mile southeast of Pala.

Records available.—June 17 to September 30, 1912 (incomplete).

Gage.—Vertical staff in sand box showing head on steel plate at outlet.

Discharge measurements.—Made from foot plank across canal below sand box.

Accuracy.—Rating curve is well defined and results are good.

Cooperation.—Maintained in cooperation with Volcan Land & Water Co. and United States Indian Service.

Discharge measurements of Pala Indian Reservation canal at Pala, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec. ft.</i>			<i>Feet.</i>	<i>Sec. ft.</i>
Feb. 13	F. C. Ebert.....		5.2	July 12	F. C. Ebert.....	0.49	4.2
May 22	do.....	0.37	2.6	Aug. 4	E. W. Case.....	.38	3.1
June 15	H. L. Davis.....	.66	6.4	17	F. C. Ebert.....	.37	2.7
25a	E. W. Case.....	.62	5.3				

α Combined discharge. North branch measured 4.3, south branch 1.0; all others made by wading.

Daily gage height, in feet, and discharge, in second-feet, of Pala Indian Reservation canal at Pala, Cal., for 1912.

[M. E. Waite, observer.]

Day.	May.		June.		July.		August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.....					0.35	2.5	0.42	3.3		
2.....					.40	3.0				
3.....					.33	2.3				
4.....					.32	2.2	.38	2.8		
5.....					.48	4.0				
6.....					.46	3.8				
7.....					.48	4.0			0.42	3.3
8.....										
9.....					.38	2.8	.42	3.3		
10.....					.42	3.3				
11.....										
12.....					.49	4.1				
13.....										
14.....										
15.....			0.66	6.6			.46	3.8		
16.....										
17.....			.25	1.5			.37	2.7		
18.....			.67	6.7						
19.....			.81	8.7	.43	3.4				
20.....			.73	7.5	.58	5.4	.42	3.3		
21.....										
22.....	0.37	2.7	.70	7.1						
23.....			.67	6.7						
24.....			.65	6.4					.33	2.3
25.....			.63	6.1						
26.....			.58	5.4						
27.....			.57	5.2	.52	4.5	.42	3.3		
28.....			.56	5.1						
29.....			.49	4.1						
30.....			.72	7.4						
31.....										

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

SANTA ANA RIVER BASIN.

SANTA ANA RIVER NEAR MENTONE, CAL.

Location.—Just above road crossing opposite Warm Springs Canyon, in the SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 34, T. 1 N., R. 2 W., three-fourths of a mile below intake of Pacific Light & Power Co.'s canal, about 2 miles above the mouth of the canyon, and 5 miles northeast of Mentone.

Records available.—July 1, 1896, to September 30, 1912.

Drainage area.—182 square miles.

Gage.—Vertical staff on right bank about 100 feet above ford. The present gage was installed February 25, 1910. Previous to this date various gages were used. The original datum has not been maintained.

Channel.—Gravel and bowlders; will shift during high water.

Discharge measurements.—The flood of January, 1910, destroyed the car and cable. This equipment has not been replaced, as it is difficult to reach the station at high water. Measurements are made by wading at medium and low stages.

Artificial control.—Southern California Edison Co.'s power plants Nos. 1 and 2 are located $5\frac{1}{4}$ and $2\frac{3}{4}$ miles, respectively, above the Mentone plant at the mouth of the canyon. The intake of the Pacific Light & Power Co.'s canal is at plant No. 2. The tailrace from this plant discharges into the canal. The Green-spot pipe line diverts water from the forebay at the Mentone power house. Water is stored on Bear Creek at Bear Valley reservoir.

Accuracy.—Results are good.

Discharge measurements of Santa Ana River near Mentone, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Fect.</i>	<i>Sec.-ft.</i>
Jan. 11	F. C. Ebert.....	2.50	1.4
Mar. 20do.....	2.71	9.3
May 27do.....	2.49	2.2
Aug. 27do.....	2.61	4.7

NOTE.—All made by wading.

Daily gage height, in feet, of Santa Ana River near Mentone, Cal., for 1911-12.

[R. B. Richardson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	2.4	2.5
2.....	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	2.4	2.5
3.....	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.4	2.4	2.4	2.5
4.....	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.4	2.4	2.4	2.5
5.....	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.4	2.4	2.4	2.5
6.....	2.5	2.5	2.5	2.5	2.5	4.0	2.5	2.7	2.4	2.4	2.4	2.5
7.....	2.5	2.5	2.5	2.5	2.5	3.1	2.5	2.7	2.4	2.4	2.4	2.5
8.....	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.7	2.4	2.4	2.4	2.5
9.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.8	2.4	2.4	2.4	2.5
10.....	2.5	2.5	2.5	2.5	2.5	3.9	2.7	2.8	2.4	2.4	2.4	2.5
11.....	2.5	2.5	2.5	2.5	2.5	3.3	3.3	2.8	2.4	2.4	2.4	2.5
12.....	2.5	2.5	2.5	2.5	2.5	2.9	3.1	2.8	2.4	2.4	2.4	2.4
13.....	2.5	2.5	2.5	2.5	2.5	3.2	3.2	2.8	2.4	2.4	2.4	2.4
14.....	2.5	2.5	2.5	2.5	2.5	3.0	3.2	2.8	2.4	2.4	2.4	2.4
15.....	2.5	2.5	2.5	2.5	2.5	3.0	3.2	2.8	2.4	2.4	2.4	2.4
16.....	2.5	2.5	2.5	2.5	2.5	3.0	3.2	2.8	2.4	2.4	2.4	2.4
17.....	2.5	2.5	2.5	2.5	2.5	3.4	3.2	2.7	2.4	2.4	2.4	2.4
18.....	2.5	2.5	2.5	2.5	2.5	2.7	3.1	2.7	2.4	2.4	2.4	2.4
19.....	2.5	2.5	2.5	2.5	2.5	2.5	3.1	2.7	2.4	2.4	2.4	2.4
20.....	2.5	2.5	2.5	2.5	2.5	2.5	3.0	2.6	2.4	2.4	2.4	2.4
21.....	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.6	2.4	2.4	2.4	2.4
22.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.6	2.4	2.4	2.4	2.4
23.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.6	2.4	2.4	2.4	2.4
24.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	2.4	2.4	2.4
25.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	2.4	2.4	2.4
26.....	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.5	2.4	2.4	2.7	2.4
27.....	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.5	2.4	2.4	2.7	2.4
28.....	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.5	2.4	2.4	2.5	2.4
29.....	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.5	2.4	2.4	2.5	2.4
30.....	2.5	2.5	2.5	2.5	2.5	2.7	2.8	2.5	2.4	2.4	2.5	2.4
31.....	2.5	2.5	2.5	2.5	2.5	2.4	2.5

Daily discharge, in second-feet, of Santa Ana River near Mentone, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3	1	1	1	1	1	2.4	14	2.4	1.2	1.2	2.4
2.....	1	1	1	1	1	1	2.4	14	2.4	1.2	1.2	2.4
3.....	1	1	1	1	1	1	2.4	14	1.2	1.2	1.2	2.4
4.....	1	1	1	1	1	1	2.4	8.5	1.2	1.2	1.2	2.4
5.....	1	1	1	1	1	1	2.4	8.5	1.2	1.2	1.2	2.4
6.....	1	1	1	1	1	280	2.4	8.5	1.2	1.2	1.2	2.4
7.....	1	1	1	1	1	41	2.4	8.5	1.2	1.2	1.2	2.4
8.....	1	1	1	1	1	12	2.4	8.5	1.2	1.2	1.2	2.4
9.....	1	1	1	1	1	1	14	14	1.2	1.2	1.2	2.4
10.....	1	1	1	1	1	240	8.5	14	1.2	1.2	1.2	2.4
11.....	1	1	1	1	1	71	71	14	1.2	1.2	1.2	2.4
12.....	1	1	1	1	1	22	42	14	1.2	1.2	1.2	1.2
13.....	1	1	1	1	1	55	55	14	1.2	1.2	1.2	1.2
14.....	1	1	1	1	1	31	55	14	1.2	1.2	1.2	1.2
15.....	1	1	1	1	1	31	55	14	1.2	1.2	1.2	1.2
16.....	1	1	1	1	1	31	55	14	1.2	1.2	1.2	1.2
17.....	1	1	1	1	1	89	55	8.5	1.2	1.2	1.2	1.2
18.....	1	1	1	1	1	8.5	42	8.5	1.2	1.2	1.2	1.2
19.....	1	1	1	1	1	2.4	42	8.5	1.2	1.2	1.2	1.2
20.....	1	1	1	1	1	2.4	31	4.5	1.2	1.2	1.2	1.2
21.....	1	1	1	1	1	2.4	22	4.5	1.2	1.2	1.2	1.2
22.....	1	1	1	1	1	2.4	14	4.5	1.2	1.2	1.2	1.2
23.....	1	1	1	1	1	2.4	14	4.5	1.2	1.2	1.2	1.2
24.....	1	1	1	1	1	2.4	14	2.4	1.2	1.2	1.2	1.2
25.....	1	1	1	1	1	2.4	14	2.4	1.2	1.2	1.2	1.2
26.....	1	1	1	1	1	2.4	14	2.4	1.2	1.2	8.5	1.2
27.....	1	1	1	1	1	2.4	22	2.4	1.2	1.2	8.5	1.2
28.....	1	1	1	1	1	2.4	22	2.4	1.2	1.2	2.4	1.2
29.....	1	1	1	1	1	2.4	22	2.4	1.2	1.2	2.4	1.2
30.....	1	1	1	1	-----	8.5	14	2.4	1.2	1.2	2.4	1.2
31.....	1	-----	1	1	-----	2.4	-----	2.4	-----	1.2	2.4	-----

NOTE.—Daily discharge determined from two well-defined rating curves applicable 1911 to Mar. 10, 1912, and Mar. 11 to Sept. 30, 1912. Discharge values for Mar. 11 to June 30 supersede those published in Water Supply Paper 300, p. 567.

Monthly discharge of Santa Ana River near Mentone, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	3	1	1.1	68	D.
November.....	1	1	1.0	60	D.
December.....	1	1	1.0	61.5	D.
January.....	1	1	1.0	61.5	D.
February.....	1	1	1.0	58	D.
March.....	280	1	30.8	1,890	C.
April.....	71	2.4	23.9	1,420	B.
May.....	14	2.4	8.36	514	B.
June.....	2.4	1.2	1.28	76.2	D.
July.....	1.2	1.2	1.20	73.8	D.
August.....	8.5	1.2	1.83	113	D.
September.....	2.4	1.2	1.64	97.6	D.
The year.....	280	1	6.19	4,490	

NOTE.—Monthly values for March to June supersede those published in Water Supply Paper 300, p. 580.

PACIFIC LIGHT & POWER CO.'S CANAL ¹ AND GREENSPOT PIPE LINE NEAR MENTONE, CAL.

Location.—At tailrace of Pacific Light & Power Co.'s plant at mouth of canyon, about 3 miles northeast of Mentone.

Records available.—1896 to September 30, 1912.

Gage.—Hook gage at weir about 300 feet west of power house.

¹ Formerly known as Mentone Power Co.'s canal.

Discharge.—Computed from gage heights which give head on 10-foot rectangular weir.

Diversions.—The Greenspot pipe line diverts from the forebay. This water must be added to give total flow of canal. The pipe line was put in operation September 7, 1911.

Accuracy.—Results are excellent.

Daily discharge, in second-feet, of Pacific Light & Power Co.'s canal near Mentone, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	70	51	38	43	38	34	66	78	65	58	51	51
2.....	56	49	41	45	37	39	71	81	65	49	49	49
3.....	59	49	33	45	37	39	71	78	65	52	49	49
4.....	58	54	44	45	34	50	73	78	63	52	50	45
5.....	56	54	41	45	37	45	71	78	60	49	56	49
6.....	54	50	43	45	37	66	73	76	60	45	58	49
7.....	54	42	46	45	37	71	71	73	60	44	58	49
8.....	50	42	44	43	37	71	73	76	58	52	58	49
9.....	50	43	44	41	34	65	78	76	56	56	56	49
10.....	50	43	44	39	34	71	77	76	56	56	54	54
11.....	45	54	39	39	34	71	78	76	54	55	56	56
12.....	57	45	44	40	34	66	77	76	58	59	58	58
13.....	58	44	43	40	37	71	76	76	50	58	56	58
14.....	59	44	41	38	34	71	79	76	56	60	60	58
15.....	56	43	42	38	34	73	79	76	54	59	62	58
16.....	59	43	41	38	34	71	81	71	54	58	62	54
17.....	58	49	41	41	38	0	79	76	49	62	56	51
18.....	65	49	43	38	38	70	78	76	49	55	54	54
19.....	59	49	43	38	37	73	78	76	49	56	49	54
20.....	63	50	41	40	37	63	78	76	56	50	54	54
21.....	60	49	45	38	37	71	81	76	56	55	54	54
22.....	59	46	45	38	34	71	79	71	56	54	54	54
23.....	58	40	45	39	37	66	79	66	58	56	54	56
24.....	54	42	45	38	37	63	79	71	60	56	56	58
25.....	60	40	45	38	34	65	79	71	58	60	56	54
26.....	63	40	43	38	32	65	79	71	60	60	49	54
27.....	71	40	43	38	34	66	79	68	63	60	49	56
28.....	57	40	43	39	34	66	78	68	63	58	54	56
29.....	56	40	48	38	34	66	73	71	60	60	49	58
30.....	54	40	43	38	71	78	71	68	60	51	56
31.....	51	43	38	73	71	58	51

Monthly discharge of Pacific Light & Power Co.'s canal near Mentone, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	71	45	57.4	3,530
November.....	54	40	45.5	2,710
December.....	48	33	42.7	2,630
January.....	45	38	40.2	2,470
February.....	38	32	35.6	2,050
March.....	73	0	62.0	3,810
April.....	81	66	76.4	4,550
May.....	81	66	74.2	4,560
June.....	68	49	58.0	3,450
July.....	62	44	55.5	3,410
August.....	62	49	54.3	3,340
September.....	58	45	53.5	3,180
The year.....	81	0	54.7	39,700

Daily discharge, in second-feet, of Greenspot pipe line near Mentone, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	6.0	0.0	6.0	3.0	5.0	4.0	0.0	1.0	4.0	4.0	4.5	5.0
2.....	6.0	.0	5.0	3.0	5.0	4.0	.0	1.0	4.0	2.0	4.5	5.0
3.....	.0	.0	5.0	.0	5.0	4.0	.0	1.0	3.5	2.0	4.5	3.0
4.....	.0	.0	4.0	.0	5.0	3.0	.0	1.0	3.5	2.0	3.0	3.0
5.....	.0	.0	4.0	.0	5.0	4.0	.0	1.0	3.5	2.0	3.0	3.0
6.....	.0	.5	4.0	.0	4.5	5.0	.0	4.0	3.5	2.0	3.0	4.0
7.....	.0	7.0	.0	.0	4.5	.0	.0	4.0	3.5	2.0	3.0	4.0
8.....	.0	7.0	2.5	5.0	4.5	.0	.0	4.0	3.5	6.0	5.0	4.0
9.....	1.0	7.0	2.5	5.0	4.5	.0	.0	4.0	3.5	3.2	5.0	4.0
10.....	2.3	7.0	2.5	5.0	4.5	.0	1.0	4.0	4.0	3.2	5.0	4.0
11.....	6.5	6.0	2.5	5.0	4.5	.0	1.0	4.0	4.0	3.2	5.0	4.0
12.....	6.5	6.0	2.5	5.0	4.5	.0	1.0	4.0	4.0	3.2	5.5	4.0
13.....	6.5	6.0	2.5	5.0	4.5	.0	1.0	4.0	4.0	3.2	5.5	5.0
14.....	6.5	6.0	2.5	5.0	4.5	.0	1.0	4.0	4.0	5.2	2.5	5.5
15.....	6.5	6.0	3.0	5.0	4.5	.0	1.0	4.0	4.0	5.2	3.0	5.5
16.....	6.5	6.0	3.0	5.0	4.5	.0	1.0	4.0	4.0	5.2	3.0	5.5
17.....	7.5	.0	3.5	4.0	2.5	.0	1.0	4.0	4.0	5.2	3.0	5.5
18.....	1.5	.0	3.5	4.0	2.5	.0	1.0	4.0	4.0	5.2	3.0	5.5
19.....	3.0	.0	3.5	4.0	2.5	.0	1.0	4.0	4.0	5.2	3.0	4.5
20.....	1.0	.0	3.5	3.0	2.5	.0	1.0	4.0	4.0	5.2	3.0	4.5
21.....	1.0	.0	.0	3.0	3.0	.0	1.0	4.0	4.0	3.5	5.0	4.5
22.....	.0	.0	.0	3.0	3.0	.0	1.0	5.5	4.0	3.5	5.0	4.5
23.....	.0	7.3	.0	3.0	3.0	.0	1.0	5.5	4.0	4.5	5.0	4.5
24.....	.4	7.3	.0	3.0	3.0	.0	1.0	5.5	4.0	4.5	5.0	4.5
25.....	.0	7.3	.8	3.0	3.0	.0	1.0	5.5	4.0	4.5	4.0	4.5
26.....	.0	7.3	1.0	3.0	5.0	.0	1.0	5.5	4.0	4.5	4.0	2.5
27.....	.0	7.3	1.0	4.0	5.0	.0	1.0	5.5	4.0	4.5	4.0	2.5
28.....	.0	7.3	2.0	4.0	5.0	.0	1.0	5.5	4.0	4.5	1.0	2.5
29.....	.0	7.3	2.0	4.0	4.0	.0	1.0	5.5	4.0	4.5	5.0	2.5
30.....	.0	7.3	3.0	4.5	-----	.0	1.0	5.5	4.0	4.5	5.0	2.5
31.....	.0	-----	3.0	4.5	-----	.0	-----	4.0	-----	4.5	5.0	-----

Monthly discharge of Greenspot pipe line near Mentone, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	7.5	0.0	2.22	136
November.....	7.3	.0	4.10	244
December.....	6.0	.0	2.53	156
January.....	5.0	.0	3.39	208
February.....	5.0	2.5	4.09	235
March.....	5.0	.0	.77	47
April.....	1.0	.0	.70	42
May.....	5.5	1.0	3.95	243
June.....	4.0	3.5	3.88	231
July.....	6.0	2.0	3.93	242
August.....	5.5	1.0	4.10	252
September.....	5.5	2.5	4.13	246
The year.....	7.5	.0	3.14	2,280

Combined daily discharge, in second-feet, of Santa Ana River and Pacific Light & Power Co.'s canal, including Greenspot pipe line, near Mentone, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	79	52	45	47	44	39	68.4	93	71.4	63.2	56.7	58.4
2.....	63	50	47	49	43	44	73.4	96	71.4	52.2	54.7	56.4
3.....	60	50	39	46	43	44	73.4	93	69.7	55.2	54.7	54.4
4.....	59	55	49	46	40	54	75.4	87.5	67.7	55.2	54.2	50.4
5.....	57	55	46	46	43	50	73.4	87.5	64.7	52.2	60.2	54.4
6.....	55	52	48	46	42	351	75.4	88.5	64.7	48.2	62.2	55.4
7.....	55	50	47	46	42	112	73.4	85.5	64.7	47.2	62.2	55.4
8.....	51	50	48	49	42	83	75.4	88.5	62.7	59.2	64.2	55.4
9.....	52	51	48	47	40	66	92	94	60.7	60.4	62.2	55.4
10.....	53	51	48	45	40	311	86.5	94	61.2	60.4	60.2	60.4
11.....	52	61	42	45	40	142	150	94	59.2	59.4	62.2	62.4
12.....	64	52	48	46	40	88	120	94	63.2	63.4	64.7	63.2
13.....	66	51	46	46	42	126	132	94	55.2	62.4	62.7	64.7
14.....	66	51	44	44	40	102	135	94	61.2	66.4	63.7	64.7
15.....	64	50	46	44	40	104	135	94	59.2	65.4	66.2	64.7
16.....	66	50	45	44	40	102	137	89	59.2	64.4	66.2	60.7
17.....	66	50	46	46	42	89	135	88.5	54.2	68.4	60.2	57.7
18.....	68	50	48	43	42	78.5	121	88.5	54.2	61.4	58.2	60.7
19.....	63	50	48	43	40	75.4	121	88.5	54.2	62.4	53.2	59.7
20.....	65	51	46	44	40	65.4	110	84.5	61.2	56.4	60.2	59.7
21.....	62	50	46	42	41	73.4	104	84.5	61.2	59.7	60.2	59.7
22.....	60	47	46	42	38	73.4	94	81	61.2	58.7	60.2	59.7
23.....	59	48	46	43	41	68.4	94	76	63.2	61.7	60.2	61.7
24.....	55	50	46	42	41	65.4	94	78.9	65.2	61.7	62.2	63.7
25.....	61	48	47	42	38	67.4	94	78.9	63.2	65.7	61.2	59.7
26.....	64	48	45	42	38	67.4	94	78.9	65.2	65.7	61.5	57.7
27.....	72	48	45	43	40	68.4	102	75.9	68.2	65.7	61.5	59.7
28.....	58	48	46	44	40	68.4	101	75.9	68.2	63.7	57.4	59.7
29.....	57	48	51	45	39	68.4	96	78.9	65.2	65.7	56.4	61.7
30.....	55	48	47	44	79.5	93	78.9	73.2	65.7	58.4	59.7
31.....	52	47	44	75.4	77.4	63.7	58.4

NOTE.—Daily discharge values March to June supersede those published in Water-Supply Paper 300, p. 575.

Combined monthly discharge of Santa Ana River and Pacific Light & Power Co.'s canal, including Greenspot pipe line, near Mentone, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	79	51	60.6	3,730	A.
November.....	61	47	50.5	3,000	A.
December.....	51	39	46.3	2,850	A.
January.....	49	42	44.6	2,740	A.
February.....	44	38	40.7	2,340	A.
March.....	351	39	93.6	5,760	A.
April.....	150	68.4	101	6,010	A.
May.....	96	75.9	86.5	5,320	A.
June.....	73.2	54.2	63.1	3,750	A.
July.....	68.4	47.2	60.7	3,730	B.
August.....	66.2	53.2	60.2	3,700	B.
September.....	64.7	50.4	59.2	3,520	B.
The year.....	351	38	64.0	46,400	

NOTE.—Monthly values for March to June supersede those published in Water-Supply Paper 300, p. 580.

MILL CREEK AT FOREST HOME,¹ CAL.

Location.—At Forest Home, in the NW. $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 13, T. 1 S., R. 1 W., about 2 $\frac{1}{2}$ miles below Falls Creek, 4 miles above Mountain Home Creek, and 14 miles east of Redlands.

Records available.—September 23, 1903, to September 30, 1912.

¹ Akers Camp on map of San Geronio quadrangle, U. S. Geol. Survey.

Drainage area.—Not measured.

Discharge.—Obtained by combining flow in power canal with flow over diverting dam. The flow in the canal is determined by current meter measurements. The flow over diverting dam is approximate and no report is made when total discharge exceeds 100 second-feet.

Accuracy.—Daily discharge is mean of two observations recorded each day at 6 a. m. and 6 p. m. When total flow of Mill Creek is diverted into power canal results are good; at higher stages they are approximate.

Cooperation.—Estimates of daily discharge are furnished by the Southern California Edison Co., through H. W. Dennis, construction engineer.

Daily discharge, in second-feet, of Mill Creek at Forest Home, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	37	28	25	23	22	26	26	40	46	31	26	20
2.....	35	27	24	23	21	21	28	40	44	31	25	20
3.....	34	27	25	23	21	20	29	40	46	31	24	20
4.....	34	26	24	23	21	25	28	38	45	31	24	20
5.....	33	26	24	23	21	23	27	39	45	31	24	20
6.....	33	26	25	22	21	46	28	39	45	30	23	20
7.....	32	26	26	22	21	37	60	40	43	30	23	20
8.....	32	26	25	23	21	29	32	40	42	30	23	20
9.....	32	26	25	22	21	44	34	40	42	29	22	20
10.....	31	26	24	22	21	64	31	39	41	28	22	19
11.....	31	27	24	23	21	39	31	39	40	29	22	18
12.....	30	28	24	22	21	46	30	40	40	29	22	18
13.....	29	27	24	22	20	34	30	40	45	29	22	18
14.....	29	26	24	22	20	36	32	40	37	28	21	18
15.....	30	26	24	22	20	32	34	43	35	30	21	18
16.....	29	26	24	22	20	33	34	42	34	29	21	18
17.....	28	25	26	22	20	29	35	43	34	29	21	18
18.....	28	25	24	26	20	28	36	43	34	31	21	18
19.....	27	25	24	22	19	28	36	46	34	29	21	18
20.....	27	25	24	22	19	31	36	46	34	27	21	17
21.....	26	25	24	21	19	30	35	47	33	27	21	17
22.....	27	25	24	21	19	27	36	44	34	27	20	16
23.....	27	25	23	21	19	25	38	47	33	25	20	17
24.....	27	26	23	22	19	27	36	44	33	26	20	17
25.....	27	25	23	21	19	27	37	45	33	25	19	16
26.....	28	25	23	21	19	27	40	45	32	25	19	16
27.....	32	25	22	23	19	25	37	46	31	25	19	16
28.....	30	29	23	22	19	25	38	44	31	25	20	16
29.....	29	24	24	22	19	27	38	46	32	28	19	16
30.....	29	25	23	21	26	39	46	32	26	20	16
31.....	28	23	21	25	45	26	19

NOTE.—Discharge estimated Sept. 28-30.

Monthly discharge of Mill Creek at Forest Home, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	37	26	30.0	1,840
November.....	29	24	25.9	1,540
December.....	26	22	24.0	1,480
January.....	26	21	22.2	1,360
February.....	22	19	20.1	1,160
March.....	64	20	31.0	1,910
April.....	60	26	34.4	2,050
May.....	47	38	42.5	2,610
June.....	46	31	37.7	2,240
July.....	31	25	28.3	1,740
August.....	26	19	21.5	1,320
September.....	20	16	18.0	1,070
The year.....	64	16	28.0	20,300

WATERMAN CANYON CREEK¹ NEAR SAN BERNARDINO, CAL.

Location.—Just above old toll bridge at mouth of canyon, in the SW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 2, T. 1 N., R. 4 W., about 6 miles north of San Bernardino.

Records available.—November 2, 1911, to September 30, 1912.

Drainage area.—4.55 square miles.

Gage.—Vertical staff fastened to an alder tree on left bank about 300 feet above bridge.

Channel.—Boulders and gravel; will shift at high stages.

Discharge measurements.—Made from foot plank 15 feet below gage or by wading.

Accuracy.—Rating curves are fairly well defined and results are good.

Discharge measurements of Waterman Canyon Creek near San Bernardino, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 2 ^a	F. C. Ebert.....	1.62	1.8	Mar. 9 ^a	F. C. Ebert.....	1.94	8.2
				19 ^a	do.....	1.88	4.5
1912.				Apr. 19 ^a	do.....	2.01	9.2
Jan. 10 ^a	F. C. Ebert.....	1.72	2.1	May 28 ^a	do.....	1.78	2.8
12 ^a	do.....	1.70	2.1	Aug. 3 ^b	do.....	1.67	1.0
30 ^a	do.....	1.65	2.1	28 ^b	H. D. McGlashan.....	1.64	1.0
Feb. 18 ^a	do.....	1.62	1.8	28 ^b	F. C. Ebert.....	1.64	1.0

^a Wading.

^b From foot plank.

Daily gage height, in feet, of Waterman Canyon Creek near San Bernardino, Cal., for 1911-12.

[H. E. Mastin, observer.]

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		1.76	1.77	1.65	1.67	1.93	1.89	1.8	1.78	1.75	1.68
2.....	1.61	1.77	1.75	1.67	1.64	1.92	1.88	1.8	1.78	1.74	1.67
3.....	1.63	1.77	1.75	1.68	1.63	1.91	1.87	1.8	1.76	1.74	1.67
4.....	1.63	1.77	1.76	1.7	1.73	1.9	1.86	1.8	1.76	1.74	1.67
5.....	1.66	1.73	1.76	1.69	1.9	1.85	1.8	1.77	1.67	1.68
6.....	1.63	1.73	1.76	1.68	1.9	1.87	1.8	1.77	1.65	1.68
7.....		1.81	1.76	1.68	1.9	1.87	1.8	1.75	1.67	1.68
8.....	1.66	1.79	1.76	1.68	1.91	1.88	1.8	1.75	1.67	1.68
9.....	1.67	1.77	1.76	1.68	1.94	2.2	1.88	1.8	1.75	1.65	1.65
10.....	1.67	1.77	1.76	1.67	2.6	2.03	1.87	1.8	1.74	1.64	1.66
11.....	1.72	1.73	1.74	1.67	2.3	2.25	1.86	1.8	1.74	1.63	1.65
12.....	1.69	1.71	1.72	1.67	2.5	2.15	1.86	1.8	1.73	1.62	1.62
13.....	1.69	1.71	1.7	1.68	2.2	2.1	1.85	1.8	1.73	1.62	1.61
14.....	1.69	1.72	1.7	1.68	2.15	2.1	1.85	1.79	1.73	1.62	1.63
15.....	1.69	1.72	1.7	1.69	2.1	2.1	1.85	1.79	1.72	1.64	1.65
16.....	1.72	1.71	1.7	1.69	2.05	2.08	1.84	1.77	1.74	1.65	1.68
17.....	1.73	1.77	1.69	1.68	2.0	2.06	1.84	1.75	1.74	1.67	1.67
18.....	1.74	1.77	1.69	1.64	1.98	2.05	1.84	1.75	1.75	1.67	1.65
19.....	1.74	1.74	1.69	1.63	1.92	2.02	1.84	1.77	1.74	1.65	1.65
20.....	1.73	1.74	1.68	1.65	1.95	1.99	1.84	1.75	1.74	1.63	1.65
21.....	1.74	1.74	1.68	1.62	1.92	1.98	1.84	1.78	1.74	1.63	1.64
22.....	1.74	1.76	1.68	1.62	1.93	1.96	1.84	1.8	1.75	1.63	1.64
23.....	1.74	1.77	1.67	1.62	1.9	1.95	1.84	1.8	1.75	1.64	1.63
24.....	1.74	1.76	1.67	1.63	1.89	1.94	1.84	1.78	1.75	1.64	1.68
25.....	1.74	1.76	1.68	1.64	1.98	1.94	1.83	1.78	1.75	1.64	1.61
26.....	1.74	1.76	1.68	1.64	1.98	1.93	1.83	1.79	1.74	1.62	1.60
27.....	1.74	1.76	1.68	1.64	1.99	1.94	1.83	1.79	1.74	1.63	1.62
28.....	1.74	1.79	1.68	1.63	1.94	1.92	1.81	1.79	1.74	1.64	1.62
29.....	1.76	1.79	1.67	1.6	1.92	1.9	1.8	1.8	1.74	1.68	1.67
30.....	1.76	1.81	1.67	1.94	1.89	1.8	1.78	1.75	1.67	1.68
31.....		1.79	1.67	1.8	1.75	1.68

NOTE.—Flood of Mar. 5-8, 1912, partially destroyed the gage and filled channel with sand and gravel, which scoured out as flood subsided.

¹ The area drained by Waterman Canyon Creek was almost entirely burned over by a forest fire July 25 to Aug. 4, 1911.

Daily discharge, in second-feet, of Waterman Canyon Creek near San Bernardino, Cal., for 1911-12.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	1.7	2.8	2.9	1.9	2.0	6.2	5.0	2.9	2.6	2.2	1.3
2.	1.7	2.9	2.7	2.0	1.8	5.9	4.7	2.9	2.6	2.0	1.2
3.	1.8	2.9	2.7	2.1	1.8	5.5	4.5	2.9	2.3	2.0	1.2
4.	1.8	2.9	2.8	2.2	2.5	5.2	4.3	2.9	2.3	2.0	1.2
5.	2.0	2.5	2.8	2.1	5.2	4.0	2.9	2.4	1.2	1.3
6.	1.8	2.5	2.8	2.1	5.2	4.5	2.9	2.4	1.1	1.3
7.	1.9	3.4	2.8	2.1	5.2	4.5	2.9	2.2	1.2	1.3
8.	2.0	3.1	2.8	2.1	5.5	4.7	2.9	2.2	1.2	1.3
9.	2.0	2.9	2.8	2.1	8.2	20	4.7	2.9	2.2	1.1	1.1
10.	2.0	2.9	2.8	2.0	57	10.0	4.5	2.9	2.0	1.0	1.2
11.	2.4	2.5	2.6	2.0	30	24	4.3	2.9	2.0	1.0	1.1
12.	2.1	2.3	2.4	2.0	47	16.7	4.3	2.9	1.8	.9	.9
13.	2.1	2.3	2.2	2.1	22	13.4	4.0	2.9	1.8	.9	.9
14.	2.1	2.4	2.2	2.1	18	13.4	4.0	2.8	1.8	.9	1.0
15.	2.1	2.4	2.2	2.1	14	13.4	4.0	2.8	1.7	1.0	1.1
16.	2.4	2.3	2.2	2.1	12	12.4	3.8	2.4	2.0	1.1	1.3
17.	2.5	2.9	2.1	2.1	8.8	11.4	3.8	2.2	2.0	1.2	1.2
18.	2.6	2.9	2.1	1.8	7.8	11.0	3.8	2.2	2.2	1.2	1.1
19.	2.6	2.6	2.1	1.8	5.9	9.5	3.8	2.4	2.0	1.1	1.1
20.	2.5	2.6	2.1	1.9	6.8	8.2	3.8	2.2	2.0	1.0	1.1
21.	2.6	2.6	2.1	1.7	5.9	7.8	3.8	2.6	2.0	1.0	1.0
22.	2.6	2.8	2.1	1.7	6.2	7.2	3.8	2.9	2.2	1.0	1.0
23.	2.6	2.9	2.0	1.7	5.2	6.8	3.8	2.9	2.2	1.0	1.0
24.	2.6	2.8	2.0	1.8	5.0	6.5	3.8	2.6	2.2	1.0	1.3
25.	2.6	2.8	2.1	1.8	7.8	6.5	3.6	2.6	2.2	1.0	.9
26.	2.6	2.8	2.1	1.8	7.8	6.2	3.6	2.8	2.0	.9	.8
27.	2.6	2.8	2.1	1.8	8.2	6.5	3.6	2.8	2.0	1.0	.9
28.	2.6	3.1	2.1	1.8	6.5	5.9	3.1	2.8	2.0	1.0	.9
29.	2.8	3.1	2.0	1.6	5.9	5.2	2.9	2.9	2.0	1.3	1.2
30.	2.8	3.4	2.0	6.5	5.0	2.9	2.6	2.2	1.2	1.3
31.	3.1	2.0	6.4	2.9	2.2	1.3

NOTE.—Daily discharge determined from a fairly well defined rating curve applicable Nov. 2, 1911, to Mar. 4, 1912, and Mar. 19 to Sept. 30, 1912. Indirect method for shifting channels used Mar. 9-18, 1912. No estimates have been attempted for the flood period Mar. 5-8, 1912. Discharge values for May and June supersede those published in Water-Supply Paper 300, p. 603. Discharge value for Mar. 31, 1912, interpolated.

Monthly discharge of Waterman Canyon Creek near San Bernardino, Cal., for 1911-12.

[Drainage area, 4.55 square miles.]

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
November.....	2.8	1.7	2.28	136	B.
December.....	3.4	2.3	2.78	171	B.
January.....	2.9	2.0	2.35	144	B.
February.....	2.2	1.6	1.94	112	B.
March (27 days).....	57	1.8	11.7	627	C.
April.....	24	5.0	9.03	537	B.
May.....	5.0	2.9	3.96	243	B.
June.....	2.9	2.2	2.74	163	B.
July.....	2.6	1.7	2.12	130	B.
August.....	2.2	.9	1.19	73.2	B.
September.....	1.3	.8	1.12	66.6	B.

NOTE.—Values for May and June supersede those previously published.

DEVIL CANYON CREEK¹ NEAR SAN BERNARDINO, CAL.

Location.—At mouth of canyon, in the SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 6, T. 1 N., R. 4 W., about 200 feet below ford, and about 7 miles northwest of San Bernardino.

Records available.—November 1, 1911, to September 30, 1912.

¹ The area drained by Devil Canyon Creek is similar in all respects to that tributary to Waterman Canyon except that it retains its forest cover.

Drainage area.—6.16 square miles.

Gage.—Vertical staff fastened to an alder tree on left bank about 200 feet below ford.

Channel.—Boulders and gravel.

Discharge measurements.—Made from foot plank about 100 feet below gage or by wading.

Accuracy.—Results are good. Beginning with August 28, 1912, record is from a 30-inch Cippoletti weir installed about 500 feet above gage at intake of small irrigation ditch.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Devil Canyon Creek near San Bernardino, Cal., in 1911-12.

[F. C. Ebert, hydrographer.]

Date.	Gage height.	Dis-charge.	Date.	Gage height.	Dis-charge.
1911.	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 1 ^a	1.48	2.1	Mar. 19 ^b	1.74	4.5
			Apr. 19 ^b	1.89	7.2
1912.			May 28 ^b	1.63	2.5
Jan. 12 ^b	1.55	2.9	Aug. 3 ^b	1.45	.4
Feb. 19 ^b	1.51	2.0	26.....	1.37	.2
Mar. 10 ^b	2.15	18			

^a Wading 300 feet above gage.

^b Foot plank.

Daily gage height, in feet, of Devil Canyon Creek near San Bernardino, Cal., for 1911-12.

[O. H. McElfresh, observer.]

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.46	1.53	1.52		1.60		1.75	1.60		1.40	0.20
2.....	1.47	1.53				1.71		1.60	1.46	1.40	.22
3.....	1.48	1.52					1.75		1.48	1.43	.24
4.....	1.49	1.56		1.50	1.95				1.47	1.40	.28
5.....	1.49	1.54	1.57			1.70	1.74		1.46	1.40	.25
6.....	1.49	1.62			2.16		1.75		1.45		.22
7.....	1.50	1.61	1.55			1.70		1.60	1.45	1.43	.22
8.....	1.51	1.59				1.69	1.79	1.59	1.44		.22
9.....	1.52					1.86	1.76	1.60	1.44		.22
10.....	1.69				2.18	1.96	1.74	1.60		1.40	.17
11.....	1.56			1.51	1.95	2.16	1.73	1.60	1.43	1.42	.20
12.....	1.52		1.55		2.12	2.19	1.74		1.42		.15
13.....	1.52					1.98	1.73	1.60	1.42	1.42	
14.....	1.52		1.52			2.00	1.71	1.60	1.41		.16
15.....	1.50					2.00	1.70		1.41	1.40	.16
16.....	1.50					1.98	1.68	1.60	1.41	1.40	.15
17.....	1.50				1.92	1.95	1.66	1.58	1.40	1.39	.15
18.....	1.49			1.50		1.92	1.64	1.58		1.39	.15
19.....	1.49			1.51	1.74	1.90	1.63	1.58	1.40	1.38	.14
20.....	1.50				1.79	1.88	1.63	1.57	1.41	1.38	.14
21.....	1.52		1.52			1.85		1.57	1.41	1.28	.14
22.....	1.54			1.50		1.82	1.63	1.58	1.41	1.28	.14
23.....	1.54					1.80	1.62	1.56	1.42	1.38	.14
24.....	1.57				1.72	1.79		1.55	1.40	1.38	.15
25.....	1.56			1.50		1.78	1.62	1.53	1.40	1.31	.15
26.....	1.54					1.82	1.62	1.53	1.40	1.37	.15
27.....	1.54					1.80	1.61	1.52			.15
28.....	1.55		1.52			1.78	1.61	1.51	1.40	.11	.15
29.....	1.55			1.50	1.78	1.76	1.60	1.50	1.40	.13	.15
30.....	1.54					1.75	1.60	1.50	1.40		.15
31.....					1.77		1.60		1.40	.18	

NOTE.—Flood existed at this station Mar. 5-9, 1912. Maximum gage height was 2.5 feet. Beginning Aug. 28, 1912, the gage heights are read from a weir gage located 500 feet above the station.

Daily discharge, in second-feet, of Devil Canyon Creek near San Bernardino, Cal., for 1911-12.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.0	2.4	2.3	2.3	2.8	4.6	4.2	1.8	0.7	0.3	0.75
2.....	2.1	2.4	2.3	2.3	5.0	4.1	4.2	1.8	.6	.3	.87
3.....	2.1	2.3	2.4	2.3	7.2	4.0	4.2	1.8	.7	.4	.99
4.....	2.2	2.6	2.5	2.2	9.4	3.9	4.1	1.8	.6	.3	1.2
5.....	2.2	2.4	2.6	2.2	-----	3.9	4.0	1.8	.6	.3	1.1
6.....	2.2	3.0	2.5	2.2	-----	3.9	4.2	1.8	.6	.4	.87
7.....	2.2	2.9	2.5	2.2	-----	3.9	4.6	1.8	.6	.4	.87
8.....	2.3	2.7	2.5	2.3	-----	3.8	5.0	1.7	.5	.4	.87
9.....	2.3	-----	2.5	2.3	-----	6.9	4.4	1.8	.5	.3	.87
10.....	3.8	-----	2.5	2.3	19	9.7	4.0	1.8	.4	.3	.59
11.....	2.6	-----	2.5	2.3	9.4	18	3.8	1.8	.4	.4	.75
12.....	2.3	-----	2.5	2.3	16	20	4.0	1.8	.4	.4	.49
13.....	2.3	-----	2.4	2.3	14	10	3.8	1.8	.4	.4	.52
14.....	2.3	-----	2.3	2.3	12	11	3.4	1.8	.4	.4	.54
15.....	2.2	-----	2.3	2.2	11	11	3.2	1.8	.4	.3	.54
16.....	2.2	-----	2.3	2.2	10	10	2.9	1.8	.4	.3	.49
17.....	2.2	-----	2.3	2.2	8.4	9.4	2.6	1.6	.3	.3	.49
18.....	2.2	-----	2.3	2.2	6.4	8.4	2.4	1.6	.3	.3	.49
19.....	2.2	-----	2.3	2.3	4.5	7.8	2.2	1.6	.3	.3	.44
20.....	2.2	-----	2.3	2.3	5.3	7.3	2.2	1.5	.4	.3	.44
21.....	2.3	-----	2.3	2.2	5.0	6.5	2.2	1.5	.4	.08	.44
22.....	2.4	-----	2.3	2.2	4.7	5.7	2.2	1.6	.4	.08	.44
23.....	2.4	-----	2.3	2.2	4.4	5.2	2.1	1.4	.4	.3	.44
24.....	2.6	-----	2.3	2.2	4.2	5.0	2.1	1.3	.3	.3	.49
25.....	2.6	-----	2.3	2.2	4.4	4.8	2.1	1.1	.3	.1	.49
26.....	2.4	-----	2.3	2.2	4.6	5.7	2.1	1.1	.3	.2	.49
27.....	2.4	-----	2.3	2.2	4.8	5.2	1.9	1.0	.3	.2	.49
28.....	2.5	-----	2.3	2.2	5.0	4.8	1.9	.9	.3	.30	.49
29.....	2.5	-----	2.3	2.2	5.2	4.4	1.8	.8	.3	.40	.49
30.....	2.4	-----	2.3	-----	5.1	4.2	1.8	.8	.3	.52	.49
31.....	-----	-----	2.3	-----	5.0	-----	1.8	-----	.3	.65	-----

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable 1911 to Apr. 11, 1912, and Apr. 12 to Aug. 26, 1912. Aug. 28 to Sept. 30, 1912, discharge determined from a 30-inch Cippolletti weir. Discharge interpolated for days on which gage was not read except Dec. 9-31, 1911, and Mar. 5-9, 1912, which was a flood period and for which no estimates have been made. Discharge values April to June supersede those published in Water-Supply Paper 300, p. 605.

Monthly discharge of Devil Canyon Creek near San Bernardino, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
November.....	3.8	2.0	2.35	140	B.
December 1-8.....	3.0	2.3	2.59	41.1	C.
January.....	2.6	2.3	2.37	146	B.
February.....	2.3	2.2	2.24	129	B.
April.....	20	3.8	7.10	422	B.
May.....	5.0	1.8	3.08	189	B.
June.....	1.8	.8	1.55	92.2	C.
July.....	.7	.3	.42	25.8	D.
August.....	.65	.08	.32	19.7	D.
September.....	1.2	.44	.63	37.5	C.

NOTE.—Values April to June supersede those previously published.

LYTLE CREEK NEAR SAN BERNARDINO, CAL.

Location.—At Southern California Edison Co.'s diversion dam in the NW. $\frac{1}{4}$ sec. 25, T. 2 N., R. 6 W., below junction of North and Middle forks of Lytle Creek, in the Angeles National Forest, about 3 miles above mouth of canyon, and 14 miles northwest of San Bernardino.

Records available.—September 18, 1904, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Watson water-stage register in pool above weir in power canal.

Discharge.—Obtained by combining flow in power canal with flow over diverting dam. Discharge of power canal is measured, near the intake, by an 8-foot steel plate rectangular weir. Flow over diverting dam is estimated, and no record is furnished when total estimated discharge exceeds 80 second-feet.

Accuracy.—Daily discharge is mean of two observations recorded each day at 6 a. m. and 6 p. m. When total flow of Lytle Creek is diverted into power canal the results are good; above 23 second-feet (capacity of canal) they are approximate.

Cooperation.—Estimates of daily discharge are furnished by the Southern California Edison Co., through H. W. Dennis, construction engineer.

Daily discharge, in second-feet, of Lytle Creek near San Bernardino, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	38	36	30	28	24	21	43	36	29	22	19	17
2.....	38	34	30	28	24	22	39	36	29	22	19	17
3.....	38	32	30	28	24	22	35	37	29	22	19	18
4.....	38	32	30	28	24	24	35	39	28	22	19	18
5.....	38	32	30	28	24	25	35	39	28	22	18	18
6.....	38	32	30	28	24	82	35	39	26	22	18	17
7.....	38	32	30	28	24	52	35	39	26	21	18	17
8.....	38	32	30	27	24	48	35	39	26	21	18	18
9.....	38	32	30	26	24	38	39	26	21	18	18
10.....	38	32	30	26	23	39	39	26	21	18	17
11.....	38	32	30	26	23	39	39	26	21	17	17
12.....	38	32	30	26	23	39	39	26	21	17	17
13.....	38	32	30	26	23	78	39	39	25	21	18	17
14.....	38	32	30	26	23	78	39	39	25	20	18	17
15.....	38	31	30	26	22	73	39	39	25	21	18	17
16.....	38	30	30	26	22	67	39	39	24	21	18	17
17.....	36	30	30	26	22	58	39	37	24	21	19	17
18.....	36	30	30	26	22	53	39	35	24	20	18	17
19.....	36	30	30	26	22	48	39	34	24	20	18	17
20.....	36	30	30	26	22	48	39	33	22	20	19	17
21.....	36	30	30	25	22	43	39	33	22	20	18	17
22.....	36	30	30	24	22	43	39	33	22	20	18	17
23.....	36	30	30	24	22	43	39	33	22	20	18	17
24.....	36	30	30	24	22	43	39	33	22	20	18	18
25.....	36	30	29	24	22	43	39	33	22	20	18	18
26.....	36	30	28	24	22	43	38	32	22	20	18	18
27.....	36	30	28	24	22	43	39	31	22	20	18	18
28.....	36	30	28	24	22	43	39	31	22	20	18	18
29.....	36	30	28	24	22	43	39	31	22	20	18	18
30.....	36	30	28	24	43	39	30	22	19	18	18
31.....	36	28	24	43	29	19	17

NOTE.—Discharge interpolated July 23. Discharge above 80 second-feet Mar. 9 to 12.

Monthly discharge of Lytle Creek near San Bernardino, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	38	36	37.0	2,280
November.....	36	30	31.2	1,860
December.....	30	28	29.6	1,820
January.....	28	24	25.8	1,590
February.....	24	22	22.8	1,310
April.....	43	35	38.3	2,280
May.....	39	29	35.6	2,190
June.....	29	22	24.6	1,460
July.....	22	19	20.6	1,270
August.....	19	17	18.1	1,110
September.....	18	17	17.4	1,040

SAN ANTONIO CREEK NEAR UPLAND, CAL.

Location.—Below Pacific Light & Power Co.'s power house in SW. $\frac{1}{4}$ sec. 36, T. 2 N., R. 8 W., about 4 miles above mouth of canyon and 8 miles northwest of Upland.

Records available.—March 11, 1901, to September 30, 1912.

Drainage area.—Not measured.

Discharge.—From March 11, 1901, to August 24, 1907, station was located above intake of power canal, which is 1 mile above power house. Later records are computed from gage-height record obtained at 10-foot rectangular weir in tail race. The excess water flowing over diverting dam is estimated.

Accuracy.—The capacity of power canal is about 21 second-feet. When flow of stream does not exceed this amount the results should be excellent.

Cooperation.—Records furnished by Pacific Light & Power Co., through G. O. Newman, chief engineer.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1901.							
1.....		5.6	18	17	14	10	8.7
2.....		5.6	18	17	14	10	8.7
3.....		5.5	17	16	14	9.6	8.7
4.....		5.4	17	16	13	9.9	8.7
5.....		5.6	16	16	14	9.6	8.7
6.....		5.3	13	16	14	9.9	8.7
7.....		5.5	17	16	14	9.9	8.7
8.....		5.4	17	16	13	9.9	8.7
9.....		5.4	17	16	13	9.7	8.3
10.....		5.4	16	16	13	9.7	8.3
11.....	5.4	5.4	16	16	13	9.6	8.3
12.....	5.6	5.4	16	16	12	9.9	8.0
13.....	5.6	5.4	16	16	12	9.7	7.7
14.....	5.6	5.5	16	16	12	9.7	8.0
15.....	5.4	5.5	16	16	12	9.6	7.7
16.....	5.7	5.0	16	16	12	9.3	8.0
17.....	5.4	5.0	17	16	12	9.3	8.0
18.....	5.6	5.0	17	16	12	9.3	8.0
19.....	5.4	5.1	17	16	12	9.3	7.7
20.....	5.4	5.1	17	16	12	9.3	7.7
21.....	5.6	5.3	17	16	12	9.3	8.0
22.....	5.6	5.2	17	16	12	9.3	8.0
23.....	5.6	16	17	15	12	9.3	8.0
24.....	5.6	16	17	16	12	9.3	7.9
25.....	5.6	16	17	16	12	9.3	7.9
26.....	5.6	16	^a 17	14	12	8.7	7.9
27.....	5.6	16	17	14	12	8.7	7.7
28.....	5.4	16	17	14	11	8.7	7.4
29.....	5.6	16	17	14	11	8.7	7.4
30.....	5.5	16	^a 17	14	11	8.7	7.8
31.....	5.4	-----	17	-----	11	8.7	-----

^a Interpolated by United States Geological Survey.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1901-2.												
1.....	7.4	7.4	6.3	6.0	6.0	6.3	8.3	9.3	9.7	6.3	6.1	5.3
2.....	7.9	7.4	6.3	6.0	6.0	6.3	8.3	9.3	9.7	6.5	5.7	4.9
3.....	7.4	7.4	6.3	6.0	6.0	7.1	8.3	10	9.7	6.8	5.7	4.9
4.....	7.4	7.2	6.3	6.0	6.0	6.8	8.3	10	9.0	6.5	5.7	4.9
5.....	7.4	7.2	6.3	6.0	6.0	6.8	8.3	10	9.0	6.5	5.7	4.9
6.....	7.2	7.2	6.3	6.0	6.0	6.8	8.3	11	9.0	6.5	5.7	4.9
7.....	7.4	7.2	6.3	6.0	6.0	7.1	8.3	11	9.0	6.6	5.7	4.9
8.....	7.2	7.2	6.3	6.0	6.0	6.8	8.3	11	9.0	6.6	5.7	4.9
9.....	7.2	7.2	6.3	6.0	6.0	6.8	8.3	11	8.7	6.6	5.4	4.9
10.....	7.2	7.2	6.3	6.0	6.0	6.8	8.3	11	8.3	6.6	5.4	4.9
11.....	7.2	7.7	6.3	6.0	6.0	7.4	8.3	11	8.7	6.6	5.4	4.9
12.....	7.2	7.2	6.3	6.0	5.7	7.4	8.3	11	8.7	6.6	5.4	4.9
13.....	6.8	7.2	6.3	6.0	5.7	7.4	8.3	11	8.3	6.6	5.4	4.9
14.....	6.8	7.2	6.3	6.0	5.7	7.4	8.3	11	8.0	6.3	5.4	4.9
15.....	6.8	6.8	6.3	6.0	5.7	7.4	8.3	11	8.0	6.3	5.4	4.9
16.....	6.8	6.8	6.3	6.0	5.7	7.4	8.3	11	8.0	6.3	5.4	4.9
17.....	6.8	6.8	6.3	6.0	5.7	7.4	8.3	11	8.0	6.3	5.4	4.9
18.....	6.8	6.8	6.3	6.0	5.7	7.4	8.3	11	8.0	6.3	5.4	4.9
19.....	6.8	6.8	6.3	6.0	5.7	7.4	9.0	11	7.7	6.3	5.4	4.9
20.....	6.8	6.8	6.3	6.3	5.7	7.7	9.0	11	7.7	6.0	5.4	4.9
21.....	6.8	6.8	6.3	6.0	5.7	7.7	9.0	11	7.4	6.0	5.4	4.9
22.....	6.8	6.8	6.3	6.0	5.7	7.7	9.0	11	7.4	6.0	5.4	4.9
23.....	7.2	6.5	6.3	6.0	5.7	7.4	9.0	11	7.4	6.0	5.4	4.9
24.....	7.2	6.5	6.3	6.0	5.7	7.4	8.9	11	7.4	6.0	5.4	4.9
25.....	7.2	6.5	6.0	6.3	5.7	8.3	8.9	11	7.1	6.0	5.2	4.9
26.....	7.2	6.3	6.0	6.3	5.7	8.3	8.9	10	6.8	6.0	5.2	4.9
27.....	7.2	6.3	6.0	6.3	6.8	8.3	8.9	10	6.8	6.0	5.2	4.9
28.....	8.7	6.3	6.0	6.0	6.8	8.3	9.3	10	6.5	6.0	5.2	4.9
29.....	7.7	6.3	6.0	6.0	8.3	9.3	10	6.5	6.0	5.2	4.9
30.....	7.7	6.3	6.0	6.0	8.3	9.3	10	6.5	6.0	5.2	4.6
31.....	7.7	6.0	6.0	8.3	9.7	6.0	5.2
1902-3.												
1.....	4.6	4.2	4.4	4.4	6.3	6.3	200	16	16	18	12	9.9
2.....	4.6	4.2	4.4	4.4	6.3	6.3	160	16	16	18	12	9.9
3.....	4.6	4.2	4.4	4.4	6.0	6.0	16	16	17	12	9.7
4.....	4.6	4.2	4.4	4.4	6.0	6.3	16	16	17	12	9.7
5.....	4.6	4.2	4.4	4.4	6.0	7.4	14	16	16	17	12	9.7
6.....	4.6	4.2	4.4	4.4	6.0	7.1	16	16	16	17	12	9.3
7.....	4.6	4.2	4.4	4.4	6.0	7.1	16	16	16	17	11	9.3
8.....	4.6	4.2	4.4	4.4	6.0	7.1	16	16	16	17	11	9.3
9.....	4.6	4.6	4.4	4.4	6.0	7.1	16	16	16	17	11	9.3
10.....	4.6	4.4	4.4	4.4	6.0	7.1	16	16	20	17	11	9.3
11.....	4.6	4.4	4.4	4.4	6.0	7.1	16	16	20	16	11	9.3
12.....	4.6	4.9	4.4	4.4	6.0	7.1	16	16	20	16	11	9.3
13.....	4.6	4.4	4.6	4.4	6.0	7.1	16	16	20	16	11	9.3
14.....	4.6	4.4	4.4	4.4	6.0	7.1	16	16	20	16	11	9.3
15.....	4.6	4.4	4.4	4.4	6.0	7.1	16	16	20	16	11	9.3
16.....	4.6	4.4	4.4	4.4	6.0	7.1	16	16	20	16	11	9.3
17.....	4.4	4.4	4.4	4.4	6.0	7.1	16	16	20	16	11	9.0
18.....	4.4	4.4	4.6	4.4	6.0	7.1	16	16	20	16	11	9.0
19.....	4.4	4.4	4.6	4.4	6.0	7.1	16	16	20	16	11	9.3
20.....	4.4	4.4	4.6	4.4	6.0	7.1	16	20	16	11	9.0
21.....	4.4	4.4	4.6	4.4	6.0	9.0	16	20	16	11	9.0
22.....	4.4	4.4	4.6	4.4	6.0	7.1	16	20	16	11	9.0
23.....	4.4	4.4	4.6	4.4	6.0	7.1	16	20	15	11	9.0
24.....	4.4	4.4	4.6	4.4	6.0	7.1	16	20	14	11	9.0
25.....	4.4	4.4	4.6	4.4	6.0	9.0	16	16	19	13	11	9.0
26.....	4.4	4.4	4.4	4.4	6.0	9.0	16	16	19	13	11	9.0
27.....	4.4	4.4	4.4	4.4	5.7	6.0	16	16	19	13	11	9.0
28.....	4.4	4.4	4.4	4.4	5.7	6.0	16	16	19	13	11	9.0
29.....	4.4	4.4	4.4	4.4	6.3	16	16	19	13	10	9.0
30.....	4.4	4.4	4.4	6.3	16	16	19	13	10	9.0
31.....	4.4	4.4	6.3	16	13	9.9
1903-4.												
1.....	8.7	7.4	7.1	6.6	6.3	7.4	11.0	15.0	14	9.3	7.4	6.8
2.....	8.7	7.4	7.1	6.6	6.3	7.4	11.0	15.0	14	9.3	7.1	6.6
3.....	8.7	7.4	7.1	6.6	6.3	7.1	11.0	15.0	14	9.3	7.1	6.6
4.....	8.7	7.4	7.1	6.6	6.3	7.1	11.0	15.0	14	9.3	7.1	6.6
5.....	8.7	7.4	7.1	6.6	6.3	7.1	11.0	15.0	13	9.3	7.1	6.6

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1903-4.												
6.....	8.7	7.4	7.1	6.6	6.6	6.8	11.0	15	13	9.3	7.1	6.6
7.....	8.7	7.4	7.1	6.6	6.3	6.8	11.0	15	12	9.3	7.1	6.6
8.....	8.7	7.4	7.1	6.6	6.3	6.8	11.0	15	12	9.3	7.1	6.6
9.....	8.7	7.4	7.1	6.6	6.3	6.8	11.0	15	12	9.3	7.1	6.6
10.....	8.7	7.4	7.1	6.6	6.3	6.8	11.0	16	12	9.3	7.1	6.6
11.....	8.7	7.4	7.1	6.6	6.3	8.0	11.0	17	12	9.3	7.1	6.6
12.....	8.7	7.4	7.1	6.6	6.3	7.1	11.0	17	12	9.3	7.1	6.6
13.....	7.4	7.4	7.1	6.6	6.3	7.1	11.0	17	11	9.0	7.1	6.6
14.....	7.4	7.4	7.1	6.6	6.3	7.1	11.0	17	11	7.7	7.1	6.6
15.....	7.4	7.4	6.8	6.6	6.0	7.1	11.0	16	11	7.7	8.0	6.3
16.....	7.4	7.4	6.8	6.6	6.6	7.1	13.0	16	11	7.7	8.3	6.3
17.....	7.4	7.4	6.6	6.6	6.6	7.1	13.0	16	11	7.7	8.3	6.3
18.....	7.4	7.1	6.8	6.6	6.6	7.1	13.0	16	11	7.7	8.0	6.3
19.....	7.4	7.1	6.8	6.6	6.6	7.1	13.0	16	11	7.7	8.0	6.3
20.....	8.0	7.1	6.8	6.6	6.3	7.1	15.0	16	11	7.7	7.7	6.3
21.....	8.0	7.1	6.8	6.6	6.3	7.1	15.0	16	11	7.7	7.7	6.3
22.....	7.4	7.1	6.8	6.6	6.3	7.1	15.0	15	10	7.7	7.7	6.3
23.....	7.4	7.1	6.8	6.6	6.3	17.0	15.0	15	10	7.7	7.7	6.3
24.....	7.4	7.1	6.8	6.6	6.3	10.0	14.0	15	10	7.7	7.5	6.3
25.....	7.4	7.1	6.8	6.6	6.3	10.0	14.0	15	10	7.7	7.5	6.3
26.....	7.4	7.1	6.8	6.6	6.3	9.3	14.0	15	10	7.5	7.5	6.3
27.....	7.4	7.1	6.8	6.3	6.3	9.3	14.0	15	11	7.5	7.5	6.3
28.....	7.4	7.1	6.6	6.6	8.4	9.3	14.0	15	11	7.5	7.5	6.3
29.....	7.4	7.1	6.6	6.6	3.4	9.7	14.0	15	a 10	7.5	7.5	6.3
30.....	7.4	7.1	6.6	6.0	9.7	14.0	15	a 10	7.5	6.8	6.0
31.....	7.4	6.6	6.3	11.0	15	7.5	6.8
1904-5.												
1.....	5.7	5.4	18	70	30	a 34	32	20	14
2.....	5.7	5.4	18	50	34	34	32	20	14
3.....	5.7	5.4	18	50	34	32	30	20	14
4.....	5.7	5.4	18	40	34	32	30	20	14
5.....	5.7	5.4	18	40	34	32	30	20	13
6.....	5.7	5.4	19	40	34	32	30	20	13
7.....	5.7	5.4	19	40	33	32	30	20	13
8.....	6.3	5.4	19	40	33	32	26	16	13
9.....	6.0	5.4	19	40	33	32	26	16	13
10.....	6.0	5.4	19	40	36	32	24	16	13
11.....	5.7	5.4	19	40	36	30	24	16	13
12.....	5.7	5.4	120	40	34	30	24	16	13
13.....	5.7	5.4	280	40	34	30	24	16	13
14.....	5.7	5.4	280	40	34	30	24	16	13
15.....	5.7	5.4	200	40	34	30	24	16	13
16.....	5.7	5.4	a 300	40	34	34	24	16	13
17.....	5.7	5.4	400	40	34	34	24	16	13
18.....	5.7	5.4	300	40	34	34	22	16	13
19.....	5.7	5.4	200	40	34	34	22	16	13
20.....	5.7	5.4	160	a 40	34	34	22	16	12
21.....	5.4	5.4	120	40	34	34	20	16	12
22.....	5.4	5.4	100	40	34	34	20	15	12
23.....	5.4	5.4	100	40	34	34	20	16	12
24.....	5.4	5.4	80	36	34	34	20	16	12
25.....	5.4	5.4	70	34	34	32	20	16	12
26.....	5.4	60	32	34	32	20	15	12
27.....	5.4	15	60	32	34	32	20	15	12
28.....	5.4	17	60	30	34	32	20	15	12
29.....	5.4	60	30	34	32	20	14	12
30.....	5.4	70	30	34	32	20	14	12
31.....	5.4	70	34	20	14
1905-6.												
1.....	12	10	12	11	13	16	240	90	100	80	30	22
2.....	12	10	11	11	13	16	220	90	100	80	30	21
3.....	12	10	11	11	13	16	180	90	100	80	30	21
4.....	12	10	11	11	13	17	170	80	100	80	30	19
5.....	12	10	11	10	13	17	160	80	100	70	30	19
6.....	12	10	11	10	13	17	160	80	100	70	30	19
7.....	12	11	11	10	13	16	160	80	100	70	30	18
8.....	12	13	11	9.8	13	16	160	80	100	60	30	18
9.....	12	13	11	9.8	13	16	140	80	90	60	30	18
10.....	11	12	11	9.8	13	16	130	80	90	60	30	18

a Interpolated by United States Geological Survey.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1905-6.												
11.....	11	12	11	9.8	13	60	120	80	90	50	30	18
12.....	11	11	11	9.8	13	300	120	80	90	50	30	17
13.....	11	11	11	9.8	13	160	120	80	90	50	30	17
14.....	11	11	11	10	13	160	110	80	90	50	30	17
15.....	11	11	11	10	13	160	100	80	90	50	30	17
16.....	11	12	11	9.9	14	160	100	80	90	40	30	17
17.....	11	12	11	9.9	14	240	100	80	90	40	30	17
18.....	11	12	11	9.9	14	200	100	80	80	40	28	17
19.....	11	11	11	11	14	200	90	80	80	30	28	17
20.....	11	11	11	15	14	180	90	80	80	30	28	16
21.....	11	11	11	14	22	180	90	80	80	30	28	16
22.....	11	11	11	13	14	160	90	80	80	30	27	16
23.....	11	11	11	13	14	160	90	80	80	30	27	16
24.....	11	11	11	10	14	160	90	80	80	30	27	16
25.....	11	11	11	10	14	240	90	80	80	30	26	16
26.....	11	11	11	10	14	260	90	80	80	30	26	15
27.....	11	12	11	13	14	300	90	80	80	30	25	15
28.....	11	13	11	13	14	280	90	100	80	30	25	15
29.....	11	12	11	13	280	90	110	80	30	23	15
30.....	10	12	11	13	260	90	110	80	30	23	15
31.....	10	11	13	250	110	30	22
1906-7.												
1.....	15	13	12	16	32	60	130	100	70	40	24	21
2.....	15	12	12	16	32	60	130	100	70	40	24	20
3.....	15	12	12	17	34	60	130	100	70	40	24	20
4.....	15	12	12	17	34	60	130	100	50	30	24	19
5.....	15	12	12	17	35	160	130	100	70	30	22	19
6.....	14	12	12	18	37	160	130	100	70	30	22	19
7.....	14	12	12	18	39	140	130	100	70	30	22	19
8.....	14	12	12	18	40	130	130	100	70	30	22	18
9.....	14	12	12	18	42	130	130	100	70	30	22	18
10.....	14	12	12	24	42	120	120	100	70	30	22	18
11.....	14	12	12	22	43	120	120	100	60	30	22	18
12.....	13	12	17	22	43	120	120	100	60	30	22	18
13.....	13	12	14	26	43	110	110	90	60	30	22	17
14.....	13	12	14	28	43	100	110	90	60	30	21	18
15.....	13	12	13	28	43	100	110	90	60	30	21	18
16.....	13	12	13	28	44	100	110	90	50	30	21	17
17.....	13	12	13	28	54	100	110	90	50	28	21	17
18.....	13	12	13	30	54	100	110	90	50	28	21	17
19.....	13	12	13	30	54	100	110	90	50	28	21	17
20.....	13	12	13	30	54	100	100	80	50	26	21	17
21.....	13	12	13	30	54	160	100	80	50	26	21	17
22.....	13	12	13	30	60	140	100	80	50	26	21	16
23.....	13	12	13	30	60	140	100	80	50	24	21	16
24.....	13	12	13	30	60	140	100	80	50	26	21	15
25.....	13	12	13	30	60	160	100	80	50	24	21	15
26.....	13	12	13	30	60	160	100	80	50	24	21	15
27.....	13	12	13	30	60	160	100	80	50	24	21	15
28.....	13	12	18	30	60	150	100	80	50	24	21	15
29.....	13	12	17	31	150	100	80	50	24	21	15
30.....	13	12	17	32	140	100	80	50	24	21	15
31.....	13	17	32	130	70	24	21
1907-8.												
1.....	15	14	12	11	14	15	31	30	22	16	14	9.5
2.....	15	14	12	11	14	15	31	30	22	16	14	9.5
3.....	15	14	11	11	15	15	31	36	22	16	14	9.5
4.....	15	13	11	10	16	15	31	35	22	16	13	9.5
5.....	15	13	11	10	16	15	31	35	22	15	13	9.2
6.....	15	13	11	10	16	15	31	33	22	15	12	9.0
7.....	15	13	11	10	16	15	30	33	22	15	12	9.0
8.....	15	13	12	10	16	15	29	32	22	15	12	9.0
9.....	15	13	12	10	16	15	29	31	22	14	12	9.0
10.....	15	13	12	10	16	15	29	29	21	14	12	9.0

• Interpolated by United States Geological Survey.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1907-8.												
11.....	15	13	11	10	16	15	28	27	21	14	12	a 9.0
12.....	15	13	11	10	16	15	28	27	20	14	12	9.0
13.....	15	13	11	10	16	15	28	26	20	14	13	9.0
14.....	15	13	11	10	16	15	28	25	20	13	12	9.0
15.....	14	13	11	10	16	15	28	24	19	13	12	9.0
16.....	15	13	11	10	16	15	28	24	19	13	12	9.0
17.....	15	13	11	10	16	15	27	24	18	13	12	9.0
18.....	15	13	11	10	16	16	27	24	18	13	11	9.0
19.....	15	13	11	10	16	16	27	24	18	13	11	9.0
20.....	14	13	11	10	15	18	27	24	18	13	11	9.0
21.....	14	13	a 11	9.9	15	18	27	24	18	13	11	9.0
22.....	14	13	11	9.7	15	18	29	24	18	13	11	9.0
23.....	15	13	11	9.7	15	21	35	24	18	13	11	9.0
24.....	15	13	11	12	15	21	35	24	17	13	11	10.7
25.....	15	13	11	13	15	22	33	23	17	13	11	10
26.....	15	13	11	17	15	23	31	22	17	13	11	10
27.....	15	13	11	15	15	23	31	22	17	13	a 10	9.5
28.....	15	13	11	15	15	31	31	22	17	12	10	9.5
29.....	14	13	11	14	15	31	31	22	17	12	10	9.5
30.....	14	12	11	14	31	30	22	16	12	10	9.0
31.....	14	11	14	31	22	12	10
1908-9.												
1.....	9.0	8.5	7.9	7.9	35	81	101	81	71	27	19	15
2.....	9.0	8.5	a 8.2	7.9	33	81	101	81	71	27	19	15
3.....	9.0	8.5	8.5	7.9	31	81	101	81	61	27	18	15
4.....	9.0	8.5	8.5	7.9	35	81	81	81	61	27	17	15
5.....	9.0	8.0	8.2	7.9	35	81	81	81	57	27	17	15
6.....	9.0	7.9	8.2	7.9	35	81	81	81	57	27	17	15
7.....	9.0	7.9	8.2	7.9	41	81	81	81	57	27	17	14
8.....	9.0	7.9	8.2	7.9	61	81	81	81	57	27	17	13
9.....	8.8	7.9	8.2	8.0	61	81	81	81	57	27	17	13
10.....	8.5	7.9	8.2	8.0	61	81	81	81	57	27	17	13
11.....	8.5	7.9	7.9	8.0	61	81	81	81	51	26	17	13
12.....	8.5	7.9	8.4	8.1	81	81	81	81	51	25	17	13
13.....	8.5	7.9	8.4	8.2	101	81	81	81	51	23	17	13
14.....	8.5	7.9	8.4	8.2	101	81	81	81	51	23	17	13
15.....	8.5	7.9	8.4	8.1	101	81	81	81	51	22	16	13
16.....	8.5	7.9	8.4	8.1	101	81	81	81	45	23	16	14
17.....	8.5	7.9	8.4	8.0	101	81	81	81	41	23	16	12
18.....	8.5	7.9	8.5	8.0	101	81	81	81	41	23	16	12
19.....	8.5	7.9	8.5	8.0	101	81	81	81	41	23	16	12
20.....	8.5	7.9	8.5	8.0	91	80	81	81	41	23	16	12
21.....	8.5	7.9	8.5	8.7	91	81	81	81	41	22	16	12
22.....	8.5	7.9	8.5	121	91	101	81	81	39	21	16	12
23.....	8.5	7.9	8.4	51	81	101	81	81	39	21	16	12
24.....	8.5	7.9	8.4	130	81	101	81	81	33	21	16	12
25.....	8.5	7.9	8.2	45	81	101	81	81	33	21	15	12
26.....	8.5	7.9	8.0	45	81	101	81	81	31	21	15	12
27.....	8.5	7.9	7.9	45	81	101	81	81	31	21	15	12
28.....	8.5	7.9	7.9	45	81	101	81	81	31	21	15	12
29.....	8.5	7.9	7.9	37	101	81	81	29	21	15	12
30.....	8.5	7.9	7.9	35	101	81	81	29	20	15	12
31.....	8.5	7.9	35	101	81	18	15
1909-10.												
1.....	12	11	11	51	33	27	22	16	14	11	9.0
2.....	12	11	11	51	31	26	22	16	14	11	9.0
3.....	12	11	11	51	28	26	22	16	14	11	9.0
4.....	12	11	11	51	28	26	22	16	14	11	9.0
5.....	12	10	11	51	26	26	22	16	14	11	9.0
6.....	12	10	11	50	25	26	22	16	13	10	9.0
7.....	12	10	11	211	50	25	26	22	16	13	10	9.0
8.....	12	10	11	211	50	25	26	21	16	13	10	8.0
9.....	12	10	15	211	49	25	25	21	16	13	10	8.0
10.....	12	11	23	211	49	25	25	21	16	13	10	8.0

a Interpolated by United States Geological Survey.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909-10.												
11.....	12	11	21	211	49	24	25	21	15	13	10	8.4
12.....	12	11	18	201	49	24	26	20	16	13	10	8.4
13.....	12	11	18	201	49	24	26	20	15	13	10	8.4
14.....	11	11	18	201	49	24	26	20	16	13	10	8.4
15.....	11	12	18	181	47	24	25	20	16	13	10	8.4
16.....	11	11	18	171	46	24	25	20	16	12	10	8.4
17.....	11	11	18	171	45	24	25	20	15	12	10	8.4
18.....	11	11	^a 18	151	45	25	25	20	15	12	10	8.4
19.....	11	11	18	141	45	24	25	19	15	12	9.6	8.4
20.....	11	11	18	131	46	25	24	19	15	12	10	8.4
21.....	12	11	20	121	46	24	24	19	15	12	9.9	8.4
22.....	12	11	19	91	37	25	24	19	15	12	9.9	7.8
23.....	12	11	20	81	36	25	23	19	15	12	9.9	7.8
24.....	11	11	20	71	35	25	23	19	15	12	9.9	7.4
25.....	11	11	20	71	35	25	22	18	15	11	9.9	7.8
26.....	11	11	18	81	34	25	22	17	15	11	9.9	7.8
27.....	11	11	18	81	34	25	22	17	14	11	9.9	7.8
28.....	11	11	17	81	33	27	22	17	14	11	9.9	7.8
29.....	11	11	17	71	-----	27	22	17	14	11	9.9	7.4
30.....	11	11	17	71	-----	27	22	17	14	11	8.6	7.8
31.....	11	-----	27	61	-----	27	-----	17	-----	11	9.0	-----
1910-11.												
1.....	7.8	7.2	7.4	7.0	33	35	41	36	29	23	19	14
2.....	7.8	7.6	7.4	7.0	31	37	43	36	29	23	19	14
3.....	7.8	7.6	7.4	7.0	27	39	41	36	29	23	19	14
4.....	7.8	7.6	7.4	7.0	39	43	41	36	29	23	19	14
5.....	7.8	7.4	7.4	6.6	41	45	41	35	29	22	19	14
6.....	7.4	7.6	7.4	6.6	37	45	41	35	29	22	18	14
7.....	7.4	7.2	7.4	6.6	31	43	41	35	29	21	18	15
8.....	7.6	7.2	7.4	6.6	27	45	41	35	29	21	18	14
9.....	7.6	7.6	7.4	6.6	25	49	41	34	29	21	18	14
10.....	7.6	7.6	7.4	14	25	321	41	34	29	21	17	14
11.....	7.8	7.8	7.0	10	25	^a 261	41	34	29	21	17	14
12.....	7.8	7.6	7.0	8.8	25	201	41	34	27	21	17	14
13.....	7.8	7.4	7.0	8.5	25	181	41	33	27	21	17	14
14.....	7.4	7.8	7.0	8.5	27	161	41	33	26	21	17	13
15.....	7.6	7.9	7.0	9.9	25	141	41	33	26	21	17	13
16.....	7.6	7.8	7.2	12	25	121	41	33	26	21	17	13
17.....	7.6	7.8	7.2	12	25	101	39	33	26	21	16	13
18.....	7.6	7.8	7.2	11	25	101	39	32	26	21	^a 16	13
19.....	7.6	7.8	7.2	11	25	81	39	32	25	21	16	13
20.....	7.6	7.8	7.2	11	25	71	39	32	25	21	16	13
21.....	7.6	7.8	7.4	11	25	61	39	31	25	21	16	13
22.....	7.6	7.6	7.4	11	25	61	37	31	25	21	15	12
23.....	7.6	7.6	7.4	11	25	51	37	30	25	21	15	12
24.....	7.0	7.6	7.4	11	25	51	36	30	25	21	15	12
25.....	7.6	7.6	7.4	13	25	51	36	30	25	21	15	12
26.....	7.6	7.6	7.4	15	25	51	36	30	25	21	15	12
27.....	7.6	7.6	7.4	15	25	47	36	30	24	21	15	12
28.....	7.6	7.4	7.0	15	33	45	36	30	24	20	15	12
29.....	7.6	7.4	7.4	61	-----	41	36	30	24	20	15	12
30.....	7.6	7.4	7.4	61	-----	41	36	29	23	20	15	13
31.....	7.2	-----	7.4	41	-----	41	-----	29	-----	20	14	-----
1911-12.												
1.....	13	11	9.5	8.8	7.8	7.4	16	27	31	25	16	12
2.....	13	11	9.5	8.8	7.8	7.6	16	28	31	25	16	12
3.....	13	11	9.5	8.8	7.8	7.3	16	34	31	25	15	11
4.....	12	10	9.2	8.8	7.8	7.8	16	34	30	25	15	11
5.....	12	10	9.2	8.8	7.8	9.7	16	33	30	23	15	11
6.....	12	10	9.2	8.8	7.8	17	16	33	30	21	14	11
7.....	12	10	9.2	8.8	7.8	12	16	33	29	21	14	11
8.....	12	10	9.2	8.8	7.8	11	16	33	29	21	14	11
9.....	12	10	9.2	8.6	7.7	11	17	33	29	20	14	11
10.....	12	10	9.2	8.2	6.9	20	17	33	29	18	13	11

^a Interpolated by United States Geological Survey.

Daily discharge, in second-feet, of San Antonio Creek near Upland, Cal., for 1901-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
11.....	12	10	9.2	8.2	7.8	18	20	35	28	18	13	11
12.....	12	10	9.2	8.2	7.8	a 16	20	35	28	18	13	11
13.....	12	10	9.2	8.2	7.8	15	20	35	28	18	12	10
14.....	12	10	9.2	8.2	7.8	17	20	35	28	18	12	10
15.....	12	10	9.2	8.2	7.8	17	21	34	28	18	12	10
16.....	12	10	9.2	8.2	7.8	18	21	34	28	18	12	10
17.....	12	10	9.2	8.2	7.7	18	22	34	28	18	12	9.6
18.....	12	10	9.2	8.2	7.6	18	22	34	28	18	12	9.6
19.....	12	10	9.2	8.2	7.6	18	23	34	27	17	12	9.6
20.....	12	10	8.8	8.2	7.6	17	24	34	26	17	12	9.6
21.....	12	10	8.8	7.9	7.6	17	24	34	25	17	12	9.6
22.....	12	10	8.8	7.8	7.6	17	25	34	25	17	12	9.6
23.....	12	10	8.8	7.8	7.6	17	24	34	25	17	12	9.6
24.....	12	10	8.8	7.8	7.6	17	26	34	25	16	12	9.6
25.....	11	10	8.8	7.8	7.6	17	27	34	25	16	12	9.6
26.....	11	10	8.8	7.8	7.6	17	27	34	25	16	12	9.6
27.....	11	10	8.8	7.8	7.4	17	28	33	25	16	12	9.6
28.....	11	10	8.8	7.8	7.4	17	27	32	25	16	12	9.6
29.....	11	9.5	8.8	7.8	7.3	16	27	31	25	16	12	9.6
30.....	11	9.5	8.8	7.8	16	27	31	25	16	12	9.6
31.....	11	8.8	7.8	17	31	16	12

a Interpolated by United States Geological Survey.

NOTE.—The following notes accompanied the records as furnished to the Survey: Apr. 3 and 4, 1903, plant shut down; Apr. 20-24, 1903, changing transformers; Nov. 26, 1904, to Feb. 26, 1905, no record, addition being made to power house; beginning Aug. 25, 1907, measurements were made below intake instead of above as heretofore.

Monthly discharge of San Antonio Creek near Upland, Cal., for 1901-1912.

Month.	Discharge in second-feet.			Run-off (total in acre- feet).	Month.	Discharge in second-feet.			Run-off (total in acre- feet).
	Maxi- mum.	Mini- mum.	Mean.			Maxi- mum.	Mini- mum.	Mean.	
1901.					1902-3.				
March 11-31.....	5.7	5.4	5.53	230	February.....	6.3	6.0	6.02	330
April.....	16	5.0	8.19	487	March 1-28.....	9.0	6.0	7.30	404
May.....	18	13	16.7	1,030	April (23 days)...	200	14	30.2	1,385
June.....	17	14	15.7	934	May.....	16	16	16.0	984
July.....	14	11	12.4	762	June.....	20	16	18.6	1,110
August.....	10	8.7	9.42	579	July.....	18	13	15.6	959
September.....	8.7	7.4	8.11	483	August.....	12	9.9	11.1	682
					September.....	9.9	9.0	9.25	550
The period.....				4,500					
1901-2.					1903-4.				
October.....	8.7	6.8	7.22	444	October.....	8.7	7.4	7.94	488
November.....	7.7	6.3	6.91	411	November.....	7.4	7.1	7.27	433
December.....	6.3	6.0	6.23	383	December.....	7.1	6.6	6.90	424
January.....	6.3	6.0	6.04	371	January.....	6.6	6.0	6.56	403
February.....	6.8	5.7	5.90	328	February.....	8.4	3.4	6.31	363
March.....	8.3	6.3	7.43	457	March.....	17.0	6.8	8.11	499
April.....	9.3	8.3	8.60	512	April.....	15.0	11.0	12.5	744
May.....	11	9.3	10.6	652	May.....	17	15.0	15.5	953
June.....	9.7	6.5	8.07	480	June.....	14	10	11.5	684
July.....	6.8	6.0	6.29	387	July.....	9.3	7.5	8.32	512
August.....	6.1	5.2	5.45	335	August.....	8.3	6.8	7.41	456
September.....	5.3	4.6	4.90	292	September.....	6.8	6.0	6.39	380
The year.....	11	4.6	6.98	5,050	The year.....	17	3.4	8.73	6,340
1902-3.					1904-5.				
October.....	4.6	4.4	4.50	277	October.....	6.3	5.4	5.63	346
November.....	4.9	4.2	4.37	260	November 1-25...	5.4	5.4	5.40	268
December.....	4.6	4.4	4.46	274	March.....	400	18	106	6,520
January.....	6.3	4.4	4.67	287	April.....	70	30	39.8	2,370

Monthly discharge of San Antonio Creek near Upland, Cal., for 1901-1912—Continued.

Month.	Discharge in second-feet.			Run-off (total in acre- feet).
	Maxi- mum.	Mini- mum.	Mean.	
1904-5.				
May.....	36	30	33.9	2,080
June.....	34	30	32.4	1,930
July.....	32	20	24.0	1,480
August.....	20	14	16.6	1,020
September.....	14	12	12.8	762
1905-6.				
October.....	12	10	11.2	689
November.....	13	10	11.3	672
December.....	12	11	11.0	676
January.....	15	9.8	11.1	682
February.....	22	13	13.8	766
March.....	300	16	146	8,980
April.....	240	90	122	7,260
May.....	110	80	84.5	5,200
June.....	100	80	88.3	5,250
July.....	80	30	47.4	2,910
August.....	30	22	28.2	1,730
September.....	22	15	17.3	1,030
The year ..	300	9.8	49.5	35,800
1906-7.				
October.....	15	13	13.5	830
November.....	13	12	12.0	714
December.....	18	12	13.4	824
January.....	32	16	25.4	1,560
February.....	60	32	47.0	2,610
March.....	160	60	121	7,440
April.....	130	100	113	6,720
May.....	100	70	89.7	5,520
June.....	70	50	57.7	3,430
July.....	40	24	28.7	1,760
August.....	24	21	21.7	1,330
September.....	21	15	17.3	1,030
The year ..	160	12	46.7	33,800
1907-8.				
October.....	15	14	14.8	910
November.....	14	12	13.1	780
December.....	12	11	11.2	689
January.....	17	9.7	11.2	689
February.....	16	14	15.5	892
March.....	31	15	18.5	1,140
April.....	35	27	29.7	1,770
May.....	36	22	26.6	1,640
June.....	22	16	19.4	1,150
July.....	16	12	13.7	842
August.....	14	10	11.7	719
September.....	10	9.0	9.22	549
The year ..	36	9.0	16.2	11,800
1908-9.				
October.....	9.0	8.5	8.64	531
November.....	8.5	7.9	7.98	475
1908-9.				
December.....	8.5	7.9	8.25	507
January.....	130	7.9	24.4	1,500
February.....	101	31	72.7	4,040
March.....	101	80	87.4	5,370
April.....	101	81	83.0	4,940
May.....	81	81	81.0	4,980
June.....	71	29	46.9	2,790
July.....	27	18	23.6	1,450
August.....	19	15	16.4	1,010
September.....	15	12	13.0	774
The year ..	130	7.9	39.2	28,400
1909-10.				
October.....	12	11	11.5	707
November.....	12	10	10.9	649
December.....	27	11	16.8	1,030
January 7-31.....	211	61	139	6,890
February.....	51	33	45.1	2,500
March.....	33	24	25.6	1,570
April.....	27	22	24.6	1,460
May.....	22	17	19.7	1,210
June.....	16	14	15.3	910
July.....	14	11	12.4	762
August.....	11	8.6	10.0	615
September.....	9.0	7.4	8.29	493
1910-11.				
October.....	7.8	7.0	7.60	467
November.....	7.9	7.2	7.59	452
December.....	7.4	7.0	7.29	448
January.....	61	6.6	14.3	879
February.....	41	25	27.7	1,540
March.....	321	35	85.9	5,280
April.....	43	36	39.3	2,340
May.....	36	29	32.6	2,000
June.....	29	23	26.6	1,580
July.....	23	20	21.2	1,300
August.....	19	14	16.6	1,020
September.....	15	12	13.2	786
The year ..	321	6.6	25.0	18,100
1911-12.				
October.....	13	11	11.9	732
November.....	11	9.5	10.1	601
December.....	9.5	8.8	9.07	558
January.....	8.8	7.8	8.23	506
February.....	7.8	6.9	7.66	441
March.....	20	7.3	15.1	928
April.....	28	16	21.2	1,280
May.....	35	27	33.1	2,040
June.....	31	25	27.5	1,640
July.....	25	16	18.7	1,150
August.....	16	12	12.9	793
September.....	12	9.6	10.3	613
The year ..	35	6.9	15.5	11,300

SAN GABRIEL RIVER BASIN.

SAN GABRIEL RIVER ABOVE FISH FORK, NEAR AZUSA, CAL.

Location.—About 300 feet above junction of Fish Fork with San Gabriel River, in the NE. $\frac{1}{4}$ sec. 32, T. 3 N., R. 8 W., in the Angeles National Forest, about 15 $\frac{1}{2}$ miles northeast of Azusa.

Records available.—1900, 1901, 1910, and 1912 (low-water record only).

Drainage area.—20.7 square miles.

Discharge.—Computed from gage-height record giving head on weir.

Cooperation.—Record furnished by Pacific Light & Power Co., through G. O. Newman, engineer.

Low-water record of daily discharge, in second-feet, of San Gabriel River above Fish Fork, near Azusa, Cal., for 1900, 1901, 1910, and 1912.

Day.	1900			1901			1910			1912		
	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.
1.....	2.2	-----	-----	-----	-----	-----	11	7.5	-----	9.8	8.1	-----
2.....	2.5	-----	-----	-----	6.7	-----	10	7.5	-----	-----	-----	-----
3.....	2.5	1.7	-----	-----	6.7	5.2	10	7.5	-----	-----	-----	-----
4.....	2.4	1.8	-----	-----	6.3	5.2	10	7.5	-----	-----	-----	-----
5.....	2.3	1.8	-----	-----	-----	5.3	9.6	9.9	7.3	-----	-----	-----
6.....	2.3	1.8	-----	-----	6.0	5.0	-----	9.9	7.3	-----	-----	7.8
7.....	2.1	1.8	-----	-----	6.0	5.0	-----	9.9	7.2	-----	9.8	-----
8.....	2.1	1.8	-----	-----	5.5	4.8	-----	9.8	7.3	-----	-----	-----
9.....	2.1	1.8	1.8	-----	5.6	5.0	-----	9.5	7.2	-----	-----	-----
10.....	2.2	1.8	1.8	-----	5.6	5.0	-----	9.6	7.2	-----	-----	7.7
11.....	2.1	1.8	1.7	-----	5.3	5.0	13	9.5	-----	-----	9.1	-----
12.....	2.2	2.0	1.8	-----	5.5	4.9	12	9.4	6.9	10	-----	-----
13.....	2.1	1.9	1.7	-----	5.6	4.9	12	9.4	6.8	-----	-----	-----
14.....	2.1	1.9	1.8	-----	5.4	4.9	12	9.4	6.8	-----	-----	-----
15.....	2.0	1.8	1.8	-----	5.5	4.7	12	9.3	6.8	-----	-----	-----
16.....	2.1	1.7	1.8	-----	5.8	4.7	12	9.2	7.0	-----	-----	7.5
17.....	2.0	1.8	1.7	-----	5.8	4.7	12	9.2	7.1	-----	9.3	-----
18.....	2.0	1.7	1.7	-----	5.5	4.7	12	9.2	7.1	-----	-----	-----
19.....	2.0	1.7	1.7	-----	5.5	4.7	12	9.1	7.0	10	-----	-----
20.....	2.0	1.6	1.7	-----	5.4	4.7	13	9.1	7.0	-----	-----	-----
21.....	2.0	1.7	1.6	-----	5.5	4.8	12	9.0	7.0	-----	8.9	-----
22.....	2.0	1.7	1.6	-----	5.2	4.8	12	-----	7.0	-----	-----	6.8
23.....	2.0	1.7	1.8	-----	5.4	4.9	12	-----	7.1	10	-----	-----
24.....	2.0	1.7	1.9	-----	5.4	4.9	12	8.6	6.8	-----	-----	-----
25.....	2.2	1.7	1.8	-----	4.9	4.7	12	8.4	6.8	-----	8.4	-----
26.....	2.0	1.7	1.8	-----	4.5	4.5	12	8.4	6.8	10	-----	6.6
27.....	2.0	1.6	1.6	-----	5.1	4.4	12	8.3	6.7	-----	-----	-----
28.....	2.0	1.6	1.6	-----	-----	4.4	11	8.3	6.7	-----	-----	-----
29.....	1.8	1.7	1.7	-----	-----	4.4	11	8.3	6.7	-----	-----	-----
30.....	1.8	1.7	1.8	-----	4.9	4.4	11	8.2	6.8	10	-----	-----
31.....	-----	2.0	-----	-----	4.9	-----	11	7.9	-----	-----	-----	-----

SAN GABRIEL RIVER NEAR AZUSA, CAL.

Location.—Just above road crossing at mouth of canyon, in the NW. $\frac{1}{4}$ sec. 23, T. 1 N., R. 10 W., about one-fourth mile above Pacific Light & Power Co.'s power house and 2 miles north of Azusa.

Records available.—1894 to September 30, 1912.

Drainage area.—222 square miles.

Gage.—Staff in five sections, beneath cable, just above ford; three vertical sections on posts in channel, one inclined and one vertical section bolted to rocks on left bank.

Channel.—Gravel and bowlders; will shift at high stages.

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

Diversions.—The power canal of the Pacific Light & Power Co. heads about 5 miles above the station. This water is not returned to the river. In addition there are a few small irrigation ditches that occasionally divert water above the station.

Accuracy.—On account of change in channel, results are only fair.

Discharge measurements of San Gabriel River near Azusa, Cal., in 1912.

[Hydrographer, F. C. Ebert.]

Date.	Gage height.	Discharge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 19.....	3.73	132
21.....	3.82	109
Apr. 9.....	4.13	183
May 17.....	3.70	82
29.....	3.53	43

NOTE.—All measurements made by wading at gage.

Daily gage height, in feet, of San Gabriel River near Azusa, Cal., for 1911-12.

[L. A. Peterson and C. A. Anderson, observers.]

Day.	Oct.	Mar.	Apr.	May.	June.	Day.	Oct.	Mar.	Apr.	May.	June.
1.....	3.1	3.6	4.1	3.5	16.....	4.1	4.3	3.8
2.....	2.8	3.6	4.1	3.5	17.....	4.0	4.3	3.7
3.....	3.6	4.0	3.4	18.....	3.9	4.3	3.7
4.....	3.6	4.0	3.4	19.....	3.9	4.3	3.7
5.....	4.2	3.6	3.9	3.4	20.....	3.9	4.4	3.7
6.....	5.0	3.6	3.9	3.4	21.....	3.8	4.3	3.7
7.....	4.2	3.6	3.9	3.3	22.....	3.8	4.3	3.6
8.....	3.7	3.6	4.1	3.3	23.....	3.7	4.3	3.6
9.....	3.5	4.1	4.0	3.3	24.....	3.7	4.3	3.6
10.....	6.0	4.1	3.9	3.2	25.....	3.7	4.3	3.6
11.....	4.6	4.7	3.9	3.2	26.....	3.7	4.3	3.6
12.....	4.2	4.4	3.9	3.2	27.....	3.7	4.2	3.5
13.....	4.5	4.2	3.9	3.0	28.....	3.7	4.2	3.5
14.....	4.2	4.3	3.8	29.....	3.7	4.1	3.5
15.....	4.2	4.3	3.8	30.....	3.7	4.1	3.5
						31.....	3.6	3.5

NOTE.—River was dry on days for which no gage height is given.

Daily discharge, in second-feet, of San Gabriel River near Azusa, Cal., for 1911-12.

Day.	Oct.	Jan.	Mar.	Apr.	May.	June.	Day.	Oct.	Jan.	Mar.	Apr.	May.	June.
1.....	7	45	217	41	16.....	320	320	98
2.....	45	217	41	17.....	260	320	76
3.....	45	168	28	18.....	205	315	76
4.....	45	168	28	19.....	205	310	76
5.....	290	45	128	28	20.....	165	440	76
6.....	1,170	45	128	28	21.....	98	355	76
7.....	310	40	128	19	22.....	95	355	57
8.....	90	40	217	19	23.....	70	355	57
9.....	50	170	168	19	24.....	70	355	57
10.....	2,950	170	128	12	25.....	70	355	57
11.....	750	650	128	12	26.....	65	355	57
12.....	360	415	128	12	27.....	95	280	41
13.....	660	245	128	3	28.....	65	280	41
14.....	380	320	98	29.....	65	217	41
15.....	390	320	98	30.....	60	217	41
							31.....	45	41

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: May 16 to Dec. 31, 1911; Apr. 21 to June 13, 1912. River dry on days for which no discharge is given. Mar. 5 to Apr. 20, 1912, determined by the indirect method for shifting channels.

Monthly discharge of San Gabriel River near Azusa, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	7	0	0.2	12	D.
November.....	0	0	0	0	
December.....	0	0	0	0	
January.....	0	0	0	0	
February.....	0	0	0	0	B.
March.....	2,950	0	301	18,500	
April.....	650	40	249	14,800	
May.....	217	41	104	6,400	
June.....	41	0	9.7	577	C.
July.....	0	0	0	0	
August.....	0	0	0	0	
September.....	0	0	0	0	
The year.....	2,950	0	55.5	40,300	

PACIFIC LIGHT & POWER CO.'S CANAL ¹ NEAR AZUSA, CAL.

Location.—At Pacific Light & Power Co.'s power house, about 1½ miles north of Azusa.

Records available.—1896 to September 30, 1912.

Discharge.—Computed from records showing kilowatt output of plant.

Accuracy.—In compiling these records it is considered that 1 second-foot develops 25 kilowatts. Results are considered good.

Daily discharge, in second-feet, of Pacific Light & Power Co.'s canal near Azusa, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	67	49	44	48	42	40	75	54	77	61	39	28
2.....	70	49	43	53	42	42	75	58	77	61	40	28
3.....	66	45	43	49	41	39	75	59	77	64	39	28
4.....	60	45	44	48	41	56	75	69	75	69	37	30
5.....	56	46	45	49	41	72	75	75	77	62	36	31
6.....	55	47	50	49	40	72	75	77	77	58	34	30
7.....	52	47	56	48	40	71	75	63	77	57	34	28
8.....	51	46	49	48	40	74	75	57	77	56	33	29
9.....	52	47	47	47	41	74	74	60	77	54	32	29
10.....	51	49	46	47	40	74	74	76	77	53	32	28
11.....	51	52	46	48	40	75	73	76	77	52	32	27
12.....	50	51	45	48	40	75	75	76	77	50	32	28
13.....	48	50	45	47	40	75	75	76	77	49	32	26
14.....	47	50	46	0	40	75	75	77	77	49	32	25
15.....	45	49	46	45	38	75	75	77	77	48	31	25
16.....	44	50	46	45	38	75	75	77	77	48	32	26
17.....	45	47	48	45	39	75	75	77	77	50	32	25
18.....	45	46	48	45	38	75	74	77	77	50	34	24
19.....	45	47	47	45	38	75	74	77	76	48	33	25
20.....	44	47	47	45	36	75	18	77	75	46	32	24
21.....	44	47	47	44	36	75	0	77	72	44	30	24
22.....	44	47	45	44	38	75	0	77	72	43	30	23
23.....	44	47	46	42	37	75	0	77	73	44	29	23
24.....	44	46	45	42	36	75	0	77	75	42	28	25
25.....	44	46	45	42	37	75	0	77	71	42	28	25
26.....	45	43	45	42	37	75	0	77	69	41	28	24
27.....	53	44	46	44	37	75	24	77	67	41	27	24
28.....	55	44	47	44	37	75	37	77	66	40	27	23
29.....	53	44	54	42	35	75	44	77	63	41	28	23
30.....	53	44	50	41	-----	75	51	77	63	41	28	23
31.....	51	-----	48	42	-----	75	-----	77	-----	41	28	-----

¹ Formerly known as San Gabriel power canal.

Monthly discharge of Pacific Light & Power Co.'s canal near Azusa, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	70	44	50.8	3,120
November.....	52	43	47.0	2,800
December.....	56	43	46.7	2,870
January.....	53	0	44.1	2,710
February.....	42	35	38.8	2,230
March.....	75	39	70.6	4,340
April.....	75	0	53.1	3,160
May.....	77	54	73.0	4,490
June.....	77	63	74.2	4,420
July.....	69	40	49.8	3,060
August.....	40	27	31.9	1,960
September.....	31	23	26.0	1,550
The year.....	77	0	50.6	36,700

Combined daily discharge, in second-feet, of San Gabriel River and Pacific Light & Power Co.'s canal near Azusa, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	74	49	44	48	42	40	120	271	118	61	39	28
2.....	70	49	43	53	42	42	120	275	118	61	40	28
3.....	66	45	43	49	41	39	120	227	105	64	39	28
4.....	60	45	44	48	41	56	120	237	103	69	37	30
5.....	56	46	45	49	41	362	120	203	105	62	36	31
6.....	55	47	50	49	40	1,240	120	205	105	58	34	30
7.....	52	47	56	48	40	381	115	191	96	57	34	28
8.....	51	46	49	48	40	164	115	274	96	56	33	29
9.....	52	47	47	47	41	124	244	228	96	54	32	29
10.....	51	49	46	47	40	3,020	244	204	89	53	32	28
11.....	51	52	46	48	40	825	723	204	89	52	32	27
12.....	50	51	45	48	40	435	490	204	89	50	32	28
13.....	48	50	45	47	40	735	320	204	80	49	32	26
14.....	47	50	46	0	40	455	395	175	77	49	32	25
15.....	45	49	46	45	38	465	395	175	77	48	31	25
16.....	44	50	46	45	38	395	395	175	77	48	32	26
17.....	45	47	48	45	39	335	395	153	77	50	32	25
18.....	45	46	48	45	38	280	389	153	77	50	34	24
19.....	45	47	47	45	38	280	384	153	76	48	33	25
20.....	44	47	47	45	36	240	458	153	75	46	32	24
21.....	44	47	47	44	36	173	355	153	72	44	30	24
22.....	44	47	45	44	38	170	355	134	72	43	30	23
23.....	44	47	46	42	37	145	355	134	73	44	29	23
24.....	44	46	45	42	36	145	355	134	75	42	28	25
25.....	44	46	45	42	37	145	355	134	71	42	28	25
26.....	45	43	45	42	37	140	355	134	69	41	28	24
27.....	53	44	46	44	37	140	304	118	67	41	27	24
28.....	55	44	47	44	37	140	317	118	66	40	27	23
29.....	53	44	54	42	35	140	261	118	63	41	28	23
30.....	53	44	56	41	135	268	118	63	41	28	23
31.....	51	48	42	120	118	41	28

NOTE.—Jan. 14, 1912, no flow in canal and no record of flow past river gage, although probably there was some flow. Mar. 4, discharge of canal only. Probably there was some flow past river gage, but no record was given.

Monthly discharge of San Gabriel River and canal near Azusa, Cal., for 1911-12.

[Drainage area, 222 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.....	74	44	51.0	0.230	0.27	3,140
November.....	52	43	47.0	.212	.24	2,800
December.....	56	43	46.7	.210	.24	2,870
January.....	53	0	44.1	.199	.23	2,710
February.....	42	35	38.8	.175	.19	2,230
March.....	3,020	39	371	1.67	1.92	22,900
April.....	723	115	302	1.36	1.52	18,000
May.....	275	118	177	.797	.92	10,900
June.....	118	63	83.9	.378	.42	4,990
July.....	69	40	49.8	.224	.26	3,060
August.....	40	27	31.9	.144	.17	1,960
September.....	31	23	26.0	.117	.13	1,550
The year.....	3,020	0	106	.477	6.51	77,100

FISH FORK OF SAN GABRIEL RIVER NEAR AZUSA, CAL.

Location.—About 300 feet above junction with San Gabriel River in the NE. $\frac{1}{4}$ sec. 32, T. 3 N., R. 8 W., in the Angeles National Forest, and about 15 $\frac{1}{2}$ miles north-east of Azusa.

Records available.—1900, 1901, 1910, and 1912 (low-water record only).

Drainage area.—10 square miles.

Discharge.—Computed from gage-height record giving head on weir.

Cooperation.—Record furnished by Pacific Light & Power Co., through G. O. Newman, engineer.

Low-water record of daily discharge, in second-feet, of Fish Fork of San Gabriel River near Azusa, Cal., for 1900, 1901, 1910, and 1912.

Day.	1900			1901			1910			1912		
	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.
1.....	1.4						4.0	2.8		6.8	2.7	
2.....	1.7			4.9			3.9	2.8				
3.....	1.7	1.0		4.7	2.3	4.4	3.8	2.9				
4.....	1.7	.95		4.7	2.2		3.7	2.9				
5.....	1.3	1.0		4.5	2.2	4.0	3.6	2.7				
6.....	1.2	1.1		4.4	2.2		3.6	2.7			2.7	
7.....	1.2	1.1		4.1	2.2		3.6	2.7		4.1		
8.....	1.2	.9		3.9	2.0		3.5	2.7				
9.....	1.1	.95	1.5	3.8	2.1		3.5	2.6				
10.....	1.0	1.0	.9	3.4	2.1		3.4	2.6				2.6
11.....	.95	1.0	.95	3.3	2.1	5.1	3.5	2.7		3.6		
12.....	1.0	1.1	1.1	3.8	2.1	5.0	3.4	2.5	5.9			
13.....	1.0	1.1	1.1	3.6	1.9	5.0	3.3	2.6				
14.....	1.0	1.0	1.1	3.7	1.9	5.2	3.3	2.7				
15.....	1.0	1.0	1.1	3.4	1.9	5.1	3.2	2.9				
16.....	1.2	.9	.9	3.4	2.0	5.1	3.2	2.8				
17.....	.95	.9	.9	4.0	2.0	5.1	3.1	2.7		3.7	2.6	
18.....	1.0	.85	.9	3.6	2.1	5.1	3.1	2.6				
19.....	1.0	.85	.85	3.4	2.0	4.8	3.1	2.5	6.0			
20.....	1.0	.95	.85	3.3	2.0	6.2	3.1	2.5				
21.....	1.1	.9	.85	3.2	2.1	5.3	3.1	2.4		3.2		
22.....	1.1	.9	.8	3.2	2.1	4.9		2.4			2.3	
23.....	1.1	.9	1.0	2.9	2.4	4.6		2.4	5.1			
24.....	1.1	.9	1.0	2.7	2.3	4.6	3.0	2.4				
25.....	1.0	.9	1.0	3.0	2.2	4.6	3.0	2.4				
26.....	.9	.9	1.0	2.8	2.1	4.5	2.9	2.4		2.9	2.2	
27.....	.9	.9	.8	2.8	2.1	4.5	2.8	2.3				
28.....	.9	.9	.8		2.0	4.5	2.8	2.3				
29.....	.9	1.0	.8	2.7	2.1	4.2	2.8	2.3				
30.....	.85	.95	.85	2.6	2.3	4.3	2.7	2.4	4.3			
31.....		1.1		2.8		4.1	2.8					

IRON FORK OF SAN GABRIEL RIVER NEAR AZUSA, CAL.

Location.—About 300 feet above junction with San Gabriel River, in the Angeles National Forest, in the SE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 32, T. 3 N., R. 8 W., and about 14 $\frac{1}{2}$ miles northeast of Azusa.

Records available.—1900, 1901, 1910, and 1912 (low-water record only).

Drainage area.—13.7 square miles.

Discharge.—Computed from gage-height record giving head on weir.

Cooperation.—Record furnished by Pacific Light & Power Co., through G. O. Newman, engineer.

Low-water record of daily discharge, in second-feet, of Iron Fork of San Gabriel River near Azusa, Cal., for 1900, 1901, 1910, and 1912.

Day.	1900			1901			1910			1912		
	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.	July.	Aug.	Sept.
1.....	2.0							5.0	3.8		6.3	4.2
2.....	2.0	1.1			5.1	4.5	4.6	4.9	3.9			
3.....	2.1	1.1			5.4	3.3		4.8	4.0			
4.....	2.1	1.1			5.8	3.2		4.7	4.0			
5.....	1.9	1.2			5.8	3.2		4.6	3.6			
6.....	1.9	1.2			5.4	3.0	4.9	4.6	3.6			4.3
7.....	1.8				4.9	3.2		4.5	3.5		5.6	
8.....	1.7	1.2			4.8	3.3		4.5	3.4			
9.....	1.6	1.1	1.1		4.8	3.3		4.5	3.4			
10.....	1.6	1.2	1.1		4.9	3.3		4.4	3.4			4.2
11.....	1.5	1.2	1.1		4.6	3.3	5.8	4.5	3.4		5.4	
12.....	1.4	1.1	1.1		4.5	3.3	5.7	4.5	3.5	7.3		
13.....	1.4	1.1	1.1		4.1	3.2	5.7	4.6	3.6			
14.....	1.4	1.2	1.1		4.2	3.2	5.7	4.5	3.6			
15.....	1.4	1.2	1.2		4.2	3.1	5.7	4.4	3.7			
16.....	1.4	1.1	1.1		4.4	3.1	5.6	4.4	3.6			3.7
17.....	1.4	1.1	1.2		4.6	3.0	5.5	4.3	3.6		5.2	
18.....	1.4	1.1	1.1		4.7	3.0	5.5	4.3	3.4			
19.....	1.4	1.1	1.1		4.4	3.0	5.5	4.3	3.4	7.3		
20.....	1.4	1.2	1.0		4.2	3.1	5.6	4.3	3.4			
21.....	1.3	1.1	.9		4.2	3.2	5.4	4.3	3.3		4.8	
22.....	1.3	1.1	.85		4.2	3.3	5.4	4.2	3.3			3.5
23.....	1.4	1.0	1.1		4.2	3.9	5.4	4.0	3.3			
24.....	1.2	1.0	1.3		3.9	3.9	5.3	4.0	3.3			
25.....	1.3	.95	1.2		3.8	3.7	5.3	3.9	3.3	6.7	4.6	
26.....	1.2	.95	1.2		3.7	3.2	5.3	4.0	3.2			3.4
27.....	1.3	.95	1.0		3.9	3.2		4.0	3.2			
28.....	1.2	1.0	1.0		3.4	3.1		4.0	3.2			
29.....	1.1	1.1	1.0		3.8	3.1		3.9	3.2			
30.....	1.1	1.1	1.2		3.8	3.2		3.8	3.3	6.8		
31.....	1.2	1.1			3.8			3.8				

LOS ANGELES RIVER BASIN.

ARROYO SECO NEAR PASADENA, CAL.

Location.—Just below highway crossing at forest ranger's station, in the Angeles National Forest, near south line of sec. 30, T. 2 N., R. 12 W. (unsurveyed), about 3 miles above Devils Gate, and $5\frac{1}{2}$ miles northwest of Pasadena.

Records available.—December 1, 1910, to September 30, 1912 (incomplete).

Drainage area.—16.4 square miles.

Gage.—Staff in two sections fastened to an alder tree on right bank 300 feet south-east of ranger's cabin.

Channel.—Solid rock and gravel; somewhat shifting.

Discharge measurements.—Made by wading below gage.

Accuracy.—Results are fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Arroyo Seco near Pasadena, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 3	F. C. Ebert.....	3.14	1.6	Mar. 17	F. C. Ebert.....	3.62	2.0
3	Lasley Lee.....	3.14	1.6	Apr. 6do.....	3.36	8.1
				July 8do.....	3.10	1.3
				Sept. 27do.....	3.02	.2
1912.							
Jan. 31	F. C. Ebert.....	3.24	2.2				

NOTE.—All measurements made by wading except on Sept. 27, when discharge was estimated.

Daily gage height, in feet, of Arroyo Seco near Pasadena, Cal., for 1911-12.

[Gale J. Dunston, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	May.	June.	July.	Aug.	Sept.
1.....		3.21	3.16			3.94		3.50	3.32	3.03	3.00
2.....	3.25	3.22	3.16	3.17		3.93			3.32	3.03	3.01
3.....	3.24	3.20		3.17				3.50	3.31	3.02	3.00
4.....	3.23	3.19	3.17	3.18		5.15		3.50	3.30	3.02	3.00
5.....	3.20		3.16	3.18		5.3		3.49	3.30	3.02	3.00
6.....	3.19	3.19	3.21	3.18		4.28		3.48	3.29	3.02	3.01
7.....	3.21	3.18	3.20	3.19		4.00		3.48	3.29	3.01	3.01
8.....		3.18	3.20	3.18		3.5		3.47	3.29	3.01	3.00
9.....	3.19	3.17	3.20	3.18		5.3			3.28	3.01	3.01
10.....	3.18	3.24		3.18		7.2		3.47	3.27	3.01	3.00
11.....	3.17	3.22	3.19	3.18		5.15		3.46	3.26	3.01	3.00
12.....	3.15		3.18	3.19		3.05		3.46	3.26	3.01	3.01
13.....	3.15	3.21	3.18			5.1		3.45	3.26	3.01	3.01
14.....	3.19	3.20	3.18			5.05		3.44	3.25	3.01	3.00
15.....		3.19	3.17					3.43	3.24	3.01	3.00
16.....	3.14	3.19	3.16					3.42	3.23	3.00	3.00
17.....	3.14	3.18				3.62		3.41	3.22	3.00	3.00
18.....	3.14	3.18	3.17			5.0		3.40	3.21	3.00	3.00
19.....	3.14	3.18	3.17			4.09			3.20	3.00	3.00
20.....	3.14	3.17	3.17		3.15	5.0			3.18	3.00	3.00
21.....	3.15	3.16	3.17		3.15	5.0		3.38	3.17	3.00	3.00
22.....	3.15	3.15	3.16			4.09		3.36	3.16	3.00	3.00
23.....	3.16	3.15			3.15	4.07		3.35	3.15	3.00	3.00
24.....	3.17	3.15			3.15			3.35	3.14		3.01
25.....	3.17	3.14				5.05	3.52	3.34	3.13		
26.....	3.18	3.14			3.15	4.07			3.12		
27.....	3.20	3.15			3.15	4.08	3.52	3.33	3.10		
28.....	3.22	3.15			3.15		3.51	3.33	3.08	3.01	
29.....	3.21	3.16			3.15		3.52	3.32	3.07	3.00	
30.....	3.20	3.15					3.52	3.32	3.05	3.01	
31.....	3.21			3.24			3.51		3.03	3.01	

Daily discharge, in second-feet, of Arroyo Seco near Pasadena, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	α 17	2.2	1.6	-----	-----	-----	-----	-----	14	5.4	0.6	0.5
2.....	3.2	2.5	1.6	1.7	-----	-----	-----	-----	α 14	5.4	.6	.6
3.....	3.0	2.0	α 1.6	1.7	-----	-----	-----	-----	14	5.0	.6	.5
4.....	2.8	1.9	1.7	1.8	-----	-----	-----	-----	14	4.5	.6	.5
5.....	2.0	α 1.9	1.6	1.8	-----	-----	-----	-----	14	4.5	.6	.5
6.....	1.9	1.9	2.2	1.8	-----	-----	-----	-----	13	4.2	.6	.6
7.....	2.2	1.8	2.0	1.9	-----	-----	-----	-----	13	4.2	.6	.6
8.....	α 2.0	1.8	2.0	1.8	-----	-----	-----	-----	12	4.2	.6	.5
9.....	1.9	1.7	2.0	1.8	-----	-----	-----	-----	α 12	4.0	.6	.6
10.....	1.8	3.0	α 2.0	1.8	-----	-----	-----	-----	12	3.8	.6	.5
11.....	1.7	2.5	1.9	1.8	-----	-----	-----	-----	12	3.5	.6	.5
12.....	1.5	α 2.4	1.8	1.9	-----	-----	-----	-----	12	3.5	.6	.6
13.....	1.5	2.2	1.8	-----	-----	-----	-----	-----	12	3.5	.6	.6
14.....	1.9	2.0	1.8	-----	-----	-----	-----	-----	11	3.2	.6	.5
15.....	α 1.6	1.9	1.7	-----	-----	-----	-----	-----	10	3.0	.6	.5
16.....	1.4	1.9	1.6	-----	-----	-----	-----	-----	10	2.8	.5	.5
17.....	1.4	1.8	α 1.6	-----	-----	-----	-----	-----	9.5	2.5	.5	.5
18.....	1.4	1.8	1.7	-----	-----	-----	-----	-----	9	2.2	.5	.5
19.....	1.4	1.8	1.7	-----	-----	-----	-----	-----	α 8.7	2.0	.5	.5
20.....	1.4	1.7	1.7	-----	1.5	-----	-----	-----	α 8.4	1.8	.5	.5
21.....	1.5	1.6	1.7	-----	1.5	-----	-----	-----	8.1	1.7	.5	.5
22.....	1.5	1.5	1.6	-----	-----	-----	-----	-----	7.2	1.6	.5	.5
23.....	1.6	1.5	α 1.6	-----	1.5	-----	-----	-----	6.8	1.5	.5	.5
24.....	1.7	1.5	α 1.6	-----	1.5	-----	-----	-----	6.8	1.4	α .5	.6
25.....	1.7	1.4	α 1.6	-----	-----	-----	-----	15	6.3	1.3	α .5	-----
26.....	1.8	1.4	α 1.5	-----	1.5	-----	-----	α 15	α 6.0	1.2	α .6	-----
27.....	2.0	1.5	α 1.5	-----	1.5	-----	-----	15	5.8	1.0	α .6	-----
28.....	2.5	1.5	α 1.5	-----	1.5	-----	-----	15	5.8	.9	.6	-----
29.....	2.2	1.6	α 1.5	-----	1.5	-----	-----	15	5.4	.8	.5	-----
30.....	2.0	1.5	α 1.5	-----	-----	-----	-----	15	5.4	.8	.6	-----
31.....	2.2	-----	α 1.5	3.0	-----	-----	-----	15	-----	.6	.6	-----

α Estimated.

NOTE.—Daily discharge determined from a fairly well defined rating curve for 1911 and from a well-defined rating curve for low water for 1912. No estimates made for gage heights over 3.6 feet.

Monthly discharge of Arroyo Seco near Pasadena, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	17	1.4	2.38	146	D.
November.....	3.0	1.4	1.86	111	D.
December.....	2.2	1.5	1.70	105	D.
May 25-31.....	15	15	15.0	208	C.
June.....	14	5.4	9.94	591	C.
July.....	5.4	.6	2.77	170	C.
August.....	.6	.5	.56	34.4	D.
September 1-24.....	.6	.5	.53	25.2	D.

SANTA CLARA RIVER BASIN.

SANTA CLARA RIVER AT FILLMORE, CAL.

Location.—At highway bridge at Fillmore, in the NW. $\frac{1}{4}$ sec. 31, T. 4 N., R. 19 W., about $1\frac{1}{2}$ miles above mouth of Sespe Creek, and half a mile southwest of Fillmore.

Records available.—August 31, 1911, to September 30, 1912, when station was discontinued because of unfavorable conditions.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to piling near right end of bridge.

Channel.—Shifting sand.

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

Diversions.—Water is diverted for irrigation from main river and tributaries above the station.

Accuracy.—Discharge computed from rating curves covering short periods and by indirect method for shifting channels. Results are approximate.

Discharge measurements of Santa Clara River at Fillmore, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 25	F. C. Ebert.....	2.40	23	Mar. 16	F. C. Ebert.....	2.57	91
25	Lasley Lee.....	2.40	23	25do.....	2.81	64
1912.				Apr. 25do.....	3.32	40
Jan. 8	F. C. Ebert.....	2.23	27	May 13do.....	3.24	34
26do.....	2.22	26	June 26do.....	2.96	18
Feb. 4do.....	2.14	20	Aug. 7do.....	2.70	16
29do.....	2.07	14	19do.....	2.30	6.5
				Sept. 6do.....	2.50	14'

NOTE.—All made by wading.

Daily gage height, in feet, of Santa Clara River at Fillmore, Cal., for 1911-12.

[W. M. Zenor, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.15	2.45	2.45	2.25	2.25	2.2	2.9	3.25	3.35	2.95	2.9	2.5
2.....	3.15	2.45	2.45	2.25	2.25	2.2	2.9	3.2	3.35	2.95	2.9	2.5
3.....	3.15	2.45	2.45	2.25	2.25	2.2	2.9	3.25	3.3	2.95	2.9	2.5
4.....	3.15	2.45	2.45	2.25	2.15	3.0	2.8	3.25	3.3	2.95	2.9	2.5
5.....	3.0	2.45	2.45	2.25	2.15	3.2	3.9	3.25	3.3	2.95	2.9	2.5
6.....	3.0	2.45	2.45	2.25	2.2	3.7	3.9	3.25	3.3	2.95	2.75	2.5
7.....	3.15	2.45	2.45	2.25	2.2	2.7	3.9	3.35	3.35	2.95	2.75	2.5
8.....	3.15	2.45	2.45	2.25	2.2	3.25	3.9	3.4	3.35	2.95	2.7	2.55
9.....	3.15	2.45	2.45	2.25	2.15	4.0	3.3	3.4	3.35	2.95	2.7	2.55
10.....	3.25	2.45	2.45	2.25	2.15	3.3	3.3	3.4	3.35	2.95	2.7	2.55
11.....	3.15	2.45	2.25	2.25	2.15	2.3	3.3	3.3	3.3	2.95	2.7	2.55
12.....	3.0	2.45	2.25	2.25	2.15	3.1	3.3	3.25	3.3	2.95	2.7	2.55
13.....	3.0	2.45	2.25	2.25	2.15	2.25	3.0	3.25	3.3	2.95	2.7	2.55
14.....	3.25	2.45	2.25	2.25	2.15	2.7	3.0	3.25	3.35	2.95	2.7	2.55
15.....	3.0	2.45	2.25	2.25	2.15	2.65	3.0	3.25	3.35	2.95	2.7	2.55
16.....	3.0	2.45	2.25	2.25	2.15	2.6	3.3	3.25	3.35	2.95	2.7	2.55
17.....	3.0	2.45	2.25	2.25	2.15	2.8	3.3	3.25	3.3	2.95	2.65	2.55
18.....	3.15	2.45	2.25	2.25	2.15	2.8	3.3	3.25	3.3	2.95	2.65	2.55
19.....	3.15	2.45	2.25	2.25	2.15	2.7	3.7	3.15	3.3	2.95	2.65	2.55
20.....	3.0	2.45	2.25	2.25	2.15	2.7	3.9	3.15	3.35	2.95	2.65	2.55
21.....	3.0	2.45	2.25	2.25	2.15	2.7	3.9	3.3	3.35	2.95	2.45	2.55
22.....	3.0	2.45	2.25	2.25	2.15	2.8	3.8	3.3	3.35	2.95	2.45	2.55
23.....	3.15	2.45	2.25	2.25	2.15	2.8	3.2	3.3	3.35	2.95	2.45	2.55
24.....	2.45	2.45	2.25	2.25	2.15	2.8	3.2	3.3	3.3	2.95	2.45	2.55
25.....	2.45	2.45	2.25	2.2	2.15	2.8	3.2	3.3	3.3	2.95	2.45	2.55
26.....	2.45	2.45	2.25	2.2	2.15	2.4	3.2	3.3	2.95	2.95	2.45	2.55
27.....	2.45	2.45	2.25	2.2	2.15	2.4	3.2	3.3	2.95	2.95	2.45	2.55
28.....	2.45	2.45	2.25	2.2	2.15	2.4	3.2	3.3	2.95	2.9	2.45	2.55
29.....	2.45	2.45	2.25	2.2	2.15	2.8	3.2	3.3	2.95	2.9	2.50	2.55
30.....	2.45	2.45	2.25	2.2	2.3	3.25	3.3	2.85	2.9	2.50	2.55
31.....	2.45	2.25	2.25	2.8	3.35	2.9	2.50

NOTE.—Gage heights Aug. 8-20 not read by regular observer; considered unreliable, as gage was found covered by mud.

Daily discharge, in second-feet, of Santa Clara River at Fillmore, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	43	26	31	29	29	25	55	34	42	20	24	14
2.....	45	26	31	29	29	25	53	31	42	20	25	14
3.....	45	26	31	29	29	25	51	34	38	21	25	14
4.....	45	26	31	29	21	86	42	34	38	21	25	14
5.....	39	26	31	29	21	112	147	34	38	21	25	14
6.....	39	26	31	29	25	182	143	34	38	21	17	14
7.....	45	27	31	29	25	70	138	42	42	21	16	15
8.....	45	27	31	29	25	131	135	46	42	21	15	17
9.....	45	27	31	29	21	245	68	46	42	22	14	18
10.....	51	27	31	29	21	148	66	46	42	22	14	18
11.....	47	27	25	29	21	50	64	38	38	22	3	19
12.....	41	27	25	29	21	132	62	34	38	22	12	20
13.....	41	28	25	29	21	52	38	34	38	22	11	20
14.....	51	28	25	29	21	95	36	34	42	22	10	21
15.....	41	28	25	29	21	98	33	34	42	23	9.7	22
16.....	41	28	25	29	21	93	52	34	42	23	8.9	23
17.....	41	28	25	29	21	109	50	34	38	24	8.1	23
18.....	49	28	25	29	21	103	48	34	38	24	7.3	24
19.....	49	29	25	29	21	85	78	28	38	24	6.5	25
20.....	43	29	25	29	21	80	95	28	42	24	6.5	25
21.....	43	29	26	29	21	75	92	38	42	25	12	25
22.....	43	29	26	29	21	78	80	38	42	25	12	25
23.....	49	29	26	29	21	72	31	38	42	25	12	27
24.....	24	29	26	29	21	68	31	38	38	25	12	27
25.....	24	30	26	25	21	63	31	38	38	25	12	29
26.....	25	30	26	25	21	33	31	38	18	25	12	30
27.....	25	30	26	25	21	32	31	38	18	26	12	31
28.....	25	30	26	25	21	30	31	38	18	24	12	31
29.....	25	30	26	25	21	53	31	38	18	24	14	32
30.....	25	30	26	25	22	34	38	13	24	14	32
31.....	25	26	29	50	42	24	14

NOTE.—Daily discharge determined from fairly well defined rating curves and by the indirect method of shifting channels. Interpolated between measurements Aug. 8-20, 1912.

Monthly discharge of Santa Clara River at Fillmore, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	51	24	39.3	2,420	D.
November.....	30	26	28.0	1,670	D.
December.....	31	25	27.3	1,680	D.
January.....	29	25	28.2	1,730	B.
February.....	29	21	22.2	1,280	B.
March.....	245	22	81.2	4,990	C.
April.....	147	31	62.6	3,720	C.
May.....	46	28	36.6	2,250	B.
June.....	42	13	36.2	2,150	B.
July.....	26	20	25.0	1,410	C.
August.....	25	6.5	15.9	855	D.
September.....	32	14	22.1	1,320	D.
The year.....	245	6.5	35.1	25,500	

PIRU CREEK NEAR PIRU, CAL.

Location.—Below suspension footbridge in southern part of Temescal grant, in Santa Barbara National Forest, 2 miles above junction with Santa Clara River, and about $1\frac{1}{4}$ miles northeast of Piru.

Records available.—October 28, 1911, to September 30, 1912.

Drainage area.—432 square miles.

Gage.—Vertical staff in two sections fastened to cottonwood tree on right bank, about 300 feet below bridge.

Channel.—Gravel and sand; shifting.

Discharge measurements.—Made from railroad bridge 1 mile below gage or by wading.

Diversions.—Water is diverted above the station, through a 4-inch pipe, for municipal supply at Piru.

Accuracy.—Estimates of daily discharge have been computed from rating curves covering short periods and by the indirect method for shifting channels. Results are fair.

Cooperation.—Previous to March 1, 1912, gage-height record was furnished by United States Forest Service.

Discharge measurements of Piru Creek near Piru, Cal., in 1911-12.

[F. C. Ebert, hydrographer.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	Sec.-ft.		Feet.	Sec.-ft.
Oct. 28..... 1911.	2.57	30	Mar. 25..... 1912.	3.36	111
			May 12.....	3.49	80
			May 16.....	3.30	64
Jan. 8..... 1912.	2.93	31	June 26.....	2.90	18
25.....	2.92	30	Aug. 7.....	2.85	7.6
Feb. 4.....	2.89	25	19.....	2.88	9.3
29.....	2.95	27	Sept. 6.....	2.88	7.5
Mar. 16.....	3.60	160			

NOTE.—All made by wading.

Daily gage height, in feet, of Piru Creek near Piru, Cal., for 1911-12.

[J. Y. Dominguez, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....						3.0	3.35	3.4	3.2	2.9	2.9	2.9
2.....						3.0	3.35	3.35	3.2	2.9	2.9	2.95
3.....						3.0	3.35	3.35	3.2	2.9	2.9	2.95
4.....					2.9	3.75	3.35	3.35	3.2	2.9	2.9	2.95
5.....						3.75	3.35	3.3	3.15	2.9	2.9	2.95
6.....						4.7	3.35	3.3	3.15	2.9	2.9	2.95
7.....					2.9	3.7	3.4	3.75	3.1	2.9	2.9	2.95
8.....				2.95		3.4	3.45	3.75	3.1	2.9	2.9	2.95
9.....		2.01				3.45	3.5	3.7	3.1	2.9	2.9	2.95
10.....		2.01				3.8	3.95	3.65	3.1	2.9	2.9	2.95
11.....						3.65	3.8	3.6	3.1	2.9	2.9	2.95
12.....						3.85	3.7	3.55	3.05	2.9	2.9	2.95
13.....						3.6	3.7	3.45	3.05	2.9	2.9	2.95
14.....		2.01			2.9	3.55	3.6	3.4	3.05	2.9	2.9	2.95
15.....						3.5	3.6	3.35	3.05	2.9	2.9	2.95
16.....						3.5	3.6	3.3	3.05	2.9	2.9	2.95
17.....						3.5	3.6	3.3	3.05	2.9	2.9	2.95
18.....						3.55	3.6	3.3	3.05	2.9	2.9	2.95
19.....		2.01			2.9	3.55	3.6	3.3	3.05	2.9	2.9	2.95
20.....						3.6	3.6	3.3	3.0	2.9	2.9	2.95
21.....						3.6	3.5	3.3	3.0	2.9	2.9	2.95
22.....						3.55	3.4	3.3	3.0	2.9	2.9	2.95
23.....						3.55	3.45	3.3	3.0	2.9	2.9	2.95
24.....						3.45	3.45	3.25	3.0	2.9	2.9	2.95
25.....					2.9	3.4	3.45	3.2	3.0	2.9	2.9	2.95
26.....						3.4	3.45	3.2	3.0	2.9	2.9	2.95
27.....						3.35	3.45	3.2	2.9	2.9	2.9	2.95
28.....	2.57					3.4	3.4	3.2	2.9	2.9	2.9	2.95
29.....					2.95	3.4	3.4	3.2	2.9	2.9	2.9	2.95
30.....	2.57					3.4	3.4	3.2	2.9	2.9	2.9	2.95
31.....						3.35		3.2		2.9	2.9

Daily discharge, in second-feet, of Piru Creek near Piru, Cal., for 1912.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	37	114	72	48	17	10	8.0
2.....	37	114	66	48	17	9	7.9
3.....	37	114	66	48	17	9	7.8
4.....	137	114	66	48	17	9	7.7
5.....	137	114	60	42	16	9	7.6
6.....	310	114	60	42	16	8	7.5
7.....	170	122	124	37	16	7.6	7.5
8.....	122	130	124	37	16	7.8	7.6
9.....	130	137	115	37	15	8.0	7.6
10.....	188	216	108	37	15	8.1	7.7
11.....	162	132	100	37	15	8.2	7.7
12.....	198	115	92	32	15	8.3	7.8
13.....	153	115	78	32	14	8.4	7.8
14.....	145	100	72	32	14	8.5	7.9
15.....	137	100	66	32	14	8.6	8.0
16.....	137	100	60	32	14	8.7	8.1
17.....	137	100	60	32	13	8.9	8.1
18.....	145	100	60	32	13	9.1	8.2
19.....	145	100	60	32	13	9.3	8.2
20.....	153	100	60	27	13	9.2	8.3
21.....	153	85	60	27	12	9.1	8.3
22.....	145	72	60	27	12	9.0	8.4
23.....	145	78	60	27	12	8.9	8.5
24.....	130	78	54	27	12	8.8	8.6
25.....	122	78	48	27	11	8.7	8.6
26.....	122	78	48	27	11	8.6	8.7
27.....	114	78	48	18	11	8.5	8.7
28.....	122	72	48	18	11	8.4	8.8
29.....	122	72	48	18	10	8.3	8.8
30.....	122	72	48	18	10	8.2	8.9
31.....	114	48	10	8.1

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: Feb. 1 to Mar. 6, 1912; Mar. 7 to Apr. 10, 1912; and Apr. 11 to June 25, 1912. Indirect method from June 26 to Sept. 30, 1912.

Monthly discharge of Piru Creek near Piru, Cal., for 1912.

[Drainage area, 432 square miles.]

Month	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
January.....			a 30	0.069	0.08	1,840	D.
February.....			a 26	.060	.06	1,500	D.
March.....	310	37	136	.315	.36	8,360	B.
April.....	216	72	104	.241	.27	6,190	B.
May.....	124	48	69.0	.160	.18	4,240	B.
June.....	48	18	32.6	.075	.08	1,940	B.
July.....	17	10	13.6	.031	.04	836	C.
August.....	10	7.6	8.62	.020	.02	530	C.
September.....	8.9	7.5	8.11	.019	.02	483	C.
The period.....						25,900	

a Estimated.

SESPE CREEK AT SESPE, CAL.

Location.—At Southern Pacific Railroad bridge, in the NW. $\frac{1}{4}$ sec. 25, T. 4 N., R. 20 W., $1\frac{1}{2}$ miles above junction with Santa Clara River and half a mile southeast of Sespe.

Records available.—August 31, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Inclined staff in two sections on left bank at bridge.

Channel.—Gravel, and will shift at high stages.

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

Diversions.—The Fillmore Irrigation Co.'s canal, which diverts about 4 miles above the station, furnishes water for irrigation and domestic uses at Sespe and Fillmore.

Accuracy.—Rating curve well defined and results are excellent.

Discharge measurements of Sespe Creek at Sespe, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 26	Lasley Lee.....	4.20	7.0	Mar. 12	F. C. Ebert.....	6.33	1,510
				15do.....	5.53	246
				24do.....	4.92	83
Jan. 8	F. C. Ebert.....	4.43	19	Apr. 24do.....	4.87	94
26do.....	4.34	12	May 13do.....	4.70	52
Feb. 3do.....	4.25	9.4	June 26do.....	4.16	9.2
28do.....	4.15	5.0	Aug. 7do.....	Dry.

Daily gage height, in feet, of Sespe Creek at Sespe, Cal., for 1911-12.

[Edward Perkins, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	4.38	4.00	4.33	4.45	4.3	4.2	4.95	4.8	4.42	3.95
2.....	4.35	3.90	4.35	4.45	4.28	4.22	4.92	4.8	4.42	4.00
3.....	4.35	3.83	4.33	4.45	4.28	4.25	4.9	4.8	4.4	4.00
4.....	4.33	3.90	4.35	4.45	4.28	5.2	4.85	4.75	4.4	3.95
5.....	4.33	3.93	4.35	4.43	4.28	6.5	4.82	4.75	4.35	3.95
6.....	4.33	3.95	4.40	4.43	4.28	5.68	4.8	4.8	4.35	3.95
7.....	4.30	4.25	4.45	4.43	4.28	6.6	4.75	4.9	4.35	3.95
8.....	4.30	4.28	4.50	4.43	4.28	6.5	4.95	4.9	4.32	3.95
9.....	4.30	4.28	4.45	4.42	4.28	5.7	6.0	4.85	4.3	3.92
10.....	4.30	4.28	4.45	4.42	4.28	6.2	6.2	4.8	4.3	3.90
11.....	4.28	4.28	4.45	4.43	4.28	5.4	6.4	4.7	4.25
12.....	4.28	4.10	4.45	4.45	4.28	6.0	5.8	4.7	4.22
13.....	4.28	4.10	4.43	4.42	4.28	6.3	5.6	4.7	4.22
14.....	4.40	4.35	4.43	4.42	4.28	5.6	5.5	4.65	4.2
15.....	4.30	4.40	4.43	4.42	4.28	5.5	5.4	4.65	4.2
16.....	4.33	4.38	4.45	4.4	4.28	5.5	5.4	4.65	4.15
17.....	4.33	4.35	4.43	4.4	4.25	5.4	5.45	4.65	4.15
18.....	4.28	4.35	4.40	4.38	4.25	5.3	5.35	4.62	4.12
19.....	4.25	4.38	4.40	4.35	4.25	5.2	5.3	4.62	4.12
20.....	4.22	4.35	4.43	4.35	4.25	5.15	5.35	4.6	4.1
21.....	4.20	4.35	4.43	4.35	4.25	5.1	5.2	4.6	4.1
22.....	4.20	4.33	4.45	4.35	4.25	5.02	5.1	4.58	4.05
23.....	4.20	4.33	4.45	4.35	4.25	5.0	5.05	4.55	4.05
24.....	4.20	4.33	4.43	4.35	4.25	4.92	4.9	4.55	4.05
25.....	4.18	4.30	4.43	4.38	4.25	4.95	4.9	4.6	4.05
26.....	4.20	4.33	4.43	4.38	4.22	5.02	4.85	4.6	4.05
27.....	4.25	4.33	4.45	4.38	4.22	5.1	4.85	4.55	4.02
28.....	4.28	4.30	4.45	4.35	4.2	5.05	4.85	4.55	4.02
29.....	4.30	4.33	4.45	4.32	4.2	5.05	4.85	4.52	4.02
30.....	4.30	4.33	4.45	4.32	5.0	4.85	4.5	4.0
31.....	4.28	4.43	4.3	4.95	4.45

NOTE.—During October and November, 1911, a retaining wall was being built about one-fourth mile above the county bridge and water was diverted from the main stream about Nov. 1-6 and 12-13. Gage heights not a true index to discharge for these days. Creek dry from July 11 to Sept. 30, 1912.

Daily discharge, in second-feet, of Sespe Creek at Sespe, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	16	10	13	21	11.3	7.0	89	65	19	1.8
2.....	14	10	14	21	10.4	7.9	84	65	19	2.3
3.....	14	10	13	21	10.4	9.2	80	65	17	2.3
4.....	13	10	14	21	10.4	140	72	58	17	1.8
5.....	13	10	14	19	10.4	1,980	68	58	14.2	1.8
6.....	13	10	17	19	10.4	373	65	65	14.2	1.8
7.....	11	9.2	20	19	10.4	2,280	58	80	14.2	1.8
8.....	11	10	23	19	10.4	1,980	89	80	12.4	1.8
9.....	11	10	20	19	10.4	390	770	72	11.3	1.5
10.....	11	10	20	19	10.4	1,180	1,180	65	11.3	1.3
11.....	10	10	20	19	10.4	200	1,700	50	9.2
12.....	10	12	20	21	10.4	770	490	50	7.9
13.....	10	12	19	19	10.4	1,430	305	50	7.9
14.....	17	14	19	19	10.4	305	240	44	7.0
15.....	11	17	19	19	10.4	240	200	44	7.0
16.....	13	16	20	17	10.4	240	200	44	5.6
17.....	13	14	19	17	9.2	200	220	44	5.6
18.....	10	14	17	16	9.2	185	182	40	4.7
19.....	9.2	16	17	14.2	9.2	140	165	40	4.7
20.....	7.9	14	19	14.2	9.2	129	182	37	4.1
21.....	7.0	14	19	14.2	9.2	118	140	37	4.1
22.....	7.0	13	20	14.2	9.2	102	118	35	3.2
23.....	7.0	13	20	14.2	9.2	98	108	31	3.2
24.....	7.0	13	19	14.2	9.2	84	80	31	3.2
25.....	6.4	11	19	16	9.2	89	80	37	3.2
26.....	7.0	13	19	16	7.9	102	72	37	3.2
27.....	9.2	13	20	16	7.9	118	72	31	2.7
28.....	10	11	20	14.2	7.0	108	72	31	2.7
29.....	11	13	20	12.4	7.0	108	72	27	2.7
30.....	11	13	20	12.4	98	72	25	2.3
31.....	10	19	11.3	89	21

NOTE.—Daily discharge determined from fairly well defined rating curve applicable as follows: Aug. 31 to Dec. 31, 1911, and Jan. 1 to Sept. 30, 1912. Discharge interpolated Nov. 1-6 and 12-13, 1911. No flow from July 11 to Sept. 30, 1912.

Monthly discharge of Sespe Creek at Sespe, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	17	6.4	10.7	653	B.
November.....	17	9.2	12.2	726	B.
December.....	23	13	18.5	1,140	B.
January.....	21	11.3	17.0	1,040	A.
February.....	11.3	7.0	9.65	555	A.
March.....	2,280	7.0	428	26,300	B.
April.....	1,700	58	244	14,500	A.
May.....	80	21	47.1	2,900	A.
June.....	19	2.3	8.13	484	A.
July.....	2.3	.0	.59	36.3	D.
August.....	.0	.0	.00	.0	
September.....	.0	.0	.00	.0	
The year.....	2,280	0	66.7	48,300	

SANTA PAULA CREEK NEAR SANTA PAULA, CAL.

Location.—Just below mouth of Sisar Creek, at east boundary of Ojai grant, in Santa Barbara National Forest, 6 miles above junction with Santa Clara River, and about $5\frac{1}{2}$ miles northwest of Santa Paula.

Records available.—March 24 to September 30, 1912.

Drainage area.—33.4 square miles.

Gage.—Vertical staff fastened to tree on left bank about 600 feet below mouth of Sisar Creek.

Channel.—Boulders and gravel; will shift at high stages.

Discharge measurements.—Made from highway bridge 1 mile below gage or by wading.

Accuracy.—Rating curve fairly well defined and results are good.

Discharge measurements of Santa Paula Creek near Santa Paula, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 27	F. C. Ebert.....	2.40	4.9	Mar. 24	F. C. Ebert.....	2.70	17
27	Lasley Lee.....	2.40	4.8	Apr. 24do.....	2.88	26
				May 14do.....	2.62	13
1912.				June 25do.....	2.39	6.3
Jan. 6	F. C. Ebert.....	2.43	4.9	Aug. 5do.....	2.27	3.1
Feb. 2do.....	2.41	4.7	20	H. D. McGlashan.....	2.27	2.9
Mar. 14do.....	3.07	39				

NOTE.—All made by wading.

Daily gage height, in feet, of Santa Paula Creek near Santa Paula, Cal., for 1912.

[Fred J. Smith, observer.]

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.7	2.8	2.6	2.40	2.35	2.28
2.....		2.75	2.8	2.6	2.40	2.35	2.28
3.....		2.7	2.8	2.6	2.40	2.35	2.28
4.....		2.75	2.7	2.6	2.40	2.35	2.28
5.....		2.7	2.8	2.6	2.40	2.28	2.28
6.....		2.7	2.9	2.6	2.40	2.30	2.28
7.....		2.7	2.7	2.5	2.40	2.30	2.28
8.....		2.7	2.7	2.5	2.40	2.30	2.28
9.....		3.5	2.7	2.5	2.40	2.30	2.28
10.....		4.1	2.7	2.5	2.40	2.30	2.28
11.....			3.7	2.7	2.5	2.40	2.30
12.....			3.0	2.7	2.5	2.40	2.30
13.....			2.8	2.75	2.45	2.40	2.30
14.....			2.8	2.7	2.5	2.40	2.30
15.....			2.7	2.7	2.5	2.40	2.30
16.....			3.0	2.7	2.5	2.40	2.30
17.....			3.2	2.7	2.5	2.40	2.30
18.....			3.5	2.7	2.5	2.40	2.30
19.....			3.0	2.6	2.5	2.40	2.30
20.....			3.0	2.6	2.5	2.40	2.28
21.....			3.0	2.6	2.5	2.40	2.28
22.....			3.9	2.6	2.5	2.40	2.28
23.....			3.0	2.6	2.5	2.40	2.28
24.....			2.7	3.9	2.6	2.4	2.28
25.....			2.8	2.9	2.65	2.45	2.28
26.....			3.0	2.8	2.65	2.4	2.28
27.....			2.9	2.9	2.6	2.4	2.28
28.....			2.8	2.8	2.6	2.4	2.28
29.....			2.8	2.8	2.6	2.4	2.28
30.....			2.7	2.8	2.6	2.4	2.28
31.....			2.9	2.6	2.35	2.28	2.28

Daily discharge, in second-feet, of Santa Paula Creek near Santa Paula, Cal., for 1912.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		17	22	12	5.5	4.5	3.2
2.....		20	22	12	5.5	4.5	3.2
3.....		17	22	12	5.5	4.5	3.2
4.....		20	17	12	5.5	4.5	3.2
5.....		17	22	12	5.5	3.2	3.2
6.....		17	28	12	5.5	3.5	3.2
7.....		17	17	8.5	5.5	3.5	3.2
8.....		17	17	8.5	5.5	3.5	3.2
9.....		80	17	8.5	5.5	3.5	3.2
10.....		158	17	8.5	5.5	3.5	3.2
11.....		104	17	8.5	5.5	3.5	3.2
12.....		34	17	8.5	5.5	3.5	3.2
13.....		22	20	7.0	5.5	3.5	3.2
14.....		22	17	8.5	5.5	3.5	3.2
15.....		17	17	8.5	5.5	3.5	3.2
16.....		34	17	8.5	5.5	3.5	3.2
17.....		50	17	8.5	5.5	3.5	3.2
18.....		80	17	8.5	5.5	3.5	3.2
19.....		34	12	8.5	5.5	3.5	3.2
20.....		34	12	8.5	5.5	3.2	3.2
21.....		34	12	8.5	5.5	3.2	3.2
22.....		130	12	8.5	5.5	3.2	3.2
23.....		34	12	8.5	5.5	3.2	3.2
24.....	17	130	12	5.5	5.5	3.2	3.2
25.....	22	28	14	7.0	5.5	3.2	3.2
26.....	34	22	14	5.5	5.5	3.2	3.2
27.....	28	28	12	5.5	5.5	3.2	3.2
28.....	22	22	12	5.5	5.5	3.2	3.2
29.....	22	22	12	5.5	4.5	3.2	3.2
30.....	17	22	12	5.5	4.5	3.2	3.2
31.....	28		12		4.5	3.2	

NOTE.—Daily discharge determined from a rating curve well defined between 10 and 80 second-feet. Discharge values for June supersede those published in Water Supply Paper 300, p. 715.

Monthly discharge of Santa Paula River near Santa Paula, Cal., for 1912.

[Drainage area, 33.4 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 24-31.....	34	17	23.8	0.713	0.21	378	A.
April.....	158	17	42.8	1.28	1.43	2,550	A.
May.....	28	12	16.1	.482	.56	990	A.
June.....	12	5.5	8.50	.254	.28	506	B.
July.....	5.5	4.5	5.40	.162	.19	332	B.
August.....	4.5	3.2	3.50	.105	.12	215	C.
September.....	3.2	3.2	3.20	.096	.11	190	C.
The period.....						5,160	

VENTURA RIVER BASIN.

VENTURA RIVER NEAR NORDHOFF, CAL.

Location.—Just below junction of Matilija and North Fork of Matilija creeks, in the

N. $\frac{1}{2}$ SW. $\frac{1}{4}$ sec. 28, T. 5 N., R. 23 W., about 4 miles northwest of Nordhoff.

Records available.—October 23, 1911, to September 30, 1912.

Drainage area.—19.9 square miles.

Gage.—Vertical staff in three sections on right bank about 300 feet below junction of creeks.

Channel.—Gravel and boulders; shifts during high water.

Discharge measurements.—Made from suspension footbridge 1 mile below gage or by wading.

Diversions.—A small ditch diverts water for domestic uses from North Fork of Matilija Creek above the station.

Accuracy.—Results are good at medium and low stages. The rating curve is not well defined at high water.

Discharge measurements of Ventura River near Nordhoff, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 23	F. C. Ebert.....	2.18	11	Mar. 23	F. C. Ebert.....	2.37	35
23	Lasley Lee.....	2.18	11	Apr. 23	do.....	2.90	32
				May 14	do.....	2.50	20
1912.				June 25	do.....	2.19	10
Jan. 6	F. C. Ebert.....	2.27	14	Aug. 6	do.....	1.90	5.3
Feb. 2	do.....	2.20	11	20	H. D. McGlashan.....	1.90	4.0
Feb. 27	do.....	2.16	11				
Mar. 15	do.....	3.32	71				

NOTE.—Made by wading.

Daily gage height, in feet, of Ventura River near Nordhoff, Cal., for 1911-12.

[P. W. Soper, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.		2.25	2.20	2.3	2.22	2.2	2.75	2.72	2.32	2.12	1.95	1.88
2.		2.22	2.20	2.3	2.2	2.2	2.75	2.7	2.35	2.12	1.92	1.88
3.		2.22	2.20	2.3	2.2	2.2	2.75	2.68	2.35	2.15	1.92	1.90
4.		2.22	2.25	2.3	2.2	2.68	2.72	2.68	2.35	2.15	1.92	1.90
5.		2.22	2.25	2.3	2.18	5.6	2.7	2.65	2.32	2.12	1.90	1.90
6.		2.22	2.60	2.28	2.18	4.5	2.7	2.65	2.3	2.10	1.90	1.90
7.		2.22	2.35	2.28	2.18	3.2	2.7	2.7	2.3	2.08	1.90	1.90
8.		2.22	2.30	2.28	2.18	3.0	2.68	2.7	2.3	2.08	1.88	1.90
9.		2.22	2.30	2.28	2.18	3.0	2.9	2.68	2.3	2.05	1.88	1.90
10.		2.22	2.30	2.28	2.18	3.8	4.2	2.65	2.3	2.05	1.88	1.90
11.		2.25	2.30	2.3	2.18	3.8	3.7	2.6	2.3	2.02	1.90	1.88
12.		2.25	2.30	2.25	2.18	4.05	3.4	2.58	2.3	2.02	1.90	1.88
13.		2.25	2.30	2.22	2.18	4.9	3.3	2.55	2.3	2.02	1.90	1.88
14.		2.25	2.30	2.22	2.18	3.4	3.2	2.52	2.3	2.02	1.88	1.88
15.		2.25	2.30	2.22	2.15	3.3	3.2	2.5	2.28	2.00	1.90	1.88
16.		2.22	2.28	2.22	2.15	3.2	3.2	2.5	2.25	2.00	1.90	1.88
17.		2.22	2.28	2.22	2.15	3.1	3.15	2.48	2.22	2.00	1.90	1.88
18.		2.22	2.28	2.22	2.15	3.0	3.1	2.45	2.2	1.98	1.90	1.88
19.		2.22	2.28	2.22	2.12	2.95	3.05	2.45	2.2	1.98	1.90	1.85
20.		2.22	2.28	2.22	2.12	3.05	3.0	2.45	2.2	1.98	1.90	1.85
21.		2.22	2.28	2.22	2.12	3.05	3.0	2.45	2.2	1.98	1.90	1.82
22.		2.22	2.28	2.22	2.15	2.9	2.95	2.45	2.18	1.98	1.90	1.82
23.	2.18	2.25	2.28	2.22	2.15	2.85	2.95	2.45	2.18	1.98	1.88	1.82
24.	2.20	2.20	2.28	2.22	2.15	2.8	2.9	2.45	2.18	1.98	1.88	1.82
25.	2.20	2.20	2.28	2.22	2.15	2.8	2.9	2.7	2.18	1.95	1.85	1.85
26.	2.22	2.20	2.28	2.22	2.15	2.85	2.85	2.5	2.18	1.95	1.85	1.85
27.	2.25	2.20	2.28	2.25	2.18	3.0	2.8	2.5	2.15	1.95	1.85	1.85
28.	2.28	2.20	2.32	2.25	2.18	3.0	2.78	2.45	2.15	1.95	1.85	1.85
29.	2.25	2.20	2.32	2.25	2.18	2.9	2.75	2.4	2.15	1.95	1.85	1.85
30.	2.25	2.20	2.30	2.25	2.85	2.75	2.75	2.38	2.12	1.95	1.85	1.82
31.	2.25	2.20	2.30	2.22	2.8	2.8	2.8	2.35	2.12	1.95	1.85	1.82

Daily discharge, in second-feet, of Ventura River near Nordhoff, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.		13	12	14	12	12	30	29	14	8.5	5.2	4.3
2.		12	12	14	12	12	30	28	15	8.5	4.8	4.3
3.		12	12	14	12	12	30	27	15	9.2	4.8	4.5
4.		12	13	14	12	27	29	27	15	9.2	4.8	4.5
5.		12	13	14	12	395	28	26	14	8.5	4.5	4.5
6.		12	27	14	12	204	28	26	14	8.0	4.5	4.5
7.		12	17	14	12	56	28	28	14	7.6	4.5	4.5
8.		12	15	14	12	43	27	28	14	7.6	4.3	4.5
9.		12	15	14	12	43	37	27	14	7.0	4.3	4.5
10.		12	15	14	12	112	161	26	14	7.0	4.3	4.5
11.		13	15	14	12	112	100	24	14	6.4	4.5	4.3
12.		13	15	13	12	142	71	23	14	6.4	4.5	4.3
13.		13	15	12	12	269	63	22	14	6.4	4.5	4.3
14.		13	15	12	12	71	56	21	14	6.4	4.3	4.3
15.		13	15	12	11	63	56	20	13	6.0	4.5	4.3
16.		12	14	12	11	56	56	20	12	6.0	4.5	4.3
17.		12	14	12	11	49	52	19	11	6.0	4.5	4.3
18.		12	14	12	11	43	49	18	10	5.7	4.5	4.3
19.		12	14	12	10	40	46	18	10	5.7	4.5	4.0
20.		12	14	12	10	46	43	18	10	5.7	4.5	4.0
21.		12	14	12	10	46	43	18	10	5.7	4.5	3.7
22.		12	14	12	11	37	40	18	10	5.7	4.5	3.7
23.	11	13	14	12	11	34	40	18	10	5.7	4.3	3.7
24.	12	12	14	12	11	32	37	18	10	5.7	4.3	3.7
25.	12	12	14	12	11	32	37	28	10	5.2	4.0	4.0
26.	12	12	14	12	11	34	34	20	10	5.2	4.0	4.0
27.	13	12	14	13	12	43	32	20	9.2	5.2	4.0	4.0
28.	14	12	16	13	12	43	31	18	9.2	5.2	4.0	4.0
29.	13	12	16	13	12	37	30	17	9.2	5.2	4.0	4.0
30.	13	12	15	13	-----	34	30	16	8.5	5.2	4.0	3.7
31.	13	-----	15	12	-----	32	-----	16	-----	5.2	4.0	-----

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: Oct. 23 to Dec. 3, 1911, and Jan. 1 to Sept. 30, 1912. Discharge values for June supersede those published in Water Supply Paper 300, p. 719.

Monthly discharge of Ventura River near Nordhoff, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 23-31.	14	11	12.6	225	B.
November.	13	12	12.2	726	B.
December.	27	12	14.7	904	B.
January.	14	12	12.9	793	B.
February.	12	10	11.5	662	B.
March.	395	12	71.3	4,380	C.
April.	161	27	45.8	2,730	B.
May.	29	16	22.0	1,350	B.
June.	15	8.5	12.0	714	B.
July.	9.2	5.2	6.48	398	B.
August.	5.2	4.0	4.40	271	C.
September.	4.5	3.7	4.18	249	C.
The period.	-----	-----	-----	13,400	-----

VENTURA RIVER NEAR VENTURA, CAL.

Location.—At highway bridge in Foster Memorial Park, near southeast corner of Santa Ana grant, below Ventura Water Co.'s diversion dam, one-fourth mile below mouth of Coyote Creek, and about 5 miles north of Ventura and mouth of river.

Records available.—September 4, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Standard chain gage fastened to downstream side of bridge. Length of chain 28.14 feet.

Channel.—Gravel and bowlders; shifts during high water.

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

Diversions.—Diversion for irrigation from main river and tributaries above the station. Pipe line for irrigation and municipal water supply in the vicinity of Ventura heads just above the dam.

Accuracy.—Rating curve is well defined except at high stages. At medium and low stages results are good.

Discharge measurements of Ventura River near Ventura, Cal., in 1911-12.

Date.	Hydrographer,	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 24	F. C. Ebert.....	1.70	18	Mar. 14	F. C. Ebert.....	2.59	136
24	Lasley Lee.....	1.70	18	23	do.....	2.05	50
				Apr. 23	do.....	2.11	54
1912.				May 15	do.....	1.81	25
Jan. 5	F. C. Ebert.....	1.72	21	June 24	do.....	1.52	11
Feb. 3	do.....	1.64	16	Aug. 6	do.....	1.40	5.3
28	do.....	1.50	12	20	do.....	1.38	4.8
Mar. 13	do.....	2.81	220				

NOTE.—Mar. 13 measurement made from bridge; all others made by wading.

Daily gage height, in feet, of Ventura River near Ventura, Cal., for 1911-12.

[J. B. Train, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.70	1.70	1.70	1.75	1.72	1.5	2.0	1.98	1.69	1.50	1.50	1.30
2.....	1.72	1.70	1.70	1.75	1.7	1.5	2.0	1.95	1.67	1.50	1.50	1.30
3.....	1.70	1.70	1.70	1.75	1.65	1.5	2.0	1.9	1.67	1.50	1.45	1.30
4.....	1.70	1.70	1.70	1.78	1.65	1.55	2.0	1.9	1.67	1.50	1.45	1.30
5.....	1.70	1.70	1.70	1.78	1.65	3.2	1.95	1.9	1.67	1.50	1.45	1.30
6.....	1.72	1.70	1.78	1.78	1.65	3.3	1.95	1.9	1.67	1.48	1.40	1.30
7.....	1.70	1.70	1.78	1.78	1.65	2.4	1.95	1.9	1.65	1.48	1.40	1.30
8.....	1.68	1.70	1.78	1.75	1.65	2.2	1.95	1.9	1.65	1.48	1.40	1.35
9.....	1.70	1.70	1.78	1.75	1.65	2.2	2.1	1.9	1.65	1.48	1.40	1.40
10.....	1.68	1.70	1.75	1.75	1.65	2.8	2.2	1.88	1.65	1.45	1.35	1.38
11.....	1.68	1.70	1.75	1.75	1.65	2.3	3.1	1.85	1.68	1.45	1.35	1.25
12.....	1.70	1.70	1.75	1.75	1.65	4.5	2.65	1.85	1.68	1.45	1.35	1.35
13.....	1.70	1.70	1.75	1.75	1.65	2.78	2.5	1.8	1.68	1.45	1.35	1.35
14.....	1.70	1.70	1.75	1.75	1.65	2.5	2.4	1.8	1.63	1.45	1.35	1.30
15.....	1.70	1.70	1.78	1.75	1.58	2.4	2.35	1.78	1.63	1.45	1.35	1.30
16.....	1.70	1.70	1.78	1.75	1.58	2.3	2.35	1.78	1.63	1.45	1.38	1.20
17.....	1.65	1.70	1.78	1.75	1.6	2.2	2.25	1.75	1.51	1.42	1.38	1.30
18.....	1.70	1.70	1.75	1.75	1.6	2.2	2.2	1.73	1.46	1.42	1.40	1.30
19.....	1.65	1.70	1.75	1.75	1.6	2.12	2.18	1.73	1.46	1.42	1.40	1.30
20.....	1.68	1.70	1.75	1.75	1.55	2.12	2.15	1.73	1.51	1.42	1.40	1.30
21.....	1.70	1.70	1.75	1.75	1.55	2.12	2.12	1.73	1.51	1.40	1.40	1.30
22.....	1.70	1.70	1.75	1.75	1.55	2.05	2.1	1.7	1.49	1.40	1.40	1.30
23.....	1.70	1.70	1.75	1.75	1.55	2.05	2.1	1.66	1.49	1.40	1.38	1.30
24.....	1.70	1.70	1.75	1.75	1.55	2.05	2.08	1.66	1.52	1.40	1.35	1.30
25.....	1.70	1.70	1.75	1.75	1.55	2.05	2.05	1.76	1.5	1.40	1.35	1.30
26.....	1.70	1.70	1.75	1.75	1.55	2.05	2.05	1.8	1.5	1.40	1.35	1.30
27.....	1.70	1.70	1.75	1.75	1.55	2.2	2.05	1.76	1.5	1.40	1.32	1.30
28.....	1.70	1.70	1.75	1.75	1.5	2.1	2.0	1.74	1.5	1.45	1.30	1.30
29.....	1.70	1.70	1.75	1.75	1.5	2.05	2.0	1.72	1.5	1.50	1.30
30.....	1.70	1.70	1.75	1.75	2.0	2.0	1.69	1.5	1.50	1.30
31.....	1.70	1.70	1.75	1.75	2.0	1.69	1.50	1.30

NOTE.—Water was diverted above the station during portions of May and June, 1912. No readings Sept. 29 and 30.

Daily discharge, in second-feet, of Ventura River near Ventura, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	21	21	21	22	19	12	43	41	18	8	8	2.5
2.....	23	21	21	22	18	12	43	38	16	8	8	2.5
3.....	21	21	21	22	16	12	43	33	16	8	6.5	2.5
4.....	21	21	21	24	16	14	43	33	16	8	6.5	2.5
5.....	21	21	21	24	16	335	38	33	16	8	6.5	2.5
6.....	23	21	27	24	16	375	38	33	16	7.4	5.0	2.5
7.....	21	21	27	24	16	105	38	33	16	7.4	5.0	2.5
8.....	20	21	27	22	16	70	38	33	16	7.4	5.0	3.8
9.....	21	21	27	22	16	70	55	33	16	7.4	5.0	5.0
10.....	20	21	25	22	16	205	70	31	16	6.5	3.8	4.5
11.....	20	21	25	22	16	87	300	29	17	6.5	3.8	3.8
12.....	21	21	25	22	16	890	162	29	17	6.5	3.8	3.8
13.....	21	21	25	22	16	199	125	25	17	6.5	3.8	3.8
14.....	21	21	25	22	16	125	105	25	14	6.5	3.8	2.5
15.....	21	21	27	22	14	105	96	24	14	6.5	3.8	2.5
16.....	21	21	27	22	14	87	96	24	14	6.5	4.5	2.5
17.....	18	21	27	22	15	70	78	22	8.5	5.6	4.5	2.5
18.....	21	21	25	22	15	70	70	20	6.8	5.6	5.0	2.5
19.....	18	21	25	22	15	58	67	20	6.8	5.6	5.0	2.5
20.....	20	21	25	22	14	58	62	20	8.5	5.6	5.0	2.5
21.....	21	21	25	22	14	58	58	20	8.5	5.0	5.0	2.5
22.....	21	21	25	22	14	49	55	18	7.7	5.0	5.0	2.5
23.....	21	21	25	22	14	49	55	17	7.7	5.0	4.5	2.5
24.....	21	21	25	22	14	49	53	17	9.0	5.0	3.8	2.5
25.....	21	21	25	22	14	49	49	22	8	5.0	3.8	2.5
26.....	21	21	25	22	14	49	49	25	8	5.0	3.8	2.5
27.....	21	21	25	22	14	70	49	22	8	5.0	3.0	2.5
28.....	21	21	25	22	12	55	43	21	8	6.5	2.5	2.5
29.....	21	21	25	22	12	49	43	19	8	8	2.5	2.5
30.....	21	21	25	22	-----	43	43	18	8	8	2.5	2.5
31.....	21	-----	25	22	-----	43	-----	18	-----	8	-----	-----

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: Sept. 4 to Dec. 31, 1911, and Jan. 1 to Sept. 30, 1912. Discharge values for June supersede those published in Water-Supply Paper 300, p. 721.

Monthly discharge of Ventura River near Ventura, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	23	18	20.8	1,280	B.
November.....	21	21	21.0	1,250	B.
December.....	27	21	24.8	1,520	B.
January.....	24	22	22.3	1,370	A.
February.....	19	12	15.1	869	A.
March.....	890	12	114	7,010	B.
April.....	300	38	70.2	4,180	A.
May.....	41	17	25.7	1,580	A.
June.....	18	6.8	12.2	726	A.
July.....	8	5.0	6.55	403	B.
August.....	8	2.5	4.55	280	B.
September.....	5	2.5	2.82	168	C.
The year.....	890	2.5	28.4	20,100	

SANTA YNEZ RIVER BASIN.

SANTA YNEZ RIVER NEAR SANTA BARBARA, CAL.

Location.—One-fourth mile below Gibraltar dam site, in the NE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 15, T. 5 N., R. 27 W., about 7 miles north of Santa Barbara. Mono Creek enters $3\frac{1}{2}$ miles above the station.

Records available.—November 1, 1903, to April 30, 1907; October 1, 1907, to January 31, 1908; and February 6, 1910, to September 30, 1912. The station was maintained about 5 miles above the present location from November 21, 1902, to June 20, 1903.

Drainage area.—207 square miles.

Gage.—Staff in three sections about 900 feet below north portal of the Santa Barbara water-supply tunnel. On April 13, 1911, gage datum was lowered 5.00 feet.

Channel.—Sand and gravel; shifts greatly at extreme high stages; relatively permanent at low water.

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

Accuracy.—Frequent measurements were secured during 1911 and 1912; and results are good.

Cooperation.—Maintained in cooperation with Santa Barbara Water Commission.

Discharge measurements of Santa Ynez River near Santa Barbara, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
1911.				1912.			
Oct. 2 ^a	C. M. Watts.....	4.52	4.9	Mar. 12 ^c	C. M. Watts.....	7.10	765
14 ^a	do.....	4.53	5.4	12 ^c	do.....	7.50	993
21 ^a	do.....	4.52	6.0	21 ^b	do.....	5.08	53
31 ^a	do.....	4.66	8.3	Apr. 12 ^b	do.....	5.57	167
Nov. 11 ^a	do.....	4.68	8.9	20 ^a	do.....	5.18	83
20 ^a	do.....	4.80	10	May 1 ^a	do.....	5.03	38
Dec. 1 ^a	do.....	4.80	10	13 ^a	do.....	4.95	29
11 ^a	do.....	4.85	13	24 ^a	do.....	4.88	26
21 ^a	do.....	4.83	13	25 ^a	do.....	5.15	82
				June 4 ^a	do.....	4.82	14
1912.				5 ^a	do.....	4.80	12
Jan. 2 ^a	C. M. Watts.....	4.83	13	5 ^a	F. C. Ebert.....	4.80	10
11 ^a	do.....	4.86	14	6 ^a	do.....	4.80	10
22 ^a	do.....	4.85	11	6 ^a	C. M. Watts.....	4.80	12
31 ^a	do.....	4.85	11	14 ^d	do.....	4.78	9.8
Feb. 19 ^a	do.....	4.81	10	24 ^d	do.....	4.75	8.0
22 ^a	F. C. Ebert.....	4.80	9.6	July 1 ^d	do.....	4.70	4.8
22 ^a	C. M. Watts.....	4.80	9.3	10 ^d	do.....	4.68	2.6
23 ^a	do.....	4.80	9.4	22 ^e	do.....	4.65	1.4
23 ^a	F. C. Ebert.....	4.80	9.2	Aug. 2/ ^f	do.....	4.64	1.0
Mar. 3 ^b	C. M. Watts.....	5.04	51	12/ ^f	do.....	4.64	.7
4 ^a	do.....	5.00	28	22/ ^f	do.....	4.64	.5
5 ^c	do.....	6.55	492	Sept. 2/ ^f	do.....	4.61	.4
5 ^b	do.....	5.39	105	12/ ^f	do.....	4.62	.4
6 ^b	do.....	6.50	499	22/ ^f	do.....	4.62	.2
6 ^a	do.....	6.02	304				

^a Wading 2,000 feet above gage.

^b Wading 100 feet below gage.

^c Cable.

^d Wading 1,500 feet above gage; 60 feet above tunnel.

^e Wading 2,500 feet above gage.

^f In flume 2,500 feet above gage.

Daily gage height, in feet, of Santa Ynez River near Santa Barbara, Cal., for 1911-12.

[C. M. Watts, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.52	4.65	4.80	4.83	4.85	4.8	5.06	5.03	4.84	4.70	4.64	4.61
2.....	4.52	4.65	4.80	4.83	4.85	4.8	5.05	5.02	4.83	4.70	4.64	4.61
3.....	4.52	-----	4.80	4.83	-----	5.0	5.04	4.02	4.82	-----	4.64	4.61
4.....	4.52	4.65	-----	4.83	4.85	4.98	5.02	5.02	4.82	-----	4.64	4.61
5.....	4.52	4.65	4.82	4.83	4.84	5.95	5.0	5.01	4.8	4.70	4.64	4.61
6.....	4.53	4.65	4.95	4.84	4.83	6.25	5.0	4.9	4.8	4.70	4.64	4.61
7.....	4.53	4.65	4.85	4.84	4.83	5.35	5.0	4.9	-----	4.70	4.64	4.61
8.....	4.53	4.65	4.85	4.84	4.83	5.3	4.98	5.0	-----	4.69	4.64	4.61
9.....	-----	4.65	4.85	4.84	4.83	5.35	4.98	-----	4.8	4.69	-----	4.62
10.....	-----	4.65	4.85	4.84	4.82	5.8	-----	5.0	4.8	4.69	-----	4.62
11.....	4.53	4.68	4.85	4.86	4.82	5.36	5.7	5.0	4.78	4.68	4.64	4.62
12.....	4.53	4.73	4.83	4.86	4.82	6.75	5.56	5.0	4.78	4.68	4.64	4.62
13.....	4.53	4.77	4.83	4.86	4.82	6.0	5.4	4.95	4.78	4.67	4.64	4.62
14.....	4.53	4.78	4.82	4.86	4.82	5.7	5.32	4.95	4.78	4.67	4.64	4.62
15.....	4.53	4.79	4.82	-----	4.82	5.5	5.24	4.93	4.77	4.67	4.64	4.62
16.....	4.53	4.79	4.82	4.86	4.82	5.38	5.27	4.91	4.76	4.66	4.64	-----
17.....	4.53	4.79	4.83	4.86	4.82	5.3	5.22	4.91	4.75	-----	4.64	-----
18.....	4.52	4.79	4.83	4.85	4.81	5.22	5.22	4.9	4.75	-----	4.64	-----
19.....	4.52	4.79	4.83	4.85	4.81	-----	5.22	4.9	4.75	-----	4.64	4.62
20.....	4.52	4.80	4.83	4.85	4.81	5.2	5.17	4.9	4.73	-----	4.64	4.62
21.....	4.52	4.80	4.83	4.85	4.81	5.13	5.15	4.9	4.72	4.65	4.64	4.62
22.....	4.52	-----	4.83	4.85	4.8	5.13	5.12	4.9	4.72	4.65	4.64	4.62
23.....	-----	4.80	4.83	4.85	4.8	5.1	5.1	4.9	4.75	4.65	4.64	4.62
24.....	4.52	4.80	4.83	4.85	4.8	5.08	5.09	4.88	4.75	4.65	4.62	4.62
25.....	4.52	4.81	-----	4.85	4.8	5.08	5.07	5.02	4.74	4.65	4.62	4.62
26.....	4.54	4.81	-----	4.86	4.8	5.12	5.06	5.02	4.72	4.65	4.62	4.62
27.....	4.60	4.81	4.83	4.89	4.8	5.23	5.06	5.0	4.72	4.65	4.62	4.62
28.....	4.62	4.81	4.83	4.86	4.8	5.13	5.06	4.9	4.71	4.65	4.62	4.62
29.....	4.65	4.80	4.84	4.85	4.8	5.11	5.05	4.86	4.71	4.65	4.61	4.62
30.....	4.65	4.80	4.83	4.85	-----	5.1	5.05	4.85	4.71	4.64	4.61	4.62
31.....	4.66	-----	4.83	4.85	-----	5.08	-----	4.85	-----	4.64	4.61	-----

Daily discharge, in second-feet, of Santa Ynez River near Santa Barbara, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5	8	12	13	15	10	45	39	16	4.4	1.0	0.4
2.....	5	8	12	13	15	10	43	38	15	4.4	1.0	.4
3.....	5	8	12	13	15	34	41	38	14	4.4	1.0	.4
4.....	5	8	12	13	15	31	38	38	14	4.4	.9	.4
5.....	5	8	13	13	14	272	34	36	12	4.4	.9	.4
6.....	6	8	18	14	13	380	34	21	12	4.4	.9	.4
7.....	6	8	14	14	13	106	34	21	12	4.4	.8	.4
8.....	6	8	14	14	13	95	31	34	12	3.8	.8	.4
9.....	6	8	14	14	13	106	31	34	12	3.8	.8	.4
10.....	6	8	14	14	12	225	113	34	12	3.8	.7	.4
11.....	6	9	14	16	12	109	195	34	10	3.2	.7	.4
12.....	6	10	13	16	12	588	158	34	10	3.2	.7	.4
13.....	6	11	13	16	12	290	118	28	10	2.6	.7	.4
14.....	6	11	13	16	12	195	100	28	10	2.6	.7	.4
15.....	6	12	13	16	12	142	82	25	9.2	2.6	.7	.4
16.....	6	12	13	16	12	113	88	22	8.5	2.0	.6	.3
17.....	6	12	13	16	12	95	77	22	7.8	1.9	.6	.3
18.....	5	12	13	15	11	74	77	21	7.8	1.8	.6	.3
19.....	5	12	13	15	11	74	77	21	7.8	1.7	.5	.2
20.....	5	12	13	15	11	73	67	21	6.4	1.6	.5	.2
21.....	5	12	13	15	11	58	62	21	5.7	1.5	.5	.2
22.....	5	12	13	15	10	58	56	21	5.7	1.5	.5	.2
23.....	5	12	13	15	10	52	52	21	7.8	1.5	.5	.2
24.....	5	12	13	15	10	48	50	19	7.8	1.5	.5	.2
25.....	5	12	13	15	10	48	47	38	7.1	1.5	.5	.2
26.....	6	12	13	16	10	56	45	38	5.7	1.5	.5	.2
27.....	7	12	13	19	10	80	45	34	5.7	1.5	.5	.2
28.....	7	12	13	16	10	58	45	21	5.0	1.5	.4	.2
29.....	8	12	14	15	10	54	43	17	5.0	1.5	.4	.2
30.....	8	12	13	15	-----	52	43	16	5.0	1.0	.4	.2
31.....	8	-----	13	15	-----	48	-----	16	-----	1.0	.4	-----

NOTE.—Daily discharge determined from the fairly well defined rating curves applicable as follows: Mar. 15 to Dec. 31, 1911, Jan. 1 to Apr. 30, 1912, and May 1 to Aug. 1, 1912. Discharge interpolated between measurements Aug. 2 to Sept. 30, 1912. Discharge values for May and June supersede those published in Water-Supply Paper 300, p. 734. Discharge interpolated on days for which there is no gage height.

Monthly discharge of Santa Ynez River near Santa Barbara, Cal., for 1911-12.

[Drainage area, 207 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	5	5.8	0.028	0.03	357	C.
November.....	12	8	10.4	.050	.06	619	C.
December.....	18	12	13.2	.064	.07	812	C.
January.....	19	13	14.9	.072	.08	916	B.
February.....	15	10	11.9	.057	.06	684	B.
March.....	588	10	117	.565	.65	7,190	A.
April.....	195	31	65.7	.317	.35	3,910	B.
May.....	39	16	27.5	.133	.15	1,690	B.
June.....	16	5.0	9.30	.045	.05	553	B.
July.....	4.4	1.0	2.61	.013	.02	160	C.
August.....	1.0	.4	.65	.0031	.004	40.0	D.
September.....	.4	.2	.31	.0015	.002	18.4	D.
The year.....	588	.2	23.4	.113	1.52	16,900	

NOTE.—Values for May and June supersede those previously published.

SANTA YNEZ RIVER NEAR LOMPOC, CAL.

Location.—At the highway bridge near east boundary of La Misión Vieja de la Purísima grant, about $1\frac{1}{2}$ miles east of Lompoc.

Records available.—November 10, 1906, to January 9, 1907, and September 25, 1907, to September 30, 1912.

Drainage area.—725 square miles.

Gage.—Vertical staff fastened to pier of bridge.

Channel.—Shifting sand.

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

Diversions.—Water is not diverted above the station, but water for irrigation is pumped from wells along the banks of the river.

Accuracy.—Discharge for 1911 and 1912 computed from rating tables, covering short periods, and by indirect method for shifting channels. Results are approximate.

Cooperation.—Gage-height record furnished by Santa Barbara Water Commission.

Discharge measurements of Santa Ynez River near Lompoc, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 11	Donald McDonald.....	2.70	37	Mar. 6	Donald McDonald.....	3.26	199
Nov. 13do.....	2.72	45	Apr. 13do.....	3.30	407
Dec. 7do.....	2.80	67	May 16do.....	2.87	89
				June 7	F. C. Ebert.....	2.86	54
1912.				10	Donald McDonald.....	2.86	44
Jan. 18do.....	2.77	61	July 11do.....	2.79	27
Feb. 10do.....	2.72	55	Aug. 10do.....	2.80	21
25do.....	2.79	42	Sept. 9do.....	2.79	21
25	F. C. Ebert.....	2.79	43				

Daily gage height, in feet, of Santa Ynez River near Lompoc, Cal., for 1911-12.

[Donald McDonald, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.7	2.7	2.7	2.8	2.7	2.8	3.0	2.9	2.9	2.8	2.8	2.8
2	2.7	2.7	2.7	2.8	2.7	2.8	3.0	2.9	2.9	2.8	2.8	2.8
3	2.7	2.7	2.7	2.8	2.7	2.8	3.0	2.9	2.9	2.8	2.8	2.8
4	2.7	2.7	2.7	2.8	2.7	2.9	3.0	2.9	2.9	2.8	2.8	2.8
5	2.7	2.7	2.7	2.8	2.7	2.9	3.0	2.9	2.9	2.8	2.8	2.8
6	2.7	2.7	2.7	2.8	2.7	3.35	3.0	2.9	2.9	2.8	2.8	2.8
7	2.7	2.7	2.8	2.8	2.7	3.4	3.0	-----	2.9	2.8	2.8	2.8
8	2.7	2.7	2.8	2.8	2.7	3.0	2.9	-----	2.9	2.8	2.8	2.8
9	2.7	2.7	2.8	2.8	2.7	3.0	2.9	-----	2.9	2.8	2.8	2.8
10	2.7	2.7	2.8	2.8	2.7	3.2	2.9	2.9	2.9	2.8	2.8	2.8
11	2.7	2.7	2.8	2.8	2.7	3.1	3.0	2.9	2.9	2.8	2.8	2.8
12	2.7	2.7	2.8	2.8	2.7	3.6	3.4	2.9	2.9	2.8	2.8	2.8
13	2.7	2.7	2.8	2.8	2.7	3.5	3.3	2.9	2.9	2.8	2.8	2.8
14	2.7	2.7	2.8	2.8	2.7	3.3	3.2	2.9	2.9	2.8	2.8	2.8
15	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
16	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
17	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
18	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
19	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
20	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
21	2.7	2.7	2.8	2.8	2.7	3.1	3.1	2.9	2.8	2.8	2.8	2.8
22	2.7	2.7	2.8	2.8	2.7	3.1	3.0	2.9	2.8	2.8	2.8	2.8
23	2.7	2.7	2.8	2.7	2.7	3.1	3.0	2.9	2.8	2.8	2.8	2.8
24	2.7	2.7	2.8	2.7	2.7	3.1	3.0	2.9	2.8	2.8	2.8	2.8
25	2.7	2.7	2.8	2.7	2.8	3.1	3.0	3.0	2.8	2.8	2.8	2.8
26	2.7	2.7	2.8	2.7	2.8	3.1	3.0	3.0	2.8	2.8	2.8	2.8
27	2.7	2.7	2.8	2.7	2.8	3.1	3.0	3.0	2.8	2.8	2.8	2.8
28	2.7	2.7	2.8	2.7	2.8	3.1	2.9	3.0	2.8	2.8	2.8	2.8
29	2.7	2.7	2.8	2.7	2.8	3.1	2.9	3.0	2.8	2.8	2.8	2.8
30	2.7	2.7	2.8	2.7	-----	3.1	2.9	3.0	2.8	2.8	2.8	2.8
31	2.7	-----	2.8	2.7	-----	3.0	-----	3.0	-----	2.8	-----	-----

Daily discharge, in second-feet, of Santa Ynez River near Lompoc, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	40	37	37	80	45	45	125	75	70	29	23	21
2	40	37	37	80	45	45	125	75	70	29	23	21
3	40	37	37	80	45	45	125	80	70	29	23	21
4	39	37	37	80	45	95	125	80	70	29	23	21
5	39	37	37	80	45	95	125	85	70	29	23	21
6	39	37	37	80	45	280	125	85	70	28	22	21
7	38	37	67	80	45	350	125	90	70	28	22	21
8	38	37	67	80	45	50	70	90	70	28	22	21
9	38	37	67	80	45	55	70	90	70	28	22	21
10	37	37	67	80	45	185	70	95	70	28	21	21
11	37	37	67	80	45	110	125	95	70	27	21	21
12	37	37	67	80	45	670	540	100	70	27	21	21
13	37	37	67	80	45	560	410	100	70	27	21	21
14	37	37	67	80	45	340	300	100	70	27	21	21
15	37	37	67	80	45	170	205	100	30	27	21	21
16	37	37	67	80	45	185	205	100	30	27	21	21
17	37	37	67	80	45	205	205	100	30	26	21	21
18	37	37	67	80	40	205	205	100	30	26	21	21
19	37	37	67	80	35	205	205	95	30	26	21	21
20	37	37	67	80	32	205	205	95	30	26	21	21
21	37	37	67	80	30	205	205	90	30	26	21	21
22	37	37	67	80	28	205	125	90	30	25	21	21
23	37	37	67	45	25	205	125	85	30	25	21	21
24	37	37	67	45	22	205	125	85	30	25	21	21
25	37	37	67	45	45	205	125	150	30	25	21	21
26	37	37	67	45	45	205	125	150	30	25	21	21
27	37	37	67	45	45	205	125	140	30	24	21	21
28	37	37	67	45	45	205	70	140	30	24	21	21
29	37	37	67	45	45	205	70	135	30	24	21	21
30	37	37	67	45	-----	205	70	135	30	24	21	21
31	37	-----	67	45	-----	125	-----	135	-----	24	21	-----

NOTE.—Daily discharge determined by indirect method for shifting channels and rating tables covering short periods of time. Discharges Oct. 1 to 10, 1911, interpolated.

Monthly discharge of Santa Ynez River near Lompoc, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	40	37	37.6	2,310	D.
November.....	37	37	37.0	2,200	D.
December.....	67	37	61.2	3,760	D.
January.....	80	45	69.8	4,290	C.
February.....	45	22	41.4	2,380	B.
March.....	670	45	202	12,400	B.
April.....	540	70	162	9,640	B.
May.....	150	75	102	6,270	C.
June.....	70	30	48.7	2,900	B.
July.....	29	24	26.5	1,630	B.
August.....	23	21	21.5	1,320	B.
September.....	21	21	21.0	1,250	C.
The year.....	670	21	69.4	50,400	

SALINAS RIVER BASIN.

SAN LORENZO CREEK AT KING CITY, CAL.

Location.—At Southern Pacific Co.'s railroad bridge at King City, 1 mile above junction with Salinas River.

Records available.—September 12, 1911, to June 30, 1912, when station was abandoned because of unfavorable conditions.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections at bridge.

Channel.—Sand and shifting.

Discharge measurements.—Made from highway bridge 60 feet below gage or by wading.

Diversions.—There are several small diversions above the station for irrigation. Record shows water wasted into Salinas River.

Discharge measurements of San Lorenzo Creek at King City, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-feet.</i>
Apr. 13	Lasley Lee.....	5.44	39
13do.....	5.38	31
14do.....	5.26	14

Daily gage height, in feet, of San Lorenzo Creek at King City, Cal., for 1912.

[J. M. Garner, observer.]

Day.	Mar.	Apr.	Day.	Mar.	Apr.	Day.	Mar.	Apr.
1.....			11.....	5.5	6.4	21.....		
2.....			12.....	5.5	5.6	22.....		
3.....			13.....	6.3	5.42	23.....		
4.....	5.6		14.....	5.9	5.35	24.....		
5.....	5.8		15.....	5.75	5.25	25.....		
6.....	5.65		16.....	5.7	5.08	26.....		
7.....	5.5		17.....			27.....		
8.....	5.5		18.....			28.....		
9.....	5.5	6.4	19.....			29.....		
10.....	5.5	6.9	20.....			30.....		
						31.....		

NOTE.—River reported dry Sept. 12, 1911, to June 30, 1912, except on days for which gage heights are given.

ARROYO SECO NEAR SOLEDAD, CAL.

Location.—At Pettitt's ranch, in sec. 21, T. 19 S., R. 6 E., about 1,000 feet below Vaquero Creek and about 15 miles south of Soledad.

Records available.—January 1, 1901, to September 30, 1912.

Drainage area.—215 square miles.

Gage.—Staff in two sections on right bank.

Channel.—Gravel and fairly permanent.

Discharge measurements.—Made from car and cable 400 feet below gage or by wading about one-fourth mile above cable.

Accuracy.—Frequent discharge measurements are made. They plot a little scattering on the rating curve, but results are good.

Discharge measurements of Arroyo Seco near Soledad, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 8 ^a	Charles Pettitt.....	3.75	9.3	Mar. 6 ^b	Charles Pettitt.....	6.02	519
20 ^a	do.....	3.73	15	13 ^b	do.....	5.84	458
Nov. 5 ^a	do.....	3.80	19	24 ^b	do.....	4.40	94
19 ^a	do.....	3.86	26	Apr. 10 ^b	do.....	5.36	295
20 ^a	do.....	3.86	23	21 ^b	do.....	4.53	121
Dec. 17 ^b	do.....	3.95	30	May 5 ^b	do.....	4.28	76
31 ^b	do.....	4.05	42	26 ^b	do.....	5.12	235
				June 2 ^a	do.....	4.15	50
1912.				16 ^a	do.....	3.95	31
Jan. 21 ^b	Charles Pettitt.....	4.10	49	23 ^a	do.....	3.93	26
28 ^b	do.....	4.35	91	July 7 ^a	do.....	3.75	14
Feb. 11 ^b	do.....	3.98	38	21 ^a	do.....	3.55	5.7
26 ^a	F. C. Ebert.....	3.93	26	28 ^a	do.....	3.52	4.2
29 ^a	Charles Pettitt.....	3.93	30	Aug. 25 ^a	do.....	3.38	1.3

^a Wading.^b Cable.*Daily gage height, in feet, of Arroyo Seco near Soledad, Cal., for 1911-12.*

[Mrs. Charles Pettitt, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.75	3.80	3.86	4.05	4.15	3.93	4.2	4.5	4.18	3.85	3.51	3.32
2.....	3.76	3.80	3.86	4.25	4.1	3.93	4.19	4.38	4.15	3.83	3.50	3.32
3.....	3.78	3.80	3.86	4.2	4.09	3.93	4.18	4.35	4.12	3.82	3.49	3.32
4.....	3.78	3.80	3.89	4.1	4.08	4.04	4.17	4.3	4.1	3.80	3.48	3.32
5.....	3.78	3.80	3.89	4.05	4.05	4.21	4.16	4.28	4.09	3.78	3.46	3.32
6.....	3.78	3.80	3.95	4.0	4.05	5.9	4.15	4.25	4.07	3.75	3.46	3.35
7.....	3.76	3.80	3.99	4.0	4.03	5.2	4.13	4.3	4.05	3.75	3.45	3.48
8.....	3.75	3.80	4.00	4.0	4.0	4.98	4.11	4.27	4.03	3.73	3.45	3.50
9.....	3.75	3.80	4.00	4.1	4.0	4.5	4.60	4.28	4.02	3.72	3.43	3.61
10.....	3.75	3.82	3.98	4.1	4.0	4.45	5.25	4.25	4.01	3.71	3.43	3.52
11.....	3.76	4.00	3.97	4.09	3.98	4.4	5.85	4.2	4.05	3.70	3.42	3.52
12.....	3.76	3.95	3.95	4.2	3.98	7.2	5.6	4.2	4.0	3.69	3.41	3.50
13.....	3.78	3.90	3.95	4.1	3.97	5.65	5.5	4.2	3.99	3.69	3.40	3.45
14.....	3.75	3.89	3.92	4.15	3.96	5.35	5.3	4.18	3.98	3.68	3.40	3.45
15.....	3.75	3.89	3.92	4.1	3.95	5.1	5.0	4.15	3.98	3.66	3.40	3.43
16.....	3.75	3.88	3.91	4.1	3.95	5.1	4.88	4.1	3.95	3.65	3.40	3.42
17.....	3.75	3.87	3.95	4.2	3.94	4.9	4.86	4.1	3.95	3.63	3.40	3.42
18.....	3.74	3.86	3.95	4.11	3.94	4.8	4.84	4.1	3.95	3.62	3.40	3.42
19.....	3.74	3.86	3.95	4.1	3.94	4.7	4.63	4.08	3.91	3.59	3.40	3.42
20.....	3.73	3.86	3.94	4.1	3.93	4.65	4.58	4.05	3.9	3.58	3.40	3.42
21.....	3.73	3.86	3.94	4.05	3.93	4.58	4.53	4.09	3.89	3.55	3.39	3.42
22.....	3.73	3.86	3.94	4.04	3.93	4.5	4.48	4.1	3.9	3.55	3.39	3.41
23.....	3.74	3.86	3.94	4.02	3.92	4.44	4.43	4.09	3.95	3.55	3.39	3.40
24.....	3.75	3.86	3.94	4.0	3.92	4.4	4.4	4.07	3.92	3.55	3.38	3.40
25.....	3.75	3.86	3.92	4.62	3.93	4.4	4.38	4.48	3.91	3.55	3.38	3.40
26.....	3.75	3.86	3.92	4.62	3.93	4.38	4.35	5.0	3.91	3.53	3.37	3.40
27.....	3.75	3.86	3.92	4.7	3.93	4.35	4.32	4.5	3.9	3.53	3.36	3.40
28.....	3.75	3.86	4.03	4.35	3.93	4.3	4.3	4.38	3.9	3.52	3.36	3.40
29.....	3.76	3.86	4.20	4.28	3.93	4.25	4.59	4.35	3.9	3.52	3.35	3.40
30.....	3.78	3.86	4.09	4.25	4.23	4.63	4.28	3.89	3.52	3.35	3.40
31.....	3.78	4.05	4.2	4.22	4.2	3.52	3.33

Daily discharge, in second-feet, of Arroyo Seco near Soledad, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	16	18	23	46	62	31	60	105	57	21	3.8	0.7
2.....	16	18	23	78	54	31	59	87	54	19	3.5	.7
3.....	17	18	23	70	52	31	57	82	50	19	3.3	.7
4.....	17	18	26	54	51	45	56	75	47	17	3.1	.7
5.....	17	18	26	46	46	72	55	72	46	16	2.7	.7
6.....	17	18	33	39	46	475	54	68	43	14	2.7	1.0
7.....	16	18	38	39	44	260	51	75	41	14	2.5	3.1
8.....	16	18	39	39	39	205	48	70	39	13	2.5	3.5
9.....	16	18	39	54	39	105	143	72	37	12	2.1	7.4
10.....	16	20	37	54	39	98	272	68	36	12	2.1	4.2
11.....	16	39	35	52	37	90	458	60	41	11	1.9	4.2
12.....	16	33	33	70	37	1,080	370	60	35	11	1.7	3.5
13.....	17	27	33	54	35	495	340	60	34	11	1.5	2.5
14.....	16	26	29	62	34	298	285	57	33	10	1.5	2.5
15.....	16	26	29	54	33	235	210	54	33	9.4	1.5	2.1
16.....	16	25	28	54	33	235	181	47	30	9.0	1.5	1.9
17.....	16	24	33	70	32	185	177	47	30	8.2	1.5	1.9
18.....	16	23	33	56	32	165	173	47	30	7.8	1.5	1.9
19.....	16	23	33	54	32	145	131	45	26	6.6	1.5	1.9
20.....	15	23	32	54	31	135	121	41	25	6.3	1.5	1.9
21.....	15	23	32	46	31	121	111	46	24	5.2	1.4	1.9
22.....	15	23	32	45	31	105	102	47	25	5.2	1.4	1.7
23.....	16	23	32	42	29	96	94	46	30	5.2	1.4	1.5
24.....	16	23	32	39	29	90	90	43	27	5.2	1.3	1.5
25.....	16	23	29	153	31	90	87	102	26	5.2	1.3	1.5
26.....	16	23	29	153	31	87	82	210	26	4.6	1.2	1.5
27.....	16	23	29	171	31	82	78	105	25	4.6	1.1	1.5
28.....	16	23	44	96	31	75	75	87	25	4.2	1.1	1.5
29.....	16	23	70	84	31	68	123	82	25	4.2	1.0	1.5
30.....	17	23	52	78	64	131	72	24	4.2	1.0	1.5
31.....	17	46	70	63	60	4.2	.8

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable as follows: Mar. 8, 1911, to Mar. 5, 1912, and Mar. 6 to Sept. 30, 1912.

Monthly discharge of Arroyo Seco near Soledad, Cal., for 1911-12.

[Drainage area, 215 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.....	17	15	16.1	0.075	0.09	990	C.
November.....	39	18	22.7	.106	.12	1,350	B.
December.....	70	23	33.9	.158	.18	2,080	B.
January.....	171	39	67.0	.312	.36	4,120	B.
February.....	62	29	37.3	.174	.19	2,150	B.
March.....	1,080	31	173	.805	.93	10,600	B.
April.....	458	48	142	.660	.74	8,450	B.
May.....	210	41	70.7	.329	.38	4,350	B.
June.....	57	24	34.1	.159	.18	2,030	B.
July.....	21	4.2	9.65	.045	.05	593	C.
August.....	3.8	.8	1.84	.0086	.01	113	D.
September.....	7.4	.7	2.09	.0097	.01	124	D.
The year.....	1,080	.7	51.0	.237	3.24	37,000	

PAJARO RIVER BASIN.

PAJARO RIVER AT WATSONVILLE, CAL.

Location.—At highway bridge at Watsonville, about 10 miles below mouth of San Benito River and 5 miles above mouth of Pajaro River.

Records available.—September 14, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on first pier from right end of bridge.

Channel.—Shifting sand.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Amount of diversions above station not known.

Accuracy.—Results are fair.

Discharge measurements of Pajaro River at Watsonville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Fect.</i>	<i>Sec.-ft.</i>	1912.		<i>Fect.</i>	<i>Sec.-ft.</i>
Oct. 19	F. C. Ebert.....	2.20	12	Mar. 21	Lasley Lee.....	2.49	70
19	Lasley Lee.....	2.20	12	Apr. 12do.....	3.53	378
				15do.....	2.64	106
1912.				June 8	F. C. Ebert.....	1.83	8.4
Jan. 3	F. C. Ebert.....	2.54	53	Aug. 19	R. C. Rice.....	1.43	.1
Feb. 8	Lasley Lee.....	2.40	45				

NOTE.—Measurement Apr. 12 made from bridge; all others made by wading.

Daily gage height, in feet, of Pajaro River at Watsonville, Cal., for 1911-12.

[W. Poehlman, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	2.28	2.42	2.45	2.52	2.42	2.34	2.18	2.27	1.8	1.65
2.....	2.35	2.42	2.46	2.5	2.45	2.33	2.16	2.2	1.79	1.64
3.....	2.30	2.40	2.46	2.5	2.42	2.32	2.18	2.15	1.78	1.62
4.....	2.28	2.40	2.48	2.48	2.4	2.33	2.17	2.1	1.76	1.60
5.....	2.28	2.40	2.42	2.48	2.4	2.35	2.16	2.08	1.76	1.60
6.....	2.28	2.40	2.45	2.48	2.4	2.6	2.16	2.06	1.75	1.59
7.....	2.25	2.40	2.42	2.6	2.4	2.5	2.17	2.08	1.75	1.58
8.....	2.30	2.42	2.42	2.65	2.4	2.45	2.16	2.08	1.74	1.58
9.....	2.14	2.42	2.40	2.62	2.39	2.4	2.25	2.07	1.72	1.58
10.....	2.16	2.48	2.40	2.6	2.38	2.35	2.28	2.04	1.72	1.58
11.....	2.20	2.50	2.42	2.58	2.38	2.33	3.91	2.03	1.72	1.58
12.....	2.28	2.48	2.45	2.54	2.38	3.12	3.6	2.0	1.7	1.57
13.....	2.30	2.45	2.42	2.5	2.35	3.7	2.9	2.0	1.7	1.57
14.....	2.32	2.40	2.40	2.52	2.38	3.1	2.7	1.98	1.7	1.56
15.....	2.30	2.38	2.42	2.52	2.35	2.8	2.65	1.9	1.7	1.54
16.....	2.32	2.28	2.45	2.58	2.35	2.79	2.52	1.88	1.7	1.52
17.....	2.30	2.44	2.50	2.63	2.35	2.74	2.47	1.86	1.7	1.50
18.....	2.30	2.45	2.45	2.65	2.36	2.7	2.4	1.84	1.69	1.50
19.....	2.28	2.44	2.45	2.62	2.35	2.6	2.35	1.85	1.69
20.....	2.28	2.38	2.42	2.58	2.35	2.55	2.3	1.9	1.68
21.....	2.28	2.38	2.40	2.6	2.32	2.48	2.26	1.92	1.68
22.....	2.26	2.40	2.42	2.62	2.3	2.42	2.24	1.92	1.68
23.....	2.28	2.40	2.40	2.6	2.32	2.38	2.2	2.2	1.68
24.....	2.32	2.40	2.40	2.58	2.3	2.35	2.18	1.89	1.68
25.....	2.35	2.40	2.40	2.55	2.38	2.3	2.17	2.15	1.68
26.....	2.45	2.42	2.40	2.56	2.38	2.3	2.18	1.95	1.69
27.....	2.30	2.45	2.42	2.58	2.36	2.3	2.18	1.92	1.68
28.....	2.32	2.45	2.45	2.62	2.36	2.28	2.18	1.88	1.68
29.....	2.36	2.45	2.50	2.58	2.35	2.25	2.28	1.84	1.68
30.....	2.40	2.45	2.52	2.5	2.22	2.37	1.82	1.66
31.....	2.40	2.52	2.48	2.2	1.8

NOTE.—River dry July 19 to Sept. 30, 1912.

Daily discharge, in second-feet, of Pajaro River at Watsonville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	17	34	38	49	48	36	28	37	6	1.8
2.....	25	34	40	46	52	34	27	30	5.6	1.6
3.....	19	31	40	46	48	33	28	26	5.3	1.3
4.....	17	31	43	43	45	34	28	22	4.6	1.0
5.....	17	31	34	43	45	38	27	21	4.6	1.0
6.....	17	31	38	43	45	80	27	19	4.2	1.0
7.....	15	31	34	65	45	60	28	21	4.2	.9
8.....	19	34	34	74	45	52	27	21	3.9	.9
9.....	8	34	31	70	44	45	35	20	3.2	.9
10.....	9	43	31	68	42	38	38	18	3.2	.9
11.....	11	46	34	65	42	34	524	17	3.2	.9
12.....	17	43	38	58	42	227	405	15	2.5	.8
13.....	19	38	34	50	38	440	170	15	2.5	.8
14.....	21	31	31	54	42	230	115	14	2.5	.8
15.....	19	29	34	55	38	140	102	10	2.5	.7
16.....	21	17	38	67	38	138	74	9	2.5	.6
17.....	19	37	46	75	38	125	66	8	2.5	.5
18.....	19	38	38	80	39	115	55	8	2.4	.5
19.....	17	37	38	74	38	90	48	8	2.4
20.....	17	29	34	68	38	80	40	10	2.2
21.....	17	29	31	72	33	67	36	11	2.2
22.....	16	31	34	75	30	58	34	46	2.2
23.....	17	31	31	73	33	52	30	30	2.2
24.....	21	31	31	69	30	48	28	10	2.2
25.....	25	31	31	64	42	40	28	26	2.2
26.....	38	34	31	66	42	40	28	12	2.4
27.....	19	38	34	70	39	40	28	11	2.2
28.....	21	38	38	78	39	38	28	9	2.2
29.....	26	38	46	72	38	35	38	8	2.2
30.....	31	38	49	58	32	50	7	1.9
31.....	31	49	56	30	6

NOTE.—Daily discharge determined from rating curves covering short periods of time and by the indirect method of shifting channels. No flow July 19 to Sept. 30.

Monthly discharge of Pajaro River at Watsonville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	38	8	19.5	1,200	C.
November.....	46	17	33.9	2,020	C.
December.....	49	31	36.5	2,240	C.
January.....	80	43	62.8	3,860	B.
February.....	52	30	40.6	2,340	B.
March.....	440	30	82.5	5,070	B.
April.....	524	27	74.0	4,400	B.
May.....	46	6	16.9	1,040	B.
June.....	6	1.9	3.06	182	B.
July.....	1.8	.5	.55	33.8	D.
August.....	.0	.0	.00	.0	
September.....	.0	.0	.00	.0	
The year.....	524	.0	30.8	22,400	

SAN FRANCISCO BAY DRAINAGE BASINS.

COYOTE RIVER BASIN.

COYOTE RIVER NEAR MADRONE, CAL.

Location.—At highway bridge on Cochran road at "Upper Gorge," Santa Clara County, about 3 miles east of Madrone, Cal.

Records available.—October 1, 1902, to September 30, 1912.

Drainage area.—193.2 square miles.¹

Gage.—Vertical staff on bridge pier with high-water sections on right bank. Datum of gage set from United States Geological Survey bench marks and not changed. Since 1907 an automatic gage at the same location and datum has been used during flood periods in addition to the staff gage.

Channel.—Gravel and small boulders. Slight changes noticed at low stages after high water; otherwise fairly permanent.

Discharge measurements.—Made from highway bridge, by wading; by weir, or, at extreme high water, by means of floats.

Accuracy.—Results considered good by Duryea, Haehl & Gilman.

Cooperation.—The data for this station have been furnished by Duryea, Haehl & Gilman through the courtesy of H. L. Haehl.

Daily discharge, in second-feet, of Coyote River near Madrone, Cal., for 1903-1912.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1903.												
1.					500		5,380	28	14	8.0		0.9
2.							1,500					.8
3.						22	925				4.4	.8
4.					150		675	26	15			.8
5.					140	75	500					.6
6.						112	405			7.4	4.0	
7.							340	25	13			
8.					680	60	295					.9
9.						60	270			7.1	3.7	.6
10.					185		215	22	12			.5
11.						40						
12.					110		180			6.8	3.4	.5
13.						37	167	21				
14.						327	162					.7
15.						145	148		11	6.4	3.0	.5
16.					40	167		20				
17.						213	142					
18.								19		6.1	2.7	.4
19.						120	125					.6
20.					20	90	105					
21.						76	95	18	10	5.8	2.4	.7
22.							75					.9
23.						65	50					
24.						52	47	17		5.5	2.0	.5
25.						125	40					.5
26.												
27.				8,000		115		14	8.8	5.1	1.7	
28.					18	185	35					
29.						1,250						.9
30.						2,780	30	15				1.0
31.						9,700				4.7	1.2	
1903-4.												
1.			1.2	1.6		108	200	48	10		2.0	2.0
2.	0.9	0.7	1.2		2.3	77	165					
3.	.9	.7	1.2		2.4		150					
4.		.8			3.5	45						
5.	.8	.8	1.1		3.8		92	28				
6.		1.0			3.0		80					
7.		.9	1.2		3.4	30	75		7.0	3.0		
8.	.5				3.4		70					
9.	.7		1.2		3.0		60					
10.	1.0	1.0	1.1		3.1	1,890					2.0	

¹ Estimate furnished by Duryea, Haehl & Gilman, San Francisco, Cal.

Daily discharge, in second-feet, of Coyote River near Madrone, Cal., for 1903-1912—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1903-4.												
11.		0.9	1.2	1.9	7.5	612	45					
12.	0.8	1.1			1,010	300		20				
13.	.6	.8			220	142			7.0			
14.	.5	1.8	1.2		102	120	38					
15.	.4				63	90						
16.		1.6	1.6		538		35					
17.	.4		1.6	2.6	130	65			5.0			
18.			1.4	3.3	60	112	25	18				
19.	.4			2.8		930	230					
20.						712	115				2.0	
21.		1.9	1.4		25	620	80					
22.	.4		1.1		25	270	58	13				
23.	.4	1.4				1,350	45		6.0	2.0		4.0
24.	.6	1.4			28	1,750						4.0
25.		1.4			166	750	46					6.5
26.	.5		1.4	1.9	90	390						8.5
27.	.5	1.2			542							3.0
28.		1.3	1.4	2.0	400	376						
29.	.5	1.1		2.0	156	472			3.0			
30.	.5	1.2		2.2		478	43					
31.	.5			2.2		272						
1904-5.												
1.	2.0		2.0		767	24	86	19	16	7.0	2.8	.4
2.					2,430	22	84	63	16		2.8	.6
3.					208	22	67	49	15	6.2	2.6	
4.				4.0	103	21	48	33			2.6	.6
5.					192		47	26	14	5.6	2.4	.9
6.					185	19	44	23	14	5.2		1.2
7.				4.0	101	18	41	1,250	11	4.5	2.3	1.0
8.					63	18	39	363	13	4.2	1.9	.8
9.				9.6	66	18	175	12			2.3	.5
10.	2.0			5.2		17	33	85	12	4.0	2.5	
11.	5.0			2.9	35	17	33	66		4.4	2.3	.7
12.	3.0			3.0		26	30	58	11	4.1	2.4	.8
13.		3.0	1.5	3.0	21	416	29	49	11	4.4		.8
14.					19	380	29	42	11	4.0	2.4	.7
15.	3.0				19	235		36	11	4.1	2.4	.5
16.				5.0	21	474		31	8.4		2.0	.5
17.				4.4	401	462	27	30	8.4	3.8	1.9	
18.				4.4	268	359	32	30		3.8	1.1	.6
19.				5.0	100	2,330	41	26	10	3.8	1.3	.4
20.	3.0			5.0	216	786	36	24	9.8	3.6		.4
21.				7.0	134	415	31		9.6	3.7	1.6	.4
22.		3.0		9.1		280	27	22	9.2	3.8	1.6	.4
23.				40		211		21	8.5		1.7	.4
24.				26	39	105	23	19	8.0	3.4	1.6	
25.				21	30	102	23	19		3.2	.9	.6
26.				21		73	23	19	7.3	2.8	.7	.6
27.		5.0	4.0	18	28	72	22	19	7.0	3.2		.5
28.				16	26	71	21		7.0	2.9	.7	.6
29.						306	20	18	7.0	2.8	.5	.7
30.			12	14		178		18	7.0		.4	.6
31.			16	16		105		17		2.4	.4	
1905-6.												
1.		.4	1.9		43	230	480	79	58	23		5.0
2.	.5	.3	1.5	1.8	38	175	805	91	53	22		
3.	.4	.3		1.8	38	646	586	92		22	10	
4.	.5	.4	1.4	1.8		662	475	91	71		9.5	
5.	.6		1.4	1.8	32	354	367	89	60	21		
6.	.4	.2	1.4	1.3	32	268	302	79	60	19		
7.	.3	1.1	1.2	1.3	30	217	258	79	54	18		5.0
8.		.2	1.2	1.3	30	183	220	74	50		8.0	5.1
9.	.2	.2	1.1	1.4	30	164	188	66	50	17	8.7	
10.	.3	.3		1.4	30	134	187	69			7.0	4.6
11.	.2	.4	1.0	1.4		130	180	79	44		7.5	
12.	.2		1.2	1,460	31	621	186	77	36			
13.	.3	.7		4,390	32	357	148	75	34	15	7.0	4.6
14.	.3	.7	1.2	2,560	129	813	144	71	33	15	6.3	4.4
15.		.7	1.2	691	546	4,070	130	69	33			4.4

Daily discharge, in second-feet, of Coyote River near Madrone, Cal., for 1903-1912—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1905-6.												
16.	0.4	0.6	1.2	1,270	172	1,630	123	67	33	14	-----	-----
17.	.4	.5	-----	1,410	107	738	118	64	-----	-----	-----	4.3
18.	.5	.6	1.5	3,080	105	537	115	62	31	-----	-----	4.3
19.	.6	-----	1.6	6,110	230	401	137	61	30	-----	-----	3.9
20.	.6	.8	1.6	850	160	313	126	-----	28	-----	-----	3.9
21.	.7	.8	2.5	400	802	277	120	57	28	14	-----	3.5
22.	-----	.8	1.8	245	691	275	121	56	28	-----	-----	3.5
23.	.7	.8	1.6	203	709	2,090	159	56	27	12	-----	-----
24.	.7	1.6	-----	146	807	1,310	130	56	-----	-----	-----	5.6
25.	.7	1.5	-----	97	911	941	110	74	25	-----	-----	4.5
26.	.4	-----	1.6	87	497	1,110	108	78	25	-----	-----	4.5
27.	.3	3.2	1.9	74	342	743	131	79	25	-----	6.3	4.0
28.	.3	3.3	1.8	-----	276	573	125	88	25	11	5.7	4.0
29.	-----	2.0	1.8	57	-----	425	102	83	25	-----	-----	4.2
30.	.3	-----	1.8	49	-----	1,450	102	66	24	-----	5.7	3.1
31.	.4	-----	-----	47	-----	3,340	-----	64	-----	11	5.1	-----
1906-7.												
1.	2.9	5.1	6.5	515	393	165	537	98	37	19	-----	6.8
2.	-----	4.9	-----	235	1,150	158	458	94	-----	18	-----	6.4
3.	-----	5.1	7.3	190	1,030	-----	399	90	35	-----	-----	6.2
4.	-----	24	7.3	175	715	241	361	-----	33	-----	12	6.0
5.	-----	8.5	6.9	225	550	280	344	-----	32	-----	16	5.9
6.	2.9	3.8	6.8	-----	440	342	315	90	32	14	-----	5.8
7.	-----	6.8	6.5	270	392	290	290	86	31	-----	-----	5.7
8.	2.5	6.6	7.5	1,130	334	270	275	82	-----	14	9.9	5.6
9.	-----	6.6	-----	2,670	292	1,130	291	-----	-----	-----	-----	5.4
10.	-----	6.6	80	1,830	252	1,700	236	66	30	14	-----	5.2
11.	2.5	-----	5,400	1,710	220	1,760	227	71	-----	15	-----	5.0
12.	2.9	6.8	1,120	820	202	1,310	215	-----	33	14	-----	4.8
13.	3.0	6.6	555	814	167	863	198	60	47	14	-----	4.7
14.	-----	6.8	225	1,490	162	655	194	60	41	-----	-----	4.6
15.	3.0	6.5	138	1,210	159	488	205	-----	36	16	-----	4.5
16.	3.0	6.5	-----	810	165	747	180	55	-----	15	-----	4.4
17.	3.0	6.9	65	2,260	180	1,650	174	52	31	14	-----	4.4
18.	3.0	-----	52	1,370	135	2,300	158	51	28	-----	-----	4.4
19.	3.0	6.9	45	920	130	6,230	148	51	25	12	-----	4.4
20.	3.0	6.0	39	892	-----	2,600	140	49	26	-----	-----	4.4
21.	-----	6.2	40	823	160	1,740	134	48	27	-----	-----	4.4
22.	2.5	6.2	35	850	288	1,440	140	48	26	12	-----	4.4
23.	3.1	6.5	-----	840	332	4,220	125	48	-----	-----	6.2	4.4
24.	3.2	6.2	35	1,370	265	4,550	124	47	24	-----	-----	4.4
25.	3.2	-----	209	1,520	255	3,340	120	48	22	-----	-----	4.4
26.	4.4	-----	1,340	910	218	1,920	118	-----	20	12	-----	4.3
27.	4.5	6.5	1,040	755	196	1,320	113	42	21	-----	-----	4.2
28.	-----	6.5	454	1,030	165	1,060	110	40	21	-----	-----	4.1
29.	4.5	-----	250	713	-----	835	106	-----	20	-----	-----	4.1
30.	4.9	6.5	220	565	-----	711	99	38	19	12	-----	4.1
31.	5.0	-----	676	442	-----	600	-----	38	-----	12	6.8	-----
1907-8.												
1.	4.1	4.4	46	230	150	470	40	18	12	6	2.3	1.9
2.	4.1	4.5	51	102	374	360	38	17	12	6	2.5	1.8
3.	4.1	4.5	55	84	988	286	38	16	12	6	2.6	1.9
4.	4.1	4.5	60	104	448	212	38	16	12	6	2.9	1.9
5.	4.1	4.5	64	67	298	162	38	16	12	6	2.8	1.9
6.	4.1	4.5	74	46	213	360	36	16	12	5.5	2.6	1.8
7.	4.1	4.5	110	37	194	310	37	15	11	5.5	2.6	1.9
8.	4.2	4.5	146	35	146	204	34	15	11	5	2.5	1.8
9.	4.2	4.5	182	40	473	197	32	15	11	5	2.4	1.8
10.	4.2	4.5	218	32	308	167	31	15	11	5	2.3	1.7
11.	4.2	4.5	256	30	214	137	30	11	10	5	2.2	1.6
12.	4.2	4.5	235	30	185	126	28	11	10	5	2.4	1.7
13.	4.2	4.6	198	30	142	114	26	14	9	4	2.3	1.7
14.	4.2	4.6	170	152	94	108	26	18	9	4	2.4	1.8
15.	4.2	4.6	142	414	68	119	26	18	9	4	2.3	1.9
16.	4.3	4.6	114	138	80	99	26	16	9	4	2.3	2.1
17.	4.3	4.6	86	82	76	91	26	14	9	3.5	2.0	2.2
18.	4.3	4.6	58	48	75	75	24	14	9	3	2.2	2.2
19.	4.3	4.6	30	63	74	70	24	13	9	2.5	2.1	2.0
20.	4.3	4.6	33	56	86	71	22	12	8.5	2	2.2	2.0

Daily discharge, in second-feet, of Coyote River near Madrone, Cal., for 1903-1912—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1907-8.												
21.	4.3	4.6	27	64	80	69	21	13	8	2	2.2	2.0
22.	4.3	4.6	26	68	78	58	22	12	8	2	2.2	2.0
23.	4.3	9.2	23	40	74	51	21	12	8	2	2.2	2.1
24.	4.3	14	23	209	70	46	20	12	8	2.4	2.2	2.2
25.	4.3	18	23	1,610	68	48	20	12	8	2.4	2.2	2.0
26.	4.3	23	20	564	62	50	20	12	8	2.4	2.2	2.0
27.	4.3	28	24	343	48	48	19	12	7	2.4	2.2	1.9
28.	4.4	32	30	338	49	46	18	12	6.5	2.3	2.4	1.9
29.	4.4	37	50	212	203	45	18	12	6	2.3	2.3	1.7
30.	4.4	41	98	207	-----	40	18	12	6	2.3	2.2	1.5
31.	4.4	-----	1,590	155	-----	38	-----	12	-----	2.3	2.1	-----
1908-9.												
1.	1.2	2.0	2.1	5.8	238	257	475	66	37	20	12	9.8
2.	1.4	2.0	2.2	6.2	211	226	366	63	36	19	12	9.5
3.	1.6	2.0	2.6	8.4	2,360	209	315	61	34	19	12	9.8
4.	1.6	2.0	3.3	7.0	1,080	295	294	61	33	19	12	9.8
5.	1.7	2.0	3.5	6.3	835	295	273	61	33	19	12	10
6.	1.6	2.0	3.3	5.6	653	281	264	59	32	18	12	11
7.	1.6	2.0	3.5	5.0	3,520	320	222	58	32	19	12	11
8.	1.7	2.0	2.9	7.0	1,080	282	210	53	31	19	12	10
9.	1.8	2.0	3.9	494	1,130	278	192	52	31	19	12	10
10.	1.9	2.0	3.7	141	931	235	178	52	30	18	12	9.8
11.	1.7	2.0	3.2	38	4,820	221	159	50	28	18	12	9.8
12.	1.8	2.0	3.1	98	3,940	196	148	49	28	16	12	9.8
13.	1.8	2.0	3.0	1,980	2,460	190	141	47	27	16	12	9.5
14.	1.8	2.0	3.1	4,060	1,580	176	136	47	28	16	12	9.2
15.	1.9	1.9	3.0	1,240	1,180	168	126	47	28	15	12	9.5
16.	1.9	2.0	3.0	1,060	860	159	120	44	28	14	12	9.0
17.	1.9	1.9	2.6	455	718	142	115	44	28	14	12	9.0
18.	2.0	1.9	2.5	527	582	129	114	44	28	11	12	9.0
19.	1.9	1.9	2.6	138	530	112	112	44	27	14	11	9.0
20.	2.0	2.0	2.5	1,010	572	93	114	43	27	13	11	9.0
21.	1.9	2.0	2.8	5,680	838	194	108	43	27	13	11	9.0
22.	2.0	2.0	3.2	2,540	642	236	96	42	26	12	11	9.0
23.	1.9	2.2	3.3	1,300	545	218	90	43	26	12	11	9.0
24.	2.0	2.4	3.3	918	465	323	87	43	25	12	11	9.8
25.	2.0	2.9	3.2	2,060	492	1,100	84	41	26	12	10	10
26.	1.9	3.7	3.3	2,440	357	692	79	40	25	12	10	12
27.	2.0	3.1	3.2	1,000	324	562	75	40	24	12	9	12
28.	2.0	2.9	3.2	608	302	476	75	41	23	12	9	12
29.	1.9	2.6	3.3	425	-----	1,200	75	40	22	12	9	11
30.	1.9	2.4	3.3	397	-----	738	71	40	20	12	9	11
31.	2.0	-----	3.4	315	-----	560	-----	38	-----	12	9	-----
1909-10.												
1.	12	11	13	843	135	85	156	28	8.8	5.5	4	2.5
2.	12	11	13	242	114	82	145	27	9.0	5.5	4	2.5
3.	12	11	13	234	100	76	120	26	8.8	5.5	4	2.5
4.	12	11	12	147	87	76	105	28	8.8	5.5	4	2.5
5.	12	11	38	118	70	70	98	28	9.0	5	3.5	2.5
6.	12	11	16	90	55	70	95	28	8.8	5	3.5	2.5
7.	12	11	14	68	502	66	91	28	8.8	5	3.5	2.5
8.	12	11	15	61	421	55	74	28	8.5	5	3.5	2.5
9.	11	16	1,880	61	204	45	68	27	8.5	5	3	3.5
10.	11	14	256	56	134	41	65	22	8.0	5	3.5	3
11.	11	13	114	52	160	39	88	22	8.5	5	3.5	2.5
12.	10	12	58	52	142	40	75	21	8.0	5	3.5	2.5
13.	10	12	38	52	128	38	68	20	8.2	5	3.5	3
14.	10	12	25	447	118	39	40	19	8.0	5	3.5	3
15.	9.8	12	27	938	106	54	38	17	8.2	4.5	3.5	3.5
16.	9.8	11	32	1,770	96	51	34	16	8.5	5	3.5	4
17.	9.2	12	34	666	91	46	30	16	8.5	5	3.5	4
18.	9.8	12	32	424	96	44	29	16	8.0	4.5	3.5	4
19.	10	12	28	335	102	41	29	16	7.5	4.5	3.5	4
20.	10	12	23	224	103	55	29	15	7.5	4	3.5	3.5
21.	11	12	24	158	96	362	29	14	7.5	4	3.5	3.5
22.	10	12	23	144	90	496	29	12	7.0	4	3.5	3.5
23.	10	12	25	124	88	494	28	12	6.8	4	3.5	3.5
24.	10	12	24	1,470	85	345	28	10	6.5	4	3	3.5
25.	10	12	25	781	88	300	30	9.8	6.5	4	3	3

Daily discharge, in second-feet, of Coyote River near Madrone, Cal., for 1903-1912—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909-10.												
26.....	10	12	24	440	88	264	30	9.5	6.2	4	3	3
27.....	11	12	26	358	85	217	30	9.5	6.0	4	3	3
28.....	11	12	32	272	88	215	30	9.5	6.0	4	2.5	3
29.....	11	13	37	208	-----	213	28	9.0	6.0	4	2.5	3
30.....	11	13	41	190	-----	206	28	9.0	5.5	4	2.5	3.5
31.....	11	-----	951	159	-----	199	-----	8.8	-----	4	2.5	-----
1910-11.												
1.....	3	3	3.5	4.5	996	990	80	12	4.5	3	2	1.5
2.....	3	3	3.5	4.5	615	816	74	10	4.5	3	2	1.5
3.....	3	3	4	4.5	552	2,250	68	10	4.5	3	2	1.5
4.....	3	3	4	5	618	2,070	61	9.8	4.5	3	2	1.5
5.....	3	3.5	4	5	394	2,570	110	9.8	4.5	3	2	1.5
6.....	3	3.5	4	5	315	5,230	175	9.5	4.5	3	2	1.5
7.....	3	3.5	4	5	250	10,100	98	9.0	4.5	3	2	1.5
8.....	2.5	3.5	4	5	188	3,180	68	8.8	4.5	2.8	2	1.5
9.....	2.5	3.5	4	5	170	2,480	60	8.8	4.5	2.5	2	1.5
10.....	2.5	3.5	4.5	7	159	2,100	50	8.2	4.5	2.5	2	1.5
11.....	2.5	3.5	5	8.8	431	1,850	38	8.8	4.5	2.5	2	1.5
12.....	3.5	5.5	5	465	358	982	40	8.2	4	2.5	2	1.5
13.....	5	3.5	5	1,330	552	778	41	7.8	4	2.5	2	1.5
14.....	5	3.5	5	1,950	678	662	38	7.2	4	2.5	2	1.5
15.....	5	3.5	5	1,200	425	515	36	6.2	4	2.5	2	1.5
16.....	5	3.5	5	490	312	440	34	6.0	4	2.5	2	1.5
17.....	4.5	4	5	200	245	428	31	6.0	4	2.5	2	1.5
18.....	4.5	4	5	131	195	372	28	6.0	3.8	2.5	2	1.5
19.....	4.5	3.5	5	112	168	320	24	6.0	3.5	2.5	2	1.5
20.....	4	4	5	132	150	282	22	6.0	3.5	2.5	1.8	1.5
21.....	3.5	3.5	5	366	128	252	18	5.8	3.5	2.5	1.5	1.5
22.....	3	4	5	182	102	215	18	5.2	3.5	2.5	1.5	1.5
23.....	3	4	5	159	89	205	16	5.0	3.5	2	1.5	1.5
24.....	3	4	5	414	76	191	18	5.0	3.5	2	1.5	1.5
25.....	3	4	5	718	54	184	22	4.8	3	2	1.5	1.5
26.....	3	4	5	658	54	158	24	4.8	3	2	1.5	1.5
27.....	3	4	4.5	625	50	142	18	4.5	3	2	1.5	1.5
28.....	2.5	3.5	4.5	650	161	129	16	4.5	3	2	1.5	1.5
29.....	2.5	3.5	4.5	3,370	-----	115	16	4.5	3	2	1.5	1.5
30.....	2.5	3.5	4.5	2,000	-----	98	14	4.5	3	2	1.5	1.5
31.....	2.5	-----	4.5	1,600	-----	88	-----	4.5	-----	2	1.5	-----
1911-12.												
1.....	1.5	2.0	1.5	2.0	4.5	3.0	3.5	4.5	3.0	2.5	1.5	1.0
2.....	1.5	2	1.5	2.2	4	2.5	3.5	4.5	3	2.5	1.5	1.0
3.....	1.5	2	1.5	2	4	2.5	3.5	4.5	3	2.5	1.5	1.5
4.....	1.5	1.5	1.5	1.5	4	2.5	3.5	4.2	3	2.5	1.5	1.2
5.....	1.5	1.5	1.8	1.8	3.8	2.8	3.5	4	3	2.2	1.5	1.0
6.....	1.5	1.5	2	1.5	3.5	3.5	3.5	4	3	2	1.5	1.5
7.....	1.5	1.5	2	1.8	3.5	3.5	3.2	4	3	2	1.5	2.5
8.....	1.5	1.5	2	2	3.5	3.8	3.5	4	3	2	1.5	2.2
9.....	1.5	1.8	2	2	3.5	4.8	3.8	4	3	2	1.5	1.5
10.....	1.5	2	2	2	3	4.2	5.5	3.8	3	2	1.5	1.5
11.....	1.5	2	1.5	2.5	3	4.0	226	3.5	3	2	1.5	1.5
12.....	1.5	2	1.5	2.5	3	687	215	3.5	3	2	1.5	1.2
13.....	1.5	2	1.5	2.5	2.8	660	64	3.5	3	2	1.5	1.0
14.....	1.5	2	1.5	2.5	2.5	130	52	3.5	3	2	1.5	1.0
15.....	1.5	2	1.5	2.5	2.8	5.2	35	3.5	3	2	1.5	1.0
16.....	1.5	2	1.5	3	3	242	22	3.5	2.5	2	1.5	1.0
17.....	1.5	1.8	1.5	3	3	110	8.0	3.5	2.5	2	1.5	1.0
18.....	1.5	2	1.5	3	3	28	7.2	3.2	2.5	2	1.5	1.0
19.....	1.5	2	1.5	3	3	13	6.5	3	2.5	2	1.5	1.0
20.....	1.5	2	1.5	3	3	7.8	5.5	3.5	2.5	2	1.5	1.0
21.....	1.5	2	1.5	3	2.8	7	5	3.5	2.5	2	1.5	1.0
22.....	1.5	2	2	3	2.5	6.2	4.5	3	2.5	2	1.5	1.0
23.....	1.5	2	2	3	2.5	5.2	4	3	2.5	1.8	1.5	1.0
24.....	1.5	1.5	2	3	2.8	4.5	4	3	2.5	1.5	1.5	1.0
25.....	1.5	1.5	1.8	3	3	4	4	3	2.5	1.5	1.5	1.0
26.....	1.5	1.5	2	4	3	4	4	3.2	2.5	1.5	1.5	1.0
27.....	2	1.5	2	5.1	3	4	4	3	2.5	1.5	1.2	1.0
28.....	2	1.5	2.5	5.2	3	4	4	3.2	2.5	1.5	1.0	1.0
29.....	2	1.5	2	4.8	3	4	5	3	2.5	1.5	1.2	1.0
30.....	2	1.5	2	4.5	-----	4	5	3	2.5	1.5	1.0	1.0
31.....	1.8	-----	1.8	4.5	-----	4	-----	3	-----	1.5	1.0	-----

NOTE.—Estimates of daily discharge taken from records compiled by Duryea, Haehl & Gilman.

Monthly discharge of Coyote River near Madrone, Cal., for 1902-1912.

[Drainage area, 193.2 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.
1902-3.						
October.....			0.75	0.0039	0.004	46
November.....			1.93	.010	.01	115
December.....			2.61	.014	.02	160
January.....			290	1.50	1.73	17,800
February.....			153	.793	.83	8,500
March.....			490	2.54	2.93	30,100
April.....			400	2.07	2.31	23,800
May.....			20.4	.106	.12	1,250
June.....			11.4	.059	.07	678
July.....			7.42	.038	.04	456
August.....			4.92	.026	.03	303
September.....			.66	.0034	.004	39
The year.....			115	.596	8.10	83,200
1903-4.						
October.....			.60	.0031	.004	37
November.....			1.20	.0062	.007	71
December.....			1.29	.0067	.008	79
January.....			2.12	.011	.01	130
February.....			105	.544	.59	6,040
March.....			384	1.99	2.29	23,600
April.....			67.8	.351	.39	4,030
May.....			17.7	.092	.11	1,080
June.....			6.16	.032	.04	367
July.....			2.47	.013	.02	152
August.....			.81	.0042	.005	50
September.....			2.78	.014	.02	185
The year.....			49.3	.255	3.49	35,800
1904-5.						
October.....			2.73	.014	.02	168
November.....			3.20	.017	.02	190
December.....			1.09	.0056	.006	67
January.....	42		9.77	.051	.06	601
February.....	1,510		165	.855	.89	9,160
March.....	3,000		252	1.31	1.51	15,500
April.....	86		35.5	.184	.21	2,110
May.....	363		48.0	.249	.29	2,950
June.....			10.8	.056	.06	643
July.....			4.18	.022	.03	257
August.....			1.82	.0094	.01	112
September.....			.61	.0032	.004	36
The year.....			44.6	.231	3.11	31,800
1905-6.						
October.....			.43	.0022	.003	26
November.....			.92	.0048	.005	55
December.....			1.49	.0077	.009	92
January.....	8,350	1.8	539	2.79	3.22	33,100
February.....	1,080	30	235	1.22	1.27	13,100
March.....	5,750	130	778	4.03	4.65	47,800
April.....	1,550	102	235	1.22	1.36	14,000
May.....	95	56	73.1	.379	.44	4,490
June.....	71	24	38.5	.199	.22	2,290
July.....			14.4	.075	.09	885
August.....			6.68	.035	.04	411
September.....			4.48	.023	.03	726
The year.....			161	.834	11.34	117,000

Monthly discharge of Coyote River near Madrone, Cal., for 1902-1912—Continued.

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.
1906-7.						
October.....			3.18	0.016	0.02	196
November.....	25	4.9	6.92	.086	.04	412
December.....	8,210	6.5	372	1.93	2.22	22,900
January.....	2,850	175	332	4.83	5.57	57,300
February.....	1,810	130	326	1.69	1.76	18,100
March.....	8,200	158	1,380	7.15	8.24	84,800
April.....	560	98	217	1.12	1.25	12,900
May.....	98	37	61.9	.321	.37	3,810
June.....	47	19	29.5	.153	.17	1,760
July.....	19	12	13.2	.068	.08	812
August.....			8.32	.043	.05	512
September.....			4.97	.026	.03	296
The year.....			280	1.45	19.80	204,000
1907-8.						
October.....	4.4	4.1	4.3	.022	.03	264
November.....	41	4.4	14.4	.075	.08	857
December.....	1,970	20	120	.622	.72	7,380
January.....	2,150	30	195	1.01	1.16	12,000
February.....	1,280	47	234	1.21	1.30	13,500
March.....	690	38	156	.808	.93	9,590
April.....	40	18	27.4	.142	.16	1,650
May.....	22	12	14.7	.076	.09	904
June.....	12	6	8.82	.046	.05	525
July.....	6	2	4.7	.024	.03	289
August.....	3	2	2.33	.012	.01	143
September.....	2.2	1.5	1.90	.0098	.01	113
The year.....	2,150	1.5	65.3	.338	4.57	47,200
1908-9.						
October.....	2	1.2	1.82	.0094	.01	112
November.....	3.7	1.9	2.10	.011	.01	130
December.....	3.9	2.1	3.07	.016	.02	189
January.....	a 8,230	a 3.5	1,100	5.70	6.57	67,600
February.....	a 7,040	a 209	1,260	6.53	6.80	70,000
March.....	1,580	a 91	346	1.79	2.06	21,300
April.....	510	70	173	.896	1.00	10,300
May.....	68	a 39	48.9	.253	.29	3,010
June.....	38	21	28.6	.148	.17	1,700
July.....	20	12	15.6	.081	.09	959
August.....	12	9	11.2	.058	.07	689
September.....	12	9	9.9	.051	.06	589
The year.....	a 8,230	1.2	250	1.30	17.15	176,000
1909-10.						
October.....	12.5	9	10.7	.055	.06	658
November.....	17	10.5	12.0	.062	.07	714
December.....	3,000	12	105	.544	.63	646
January.....	2,120	52	355	1.84	2.12	21,800
February.....	680	52	129	.668	.70	7,160
March.....	680	38	139	.720	.83	8,550
April.....	156	25	59.7	.309	.34	3,550
May.....	28	8.5	17.6	.091	.10	1,080
June.....	9	5.5	7.7	.040	.04	458
July.....	5.5	4	4.6	.024	.03	283
August.....	4	2.5	3.3	.017	.02	203
September.....	4	2.5	3.1	.016	.02	184
The year.....	3,000	2.5	70.6	.366	4.96	45,300

a From automatic-gage record.

Monthly discharge of Coyote River near Madrone, Cal., for 1902-1912—Continued.

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.
1910-11.						
October.....	5	2.5	3.4	0.018	0.02	209
November.....	4	3	3.6	.019	.02	214
December.....	5	3.5	4.6	.024	.03	283
January.....	4,400	4.5	524	2.72	3.14	32,200
February.....	1,160	50	292	1.51	1.57	16,200
March.....	25,000	90	1,190	6.17	7.11	73,200
April.....	190	13.5	45.1	.234	.26	2,680
May.....	12.5	4.5	7.0	.036	.04	430
June.....	4.5	3	3.9	.020	.02	232
July.....	3	2	2.5	.013	.02	154
August.....	2	1.5	1.8	.0093	.01	111
September.....	1.5	1.5	1.5	.0078	.009	89
The year.....	25,000	1.5	173	.896	12.25	126,000
1911-12.						
October.....	2	1.5	1.6	.0083	.01	98
November.....	2	1.5	1.8	.0083	.01	107
December.....	2.5	1.5	1.8	.0093	.01	111
January.....	5.5	1.5	2.9	.015	.02	178
February.....	4.5	2.5	3.2	.017	.02	184
March.....	1,210	2.5	59.4	.308	.36	3,650
April.....	283	3	23.4	.121	.14	1,390
May.....	4.5	3	3.6	.019	.02	221
June.....	3	2.5	2.8	.014	.02	167
July.....	2.5	1.5	1.9	.0098	.01	117
August.....	1.5	1.0	1.4	.0072	.008	86
September.....	2.5	1.0	1.2	.0062	.07	71
The year.....	1,210	1.0	8.75	.045	.70	6,380

NOTE.—Mean monthly discharge computed by Duryea, Haehl & Gilman. Maximum and minimum discharges given in the table taken from the compiled or original data and represent highest and lowest computed discharges. Other run-off values computed by engineers of the United States Geological Survey.

SAN JOAQUIN RIVER BASIN.

SAN JOAQUIN RIVER NEAR NORTH FORK, CAL.

Location.—Below San Joaquin Light & Power Corporation's power house in sec. 18, T. 9 S., R. 23 E., about 6 miles below mouth of North Fork of San Joaquin River, and 6 miles southeast of North Fork.

Records available.—April 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Watson water stage register on left bank, 1,000 feet below power house; also staff gage on right bank at cable.

Channel.—Bowlders and gravel; apparently permanent.

Discharge measurements.—Made from car and cable near gage.

Artificial control.—The power plant used water from Crane Valley reservoir on North Fork of San Joaquin River. The record at this station shows the total run-off from the drainage area above the station.

Cooperation.—Daily-discharge record furnished by San Joaquin Light & Power Corporation.

Daily discharge, in second-feet, of San Joaquin River near North Fork, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	815	350	325	325	460	340	652	2,000	12,260	2,100	900	340
2.....	720	345	325	335	450	350	810	1,955	12,315	1,970	880	322
3.....	600	345	335	340	440	345	1,060	1,715	13,660	1,850	820	318
4.....	570	335	340	340	425	360	1,160	1,650	14,405	1,537	743	363
5.....	530	330	340	345	410	550	1,235	1,910	12,810	1,425	700	395
6.....	490	325	355	345	410	1,955	1,120	2,030	13,030	1,825	618	354
7.....	500	320	355	370	405	2,075	1,335	2,045	12,920	2,030	600	345
8.....	470	320	355	390	400	1,475	1,600	2,395	10,750	2,090	590	390
9.....	465	320	340	385	395	1,185	1,650	2,795	7,675	2,075	590	390
10.....	480	355	335	390	385	692	1,625	2,315	6,530	2,075	590	363
11.....	475	650	335	475	375	638	1,685	4,615	7,295	1,970	590	327
12.....	450	350	335	475	375	618	1,400	5,380	7,205	1,880	585	304
13.....	435	340	330	460	380	870	1,250	5,650	5,675	1,985	585	300
14.....	425	415	330	410	375	700	1,130	6,235	5,765	1,850	585	300
15.....	405	420	330	415	375	716	1,325	6,865	5,630	1,637	565	280
16.....	405	415	330	415	375	752	1,465	7,340	5,495	1,550	545	280
17.....	375	410	330	425	365	716	1,450	8,040	5,045	1,637	525	260
18.....	375	380	330	415	365	652	1,490	8,650	5,360	1,940	485	257
19.....	365	365	330	395	380	708	1,400	8,485	5,720	2,835	475	257
20.....	355	390	330	380	385	752	1,160	6,420	5,810	2,060	455	253
21.....	355	380	320	370	390	652	1,010	5,135	4,770	1,725	435	250
22.....	355	600	315	365	375	590	920	4,245	3,800	1,550	435	236
23.....	350	675	315	365	350	565	920	3,575	2,995	1,350	425	246
24.....	350	460	320	370	335	743	1,060	3,840	2,515	1,225	415	260
25.....	350	420	320	370	325	708	1,325	4,725	2,090	1,120	420	260
26.....	350	390	305	355	320	708	1,275	4,430	2,180	1,040	440	260
27.....	350	370	295	540	315	684	1,515	4,980	2,755	970	465	246
28.....	350	355	310	515	330	631	1,515	7,180	2,795	940	465	246
29.....	350	340	330	475	330	676	1,750	9,900	2,755	940	440	218
30.....	360	330	330	465	330	830	1,880	11,380	2,395	910	420	239
31.....	355	315	465	638	10,350	910	385

Monthly discharge of San Joaquin River near North Fork, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	815	350	438	26,900
November.....	675	320	393	23,400
December.....	355	295	329	20,200
January.....	540	325	402	24,700
February.....	460	315	379	21,800
March.....	2,075	340	770	47,300
April.....	1,880	652	1,310	78,000
May.....	11,380	1,650	5,100	314,000
June.....	14,405	2,090	6,810	405,000
July.....	2,835	910	1,650	101,000
August.....	900	385	554	34,100
September.....	395	218	295	17,600
The year.....	14,405	218	1,530	1,110,000

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

SAN JOAQUIN RIVER NEAR FRIANT,¹ CAL.

Location.—At Fort Miller ranch, in the SE. $\frac{1}{4}$ sec. 34, T. 10 S., R. 21 E., about 4 miles above Friant.

Records available.—October 18, 1907, to September 30, 1912.

Drainage area.—1,640 square miles.

Gage.—Staff in three sections on left bank.

Channel.—Sand and gravel; shifts slightly.

Discharge measurements.—Made from car and cable 30 feet below inclined section of gage or by wading.

Diversion and storage.—Some storage and power developed above the station.

The Fresno Flume & Irrigation Co. diverts about 10 second-feet from Stevenson Creek. This water is used for irrigation near Clovis.

Accuracy.—Results good.

Discharge measurements of San Joaquin River near Friant, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 19	J. E. Stewart.....	4.57	1,280
June 1do.....	9.98	10,100
July 16do.....	4.70	1,470

NOTE.—Made from cable.

Daily gage height, in feet, of San Joaquin River near Friant, Cal., for 1911-12.

[E. G. Davis, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.70	3.60	3.60	3.55	3.8	3.6	4.1	4.8	9.8	5.1	4.2	3.55
2.....	4.10	3.60	3.65	3.6	3.75	3.6	4.1	4.9	10.4	5.1	4.15	3.55
3.....	3.90	3.60	3.60	3.55	3.75	3.6	4.25	5.0	10.9	5.0	4.1	3.5
4.....	3.80	3.60	3.60	3.55	3.75	3.65	4.4	5.0	11.0	4.8	4.05	3.55
5.....	3.80	3.58	3.60	3.55	3.7	4.0	4.5	5.0	11.7	4.6	4.0	3.55
6.....	3.80	3.55	3.60	3.6	3.7	6.0	4.35	5.0	10.7	4.5	4.0	3.6
7.....	3.90	3.55	3.60	3.6	3.7	4.8	4.4	5.1	10.6	5.0	4.0	3.6
8.....	3.80	3.55	3.70	3.65	3.7	4.3	4.6	5.3	9.8	5.0	3.95	3.7
9.....	3.90	3.55	3.65	3.7	3.7	4.3	4.8	5.3	8.6	5.0	3.95	3.65
10.....	3.80	4.10	3.55	3.7	3.65	4.0	4.8	5.3	7.8	5.0	3.95	3.65
11.....	3.75	3.65	3.55	3.85	3.65	4.0	5.0	6.3	7.5	5.0	3.95	3.6
12.....	3.75	3.58	3.50	3.8	3.65	4.0	4.8	7.0	7.9	5.0	3.9	3.6
13.....	3.72	3.65	3.50	3.75	3.7	4.45	4.6	7.0	7.5	4.9	3.85	3.55
14.....	3.68	3.70	3.50	3.7	3.65	4.35	4.5	7.3	7.0	5.0	3.85	3.55
15.....	3.65	3.70	3.50	3.7	3.65	4.25	4.6	7.7	7.3	5.0	3.85	3.55
16.....	3.60	3.70	3.50	3.65	3.6	4.35	4.6	8.0	7.7	4.7	3.85	3.6
17.....	3.63	3.70	3.50	3.8	3.6	4.25	4.6	8.2	7.3	5.5	3.85	3.6
18.....	3.60	3.70	3.50	3.7	3.65	4.1	4.6	8.7	6.8	5.8	3.8	3.6
19.....	3.60	3.70	3.50	3.7	3.7	4.1	4.6	8.6	7.2	5.2	3.8	3.55
20.....	3.60	3.65	3.50	3.7	3.65	4.2	4.5	7.5	7.6	5.0	3.8	3.55
21.....	3.60	3.70	3.50	3.65	3.65	4.1	4.4	6.7	6.8	4.8	3.75	3.5
22.....	3.60	3.85	3.50	3.65	3.65	4.0	4.3	6.3	6.1	4.8	3.7	3.5
23.....	3.58	4.00	3.50	3.65	3.65	4.0	4.3	5.9	5.8	4.6	3.6	3.5
24.....	3.60	3.85	3.50	3.65	3.6	4.0	4.4	6.1	5.4	4.5	3.6	3.45
25.....	3.60	3.65	3.45	3.6	3.55	4.0	4.4	6.2	5.1	4.5	3.7	3.43
26.....	3.60	3.60	3.45	3.65	3.5	4.1	4.45	6.5	5.1	4.3	3.9	3.4
27.....	3.60	3.60	3.45	4.0	3.55	4.1	4.7	6.2	5.2	4.3	3.6	3.35
28.....	3.55	3.50	3.52	3.85	3.55	4.1	4.8	7.2	5.3	4.3	3.65	3.4
29.....	3.60	3.55	3.67	3.85	3.6	4.1	4.8	8.9	5.4	4.25	3.7	3.4
30.....	3.62	3.55	3.62	3.7	4.1	4.9	9.2	5.3	4.2	3.65	3.4
31.....	3.60	3.66	3.7	4.1	9.7	4.2	3.6

¹ Known formerly as Pollasky.

Daily discharge, in second-feet, of San Joaquin River near Friant, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1,420	420	420	385	575	420	830	1,530	10,000	1,860	925	385
2.....	830	420	458	420	535	420	830	1,640	11,600	1,860	878	385
3.....	655	420	420	385	535	420	972	1,740	13,000	1,740	830	350
4.....	575	420	420	385	535	458	1,120	1,740	13,300	1,530	785	385
5.....	575	406	420	385	495	740	1,220	1,740	15,300	1,320	740	385
6.....	575	385	420	420	495	2,960	1,070	1,740	12,400	1,220	740	420
7.....	655	385	420	420	495	1,530	1,120	1,860	12,100	1,740	740	420
8.....	575	385	495	458	495	1,020	1,320	2,090	10,000	1,740	698	495
9.....	655	385	458	495	495	1,020	1,530	2,090	7,320	1,740	698	458
10.....	575	830	385	495	458	740	1,530	2,090	5,780	1,740	698	458
11.....	535	458	385	615	458	740	1,740	3,380	5,240	1,740	698	420
12.....	535	406	350	575	458	740	1,530	4,420	5,960	1,740	655	420
13.....	511	458	350	535	495	1,170	1,320	4,420	5,240	1,640	615	385
14.....	480	495	350	495	458	1,070	1,220	4,900	4,420	1,740	615	385
15.....	458	495	350	495	458	972	1,320	5,600	4,900	1,740	615	385
16.....	420	495	350	458	420	1,070	1,320	6,150	5,600	1,420	615	420
17.....	442	495	350	575	420	972	1,320	6,530	4,900	2,330	615	420
18.....	420	495	350	495	458	830	1,320	7,530	4,100	2,700	575	420
19.....	420	495	350	495	495	830	1,320	7,320	4,740	1,970	575	385
20.....	420	458	350	495	458	925	1,220	5,240	5,420	1,740	575	385
21.....	420	495	350	458	458	830	1,120	3,950	4,100	1,530	535	350
22.....	420	615	350	458	458	740	1,020	3,380	3,100	1,530	495	350
23.....	406	740	350	458	458	740	1,020	2,830	2,700	1,320	420	350
24.....	420	615	350	458	420	740	1,120	3,100	2,210	1,220	420	320
25.....	420	458	320	420	385	740	1,120	3,240	1,860	1,220	495	308
26.....	420	420	320	458	350	830	1,170	3,660	1,860	1,020	655	290
27.....	420	420	320	740	385	830	1,420	3,240	1,970	1,020	420	268
28.....	385	350	364	615	385	830	1,530	4,740	2,090	1,020	458	290
29.....	420	385	399	615	420	830	1,530	7,950	2,210	1,972	495	290
30.....	435	385	364	495	830	1,640	8,600	2,090	925	458	290
31.....	420	465	495	830	9,790	925	420

NOTE.—Daily discharge determined from a well-defined rating curve. Values from Oct. 1 to Dec. 31, 1911, supersede those published in Water-Supply Paper 311, p. 63. Values from Oct. 1, 1911 to June 30, 1912, supersede those published in Water-Supply Paper 299, p. 49.

Monthly discharge of San Joaquin River near Friant, Cal., for 1911-12.

[Drainage area, 1,640 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.....	1,420	385	526	0.321	0.37	32,300	B.
November.....	830	350	470	.287	.32	28,000	B.
December.....	495	320	381	.232	.27	23,400	B.
January.....	740	385	489	.298	.34	30,100	B.
February.....	575	350	462	.282	.30	26,600	B.
March.....	2,960	420	897	.547	.63	55,200	A.
April.....	1,740	830	1,260	.768	.86	75,000	A.
May.....	9,790	1,530	4,140	2.52	2.90	255,000	A.
June.....	15,300	1,860	6,180	3.77	4.21	368,000	A.
July.....	2,700	925	1,550	.945	1.09	95,300	A.
August.....	925	420	618	.377	.43	38,000	A.
September.....	495	268	376	.229	.26	22,400	B.
The year.....	15,300	268	1,440	.878	11.98	1,050,000	

SAN JOAQUIN RIVER NEAR NEWMAN, CAL.

Location.—At drawbridge on Hill's Ferry road, in the SW. $\frac{1}{4}$ sec. 3, T. 7 S., R. 9 E., 300 feet below mouth of Merced River, and $3\frac{1}{2}$ miles northeast of Newman.

Records available.—April 29 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to downstream support of draw span.

Channel.—Sand which will shift at high stages.

Discharge measurements.—Made from bridge or by wading.

Artificial control.—Water is stored and extensively used for power and irrigation on main river and tributaries above station. Record shows return water from irrigation and amount available for use along the lower river.

Accuracy.—Rating curve is fairly well defined and results are good.

Cooperation.—Gage-height record and discharge measurements furnished by Office of Experiment Stations, United States Department of Agriculture, through Frank Adams, irrigation manager.

Discharge measurements of San Joaquin River near Newman, Cal., in 1912.

[Hydrographer, Harry Barnes.]

Date.	Gage height.	Dis-charge.	Date.	Gage height.	Dis-charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 30 <i>a</i>	1.87	491	July 19 <i>b</i>	2.00	333
May 16 <i>a</i>	7.15	3,220	Aug. 21 <i>b</i>85	105
June 12 <i>a</i>	12.40	7,150			

a Bridge.

b Wading 1,000 feet above gage and above mouth Merced River. Discharge includes measured discharge of Merced River.

Daily gage height, in feet, and discharge, in second-feet, of San Joaquin River near Newman, Cal., for 1912.

[Rasmus Lorensen, observer.]

Day.	April.		May.		June.		July.		August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.....			2.22	602	9.9	5,200	4.40	1,400	1.28	178	0.72	85
2.....			2.40	665	10.7	5,800	4.20	1,290	1.22	168	.72	85
3.....			2.50	700	11.35	6,320	4.05	1,210	1.20	164	.72	85
4.....			2.28	623	11.9	6,760	3.90	1,130	1.20	164	.70	82
5.....			2.10	560	12.2	7,000	3.80	1,080	1.18	160	.70	82
6.....			2.15	578	12.1	6,920	3.60	980	1.15	155	.70	82
7.....			2.45	682	12.15	6,900	3.45	905	1.12	150	.70	82
8.....			2.32	637	12.3	7,080	3.30	830	.98	125	.70	82
9.....			2.10	740	12.25	7,040	3.10	740	.95	120	.70	82
10.....			2.95	880	12.2	7,000	2.82	628	.92	115	.68	80
11.....			3.05	920	12.0	6,840	2.65	562	.90	112	.68	80
12.....			3.18	976	12.25	7,040	2.58	538	.90	112	.65	76
13.....			4.52	1,630	12.55	7,280	2.52	517	.95	120	.65	76
14.....			5.30	2,060	12.75	7,440	2.50	510	.90	112	.62	72
15.....			5.80	2,360	12.7	7,400	2.50	510	.90	112	.62	72
16.....			7.05	3,140	12.35	7,120	2.30	440	.90	112	.60	70
17.....			8.10	3,870	11.85	6,720	2.12	386	.85	104	.60	70
18.....			8.70	4,300	11.15	6,160	2.08	374	.85	104	.58	68
19.....			9.20	4,680	10.35	5,540	1.98	344	.85	104	.58	68
20.....			9.55	4,940	9.65	5,020	1.90	320	.85	104	.58	68
21.....			9.00	4,530	9.10	4,600	1.85	306	.85	104	.55	65
22.....			8.50	4,160	8.68	4,290	1.75	279	.82	99	.55	65
23.....			8.20	3,940	8.30	4,010	1.70	266	.82	99	.52	62
24.....			7.65	3,560	8.00	3,800	1.68	261	.80	96	.52	62
25.....			7.02	3,120	7.65	3,560	1.65	254	.80	96	.52	62
26.....			7.20	3,240	7.00	3,100	1.60	242	.78	93	.50	60
27.....			7.10	3,180	6.15	2,500	1.50	220	.78	93	.50	60
28.....			6.52	2,960	5.55	2,110	1.50	220	.75	89	.50	60
29.....			7.52	3,460	5.10	1,820	1.45	210	.75	89	.48	58
30.....	1.98	524	9.00	4,530	4.75	1,610	1.40	200	.72	85	.48	58
31.....	1.88	495	9.80	5,130			1.35	191	.72	85		

NOTE.—Daily discharge determined from two rating curves applicable as follows: Apr. 29 to June 14, 1912, poorly defined; June 15 to Sept. 30, 1912, well defined between 50 and 500 second-feet and fairly well defined above.

Monthly discharge of San Joaquin River near Newman, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
May.....	5,130	560	2,500	154,000	C.
June.....	7,440	1,610	5,470	325,000	B.
July.....	1,400	191	559	34,400	B.
August.....	178	85	117	7,190	A.
September.....	85	58	72.0	4,280	A.

TULARE LAKE IN KINGS COUNTY, CAL.

Tulare Lake is about 30 miles directly south of Fresno and 40 miles northwest of Bakersfield. The lake is roughly rectangular in shape and its greatest length is from northwest to southeast. In November, 1907, when its margin was carefully determined, the lake had an area of about 274 square miles, a maximum depth of 12.4 feet, an average length of 20 miles, and a width of 13.5 miles; the water's edge was 3 miles from the town of Corcoran, and the water surface about 12 feet below. The lake surface reached its greatest height in the summer of 1907, when it had a maximum depth of nearly 14 feet. Since July, 1907, it has been gradually subsiding.

The lake bed resembles a flat saucer. The flat, level area in the bottom has an elevation of approximately 180 feet above mean sea level and covers about 55 square miles. The lowest point on the crest of the delta ridge to the north is about 27 feet higher than the bottom of the lake. Natural overflow will not occur, therefore, until the lake has a maximum depth of nearly 30 feet and an area of nearly 1,000 square miles.

During 1906 and a part of 1907 a record of the stage of the lake was kept by means of a Government staff gage located near the entrance of Kings River near Lemoore, Cal., at the middle of sec. 4, T. 21 S., R. 20 E. The zero of the gage was at an elevation of 175.1 feet above mean sea level, or 4 feet below the bottom of the lake (elevation 179.1 feet). On May 11, 1907, a staff gage was set near Corcoran, Cal., referred to the same datum and used until July 30, 1909.

On July 28, 1910, a vertical staff gage, in two sections, was installed on the section line just south of the corner to secs. 27, 28, 33, and 34, T. 20 S., R. 20 E., about 10 miles south of Lemoore near Stratford post office. The datum of this gage is 171 feet above sea level.

All published gage records have been reduced to show the actual depth of the water on the lowest point of the lake bed.

Daily gage height, in feet, of Tulare Lake in Kings County, Cal., for 1911-12.

[Mrs. G. E. Kolbenstetter, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....												6.85
2.....						9.67						
3.....				9.96	10.00				8.75			
4.....	10.55	10.27				9.75		9.30			7.45	
5.....			10.10									
6.....					9.94		9.60					
7.....	10.55	10.27		9.97						8.10		
8.....												
9.....			10.10			9.78		9.20				
10.....				10.05	9.90				8.75			6.82

Daily gage height, in feet, of Tulare Lake in Kings County, Cal., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.	10.50	10.25									7.37	
12.			10.10			9.79		9.20				
13.					9.90		9.56					
14.		10.25		9.85								
15.	10.40									8.10		
16.			10.05	10.00		9.81			8.63			
17.					9.70							6.72
18.	10.37	10.15										
19.								8.90			7.20	
20.			10.00	9.98	9.80							
21.	10.35						9.50					
22.		10.10								7.80		6.65
23.				9.90		9.80			8.40			
24.	10.35		9.90		9.70							
25.											7.05	
26.		10.10				9.75		8.80				
27.				9.95	9.70							
28.	10.30		10.00				9.50			7.70		
29.		10.10										6.52
30.				9.97		9.70			8.20			
31.	10.30		10.00									

KERN RIVER NEAR KERNVILLE, CAL.

Location.—At base of Fairview Mountain, in sec. 14, T. 23 S., R. 32 E., 3 miles above Salmon Creek, and about 15 miles north of Kernville.

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

Drainage area.—Not measured.

Gage.—Vertical staff fastened to overhanging willow tree on left bank about 1 mile above mouth of Tobias Creek.

Channel.—Coarse gravel and boulders.

Discharge measurements.—Made from car and cable about 250 feet below gage or by wading.

Cooperation.—Maintained in cooperation with Southern California Edison Co., through H. W. Dennis, engineer.

Estimates are withheld until additional measurements can be made.

Discharge measurements of Kern River near Kernville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
July 27 ^a	J. E. Stewart	<i>Feet.</i>	<i>Sec.-ft.</i>
Sept. 29 ^b	H. J. Tompkins	0.18	347
		— .57	168

^a Wading 300 feet below gage.

^b Wading 2 miles below gage.

Daily gage height, in feet, of Kern River near Kernville, Cal., for 1912.

[Matt. Burlando, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	0.22	-0.10	-0.10	0.15	0.82	3.70	0.90	0.11	-0.42
2.	.20	- .10	- .12	.28	.85	3.85	.80	.08	- .45
3.	.20	- .10	- .10	.32	.68	3.95	.78	.02	- .45
4.	.20	- .10	- .12	.30	.75	4.00	.65	- .02	- .41
5.	.22	- .10	+ .02	.32	.82	3.60	.60	+ .08	- .40
6.	.25	- .10	+ .30	.30	.85	3.70	.65	- .10	- .40
7.	.20	- .10	+ .05	.42	.80	3.70	.75	- .11	- .45
8.	.25	- .10	.0	.50	.82	3.30	.80	- .11	- .45
9.	.25	- .10	+ .02	.62	.80	2.80	.78	- .11	- .45
10.	- .10	- .10	+ .10	.45	.95	2.55	.75	- .12	- .45
11.	- .08	- .10	+ .02	.45	1.25	2.60	.75	- .15	- .50
12.	- .10	- .10	+ .15	.48	1.40	2.65	.75	- .11	- .50
13.	- .08	- .10	- .20	.42	1.45	2.28	.75	- .18	- .54
14.	- .05	- .10	+ .02	.42	1.68	2.20	.72	- .18	- .56
15.	- .05	- .10	.12	.48	1.85	2.20	.60	- .20	- .49
16.	- .05	- .10	.20	.50	2.02	2.15	.50	- .20	- .60
17.	- .08	- .10	.12	.52	2.25	2.15	.58	- .21	- .60
18.	- .10	- .10	.12	.58	2.42	2.15	1.18	- .25	- .60
19.	- .10	- .10	.12	.52	2.35	2.15	1.10	- .29	- .60
20.	- .10	- .10	.12	.40	2.15	2.15	.88	- .30	- .62
21.	- .10	- .12	.12	.42	2.00	1.98	.70	- .32	- .61
22.	- .10	- .12	.02	.38	1.70	1.62	.58	- .35	- .61
23.	- .10	- .10	.10	.42	1.58	1.35	.42	- .35	- .60
24.	- .10	- .20	.08	.55	1.75	1.12	.40	- .40	- .60
25.	- .10	- .20	.10	.55	1.85	1.00	.30	- .39	- .60
26.	- .10	- .18	.15	.60	1.70	.95	.25	- .36	- .60
27.	- .12	- .10	.20	.52	1.80	1.00	.18	- .30	- .61
28.	- .10	- .10	.18	.55	2.40	1.05	.15	- .32	- .61
29.	- .10	- .10	.25	.58	3.15	1.05	.20	- .39	- .60
30.	- .0518	.70	3.62	.95	.18	- .38	- .62
31.	- .1012	3.4515	- .42

KERN RIVER AT KERNVILLE, CAL.

Location.—A short distance below intake of Kern River Power Co.'s canal at Kernville, in the SE. $\frac{1}{4}$ sec. 33, T. 25 S., R. 33 E.

Records available.—January 1, 1905, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff.

Channel.—Gravel and small boulders; fairly permanent.

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

Diversions.—Several small ditches divert water for irrigation above the station.

The discharge of Kern River Power Co.'s canal, which has its intake above the gage, is included with the discharge of the river as measured at this station.

Cooperation.—Record furnished by Kern River Power Co., through G. O. Newman, chief engineer.

Daily discharge, in second-feet, of Kern River at Kernville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	473	312	282	253	272	273	341	555	2,680	594	352	190
2	415	307	283	281	269	275	356	558	2,850	586	340	190
3	392	308	280	263	263	263	393	555	2,980	562	399	188
4	380	299	283	251	263	261	411	584	3,200	540	319	187
5	364	302	281	263	273	283	404	589	3,010	500	308	187
6	358	301	274	270	269	303	407	587	2,710	481	295	189
7	356	298	304	277	271	374	402	614	2,510	525	321	188
8	343	289	279	275	267	312	447	604	2,410	555	274	188
9	337	293	265	275	263	297	485	589	2,260	555	270	188
10	334	283	270	271	271	312	555	589	1,940	545	271	188
11	333	380	272	281	269	297	540	589	1,740	545	267	187
12	330	266	285	267	285	525	624	1,680	529	259	186
13	325	295	262	275	267	332	487	506	1,680	529	255	185
14	321	321	257	273	265	293	456	1,020	1,430	660	255	184
15	317	319	262	279	267	329	479	1,220	1,430	492	252	172
16	309	331	267	285	259	350	478	1,320	1,400	459	249	181
17	304	326	271	283	266	362	486	1,340	1,390	442	247	180
18	302	312	273	269	277	333	504	1,500	1,390	496	241	179
19	300	260	267	277	345	520	1,550	1,390	619	235	178
20	300	312	255	268	273	358	477	1,640	1,440	539	232	165
21	299	309	286	256	267	349	443	1,400	1,290	574	220	164
22	300	307	247	267	283	347	435	1,100	1,290	511	216	165
23	299	302	256	267	259	316	438	1,070	959	466	208	165
24	299	289	289	265	270	331	483	1,230	1,090	441	202	165
25	297	293	260	263	243	349	534	1,300	689	403	196	165
26
27	295	295	228	259	253	353	508	1,350	589	389	197	165
28	296	293	226	293	261	347	553	1,230	594	369	208	165
29	303	289	259	267	273	347	497	1,100	594	360	210	165
30	315	289	281	258	266	358	536	1,300	594	355	202	165
31	285	253	288	384	557	1,500	699	363	188	173
32	318	227	281	345	2,300	355	193

Monthly discharge of Kern River at Kernville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October	473	295	330	20,300
November	380	283	306	18,200
December	304	226	265	16,300
January	293	251	271	16,700
February	283	243	267	15,400
March	384	261	325	20,000
April	557	341	471	28,000
May	2,300	506	1,030	63,300
June	3,200	589	1,660	98,800
July	660	355	497	30,600
August	399	188	254	15,600
September	190	164	178	10,600
The year	3,200	164	488	354,000

NOTE.—Monthly discharge computed by engineers of the United States Geological Survey. Discharge interpolated Oct. 30, Nov. 12 and 19, 1911.

KERN RIVER AT ISABELLA, CAL.

Location.—At highway bridge, in the SW. $\frac{1}{4}$ sec. 17, T. 26 S., R. 3 E., half a mile north of Isabella, 6 miles below Cowell Creek, and half a mile above South Fork of Kern River.

Records available.—October 5, 1910, to September 30, 1912 (fragmentary).

Drainage area.—1,220 square miles.

Gage.—Vertical staff fastened to large cottonwood tree on left bank, 100 feet below bridge.

Channel.—Gravel and small bowlders; fairly permanent.

Discharge measurements.—Made from bridge above gage or by wading.

Diversions.—The intake of the Kern River Power Co.'s canal, which diverts water around the station, is $3\frac{1}{2}$ miles above the station: In addition there are several small diversions for irrigation above the station.

Cooperation.—Gage-height record furnished by United States Forest Service.

No estimates have been prepared. See record for Kern River at Kernville.

Discharge measurements of Kern River at Isabella, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		Feet.	Sec.-ft.
Nov. 17	H. J. Tompkins.....	0.80	8.0
1912.			
Apr. 29 ^a	J. E. Stewart.....	.96	13
May 17 ^b	H. J. Tompkins.....	3.14	947
July 26 ^a	J. E. Stewart.....	.79	6.7
Sept. 27 ^a	H. J. Tompkins.....	.71	5.4

^a Made by wading.

^b Made from bridge.

Daily gage height, in feet, of Kern River at Isabella, Cal., for 1911-12.

[Roy Oldfield, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1						1.0						
2		0.8	0.6				0.9			0.9	0.9	
3				1.8	1.8			1.0				0.9
4												
5	0.9	.8										
6	.9			1.8								
7	.9	.8										
8	.8											
9	.9					1.0	1.0					
10	.9	.8	.9	1.7		1.0						
11									5.0			
12		.9			1.8							
13				1.8								
14		.9				1.0				.9		
15	.9											
16							1.0				.9	
17		.8						3.2				.9
18			.8									
19		1.0		1.8								
20									4.0			
21								4.0				
22		1.0					1.0			.9		
23												
24		.9				1.2						
25				1.8								
26	1.0	.9			1.8			4.0		.79		
27	1.0	.9										.9
28	1.1						1.0					
29		.9			1.8		.95		.9			
30		.9				1.0	1.0			.9		
31				1.8				2.0				

KERN RIVER NEAR BAKERSFIELD, CAL.¹

Location.—At mouth of lower canyon, in sec. 2, T. 29 S., R. 28 E., 5 miles northeast of Bakersfield.

Records available.—January 1, 1894, to June 30, 1907, and March 1, 1908, to September 30, 1912.

Drainage area.—2,345 square miles.

Gage.—Automatic water-stage register at footbridge.

Discharge measurements.—Made from footbridge at gage.

Diversions.—Several small diversions on main river and South Fork for irrigation.

Water diverted at and below Kernville for power development is returned to the river above the station.

Accuracy.—Results good.

Cooperation.—Daily discharge table furnished by Kern County Land Co., through A. K. Warren, engineer.

The following discharge measurement was made by wading by H. J. Tompkins: Sept. 23, 1912: Gage height, 2.13 feet; discharge, 164 second feet.

Daily discharge, in second-feet, of Kern River near Bakersfield, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	600	366	336	344	401	338	457	766	2,446	716	369	210
2.....	573	354	341	363	372	333	464	854	2,692	671	363	203
3.....	530	376	335	360	364	318	483	875	2,865	634	348	199
4.....	495	365	334	350	357	319	491	834	2,919	606	332	194
5.....	456	369	361	340	334	344	514	828	2,861	563	326	196
6.....	437	381	351	345	336	356	500	908	2,636	525	316	196
7.....	429	381	363	330	336	382	494	931	2,708	521	306	202
8.....	418	388	364	373	337	422	524	895	2,613	562	293	196
9.....	412	369	365	379	355	400	599	876	2,319	586	286	195
10.....	410	364	363	387	360	388	668	873	2,068	588	292	203
11.....	414	382	350	381	370	414	733	953	1,856	570	304	203
12.....	393	398	345	386	380	464	757	1,133	1,813	575	303	192
13.....	393	393	335	400	381	472	730	1,288	1,836	579	288	185
14.....	396	392	330	400	377	511	719	1,344	1,626	546	272	185
15.....	398	401	340	389	389	482	715	1,444	1,539	550	258	183
16.....	389	393	346	411	379	518	700	1,550	1,510	545	254	181
17.....	389	386	366	423	372	552	694	1,632	1,302	520	252	176
18.....	381	380	381	419	394	556	698	1,764	1,367	491	250	174
19.....	365	368	367	397	403	523	701	1,881	1,387	665	245	171
20.....	368	367	360	383	393	541	697	1,745	1,404	743	246	164
21.....	368	365	366	376	381	542	647	1,653	1,391	654	241	162
22.....	372	362	360	367	377	520	627	1,525	1,265	580	237	163
23.....	378	351	334	352	390	498	606	1,315	1,083	516	236	160
24.....	398	333	362	360	384	499	587	1,246	945	482	232	166
25.....	399	321	372	374	380	509	619	1,278	819	456	228	170
26.....	384	326	327	380	371	518	639	1,357	737	408	221	172
27.....	374	348	301	389	365	506	649	1,247	702	394	223	171
28.....	371	327	341	403	357	486	668	1,241	706	377	223	175
29.....	368	296	385	393	348	472	672	1,675	732	361	221	171
30.....	374	336	387	398	488	726	2,212	734	364	213	174
31.....	384	346	402	492	2,447	371	216

¹ Station known formerly as at "first point of measurement."

Monthly discharge of Kern River near Bakersfield, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	600	365	413	25,400
November.....	401	296	365	21,700
December.....	387	301	352	21,600
January.....	423	330	379	23,300
February.....	403	334	370	21,300
March.....	556	318	457	28,100
April.....	757	457	626	37,200
May.....	2,447	766	1,310	80,600
June.....	2,919	702	1,700	101,000
July.....	743	361	539	33,100
August.....	369	213	271	16,700
September.....	210	100	183	10,900
The year.....	2,919	100	579	421,000

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

KERN RIVER POWER CO.'S CANAL ¹ AT KERNVILLE, CAL.

Location.—At the Beattie ranch, 1,000 feet below intake, and about three-fourths of a mile below Kernville.

Records available.—January 1, 1910, to September 30, 1912.

Gage.—Water stage register on left bank at short flume. A vertical staff is located just below flume in concrete-lined section of canal.

Discharge measurements.—Made in flume at automatic gage.

Accuracy.—Results are considered excellent.

Cooperation.—Daily discharge records furnished by Kern River Power Co., through G. O. Newman, chief engineer.

Discharge measurements of Kern River Power Co.'s canal at Kernville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
May 17	H. J. Tompkins.....	<i>Feet.</i>	<i>Sec.-ft.</i>
22	do.....	7.44	553
July 28	J. E. Stewart.....	4.15	242
Sept. 27	H. J. Tompkins.....	5.30	333
		3.20	158

NOTE.—Measurement Sept. 27, 1912, made by wading near gage; all others made from bridge.

Daily discharge, in second-feet, of Kern River Power Co.'s canal at Kernville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	473	312	282	253	272	273	341	555	589	352	190	
2.....	415	307	283	281	260	275	356	558	586	340	190	
3.....	392	308	280	263	263	263	393	555	562	329	188	
4.....	380	299	283	251	263	261	411	584	200	540	319	187
5.....	364	302	281	263	273	283	404	589	409	500	308	187
6.....	358	301	274	270	269	303	407	587	409	481	295	189
7.....	356	298	304	277	271	374	402	589	506	525	321	188
8.....	343	289	279	275	267	312	447	589	506	555	274	188
9.....	337	293	265	275	263	297	485	589	555	555	270	188
10.....	334	283	270	271	271	312	555	589	589	545	271	188

¹ The canal diverts from Kern River about half a mile below Kernville. Its total length is about 10 miles and it is concrete lined except where flume is required. The power house is in the canyon at Borel, where the water is returned to the river. The power is transmitted to Los Angeles.

Daily discharge, in second-feet, of Kern River Power Co.'s canal at Kernville, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	333	380	272	281	269	297	540	589	589	545	267	187
12.....	330	338	266	285	267	285	525	589	578	529	259	186
13.....	325	295	262	275	267	332	487	506	580	529	255	185
14.....	321	321	257	275	265	293	456	503	579	255	184
15.....	317	319	262	279	267	329	479	501	579	492	252	172
16.....	309	331	267	285	259	350	478	536	459	249	181
17.....	304	326	271	283	266	362	486	555	589	442	247	180
18.....	302	312	273	269	277	333	504	555	589	496	241	179
19.....	300	312	260	267	277	345	520	589	589	235	178
20.....	300	312	255	268	273	358	477	237	589	589	232	165
21.....	299	309	286	256	267	349	443	350	589	574	220	164
22.....	300	307	247	267	283	347	435	237	589	511	216	165
23.....	299	302	256	267	259	316	438	267	589	466	208	165
24.....	299	289	289	265	270	331	483	589	441	202	165
25.....	297	293	260	265	243	349	534	589	403	196	165
26.....	295	295	228	259	253	353	508	589	389	197	165
27.....	296	293	226	293	261	347	553	589	369	208	165
28.....	303	289	259	267	273	347	497	589	360	210	165
29.....	315	289	281	258	266	358	536	589	355	202	165
30.....	316	285	253	288	384	557	589	363	188	173
31.....	318	227	281	345	355	193

NOTE.—Daily discharge Oct. 30, Nov. 12 and 19, 1911, interpolated by engineers of the U. S. Geological Survey. Water was turned out of canal on days during 1912 for which no record is given.

Monthly discharge of Kern River Power Co.'s canal at Kernville, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	473	295	320	19,700
November.....	380	283	306	18,200
December.....	304	226	266	16,400
January.....	293	251	271	16,700
February.....	283	243	267	15,400
March.....	384	261	325	20,000
April.....	557	341	471	28,000
May.....	589	0	362	22,800
June.....	589	0	482	28,700
July.....	589	0	474	29,100
August.....	352	188	252	15,500
September.....	190	164	178	10,600
The year.....	589	0	331	241,000

NOTE.—Monthly discharge computed by engineers of the U. S. Geological Survey. Flow estimated at zero for days when water was turned out of canal.

SOUTH FORK OF KERN RIVER NEAR ONYX, CAL.

Location.—Three-fourths of a mile north of the Kernville-Walker Pass road, on the Rankin ranch, in the NE. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 24, T. 25 S., R. 35 E., and about 5 miles northeast of Onyx.

Records available.—September 12, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Inclined staff on left bank 200 feet below intake of lower Rankin ditch, installed November 16, 1911, at about the same site and with same datum as temporary vertical staff previously used. The vertical gage, which is fastened to an inclined stump, has been gradually rising since new gage was installed. Hence gage-height record September 12 to November 11, 1911, is doubtless in error.

Channel.—Sand and fine gravel; fairly permanent.

Discharge measurements.—Made from car and cable 60 feet below gage or by wading.

Diversions.—Three small irrigation ditches head above the station.

Accuracy.—Rating curve fairly well defined and results are fair.

Discharge measurements of South Fork of Kern River near Onyx, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.		Discharge.
		Vertical gage.	Inclined gage.	
		Feet.	Feet.	Sec.-ft.
1911. Nov. 16 ^a	H. J. Tompkins.....	1.85	1.85	63
1912. Apr. 28 ^b	J. E. Stewart.....	2.86	3.02	231
May 19 ^b	H. J. Tompkins.....		3.39	340
July 26 ^c	J. E. Stewart.....	1.28	1.48	25

^a Wading 100 feet below new inclined gage. Powers ditch diverting 1.1 second-feet.

^b Cable.

^c Wading above gage.

Daily gage height, in feet, of South Fork of Kern River near Onyx, Cal., for 1911-12.

[L. E. Rankin, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.00	1.75	1.80	1.71	1.80	1.80	1.90	2.75	2.50	1.5	1.5	1.3
2.....	1.92	1.75	1.80	1.71	1.80	1.90	1.90	2.75	2.50	1.5	1.6	1.3
3.....	1.87	1.73	1.88	1.71	1.80	1.90	1.90	2.75	2.45	1.5	1.64	1.3
4.....	1.84	1.72	1.88	1.72	1.81	1.90	2.00	2.75	2.45	1.6	1.64	1.3
5.....	1.83	1.71	1.88	1.72	1.81	1.90	2.00	2.75	2.40	1.7	1.5	1.4
6.....	1.83	1.71	1.88	1.75	1.80	1.90	2.00	2.75	2.40	1.7	1.4	1.4
7.....	1.82	1.71	1.88	1.75	1.81	1.90	2.00	2.72	2.30	1.7	1.3	1.4
8.....	1.71	1.71	1.80	1.80	1.81	1.80	2.40	2.72	2.30	1.6	1.25	1.4
9.....	1.71	1.71	1.80	1.87	1.75	1.80	2.70	2.72	2.10	1.6	1.25	1.4
10.....	1.71	1.71	1.80	1.90	1.73	1.90	2.60	2.72	2.10	1.6	1.25	1.4
11.....	1.70	1.71	1.85	1.73	1.70	2.00	2.60	2.70	2.10	1.5	1.25	1.4
12.....	1.70	1.60	1.87	1.74	1.70	2.00	2.50	2.70	2.00	1.5	1.2	1.4
13.....	1.70	1.60	1.87	1.79	1.70	1.90	2.20	2.90	2.00	1.5	1.2	1.4
14.....	1.70	1.60	1.87	1.80	1.70	1.80	2.20	2.90	1.95	1.6	1.2	1.4
15.....	1.72	1.70	1.85	1.80	1.70	1.80	2.20	3.20	1.90	1.6	1.2	1.4
16.....	1.71	1.81	1.85	1.81	1.70	1.95	2.20	3.20	1.80	1.6	1.2	1.4
17.....	1.70	1.78	1.85	1.80	1.75	1.95	2.10	3.30	1.80	1.7	1.5	1.4
18.....	1.70	1.79	1.85	1.80	1.75	1.95	2.20	3.30	1.80	1.8	1.5	1.4
19.....	1.70	1.80	1.85	1.80	1.75	1.95	2.20	3.35	1.80	1.8	1.5	1.4
20.....	1.70	1.80	1.85	1.80	1.75	1.90	2.20	3.30	1.80	1.8	1.5	1.4
21.....	1.70	1.80	1.85	1.80	1.76	1.90	2.20	3.30	1.85	1.7	1.12	1.4
22.....	1.70	1.80	1.85	1.80	1.77	1.90	2.20	2.80	1.85	1.7	1.1	1.4
23.....	1.70	1.80	1.85	1.80	1.80	1.90	2.30	2.80	1.85	1.6	1.1	1.41
24.....	1.70	1.80	1.88	1.80	1.90	1.90	2.50	2.70	1.85	1.5	1.1	1.4
25.....	1.70	1.80	1.90	1.80	1.81	1.90	2.60	2.70	1.80	1.5	1.1	1.4
26.....	1.70	1.85	1.90	1.80	1.75	1.90	2.70	2.70	1.80	1.5	1.1	1.4
27.....	1.70	1.90	1.90	1.80	1.78	1.90	2.70	2.60	1.80	1.45	1.2	1.41
28.....	1.78	1.90	1.90	1.80	1.78	1.90	2.70	2.60	1.80	1.45	1.2	1.41
29.....	1.80	1.87	1.90	1.80	1.76	1.90	2.70	2.60	1.80	1.45	1.3	1.41
30.....	1.80	1.78	1.85	1.80	1.90	2.70	2.50	1.80	1.45	1.3	1.41
31.....	1.80	1.85	1.80	1.90	2.50	1.45	1.3

Daily discharge, in second-feet, of South Fork of Kern River near Onyx, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		50	44	58	51	58	58	66	179	130	21	21	10
2.....		45	44	58	51	58	66	66	179	130	21	27	10
3.....		42	43	64	51	58	66	66	179	122	21	30	10
4.....		40	43	64	52	59	66	75	179	122	27	30	10
5.....		40	43	64	52	59	66	75	179	114	34	21	15
6.....		40	44	64	54	58	66	75	179	114	34	15	15
7.....		40	44	64	54	59	66	75	174	99	34	10	15
8.....		33	45	58	58	59	58	122	174	99	27	8	15
9.....		33	46	58	64	54	58	170	174	73	27	8	15
10.....		34	46	58	66	52	66	153	174	73	27	8	15
11.....		33	47	62	52	50	75	153	170	73	21	8	15
12.....	34	34	40	64	53	50	75	137	170	61	21	6	15
13.....	34	34	41	64	57	50	66	96	208	61	21	6	15
14.....	32	34	42	64	58	50	58	96	208	56	27	6	15
15.....	31	35	42	62	58	50	58	96	282	51	27	6	15
16.....	35	35	59	62	59	50	70	96	282	42	27	6	15
17.....	28	35	56	62	58	54	70	85	312	42	34	21	15
18.....	28	35	57	62	58	54	70	96	312	42	42	21	15
19.....	28	35	58	62	58	54	70	96	327	42	42	21	15
20.....	28	36	58	62	58	54	66	96	312	42	42	21	15
21.....	27	36	58	62	58	55	66	96	312	46	34	3.6	15
22.....	30	37	58	62	58	56	66	96	186	46	34	3	15
23.....	31	37	58	62	58	58	66	108	186	46	27	3	15
24.....	30	37	58	64	58	66	66	137	166	46	21	3	15
25.....	30	37	58	66	58	59	66	137	166	42	21	3	15
26.....	30	38	62	66	58	54	66	170	166	42	21	3	15
27.....	29	38	66	66	58	56	66	170	148	42	18	6	16
28.....	24	44	66	66	58	56	66	170	148	42	18	6	16
29.....	57	46	64	66	58	55	66	170	148	42	18	10	16
30.....	153	46	56	62	58	66	170	130	42	18	10	16
31.....	46	62	58	66	130	18	10

NOTE.—Daily discharge determined by two fairly well defined rating curves applicable Nov. 16, 1911, to May 19, 1912, and May 20 to Sept. 30, 1912. Indirect method used Sept. 12 to Nov. 15, 1911.

Monthly discharge of South Fork of Kern River near Onyx, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
September 12-30.....	153	24	37.8	1,420	C.
1911-12.					
October.....	50	33	38.2	2,350	C.
November.....	66	40	51.5	3,060	B.
December.....	66	58	62.6	3,850	B.
January.....	66	51	56.8	3,490	B.
February.....	66	50	55.3	3,180	B.
March.....	75	58	65.8	4,050	B.
April.....	170	66	114	6,780	B.
May.....	327	130	201	12,400	B.
June.....	130	42	67.5	4,020	B.
July.....	42	18	26.6	1,640	C.
August.....	30	3	11.6	713	C.
September.....	16	10	14.5	863	C.
The year.....	327	3	63.9	46,400	

SOUTH FORK OF KERN RIVER AT ISABELLA, CAL.

Location.—At highway bridge at Isabella, in the NW. $\frac{1}{4}$ sec. 20, T. 26 S., R. 33 E., half a mile above junction with Kern River.

Records available.—October 5, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to middle span of bridge.

Channel.—Sand; somewhat shifting.

Discharge measurements.—Made from bridge at gage and by wading.

Diversions.—Twenty-eight irrigation ditches, varying in capacity from 8 to 20 second-feet, head above the station.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements can be made.

Discharge measurements of South Fork of Kern River at Isabella, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 17	H. J. Tompkins.....	0.45	21
1912.			
Apr. 29	J. E. Stewart.....	.92	136
May 17	H. J. Tompkins.....	1.44	281
July 25	J. E. Stewart.....	.38	14
Sept. 27	H. J. Tompkins.....	.40	12

NOTE.—Measurement May 17, 1912, made from bridge; all others made by wading at various sections near gage.

Daily gage height, in feet, of South Fork of Kern River at Isabella, Cal., for 1911-12.

[Roy Oldfield, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.7		0.5									
2.....	.7	0.5	.5		0.7	0.6	0.7			0.4	0.3	
3.....	.7	.5	.6	0.7				0.9				
4.....		.4	.6			.6			0.7			0.3
5.....	.6	.5	.6	.7	.6							
6.....	.6	.4	.6				.7					
7.....	.6	.4	.6			.7						
8.....		.4	.6	.8								
9.....	.6	.4	.6			.8						
10.....	.6	.4	.6									
11.....												
12.....	.5			.8		.9		.9				
13.....	.5	.5		.8	.6							
14.....	.5	.4				.8	.8					
15.....	.5	.4								.3		
16.....	.5	.4		.7	.6				.5		.2	
17.....	.5	.5				.7		1.45				.3
18.....	.5	.5	.6	.7	.6							
19.....	.5	.5				.7	.9					
20.....	.5	.5										
21.....	.5	.5							.4			
22.....	.5	.5		.8	.6	.7		.9				
23.....	.5		.6							.3		
24.....	.5	.5		.8			.9					
25.....	.6	.5	.6		.6	.7				.38		
26.....	.6	.5	.6	.8								
27.....												.3
28.....	.6	.5	.6	.8	.6							
29.....		.5	.6			.7	.9					
30.....		.5	.6				1.0		.3	.3		
31.....	.6		.6	.8				.9				

ERSKINE CREEK NEAR ISABELLA, CAL.

Location.—At ford at mouth of canyon, $2\frac{1}{2}$ miles above junction with Kern River, in the NE. $\frac{1}{4}$ sec. 9, T. 27 S., R. 33 E., 5 miles south of Isabella.

Records available.—February 7, 1911, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to willow tree, about 80 feet above ford on left bank.

Channel.—Sand and gravel. Two channels at high stages.

Discharge measurements.—Made by wading near gage.

Diversions.—A small ditch diverts water for irrigation about 9 miles above the station.

Accuracy.—Rating curve fairly well defined. On account of incomplete gage-height record the results are approximate.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Erskine Creek near Isabella, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 30	J. E. Stewart	2.74	5.1
May 21	H. J. Tompkins	2.61	3.8
July 26	J. E. Stewart	2.08	.1

NOTE.—Made by wading below gage.

Daily gage height, in feet, of Erskine Creek near Isabella, Cal., for 1911-12.

[C. T. Shook and Roy Oldfield, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1												
2	2.1		2.6							2.2	2.0	
3		2.3				2.5						
4					2.3	2.5	2.6					2.1
5												
6				2.4								
7									2.0			
8												
9						2.6						
10												
11			2.68					2.8				
12	2.3											
13												
14								2.7				
15				2.5		2.6						
16						2.7					2.1	
17								2.6				
18												
19						2.7						
20												
21						2.6	2.8	2.6				
22						2.6						
23		2.3										
24						2.7						
25												
26						2.6				2.08		
27				2.5								2.1
28		2.4										
29					2.1							
30						2.7	2.75		1.3	2.0		
31				2.4								

Daily discharge, in second-feet, of Erskine Creek near Isabella, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.												
2.	0.3		3.7							0.7	0.0	
3.		1.3										
4.						2.8						0.2
5.					1.3	2.8	3.7					
6.				2.0								
7.									0.1			
8.												
9.												
10.						3.7						
11.			4.5					5.7				
12.	1.3											
13.								4.7				
14.												
15.				2.8		3.7						
16.						4.7					.2	
17.								3.7				
18.												
19.												
20.						4.7						
21.						3.7	5.7	3.7				
22.						3.7						
23.		1.3										
24.						4.7						
25.												
26.						3.7				.2		
27.				2.8								.2
28.		2.0										
29.					.3							
30.						4.7	5.2			.0		
31.				2.0								

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

Monthly discharge of Erskine Creek near Isabella, Cal., for 1911-12.

Month.	Mean discharge in second-feet.	Run-off (total in acre-feet).
October.....	1	61
November.....	1.5	89
December.....	4	246
January.....	3	184
February.....	1	58
March.....	4	246
April.....	6	357
May.....	4	246
June.....	.5	30
July.....	.5	30.7
August.....	.1	6.1
September.....	.2	11.9
The year.....	2.2	1,570

NOTE.—Monthly discharge estimated from fragmentary record of daily discharge and consideration of discharge of adjacent streams. Values are only approximate.

Cooperation.—Gage-height record furnished by United States Forest Service

Discharge measurements of Basin Creek near Havilah, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
April 27	J. E. Stewart.....	<i>Feet.</i> 0.66	<i>Sec.-ft.</i> 4.8
30	do.....	.59	3.2
May 16	H. J. Tompkins.....	.50	2.1

NOTE.—Made by wading below gage.

Daily gage height, in feet, of Basin Creek near Havilah, Cal., for 1911-12.

[L. P. Allen, observer.]

[illegible]

Daily discharge, in second-feet, of Basin Creek near Havilah, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	7	7		5	5							
2.	7	7		5								
3.	7	7		5								
4.	7	7		5					1			
5.	7	7		5				4				
6.	7	7		5								4
7.	8	7		6					2			
8.	9	7		11								
9.	10	7		11								
10.	10	7		10								
11.	10	7		7							2.0	
12.	10	7		7		9						
13.	10	7		5			8				2.0	
14.	9	7		5				4		2.0		
15.	8	7		5			11	4				
16.	7	7		5				2				
17.	7	7										
18.	7	7										
19.	7	7					4					4
20.	7	7										
21.	7	7										
22.	7	7										
23.	7	7										
24.	7	7										
25.	7	7						1				
26.	7	7										
27.	7	7					5	2				
28.	7	7										
29.	7	7										
30.	7	7					3					
31.	7									2.0		

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable 1911 to Mar. 12, 1912, and Apr. 30, 1912. Discharge interpolated for days on which gage was not read in 1911.

Monthly discharge of Basin Creek near Havilah, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	10	7	7.7	473
November....	7	7	7.0	417
December.....			8	492
January.....			6	369
February.....			5	288
March.....			8	492
April.....			7	417
May.....			3	184
June.....			1	60
July.....			2	123
August.....			2	123
September.....			3	179
The year.....			5.0	3,620

NOTE.—Discharge December, 1911, to Sept. 30, 1912, estimated from the discharge of adjacent streams and from a fragmentary daily-discharge record. Values are only approximate.

WHITE RIVER NEAR HOT SPRINGS, CAL.

Location.—On Vaughn ranch, 1 mile east of White River and Hot Springs stage road, about 5 miles southwest of Hot Springs.

Records available.—January 18, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on right bank fastened to a willow tree about 150 feet above observer's house.

Channel.—Sand and gravel.

Discharge measurements.—Made by wading.

Cooperation.—Gage-height record furnished by David Vaughn.

Estimates are withheld until additional measurements can be made.

Discharge measurements of White River near Hot Springs, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 25 ^a	J. E. Stewart.....	1.66	5.9
May 26 ^b	H. J. Tompkins.....	1.59	4.7

^a Made by wading 400 feet above gage. One-quarter second-foot estimated and included in measurement. This is inflow between measuring section and gage.

^b Made by wading 400 feet below gage.

Daily gage height, in feet, of White River near Hot Springs, Cal., for 1911-12.

[David Vaughn, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.....	1.25	1.2	1.2	1.4	1.5	1.4	1.5	1.6	1.5	1.4
2.....	1.25	1.2	1.2	1.4	1.5	1.4	1.5	1.6	1.5	1.4
3.....	1.3	1.2	1.2	1.4	1.5	1.4	1.5	1.6	1.5
4.....	1.3	1.2	1.4	1.4	1.5	1.4	1.5	1.6	1.5
5.....	1.3	1.2	1.4	1.4	1.5	1.4	1.55	1.6	1.45	1.4
6.....	1.3	1.2	1.3	1.4	1.5	1.45	1.55	1.55	1.45	1.35
7.....	1.25	1.2	1.4	1.35	1.5	1.5	1.55	1.62	1.45	1.35
8.....	1.25	1.2	1.4	1.35	1.45	1.5	1.5	1.6	1.45	1.35
9.....	1.25	1.2	1.3	1.35	1.45	1.5	2.05	1.6	1.45	1.35
10.....	1.25	1.7	1.3	1.3	1.45	1.5	1.9	1.65	1.45	1.35
11.....	1.25	1.5	1.3	1.7	1.45	1.6	2.1	1.65	1.45	1.35
12.....	1.25	1.4	1.3	1.6	1.45	1.6	2.1	1.65	1.45	1.35
13.....	1.25	1.4	1.3	1.6	1.45	1.5	2.0	1.7	1.45	1.35
14.....	1.25	1.3	1.25	1.5	1.45	1.5	1.9	1.7	1.45	1.35
15.....	1.25	1.3	1.25	1.5	1.45	1.5	1.8	1.7	1.5	1.35
16.....	1.25	1.3	1.25	1.5	1.45	2.0	1.8	1.75	1.5	1.35
17.....	1.25	1.3	1.5	1.5	1.45	1.8	1.8	1.7	1.45	1.3
18.....	1.25	1.3	1.45	1.5	1.45	1.7	1.75	1.65	1.45	1.3
19.....	1.25	1.3	1.45	1.5	1.45	1.6	1.75	1.6	1.4	1.3
20.....	1.25	1.3	1.4	1.5	1.45	1.7	1.7	1.6	1.4	1.3
21.....	1.2	1.25	1.4	1.5	1.4	1.6	1.7	1.6	1.4	1.3
22.....	1.2	1.25	1.4	1.5	1.4	1.55	1.7	1.6	1.4	1.3
23.....	1.2	1.25	1.3	1.5	1.4	1.5	1.7	1.6	1.4	1.3
24.....	1.2	1.25	1.3	1.5	1.4	1.5	1.7	1.6	1.4	1.3
25.....	1.2	1.25	1.3	1.5	1.4	1.5	1.7	1.6	1.4	1.3
26.....	1.2	1.25	1.3	1.6	1.4	1.5	1.68	1.6	1.4	1.3
27.....	1.2	1.25	1.3	1.6	1.4	1.6	1.65	1.6	1.4	1.25
28.....	1.25	1.2	1.4	1.6	1.4	1.6	1.65	1.55	1.4
29.....	1.25	1.2	1.4	1.55	1.4	1.5	1.65	1.55	1.4
30.....	1.25	1.2	1.5	1.55	1.5	1.65	1.55	1.4
31.....	1.25	1.4	1.5	1.5	1.5

DEER CREEK AT HOT SPRINGS, CAL.

Location.—Below footbridge at forest supervisor's headquarters in the Sequoia National Forest, about half a mile below Hot Springs. Tyler Creek enters about $2\frac{1}{2}$ miles below the station.

Records available.—October 7, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank, 30 feet below footbridge.

Channel.—Sand, gravel, and boulders.

Discharge measurements.—Made from highway bridge 100 feet below gage or by wading.

Diversions.—Irrigation ditches head above the station.

Accuracy.—Rating curves fairly well defined and results are good.

Cooperation.—Gage-height record furnished through United States Forest Service by M. J. Pettis.

Discharge measurements of Deer Creek at Hot Springs, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
May 25	H. J. Tompkins.....	0.75	1.3
July 21	J. E. Stewart.....	.38	2.4
Sept. 18	H. J. Tompkins.....	.35	2.3

NOTE.—Wading below gage.

Daily gage height, in feet, of Deer Creek at Hot Springs, Cal., for 1911-12.

[Merle J. Pettis, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.39	0.41	0.46	0.54	0.51	0.49	0.58	0.78	0.69	0.47	0.35	0.31
2.....	.40	.42	.46	.54	.51	.50	.62	.74	.68	.47	.35	.30
3.....	.40	.42	.49	.51	.50	.50	.62	.70	.65	.45	.35	.31
4.....	.40	.42	.50	.58	.50	.51	.62	.70	.62	.45	.34	.32
5.....	.39	.41	.52	.51	.50	.51	.67	.74	.61	.45	.34	.33
6.....	.39	.42	.60	.56	.50	.52	.62	.74	.60	.45	.34	.33
7.....	.39	.42	.57	.55	.49	.53	.62	.78	.56	.45	.34	.38
8.....	.40	.42	.52	.56	.49	.53	.68	.77	.58	.42	.32	.40
9.....	.41	.42	.51	.56	.49	.53	1.00	.75	.58	.38	.30	.42
10.....	.42	.62	.51	.58	.50	.53	.94	.76	.54	.40	.30	.32
11.....	.42	.50	.51	.67	.50	.51	.90	.79	.52	.40	.29	.33
12.....	.42	.43	.51	.58	.50	.56	.87	.80	.52	.39	.29	.35
13.....	.42	.42	.51	.54	.49	.58	.79	.88	.52	.39	.29	.37
14.....	.43	.43	.51	.57	.49	.56	.87	.98	.52	.39	.27	.36
15.....	.43	.43	.51	.58	.49	.58	.83	.94	.52	.39	.28	.35
16.....	.42	.43	.51	.58	.49	.68	.80	.94	.51	.40	.29	.37
17.....	.42	.43	.51	.57	.49	.57	.80	.87	.49	.40	.29	.37
18.....	.41	.44	.51	.52	.49	.57	.79	.85	.45	.40	.26	.37
19.....	.42	.44	.55	.52	.50	.55	.75	.85	.42	.40	.26	.37
20.....	.42	.45	.57	.52	.50	.55	.68	.84	.45	.40	.26	.35
21.....	.43	.45	.53	.52	.49	.57	.65	.82	.45	.38	.27	.35
22.....	.43	.45	.50	.52	.48	.55	.66	.82	.46	.38	.27	.34
23.....	.43	.46	.50	.52	.49	.56	.65	.85	.49	.38	.30	.35
24.....	.43	.46	.49	.51	.48	.56	.64	.78	.50	.38	.30	.35
25.....	.43	.46	.47	.51	.48	.58	.70	.75	.49	.38	.32	.35
26.....	.43	.46	.45	.51	.48	.58	.69	.78	.48	.38	.32	.36
27.....	.43	.46	.45	.53	.49	.58	.73	.74	.47	.38	.32	.36
28.....	.43	.46	.46	.52	.49	.58	.75	.72	.45	.38	.31	.36
29.....	.43	.46	.45	.52	.49	.56	.72	.72	.47	.38	.31	.36
30.....	.42	.46	.50	.5159	.75	.73	.47	.35	.31	.36
31.....	.4253	.51587135	.31

Daily discharge, in second-feet, of Deer Creek at Hot Springs, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.4	2.8	3.8	6.0	5.1	4.5	7.2	15	11	4.4	2.0	1.6
2.....	2.6	3.0	3.8	6.0	5.1	4.8	8.5	13	11	4.4	2.0	1.5
3.....	2.6	3.0	4.5	5.1	4.8	4.8	8.5	11.5	9.7	4.0	1.9	1.6
4.....	2.6	3.0	4.8	7.2	4.8	5.1	8.5	11.5	8.5	4.0	1.9	1.7
5.....	2.4	2.8	5.4	5.1	4.8	5.1	10.5	13	8.1	4.0	1.9	1.8
6.....	2.4	3.0	7.8	6.6	4.8	5.4	8.5	13	7.8	4.0	1.9	1.8
7.....	2.4	3.0	6.9	6.3	4.5	5.7	8.5	15	6.6	4.0	1.9	2.6
8.....	2.6	3.0	5.4	6.6	4.5	5.7	11	14.5	7.2	3.4	1.7	3.0
9.....	2.8	3.0	5.1	6.6	4.5	5.7	26	13.5	7.2	2.6	1.5	3.4
10.....	3.0	8.5	7.2	4.8	4.8	5.7	23	14	6.0	3.0	1.5	1.7
11.....	3.0	4.8	5.1	10.5	4.8	5.1	21	15	5.4	3.0	1.3	1.8
12.....	3.0	3.2	5.1	7.2	4.8	6.6	19	15.5	5.4	2.8	1.3	2.0
13.....	3.0	3.0	5.1	6.0	4.5	7.2	15	19.5	5.4	2.8	1.3	2.4
14.....	3.2	3.2	5.1	6.9	4.5	6.6	19	25	5.4	2.8	1.1	2.2
15.....	3.2	3.2	5.1	7.2	4.5	7.2	17	23	5.4	2.8	1.2	2.0
16.....	3.0	3.2	5.1	7.2	4.5	11	15.5	23	5.2	3.0	1.3	2.4
17.....	3.0	3.2	5.1	6.9	4.5	6.9	15.5	19	4.8	3.0	1.3	2.4
18.....	2.8	3.4	5.1	5.4	4.5	6.9	15	18	4.0	3.0	1.0	2.4
19.....	3.0	3.4	6.3	5.4	4.8	6.3	13.5	18	3.4	3.0	1.0	2.4
20.....	3.0	3.6	6.9	5.4	4.8	6.3	11	17.5	4.0	3.0	1.0	2.0
21.....	3.2	3.6	5.7	5.4	4.5	6.9	9.7	16.5	4.0	2.6	1.1	2.0
22.....	3.2	3.6	4.8	5.4	4.3	6.3	10	16.5	4.2	2.6	1.1	1.9
23.....	3.2	3.8	4.8	5.4	4.5	6.6	9.7	18	4.8	2.6	1.5	2.0
24.....	3.2	3.8	4.5	5.1	4.3	6.6	9.3	15	5.0	2.6	1.5	2.0
25.....	3.2	3.8	4.0	5.1	4.3	7.2	11.5	13.5	4.8	2.6	1.7	2.0
26.....	3.2	3.8	3.6	5.1	4.3	7.2	11	15	4.6	2.6	1.7	2.2
27.....	3.2	3.8	3.6	5.7	4.5	7.2	12.5	13	4.4	2.6	1.7	2.2
28.....	3.2	3.8	3.8	5.4	4.5	7.2	13.5	12	4.0	2.6	1.6	2.2
29.....	3.2	3.8	3.6	5.4	4.5	6.6	12	12	4.4	2.6	1.6	2.2
30.....	3.0	3.8	4.8	5.1	7.5	13.5	12.5	4.4	2.0	1.6	2.2
31.....	3.0	5.7	5.1	7.2	12	2.0	1.6

NOTE.—Discharge determined from 2 fairly well defined rating curves. Values for June supersede those published in Water-Supply Paper 299, p. 120.

Monthly discharge of Deer Creek at Hot Springs, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	3.2	2.4	2.93	180	C.
November.....	8.5	2.8	3.56	212	C.
December.....	7.8	3.6	5.02	309	C.
January.....	10.5	5.1	6.10	375	B.
February.....	5.1	4.3	4.61	265	C.
March.....	11	4.5	6.42	365	B.
April.....	26	7.2	13.1	780	B.
May.....	25	11.5	15.6	959	B.
June.....	11	3.4	5.87	349	B.
July.....	4.4	2.0	3.05	188	B.
August.....	2.0	1.0	1.51	92.8	C.
September.....	3.4	1.5	2.12	126	C.
The year.....	26	1.0	5.83	4,230	

TYLER CREEK NEAR HOT SPRINGS, CAL.

Location.—Below foot log at the Thompson ranch, in Sequoia National Forest, about 1½ miles north of Hot Springs, and about 4 miles above junction with Deer Creek.

Records available.—January 16, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on left bank 100 feet below observer's house.

Channel.—Boulders and sand; somewhat shifting

Discharge measurements.—Made by wading.

Diversions.—Three small irrigation ditches divert water above the station.

Accuracy.—Rating curves are not very well defined; results are fair.

Cooperation.—Gage-height record furnished by D. B. Thompson.

Discharge measurements of Tyler Creek near Hot Springs, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 25	J. E. Stewart.....	1.14	8.0
May 26	H. J. Tompkins.....	1.00	4.9
July 21	J. E. Stewart.....	.57	.4
Sept. 17	H. J. Tompkins.....	.51	.3

NOTE.—All measurements made by wading.

Daily gage height, in feet, of Tyler Creek near Hot Springs, Cal., for 1911-12.

[D. B. Thompson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.							1.2		1.1
2.	0.6	0.7					1.2		
3.			0.5				1.3		1.1
4.							1.3		
5.							1.3	1.2	
6.							1.2		
7.		.7	.5				1.2	1.2	1.1
8.						1.0			
9.	.7						1.3	1.2	
10.			.6					1.2	1.1
11.						1.0		1.2	
12.		.7					1.6	1.2	
13.	.6						1.5	1.2	1.0
14.			.6			1.2	1.4		
15.									1.0
16.	.6	.6				1.3			
17.								1.2	1.0
18.			.6			1.1		1.2	.9
19.		.6				1.1		1.2	
20.	.6					1.1	1.2	1.1	
21.						1.1		1.1	.9
22.						1.1		1.1	
23.		.5	.6			1.1		1.1	.9
24.						1.1		1.1	
25.	.7					1.1	1.2	1.1	.8
26.						1.15		1.0	.9
27.						1.2	1.2		
28.			.7			1.2		1.1	.9
29.	.7	.5				1.2	1.2		
30.						1.2	1.2	1.1	
31.						1.2			

NOTE.—No record after June, as observer moved away.

Daily discharge, in second-feet, of Tyler Creek near Hot Springs, Cal., for 1911-12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911.									
1.....		11.3	6.2	11.8	10.5	6.9	3.2	0.8	0.5
2.....		7.4	6.8	11.8	10.5	6.9	2.9	.8	.5
3.....		6.2	7.4	11.8	10.5	6.9	2.6	.8	.5
4.....		8.5	8.0	15	10.5	6.9	2.3	.8	.5
5.....		6.2	8.5	18	10.5	6.9	2.0	.8	.5
6.....		6.2	8.5	22	10.5	6.9	1.6	.8	.5
7.....		8.5	6.2	20	10.5	6.9	1.2	.8	.5
8.....		6.2	36	17	10.0	6.9	.8	.8	.5
9.....		6.2	30	14.8	9.6	6.9	.8	.8	.5
10.....		4.2	32	14.8	9.2	6.9	.8	.8	.5
11.....		6.2	27	14.8	9.2	6.9	.8	.8	.5
12.....		5.2	22	14.8	9.2	6.9	.8	.8	.5
13.....		11.3	22	14.8	9.2	6.9	.8	.8	.5
14.....		9.9	18.4	14.8	9.2	6.6	.8	.8	.5
15.....		8.5	14.8	13.3	9.2	6.3	.8	.8	.5
16.....	4.2	8.5	14.8	11.8	9.2	5.9	.8	.8	.6
17.....	4.2	7.4	14.8	11.8	9.2	5.6	.8	.8	.6
18.....	4.2	6.2	14.8	11.8	9.2	5.2	.8	.8	.7
19.....	4.2	6.2	14.8	11.8	9.2	4.9	.8	.8	.7
20.....	4.2	6.2	14.8	11.8	9.2	4.9	.8	.8	.8
21.....	9.9	6.2	14.8	11.5	9.2	4.9	.8	.8	.8
22.....	6.2	6.2	14.8	11.2	9.2	4.9	.8	.8	.9
23.....	8.8	6.2	14.8	10.8	9.2	4.9	.8	.8	1.0
24.....	11.3	6.2	14.8	10.5	9.2	4.9	.8	.7	1.1
25.....	14.6	6.2	14.8	10.5	9.2	4.6	.8	.6	1.2
26.....	8.5	6.2	14.8	11.8	9.2	4.4	.8	.5	1.2
27.....	8.5	6.2	11.8	11.8	9.2	4.1	.8	.5	1.2
28.....	8.5	6.2	11.8	11.4	8.6	3.9	.8	.5	1.2
29.....	20.5		11.8	11.1	8.0	3.6	.8	.5	1.2
30.....	8.5		11.8	10.8	7.7	3.4	.8	.5	1.2
31.....	16.6		11.8		7.3		.8	.5	
Day.									
	Oct.	Nov.	Dec.	Mar.	Apr.	May.	June.		
1911-12.									
1.....	1.2	2.0	0.8	11.8	9.5	7.0		
2.....	1.2	2.0	.8	11.8	9.5	7.0		
3.....	1.3	2.0	.8	14.8	9.5	7.0		
4.....	1.4	2.0	.8	14.8	9.5	7.0		
5.....	1.5	2.0	.8	14.8	9.5	7.0		
6.....	1.6	2.0	.8	11.8	9.5	7.0		
7.....	1.8	2.0	.8	11.8	9.5	7.0		
8.....	1.9	2.0	.9	6.9	13.3	9.5	7.0		
9.....	2.0	2.0	1.1	6.9	14.8	9.5	7.0		
10.....	1.8	2.0	1.2	6.9	18	9.5	7.0		
11.....	1.6	2.0	1.2	6.9	21	9.5	6.3		
12.....	1.4	2.0	1.2	8.5	24	9.5	5.6		
13.....	1.2	1.8	1.2	10.1	19.5	9.5	4.9		
14.....	1.2	1.6	1.2	11.8	16.0	9.5	4.9		
15.....	1.2	1.4	1.2	13.3	15.0	9.5	4.9		
16.....	1.2	1.2	1.2	14.8	13.9	9.5	4.9		
17.....	1.2	1.2	1.2	12.0	12.8	9.5	4.9		
18.....	1.2	1.2	1.2	9.2	11.7	9.5	3.2		
19.....	1.2	1.2	1.2	9.2	10.6	9.5	3.2		
20.....	1.2	1.1	1.2	9.2	9.5	7.0	3.2		
21.....	1.3	1.0	1.2	9.2	9.5	7.0	3.2		
22.....	1.5	.9	1.2	9.2	9.5	7.0	3.2		
23.....	1.6	.8	1.2	9.2	9.5	7.0	3.2		
24.....	1.8	.8	1.3	9.2	9.5	7.0	2.6		
25.....	2.0	.8	1.5	9.2	9.5	7.0	2.0		
26.....	2.0	.8	1.6	10.5	9.5	4.9	3.2		
27.....	2.0	.8	1.8	11.8	9.5	6.0	3.2		
28.....	2.0	.8	2.0	11.8	9.5	7.0	3.2		
29.....	2.0	.8	2.0	11.8	9.5	7.0	3.2		
30.....	2.0	.8	2.0	11.8	9.5	7.0	3.2		
31.....	2.0	2.0	11.8	7.0		

NOTE.—Daily discharge determined from three rating curves applicable as follows: Jan. 16 to Mar. 7, 1911, fairly well defined; Mar. 8, 1911, to Apr. 9, 1912, poorly defined; Apr. 10 to Sept. 30, 1912, fairly well defined. Discharge interpolated for days on which gage was not read.

Monthly discharge of Tyler Creek near Hot Springs, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
January 16-31.....	20.5	4.2	8.93	283	B.
February.....	11.3	4.2	7.00	389	B.
March.....	36	6.2	15.3	941	C.
April.....	22	10.5	13.3	791	C.
May.....	10.5	7.3	9.36	576	B.
June.....	6.9	3.4	5.76	343	B.
July.....	3.2	.8	1.13	69.5	C.
August.....	.8	.5	.73	44.9	D.
September.....	1.2	.5	.73	43.4	D.
The period.....				3,480	
1911-12.					
October.....	2.0	1.2	1.56	95.9	C.
November.....	2.0	.8	1.43	85.1	C.
December.....	2.0	.8	1.25	76.9	C.
March 8-31.....	14.8	6.9	10.0	476	C.
April.....	24	9.5	12.9	768	C.
May.....	9.5	4.9	8.43	513	B.
June.....	7.0	2.0	4.87	290	B.

TULE RIVER NEAR PORTERSVILLE, CAL.

Location.—Below highway bridge near the McFarland ranch, in the NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 25, T. 21 S., R. 28 E., about 1 mile above mouth of South Fork, and 6 miles east of Portersville. The North and Middle forks of Tule River unite about 9 miles above the station.

Records available.—May 1, 1901, to September 30, 1912.

Drainage area.—266 square miles.

Gage.—Staff in two sections on right bank, 100 feet below bridge; vertical upper section nailed to willow tree; inclined low-water section fastened to posts.

Channel.—Gravel and small boulders; practically permanent.

Discharge measurements.—Made from bridge above gage or by wading.

Diversions.—Several small irrigation ditches divert water above the station.

Accuracy.—Results are excellent.

Discharge measurements of Tule River near Portersville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 23	J. E. Stewart.....	1.94	126
May 27	H. J. Tompkins.....	2.09	168
July 23	J. E. Stewart.....	.70	9.7
Sept. 15	H. J. Tompkins.....	.65	6.0

NOTE.—All measurements made by wading above gage.

Daily gage height, in feet, of Tule River near Portersville, Cal., for 1911-12.

[Martha Brough, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.91	1.00	1.15	1.38	1.50	1.20	1.70	2.0	2.35	1.06	0.58	0.48
2.....	.93	1.00	1.15	1.35	1.45	1.20	1.70	2.0	2.3	1.03	.58	.50
3.....	.95	1.00	1.15	1.30	1.40	1.20	1.70	2.0	2.3	.98	.51	.52
4.....	.96	1.00	1.15	1.30	1.40	1.25	1.70	2.0	2.25	.96	.44	.54
5.....	.97	1.00	1.15	1.30	1.39	1.40	1.90	2.0	2.2	.95	.45	.57
6.....	.99	1.00	1.20	1.30	1.38	1.50	1.85	2.0	2.2	.94	.45	.60
7.....	1.00	1.00	1.30	1.30	1.37	1.55	1.90	2.05	2.2	.92	.41	.60
8.....	1.00	1.00	1.30	1.30	1.36	1.50	1.95	2.1	2.15	.90	.41	.60
9.....	1.00	1.00	1.30	1.35	1.35	1.45	2.0	2.2	2.1	.88	.41	.60
10.....	1.00	1.80	1.29	1.35	1.34	1.60	2.1	2.25	2.05	.86	.40	.60
11.....	1.00	1.60	1.28	1.40	1.35	1.60	2.35	2.2	2.0	.85	.40	.60
12.....	.99	1.50	1.27	1.45	1.35	1.55	2.45	2.25	1.90	.84	.40	.60
13.....	.98	1.40	1.26	1.45	1.35	1.90	2.4	2.25	1.85	.82	.39	.60
14.....	.98	1.30	1.24	1.40	1.35	1.80	2.3	2.3	1.80	.78	.39	.60
15.....	.98	1.20	1.22	1.35	1.35	1.70	2.25	2.35	1.68	.70	.39	.60
16.....	.98	1.20	1.22	1.35	1.70	2.2	2.4	1.55	.66	.40	.60
17.....	.98	1.20	1.22	1.35	1.35	1.68	2.15	2.45	1.50	.65	.32	.60
18.....	.98	1.20	1.22	1.35	1.35	1.65	2.1	2.5	1.45	.65	.35	.60
19.....	.98	1.20	1.22	1.35	1.35	1.68	2.1	2.5	1.42	.65	.34	.60
20.....	.98	1.20	1.22	1.35	1.35	1.65	2.05	2.45	1.40	.65	.32	.58
21.....	.98	1.20	1.22	1.35	1.35	1.60	2.0	2.4	1.35	.68	.30	.58
22.....	.98	1.20	1.22	1.35	1.35	1.60	2.0	2.35	1.32	.70	.30	.57
23.....	.98	1.20	2.22	1.35	1.35	1.60	2.0	2.3	1.30	.70	.22	.56
24.....	.98	1.15	1.22	1.35	1.35	1.60	2.0	2.25	1.28	.69	.20	.55
25.....	.98	1.15	1.22	1.35	1.32	1.64	2.0	2.2	1.25	.68	.20	.54
26.....	.98	1.15	1.22	1.50	1.30	1.65	2.05	2.15	1.20	.68	.25	.52
27.....	.98	1.15	1.25	1.75	1.28	1.70	2.1	2.1	1.17	.68	.30	.50
28.....	.98	1.15	1.40	1.70	1.25	1.75	2.1	2.1	1.14	.65	.35	.50
29.....	.98	1.15	1.38	1.65	1.20	1.80	2.05	2.15	1.10	.60	.40	.49
30.....	.98	1.15	1.38	1.60	1.75	2.0	2.2	1.08	.59	.42	.48
31.....	.98	1.38	1.55	1.75	2.359	.45

Daily discharge, in second-feet, of Tule River near Portersville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	21	26	38	62	75	43	103	154	225	31	5.6	3.8
2.....	22	26	38	58	70	43	103	154	214	28	5.6	4
3.....	23	26	38	53	64	43	103	154	214	25	4.2	4.4
4.....	24	26	38	53	64	48	103	154	204	24	3.4	4.8
5.....	24	26	38	53	63	64	136	154	193	23	3.5	5.4
6.....	25	26	43	53	62	75	128	154	193	22	3.5	6
7.....	26	26	53	53	61	82	136	164	193	21	3.1	6
8.....	26	26	53	53	60	75	145	173	183	20	3.1	6
9.....	26	26	53	58	58	70	154	193	174	19	3.1	6
10.....	26	119	52	58	57	88	173	204	164	18	3	6
11.....	26	88	51	64	58	88	225	193	154	17	3	6
12.....	25	75	50	70	58	82	248	204	136	16	3	6
13.....	25	64	49	70	58	136	236	204	128	15	2.9	6
14.....	25	53	47	64	58	119	214	214	119	13	2.9	6
15.....	25	43	45	58	58	103	204	225	100	9	2.9	6
16.....	25	43	45	58	58	103	193	236	82	7.8	3	6
17.....	25	43	45	58	58	100	183	248	75	7.5	2.2	6
18.....	25	43	45	58	58	96	173	260	70	7.5	2.5	6
19.....	25	43	45	58	58	100	173	260	66	7.5	2.4	6
20.....	25	43	45	58	58	96	164	248	64	7.5	2.2	5.6
21.....	25	43	45	58	58	88	154	236	58	8.4	2	5.6
22.....	25	43	45	58	58	88	154	225	55	9	2	5.4
23.....	25	43	45	58	58	88	154	214	53	9	1.2	5.2
24.....	25	38	45	58	58	88	154	204	51	8.7	1	5
25.....	25	38	45	58	55	94	154	193	48	8.4	1	4.8
26.....	25	38	45	75	53	96	164	183	43	8.4	1.5	4.4
27.....	25	38	48	111	51	103	173	173	40	8.4	2	4
28.....	25	38	64	103	48	111	173	173	38	7.5	2.5	4
29.....	25	38	62	96	43	119	164	183	34	6	3	3.9
30.....	25	38	62	88	111	154	193	32	5.8	3.2	3.8
31.....	25	62	82	111	214	5.8	3.5

NOTE.—Daily discharge determined from rating curves applicable as follows: 1911, well defined; Jan. 1 to Sept. 30, 1912, well defined.

Monthly discharge of Tule River near Portersville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	26	21	24.8	1,520	B.
November.....	119	26	42.9	2,550	A.
December.....	64	38	47.7	2,930	A.
January.....	111	53	65.0	4,000	A.
February.....	75	43	58.5	3,370	A.
March.....	136	43	88.7	5,450	A.
April.....	248	103	163	9,700	A.
May.....	260	154	198	12,200	A.
June.....	225	32	113	6,720	A.
July.....	31	5.8	13.7	842	A.
August.....	5.6	1.	2.84	175	C.
September.....	6	3.8	5.27	314	B.
The year.....	260	1	68.6	49,800	

NORTH FORK OF MIDDLE FORK OF TULE RIVER ¹ NEAR SPRINGVILLE, CAL.

Location.—About one-eighth mile below mouth of Hossack Creek in the NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 18, T. 20 S., R. 31 E., $3\frac{1}{4}$ miles above junction with South Fork of Middle Fork, and about $9\frac{1}{2}$ miles northeast of Springville.

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

Drainage area.—Not measured.

Gage.—Watson water stage register at weir.

Discharge.—Computed from gage-height record showing head on weir.

Cooperation.—Records furnished by San Joaquin Light & Power Corporation, through G. O. Newman, chief engineer.

Daily discharge, in second-feet, of North Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909.									
1.....	15.4	50	70	84	271	268	110	25.4	18.8
2.....	15.6	50	75	94	324	300	116	23.7	18.2
3.....	15.6	70	94	123	317	312	118	22.6	19.1
4.....	13.5	56	94	127	343	304	100	23.1	19.1
5.....	13.7	61	94	97	338	294	98	23.3	19
6.....	58	61	77	84	331	273	93	23.3	17.9
7.....	24.2	129	94	82	324	220	87	23.2	17.5
8.....	21.4	72	86	93	324	207	85	23	17.3
9.....	54	66	86	100	320	196	81	20	17.8
10.....	24.6	59	79	115	304	194	78	19.4	17.2
11.....	20.6	134	70	97	292	202	77	18.8	17
12.....	49.8	118	66	99	288	202	55	18.7	16.9
13.....	763	112	66	116	284	193	55	18.2	19.7
14.....	5,000	94	66	182	228	182	54	19.9	16.8
15.....	500	86	70	229	192	175	43	17.9	16.8
16.....	289	79	70	238	216	169	51	17.2	16.5
17.....	121	79	75	242	217	165	51	17.3	16.5
18.....	86	92	84	227	228	150	47	18	15.9
19.....	70	104	70	211	232	139	39.3	18.2	16.8
20.....	68	79	74	198	245	135	37.7	18.1	15.6
21.....	1,233	77	66	176	252	135	36.4	17.7	15.5
22.....	983	75	66	146	233	145	35.7	17.6	15.3
23.....	616	68	66	144	211	152	34.7	16.1	15.2
24.....	350	72	68	122	198	163	33.1	16	15.2
25.....	175	70	68	158	211	150	32.7	15.6	15.5
26.....	75	66	72	221	229	138	31.3	14.9	15.3
27.....	65	63	81	238	234	129	29.7	14.6	15.2
28.....	60	66	94	209	216	133	28.9	16.4	15.2
29.....	45	96	194	214	120	27.8	16.9	15.9
30.....	50	89	215	230	114	27.6	18.7	15.8
31.....	50	82	268	26.4	18.1

¹ Known locally as Doyle Branch of Tule River.

Daily discharge in second-feet, of North Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909-10.												
1.....	15.9	15.1	24.6	302	42.4	52	68	84	48.5	18.4	11.5	9
2.....	18.6	15.1	95	90	46.1	66	68	82	45	18	11.5	8.7
3.....	20.2	14.8	28.7	72	40.4	66	69	80	44	17.4	11	9
4.....	18.2	14.7	21	62	38	67	74	75	39.6	17.2	11.2	9.4
5.....	17.3	14.7	25.2	55	38.5	67	74	72	38.9	16.8	11.2	9.2
6.....	14.7	14.6	36.4	53	37	67	72	72	35.1	16.3	11.5	8.5
7.....	14.8	14.2	71	54	34.4	67	73	75	33.4	15.2	11.2	8.5
8.....	16	14.4	39	54	34.3	71	71	75	31.8	15.6	11.5	8.6
9.....	15.3	23.5	450	54	34.4	72	76	77	30.2	15.5	11.4	9.6
10.....	16	23.5	222	49.7	34	72	76	81	29	11.5	7.8
11.....	13.9	18.2	51	47.5	34	73	84	80	28.3	11.6	8.4
12.....	13.8	17.2	56	42.8	36.7	72	76	79	28.2	11.4	7.3
13.....	13.8	17.2	57	38.8	31.4	71	75	81	33.8	10.5	7.6
14.....	14.1	16	58	36.4	38.7	78	77	82	32.3	10.5	13.8
15.....	13.6	16.2	58	37.2	38.2	67	83	81	33.3	10.6	13.8
16.....	13.3	17.9	56	39	36.4	72	93	76	26.7	10.7	14.6
17.....	13.2	19.2	54	39.4	36	73	90	72	25.7	10.5	12.4
18.....	13.2	19.6	46.2	39.2	35.6	74	91	71	24.5	17.5	10.5	10.9
19.....	13.2	18.2	44.1	37.7	37.3	75	96	75	23.4	16.2	10.6	10.5
20.....	13.6	19.2	37	36	36	72	98	68	24.6	14.5	10.2	10.6
21.....	13.4	33.7	36.2	35	36.3	68	97	66	23.9	14.4	9.6	10.3
22.....	13.6	25.8	34.2	35	35	67	98	65	23.3	13.8	9.5	10.8
23.....	13.7	20.8	32.4	40.3	34.7	66	100	62	23	14.4	9.6	10.4
24.....	14	19.4	32.2	39.3	34.7	74	98	64	21.5	14.7	9.4	9.6
25.....	13.3	27.3	31.8	35.3	35	66	98	61	20.8	13.8	9.1
26.....	13.2	28	32.2	34.4	35.6	65	100	58	18.8	14	9
27.....	13.2	22.3	31.8	35.1	36.7	61	97	57	19.1	13.2	8.7
28.....	12.7	22.3	30	34.8	45	61	92	57	18.8	12.8	9
29.....	15.2	23.2	28.2	35.4	62	90	56	18.7	13.1	9
30.....	15.2	22.3	27.7	41.1	64	86	52	18.4	13.1	9
31.....	14.7	950	42.4	66	49.5	11.4	9.2
1910-11.												
1.....	10.2	10.4	11.5	7.3	106	23.4	126	117	104	56	18	12.8
2.....	10.7	10.3	11.5	7.6	80	24.6	124	118	101	52	17	13.2
3.....	11	10.3	13.4	7.6	64	32	122	122	104	51	17.6	13
4.....	9.4	11.5	16.5	7.4	58	32.4	122	142	112	50	17.6	13
5.....	10.9	11.7	16.4	7.4	49.6	31.5	134	149	118	48.7	17	12.9
6.....	11	11.5	16	7.3	43.5	29.6	125	144	130	46.5	15.4	12.7
7.....	11	11.5	16.4	7.3	39.9	36.5	111	147	126	46.5	14.6	12.4
8.....	11	11.5	16.4	8	28.1	72	104	148	124	45	14.6	12.7
9.....	11.1	11.5	15.6	20.6	39.3	84	107	140	125	42.5	14.6	12.4
10.....	11.7	11.3	16.7	38.1	35.6	80	84	135	124	35.4	14.4	12.4
11.....	11.5	11	20.2	23.3	34.8	63	90	139	126	34	14.4	12.9
12.....	13.4	11.5	19.7	20.4	30.9	53	86	143	131	32.7	14	13
13.....	13.4	12.2	17.3	16.6	32.7	52	81	143	131	32	13.4	13.2
14.....	17	12.2	15.4	14.1	29.8	51	87	137	124	30.9	13.4	13.4
15.....	19.2	12.2	14.2	16.8	29.3	54	79	125	116	31.5	13.4	13.4
16.....	15.6	12.2	13.4	13.7	28.3	56	87	118	116	31.5	12.8	13.5
17.....	13.4	12.2	12.2	12.8	28.6	62	91	115	114	35.4	12.4	13.4
18.....	14.6	13.4	12.1	12.4	29.3	66	100	115	108	34	12.1	13.4
19.....	12.2	13.5	11.5	12.4	28.3	68	106	125	103	32	11.7	14.2
20.....	12.2	12.4	11.7	35.9	27.6	69	110	135	97	30.9	11.5	13.5
21.....	12.8	12.4	11.7	49.6	26	71	112	144	93	30	11.5	12.4
22.....	12	12.8	11.3	28.1	26.6	66	121	156	88	29	11.4	12.4
23.....	12.1	12.2	11.3	21.5	27.6	70	138	160	84	27.5	11.4	12.6
24.....	12.8	12.2	11	54	26.5	70	144	152	80	22.1	11.3	13
25.....	13.1	12.3	8	53	25.7	74	151	142	73	22	10.8	14.2
26.....	12.8	13	8.1	34.7	26.5	78	150	126	69	20.8	12.1	17.5
27.....	12.8	12.5	7.3	31.5	25	91	143	124	68	19.3	13	18.7
28.....	11.6	12.4	7.4	33	23.8	94	127	124	67	18.7	13.8	12.8
29.....	10.8	12.1	7.5	405	104	118	122	64	18.2	13.8	12.8
30.....	11.1	12	7.4	405	118	119	118	61	17.5	13.5	12.9
31.....	10.5	7.3	334	128	112	16.5	13.1
1911-12.												
1.....	13	13.6	13.4	13.5	17.4	14.6	26	44	102	19.3	10.5	6.9
2.....	12.9	13.2	13.3	13.5	16.7	14.9	27	39.2	102	19.5	10.4	7.2
3.....	13	13	13	13.6	16.4	14.6	29.5	38.3	101	20.1	10.3	7
4.....	13.8	13	13.5	13.6	16.3	14.5	33.5	42.2	96	19.5	10	6.8
5.....	14.2	12.9	14.3	14	16	18.8	33	44	89	18.8	9.5	6.7

Daily discharge, in second-feet, of North Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
6.....	14.6	12.7	15.7	14.6	15.7	26.5	32.5	45.6	85	18.7	9.4	6.7
7.....	14.6	12.7	15.7	14.6	15.7	18.3	31.7	46.4	76	20	9.3	6.7
8.....	14.2	12.7	14.9	14.4	15.7	17.8	36.7	48	68	17.7	9.2	7.4
9.....	13.8	12.4	14.3	14.6	15.7	17.8	37.7	48.7	64	17.9	9.2	7.8
10.....	13.8	17.8	14.1	17.5	15.7	17.4	38.1	54	59	17	8.9	7.6
11.....	13.8	53	14	17.9	16	17	33.4	72	52	16.6	8.7	7.4
12.....	13.4	23.9	14.1	16.8	15.7	16.8	27	78	48.4	16.1	8.5	7.4
13.....	12.8	14.6	14.1	17.3	15.5	16.6	25.5	97	45.9	16	8.4	7.6
14.....	12.7	14.3	14.1	17.3	15	17.5	29.5	92	44	15	8.4	7.8
15.....	12.5	14.4	11.1	17.8	15	19.5	30	96	41.7	15	8.2	8.4
16.....	12.5	14.5	14.1	17.8	15.4	20.4	31.5	100	38.6	14.9	8.4	8.7
17.....	12.5	14.6	14.1	17.8	15.4	20.4	30	103	37.1	15.6	8.4	8
18.....	12.5	14.1	13.5	17.3	15.4	23.5	28	98	35.1	15	8.2	7.3
19.....	12.5	13.7	13.4	16.4	15	17.8	25.1	91	33	14.6	8	7.4
20.....	12.5	13.6	13.2	15.9	15	23	26.7	85	32.1	15	6.9	7.4
21.....	12.5	13.9	13	15.9	15	22.7	25.8	77	31.5	14.5	6.6	7.4
22.....	12.5	13.6	12.9	16.4	15.4	23	26.4	66	30.9	15	6.9	7.4
23.....	13	13.5	12.9	16.4	14.6	23.3	33	65	29.5	14.5	6.6	7.4
24.....	12.9	13.5	12.8	16.3	14	22.5	41	68	27.5	14.4	6.4	7.4
25.....	12.8	13.5	12.7	15.9	12.7	23.7	34	71	26.4	14	6.4	7.2
26.....	13	13.4	13.2	16.3	14.6	24.4	34	64	25.5	14	6.7	7.1
27.....	12.9	13.5	16.2	16.7	15.4	24.4	37.7	72	24.7	13.4	6.7	7.1
28.....	12.9	13.5	18.2	17.8	14.3	23.3	36.6	92	23.4	12.8	6.5	7.2
29.....	13	13.5	17.8	17.8	14.6	23.3	40.3	106	22.7	11.3	6.6	7.6
30.....	13.4	13.4	17.9	18	23.9	42.5	106	21	10.6	6.6	7.6
31.....	13.4	16.7	17.9	23.3	103	10.5	6.6

NOTE.—Discharge estimated Jan. 13-16 and 21-23, 1909. No record July 10-17 and Sept 25-30, 1910. Discharge Jan. 29 and 30, 1911, represents gage height 4 feet, stage was above 4 feet.

Monthly discharge of North Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1909.				
January.....	a 5,000	13.5	352	21,600
February.....	134	50	78.9	4,380
March.....	96	66	77.7	4,780
April.....	242	82	155	9,220
May.....	343	192	262	16,100
June.....	312	114	189	11,200
July.....	118	26.4	58.7	3,610
August.....	25.4	14.6	19.1	1,170
September.....	19.7	15.2	16.8	1,000
The period.....				73,100
1909-10.				
October.....	20.2	12.7	14.7	904
November.....	33.7	14.2	19.7	1,170
December.....	950	21	90.2	5,550
January.....	302	34.4	53.2	3,270
February.....	46.1	31.4	36.9	2,050
March.....	78	52	68.2	4,190
April.....	100	68	84.7	5,040
May.....	84	49.5	70.5	4,330
June.....	48.5	18.4	28.8	1,710
July.....	18.4	11.4	15.1	928
August.....	11.6	8.7	10.4	640
September.....	14.6	7.3	9.98	594
The year.....	950	7.3	42.0	30,400

a Estimated.

Monthly discharge of North Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912—Continued.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean,	
1910-11.				
October.....	19.2	9.4	12.4	762
November.....	13.5	10.3	11.9	708
December.....	20.2	7.3	12.8	787
January 1-28.....	54	7.3	21.5	1,190
February.....	106	23.8	37.5	2,080
March.....	128	23.4	64.6	3,970
April.....	151	79	113	6,720
May.....	160	112	134	8,240
June.....	131	61	103	6,130
July.....	56	16.5	33.6	2,070
August.....	18	10.8	13.7	842
September.....	18.7	12.4	13.4	797
1911-12.				
October.....	14.6	12.5	13.2	812
November.....	53	12.4	15.3	910
December.....	18.2	12.7	14.4	885
January.....	18	13.5	16.2	906
February.....	17.4	12.7	15.4	886
March.....	26.5	14.5	20.2	1,240
April.....	42.5	25.1	32.1	1,910
May.....	106	33.3	72.7	4,470
June.....	102	21	50.4	3,000
July.....	20.1	10.5	15.7	965
August.....	10.5	6.4	8.11	499
September.....	8.7	6.7	7.39	440
The year.....	106	6.4	23.4	17,000

NOTE.—Mean discharge estimated July 10-17, 1910, at 15 second-feet, and Sept. 25-30, 1910 at 10 second-feet by comparison with discharge of South Fork of Middle Fork of Tule River, and monthly values computed by engineers of U. S. Geological Survey.

SOUTH FORK OF MIDDLE FORK OF TULE RIVER ¹ NEAR SPRINGVILLE, CAL.

Location.—One thousand feet above junction with North Fork of Middle Fork and about 7 miles northeast of Springville.

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

Drainage area.—Not measured.

Gage.—Watson water stage register at weir.

Discharge.—Computed from gage-height record showing head on weir.

Cooperation.—Records furnished by San Joaquin Light & Power Corporation through G. O. Newman, chief engineer.

¹ Known locally as Nelson Branch of Tule River.

Daily discharge, in second-feet, of South Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909.									
1.....	12	50	65	75	250	231	83	14.5	17
2.....	12	50	70	50	291	298	73	15	16.5
3.....	12	60	90	110	283	299	76	14.7	16
4.....	13	60	90	115	300	301	74	15	19.8
5.....	12	60	85	90	298	278	66	15	15.5
6.....	22	60	80	80	290	272	63	15.5	12.4
7.....	22	100	80	70	290	241	61	15.5	8.2
8.....	20	100	80	75	290	198	58	15	7.1
9.....	50	60	85	85	290	198	53	13.3	7.5
10.....	25	50	80	110	273	185	48.4	13.8	8.4
11.....	20	100	75	90	286	185	40.3	14.3	7.8
12.....	45	125	65	90	280	176	32.2	14.6	8.8
13.....	^a 1,000	125	60	95	282	172	30.4	12.4	10.5
14.....	^a 3,000	100	63	143	220	150	29.9	12.4	10.2
15.....	^a 500	90	60	204	190	137	29.8	14.1	11.2
16.....	^a 300	90	60	214	183	137	30.6	12.4	10.1
17.....	150	80	60	214	190	123	25.5	11.9	10.8
18.....	100	80	65	204	190	123	21.6	11.9	11
19.....	100	80	70	188	261	112	20.6	11.9	12.3
20.....	60	90	70	179	245	101	20.6	12.4	12.5
21.....	^a 1,000	80	65	162	264	107	20	14.6	11.2
22.....	^a 1,000	80	60	125	192	118	20.1	14.5	11.2
23.....	^a 900	80	65	125	192	126	20.5	15.5	12.8
24.....	^a 400	70	60	97	192	135	18.6	15.5	12.3
25.....	200	60	60	117	251	123	17.9	15	11.
26.....	100	60	65	181	231	109	16.5	14.7	10
27.....	60	65	75	188	201	104	15.6	15	9.6
28.....	40	60	85	188	183	98	17	14.6	12.7
29.....	50	85	170	236	89	17	15	12.7
30.....	50	80	189	235	86	16.5	15.1	12.3
31.....	50	70	287	15.7	15

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909-10.												
1.....	17.5	13.5	104	148	30.7	31.7	34.3	40.4	17.5	5.7	4.6
2.....	10.7	12.8	88	102	25.1	34.3	34.9	39.5	17	5.4	4.9
3.....	11	10.7	36.7	75	26	35.8	35.3	38.6	15.1	13	5.4	5.8
4.....	10.6	12	23.4	66	31.5	37.3	36	38.6	15.5	13.2	5.5	6.1
5.....	10	12	27	47.5	32	39	36	36.5	15.7	13	5.3	5.5
6.....	8.7	12.2	108	45.5	31.5	38.5	34.3	34.8	15.6	11.2	5.3	5.1
7.....	8.2	12.9	52	46.2	31.5	38.5	35.5	33.7	15.6	10.2	5.7	5.4
8.....	7.5	12	42	44.2	31.2	33.5	38.3	34	15.2	9.3	5.7	5.3
9.....	8.0	30	42	43.3	31	37	39.4	35.5	15.2	9.5	5.4	5.4
10.....	9.7	25	42	39.8	30.7	37.7	39.7	37	15.3	9.5	5.7	5.2
11.....	11	21.6	48	39	30.5	37.2	43.8	38.2	16	9	5.7	5.8
12.....	10	21.6	54	38	30.5	38.5	40.9	36.5	15.7	9	5.7	6.7
13.....	10	18.6	46.7	38	31	38.3	39.7	36.7	15.6	9	5.0	7.6
14.....	10.5	19.7	40	37.2	31.7	42.8	39.7	34.9	15.6	8.5	5.3	8.6
15.....	10.5	18.5	34.9	39.5	31.4	37.7	40.8	33.5	15.2	9	5.3	10.1
16.....	10.5	18	31.7	41.2	30	36.8	42.5	33.2	15.1	8.4	5.3	9.3
17.....	11	18	29.5	38.5	29	40	42.7	31.3	15.1	9.1	5.3	7.7
18.....	10.1	18.5	19	36	29	41.9	43.3	30.5	15.1	12.3	5	6.7
19.....	10	18.5	19.5	35.7	28.2	35.6	44.6	30	15.5	10.6	5	6.2
20.....	10	18.6	38.5	34.3	29	35.6	45.3	30.7	15.7	8.8	5	6.3
21.....	10.1	27	42	34.3	28.5	36.3	44	30	15.6	8.2	5.3	6.4
22.....	10.1	30	24	34.5	27.6	37	43.4	28.3	15.1	7.8	5	6.4
23.....	10.1	25	20	38	29	37.3	42.5	27	15.1	7.2	5	6.2
24.....	12.7	22.4	21	37.3	29.7	34.9	43.5	26.4	15.1	6.5	4.8	6.3
25.....	13.1	24	22.2	34.3	30.5	33.5	43.2	26.4	14.5	7	4.8
26.....	12.8	33.5	21.5	32.7	27.6	33	41	25.8	7.3	4.7
27.....	14	25	20.6	31.6	28.3	32.6	40.6	23.2	6.5	4.7
28.....	14.5	19	20.8	31.3	30.2	32.6	43.5	22	6.3	4.4
29.....	13.5	19.5	20.6	31	32.6	41.8	18.5	6.6	4.6
30.....	14	34	28.9	30.5	33.1	42	17.5	6.2	4.6
31.....	13.4	136	30.3	33.5	17.5	6.7	4.6

^a Estimated.

Daily discharge, in second-feet, of South Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.												
1.....	6.2	7.3	8.4	9	102	34	62	54	42.5	25	16	10.2
2.....	6.8	7.3	8.2	9	67	34	60	57	41.8	26.3	17	10.3
3.....	6.6	7.3	16	9.2	52	34	58	63	40	26.2	17	10
4.....	6.6	9	10.8	9.2	53	34	56	62	38.5	26	17	10.8
5.....	6.2	8.5	10.7	9.2	47.2	34.9	89	70	38.5	25.8	17	10.8
6.....	6.3	8.6	9.8	9.2	43.2	33.5	80	70	43.7	25.6	16	11.2
7.....	5.8	8.5	9	9	38	33.2	72	65	43.7	25.6	16	11.2
8.....	6.3	8.5	9	9.2	37.2	52	66	60	40.2	24.3	16	11.2
9.....	6.4	8.5	8.5	38.5	37.1	108	61	58	38.5	23.7	16	11.2
10.....	6.7	8.5	10	60	37.2	113	60	57	38.2	23.7	16	11.2
11.....	10	8.5	14.5	19.8	37.1	104	56	56	36.1	23.7	16	11.2
12.....	10.6	8.6	11.4	15.6	36.8	70	52	56	37	23.7	15.1	11.2
13.....	10	8.6	9.5	14	40.3	68	50	58	37.3	23.7	12.3	11.2
14.....	9.8	8.6	8.8	13.4	36.5	54	48.5	54	37	23.6	12.3	10.6
15.....	11	8.5	8.5	16.6	35.6	50	48.5	52	36.2	23.6	12	10.6
16.....	7.8	8.2	8.4	14.7	34.9	50	49.4	50	35.5	19.5	11.8	10.8
17.....	6.8	8	8.5	12.7	34.4	50	52	48.6	34.2	20	11.5	11.4
18.....	7.2	8.7	9.3	12	34.2	50	54	49.1	32.5	19.5	11	11.4
19.....	7.2	10	9.8	11.3	34.3	43.7	57	50	31	19	11	11.6
20.....	7.4	9.8	12.4	19.5	34.7	43.7	56	50	30.5	19	11	11.6
21.....	7.6	9.3	11	30.6	34.3	54	57	52	30	19	11	11.3
22.....	9	9	10	31.3	34	43.6	56	52	28.5	19	11	11.7
23.....	10	9	10.1	21.1	34	54	68	50	28.4	13.6	11	11.6
24.....	9.3	9	10.2	60	33.5	56	68	49	27.6	14.2	11	11.8
25.....	9	9	10	75	34.2	54	68	47.5	26	13	10.7	11.7
26.....	9.2	10	10.2	41	34.2	52	63	47	25.6	11.4	10.7	10.8
27.....	9	9.3	9.7	29.5	34.2	50	60	44	25.3	9.3	10.7	13.4
28.....	9	9	9.1	32.7	34.2	52	58	44	25	9.3	10.7	13.4
29.....	8.7	8.5	9.1	a166	54	52	43.4	24.6	12.3	10.7	11.4
30.....	7.7	8.5	9	a166	56	b53	45.3	25	17.5	10.3	9.5
31.....	7.4	9.1	145	60	45.3	17.3	10.7
1911-12.												
1.....	8.8	4.3	8.2	9	10.7	9.7	18	28.2	41	9.9	4.5	2.5
2.....	8.4	4.6	7.9	8.8	10.7	9.6	19.5	25.8	38.4	9.7	4.6	2.5
3.....	8.4	4.2	7.8	9.1	10.3	10.7	18.5	24.3	37.2	9.8	4.4	3.4
4.....	7.4	4.2	8.6	9	10.3	12.8	20.8	26.9	36.4	9.5	4.4	4.3
5.....	7.6	3.5	8.9	9	10.3	19.6	19.2	32	33.6	9	4	4
6.....	7.4	3.5	10.3	9.3	10.6	16.5	21.1	32.5	34.2	8.3	4.2	3.5
7.....	6.9	3.5	9.2	9.9	10.6	14.4	23.3	31.3	34.5	8.1	4.1	4
8.....	6.9	3.5	8.9	9.9	10.3	12.7	28.4	29.8	31	7.9	4.1	4.9
9.....	6.9	3.7	8.6	11.2	10.6	13.4	31.2	33	28.3	7.4	4.1	4.8
10.....	7.6	14.2	8.5	14.2	10.7	13.9	32	42.5	26.4	7.1	3.7	4
11.....	8.4	19.6	8.2	12.5	10.6	14.1	26.7	48.5	25	6.8	3.2	3.5
12.....	7.9	9.1	8.4	11	10.1	14.2	23.6	46.3	24.6	6.7	2.9	3
13.....	7.4	9.1	8.4	11.2	10.6	16.2	24.4	50	24.2	6.5	2.8	3.2
14.....	6.9	8.7	8.2	12.5	11	15.1	26.4	52	24	6.2	2.9	3.2
15.....	6.4	8.6	8.4	12.8	10.7	13.9	29	54	22.4	6.2	2.9	3.4
16.....	6.5	8.6	9.1	11.6	10.7	14.1	29.8	56	21.1	6.2	2.9	3.2
17.....	6.7	8.6	8.5	16.5	10.6	14.6	34.5	58	19.6	7.1	2.9	3.1
18.....	6.9	8.4	8.6	10.3	11	16.1	33.1	54	18.6	7.2	2.8	3
19.....	6.8	8.2	8.6	10.1	11	15.3	32.7	46.3	17.4	6.2	2.9	2.6
20.....	6.6	8.2	8.5	9.9	11	14.2	25.6	43.7	16.7	5.9	2.8	2.7
21.....	6.6	8.4	8.4	10.7	10.7	13.2	23.6	35.6	17	5.8	2.8	3.1
22.....	6.6	8.6	8.6	10.7	10.3	13.6	28.4	38	17.3	5.8	2.6	3.1
23.....	6.7	9.7	8.6	10.6	10.7	15.3	23.6	36.1	17	5.6	2.3	3.1
24.....	6.7	8.6	7.8	10.6	9.3	15.3	25.6	36.4	15.5	5.5	2.6	3.1
25.....	6.7	8.2	8.4	13.6	9.3	15.8	24.8	34.4	15.7	5.1	2.6	3.1
26.....	6.6	8.2	8.8	15.5	9.1	15.3	24.3	34.4	15.2	5.0	2.7	3.1
27.....	6.5	8.2	9.8	12.5	9.7	14.4	25.8	40.2	14.8	4.8	2.6	3.1
28.....	5.3	8.2	9.8	11.2	10.6	16.7	26.3	41.9	13.5	4.7	2.5	3.4
29.....	4.3	8.2	9.1	11.2	10.1	16.1	27.6	45.2	10.2	4.7	2.7	4
30.....	4.3	8	9.3	11.2	14.6	27.6	43.4	10.1	4.5	2.5	3.4
31.....	4.3	9	11	15.1	41.9	4.5	2.5

a Discharge given is for gage height of 2.00 feet. Stage was above 2.00 feet.

b Clock on register stopped. Discharge estimated.

NOTE.—Discharge estimated Jan. 13-16 and 21-24, 1909. No record June 26-July 2, and Sept. 25-30, 1910. Discharge shown Jan. 29-30, 1911, represents gage height of 2 feet; stage was above 2 feet. Discharge Aug. 31, 1912, interpolated by engineers of U. S. Geological Survey.

Monthly discharge of South Fork of Middle Fork of Tule River near Springville, Cal., for 1909-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1909.				
January.....	a 3,000	12	301	18,500
February.....	125	50	77.3	4,290
March.....	90	60	71.7	4,410
April.....	214	50	134	7,970
May.....	300	183	247	15,200
June.....	301	86	167	9,940
July.....	83	15.6	36.5	2,240
August.....	15.5	11.9	14.2	873
September.....	19.8	7.1	11.7	696
The period.....				64,100
1909-10.				
October.....	17.5	7.5	11.1	682
November.....	34	10.7	19.7	1,170
December.....	136	19	42.1	2,590
January.....	148	30.3	45.2	2,780
February.....	32	25.1	29.7	1,650
March.....	42.8	31.7	36.3	2,230
April.....	45.3	34.3	40.4	2,400
May.....	40.4	17.5	31.2	1,920
June.....	17.5		15.3	910
July.....		6.2	9.25	569
August.....	5.7	4.4	5.17	318
September.....	10.1	4.6	6.36	378
The year.....	148	4.4	24.3	17,600
1910-11.				
October.....	11	5.8	7.99	491
November.....	10	7.3	8.67	516
December.....	16	8.2	9.97	613
January 1-28.....	75	9	22.9	1,270
February.....	102	33.5	40.9	2,270
March.....	113	33.2	54.2	3,330
April.....	89	48.5	59.7	3,550
May.....	70	43.4	53.5	3,290
June.....	43.7	24.6	34.0	2,020
July.....	26.3	9.3	20.1	1,240
August.....	17	10.3	13.1	806
September.....	13.4	9.5	11.2	666
1911-12.				
October.....	8.8	4.3	6.82	419
November.....	19.6	3.5	7.69	458
December.....	10.3	7.8	8.69	534
January.....	16.5	8.8	11.2	689
February.....	11	9.1	10.4	598
March.....	19.6	9.6	14.4	885
April.....	34.5	18	25.8	1,540
May.....	58	24.3	40.1	2,470
June.....	41	10.1	23.4	1,390
July.....	9.9	4.5	6.70	412
August.....	4.6	2.3	3.21	197
September.....	4.9	2.5	3.38	201
The year.....	58	2.3	13.5	9,790

a Estimated.

NOTE.—Mean discharge estimated June 26 to July 2, 1910, at 14 second-feet and Sept. 25-30 at 6.2 second-feet by comparison with discharge of North Fork of Middle Fork of Tule River. Monthly value computed by engineers of U. S. Geological Survey.

BEAR CREEK NEAR SPRINGVILLE, CAL.

Location.—At Bear Creek ranger station, about 150 feet above mouth of Rancheria Creek, 2½ miles above junction with North Fork of Tule River, and 6 miles north-east of Springville.

Records available.—January 23, 1911, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a sycamore tree on right bank.

Channel.—Sand, gravel, and bowlders; fairly permanent.

Discharge measurements.—Made by wading.

Diversions.—A small irrigation ditch heads about 300 feet above the station.

Accuracy.—Rating curve well defined except for high stages. Results are good at low and medium stages, but monthly means are liable to considerable error, due to few gage readings.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Bear Creek near Springville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
May 23	H. J. Tompkins.....	0.88	4.0
July 24	J. E. Stewart.....	.50	.7
Sept. 16	H. J. Tompkins.....	.43	.4

NOTE.—Wading below gage.

Daily gage height, in feet, of Bear Creek near Springville, Cal., for 1911-12.

[W. F. Derby, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.			0.65		1.00	0.85					0.42	
2.					.99							
3.		0.62					1.19	1.15				0.50
4.	0.60	.68		0.74	.99	.91						.49
5.				.76			1.22			0.51	.41	
6.		.62	.99	.78		1.25		1.30				
7.	.58									.51		
8.				.80								
9.								1.20		.49		
10.	.58	2.10		.85								
11.		.91		.89	.93		1.26					.42
12.				.90		1.20			0.68			.42
13.					.89			1.30		.48		
14.	.56						1.21					
15.											.40	.43
16.		.85										.43
17.	.55					1.20						.43
18.			.86	.74						.47		
19.							1.15	1.10				
20.												
21.												.44
22.		.69								.45		
23.				.74		1.21	1.30		.62			
24.	.57				.90					.50	.39	
25.												
26.	.59			1.50				1.01		.45		.44
27.		.65		1.10								
28.	.60							.88				
29.					.85	1.19	1.15				.37	
30.	.61	.65							.58	.43		
31.				1.00								

Daily discharge, in second-feet, of Bear Creek near Springville, Cal., for 1911-12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911.									
1.....		67	9	13	9.6	5.3	1.4	0.8	0.5
2.....		49	9	13	9.6	5.4	1.3	.7	.5
3.....		31	9.6	14	9.6	5.4	1.3	.7	.5
4.....		13	9	14	9.6	5.3	1.3	.7	.5
5.....		13	10	14	9.6	5.2	1.3	.7	.5
6.....		12	10	13	9.6	5.1	1.3	.7	.6
7.....		12	20	13	9.5	5.0	1.3	.7	.6
8.....		11	87	12	9.4	4.9	1.3	.7	.6
9.....		12	112	12	9.3	4.9	1.3	.7	.6
10.....		12	71	11	9.3	4.8	1.3	.7	.6
11.....		10	50	11	9.2	4.7	1.3	.7	.6
12.....		10	30	10	9.1	4.6	1.3	.7	.6
13.....		15	28	10	9.0	4.5	1.3	.7	.7
14.....		47	25	9	8.6	4.4	1.4	.7	.7
15.....		20	23	9	8.3	4.0	1.4	.7	.7
16.....		15	21	8	8.0	3.6	1.4	.7	.7
17.....		15	19	8	7.6	3.2	1.4	.7	.7
18.....		14	17	9	7.4	2.8	1.4	.7	.7
19.....		14	16	9	7.2	2.4	1.4	.7	.7
20.....		13	15	9	7.0	2.1	1.4	.7	.7
21.....		13	13	9	6.8	2.0	1.4	.7	.7
22.....		12	13	10	6.6	1.8	1.4	.7	.8
23.....	4.9	12	13	10	6.5	1.6	1.4	.6	.9
24.....	49	11	13	10	6.4	1.5	1.4	.6	.9
25.....	36	11	13	10	6.3	1.5	1.3	.6	1.0
26.....	18	10	12	10	6.2	1.5	1.2	.6	1.0
27.....	9.6	10	12	9.9	6.1	1.4	1.1	.6	1.1
28.....	14	10	10	9.8	5.9	1.4	1.0	.6	1.1
29.....	64	-----	11	9.7	5.7	1.4	.9	.6	1.2
30.....	40	-----	12	9.6	5.5	1.4	.8	.5	1.3
31.....	180	-----	13	-----	5.3	-----	.8	.5	-----

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	1.3	1.4	1.7	2.7	5.5	3.7	8.0	7.4	3.8	1.1	0.4	0.6
2.....	1.3	1.5	1.8	2.6	5.4	3.9	8.0	7.4	3.6	1.0	.4	.7
3.....	1.3	1.5	1.8	2.5	5.4	4.2	8.0	7.4	3.4	.9	.4	.7
4.....	1.3	1.5	1.9	2.5	5.4	4.4	8.2	8.1	3.2	.8	.3	.7
5.....	1.3	1.5	3.6	2.7	5.3	6.6	8.4	8.9	3.0	.8	.3	.7
6.....	1.2	1.5	5.4	2.9	5.2	8.8	8.5	9.6	2.8	.8	.3	.6
7.....	1.2	1.5	5.3	3.0	5.1	8.7	8.6	9.1	2.6	.8	.3	.6
8.....	1.2	1.5	5.2	3.1	5.0	8.6	8.7	8.6	2.4	.8	.3	.5
9.....	1.2	2.0	5.0	3.4	4.9	8.4	8.8	8.1	2.2	.7	.3	.5
10.....	1.2	3.4	4.8	3.7	4.8	8.3	8.9	8.5	2.1	.7	.3	.4
11.....	1.2	4.4	4.7	4.2	4.7	8.2	9.0	8.8	2.0	.7	.3	.4
12.....	1.2	4.2	4.6	4.3	4.4	8.1	8.7	9.2	1.9	.6	.3	.4
13.....	1.1	4.1	4.5	4.0	4.2	8.1	8.5	9.6	1.8	.6	.3	.4
14.....	1.1	4.0	4.4	3.7	4.2	8.1	8.2	9.0	1.8	.6	.3	.4
15.....	1.1	3.9	4.2	3.4	4.2	8.1	8.0	8.6	1.8	.6	.3	.4
16.....	1.0	3.7	4.0	3.1	4.2	8.1	7.8	8.1	1.7	.6	.3	.4
17.....	1.0	3.4	3.9	2.8	4.2	8.1	7.8	7.6	1.7	.6	.3	.4
18.....	1.0	3.1	3.8	2.5	4.2	8.1	7.6	7.2	1.7	.6	.3	.4
19.....	1.0	2.9	3.8	2.5	4.3	8.1	7.4	6.8	1.7	.6	.3	.4
20.....	1.0	2.6	3.7	2.5	4.3	8.2	7.9	6.6	1.6	.5	.3	.5
21.....	1.1	2.3	3.6	2.5	4.3	8.2	8.5	6.4	1.6	.5	.3	.5
22.....	1.1	2.0	3.5	2.5	4.3	8.2	9.1	6.2	1.6	.5	.3	.5
23.....	1.1	1.9	3.4	2.5	4.3	8.2	9.6	6.2	1.5	.6	.3	.5
24.....	1.1	1.9	3.3	6.3	4.3	8.1	9.2	6.0	1.5	.7	.3	.5
25.....	1.1	1.8	3.3	10	4.2	8.1	8.8	5.8	1.4	.6	.3	.5
26.....	1.2	1.8	3.2	14	4.1	8.1	8.5	5.6	1.4	.5	.3	.5
27.....	1.2	1.7	3.1	6.8	3.9	8.1	8.2	4.8	1.3	.5	.2	.5
28.....	1.3	1.7	3.0	6.5	3.8	8.1	7.8	4.1	1.3	.5	.2	.5
29.....	1.3	1.7	3.0	6.2	3.7	8.0	7.4	4.0	1.2	.4	.2	.5
30.....	1.4	1.7	2.9	5.8	-----	8.0	7.4	3.9	1.2	.4	.2	.5
31.....	1.4	-----	2.8	5.5	-----	8.0	-----	3.8	-----	.4	.2	-----

NOTE.—Daily discharge determined from a rating curve well defined below 50 second-feet, and poorly defined above. Discharge for days on which gage was not read during February, March, and April, and Nov. 7-9, 1911, estimated by comparison with record of North Fork of Middle Fork of Tule River; discharge interpolated for other days for which gage heights are missing.

Monthly discharge of Bear Creek near Springville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
January 23-31.....	180	4.9	46.2	825	B.
February.....	67	10	17.6	978	D.
March.....	112	9	23.4	1,440	D.
April.....	14	8	10.6	631	D.
May.....	9.6	5.3	7.86	483	D.
June.....	5.4	1.4	3.44	205	C.
July.....	1.4	.8	1.27	78.1	D.
August.....	.8	.5	.67	41.2	D.
September.....	1.3	.5	.74	44.0	D.
The period.....				4,730	
1911-12.					
October.....	1.4	1.0	1.18	72.6	C.
November.....	34	1.4	4.02	239	C.
December.....	5.4	1.7	3.65	224	D.
January.....	14	2.5	4.22	259	C.
February.....	5.5	3.7	4.54	261	C.
March.....	8.8	3.7	7.61	468	D.
April.....	9.6	7.4	8.32	495	D.
May.....	9.6	3.8	7.14	439	D.
June.....	3.8	1.2	2.03	121	D.
July.....	1.1	.4	.65	40.0	D.
August.....	.4	.2	.30	18.4	D.
September.....	.7	.4	.50	29.8	C.
The year.....	34	.2	3.67	2,670	

SOUTH FORK OF TULE RIVER NEAR SUCCESS, CAL.

Location.—Opposite Indian school on Tule Indian Reservation, about 8 miles above junction with Tule River and 7 miles southeast of Success. Rocky Creek enters about 2 miles above the station.

Records available.—October 10, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank opposite Indian school.

Channel.—Bowlders and gravel; appears permanent.

Discharge measurements.—Made from car and cable half a mile below gage or by wading.

Diversions.—Several small irrigation ditches, having a total capacity of about 11 second-feet, divert water above the station.

Cooperation.—Gage-height record furnished by United States Indian Service.

Estimates are withheld until additional measurements can be made.

Discharge measurements of South Fork of Tule River near Success, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 28	H. J. Tompkins.....	0.55	7.7	May 28	H. J. Tompkins.....	1.20	47
				28	do.....	1.20	48
1912.				July 23	J. E. Stewart.....	.32	5.6
Apr. 23	J. E. Stewart.....	1.20	51	Sept. 16	H. J. Tompkins.....	.15	2.5

NOTE.—Made by wading.

Daily gage height, in feet, of South Fork of Tule River near Success, Cal., for 1911-12.

[A. P. Edmonson, observer.]

Day.	Oct.	Nov.	Dec.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.4	0.4	0.5	1.0	1.4	1.3	0.65	0.25	0.2
2.....	.4	.4	.5	1.0	1.4	1.2	.65	.25	.2
3.....	.38	.4	.59	1.2	1.2	.65	.25	.2
4.....	.35	.4	.59	1.0	1.2	.65	.25	.2
5.....	.4	.45	.59	1.0	1.2	.65	.25	.2
6.....	.4	.45	.559	1.0	1.1	.65	.25	.15
7.....	.4	.4	.69	1.0	1.1	.6	.25	.15
8.....	.4	.4	.69	1.0	1.0	.6	.25	.15
9.....	.5	.4	.6	1.2	1.0	1.0	.6	.25	.15
10.....	.48	.45	.6	1.4	1.0	1.0	.6	.25	.15
11.....	.45	.55	.6	1.6	1.0	1.0	.6	.25	.15
12.....	.45	.55	.6	0.8	1.6	1.4	1.0	.6	.25	.15
13.....	.45	.55	.6	.8	1.6	1.4	1.0	.6	.25	.15
14.....	.45	.55	.6	.9	1.6	1.5	1.0	.6	.25	.15
15.....	.45	.5	.6	1.1	1.6	1.5	1.0	.6	.25	.15
16.....	.45	.5	.6	1.0	1.5	1.4	1.0	.55	.25	.15
17.....	.45	.5	.65	.95	1.5	1.4	1.0	.55	.2	.15
18.....	.45	.5	.62	.8	1.5	1.4	1.0	.5	.2	.15
19.....	.45	.5	.6	.9	1.5	1.6	.9	.5	.2	.15
20.....	.45	.45	.65	1.0	1.5	1.6	.8	.5	.2	.15
21.....	.45	.45	.65	1.0	1.5	1.6	.8	.45	.2	.15
22.....	.4	.45	.65	.9	1.5	1.45	.75	.45	.2	.15
23.....	.4	.45	.65	.9	1.5	1.45	.75	.4	.2	.15
24.....	.4	.45	.6	.9	1.5	1.4	.75	.35	.2	.15
25.....	.4	.45	.55	.9	1.5	1.4	.75	.3	.2	.15
26.....	.4	.5	.5	1.0	1.7	1.4	.7	.3	.2	.15
27.....	.4	.5	.5	1.0	1.8	1.3	.7	.3	.2	.2
28.....	.4	.5	.55	1.0	1.55	1.3	.7	.3	.2	.2
29.....	.4	.5	.62	1.0	1.45	1.3	.7	.3	.2	.2
30.....	.4	.5	.6	1.0	1.5	1.3	.7	.28	.2	.2
31.....	.46	1.0	1.325	.2

KAWEAH RIVER NEAR THREE RIVERS, CAL.

Location.—At the J. O. Carter ranch, in the SE. $\frac{1}{4}$ sec. 27, T. 17 S., R. 28 E., $\frac{1}{4}$ miles southwest of Three Rivers. North Fork enters about 3 miles and South Fork three-fourths of a mile above the station.

Records available.—April 29, 1903, to September 30, 1912.

Drainage area.—520 square miles.

Gage.—Staff in two sections on left bank one-fourth mile back of observer's house. Vertical high-water section fastened to willow tree; inclined low-water section fastened to posts.

Channel.—Gravel and boulders; fairly permanent.

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

Diversions.—Several small ditches divert water for local irrigation and domestic use above the station. Power is also developed on the Middle and East forks.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of Kaweah River near Three Rivers, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
Apr. 21 ^a	J. E. Stewart.....	Feet. 5.40	Sec.-ft. 280	July 18 ^b	J. E. Stewart.....	Feet. 5.43	Sec.-ft. 310
22 ^bdo.....	5.43	288	19 ^bdo.....	5.16	199
June 4 ^ado.....	7.30	1,850	Sept. 21 ^b	H. J. Tompkins.....	4.31	40

^a Cable.

^b Wading $1\frac{1}{4}$ miles below gage.

Daily gage height, in feet, of Kaweah River near Three Rivers, Cal., for 1911-12.

[J. O. Carter, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.74	4.50	4.57	4.64	4.80	4.78	5.25	5.95	7.7	5.48	4.60	4.35
2.....	4.68	4.50	4.57	4.65	4.80	4.77	5.45	5.9	7.6	5.42	4.60	4.38
3.....	4.74	4.50	4.58	4.65	4.77	4.76	5.5	5.8	7.6	5.35	4.56	4.40
4.....	4.64	4.50	4.60	4.65	4.80	4.82	5.42	5.8	7.6	5.30	4.55	4.40
5.....	4.62	4.50	4.60	4.64	4.77	4.93	5.5	5.85	7.4	5.25	4.52	4.40
6.....	4.61	4.50	4.63	4.64	4.77	5.26	5.45	5.9	7.4	5.22	4.50	4.40
7.....	4.59	4.50	4.65	4.65	4.77	5.16	5.6	5.95	7.2	5.22	4.50	4.38
8.....	4.56	4.50	4.64	4.68	4.75	5.08	5.7	6.0	7.0	5.22	4.50	4.37
9.....	4.58	4.50	4.61	4.67	4.75	4.99	5.8	6.0	6.6	5.18	4.50	4.26
10.....	4.55	4.61	4.60	4.74	4.76	5.20	5.8	6.05	6.6	5.18	4.48	4.30
11.....	4.96	4.60	4.88	4.78	5.09	5.9	6.4	6.6	5.12	4.48	4.30
12.....	4.66	4.60	4.85	4.78	5.14	5.7	6.6	6.6	5.10	4.45	4.30
13.....	4.62	4.60	4.78	4.78	5.24	5.6	6.5	6.85	5.08	4.45	4.27
14.....	4.52	4.58	4.60	4.86	4.78	5.12	5.55	6.8	6.45	5.00	4.46	4.26
15.....	4.53	4.64	4.60	4.88	4.78	5.21	5.65	6.9	6.4	5.00	4.49	4.25
16.....	4.52	4.71	4.60	4.87	4.77	5.22	5.65	7.1	6.3	4.92	4.55	4.25
17.....	4.50	4.62	4.69	4.84	4.76	5.18	5.6	7.2	6.3	5.00	4.46	4.25
18.....	4.50	4.58	4.65	4.72	4.80	5.15	5.65	7.2	6.3	5.40	4.46	4.25
19.....	4.50	4.60	4.60	4.72	4.80	5.18	5.6	7.0	6.2	5.20	4.45	4.23
20.....	4.50	4.60	4.60	4.72	4.78	5.20	5.5	6.8	6.2	5.03	4.44	4.22
21.....	4.50	4.60	4.62	4.72	4.80	5.15	5.4	6.7	6.1	4.95	4.41	4.20
22.....	4.49	4.60	4.73	4.78	5.10	5.44	6.4	5.85	4.90	4.39	4.23
23.....	4.49	4.55	4.65	4.71	4.79	5.16	5.6	6.3	5.7	4.85	4.35	4.23
24.....	4.49	4.55	4.62	4.79	5.24	5.9	6.7	5.6	4.81	4.35	4.23
25.....	4.49	4.55	4.58	4.71	4.80	5.29	5.6	6.8	5.6	4.80	4.38	4.23
26.....	4.49	4.55	4.60	4.80	4.78	5.29	5.7	6.5	5.7	4.74	4.36	4.22
27.....	4.55	4.65	4.95	4.75	5.28	5.7	6.6	5.65	4.71	4.35	4.20
28.....	4.55	4.72	4.86	4.75	5.22	5.75	7.2	5.65	4.66	4.35	4.22
29.....	4.50	4.55	4.70	4.88	4.76	5.38	5.85	7.7	5.6	4.65	4.35	4.22
30.....	4.50	4.56	4.68	4.80	5.35	5.8	7.6	5.5	4.64	4.34	4.22
31.....	4.50	4.68	4.80	5.22	7.6	4.61	4.35

Daily discharge, in second-feet, of Kaweah River near Three Rivers, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	113	70	81	80	109	105	230	545	2,360	312	74	43
2.....	101	70	81	82	109	103	301	515	2,220	290	74	46
3.....	113	70	83	82	103	101	320	460	2,360	264	68	48
4.....	96	70	86	82	109	113	290	460	2,220	247	67	48
5.....	90	70	86	80	103	138	320	488	1,940	230	63	48
6.....	88	70	92	80	103	234	301	515	1,940	221	60	48
7.....	84	70	96	82	103	202	365	545	1,680	221	60	46
8.....	80	70	94	87	100	178	410	575	1,450	221	60	45
9.....	83	70	88	85	100	154	460	575	1,040	208	60	40
10.....	78	88	86	98	101	214	460	608	1,040	208	58	38
11.....	77	166	86	127	105	181	515	865	1,040	190	58	38
12.....	76	97	86	120	105	196	410	1,040	1,040	184	54	38
13.....	74	90	86	105	105	227	365	950	825	178	54	36
14.....	73	83	86	122	105	190	342	1,240	908	156	55	35
15.....	75	94	86	127	105	217	388	1,340	865	156	59	34
16.....	73	107	86	124	103	221	388	1,560	785	136	67	34
17.....	70	90	103	113	101	208	365	1,680	785	156	55	34
18.....	70	83	96	94	109	196	388	1,680	785	282	55	34
19.....	70	86	86	94	109	208	365	1,450	710	214	54	32
20.....	70	86	86	94	105	214	320	1,240	710	164	53	32
21.....	70	86	90	94	109	199	282	1,140	640	144	49	30
22.....	69	86	93	96	105	184	297	865	488	131	47	32
23.....	69	78	96	92	107	202	365	785	410	120	43	32
24.....	69	78	90	92	107	227	515	1,140	365	111	43	32
25.....	69	78	83	92	109	244	365	1,240	365	109	46	32
26.....	69	78	86	109	105	244	410	950	410	98	44	32
27.....	69	78	96	144	100	240	410	1,040	388	92	43	30
28.....	70	78	109	122	100	221	435	1,680	388	84	43	32
29.....	70	78	105	127	101	275	488	2,360	365	82	43	32
30.....	70	80	101	109	264	460	2,220	320	80	42	32
31.....	70	101	109	221	2,220	76	43

NOTE.—Daily discharge determined from rating curves applicable as follows: 1911, well defined; Jan. 1 to Sept. 30, 1912, well defined. Discharge interpolated for days on which gage was not read.

Monthly discharge of Kaweah River near Three Rivers, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	113	69	78.0	4,800	B.
November.....	166	70	83.3	4,960	B.
December.....	109	81	90.6	5,570	B.
January.....	144	80	102	6,270	B.
February.....	109	100	105	6,040	B.
March.....	275	101	198	12,200	A.
April.....	515	230	378	22,500	A.
May.....	2,360	460	1,100	67,600	B.
June.....	2,360	320	1,030	61,300	B.
July.....	312	76	173	10,600	B.
August.....	74	42	54.6	3,360	A.
September.....	48	30	37.1	2,210	A.
The year.....	2,360	30	285	207,000	

NORTH FORK OF KAWEAH RIVER AT KAWEAH, CAL.

Location.—At highway bridge in the SW. $\frac{1}{4}$ sec. 2, T. 17 S., R. 28 E., Sequoia National Forest, about half a mile north of Kaweah and 2 miles above junction with Kaweah River.

Records available.—October 12, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to right abutment of bridge.

Channel.—Solid rock and sand; fairly permanent.

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

Diversions.—Approximately 20 second-feet is diverted by several small ditches for irrigation above the station.

Accuracy.—Rating curve well defined except at high water. Results are good.

Discharge measurements of North Fork of Kaweah River at Kaweah, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 22	J. E. Stewart.....	1.50	86
June 5do.....	1.68	122
July 19do.....	.75	13
Sept. 21	H. J. Tompkins.....	.45	2.0

NOTE.—Measurements made by wading.

Daily gage height, in feet, of North Fork of Kaweah River at Kaweah, Cal., for 1911-12.

[Lloyd Weckert, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.7	0.7	0.8	0.90	1.00	0.95	1.35	1.70	1.80	0.9	0.6	0.3
2.....		.7	.8	.90	1.00	.95	1.40	1.70	1.75	.9	.6	.3
3.....		.7	.8	.85	1.00	.95	1.40	1.75	1.75	.9	.6	.3
4.....		.7	.8	.85	.95	1.10	1.45	1.75	1.80	.9	.55	.3
5.....		.7	.8	.90	.95	1.10	1.80	1.80	1.80	.9	.55	.3
6.....		.7	.8	.90	.90	1.30	1.70	1.80	1.75	.9	.55	.3
7.....		.7	.8	.90	.90	1.30	1.60	1.80	1.70	.85	.55	.3
8.....		.7	.85	.90	.90	1.30	1.50	1.80	1.65	.85	.5	.3
9.....		.7	.9	.90	.90	1.30	1.80	1.90	1.50	.85	.5	.4
10.....		.95	.85	1.10	.95	1.30	1.75	1.85	1.45	.85	.5	.4

Daily gage height, in feet, of North Fork of Kaweah River at Kaweah, Cal., for 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....		1.12	0.85	1.20	0.95	1.20	1.90	1.80	1.40	0.8	0.5	0.4
12.....		.9	.8	1.10	.95	1.25	1.65	1.80	1.40	.8	.5	.4
13.....		.85	.85	1.00	.95	1.30	1.60	1.85	1.35	.8	.5	.4
14.....		.85	.85	1.00	.95	1.30	1.60	1.90	1.35	.8	.5	.4
15.....	0.7	.85	.9	1.00	.90	1.30	1.60	1.90	1.30	.75	.5	.4
16.....	.7	.85	.9	1.00	.90	1.40	1.60	1.85	1.30	.75	.5	.4
17.....	.7	.85	.9	1.00	.85	1.25	1.60	1.90	1.30	.7	.5	.45
18.....	.7	.8	.9	.95	.85	1.30	1.60	1.90	1.25	.7	.45	.45
19.....	.7	.8	.9	.90	.85	1.30	1.65	1.90	1.20	.7	.45	.45
20.....	.7	.8	.9	.90	.85	1.20	1.50	1.90	1.20	.7	.45	.45
21.....	.65	.8	.9	.90	.90	1.25	1.55	1.85	1.15	.7	.45	.45
22.....	.65	.8	.9	.90	.90	1.30	1.55	1.85	1.10	.7	.45	.45
23.....	.65	.75	.9	.90	.90	1.30	1.60	1.85	1.10	.7	.4	.45
24.....	.65	.75	.85	.90	.90	1.35	1.70	1.85	1.05	.7	.4	.45
25.....	.65	.8	.85	.90	.95	1.40	1.70	1.80	1.05	.7	.4	.45
26.....	.65	.8	.85	.95	.95	1.40	1.70	1.80	1.00	.7	.4	.45
27.....	.65	.8	.85	1.00	.95	1.40	1.65	1.85	1.00	.7	.4	.45
28.....	.65	.8	.95	1.10	.95	1.35	1.65	1.85	.95	.7	.4	.45
29.....	.65	.8	.95	1.10	.95	1.35	1.70	1.80	.95	.7	.35	.45
30.....	.7	.8	.9	1.05	1.35	1.70	1.80	.95	.65	.35	.45
31.....	.79	1.05	1.30	1.8065	.35

Daily discharge, in second-feet, of North Fork of Kaweah River at Kaweah, Cal., for 1910-1912.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.												
1.....		9.0	13	14	682	124	512	362	278	88	22	7
2.....		7.8	14	13	360	132	460	386	242	98	22	7
3.....		8.2	15	14	280	140	512	386	242	80	19	7
4.....		9.4	47	15	360	353	567	435	242	88	19	7
5.....		11	22	16	210	566	622	512	318	73	19	7
6.....		9.0	20	16	150	453	594	435	278	69	19	7
7.....		9.0	18	15	128	340	512	435	278	66	19	7
8.....		9.4	17	16	115	1,440	460	435	278	62	19	7
9.....		9.0	16	18	107	744	435	435	269	59	19	7
10.....		9.4	16	184	107	1,120	410	410	260	59	19	7
11.....		9.0	92	59	107	682	362	410	251	53	19	7
12.....	24	13	62	49	90	512	362	410	242	53	16	7
13.....	16	17	33	42	180	410	340	410	242	47	16	7
14.....	16	14	26	39	208	386	340	362	233	47	16	7
15.....	16	14	24	98	194	394	318	318	225	42	14	7
16.....	15	14	22	66	180	402	340	335	216	37	14	7
17.....	15	13	18	37	166	410	386	352	208	37	14	7
18.....	14	13	18	29	152	386	410	369	193	37	11	7
19.....	14	12	18	26	152	340	435	386	186	47	11	7
20.....	14	12	18	26	152	362	410	362	178	42	11	7
21.....	11	12	18	340	147	386	410	410	169	37	11	7
22.....	9.0	12	18	140	142	340	422	410	161	37	11	7
23.....	8.2	12	18	88	138	362	435	410	153	37	11	11
24.....	8.6	12	18	455	133	362	539	410	144	37	11	11
25.....	9.0	12	18	594	124	386	512	366	136	33	11	11
26.....	7.8	17	18	310	116	340	512	322	128	33	11	11
27.....	7.4	15	17	147	107	386	512	278	124	29	11	11
28.....	7.4	13	16	133	115	410	410	278	103	29	9	11
29.....	7.4	12	16	2,040	400	362	278	107	29	9	11
30.....	7.4	12	15	1,590	460	362	208	98	26	9	11
31.....	8.2	14	2,060	460	243	22	9
1911-12.												
1.....	11	11	16	22	29	26	66	128	152	22	7	.5
2.....	11	11	16	22	29	26	73	128	140	22	7	.5
3.....	11	11	16	19	29	26	73	140	140	22	7	.5
4.....	11	11	16	19	26	37	80	140	152	22	5	.5
5.....	11	11	16	22	26	37	152	152	152	22	5	.5

Daily discharge, in second-feet, of North Fork of Kaweah River at Kaweah, Cal., for 1910-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
6.....	11	11	16	22	22	59	128	152	140	22	5	0.5
7.....	11	11	16	22	22	59	107	152	128	19	5	.5
8.....	11	11	19	22	22	59	88	152	118	19	3	.5
9.....	11	11	22	22	22	59	152	178	88	19	3	1.0
10.....	11	26	19	37	26	59	140	165	80	19	3	1.0
11.....	11	39	19	47	26	47	178	152	73	16	3	1.0
12.....	11	22	16	37	26	53	118	152	73	16	3	1.0
13.....	11	19	19	29	26	59	107	165	66	16	3	1.0
14.....	11	19	19	29	26	59	107	178	66	16	3	1.0
15.....	11	19	22	29	22	59	107	178	59	14	3	1.0
16.....	11	19	22	29	22	73	107	165	59	14	3	1.0
17.....	11	19	22	29	19	53	107	178	59	11	3	2
18.....	11	16	22	26	19	59	107	178	53	11	2	2
19.....	11	16	22	22	19	59	118	178	47	11	2	2
20.....	11	16	22	22	19	47	88	178	47	11	2	2
21.....	9	16	22	22	22	53	98	165	42	11	2	2
22.....	9	16	22	22	22	59	98	165	37	11	2	2
23.....	9	14	22	22	22	59	107	165	37	11	1	2
24.....	9	14	19	22	22	66	128	165	33	11	1	2
25.....	9	16	19	22	26	73	128	152	33	11	1	2
26.....	9	16	19	26	26	73	128	152	29	11	1	2
27.....	9	16	19	29	26	73	118	165	29	11	1	2
28.....	9	16	26	37	26	66	118	165	26	11	1	2
29.....	9	16	26	37	26	66	128	152	26	11	.8	2
30.....	11	16	22	33	66	128	152	26	9	.8	2
31.....	11	22	33	59	152	9	.8

NOTE.—Daily discharge determined from a rating curve well defined up to 1,600 second-feet and poorly defined above. Discharge estimated Jan. 17-23 and Feb. 2-13, 1911, by comparison with flow of adjacent streams; interpolated for other days when gage was not read.

Monthly discharge of North Fork of Kaweah River at Kaweah, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1910-11.				
October 12-31.....	24	7.4	11.8	468
November.....	17	7.8	11.7	696
December.....	92	13	23.1	1,420
January.....	2,060	13	280	17,200
February.....	682	a 90	182	10,100
March.....	1,440	124	451	27,700
April.....	622	318	442	26,300
May.....	512	208	373	22,900
June.....	318	98	206	12,300
July.....	98	22	49.5	3,040
August.....	22	9	14.5	892
September.....	11	7	8.1	482
The period.....				123,000
1911-12.				
October.....	11	9	10.4	640
November.....	39	11	16.2	964
December.....	26	16	19.8	1,220
January.....	47	19	26.9	1,650
February.....	29	19	24.0	1,380
March.....	73	26	55.7	3,420
April.....	178	66	113	6,720
May.....	178	128	159	9,780
June.....	152	26	73.7	4,390
July.....	22	9	14.9	916
August.....	7	.8	2.88	177
September.....	2	.5	1.33	79.1
The year.....	178	.5	43.2	31,300

a Estimated.

SOUTH FORK OF KAWEAH RIVER NEAR THREE RIVERS, CAL.

Location.—On the Mehrton ranch, in the SE. $\frac{1}{4}$ sec. 8, T. 18 S., R. 29 E., 500 feet above mouth of Cinnamon Creek, $4\frac{1}{2}$ miles southeast of Three Rivers and about 5 miles above junction with Kaweah River.

Records available.—September 18, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to large boulder on right bank.

Channel.—Gravel and bowlders; rough.

Discharge measurements.—Made from car and cable 300 feet above gage or by wading.

Diversions.—Two small ditches divert water for irrigation above the station.

Accuracy.—Rating curve fairly well defined; results are good.

Discharge measurements of South Fork of Kaweah River near Three Rivers, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Nov. 23	H. J. Tompkins.....	<i>Feet.</i> 2.10	<i>Sec.-ft.</i> 12	1912. Apr. 21	J. E. Stewart.....	<i>Feet.</i> 2.60	<i>Sec.-ft.</i> 41
				June 4do.....	3.85	288
1912. Mar. 13do.....	2.45	33	July 18do.....	2.46	26
				Sept. 20	H. J. Tompkins.....	1.83	3.4

NOTE.—June 4, 1912, measurement made from cable; all others made by wading.

Daily gage height, in feet, of South Fork of Kaweah River near Three Rivers, Cal., for 1911-12.

[David N. Mehrton, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.1	2.0	2.1	2.1	2.2	2.2	2.51	2.90	4.05	2.45	2.02	1.86
2.....	2.1	2.0	2.1	2.1	2.2	2.2	2.43	2.89	4.05	2.50	2.01	1.87
3.....	2.1	2.0	2.1	2.1	2.2	2.2	2.45	2.90	4.0	2.50	2.00	1.88
4.....	2.1	2.1	2.15	2.1	2.2	2.25	2.45	2.92	4.0	2.45	2.00	1.89
5.....	2.1	2.1	2.2	2.1	2.2	2.2	2.75	2.97	3.9	2.42	2.00	1.92
6.....	2.1	2.1	2.15	2.1	2.2	2.4	2.55	2.99	3.8	2.38	2.00	1.95
7.....	2.05	2.05	2.15	2.1	2.2	2.3	2.50	2.99	3.7	2.35	1.95	1.98
8.....	2.05	2.1	2.1	2.1	2.2	2.25	2.47	3.00	3.6	2.33	1.95	2.00
9.....	2.15	2.2	2.1	2.1	2.2	2.2	2.80	3.04	3.55	2.32	1.93	2.00
10.....	2.1	2.4	2.1	2.1	2.2	2.25	2.80	3.41	3.55	2.31	1.92	2.00
11.....	2.1	2.2	2.1	2.25	2.2	2.25	2.90	3.42	3.5	2.30	1.91	2.00
12.....	2.05	2.15	2.1	2.15	2.2	2.25	2.80	3.43	3.5	2.28	1.90	1.98
13.....	2.05	2.1	2.2	2.1	2.2	2.45	2.75	3.45	3.35	2.26	1.89	1.98
14.....	2.0	2.1	2.2	2.1	2.2	2.40	2.70	3.5	3.37	2.25	1.89	1.97
15.....	2.0	2.1	2.2	2.1	2.2	2.30	2.70	3.6	3.32	2.26	1.90	1.85
16.....	2.0	2.15	2.2	2.1	2.2	2.55	2.70	3.7	3.15	2.29	1.90	1.81
17.....	2.0	2.1	2.3	2.1	2.25	2.40	2.65	3.8	3.10	2.30	1.90	1.82
18.....	2.0	2.1	2.1	2.1	2.25	2.35	2.65	3.85	3.00	2.35	1.90	1.81
19.....	2.0	2.1	2.15	2.1	2.25	2.20	2.65	3.7	2.93	2.40	1.90	1.80
20.....	2.0	2.1	2.15	2.1	2.25	2.20	2.65	3.7	2.89	2.30	1.90	1.82
21.....	2.0	2.1	2.15	2.1	2.25	2.20	2.65	3.55	2.88	2.25	1.89	1.81
22.....	2.0	2.1	2.15	2.1	2.25	2.15	2.63	3.35	2.87	2.25	1.88	1.80
23.....	2.0	2.1	2.25	2.1	2.2	2.15	2.80	3.33	2.86	2.20	1.86	1.80
24.....	2.0	2.1	2.2	2.1	2.15	2.15	2.95	3.55	2.84	2.15	1.85	1.80
25.....	2.0	2.1	2.1	2.1	2.15	2.15	2.80	3.75	2.82	2.14	1.85	1.79
26.....	2.0	2.1	2.1	2.15	2.15	2.50	2.77	3.40	2.80	2.12	1.85	1.78
27.....	2.05	2.1	2.1	2.35	2.15	2.50	2.80	3.6	2.78	2.11	1.86	1.77
28.....	2.05	2.1	2.25	2.2	2.15	2.45	2.85	3.9	2.55	2.10	1.86	1.77
29.....	2.05	2.1	2.15	2.15	2.15	2.51	2.86	4.1	2.50	2.07	1.86	1.77
30.....	2.1	2.1	2.1	2.15	2.45	2.87	4.2	2.48	2.05	1.87	1.79
31.....	2.1	2.1	2.15	2.43	4.0	2.03	1.86

Daily discharge, in second-feet, of South Fork of Kaweah River near Three Rivers, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		11	7	11	11	16	16	35	73	364	24	7.1	3.9
2.....		11	7	11	11	16	16	29	72	364	26	6.9	4.0
3.....		11	7	11	11	16	16	30	73	344	26	6.6	4.2
4.....		11	11	14	11	16	18	30	76	344	24	6.6	4.4
5.....		11	11	16	11	16	16	56	82	307	22	6.6	4.9
6.....		11	11	14	11	16	27	38	85	272	20	6.6	5.6
7.....		9	9	14	11	16	21	34	85	239	19	5.6	6.2
8.....		9	11	11	11	16	18	32	86	208	18	5.6	6.6
9.....		14	16	11	11	16	16	61	92	194	18	5.1	6.6
10.....		11	27	11	11	16	18	61	164	194	17	4.9	6.6
11.....		11	16	11	18	16	18	73	166	179	17	4.7	6.6
12.....		9	14	11	14	16	18	61	168	179	16	4.5	6.2
13.....		9	11	16	11	16	30	56	174	141	15	4.4	6.2
14.....		7	11	16	11	16	27	51	186	146	15	4.4	6.0
15.....		7	11	16	11	16	21	51	213	134	15	4.5	3.8
16.....		7	14	16	11	16	38	51	242	99	16	4.5	3.2
17.....		7	11	21	11	18	27	46	273	90	17	4.5	3.3
18.....		7	11	11	11	18	24	46	290	74	19	4.5	3.2
19.....	5	7	11	14	11	18	16	46	242	65	21	4.5	3.0
20.....	7	7	11	14	11	18	16	46	242	60	17	4.5	3.3
21.....	11	7	11	14	11	18	16	46	200	59	15	4.4	3.2
22.....	7	7	11	14	11	18	14	45	150	58	15	4.2	3.0
23.....	7	7	11	18	11	16	14	61	146	57	13	3.9	3.0
24.....	7	7	11	16	11	14	14	80	200	54	11	3.8	3.0
25.....	7	7	11	11	11	14	14	61	258	52	11	3.8	2.9
26.....	7	7	11	11	14	14	34	58	161	50	10	3.8	2.8
27.....	7	9	11	11	24	14	34	61	213	48	10	3.9	2.7
28.....	7	9	11	18	16	14	30	67	307	30	9.3	3.9	2.7
29.....	11	9	11	14	14	14	35	68	384	26	8.5	3.9	2.7
30.....	16	11	11	11	14	-----	30	69	426	25	8.0	4.0	2.9
31.....	-----	11	-----	11	14	-----	29	-----	344	-----	7.4	3.9	-----

NOTE.—Discharge Sept. 19, 1911, to May 30, 1912, determined from a rating curve fairly well defined above 12 second-feet and poorly defined below. May 31 to Sept. 30, 1912, determined from a rating curve fairly well defined between 20 and 80 second-feet and well defined outside those limits.

Monthly discharge of South Fork of Kaweah River near Three Rivers, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
September 19-30.....	16	5	8.2	195	C.
1911-12.					
October.....	14	7	9.0	553	C.
November.....	27	7	11.6	690	B.
December.....	21	11	13.5	830	B.
January.....	24	11	12.3	756	B.
February.....	18	14	16.0	920	B.
March.....	38	16	22.0	1,350	B.
April.....	80	29	51.6	3,070	B.
May.....	426	72	189	11,600	B.
June.....	364	25	149	8,870	A.
July.....	26	7.4	16.1	990	A.
August.....	7.1	3.8	4.84	298	A.
September.....	6.6	2.7	4.22	251	A.
The year.....	426	2.7	41.6	30,200	

NOTE.—These estimates supersede those published in Water-Supply Paper 299.

KINGS RIVER NEAR SANGER, CAL.

Location.—About half a mile below new highway bridge at Piedra, near mouth of canyon, in the NW. $\frac{1}{4}$ sec. 8, T. 13 S., R. 24 E., southwest of Red Mountain, and about 12 miles northeast of Sanger.

Records available.—September 3, 1895, to September 30, 1912.

Drainage area.—1,740 square miles.

Gage.—Friez water-stage register on right bank; auxiliary staff gage in two sections just above automatic register.

Channel.—Gravel and small bowlders; shifts but slightly.

Discharge measurements.—Made from car and cable 500 feet below gage.

Diversions.—Several miles above the station there is a small diversion for a flume used to float lumber to Sanger.

Accuracy.—Results are excellent.

Discharge measurements of Kings River near Sanger, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 18	J. E. Stewart.....	5.89	1,360	May 11	M. W. Enderlein.....	7.45	3,570
20	do.....	5.61	1,130	June 2	J. E. Stewart.....	11.10	10,600
May 10	M. W. Enderlein.....	6.85	2,450	July 17	do.....	5.67	1,180

NOTE.—Measurements May 10 and 11 made and furnished by M. W. Enderlein, civil engineer, from Piedra bridge, about one-half mile above the gage. All others made from cable.

Daily gage height, in feet, of Kings River near Sanger, Cal., for 1911-12.

[O. G. Williams, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5.1	4.45	4.4	4.43	4.62	4.48	5.09	6.2	(11.0)	6.25	5.12	4.45
2.....	5.0	4.45	4.4	4.45	4.60	4.48	5.30	6.2	(11.2)	6.1	5.10	4.42
3.....	4.9	4.45	4.4	4.43	4.59	4.45	5.46	6.05	(11.3)	5.96	5.06	4.42
4.....	4.85	4.45	4.45	4.39	4.57	4.52	5.49	6.05	(11.5)	5.78	4.98	4.44
5.....	4.8	4.4	4.45	4.43	4.76	5.56	6.25	11.1	5.70	4.93	4.47
6.....	4.75	4.4	4.45	4.45	5.24	5.50	6.2	11.1	5.93	4.89	4.45
7.....	4.75	4.4	4.55	4.45	5.26	5.63	6.25	10.9	6.1	4.88	4.42
8.....	4.7	4.4	4.55	4.60	5.08	5.80	6.25	10.4	6.1	4.88	4.38
9.....	4.65	4.4	4.5	4.48	4.96	5.92	6.6	9.6	6.1	4.88	4.35
10.....	4.7	4.5	4.45	4.52	5.03	6.15	6.8	9.0	6.1	4.87	4.31
11.....	4.7	4.85	4.45	4.71	4.55	5.05	6.4	7.5	8.9	6.0	4.83	4.25
12.....	4.65	4.5	4.4	4.65	4.57	5.02	5.95	7.95	9.0	5.99	4.81	4.23
13.....	4.6	4.55	4.35	4.60	4.55	5.33	5.76	7.95	8.5	5.98	4.80	4.22
14.....	4.6	4.6	4.35	4.58	4.56	5.18	(5.70)	8.4	8.6	5.86	4.80	4.21
15.....	4.55	4.55	4.35	4.60	4.58	5.10	5.77	8.8	8.7	5.72	4.78	4.20
16.....	4.55	4.6	4.35	4.62	4.53	5.13	5.84	9.0	8.7	5.65	4.75
17.....	4.55	4.6	4.4	4.60	4.54	5.05	5.81	9.4	8.6	5.71	4.73
18.....	4.5	4.55	4.4	4.54	4.56	5.01	5.82	9.6	8.4	6.5	4.70
19.....	4.5	4.55	4.35	4.52	4.58	5.06	(5.70)	9.5	8.3	6.55	4.66
20.....	4.5	4.55	4.35	4.52	4.57	5.08	5.54	8.8	8.4	6.25	4.62
21.....	4.5	4.55	4.4	4.52	4.55	5.08	5.41	8.3	8.0	5.95	4.60
22.....	4.45	4.5	4.3	4.52	4.55	5.07	5.45	7.8	7.3	5.75	4.58	4.14
23.....	4.45	4.5	4.35	4.52	4.51	5.03	5.53	7.8	6.85	5.58	4.55
24.....	4.45	4.45	4.4	4.52	4.53	5.06	5.82	8.2	6.5	5.47	4.53
25.....	4.45	4.45	4.3	4.52	4.45	5.14	5.80	(8.4)	6.4	5.37	4.54
26.....	4.45	4.45	4.25	(4.6)	4.42	5.12	5.80	(8.0)	6.5	5.30	4.56
27.....	4.45	4.45	4.25	(4.8)	4.42	5.16	5.85	(8.2)	6.6	5.24	4.56
28.....	4.45	4.45	4.5	4.68	4.47	5.10	5.90	(9.4)	6.65	5.21	4.57
29.....	4.45	4.4	4.5	4.62	4.47	5.20	6.05	(10.4)	6.6	5.19	4.54	4.12
30.....	4.45	4.4	4.4	4.64	5.23	6.05	(11.6)	6.4	5.15	4.52
31.....	4.45	4.35	4.63	5.07	(10.6)	5.13	4.49

NOTE.—Gage heights in parentheses are estimated.

Daily discharge, in second-feet, of Kings River near Sanger, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	778	375	348	325	426	350	714	1,680	10,500	1,730	734	322
2.....	708	375	348	335	415	350	865	1,680	11,100	1,580	720	306
3.....	642	375	348	325	410	335	988	1,530	11,400	1,440	694	306
4.....	610	375	375	305	398	371	1,010	1,530	12,000	1,270	642	317
5.....	578	348	375	325	398	506	1,070	1,730	10,800	1,200	610	334
6.....	548	348	375	335	396	820	1,020	1,680	10,800	1,410	584	322
7.....	548	348	430	335	394	835	1,140	1,730	10,200	1,580	578	306
8.....	517	348	430	415	392	707	1,290	1,730	8,840	1,580	578	285
9.....	488	348	402	350	390	629	1,400	2,110	6,940	1,580	578	270
10.....	517	402	375	371	388	674	1,630	2,350	5,700	1,580	572	250
11.....	517	610	375	476	388	688	1,890	3,220	5,510	1,480	548	222
12.....	488	402	348	442	398	668	1,430	3,860	5,700	1,470	536	214
13.....	458	430	322	415	388	888	1,250	3,860	4,770	1,460	530	209
14.....	458	458	322	404	393	776	1,200	4,600	4,950	1,340	530	204
15.....	430	430	322	415	404	720	1,260	5,320	5,130	1,220	518	200
16.....	430	458	322	426	376	741	1,330	5,700	5,130	1,160	500	197
17.....	430	458	348	415	382	688	1,300	6,510	4,950	1,210	488	193
18.....	402	430	348	382	393	662	1,310	6,940	4,600	2,000	470	190
19.....	402	430	322	371	404	694	1,200	6,720	4,430	2,060	446	186
20.....	402	430	322	371	398	707	1,060	5,320	4,600	1,730	422	183
21.....	402	430	348	371	388	707	948	4,430	3,940	1,430	410	180
22.....	375	402	296	371	388	700	980	3,640	2,960	1,240	398	176
23.....	375	402	322	371	366	674	1,050	3,640	2,410	1,090	380	175
24.....	375	375	348	371	376	694	1,310	4,260	2,000	1,000	368	174
25.....	375	375	296	371	335	748	1,290	4,600	1,890	918	374	173
26.....	375	375	270	415	320	734	1,290	3,940	2,000	865	386	172
27.....	375	375	270	530	320	762	1,340	4,260	2,110	820	386	171
28.....	375	375	402	459	345	720	1,380	6,510	2,170	798	392	170
29.....	375	348	402	426	345	790	1,530	8,840	2,110	783	374	168
30.....	375	348	348	437	812	1,530	12,400	1,890	755	362	168
31.....	375	322	432	700	9,360	741	344

NOTE.—Daily discharge determined from well defined rating curves applicable as follows: 1911, Jan. 1 to June 30, 1912, and July 1 to Sept. 30, 1912. Discharge interpolated Feb. 4-10, Sept. 16-21, Sept. 23-28, and Sept. 30, 1912.

Monthly discharge of Kings River near Sanger, Cal., for 1911-12.

[Drainage area, 1,740 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.....	778	375	468	0.269	0.31	28,800	A.
November.....	610	348	399	.229	.26	23,700	B.
December.....	430	270	348	.200	.23	21,400	B.
January.....	530	305	390	.224	.26	24,000	B.
February.....	426	320	383	.220	.24	22,000	B.
March.....	888	335	673	.387	.45	41,400	A.
April.....	1,890	714	1,230	.707	.79	73,200	A.
May.....	12,400	1,530	4,380	2.52	2.90	269,000	A.
June.....	12,000	1,890	5,720	3.29	3.67	340,000	A.
July.....	2,060	741	1,310	.753	.87	80,600	A.
August.....	734	344	498	.286	.33	30,600	A.
September.....	334	168	225	.129	.14	13,400	B.
The year.....	12,400	168	1,330	.764	10.45	968,000	

DINKEY CREEK NEAR OCKENDEN, CAL.

Location.—Above trail bridge at Dinkey Creek ranger station, in the NE. $\frac{1}{4}$ sec. 20, T. 10 S., R. 26 E., in the Sierra National Forest, about 11 miles above junction with North Fork of Kings River, and about 9 $\frac{1}{2}$ miles southeast of Ockenden. Rock Creek enters 3 miles above and Bear Creek 1 $\frac{1}{2}$ miles below the station.

Records available.—September 17, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on right bank about 400 feet below forest ranger's station.

Channel.—Gravel and small bowlders; appears permanent.

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

Accuracy.—Rating curve fairly well defined; results are good.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service. This station is maintained only during the summer months.

Discharge measurements of Dinkey Creek near Ockenden, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
May 9 ^a	H. J. Tompkins	<i>Feet.</i> 1.52	<i>Sec.-ft.</i> 167
Aug. 19 ^b	do.	.38	3.5

^a Cable.

^b Wading 500 feet below gage.

Daily gage height, in feet, and discharge, in second-feet, of Dinkey Creek near Ockenden, Cal., for 1912.

[Roy Boothe and Frank Price, observers.]

Day.	May.		June.		July.		August.		September.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1			2.6	582		31		4		2
2				552		31		4	0.3	2
3				521		31		4	.4	4
4				491	0.8	31	0.4	4		4
5				460	.8	31		4		4
6				430		28		4	.4	4
7			2.2	399		26		4		3
8			2.35	464	.7	23		4	.3	2
9	1.52	166		409		23		4		2
10				354		23		4		2
11				298	.7	23		4		2
12				243		20	.4	4		2
13			1.60	188	.6	16		4		2
14				188		16		4		2
15			1.60	188		16		4	.3	2
16				144	.6	16		4		2
17			1.25	100	.6	16		4		2
18			1.40	134		16	.4	4		2
19				118		16	.38	4		2
20				102	.6	16		3	.3	2
21				86		14		3		2
22			1.10	70		11		3		2
23			1.00	54	.5	9		2		2
24				48		9	.3	2	.3	2
25			.90	41		9		2		2
26				41	.5	9		2		2
27				41		8		2		2
28			.90	41		7		2		2
29				36		6		2		2
30	3.0	792	.80	31		5		2	.3	2
31					.4	4	.3	2		

NOTE.—Daily discharge determined from two rating curves applicable as follows: To June 30, 1912, fairly well defined; July 1 to Sept. 30, 1912, well defined. Discharge interpolated for days on which gage was not read.

Monthly discharge of Dinkey Creek near Ockenden, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
June.....	582	31	228	13,600	B.
July.....	31	4	17.4	1,070	B.
August.....	4	2	3.3	203	C.
September.....	4	2	2.3	137	C.

BIG CREEK NEAR TOLLHOUSE, CAL.

Location.—At Hawk's mine, in the SW. $\frac{1}{4}$ sec. 27, T. 10 S., R. 25 E., in Sierra National Forest, $3\frac{1}{2}$ miles above junction with Kings River, and about 9 miles east of Tollhouse.

Records available.—March 21, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank near observer's cabin.

Channel.—Boulders and solid rock; appears permanent.

Discharge measurements.—Made by wading.

Diversions.—Two small ditches above the station. One is used to operate a small stamp mill and the water is returned below the gage. The other ditch is used for irrigation.

Accuracy.—Rating curve fairly well defined; results good.

Cooperation.—Gage-height record furnished by Ira F. Hawk. Discharge measurements furnished by United States Forest Service.

The following discharge measurement was made by H. J. Tompkins by wading 2,000 feet above gage:

May 9, 1912: Gage height, -0.10 foot; discharge, 26 second-feet.

Daily gage height, in feet, of Big Creek near Tollhouse, Cal., for 1911-12.

[Ira F. Hawk, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-1.3	-1.3	-1.2	-0.8	-1.1	-1.2	-0.5	0.1	-0.6	-1.2
2.....	-1.3	-1.3	-1.2	- .7	-1.1	-1.2	- .3	.0	- .6	-1.2
3.....	-1.3	-1.3	-1.2	-1.0	-1.1	-1.2	- .3	- .2	- .7	-1.2
4.....	-1.3	-1.3	-1.2	-1.0	-1.1	-1.1	- .3	.0	- .1	-1.2
5.....	-1.3	-1.3	-1.2	-1.0	-1.1	- .5	- .2	.0	- .8	-1.2
6.....	-1.3	-1.3	-1.1	-1.0	-1.1	+2.5	- .4	.0	- .8	-1.2
7.....	-1.3	-1.3	-1.2	-1.0	-1.1	+1.0	- .3	.0	- .9	-1.3
8.....	-1.3	-1.3	-1.2	-1.0	-1.1	.0	- .1	.0	- .9	-1.3
9.....	-1.3	-1.2	-1.2	-1.1	-1.1	- .4	.0	.0	- .9
10.....	-1.3	-1.0	-1.2	-1.1	-1.1	- .3	+ .2	.0	- .9
11.....	-1.3	-1.1	-1.2	-1.3	-1.1	- .5	.3	+ .1	- .9	-1.3
12.....	-1.3	-1.1	-1.2	-1.1	-1.1	- .5	.0	.3	-1.0	-1.3
13.....	-1.3	-1.1	-1.2	-1.1	-1.1	- .5	- .1	.3	- .9
14.....	-1.3	-1.2	-1.2	-1.0	-1.1	- .5	.0	.3	- .9
15.....	-1.3	-1.2	-1.2	-1.0	-1.1	- .3	.0	.3	-1.0
16.....	-1.3	-1.1	-1.2	-1.1	-1.1	- .3	+ .5	.3	-1.0
17.....	-1.3	-1.2	-1.2	-1.0	-1.1	- .4	.3	.3	-1.0
18.....	-1.3	-1.2	-1.2	- .8	-1.1	- .3	.3	.0	-1.0
19.....	-1.3	-1.2	-1.2	- .9	-1.1	- .1	.0	.0	-1.1
20.....	-1.3	-1.2	-1.2	- .9	-1.1	- .1	- .1	- .1	-1.1
21.....	-1.3	-1.2	-1.2	- .9	-1.1	- .1	- .2	- .3	-1.1
22.....	-1.3	-1.2	-1.2	- .9	-1.1	- .3	- .2	- .2	-1.1
23.....	-1.3	-1.2	-1.2	- .9	-1.1	- .3	- .2	- .2	-1.1
24.....	-1.3	-1.2	-1.2	- .9	-1.1	- .3	.0	- .2	-1.1
25.....	-1.3	-1.2	-1.2	- .9	-1.1	- .3	- .2	- .1	-1.1
26.....	-1.3	-1.2	-1.2	- .8	-1.1	- .4	+ .2	- .1	-1.1
27.....	-1.3	-1.2	-1.2	-1.1	- .2	- .1	- .2	-1.1	-1.6
28.....	-1.3	-1.2	-1.1	-1.2	- .4	- .1	- .2	-1.2	-1.6
29.....	-1.3	-1.2	- .8	-1.1	-1.2	- .2	.0	- .2	-1.2	-1.6
30.....	-1.3	-1.2	- .8	-1.1	- .2	.2	- .4	-1.2	-1.6
31.....	-1.3	- .8	-1.1	- .5	- .5

NOTE.—Relation of gage height to discharge probably affected by ice about Dec. 21, 1911, to Jan. 10, 1912. Gage not read July 13 to Sept. 26, 1912.

Daily discharge, in second-feet, of Big Creek near Tollhouse, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.5	2.5	3.5	2	4.5	3.5	15	27	13	3.5
2.....	2.5	2.5	3.5	2	4.5	3.5	19	25	13	3.5
3.....	2.5	2.5	3.5	2	4.5	3.5	19	21	11	3.5
4.....	2.5	2.5	3.5	2	4.5	19	25	23	10	3.5
5.....	2.5	2.5	3.5	2	4.5	15	21	25	9	3.5
6.....	2.5	2.5	4.5	2	4.5	117	17	25	9	3.5
7.....	2.5	2.5	3.5	2	4.5	53	19	25	7.5	2.5
8.....	2.5	2.5	3.5	2	4.5	25	23	25	7.5	2.5
9.....	2.5	3.5	3.5	2	4.5	17	25	25	7.5	2.5
10.....	2.5	6	3.5	2	4.5	19	29	25	7.5	2.5
11.....	2.5	4.5	3.5	2.5	4.5	15	32	27	7.5	2.5
12.....	2.5	4.5	3.5	4.5	4.5	15	25	32	6	2.5
13.....	2.5	4.5	3.5	4.5	4.5	15	23	32	7.5
14.....	2.5	3.5	3.5	6	4.5	15	25	32	7.5
15.....	2.5	3.5	3.5	6	4.5	19	25	32	6
16.....	2.5	4.5	3.5	4.5	4.5	19	38	32	6
17.....	2.5	3.5	3.5	6	4.5	17	32	32	6
18.....	2.5	3.5	3.5	9	4.5	19	32	25	6
19.....	2.5	3.5	3.5	7.5	4.5	23	25	25	4.5
20.....	2.5	3.5	3.5	7.5	4.5	23	23	23	4.5
21.....	2.5	3.5	3	7.5	4.5	23	21	19	4.5
22.....	2.5	3.5	3	7.5	4.5	19	21	21	4.5
23.....	2.5	3.5	3	7.5	4.5	19	21	21	4.5
24.....	2.5	3.5	3	7.5	4.5	19	25	21	4.5
25.....	2.5	3.5	3	7.5	4.5	19	21	23	4.5
26.....	2.5	3.5	3	9	4.5	17	29	23	4.5
27.....	2.5	3.5	3	21	4.5	21	23	21	4.5	0.5
28.....	2.5	3.5	2	4.5	3.5	17	23	21	3.55
29.....	2.5	3.5	2	4.5	3.5	21	25	21	3.55
30.....	2.5	3.5	2	4.5	21	29	17	3.55
31.....	2.5	2	4.5	15	15

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge interpolated May 13-16, 1911, and June 4, 1912. Discharge estimated on account of ice Dec. 21, 1911, to Jan. 10, 1912. Discharge interpolated July 9 and 10, 1912.

Monthly discharge of Big Creek near Tollhouse, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	2.5	2.5	2.50	154	D.
November.....	6	2.5	3.45	205	C.
December.....	4.5	2	3.23	199	D.
January.....	21	2	5.27	324	C.
February.....	4.5	3.5	4.43	255	C.
March.....	117	3.5	21.5	1,320	B.
April.....	38	15	24.3	1,450	B.
May.....	32	15	24.5	1,510	B.
June.....	13	3.5	6.62	394	C.
July.....	3.5	2.39	147	C.
August.....	1.0	61	D.
September.....93	55	D.
The year.....	117	.5	8.37	-6,070	

NOTE.—Mean discharge estimated as 2 second-feet July 13-31, and 1 second-foot Aug. 1 to Sept 26, 1912.

RUSH CREEK NEAR OCKENDEN, CAL.

Location.—Above highway bridge at Peterson's mill, in the SW. $\frac{1}{4}$ sec. 19, T. 10 S., R. 25 E., in the Sierra National Forest, 6 miles above junction with Big Creek, and about 3 miles southeast of Ockenden. Taylor Creek enters 1 mile above the gage.

Records available.—September 22, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a cedar tree on right bank 200 feet above highway bridge. Gage washed out February 1, 1911, and replaced at a different datum June 10, 1911.

Channel.—Sand; will probably shift at high water.

Discharge measurements.—Made from highway bridge 200 feet below gage or by wading.

Accuracy.—Rating curve fairly well defined at low stages. No estimates have been prepared for high water. Results are fair.

Cooperation.—Gage-height record furnished by J. R. Mills during 1912. Discharge measurements furnished by United States Forest Service.

The following discharge measurement was made by H. J. Tompkins:

May 10, 1912: Gage height 2.22 feet; discharge 7.3 second-feet.

Daily gage height, in feet, of Rush Creek near Ockenden, Cal., for 1912.

[J. R. Mills, observer.]

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1.....	1.9			11.....	1.9			21.....			
2.....			1.7	12.....				22.....			
3.....			1.75	13.....				23.....			
4.....			1.8	14.....				24.....			1.8
5.....		1.8	1.8	15.....		1.75	1.75	25.....	1.85	1.7	1.7
6.....	1.9			16.....	1.85			26.....			
7.....				17.....				27.....			
8.....				18.....				28.....			
9.....				19.....				29.....			
10.....		1.8	1.8	20.....	1.85	1.75	1.75	30.....	1.85	1.7	1.7
								31.....			

Daily discharge, in second-feet, of Rush Creek near Ockenden, Cal., for 1910-1912.

Day.	Nov.	Dec.	Jan.	Day.	July.	Aug.	Sept.
1910-11.				1912.			
1.....		1.5	1.6	1.....	2.0	1.1	0.1
2.....		1.5	1.6	2.....	2.0	1.0	.1
3.....		20	1.4	3.....	2.0	.9	.4
4.....		4.0	1.4	4.....	2.0	.8	.6
5.....		1.6	1.2	5.....	2.0	.6	.6
6.....		1.5	1.2	6.....	2.0	.6	.6
7.....		1.3	1.2	7.....	2.0	.6	.6
8.....		1.2	1.2	8.....	2.0	.6	.6
9.....		1.2	1.7	9.....	2.0	.6	.6
10.....		1.2	1.2	10.....	2.0	.6	.6
11.....		7.6	7.1	11.....	2.0	.6	.6
12.....		4.1	6.6	12.....	1.9	.5	.5
13.....		4.0	7.1	13.....	1.8	.5	.5
14.....		2.7	7.1	14.....	1.6	.4	.4
15.....		2.1	26	15.....	1.5	.4	.4
16.....		1.8	11	16.....	1.3	.4	.4
17.....		1.6	7.1	17.....	1.3	.4	.4
18.....		1.8	7.1	18.....	1.3	.4	.4
19.....		1.8	5.4	19.....	1.3	.4	.4
20.....	1.8	1.8	5.4	20.....	1.3	.4	.4
21.....	1.7	1.7	15	21.....	1.3	.3	.5
22.....	1.7	1.7	12	22.....	1.3	.3	.5
23.....	1.7	1.7	7.1	23.....	1.3	.2	.6
24.....	1.6	1.7		24.....	1.3	.2	.6
25.....	4.9	1.7		25.....	1.3	.1	.1
26.....	7.3	1.6		26.....	1.3	.1	.1
27.....	2.8	1.6		27.....	1.3	.1	.1
28.....	2.1	1.6		28.....	1.3	.1	.1
29.....	1.8	1.6		29.....	1.3	.1	.1
30.....	1.5	1.6		30.....	1.3	.1	.1
31.....		1.6		31.....	1.2	.1	

NOTE.—Daily discharge determined from two fairly well defined rating curves. Interpolated discharge for days when gage was not read.

Monthly discharge of Rush Creek near Ockenden, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1910-11.					
November 20-30.....	7.3	1.5	2.63	57.4	B.
December.....	20	1.2	2.66	164	B.
January 1-23.....	26	1.2	7.12	325	B.
1912.					
July.....	2.0	1.2	1.60	98.4	C.
August.....	1.1	.1	.44	27.1	C.
September.....	.6	.1	.40	23.8	D.

BIG CREEK NEAR SHAVER, CAL.

Location.—In the NE. $\frac{1}{4}$ sec. 28, T. 8 S., R. 25 E., about one-fourth of a mile below Pitman Creek, $5\frac{1}{2}$ miles above junction with San Joaquin River, and $5\frac{1}{2}$ miles northeast of Shaver.

Records available.—January 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Watson recording water-stage register on right bank in pool above weir.

Discharge.—Computed from gage heights giving head on 10-foot concrete weir. The crest is a seven-eighths inch angle bolted to the concrete. Formula used:

$$Q = 3.66 L (h - H)^{\frac{3}{2}}$$

Accuracy.—Much care was exercised in the installation of the equipment and result are believed to be good.

Cooperation.—Estimates of daily discharge were furnished by the Pacific Light & Power Corporation, through G. O. Newman and H. C. Armington.

Daily discharge, in second-feet, of Big Creek near Shaver, Cal., for 1910-1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910.									
1.....	363	70	87	259	1,040	439	48	11.7	3.0
2.....	190	87	104	281	1,090	392	45	11.7	3.0
3.....	143	131	117	307	1,050	345	42	11.7	4.1
4.....	127	119	135	364	849	303	38	10.0	4.1
5.....	112	115	147	378	804	268	40	10.0	4.1
6.....	101	104	163	337	1,030	249	36	10.0	3.0
7.....	90	80	176	392	1,000	222	32	10.0	3.0
8.....	88	70	198	479	1,340	202	31	8.3	3.0
9.....	88	70	214	549	1,290	183	29	8.3	3.0
10.....	82	70	222	569	1,260	170	28	8.3	3.0
11.....	77	74	234	522	1,310	156	26	8.3	3.0
12.....	94	64	246	459	1,310	147	24	8.3	3.0
13.....	83	67	254	523	1,360	141	23	8.3	3.0
14.....	78	70	256	639	1,240	137	22	8.3	25
15.....	77	67	214	708	1,240	138	21	8.3	65
16.....	66	61	198	808	1,180	125	18.9	8.3	29
17.....	97	61	230	924	1,000	116	17.8	6.9	10.9
18.....	77	64	306	1,040	966	106	24	6.9	6.9
19.....	70	64	343	1,110	936	98	27	6.9	5.4
20.....	69	55	346	1,140	875	92	18.9	5.4	4.1
21.....	80	58	296	1,380	837	88	14.4	5.4	3.0
22.....	94	58	264	1,500	829	82	12.2	5.4	3.0
23.....	82	55	244	1,530	803	78	12.6	4.1	3.0
24.....	82	61	187	1,540	756	73	13.4	3.0	1.9
25.....	107	61	203	1,690	686	66	13.4	3.0	1.9
26.....	67	61	194	1,580	658	61	15.3	3.0	1.9
27.....	65	67	190	1,360	639	57	13.4	3.0	3.0
28.....	66	74	134	1,380	567	54	13.4	3.0	3.0
29.....	81	182	1,200	548	52	13.4	3.0	1.9
30.....	94	193	1,020	520	50	13.4	3.0	1.9
31.....	74	219	489	13.4	3.0

Daily discharge, in second-feet, of Big Creek near Shaver, Cal., for 1910-1912—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.												
1.....	1.9	10.0	10.0	21	524	98	400	712	1,220	1,200	103	13.4
2.....	1.9	8.3	10.0	21	430	98	417	784	1,420	1,210	97	11.7
3.....	1.9	8.3	16.0	13.9	366	118	443	960	1,920	1,140	80	11.7
4.....	1.9	10.0	15.7	11.3	299	129	391	1,120	2,240	1,050	85	13.4
5.....	1.9	10.0	13.7	37	258	121	376	1,160	2,510	955	81	13.4
6.....	1.9	8.3	13.4	12.2	226	109	333	867	2,500	890	75	13.4
7.....	1.9	8.3	13.4	12.8	222	101	318	977	2,370	804	70	13.4
8.....	1.9	8.3	15.3	16.7	217	112	321	1,080	2,460	699	65	15.3
9.....	1.9	6.9	15.3	38	161	112	326	1,080	2,400	634	62	17.3
10.....	1.9	6.9	34	28	142	114	294	1,040	3,420	611	60	19.3
11.....	29	6.9	85	22	129	118	285	1,180	5,950	585	57	19.3
12.....	19.4	10.0	36	19.3	146	112	275	1,230	5,870	530	53	19.3
13.....	23	11.7	22	30	124	109	255	1,210	2,300	482	51	15.3
14.....	23	10.0	18.4	17.8	109	109	252	1,130	4,660	436	47	15.3
15.....	22	8.3	19.5	17.3	101	112	270	938	3,740	500	41	13.4
16.....	23	8.3	17.8	53	101	114	307	914	4,800	551	38	11.7
17.....	23	8.3	16.3	44	101	121	359	998	4,370	824	34	10.0
18.....	31	10.0	19.3	30	101	133	418	1,190	4,830	596	30	11.7
19.....	27	6.9	16.9	19.8	98	138	473	1,550	3,840	433	27	10.0
20.....	22	8.3	17.8	33	98	138	491	1,720	3,350	319	25	8.3
21.....	18.8	11.7	16.3	47	101	138	520	1,980	2,780	272	24	13.4
22.....	16.8	10.0	14.9	47	109	138	597	1,450	2,170	242	22	48
23.....	13.0	10.0	13.6	41	105	146	678	2,560	1,840	231	20	26
24.....	10.9	11.7	14.5	60	109	156	772	2,200	1,560	210	20	19.3
25.....	10.4	11.7	15.4	55	109	222	724	1,700	1,630	185	18.8	17.3
26.....	10.0	11.7	28	37	105	189	733	1,490	1,840	163	19.3	15.2
27.....	10.0	10.0	13.4	37	109	194	639	1,730	1,780	152	15.3	15.3
28.....	8.3	6.9	12.9	66	101	227	577	1,790	1,670	141	15.3	17.3
29.....	8.3	6.9	12.7	496	264	566	1,660	1,460	127	13.4	23
30.....	10.0	11.7	10.6	1,380	303	629	1,320	1,300	117	13.4	33
31.....	10.0	11.8	998	340	1,170	112	13.4
Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	24	13.4	13.4	17.3	18.3	17.4	52	138	1,660	114	26	11.0
2.....	22	13.4	13.3	17.3	21	17.4	52	135	1,690	115	24	7.0
3.....	25	11.7	13.5	17.3	21	28	57	141	1,760	115	24	7.0
4.....	22	13.0	15.3	17.3	21	24	57	182	1,360	112	24	7.0
5.....	22	13.0	12.9	17.3	21	24	63	173	1,430	100	24	8.0
6.....	19.3	13.2	14.5	17.3	21	24	76	173	1,310	89	22	8.0
7.....	18.4	13.4	12.3	15.3	17.4	22	95	187	1,080	80	19.3	9.0
8.....	18.0	13.9	14.6	17.3	15.8	22	110	221	847	70	19.2	11.0
9.....	22	15.3	13.7	15.3	15.8	22	122	255	732	67	19.3	12.0
10.....	23	15.4	14.3	17.3	15.8	22	100	336	682	64	17.3	12.0
11.....	20	21	17.5	15.3	15.8	24	80	436	686	58	17.3	12.0
12.....	17.3	22	25	17.3	17.4	24	63	511	593	55	17.3	12.0
13.....	15.4	26	14.9	17.3	17.4	24	63	535	545	56	15.2	12.0
14.....	15.3	25	14.4	19.3	21	24	49	630	474	55	13.4	12.0
15.....	14.4	34	13.5	19.3	21	24	58	708	411	52	13.4	12.0
16.....	14.4	43	24	19.3	24	24	53	793	368	52	13.4	11.0
17.....	14.8	20	18.3	19.3	24	26	68	922	341	52	13.4	9.0
18.....	13.9	13.4	22	19.3	24	26	75	1,020	312	55	11.7	9.0
19.....	13.9	11.7	19.3	19.3	26	28	76	849	286	52	11.7	9.0
20.....	13.4	10.0	17.3	19.3	26	36	74	673	254	47	10.0	9.0
21.....	13.4	8.3	17.3	17.3	28	31	78	526	232	41	10.0	9.0
22.....	13.4	8.3	17.3	17.3	28	31	73	464	221	38	10.0	9.0
23.....	15.3	8.3	11.7	22	28	39	85	577	225	38	8.3	9.0
24.....	13.4	15.4	11.7	22	24	41	104	676	212	36	8.3	11.0
25.....	11.7	17.6	11.7	22	24	41	93	646	184	33	8.3	11.0
26.....	13.4	17.0	11.7	22	28	41	93	605	156	33	8.3	11.0
27.....	13.4	16.7	13.4	24	28	36	84	826	138	31	6.9	11.0
28.....	13.4	17.1	17.3	24	28	36	113	1,070	129	28	5.4	11.0
29.....	13.4	23	15.3	24	28	46	113	1,360	112	28	5.4	11.0
30.....	13.4	14.3	17.3	22	46	112	1,280	109	28	6.9	11.0
31.....	13.4	17.3	24	51	1,300	26	6.9

NOTE.—Estimates of daily discharge have been revised by the Pacific Light & Power Corporation and supersede those previously published.

Monthly discharge of Big Creek near Shaver, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1910.				
January.....	363	65	98.8	6,080
February.....	131	55	73.5	4,080
March.....	346	87	210	12,900
April.....	1,690	259	866	51,500
May.....	1,360	489	952	58,500
June.....	439	50	156	9,280
July.....	48	12.2	23.9	1,470
August.....	11.7	3.0	6.93	426
September.....	65	1.9	7.10	422
The period.....				145,000
1910-11.				
October.....	31	1.9	12.5	769
November.....	11.7	6.9	9.21	548
December.....	85	10	19.0	1,170
January.....	1,380	11.3	121	7,440
February.....	524	98	171	9,500
March.....	340	98	149	9,160
April.....	772	252	448	26,700
May.....	2,560	712	1,320	81,200
June.....	5,950	1,220	2,810	167,000
July.....	1,210	112	529	32,500
August.....	103	13.4	44.7	2,750
September.....	48	8.3	16.8	1,000
The year.....	5,950	1.9	469	340,000
1911-12.				
October.....	25	11.7	16.6	1,020
November.....	43	8.3	16.9	1,010
December.....	25	11.7	15.7	965
January.....	24	15.3	19.2	1,180
February.....	28	15.8	22.4	1,290
March.....	51	17.4	29.7	1,830
April.....	122	49	79.7	4,740
May.....	1,360	135	592	36,400
June.....	1,760	109	618	36,800
July.....	115	26	58.7	3,610
August.....	26	5.4	14.2	873
September.....	12	7.0	10.1	601
The year.....	1,760	5.4	124	90,300

PITMAN CREEK NEAR SHAVER, CAL.

Location.—Just above junction with Big Creek in the E. $\frac{1}{2}$ sec. 28, T. 8 S., R. 25 E., about $5\frac{1}{2}$ miles northeast of Shaver.

Records available.—January 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Watson recording water-stage register on right bank in pool above weir.

Discharge.—Computed from gage heights giving head on 38 foot masonry weir. The crest is a three-eighths inch angle bolted to the masonry. Formula used,

$$Q = 3.66 L(h - H)^{\frac{3}{2}}$$

Accuracy.—Much care was exercised in the installation of the equipment and results are believed to be good.

Cooperation.—Estimates of daily discharge were furnished by the Pacific Light & Power Corporation, through G. O. Newman and H. C. Armington.

Daily discharge, in second-feet, of Pitman Creek near Shaver, Cal., for 1910-1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910.									
1.....	113	16	15	68	212	77	3.8	0.4	0.4
2.....	91	49	20	76	217	67	3.1	.4	.4
3.....	70	53	27	87	210	57	3.1	.4	.4
4.....	60	50	34	114	180	50	3.1	.4	.4
5.....	52	41	38	136	179	46	2.6	.4	.4
6.....	43	27	43	94	199	41	2.0	.4	.4
7.....	37	19	49	111	183	37	2.0	.4	.4
8.....	31	18	56	156	256	33	1.6	.4	.4
9.....	26	15	62	177	228	30	1.1	.4	.4
10.....	23	13	66	189	227	26	1.1	.4	.4
11.....	24	12	71	157	221	25	1.1	.1	.4
12.....	23	13	76	127	211	23	.7	.1	.4
13.....	21	14	78	149	219	21	.7	.1	.4
14.....	22	14	77	209	217	19	.7	.4	2.5
15.....	22	13	64	220	220	20	.7	.4	5.6
16.....	22	11	59	236	203	15	.4	.4	2.3
17.....	20	11	70	317	207	15	.7	.4	1.0
18.....	17	12	96	334	168	12	1.6	.4	.7
19.....	15	12	116	353	161	11	2.0	.4	.7
20.....	14	11	121	330	154	11	1.1	.4	.7
21.....	19	11	97	343	144	10	.7	.4	.4
22.....	21	11	84	369	135	10	.4	.4	.7
23.....	20	9.8	67	386	142	9.4	.4	.4	.4
24.....	17	11	57	375	156	8.5	.4	.4	.4
25.....	17	11	57	418	120	6.5	.4	.1	.4
26.....	18	9.6	47	379	106	5.8	.4	.1	.7
27.....	18	11	53	306	105	5.8	.4	.1	.4
28.....	16	13	43	363	102	4.4	.4	.1	.4
29.....	14	-----	45	278	91	4.4	.4	.1	.4
30.....	15	-----	49	284	87	4.4	.4	.1	.4
31.....	16	-----	58	-----	82	-----	.4	.1	-----

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.												
1.....	0.4	0.4	0.7	9.9	204	28	139	199	349	220	15	0.7
2.....	.4	.4	.7	4.4	184	28	144	218	435	218	14	.4
3.....	.4	.4	1.5	2.3	145	48	155	290	676	215	14	.4
4.....	.4	.4	1.6	1.1	116	44	134	352	774	196	12	.7
5.....	.4	.4	1.1	1.1	99	33	122	348	799	198	12	.7
6.....	.4	.4	1.1	1.1	84	29	99	233	747	178	11	.7
7.....	.4	.4	1.1	1.1	80	55	96	289	637	162	9.8	.7
8.....	.4	.4	1.1	1.1	72	58	98	317	677	145	9.8	.7
9.....	.4	.4	1.1	9.7	58	40	100	341	675	149	9.8	.7
10.....	1.2	.4	5.8	4.8	53	37	94	290	861	138	8.9	.7
11.....	5.6	.4	28	2.3	53	30	88	360	1,100	134	8.1	.4
12.....	1.6	.4	8.8	2.2	79	29	84	370	986	123	7.3	.7
13.....	1.1	.4	4.8	2.5	64	28	78	357	939	116	6.5	.4
14.....	1.1	.4	3.5	7.0	58	28	63	336	684	96	5.8	.7
15.....	1.1	.4	2.9	1.8	57	29	70	252	668	87	5.0	.7
16.....	1.1	.4	2.1	2.2	44	31	79	247	954	110	5.0	.4
17.....	1.1	.4	1.9	2.2	20	38	91	266	1,280	210	3.8	.4
18.....	1.6	.4	2.6	2.2	20	41	112	313	1,100	231	3.8	.4
19.....	1.6	.4	2.0	2.2	20	42	130	446	919	101	3.1	.4
20.....	1.1	.4	2.0	7.7	20	44	141	529	750	66	2.6	.4
21.....	1.1	.7	1.7	8.8	21	46	147	613	950	56	2.6	.4
22.....	.7	.7	1.4	8.8	25	46	173	664	454	48	2.6	4.0
23.....	.7	.7	1.1	9.9	31	50	195	755	362	43	2.0	1.6
24.....	.7	1.1	1.1	14	33	54	220	698	303	38	2.0	1.1
25.....	.4	1.1	1.1	8.8	31	60	245	462	327	34	1.6	.7
26.....	.4	.7	1.4	6.6	33	63	229	401	350	30	1.1	1.1
27.....	.4	.7	1.6	6.6	28	62	185	504	364	28	1.1	1.1
28.....	.4	.7	3.1	9.9	28	81	163	537	314	24	1.1	1.1
29.....	.4	.4	1.9	81	-----	90	153	486	359	20	.7	2.0
30.....	.4	.7	2.9	412	-----	111	174	387	230	17	.7	2.6
31.....	.4	-----	5.2	255	-----	151	-----	349	-----	17	.7	-----

Daily discharge, in second-feet, of Pitman Creek near Shaver, Cal., for 1910-1912—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	2.0	0.4	0.7	1.1	1.6	1.1	6.6	31	298	14	1.1	0.8
2.....	1.6	.4	1.6	1.1	1.1	1.6	7.7	30	325	14	1.1	.8
3.....	1.6	.7	1.6	1.1	1.1	1.7	9.9	34	262	13	1.1	.8
4.....	1.1	.7	1.6	1.1	1.1	2.2	9.9	33	247	12	1.1	.8
5.....	1.1	.7	1.1	1.1	1.1	2.3	7.7	38	211	12	1.1	.4
6.....	1.1	.7	1.6	1.6	1.1	2.8	11	39	251	11	.7	.4
7.....	.7	.7	2.1	1.6	.7	2.0	13	44	183	8.9	.7	.4
8.....	.7	.7	4.2	1.6	.7	2.9	17	46	144	8.1	.7	.4
9.....	1.1	.7	.4	1.6	1.6	2.3	20	59	127	7.3	.7	.4
10.....	1.6	1.0	.4	1.1	1.1	2.6	18	77	122	6.5	.7	.4
11.....	1.1	1.1	.4	1.6	1.1	4.4	17	90	119	6.5	1.1	.4
12.....	1.1	1.1	.4	1.6	1.6	4.8	17	130	116	5.8	.7	.4
13.....	1.1	1.6	.7	1.6	2.2	15	14	181	102	5.8	.4	.4
14.....	.7	1.1	.7	2.0	1.6	16	11	194	92	4.4	.4	.4
15.....	.7	1.1	.7	2.0	1.6	8.4	13	215	81	4.4	.4	.4
16.....	.7	1.1	.7	2.6	1.1	2.3	15	185	67	3.8	.1	.4
17.....	.7	1.6	1.1	1.9	.7	2.0	14	241	66	4.4	.4	.4
18.....	.7	1.1	2.0	.7	.7	1.1	9.4	232	61	4.4	.4	.4
19.....	.7	1.6	5.8	1.6	.4	1.6	9.1	188	56	4.4	.4	.4
20.....	.7	1.1	3.6	1.6	.4	1.1	12	142	52	3.8	.4	.4
21.....	.7	1.1	1.1	2.0	.7	2.0	8.3	113	46	3.1	.4	.4
22.....	.7	2.9	1.1	1.6	1.1	2.6	8.2	108	45	3.1	.4	.4
23.....	.7	.7	1.6	1.6	1.1	2.7	7.7	147	40	2.6	.4	.4
24.....	.7	.4	1.6	1.6	2.0	5.2	8.3	182	36	2.0	.4	.4
25.....	.7	.7	1.6	1.6	1.1	4.6	14	144	32	2.0	.4	.4
26.....	.7	.7	1.1	1.6	1.1	2.8	14	132	29	2.0	.4	.4
27.....	.7	.7	1.1	2.0	1.1	2.0	20	151	25	1.6	.4	.4
28.....	.7	.4	1.6	2.0	1.1	3.8	21	191	23	1.6	.4	.4
29.....	.7	.4	1.6	1.6	1.1	4.2	21	340	18	1.6	.4	.4
30.....	.7	.4	1.6	2.0	5.0	21	303	16	1.6	.4	.4
31.....	.4	1.6	1.6	4.4	313	1.6	.4

Monthly discharge of Pitman Creek near Shaver, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1910.				
January.....	113	14	30.2	1,860
February.....	53	9.6	18.3	1,020
March.....	121	15	61.1	3,760
April.....	418	68	236	14,000
May.....	256	82	172	10,600
June.....	77	4.4	23.5	1,400
July.....	3.8	.4	1.22	75
August.....	.4	.1	.30	18
September.....	5.6	.4	.78	46
The period.....				32,800
1910-11.				
October.....	5.6	.4	.90	55
November.....	1.1	.4	.52	31
December.....	28	.7	3.13	192
January.....	412	1.1	28.7	1,760
February.....	204	20	62.9	3,490
March.....	151	28	50.0	3,070
April.....	245	63	133	7,910
May.....	755	199	394	24,200
June.....	1,280	230	670	39,900
July.....	231	17	111	6,820
August.....	15	.7	5.92	364
September.....	4.0	.4	.89	53
The year.....	1,280	.4	122	87,800

Monthly discharge of Pitman Creek near Shaver, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1911-12.				
October.....	2.0	0.4	0.91	56
November.....	2.9	.4	.92	55
December.....	5.8	.4	1.49	41.6
January.....	2.6	1.1	1.62	99.6
February.....	2.2	.4	1.14	65.6
March.....	16	1.1	3.79	233
April.....	21	6.6	13.2	786
May.....	340	30	141	8,670
June.....	325	16	110	6,550
July.....	14	1.6	5.72	352
August.....	1.1	.1	.58	36
September.....	.8	.4	.45	27
The year.....	340	.1	23.4	17,000

CRANE VALLEY RESERVOIR NEAR NORTH FORK, CAL.

Crane Valley reservoir was formed by constructing a dam on North Fork of San Joaquin River in the E. $\frac{1}{2}$ sec. 26, T. 7 S., R. 22 E. The released water flows down the natural channel of the North Fork to a point just above the mouth of South Fork Creek, where it is diverted into the power canal.

Records beginning with April, 1910, have been furnished by San Joaquin Light & Power Corporation.

Daily discharge, in second-feet, into Crane Valley reservoir near North Fork, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	7.5	9	10	16	20	12	72	105	152	19	10.5	4.5
2.....	7.5	9	10	16	20	12	77	100	160	19	10.5	4.5
3.....	7.5	9	10	14	20	54	85	90	177	18	10	7
4.....	7.5	9	18	14	20	54	92	95	175	18	10	9
5.....	7.5	9	45	14	20	235	74	85	170	18	10	5
6.....	7.5	9	20	14	20	215	76	95	157	17	9.5	4.5
7.....	7.5	9	16	14	20	116	80	100	110	17	9.5	4.5
8.....	7.5	9	16	16	20	68	90	100	95	17	9	4.5
9.....	7.5	75	14	16	18	45	120	90	81	16	9	4.5
10.....	7.5	70	14	16	15	50	180	90	89	16	8.5	4
11.....	7.5	15	14	16	15	35	105	105	83	16	8.5	4
12.....	7.5	10	14	25	15	100	95	100	73	15	8	4
13.....	7.5	10	12	20	15	45	110	105	58	15	8	3.5
14.....	7.5	10	12	18	20	40	110	110	60	14	7.5	3.5
15.....	11	10	12	18	20	80	160	130	57	14	7.5	3.5
16.....	10	10	14	30	18	75	112	115	53	14	7.5	3.5
17.....	9.5	10	12	25	18	65	100	125	44	13	7	3.5
18.....	9.5	10	14	20	15	65	100	125	47	13	7	3.5
19.....	9	10	14	18	15	0	80	110	48	13	6.5	3.5
20.....	9	10	12	18	15	75	80	150	42	13	6.5	3.5
21.....	9	10	12	18	15	66	65	85	36	12	6	3.5
22.....	9	10	12	15	15	60	73	80	33	12	6	3.5
23.....	9	10	12	15	12	60	86	80	24	12	5.5	3.5
24.....	9	10	12	15	12	60	86	80	22	12	5.5	3.5
25.....	9	10	12	40	12	80	91	135	21	12	5.5	3.5
26.....	9	10	12	90	12	80	110	135	20	11	5.5	3.5
27.....	9	10	26	28	12	70	83	90	20	11	5.5	3.5
28.....	9	10	25	28	12	65	80	125	20	11	5	3.5
29.....	9	10	22	30	12	85	160	140	20	11	5	3.5
30.....	9	10	14	25	-----	70	110	140	20	11	5	3.5
31.....	9	-----	18	20	-----	65	-----	145	-----	11	5	-----

Monthly discharge into Crane Valley reservoir near North Fork, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	11	7.5	8.45	520
November.....	75	9	14.1	839
December.....	45	10	15.5	963
January.....	90	14	22.0	1,350
February.....	20	12	16.3	938
March.....	235	12	73.9	4,540
April.....	180	65	98.1	5,840
May.....	150	80	108	6,640
June.....	177	20	72.2	4,300
July.....	19	11	14.2	873
August.....	10.5	5	7.42	456
September.....	9	3.5	4.10	244
The year.....	235	3.5	37.9	27,500

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

EVAPORATION FROM CRANE VALLEY RESERVOIR NEAR NORTH FORK, CAL.

Location.—In T. 7 S., R. 22 E., about 5 miles northwest of North Fork.

Records available.—June 1 to November 30, 1910, and May 1 to September 19, 1911.

Method.—Evaporation was measured in a pan floating in the reservoir.

Elevation.—About 3,350 feet above sea level.

Cooperation.—Data furnished by San Joaquin Light & Power Corporation.

Daily evaporation, in feet, at Crane Valley reservoir near North Fork, Cal., for 1910.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Day.	June.	July.	Aug.	Sept.	Oct.	Nov.
1.....	0.025	0.02	0.02	0.015	0.01	0.005	16.....	0.015	0.025	0.015	0.004	0.005
2.....	.025	.025	.02	.01	.01	.005	17.....	.015	.015	.02	.01	.005
3.....	.025	.025	.025	.01	.01	.005	18.....	.015	.01	.025	.004	.005
4.....	.02	.02	.025	.01	.01	.005	19.....	.015	.02	.015	.01	.005
5.....	.02	.025	.02	.02	.01	.005	20.....	.02	.02	.02	.01	.005
6.....	.02	.025	.025	.01	.01	.005	21.....	.02	.025	.015	.01
7.....	.02	.03	.025	.01	.01	.005	22.....	.025	.02	.01	.01
8.....	.02	.03	.02	.01	.01	.005	23.....	.025	.02	.015	.01	.005
9.....	.015	.03	.025	.01	.01	.005	24.....	.03	.02	.015	.01	.005
10.....	.015	.025	.02	.01	.005	.005	25.....	.03	.015	.01	.01	.005
11.....	.015	.025	.02	.01	26.....	.025	.02	.01	.01	.005
12.....	.01	.025	.02	.01	27.....	.025	.02	.01	.01	.005
13.....	.01	.025	.02	.008	.005	28.....	.025	.02	.015	.005	.005
14.....	.01	.025	.02005	29.....	.02	.02	.015	.01	.005
15.....	.01	.025	.015005	30.....	.02	.02	.015	.01	.005
							31.....02	.015005

Daily evaporation, in feet, at Crane Valley reservoir near North Fork, Cal., for 1911.

Day.	May.	June.	July.	Aug.	Sept.	Day.	May.	June.	July.	Aug.	Sept.
1.....	0.01	0.01	0.015	0.015	0.015	16.....	0.005	0.01	0.015	0.02	0.01
2.....	.01	.015	.01	.015	.015	17.....	.005	.01	.015	.02	.01
3.....	.01	.01	.01	.015	.015	18.....	.005	.01	.015	.015	.005
4.....	.005	.015	.01	.015	.01	19.....	.005	.01	.02	.015	.005
5.....	.005	.015	.015	.02	.01	20.....	.01	.01	.02	.015
6.....	.005	.01	.015	.025	.015	21.....	.01	.015	.015	.01
7.....	.005	.01	.02	.025	.015	22.....	.01	.015	.01	.01
8.....	.005	.01	.02	.02	.015	23.....	.01	.015	.01	.01
9.....	.01	.01	.02	.015	.015	24.....	.005	.01	.015	.01
10.....	.01	.02	.015	.015	.01	25.....	.005	.01	.01	.015
11.....	.01	.02	.015	.01	.01	26.....	.01	.01	.015	.02
12.....	.005	.015	.015	.02	.01	27.....	.01	.02	.02	.025
13.....	.005	.015	.015	.02	.01	28.....	.01	.02	.02	.02
14.....	.005	.015	.01	.02	.015	29.....	.005	.02	.015	.02
15.....	.005	.01	.015	.025	.015	30.....	.005	.015	.015	.015
						31.....	.00501	.015

SOUTH FORK CREEK ¹ NEAR NORTH FORK, CAL.

Location.—At concrete weir just above mouth, in the SE. $\frac{1}{4}$ sec. 19, T. 8 S., R. 23 E., and about 5 miles east of North Fork.

Records available.—April 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Watson water-stage register which shows head on weir.

Discharge.—Computed from gage-height record which indicates head on 100-foot, broad-crested concrete weir. Weir rating is checked by current meter measurements.

Diversions.—Below the mouth of Browns Creek, about 6 miles above the station, water is diverted from South Fork Creek into Crane Valley reservoir.

Cooperation.—Daily-discharge records furnished by San Joaquin Light & Power Corporation.

Daily discharge, in second-feet, of South Fork Creek near North Fork, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3	4	9	12	20	16	23	89	86	17.3	7.5	4
2.....	3	4	9	12	20	15	54	67	87	16.3	7.5	4
3.....	3	4	10	12	18	16	45	59	106	16.3	7.5	4
4.....	3	4	10	12	18	34	66	65	88	16.3	7.5	12.5
5.....	3	4	14	12	17	39	50	76	66	16.3	7.5	9
6.....	3	4	18	12	16	163	42	70	42	14.7	6.2	6.2
7.....	3	4	14	15	15	93	66	78	70	14.2	6.2	6.2
8.....	3	4	12	15	14	74	73	79	74	14.2	6.2	5
9.....	3	4	12	15	14	48	90	91	59	13.4	6.2	5
10.....	3	60	12	50	15	34	81	88	68	13.4	5	5
11.....	3	17	12	45	16	34	75	116	56	13.4	5	4
12.....	3	15	12	45	16	33	62	151	53	12.5	5	4
13.....	3	12	12	42	15	37	45	145	45	12.5	5	4
14.....	3	10	12	46	14	45	45	145	51	12.5	4	4
15.....	5	8	12	44	15	49	56	150	49	11.6	4	3
16.....	5	15	14	47	14	56	59	154	38	10.7	4	3
17.....	4	10	14	56	14	35	56	149	34	10.7	3	3
18.....	4	10	14	54	16	20	59	143	30	10.7	3	3
19.....	4	10	14	52	16	18	62	129	30	10.7	3	3
20.....	4	9	14	50	16	16	38	115	30	9	2	3
21.....	4	9	12	50	16	16	30	111	30	9	2	3
22.....	4	12	12	52	16	12	34	84	30	9	2	3
23.....	4	10	12	51	15	15	37	71	30	9	2	2
24.....	4	9	12	48	14	28	53	78	30	9	2	2
25.....	4	9	12	45	13	20	42	91	27	9	2	2
26.....	4	9	12	46	13	20	45	103	24	9	2	2
27.....	4	9	12	65	12	20	36	97	21	9	2	2
28.....	4	9	12	52	12	21	36	109	21	7.5	2	2
29.....	4	9	12	40	12	26	61	114	21	7.5	2	2
30.....	4	9	12	32	24	92	102	19	7.5	2	2
31.....	4	12	24	18	95	7.5	2

¹ Also known as South Fork of Willow Creek.

Monthly discharge of South Fork Creek near North Fork, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	5	3	3.61	222
November.....	60	4	10.2	607
December.....	18	9	12.3	756
January.....	65	12	37.2	2,290
February.....	20	12	15.2	874
March.....	163	12	35.3	2,170
April.....	92	23	53.8	3,200
May.....	154	59	104	6,400
June.....	106	19	47.2	2,810
July.....	17.3	7.5	11.6	713
August.....	7.5	2	4.11	253
September.....	12.5	2	3.90	232
The year.....	163	2	28.2	20,500

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

WHISKY CREEK NEAR NORTH FORK, CAL.

Location.—Just above highway bridge in the SE. $\frac{1}{4}$ sec. 16, T. 8 S., R. 23 E., about one-fourth mile below Cascadel ranch, and 6 miles east of North Fork.

Records available.—April 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff on left bank about 500 feet above bridge.

Channel.—Gravel.

Discharge measurements.—Made by wading near gage.

Cooperation.—Daily discharge records furnished by San Joaquin Light & Power Corporation.

Daily discharge, in second-feet, of Whisky Creek near North Fork, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4	4	6	9	14	12	16	50	32	10	3	3
2.....	4	4	6	10	14	12	35	44	35	10	3	3
3.....	4	4	6	9	14	12	31	39	41	9	3	5
4.....	4	4	9	9	14	18	44	46	36	9	3	6.5
5.....	4	4	16	9	14	22	32	46	30	9	3	4.5
6.....	4	4	12	8	14	38	30	44	26	8	3	3.5
7.....	4	4	10	8	14	30	45	51	24	8	3	3.5
8.....	4	4	10	12	13	27	48	51	23	8	3	3
9.....	4	4	10	12	13	24	54	53	21	8	3	3
10.....	4	22	10	12	13	20	50	51	21	7	3	3
11.....	4	14	10	12	13	18	48	60	20	7	3	3
12.....	4	9	10	15	13	18	46	63	18	7	3	3
13.....	4	7	10	14	12	19	31	61	17	7	3	2.5
14.....	4	5	10	12	15	21	31	61	17	6	3	2.5
15.....	5	5	10	12	15	22	36	61	15	6	3	2.5
16.....	5	5	10	18	14	24	36	61	14	6	3	2.5
17.....	5	5	10	15	14	26	36	57	14	6	3	2.5
18.....	4.5	5	12	14	14	18	37	54	14	6	3	2.5
19.....	4.5	5	12	14	14	14	39	54	14	5	3	2.5
20.....	4.5	5	10	12	13	14	28	49	14	5	3	2.5
21.....	4.5	16	10	12	13	14	25	49	13	5	3	2.5
22.....	4.5	20	10	12	14	14	25	44	13	5	3	2.5
23.....	4.5	16	9	12	14	16	28	39	13	5	3	2.5
24.....	4.5	11	9	12	13	26	35	39	12	5	3	2.5
25.....	4.5	6	9	20	13	20	31	42	12	5	3	2.5
26.....	4.5	6	9	26	13	23	31	42	12	4	3	2.5
27.....	4.5	6	11	18	12	21	28	38	11	4	3	2.5
28.....	4.5	6	12	18	12	18	28	36	11	4	3	2.5
29.....	4.5	6	10	18	12	25	38	34	11	4	3	2.5
30.....	4.5	6	8	16	18	50	34	11	4	3	2.5
31.....	4.5	8	14	16	34	3	3

Monthly discharge of Whisky Creek near North Fork, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	5	4	4.3	264
November.....	22	4	7.4	440
December.....	16	6	9.8	603
January.....	26	8	13.4	824
February.....	15	12	13.4	771
March.....	38	12	20.0	1,230
April.....	54	16	35.7	2,120
May.....	63	34	48.0	2,950
June.....	41	11	18.8	1,120
July.....	10	3	6.3	387
August.....	3	3	3.0	184
September.....	6.5	2.5	2.97	177
The year.....	63	2.5	15.3	11,100

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

CASCADEL CREEK NEAR NORTH FORK, CAL.

Location.—Just above mouth in the NE. $\frac{1}{4}$ sec. 21, T. 8 S., R. 23 E., and about 6 miles east of North Fork.**Records available.**—April 1, 1910, to April 30, 1912.**Drainage area.**—Not measured.**Gage.**—Staff on left bank at trail crossing.**Channel.**—Gravel.**Discharge measurements.**—Made by wading near gage.**Cooperation.**—Daily-discharge record furnished by San Joaquin Light & Power Corporation.*Daily discharge, in second-feet, of Cascadel Creek near North Fork, Cal., for 1911-12.*

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1.....	0.4	0.6	1	1	1.5	1	1.5
2.....	.4	.6	1	1	1.5	1	4.5
3.....	.4	.6	1	1	1.5	1	3
4.....	.4	.6	1.5	1	1.5	2	5
5.....	.4	.6	3	1	1.5	2	4
6.....	.4	.6	3	1	1.5	3	3
7.....	.4	.6	2	1	1.5	2.5	5
8.....	.4	.6	1	1.5	1.5	2.5	6
9.....	.4	.6	1	1.5	1.5	2	7
10.....	.4	4.0	1	1.5	1.5	2	6
11.....	.4	2.0	1	1.5	1.5	2	5.5
12.....	.4	1.5	1	2	1.5	2	5
13.....	.4	1.0	1	2	1	2	3
14.....	.4	.8	1	1.5	2	2	3
15.....	.6	.8	1	1.5	2	2	4
16.....	.6	.8	1	2.5	1.5	2	4
17.....	.6	.8	1	2	1.5	2.5	4
18.....	.6	.8	2	2	1.5	2	4
19.....	.6	.8	2	2	1.5	1.5	5
20.....	.6	.8	1.5	1.5	1.5	1.4	3
21.....	.6	3.5	1	1.5	1.5	1.5	2.5
22.....	.6	2.0	1	1.5	1.5	1.5	3
23.....	.6	1	1	1.5	1.5	1.5	3
24.....	.6	1	1	1.5	1.5	2.5	4
25.....	.6	1	1	2.5	1.5	2	3.5
26.....	.6	1	1	3	1.5	2	3
27.....	.6	1	2	2	1	2	2.5
28.....	.6	1	2	2	1	2	2.5
29.....	.6	1	1.5	2	1	2.5	4
30.....	.6	1	1	1.5	2	2	6
31.....	.6	1	1	1.5	2	1.5

Monthly discharge of Cascadel Creek near North Fork, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	0.6	0.4	0.51	31.4
November.....	4	.6	1.10	65.5
December.....	3	1	1.34	82.4
January.....	3	1	1.63	100
February.....	2	1	1.47	84.6
March.....	3	1	1.92	118
April.....	7	1.5	3.98	237
The period.....				719

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

NELDER CREEK¹ NEAR FRESNO FLATS, CAL.

Location.—Above highway bridge on Salt Springs and Crane Valley road, in the SE. $\frac{1}{4}$ sec. 36, T. 6 S., R. 21 E., in the Sierra National Forest, just above intake of flume feeder for Madera Sugar Pine Co.'s flume and about 4 miles northeast of Fresno Flats.

Records available.—September 23, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank 400 feet above bridge.

Channel.—Gravel and sand; will probably shift at high water.

Discharge measurements.—Made by wading.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

The following discharge measurement was made by H. J. Tompkins, by wading:

March 7, 1912: Gage height, 1.57 feet; discharge,² 46 second-feet.

Daily gage height, in feet, of Nelder Creek near Fresno Flats, Cal., for 1912.

[W. M. Brown, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....								0.5	0.4
2.....							1.1	.5	.4
3.....							1.0	.4	.5
4.....					1.4		1.0	.4	
5.....							1.0	.4	
6.....				1.4			1.0	.4	.4
7.....			1.57				1.0	.4	.5
8.....							1.0	.4	
9.....							1.0	.4	.5
10.....		1.0					.9	.4	
11.....	1.0						.9	.4	
12.....							.9	.4	.4
13.....							.9	.4	.3
14.....							.8	.4	.3
15.....	.9						.8	.4	.3
16.....							.8	.4	.3
17.....							.8	.4	.3
18.....							.8	.3	.3
19.....							.8	.3	.3
20.....				1.2	1.7		.8	.3	.3

¹ Station records formerly published under title "Fresno River near Fresno Flats." See map of Mariposa quadrangle, published July, 1912.

² The discharge published in Water-Supply Paper 299, p. 209, is in error.

Daily gage height, in feet, of Nelder Creek near Fresno Flats, Cal., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
21.....			1.1				0.8	0.3	0.3
22.....							.7	.3	.3
23.....						1.4	.7	.3	.2
24.....							.7	.3	.2
25.....							.7	.3	.2
26.....							.6	.3	.2
27.....							.6	.3	.2
28.....							.5	.3	.2
29.....							.5	.3	.2
30.....							.5	.3	.2
31.....							.5	.4

FRESNO RIVER NEAR KNOWLES, CAL.

Location.—At Fresno Crossing, in the N. $\frac{1}{2}$ sec. 15, T. 8 S., R. 20 E., about 6 miles northeast of Knowles.

Records available.—September 16, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to willow tree on left bank, about 100 feet above highway bridge.

Channel.—Small boulders, gravel, and sand; fairly permanent.

Discharge measurements.—Made from car and cable about 400 feet below gage or by wading.

Diversions.—Water is diverted above the station for irrigation and for use in lumbering.

Accuracy.—Rating curve well defined and results excellent.

Discharge measurements of Fresno River near Knowles, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 10	H. J. Tompkins.....	0.62	25
1912.			
Mar. 6do.....	1.60	219
Apr. 16	J. E. Stewart.....	1.36	150

NOTE.—Made by wading.

Daily gage height, in feet, of Fresno River near Knowles, Cal., for 1911-12.

[J. E. Grayman, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.60	0.50	0.58	0.70	0.78	0.68	1.00	1.35	1.08	0.75	0.38	0.10
2.....	.60	.50	.58	.67	.78	.70	1.00	1.20	1.10	.75	.38	.10
3.....	.57	.50	.60	.70	.78	.72	1.05	1.20	1.18	.75	.40	.10
4.....	.60	.50	.58	.60	.80	.78	1.07	1.10	1.17	.75	.42	.60
5.....	.57	.50	.58	.60	.75	.98	1.13	1.10	1.15	.75	.38	.50
6.....	.58	.50	.57	.65	.75	1.50	1.05	1.10	1.15	.75	.40	.40
7.....	.55	.55	.65	.65	.73	1.48	1.10	1.30	1.10	.73	.38	.30
8.....	.52	.55	.65	.65	.72	1.47	1.18	1.20	1.10	.73	.35	.40
9.....	.50	.55	.62	.70	.70	1.20	1.15	1.40	1.18	.72	.30	.50
10.....	.55	.60	.60	.70	.70	1.08	1.32	1.20	1.17	.72	.28	.30
11.....	.60	.90	.60	1.05	.70	1.00	1.40	1.20	1.15	.72	.25	.20
12.....	.58	.70	.58	.80	.72	1.09	1.40	1.23	1.15	.72	.13	.10
13.....	.55	.70	.55	.78	.70	1.28	1.30	1.25	1.12	.70	.20	.10
14.....	.55	.68	.55	.75	.70	1.20	1.25	1.20	1.10	.60	.20	.08
15.....	.52	.60	.57	.75	.70	1.10	1.40	1.25	1.10	.60	.25	.00

Daily gage height, in feet, of Fresno River near Knowles, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
16.	0.55	0.60	0.58	0.75	0.70	1.40	1.40	1.25	1.10	0.58	0.15	0.10
17.	.55	.68	.62	.75	.72	1.20	1.30	1.25	1.10	.55	.10	.05
18.	.50	.65	.60	.73	.72	1.08	1.30	1.20	1.10	.50	.10	.00
19.	.50	.63	.60	.75	.73	1.10	1.20	1.20	1.00	.52	.10	-.05
20.	.50	.62	.65	.75	.73	1.20	1.15	1.20	.98	.55	.08	-.05
21.	.50	.65	.70	.70	.72	1.18	1.10	1.40	.98	.55	.08	-.08
22.	.48	.65	.60	.73	.72	1.03	1.10	1.30	.95	.52	.05	-.10
23.	.50	.63	.60	.75	.73	1.00	1.05	1.25	1.00	.52	.08	-.10
24.	.50	.65	.60	.75	.73	1.08	1.07	1.20	.95	.50	.05	-.05
25.	.50	.60	.60	.75	.78	1.03	1.10	1.20	.95	.50	.05	-.05
26.	.50	.60	.50	.80	.70	1.03	1.10	1.40	.90	.48	.05	-.02
27.	.52	.60	.80	1.05	.68	1.05	1.20	1.15	.88	.42	.02	-.05
28.	.52	.60	.82	.90	.67	1.00	1.10	1.12	.85	.40	.05	-.05
29.	.50	.60	.70	.85	.67	1.00	1.05	1.10	.82	.40	.08	-.05
30.	.50	.58	.65	.83	-----	1.10	1.50	1.12	.80	.38	.08	-.08
31.	.50	-----	.75	.80	-----	1.05	-----	1.12	-----	.38	.05	-----

Daily discharge, in second-feet, of Fresno River near Knowles, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	23	15	21	34	44	32	78	150	92	40	9.2	3
2.	23	15	21	31	44	34	78	116	96	40	9.2	3
3.	21	15	23	34	44	37	87	116	112	40	10	3
4.	23	15	21	23	47	44	91	96	110	40	11	23
5.	21	15	21	23	40	75	102	96	106	40	9.2	15
6.	21	15	21	28	40	189	87	96	106	40	10	10
7.	19	19	28	28	38	184	96	138	96	38	9.2	6
8.	17	19	28	28	37	181	112	116	96	38	8	10
9.	15	19	25	34	34	116	106	162	112	37	6	15
10.	19	23	23	34	34	92	143	116	110	37	5.6	6
11.	23	62	23	87	34	78	162	116	106	37	5	4
12.	21	34	21	47	37	94	162	123	106	37	3.3	3
13.	19	34	19	44	34	134	138	127	100	34	4	3
14.	19	32	19	40	34	116	127	116	96	23	4	2.8
15.	17	23	21	40	34	96	162	127	96	23	5	2
16.	19	23	21	40	34	162	162	127	96	21	3.5	3
17.	19	32	25	40	37	116	138	127	96	19	3	2.5
18.	15	28	23	38	37	82	138	116	96	15	3	2
19.	15	26	23	40	38	96	116	116	78	17	3	1.5
20.	15	25	28	40	38	116	106	116	75	19	2.8	1.5
21.	15	28	34	34	37	112	96	162	75	19	2.8	1.2
22.	14	28	23	38	37	83	96	138	70	17	2.5	1.0
23.	15	26	23	40	38	78	87	127	78	17	2.8	1.0
24.	15	28	23	40	38	92	91	116	70	15	2.5	1.5
25.	15	23	23	40	44	83	96	116	70	15	2.5	1.5
26.	15	23	15	47	34	83	96	162	62	14	2.5	1.8
27.	17	23	47	87	32	87	116	106	59	11	2.2	1.5
28.	17	23	50	62	31	78	96	100	54	10	2.5	1.5
29.	15	23	34	54	31	78	87	96	50	10	2.8	1.5
30.	15	21	25	52	-----	86	189	100	47	9.2	2.8	1.2
31.	15	-----	48	47	-----	87	-----	100	-----	9.2	2.5	-----

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

Monthly discharge of Fresno River near Knowles, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	23	14	17.8	1,090	B.
November.....	62	15	24.5	1,460	B.
December.....	50	15	25.6	1,570	B.
January.....	87	23	41.7	2,560	B.
February.....	47	31	37.3	2,150	B.
March.....	189	32	98.1	6,030	B.
April.....	189	78	115	6,840	B.
May.....	162	96	121	7,440	B.
June.....	112	47	87.2	5,190	B.
July.....	40	9.2	25.2	1,550	B.
August.....	11	2.2	4.92	303	C.
September.....	23	1.0	4.43	264	C.
The year.....	189	1.0	50.2	36,400	

NORTH FORK OF FRESNO RIVER¹ NEAR SUGAR PINE, CAL.

Location.—At Miami Creek ranger station, in Sierra National Forest, 2½ miles west of Sugar Pine.

Records available.—September 26, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank, 200 feet north of forest ranger's station.

Channel.—Sand and boulders.

Discharge measurements.—Made by wading.

Cooperation.—Gage-height record and discharge measurements furnished by the United States Forest Service. This station is maintained only during the summer months.

Estimates are withheld until additional measurements are available.

Daily gage height, in feet, of North Fork of Fresno River near Sugar Pine, Cal., for 1912.

[M. McLeod, observer.]

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1.....			0.45	11.....				21.....	0.45	0.40	0.38
2.....				12.....	0.50		0.40	22.....	.45		.40
3.....		0.40		13.....	.50		.45	23.....	.40		
4.....	0.50	.40	.45	14.....	.50	0.40	.42	24.....	.45		.38
5.....		.45	.45	15.....		.40	.40	25.....	.48		.38
6.....		.40	.45	16.....	.50			26.....	.45	.40	.38
7.....		.40	.42	17.....	.45		.40	27.....	.48	.40	.40
8.....		.42	.45	18.....	.45		.40	28.....		.42	
9.....		.40		19.....	.45	.40	.40	29.....		.40	
10.....	.50	.45		20.....	.40	.40	.40	30.....		.42	
								31.....		.40	

¹ Known locally as Miami Creek.

MERCED RIVER AT YOSEMITE, CAL.

Location.—At Sentinel Bridge at Yosemite, in Yosemite National Park, $1\frac{1}{2}$ miles below mouth of Tenaya Creek, and half a mile above mouth of Yosemite Creek.
Records available.—July, 1904, to June, 1909 (incomplete) and January 4 to September 30, 1912.

Drainage area.—236 square miles.

Gage.—Vertical staff on retaining wall on left bank 3 feet below the bridge.

Channel.—Small bowlders and gravel; shifts slightly during high water.

Discharge measurements.—Made from bridge or by wading.

Winter flow.—Slightly affected by ice.

Accuracy.—Results are good.

Cooperation.—Gage-height record furnished by officials of Yosemite National Park.

Discharge measurements of Merced River at Yosemite, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Fect.</i>	<i>Sec.-ft.</i>
Jan. 5 ^a	J. E. Stewart.....	2.38	19
June 17	F. C. Ebert.....	4.86	1,050

^aBy wading 125 feet above gage; river frozen at gage. Gage was read to water surface which was nearly on level with top surface of ice.

Daily gage height, in feet, of Merced River at Yosemite, Cal., for 1912.

[H. C. Currier, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.61	2.58	2.99	3.35	7.6	3.6	3.03	2.51
2.....		2.64	2.57	3.09	3.31	8.0	3.55	3.01	2.51
3.....		2.68	2.57	3.10	3.30	7.7	3.48	2.98	2.51
4.....	2.38	2.60	2.60	3.10	3.39	7.6	3.40	2.90	2.53
5.....	2.38	2.68	2.65	3.10	3.45	7.4	3.35	2.89	2.52
6.....	2.38	2.65	2.79	3.14	3.40	7.7	3.26	2.89	2.52
7.....	2.40	2.60	2.79	3.25	3.8	7.0	3.20	2.90	2.65
8.....	2.40	2.60	2.75	3.25	3.8	6.2	3.28	2.89	2.66
9.....	2.40	2.60	2.65	3.25	4.0	5.4	3.30	2.89	2.64
10.....	2.40	2.60	2.75	3.25	4.0	5.6	3.29	2.89	2.61
11.....	2.45	2.62	2.70	3.19	4.6	5.7	3.35	2.88	2.58
12.....	2.48	2.61	2.68	3.10	5.4	5.7	3.39	2.86	2.57
13.....	2.48	2.58	2.70	3.10	5.4	5.3	3.41	2.85	2.54
14.....	2.50	2.58	2.80	3.09	5.8	5.1	3.45	2.82	2.51
15.....	2.50	2.57	2.80	3.08	6.2	4.9	3.49	2.81	2.50
16.....	2.50	2.59	2.81	3.10	6.3	4.9	3.47	2.80	2.48
17.....	2.50	2.62	2.83	3.10	6.4	4.8	3.6	2.80	2.47
18.....	2.50	2.66	2.80	3.10	6.8	4.9	3.7	2.77	2.45
19.....	2.51	2.64	2.80	3.10	6.8	5.0	3.8	2.75	2.42
20.....	2.51	2.61	2.81	3.10	5.3	5.9	3.55	2.74	2.41
21.....	2.52	2.61	2.81	3.10	4.8	4.5	3.40	2.70	2.41
22.....	2.52	2.61	2.81	3.10	4.4	4.3	3.30	2.68	2.41
23.....	2.53	2.60	2.81	3.00	4.5	3.95	3.20	2.67	2.41
24.....	2.51	2.48	2.89	3.19	4.5	3.7	3.17	2.65	2.41
25.....	2.51	2.48	2.89	3.18	4.7	3.65	3.14	2.64	2.41
26.....	2.52	2.50	2.90	3.20	4.8	3.7	3.10	2.62	2.41
27.....	2.58	2.51	2.90	3.22	5.2	3.75	3.05	2.59	2.41
28.....	2.58	2.55	2.90	3.25	6.2	3.8	3.05	2.56	2.40
29.....	2.60	2.58	3.00	3.32	7.3	3.7	3.06	2.55	2.40
30.....	2.61	2.92	3.28	6.9	3.7	3.05	2.54	2.40
31.....	2.61	2.89	7.2	3.03	2.52

Daily discharge, in second-feet, of Merced River at Yosemite, Cal., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		48	43	145	269	2,930	370	158	34
2.....		53	42	177	254	3,250	349	151	34
3.....		60	42	180	250	3,010	320	142	34
4.....	22	46	46	180	284	2,930	288	116	37
5.....	22	60	55	180	308	2,770	269	113	36
6.....	22	55	86	194	288	3,010	236	113	36
7.....	23	46	86	232	460	2,450	214	116	55
8.....	23	46	76	232	460	1,870	243	113	57
9.....	23	46	55	232	556	1,330	250	113	53
10.....	23	46	76	232	556	1,460	246	113	48
11.....	28	50	64	211	862	1,520	269	110	43
12.....	31	48	60	180	1,330	1,520	284	105	42
13.....	31	43	64	180	1,330	1,260	292	102	38
14.....	33	43	88	177	1,590	1,140	308	94	34
15.....	33	42	88	174	1,870	1,020	324	91	33
16.....	33	45	91	180	1,940	1,020	316	88	31
17.....	33	50	96	180	2,010	970	370	88	30
18.....	33	57	88	180	2,300	1,020	414	81	28
19.....	34	53	88	180	2,300	1,080	460	76	25
20.....	34	48	91	180	1,260	1,660	349	74	24
21.....	36	48	91	180	970	808	288	64	24
22.....	36	48	91	180	756	704	250	60	24
23.....	37	46	91	148	808	532	214	59	24
24.....	34	31	113	211	808	414	204	55	24
25.....	34	31	113	207	916	392	194	53	24
26.....	36	33	116	214	970	414	180	50	24
27.....	43	34	116	221	1,200	437	164	45	24
28.....	43	40	116	232	1,870	460	164	41	23
29.....	46	43	148	258	2,690	414	167	40	23
30.....	48		122	243	2,380	414	164	38	23
31.....	48		113		2,610		158	36	

NOTE.—Daily discharge determined from a rating curve well defined between 16 and 460 second-feet (gage heights 2.30 and 3.8 feet), and fairly well defined above.

Monthly discharge of Merced River at Yosemite, Cal., for 1912.

[Drainage area, 236 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
January 4-31.....	48	22	32.9	0.139	0.14	1,830	B.
February.....	60	31	46.2	.196	.21	2,660	B.
March.....	148	42	85.6	.363	.42	5,260	A.
April.....	258	145	197	.835	.93	11,700	A.
May.....	2,690	250	1,180	5.00	5.76	72,600	B.
June.....	3,250	392	1,410	5.97	6.66	83,900	B.
July.....	460	158	268	1.14	1.31	16,500	A.
August.....	158	36	87.0	.369	.43	5,350	A.
September.....	57	23	33.0	.141	.16	1,960	A.
The period.....						202,000	

MERCED RIVER NEAR MERCED FALLS, CAL.

Location.—Near mouth of canyon, in the NW. $\frac{1}{4}$ sec. 11, T. 5 S., R. 15 E., 2 miles above dam at Merced Falls.

Records available.—April 6, 1901, to September 30, 1912.

Drainage area.—1,090 square miles.

Gage.—Inclined staff in four sections on right bank and a vertical low-water section.

Channel.—Gravel; will shift at high stages.

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

Artificial control.—Flow somewhat affected by regulation for power development several miles above the station.

Accuracy.—On account of the shifting character of the channel at medium and high stages, the results are only fair.

Discharge measurements of Merced River near Merced Falls, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Apr. 14	J. E. Stewart.....	<i>Feet.</i> 10.18	<i>Sec.-ft.</i> 891
May 30do.....	12.91	5,160
July 14do.....	9.39	505

NOTE.—Made from cable.

Daily gage height, in feet, of Merced River near Merced Falls, Cal., for 1911-12.

[C. Kelsey, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	8.55	8.35	8.42	8.50	8.95	8.62	9.4	10.3	12.9	9.8	8.67	8.17
2.....	8.55	8.40	8.40	8.52	8.90	8.66	9.5	10.3	13.2	9.7	8.79	8.17
3.....	8.65	8.30	8.40	8.52	8.90	8.69	9.65	10.2	13.3	9.6	8.68	8.12
4.....	8.70	8.32	8.42	8.42	8.90	8.85	9.75	10.1	13.3	9.5	8.58	8.12
5.....	8.55	8.35	8.40	8.38	8.85	9.2	9.9	10.3	13.1	9.4	8.65	8.09
6.....	8.55	8.30	8.45	8.48	8.78	9.8	9.7	10.4	13.0	9.5	8.60	8.07
7.....	8.55	8.35	8.60	8.55	8.82	10.25	9.9	10.4	13.0	9.65	8.47	8.17
8.....	8.65	8.30	8.62	8.55	8.82	10.0	10.05	10.6	12.6	9.6	8.53	8.19
9.....	8.55	8.32	8.51	8.66	8.90	9.75	10.1	10.65	12.0	9.55	8.57	8.27
10.....	8.55	8.45	8.40	8.70	8.80	9.5	10.4	10.9	11.8	9.55	8.42	8.23
11.....	8.51	8.80	8.45	9.3	8.80	9.5	10.65	11.2	11.7	9.55	8.50	8.32
12.....	8.60	8.80	8.48	9.1	8.82	9.65	10.35	11.7	11.8	9.45	8.55	8.17
13.....	8.45	8.50	8.40	8.85	8.82	10.4	10.15	11.7	11.7	9.4	8.42	8.17
14.....	8.45	8.52	8.40	8.80	8.82	10.1	10.05	11.8	11.6	9.35	8.52	8.17
15.....	8.65	8.48	8.38	8.70	8.80	9.9	10.0	12.1	11.4	9.3	8.47	8.19
16.....	8.46	8.50	8.41	8.72	8.82	10.5	10.1	12.3	11.2	9.25	8.47	8.07
17.....	8.42	8.70	8.42	9.00	8.75	10.2	10.05	12.4	11.1	9.25	8.47	8.05
18.....	8.40	8.70	8.51	8.95	8.90	9.85	10.0	12.5	11.1	9.5	8.27	8.07
19.....	8.32	8.50	8.46	8.85	8.90	9.8	10.0	12.5	11.1	9.55	8.39	8.09
20.....	8.15	8.55	8.38	8.78	8.82	9.75	9.9	12.0	11.1	9.6	8.32	8.07
21.....	8.30	8.62	8.32	8.65	8.82	9.65	9.8	11.6	11.9	9.4	8.32	8.15
22.....	8.30	8.55	8.25	8.75	8.82	9.55	9.7	11.2	11.5	9.25	8.29	8.07
23.....	8.25	8.50	8.27	8.75	8.82	9.5	9.6	11.0	10.45	9.1	8.15	7.99
24.....	8.35	8.48	8.35	8.70	8.76	9.5	9.7	11.0	10.2	9.05	8.17	7.97
25.....	8.30	8.45	8.35	8.62	8.65	9.55	9.9	11.2	9.95	8.97	8.02	7.72
26.....	8.30	8.48	8.40	8.78	8.70	9.55	9.75	11.3	9.85	8.91	8.19	7.89
27.....	8.30	8.45	8.29	9.60	8.56	9.55	10.0	11.4	9.9	8.87	8.19	7.97
28.....	8.32	8.40	8.33	9.25	8.69	9.5	9.8	11.9	9.9	8.78	8.07	7.99
29.....	8.30	8.40	8.70	9.1	8.65	9.5	10.1	12.6	9.9	8.82	8.15	7.77
30.....	8.30	8.41	8.52	9.0	9.6	10.4	12.9	9.9	8.79	8.19	7.95
31.....	8.30	8.35	9.0	9.5	12.6	8.77	8.13

Daily discharge, in second-feet, of Merced River near Merced Falls, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	195	142	160	178	303	207	470	1,020	5,170	740	224	104
2.....	195	155	155	183	286	218	515	1,020	5,860	675	261	104
3.....	228	130	155	183	286	225	585	940	6,100	615	226	94
4.....	245	135	160	159	256	271	638	860	6,100	560	199	94
5.....	195	142	155	150	271	390	725	1,020	5,630	510	218	88
6.....	195	130	168	173	250	665	610	1,110	5,400	560	204	84
7.....	195	142	210	190	262	960	725	1,110	5,400	645	171	104
8.....	228	130	217	190	262	790	825	1,310	4,510	615	186	108
9.....	195	135	153	218	256	638	860	1,360	3,300	588	196	125
10.....	195	168	155	228	256	515	1,110	1,670	2,970	588	159	117
11.....	183	280	168	430	256	515	1,360	2,070	2,810	588	178	136
12.....	210	280	175	355	262	565	1,060	2,810	2,970	535	191	104
13.....	168	180	155	271	262	1,110	900	2,810	2,810	510	159	104
14.....	168	186	155	256	262	860	825	2,970	2,650	496	183	104
15.....	228	175	150	228	256	725	790	3,480	2,350	462	171	108
16.....	170	180	158	234	262	1,210	860	3,870	2,080	439	171	84
17.....	160	245	160	320	242	940	825	4,080	1,960	439	171	80
18.....	155	245	183	303	256	695	790	4,290	1,960	560	125	84
19.....	135	180	170	271	256	665	790	4,290	1,960	588	152	88
20.....	100	195	150	250	262	638	725	3,300	1,960	615	156	84
21.....	130	217	135	215	262	585	665	2,650	3,130	510	136	100
22.....	130	195	120	242	262	538	610	2,070	2,500	439	130	84
23.....	120	180	124	242	262	515	560	1,800	1,280	373	100	68
24.....	142	175	142	228	245	515	610	1,800	1,060	354	104	65
25.....	130	168	142	207	215	538	725	2,070	850	323	74	26
26.....	130	175	155	250	228	538	638	2,210	775	302	108	50
27.....	130	168	128	250	192	538	790	2,350	810	288	108	65
28.....	135	155	138	410	225	515	665	3,130	810	258	84	68
29.....	130	155	245	355	215	515	860	4,510	810	271	100	32
30.....	130	158	186	320	560	1,110	5,170	810	261	108	61
31.....	130	142	320	515	4,510	254	96

NOTE.—Daily discharge determined from three rating curves, well defined for stages below 300 second-feet and fairly well defined above, applicable as follows: June 14 to Dec. 31, 1911, Jan. 1 to June 3, 1912, and June 4 to Sept. 30, 1912.

Monthly discharge of Merced River near Merced Falls, Cal., for 1911-12.

[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.....	245	100	167	0.153	0.18	10,300	B.
November.....	280	130	177	.162	.18	10,500	B.
December.....	245	120	161	.148	.17	9,900	B.
January.....	560	150	262	.240	.28	16,100	A.
February.....	303	192	254	.233	.25	14,600	A.
March.....	1,210	207	604	.554	.64	37,100	A.
April.....	1,360	470	774	.710	.79	46,100	B.
May.....	5,170	860	2,510	2.30	2.65	154,000	B.
June.....	6,100	775	2,890	2.65	2.96	172,000	B.
July.....	740	254	482	.442	.51	29,600	A.
August.....	261	74	156	.143	.16	9,590	A.
September.....	136	26	87.2	.080	.09	5,190	B.
The year.....	6,100	26	710	.651	8.86	515,000	

MERCED RIVER NEAR NEWMAN, CAL.

Location.—At highway bridge in sec. 2, T. 7 S., R. 9 E., $\frac{4}{5}$ miles northeast of Newman, and 1 mile above junction with San Joaquin River.

Records available.—April 29 to September 30, 1912, when it was discontinued.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to willow tree on right bank 260 feet above bridge.

Channel.—Sand; somewhat shifting.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Water is diverted for power and irrigation above the station.

Accuracy.—At medium and high stages backwater from San Joaquin reaches this station; only low-water estimates practicable.

Cooperation.—Gage-height record and discharge measurements furnished by Office of Experiment Stations, United States Department of Agriculture, through Frank Adams, irrigation manager.

Discharge measurements of Merced River near Newman, Cal., in 1912.

[Hydrographer, Harry Barnes.]

Date.	Gage height.	Discharge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 30 <i>a</i>	2.20	353
May 16 <i>a</i>	6.26	2,640
June 12 <i>a b</i>	8.85	2,310
July 19 <i>c</i>	1.12	92
Aug. 21 <i>d</i>70	50

a Bridge.

b Affected by backwater, San Joaquin River.

c Wading 500 feet below gage.

d Wading one-half mile below gage.

Daily gage height, in feet, of Merced River near Newman, Cal., for 1912.

[Fred Lorensen, observer.]

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.75	7.60	2.32	0.90	0.60	16.....		6.30	8.70	1.32	0.72	0.58
2.....		2.50	8.40	2.22	.90	.60	17.....		6.60	8.20	1.25	.72	.55
3.....		2.60	8.92	2.15	.90	.60	18.....		6.90	7.45	1.20	.70	.55
4.....		2.35	9.30	2.00	.88	.60	19.....		7.20	6.80	1.15	.70	.55
5.....		2.20	9.30	1.98	.88	.60	20.....		7.22	6.32	1.12	.70	.55
6.....		2.40	9.10	1.82	.88	.60	21.....		6.55	5.92	1.10	.70	.55
7.....		2.52	9.20	1.70	.88	.60	22.....		5.80	5.60	1.08	.70	.52
8.....		2.60	9.15	1.60	.85	.60	23.....		5.20	5.20	1.08	.70	.52
9.....		3.05	8.95	1.55	.80	.60	24.....		4.70	4.80	1.05	.70	.52
10.....		3.10	8.70	1.45	.80	.60	25.....		4.70	4.50	1.02	.70	.50
11.....		3.20	8.65	1.40	.80	.60	26.....		5.02	3.95	1.00	.70	.50
12.....		4.20	8.90	1.40	.80	.58	27.....		4.90	3.40	.98	.70	.50
13.....		5.00	9.10	1.38	.75	.52	28.....		5.10	3.10	.95	.70	.50
14.....		5.30	9.12	1.30	.75	.58	29.....	1.98	6.10	2.80	.90	.70	.50
15.....		5.75	8.95	1.40	.72	.55	30.....	2.20	7.30	2.52	.90	.65	.60
							31.....		7.60		.90	.60

Daily discharge, in second-feet, of Merced River near Newman, Cal., for 1912.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1.....	395	69	42	11.....	140	59	42	21.....	93	50	38
2.....	360	69	42	12.....	140	59	41	22.....	91	50	36
3.....	336	69	42	13.....	137	54	36	23.....	91	50	36
4.....	288	67	42	14.....	123	54	41	24.....	87	50	36
5.....	282	67	42	15.....	140	52	38	25.....	83	50	35
6.....	236	67	42	16.....	126	52	41	26.....	81	50	35
7.....	204	67	42	17.....	115	52	38	27.....	79	50	35
8.....	180	64	42	18.....	107	50	38	28.....	75	50	35
9.....	170	59	42	19.....	100	50	38	29.....	69	50	35
10.....	150	59	42	20.....	96	50	38	30.....	69	46	35
								31.....	69	42

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

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Monthly discharge of Merced River near Newman, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
July.....	395	69	152	9,350	B.
August.....	69	42	55.7	3,420	B.
September.....	42	35	38.9	2,310	B.

TENAYA CREEK NEAR YOSEMITE, CAL.

Location.—At Tenaya Bridge in Yosemite National Park, $1\frac{1}{4}$ miles east of Yosemite, five-eighths mile below outlet of Mirror Lake, and five-eighths mile above junction with Merced River.

Records available.—July, 1904, to June, 1909 (incomplete) and January 5 to September 30, 1912.

Drainage area.—47 square miles.

Gage.—Vertical staff fastened to left abutment of bridge, near upstream end.

Channel.—Small boulders and gravel.

Discharge measurements.—Made from bridge or by wading.

Winter flow.—Probably somewhat affected by ice.

Accuracy.—Results are good.

Cooperation.—Gage-height record furnished by officials of Yosemite National Park.

Discharge measurements of Tenaya Creek near Yosemite, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
Jan. 5	J. E. Stewart.....	<i>Fect.</i>	<i>Sec.-ft.</i>
June 18	F. C. Ebert.....	3.52	2.6
		4.88	176

NOTE.—Wading above gage.

Daily gage height, in feet, of Tenaya Creek near Yosemite, Cal., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		3.75	3.70	4.1	4.55	7.0	4.05	3.38	3.20
2.....		3.73	3.70	4.3	4.55	6.6	4.00	3.36	3.20
3.....		3.73	3.67	4.3	4.45	6.5	4.00	3.34	3.20
4.....		3.72	3.71	4.3	4.55	6.6	4.00	3.32	3.20
5.....	3.52	3.75	3.77	4.25	4.6	6.8	3.95	3.30	3.20
6.....		3.75	3.90	4.35	4.7	6.4	3.90	3.30	3.20
7.....		3.74	3.88	4.5	4.95	6.3	3.85	3.29	3.21
8.....	3.52	3.74	3.89	4.65	5.2	6.2	3.80	3.29	3.21
9.....	3.52	3.73	3.88	4.6	5.2	5.6	3.80	3.28	3.21
10.....	3.59	3.72	3.93	4.5	5.6	5.5	3.75	3.27	3.20
11.....	3.58	3.75	3.90	4.5	5.7	5.5	3.70	3.25	3.20
12.....	3.59	3.76	3.91	4.3	5.9	5.3	3.68	3.24	3.20
13.....	3.59	3.77	3.91	4.25	6.1	5.2	3.65	3.22	3.20
14.....	3.60	3.74	3.88	4.3	6.2	5.2	3.65	3.21	3.20
15.....	3.66	3.75	3.90	4.3	6.4	5.2	3.60	3.20	3.20
16.....	3.68	3.73	3.90	4.3	6.4	5.1	3.65	3.20	3.20
17.....	3.68	3.75	3.89	4.2	6.6	5.0	3.65	3.20	3.20
18.....	3.68	3.79	3.91	4.25	6.4	4.9	3.63	3.20	3.20
19.....	3.68	3.78	3.99	4.2	5.9	4.9	3.60	3.20	3.20
20.....	3.68	3.77	3.98	4.1	5.4	4.8	3.58	3.20	3.20
21.....	3.68	3.75	3.92	4.1	5.4	4.8	3.55	3.20	3.20
22.....	3.68	3.71	3.91	4.1	5.2	4.8	3.53	3.20	3.20
23.....	3.68	3.72	3.93	4.3	5.0	4.75	3.50	3.20	3.20
24.....	3.68	3.70	3.97	4.1	5.2	4.65	3.48	3.20	3.20
25.....	3.69	3.69	4.00	4.35	5.2	4.5	3.45	3.20	3.20
26.....	3.69	3.68	4.05	4.3	5.3	4.4	3.46	3.20	3.20
27.....	3.70	3.67	4.00	4.3	6.0	4.3	3.45	3.20	3.20
28.....	3.70	3.68	4.05	4.45	6.3	4.3	3.40	3.20	3.20
29.....	3.71	3.69	4.15	4.45	6.3	4.15	3.42	3.20	3.20
30.....	3.72		4.05	4.45	6.3	4.1	3.41	3.20	3.20
31.....	3.73		4.05		6.9		3.40	3.20	

Daily discharge, in second-feet, of Tenaya Creek near Yosemite, Cal.; for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		26	22	56	114	835	51	5.1	1.0
2.....		24	22	79	114	670	46	4.2	1.0
3.....		24	20	79	99	630	46	3.3	1.0
4.....		23	23	79	114	670	46	2.4	1.0
5.....	12	26	27	73	121	750	42	1.5	1.0
6.....	12	26	37	86	138	590	37	1.5	1.0
7.....	12	25	35	106	185	555	33	1.4	1.0
8.....	12	25	36	130	238	520	29	1.4	1.0
9.....	12	24	35	121	238	335	29	1.4	1.0
10.....	16	23	40	106	335	310	26	1.4	1.0
11.....	15	26	37	106	360	310	22	1.2	1.0
12.....	16	26	38	79	420	261	21	1.2	1.0
13.....	16	27	38	73	485	238	19	1.1	1.0
14.....	16	25	35	79	520	238	19	1.0	1.0
15.....	20	26	37	79	590	238	16	1.0	1.0
16.....	21	24	37	79	590	216	19	1.0	1.0
17.....	21	26	36	67	670	195	19	1.0	1.0
18.....	21	28	38	73	590	175	18	1.0	1.0
19.....	21	28	45	67	420	175	16	1.0	1.0
20.....	21	27	44	56	285	156	15	1.0	1.0
21.....	21	26	39	56	285	156	14	1.0	1.0
22.....	21	23	38	56	238	156	12	1.0	1.0
23.....	21	23	40	79	195	147	11	1.0	1.0
24.....	21	22	43	56	238	130	10	1.0	1.0
25.....	21	21	46	86	238	106	8.5	1.0	1.0
26.....	21	21	51	79	261	92	9	1.0	1.0
27.....	22	20	46	79	450	79	8.5	1.0	1.0
28.....	22	21	51	99	555	79	6	1.0	1.0
29.....	23	21	62	99	555	62	7	1.0	1.0
30.....	23		51	99	555	56	6.5	1.0	1.0
31.....	24		51		790		6	1.0	

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

Monthly discharge of Tenaya Creek near Yosemite, Cal., for 1912.

[Drainage area, 47 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 5-31.....	24	12	18.7	0.398	0.40	1,000	B.
February.....	28	20	24.4	.519	.56	1,400	B.
March.....	62	20	38.7	.823	.95	2,380	B.
April.....	130	56	82.0	1.74	1.94	4,880	A.
May.....	790	99	354	7.53	8.68	21,800	A.
June.....	835	56	304	6.47	7.22	18,100	A.
July.....	51	6	21.5	.457	.53	1,320	B.
August.....	5.1	1.0	1.45	.031	.04	89.2	C.
September.....	1.0	1.0	1.00	.021	.02	59.5	D.
The period.....						51,000	

YOSEMITE CREEK AT YOSEMITE, CAL.

Location.—Just above highway bridge one-fourth mile northwest of Yosemite, in Yosemite National Park, and half a mile above junction with Merced River.

Records available.—July, 1904, to June, 1909 (incomplete), and January 4 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a cottonwood tree on right bank 25 feet above bridge, installed January 4, 1912. Original gage, at approximately same datum, was a vertical staff fastened to an alder tree on right bank 50 feet above bridge. On February 5, 1913, a new staff in two sections was installed on left bank at bridge; datum of this gage is 3.04 feet above that of previous gages. All gage heights for 1912 have been reduced to new datum.

Channel.—Fine gravel and sand.

Discharge measurements.—Made from bridge or by wading.

Winter flow.—Somewhat affected by ice.

Cooperation.—Gage-height record furnished by officials of Yosemite National Park.

Estimates are withheld until additional measurements are available.

Discharge measurements of Yosemite Creek at Yosemite, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Jan. 5 ^a	J. E. Stewart.....	<i>Feet.</i> 2.71	<i>Sec.-ft.</i> 0.6
June 18 ^b	F. C. Ebert.....	4.07	124

^a Stream frozen over. Gage reading is to water surface, which was almost level with upper surface of ice. Ice 5 inches thick.

^b Made from bridge.

NOTE.—Gage heights refer to gage installed Feb. 5, 1913.

Daily gage height, in feet, of Yosemite Creek at Yosemite, Cal., for 1912.

[H. C. Currier, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.97	3.06	3.64	3.76	6.9	3.41	2.82	2.64
2.....		3.01	3.00	3.76	3.71	7.1	3.38	2.83	2.64
3.....		3.03	3.02	3.76	3.74	6.8	3.35	2.83	2.64
4.....	2.71	2.88	3.06	3.76	3.76	6.3	3.34	2.84	2.64
5.....	2.71	3.06	3.08	3.75	3.78	6.3	3.32	2.85	2.64
6.....	2.71	3.06	3.08	3.75	3.86	6.5	3.32	2.75	2.64
7.....	2.73	3.07	3.10	4.05	4.6	5.7	3.31	2.74	2.66
8.....	2.73	3.07	3.10	3.91	4.8	4.85	3.30	2.74	2.69
9.....	2.73	3.07	3.11	3.85	4.95	4.75	3.30	2.73	2.68
10.....	2.73	3.06	3.04	3.66	4.65	4.85	3.26	2.71	2.68
11.....	2.76	3.06	3.06	3.61	5.25	4.85	3.24	2.69	2.67
12.....	2.77	3.06	3.07	3.46	6.0	4.9	3.20	2.69	2.67
13.....	2.77	3.07	3.09	3.45	5.9	4.65	3.17	2.68	2.67
14.....	2.76	3.06	3.12	3.44	6.0	4.35	3.15	2.67	2.66
15.....	2.76	3.06	3.12	3.43	6.4	4.15	3.16	2.67	2.66
16.....	2.76	3.07	3.13	3.41	6.4	4.05	3.16	2.66	2.65
17.....	2.78	3.07	3.15	3.42	6.4	3.96	3.15	2.66	2.65
18.....	2.78	3.12	3.16	3.44	6.4	4.05	3.21	2.66	2.65
19.....	2.80	3.16	3.24	3.45	5.7	4.15	3.53	2.65	2.65
20.....	2.86	3.16	3.23	3.46	4.75	3.96	3.21	2.65	2.65
21.....	2.86	3.16	3.24	3.46	4.5	3.90	2.96	2.64	2.65
22.....	2.86	3.11	3.26	3.46	4.4	3.86	2.91	2.64	2.65
23.....	2.85	2.97	3.26	3.41	4.5	3.76	2.86	2.64	2.65
24.....	2.87	3.11	3.30	3.61	4.55	3.66	2.86	2.64	2.64
25.....	2.87	2.96	3.30	3.61	4.65	3.65	2.87	2.64	2.64
26.....	2.87	2.97	3.30	3.63	5.0	3.56	2.88	2.64	2.63
27.....	2.86	3.03	3.31	3.71	4.95	3.58	2.90	2.64	2.63
28.....	2.93	3.04	3.31	3.93	6.1	3.54	2.87	2.64	2.61
29.....	2.96	3.06	3.46	3.66	6.9	3.46	2.86	2.64	2.61
30.....	2.97	3.45	3.96	6.2	3.46	2.83	2.64	2.61
31.....	2.97	3.41	6.7	2.82	2.64

SOUTH FORK OF MERCED RIVER NEAR WAWONA, CAL.

Location.—Opposite United States military camp in the SE. $\frac{1}{4}$ sec. 33, T. 4 S., R. 21 E., in the Sierra National Forest, and 1 mile below Wawona. Big Creek enters half a mile above and Rush Creek three-fourths of a mile below the station.

Records available.—December 15, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank installed August 22, 1911; a new gage was installed 250 feet below the site of the original gage, which was a vertical staff fastened to the center pier of the footbridge that was destroyed by high water January 30, 1911. Datum of new gage independent of that of original gage.

Channel.—Gravel and bowlders.

Discharge measurements.—Made from car and cable near present gage or by wading.

Diversions.—The ranch of the Wawona Co. is irrigated from a tributary above the station.

Cooperation.—Gage-height record furnished by A. C. Leonard, park ranger. Discharge measurements furnished by United States Forest Service.

Estimates are withheld until high-water measurements are available.

Discharge measurements of South Fork of Merced River near Wawona, Cal., in 1911-12.

[Hydrographer, H. J. Tompkins.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
1911.	<i>Feet.</i>	<i>Sec.-ft.</i>	1912.	<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 7.....	2.10	29	Mar. 9.....	2.55	73

NOTE.—Made by wading.

Daily gage height, in feet, of South Fork of Merced River near Wawona, Cal., for 1911-12.

[A. C. Leonard, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.25	2.5	3.1	3.0	2.8	3.4	6.0	2.9	2.2	2.0
2.....	2.28	2.2	2.6	2.7	3.2	3.1	2.9	3.4	6.0	2.9	2.2	2.0
3.....	2.28	2.2	2.6	2.7	3.2	3.0	3.5	6.6	2.8	2.2	2.1
4.....	2.25	2.2	2.6	2.8	3.2	3.2	3.1	3.4	5.8	2.8	2.1	2.1
5.....	2.20	2.2	2.7	2.8	3.2	3.6	3.1	3.5	6.0	2.7	2.1	2.1
6.....	2.20	2.2	2.7	2.7	3.1	3.6	3.2	3.5	5.8	2.7	2.1	2.1
7.....	2.22	2.1	2.7	2.8	3.1	3.6	3.2	3.6	5.7	2.7	2.0	2.1
8.....	2.20	2.1	2.8	2.9	3.2	3.7	3.4	3.7	5.0	2.7	2.0	2.1
9.....	2.20	2.1	2.8	2.9	3.0	2.55	3.4	3.8	4.9	2.6	2.0	2.1
10.....	2.25	2.2	2.8	2.9	2.9	2.6	3.4	3.9	4.5	2.6	2.0	2.1
11.....	2.25	2.2	2.7	2.9	2.9	2.6	3.5	3.9	4.8	2.5	2.0	2.1
12.....	2.25	2.2	2.7	2.8	3.0	2.6	3.3	3.9	4.3	2.5	2.0	2.1
13.....	2.22	2.2	2.8	2.9	3.0	2.6	3.0	4.1	4.0	2.5	2.0	2.1
14.....	2.22	2.2	2.8	2.9	3.1	2.6	2.9	4.4	3.9	2.5	2.0	2.0
15.....	2.20	2.2	2.8	3.1	3.0	2.5	2.8	4.7	3.8	2.5	2.0	2.0
16.....	2.20	2.2	2.8	3.2	3.0	2.6	2.9	4.8	3.8	2.5	2.0	2.0
17.....	2.20	2.2	2.8	3.0	3.0	2.6	2.8	4.8	3.8	2.5	2.0	2.0
18.....	2.20	2.2	2.8	3.1	3.2	2.5	2.9	5.0	3.6	2.5	2.0	2.0
19.....	2.20	2.2	2.9	3.2	3.2	2.5	2.9	5.2	3.6	2.5	2.0	2.0
20.....	2.20	2.2	2.9	3.2	3.2	2.7	3.0	5.3	3.6	2.5	2.0	2.0
21.....	2.21	2.2	2.9	3.1	3.2	2.7	3.0	4.8	3.5	2.5	2.0	2.0
22.....	2.20	2.2	2.9	3.1	3.2	2.6	3.1	4.2	3.7	2.5	2.0	2.0
23.....	2.20	2.8	2.9	3.2	3.2	2.6	3.2	3.8	3.7	2.5	2.0	2.0
24.....	2.20	2.7	2.9	3.1	3.0	2.8	3.2	3.8	3.4	2.5	2.0	2.0
25.....	2.20	2.9	3.0	3.2	3.2	2.8	3.1	4.6	3.2	2.4	2.0	2.0
26.....	2.20	2.8	2.9	3.2	3.0	2.9	3.2	4.6	3.0	2.4	2.0	2.0
27.....	2.20	2.8	2.9	3.1	3.0	2.9	3.2	4.8	3.0	2.4	2.0	2.0
28.....	2.21	2.8	2.9	3.1	3.1	2.9	3.3	5.9	2.9	2.4	2.0	2.0
29.....	2.21	2.8	3.0	3.2	3.2	2.9	3.3	6.0	2.9	2.3	2.0	2.0
30.....	2.21	2.7	3.0	3.2	3.0	3.4	6.0	2.8	2.3	2.0	2.0
31.....	3.0	3.2	3.0	5.6	2.3	2.0

TUOLUMNE RIVER NEAR LAGRANGE, CAL.

Location.—At Lagrange dam, in the NE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 17, T. 3 S., R. 14 E., about 1 $\frac{1}{2}$ miles northeast of Lagrange.

Records available.—August 30, 1895, to September 30, 1912.

Drainage area.—1,500 square miles.

Gage.—Painted on rock ledge on right bank 80 feet above dam. Zero of gage is at average elevation of crest of dam. Previous to April 1, 1908, gage was located at highway bridge at Lagrange.

Discharge.—Computed by means of weir formula from gage heights showing depth of water on crest of curved masonry diversion dam. Coefficient was determined from current meter measurements made at highway bridge, about 2 miles below the dam, corrected to give discharge at dam. To ascertain the total flow of Tuolumne River at Lagrange, add the flow over the dam to the discharge of Modesto, Turlock, and Yosemite Power Co.'s canals.

Diversions.—Modesto and Turlock canals divert at dam. Yosemite Power Co.'s canal heads 13 miles above the dam. The water from the power canal is returned to the river below the dam and about half a mile above the bridge. There is also a diversion from South Fork Tuolumne River at Hardin ranch, for power purposes, that is not returned to the river.

Accuracy.—Results are excellent except at extreme low water. The combined record of river and canals is slightly affected by seepage from dam and canals and by the small amount of water that is occasionally spilled from canals at the waste gates above the gages.

Daily gage height, in feet, of Tuolumne River near Lagrange, Cal., for 1911-12.

[J. W. Simmons and J. W. Johnson, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.			0.45	0.35	0.65			1.1	4.4	0.85
2.			.45	.35	.70			1.0	5.0	.55
3.			.45	.35	.65		0.22	.72	5.3	
4.				.35	.65		.50	.62	5.4	
5.			.35	.35	.65		.48	.82	5.6	
6.			.35	.40	.65	0.50		.96	4.9	
7.			.40	.40	.65	.75	.75	1.4	4.8	
8.			.35	.40	.60		1.4	1.5	4.4	
9.			.35	.45	.55		1.45	1.65	3.4	
10.			.40	.45			1.6	2.7	3.1	
11.	0.50		.35	.35			1.6	2.5	3.0	
12.			.35	.70			1.2	2.6	3.2	
13.			.35	.65			.66	3.1	3.2	
14.		0.40	.35	.50			.31	2.9		
15.			.30	.50			.28	3.4	2.4	
16.			.35	.50			1.0	3.8	2.2	
17.			.35	.65			.90	3.7	2.0	
18.			.35	.70			.90	4.0	2.2	
19.			.40	.50			.28	4.1	2.2	
20.			.35	.60				3.2	2.3	
21.		.30	.30	.55				2.7	2.0	
22.		.30	.35	.55				1.9	1.4	
23.		.45	.35	.55				1.65	1.3	
24.		.35		.55				1.5	1.65	
25.		.40	.20	.55			.62	1.8	1.45	
26.		.40		.60				2.5	1.2	
27.		.35	.35	1.15			.35	2.0	1.1	
28.		.30	.35	.30				2.4	1.1	
29.		.30	.35	.65			.58	3.9	1.0	
30.		.35	.35	.70			1.25	4.8	.85	
31.			.35	.70				4.2		

NOTE.—Gage height estimated by observer Apr. 18, 1912. No record June 14, 1912.

Daily discharge, in second-feet, of Tuolumne River near Lagrange, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1			274	189	476			1,040	8,380	710
2			274	189	530			905	10,100	370
3			274	189	476		95	554	11,100	
4				189	476		320	443	11,400	
5			189	189	476		302	673	12,000	
6			189	229	476	320	114	852	9,810	
7			229	229	476	589	589	1,500	9,510	14
8			189	229	421	14	1,500	1,660	8,360	7.2
9			189	274	370		1,580	1,920	5,670	
10			229	274	160		1,830	4,020	4,940	
11	320		189	710			1,830	3,580	4,700	
12			189	530			1,180	3,800	5,180	
13			189	476		265	486	4,940	5,180	
14		229	189	320			157	4,470	4,280	
15			149	320			135	5,670	3,370	
16			189	320			905	6,700	2,950	
17			189	476			772	6,440	2,560	
18			189	530			772	7,240	2,950	
19			229	320			135	7,520	2,950	452
20			189	421				5,180	3,160	
21		149	149	370				4,020	2,560	
22		149	189	370				2,370	1,500	
23		274	189	370				1,920	1,340	
24		189		370				1,660	1,920	
25		229	81	370			443	2,180	1,580	
26		229		421			71	3,580	1,180	
27		189	189	1,110			189	2,560	1,040	
28		149	189	648			94	3,370	1,040	
29		149	189	476		40	401	6,970	905	
30		189	189	530			1,260	9,510	710	
31			189	530				7,800		

NOTE.—Daily discharge at Lagrange dam determined from a rating curve developed from current meter discharge measurements and from the weir formula $Q=905\frac{1}{2}H^{\frac{3}{2}}$. No water flowing over the dam Aug. 7 to Oct. 10, 1911; Oct. 12 to Nov. 13, 1911; Nov. 15 to Nov. 20, 1911; Dec. 4, 24, and 26, 1911; Feb. 11 to Mar. 5, 1912; Mar. 9-12, 14-23, 1912; Mar. 30 to Apr. 2, 1912; Apr. 20-24, 1912; July 3-6, 1912; July 9-18, 1912; and July 20 to Sept. 30, 1912. Water flowing over dam part of day and discharge estimated Feb. 10, Mar. 8, 13, and 29, Apr. 6 and 28, July 7, 8, and 19, 1912.

Monthly discharge of Tuolumne River near Lagrange, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October	320	0	10.3	633	B.
November	274	0	70.8	4,210	B.
December	274	0	177	10,900	B.
January	1,110	189	393	24,200	B.
February	530	0	150	8,630	B.
March	589	0	40.0	2,460	B.
April	1,830	0	505	30,000	A.
May	9,510	443	3,710	228,000	A.
June	12,000	710	4,740	282,000	A.
July	710	0	50.1	3,080	D.
August	0	0	0	0	
September	0	0	0	0	
The year	12,000	0	819	594,000	

Daily discharge, in second-feet, of Tuolumne River and three canals near Lagrange, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	188	86	340	250	535	331	986	2,680	10,100	2,200	403	117
2.....	204	78	340	249	589	353	1,140	2,570	12,000	1,840	377	91.4
3.....	232	16	338	250	535	388	1,460	2,220	12,900	1,540	363	85
4.....	263	72	64	249	535	409	1,700	2,080	13,200	1,370	334	79
5.....	247	76	254	249	535	553	1,760	2,310	13,800	1,310	304	96
6.....	230	75	255	290	535	1,220	1,580	2,540	11,600	1,410	283	162
7.....	219	75	295	290	535	1,730	1,620	3,180	11,300	1,480	263	274
8.....	206	75	255	289	480	1,220	2,190	3,380	10,200	1,450	245	329
9.....	200	75	255	334	651	1,020	2,270	3,660	7,480	1,410	236	315
10.....	198	75	294	334	663	855	2,500	5,080	6,740	1,310	236	250
11.....	530	79	189	765	487	822	2,510	5,290	6,560	1,240	231	228
12.....	232	72	189	586	581	791	2,090	5,540	6,960	1,170	215	184
13.....	173	72	189	532	494	1,500	1,800	6,660	6,980	1,140	206	147
14.....	216	301	189	376	446	1,260	1,540	6,210	6,080	1,160	201	98
15.....	80	72	210	376	399	1,020	1,600	7,440	6,200	1,000	196	105
16.....	57	72	250	376	487	1,500	1,800	8,470	4,740	925	194	102
17.....	80	72	189	532	457	1,150	1,680	8,180	4,380	894	177	56
18.....	80	72	189	586	457	982	1,700	9,030	4,620	1,160	164	42
19.....	76	72	292	376	496	982	1,660	9,310	4,790	1,270	160	91
20.....	88	72	250	477	505	1,020	1,460	6,920	5,000	1,330	151	85
21.....	80	221	212	426	505	1,060	1,160	5,750	4,400	1,000	135	82
22.....	65	222	247	428	472	911	1,140	4,080	3,320	858	129	71
23.....	96	347	189	429	457	838	1,140	3,650	2,800	748	127	69.5
24.....	86	262	61	429	418	912	1,160	3,350	3,060	681	118	58
25.....	86	302	139	429	408	1,080	1,250	3,890	2,920	588	113	58
26.....	86	302	41	476	298	1,100	1,530	5,330	2,520	545	113	58
27.....	86	255	238	1,160	338	1,080	1,750	4,290	2,380	506	113	58
28.....	86	215	253	703	344	986	1,580	5,120	2,410	465	113	58
29.....	78	215	248	535	340	1,180	2,000	8,720	2,270	450	117	58
30.....	78	255	252	589	1,250	2,880	11,300	1,790	438	135	58
31.....	86	252	589	1,040	9,500	408	125

Combined monthly discharge of Tuolumne River and three canals near Lagrange, Cal., for 1911-12.

[Drainage area, 1,500 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	530	57	152	0.101	0.12	9,350	B.
November.....	347	16	142	.095	.11	8,450	B.
December.....	340	41	226	.151	.17	13,900	B.
January.....	1,160	249	450	.300	.35	27,700	B.
February.....	663	298	482	.321	.35	27,700	B.
March.....	1,730	331	985	.657	.76	60,600	B.
April.....	2,880	986	1,690	1.13	1.26	101,000	A.
May.....	11,300	2,080	5,410	3.61	4.16	333,000	A.
June.....	13,800	1,790	6,450	4.30	4.80	384,000	A.
July.....	2,200	408	1,070	.713	.82	65,800	A.
August.....	403	113	202	.135	.16	12,400	B.
September.....	329	42	119	.079	.09	7,080	B.
The year.....	13,800	16	1,450	.967	13.15	1,050,000	

MODESTO CANAL NEAR LAGRANGE, CAL.

Location.—Near intake at Lorange dam, on right bank of Tuolumne River, in the SE. $\frac{1}{4}$ sec. 17, T. 3 S., R. 14 E., about 2 miles northeast of Lorange.

Records available.—April 26, 1903, to September 30, 1912.

Gage.—Vertical iron staff in concrete well 460 feet below head gates and below waste gates. Previous to July 12, 1904, the gage was located at Indian Hill flume near Lorange.

Discharge measurements.—Made from footbridge 550 feet below gage. This section of the canal is lined with concrete.

Accuracy.—Rating curve is fairly well defined, and results are good.

Discharge measurements of Modesto canal near Lorange, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 13	J. E. Stewart.....	3.86	658	July 1 ^b	Burton Smith.....	3.60	600
May 4 ^a	J. T. Kingdon.....	4.00	733	1 ^b	do.....	2.73	433
29	J. E. Stewart.....	4.20	696	1 ^b	do.....	2.03	302
29	do.....	4.18	698	1 ^b	do.....	1.01	105
June 23 ^a	J. T. Kingdon.....	4.28	767	13	J. E. Stewart.....	2.37	355

^a Furnished by Office of Irrigation Investigations, U. S. Department of Agriculture, Berkeley, Cal.

^b Furnished by Burton Smith, superintendent Turlock irrigation district.

NOTE.—All measurements made from bridge 500 feet below gage.

Daily gage height, in feet, of Modesto canal near Lorange, Cal., for 1911-12.

[J. W. Simmons, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.61	0.40	2.2	4.0	4.2	2.9	1.05	0.32
2.....	.70	.30	2.7	4.0	4.2	2.9	.98	.22
3.....30	3.6	4.0	4.2	3.7	.98	.10
4.....	.68	.30	1.02	3.8	4.0	4.2	3.2	.98	.20
5.....	.70	.30	1.65	3.8	4.0	4.2	3.0	.80	.25
6.....	.60	.30	3.2	3.7	4.0	4.2	3.2	.82	.75
7.....	.58	.30	3.4	3.7	4.0	4.2	3.3	.72	.55
8.....	.55	.30	3.3	3.8	4.0	4.2	3.2	.72	1.35
9.....30	1.65	2.6	3.8	4.1	4.2	3.2	.70	.85
10.....30	1.75	1.9	3.7	4.2	2.9	.70	.60
11.....	.50	.30	1.7	2.0	3.8	3.9	4.5	2.6	.70	.65
12.....	.40	.20	1.35	2.1	3.8	4.1	4.2	2.4	.62	.70
13.....	.40	.20	1.15	3.5	3.8	4.0	4.2	2.4	.60	.42
14.....	.40	.20	1.05	3.1	3.7	4.1	4.2	2.3	.60	.20
15.....	.40	.2085	2.3	3.7	4.1	4.2	2.1	.60	.35
16.....	.20	.20	1.20	3.5	4.1	4.2	2.0	.58	.35
17.....	.30	.20	1.20	2.5	4.1	4.2	1.9	.52	.42
18.....	.30	.20	1.20	2.2	4.1	3.4	2.3	.50	.25
19.....	.25	.20	1.25	2.2	3.6	4.1	4.3	2.9	.50	.20
20.....	.40	.20	1.30	2.3	3.6	4.1	4.3	2.8	.50	.20
21.....	.30	.20	1.30	2.4	2.5	4.1	4.3	2.1	.40	.10
22.....20	1.20	2.0	2.4	4.1	4.3	1.9	.38	.10
23.....	.50	.20	1.20	1.9	2.4	4.1	1.7	.35	.05
24.....	.40	.20	1.15	2.0	2.5	4.1	1.6	.35
25.....	.40	.20	1.10	2.6	4.1	2.0	1.38	.35
26.....	.40	.20	1.02	2.4	3.6	4.2	2.0	1.35	.35
27.....	.4097	2.3	3.8	4.2	2.0	1.22	.35
28.....	.4097	2.2	3.8	4.2	2.0	1.15	.35
29.....	.30	2.7	3.9	4.2	2.0	1.15	.35
30.....	.30	3.0	3.9	4.1	1.08	.45
31.....	.40	2.3	4.2	1.08	.40

NOTE.—Canal was dry on days when gage was not read except Oct. 4, 9, 10, 1911, and Feb. 29 to Mar. 3, and June 23-24, 1912, on which days the discharge was estimated or interpolated.

Daily discharge, in second-feet, of Modesto canal near Lagrange, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	44	22				100	327	669	707	460	112	16
2	55	14				100	422	669	707	460	100	8.4
3	54	14				100	593	669	707	612	100	3
4	53	14				106	631	669	707	517	84	7
5	55	14				222	631	669	707	479	72	10
6	43	14				517	612	669	707	517	75	65
7	41	14				555	612	669	707	536	61	39
8	38	14				536	631	669	707	517	61	165
9	36	14			222	403	631	688	707	517	58	80
10	34	14			242	270	612	0	707	460	58	45
11	32	14			232	289	631	650	764	403	58	52
12	22	7			166	308	631	688	707	365	48	58
13	22	7			129	574	631	669	707	365	45	24
14	22	7			112	498	612	688	707	346	45	7
15	22	7			80	346	612	688	707	308	45	18
16	7	7			138	574	0	688	707	289	43	18
17	14	7			138	384	0	688	707	270	35	24
18	10	7			138	327	0	688	555	346	33	10
19	10	7			147	327	593	688	726	460	33	7
20	22	7			156	346	593	688	726	441	33	7
21	22	7			156	365	384	688	726	308	22	3
22	0	7			138	289	365	688	726	270	20	3
23	32	7			138	270	365	688	406	232	18	1.5
24	22	7			129	289	384	688	60	213	18	
25	22	7			120	403	0	688	289	171	18	
26	22	7			106	365	593	707	289	165	18	
27	22				98	346	631	707	289	142	18	
28	22				98	327	631	707	289	129	18	
29	14				100	422	450	707	289	129	18	
30	14					479	650	688	0	117	28	
31	22					346		707		117	22	

NOTE.—Daily discharge determined from a well-defined rating curve. Canal dry on days for which no discharge is given. The above records for February to September supersede those published in Water-Supply Paper 299.

Monthly discharge of Modesto canal near Lagrange, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	55	0	27.3	1,680	B.
November.....	22	0	8.9	530	C.
December.....	0	0	0	0	
January.....	0	0	0	0	
February.....	242	0	103	5,920	B.
March.....	574	100	348	21,400	A.
April.....	650	0	489	29,100	A.
May.....	707	0	662	40,700	A.
June.....	764	0	582	34,600	A.
July.....	612	117	344	21,200	A.
August.....	112	18	45.7	2,810	A.
September.....	165	0	22.4	1,330	B.
The year.....	764	0	219	159,000	

TURLOCK CANAL NEAR LAGRANGE, CAL.

Location.—Below tunnel on left bank of Tuolumne River at Lagrange dam, about 2 miles northeast of Lagrange.

Records available.—July, 1899, to September 30, 1912.

Gage.—Vertical staff float in concrete well, 190 feet below intake and below the spillway.

Discharge measurements.—Made from footbridge at Morgan flume, half a mile below gage.

Accuracy.—Results are good.

Cooperation.—Gage-height record furnished through Burton Smith, chief engineer Turlock irrigation district. Measurements by Kingdon and Barnes furnished by Office of Irrigation Investigations, U. S. Dept. of Agriculture.

Discharge measurements of Turlock canal near Lagrange, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 13	J. E. Stewart.....	4.52	642	June 6	J. T. Kingdon.....	5.43	820
13do.....	4.52	658	21	Kingdon and Barnes...	6.70	1,070
May 4	J. T. Kingdon.....	6.02	963	21do.....	5.67	847
29	J. E. Stewart.....	6.56	1,020	21do.....	4.59	644
29do.....	6.53	995	24	J. T. Kingdon.....	3.49	434
June 1	J. T. Kingdon.....	6.54	1,040	24do.....	2.51	278
6do.....	6.57	1,070	24do.....	1.47	141
6do.....	5.97	918	July 13	J. E. Stewart.....	5.02	703

NOTE.—All measurements made at bridge one-half mile below gage.

Daily gage height, in feet, of Turlock canal near Lagrange, Cal., for 1911-12.

[H. T. Sackett, observer.]

Day.	Oct.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.95	1.8	4.4	6.0	6.5	6.3	2.2	0.54
2.....	.95	1.95	4.7	6.1	6.6	6.2	2.1	.34
3.....	1.7	2.2	5.0	6.1	6.6	5.8	2.0	.33
4.....	1.45	2.3	4.9	6.0	6.6	5.4	1.9	.20
5.....	1.32	2.7	5.3	6.0	6.5	5.3	1.75	.37
6.....	1.3	3.0	5.4	6.2	6.6	5.6	1.55	.50
7.....	1.25	4.0	6.2	6.6	5.8	1.5	1.8
8.....	1.22	4.5	6.4	6.6	5.8	1.35	1.2
9.....	1.2	4.2	6.4	6.6	5.6	1.3	1.8
10.....	1.2	2.0	4.0	6.4	6.6	5.4	1.3	1.55
11.....	1.2	1.95	4.0	6.4	6.6	5.6	1.25	1.3
12.....	1.45	3.0	3.6	6.4	6.5	5.2	1.2	.80
13.....	1.5	2.7	4.5	4.5	6.4	6.6	5.0	1.15	.75
14.....	1.35	2.5	5.0	5.0	6.4	6.6	5.2	1.1	.40
15.....	2.4	4.5	5.4	6.5	6.7	4.6	1.05	.35
16.....	2.6	5.8	5.6	6.5	6.5	4.3	1.05	.35
17.....	2.4	5.0	5.7	6.4	6.7	4.2	.96	.38
18.....	2.4	4.4	5.8	6.6	6.7	5.2	.85	.38
19.....	2.6	4.4	5.8	6.6	6.7	5.2	.80	.35
20.....	2.6	4.5	5.5	6.4	6.7	5.6	.70	.27
21.....	2.6	4.6	5.0	6.6	6.7	4.626
22.....	2.5	4.2	5.0	6.5	6.6	4.0	.60	.15
23.....	2.4	3.9	5.0	6.6	6.4	3.6	.60	.15
24.....	2.2	4.2	5.0	6.4	6.5	3.3	.50
25.....	2.2	4.5	5.2	6.5	6.4	3.0	.45
26.....	1.9	4.8	5.5	6.6	6.4	2.8
27.....	1.85	4.8	5.8	6.5	6.4	2.7	.45
28.....	1.9	4.4	5.4	6.6	6.5	2.5	.45
29.....	1.85	4.7	5.9	6.6	6.5	2.4	.50
30.....	5.0	6.0	6.7	6.5	2.4	.60
31.....	4.6	6.4	2.2	.57

NOTE.—Canal dry on days when no gage height is given except Apr. 7 and 12, 1912.

Daily discharge, in second-feet, of Turlock canal near Lagrange, Cal., for 1911-12.

Day.	Oct.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	86		177	602	914	1,020	977	230	43
2.	86		196	657	935	1,040	956	216	25
3.	178		230	714	935	1,040	872	202	24
4.	144		245	695	914	1,040	792	189	14
5.	128		306	772	914	1,020	772	171	28
6.	126		356	792	956	1,040	832	147	39
7.	120		530	360	956	1,040	872	141	177
8.	116		620		998	1,040	872	123	106
9.	114		566		998	1,040	832	117	177
10.	114	202	530		998	1,040	792	117	147
11.	114	196	530		998	1,040	832	112	117
12.	144	356	458	230	998	1,020	752	106	66
13.	151	306	620	620	998	1,040	714	100	62
14.	132	275	714	714	998	1,040	752	95	30
15.		260	620	792	1,020	1,060	638	90	26
16.		290	872	832	1,020	1,020	584	90	26
17.		260	714	852	998	1,060	566	81	28
18.		260	602	872	1,040	1,060	752	70	28
19.		290	602	872	1,040	1,060	752	66	26
20.		290	620	812	998	1,060	832	57	20
21.		290	638	714	1,040	1,060	638	52	18
22.		275	566	714	1,020	1,040	530	48	10
23.		260	512	714	1,040	998	458	48	10
24.		230	566	714	998	1,020	407	39	
25.		230	620	752	1,020	998	356	34	
26.		189	676	812	1,040	998	322	34	
27.		183	676	872	1,020	998	306	34	
28.		189	602	792	1,040	1,020	275	34	
29.		183	657	893	1,040	1,020	260	39	
30.			714	914	1,060	1,020	260	48	
31.			638		998		230	45	

NOTE.—Daily discharge determined from two rating curves applicable as follows: 1911, well defined above 200 second-feet; Jan. 1 to Sept. 30, 1912, well defined. Discharge estimated Apr. 7 and 12, 1912. No water in canal on days for which no discharge is given.

Monthly discharge of Turlock canal near Lagrange, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October	178	0	56.5	3,470	
November	0	0	0	0	
December	0	0	0	0	
January	0	0	0	0	
February	356	0	173	9,550	A.
March	872	177	548	33,700	A.
April	914	0	636	37,800	A.
May	1,060	914	998	61,400	A.
June	1,060	998	1,030	61,500	A.
July	977	230	638	39,200	A.
August	230	34	96.0	5,900	C.
September	177	0	41.6	2,480	C.
The year	1,060	0	352	255,000	

YOSEMITE POWER CO.'S CANAL¹ NEAR LAGRANGE, CAL.

Location.—At the flume opposite Lagrange dam, about 1 mile above power house and 1½ miles northeast of Lagrange.

Records available.—1908 to September 30, 1912 (not complete).

Gage.—Depth of water in flume is measured at reference point.

¹ Formerly known as Lagrange Water & Power Co. canal.

Discharge measurements.—Made in flume near point at which gage heights are observed.

Accuracy.—Results are good.

Cooperation.—Gage-height record furnished by Turlock irrigation district through Burton Smith, chief engineer.

The Yosemite Power Co.'s canal takes water from the south side of Tuolumne River at Indian Bar, about 15 miles above the town of Lagrange. This canal was built in the early days to supply water for hydraulic mining in the vicinity of Lagrange, and is now locally known as the "Lagrange mining ditch." Recently it has been thoroughly repaired and is now used as a supply canal for the new hydro-electric plant which was installed in the later part of 1907. The power house is situated on the bank of the river about three-quarters of a mile above the town of Lagrange and is below the dam and headworks of the Turlock and Modesto irrigation canals.

Discharge measurements of Yosemite Power Co.'s canal near Lagrange, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 11	J. E. Stewart.....	2.59	57
May 3	J. T. Kingdon.....	2.63	58
July 13	J. E. Stewart.....	2.62	58

NOTE.—Made at gage.

Daily gage height, in feet, of Yosemite Power Co.'s canal near Lagrange, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.52	2.70	2.73	2.70	2.62	2.47	-----	2.6	-----	2.6	2.7	2.6
2.....	2.65	2.70	2.73	2.65	2.62	2.58	-----	2.6	2.3	2.6	2.7	2.6
3.....	.00	.25	2.70	2.70	2.62	2.60	-----	2.6	2.4	2.6	2.7	2.6
4.....	2.73	2.50	2.70	2.65	2.62	2.60	2.6	2.6	2.5	2.6	2.7	2.6
5.....	2.70	2.62	2.72	-----	2.62	1.50	2.6	2.6	2.6	2.6	2.7	2.6
6.....	2.60	2.60	2.74	2.70	2.62	1.60	2.6	2.6	-----	2.6	2.7	2.6
7.....	2.50	2.60	2.75	2.70	2.62	2.55	2.6	2.6	2.6	2.6	2.7	2.6
8.....	2.35	2.60	2.75	2.68	2.62	2.50	2.6	2.6	2.6	2.6	2.7	2.6
9.....	2.30	2.60	2.74	2.68	2.62	2.50	2.6	2.6	2.6	2.6	2.7	2.6
10.....	2.30	2.60	2.72	2.68	2.62	2.50	2.6	2.6	2.5	2.6	2.7	2.6
11.....	2.70	2.72	.00	2.50	2.62	.30	2.4	2.6	2.6	0.35	2.7	-----
12.....	2.74	2.72	2.55	2.55	2.62	1.50	2.4	2.6	2.6	2.4	2.7	-----
13.....	.00	2.72	.00	2.55	2.62	2.15	2.6	2.6	2.6	2.6	2.7	2.7
14.....	2.62	2.72	.00	2.53	2.62	2.40	2.6	2.6	2.6	2.6	2.7	2.7
15.....	2.50	2.72	2.60	-----	2.62	2.40	2.6	2.6	2.6	2.6	2.7	2.7
16.....	2.30	2.72	2.60	2.55	2.62	2.40	2.6	2.6	2.6	2.4	2.7	2.6
17.....	2.74	2.72	.00	2.55	2.62	2.35	2.6	2.6	2.6	2.6	2.7	0.45
18.....	2.73	2.72	.00	2.55	2.62	2.42	2.6	2.6	2.6	2.6	-----	0.45
19.....	2.73	2.72	2.65	2.55	2.62	2.42	2.6	2.6	2.6	2.6	-----	2.6
20.....	2.73	2.72	2.60	2.55	2.62	2.55	2.6	2.6	2.6	2.6	-----	2.6
21.....	2.73	2.72	2.65	2.55	2.62	2.55	2.6	-----	2.6	2.6	-----	2.7
22.....	2.72	2.73	2.50	2.60	2.62	2.55	2.6	-----	2.6	2.6	-----	2.6
23.....	2.70	2.73	.00	2.62	2.62	2.55	2.6	-----	2.6	2.6	-----	2.6
24.....	2.68	2.73	2.60	2.62	2.62	2.58	2.6	-----	2.5	2.7	2.7	2.6
25.....	2.68	2.75	2.50	2.62	2.60	2.58	2.6	-----	2.6	2.7	2.7	2.6
26.....	2.70	2.75	2.00	2.50	.30	2.58	2.6	-----	2.6	2.6	-----	2.6
27.....	2.70	2.74	2.25	2.48	2.57	2.58	2.6	-----	2.6	2.6	-----	2.6
28.....	2.70	2.74	2.70	2.50	2.57	2.58	2.6	-----	2.5	2.7	2.7	2.6
29.....	2.68	2.74	2.55	2.62	2.57	2.58	2.6	-----	2.6	2.7	-----	2.6
30.....	2.68	2.74	2.65	2.62	-----	2.58	2.6	-----	2.6	2.7	-----	2.6
31.....	2.70	-----	2.65	2.62	-----	2.58	-----	-----	-----	2.7	-----	-----

NOTE.—Gage not read on days for which no record is given except May 21 to June 1, 1912, when canal was dry.

Daily discharge, in second-feet, of Yosemite Power Co.'s canal near Lagrange, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	58	64	66	61	59	54	57	58	0	58	61	58
2.....	63	64	66	60	59	57	58	58	49	58	61	58
3.....	0	2.5	64	61	59	58	58	58	52	58	61	58
4.....	66	58	64	60	59	58	58	58	55	58	61	58
5.....	64	62	65	60	59	25	58	58	58	58	61	58
6.....	61	61	66	61	59	28	58	58	58	58	61	58
7.....	58	61	66	61	59	56	58	58	58	58	61	58
8.....	52	61	66	60	59	55	58	58	58	58	61	58
9.....	50	61	66	60	59	55	58	58	58	58	61	58
10.....	50	61	65	60	59	55	58	58	55	58	61	58
11.....	64	65	0	55	59	3	52	58	58	4	61	59
12.....	66	65	59	56	59	25	52	58	58	52	61	60
13.....	0	65	0	56	59	44	58	58	58	58	61	61
14.....	62	65	0	56	59	52	58	58	58	58	61	61
15.....	58	65	61	56	59	52	58	58	58	58	61	61
16.....	50	65	61	56	59	52	58	58	58	52	61	58
17.....	66	65	0	56	59	50	58	58	58	58	61	4
18.....	66	65	0	56	59	53	58	58	58	58	61	4
19.....	66	65	63	56	59	53	58	58	58	58	61	58
20.....	66	65	61	56	59	56	58	58	58	58	61	58
21.....	66	65	63	56	59	56	58	0	58	58	61	61
22.....	65	66	58	58	59	56	58	0	58	58	61	58
23.....	64	66	0	59	59	56	58	0	58	58	61	58
24.....	64	66	61	59	59	57	58	0	55	61	61	58
25.....	64	66	58	59	58	57	58	0	58	61	61	58
26.....	64	66	41	55	3	57	58	0	58	58	61	58
27.....	64	66	49	54	57	57	58	0	58	58	61	58
28.....	64	66	64	55	57	57	58	0	58	61	61	58
29.....	64	66	59	59	57	57	58	0	58	61	60	58
30.....	64	66	63	59	57	57	58	0	58	61	59	58
31.....	64	63	59	57	57	0	61	58

NOTE.—Daily discharge determined from rating curves applicable as follows: 1910-11, well defined; 1912 fairly well defined. Discharge interpolated for days when gage was not read except May 21 to June 1, 1912, when there was no flow in canal.

Monthly discharge of Yosemite Power Co.'s canal near Lagrange, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	66	0.0	57.8	3,550	B.
November.....	66	2.5	62.2	3,700	A.
December.....	66	0	49.6	3,050	C.
January.....	61	54	57.9	3,560	A.
February.....	59	3	56.8	3,270	A.
March.....	58	3	50.5	3,110	A.
April.....	58	52	57.6	3,430	A.
May.....	58	.0	37.4	2,300	A.
June.....	58	.0	55.3	3,280	A.
July.....	61	4	56.6	3,430	A.
August.....	61	58	60.8	3,740	B.
September.....	61	4	54.9	3,270	A.
The year.....	66	.0	54.7	39,800	

JAWBONE CREEK NEAR TUOLUMNE, CAL.

Location.—At Jawbone ranger station, in the NE. $\frac{1}{4}$ sec. 33, T. 1 N., R. 18 E., in the Stanislaus National Forest, $1\frac{1}{2}$ miles above junction with Tuolumne River and about 12 miles southeast of Tuolumne.

Records available.—September 13, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections fastened to an alder tree on right bank 100 feet below trail crossing.

Channel.—Gravel and bowlders; will shift at high stages.

Discharge measurements.—Made from old bridge about 1,000 feet below gage or by wading.

Winter flow.—Somewhat affected by ice.

Diversions.—Small irrigation ditch at ranger's station above the gage.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

The following discharge measurement was made by H. J. Tompkins by wading:
April 21, 1912: Gage height, 0.61 foot; discharge, 18 second-feet.

Daily gage height, in feet, of Jawbone Creek near Tuolumne, Cal., for 1911-12.

[Benj. F. Tyler, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	—0.23	0.11			0.37			0.92		—0.32		
2.....	— .18	.11	0.30		.34				0.61			
3.....		.10	.30	0.34								
4.....		.10	.35	.42	.33			.88		— .39	—0.55	—0.55
5.....		.11	.35	.40	.33						— .57	
6.....	— .18	.10	.44					.84				
7.....		.10							.32			— .35
8.....			.35		.32							
9.....			.33		.32				.29	— .42		
10.....			.34		.32				.30	— .49		— .35
11.....	— .06	.32	.30		.32			.86				
12.....	— .01	.31	.31		.32			.87	.30	— .49	— .60	
13.....	.00	.31						.90	.26			
14.....	.02	.30	.32		.31					— .49		— .58
15.....					.30		0.70	.87	.10			— .58
16.....	.01	.35			.31				.05	— .49		— .58
17.....	.00	.33		.40				.89		— .50		— .59
18.....	.06	.33		.37				.90				— .59
19.....	.07							.84		— .50		— .59
20.....	.09		.48		.31	0.62	.62	.86	— .06	— .51		— .61
21.....	.10	.30	.48	.35	.29	.56	.61	.87	— .06			— .61
22.....	.07	.31		.34	.25		.60		— .08	— .52		— .61
23.....							.61	.83	.00	— .52		
24.....	.08		.38		.26	.57	.70	.79	— .06			
25.....	.08		.37			.57	.64	.90	— .15	— .53	— .62	— .61
26.....	.08		.42	.34	.26	.56	.75	.87	— .20		— .62	— .62
27.....			.34		.25		.70	.81	— .20		— .62	— .62
28.....	.14		.39	.40	.25				— .25	— .55	— .63	
29.....	.13		.42		.25		1.01	.75	— .28		— .64	— .62
30.....			.42				.95					
31.....				.38				.64				

CORRAL CREEK NEAR GROVELAND, CAL.

Location.—At Clavey trail crossing, 1 mile west of Jawbone ranger station, in Stanislaus National Forest, 2 miles above junction with Tuolumne River, and 15 miles northwest of Groveland.

Records available.—October 21, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on right bank at trail crossing.

Channel.—Bowlders and gravel; rough.

Discharge measurements.—Made by wading.

Winter flow.—Probably affected by ice.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional data are available.

The following discharge measurement was made by H. J. Tompkins by wading: April 21, 1912: Gage height, 1.05 feet; discharge, 3.2 second-feet.

Daily gage height, in feet, of Corral Creek near Groveland, Cal., for 1911-12.

[Benj. F. Tyler, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1									0.85			0.65
2												
3				0.86							0.65	
4			0.80									
5			.80	.89	0.83							
6	0.78	0.76	.85									
7			.80									
8			.79									.70
9			.79								.63	
10												
11										0.67		
12	.78		.78							.70		
13												
14												
15	.75	.80					1.33					
16			.78									
17		.80		.88								
18						1.22	1.13					
19							1.10					
20		.79									.65	
21			.80	.85			1.05					
22		.77	.79						.75			
23												.68
24												
25												
26				.87		1.05						.68
27							1.02					
28	.77								.70			
29												
30												
31				.90								

SOUTH FORK OF TUOLUMNE RIVER NEAR GROVELAND, CAL.

Location.—At South Fork trail bridge, in Stanislaus National Forest, one-fourth mile above junction with Tuolumne River, and about 10 miles east of Groveland. The Middle Fork enters about 2½ miles above the station.

Records available.—September 13, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff on middle pier of bridge.

Channel.—Boulders and gravel; very rough.

Discharge measurements.—Made by wading.

Diversions.—At the Hardin ranch, 7 miles above the mouth, water is diverted to develop power and is not returned to the river.

Accuracy.—Rating curve fairly well defined at medium and low stages; results are fair. No estimates have been prepared for high water.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

The following discharge measurement was made by H. J. Tompkins by wading: April 22, 1912: Gage height, 1.60 feet; discharge, 98 second-feet.

Daily gage height, in feet, of South Fork of Tuolumne River near Groveland, Cal., for 1911-12.

[Ben]. F. Tyler, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1					0.9							
2				1.0						1.22		
3	0.82										0.58	0.45
4		0.81						2.1				
5			0.89		.9			2.0		1.18		
6				1.05							.58	
7								2.2				
8		.8										
9												
10											.51	
11			.8							1.00		
12		.92	.8									
13			.79									
14		1.02			1.1			2.75				.50
15								2.6				
16				1.4			1.6					
17							1.5					
18		.9										
19			.8									
20										.84		
21											.40	.49
22						1.5	1.6					
23	.8				1.22	1.6		2.3		.80		.50
24	.8										.35	
25												
26			.79	1.25						.75		
27										.70	.41	
28								2.7				
29	.84											.48
30				1.24			2.2		1.3		.35	
31	.8									.65		

Daily discharge, in second-feet, of South Fork of Tuolumne River near Groveland, Cal., for 1910-1912.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.													
1							198					54	
2													
3					26								
4													
5				38									
6				32									26
7													
8						120							
9											49		
10													
11													
12				75									
13	5			60		327							21
14							218						
15													
16						264							
17													
18											140		
19							396						
20													
21												27	21
22						218							
23													
24													
25		19									84		
26													26
27					218								
28												21	
29													
30							327						
31												21	

Daily discharge, in second-feet, of South Fork of Tuolumne River near Groveland, Cal., for 1910-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1					32							
2				39						58		
3	27										16	11
4		27						178				
5			31		32			160		54		
6				43							16	
7								198				
8		26										
9												
10											13	
11			26							39		
12		33	26									
13			26									
14		41			47			327				13
15								288				
16				75			98					
17							86					
18		32										
19			26									
20										28		
21											9	13
22						86	98					
23	26				58	98		218		26		13
24	26										8	
25												
26			26	60						24		
27										21	9	
28								314				
29	28											12
30				60			198		65		8	
31	26									19		

NOTE.—Discharge determined from a rating curve fairly well defined for medium and low stages. As no high-water measurements have been secured no estimates are made for gage heights above 3 feet.

CLAVEY RIVER NEAR TUOLUMNE, CAL.

Location.—Below Luke Meadow trail bridge, in the NW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 24, T. 1 N., R. 17 E., Mount Diablo base and meridian, in the Stanislaus National Forest, about 11 miles above junction with Tuolumne River and 10 miles southeast of Tuolumne.

Records available.—September 12, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank 300 feet below trail bridge.

Channel.—Boulders and solid rock; is rough; current swift at all stages.

Discharge measurements.—Made from car and cable 150 feet below gage, or by wading.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

The following discharge measurement was made by H. J. Tompkins:

April 20, 1912: Gage height, 2.52 feet; discharge, 208 second-feet.

Daily gage height, in feet, of Hunter Creek near Tuolumne, Cal., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.												
12.											0.23	
13.												
14.												
15.							0.76					
16.						0.90						
17.					0.51	.78	.80					
18.												
19.					.50							
20.									0.40			
21.												
22.	0.44	0.44	0.54				.65					
23.		.54										
24.												
25.												
26.						.63	.64					
27.	.47							0.54				
28.	.49											
29.									.39		.28	
30.												
31.							.82					

STANISLAUS RIVER AT KNIGHTS FERRY, CAL.

Location.—At Knights Ferry, in the NE. $\frac{1}{4}$ sec. 29, T. 1 S., R. 12 E., about 25 miles below mouth of South Fork and 12 miles northeast of Oakdale.

Records available.—May 19, 1903, to September 30, 1912. From May 3, 1895, to February 16, 1901, a station was maintained one-half mile north of Oakdale.

Drainage area.—935 square miles.

Gage.—Staff in five sections on right bank—four vertical and one inclined. The original gage datum has been maintained, although several changes have been made in the gage. Zero of gage is 157.53 feet above sea level, United States Geological Survey datum.

Channel.—Small boulders and gravel; slightly shifting at high stages.

Discharge measurements.—Made from car and cable 40 feet above gage or by wading.

Storage and diversions.—Ditches diverting water for use in mining are numerous above the station. Water is also diverted from the South Fork into the Tuolumne basin and from the North Fork for use in the vicinity of Murphy and Angeles. The intake of the Stanislaus & San Joaquin Water Co.'s canal is about 3 miles above Knights Ferry. This canal returns water below the station. Schell ditch diverts about 6 second-feet from this canal above the gaging station on the canal. Considerable storage is developed on Middle Fork of Stanislaus River for use in power development.

Accuracy.—Results are affected by the many diversions for irrigation and mining and by the operation of a power plant a short distance above the gage. Record is considered good except at flood stage.

The total natural flow of the river at this point is determined by combining the discharge at the river gaging station with the discharge of Stanislaus & San Joaquin Water Co.'s canal and Schell's ditch.

Discharge measurements of Stanislaus River at Knights Ferry, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 11	J. E. Stewart.....	6.56	855
May 28do.....	8.88	3,380
July 11do.....	5.83	425

NOTE.—Made from cable.

Daily gage height, in feet, of Stanislaus River at Knights Ferry, Cal., for 1911-12.

[E. J. Coop, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	5.45	5.45	5.62	5.63	5.52	5.27	5.84	7.3	9.8	6.1	5.1	4.99
2	5.40	5.38	5.50	5.62	5.50	5.24	5.89	7.2	10.2	5.99	5.05	4.94
3	5.45	5.35	5.56	5.60	5.48	5.26	6.15	7.2	10.3	5.98	5.05	4.95
4	5.35	5.45	5.56	5.60	5.50	5.32	6.25	7.1	10.4	5.94	5.02	5.0
5	5.42	5.40	5.50	5.50	5.48	5.49	6.3	7.3	10.2	5.84	5.04	4.88
6	5.36	5.28	5.68	5.52	5.47	5.78	6.1	7.4	10.1	5.9	5.05	4.96
7	5.45	5.35	5.40	5.48	5.38	6.3	6.3	7.4	9.8	5.92	5.0	5.18
8	5.30	5.32	5.50	5.48	5.39	6.2	6.75	8.0	9.4	5.86	5.0	5.55
9	5.25	5.36	5.46	5.52	5.40	5.99	6.75	7.8	8.7	5.92	5.05	5.56
10	5.30	5.55	5.44	5.62	5.39	5.95	7.0	8.3	8.3	5.94	5.0	5.42
11	5.31	5.72	5.52	5.60	5.40	5.89	6.8	8.8	8.3	5.92	5.0	5.41
12	5.34	5.65	5.38	5.56	5.48	6.15	6.55	9.2	8.4	5.85	5.0	5.42
13	5.28	5.70	5.48	5.55	5.40	6.7	6.3	9.4	8.3	5.82	4.8	5.39
14	5.30	5.63	5.48	5.60	5.37	6.15	6.4	9.3	8.2	5.82	4.92	5.36
15	5.34	5.62	5.45	5.61	5.38	5.92	6.15	9.7	7.9	5.7	4.89	5.4
16	5.31	5.65	5.45	5.54	5.38	6.6	6.15	10.0	7.7	5.66	4.99	5.32
17	5.26	5.65	5.58	5.49	5.44	6.05	6.2	9.9	7.6	5.69	5.0	5.36
18	5.35	5.70	5.51	5.52	5.40	5.92	6.4	9.9	7.6	5.65	5.06	5.39
19	5.38	5.70	5.51	5.51	5.38	5.85	6.3	10.0	7.6	5.74	5.0	5.36
20	5.30	5.68	5.51	5.52	5.38	5.75	6.2	9.4	7.6	5.75	5.04	5.38
21	5.30	5.60	5.42	5.42	5.55	5.90	6.05	8.6	7.4	5.65	5.01	5.38
22	5.34	5.62	5.45	5.40	5.42	5.80	5.96	8.1	7.0	5.58	4.98	5.42
23	5.30	5.62	5.45	5.40	5.49	5.80	6.05	7.7	6.75	5.54	4.96	5.39
24	5.34	5.68	5.38	5.36	5.34	5.77	6.05	7.9	6.55	5.5	4.95	5.39
25	5.24	5.70	5.38	5.35	5.37	5.78	6.25	8.0	6.5	5.48	4.89	5.38
26	5.29	5.65	5.26	5.55	5.41	5.89	6.4	9.1	6.25	5.44	4.93	5.43
27	5.29	5.65	5.42	6.4	5.31	5.82	6.55	8.7	6.2	5.4	5.04	5.37
28	5.32	5.62	5.56	5.96	5.32	5.87	6.4	8.7	6.2	5.43	5.0	5.4
29	5.34	5.55	5.81	5.75	5.28	5.88	7.0	9.8	6.15	5.32	5.0	5.36
30	5.35	5.69	5.58	5.62	5.40	5.90	7.4	10.3	6.25	5.28	4.95	5.36
31	5.29	5.61	5.60	5.60	5.85	5.85	9.6	9.6	5.18	4.9	5.18	5.36

Daily discharge, in second-feet, of Stanislaus River at Knights Ferry, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	252	252	330	334	284	180	435	1,520	4,840	580	125	98
2	230	222	275	329	275	169	460	1,420	5,520	514	112	87
3	252	210	302	320	266	176	610	1,420	5,700	508	112	89
4	210	252	302	320	275	198	672	1,330	5,880	484	105	100
5	239	230	275	275	266	270	705	1,520	5,520	427	110	74
6	214	183	360	284	262	405	580	1,620	5,350	460	112	91
7	252	210	230	266	222	705	705	1,620	4,840	472	100	147
8	190	198	275	266	226	640	1,030	2,280	4,200	438	100	278
9	183	214	257	284	230	514	1,030	2,050	3,170	472	112	282
10	190	298	248	329	226	492	1,240	2,640	2,640	484	100	226
11	194	380	284	320	230	460	1,070	3,310	2,640	472	100	223
12	206	345	222	302	266	610	878	3,900	2,770	432	100	226
13	183	370	266	298	230	990	705	4,200	2,640	416	60	216
14	190	335	266	320	218	610	770	4,050	2,520	416	82	205
15	206	330	252	324	222	476	610	4,680	2,160	350	87	219
16	194	345	252	295	222	915	610	5,180	1,940	330	98	192
17	176	345	311	270	245	550	640	5,010	1,830	345	100	205
18	210	370	280	284	230	476	770	5,010	1,830	325	115	216
19	222	370	280	280	222	440	705	5,180	1,830	372	100	205
20	190	360	280	284	222	390	640	4,200	1,830	378	110	212
21	190	320	239	239	298	465	550	3,030	1,620	325	102	212
22	206	330	248	230	239	415	498	2,400	1,240	291	96	226
23	190	330	252	230	270	415	550	1,940	1,030	274	91	216
24	206	360	222	214	206	400	550	2,160	878	256	89	216
25	169	370	222	210	218	405	672	2,280	840	249	76	212
26	186	345	176	298	234	460	770	3,750	672	234	85	230
27	186	345	239	770	194	425	878	3,170	640	219	110	209
28	198	330	302	498	198	450	770	3,170	640	230	100	219
29	206	298	426	390	183	455	1,240	4,840	610	192	100	205
30	210	365	311	329	465	465	1,620	5,700	672	179	89	205
31	186	325	320	320	440	440	4,520	4,520	147	78	78	205

NOTE.—Daily discharge determined from three rating curves applicable as follows: Mar. 8 to Dec. 31, 1911, fairly well defined; Jan. 1 to June 30, 1912, well defined; and July 1 to Sept. 30, 1912, well defined.

Monthly discharge of Stanislaus River near Knights Ferry, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	252	169	204	12,500	A.
November.....	380	183	307	18,300	A.
December.....	426	176	274	16,800	A.
January.....	770	210	313	19,200	A.
February.....	298	183	237	13,600	A.
March.....	990	169	466	28,700	A.
April.....	1,620	435	765	45,500	A.
May.....	5,700	1,330	3,200	197,000	A.
June.....	5,880	610	2,610	155,000	A.
July.....	580	147	364	22,400	A.
August.....	125	60	98.6	6,060	B.
September.....	282	74	191	11,400	A.
The year.....	5,880	60	753	546,000	

**STANISLAUS & SAN JOAQUIN WATER CO.'S CANAL AT KNIGHTS
FERRY, CAL.**

Location.—At private highway bridge about 200 feet below crossing of flume of Schell ditch, in the NW. $\frac{1}{4}$ sec. 29, T. 1 S., R. 12 E., and about half a mile below Knights Ferry.

Records available.—June 11, 1904, to September 30, 1912.

Gage.—Vertical staff on left bank at bridge.

Discharge measurements.—Made from foot plank 20 feet above gage. Section is coarse gravel and a little rough.

Accuracy.—Record does not include the flow of Schell ditch. Results are good.

Discharge measurements of Stanislaus & San Joaquin Water Co.'s canal at Knights Ferry, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
Apr. 11	J. E. Stewart.....	<i>Feet.</i> 3.19	<i>Sec.-ft.</i> 76
May 28do.....	3.63	102
July 11do.....	3.31	82

NOTE.—Made from bridge above gage.

Daily gage height, in feet, of Stanislaus & San Joaquin Water Co.'s canal at Knights Ferry, Cal., for 1911-12.

[Otto Dolling, observer.]

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.3	1.45	1.88	3.3	3.4	3.5	3.6	3.4	3.4
2.....	3.3	1.85	2.45	3.35	3.4	3.5	3.6	3.45	3.4
3.....	3.25	1.45	2.45	3.5	3.4	3.5	3.6	3.4	3.25
4.....	3.3	1.45	2.45	3.4	3.5	3.5	3.4	3.1
5.....	3.3	1.45	2.45	3.5	3.4	3.5	3.6	3.45	3.0
6.....	3.3	1.45	1.32	3.5	3.5	3.5	3.6	3.4	2.95
7.....	3.25	1.45	3.5	3.5	3.5	3.6	3.35	2.95
8.....	3.25	1.45	3.5	3.5	3.5	3.6	3.45
9.....	3.25	1.45	3.5	3.45	3.5	3.5	3.4
10.....	3.2	1.45	3.5	3.45	3.5	3.6	3.35

Daily gage height, in feet, of Stanislaus & San Joaquin Water Co.'s canal at Knights Ferry, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	3.2		1.3	3.2	3.5	3.5	3.6	3.4	-----
12.....	3.25		1.35	2.9	3.5	3.5	3.6	3.45	-----
13.....	3.2		1.35	2.9	3.45	3.5	3.6	3.4	-----
14.....	3.2			3.1	3.5	3.5	3.6	3.4	-----
15.....	3.2			3.3	3.45	3.5	3.6	3.4	-----
16.....	3.2			3.3	3.4	3.45	3.6	3.5	-----
17.....	2.9		2.5	3.3	3.4	3.5	3.6	3.4	-----
18.....	2.8		2.5	3.3	3.4	3.5	3.45	3.4	-----
19.....	2.5		2.6	3.35	3.4	3.5	3.6	3.45	-----
20.....	2.5		2.6	3.5	3.4	3.4	3.6	3.4	-----
21.....	2.5			3.4	3.4	3.5	3.5	3.4	-----
22.....	2.5		2.6	3.4	3.5	3.5	3.5	3.4	-----
23.....	2.5		2.8	3.4	3.45	3.45	3.45	3.35	-----
24.....	2.5		2.8	3.4	3.5	3.5	3.5	3.4	-----
25.....	2.5		2.9	3.4	3.5	3.5	3.45	3.4	-----
26.....	2.5		3.0	3.4	3.5	3.5	3.6	3.35	-----
27.....	2.5		3.0	3.4	3.5	3.5	3.5	3.4	-----
28.....	2.5			3.4	2.48	3.5	3.5	3.35	-----
29.....	2.55		3.0	3.4	3.5	3.5	3.4	3.45	-----
30.....	2.5		3.1	3.4	3.5	3.5	3.35	3.45	-----
31.....	2.5		3.2		3.5		3.4	3.5	-----

NOTE.—Canal dry on days for which no gage heights are published except Nov. 11, 1911, and Feb. 29, Mar. 16, 21, 28, and Apr. 4, 1912, when canal was in operation only part of the day.

Daily discharge, in second-feet, of Stanislaus & San Joaquin Water Co.'s canal at Knights Ferry, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	89	10	0	0	0	19	82	88	94	100	88	88
2.....	89	10	0	0	0	39	85	88	94	100	91	88
3.....	86	10	0	0	0	39	94	88	94	100	88	79
4.....	89	10	0	0	0	39	47	88	94	94	88	71
5.....	89	10	0	0	0	39	94	88	94	100	91	66
6.....	89	10	0	0	0	7.4	94	94	94	100	88	64
7.....	86	10	0	0	0	.0	94	94	94	100	85	64
8.....	86	10	0	0	0	.0	94	94	94	100	91	0
9.....	86	10	0	0	0	.0	94	91	94	94	88	0
10.....	82	10	0	0	0	.0	94	91	94	100	85	0
11.....	82	5	0	0	0	7	76	94	94	100	88	0
12.....	86	0	0	0	0	8	61	94	94	100	91	0
13.....	82	0	0	0	0	8	61	91	94	100	88	0
14.....	82	0	0	0	0	.0	71	94	94	100	88	0
15.....	82	0	0	0	0	.0	82	91	94	100	88	0
16.....	82	0	0	0	0	5.0	82	88	91	100	94	0
17.....	63	0	0	0	0	41	82	88	94	100	88	0
18.....	57	0	0	0	0	41	82	88	94	91	88	0
19.....	43	0	0	0	0	46	85	88	94	100	91	0
20.....	43	0	0	0	0	46	94	88	88	100	88	0
21.....	43	0	0	0	0	23	88	88	94	94	88	0
22.....	43	0	0	0	0	46	88	94	94	94	88	0
23.....	43	0	0	0	0	56	88	91	91	91	85	0
24.....	43	0	0	0	0	56	88	94	94	94	88	0
25.....	43	0	0	0	0	61	88	94	94	91	88	0
26.....	43	0	0	0	0	66	88	94	94	100	85	0
27.....	43	0	0	0	0	66	88	94	94	94	88	0
28.....	43	0	0	0	0	33	88	40	94	94	85	0
29.....	45	0	0	0	3.5	66	88	94	94	88	91	0
30.....	43	0	0	0		71	88	94	94	85	91	0
31.....	43		0	0		76		94		88	94	

NOTE.—Daily discharge determined from well-defined rating curves applicable as follows: Jan. 1, 1910, to Dec. 31, 1911; Jan. 1 to Sept. 30, 1912. Discharge estimated Feb. 29, Mar. 16, 21, 28, and Apr. 4, 1912.

Monthly discharge of Stanislaus & San Joaquin Water Co.'s canal at Knights Ferry, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	89	43	66.0	4,060	A.
November.....	10	0	3.5	208	C.
December.....	0	0	.0	0	
January.....	0	0	.0	0	
February.....	3.5	0	.12	6.9	
March.....	76	0	32.4	1,990	A.
April.....	94	47	84.3	5,020	A.
May.....	94	40	89.6	5,510	A.
June.....	94	88	93.6	5,570	A.
July.....	100	85	96.5	5,930	A.
August.....	94	85	88.6	5,450	A.
September.....	88	0	17.3	1,030	B.
The year.....	100	0	47.9	34,800	

Combined daily discharge, in second-feet, of Stanislaus River, Stanislaus & San Joaquin Water Co.'s canal, and Schell ditch at Knights Ferry, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	347	268	336	339	289	204	523	1,620	4,940	689	222	195
2.....	325	238	281	334	290	213	551	1,520	5,620	623	212	184
3.....	344	226	308	325	271	220	710	1,520	5,800	617	209	177
4.....	305	268	308	325	290	242	725	1,430	5,980	587	202	180
5.....	334	246	281	280	271	314	805	1,620	5,620	536	210	149
6.....	309	199	366	289	267	417	680	1,720	5,450	569	209	164
7.....	344	226	236	271	227	710	805	1,720	4,940	581	194	220
8.....	282	214	281	271	231	645	1,130	2,380	4,300	547	200	278
9.....	275	230	283	289	235	519	1,130	2,150	3,270	575	209	282
10.....	278	314	254	334	231	497	1,340	2,740	2,740	593	194	226
11.....	282	391	290	325	235	472	1,150	3,410	2,740	581	197	223
12.....	298	351	228	307	271	623	945	4,000	2,870	541	200	226
13.....	271	376	272	303	235	1,000	772	4,300	2,740	525	157	216
14.....	278	341	272	325	223	615	847	4,150	2,620	525	179	205
15.....	294	336	258	329	227	481	698	4,780	2,260	459	184	219
16.....	282	351	258	298	227	925	698	5,280	2,040	439	201	192
17.....	245	351	317	275	253	596	728	5,110	1,930	454	197	205
18.....	273	376	286	289	235	522	858	5,110	1,930	425	212	216
19.....	271	376	286	285	227	491	796	5,280	1,930	481	200	205
20.....	239	366	286	289	227	441	740	4,300	1,930	487	207	212
21.....	239	326	245	244	303	493	644	3,130	1,720	428	199	212
22.....	255	336	254	235	244	486	592	2,500	1,340	304	193	226
23.....	239	336	258	235	275	476	644	2,040	1,130	374	185	216
24.....	255	366	228	219	211	461	644	2,260	982	359	186	216
25.....	218	376	228	215	223	471	766	2,380	944	349	173	212
26.....	235	351	182	303	239	531	864	3,850	776	343	179	230
27.....	235	351	245	775	199	496	972	3,270	744	322	207	209
28.....	247	336	308	503	203	488	864	3,220	744	333	194	219
29.....	257	304	432	395	192	526	1,330	4,940	714	289	200	205
30.....	259	371	317	334	541	1,710	5,800	776	273	189	205
31.....	235	331	325	521	4,620	244	181

NOTE.—These values are the sum of the discharge at the river station, the canal station, and of Schell ditch. Flow in Schell ditch is assumed to be constant at 5 second-feet January–March, 1912; 6 second-feet April, 1912; 10 second-feet May–June, 1912; and 9 second-feet July–Sept. 7, 1912, after which date there was no flow.

Combined monthly discharge of Stanislaus River, Stanislaus & San Joaquin Water Co.'s canal, and Schell ditch at Knights Ferry, Cal., for 1911-12.

[Drainage area, 935 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.....	347	218	276	0.295	0.34	17,000	A.
November.....	391	199	317	.339	.38	18,900	A.
December.....	432	182	280	.299	.34	17,200	A.
January.....	775	215	318	.340	.39	19,600	A.
February.....	303	192	242	.259	.28	13,900	A.
March.....	1,000	204	504	.539	.62	31,000	A.
April.....	1,710	523	855	.914	1.02	50,900	A.
May.....	5,800	1,430	3,300	3.53	4.07	203,000	A.
June.....	5,980	714	2,720	2.91	3.25	162,000	A.
July.....	689	244	469	.502	.58	28,800	A.
August.....	222	157	196	.210	.24	12,100	B.
September.....	282	149	211	.226	.25	12,600	A.
The year.....	5,980	149	807	.863	11.76	587,000	

NOTE.—These values are the sum of the discharge at the river station, the canal station, and Schell ditch. The flow of Schell ditch has been assumed to be 6 second-feet during 1911; 5 second-feet, January-March, 1912; 6 second-feet, April; 10 second-feet, May-June; and 9 second-feet, July-September, 1912.

Discharge measurements of Schell ditch at Knights Ferry, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
May 28	J. E. Stewart.....	Feet.	Sec.-feet.
July 11do.....	(a)	10
			8.8

^a No gage.

NOTE.—Measurements made from bridge 200 feet below head gates, opposite power house at Knights Ferry.

MIDDLE FORK OF STANISLAUS RIVER AT SAND BAR FLAT, NEAR AVERY, CAL.

Location.—At diversion dam of Sierra & San Francisco Power Co., at Sand Bar Flat, about 3 miles below Bakers Crossing, 11 miles above the junction with North Fork of Stanislaus River, and about 12 miles east of Avery.

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

Drainage area.—Not measured.

Discharge measurements.—Discharge over the diversion dam computed from theoretical formula; the water diverted is measured at a current-meter gaging station in the flume below the dam.

Regulation.—The low-water flow is increased by release of stored water from Relief reservoir.

Cooperation.—Daily discharges furnished by the Sierra & San Francisco Power Co., through Mr. H. F. Jackson, general manager. These discharges have been reduced to three significant figures, and the monthly discharges have been computed by the Geological Survey.

Daily discharge, in second-feet, of Middle Fork of Stanislaus River at Sand Bar Flat, near Avery, Cal., for 1910-11.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	135	164	162	182	2,850	366	2,600	2,260	2,240	2,140	510	206
2.....	131	163	154	171	1,640	385	2,740	2,240	2,690	2,210	452	207
3.....	131	157	171	177	1,250	385	2,910	2,270	2,990	2,400	314	206
4.....	132	157	263	175	1,080	513	2,680	2,770	3,640	2,370	448	206
5.....	130	151	228	172	932	588	2,240	3,660	4,200	2,330	543	207
6.....	147	149	194	164	798	534	2,650	2,420	4,060	2,540	394	207
7.....	144	156	196	162	705	616	2,560	2,880	4,130	2,360	382	207
8.....	142	157	237	157	664	612	2,180	2,890	3,030	2,230	379	206
9.....	141	160	220	156	642	755	2,180	2,880	3,710	1,990	383	207
10.....	139	164	224	206	628	916	2,070	3,140	4,080	2,020	401	206
11.....	192	162	452	249	612	920	1,800	3,220	4,470	2,120	354	206
12.....	222	204	277	196	541	776	1,660	3,230	4,790	2,080	369	206
13.....	196	178	240	206	602	740	1,520	3,200	4,690	1,950	318	190
14.....	189	168	232	202	630	704	1,420	2,300	4,430	1,860	307	206
15.....	189	166	207	204	635	692	1,370	2,000	4,370	1,400	313	201
16.....	186	164	200	203	581	703	1,380	1,920	4,510	1,740	367	200
17.....	186	161	195	192	438	806	1,480	1,770	4,610	2,000	328	196
18.....	183	176	178	189	449	788	1,660	1,640	4,630	1,980	226	199
19.....	179	168	173	217	435	912	1,940	2,070	4,590	1,980	229	206
20.....	177	177	177	262	420	982	1,990	2,320	4,290	1,640	206	202
21.....	175	166	166	413	400	1,070	2,000	2,760	4,180	1,420	206	200
22.....	172	169	173	363	406	1,100	2,220	3,360	3,500	1,200	298	207
23.....	170	164	166	300	391	1,220	2,370	3,830	2,970	770	298	206
24.....	168	196	160	329	380	1,300	2,370	4,090	2,440	1,100	284	202
25.....	163	192	158	454	390	1,310	2,850	3,090	2,120	1,060	276	204
26.....	160	161	154	405	372	1,400	3,030	2,690	2,470	923	263	200
27.....	161	176	160	334	393	1,500	2,620	2,640	2,780	997	248	204
28.....	160	173	196	288	368	1,590	2,180	2,780	2,730	673	241	201
29.....	157	173	220	372	1,730	1,600	2,960	2,600	640	236	199
30.....	156	162	212	2,760	1,950	2,070	2,610	2,340	606	213	198
31.....	166	202	4,440	2,240	2,390	440	206

Daily discharge, in second-feet, of Middle Fork of Stanislaus River at Sand Bar Flat, near Avery, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	206	178	170	160	96.8	93.6	205	552	2,050	464	186	158
2.....	206	172	172	158	96.2	103	282	465	2,190	434	181	158
3.....	206	168	172	140	95.4	95.9	313	477	2,650	408	175	161
4.....	202	166	170	146	92.1	95.2	354	496	3,010	397	165	120
5.....	206	166	170	141	94.1	132	298	577	2,630	416	155	123
6.....	206	164	172	141	95.9	152	321	577	2,490	476	179	159
7.....	202	182	173	103	98.2	145	389	829	2,450	484	204	175
8.....	200	187	173	92.4	94.6	130	444	913	2,300	468	169	202
9.....	202	189	174	83.8	94.8	121	461	899	1,750	461	166	193
10.....	206	207	166	94.4	97.6	108	391	1,070	1,520	450	163	155
11.....	198	184	162	96.4	97.0	115	333	1,380	1,420	442	168	163
12.....	195	193	152	89.2	98.2	108	314	1,620	1,610	440	175	160
13.....	193	196	159	85.8	95.6	117	280	1,640	1,470	442	200	161
14.....	190	192	152	85.8	96.4	108	287	1,570	1,540	402	196	186
15.....	187	196	156	86.4	97.2	113	298	1,780	1,380	386	166	200
16.....	185	204	155	95.2	95.2	118	317	1,900	1,290	384	161	177
17.....	184	195	174	94.6	97.6	118	321	1,820	1,170	433	158	163
18.....	182	193	177	83.0	105	113	334	1,900	1,260	428	160	164
19.....	180	195	172	85.2	114	131	307	1,890	1,290	384	164	179
20.....	178	194	173	84.5	104	145	298	1,600	1,300	392	178	192
21.....	178	193	153	84.6	97.2	133	276	1,210	1,030	380	177	192
22.....	177	190	162	83.7	93.9	120	270	1,010	888	366	164	190
23.....	179	187	174	83.7	87.2	120	241	914	778	344	158	188
24.....	177	190	170	81.2	97.0	150	242	1,010	604	333	158	188
25.....	177	190	143	83.0	82.8	172	242	1,260	598	328	156	185
26.....	175	187	153	104	85.5	175	247	1,300	560	309	162	184
27.....	177	182	134	106	89.6	169	345	1,120	572	313	166	188
28.....	182	174	146	94.5	87.2	175	400	1,430	578	264	166	187
29.....	182	173	155	93.6	94.4	180	503	1,920	568	245	164	189
30.....	175	172	143	101	233	454	2,020	523	214	162	203
31.....	177	166	97.0	196	1,820	200	159

Monthly discharge of Middle Fork of Stanislaus River at Sand Bar Flat, near Avery, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1910-11.				
October.....	222	130	164	10,100
November.....	204	149	168	10,000
December.....	452	154	205	12,630
January.....	4,440	156	461	28,300
February.....	2,850	368	701	38,900
March.....	2,240	366	971	59,700
April.....	3,030	1,370	2,140	127,000
May.....	4,090	1,640	2,720	167,000
June.....	4,790	2,120	3,610	215,000
July.....	2,540	440	1,650	101,000
August.....	543	206	322	19,800
September.....	207	190	203	12,100
The year.....	4,790	130	1,110	802,000
1911-12.				
October.....	206	175	189	11,600
November.....	207	164	185	11,000
December.....	177	134	163	10,000
January.....	160	81.2	102	6,270
February.....	114	82.8	95.5	5,490
March.....	233	93.6	135	8,300
April.....	503	205	326	19,400
May.....	2,020	465	1,260	77,500
June.....	3,010	523	1,450	86,300
July.....	484	200	383	23,600
August.....	204	155	170	10,500
September.....	203	120	175	10,400
The year.....	3,010	81.2	386	280,000

RELIEF CREEK BELOW RELIEF RESERVOIR NEAR BAKER STATION, CAL.

Location.—One-fourth mile below the Relief reservoir of the Sierra & San Francisco Power Co., three-fourths of a mile above junction with Deadman Creek, about 2 miles south of Baker station, approximately in sec. 2, T. 5 N., R. 20 E.

Records available.—October 1, 1910, to September 30, 1912.

Drainage area.—Not measured.

Discharge measurements.—Discharges obtained by means of a weir.

Regulation.—The flow is regulated by Relief reservoir, which has a capacity of 16,000 acre-feet.

Cooperation.—Daily discharges furnished by Sierra & San Francisco Power Co., through Mr. H. F. Jackson, general manager. These discharges have been reduced to three significant figures, and the monthly discharges computed by the Geological Survey. Daily storage in Relief reservoir in terms of millions of cubic feet, furnished by the power company, has been reduced to acre-feet by the Geological Survey.

Daily discharge, in second-feet, of Relief Creek below Relief reservoir, near Baker station, Cal., for 1910-1912.

Day.	Oct.	Nov.	Dec.	Jan.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.											
1.....	50.0	80.4	62.4	84.5	-----	-----	-----	310	206	52.8	
2.....	50.0	80.4	62.4	79.8	-----	-----	-----	310	84.6	52.8	
3.....	^a 50.0	75.1	62.4	74.5	-----	-----	-----	340	91.4	52.8	
4.....	49.9	71.2	57.5	69.9	-----	-----	-----	340	109	52.8	
5.....	60.0	71.2	57.5	69.9	-----	-----	-----	340	105	52.8	
6.....	60.0	71.2	57.5	64.9	-----	-----	-----	380	49.4	52.8	
7.....	60.0	81.1	57.5	60.0	-----	-----	-----	380	54.0	52.8	
8.....	60.0	81.1	57.5	64.9	-----	-----	-----	380	77.1	52.8	
9.....	60.0	81.1	57.5	64.9	-----	-----	-----	308	115	52.8	
10.....	75.1	81.1	^a 56.6	-----	-----	-----	-----	308	64.3	52.8	
11.....	87.2	77.1	^a 55.6	-----	-----	-----	-----	308	79.1	52.8	
12.....	87.2	77.1	^a 54.7	-----	-----	-----	-----	187	112	52.8	
13.....	87.2	77.1	^a 53.7	-----	-----	-----	-----	181	54.0	52.8	
14.....	86.5	77.1	52.8	-----	-----	-----	-----	181	71.2	52.8	
15.....	86.5	77.1	52.8	-----	-----	-----	-----	5.75	54.0	52.8	
16.....	86.5	77.1	52.8	-----	-----	-----	-----	5.20	165	52.8	
17.....	86.5	77.1	52.8	-----	-----	-----	-----	290	109	52.8	
18.....	85.8	77.1	52.8	-----	-----	-----	-----	200	30.4	63.6	
19.....	85.8	72.5	52.8	-----	-----	-----	-----	210	30.4	62.4	
20.....	85.8	72.5	^a 52.8	-----	-----	-----	-----	225	30.4	62.4	
21.....	85.8	72.5	52.8	-----	-----	-----	-----	340	87.2	62.4	
22.....	80.4	72.5	52.8	-----	-----	-----	-----	380	88.6	62.4	
23.....	80.4	72.5	52.8	-----	-----	-----	-----	4.16	56.9	62.4	
24.....	80.4	72.5	52.2	-----	-----	-----	-----	164	67.4	62.4	
25.....	75.1	72.5	52.2	-----	-----	-----	-----	219	58.1	62.4	
26.....	75.1	67.4	63.0	-----	-----	-----	-----	6.60	310	53.4	62.4
27.....	75.1	67.4	63.0	-----	-----	-----	-----	7.49	375	53.4	62.4
28.....	75.1	67.4	101	-----	-----	-----	-----	4.80	172	53.4	62.4
29.....	75.1	67.4	101	-----	-----	-----	-----	22.9	137	53.4	62.4
30.....	80.4	67.4	94.9	-----	-----	-----	-----	22.9	137	53.4	62.4
31.....	80.4	-----	90.0	-----	-----	-----	-----	8.11	53.4	-----	-----
1911-12.											
1.....	62.4	62.4	81.1	91.4	-----	15.5	23.8	00.0	25.6	2.98	60.0
2.....	62.4	61.8	81.1	91.4	-----	15.5	23.8	9.12	25.6	2.98	60.0
3.....	62.4	61.8	81.8	46.0	-----	15.1	23.8	40.0	25.6	2.98	105.0
4.....	62.4	61.8	81.8	45.4	-----	15.1	19.5	61.2	25.6	2.98	60.0
5.....	62.4	62.4	81.8	43.8	-----	.0	23.8	52.0	28.4	61.2	60.0
6.....	62.4	82.4	81.1	-----	-----	1.05	.75	58.8	38.4	39.5	60.0
7.....	62.4	82.4	81.1	-----	-----	1.05	.75	58.8	38.4	21.6	65.5
8.....	62.4	82.4	81.1	-----	-----	2.54	.90	23.8	38.4	21.6	65.5
9.....	62.4	82.4	81.1	-----	-----	1.05	.75	240	39.5	21.6	44.9
10.....	62.4	^a 81.7	81.1	-----	-----	1.05	.90	235	61.2	40.0	55.2
11.....	61.8	^a 81.1	81.1	-----	-----	15.5	.75	235	61.2	40.5	55.2
12.....	61.8	80.4	81.1	-----	-----	15.5	.62	235	64.3	68.7	65.5
13.....	61.8	80.4	^a 80.9	-----	-----	8.42	.62	275	61.2	62.4	65.5
14.....	61.8	81.8	^a 80.6	-----	-----	23.8	.37	275	61.2	41.1	75.1
15.....	^a 61.7	81.8	80.4	-----	-----	23.8	.37	275	61.2	41.1	75.1
16.....	^a 61.6	81.8	80.4	-----	-----	23.8	.17	275	61.2	41.1	65.5
17.....	^a 61.4	81.8	92.1	-----	-----	23.8	.17	275	61.2	49.4	65.5
18.....	^a 61.3	81.8	92.1	-----	-----	23.8	.0	275	61.2	49.4	75.1
19.....	61.2	81.8	92.1	-----	-----	23.8	.0	275	54.7	62.4	85.2
20.....	60.6	81.8	92.1	-----	-----	15.5	.0	275	124	62.4	85.2
21.....	60.0	81.8	^a 91.8	-----	-----	15.5	.0	340	124	55.8	85.2
22.....	61.8	81.8	91.4	-----	-----	15.5	.0	340	124	55.8	85.2
23.....	62.4	81.1	91.4	-----	-----	23.8	.0	170	124	55.8	85.2
24.....	62.4	81.1	91.4	-----	-----	23.8	.0	175	124	55.8	85.2
25.....	62.4	81.1	91.4	-----	-----	23.8	.0	27.0	124	55.8	85.2
26.....	62.4	81.1	91.4	-----	-----	23.8	.0	27.0	124	60.0	85.2
27.....	62.4	81.1	91.4	-----	-----	23.8	.0	25.6	87.2	60.0	90.0
28.....	63.6	81.1	91.4	-----	-----	^a 23.8	.0	25.6	87.2	60.0	90.0
29.....	62.4	81.1	91.4	-----	-----	^a 23.8	.0	25.6	87.2	60.0	94.9
30.....	62.4	81.1	91.4	-----	16.3	^a 23.8	.0	25.6	25.2	60.0	94.9
31.....	62.4	-----	91.4	-----	16.3	-----	.0	-----	2.98	60.0	-----

^a Interpolated by U. S. Geological Survey.

NOTE.—No records reported for Jan. 10 to June 25, 1911.

NOTE.—Jan. 6 to Mar. 29, 1912, gates closed except to maintain constant minimum storage in reservoir.

Monthly discharge of Relief Creek below Relief reservoir, near Baker station, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet)
	Maximum.	Minimum.	Mean.	
1910-11.				
October.....	87.2	49.9	74.3	4,570
November.....	81.1	67.4	74.5	4,430
December.....	101	52.2	61.2	3,760
January 1-9.....	84.5	60.0	70.4	1,260
June 26-30.....	22.9	6.60	12.9	128
July.....	380	4.16	240	14,800
August.....	206	30.4	76.4	4,700
September.....	63.6	52.8	57.0	3,390
1911-12.				
October.....	63.6	60.0	62.1	3,820
November.....	82.4	61.8	78.3	4,660
December.....	92.1	80.4	86.2	5,300
January 1-5.....	91.4	43.8	63.6	631
April.....	23.8	0	16.2	964
May.....	23.8	0	3.93	242
June.....	340	0	154	9,160
July.....	124	2.98	66.2	4,070
August.....	68.7	2.98	44.4	2,730
September.....	105	44.9	74.3	4,420

Daily storage, in acre-feet, of Relief reservoir, near Baker station, Cal., for 1910-1912.

Day.	Oct.	Nov.	Dec.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.										
1.....	12,100	8,320	4,830	2,340	8,020	14,500	14,800
2.....	12,000	8,110	4,740	2,200	8,140	14,500	14,800
3.....	8,070	4,670	2,080	8,330	14,600	14,800
4.....	7,890	4,600	1,960	8,540	14,700	14,800
5.....	11,700	7,780	4,540	1,840	8,690	14,700	14,800
6.....	11,600	7,650	4,470	1,730	8,920	14,800	14,700
7.....	11,400	7,500	4,400	1,670	9,070	14,800	14,600
8.....	11,300	7,340	4,340	1,760	9,300	14,900	14,600
9.....	11,200	7,220	4,270	1,660	9,310	14,900	14,600
10.....	11,100	7,080	9,360	15,000	14,500
11.....	10,900	6,950	9,490	15,000	14,200
12.....	10,700	6,820	9,630	15,000	14,300
13.....	10,800	6,630	10,100	14,900	14,200
14.....	10,700	6,580	4,080	10,700	15,000	14,100
15.....	10,500	6,450	4,030	12,300	15,000	14,100
16.....	10,400	6,350	3,970	13,000	14,800	14,000
17.....	10,300	6,220	3,910	14,000	14,700	13,900
18.....	10,200	6,120	3,830	14,500	14,800	13,900
19.....	10,100	6,000	3,750	14,500	14,800	13,800
20.....	9,940	5,880	14,400	14,900	13,700
21.....	9,840	5,740	3,600	14,100	15,000	13,600
22.....	9,690	5,650	3,530	13,900	14,900	13,500
23.....	9,420	5,560	3,460	14,300	14,800	13,400
24.....	9,390	5,470	3,390	14,500	14,600	13,300
25.....	9,270	5,370	3,310	14,700	14,800	13,200
26.....	9,130	5,290	3,220	5,910	14,300	14,800	13,100
27.....	9,000	5,200	3,090	6,610	14,000	14,800	13,000
28.....	8,870	5,120	2,910	7,230	13,900	14,800	12,900
29.....	8,660	5,030	2,760	7,620	14,000	14,800	12,800
30.....	8,600	4,930	2,610	7,970	14,100	14,800	12,700
31.....	8,460	2,470	14,500	14,800

NOTE.—No records reported for missing days.

Daily storage, in acre-feet, of Relief reservoir, near Baker station, Cal., for 1910-1912—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.										
1.....	12,600	9,290	5,170	844	-----	1,230	11,300	13,500	13,100	10,300
2.....	12,500	9,200	5,030	718	-----	1,260	11,900	13,700	13,000	10,200
3.....	12,400	9,080	4,890	527	-----	1,330	12,500	13,800	13,100	10,200
4.....	12,300	8,990	4,740	451	-----	1,380	13,000	13,900	13,100	10,200
5.....	12,200	8,870	4,640	337	-----	1,430	12,900	14,100	13,100	10,100
6.....	12,100	8,750	4,500	-----	337	1,580	12,800	14,100	13,000	10,000
7.....	12,200	8,600	4,360	-----	349	1,600	12,500	14,200	13,000	9,910
8.....	11,900	8,460	4,220	-----	416	1,720	12,200	14,200	12,900	9,810
9.....	11,800	8,310	4,080	-----	489	1,830	11,900	14,200	12,900	9,790
10.....	11,700	-----	3,930	-----	585	1,990	12,000	14,200	12,800	9,740
11.....	11,600	-----	3,790	-----	608	2,190	12,200	14,200	12,800	9,670
12.....	11,500	7,890	3,650	-----	672	2,460	12,400	13,900	12,700	9,620
13.....	11,400	7,760	-----	-----	677	2,800	12,600	13,900	12,600	9,470
14.....	11,300	7,620	-----	-----	693	3,230	12,600	13,900	12,600	9,330
15.....	-----	7,470	3,470	-----	702	3,650	12,600	13,900	12,500	9,150
16.....	-----	7,310	3,100	-----	723	4,310	12,400	13,900	12,400	9,020
17.....	-----	7,170	2,950	-----	733	4,780	12,400	14,000	12,300	8,910
18.....	-----	7,010	2,810	-----	718	5,350	12,400	14,000	12,200	8,760
19.....	10,700	6,840	2,680	-----	767	6,000	12,400	13,900	12,100	8,580
20.....	10,600	6,710	2,550	-----	785	6,280	12,400	13,900	12,000	8,440
21.....	10,500	6,570	-----	-----	810	6,530	12,500	13,900	11,800	8,340
22.....	10,400	6,430	2,270	-----	831	6,830	12,300	13,800	11,700	8,180
23.....	10,300	6,300	2,130	-----	877	7,000	12,100	13,800	11,500	8,020
24.....	10,200	6,160	1,970	-----	954	7,250	12,400	13,700	11,300	7,890
25.....	10,100	6,010	1,820	-----	1,020	7,440	12,200	13,600	11,200	7,720
26.....	10,000	6,010	1,630	-----	1,080	7,610	12,200	13,400	11,000	7,610
27.....	9,860	5,730	1,610	-----	1,120	7,810	12,500	13,200	10,900	7,430
28.....	9,750	5,590	1,590	-----	-----	8,200	12,800	13,200	10,800	7,250
29.....	9,630	5,450	1,580	-----	-----	8,710	13,100	13,000	10,600	7,160
30.....	9,500	5,300	1,570	-----	-----	9,790	13,300	12,900	10,500	7,050
31.....	9,390	-----	981	-----	-----	10,300	-----	13,000	10,400	-----

NOTE.—No records reported for missing days between Oct. 1 to Jan. 5 and Apr. 28 to 30. Constant minimum storage of 337 acre-feet maintained during Jan. 6 to Apr. 5.

ROSE CREEK NEAR JUPITER, CAL.

Location.—Just above trail bridge in the SE. $\frac{1}{4}$ sec. 17, T. 3 N., R. 15 E., in the Stanislaus National Forest, about 2 miles northwest of Jupiter and about 2 $\frac{1}{2}$ miles above the junction with Stanislaus River. Eagle Creek enters 1 $\frac{1}{2}$ miles above and Knight Creek 2 $\frac{1}{2}$ miles below the station.

Records available.—September 8, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a tree on right bank, 100 feet above the bridge.

Channel.—Gravel and small boulders.

Discharge measurements.—Made by wading. No measurements were made during 1912.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

Daily gage height, in feet, of Rose Creek near Jupiter, Cal., for 1911-12.

[John M. Longdon, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.					0.70							
2.						0.55	0.65			0.15		
3.											0.05	
4.												
5.									0.41			
6.			0.62		.60		.60			.12		
7.												
8.			.52						.30			
9.						.95				.12		
10.					.57							
11.		0.50							.35			
12.			.50	0.75		1.00						
13.	0.25	.45			.55					.10		
14.		.47		.75								
15.												
16.			.49			1.02	.88			.12		
17.					.54							
18.						.97	.82					
19.		.43										
20.				.72	.53							
21.						.95						
22.				.65			.75		.25			
23.												
24.								0.75				
25.									.30			
26.				1.10								
27.					.52		.80	.77				
28.						.72						
29.				.85					.25			
30.								.80				
31.												

KNIGHT CREEK NEAR JUPITER, CAL.

Location.—At trail ford in the SE. $\frac{1}{4}$ sec. 8, T. 3 N., R. 15 E., in the Stanislaus National Forest, about 5 miles west of Jupiter. Knight Creek joins Rose Creek about 2 miles below the station.

Records available.—September 9, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on right bank, 10 feet above trail crossing.

Channel.—Gravel and sand and is smooth.

Discharge measurements.—Made by wading. No measurements were made during 1912.

Diversions.—A small amount of water is diverted for irrigation above the station.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

Daily gage height, in feet, of Knight Creek near Jupiter, Cal., for 1911-12.

[H. C. Summers, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	0.1					0.30			0.30			
2.		0.2	0.45	0.45								
3.					0.45		0.30	0.40			0.05	
4.						.30						
5.		.25										
6.			.45	.50						0.15		
7.					.45	.65						
8.		.3							.30			
9.								.40				
10.	.2						.50				.05	
11.			.45	.60		.50						
12.					.45							
13.										.1		
14.	.2	.3						.40				
15.							.40		.20			
16.			.45	.50		.40						
17.	.2	.35			.40							
18.							.40	.30				
19.			.5	.50		.40						
20.										.05		
21.	.2	.35			.40							
22.			.45						.20			
23.							.40					
24.				.45								
25.						.40		.30				
26.	.2	.4	.5									
27.							.40			.05		
28.					.30							
29.			.5						.15			
30.		.45		.45		.30	.50	.30				
31.	.2											

SOUTH FORK OF STANISLAUS RIVER NEAR CONFIDENCE, CAL.

Location.—At the Sonora-Bridgeport State highway bridge at Strawberry, in the Stanislaus National Forest, in the SE. $\frac{1}{4}$ sec. 17, T. 4 N., R. 18 E., $1\frac{1}{2}$ miles below mouth of Herring Creek, and 15 miles northeast of Confidence.

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

Drainage area.—About 54 square miles.

Gage.—Vertical staff on left bank at bridge.

Channel.—Gravel and boulders.

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

Winter flow.—Probably affected by ice.

Diversions and storage.—Three storage reservoirs have been constructed above the station to supply Tuolumne and Sonora with water for domestic use. This water is diverted about 10 miles below the station. Flow is partially regulated by storage.

Accuracy.—Rating curve well defined and results are good.

Cooperation.—Discharge measurements have been furnished by United States Forest Service and Sierra & San Francisco Power. Co.

Discharge measurements of South Fork of Stanislaus River near Confidence, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		Feet.	Sec.-ft.	1912.		Feet.	Sec.-ft.
Oct. 20	H. J. Tompkins.....	1.35	8.7	June 8	Sierra & San Francisco Power Co.....	3.55	488
1912.				July 7do.....	2.20	107
May 22	Sierra & San Francisco Power Co.....	2.80	228	11do.....	2.10	78
23do.....	2.60	157	18do.....	1.90	49
28do.....	4.00	645	26do.....	1.70	30

Daily gage height, in feet, of South Fork of Stanislaus River near Confidence, Cal., for 1911-12.

[Charles Counts, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		1.65	1.2	1.2	1.60	1.40	1.4	1.9	4.5	2.4	1.50	1.95
2		1.7	1.2	1.2	1.65	1.40	1.4	1.9	4.4	2.35	1.50	1.95
3		1.6	1.2	1.2	1.65	1.40	1.4	1.95	4.5	2.3	1.50	1.95
4		1.62	1.2	1.2	1.65	1.45	1.42	2.0	4.7	2.3	1.50	1.90
5		1.6	1.2	1.2	1.65	1.55	1.48	2.0	4.4	2.2	1.48	1.88
6		1.52	1.22	1.2	1.65	1.6	1.50	2.05	4.4	2.2	1.92	1.82
7		1.52	1.2	1.3	1.60	1.7	1.50	2.10	4.2	2.2	2.40	1.90
8		1.5	1.2	1.3	1.50	1.6	1.65	2.2	3.8	2.2	2.40	1.90
9		1.5	1.2	1.4	1.45	1.6	1.7	2.3	3.2	2.1	2.40	1.80
10		1.5	1.2	1.4	1.45	1.5	1.7	2.5	3.2	2.1	2.40	1.80
11		1.48	1.2	1.4	1.45	1.5	1.7	2.75	3.8	2.0	2.40	1.40
12		1.45	1.2	1.45	1.45	1.5	1.7	3.2	3.4	2.0	2.10	1.40
13		1.48	1.2	1.45	1.45	1.5	1.75	3.4	3.4	2.0	1.80	1.38
14		1.5	1.2	1.6	1.45	1.5	1.7	3.4	3.4	2.0	1.80	1.35
15		1.6	1.2	1.65	1.45	1.5	1.65	3.4	3.2	2.0	1.75	1.35
16		1.35	1.2	1.65	1.45	1.4	1.6	3.6	2.95	1.90	1.65	1.35
17		1.45	1.2	1.65	1.45	1.3	1.65	4.0	2.95	1.90	1.60	1.35
18		1.3	1.2	1.6	1.50	1.3	1.6	3.8	2.9	1.90	1.45	1.32
19		1.35	1.2	1.7	1.55	1.32	1.6	3.8	3.0	1.90	1.40	1.30
20		1.3	1.2	1.7	1.55	1.3	1.55	3.0	3.2	1.90	1.40	1.30
21	1.8	1.3	1.2	1.7	1.50	1.3	1.55	2.95	2.85	1.90	1.40	1.30
22	1.78	1.3	1.2	1.7	1.42	1.35	1.55	2.75	2.6	1.80	1.75	1.30
23	1.72	1.25	1.2	1.7	1.45	1.4	1.55	2.6	2.55	1.80	1.80	1.30
24	1.7	1.25	1.2	1.7	1.45	1.4	1.60	2.6	2.45	1.78	1.80	1.30
25	1.7	1.25	1.2	1.7	1.45	1.4	1.65	2.9	2.45	1.70	1.80	1.30
26	1.7	1.25	1.2	1.7	1.42	1.4	1.70	2.9	2.4	1.70	1.80	1.30
27	1.68	1.22	1.2	1.7	1.40	1.4	1.75	2.9	2.4	1.70	1.90	1.30
28	1.62	1.2	1.2	1.65	1.40	1.4	1.75	3.4	2.4	1.65	1.90	1.30
29	1.62	1.2	1.2	1.6	1.40	1.4	1.85	4.1	2.4	1.60	1.95	1.30
30	1.6	1.2	1.2	1.6	-----	1.4	1.90	4.0	2.4	1.60	2.00	1.30
31	1.62	-----	1.2	1.6	-----	1.4	-----	4.2	-----	1.60	1.95	-----

Daily discharge, in second-feet, of South Fork of Stanislaus River near Confidence, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		26	4	4	22	10	10	51	918	129	15	57
2		30	4	4	26	10	10	51	868	120	15	57
3		22	4	4	26	10	10	57	918	111	15	57
4		24	4	4	26	12	11	63	1,020	111	15	51
5		22	4	4	26	18	14	63	868	94	14	49
6		16	5	4	26	22	15	70	868	94	53	42
7		16	4	7	22	30	15	78	768	94	129	51
8		15	4	7	15	22	26	94	576	94	129	51
9		15	4	10	12	22	30	111	339	78	129	40
10		15	4	10	12	15	30	148	339	78	129	40
11		14	4	10	12	15	30	202	576	63	129	10
12		12	4	12	12	15	30	339	411	63	78	10
13		14	4	12	12	15	35	411	411	63	40	9
14		15	4	22	12	15	30	411	411	63	40	8
15		22	4	26	12	15	26	411	339	63	35	8
16		8	4	26	12	10	22	490	258	51	26	8
17		12	4	26	12	7	26	670	258	51	22	8
18		7	4	22	15	7	22	576	243	51	12	8
19		8	4	30	18	8	22	576	273	51	10	7
20		7	4	30	18	7	18	273	339	51	10	7
21	40	7	4	30	15	7	18	258	229	51	10	7
22	38	7	4	30	11	8	18	202	168	40	35	7
23	32	6	4	30	12	10	18	168	158	40	40	7
24	30	6	4	30	12	10	22	168	138	38	40	7
25	30	6	4	30	12	10	26	243	138	30	40	7
26	30	6	4	30	11	10	30	243	129	30	40	7
27	28	5	4	30	10	10	35	243	129	30	51	7
28	24	4	4	26	10	10	35	411	129	26	51	7
29	24	4	4	22	10	10	46	718	129	22	57	7
30	22	4	4	22	-----	10	51	670	129	22	63	7
31	24	-----	4	22	-----	10	-----	768	-----	22	57	-----

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

Monthly discharge of South Fork of Stanislaus River near Confidence, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 21-31	40	22	29.3	639	A.
November	30	4	12.5	744	B.
December	5	4	4.0	246	B.
January	30	4	18.6	1,140	B.
February	26	10	15.6	897	B.
March	30	7	12.6	775	B.
April	51	10	24.4	1,450	A.
May	768	51	298	18,300	A.
June	1,020	129	416	24,800	A.
July	129	22	62.1	3,820	A.
August	129	10	49.3	3,030	A.
September	57	7	21.6	1,290	A.
The period				57,100	

SOUTH FORK OF STANISLAUS RIVER NEAR COLUMBIA, CAL.

Location.—At highway bridge at Italian Bar, in the Stanislaus National Forest, in the SE. $\frac{1}{4}$ sec. 33, T. 3 N., R. 15 E., about 5 miles northeast of Columbia. Deer Creek enters about $4\frac{1}{2}$ miles above and Fivemile Creek $1\frac{1}{2}$ miles below the station.

Records available.—September 6, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to middle pier of bridge.

Channel.—Solid rock, boulders, and gravel.

Discharge measurements.—Made from bridge or by wading. No measurements were made during 1911 and 1912.

Diversions.—About 11 miles above the station water is diverted for domestic use at Sonora and Tuolumne. Flow is partially regulated by storage.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are available.

Daily gage height, in feet, of South Fork of Stanislaus River near Columbia, Cal., for 1911-12.

[J. M. Longdon, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.
1								16							
2								17		0.60					
3		0.65						18							
4							0.65	19							
555			0.64			20							
6								21			0.55				
7						1.35		22	0.55						
8								2355					
9				0.70				2450				
10								25							
11								26							
1260			2755					
13								28							
14								2957				
1595	30							
								31						0.70	

CALAVERAS RIVER AT JENNY LIND, CAL.

Location.—At highway bridge on Milton road, in the SE. $\frac{1}{4}$ sec. 22, T. 3 N., R. 10 E., about one-fourth mile southeast of Jenny Lind, and 27 miles above junction with San Joaquin River. North and South forks unite about 15 miles above the station.

Records available.—January 1 to June 30, 1907; December 1, 1907, to June 30, 1908; and November 1, 1908, to September 30, 1912.

Drainage area.—395 square miles.

Gage.—Vertical staff in two sections. High-water section is on downstream end of middle pier of bridge; low water is underneath bridge on right bank.

Channel.—Gravel and small bowlders; shifts considerably at high stages.

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

Storage.—A small amount of storage is developed at Salt Springs Valley for use in connection with dredging operations below Jenny Lind. Stored water was released about September 5 in 1912.

Accuracy.—Results are good.

Cooperation.—Gage-height record during the high-water season, December to June, is furnished by the United States Weather Bureau through N. R. Taylor, local forecaster.

Discharge measurements of Calaveras River at Jenny Lind, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
1911. Dec. 1	F. C. Ebert.....	-0.13	43	1912. Apr. 10	J. E. Stewart.....	0.03	85
1	Lasley Lee.....	-.13	43	May 26do.....	.80	364
				July 10do.....	-.58	4.6

NOTE.—Measurements made by wading Apr. 10 and July 10, 1912; others made from bridge.

Daily gage height, in feet, of Calaveras River at Jenny Lind, Cal., for 1911-12.

[Paul F. Sinclair, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-0.2	-0.1	0.0	0.2	0.5	0.0	0.2	0.3	0.2	-0.3	-0.8	-0.7
2.....	-.2	-.1	.0	.3	.4	.0	.2	.3	.2	-.3	-.8	-.7
3.....	-.2	-.1	.0	.3	.3	.0	.2	.2	.1	-.4	-.8	-.7
4.....	-.2	-.1	.0	.3	.3	.0	.2	.2	.1	-.4	-.8	-.7
5.....	-.2	-.1	.0	.3	.2	.0	.2	.2	.1	-.4	-.8	-.6
6.....	-.2	-.1	.0	.3	.2	.5	.1	.2	.1	-.4	-.8	-.5
7.....	-.2	-.1	.0	.3	.2	1.4	.1	.2	.1	-.5	-.8	-.4
8.....	-.2	-.1	.0	.3	.2	.8	.1	.2	.1	-.5	-.8	-.4
9.....	-.2	-.1	.0	.3	.2	.6	.1	.2	.0	-.5	-.8	-.4
10.....	-.2	.0	.0	.3	.2	.5	.2	.2	.0	-.58	-.75	-.3
11.....	-.2	.0	.0	.3	.1	.4	.8	.2	.0	-.6	-.75	-.3
12.....	-.2	.0	.0	.4	.1	.3	.7	.2	.0	-.6	-.75	-.3
13.....	-.2	.0	.0	.4	.0	1.8	.3	.2	.0	-.6	-.75	-.3
14.....	-.2	.0	.0	.4	.0	1.0	.2	.1	-.1	-.6	-.75	-.3
15.....	-.15	.0	.0	.3	.0	.9	.2	.1	-.1	-.65	-.75	-.2
16.....	-.15	.0	.0	.3	.0	1.4	.2	.1	-.1	-.65	-.75	-.2
17.....	-.15	.0	+	.3	.0	.7	.2	.1	-.1	-.7	-.7	-.3
18.....	-.15	.0	.1	.3	.0	.5	.2	.0	-.1	-.7	-.7	-.3
19.....	-.15	.0	.1	.3	.0	.4	.2	.0	-.1	-.7	-.7	-.3
20.....	-.1	.0	.1	.3	.0	.3	.2	.0	-.1	-.7	-.7	-.3
21.....	-.1	.0	.1	.3	.0	.3	.2	.0	-.2	-.7	-.7	-.3
22.....	-.1	.0	.1	.3	.0	.3	.2	.0	-.2	-.75	-.7	-.3
23.....	-.1	.0	.1	.3	.0	.2	.2	.0	-.2	-.75	-.7	-.3
24.....	-.1	.0	.1	.3	.0	.2	.2	.0	-.2	-.75	-.7	-.3
25.....	-.1	.0	.1	.3	.0	.2	.2	.0	-.2	-.75	-.7	-.3
26.....	-.1	.0	.1	.3	.0	.2	.2	.4	-.2	-.75	-.7	-.3
27.....	-.1	.0	.1	1.5	.0	.2	.2	.5	-.3	-.75	-.7	-.3
28.....	-.1	.0	.1	.6	.0	.2	.2	.3	-.3	-.8	-.7	-.3
29.....	-.1	.0	.1	.5	.0	.2	.2	.2	-.3	-.8	-.7	-.3
30.....	-.1	.0	.2	.52	.3	.2	-.3	-.8	-.7	-.3
31.....	-.12	.522	-.8	-.7

Daily discharge, in second-feet, of Calaveras River at Jenny Lind, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	32	46	64	112	215	64	130	161	130	27	1	2
2.....	32	46	64	142	176	64	130	161	130	27	1	2
3.....	32	46	64	142	142	64	130	130	102	17	1	2
4.....	32	46	64	142	142	64	130	130	102	17	1	2
5.....	32	46	64	142	112	64	130	130	102	17	1	4
6.....	32	46	64	142	112	215	102	130	102	17	1	8
7.....	32	46	64	142	112	745	102	130	102	9	1	12
8.....	32	46	64	142	112	356	102	130	102	9	1	12
9.....	32	46	64	142	112	258	102	130	78	9	1	12
10.....	32	64	64	142	112	215	130	130	78	5	2	17
11.....	32	64	64	142	86	176	365	130	78	4	2	17
12.....	32	64	64	176	86	142	319	130	78	4	2	17
13.....	32	64	64	176	64	1,120	161	130	78	4	2	17
14.....	32	64	64	176	64	470	130	102	57	4	2	17
15.....	39	64	64	142	64	415	130	102	57	3	2	17
16.....	39	64	64	142	64	745	130	102	57	3	2	17
17.....	39	64	86	142	64	319	130	102	57	2	2	17
18.....	39	64	86	142	64	233	130	78	57	2	2	17
19.....	39	64	86	142	64	195	130	78	57	2	2	17
20.....	46	64	86	142	64	161	130	78	57	2	2	17
21.....	46	64	86	142	64	161	130	78	40	2	2	17
22.....	46	64	86	142	64	161	130	78	40	2	2	17
23.....	46	64	86	142	64	130	130	78	40	2	2	17
24.....	46	64	86	142	64	130	130	78	40	2	2	17
25.....	46	64	86	142	64	130	130	78	40	2	2	17
26.....	46	64	86	142	64	130	130	195	40	2	2	17
27.....	46	64	86	830	64	130	130	233	27	2	2	17
28.....	46	64	86	258	64	130	130	161	27	1	2	17
29.....	46	64	86	215	64	130	130	130	27	1	2	17
30.....	46	64	112	215	130	161	130	27	1	2	17
31.....	46	112	215	130	130	1	2

NOTE.—Daily discharge determined from rating curves applicable as follows: Mar. 7, 1911, to Mar. 13, 1912, well defined at low stages; Mar. 14, 1912, to Sept. 4, 1912, fairly well defined; Sept. 5-30, 1912, fairly well defined.

Monthly discharge of Calaveras River at Jenny Lind, Cal., for 1911-12.

[Drainage area, 395 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	46	32	38.5	0.098	0.11	2,370	C.
November.....	64	46	58.6	.148	.17	3,490	C.
December.....	112	64	76.3	.193	.22	4,690	C.
January.....	830	112	177	.448	.52	10,900	B.
February.....	215	64	93.3	.236	.25	5,370	C.
March.....	1,120	64	244	.618	.71	15,000	B.
April.....	365	102	142	.359	.40	8,450	B.
May.....	233	78	121	.306	.35	7,440	B.
June.....	130	27	67.	.170	.19	3,990	B.
July.....	27	1	6.5	.016	.02	400	C.
August.....	2	1	1.7	.0043	.005	105	C.
September.....	17	2	13.8	.035	.04	821	B.
The year.....	1,120	1	86.7	.219	2.98	63,000	

MOKELUMNE RIVER NEAR CLEMENTS, CAL.

Location.—At highway bridge in the NW. $\frac{1}{4}$ sec. 15, T. 4 N., R. 8 E., about 1 mile north of Clements. The North and Middle forks of the Mokelumne unite about 35 miles above Clements. Cosumnes River enters about $19\frac{1}{2}$ miles below the station.

Records available.—October 28, 1904, to September 30, 1912.

Drainage area.—642 square miles.

Gage.—Painted on middle bridge pier with inclined section on right bank for low water.

Channel.—Sand and gravel, and slightly shifting.

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

Diversions.—Several small ditches divert water for mining and local irrigation above the station. Power is developed on the North Fork and part of the water is not returned to the stream. Flow is partly regulated by storage.

Accuracy.—Rating curve is fairly well defined and results are good.

Discharge measurements of Mokelumne River near Clements, Cal., in 1912.

[Hydrographer, J. E. Stewart.]

Date.	Gage height.	Discharge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 9.....	4.90	708
May 13.....	8.38	3,300
May 25.....	7.26	2,180
July 9.....	3.66	176

NOTE.—Measurement July 9, 1912, made by wading below gage; all others made from bridge. All measurements refer to inclined gage.

Daily gage height, in feet, of Mokelumne River near Clements, Cal., for 1911-12.

[Reba Gaskill, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.95	3.25	3.5	3.85	3.65	3.45	4.15	5.5	9.2	3.7	3.35	2.75
2.....	4.05	3.5	3.35	3.9	3.7	3.35	4.25	5.6	9.8	3.6	3.45	2.9
3.....	3.65	3.35	3.45	3.65	3.6	3.25	4.35	5.3	10.0	3.6	3.45	3.0
4.....	3.55	3.5	3.3	3.75	3.6	3.35	4.55	5.4	9.7	3.4	2.95
5.....	3.5	3.3	3.35	3.65	3.55	3.35	4.45	5.6	9.4	3.4	3.35
6.....	3.55	3.6	3.25	3.6	3.6	3.9	4.55	5.6	9.6	3.7	3.35	3.35
7.....	3.4	3.6	3.2	3.7	3.65	5.5	4.45	6.0	8.8	3.45	3.45
8.....	3.6	3.5	3.3	3.85	3.75	5.2	4.6	6.2	8.2	3.4	3.55
9.....	3.35	3.65	3.35	3.75	3.55	4.7	4.9	6.4	7.6	3.6	3.4	3.4
10.....	3.15	3.4	3.35	3.7	3.6	4.3	5.1	6.2	7.9	3.6	3.4	3.65
11.....	3.35	4.3	3.3	3.9	3.65	4.05	5.6	7.2	8.2	3.5	3.25	3.5
12.....	3.35	4.2	3.45	4.1	3.6	4.0	5.4	7.6	8.0	3.55	3.2	3.45
13.....	3.25	3.95	3.25	4.15	3.75	4.85	5.0	8.0	7.6	3.5	3.3	3.65
14.....	3.3	3.8	3.3	3.75	3.8	4.75	4.6	7.8	7.2	3.55	3.05	3.6
15.....	3.25	3.5	3.6	3.75	4.65	4.5	8.7	6.8	3.35	3.05	3.45
16.....	3.25	3.45	3.7	3.55	4.3	4.55	8.6	6.4	3.5	3.0	3.55
17.....	3.4	3.65	3.6	3.85	3.7	4.35	9.2	5.8	3.45	3.0	3.5
18.....	3.55	3.7	3.55	4.0	3.8	4.15	4.35	6.3	3.55	3.1	3.65
19.....	3.3	3.8	3.35	4.25	3.8	4.3	4.15	8.5	6.2	3.6	2.9	3.45
20.....	3.1	3.6	3.35	3.75	3.65	4.0	4.25	8.0	5.7	3.65	2.7	3.4
21.....	3.1	3.65	3.25	3.75	3.7	3.7	4.05	7.8	6.2	3.55	2.65	3.45
22.....	3.0	3.75	3.2	3.7	3.6	3.7	4.15	6.6	5.6	3.55	2.75	3.25
23.....	3.35	3.8	3.2	3.6	3.65	3.7	4.05	5.0	4.95	3.5	2.9	3.15
24.....	3.3	3.9	3.35	3.5	3.55	3.95	4.4	5.0	4.75	3.65	2.8	2.95
25.....	3.35	3.75	3.35	3.55	3.5	3.8	4.7	6.8	4.3	3.45	3.0	2.8
26.....	3.6	3.65	3.25	3.6	3.55	3.85	4.8	7.9	4.25	3.4	3.05	3.05
27.....	3.2	3.6	3.25	3.7	3.5	3.95	4.65	7.8	4.2	3.45	3.0	2.95
28.....	3.35	3.65	3.35	3.95	3.45	4.05	4.4	7.6	4.1	3.65	2.85	2.75
29.....	3.55	3.55	3.4	3.9	3.4	4.2	5.0	9.2	3.95	3.4	2.9	2.85
30.....	3.4	3.45	3.7	3.7	4.2	5.6	9.6	3.8	3.35	2.95	2.55
31.....	3.2	3.8	3.65	4.1	9.9	3.45	2.9

Daily discharge, in second-feet, of Mokelumne River near Clements, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	275	112	160	245	192	150	338	940	4,020	194	123	46
2.....	305	160	130	260	205	130	372	1,000	4,680	170	140	62
3.....	192	130	150	192	180	112	408	830	4,920	170	140	74
4.....	170	160	120	218	180	130	485	885	4,570	178	131	68
5.....	160	120	130	192	170	130	445	1,000	4,240	186	131	123
6.....	170	180	112	180	180	260	485	1,000	4,460	194	123	123
7.....	140	180	105	205	192	940	445	1,250	3,600	186	140	140
8.....	180	160	120	245	218	780	505	1,380	3,000	178	131	160
9.....	130	192	130	218	170	545	635	1,520	2,460	170	131	131
10.....	98	140	130	205	180	390	730	1,380	2,730	170	131	182
11.....	130	390	120	260	192	305	1,000	2,130	3,000	149	108	149
12.....	130	355	150	320	180	290	885	2,460	2,820	160	101	140
13.....	112	275	112	338	218	612	680	2,820	2,460	149	115	182
14.....	120	230	120	218	230	568	505	2,640	2,130	160	80	170
15.....	112	217	160	180	218	525	465	3,500	1,820	123	80	140
16.....	112	205	150	205	170	390	485	3,400	1,520	149	74	160
17.....	140	192	180	245	205	364	408	4,020	1,120	140	74	149
18.....	170	205	170	290	230	338	408	3,660	1,460	160	87	123
19.....	120	230	130	372	230	390	338	3,300	1,380	170	62	140
20.....	90	180	130	218	192	290	372	2,820	1,060	182	41	131
21.....	90	192	112	218	205	205	305	2,640	1,380	160	36	140
22.....	75	218	105	205	180	205	338	1,670	1,000	160	46	108
23.....	130	230	105	180	192	205	305	680	658	149	62	94
24.....	120	260	130	160	170	275	425	680	568	182	51	68
25.....	130	218	130	170	160	230	545	1,820	390	140	74	51
26.....	180	192	112	180	170	245	590	2,730	372	131	80	80
27.....	105	180	112	205	160	275	525	2,640	355	140	74	68
28.....	130	192	130	275	150	305	425	2,460	320	182	56	46
29.....	170	170	140	260	140	355	680	4,020	275	131	62	56
30.....	140	150	205	205	355	1,000	4,460	230	123	68	28
31.....	105	230	192	320	4,800	140	62

NOTE.—Daily discharge determined from two rating curves applicable as follows: Feb. 1, 1911, to June 30, 1912, fairly well defined; July 1 to Sept. 30, 1912, poorly defined below 74 second-feet (gage height 3 feet), well defined between 74 and 680 second-feet (gage heights 3 and 5 feet), and fairly well defined above 680 second-feet. Discharge interpolated for days when gage was not read.

Monthly discharge of Mokelumne River near Clements, Cal., for 1911-12.

[Drainage area, 642 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.....	305	75	143	0.223	0.26	8,790	A.
November.....	390	112	200	.312	.35	11,900	A.
December.....	230	105	136	.212	.24	8,360	A.
January.....	372	160	228	.355	.41	14,000	A.
February.....	230	140	188	.293	.32	10,800	A.
March.....	940	112	342	.533	.61	21,000	A.
April.....	1,000	305	518	.807	.90	30,800	A.
May.....	4,800	680	2,280	3.55	4.09	140,000	A.
June.....	4,920	230	2,100	3.27	3.65	125,000	A.
July.....	194	123	161	.251	.29	9,900	A.
August.....	140	36	90.8	.141	.16	5,580	A.
September.....	182	28	111	.173	.19	6,600	A.
The year.....	4,920	28	541	.843	11.47	393,000	

MIDDLE FORK OF MOKELUMNE RIVER NEAR WEST POINT, CAL.

Location.—Above highway bridge, in sec. 10, T. 6 N., R. 13 E., $3\frac{1}{2}$ miles above junction with the South Fork, $1\frac{1}{4}$ miles below mouth of Bear Creek, and 1 mile south of West Point.

Records available.—October 9, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections, fastened to trees on right bank, 1,000 feet above bridge.

Channel.—Boulders and gravel.

Discharge measurements.—Made from car and cable one-half mile above gage or by wading.

Diversions.—Mokelumne Hill and Valley Springs ditch (capacity, about 6 second-feet) diverts about 2 miles above the station.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of Middle Fork of Mokelumne River near West Point, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 9	F. C. Ebert.....	3.10	16
Nov. 24	do.....	3.00	12
1912.			
Feb. 1	J. E. Stewart.....	3.38	30
Mar. 13	do.....	3.70	59
May 9	do.....	3.98	85
11	do.....	3.92	76

NOTE.—All made by wading.

Daily gage height, in feet, of Middle Fork of Mokelumne River near West Point, Cal., for 1911-12.

[Clarence Sorensen and Russel Bardsley, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.99	2.95	3.28	3.40	3.18	3.38	4.20	3.75			
2.....		2.99	2.95	3.40	3.32	3.30	3.40	4.10	3.71			
3.....		2.92	2.95	3.10	3.30	3.20	3.45		3.62			
4.....		2.95	2.95	3.30	3.30	3.30	3.45		3.60			
5.....		2.93	2.95	3.70	3.30	3.50	3.40	4.00	3.55			
6.....		2.92	3.00	3.30	3.30	4.55	3.40	3.90	3.50			
7.....		2.94	3.00	3.40	3.29	4.00	3.40	3.91	3.45			2.95
8.....		2.95	2.98	3.30	3.29	3.80	3.40	3.95	3.40			2.90
9.....	3.10	3.60	2.98	3.30	3.25	3.79	3.45	3.99	3.40			2.85
10.....	3.08	3.12	2.99	3.90	3.20	3.60	3.65	3.92	3.38			2.80
11.....	3.04	3.06	2.99	3.50	3.23	3.65	3.55	3.90	3.41			2.78
12.....	3.04	3.04	2.99	3.40	3.20	3.70	3.51	3.85	3.40			2.75
13.....	3.00	3.03	3.00	3.31	3.25	3.70	3.49	3.85	3.35			2.74
14.....	3.00	3.01	3.00	3.30	3.23	3.60	3.49	3.81	3.30			2.75
15.....	3.00	3.01	3.00	3.30	3.23	3.80	3.50	3.80	3.28			2.73
16.....	2.99	3.01	3.00	3.50	3.20	3.75	3.51	3.80	3.20			2.78
17.....	2.99	3.01	3.06	3.40	3.20	3.70	3.51	3.79	3.15			2.78
18.....	2.99	3.01	3.01	3.42	3.20	3.60	3.51	3.78	3.15			2.75
19.....	2.98	3.00	3.01	3.40	3.21	3.60	3.50	3.75	3.10			2.74
20.....	2.95	3.00	3.10	3.35	3.20	3.55	3.51	4.10	3.12			2.75
21.....	2.93	3.00	3.10	3.35	3.20	3.55	3.51	3.89	3.10			2.74
22.....	2.95	3.00	3.10	3.30	3.20	3.50	3.40	3.79	3.15			2.73
23.....	3.01	3.00	3.10	3.30	3.20	3.49	3.42	3.81	3.12			2.75
24.....		3.00	3.07	3.29	3.18	3.49	3.50	3.85	3.08			2.70
25.....		2.99	3.34	3.29	3.18	3.49	3.49	3.89	3.05			2.70
26.....		3.00	3.34	4.10	3.15	3.49	3.68	4.35	3.03			2.70
27.....		2.95	3.28	3.59	3.15	3.49	3.60	4.20	3.01			2.70
28.....		2.95	3.28	3.50	3.15	3.48	3.60	4.00	3.00			2.70
29.....		2.95	3.28	3.48	3.15	3.48	4.20	4.00	3.02			2.72
30.....	3.00	2.95	3.28	3.40		3.40	4.00	3.90	3.01			2.70
31.....	2.99		3.30	3.40		3.40		3.80				

NOTE.—No readings July 1 to Sept. 6, 1912.

Daily discharge, in second-feet, of Middle Fork of Mokelumne River near West Point, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		12	10	24	31	19	30	113	60			
2.....		12	10	31	26	25	31	99	56			
3.....		9	10	16	25	20	34	95	48			
4.....		10	10	25	25	25	34	91	46			
5.....		10	10	55	25	38	31	87	42			
6.....		9	12	25	25	168	31	75	38			
7.....		10	12	31	25	87	31	76	34			10
8.....		10	11	25	25	65	31	81	31			9.0
9.....	16	46	11	25	22	64	34	86	31			7.8
10.....	15	17	12	75	20	46	50	77	30			6.6
11.....	14	14	12	38	22	50	42	75	32			6.4
12.....	14	14	12	31	20	55	39	70	31			6.1
13.....	12	13	12	26	22	55	37	70	28			6.0
14.....	12	12	12	25	22	46	37	66	25			6.1
15.....	12	12	12	25	22	65	38	65	24			5.9
16.....	12	12	12	38	20	60	39	65	20			6.4
17.....	12	12	18	31	20	55	39	64	18			6.4
18.....	12	12	12	32	20	46	39	63	18			6.1
19.....	11	12	12	31	20	46	38	60	16			6.0
20.....	10	12	16	28	20	42	39	99	17			6.1
21.....	10	12	16	28	20	42	39	74	16			6.0
22.....	10	12	16	25	20	38	31	64	18			5.9
23.....	12	12	16	25	20	37	32	66	17			6.1
24.....	12	12	15	25	19	37	38	70	15			5.6
25.....	12	12	27	25	19	37	37	74	14			5.6
26.....	12	12	27	99	18	37	53	135	13			5.6
27.....	12	10	24	45	18	37	46	113	12			5.6
28.....	12	10	24	38	18	37	46	87	12			5.6
29.....	12	10	24	37	18	37	113	87	13			5.8
30.....	12	10	24	31		31	87	75	12			5.6
31.....	12		25	31		31		65				

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated Oct. 24-29, 1911, and May 3-4, 1912.

Monthly discharge of Middle Fork of Mokelumne River near West Point, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 9-31.....	16	10	12.2	557	B.
November.....	46	9	12.7	756	B.
December.....	27	10	15.4	947	B.
January.....	99	16	33.7	2,070	A.
February.....	31	18	21.6	1,240	A.
March.....	168	19	47.7	2,930	A.
April.....	113	30	41.5	2,470	A.
May.....	135	60	80.2	4,930	A.
June.....	60	12	26.2	1,560	A.
July.....			8.0	492	D.
August.....			6.0	369	D.
September.....	10	5.6	6.28	374	C.
The period.....				18,700	

NOTE.—Mean discharge estimated by comparison with South Fork of Mokelumne as follows: July, 8 second-feet; August, 6 second-feet; and Sept. 1-6, 6 second-feet.

SOUTH FORK OF MOKELUMNE RIVER NEAR RAILROAD FLAT, CAL.

Location.—At Laidet ranch, in sec. 34, T. 6 N., R. 14 E., about 5 miles above mouth of Licking Fork and 5 miles east of Railroad Flat.

Records available.—October 23, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to alder tree on right bank 100 feet above suspension footbridge.

Channel.—Gravel.

Discharge measurements.—Made from car and cable 150 feet below gage or by wading.

Diversions.—An irrigation and power ditch, having a capacity of about 2 second-feet, diverts at base of Blue Mountain, above the station. Some water is also used for irrigation at Laidet ranch.

Accuracy.—Rating curve well defined and results are excellent.

Cooperation.—Previous to January 1, 1912, gage-height record was furnished by United States Forest Service.

Discharge measurements of South Fork of Mokelumne River near Railroad Flat, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 23	H. J. Tompkins.....	1.18	7.6
Nov. 28	Lasley Lee.....	1.19	7.4
1912.			
Feb. 2	J. E. Stewart.....	1.29	13
Mar. 4do.....	1.43	24
May 10do.....	1.86	71

NOTE.—Measurements made by wading near gage.

Daily gage height, in feet, of South Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

[Clovis Laidet, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....					1.32	1.20	1.50	1.88	1.67	1.25	1.11	1.04
2.....				1.30	1.30	1.30	1.50	1.88	1.61	1.26	1.11	1.04
3.....				1.42	1.30	1.25	1.50	1.86	1.60	1.24	1.11	1.02
4.....		1.20	1.18	1.40	1.28	1.33	1.48	1.80	1.57	1.24	1.11	1.15
5.....				1.40	1.28	1.51	1.49	1.80	1.55	1.24	1.10	1.10
6.....				1.38	1.26	1.90	1.49	1.82	1.52	1.24	1.10	1.15
7.....			1.18	1.40	1.25	1.65	1.49	1.85	1.50	1.24	1.10	1.35
8.....				1.32	1.24	1.55	1.50	1.88	1.50	1.25	1.10	1.12
9.....				1.31	1.25	1.50	1.50	1.88	1.48	1.22	1.10	1.08
10.....		1.55	1.18	1.54	1.26	1.46	1.58	1.85	1.46	1.24	1.10	1.04
11.....				1.50	1.26	1.41	1.54	1.86	1.43	1.21	1.11	1.06
12.....		1.20		1.38	1.26	1.47	1.50	1.84	1.41	1.19	1.11	1.04
13.....				1.31	1.26	1.50	1.46	1.84	1.44	1.19	1.11	1.04
14.....		1.20		1.29	1.25	1.44	1.48	1.82	1.44	1.17	1.11	1.04
15.....			1.18	1.31	1.26	1.48	1.50	1.80	1.42	1.16	1.10	1.04
16.....				1.43	1.24	1.48	1.54	1.78	1.40	1.16	1.09	1.04
17.....				1.31	1.24	1.50	1.54	1.76	1.38	1.14	1.09	1.06
18.....		1.10		1.30	1.26	1.48	1.55	1.74	1.32	1.16	1.11	1.06
19.....				1.34	1.26	1.48	1.55	1.74	1.34	1.14	1.11	1.06
20.....				1.30	1.26	1.54	1.51	1.80	1.34	1.14	1.11	1.06
21.....				1.29	1.26	1.51	1.50	1.75	1.34	1.14	1.11	1.06
22.....				1.28	1.25	1.50	1.49	1.70	1.34	1.11	1.11	1.06
23.....	1.18	1.18		1.26	1.24	1.51	1.51	1.71	1.36	1.11	1.08	1.06
24.....				1.26	1.24	1.51	1.54	1.72	1.32	1.13	1.02	1.06
25.....				1.27	1.22	1.52	1.58	1.75	1.31	1.11	1.02	1.06
26.....		1.18		1.66	1.21	1.53	1.60	2.05	1.30	1.11	1.02	1.06
27.....				1.50	1.24	1.48	1.58	1.89	1.29	1.11	1.04	1.08
28.....		1.19		1.38	1.22	1.46	1.60	1.82	1.29	1.12	1.04	1.08
29.....			1.20	1.36	1.20	1.49	1.85	1.75	1.27	1.09	1.04	1.08
30.....		1.18		1.32		1.46	1.85	1.74	1.27	1.09	1.04	1.08
31.....				1.30		1.46		1.68		1.10	1.04	

Daily discharge, in second-feet, of South Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		8	7.2	12	15	8	30	73	48	11	5.8	4.6
2.....		8	7.2	14	14	14	30	73	41	12	5.8	4.6
3.....		8	7.2	23	14	11	30	71	40	10	5.8	4.3
4.....		8	7.2	21	13	16	28	63	37	10	5.8	6.8
5.....		8	7.2	21	13	31	29	63	35	10	5.5	5.5
6.....		8	7.2	20	12	76	29	66	32	10	5.5	6.8
7.....		8	7.2	21	11	46	29	70	30	10	5.5	18
8.....		8	7.2	15	10	35	30	73	30	11	5.5	6.0
9.....		40	7.2	15	11	30	30	73	28	9.2	5.5	5.2
10.....		35	7.2	34	12	26	38	70	26	10	5.5	4.6
11.....		15	7.2	30	12	22	34	71	24	8.6	5.8	4.9
12.....		8	7.2	20	12	27	30	68	22	7.8	5.8	4.6
13.....		8	7.2	15	12	30	26	68	25	7.8	5.8	4.6
14.....		8	7.2	13	11	25	28	66	25	7.2	5.8	4.6
15.....		7	7.2	15	12	28	30	63	23	7.0	5.5	4.6
16.....		6	8	24	10	28	34	61	21	7.0	5.4	4.6
17.....		5	12	15	10	30	34	58	20	6.5	5.4	4.9
18.....		4	8	14	12	28	35	56	15	7.0	5.8	4.9
19.....		5	8	17	12	28	35	56	17	6.5	5.8	4.9
20.....		6	10	14	12	34	31	63	17	6.5	5.8	4.9
21.....		6	10	13	12	31	30	57	17	6.5	5.8	4.9
22.....		7.2	9	13	11	30	29	51	17	5.8	5.8	4.9
23.....	7.2	7.2	9	12	10	31	31	52	18	5.8	5.2	4.9
24.....	7	7.2	9	12	10	31	34	53	15	6.2	4.3	4.9
25.....	7	7.2	13	12	9.2	32	38	57	15	5.8	4.3	4.9
26.....	7	7.2	16	47	8.6	33	40	98	14	5.8	4.3	4.9
27.....	7	7.4	12	30	10	28	38	75	13	5.8	4.6	5.2
28.....	8	7.6	10	20	9.2	26	40	66	13	6.0	4.6	5.2
29.....	8	7.4	8	18	8	29	70	57	12	5.4	4.6	5.2
30.....	8	7.2	8	15	-----	26	70	56	12	5.4	4.6	5.2
31.....	8	-----	10	14	-----	26	-----	49	-----	5.5	4.6	-----

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge estimated for days on which gage was not read during Oct. 23 to Nov. 12, 1911, and Dec. 15, 1911, to Jan. 2, 1912, from discharge of Middle Fork of Mokelumne River. Discharge interpolated for days on which gage was not read from Nov. 12 to Dec. 15, 1911.

Monthly discharge of South Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 23-31.....	8	7	7.47	133	D.
November.....	a 40	4	9.41	560	C.
December.....	a 16	7.2	8.68	534	D.
January.....	47	12	18.7	1,150	A.
February.....	15	8	11.3	650	A.
March.....	76	8	28.9	1,780	A.
April.....	70	26	34.7	2,060	A.
May.....	98	49	64.4	3,960	A.
June.....	48	12	23.4	1,390	A.
July.....	12	5.4	7.71	474	A.
August.....	5.8	4.3	5.35	329	B.
September.....	18	4.3	6.47	325	B.
The period.....	-----	-----	-----	13,300	-----

a Estimated.

LICKING FORK OF MOKELUMNE RIVER NEAR RAILROAD FLAT, CAL.

Location.—At Mokelumne forest ranger station, in the E. $\frac{1}{2}$ SE. $\frac{1}{4}$ sec. 26, T. 6 N. R. 14 E., 100 feet above mouth of Big Canyon Creek, and 6 $\frac{1}{2}$ miles east of Railroad Flat. Licking Fork joins the South Fork 6 miles below the station.

Records available.—October 23, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on left bank 300 feet above the ranger station.

Channel.—Bowlders and gravel, rough.

Discharge measurements.—Made from footlog near gage or by wading.

Diversions.—An irrigation ditch, having a capacity of 1 second-foot, heads above the station.

Accuracy.—Rating curve is fairly well defined and results are fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Licking Fork of Mokelumne River near Railroad Flat, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 23	H. J. Tompkins.....	0.50	1.6
Nov. 29	Lasley Lee.....	.55	1.7
1912.			
Feb. 2	J. E. Stewart ^a63	3.7
Mar. 14	do.....	.69	5.0
May 10	do.....	.89	10

^a Wading 300 feet below gage. Small tributary estimated and deducted. (Big Canyon Creek.)

NOTE.—All measurements made by wading.

Daily gage height, in feet, of Licking Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

[J. E. Elliott, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1			0.57	0.60		0.58	0.71	1.00		0.45	0.39	
2			.57	.60		.61	.73	.99		.45	.38	
3		0.50	.57	.63	0.60	.65	.75	1.00	0.65	.45	.38	0.42
4		.52	.57	.63	.60	.75	.76	.98	.61	.44	.38	.45
5		.52	.57		.60		.76		.61	.44	.38	.50
6		.52	.57	.65	.60		.76	.97	.61	.44	.38	.56
7		.52	.57	.65	.60		.76	.93	.61	.43	.38	.42
8		.52	.57	.63	.60	.78	.75	.91	.60	.42	.38	.40
9		.53	.57	.67	.60	.70	.75	.90	.60	.42	.38	.38
10		.80	.57	.79	.60	.70	.75	.90	.60	.41	.38	
11		.60	.57	.71	.60	.66	.73	.89	.60	.41	.38	
12		.56	.57	.69	.60	.67	.71	.85	.60	.40	.38	
13			.57	.65	.60	.68	.71	.85	.60	.41	.38	
14			.57			.69	.72	.85	.58	.41	.38	
15		.57		.75		.69	.73	.78	.58	.41	.38	
16		.60		.70			.77	.71	.58		.38	
17		.58		.65			.80	.71	.58	.40	.38	
18		.56		.60			.81	.71	.56	.40	.38	
19							.80	.71	.56	.40	.38	
20		.55					.80	.84	.55	.40	.38	.40
21		.55		.61	.60		.79	.73	.54	.40	.38	.40
22		.55		.60	.60		.79	.71	.54	.40	.38	.40
23		0.50	.55	.62	.58		.75	.71	.54	.40	.38	.40
24		.50	.55	.62	.57		.80	.70	.54	.40	.38	.40
25		.49	.55	.62	.55		.80	.71	.54	.40	.38	.40
26		.55		.85	.55		.81	.72	.54	.40	.38	.40
27		.57		.70	.55			.73		.40	.38	.40
28		.57		.66	.55			.71		.40	.38	.40
29		.57		.65	.55		.94	.71		.40	.38	.40
30		.57	.60	.63		.71		.71		.40	.38	
31			.60	.63		.71				.40	.38	

Daily discharge, in second-feet, of Licking Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		1.5	2.3	2.8	3.2	2.5	5.0	14	4.4	1.1	0.6	0.7
2.....		1.5	2.3	2.8	3.0	3.0	5.4	13.5	4.0	1.1	.6	.7
3.....		1.5	2.3	3.4	2.8	3.7	5.9	14	3.7	1.1	.6	.8
4.....		1.7	2.3	3.4	2.8	5.9	6.2	13	3.0	1.0	.6	1.1
5.....		1.7	2.3	3.6	2.8	7	6.2	13	3.0	1.0	.6	1.5
6.....		1.7	2.3	3.7	2.8	13	6.2	13	3.0	1.0	.6	2.2
7.....		1.7	2.3	3.7	2.8	9	6.2	11.5	3.0	.9	.6	.8
8.....		1.7	2.3	3.4	2.8	6.7	5.9	10.5	2.8	.8	.6	.7
9.....		1.8	2.3	4.1	2.8	4.7	5.9	10.5	2.8	.8	.6	.6
10.....		7.3	2.3	7.0	2.8	4.7	5.9	10.5	2.8	.8	.6	.6
11.....		2.8	2.3	5.0	2.8	3.9	5.4	10	2.8	.8	.6	.6
12.....		2.2	2.3	4.5	2.8	4.1	5.0	8.8	2.8	.7	.6	.6
13.....		2.2	2.3	3.7	2.8	4.3	5.0	8.8	2.8	.8	.6	.6
14.....		2.3	2.3	3.5	2.8	4.5	5.2	8.8	2.5	.8	.6	.6
15.....		2.3	2.3	5.9	2.8	4.5	5.4	6.7	2.5	.8	.6	.7
16.....		2.8	2.3	4.7	2.8	5	6.5	5.0	2.5	.8	.6	.7
17.....		2.5	4	3.7	2.8	5	7.3	5.0	2.5	.7	.6	.7
18.....		2.2	3	2.8	2.8	5	7.6	5.0	2.2	.7	.6	.7
19.....		2.1	2	2.9	2.8	5	7.3	5.0	2.2	.7	.6	.7
20.....		2.0	3	2.9	2.8	6	7.3	8.5	2.0	.7	.6	.7
21.....		2.0	3	3.0	2.8	5.5	7.0	5.4	1.9	.7	.6	.7
22.....		2.0	3	2.8	2.8	5.5	7.0	5.0	1.9	.7	.6	.7
23.....	1.5	2.0	4	3.2	2.5	5	5.9	5.0	1.9	.7	.6	.7
24.....	1.5	2.0	3	3.2	2.3	5	7.3	4.7	1.9	.7	.6	.7
25.....	1.4	2.0	5	3.2	2.0	5	7.3	5.0	1.9	.7	.6	.7
26.....	1.4	2.0	6	8.8	2.0	5	7.6	5.2	1.9	.7	.6	.7
27.....	1.4	2.3	4	4.7	2.0	5	7	5.4	1.7	.7	.6	.7
28.....	1.4	2.3	3	3.9	2.0	5	7	5.0	1.6	.7	.6	.7
29.....	1.4	2.3	3	3.7	2.0	5	12	5.0	1.4	.7	.6	.7
30.....	1.5	2.3	2.8	3.4	5.0	12	5.0	1.3	.7	.6	.7
31.....	1.5	2.8	3.4	5.0	4.77	.6

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge estimated from run-off of adjacent streams Dec. 15-29, 1911; Jan. 14, Mar. 5-7, 16-29, and Apr. 27, 28, and 30, 1912. Discharge interpolated for all other days of missing gage heights.

Monthly discharge of Licking Fork of Mokelumne River near Railroad Flat, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 23-31.....	1.5	1.4	1.44	26	D.
November.....	7.3	1.5	2.22	132	C.
December.....	a 6	a 2	2.85	175	D.
January.....	8.8	2.8	3.90	240	C.
February.....	3.2	2.0	2.66	153	C.
March.....	a 13	2.5	5.27	324	C.
April.....	a 12	5.0	6.70	399	C.
May.....	14	4.7	8.08	497	B.
June.....	4.4	1.3	2.49	148	C.
July.....	1.1	.7	.80	49.2	D.
August.....	.6	.6	.60	36.9	D.
September.....	2.2	.6	.78	46.4	D.
The period.....	2,230

DRY CREEK NEAR IONE, CAL.

Location.—At private highway bridge at Landis ranch, in southwestern part of Arroyo Seco grant, 2½ miles below mouth of Jackson Creek, and 7 miles south-west of Ione.

Records available.—October 7, 1911, to June 30, 1912, when station was abandoned.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections; lower section is fastened to bridge pier near right bank; upper section to a tree 300 feet to the right of bridge.

Channel.—Sand; will shift during high water.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Small diversions for local irrigation and mining above the station.

A small ditch diverts water from North Fork of Mokelumne River into this drainage basin.

Accuracy.—Sufficient measurements have not been made to define the high-water section of the rating curve. Results at low and medium stages are good; at high water they are approximate. During the summer months this stream is dry.

Discharge measurements of Dry Creek near Ione, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 7 ^a	F. C. Ebert.....	<i>Feet.</i> 1.67	<i>Sec.-ft.</i> 0.2
1912. Jan. 31 ^b	J. E. Stewart.....	2.47	58
Mar. 12 ^bdo.....	2.69	82
May 12 ^cdo.....	2.20	26

^a Estimated.

^b Bridge.

^c Wading 40 feet above gage.

Daily gage height, in feet, of Dry Creek near Ione, Cal., for 1911-12.

[Chas. W. Landis, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....		2.0	2.0	2.7	2.5	2.0	2.2	2.4	2.0
2.....		1.9	2.0	2.5	2.5	2.0	2.2	2.4	1.8
3.....		1.9	2.0	2.5	2.4	2.0	2.2	2.4	1.6
4.....		1.9	2.0	2.3	2.4	2.0	2.1	2.4	1.4
5.....		1.9	2.0	2.3	2.3	2.0	2.1	2.3	1.2
6.....		1.8	2.0	2.2	2.3	6.0	2.1	2.3	.8
7.....	1.5	1.8	2.0	2.2	2.2	4.5	2.0	2.3	.6
8.....	1.7	1.9	2.0	2.3	2.1	4.0	2.0	2.2	1.2
9.....	1.6	1.9	2.0	2.4	2.0	3.5	2.0	2.2	1.2
10.....	1.8	2.5	2.0	2.7	2.0	3.3	2.8	2.2	
11.....	1.8	2.7	2.0	3.2	2.0	3.0	3.5	2.2	.8
12.....	1.8	2.2	2.0	2.6	2.0	2.7	3.3	2.2	.8
13.....	1.8	2.3	2.0	2.4	2.0	4.0	3.0	2.2	.6
14.....	1.8	2.1	2.0	2.1	2.0	3.5	2.8	2.2	
15.....	1.8	2.0	2.0	2.1	2.0	3.5	2.8	2.2	
16.....	1.8	2.0	2.0	2.5	2.0	4.0	2.8	2.2	
17.....	1.8	2.0	2.2	2.4	2.0	3.4	2.8	2.1	
18.....	1.8	2.0	2.2	3.3	2.0	3.0	2.6	2.1	
19.....	1.8	2.1	2.1	2.6	2.0	2.8	2.5	2.0	
20.....	1.8	2.1	2.1	2.5	2.0	2.8	2.5	2.0	
21.....	1.8	2.1	2.1	2.5	2.0	2.6	2.5	2.5	
22.....	1.7	2.1	2.0	2.4	2.0	2.6	2.5	2.2	
23.....	1.7	2.0	2.0	2.4	2.0	2.4	2.5	2.1	
24.....	1.8	2.0	2.0	2.4	2.0	2.3	2.5	2.1	
25.....	1.8	2.0	2.0	2.4	2.0	2.2	2.5	2.3	
26.....	1.8	2.0	2.0	2.9	2.0	2.1	2.5	3.5	
27.....	1.8	2.0	2.0	5.0	2.0	2.1	2.5	2.6	
28.....	1.8	2.0	2.6	3.4	2.0	2.1	2.5	2.5	
29.....	1.9	2.0	2.4	3.0	2.0	2.1	2.5	2.3	
30.....	2.6	2.0	2.2	2.6		2.0	2.5	2.2	
31.....	1.9		2.2	2.5				2.1	

Note.—Creek was dry July 10 to Oct. 6, 1911. Water standing in pools June 16-21, 1912, and dry June 22-30, 1912.

Daily discharge, in second-feet, of Dry Creek near Ione, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....		12	12	88	59	12	26	46	12
2.....		7.0	12	59	59	12	26	46	3.0
3.....		7.0	12	59	46	12	26	46	.1
4.....		7.0	12	35	46	12	19	46	.0
5.....		7.0	12	35	35	12	19	35	.0
6.....		3.0	12	26	35	1,020	19	35	.0
7.....	0.0	3.0	12	26	26	525	12	35	.0
8.....	.5	7.0	12	35	19	380	12	26	.0
9.....	.1	7.0	12	46	12	250	12	26	.0
10.....	3.0	59	12	88	12	202	104	26	.0
11.....	3.0	88	12	180	12	140	250	26	.0
12.....	3.0	26	12	73	12	88	202	26	.0
13.....	3.0	35	12	46	12	380	140	26	.0
14.....	3.0	19	12	19	12	250	104	26	.0
15.....	3.0	12	12	19	12	250	104	26	.0
16.....	3.0	12	12	59	12	380	104	26	.0
17.....	3.0	12	26	46	12	226	104	19	.0
18.....	3.0	12	26	202	12	140	73	19	.0
19.....	3.0	19	19	73	12	104	59	12	.0
20.....	3.0	19	19	59	12	104	59	12	.0
21.....	3.0	19	19	59	12	73	59	59	.0
22.....	.5	19	12	46	12	73	59	26
23.....	.5	12	12	46	12	46	59	19
24.....	3.0	12	12	46	12	35	59	19
25.....	3.0	12	12	46	12	26	59	35
26.....	3.0	12	12	121	12	19	59	250
27.....	3.0	12	12	680	12	19	59	73
28.....	3.0	12	73	226	12	19	59	59
29.....	7.0	12	46	140	12	19	59	35
30.....	73	12	26	73	12	59	26
31.....	7.0	26	59	19	19

NOTE.—Daily discharge determined from a rating curve fairly well defined for discharges below 150 second-feet and poorly defined above.

Monthly discharge of Dry Creek near Ione, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 7-31.....	73	0.0	5.58	277	C.
November.....	88	3.0	16.9	1,010	B.
December.....	73	12	17.5	1,080	B.
January.....	680	19	90.8	5,580	B.
February.....	59	12	19.9	1,140	B.
March.....	1,020	12	157	9,650	C.
April.....	250	12	68.8	4,090	C.
May.....	250	12	38.9	2,390	C.
June.....	12	.0	.50	29.8	D.
The period.....	25,200.	

COSUMNES RIVER AT MICHIGAN BAR, CAL.

Location.—At highway bridge at Michigan Bar, in the NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 36, T. 8 N., R. 8 E., $5\frac{1}{2}$ miles southwest of Latrobe. The North and Middle forks unite 12 miles above the station.

Records available.—October 20, 1907, to September 30, 1912.

Drainage area.—524 square miles.

Gage.—Vertical staff on downstream end of bridge pier, near left bank.

Channel.—Sand, gravel, and small boulders; shifts somewhat.

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

Diversions.—A few small ditches divert water for irrigation and mining above the station.

Accuracy.—Conditions are favorable for making good discharge measurements at all stages. Results are excellent.

Discharge measurements of Cosumnes River at Michigan Bar, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 2	J. E. Stewart.....	<i>Feet.</i> 2.55	<i>Sec.-ft.</i> 40
1912. July 11	Lasley Lee.....	2.50	35
Sept. 8	J. E. Stewart.....	3.30	214

NOTE.—Measurements made by wading near gage.

Daily gage height, in feet, of Cosumnes River at Michigan Bar, Cal., for 1911-12.

[C. B. Ruman, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.50	2.60	2.70	3.08	3.22	2.90	3.40	4.30	4.05	2.72	2.10	1.90
2.....	2.58	2.60	2.70	3.10	3.20	2.90	3.42	4.55	4.00	2.70	2.10	1.90
3.....	2.70	2.60	2.70	2.88	3.18	2.90	3.50	4.30	3.95	2.70	2.10	1.90
4.....	2.70	2.60	2.70	2.80	3.15	3.00	3.48	4.20	3.85	2.70	2.10	2.00
5.....	2.70	2.60	2.72	2.90	3.10	3.12	3.50	4.20	3.82	2.70	2.10	2.10
6.....	2.75	2.60	2.80	2.92	3.10	4.15	3.42	4.10	3.80	2.64	2.10	2.16
7.....	2.70	2.60	2.80	2.95	3.10	4.55	3.40	4.10	3.75	2.60	2.10	3.08
8.....	2.68	2.60	2.85	3.15	3.08	3.95	3.50	4.10	3.70	2.55	2.05	3.24
9.....	2.62	2.60	2.80	3.10	3.05	3.78	3.50	4.10	3.60	2.50	2.05	2.92
10.....	2.70	2.70	2.80	3.48	3.05	3.62	3.65	4.10	3.50	2.50	2.00	2.75
11.....	2.70	3.32	2.80	3.80	3.08	3.60	3.85	4.10	3.50	2.50	2.00	2.60
12.....	2.62	3.00	2.75	3.45	3.05	3.55	3.80	4.20	3.45	2.49	2.00	2.49
13.....	2.60	2.85	2.75	3.28	3.00	3.80	3.60	4.00	3.68	2.46	2.00	2.40
14.....	2.60	2.80	2.75	3.18	3.00	3.75	3.58	4.00	3.55	2.42	2.00	2.36
15.....	2.60	2.80	2.78	3.10	3.00	3.65	3.50	4.10	3.45	2.40	2.00	2.30
16.....	2.60	2.80	2.80	3.20	3.00	4.10	3.50	4.05	3.38	2.36	2.00	2.30
17.....	2.58	2.95	2.80	3.64	3.00	3.75	3.50	3.92	3.30	2.30	2.00	2.30
18.....	2.50	2.89	2.90	3.35	3.00	3.60	3.50	4.00	3.22	2.30	1.95	2.29
19.....	2.50	2.80	2.80	3.28	3.02	3.54	3.50	4.05	3.18	2.30	1.95	2.22
20.....	2.50	2.80	2.80	3.24	3.05	3.50	3.50	3.98	3.08	2.30	1.95	2.20
21.....	2.50	2.80	2.80	3.15	3.00	3.50	3.50	4.10	3.05	2.30	1.95	2.20
22.....	2.50	2.80	2.72	3.10	3.00	3.44	3.49	3.95	3.05	2.29	1.95	2.20
23.....	2.50	2.79	2.80	3.10	2.97	3.40	3.42	3.90	3.10	2.28	1.95	2.20
24.....	2.50	2.75	2.85	3.10	2.95	3.40	3.42	3.85	3.08	2.26	1.95	2.20
25.....	2.50	2.70	2.80	3.10	2.90	3.42	3.62	3.89	3.00	2.25	1.95	2.20
26.....	2.50	2.74	2.70	3.45	2.90	3.48	3.65	4.35	3.00	2.25	1.90	2.20
27.....	2.50	2.80	2.70	4.10	2.90	3.50	3.69	4.45	2.90	2.22	1.90	2.18
28.....	2.55	2.70	3.00	3.68	2.90	3.50	3.70	4.30	2.90	2.20	1.90	2.18
29.....	2.65	2.70	3.00	3.50	2.90	3.48	3.98	4.20	2.88	2.12	1.90	2.18
30.....	2.60	2.70	2.90	3.40	3.45	4.40	4.20	2.80	2.10	1.90	2.17
31.....	2.60	2.99	3.30	3.42	4.15	2.10	1.90

Daily discharge, in second-feet, of Cosumnes River at Michigan Bar, Cal., for 1911-12.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.				
1911.												
1.....	9,280	1,050	2,760	1,410	1,050	356	60	22				
2.....	5,320	1,120	3,100	1,410	1,000	345	49	22				
3.....	3,820	1,940	3,160	1,410	1,050	345	46	22				
4.....	3,700	4,610	2,980	1,480	1,100	345	46	22				
5.....	2,980	4,470	3,950	1,830	1,050	295	46	23				
6.....	2,870	4,210	5,320	1,620	1,050	295	46	25				
7.....	2,190	14,100	3,950	1,550	1,140	295	46	25				
8.....	1,780	9,280	3,330	1,410	1,140	250	46	27				
9.....	1,620	6,390	3,400	1,340	1,050	250	46	25				
10.....	1,440	5,470	3,700	1,310	970	210	40	25				
11.....	3,100	3,950	2,660	1,280	1,050	203	39	25				
12.....	1,780	3,210	2,410	1,340	1,050	210	35	25				
13.....	3,100	2,560	2,020	1,310	970	193	35	28				
14.....	2,280	2,460	1,780	1,280	930	176	35	28				
15.....	1,780	2,100	1,700	1,260	850	161	35	32				
16.....	1,480	2,020	1,700	1,160	850	146	35	28				
17.....	1,340	1,860	1,700	1,160	850	146	35	25				
18.....	1,220	1,860	1,700	1,070	832	133	35	25				
19.....	1,160	1,860	1,830	1,050	805	120	32	25				
20.....	1,100	1,940	1,830	1,050	778	120	29	25				
21.....	1,000	2,020	1,830	1,050	675	102	28	25				
22.....	950	2,020	1,890	1,160	611	97	28	25				
23.....	950	2,100	2,020	1,310	560	97	28	25				
24.....	900	2,100	2,020	1,410	512	97	26	25				
25.....	850	2,100	2,280	1,220	473	93	25	28				
26.....	832	2,100	2,330	1,160	460	77	25	35				
27.....	850	2,100	2,160	1,050	460	77	25	35				
28.....	850	2,160	1,860	1,050	460	68	25	35				
29.....		2,160	1,620	1,050	412	63	25	35				
30.....		2,410	1,410	1,050	389	60	25	35				
31.....		2,600		1,070		60	23	-----				
Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	35	46	60	141	183	97	250	850	635	63	14	10
2.....	44	46	60	146	176	97	259	1,100	595	60	14	10
3.....	60	46	60	93	170	97	295	850	560	60	14	10
4.....	60	46	60	77	161	120	286	760	492	60	14	12
5.....	60	46	63	97	146	152	295	760	473	60	14	14
6.....	68	46	77	102	146	718	259	675	460	52	14	16
7.....	60	46	77	108	146	1,100	250	675	430	46	14	141
8.....	57	46	87	161	141	560	295	675	400	40	13	190
9.....	49	46	77	146	133	448	295	675	345	35	13	102
10.....	60	60	77	286	133	356	372	675	295	35	12	68
11.....	60	218	77	460	141	345	492	675	295	35	12	46
12.....	49	120	68	272	133	320	460	760	272	34	12	34
13.....	46	87	68	203	120	460	345	595	389	32	12	28
14.....	46	77	68	170	120	430	335	595	320	29	12	26
15.....	46	77	74	146	120	372	295	675	272	28	12	22
16.....	46	77	77	176	120	675	295	635	242	26	12	22
17.....	44	108	77	367	120	430	295	539	210	22	12	22
18.....	35	95	97	230	120	345	295	595	183	22	11	22
19.....	35	77	77	203	125	315	295	635	170	22	11	19
20.....	35	77	77	190	133	295	295	581	141	22	11	18
21.....	35	77	77	161	120	295	295	675	133	22	11	18
22.....	35	77	63	146	120	268	290	560	133	22	11	18
23.....	35	75	77	146	113	250	259	525	146	21	11	18
24.....	35	68	87	146	108	250	259	492	141	20	11	18
25.....	35	60	77	146	97	259	356	518	120	20	11	18
26.....	35	67	60	272	97	286	372	900	120	20	10	18
27.....	35	77	60	675	97	295	394	1,000	97	19	10	17
28.....	40	60	120	389	97	295	400	850	97	18	10	17
29.....	53	60	120	295	97	286	581	760	93	15	10	17
30.....	46	60	97	250	-----	272	950	760	77	14	10	17
31.....	46		118	210	-----	259		718		14	10	-----

NOTE.—Daily discharge determined from a rating curve well defined above 40 second-feet. Discharge values Feb. 1 to Dec. 31, 1911, supersede those published in Water-Supply Paper 311, p. 132. Values from Feb. 1, 1911 to June 30, 1912, supersede those published in Water-Supply Paper 299, p. 401.

Monthly discharge of Cosumnes River at Michigan Bar, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
February.....	9,280	832	2,160	120,000	A.
March.....	14,100	1,050	3,240	199,000	A.
April.....	5,320	1,410	2,480	148,000	A.
May.....	1,830	1,050	1,270	78,100	A.
June.....	1,140	389	819	48,700	A.
July.....	356	60	177	10,900	A.
August.....	60	23	35.5	2,180	B.
September.....	35	22	26.9	1,600	B.
The period.....				608,000	
1911-12.					
October.....	68	35	46.0	2,830	A.
November.....	218	46	72.3	4,300	A.
December.....	120	60	77.9	4,790	A.
January.....	675	77	213	13,100	A.
February.....	183	97	129	7,420	A.
March.....	1,100	97	347	21,300	A.
April.....	950	250	347	20,600	A.
May.....	1,100	492	701	43,100	A.
June.....	635	77	278	16,500	A.
July.....	63	14	31.9	1,960	B.
August.....	14	10	11.9	732	C.
September.....	190	10	33.6	2,000	B.
The year.....	1,100	10	191	139,000	

NOTE.—Monthly-discharge values in these tables supersede those published in Water-Supply Paper 311, p. 132, and Water-Supply Paper 299, p. 402.

NORTH FORK OF COSUMNES RIVER NEAR ELDORADO, CAL.

Location.—At suspension footbridge at Celio's ranch ¹ in sec. 23, T. 9 N., R. 10 E., 5 miles south of Eldorado, and 4 miles above junction with Middle Fork. Martinez Creek enters about 1½ miles above the station.

Records available.—August 13, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections on right bank at the bridge.

Channel.—Gravel and solid rock.

Discharge measurements.—Made from bridge or by wading.

Diversions.—The J. J. Crawford ditch diverts from Camp Creek in T. 10 N., R. 13 E. The water is used for irrigation in American River basin below Placerville.

Accuracy.—Results are good.

Discharge measurements of North Fork of Cosumnes River near Eldorado, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 23	J. E. Stewart.....	3.73	57	Mar. 29	Lasley Lee.....	4.22	132
Mar. 7	H. D. McGlashan.....	5.35	428	June 8do.....	4.56	214
7do.....	5.12	363	Sept. 7	J. E. Stewart.....	4.35	152

¹ "Kings Store" on map of Placerville quadrangle published by United States Geological Survey.

NOTE.—Measurement Jan. 23, 1912, made by wading 1,200 feet above gage; all others made from bridge.

Daily gage height, in feet, of North Fork of Cosumnes River near Eldorado, Cal., for 1911-12.

[James Yates, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	3.32				3.9		4.2	5.45	5.0	3.52	3.10	2.98
2.		3.4	3.5	3.55		3.7		5.8	4.95	3.50	3.10	2.95
3.	3.45		3.5		3.8		4.25	5.3	4.9	3.50	3.10	3.50
4.		3.4		3.6	3.8			5.3	4.8	3.48	3.08	3.10
5.	3.5	3.4	3.5			4.3	4.25	5.25	4.7	3.45	3.05	3.15
6.				3.9	3.7	6.3	4.2	5.1		3.45	3.05	3.00
7.	3.45	3.4	3.55	3.9		5.2	4.3	5.2	4.5	3.40		4.6
8.	3.4				3.7	4.7	4.2	5.2	4.55	3.38	3.02	3.80
9.		3.45	3.5	4.35		4.5		5.25	4.4	3.35	3.00	3.50
10.	3.45		3.45		3.7	4.4	4.5	5.2	4.3	3.35	3.02	3.35
11.		3.8		4.2	3.7		4.6	5.2	4.25	3.32	3.00	3.30
12.		3.65	3.45			4.3	4.5		4.3	3.30	3.00	3.28
13.	3.4			3.9	3.7	4.6	4.5	5.2	4.7	3.30	3.02	3.25
14.	3.4	3.5	3.45	3.8		4.4	4.3	5.2	4.3	3.30		3.22
15.	3.4				3.7	4.35		5.2	4.2	3.28	3.00	3.20
16.		3.7	3.45	3.9		4.7	4.3	5.1	4.1	3.25	3.00	3.20
17.	3.35		3.55		3.7	4.4	4.3	5.0	4.0	3.20	3.00	3.20
18.		3.55		3.9	3.7	4.3		4.95	3.92		3.00	
19.		3.55	3.5			4.25	4.3	4.9	3.88	3.25	3.00	3.20
20.				3.9	3.7		4.3	5.1	3.82	3.25	3.00	3.20
21.		3.5	3.45	3.8		4.2	4.3	5.0	3.80			3.18
22.	3.35				3.65			5.0	3.80	3.20	3.00	3.18
23.		3.45	3.5	3.73		4.15	4.2	4.85	3.85	3.20	3.00	
24.	3.4		3.5		3.6	4.2	4.5	4.8	3.80	3.18	3.00	3.15
25.		3.45		3.7	3.6		4.4	5.0	3.75	3.15	3.00	3.15
26.		3.45	3.55			4.2	4.7	5.9	3.70	3.15	2.98	3.15
27.	3.4			4.85	3.6		4.5	5.5	3.68	3.12	2.98	3.15
28.	3.5	3.5	3.7	4.3		4.2		5.4	3.65	3.15	2.98	3.12
29.	3.5				3.6	4.2	5.45	5.4	3.60	3.10		3.12
30.			3.6	4.0		4.2	5.3	5.2	3.55	3.15	2.98	3.12
31.	3.45		3.6			4.2		5.1		3.10	2.98	

Daily discharge, in second-feet, of North Fork of Cosumnes River near Eldorado, Cal. for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	23	30	36	42	82	50	130	472	322	41	11	5.3
2.	28	28	36	40	75	55	135	603	308	39	11	4.2
3.	32	28	36	42	68	55	140	418	293	39	11	39
4.	34	28	36	45	68	102	140	418	266	37	10	11
5.	36	28	36	64	62	149	140	401	240	34	8.5	14
6.	34	28	38	82	55	810	130	352	215	34	8.5	6.0
7.	32	28	40	82	55	384	149	384	191	30	7.8	215
8.	28	28	38	120	55	240	130	384	203	29	7.0	70
9.	30	32	36	159	55	191	160	401	169	26	6.0	39
10.	32	50	32	144	55	169	191	384	149	26	7.0	26
11.	31	68	32	130	55	159	215	384	140	24	6.0	23
12.	30	50	32	106	55	149	191	384	149	23	6.0	22
13.	28	43	32	82	55	215	191	384	240	23	7.0	20
14.	28	36	32	68	55	169	149	384	149	23	6.5	17
15.	28	45	32	68	55	159	149	384	130	22	6.0	16
16.	27	55	32	82	55	240	149	352	113	20	6.0	16
17.	25	48	40	82	55	169	149	322	97	16	6.0	16
18.	25	40	38	82	55	149	149	308	85	18	6.0	16
19.	25	40	36	82	55	140	149	293	79	20	6.0	16
20.	25	38	34	82	55	135	149	352	71	20	6.0	16
21.	25	36	32	68	52	130	149	322	68	18	6.0	15
22.	25	34	34	63	50	126	139	322	68	16	6.0	15
23.	27	32	36	58	48	122	130	280	75	16	6.0	14
24.	28	32	36	56	45	130	191	266	68	15	6.0	14
25.	28	32	38	55	45	130	169	322	61	14	6.0	14
26.	28	32	40	55	45	130	240	642	55	14	5.3	14
27.	28	34	48	280	45	130	191	490	53	12	5.3	14
28.	36	36	55	149	45	130	330	454	50	14	5.3	12
29.	36	36	50	123	45	130	472	454	45	11	5.3	12
30.	34	36	45	97		130	418	384	40	14	5.3	12
31.	32		45	90		130		352		11	5.3	

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated for days on which gage was not read, except Jan. 15 and 26, 1912, when discharge was estimated from observer's notes.

Monthly discharge of North Fork of Cosumnes River near Eldorado, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	36	23	29.3	1,800	A.
November.....	68	28	37.0	2,200	A.
December.....	55	32	37.5	2,300	A.
January.....	280	40	89.6	5,510	A.
February.....	82	45	55.2	3,180	A.
March.....	810	50	171	10,500	A.
April.....	472	130	184	10,900	A.
May.....	642	266	389	23,900	A.
June.....	322	40	139	8,270	A.
July.....	41	11	22.5	1,380	A.
August.....	11	5.3	6.81	419	B.
September.....	215	4.2	24.8	1,480	A.
The year.....	810	4.2	99.1	71,800	

SACRAMENTO RIVER BASIN.

SACRAMENTO RIVER AT CASTELLA, CAL.

Location.—At the private highway bridge at Castella, in sec. 22, T. 38 N., R. 4 W., about half a mile below the mouth of Castle Creek.

Records available.—October 15, 1910, to September 30, 1912.

Drainage area.—257 square miles.

Gage.—Vertical staff on downstream end of bridge pier near right bank.

Channel.—Small boulders; fairly permanent.

Discharge measurements.—Made from bridge one-half mile below gage. This section is more satisfactory than the one at the highway bridge where early measurements were made.

Accuracy.—Results are good at low stages. The high-water rating curve is not well defined and results are only fair.

Cooperation.—Gage-height record furnished by H. O. Wickes.

Discharge measurements of Sacramento River at Castella, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 26 ^a	H. J. Tompkins.....	5.78	2,720	May 20 ^b	Lasley Lee.....	4.79	1,860
27 ^ado.....	4.30	1,440	21 ^bdo.....	4.40	1,390
Mar. 8 ^b	Lasley Lee.....	3.46	601	29 ^bdo.....	4.73	1,680
May 20 ^ado.....	4.88	,920				

^a Bridge at gage.

^b Bridge one-half mile below gage.

Daily gage height, in feet, of Sacramento River at Castella, Cal., for 1911-12.

[H. O. Wickes, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.6	2.6	2.6	2.5	3.1	2.9	3.6	5.4	4.6	2.95	2.5	2.4
2.....	2.6	2.6	2.6	2.5	3.0	2.9	3.7	4.7	4.5	2.9	2.5	2.4
3.....	2.6	2.6	2.6	2.5	3.0	2.9	3.8	4.3	4.4	2.9	2.5	2.6
4.....	2.6	2.6	2.6	2.5	2.9	2.9	3.7	4.2	4.4	2.9	2.5	2.6
5.....	2.6	2.6	2.8	2.5	2.9	3.1	3.7	4.2	4.4	2.9	2.5	2.8
6.....	2.6	2.6	2.7	2.5	2.9	3.9	3.7	4.4	4.2	2.9	2.5	3.9
7.....	2.6	2.6	2.6	2.5	2.9	3.6	3.7	4.4	4.0	2.85	2.5	3.1
8.....	2.6	2.6	2.6	2.5	3.1	3.5	3.6	4.6	4.0	2.8	2.5	2.9
9.....	2.8	2.6	2.6	2.6	3.1	3.4	3.6	4.6	3.9	2.8	2.5	2.7
10.....	2.7	2.7	2.6	2.7	3.3	3.3	3.9	4.6	3.85	2.8	2.5	2.7

Daily gage height, in feet, of Sacramento River at Castella, Cal., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	2.6	2.6	2.6	2.7	3.2	3.3	3.8	4.6	3.8	2.8	2.5	2.7
12.....	2.6	2.6	2.6	2.9	3.2	3.4	3.6	4.7	3.8	2.8	2.5	2.7
13.....	2.6	2.6	2.6	3.0	3.3	3.3	3.5	4.5	3.65	2.8	2.5	2.65
14.....	2.6	2.6	2.6	2.9	3.2	3.5	3.4	4.7	3.55	2.75	2.5	2.65
15.....	2.6	2.8	2.6	2.9	3.0	3.65	3.4	4.8	3.4	2.75	2.5	2.6
16.....	2.6	2.6	2.6	3.0	3.1	3.5	3.5	4.6	3.35	2.75	2.5	2.55
17.....	2.6	2.6	2.5	2.9	3.7	3.4	3.5	4.4	3.3	2.75	2.5	2.5
18.....	2.6	2.6	2.5	2.9	3.8	3.4	3.5	4.4	3.25	2.75	2.5	2.5
19.....	2.6	2.6	2.5	2.9	3.5	3.4	3.4	4.3	3.2	2.7	2.45	2.5
20.....	2.6	2.6	2.5	2.9	3.3	3.3	3.4	5.1	3.2	2.7	2.45	2.5
21.....	2.6	2.6	2.5	2.8	3.3	3.3	3.4	4.6	3.2	2.7	2.45	2.5
22.....	2.6	2.6	2.5	2.8	3.2	3.3	3.4	4.1	3.15	2.7	2.45	2.5
23.....	2.6	2.6	2.5	2.8	3.1	3.3	3.4	3.95	3.35	2.7	2.45	2.5
24.....	2.6	2.6	2.5	4.5	3.1	3.5	3.5	4.0	3.2	2.65	2.4	2.5
25.....	2.6	2.6	2.5	6.8	3.0	3.55	3.4	4.4	3.1	2.65	2.4	2.5
26.....	2.6	2.6	2.5	5.8	3.0	3.6	3.4	6.0	3.1	2.6	2.4	2.5
27.....	2.6	2.6	2.5	4.4	3.0	3.8	3.4	5.2	3.1	2.6	2.4	2.5
28.....	2.6	2.6	2.5	3.8	3.0	3.8	3.5	4.9	3.05	2.55	2.4	2.5
29.....	2.6	2.6	2.5	3.5	2.9	3.8	4.7	4.8	3.0	2.55	2.4	2.5
30.....	2.6	2.6	2.5	3.3	3.7	4.6	4.6	3.0	2.55	2.4	2.5
31.....	2.6	2.5	3.2	3.6	4.4	2.5	2.4

Daily discharge, in second-feet, of Sacramento River at Castella, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	250	250	250	220	435	350	715	2,550	1,590	370	225	200
2.....	250	250	250	220	390	350	785	1,700	1,480	350	225	200
3.....	250	250	250	220	390	350	860	1,280	1,380	350	225	250
4.....	250	250	250	220	350	350	785	1,190	1,380	350	225	250
5.....	250	250	315	220	350	435	785	1,190	1,380	350	225	315
6.....	250	250	280	220	350	940	785	1,380	1,190	350	225	940
7.....	250	250	250	220	350	715	785	1,380	1,020	332	225	435
8.....	250	250	250	220	435	650	715	1,590	1,020	315	225	350
9.....	315	250	250	250	435	590	715	1,590	940	315	225	280
10.....	280	280	250	280	535	535	940	1,590	900	315	225	280
11.....	250	250	250	280	485	535	860	1,590	860	315	225	280
12.....	250	250	250	350	485	590	715	1,700	860	315	225	280
13.....	250	250	250	390	535	535	650	1,480	750	315	225	265
14.....	250	250	250	350	485	650	590	1,700	682	298	225	265
15.....	250	315	250	350	390	750	590	1,810	590	298	225	250
16.....	250	250	250	390	435	650	650	1,590	562	298	225	238
17.....	250	250	220	350	785	590	650	1,380	535	298	225	225
18.....	250	250	220	350	860	590	650	1,380	510	298	225	225
19.....	250	250	220	350	650	590	590	1,280	485	280	212	225
20.....	250	250	220	350	535	535	590	2,170	485	280	212	225
21.....	250	250	220	315	535	535	590	1,590	485	280	212	225
22.....	250	250	220	315	485	535	590	1,100	460	280	212	225
23.....	250	250	220	315	435	535	590	980	562	280	212	225
24.....	250	250	220	1,480	435	535	650	1,020	485	265	200	225
25.....	250	250	220	4,530	390	682	590	1,380	435	265	200	225
26.....	250	250	220	3,080	390	715	590	3,360	435	250	200	225
27.....	250	250	220	1,380	390	860	590	2,290	435	250	200	225
28.....	250	250	220	860	390	860	650	1,930	412	238	200	225
29.....	250	250	220	650	350	860	1,700	1,810	390	238	200	225
30.....	250	250	220	535	785	1,590	1,590	390	238	200	225
31.....	250	220	485	715	1,380	225	200

NOTE.—Daily discharge computed from a rating curve well defined between 200 and 1,020 second-feet (gage heights 2.40 and 4 feet), fairly well defined between 1,020 and 2,680 second-feet (gage heights 4 and 5.50 feet) and poorly defined above.

Monthly discharge of Sacramento River at Castella, Cal., for 1911-12.

[Drainage area, 257 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	315	250	253	0.984	1.13	15,600	C.
November.....	315	250	253	.984	1.10	15,100	C.
December.....	315	220	239	.930	1.07	14,700	C.
January.....	4,530	220	637	2.48	2.86	39,200	A.
February.....	860	350	464	1.81	1.95	26,700	B.
March.....	940	350	610	2.38	2.74	37,500	A.
April.....	1,700	590	751	2.92	3.26	44,700	A.
May.....	3,360	980	1,610	6.26	7.22	99,000	A.
June.....	1,590	390	770	3.00	3.35	45,800	A.
July.....	370	225	297	1.16	1.34	18,300	A.
August.....	225	200	216	.840	.97	13,300	A.
September.....	940	200	274	1.07	1.19	16,300	A.
The year.....	4,530	200	532	2.07	28.06	386,000	

SACRAMENTO RIVER NEAR RED BLUFF, CAL.

Location.—In lot 4, sec. 34, T. 28 N., R. 3 W., at the lower end of Iron Canyon, 4 miles above Red Bluff and about 3 miles below the proposed Iron Canyon dam site. Paines Creek enters about 3 miles above and Antelope Creek about 7 miles below the station.

Records available.—January 28, 1902, to September 30, 1912. The State engineer in 1879 and the commissioner of public works in 1893 and 1894 made measurements at this point. From April 30, 1895, to June 30, 1902, a gaging station was maintained at Jellys Ferry, 12 miles above Red Bluff.

Drainage area.—10,400 square miles, including Goose Lake drainage area of 1,090 square miles.

Gage.—Staff in several sections on the left bank. Several gages have been used at this station, but all observations have been reduced to the present datum.

Channel.—Coarse gravel and small bowlders; practically permanent.

Discharge measurements.—Made from a car and cable 50 feet above the gage.

Diversions and storage.—No storage of any importance has been developed in the drainage area above this station. A small amount of water is diverted from some of the minor tributaries for irrigation. With this exception the record at this station gives the natural run-off from the basin.

Accuracy.—Results at this station are excellent.

The following discharge measurement was made by Lasley Lee:

July 19, 1912: Gage height, 1.61 feet; discharge, 5,730 second-feet.

Daily gage height, in feet, of Sacramento River near Red Bluff, Cal., for 1911-12.

[Richard Groebe, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.50	1.55	1.55	1.7	2.4	3.2	7.8	4.1	2.0	1.4	1.1
2.....	1.50	1.55	1.55	1.6	2.4	3.1	7.4	4.0	1.9	1.4	1.1
3.....	1.50	1.50	1.55	1.6	2.3	3.1	6.2	3.8	1.9	1.4	1.2
4.....	1.50	1.50	1.55	1.5	2.7	2.3	3.1	5.6	3.6	1.8	1.4	1.3
5.....	1.55	1.50	1.52	1.5	2.6	3.3	3.1	5.2	3.4	1.8	1.4	1.4
6.....	1.50	1.50	1.80	1.5	2.5	8.5	2.9	4.9	3.3	1.8	1.3	4.7
7.....	1.50	1.50	1.80	1.6	3.0	6.5	2.9	4.7	3.2	1.8	1.3	3.8
8.....	1.50	1.50	1.65	1.7	4.1	5.8	2.9	4.5	3.0	1.7	1.3	2.2
9.....	1.68	1.55	1.65	2.2	3.8	4.9	2.8	4.4	3.0	1.7	1.3	1.8
10.....	1.68	1.60	1.60	2.4	3.9	4.4	3.8	4.2	2.9	1.7	1.3	1.6
11.....	1.60	1.65	1.60	2.4	3.8	4.0	5.4	4.2	2.8	1.7	1.3	1.5
12.....	1.60	1.58	1.60	2.2	3.5	6.0	5.1	4.0	2.8	1.6	1.3	1.4
13.....	1.55	1.55	1.55	2.7	3.4	7.4	4.1	3.9	3.0	1.6	1.3	1.4
14.....	1.52	1.55	1.55	2.5	3.3	5.2	3.8	3.7	2.8	1.6	1.3	1.4
15.....	1.52	1.62	1.55	2.2	3.2	5.1	3.6	3.7	2.6	1.6	1.3	1.4
16.....	1.50	1.78	1.55	2.2	3.0	7.0	3.6	3.7	2.5	1.6	1.3	1.4
17.....	1.50	1.72	1.68	2.4	3.0	5.7	3.6	3.5	2.4	1.6	1.2	1.4
18.....	1.50	1.65	1.58	2.5	4.2	5.1	3.5	3.3	2.3	1.6	1.2	1.4
19.....	1.50	1.60	1.55	3.5	4.0	4.7	3.4	3.3	2.3	1.6	1.2	1.3
20.....	1.50	1.60	1.55	2.9	3.6	4.5	3.2	3.8	2.2	1.6	1.2	1.3
21.....	1.50	1.60	1.55	2.4	3.3	4.2	3.1	4.3	2.2	1.5	1.2	1.3
22.....	1.50	1.60	1.50	2.2	3.2	3.8	3.0	4.1	2.2	1.5	1.2	1.3
23.....	1.50	1.55	1.50	2.5	3.0	3.7	3.0	4.3	2.3	1.5	1.2	1.3
24.....	1.50	1.55	1.50	3.4	2.9	3.6	3.0	4.0	2.6	1.4	1.2	1.3
25.....	1.50	1.55	1.50	8.6	2.8	3.8	3.0	4.1	2.4	1.4	1.2	1.2
26.....	1.58	1.55	1.50	12.9	2.6	3.6	3.0	5.0	2.2	1.4	1.2	1.2
27.....	1.50	1.55	1.58	9.2	2.6	3.6	3.0	6.8	2.2	1.4	1.2	1.2
28.....	1.50	1.55	1.70	2.5	3.5	2.9	5.9	2.1	1.4	1.2	1.3
29.....	1.50	1.55	1.60	2.4	3.5	5.6	5.2	2.1	1.4	1.2	1.2
30.....	1.50	1.55	1.60	3.5	6.9	4.8	2.0	1.4	1.2	1.2
31.....	1.55	1.60	3.3	4.4	1.4	1.2

Daily discharge, in second-feet, of Sacramento River near Red Bluff, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5,350	5,470	5,470	5,840	10,000	7,710	10,200	28,500	13,300	6,610	5,110	4,420
2.....	5,350	5,470	5,470	5,590	9,500	7,710	9,860	26,700	12,900	6,350	5,110	4,420
3.....	5,350	5,350	5,470	5,590	9,000	7,430	9,860	21,400	12,200	6,350	5,110	4,650
4.....	5,350	5,350	5,470	5,350	8,600	7,430	9,860	19,000	11,500	6,090	5,110	4,880
5.....	5,470	5,350	5,400	5,350	8,300	10,500	9,860	17,400	10,900	6,090	5,110	5,110
6.....	5,350	5,350	6,090	5,350	8,000	31,800	9,220	16,200	10,500	6,090	4,880	15,500
7.....	5,350	5,350	6,090	5,590	9,540	22,700	9,220	15,500	10,200	6,090	4,880	12,200
8.....	5,350	5,350	5,720	5,840	13,300	19,800	9,220	14,800	9,540	5,840	4,880	7,150
9.....	5,790	5,470	5,720	7,150	12,200	16,200	8,910	14,400	9,540	5,840	4,880	6,090
10.....	5,790	5,590	5,590	7,710	12,600	14,400	12,200	13,700	9,220	5,840	4,880	5,590
11.....	5,590	5,720	5,590	7,710	12,200	12,900	18,200	13,700	8,910	5,840	4,880	5,350
12.....	5,590	5,540	5,590	7,150	11,200	20,600	17,000	12,900	8,910	5,590	4,880	5,110
13.....	5,470	5,470	5,470	8,600	10,900	26,700	13,300	12,600	9,540	5,590	4,880	5,110
14.....	5,400	5,470	5,470	8,000	10,500	17,400	12,200	11,900	8,910	5,590	4,880	5,110
15.....	5,400	5,640	5,470	7,150	10,200	17,000	11,500	11,900	8,300	5,590	4,880	5,110
16.....	5,350	6,040	5,470	7,150	9,540	24,900	11,500	11,900	8,000	5,590	4,880	5,110
17.....	5,350	5,890	5,790	7,710	9,540	19,400	11,500	11,200	7,710	5,590	4,650	5,110
18.....	5,350	5,720	5,540	8,000	13,700	17,000	11,200	10,500	7,430	5,590	4,650	5,110
19.....	5,350	5,590	5,470	11,200	12,900	15,500	10,900	10,500	7,430	5,590	4,650	4,880
20.....	5,350	5,590	5,470	9,220	11,500	14,800	10,200	12,200	7,150	5,590	4,650	4,880
21.....	5,350	5,590	5,470	7,710	10,500	13,700	9,860	14,000	7,150	5,350	4,650	4,880
22.....	5,350	5,590	5,350	7,150	10,200	12,200	9,540	13,300	7,150	5,350	4,650	4,880
23.....	5,350	5,470	5,350	8,000	9,540	11,900	9,540	14,000	7,430	5,350	4,650	4,880
24.....	5,350	5,470	5,350	10,900	9,220	11,500	9,540	12,900	8,300	5,110	4,650	4,880
25.....	5,350	5,470	5,350	32,200	8,910	12,200	9,540	13,300	7,710	5,110	4,650	4,650
26.....	5,540	5,470	5,350	55,000	8,300	11,500	9,540	16,600	7,150	5,110	4,650	4,650
27.....	5,350	5,470	5,540	35,100	8,300	11,500	9,540	24,000	7,150	5,110	4,650	4,650
28.....	5,350	5,470	5,840	20,000	8,000	11,200	9,220	20,200	6,880	5,110	4,650	4,880
29.....	5,350	5,470	5,590	12,000	7,710	11,200	19,000	17,400	6,880	5,110	4,650	4,650
30.....	5,350	5,470	5,590	24,000	11,200	24,500	15,900	6,610	5,110	4,650	4,650
31.....	5,470	5,590	11,000	10,500	14,400	5,110	4,650

NOTE.—Daily discharge Jan. 28 to Feb. 3, 1912, estimated from gage heights of United States Weather Bureau at gage just above bridge.

Monthly discharge of Sacramento River near Red Bluff, Cal., for 1911-12.

[Drainage area, 10,400 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.....	5,790	5,350	5,410	0.520	0.60	333,000	A.
November.....	6,040	5,350	5,520	.531	.59	328,000	A.
December.....	6,090	5,350	5,550	.534	.62	341,000	A.
January.....	55,000	5,350	11,800	1.13	1.30	726,000	A.
February.....	13,700	7,710	10,100	.971	1.05	551,000	A.
March.....	31,800	7,430	14,900	1.43	1.65	916,000	A.
April.....	24,500	8,910	11,500	1.11	1.24	684,000	A.
May.....	28,500	10,500	15,000	1.50	1.73	959,000	A.
June.....	13,300	6,610	8,820	.848	.95	525,000	A.
July.....	6,610	5,110	5,620	.540	.62	346,000	A.
August.....	5,110	4,650	4,810	.462	.53	296,000	B.
September.....	15,500	4,420	5,620	.540	.60	334,000	A.
The year.....	55,000	4,420	8,770	.843	11.48	6,370,000	

PIT RIVER AND TRIBUTARIES.

PIT RIVER AT HENDERSON, CAL.

Location.—At Big Bend Ferry, one-fourth mile above Henderson post office, in sec. 36, T. 37 N., R. 1 W. Nelson Creek enters half a mile above and Kosk Creek 1 mile below the station.

Records available.—September 28, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on an alder tree on left bank about 100 feet above ferry.

Channel.—Small bowlders and coarse gravel; fairly permanent.

Discharge measurements.—Made from car and cable 80 feet below gage.

Accuracy.—Sufficient discharge measurements have not been made to define the rating curve at medium and high stages.

. Discharge measurements of Pit River at Henderson, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 14	Lasley Lee.....	1.10	3,240
May 9do.....	1.44	3,850
10do.....	1.41	3,810
Aug. 23	Mount Whitney Power & Electric Co.....	.75	2,560

NOTE.—Made from cable.

Daily gage height, in feet, of Pit River at Henderson, Cal., for 1912.

[Miss E. E. Henderson, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.0	1.3	1.0	1.0	1.6	1.2	1.0	0.9	0.8
2.....	1.0	1.3	1.1	1.0	1.8	1.2	1.0	.9	.8
3.....	1.1	1.2	1.2	1.0	1.8	1.2	1.0	.9	.8
4.....	1.1	1.2	1.2	1.0	1.8	1.1	.9	.8	.8
5.....	1.1	1.2	1.2	1.0	1.8	1.1	.9	.8	.8
6.....	1.1	1.2	1.2	1.1	1.6	1.0	.9	.8	.8
7.....	1.2	1.1	1.2	1.1	1.5	1.0	.9	.8	.8
8.....	1.2	1.2	1.2	1.1	1.4	.9	.9	.8	.8
9.....	1.2	1.2	1.2	1.1	1.4	.9	.9	.8	.9
10.....	1.2	1.2	1.2	1.2	1.4	.9	.9	.8	.9
11.....	1.2	1.2	1.3	1.2	1.4	.9	.9	.8	.8
12.....	1.2	1.2	1.3	1.3	1.4	.9	.9	.8	.8
13.....	1.2	1.2	1.3	1.4	1.3	.9	.9	.8	.8
14.....	1.1	1.2	1.4	1.4	1.3	.9	.9	.8	.8
15.....	1.1	1.2	1.4	1.4	1.2	.9	.8	.8	.8
16.....	1.2	1.3	1.4	1.3	1.1	.9	.8	.8	.8
17.....	1.2	1.4	1.5	1.2	1.0	.9	.8	.8	.8
18.....	1.2	1.4	1.5	1.2	1.0	.9	.9	.8	.8
19.....	1.2	1.3	1.4	1.1	1.0	.9	1.0	.8	.8
20.....	1.2	1.3	1.4	1.1	1.1	.9	1.0	.8	.8
21.....	1.2	1.3	1.4	1.2	1.2	1.0	1.0	.8	.8
22.....	1.1	1.2	1.4	1.2	1.2	1.0	1.0	.8	.8
23.....	1.2	1.2	1.4	1.2	1.2	1.2	1.0	.8	.8
24.....	1.2	1.2	1.3	1.2	1.3	1.1	1.0	.8	.8
25.....	1.8	1.2	1.3	1.2	1.4	1.1	1.0	.8	.8
26.....	2.0	1.2	1.2	1.2	1.4	1.0	1.0	.8	.8
27.....	2.0	1.1	1.2	1.2	1.4	1.0	.9	.8	.8
28.....	1.7	1.0	1.2	1.3	1.4	1.0	1.0	.8	.8
29.....	1.6	1.0	1.1	1.4	1.4	.9	1.0	.8	.8
30.....	1.5	1.1	1.4	1.4	.9	1.0	.8	.8
31.....	1.4	1.0	1.29	.8

PIT RIVER NEAR YDALPOM, CAL.

Location.—At Silverthorne Ferry, in the NW. $\frac{1}{4}$ sec. 32, T. 34 N., R. 3 W., $1\frac{1}{2}$ miles southwest of Ydalpom and $7\frac{1}{2}$ miles above junction with Sacramento River. Squaw Creek enters half a mile above and McCloud River 4 miles below the station.

Records available.—November 16, 1910, to September 30, 1912.

Drainage area.—6,350 square miles.

Gage.—Vertical staff on an ash tree on left bank 350 feet below ferry.

Channel.—Gravel and sand, and appears permanent.

Discharge measurements.—Made from car and cable 50 feet above ferry cable.

Diversion.—Water is diverted from the main stream and tributaries, above the station, for irrigation.

Accuracy.—Rating curve well defined and results are good.

Discharge measurements of Pit River near Ydalpom, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		Feet.	Sec.-ft.
Oct. 3	G. T. Peekema.....	3.00	3,110
1912.			
Jan. 24	Lasley Lee.....	3.98	4,780
25do.....	7.72	12,100
25do.....	8.65	14,500
25do.....	9.18	16,100
25do.....	9.30	16,600
Mar. 9do.....	4.52	5,410
9do.....	4.49	5,250

NOTE.—All measurements made from cable.

Daily gage height, in feet, of Pit River near Ydaldom, Cal., for 1911-12.

[M. D. Rodrique, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.0	3.05	3.1	3.1	3.9	3.6	3.8	6.0	4.0	3.2	2.9	2.8
2.....	3.0	3.05	3.1	3.1	3.8	3.6	3.8	5.7	4.0	3.2	2.9	2.8
3.....	3.0	3.05	3.1	3.1	3.7	3.5	3.7	5.4	4.0	3.2	2.9	2.8
4.....	3.05	3.05	3.1	3.1	3.6	3.5	3.6	5.1	3.9	3.2	2.9	3.1
5.....	3.05	3.1	3.1	3.1	3.6	3.7	3.6	5.0	3.9	3.1	2.9	3.3
6.....	3.05	3.1	3.1	3.1	3.5	5.4	3.6	4.7	3.6	3.1	2.9	3.5
7.....	3.05	3.1	3.1	3.2	3.6	5.0	3.6	4.6	3.6	3.1	2.9	3.2
8.....	3.05	3.1	3.1	3.3	4.0	4.9	3.6	4.5	3.5	3.1	2.9	3.1
9.....	3.05	3.1	3.1	3.4	4.2	4.5	3.6	4.5	3.5	3.1	2.9	3.0
10.....	3.05	3.2	3.1	3.5	4.3	4.5	4.1	4.4	3.4	3.0	2.9	3.0
11.....	3.05	3.2	3.1	3.4	4.4	4.4	4.3	4.4	3.4	3.0	2.9	2.9
12.....	3.05	3.2	3.1	3.6	4.2	4.5	4.0	4.3	3.3	3.0	2.9	2.9
13.....	3.05	3.2	3.1	3.6	4.0	4.6	4.0	4.2	3.2	3.0	2.8	2.9
14.....	3.1	3.25	3.1	3.5	4.0	4.8	4.0	3.9	3.2	3.0	2.8	2.9
15.....	3.1	3.25	3.1	3.5	4.0	5.0	3.9	3.8	3.2	3.0	2.8	2.9
16.....	3.1	3.25	3.1	3.5	3.8	5.9	3.9	3.7	3.2	3.0	2.8	2.9
17.....	3.1	3.2	3.1	3.5	4.4	5.0	3.8	3.6	3.2	3.0	2.8	2.9
18.....	3.1	3.2	3.1	3.8	4.8	4.8	3.8	3.6	3.2	3.0	2.8	2.9
19.....	3.1	3.2	3.1	4.0	4.5	4.8	3.8	3.6	3.2	3.1	2.8	2.9
20.....	3.1	3.2	3.1	3.9	4.3	4.6	3.7	3.6	3.3	3.0	2.8	2.9
21.....	3.1	3.2	3.1	3.4	4.1	4.6	3.8	3.8	3.3	3.0	2.8	2.9
22.....	3.1	3.2	3.1	3.4	4.0	4.4	3.7	4.0	3.3	3.0	2.8	2.9
23.....	3.1	3.2	3.1	3.4	3.9	4.2	3.8	4.2	3.3	3.0	2.8	2.9
24.....	3.05	3.2	3.1	4.0	3.8	4.2	3.8	4.1	3.2	3.0	2.8	2.8
25.....	3.05	3.2	3.1	7.6	3.8	4.1	3.8	4.2	3.2	3.0	2.8	2.8
26.....	3.05	3.2	3.1	8.4	3.7	4.0	3.7	4.7	3.2	3.0	2.8	2.8
27.....	3.05	3.1	3.1	6.4	3.6	4.0	3.7	4.6	3.2	3.0	2.8	2.8
28.....	3.05	3.1	3.1	5.2	3.6	3.9	3.7	4.4	3.2	3.0	2.8	2.8
29.....	3.05	3.1	3.1	4.8	3.6	3.8	4.6	4.3	3.2	3.0	2.8	2.8
30.....	3.05	3.1	3.1	4.5	3.6	3.8	5.5	4.2	3.2	2.9	2.8	2.8
31.....	3.05	3.1	3.1	4.0	-----	3.8	-----	4.1	-----	2.9	2.8	-----

Daily discharge, in second-feet, of Pit River near Ydaldom, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3,080	3,150	3,220	3,220	4,460	3,980	4,300	8,330	4,620	3,370	2,950	2,830
2.....	3,080	3,150	3,220	3,220	4,300	3,980	4,300	7,720	4,620	3,370	2,950	2,830
3.....	3,080	3,150	3,220	3,220	4,140	3,820	4,140	7,120	4,620	3,370	2,950	2,830
4.....	3,150	3,150	3,220	3,220	3,980	3,820	3,980	6,550	4,460	3,370	2,950	3,220
5.....	3,150	3,220	3,220	3,220	3,980	4,140	3,980	6,360	4,460	3,220	2,950	3,520
6.....	3,150	3,220	3,220	3,220	3,820	7,120	3,980	5,820	3,980	3,220	2,950	3,820
7.....	3,150	3,220	3,220	3,370	3,980	6,360	3,980	5,640	3,980	3,220	2,950	3,370
8.....	3,150	3,220	3,220	3,520	4,620	6,180	3,980	5,470	3,820	3,220	2,950	3,220
9.....	3,150	3,220	3,220	3,670	4,960	5,470	3,980	5,470	3,820	3,220	2,950	3,080
10.....	3,150	3,370	3,220	3,820	5,130	5,470	4,790	5,300	3,670	3,080	2,950	3,080
11.....	3,150	3,370	3,220	3,670	5,300	5,300	5,130	5,300	3,670	3,080	2,950	2,950
12.....	3,150	3,370	3,220	3,980	4,960	5,470	4,620	5,130	3,520	3,080	2,950	3,370
13.....	3,150	3,370	3,220	3,980	4,620	5,640	4,620	4,960	3,370	3,080	2,830	2,950
14.....	3,220	3,440	3,220	3,820	4,620	6,000	4,620	4,460	3,370	3,080	2,830	2,950
15.....	3,220	3,440	3,220	3,820	4,620	6,360	4,460	4,300	3,370	3,080	2,830	2,950
16.....	3,220	3,440	3,220	3,820	4,300	8,120	4,460	4,140	3,370	3,080	2,830	2,950
17.....	3,220	3,370	3,220	3,820	5,300	6,360	3,300	3,980	3,370	3,080	2,830	2,950
18.....	3,220	3,370	3,220	4,300	6,000	6,000	4,300	3,980	3,370	3,080	2,830	2,950
19.....	3,220	3,370	3,220	4,620	5,470	6,000	4,300	3,980	3,370	3,220	2,830	2,950
20.....	3,220	3,370	3,220	4,460	5,130	5,640	4,140	3,980	3,520	3,080	2,830	2,950
21.....	3,220	3,370	3,220	3,670	4,790	5,640	4,300	4,300	3,520	3,080	2,830	2,950
22.....	3,220	3,370	3,220	3,670	4,620	5,300	4,140	4,620	3,520	3,080	2,830	2,950
23.....	3,220	3,370	3,220	3,670	4,460	4,960	4,300	4,960	3,520	3,080	2,830	2,950
24.....	3,150	3,370	3,220	4,620	4,300	4,960	4,300	4,790	3,370	3,080	2,830	2,830
25.....	3,150	3,370	3,220	11,900	4,300	4,790	4,300	4,960	3,370	3,080	2,830	2,830
26.....	3,150	3,370	3,220	13,900	4,140	4,620	4,140	5,820	3,370	3,080	2,830	2,830
27.....	3,150	3,220	3,220	9,170	3,980	4,620	4,140	5,640	3,370	3,080	2,830	2,830
28.....	3,150	3,220	3,220	6,740	3,980	4,460	4,140	5,300	3,370	3,080	2,830	2,830
29.....	3,150	3,220	3,220	6,000	3,980	4,300	5,640	5,130	3,370	3,080	2,830	2,830
30.....	3,150	3,220	3,220	5,470	-----	4,300	7,320	4,960	3,370	2,950	2,830	2,830
31.....	3,150	-----	3,220	4,620	-----	4,300	-----	4,790	-----	2,950	2,830	-----

NOTE.—Daily discharge 1911-12 determined from a well-defined rating curve.

Monthly discharge of Pit River near Ydaltom, Cal., for 1911-12.[Drainage area, 6,350 square miles.^a]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	3,220	3,080	3,170	0.499	0.58	195,000	A.
November.....	3,440	3,150	3,300	.520	.58	196,000	A.
December.....	3,220	3,220	3,220	.507	.58	198,000	A.
January.....	13,900	3,220	4,760	.750	.86	293,000	A.
February.....	6,000	3,820	4,560	.718	.77	262,000	A.
March.....	8,120	3,820	5,270	.830	.96	324,000	A.
April.....	7,320	3,980	4,440	.699	.78	264,000	A.
May.....	8,330	3,980	5,270	.830	.96	324,000	A.
June.....	4,620	3,370	3,680	.580	.65	219,000	A.
July.....	3,370	2,950	3,140	.494	.57	193,000	A.
August.....	2,950	2,830	2,880	.454	.52	177,000	A.
September.....	3,820	2,830	3,000	.472	.53	179,000	A.
The year.....	13,900	2,830	3,890	.613	8.34	2,820,000	

^a Includes Goose Lake drainage basin—1,090 square miles.**DREWS CREEK NEAR LAKEVIEW, OREG.**

Location.—In sec. 4, T. 40 S., R. 18 E., 1 mile below the Drews Creek dam, 13 miles southwest of Lakeview.

Records available.—January 16, 1909, to September 30, 1912.

Drainage area.—211 square miles.

Gage.—A Friez automatic gage, installed March 19, 1912, to replace Barrett-Lawrence gage, which was put in place of the original vertical staff in December, 1911.

Channel.—Gravel; not likely to shift; at highest stages overflows into a second channel.

Discharge measurements.—Made from a wagon bridge near the gage and by wading.

Winter flow.—Winters are severe at this station but the flow is so small during the ice period that very little error is introduced in the total estimates.

Diversions and artificial control.—The flow has been partly controlled during the spring of 1912 by operations at the dam under construction above the gage. The irrigation canal which will divert water past the gage is not yet completed and no water has yet been diverted, although some water has been stored.

Accuracy.—Before installing the automatic gage the records were subject to considerable error on account of diurnal fluctuation. The present conditions are favorable for good results.

Cooperation.—This station is maintained by the Lakeview Irrigation & Power Co., which furnishes the records to the Survey.

Discharge measurements of Drews Creek near Lakeview, Oreg., for 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 14	W. O. Harmon.....	1.79	1.4	Feb. 16	W. O. Harmon	2.70	72.0
				28	do.....	2.70	74.1
1912.				Apr. 24	do.....	3.63	253
Jan. 16	do.....	2.38	33.9	Nov. 1	H. Kimble.....	2.00	7.93
Jan. 22	do.....	2.20	17.7				

Daily gage height, in feet, of Drews Creek near Lakeview, Oreg., for 1911-12.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.		1.70	2.70	2.50	2.93	2.74	3.36	2.87	1.67
2.			2.60	2.50	2.98	2.77	3.04	2.86	1.67
3.			2.50	2.40	3.08	3.72	2.84	2.85	1.67
4.		1.70	2.40	2.30	3.12	3.98	2.85	2.84	
5.		1.70	2.40	2.30	3.12	3.89	2.87	2.83	
6.			2.40	2.40	3.11	3.86	2.88	2.81	
7.			2.40	2.60	3.14	3.87	2.88	2.73	
8.		1.70	2.40	2.60	3.20	3.83	2.89	2.71	
9.			2.60	2.60	3.23	3.76	2.98	2.69	
10.			2.70	2.60	3.27	3.69	2.99	2.66	
11.		1.70	2.80		3.28	3.63	2.99	2.63	
12.		1.70	2.80	2.40	3.26	3.57	2.99	2.60	
13.	1.79	1.80	2.80	2.40	3.24	3.53	3.00	2.56	
14.	1.79	2.90	2.70	2.40	3.23	3.47	3.00	2.50	
15.	1.77	2.50	2.70	2.40	3.22	3.33	3.00	2.13	
16.	1.78	2.40	2.70	2.40	3.19	3.23	3.00	1.92	
17.	1.78		2.90		2.92	3.22	3.01	1.88	
18.	1.75	2.30	3.20	2.40	2.56	3.19	3.02	1.87	
19.	1.75	2.30	3.50	2.48	2.57	3.17	3.02	1.86	
20.	1.75	2.30	3.50	2.58	2.58	3.15	3.02	1.82	
21.	1.75	2.20	3.40	2.56	2.58	2.90	3.00	1.74	
22.	1.75	2.20	3.40	2.50	2.58	2.89	3.00	1.74	
23.	1.75		3.30	2.50	3.37	2.83	2.95	1.73	
24.	1.75	2.50	3.20	2.53	3.49	2.98	2.95	1.72	
25.	1.75		3.10	2.59	3.12	3.48	2.95	1.71	
26.	1.75	2.60	3.00	2.63	2.52	3.47	2.94	1.70	
27.	1.75	2.80	2.90	2.73	2.55	3.45	2.93	1.70	
28.	1.75	2.80	2.70	2.82	2.58	3.43	2.92	1.68	
29.	1.75	2.80	2.60	2.90	2.63	3.42	2.92	1.68	
30.	1.74	2.70		2.92	2.69	3.40	2.88	1.67	
31.	1.74	2.60		2.91		3.38		1.67	

NOTE.—No record of gage height Oct. 1 to Dec. 12, 1911. Gage heights Jan. 1 to Mar. 18 are daily readings on staff gage as recording gage was not properly attended during that time. No record from Aug. 4 to Sept. 30, 1912, for creek was practically dry.

Daily discharge, in second-feet, of Drews Creek near Lakeview, Oreg., for 1911-12.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.		1	73	46	111	79	201	101	1
2.		1	59	46	120	84	132	99	1
3.		1	46	35	140	292	96	98	1
4.		1	35	26	148	364	98	96	
5.		1	35	26	148	339	101	94	
6.		1	35	35	146	331	103	91	
7.		1	35	59	153	334	103	78	
8.		1	35	59	166	322	104	75	
9.		1	59	59	173	303	120	72	
10.		1	73	59	181	283	122	67	
11.		1	89	47	184	268	122	63	
12.		1	89	35	179	252	122	59	
13.	1.9	2	89	35	175	242	124	54	
14.	1.9	106	73	35	173	227	124	46	
15.	1.7	46	73	35	170	195	124	14	
16.	1.6	35	73	35	164	173	124	5	
17.	1.6	30	106	35	110	170	126	4	
18.	1.5	26	166	35	54	164	128	3	
19.	1.5	26	234	44	55	159	128	3	
20.	1.5	26	234	56	56	155	128	2	
21.	1.5	18	210	54	56	106	124	1	
22.	1.5	18	210	46	56	104	124	1	
23.	1.5	32	188	46	203	94	115	1	
24.	1.5	46	166	50	232	120	115	1	
25.	1.5	52	144	58	148	229	115	1	
26.	1.5	59	124	63	49	227	113	1	
27.	1.5	89	106	78	52	222	111	1	
28.	1.5	89	73	92	56	217	110	1	
29.	1.5	89	59	106	63	215	110	1	
30.	1.4	73		110	72	210	103	1	
31.	1.4	59		108		206		1	

NOTE.—Daily discharge determined from a well defined rating curve. Practically no flow from Aug. 4 to Sept. 30, 1912.

Monthly discharge of Drews Creek near Lakeview, Oreg., for 1911-12.

[Drainage area, 211 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			a 0.00	0.00000	0.0000	0.0	C.
November			a 1.0	.0047	.005	60	
December	1.9		1.34	.0064	.007	82.4	D.
January	106	1	30.1	.143	.16	1,850	D.
February	234	35	103	.488	.53	5,920	B.
March	110	26	53.3	.253	.29	3,280	A.
April	232	49	126	.597	.67	7,500	A.
May	364	79	216	1.02	1.18	13,300	A.
June	201	96	119	.564	.63	7,080	A.
July	101	1	36.6	.173	.20	2,250	B.
August	1	0	.1	.0047	.0005	6	D.
September0	0	.00	.00000	.0000	.0	
The year	364	0	56.9	.270	3.68	41,300	

a Estimated.

NOTE.—Mean discharge estimated at 1 second-foot Dec. 1-12, 1911.

DOG CREEK NEAR LAKEVIEW, OREG.

Location.—In sec. 11, T. 40 S., R. 17 E., about $1\frac{1}{2}$ miles below the outlet of Dog Lake, 1 mile below the mouth of Horseshoe Creek, about 23 miles, by road, from Lakeview.

Records available.—March 20, 1912, to September 30, 1912.

Drainage area.—Not measured.

Gage.—A Barrett-Lawrence hydrochronograph used in connection with a vertical staff.

Channel.—Rocks and gravel. There is a permanent rock riffle just below the gage.

Discharge measurements.—Usually made by wading. At extreme high stages measurements may be made from a foot log half a mile below the gage.

Accuracy.—Conditions are good at this station and reliable results should be secured.

Cooperation.—This station is maintained in cooperation with the Lakeview Irrigation & Power Co.

Estimates are withheld until additional measurements are available.

Discharge measurements of Dog Creek near Lakeview, Oreg., for 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Mar. 20	W. O. Harmon	<i>Feet.</i> 0.71	<i>Sec.-ft.</i> 1.55
May 30	H. Kimble	1.39	23.2
July 10do.....	.64	1.04

Daily gage height, in feet, of Dog Creek near Lakeview, Oreg., for 1912.

Day.	Mar.	Apr.	May.	June.	July.	Day.	Mar.	Apr.	May.	June.	July.
1.....		1.24	1.64	1.15		16.....				1.20	
2.....		1.23	1.60	1.09		17.....				1.17	
3.....		1.15	1.59	1.02		18.....				1.14	
4.....		1.09	1.57	1.29		19.....				1.13	
5.....		1.19	1.62	1.60		20.....				1.12	
6.....			1.70	1.58		21.....	0.73	0.92		1.09	
7.....			1.73	1.56		22.....	.79	.94		1.04	
8.....				1.51		23.....	.90	1.02		1.01	
9.....				1.48		24.....	.88	1.08	1.20	.98	
10.....		1.60	1.80	1.42	0.66	25.....	.96	1.07		.95	
11.....				1.38	.68	26.....	1.01	1.07		.92	
12.....				1.35		27.....	1.09	1.29		.90	
13.....				1.33		28.....	1.12	1.57		.88	
14.....				1.30		29.....	1.05	1.63		.87	
15.....				1.25		30.....	1.02	1.70	1.39	.86	
						31.....	1.16		1.25		

NOTE.—Breaks in record are due to clock of automatic gage stopping. Creek went dry about Aug. 1, 1912.

COTTONWOOD CREEK NEAR LAKEVIEW, OREG.

Location.—In sec. 29, T. 38 S., R. 19 E., at a dam site 10 miles northwest of Lakeview.

Records available.—November 22, 1908, to September 30, 1912.

Drainage area.—30 square miles.

Gage.—Since March 23, 1912, a vertical staff has been used. Prior to that time an inclined staff in the same location had been used.

Channel.—Clean gravel; fairly permanent.

Discharge measurements.—Made from a footbridge 40 feet below the present gage.

At low stages made by wading near the gage.

Winter flow.—Gage heights are at times affected by ice, but the flow during the winter period is so small that no serious errors are introduced into the estimates.

Diversions.—There are at present no diversions above the station.

Accuracy.—Conditions are excellent at this station and the results obtained are reliable.

Cooperation.—Station is maintained in cooperation with the Lakeview Irrigation & Power Co., which furnishes the gage-height record.

Discharge measurements of Cottonwood Creek near Lakeview, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 20	W. O. Harmon.....	0.25	4.31
Feb. 24	do.....	.38	8.38
Apr. 26	do.....	.73	25.4

Daily gage height, in feet, of Cottonwood Creek near Lakeview, Oreg., for 1911-12.

[C. B. Mellot, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.28	0.20	0.38	0.37	0.55	0.62	1.10	1.55	1.65	0.64	0.34	0.24
2.....	.25	.20	.35	.34	.46	.80	1.20	1.45	1.55	.56	.35	.24
3.....	.25	.18	.32	.32	.45	.60	1.15	1.15	1.55	.58	.36	.21
4.....	.28	.15	.32	.30	.50	.71	1.20	.84	1.55	.54	.34	.24
5.....	.30	.18	.30	.37	.52	.65	1.20	1.35	1.50	.61	.31	.26
6.....	.28	.20	.35	.45	.49	2.15	1.25	1.25	1.40	.54	.31	.26
7.....	.25	.22	.38	.40	.68	2.5	1.15	1.05	1.35	.54	.31	.28
8.....	.25	.25	.35	.34	1.00	2.40	1.00	1.55	1.35	.54	.28	.26
9.....	.28	.25	.35	.32	.65	.65	1.35	2.15	1.50	.46	.31	.28
10.....	.25	.28	.32	.30	.62	.79	1.20	2.10	1.45	.48	.28	.26

Daily gage height, in feet, of Cottonwood Creek near Lakeview, Oreg., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	0.22	0.28	0.35	0.30	0.60	0.76	1.00	1.60	1.45	0.46	0.28	0.26
12.....	.18	.25	.30	.30	1.00	1.05	1.00	1.95	1.45	.46	.26	.28
13.....	.15	.22	.30	.55	.83	1.00	1.00	1.65	1.50	.44	.28	.28
14.....	.25	.30	.32	.60	.68	.83	1.05	1.90	1.40	.44	.28	.28
15.....	.22	.45	.42	.96	.62	.70	1.05	1.50	1.25	.41	.26	.24
16.....	.22	.55	.40	.70	2.6	.62	.78	2.30	1.05	.38	.24	.24
17.....	.22	.55	.40	.65	2.9	.52	.88	2.35	.96	.41	.28	.26
18.....	.22	.50	.38	.60	1.60	.37	.91	1.65	.91	.38	.26	.26
19.....	.20	.52	.32	.50	1.25	.50	.70	1.95	.44	.41	.28	.24
20.....	.20	.55	.40	.49	1.55	.50	.84	2.00	.36	.38	.27	.21
21.....	.18	.55	.45	.43	.88	.47	.81	1.90	.41	.38	.26	.21
22.....	.22	.52	.50	.42	.70	.54	.86	1.85	.44	.40	.25	.21
23.....	.25	.52	.45	.34	.58	.59	.76	1.95	.88	.36	.26	.21
24.....	.22	.50	.60	.40	.50	1.75	.84	1.85	.78	.38	.24	.24
25.....	.20	.50	.90	.52	.50	1.50	.46	1.70	.76	.36	.26	.21
26.....	.20	.48	.88	.70	.55	1.40	.94	1.65	.68	.34	.21	.21
27.....	.22	.42	.58	.68	.55	2.10	.91	1.65	.66	.34	.24	.18
28.....	.25	.42	.35	.56	.55	1.80	1.30	1.55	.66	.36	.24	.24
29.....	.22	.40	.30	.60	.49	.78	1.15	1.55	.64	.36	.24	.18
30.....	.20	.40	.25	.58	1.15	1.10	1.60	.61	.34	.24	.24
31.....	.1822	.56	1.6034	.24

NOTE.—There was ice at station from Dec. 20, 1911, to Jan. 13, 1912. Corrections have been applied on many of the gage readings from Mar. 24 to May 28, 1912, to allow for diurnal fluctuation of stage.

Daily discharge, in second-feet, of Cottonwood Creek near Lakeview, Oreg., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5	3	8	2	16	19	50	89	99	20	7	4
2.....	4	3	8	2	11	30	58	80	89	16	8	4
3.....	4	3	7	2	11	18	54	54	89	17	8	3
4.....	5	2	7	2	13	25	58	32	89	15	7	4
5.....	6	3	6	2	14	21	58	70	84	19	6	5
6.....	5	3	8	2	13	152	62	62	75	15	6	5
7.....	4	4	8	2	23	196	54	46	70	15	6	5
8.....	4	4	8	2	43	183	43	89	70	15	5	5
9.....	5	4	8	2	21	21	70	152	84	11	6	5
10.....	4	5	7	2	19	29	58	146	80	12	5	5
11.....	4	5	8	2	18	28	43	94	80	11	5	5
12.....	3	4	6	2	43	46	43	130	80	11	5	5
13.....	2	4	6	5	32	43	43	99	84	11	5	5
14.....	4	6	7	18	23	32	46	124	75	11	5	5
15.....	4	11	10	40	19	24	46	84	62	9	5	4
16.....	4	16	9	24	210	19	29	170	46	8	4	4
17.....	4	16	9	21	254	14	35	176	40	9	5	5
18.....	4	13	8	18	94	8	37	99	37	8	5	5
19.....	3	14	7	13	62	13	24	130	11	9	5	4
20.....	3	16	6	13	89	13	32	135	8	8	5	3
21.....	3	16	6	10	35	12	31	124	9	8	5	3
22.....	4	14	5	10	24	15	34	119	11	9	4	3
23.....	4	14	5	7	17	18	28	130	35	8	5	3
24.....	4	13	4	9	13	109	32	119	29	8	4	4
25.....	3	13	4	14	13	84	11	104	28	8	5	3
26.....	3	12	4	24	16	75	39	99	23	7	3	3
27.....	4	10	3	23	16	146	37	99	22	7	4	3
28.....	4	10	3	16	16	114	66	89	22	8	4	4
29.....	4	9	3	18	13	29	54	89	20	8	4	3
30.....	3	9	2	17	54	50	94	19	7	4	4
31.....	3	2	16	52	94	7	4

NOTE.—Daily discharge determined from a rating curve fairly well defined below 150 second-feet; Dec. 20, 1911, to Jan. 13, 1912, estimated because of ice; discharge interpolated on all other days of missing gage height.

Monthly discharge of Cottonwood Creek near Lakeview, Oreg., for 1911-12.

[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.	
October.....	6	2	3.9	0.130	0.15	240	B.
November.....	16	2	8.6	.287	.32	512	B.
December.....	10	6.2	.207	.24	381	B.
January.....	40	11.0	.367	.42	676	C.
February.....	254	11	41.1	1.37	1.48	2,360	B.
March.....	196	8	53.0	1.77	2.04	3,260	B.
April.....	70	11	44.2	1.47	1.64	2,630	B.
May.....	176	32	104	3.47	4.00	6,400	B.
June.....	99	8	52.3	1.74	1.94	3,110	B.
July.....	20	7	10.8	.360	.42	664	B.
August.....	8	3	5.1	.170	.20	314	B.
September.....	5	3	4.1	.137	.15	244	B.
The year.....	254	28.6	.953	13.00	20,800	

NOTE.—Discharge Dec. 20, 1911, to Jan. 13, 1912, estimated. The accuracy rating of the records at this station is lowered by diurnal fluctuations in stage.

THOMAS CREEK NEAR LAKEVIEW, OREG.

Location.—In sec. 22, T. 38 S., R. 19 E., about 8 miles below the proposed Thomas Creek reservoir, and about 10 miles northwest of Lakeview.

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

Drainage area.—Not measured.

Gage.—Vertical staff. The gage installed January 1 was found to be in the influence of backwater from a dam, so a new vertical staff was installed March 9, 1912, 300 feet above the old one and was set to read same as old gage.

Channel.—Sand, gravel, and yellow clay; evidently shifting.

Discharge measurements.—Made by wading at all but highest stages when measurements may be made from the highway bridge at the gage.

Accuracy.—Owing to the shifting nature of the channel it will be difficult to get accurate results at this station. The six measurements referred to the old gage are scattering and no curve is defined. Only two measurements have been referred to new gage, therefore no estimates have been made.

Cooperation.—This station is maintained in cooperation with the Lakeview Irrigation & Power Co.

Discharge measurements of Thomas Creek near Lakeview, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
Jan. 1	W. O. Harmon.....	<i>Feet.</i> 1.14	<i>Sec.-ft.</i> 11.8	Mar. 9	H. Kimble.....	<i>Feet.</i> a 1.32	<i>Sec.-ft.</i> 7.58
Jan. 19do.....	1.01	4.21	Apr. 26	W. O. Harmon.....	b 1.59	27.7
Feb. 19do.....	1.55	20.7	Nov. 4	H. Kimble.....	c 1.26	3.58
Mar. 1do.....	1.44	12.6				

a This reading on both gages.

b This reading on old gage. New gage not read.

c This reading on new gage. Old gage read 1.30 feet.

Daily gage height, in feet, of Thomas Creek near Lakeview, Oreg., for 1912.

[G. W. Wright, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.14	1.44	1.76	1.92
2.....	1.25	1.76	1.90
3.....	1.12	1.22	1.80	1.85	1.88	1.38	1.28
4.....	1.75	2.05
5.....	1.68
6.....	1.12	1.30	1.70	2.00	1.80
7.....	1.22	2.01	1.28	1.28
8.....	1.30	1.92	2.05
9.....	2.04	2.20
10.....	1.10	1.30	2.10	2.30	1.32	1.30
11.....	1.82	2.28
12.....	1.79	1.60
13.....	1.20	1.28	1.68	2.22	1.80
14.....	1.28	2.22	1.82
15.....	1.70	2.15	1.70	1.20	1.28
16.....	1.25	1.70	2.10
17.....	1.18	1.40	1.70	2.12	1.62	1.22	1.20
18.....	1.70	1.74	2.15
19.....	1.01	1.58	1.69	1.22
20.....	1.12	1.26	1.64	1.50	1.20
21.....	1.42	2.01
22.....	1.58	1.98
23.....	1.30	1.59	1.88	1.20
24.....	1.20	1.30	1.66	1.82
25.....	1.25	1.65	1.96	1.28	1.25
26.....	1.75
27.....	1.15	1.38	1.61	2.00	1.45	1.28
28.....	1.30	1.98	1.45	1.25
29.....	2.00	1.20
30.....	1.65	1.79	2.00	1.25	1.25
31.....	1.22	1.98

FALL RIVER AT FALL RIVER MILLS, CAL.

Location.—At highway bridge at Fall River Mills, in sec. 31, T. 37 N., R. 5 E., about 600 feet above junction with Pit River.

Records available.—January 19 to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to downstream end of left abutment of bridge.

Channel.—Solid rock and gravel.

Discharge measurements.—Made from upstream side of bridge.

Accuracy.—As the area drained consists largely of lavas run-off is very uniform throughout the year. Results are good.

Estimates are withheld until additional measurements are made.

Discharge measurements of Fall River at Fall River Mills, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
June 19	Lasley Lee.....	<i>Feet.</i> 2.03	<i>Sec.-ft.</i> 1,540
May 13do.....	2.07	1,430
14do.....	2.00	1,360

Daily gage height, in feet, of Fall River at Fall River Mills, Cal., for 1912.

[Robert Summers, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.05
2.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.05
3.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.1
4.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.1
5.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.1
6.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.15
7.....		2.1	2.1	2.1	2.2	2.05	2.05	2.1	2.15
8.....		2.1	2.1	2.1	2.05	2.05	2.1	2.15
9.....		2.1	2.1	2.1	2.05	2.05	2.1	2.15
10.....		2.1	2.1	2.1	2.05	2.05	2.1	2.15
11.....		2.1	2.1	2.15	2.1	2.05	2.05	2.1	2.15
12.....		2.1	2.1	2.15	2.1	2.05	2.05	2.05	2.15
13.....		2.15	2.1	2.15	2.05	2.05	2.05	2.05	2.1
14.....		2.1	2.15	2.15	2.05	2.1	2.05	2.05	2.1
15.....		2.1	2.1	2.15	2.1	2.1	2.05	2.05	2.1
16.....		2.1	2.1	2.15	2.1	2.1	2.05	2.05	2.1
17.....		2.1	2.15	2.15	2.1	2.1	2.05	2.05	2.1
18.....		2.1	2.15	2.1	2.05	2.1	2.1	2.05	2.1
19.....	2.05	2.15	2.15	2.1	2.1	2.1	2.1	2.05	2.1
20.....	2.0	2.15	2.1	2.1	2.1	2.1	2.1	2.05	2.1
21.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
22.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
23.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
24.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
25.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
26.....	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
27.....	2.05	2.1	2.1	2.1	2.1	2.1	2.1	2.05	2.1
28.....	2.2	2.1	2.1	2.15	2.1	2.1	2.1	2.05	2.1
29.....	2.15	2.05	2.1	2.15	2.1	2.1	2.1	2.05	2.1
30.....	2.1	2.1	2.15	2.05	2.1	2.1	2.05	2.1
31.....	2.1	2.1	2.05	2.1	2.05

HAT CREEK AT HAWKINS RANCH, NEAR HAT CREEK, CAL.

Location.—At Hawkins ranch, in sec. 5, T. 33 N., R. 5 E., .6 miles south of Hat Creek.

Records available.—August 15, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on downstream end of right support of footbridge.

Channel.—Fairly smooth and probably permanent.

Discharge measurements.—Made from footbridge.

Diversions.—The only important diversion for irrigation above this station is the H. M. Wilcox ditch, which heads about one-half mile above the gage. About 40 second-feet is diverted by this canal at irregular intervals, as shown by the observer's notes. Near the source of the creek water is diverted into Bear Creek drainage for use in power development.

Estimates are withheld until additional measurements are secured.

Discharge measurements of Hat Creek at Hawkins ranch, near Hat Creek, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 17	Lasley Lee.....	2.61	183
May 12do.....	2.48	152

Daily gage height, in feet, of Hat Creek at Hawkins ranch, near Hat Creek, Cal., for 1911-12.

[Chas. Hawkins, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.55	2.70	2.70	2.62	2.58	2.55	2.52	2.55	2.50	2.50	2.60
2.....	2.52	2.70	2.70	2.62	2.58	2.55	2.52	2.55	2.55	2.50	2.52	2.60
3.....	2.58	2.70	2.70	2.62	2.58	2.55	2.52	2.55	2.55	2.50	2.52	2.58
4.....	2.70	2.70	2.70	2.62	2.60	2.55	2.52	2.55	2.58	2.55	2.50	2.58
5.....	2.70	2.70	2.70	2.62	2.60	2.55	2.52	2.42	2.58	2.58	2.50	2.60
6.....	2.72	2.70	2.70	2.62	2.60	2.55	2.52	2.45	2.58	2.58	2.50	2.90
7.....	2.75	2.70	2.65	2.62	2.58	2.55	2.52	2.45	2.55	2.60	2.50	2.90
8.....	2.70	2.70	2.65	2.62	2.58	2.55	2.52	2.60	2.55	2.60	2.50	2.80
9.....	2.70	2.70	2.65	2.62	2.58	2.52	2.55	2.55	2.55	2.58	2.48	2.65
10.....	2.65	2.70	2.65	2.62	2.58	2.52	2.55	2.55	2.58	2.50	2.48	2.65
11.....	2.65	2.70	2.65	2.62	2.60	2.52	2.55	2.55	2.58	2.50	2.45	2.65
12.....	2.65	2.70	2.65	2.62	2.60	2.52	2.55	2.60	2.60	2.50	2.45	2.60
13.....	2.65	2.70	2.62	2.62	2.60	2.55	2.52	2.60	2.60	2.50	2.45	2.60
14.....	2.68	2.70	2.62	2.62	2.60	2.55	2.52	2.58	2.60	2.50	2.45	2.60
15.....	2.68	2.70	2.60	2.62	2.55	2.55	2.55	2.58	2.60	2.50	2.42	2.60
16.....	2.65	2.70	2.60	2.62	2.55	2.55	2.55	2.58	2.60	2.50	2.42	2.62
17.....	2.65	2.70	2.60	2.60	2.55	2.55	2.55	2.58	2.62	2.50	2.42	2.62
18.....	2.65	2.70	2.60	2.60	2.55	2.55	2.55	2.55	2.62	2.50	2.42	2.62
19.....	2.68	2.70	2.60	2.60	2.55	2.52	2.55	2.55	2.68	2.52	2.50	2.65
20.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.55	2.70	2.52	2.50	2.65
21.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.58	2.75	2.52	2.50	2.68
22.....	2.70	2.70	2.60	2.60	2.55	2.58	2.55	2.58	2.80	2.50	2.50	2.68
23.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.55	2.80	2.50	2.52	2.68
24.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.55	2.85	2.48	2.52	2.70
25.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.58	2.90	2.48	2.55	2.70
26.....	2.70	2.70	2.60	2.60	2.55	2.52	2.55	2.58	2.95	2.50	2.58	2.70
27.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.58	2.55	2.50	2.58	2.70
28.....	2.70	2.70	2.60	2.60	2.55	2.55	2.55	2.60	2.52	2.52	2.55	2.70
29.....	2.70	2.70	2.60	2.60	2.55	2.52	2.55	2.62	2.50	2.52	2.58	2.68
30.....	2.70	2.70	2.62	2.60	2.52	2.55	2.70	2.50	2.50	2.58	2.68
31.....	2.70	2.62	2.60	2.52	2.72	2.50	2.60

HAT CREEK AT HAT CREEK, CAL.

Location.—At private highway bridge on Morris ranch, in the Lassen National Forest, in the SE. $\frac{1}{4}$ sec. 10, T. 34 N., R. 4 E., M. D. M., 1 mile north of Hat Creek post office.¹

Records available.—September 22, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to downstream end of right abutment of bridge.

Channel.—Gravel and small boulders; apparently permanent.

Discharge measurements.—Made from downstream side of bridge.

Diversions.—On account of the diversions for irrigation above the station this record does not show the natural run-off from the drainage basin. On May 13, 1911, the nine ditches were diverting a total of 110 second-feet. Of this amount, it was estimated that 55 second-feet was returned to the stream above the gage.

Accuracy.—Rating curve fairly well defined; results fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Hat Creek at Hat Creek, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
Jan. 17	Lasley Lee.....	<i>Feet.</i> 2.52	<i>Sec.-ft.</i> 160	May 12	Lasley Lee.....	<i>Feet.</i> 2.21	<i>Sec.-ft.</i> 104
19do.....	2.53	170	14do.....	2.12	88
20do.....	2.52	166				

NOTE.—Made from bridge.

¹ Post office moved during 1912.

Daily gage height, in feet, of Hat Creek at Hat Creek, Cal., for 1911-12.

[Fred Seaborn, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	2.37	2.52		2.51	2.52				2.32	2.22	2.17	
2.		2.52	2.50	2.52			2.48	2.40				2.27
3.	2.37			2.56	2.53			2.40	2.43	2.06		
4.		2.52		2.54			2.47				2.23	
5.	2.50	2.53				2.49	2.47	2.35				
6.				2.51			2.42					
7.		2.53	2.50		2.52	2.47				2.20		2.50
8.			2.50	2.56	2.52	2.47	2.41			2.18		
9.	2.52	2.53	2.50		2.53	2.46		2.30				
10.		2.53			2.50	2.47	2.40		2.36			2.47
11.	2.50	2.53	2.50	2.57		2.47	2.40		2.38			
12.	2.51					2.49				2.13		2.43
13.	2.50	2.53			2.50		2.40					
14.	2.52	2.52	2.50		2.50	2.47		2.20			1.85	
15.							2.40	2.10	2.47	2.14	1.89	2.41
16.	2.52	2.52	2.50		2.50	2.44	2.20	2.08	2.40	2.10		
17.				2.52	2.50	2.46	2.30		2.30			2.41
18.	2.52	2.50	2.51				2.30			2.11	1.98	2.32
19.	2.52	2.51		2.53		2.43				2.19		2.30
20.		2.50	2.50	2.52	2.49		2.23			1.80	2.00	
21.	2.47					2.45						2.27
22.								2.32		1.81		
23.			2.52	2.54		2.46	2.21		2.33	1.80		2.27
24.								2.20	2.29			2.27
25.				2.68			2.26		2.25	2.08		
26.	2.50		2.52	2.58	2.45	2.47			2.27		2.19	
27.				2.51	2.48			2.35		2.10	2.19	
28.		2.51				2.47						
29.	2.50			2.51	2.48	2.48			2.20	2.07		
30.	2.52	2.50					2.39	2.40	2.20	2.10		2.36
31.	2.52		2.51	2.52		2.45		2.30		2.13		

Daily discharge, in second-feet, of Hat Creek at Hat Creek, Cal., for 1910-1912.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	
1910-11.														
1.			141	149	143	158	138	149	136	123	160	78	99	
2.			140	160	142	160	137	152	132	165	172	79	102	
3.			140	172	142	160	137	156	128	205	185	80	104	
4.			140	165	142	160	136	160	123	206	197	80	107	
5.			140	158	142	153	136	160	124	208	210	74	110	
6.			140	151	143	146	135	160	125	210	218	76	114	
7.			141	158	145	140	135	158	132	215	202	78	123	
8.			142	165	144	144	134	158	138	220	187	80	110	
9.			142	202	142	149	134	158	142	224	186	80	110	
10.			146	238	140	150	136	158	139	230	184	80	112	
11.			149	222	142	151	138	158	136	237	185	79	114	
12.			147	207	145	146	137	152	125	244	186	79	115	
13.			146	191	147	142	136	147	128	207	187	78	116	
14.			144	176	150	138	134	147	115	208	188	77	102	
15.			142	160	153	139	136	147	102	210	189	78	101	
16.			142	158	145	140	138	149	90	213	190	79	100	
17.			141	153	149	140	137	151	101	216	191	80	98	
18.			140	148	160	140	136	153	112	218	192	81	97	
19.			140	142	170	140	135	153	104	221	184	82	96	
20.			140	142	156	140	134	153	96	224	176	83	94	
21.			142	145	142	140	135	153	98	192	168	84	110	
22.		80	145	147	148	139	136	153	100	183	160	85	114	
23.			147	150	153	138	137	153	102	174	152	86	119	
24.			150	153	158	138	138	153	100	165	144	82	122	
25.			153	154	154	138	138	153	98	156	136	78	125	
26.			149	156	149	138	138	153	102	147	128	74	119	
27.			148	158	151	138	138	153	106	138	119	72	116	
28.			172	147	140	153	138	149	109	149	110	70	112	
29.			142	142	145	154		142	145	112	160	102	68	110
30.			142	145	145	155		146	140	116	156	94	83	110
31.			142		145	156		149		120		86	98	

Daily discharge, in second-feet, of Hat Creek at Hat Creek, Cal., for 1910-1912—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	132	165	160	162	165	156	152	137	123	105	98	112
2.....	132	165	160	165	166	157	156	138	134	94	101	114
3.....	132	165	160	174	167	157	154	138	145	82	104	124
4.....	146	165	160	170	167	158	153	133	143	87	107	133
5.....	160	167	160	166	166	158	153	128	141	92	102	142
6.....	162	167	160	162	165	156	142	126	139	97	97	151
7.....	163	167	160	168	165	153	141	123	137	102	92	160
8.....	164	167	160	174	165	153	140	121	135	99	87	158
9.....	165	167	160	175	167	151	139	119	132	98	82	155
10.....	162	167	160	176	160	153	138	116	130	96	77	153
11.....	160	167	160	177	160	153	138	112	134	94	72	149
12.....	162	167	160	175	160	158	138	109	138	92	67	145
13.....	160	167	160	173	160	156	138	106	143	92	62	144
14.....	165	165	160	171	160	153	138	102	148	93	57	142
15.....	165	165	160	169	160	150	138	87	153	93	61	140
16.....	165	165	160	167	160	147	102	84	138	87	64	140
17.....	165	162	161	165	160	151	119	90	119	88	68	140
18.....	165	160	162	166	159	148	119	97	120	88	72	123
19.....	165	162	161	167	158	145	113	103	121	100	73	119
20.....	159	160	160	165	158	147	107	110	122	52	74	116
21.....	153	160	162	166	157	149	106	116	123	52	78	114
22.....	155	160	164	168	155	150	105	123	124	53	83	114
23.....	156	160	165	170	153	151	104	112	125	52	87	114
24.....	158	161	165	188	152	152	108	102	117	68	91	114
25.....	159	161	165	205	150	152	112	110	110	84	96	117
26.....	160	162	165	179	149	153	116	119	114	86	100	119
27.....	160	162	165	162	156	153	121	128	110	87	100	122
28.....	160	162	164	162	156	153	126	132	106	85	102	124
29.....	160	161	163	162	156	156	131	135	102	83	105	127
30.....	165	160	162	164	152	136	138	102	87	107	130
31.....	165	162	165	149	119	92	110

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge interpolated for days on which gage was not read.

Monthly discharge of Hat Creek at Hat Creek, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1910-11.					
November.....	153	140	144	8,570	B.
December.....	238	140	163	10,000	B.
January.....	170	140	149	9,160	B.
February.....	160	138	144	8,000	B.
March.....	149	134	137	8,420	B.
April.....	160	140	153	9,100	B.
May.....	142	90	116	7,130	B.
June.....	244	123	194	11,500	B.
July.....	218	86	167	10,300	B.
August.....	98	68	79.4	4,880	B.
September.....	125	94	109	6,490	B.
The period.....				93,600	
1911-12.					
October.....	165	132	158	9,720	B.
November.....	167	160	164	9,760	B.
December.....	165	160	161	9,900	B.
January.....	205	162	170	10,500	B.
February.....	167	149	160	9,200	B.
March.....	158	145	153	9,410	B.
April.....	156	102	129	7,680	B.
May.....	138	84	117	7,190	B.
June.....	153	102	128	7,620	B.
July.....	105	52	85.8	5,280	B.
August.....	110	57	86.3	5,310	B.
September.....	160	112	132	7,860	B.
The year.....	205	52	137	99,400	

RISING RIVER NEAR CASSEL, CAL.

Location.—At highway bridge in sec. 8, T. 35 N., R. 4 E., about half a mile above junction with Hat Creek and $1\frac{1}{4}$ miles south of Cassel.

Records available.—August 15, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on downstream side of bridge pier near left bank.

Channel.—Sand and gravel and is fairly permanent.

Discharge measurements.—Made from upstream side of bridge.

Accuracy.—Results are excellent. This stream, which is only about 2 miles long, is fed by springs, and its flow is very constant.

Discharge measurements of Rising River near Cassel, Cal., for 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.
Jan. 18	Lasley Lee.....	<i>Feet.</i> 1.44	<i>Sec.-ft.</i> 394
May 13do.....	1.25	315

Daily gage height, in feet, of Rising River near Cassel, Cal., for 1911-12.

[De Forest Hobson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.60	1.53	1.50	1.48	1.42	1.37	1.30	1.29	1.31	1.39	1.40	1.45
2.....	1.60	1.53	1.50	1.47	1.42	1.37	1.30	1.29	1.31	1.37	1.41	1.45
3.....	1.60	1.53	1.50	1.45	1.42	1.37	1.30	1.29	1.32	1.37	1.40	1.50
4.....	1.60	1.52	1.50	1.43	1.42	1.37	1.30	1.20	1.32	1.37	1.39	1.55
5.....	1.60	1.52	1.49	1.43	1.42	1.40	1.30	1.29	1.33	1.35	1.39	1.55
6.....	1.59	1.50	1.49	1.45	1.42	1.40	1.30	1.29	1.33	1.35	1.39	1.55
7.....	1.59	1.50	1.49	1.45	1.42	1.39	1.30	1.29	1.40	1.35	1.39	1.50
8.....	1.59	1.50	1.49	1.50	1.40	1.39	1.30	1.28	1.39	1.35	1.39	1.49
9.....	1.59	1.50	1.49	1.55	1.40	1.37	1.30	1.27	1.39	1.35	1.39	1.49
10.....	1.59	1.50	1.49	1.55	1.40	1.37	1.30	1.26	1.39	1.35	1.39	1.49
11.....	1.59	1.50	1.49	1.50	1.40	1.37	1.31	1.26	1.30	1.35	1.37	1.49
12.....	1.59	1.50	1.49	1.47	1.40	1.37	1.30	1.25	1.30	1.35	1.35	1.49
13.....	1.59	1.50	1.49	1.45	1.40	1.35	1.30	1.25	1.40	1.35	1.35	1.49
14.....	1.55	1.50	1.49	1.45	1.40	1.35	1.30	1.25	1.40	1.42	1.35	1.49
15.....	1.55	1.50	1.49	1.43	1.40	1.35	1.30	1.25	1.42	1.40	1.37	1.49
16.....	1.55	1.50	1.49	1.44	1.40	1.35	1.30	1.26	1.45	1.40	1.37	1.50
17.....	1.55	1.50	1.49	1.45	1.40	1.35	1.30	1.26	1.45	1.40	1.37	1.50
18.....	1.55	1.50	1.49	1.44	1.40	1.34	1.30	1.30	1.37	1.40	1.37	1.51
19.....	1.55	1.50	1.49	1.44	1.40	1.33	1.30	1.30	1.35	1.40	1.37	1.50
20.....	1.55	1.50	1.49	1.43	1.40	1.32	1.29	1.31	1.35	1.40	1.39	1.50
21.....	1.50	1.50	1.49	1.42	1.40	1.32	1.29	1.31	1.35	1.39	1.39	1.50
22.....	1.50	1.50	1.48	1.42	1.40	1.32	1.29	1.31	1.40	1.39	1.39	1.50
23.....	1.50	1.50	1.47	1.42	1.40	1.32	1.29	1.31	1.40	1.39	1.39	1.50
24.....	1.53	1.50	1.47	1.42	1.40	1.32	1.29	1.31	1.40	1.39	1.40	1.50
25.....	1.55	1.50	1.47	1.55	1.39	1.32	1.29	1.31	1.39	1.39	1.40	1.50
26.....	1.54	1.50	1.48	1.55	1.39	1.32	1.29	1.31	1.39	1.39	1.40	1.50
27.....	1.55	1.50	1.48	1.50	1.39	1.32	1.29	1.31	1.39	1.39	1.40	1.50
28.....	1.55	1.50	1.48	1.47	1.39	1.31	1.29	1.31	1.39	1.39	1.40	1.51
29.....	1.55	1.50	1.48	1.45	1.37	1.31	1.29	1.31	1.40	1.37	1.40	1.52
30.....	1.52	1.50	1.48	1.44	1.31	1.29	1.31	1.39	1.37	1.48	1.52
31.....	1.52	1.48	1.43	1.31	1.31	1.37	1.48

Daily discharge, in second-feet, of Rising River near Cassel, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	465	431	418	408	381	361	333	329	337	369	373	395
2.....	465	431	418	404	381	361	333	329	337	361	377	395
3.....	465	431	418	395	381	361	333	329	341	361	373	418
4.....	465	426	418	385	381	361	333	329	341	361	369	440
5.....	465	426	413	385	381	373	333	329	345	353	369	440
6.....	460	418	413	395	381	373	333	329	345	353	369	440
7.....	460	418	413	395	381	369	333	329	373	353	369	418
8.....	460	418	413	418	373	369	333	325	369	353	369	413
9.....	460	418	413	440	373	361	333	321	369	353	369	413
10.....	460	418	413	440	373	361	333	318	369	353	369	413
11.....	460	418	413	418	373	361	337	318	333	353	361	413
12.....	460	418	413	404	373	361	333	315	333	353	353	413
13.....	460	418	413	395	373	353	333	315	373	353	353	413
14.....	440	418	413	395	373	353	333	315	373	381	353	413
15.....	440	418	413	385	373	353	333	315	381	373	361	413
16.....	440	418	413	390	373	353	333	318	395	373	361	418
17.....	440	418	413	395	373	353	333	318	395	373	361	418
18.....	440	418	413	390	373	349	333	353	361	373	361	422
19.....	440	418	413	390	373	345	333	353	353	373	361	418
20.....	440	418	413	385	373	341	329	337	353	373	369	418
21.....	418	418	413	381	373	341	329	337	353	369	369	418
22.....	418	418	408	381	373	341	329	337	373	369	369	418
23.....	418	418	404	381	373	341	329	337	373	369	369	418
24.....	431	418	404	381	373	341	329	337	373	369	373	418
25.....	440	418	404	440	369	341	329	337	369	369	373	418
26.....	436	418	408	440	369	341	329	337	369	369	373	418
27.....	440	418	408	418	369	341	329	337	369	369	373	418
28.....	440	418	408	404	369	337	329	337	369	369	373	422
29.....	440	418	408	395	361	337	329	337	373	361	373	426
30.....	426	418	408	390	337	329	337	369	361	408	426
31.....	426	408	385	337	337	361	408

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

Monthly discharge of Rising River near Cassel, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	465	418	446	27,400	A.
November.....	431	418	420	25,000	A.
December.....	418	404	412	25,300	A.
January.....	440	381	400	24,600	A.
February.....	381	361	374	21,500	A.
March.....	373	337	352	21,600	A.
April.....	337	329	332	19,800	A.
May.....	337	315	329	20,200	A.
June.....	373	337	362	21,500	A.
July.....	381	353	364	22,400	A.
August.....	408	353	370	22,800	A.
September.....	440	395	418	24,900	A.
The year.....	465	315	382	277,000	

BURNEY CREEK NEAR BURNEY, CAL.

Location.—At highway bridge three-fourths of a mile southwest of Burney, in the SW. $\frac{1}{4}$ sec. 19, T. 35 N., R. 3 E., 3 miles above Goose Creek and 10 miles above junction with Pit River.

Records available.—August 14, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on upstream end of center pier of bridge.

Channel.—Gravel and sand; probably permanent.

Discharge measurements.—From bridge except at low water, when measurements are made by wading.

Diversions.—Two miles above the station about 2 second-feet are diverted for irrigation during the summer months, and about 0.5 second-foot during the remainder of the year.

Accuracy.—Rating curve fairly well defined; results fair.

Discharge measurements of Burney Creek near Burney, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 16	Lasley Lee	1.34	31
20	do.	1.23	24
May 11	do.	2.48	100
15	do.	2.42	90

NOTE.—May 11, water surface affected by brush above bridge. Measurements Jan. 16 and 20, 1912, made by wading; others made from bridge.

Daily gage height, in feet, of Burney Creek near Burney, Cal., for 1911-12.

[J. D. Rawlings, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.00	1.10	1.08	1.0	1.9	1.55	1.85	3.0	2.25	1.0	0.80	0.70
2.....	1.02	1.10	1.08	1.0	1.8	1.9	1.9	2.55	2.15	1.0	.80	.70
3.....	1.02	1.10	1.05	1.0	1.75	1.7	2.0	2.45	2.1	1.0	.80	.80
4.....	1.18	1.10	1.05	1.0	1.5	1.7	2.0	2.45	2.0	.98	.80	.78
5.....	1.10	1.10	1.05	1.0	1.5	2.15	2.0	2.4	1.9	.95	.75	.78
6.....	1.08	1.10	1.20	1.0	1.4	2.5	2.0	2.4	1.9	.90	.75	1.7
7.....	1.05	1.10	1.15	1.0	2.25	2.0	2.45	1.8	.90	.70	1.7
8.....	1.05	1.08	1.10	1.0	2.1	2.0	2.5	1.7	.90	.70	1.15
9.....	1.28	1.08	1.10	1.0	2.0	2.0	2.5	1.7	.90	.70	1.0
10.....	1.18	1.60	1.00	1.0	1.9	2.2	2.55	1.6	.85	.70	.90
11.....	1.12	1.20	1.00	1.1	1.9	1.85	2.1	2.5	1.5	.82	.70	.85
12.....	1.12	1.15	1.00	1.1	1.85	1.9	1.95	2.4	1.5	.80	.70	.82
13.....	1.12	1.15	1.00	1.1	1.8	1.7	1.9	2.4	1.7	.80	.70	.82
14.....	1.12	1.12	1.00	1.1	1.8	1.7	1.8	2.4	1.75	.78	.70	.82
15.....	1.12	1.35	1.00	1.1	1.8	2.3	1.9	2.4	1.6	.75	.70	.80
16.....	1.12	1.22	1.00	1.35	1.75	1.9	1.9	2.3	1.5	.72	.78	.80
17.....	1.10	1.18	1.10	1.35	2.8	1.85	1.9	2.3	1.4	.72	.78	.80
18.....	1.10	1.15	1.10	1.35	2.95	1.7	1.8	2.3	1.3	.72	.78	.80
19.....	1.10	1.12	1.10	1.2	2.3	1.7	1.8	2.2	1.2	.80	.78	.70
20.....	1.10	1.12	1.10	1.2	2.15	1.65	1.7	2.2	1.1	.82	.70	.70
21.....	1.10	1.12	1.10	1.2	2.1	1.6	1.7	2.4	1.4	.85	.70	.70
22.....	1.10	1.12	1.10	1.2	1.9	1.6	1.7	2.6	1.4	.80	.70	.70
23.....	1.10	1.10	1.10	1.3	1.8	1.6	1.65	2.6	1.9	.80	.70	.60
24.....	1.10	1.10	1.00	1.2	1.7	1.7	1.95	2.6	1.8	.80	.70	.80
25.....	1.08	1.10	1.00	1.4	1.65	1.7	2.1	2.8	1.5	.80	.70	.80
26.....	1.10	1.10	1.00	1.5	1.6	1.8	2.2	2.8	1.35	.80	.70	.70
27.....	1.10	1.00	2.4	1.55	1.8	2.1	2.8	1.2	.80	.70	.70
28.....	1.10	1.00	2.2	1.5	1.9	2.0	2.55	1.1	.80	.70	.70
29.....	1.08	1.00	2.0	1.5	2.05	2.45	2.5	1.1	.80	.70	.70
30.....	1.10	1.08	1.00	2.0	1.85	2.85	2.45	1.1	.80	.70	.70
31.....	1.10	1.00	1.9	1.8	2.3580	.70

Daily discharge, in second feet, of Burney Creek near Burney, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	20	23	22	20	56	39	54	147	78	20	16	14
2.....	21	23	22	20	51	56	56	104	72	20	16	14
3.....	21	23	22	20	48	46	62	94	68	20	16	16
4.....	25	23	22	20	37	46	62	94	62	20	16	16
5.....	23	23	22	20	37	72	62	90	56	19	15	16
6.....	22	23	26	20	33	99	62	90	56	18	15	46
7.....	22	23	24	20	37	78	62	94	51	18	14	46
8.....	22	22	23	20	41	68	62	99	46	18	14	24
9.....	28	22	23	20	46	62	62	99	46	18	14	20
10.....	25	41	20	20	51	56	75	104	41	17	14	18
11.....	24	26	20	23	56	54	68	99	37	16	14	17
12.....	24	24	20	23	54	56	59	90	37	16	14	16
13.....	24	24	20	23	51	46	56	90	46	16	14	16
14.....	24	24	20	23	51	46	51	90	48	16	14	16
15.....	24	31	20	23	51	82	56	90	41	15	14	16
16.....	24	27	20	31	48	56	56	82	37	14	16	16
17.....	23	25	23	31	127	54	56	82	33	14	16	16
18.....	23	24	23	31	142	46	51	82	29	14	16	16
19.....	23	24	23	26	82	46	51	75	26	16	16	14
20.....	23	24	23	26	72	44	46	75	23	16	14	14
21.....	23	24	23	26	68	41	46	90	33	17	14	14
22.....	23	24	23	26	56	41	46	108	33	16	14	14
23.....	23	23	23	29	51	41	44	108	56	16	14	13
24.....	23	23	20	26	46	46	59	108	51	16	14	16
25.....	22	23	20	33	44	46	68	127	37	16	14	16
26.....	23	23	20	37	41	51	75	127	31	16	14	14
27.....	23	23	20	90	39	51	68	127	26	16	14	14
28.....	23	23	20	75	37	56	62	104	23	16	14	14
29.....	22	22	20	62	37	65	94	99	23	16	14	14
30.....	23	22	20	62	54	132	94	23	16	14	14	14
31.....	23	20	20	56	51	51	86	86	16	14	14	14

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

Monthly discharge of Burney Creek near Burney, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	28	20	23.1	1,420	C.
November.....	41	22	24.3	1,450	C.
December.....	26	20	21.5	1,320	C.
January.....	90	20	31.7	1,950	C.
February.....	142	33	54.8	3,150	C.
March.....	99	39	54.7	3,360	C.
April.....	132	44	62.1	3,700	B.
May.....	147	75	98.3	6,040	A.
June.....	78	23	42.3	2,520	C.
July.....	20	14	16.7	1,030	C.
August.....	16	14	14.6	898	C.
September.....	46	13	17.7	1,050	C.
The year.....	147	13	38.4	27,900	

KOSK CREEK NEAR HENDERSON, CAL.

Location.—Above bridge in sec. 12, T. 37 N., R. 1 W., on the Holm ranch, 4 miles north of Henderson, in Shasta National Forest, and $3\frac{1}{2}$ miles above the mouth of the creek. Baker Creek enters about one-fourth mile below the station.

Records available.—October 1, 1910, to September 30, 1912.

Drainage area.—51.9 square miles.

Gage.—Vertical staff on an alder tree on left bank 100 feet above bridge.

Daily discharge, in second-feet, of Kosk Creek near Henderson, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	41	33	33	220	843	310	97	52	39
2.....	38	33	32	220	751	291	96	51	40
3.....	36	33	32	220	660	272	95	50	41
4.....	34	33	32	220	568	253	94	49	43
5.....	33	33	31	220	476	234	93	48	43
6.....	33	33	31	220	454	223	92	46	43
7.....	33	33	31	220	432	212	90	46	43
8.....	33	33	31	201	432	201	89	45	42
9.....	33	33	31	220	422	290	88	44	42
10.....	33	33	31	220	411	180	84	43	42
11.....	33	33	31	220	386	176	80	42	42
12.....	33	33	31	220	361	172	76	42	42
13.....	33	33	31	215	336	167	72	40	42
14.....	33	33	31	210	312	163	67	38	41
15.....	33	33	31	205	295	159	62	36	41
16.....	33	33	30	200	278	155	58	36	41
17.....	33	33	30	195	263	151	57	36	40
18.....	33	33	30	190	248	146	57	37	40
19.....	33	33	30	185	251	142	57	37	40
20.....	33	33	30	180	254	138	56	37	40
21.....	33	33	30	175	257	134	56	37	39
22.....	33	33	29	170	260	130	56	37	39
23.....	33	33	29	166	263	126	56	37	39
24.....	33	33	29	170	276	123	55	37	38
25.....	33	33	29	170	288	119	55	37	38
26.....	33	33	29	170	300	116	55	37	38
27.....	33	33	29	180	312	114	55	37	37
28.....	33	33	29	200	324	110	55	37	37
29.....	33	33	29	400	337	106	55	37	37
30.....	33	33	29	600	350	101	55	37	37
31.....	33	29	330	53	37

NOTE.—Daily discharge determined from two rating curves applicable as follows: 1911 fairly well defined; Jan. 1 to Sept. 30, 1912, well defined. Discharge estimated Apr. 24-30, 1912, from flow of adjacent streams, and precipitation records. Discharge interpolated for all other days on which gage was not read; results are therefore only roughly approximate and should be used with caution.

Monthly discharge of Kosk Creek near Henderson, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	41	33	33.5	2,060	B.
November.....	33	33	33.0	1,960	B.
December.....	33	29	30.3	1,860	B.
January.....
February.....
March.....
April.....	600	166	221	13,200	D.
May.....	843	248	378	23,200	D.
June.....	310	101	174	10,400	C.
July.....	97	53	69.9	4,300	C.
August.....	52	36	40.7	2,500	B.
September.....	43	37	40.2	2,390	B.

MONTGOMERY CREEK AT MONTGOMERY CREEK, CAL.

Location.—At highway bridge in sec. 36, T. 35 N., R. 1 W., about one-fourth mile south of Montgomery Creek post office, and 2 miles above junction with Pit River.

Records available.—August 11, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on a large alder tree on left bank 70 feet below the bridge.

Channel.—Small bowlders and gravel and is rough.

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

Diversions.—About 5 miles above the station, the Terry Lumber Co. diverts water from this stream into Little Cow Creek. During the logging season, from June to December, this diversion is from 8 to 10 second-feet. For the remainder of the year the amount is reduced to about 6 second-feet.

Accuracy.—High-water rating curve not well defined; otherwise the records are excellent.

Discharge measurements of Montgomery Creek at Montgomery Creek, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 13	Lasley Lee.....	1.24	52	May 8	Lasley Lee.....	1.46	76
15do.....	1.08	40	17do.....	1.26	51
21do.....	.99	35				

NOTE.—All measurements made by wading 80 feet below gage.

Daily gage height, in feet, of Montgomery Creek at Montgomery Creek, Cal., for 1911-12.

[Edwin Fowler, observer.]

Day..	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.70	0.66	0.62	0.76	1.17	1.08	1.27	1.75	1.38	0.98	0.70	0.67
2.....	.65	.66	.64	.76	1.14	1.09	1.27	1.65	1.36	.97	.70	.63
3.....	.65	.66	.64	.75	1.12	1.06	1.26	1.60	1.32	.95	.70	.66
4.....	.70	.72	.65	.76	1.10	1.09	1.24	1.60	1.28	.94	.72	.64
5.....	.66	.68	.67	.72	1.08	1.35	1.26	1.55	1.26	.92	.73	.77
6.....	.64	.64	.64	.78	1.06	1.75	1.25	1.50	1.24	.91	.68	1.60
7.....	.65	.65	.62	.80	1.10	1.49	1.23	1.49	1.22	.90	.66	1.34
8.....	.71	.68	.62	.79	1.40	1.46	1.21	1.49	1.22	.81	.66	1.00
9.....	.73	.69	.64	1.10	1.34	1.38	1.21	1.46	1.22	.82	.68	.80
10.....	.70	.75	.62	1.32	1.50	1.32	1.39	1.43	1.20	.81	.68	.74
11.....	.70	.68	.62	1.12	1.36	1.31	1.38	1.41	1.20	.81	.68	.72
12.....	.70	.68	.62	1.38	1.29	1.40	1.31	1.39	1.32	.80	.67	.72
13.....	.70	.68	.62	1.22	1.29	1.40	1.34	1.37	1.25	.80	.68	.69
14.....	.70	.68	.62	1.13	1.26	1.48	1.30	1.36	1.21	.79	.67	.68
15.....	.71	.80	.62	1.08	1.20	1.72	1.31	1.34	1.20	.77	.68	.68
16.....	.68	.69	.64	1.15	1.19	1.49	1.31	1.31	1.12	.74	.67	.67
17.....	.69	.68	.66	1.01	1.50	1.42	1.29	1.27	1.12	.77	.66	.65
18.....	.66	.68	.66	1.20	1.55	1.38	1.29	1.28	1.12	.80	.66	.64
19.....	.66	.68	.63	1.10	1.39	1.34	1.28	1.26	1.10	.85	.66	.63
20.....	.66	.66	.64	1.04	1.34	1.32	1.26	1.45	1.11	.80	.64	.63
21.....	.66	.65	.66	.98	1.29	1.29	1.24	1.41	1.11	.81	.64	.62
22.....	.69	.64	.71	.98	1.24	1.28	1.22	1.45	1.10	.82	.63	.62
23.....	.68	.65	.67	1.00	1.21	1.26	1.20	1.55	1.28	.78	.64	.63
24.....	.66	.64	.64	1.58	1.18	1.28	1.25	1.49	1.18	.76	.66	.62
25.....	.68	.64	.65	3.50	1.16	1.29	1.22	1.60	1.10	.75	.63	.62
26.....	.68	.66	.68	2.35	1.12	1.29	1.35	1.65	1.04	.74	.62	.64
27.....	.69	.66	.72	1.80	1.12	1.31	1.30	1.65	1.02	.73	.62	.62
28.....	.68	.64	.82	1.55	1.10	1.32	1.28	1.55	1.01	.72	.62	.61
29.....	.69	.64	.88	1.44	1.08	1.35	1.70	1.50	1.01	.72	.62	.61
30.....	.68	.64	.72	1.34	1.31	1.60	1.46	1.00	.70	.62	.61
31.....	.6681	1.24	1.29	1.4271	.70

Daily discharge, in second-feet, of Montgomery Creek at Montgomery Creek, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	22	21	20	24	47	40	55	110	66	33	20	19
2.....	21	21	21	24	44	40	55	97	64	32	20	18
3.....	21	21	21	24	43	38	54	91	60	32	20	19
4.....	22	23	21	24	41	40	53	91	56	31	21	18
5.....	21	22	21	23	40	63	54	85	54	30	21	23
6.....	21	21	21	24	38	110	54	79	53	30	19	91
7.....	21	21	20	25	41	78	52	78	51	29	19	62
8.....	22	22	20	25	68	75	50	78	51	24	19	34
9.....	24	22	21	41	62	66	50	75	51	25	19	24
10.....	22	24	20	60	79	60	67	71	49	24	19	22
11.....	22	22	20	43	64	59	66	69	49	24	19	21
12.....	22	22	20	66	57	68	59	67	60	24	19	21
13.....	22	22	20	51	57	68	62	65	54	24	19	20
14.....	22	22	20	43	54	77	58	64	50	24	19	19
15.....	22	25	20	40	49	106	59	62	49	23	19	19
16.....	22	22	21	45	48	78	59	59	43	22	19	19
17.....	22	22	21	35	79	70	57	55	43	23	19	18
18.....	21	22	21	49	85	66	57	56	43	24	19	18
19.....	21	22	21	41	67	62	56	54	41	26	19	18
20.....	21	21	21	37	62	60	54	74	42	24	18	18
21.....	21	21	21	33	57	57	53	69	42	24	18	18
22.....	22	21	22	33	53	56	51	74	41	25	18	18
23.....	22	21	21	34	50	54	49	85	56	23	18	18
24.....	21	21	21	89	47	56	54	78	47	22	19	18
25.....	22	21	21	542	46	57	51	91	41	22	18	18
26.....	22	21	22	210	43	57	63	97	37	22	18	18
27.....	22	21	23	116	43	59	58	97	35	21	18	18
28.....	22	21	26	85	41	60	56	85	35	21	18	17
29.....	22	21	28	72	40	63	103	79	35	21	18	17
30.....	22	21	23	62	59	91	75	34	20	18	17
31.....	21	25	53	57	70	20	20

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

Monthly discharge of Montgomery Creek at Montgomery Creek, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	24	21	21.7	1,330	B.
November.....	25	21	21.7	1,290	B.
December.....	28	20	21.4	1,320	B.
January.....	542	23	66.9	4,110	A.
February.....	85	38	53.3	3,070	A.
March.....	110	38	63.2	3,890	A.
April.....	103	49	58.7	3,490	A.
May.....	110	54	76.8	4,720	A.
June.....	66	34	47.7	2,840	A.
July.....	33	20	24.8	1,520	A.
August.....	21	18	18.9	1,160	B.
September.....	91	17	23.3	1,390	B.
The year.....	542	17	41.5	30,100	

SQUAW CREEK NEAR YDALPOM, CAL.

Location.—At the highway bridge in sec. 29, T. 34 N., R. 3 W., three-fourths of a mile southwest of Ydalpom (Copper City), and three-fourths of a mile above junction with Pit River.

Records available.—October 4, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on downstream end of right pier of bridge.

Channel.—Gravel and cobblestones; will probably shift slightly at high stages.

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

Diversions.—One small ditch diverts water for irrigation above the station.

Accuracy.—High-water rating curve not well defined; otherwise the record is excellent.

Discharge measurements of Squaw Creek near Ydalpom, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 4	G. T. Peekema	<i>Feet.</i> 1.61	<i>Sec.-ft.</i> 35
1912. Jan. 24	Lasley Lee	2.81	282
Mar. 9do.....	4.18	772

NOTE.—Measurement Oct. 4, 1911, made by wading; all others made from bridge.

Daily gage height, in feet, of Squaw Creek near Ydalpom, Cal., for 1911-12.

[Mrs. L. Williams, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.6	1.6	1.7	3.0	2.5	2.8	6.1	3.0	2.1	1.6	1.5
2.....	1.6	1.6	1.6	2.7	2.6	2.8	4.9	3.0	2.1	1.6	1.5
3.....	1.6	1.6	1.7	2.5	2.4	2.7	4.0	2.9	2.1	1.6	1.5
4.....	1.6	1.6	1.7	2.6	2.4	2.7	4.0	2.8	2.0	1.6	1.7
5.....	1.6	1.6	1.9	1.7	2.5	3.0	2.6	3.9	2.7	2.0	1.6	1.9
6.....	1.6	1.6	1.8	1.7	2.4	5.2	2.6	3.7	2.6	2.0	1.6	2.5
7.....	1.5	1.6	1.7	1.6	2.4	4.8	2.6	3.4	2.6	1.9	1.6	2.3
8.....	1.5	1.6	1.6	1.7	3.0	4.5	2.5	3.2	2.6	1.9	1.6	2.0
9.....	1.5	1.6	1.6	1.9	3.2	4.1	2.5	3.1	2.6	1.9	1.6	1.9
10.....	1.5	2.1	1.6	2.3	3.4	3.8	3.4	3.0	2.5	1.9	1.6	1.7
11.....	1.9	1.8	1.6	2.3	3.3	3.6	3.7	3.0	2.5	1.9	1.6	1.6
12.....	1.8	1.7	1.6	2.5	3.1	4.0	3.5	2.9	2.9	1.9	1.6	1.6
13.....	1.7	1.6	1.7	2.4	3.0	3.9	3.2	2.8	2.8	1.8	1.6	1.6
14.....	1.5	1.6	1.7	2.3	3.0	4.1	3.0	2.8	2.5	1.8	1.6	1.6
15.....	1.6	2.0	1.6	2.3	3.0	6.0	2.9	2.7	2.5	1.8	1.6	1.6
16.....	1.6	1.8	1.6	2.2	3.1	5.5	2.9	2.7	2.4	1.8	1.6	1.6
17.....	1.6	1.7	1.6	2.1	3.7	4.7	2.8	2.6	2.4	1.8	1.6	1.6
18.....	1.6	1.7	1.6	3.8	3.5	4.1	2.8	2.6	2.4	1.8	1.6	1.6
19.....	1.6	1.7	1.6	3.3	3.7	4.0	2.7	2.6	2.4	1.8	1.6	1.6
20.....	1.6	1.6	1.6	3.6	3.5	3.9	2.7	4.1	2.3	1.8	1.5	1.6
21.....	1.6	1.6	1.6	3.2	3.3	3.7	2.6	3.0	2.3	1.8	1.5	1.6
22.....	1.6	1.6	1.6	2.0	3.1	3.5	2.6	3.1	2.3	1.8	1.5	1.6
23.....	1.6	1.6	1.6	2.3	2.9	3.4	2.6	3.0	3.0	1.8	1.5	1.6
24.....	1.6	1.6	1.5	3.0	3.0	3.3	2.6	2.9	2.5	1.8	1.5	1.6
25.....	1.6	1.6	1.5	7.5	3.2	3.3	2.6	3.2	2.3	1.7	1.5	1.6
26.....	1.7	1.6	1.5	8.2	3.4	3.2	2.5	3.1	2.3	1.7	1.5	1.6
27.....	1.6	1.6	1.6	5.6	3.6	3.1	2.5	4.5	2.3	1.7	1.5	1.6
28.....	1.6	1.6	1.6	4.2	2.6	3.0	2.5	4.0	2.2	1.7	1.5	1.6
29.....	1.6	1.6	1.7	4.0	2.5	3.0	6.1	3.7	2.2	1.7	1.5	1.6
30.....	1.6	1.6	1.7	3.6	2.9	4.8	3.5	2.2	1.6	1.5	1.6
31.....	1.6	1.8	3.2	2.8	3.2	1.6	1.5

Daily discharge, in second-feet, of Squaw Creek near Ydalpom, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		34	34	46	330	200	274	1,970	330	114	34	24
2.....		34	34	34	248	224	274	1,140	330	114	34	24
3.....		34	34	46	200	178	248	690	302	114	34	24
4.....	34	34	34	46	224	178	248	690	274	94	34	46
5.....	34	34	76	46	200	330	224	646	248	94	34	76
6.....	34	34	60	46	178	1,320	224	564	224	94	34	200
7.....	24	34	46	34	178	1,090	224	456	224	76	34	156
8.....	24	34	34	46	330	930	200	390	224	76	34	94
9.....	24	34	34	76	390	736	200	360	224	76	34	76
10.....	24	114	34	156	456	604	456	330	200	76	34	46
11.....	76	60	34	156	422	526	564	330	200	76	34	34
12.....	60	46	34	200	360	690	490	302	302	76	34	34
13.....	46	34	46	178	330	646	390	274	274	60	34	34
14.....	24	34	46	156	330	736	330	274	200	60	34	34
15.....	34	94	34	156	330	1,890	302	248	200	60	34	34
16.....	34	60	34	135	360	1,520	302	248	178	60	34	34
17.....	34	46	34	114	564	1,030	274	224	178	60	34	34
18.....	34	46	34	604	490	736	274	224	178	60	34	34
19.....	34	46	34	422	564	690	248	224	178	60	34	34
20.....	34	34	34	526	490	646	248	736	156	60	24	34
21.....	34	34	34	390	422	564	224	330	156	60	24	34
22.....	34	34	34	94	360	490	224	360	156	60	24	34
23.....	34	34	34	156	302	456	224	330	330	60	24	34
24.....	34	34	24	330	330	422	224	302	200	60	24	34
25.....	34	34	24	3,190	390	422	224	390	156	46	24	34
26.....	46	34	24	3,850	456	390	200	360	156	46	24	34
27.....	34	34	34	1,590	526	360	200	930	156	46	24	34
28.....	34	34	34	783	224	330	200	690	135	46	24	34
29.....	34	34	46	690	200	330	1,970	564	135	46	24	34
30.....	34	34	46	526	302	1,090	490	135	34	24	34
31.....	34	60	390	274	390	34	24

NOTE.—Daily discharge determined from a rating curve well defined between 250 and 1,000 second-feet and not well defined outside these limits.

Monthly discharge of Squaw Creek near Ydalpom, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 4-31.....	76	24	35.5	1,970	C.
November.....	114	34	42.0	2,500	C.
December.....	76	24	38.0	2,340	C.
January.....	3,850	34	491	30,200	A.
February.....	564	178	351	20,200	A.
March.....	1,890	178	621	38,200	A.
April.....	1,970	200	359	21,400	A.
May.....	1,970	224	499	30,700	A.
June.....	330	135	211	12,600	B.
July.....	114	34	67.7	4,160	C.
August.....	34	24	30.1	1,850	C.
September.....	200	24	48.2	2,870	C.
The period.....	169,000

MCCLOUD RIVER AT BAIRD, CAL.

Location.—At the United States fishery at Baird, in the NW. $\frac{1}{4}$ sec. 23, T. 34 N., R. 4 W., about 2 miles above junction with Pit River. Bailey Creek enters about 2,000 feet above and Johns Creek 2,000 feet below the station.

Records available.—December 22, 1910, to September 30, 1912.

Drainage area.—665 square miles.

Gage.—Vertical staff fastened to an alder tree on right bank, 600 feet above the hatchery.

Channel.—Gravel and cobblestones; permanent.

Discharge measurements.—Made from car and cable 20 feet above gage.

Accuracy.—Rating curve well defined; results excellent.

Cooperation.—Gage-height record furnished by G. H. Lambson, superintendent of United States fishery.

Discharge measurements of McCloud River at Baird, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Jan. 25	Lasley Lee.....	Feet. 8.00	Sec.-ft. 9,260
Mar. 10do.....	3.59	2,390

NOTE.—Made from cable.

Daily gage height, in feet, of McCloud River at Baird, Cal., for 1911-12.

[G. H. Lambson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.28	2.18	2.08	2.0	2.9	2.4	2.9	7.8	3.6	2.3	2.0	1.9
2.....	2.27	2.18	2.08	2.0	2.8	2.4	2.9	6.1	3.5	2.3	2.0	1.9
3.....	2.25	2.17	2.08	2.0	2.7	2.4	2.8	4.9	3.4	2.3	2.1	1.9
4.....	2.23	2.15	2.08	2.0	2.6	2.4	2.8	4.5	3.4	2.3	2.0	1.9
5.....	2.20	2.15	2.08	2.0	2.6	2.6	2.7	4.2	3.3	2.3	2.0	2.0
6.....	2.20	2.15	2.28	2.0	2.5	4.6	2.7	4.0	3.2	2.2	2.0	2.6
7.....	2.21	2.15	2.15	2.0	2.5	4.6	2.7	3.9	3.2	2.2	2.0	2.2
8.....	2.21	2.15	2.12	2.0	2.9	4.2	2.6	3.8	3.0	2.2	2.0	2.1
9.....	2.41	2.16	2.08	2.0	2.9	3.8	2.6	3.7	3.0	2.2	2.0	2.0
10.....	2.21	2.17	2.08	2.2	3.1	3.6	2.9	3.6	2.9	2.2	2.0	2.0
11.....	2.21	2.18	2.08	2.2	3.2	3.4	3.1	3.5	2.9	2.2	2.0	2.0
12.....	2.18	2.18	2.08	2.3	3.0	3.4	3.0	3.5	3.0	2.2	2.0	2.0
13.....	2.20	2.19	2.08	2.7	3.1	3.4	3.0	3.4	3.0	2.2	2.0	2.0
14.....	2.21	2.20	2.08	2.4	3.0	3.4	2.9	3.4	2.9	2.2	2.0	2.0
15.....	2.21	2.40	2.08	2.3	2.9	4.2	2.9	3.4	2.8	2.1	2.0	2.0
16.....	2.19	2.26	2.04	2.4	2.8	4.4	2.8	3.3	2.7	2.1	2.0	2.0
17.....	2.15	2.22	2.04	2.4	3.1	4.0	2.8	3.3	2.6	2.2	1.9	1.9
18.....	2.15	2.22	2.04	2.5	3.5	3.8	2.8	3.2	2.6	2.2	1.9	1.9
19.....	2.24	2.20	2.04	2.9	3.4	3.5	2.8	3.2	2.5	2.2	1.9	1.9
20.....	2.16	2.17	2.04	2.7	3.2	3.5	2.7	3.5	2.5	2.1	1.9	1.9
21.....	2.22	2.17	2.02	2.5	3.0	3.4	2.7	3.4	2.4	2.1	1.9	1.9
22.....	2.26	2.17	2.02	2.4	2.9	3.2	2.6	3.3	2.5	2.1	1.9	1.9
23.....	2.28	2.16	2.00	2.4	2.8	3.1	2.6	3.4	2.7	2.1	1.9	1.9
24.....	2.37	2.18	2.00	2.9	2.7	3.1	2.7	3.4	2.5	2.1	1.9	1.9
25.....	2.22	2.16	2.00	8.0	2.6	3.1	2.6	3.4	2.6	2.0	1.9	1.9
26.....	2.23	2.14	2.00	8.5	2.6	3.2	2.6	4.5	2.4	2.0	1.9	1.8
27.....	2.22	2.12	2.00	5.8	2.6	3.1	2.6	5.2	2.4	2.0	1.9	1.8
28.....	2.26	2.08	2.00	4.4	2.5	3.1	2.6	4.8	2.4	2.0	1.9	1.8
29.....	2.18	2.08	2.00	3.7	2.5	3.1	4.8	4.3	2.4	2.0	1.9	1.8
30.....	2.18	2.07	2.00	3.4	3.0	5.9	4.0	2.3	2.0	1.9	1.8
31.....	2.18	2.00	3.1	2.9	3.8	2.0	1.9

Daily discharge, in second-feet, of McCloud River at Baird, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1,410	1,350	1,300	1,270	1,810	1,480	1,810	8,900	2,400	1,420	1,270	1,240
2.....	1,400	1,350	1,300	1,270	1,740	1,480	1,810	5,670	2,300	1,420	1,270	1,240
3.....	1,390	1,340	1,300	1,270	1,670	1,480	1,740	3,910	2,210	1,420	1,310	1,240
4.....	1,380	1,340	1,300	1,270	1,600	1,480	1,740	3,400	2,210	1,420	1,270	1,240
5.....	1,360	1,340	1,300	1,270	1,600	1,600	1,670	3,040	2,120	1,420	1,270	1,270
6.....	1,360	1,340	1,410	1,270	1,540	3,520	1,670	2,520	2,040	1,360	1,270	1,600
7.....	1,370	1,340	1,340	1,270	1,540	3,520	1,670	2,710	2,040	1,360	1,270	1,360
8.....	1,370	1,340	1,320	1,270	1,810	3,040	1,600	2,600	1,880	1,360	1,270	1,310
9.....	1,490	1,340	1,300	1,270	1,810	2,600	1,600	2,500	1,880	1,360	1,270	1,270
10.....	1,370	1,340	1,300	1,360	1,960	2,400	1,810	2,400	1,810	1,360	1,270	1,270
11.....	1,370	1,350	1,300	1,360	2,040	2,210	1,960	2,300	1,810	1,360	1,270	1,270
12.....	1,350	1,350	1,300	1,420	1,880	2,210	1,880	2,300	1,880	1,360	1,270	1,270
13.....	1,360	1,360	1,300	1,670	1,960	2,210	1,880	2,210	1,880	1,360	1,270	1,270
14.....	1,370	1,360	1,300	1,480	1,880	2,210	1,810	2,210	1,810	1,360	1,270	1,270
15.....	1,370	1,480	1,300	1,420	1,810	3,040	1,810	2,210	1,740	1,310	1,270	1,270
16.....	1,360	1,400	1,290	1,480	1,740	3,280	1,740	2,120	1,670	1,310	1,270	1,270
17.....	1,340	1,370	1,290	1,480	1,960	2,820	1,740	2,120	1,600	1,360	1,240	1,240
18.....	1,340	1,370	1,290	1,540	2,300	2,600	1,740	2,040	1,600	1,360	1,240	1,240
19.....	1,380	1,370	1,290	1,810	2,210	2,400	1,740	2,040	1,540	1,360	1,240	1,240
20.....	1,340	1,340	1,290	1,670	2,040	2,300	1,670	2,300	1,540	1,310	1,240	1,240
21.....	1,370	1,340	1,280	1,540	2,120	2,210	1,670	2,210	1,480	1,310	1,240	1,240
22.....	1,400	1,340	1,280	1,480	1,810	2,040	1,600	2,120	1,540	1,310	1,240	1,240
23.....	1,410	1,340	1,270	1,480	1,740	1,960	1,600	2,210	1,670	1,310	1,240	1,240
24.....	1,460	1,350	1,270	1,810	1,670	1,960	1,670	2,210	1,540	1,310	1,240	1,240
25.....	1,370	1,340	1,270	9,300	1,600	1,960	1,600	2,210	1,600	1,270	1,240	1,240
26.....	1,380	1,330	1,270	10,400	1,600	2,040	1,600	3,400	1,480	1,270	1,240	1,210
27.....	1,370	1,320	1,270	5,200	1,600	1,960	1,600	4,330	1,480	1,270	1,240	1,210
28.....	1,400	1,300	1,270	3,280	1,540	1,960	1,600	3,780	1,480	1,270	1,240	1,210
29.....	1,350	1,300	1,270	2,500	1,540	1,960	3,780	3,160	1,480	1,270	1,240	1,210
30.....	1,350	1,300	1,270	2,210	1,880	5,350	2,820	1,420	1,270	1,240	1,210
31.....	1,350	1,270	1,960	1,810	2,600	1,270	1,240

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

Monthly discharge of McCloud River at Baird, Cal., for 1911-12.

[Drainage area, 665 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	1,490	1,340	1,380	2.08	2.40	84,800	B.
November.....	1,480	1,300	1,350	2.03	2.26	80,300	B.
December.....	1,410	1,270	1,290	1.94	2.24	79,300	B.
January.....	10,400	1,270	2,230	3.35	3.36	137,000	A.
February.....	2,300	1,540	1,800	2.71	2.92	104,000	A.
March.....	3,520	1,480	2,250	3.38	3.90	138,000	A.
April.....	5,350	1,600	1,910	2.87	3.20	114,000	A.
May.....	8,900	2,040	2,930	4.41	5.08	180,000	A.
June.....	2,400	1,420	1,770	2.66	2.97	105,000	A.
July.....	1,420	1,270	1,340	2.02	2.33	82,400	A.
August.....	1,310	1,240	1,260	1.89	2.18	77,500	A.
September.....	1,600	1,210	1,260	1.89	2.11	75,000	A.
The year.....	10,400	1,210	1,730	2.60	35.45	1,260,000	

CLEAR CREEK NEAR SHASTA, CAL.

Location.—At suspension footbridge, in the SE. $\frac{1}{4}$ sec. 17, T. 32 N., R. 6 W., at Whiskytown and 5 miles northwest of Shasta. Brandy Creek and Whisky Creek enter about 1,000 feet below the station.

Records available.—August 31, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff, in three sections, on right bank 30 feet below bridge.

Channel.—Solid rock and boulders; permanent.

Discharge measurements.—Made from suspension bridge at medium and high stages; at low water, measurements are made by wading above the bridge.

Diversions.—Several small ditches divert water above the station.

Accuracy.—Rating curve well defined; results excellent.

Discharge measurements of Clear Creek near Shasta, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 8a	H. J. Tompkins.....	4.00	249
Mar. 4b	Lasley Lee.....	3.59	112
7a	do.....	5.04	722
May 19b	do.....	4.04	243

a Bridge.

b Wading 1,000 feet above gage.

Daily gage height, in feet, of Clear Creek near Shasta, Cal., for 1911-12.

[J. F. Schilling and J. P. W. Davis, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.8	2.8	2.8	3.65	3.85	3.55	4.1	5.0	4.5	4.0	3.32	3.20
2.....	2.8	2.8	2.8	3.45	3.8	3.5	4.1	4.8	4.4	4.0	3.32	3.20
3.....	2.8	2.8	2.8	3.55	3.7	3.5	4.1	5.3	4.35	4.0	3.30	3.22
4.....	2.8	2.8	2.8	3.6	3.6	3.6	4.1	5.1	4.25	3.85	3.30	3.32
5.....	2.8	2.8	2.8	3.7	3.55	3.85	4.0	4.9	4.25	3.65	3.30	3.40
6.....	2.8	2.8	3.1	3.45	3.57	5.6	4.0	4.7	4.25	3.6	3.30	4.05
7.....	2.8	2.8	3.0	3.5	3.58	5.0	4.0	4.6	4.2	3.55	3.30	3.70
8.....	2.8	2.8	2.8	3.45	3.7	4.6	4.0	4.5	4.15	3.5	3.25	3.55
9.....	2.8	2.8	2.8	3.55	3.85	4.5	3.95	4.35	4.1	3.5	3.25	3.42
10.....	2.8	2.8	2.8	3.6	4.0	4.4	4.1	4.3	4.0	3.45	3.25	3.35
11.....	2.8	2.8	2.8	3.55	4.0	4.35	4.9	4.25	4.0	3.45	3.25	3.32
12.....	2.8	2.8	2.8	3.7	3.8	5.4	4.4	4.25	4.0	3.45	3.25	3.32
13.....	2.8	2.8	2.8	3.9	4.0	4.9	4.35	4.25	4.05	3.4	3.25	3.32
14.....	2.8	2.8	2.8	3.58	3.8	4.6	4.3	4.15	4.0	3.4	3.22	3.30
15.....	2.8	2.8	2.8	3.5	3.85	4.7	4.3	4.25	3.95	3.4	3.22	3.28
16.....	2.8	2.8	2.8	3.62	3.9	4.65	4.5	4.25	4.0	3.4	3.22	3.28
17.....	2.8	2.8	2.8	3.6	4.1	4.5	4.6	4.2	4.0	3.4	3.22	3.28
18.....	2.8	2.8	2.8	3.75	4.15	4.4	4.6	4.2	4.0	3.45	3.22	3.30
19.....	2.8	2.8	2.8	3.88	4.0	4.3	4.5	4.05	3.99	3.45	3.22	3.30
20.....	2.8	2.8	2.8	3.6	3.9	4.2	4.4	4.8	4.05	3.4	3.20	3.30
21.....	2.8	2.8	2.8	3.55	3.8	4.15	4.4	4.35	4.05	3.4	3.20	3.28
22.....	2.8	2.8	2.8	3.5	3.7	4.1	4.2	4.35	4.05	3.4	3.20	3.28
23.....	2.8	2.8	2.8	3.6	3.6	4.0	4.2	4.25	4.05	3.4	3.18	3.25
24.....	2.8	2.8	2.8	4.2	3.65	4.3	4.2	4.2	4.05	3.4	3.18	3.25
25.....	2.8	2.8	2.8	6.0	3.7	4.3	4.25	4.35	4.0	3.4	3.15	3.22
26.....	2.8	2.8	2.8	7.0	3.7	4.35	4.3	5.7	4.05	3.4	3.12	3.22
27.....	2.8	2.8	3.2	5.0	3.65	4.4	4.3	5.8	4.0	3.39	3.12	3.20
28.....	2.8	2.8	3.2	4.7	3.6	4.35	4.2	5.3	4.0	3.35	3.18	3.20
29.....	2.8	2.8	3.4	4.3	3.55	4.25	6.2	5.0	4.0	3.35	3.20	3.20
30.....	2.8	2.8	3.5	3.9	4.2	5.0	4.8	4.0	3.35	3.20	3.20
31.....	2.8	3.6	3.8	4.1	4.6	3.35	3.20

Daily discharge, in second-feet, of Clear Creek near Shasta, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	10	10	10	127	186	103	272	690	436	236	61	44
2.....	10	10	10	83	170	92	272	580	392	236	61	44
3.....	10	10	10	103	140	92	272	870	371	236	58	47
4.....	10	10	10	114	114	114	272	750	330	186	58	61
5.....	10	10	10	140	103	186	236	635	330	127	58	74
6.....	10	10	32	83	107	1,050	236	530	330	114	58	254
7.....	10	10	22	92	110	690	236	482	310	103	58	140
8.....	10	10	10	83	140	482	236	436	291	92	51	103
9.....	10	10	10	103	186	436	219	371	272	92	51	78
10.....	10	10	10	114	236	392	272	350	236	83	51	66
11.....	10	10	10	103	236	371	635	330	236	83	51	61
12.....	10	10	10	140	170	930	392	330	236	83	51	61
13.....	10	10	10	202	236	635	371	330	254	74	51	61
14.....	10	10	10	110	170	482	350	291	236	74	47	58
15.....	10	10	10	92	186	530	350	330	219	74	47	55
16.....	10	10	10	119	202	506	436	330	236	74	47	55
17.....	10	10	10	114	272	436	482	310	236	74	47	55
18.....	10	10	10	155	291	392	482	310	236	83	47	58
19.....	10	10	10	196	236	350	436	254	233	83	47	58
20.....	10	10	10	114	202	310	392	580	254	74	44	58
21.....	10	10	10	103	170	291	392	371	254	74	44	55
22.....	10	10	10	92	140	272	310	371	254	74	44	55
23.....	10	10	10	114	114	236	310	330	254	74	42	51
24.....	10	10	10	310	127	350	310	310	254	74	42	51
25.....	10	10	10	1,310	140	350	330	371	236	74	38	47
26.....	10	10	10	2,010	140	371	350	1,120	254	74	34	47
27.....	10	10	44	690	127	392	350	1,180	236	72	34	44
28.....	10	10	44	530	114	371	310	870	236	66	42	44
29.....	10	10	74	350	103	330	1,450	690	236	66	44	44
30.....	10	10	92	202	310	690	580	236	66	44	44
31.....	10	114	170	272	482	66	44

NOTE.—Daily discharge determined from a well-defined rating curve. Estimates Oct. 1, 1911, to June 30, 1912, supersede those published in Water-Supply Paper 298, p. 140.

Monthly discharge of Clear Creek at Shasta, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	10	10	10.0	615	C.
November.....	10	10	10.0	595	C.
December.....	114	10	21.4	1,320	B.
January.....	2,010	83	267	16,400	A.
February.....	291	103	168	9,660	A.
March.....	1,050	92	391	24,000	A.
April.....	1,450	219	388	23,100	A.
May.....	1,180	254	509	31,300	A.
June.....	436	219	271	16,100	A.
July.....	236	66	98.7	6,070	A.
August.....	61	34	48.3	2,970	A.
September.....	254	44	65.8	3,920	A.
The year.....	2,010	10	187	136,000	

COW CREEK AND TRIBUTARIES.

COW CREEK AT MILLVILLE, CAL.

Location.—At highway bridge in the NW. $\frac{1}{4}$ sec. 14, T. 31 N., R. 3 W., in Millville.

Clover Creek enters three-fourths of a mile below the station.

Records available.—August 10, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on large oak tree on right bank, 6 feet below bridge.

Channel.—Gravel and small bowlders; will shift at high stages.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Several small ditches divert water for irrigation above the station.

Accuracy.—Rating curve well defined; results good.

Discharge measurements of Cow Creek at Millville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 12	Lasley Lee.....	1.62	220	Mar. 6	Lasley Lee.....	4.31	1,420
Jan. 22do.....	1.10	108	May 31do.....	1.75	275
Mar. 5do.....	1.19	143	June 3do.....	1.66	246

NOTE.—Measurement Mar. 6, 1912, made from bridge; all others made by wading.

Daily gage height, in feet, of Cow Creek at Millville, Cal., for 1911-12.

[Mrs. M. D. Rathbun, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	.85	.90	1.0	1.1	1.15	1.0	1.2	1.75	1.7	0.92	0.65	0.65
2.....	.90	.90	1.0	1.2	1.1	1.0	1.15	1.75	1.6	.95	.65	.65
3.....	.85	.95	1.0	1.2	1.05	1.0	1.2	1.6	1.6	.90	.70	.80
4.....	.85	.90	1.0	1.2	1.05	1.1	1.2	1.5	1.6	.85	.70	.82
5.....	.85	.95	1.1	1.2	1.0	1.75	1.3	1.5	1.55	.85	.65	.82
6.....	.85	.95	1.1	1.1	1.0	4.3	1.2	1.6	1.45	.85	.65	4.2
7.....	.85	.95	1.0	1.0	1.2	2.05	1.15	1.6	1.35	.80	.65	2.0
8.....	.88	.95	1.0	1.25	1.3	2.1	1.2	1.6	1.3	.80	.65	1.3
9.....	1.3	.98	1.0	1.9	1.4	1.7	1.2	1.6	1.3	.82	.65	1.0
10.....	1.0	1.25	1.0	3.0	1.4	1.45	1.3	1.65	1.25	.80	.65	.95
11.....	.95	.98	1.0	1.7	1.2	2.6	1.35	1.65	1.2	.75	.65	.90
12.....	.92	.94	1.0	1.6	1.2	3.0	1.3	1.6	1.2	.75	.65	.85
13.....	.92	1.0	1.0	1.5	1.2	1.8	1.5	1.6	1.25	.72	.65	.80
14.....	.90	1.3	1.0	1.3	1.2	2.7	1.4	1.6	1.25	.70	.60	.80
15.....	.90	1.0	1.0	1.2	1.2	1.9	1.3	1.6	1.2	.70	.62	.80
16.....	.90	1.05	1.1	1.6	1.15	1.6	1.2	1.6	1.05	.75	.68	.80
17.....	.90	1.25	1.0	1.35	1.65	1.45	1.25	1.6	1.0	.75	.68	.80
18.....	.90	1.0	1.0	1.2	1.75	1.4	1.25	1.6	.98	.75	.65	.82
19.....	.90	1.0	1.0	1.6	1.5	1.35	1.15	1.65	.95	.80	.65	.82
20.....	.90	1.0	.90	1.3	1.3	1.25	1.25	1.9	.95	.75	.65	.82
21.....	.90	1.0	1.0	1.1	1.3	1.2	1.15	1.8	1.1	.75	.68	.82
22.....	.90	1.0	1.0	1.1	1.2	1.2	1.1	1.9	1.1	.75	.65	.82
23.....	.90	1.0	1.0	1.1	1.2	1.2	1.1	2.2	1.1	.75	.65	.75
24.....	.90	1.0	1.0	2.0	1.1	1.2	1.3	1.8	1.2	.75	.65	.78
25.....	.90	1.0	.90	5.2	1.1	1.2	1.25	2.0	1.0	.70	.65	.78
26.....	.90	1.0	.90	3.2	1.0	1.2	1.35	1.9	1.0	.70	.65	.75
27.....	.90	1.0	1.05	3.0	1.0	1.2	1.3	2.0	1.0	.70	.65	.78
28.....	.90	1.0	1.1	1.55	1.0	1.2	1.3	1.95	1.0	.65	.65	.78
29.....	.90	1.0	1.0	1.45	1.0	1.2	1.95	1.9	1.0	.60	.65	.80
30.....	.90	1.0	1.0	1.3	1.2	1.6	1.9	.95	.62	.65	.80
31.....	.90	1.1	1.2	1.2	1.7562	.65

NOTE.—Maximum gage height Mar. 6, 1912, about 6 feet at 4 a. m.

Daily discharge, in second-feet, of Cow Creek at Millville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	79	86	101	117	126	101	135	266	252	89	53	53
2.....	86	86	101	135	117	101	126	266	225	94	53	53
3.....	79	94	101	135	109	101	135	225	225	86	59	72
4.....	79	86	101	135	109	117	135	200	225	79	59	75
5.....	79	94	117	135	101	166	155	200	212	79	53	75
6.....	79	94	117	117	101	1,470	135	225	188	79	53	1,410
7.....	79	94	101	101	135	362	126	225	166	72	53	345
8.....	83	94	101	145	155	380	135	225	155	72	53	155
9.....	155	98	101	312	177	252	135	225	155	75	53	101
10.....	101	145	101	752	177	188	155	238	145	72	53	94
11.....	94	98	101	252	135	576	166	238	135	66	53	86
12.....	89	92	101	225	135	752	155	225	135	66	53	79
13.....	89	101	101	200	135	281	200	225	145	62	53	72
14.....	86	155	101	155	135	618	177	225	145	59	47	72
15.....	86	109	101	135	135	312	155	225	135	59	49	72
16.....	86	109	117	225	126	225	135	225	109	66	57	72
17.....	86	145	101	166	238	188	145	225	101	66	57	72
18.....	86	101	101	135	266	177	145	225	98	66	53	75
19.....	86	101	101	225	200	166	126	238	94	72	53	75
20.....	86	101	86	155	155	145	145	312	94	66	53	75
21.....	86	101	101	117	155	135	126	281	117	66	57	75
22.....	86	101	101	117	135	135	117	312	117	66	53	75
23.....	86	101	101	117	135	135	117	416	117	66	53	66
24.....	86	101	101	345	117	135	155	281	135	66	53	69
25.....	86	101	86	2,040	117	135	145	345	101	59	53	69
26.....	86	101	86	850	101	135	166	312	101	59	53	66
27.....	86	101	109	752	101	135	155	345	101	59	53	69
28.....	86	101	117	212	101	135	155	328	101	53	53	69
29.....	86	101	101	188	101	135	328	312	101	47	53	72
30.....	86	101	101	155	135	225	312	94	49	53	72
31.....	86	117	135	135	266	49	53

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

Monthly discharge of Cow Creek at Millville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	155	79	87.7	5,390	B.
November.....	155	86	103	6,130	B.
December.....	117	86	102	6,270	B.
January.....	2,040	101	290	17,800	B.
February.....	266	101	139	8,000	A.
March.....	1,470	101	263	16,200	A.
April.....	328	117	154	9,160	A.
May.....	416	200	263	16,200	A.
June.....	252	94	141	8,390	A.
July.....	94	47	67.2	4,130	B.
August.....	59	47	53.5	3,290	B.
September.....	1,410	53	130	7,740	A.
The year.....	2,040	47	150	109,000	

NOTE.—Values for January and March supersede those published in Water-Supply Paper 298, p. 142.

CLOVER CREEK AT MILLVILLE, CAL.

Location.—At highway bridge, in the SE. $\frac{1}{4}$ sec. 10, T. 31 N., R. 3 W., at Millville, and one-fourth mile above junction with Cow Creek.

Records available.—August 10, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on downstream end of bridge pier near left bank.

Channel.—Sand and gravel, and appears permanent.

Discharge measurements.—Made from bridge at medium and high stages; at low water, measurements are made by wading.

Diversions.—Water is diverted for irrigation above the station.

Accuracy.—Rating curve well defined; results excellent.

Discharge measurements of Clover Creek at Millville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 11	Lasley Lee.....	3.00	117	Mar. 6	Lasley Lee.....	4.25	495
22do.....	2.35	33	May 30do.....	2.59	56
Mar. 5do.....	2.81	83	31do.....	2.55	52

NOTE.—Measurement Mar. 6, 1912, made from bridge; all others made by wading.

Daily gage height, in feet, of Clover Creek at Millville, Cal., for 1911-12.

[H. H. Butzbach, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.10	2.10	2.15	2.30	2.40	2.30	2.35	3.2	2.55	2.05	1.80	1.82
2.....	2.15	2.10	2.15	2.20	2.40	2.20	2.38	2.80	2.50	2.02	1.82	1.82
3.....	2.10	2.10	2.15	2.30	2.35	2.40	2.38	2.70	2.45	2.00	1.88	1.88
4.....	2.10	2.10	2.15	2.20	2.30	2.35	2.38	2.60	2.40	2.00	1.70	1.96
5.....	2.12	2.10	2.15	2.20	2.30	2.85	2.40	2.55	2.30	2.02	1.72	1.96
6.....	2.10	2.10	2.15	2.10	2.30	4.25	2.38	2.50	2.28	2.02	1.82	3.8
7.....	2.10	2.10	2.18	2.25	2.30	3.35	2.38	2.50	2.25	1.95	1.78	3.45
8.....	2.08	2.10	2.18	2.25	2.70	3.25	2.38	2.50	2.22	2.00	1.75	2.48
9.....	2.50	2.10	2.18	3.2	2.80	2.95	2.35	2.50	2.20	1.95	1.75	2.28
10.....	2.20	2.10	2.18	3.75	3.7	2.90	2.40	2.50	2.18	1.95	1.75	2.15
11.....	2.18	2.10	2.18	3.1	2.85	2.80	2.65	2.50	2.15	1.92	1.78	2.10
12.....	2.18	2.15	2.18	3.0	2.70	3.55	2.70	2.55	2.18	1.92	1.75	2.10
13.....	2.12	2.15	2.18	2.85	2.60	4.05	2.60	2.55	2.25	1.90	1.72	2.05
14.....	2.12	2.15	2.15	2.65	2.55	3.3	2.60	2.50	2.25	1.90	1.72	2.05
15.....	2.10	2.18	2.15	2.50	2.50	3.2	2.52	2.50	2.25	1.92	1.70	2.02
16.....	2.10	2.28	2.18	2.80	2.45	3.2	2.50	2.50	2.25	1.92	1.70	2.08
17.....	2.10	2.20	2.28	2.58	2.45	3.0	2.50	2.50	2.15	1.92	1.70	2.08
18.....	2.08	2.20	2.25	2.40	3.0	2.90	2.50	2.40	2.18	1.95	1.72	2.05
19.....	2.08	2.18	2.25	2.80	2.70	2.75	2.45	2.40	2.10	1.95	1.72	2.02
20.....	2.08	2.18	2.25	2.58	2.55	2.70	2.40	2.72	2.02	1.98	1.75	2.02
21.....	2.10	2.15	2.25	2.40	2.50	2.60	2.40	2.60	2.12	2.00	1.78	2.00
22.....	2.10	2.20	2.25	2.35	2.45	2.60	2.38	2.60	2.10	1.95	1.75	2.02
23.....	2.10	2.20	2.25	2.32	2.40	2.55	2.38	3.2	2.15	1.90	1.70	2.00
24.....	2.10	2.15	2.15	2.62	2.40	2.50	2.38	2.70	2.30	1.90	1.70	1.98
25.....	2.10	2.18	2.15	4.6	2.40	2.50	2.50	2.60	2.18	1.90	1.70	1.92
26.....	2.10	2.15	2.15	3.5	2.35	2.45	2.45	2.75	2.15	1.88	1.72	1.95
27.....	2.10	2.18	2.15	3.6	2.35	2.45	2.50	3.0	2.15	1.90	1.72	1.92
28.....	2.10	2.18	2.15	2.90	2.35	2.45	2.45	2.70	2.12	1.88	1.80	1.95
29.....	2.10	2.18	2.22	2.70	2.30	2.45	2.50	2.65	2.08	1.88	1.80	1.98
30.....	2.10	2.18	2.22	2.30	2.40	2.90	2.60	2.05	1.88	1.80	1.98
31.....	2.10	2.30	2.50	2.40	2.60	1.82	1.78

Daily discharge, in second-feet, of Clover Creek at Millville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	14	14	17	27	36	27	32	151	52	12	4	4
2.	17	14	17	20	36	20	34	84	46	10	4	4
3.	14	14	17	27	32	36	34	70	41	9	6	6
4.	14	14	17	20	27	32	34	57	36	9	2	8
5.	15	14	17	20	27	92	36	52	27	10	2	8
6.	14	14	17	14	27	494	34	46	26	10	4	312
7.	14	14	19	24	27	184	34	46	24	8	4	208
8.	13	14	19	26	70	162	34	46	21	9	3	44
9.	46	14	19	151	84	107	32	46	20	8	3	26
10.	20	14	19	196	279	99	36	46	19	8	3	17
11.	19	14	19	132	92	84	64	46	17	7	4	14
12.	19	17	19	115	70	234	70	52	19	7	3	14
13.	15	17	19	92	57	406	57	52	24	6	2	12
14.	15	17	17	64	52	172	57	46	24	6	2	12
15.	14	19	17	46	46	151	48	46	24	7	2	10
16.	14	26	19	84	41	151	46	46	24	7	2	13
17.	14	20	19	55	41	115	46	46	17	7	2	13
18.	13	20	24	36	115	99	46	36	19	8	2	12
19.	13	19	24	84	70	77	41	36	14	8	2	10
20.	13	19	24	55	52	70	36	73	10	8	3	10
21.	14	17	24	36	46	57	36	57	15	9	4	9
22.	14	20	24	32	41	57	34	57	14	8	3	10
23.	14	20	24	29	36	52	34	151	17	6	2	9
24.	14	17	17	60	36	46	34	70	27	6	2	8
25.	14	19	17	677	36	46	46	57	19	6	2	7
26.	14	17	17	220	32	41	41	77	17	6	2	8
27.	14	19	17	248	32	41	46	115	17	6	2	7
28.	14	19	17	99	32	41	41	70	15	6	4	8
29.	14	19	21	70	27	41	46	64	13	6	4	8
30.	14	19	21	27	36	99	57	12	6	4	8
31.	14	27	46	36	57	4	4

NOTE.—Daily discharge determined from a rating curve well defined above 10 second-feet.

Monthly discharge of Clover Creek at Millville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	46	13	15.6	959	C.
November.....	26	14	17.1	1,020	C.
December.....	27	17	19.5	1,200	C.
January.....	677	14	91.4	5,620	A.
February.....	279	27	55.1	3,170	A.
March.....	494	20	107	6,580	A.
April.....	99	32	43.6	2,590	A.
May.....	151	36	63.1	3,880	A.
June.....	52	10	22.3	1,330	B.
July.....	12	4	7.5	461	C.
August.....	6	2	3.0	184	C.
September.....	312	4	28.0	1,670	B.
The year.....	677	2	39.4	28,700	

LITTLE COW CREEK AT PALO CEDRO, CAL.

Location.—At highway bridge, in sec. 5, T. 31 N., R. 3 W., one-fourth mile east of Palo Cedro and one-fourth mile above junction with Cow Creek.

Records available.—August 9, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on bridge pier near right bank.

Channel.—Gravel and small boulders; may shift slightly at high stages.

Discharge measurements.—From bridge, except at low stages, when measurements are made by wading above the gage.

Diversions.—A small amount of water is pumped from this stream for irrigation. The Terry Lumber Co.'s flume, which is supplied by a diversion from Montgomery Creek, discharges into this stream. From June to December this amounts to 8 or 10 second-feet. For the remainder of the year this is reduced to about 6 second-feet.

Accuracy.—Rating curve fairly well defined; results fair.

Discharge measurements of Little Cow Creek at Palo Cedro, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 10	Lasley Lee.....	3.13	185	Mar. 11	Lasley Lee.....	3.00	186
22do.....	2.52	84	May 30do.....	3.13	243
Mar. 5do.....	2.72	126	31do.....	2.94	179
6do.....	5.17	1,090				

NOTE.—Measurement Mar. 6, 1912, made from bridge; all others made by wading.

Daily gage height, in feet, of Little Cow Creek at Palo Cedro, Cal., for 1911-12.

[Richmond Logan, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.
1.....	1.70	1.90	1.90	2.00	2.75	2.50	2.60	3.8	2.90	1.75	1.4	1.35
2.....	1.75	1.85	1.95	2.10	2.60	2.50	2.50	3.45	2.60	1.75	1.4	1.3
3.....	1.80	1.90	1.95	1.90	2.50	2.30	2.40	3.3	2.60	1.7	1.45	1.4
4.....	1.80	1.90	1.95	1.90	2.55	2.35	2.40	3.15	2.60	1.7	1.45	1.5
5.....	1.80	1.85	1.95	2.00	2.40	2.75	2.40	3.0	2.45	1.7	1.4	1.5
6.....	1.80	1.90	1.90	2.03	2.40	5.7	2.35	2.90	2.30	1.7	1.4	2.0
7.....	1.75	1.90	2.00	2.10	2.40	4.2	2.30	2.90	2.30	1.6	1.45	3.15
8.....	1.75	1.90	1.90	-----	4.8	3.9	2.30	2.90	2.30	1.78	1.5	2.2
9.....	1.80	1.90	1.95	3.5	3.8	3.5	2.30	2.80	2.20	1.5	1.5	2.0
10.....	1.85	1.90	1.95	3.2	5.1	3.3	2.40	2.90	2.15	1.5	1.45	1.9
11.....	1.85	1.95	1.90	3.5	3.7	3.05	3.4	2.90	2.15	1.45	1.45	1.9
12.....	1.85	1.95	1.90	3.1	3.3	5.0	3.5	2.70	2.20	1.5	1.45	1.9
13.....	1.85	1.95	1.90	3.2	3.2	5.5	3.2	2.70	3.15	1.55	1.45	1.8
14.....	1.85	1.95	1.90	3.2	3.1	4.2	3.0	2.70	2.20	1.4	1.5	1.8
15.....	1.80	2.00	1.90	2.70	3.05	4.0	2.90	2.50	2.10	1.5	1.45	1.75
16.....	1.80	2.10	1.95	2.70	2.90	4.8	2.75	2.50	2.15	1.5	1.45	1.72
17.....	1.80	2.10	1.95	2.80	3.0	4.2	2.65	2.50	2.20	1.4	1.45	1.7
18.....	1.80	2.00	1.90	3.5	3.9	3.8	2.50	2.50	2.10	1.4	1.5	1.65
19.....	1.80	1.95	2.00	4.2	3.45	3.5	2.50	2.45	1.85	1.4	1.5	1.62
20.....	1.80	1.90	2.00	3.2	3.0	3.1	2.50	2.55	1.80	1.45	1.45	1.6
21.....	1.80	1.90	2.00	2.80	3.0	3.0	2.50	2.50	1.80	1.4	1.45	1.6
22.....	1.80	1.95	2.00	2.55	2.80	2.90	2.40	3.4	1.80	1.4	1.4	1.6
23.....	1.80	1.95	2.00	2.55	2.70	2.90	2.40	4.3	1.85	1.4	1.4	1.6
24.....	1.80	1.90	2.00	3.6	2.62	2.80	2.40	3.2	2.20	1.4	1.4	1.6
25.....	1.90	1.90	1.90	6.7	2.50	2.80	2.50	3.2	1.90	1.4	1.4	1.6
26.....	1.85	1.90	1.90	5.4	2.50	2.70	2.50	3.95	2.00	1.45	1.35	1.55
27.....	1.80	1.95	1.90	5.6	2.55	2.70	2.50	3.95	1.90	1.45	1.35	1.5
28.....	1.80	1.95	1.90	3.9	2.40	2.55	2.50	3.5	1.90	1.5	1.3	1.5
29.....	1.85	1.90	2.00	3.4	2.40	2.50	3.2	3.2	1.80	1.5	1.3	1.5
30.....	1.90	1.95	2.00	3.0	-----	2.60	3.7	3.0	1.70	1.4	1.3	1.5
31.....	1.90	-----	2.00	2.90	-----	2.45	-----	3.0	-----	1.4	1.32	-----

Daily discharge, in second-feet, of Little Cow Creek at Palo Cedro, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	11	20	20	26	128	80	98	437	162	13	3	2
2.....	13	18	23	33	98	80	80	316	98	13	3	1
3.....	15	20	23	20	80	51	64	269	98	11	4	3
4.....	15	20	23	20	89	58	64	226	98	11	4	5
5.....	15	18	23	26	64	128	64	186	72	11	3	5
6.....	15	20	20	28	64	1,390	58	162	51	11	3	26
7.....	13	20	26	33	64	606	51	162	51	8	4	226
8.....	13	20	20	40	900	476	51	162	51	14	5	41
9.....	15	20	23	332	437	332	51	139	41	5	5	26
10.....	18	20	23	240	1,050	269	64	162	37	5	4	20
11.....	18	23	20	332	400	199	300	162	37	4	4	20
12.....	18	23	20	212	269	1,000	332	118	41	5	4	20
13.....	18	23	20	240	240	1,270	240	118	226	6.5	4	15
14.....	18	23	20	240	212	606	186	118	41	3	5	15
15.....	15	26	20	118	199	518	162	80	33	5	4	13
16.....	15	33	23	118	162	900	128	80	37	5	4	12
17.....	15	33	23	139	186	606	108	80	41	3	4	11
18.....	15	26	20	332	476	437	80	80	33	3	5	9.5
19.....	15	23	26	606	316	332	80	72	18	3	5	8.6
20.....	15	20	26	240	186	212	80	89	15	4	4	8
21.....	15	20	26	139	186	186	80	80	15	3	4	8
22.....	15	23	26	89	139	162	64	300	15	3	3	8
23.....	15	23	26	89	118	162	64	653	18	3	3	8
24.....	15	20	26	365	102	139	64	240	41	3	3	8
25.....	20	20	20	2,030	80	139	80	240	20	3	3	8
26.....	18	20	20	1,210	80	118	80	497	26	4	2	6.5
27.....	15	23	20	1,330	89	118	80	497	20	4	2	5
28.....	15	23	20	476	64	89	80	332	20	5	1	5
29.....	18	20	26	300	64	80	240	240	15	5	1	5
30.....	20	23	26	186	98	400	186	11	3	1	5
31.....	20	26	162	72	186	3	1.2

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

Monthly discharge of Little Cow Creek at Palo Cedro, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu-racy.
	Maximum.	Minimum.	Mean.		
October.....	20	11	15.8	972	D.
November.....	33	18	22.1	1,320	D.
December.....	26	20	22.7	1,400	D.
January.....	2,030	20	315	19,400	B.
February.....	1,050	64	226	13,000	B.
March.....	1,390	51	352	21,600	B.
April.....	400	51	119	7,080	B.
May.....	653	72	215	13,200	B.
June.....	226	11	49.4	2,940	C.
July.....	14	3	5.89	362	C.
August.....	5	1	3.39	208	C.
September.....	226	1	18.5	1,100	C.
The year.....	2,030	1	114	82,600	

BEAR CREEK NEAR MILLVILLE, CAL.

Location.—At highway bridge, in sec. 36, T. 31 N., R. 3 W., 4 miles southeast of Millville and 5 miles above junction with Sacramento River.

Records available.—August 19, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on upstream side of bridge pier near left bank.

Channel.—Small bowlders; rough.

Discharge measurements.—Made by wading about 50 feet above the gage, except at high stages, when measurements are made from the bridge.

Diversions.—A small amount of water is diverted into this drainage basin from the headwaters of Hat Creek, and is used for power development.

Accuracy.—Record is not very reliable, as control is subject to changes due to the temporary rock dam below the bridge.

Discharge measurements of Bear Creek near Millville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 11	Lasley Lee	2.08	101	May 30	Lasley Lee	1.44	77
22	do.	1.75	55	June 2	do.	1.21	53
Mar. 6	do.	3.48	525				

NOTE.—Measurement made from bridge Mar. 6, 1912; all others made by wading 40 feet above gage.

Daily gage height, in feet, of Bear Creek near Millville, Cal., for 1911-12.

[C. L. Lack and Fred Dersh, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	.85	1.00	1.80	1.7	1.7	1.42	1.42	2.3	1.25	0.60	0.50	0.50
2.	.85	1.00	1.80	1.85	1.65	1.45	1.40	1.7	1.22	.58	.50	.50
3.	.85	1.00	1.80	2.0	1.6	1.45	1.40	1.6	1.20	.55	.50	.50
4.	.85	1.00	1.80	2.0	1.55	1.45	1.40	1.6	1.00	.50	.50	1.0
5.	.88	1.00	1.80	2.05	1.55	1.6	1.40	1.30	.95	.48	.50	2.0
6.	.88	1.00	1.80	1.8	1.55	3.7	1.40	1.25	.80	.42	.50	4.0
7.	.88	1.00	1.80	1.65	1.55	2.6	1.35	1.25	.75	.35	.55	3.0
8.	.88	1.00	1.80	1.65	1.8	2.5	1.30	1.20	.60	.32	.50	3.0
9.	1.38	1.00	1.80	1.9	1.7	2.1	1.25	1.10	.55	.30	.50	2.0
10.	1.40	1.75	1.80	2.2	1.7	2.1	1.45	1.00	.52	.30	.50	1.0
11.	.98	1.75	1.80	2.3	1.7	1.95	2.0	.90	.50	.10	.50	.90
12.	.98	1.75	1.80	2.2	1.6	2.5	1.7	.85	1.00	.10	.50	.90
13.	.98	1.75	1.75	1.95	1.6	3.45	1.7	.80	.90	.50	.50	.90
14.	.98	1.75	1.75	1.8	1.8	2.4	1.7	.75	.85	.50	.50	.90
15.	.98	1.75	1.75	1.8	1.7	2.1	1.45	.70	.75	.52	.50	.90
16.	.92	1.80	1.75	2.0	1.8	2.5	1.32	.70	.70	.55	.50	.95
17.	.92	1.80	1.80	1.9	1.75	2.2	1.30	.70	.65	.55	.50	.80
18.	.92	1.80	1.75	1.9	1.75	2.1	1.28	.65	.60	.58	.50	.80
19.	.92	1.80	1.75	2.1	1.7	1.95	1.28	.55	.50	.55	.50	.80
20.	.92	1.80	1.75	1.9	1.6	1.95	1.28	1.25	.65	.55	.50	.80
21.	.92	1.80	1.75	1.8	1.55	2.0	1.28	1.25	.65	.55	.50	.80
22.	.95	1.80	1.70	1.75	1.55	1.8	1.28	1.8	.70	.55	.50	.80
23.	.95	1.80	1.70	1.7	1.55	1.75	1.20	2.4	.75	.50	.50	.80
24.	.98	1.80	1.65	1.9	1.55	1.75	1.20	1.7	.72	.50	.50	.80
25.	1.00	1.80	1.65	4.6	1.5	1.65	1.40	2.0	.78	.50	.50	.80
26.	1.00	1.80	1.65	3.4	1.5	1.6	1.20	1.8	.78	.55	.50	.80
27.	1.00	1.80	1.65	3.0	1.45	1.6	1.40	1.7	.70	.55	.50	.80
28.	1.00	1.80	1.65	2.5	1.45	1.55	1.6	1.6	.70	.50	.50	.75
29.	1.00	1.80	1.65	2.0	1.45	1.55	1.9	1.6	.68	.50	.50	.75
30.	1.00	1.80	1.65	1.9	1.45	1.55	1.8	1.35	.65	.50	.50	.70
31.	1.00	1.80	1.65	1.8	1.45	1.5				.50	.50	

NOTE.—On Nov. 9, 1911, a bowlder dam was constructed across the channel below the gage. This raised the water surface from 1 foot to 1.75 feet. Parts of this dam have been washed out during various high-water stages, affecting the relation of discharge to gage height.

Daily discharge, in second-feet, of Bear Creek near Millville, Cal., for 1911.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1.....		34	11.....		38	21.....	34	41
2.....		34	12.....		38	22.....	34	41
3.....		34	13.....		41	23.....	34	41
4.....		35	14.....		41	24.....	34	41
5.....		35	15.....		41	25.....	34	42
6.....		35	16.....		41	26.....	34	48
7.....		35	17.....		41	27.....	34	48
8.....		35	18.....		41	28.....	34	46
9.....		35	19.....	34	41	29.....	34	46
10.....		38	20.....	34	41	30.....	34	46
						31.....	34	

Daily discharge, in second-feet, of Bear Creek near Millville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	46	60	65	55	73	44	77	234	59	17	2.0	2.0
2.....	46	60	65	70	68	47	75	112	56	16	2.0	2.0
3.....	46	60	65	88	62	47	75	98	54	16	2.0	2.0
4.....	46	60	65	88	57	47	75	98	39	14	2.0	23
5.....	48	60	65	94	57	62	75	64	36	13	2.0	156
6.....	48	60	65	65	57	620	75	59	26	12	2.0	910
7.....	48	60	65	50	57	260	70	59	24	9.5	2.0	460
8.....	48	60	65	50	85	235	64	54	17	8.6	2.0	460
9.....	98	60	65	76	73	150	59	46	16	8.0	2.0	156
10.....	100	60	65	116	73	165	80	39	15	8.0	2.0	23
11.....	58	60	65	133	73	135	166	32	14	2.0	2.0	17
12.....	58	60	65	116	62	260	112	29	39	2.0	2.0	17
13.....	58	60	60	82	62	600	112	26	32	2.0	2.0	17
14.....	58	60	60	65	85	230	112	24	29	2.0	2.0	17
15.....	58	60	60	65	73	175	80	21	24	2.6	2.0	17
16.....	52	65	60	88	85	180	66	21	21	3.5	2.0	20
17.....	52	65	65	76	79	210	64	21	19	3.5	2.0	12
18.....	52	65	60	76	79	188	62	19	17	4.4	2.0	12
19.....	52	65	60	101	73	156	62	16	14	3.5	2.0	12
20.....	52	65	60	76	62	156	62	59	19	3.5	2.0	12
21.....	52	65	60	65	57	166	62	59	19	3.5	2.0	12
22.....	55	65	55	60	57	128	62	128	21	3.5	2.0	12
23.....	55	65	55	55	57	120	54	260	24	2.0	2.0	12
24.....	58	65	50	76	57	120	54	112	22	2.0	2.0	12
25.....	60	65	50	970	52	105	75	166	25	2.0	2.0	12
26.....	60	65	50	490	52	98	54	128	25	3.5	2.0	12
27.....	60	65	50	348	47	98	75	112	21	3.5	2.0	12
28.....	60	65	50	209	47	92	98	98	21	2.0	2.0	10
29.....	60	65	50	113	47	92	146	98	20	2.0	2.0	10
30.....	60	65	50	98		92	128	70	19	2.0	2.0	8
31.....	60		50	85		86		64		2.0	2.0	

NOTE.—Daily discharge determined from several fairly well defined rating curves covering short periods.

Monthly discharge of Bear Creek near Millville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
August 19-31.....	34	34	34.0	876	C.
September.....	48	34	39.8	2,370	C.
1911-12.					
October.....	100	46	56.9	3,500	C.
November.....	65	60	62.5	3,720	B.
December.....	65	50	59.2	3,640	B.
January.....	970	50	135	8,300	C.
February.....	85	47	64.4	3,700	C.
March.....	620	44	167	10,300	B.
April.....	166	54	81.0	4,820	B.
May.....	260	16	78.3	4,810	B.
June.....	59	14	26.2	1,560	B.
July.....	17	2.0	5.78	355	C.
August.....	2.0	2.0	2.00	123	D.
September.....	910	2.0	82.0	4,880	C.
The year.....	970	2.0	68.4	49,700	

NORTH FORK OF COTTONWOOD CREEK AT ONO, CAL.

Location.—At the highway bridge near the center of sec. 11, T. 30 N., R. 7 W., one-fourth mile southwest of Ono. Byron Creek enters 250 feet above and Eagle Creek half a mile below the station.

Records available.—October 27, 1907, to September 30, 1912.

Drainage area.—52 square miles.

Gage.—Vertical staff on left face of middle pier of bridge near upstream end.

Channel.—Gravel and small boulders; subject to slight change at high stages. During high water current in right channel is at angle to bridge.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Several small ditches divert water from this stream above the station.

In September, 1908, these diversions amounted to 14 second-feet.

Accuracy.—Results are good.

Discharge measurements of North Fork of Cottonwood Creek at Ono, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 11	J. E. Stewart.....	4.36	11
1912.			
Jan. 23	Lasley Lee.....	4.80	46
July 20do.....	4.66	30

NOTE.—Made by wading 50 feet below gage.

Daily gage height, in feet, of North Fork of Cottonwood Creek at Ono, Cal., for 1911-12

[F. J. Wheelock, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.38	4.50	4.45	4.60	5.20	4.92	5.20	5.85	5.48	4.94	4.50	4.30
2.....	4.40	4.45	4.40	4.60	5.16	4.91	5.20	5.72	5.42	4.91	4.50	4.30
3.....	4.40	4.42	4.40	4.62	5.12	4.90	5.20	5.62	5.32	4.86	4.50	4.30
4.....	4.40	4.40	4.40	4.65	5.10	4.91	5.20	5.59	5.31	4.85	4.52	4.50
5.....	4.35	4.40	4.45	4.65	5.08	5.16	5.15	5.55	5.31	4.84	4.46	4.61
6.....	4.38	4.40	4.78	4.65	5.02	5.31	5.15	5.51	5.31	4.81	4.50	5.20
7.....	4.35	4.38	4.55	4.70	5.08	5.21	5.15	5.50	5.28	4.78	4.45	4.81
8.....	4.38	4.40	4.50	4.62	5.39	5.19	5.15	5.48	5.26	4.80	4.44	4.76
9.....	4.40	4.40	4.45	4.72	5.25	5.14	5.12	5.45	5.21	4.78	4.45	4.71
10.....	4.35	4.40	4.45	4.70	5.19	5.11	5.70	5.41	5.21	4.72	4.42	4.66
11.....	4.35	4.40	4.45	4.70	5.14	5.10	6.20	5.39	5.21	4.74	4.40	4.60
12.....	4.35	4.40	4.45	4.65	5.10	6.10	5.65	5.38	5.21	4.74	4.40	4.51
13.....	4.35	4.40	4.45	4.78	5.10	5.49	5.52	5.35	5.39	4.74	4.40	4.52
14.....	4.40	4.40	4.45	4.70	5.08	5.48	5.50	5.34	5.21	4.71	4.40	4.52
15.....	4.40	4.60	4.45	4.70	5.10	5.75	5.52	5.31	5.16	4.68	4.40	4.50
16.....	4.50	4.60	4.50	4.90	5.06	5.50	5.50	5.28	5.16	4.68	4.38	4.50
17.....	4.50	4.50	4.48	4.72	5.14	5.44	5.50	5.24	5.11	4.66	4.39	4.50
18.....	4.50	4.48	4.45	4.98	5.10	5.38	5.45	5.24	5.06	4.69	4.40	4.50
19.....	4.45	4.45	4.45	5.00	5.09	5.36	5.45	5.21	5.01	4.68	4.40	4.48
20.....	4.45	4.45	4.45	4.92	5.06	5.34	5.40	5.60	5.00	4.64	4.35	4.49
21.....	4.45	4.45	4.45	4.85	5.04	5.31	5.36	5.42	5.02	4.64	4.35	4.49
22.....	4.45	4.45	4.45	4.80	5.02	5.30	5.34	5.62	5.04	4.64	4.38	4.48
23.....	4.45	4.45	4.45	4.82	5.00	5.30	5.32	5.50	5.18	4.62	4.36	4.46
24.....	4.45	4.45	4.45	5.29	5.00	5.30	5.31	5.50	5.09	4.62	4.35	4.45
25.....	4.48	4.45	4.45	7.20	4.99	5.32	5.30	5.60	5.02	4.74	4.35	4.44
26.....	4.50	4.45	4.45	6.10	4.96	5.30	5.31	5.90	5.00	4.71	4.35	4.42
27.....	4.50	4.45	4.52	5.75	4.95	5.30	5.30	5.80	4.98	4.70	4.35	4.44
28.....	4.50	4.45	4.60	5.50	4.94	5.30	5.30	5.72	4.98	4.68	4.35	4.45
29.....	4.50	4.45	4.60	5.42	4.92	5.30	5.75	5.60	4.98	4.64	4.35	4.42
30.....	4.50	4.45	4.60	5.32	5.28	5.78	5.58	4.92	4.51	4.35	4.42
31.....	4.50	4.60	5.24	5.22	5.49	4.50	4.30

Daily discharge, in second-feet, of North Fork of Cottonwood Creek at Ono, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	11	17	14	25	141	68	141	436	244	72	18	7.5
2.....	12	14	12	25	129	65	141	360	219	65	18	7.5
3.....	12	13	12	27	113	63	141	308	181	56	18	7.5
4.....	12	12	12	30	112	65	141	293	178	54	19	18
5.....	10	12	14	30	107	129	126	275	178	53	16	26
6.....	11	12	47	30	91	178	126	257	178	48	18	141
7.....	10	11	21	34	107	144	126	252	167	44	15	48
8.....	11	12	17	27	207	138	126	244	161	46	14	41
9.....	12	12	14	36	158	124	118	232	144	44	15	35
10.....	10	12	14	34	138	115	849	215	144	36	13	30
11.....	10	12	14	34	124	112	685	207	144	39	12	25
12.....	10	12	14	30	112	610	324	204	144	39	12	19
13.....	10	12	14	44	112	248	261	192	207	39	12	19
14.....	12	12	14	34	107	244	252	189	144	35	12	19
15.....	12	25	14	34	112	377	261	178	129	32	12	18
16.....	17	25	17	63	102	252	252	167	129	32	11	18
17.....	17	17	16	36	124	227	252	154	115	30	12	18
18.....	17	16	14	81	112	204	232	154	102	33	12	18
19.....	14	14	14	86	109	196	232	144	89	32	12	17
20.....	14	14	14	68	102	189	211	298	86	29	9.8	17
21.....	14	14	14	54	96	178	196	219	91	29	9.8	17
22.....	14	14	14	46	91	174	189	308	86	29	11	17
23.....	14	14	14	49	86	174	181	252	135	27	10	16
24.....	14	14	14	171	86	174	178	252	109	27	9.8	15
25.....	16	14	14	1,740	84	181	174	298	91	39	9.8	14
26.....	17	14	14	610	77	174	178	467	86	35	9.8	13
27.....	17	14	19	377	74	174	174	405	81	34	9.8	14
28.....	17	14	25	252	72	174	174	360	81	32	9.8	15
29.....	17	14	25	219	68	174	377	298	81	29	9.8	13
30.....	17	14	25	181	-----	167	394	289	68	19	9.8	13
31.....	17	-----	25	154	-----	148	-----	248	-----	18	7.5	-----

NOTE.—Daily discharge determined from a rating curve well defined below 1,500 second-feet.

Monthly discharge of North Fork of Cottonwood Creek at Ono, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	17	10	13.5	830	B.
November.....	25	11	14.2	845	B.
December.....	47	12	16.9	1,040	B.
January.....	1,740	25	150	9,220	A.
February.....	207	68	109	6,270	A.
March.....	610	63	182	11,200	A.
April.....	685	118	224	13,300	A.
May.....	467	144	263	16,200	A.
June.....	244	68	133	7,910	A.
July.....	72	18	37.9	2,330	A.
August.....	19	7.5	12.5	769	B.
September.....	141	7.5	23.2	1,380	A.
The year.....	1,740	7.5	98.2	71,300	

MILL CREEK NEAR LOS MOLINOS, CAL.

Location.—At suspension footbridge one-fourth mile above Los Molinos Land Co.'s diversion dam, in NE. $\frac{1}{4}$ sec. 1, T. 25 N., R. 2 W., $4\frac{1}{2}$ miles northeast of Los Molinos and 5 miles east of Tehama.

Records available.—August 9, 1909, to September 30, 1912.

Drainage area.—173 square miles.

Gage.—Inclined staff on right bank at footbridge.

Channel.—Cemented gravel and small boulders, and probably permanent. At medium and high stages the current is swift.

Discharge measurements.—Made from suspension footbridge at gage or by wading.

Accuracy.—Rating curve is only fairly well defined, as measurements are somewhat scattering. Results are believed to be reliable.

Cooperation.—Gage-height record and occasional measurements furnished by the Los Molinos Land Co.

Discharge measurements of Mill Creek near Los Molinos, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Fect.</i>	<i>Sec-ft.</i>	1912.		<i>Fect.</i>	<i>Sec-ft.</i>
Oct. 10 ^a	J. E. Stewart.....	0.82	157	Jan. 29 ^b	Lasley Lee.....	1.18	234
19 ^a	G. T. Peekema.....	.69	123	Mar. 31 ^b	do.....	1.21	222
Dec. 8 ^a	do.....	.69	124	July 17 ^b	do.....	.89	160

^a Wading at gage.

^b Footbridge.

Discharge measurements of Mill Creek near Los Molinos, Cal., in 1912.

[Made by Los Molinos Land Co.'s employees.]

Date.	Gage height.	Discharge.
	<i>Fect.</i>	<i>Sec.-ft.</i>
Aug. 1.....	0.75	114
2.....	.75	119
2.....	.75	114
2.....	.75	118

NOTE.—Made from footbridge.

Daily gage height, in feet, of Mill Creek near Los Molinos, Cal., for 1911-12.

[W. D. Sayles, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....			0.68								0.75	
2.....	0.78	0.68							1.9	1.05	.75	
3.....												
4.....	.80	.68		0.7					2.1			
5.....												
6.....	.75	.68	.73			3.5	1.2					
7.....	.74					2.0						
8.....			.70					1.65				
9.....												
10.....	.82							1.85	1.65			
11.....								1.9				
12.....						1.5		1.95				
13.....	.73			.85				1.8				
14.....		.75	.67									
15.....	.72						1.1	1.95				
16.....					0.9							
17.....		.78				1.35			1.5	.9		
18.....												
19.....	.68	.74										
20.....			.67									
21.....	.69							1.2	1.25			
22.....							.95					
23.....		.70										
24.....	.70						1.1	1.2				
25.....		.70										
26.....	.72		.67				1.1					
27.....												
28.....	.70	.68	.74					2.1				
29.....				1.2		1.35	1.1					
30.....												
31.....	.70					1.21						

Daily discharge, in second-feet, of Mill Creek near Los Molinos, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.	140	129	128								128
2.	142	128	129						440	186	128
3.	144	128	130								
4.	145	128	131	121					520		
5.	142	128	132								
6.	138	128	134			1,150	221				
7.	136	130	132			480					
8.	140	131	130					352			
9.	144	132	131								
10.	149	133	130					422	352		
11.	144	134	129					440			
12.	139	135	128			305		460			
13.	134	136	127	146				405			
14.	134	138	126								
15.	133	139	126				197	460			
16.	131	141	126		155						
17.	130	142	126			261			305	155	
18.	129	139	126								
19.	128	136	126								
20.	128	134	126								
21.	129	133	126					221	234		
22.	129	131	126				165				
23.	130	130	126								
24.	130	130	126				197	221			
25.	132	130	126								
26.	133	130	126				197				
27.	132	129	131								
28.	130	128	136					520			
29.	130	128	136	221		261	197				
30.	130	128	135								
31.	130		134			224					

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable as follows: 1911 and Jan. 1 to Sept. 30, 1912. During 1911 discharge was interpolated for days when gage was not read, and therefore these values are only approximate. Discharge values from Jan. 1 to June 30, 1912, supersede those published in Water-Supply Paper 298, p. 158.

DEER CREEK NEAR VINA, CAL.

Location.— $2\frac{1}{2}$ miles northeast of the Roberts ranch house, in the NW. $\frac{1}{4}$ sec. 23, T. 25 N., R. 1 W., about $9\frac{1}{2}$ miles northeast of Vina.

Records available.—October 17, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a sycamore tree on left bank, one-fourth mile above location of old sheep bridge.

Channel.—Gravel and small bowlders, and appears permanent.

Discharge measurements.—Made from car and cable 100 feet below gage or by wading.

Accuracy.—Rating curve well defined; results excellent.

Cooperation.—Maintained in cooperation with Oro Electric Co.

Discharge measurements of Deer Creek near Vina, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911		<i>Feet.</i>	<i>Sec.-ft.</i>	1912		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 18	G. T. Peekema.....	2.32	131	Feb. 9	H. J. Tompkins.....	2.60	190
Dec. 7do.....	2.33	134	Apr. 1	Lasley Lee.....	2.68	215
				July 18do.....	2.16	110
1912							
Jan. 28	Lasley Lee.....	2.90	282				

NOTE.—Measurements Jan. 28, Feb. 9, and Apr. 1, 1912, made from cable; all others made by wading.

Daily gage height, in feet, of Deer Creek near Vina, Cal., for 1911-12.

[David Roberts, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.		2.32	2.30	2.35	2.5	2.39	2.65	3.6	2.75	2.25	2.09	2.05
2.		2.32	2.30	2.30	2.48	2.45	2.7	3.45	2.7	2.25	2.09	2.07
3.		2.30	2.30	2.30	2.45	2.40	2.7	3.2	2.65	2.23	2.10	2.10
4.		2.30	2.30	2.30	2.43	2.40	2.7	3.1		2.22	2.09	
5.		2.30	2.30	2.30	2.43	2.5	2.7	3.05		2.21	2.08	2.11
6.		2.30	2.33	2.30	2.43	5.1	2.65	3.05		2.20	2.08	5.0
7.		2.30	2.33	2.33	2.43	3.6	2.7	3.05			2.07	3.0
8.		2.30	2.30	2.40	2.43	3.15	2.65	3.0	2.55		2.07	2.42
9.		2.32	2.30	2.40	2.55	3.0	2.7	3.05	2.5	2.17	2.05	2.25
10.		2.42	2.30	2.43	2.6	2.85	2.75	3.05	2.49	2.17	2.05	2.2
11.		2.45	2.30	2.9	2.6	2.75	2.75	3.05	2.45	2.17	2.05	2.15
12.		2.35	2.30	2.5	2.55	3.3	2.7	2.95	2.43	2.17	2.05	2.15
13.		2.32	2.30	2.45	2.49	3.15	2.65	2.95		2.15	2.05	2.12
14.		2.35	2.30	2.47	2.5	2.95	2.6	2.9		2.15	2.05	2.12
15.		2.37	2.27	2.45	2.5	2.9	2.55	2.9		2.15	2.05	2.12
16.			2.27	2.47	2.45	3.25	2.55	2.9	2.39	2.13	2.05	2.12
17.	2.32	2.40	2.33	2.45	2.5	3.0	2.6		2.37	2.12	2.07	2.11
18.	2.32	2.35	2.32	2.42	2.95	2.9	2.6		2.35	2.15	2.07	2.10
19.		2.32	2.32	2.55	2.85	2.95	2.55		2.32	2.12	2.07	2.10
20.		2.32	2.32	2.47	2.65	2.95	2.5		2.30	2.12	2.07	2.10
21.	2.32	2.32	2.30	2.43	2.55	2.75	2.5			2.11	2.07	
22.	2.32		2.30	2.40	2.5	2.7	2.5	2.95	2.35	2.10	2.05	
23.		2.30	2.27	2.37	2.47	2.7	2.48	3.05	2.39	2.10		
24.		2.32	2.27	2.45	2.43	2.7	2.5	3.0	2.40	2.10		2.09
25.				3.8	2.42	2.75	2.48	3.0	2.35	2.10		2.09
26.		2.30	2.30	4.7	2.42	2.75	2.53	3.1	2.30		2.04	2.09
27.		2.30	2.32	3.4	2.39	2.85	2.6	3.05			2.04	2.10
28.		2.30	2.33	2.9	2.37	2.85	2.5	2.95		2.09	2.05	2.10
29.		2.27	2.32	2.8	2.38	2.9	2.8	2.9		2.09	2.05	2.10
30.		2.27	2.27	2.6		2.8	3.2	2.8	2.27	2.09	2.05	2.10
31.	2.32		2.32	2.55		2.7		2.8		2.09	2.05	

Daily discharge, in second-feet, of Deer Creek near Vina, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.		133	129	138	169	146	206	530	235	121	99	95
2.		133	129	129	165	158	220	471	220	121	99	97
3.		129	129	129	158	148	220	378	206	118	100	100
4.		129	129	129	154	148	220	344	201	116	99	101
5.		129	129	129	154	169	220	328	196	115	98	101
6.		129	135	129	154	1,240	206	328	191	113	98	1,190
7.		129	135	135	154	530	220	328	186	112	97	312
8.		129	129	148	154	361	206	312	181	110	97	152
9.		133	129	148	181	312	220	328	169	109	95	121
10.		152	129	154	193	265	235	328	167	109	95	113
11.		158	129	280	193	235	235	328	158	109	95	106
12.		138	129	169	181	414	220	296	154	109	95	106
13.		133	129	158	167	361	206	296	152	106	95	103
14.		138	129	163	169	296	193	280	150	106	95	103
15.		142	124	158	169	280	181	280	148	106	95	103
16.		181	124	163	158	396	181	280	146	104	95	103
17.	133	148	135	158	169	312	193	283	142	103	97	101
18.	133	138	133	152	296	280	193	286	138	106	97	100
19.	133	133	133	181	265	296	181	288	133	103	97	100
20.	133	133	133	163	206	296	169	290	129	103	97	100
21.	133	133	129	154	181	235	169	293	134	101	97	100
22.	133	131	129	148	169	220	169	296	138	100	95	100
23.	133	129	124	142	163	220	165	328	146	100	95	99
24.	133	133	124	158	154	220	169	312	148	100	95	99
25.	133	131	126	612	152	235	165	312	138	100	94	99
26.	133	129	129	1,040	152	235	176	344	129	100	94	99
27.	133	129	133	452	146	265	193	328	128	99	94	100
28.	133	129	135	280	142	265	169	296	126	99	93	100
29.	133	124	133	250	144	280	250	280	125	99	95	100
30.	133	124	124	193		250	378	250	124	99	95	100
31.	133		133	181		220		250		99	95	

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated for days on which gage was not read.

Monthly discharge of Deer Creek near Vina, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 17-31.....	133	133	133	3,960	A.
November.....	181	124	135	8,030	A.
December.....	135	124	130	7,990	A.
January.....	1,040	129	217	13,300	A.
February.....	296	142	173	9,950	A.
March.....	1,240	146	300	18,400	A.
April.....	378	165	204	12,100	A.
May.....	530	250	318	19,600	A.
June.....	235	124	158	9,400	A.
July.....	121	99	106	6,520	A.
August.....	100	93	96	5,900	A.
September.....	1,190	95	147	8,750	A.
The period.....				124,000	

STONY CREEK AND TRIBUTARIES.

STONY CREEK NEAR FRUTO, CAL.

Location.—At Julian ranch, in the NE. $\frac{1}{4}$ sec. 14, T. 21 N., R. 6 W., $1\frac{1}{4}$ miles below mouth of Grindstone Creek and about 7 miles northwest of Fruto.

Records available.—January 30, 1901, to October 5, 1912, when station was discontinued.

Drainage area.—601 square miles.

Gage.—Vertical staff with inclined section for low water.

Channel.—Gravel which shifts at medium and high stages.

Discharge measurements.—Made from car and cable 100 feet below gage or by wading.

Storage.—The East Park reservoir, constructed by the United States Reclamation Service, stores water on Little Stony Creek for use on the Orland project.

Accuracy.—High-water records are approximate; otherwise the record is reliable.

Discharge measurements of Stony Creek near Fruto, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 14	J. E. Stewart.....	4.94	109
1912.			
Mar. 3	Lasley Lee.....	4.86	87
13	do.....	5.56	372
Sept. 19	J. E. Stewart.....	4.82	63

NOTE.—All measurements made by wading.

Daily gage height, in feet, of Stony Creek near Fruto, Cal., for 1911-12.

[Mrs. W. H. Julian, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1.....	5.0	4.8	4.5	4.7	5.2	4.9	5.3	6.4	5.5	5.0	5.1	5.0	4.8
2.....	5.0	4.8	4.5	4.7	5.1	4.9	5.35	6.2	5.5	5.0	5.1	5.0	4.85
3.....	5.0	4.8	4.5	4.6	5.0	4.9	5.35	6.0	5.45	5.0	5.1	5.0	4.85
4.....	5.0	4.8	4.6	4.6	5.0	4.9	5.3	5.9	5.45	5.0	5.0	5.0	4.9
5.....	5.0	4.7	4.6	4.6	5.0	5.0	5.25	5.9	5.4	5.0	5.0	4.85	4.9
6.....	4.9	4.7	4.6	4.6	5.0	5.25	5.25	5.9	5.4	5.0	5.0	5.0
7.....	4.9	4.7	4.6	4.6	5.0	5.2	5.25	5.9	5.3	5.0	5.0	5.0
8.....	4.9	4.5	4.6	4.7	5.1	5.2	5.25	5.8	5.25	5.0	5.0	4.85
9.....	4.9	4.5	4.6	4.8	5.3	5.2	5.25	5.8	5.2	5.0	5.0	4.75
10.....	4.9	4.5	4.6	4.9	5.2	5.1	5.7	5.75	5.2	5.0	5.0	4.7

Daily gage height, in feet, of Stony Creek near Fruto, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
11.....	4.9	4.6	4.6	4.9	5.2	5.1	5.8	5.75	5.2	5.0	5.0	4.6
12.....	4.9	4.6	4.6	4.9	5.1	6.2	5.55	5.65	5.15	5.0	5.0	4.6
13.....	4.9	4.6	4.5	5.0	5.1	5.55	5.45	5.6	5.1	5.05	5.0	4.55
14.....	4.95	4.6	4.5	5.0	5.1	5.4	5.4	5.55	5.1	5.05	5.0	4.55
15.....	4.95	4.6	4.5	4.9	5.0	5.4	5.4	5.55	5.0	5.05	5.0	4.55
16.....	4.9	4.6	4.5	5.0	5.0	5.5	5.5	5.5	4.9	5.05	5.0	4.75
17.....	4.9	4.7	4.6	5.0	5.4	5.4	5.5	5.5	4.9	5.5	5.0	4.8
18.....	4.9	4.6	4.6	5.0	5.7	5.35	5.4	5.45	4.9	5.5	5.0	4.8
19.....	4.9	4.6	4.6	5.0	5.3	5.45	5.35	5.4	4.9	5.5	5.0	4.8
20.....	4.85	4.6	4.6	4.9	5.2	5.45	5.3	5.4	4.9	5.5	5.0	4.8
21.....	4.85	4.6	4.6	4.9	5.2	5.4	5.3	5.4	5.0	5.4	5.0	4.85
22.....	4.8	4.6	4.5	4.9	5.2	5.35	5.25	5.4	5.0	5.2	5.0	4.85
23.....	4.8	4.6	4.5	4.9	5.1	5.35	5.25	5.35	5.1	5.0	5.0	4.95
24.....	4.8	4.6	4.5	4.9	5.0	5.45	5.2	5.35	5.25	5.0	5.0	5.0
25.....	4.8	4.6	4.5	5.5	5.0	5.4	5.2	5.75	5.1	5.0	5.0	4.8
26.....	4.8	4.6	4.5	6.8	4.9	5.4	5.2	5.85	5.0	5.0	5.0	4.8
27.....	4.8	4.6	4.5	5.9	5.0	5.4	5.15	5.85	4.9	5.0	5.0	4.8
28.....	4.8	4.5	4.6	5.65	5.0	5.4	5.15	5.8	4.9	5.1	5.0	4.75
29.....	4.8	4.5	4.6	5.5	4.9	5.5	5.55	5.7	4.9	5.1	5.0	4.8
30.....	4.8	4.5	4.6	5.35	5.4	5.9	5.7	5.0	5.1	5.0	4.75
31.....	4.8	4.6	5.2	5.35	5.6	5.1	5.0

Daily discharge, in second-feet, of Stony Creek near Fruto, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1.....	125	68	15	45	203	95	250	1,050	350	125	161	125	68
2.....	125	68	15	45	161	95	275	860	350	125	161	125	82
3.....	125	68	15	27	125	95	275	690	325	125	161	125	82
4.....	125	68	27	27	125	95	250	610	325	125	125	125	95
5.....	125	45	27	27	125	125	226	610	300	125	125	82	95
6.....	95	45	27	27	125	226	226	610	300	125	125	125
7.....	95	45	27	27	125	203	226	610	250	125	125	125
8.....	95	15	27	45	161	203	226	535	226	125	125	82
9.....	95	15	27	68	250	203	226	535	203	125	125	56
10.....	95	15	27	95	203	161	465	500	203	125	125	45
11.....	95	27	27	95	203	161	535	500	203	125	125	27
12.....	95	27	27	95	161	860	378	435	182	125	125	27
13.....	95	27	15	125	161	378	325	405	161	143	125	21
14.....	110	27	15	125	161	300	300	378	161	143	125	21
15.....	110	27	15	95	125	300	300	378	125	143	125	21
16.....	95	27	15	125	125	350	350	350	95	143	125	56
17.....	95	45	27	125	300	300	350	350	95	350	125	68
18.....	95	27	27	125	465	275	300	325	95	350	125	68
19.....	95	27	27	125	250	325	275	300	95	350	125	68
20.....	82	27	27	95	203	325	250	300	95	350	125	68
21.....	82	27	27	95	203	300	250	300	125	300	125	82
22.....	68	27	15	95	203	275	226	300	125	203	125	82
23.....	68	27	15	95	161	275	226	275	161	125	125	110
24.....	68	27	15	95	125	325	203	275	226	125	125	125
25.....	68	27	15	350	125	300	203	500	161	125	125	68
26.....	68	27	15	1,480	95	300	203	572	125	125	125	68
27.....	68	27	15	610	125	300	182	572	95	125	125	68
28.....	68	15	27	435	125	300	182	535	95	161	125	56
29.....	68	15	27	350	95	350	378	465	95	161	125	68
30.....	68	15	27	275	300	610	465	125	161	125	56
31.....	68	27	203	275	405	161	125

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

29050°—wsp 331—14—18

Monthly discharge of Stony Creek near Fruto, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	125	68	91.2	5,610	B.
November.....	68	15	32.5	1,930	C.
December.....	27	15	22.0	1,350	C.
January.....	1,480	27	182	11,200	B.
February.....	465	95	173	9,950	B.
March.....	860	95	270	16,600	B.
April.....	610	182	289	17,200	B.
May.....	1,050	275	484	29,800	B.
June.....	350	95	182	10,800	B.
July.....	350	125	169	10,400	B.
August.....	161	125	128	7,870	B.
September.....	125	21	74.8	4,459	B.
The year.....	1,480	15	175	127,000	

LITTLE STONY CREEK NEAR LODOGA, CAL.

Location.—At East Park reservoir, 4 miles above junction with Stony Creek and $3\frac{1}{2}$ miles northwest of Lodoga.

Records available.—January 1, 1908, to September 30, 1912.

Drainage area.—102 square miles.

Gage.—Previous to December 1, 1910, the station was maintained a short distance below the present site. Several gages with independent datums were used. Beginning with December 1, 1910, the record is from the gage at the dam.

Discharge.—Computed from gage heights observed at the dam. Correction has been made for evaporation, which is determined from records obtained from an evaporation pan at the reservoir.

Accuracy.—Considerable care is used in collecting these data and results should be good.

Cooperation.—Record furnished by United States Reclamation Service through A. N. Burch, project manager.

Daily gage height, in feet, of Little Stony Creek near Lodoga, Cal., for 1911.

[J. Lea, observer.]

Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.	Day.	Oct.	Nov.	Dec.
1.....	67.8	63.1	62.5	11.....	65.9	62.6	62.6	21.....	64.3	62.5	62.6
2.....	67.6	63.0	62.5	12.....	65.8	62.6	62.6	22.....	64.2	62.5	62.6
3.....	67.4	62.9	62.5	13.....	65.6	62.6	62.6	23.....	64.0	62.5	62.6
4.....	67.2	62.8	62.6	14.....	65.4	62.6	62.6	24.....	63.9	62.5	62.6
5.....	67.0	62.7	62.6	15.....	65.3	62.5	62.6	25.....	63.8	62.5	62.6
6.....	66.8	62.7	62.6	16.....	65.1	62.5	62.6	26.....	63.7	62.5	62.6
7.....	66.6	62.6	62.6	17.....	64.9	62.5	62.6	27.....	63.6	62.5	62.6
8.....	66.4	62.6	62.6	18.....	64.7	62.5	62.6	28.....	63.5	62.5	62.6
9.....	66.3	62.6	62.6	19.....	64.6	62.5	62.6	29.....	63.4	62.5	62.7
10.....	66.0	62.6	62.6	20.....	64.4	62.5	62.6	30.....	63.3	62.5	62.7
								31.....	63.2	62.7

NOTE.—Gage height record not furnished for 1912.

Daily discharge, in second-feet, of Little Stony Creek near Lodoga, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	7	2	6	10.5	21	9	32	154	38	5	0	0
2.....	7	2	6	11.5	21	9	28	166	27	5	0	0
3.....	7	2	6	8	21	9	28	77	20	4	0	1
4.....	7	2	7	6	16	12	21	77	19	4	0	.5
5.....	7	2	7	6	16	34.5	21	74	37.5	4	0	0
6.....	7	2	7	6	16	92	21	65	23	4	0	35
7.....	7	2	7	6	19.5	51.5	21	50	21	4	0	20.5
8.....	7	3	7	6	16	46	21	45	19	4	0	7
9.....	7	3	7	6	16	39	21	45	17	4	0	4
10.....	7	3	7	6	16	39	32.5	44	16	3	0	3
11.....	7	3	7	7	16	28	47	42	16	3	0	3
12.....	7	3	7	7	15	75	43.5	39	18	2	0	3
13.....	7	3	7	8	16.5	174.5	34	37	16	2	0	3
14.....	7	3	7	8	21.5	64	26	37	16	2	0	3
15.....	7	3	7	8	15	52	24	35	16	2	0	3
16.....	7	3	7	29	15	113.5	24	33	14	2	0	2
17.....	5	3	7	10	13	77.5	23	29	12	1	0	2
18.....	5	3	6	24.5	12	53	23	24	10	1	0	2
19.....	5	3	6	23	12	47	23	22	8	1	0	2
20.....	5	3	6	13	12	38	23	26	6	1	0	2
21.....	5	3	6	14	10	37	21	24	5	0	0	1
22.....	5	3	6	11	8	37	19	21	5	0	0	1
23.....	5	3	6	11	8	35	19	18.5	15	0	0	1
24.....	2	3	6	15	8	35	17	18	36.5	0	0	1
25.....	2	3	6	15	8	35	17	86	8	0	0	0
26.....	2	3	6	185	8	34	17	66.5	8	0	0	0
27.....	2	3	6	106	8	32.5	17	23	20	0	0	0
28.....	2	3	6	65	8	33	16	23	30	0	0	0
29.....	2	3	6	22	9	33	34.5	22	6	0	0	0
30.....	2	3	6	21	33	23	23	5	0	0	0
31.....	2	6	17	33	24	0	0	0

Monthly discharge of Little Stony Creek near Lodoga, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
October.....	7	2	5.3	326
November.....	3	2	2.8	167
December.....	7	6	6.5	400
January.....	185	6	22.3	1,370
February.....	21.5	8	13.8	794
March.....	174.5	9	46.5	2,860
April.....	47	16	24.6	1,460
May.....	166	18	47.4	2,910
June.....	38	5	16.9	1,010
July.....	5	.0	1.87	115
August.....	.0	.0	.0	0
September.....	35	.0	3.33	198
The year.....	185	.0	16.0	11,600

FEATHER RIVER AND TRIBUTARIES.

NORTH FORK OF FEATHER RIVER NEAR PRATTVILLE, CAL.

Location.—About 1 mile south of the Great Western Power Co.'s dam (under construction) at Big Meadows, about 5 miles southeast of Prattville, Cal., in NW. $\frac{1}{4}$ sec. 33, T. 26 N., R. 8 E., and about 4 miles above mouth of Butt Creek.

Records available.—June 13, 1905, to September 30, 1912.

Drainage area.—506 square miles at former location at dam site.

Gage.—Friez water-stage register, located on left bank, 5 feet above auxiliary vertical staff gage. Automatic gage installed at present location July 31, 1912. Prior to this date, gage was located at dam site 1 mile upstream. From September 20, 1911, to April 29, 1912, it was located 500 feet above dam site. From April 29 to July 31, 1911, it was located a short distance downstream from former location. The construction work on the dam necessitated making these changes. The Friez gage was used at all three locations. The original datum has not been maintained. Gage is located between two riffles with considerable fall above and below.

Discharge measurements.—Made from car and cable at staff gage.

Channel.—Boulders; fairly permanent.

Accuracy.—Measurements affected by roughness of stream bed and high velocities at medium and high stages. Results are considered excellent by company.

Cooperation.—Station is maintained and complete data furnished by Great Western Power Co., through L. P. Cornell, engineer.

The Great Western Power Co. is constructing a dam at Big Meadows which, when completed, will be 150 feet high, with a storage capacity of about 1,280,000 acre-feet. The reservoir will have a surface area of about 44 square miles. Power for construction purposes is generated at the power plant on Butt Creek.

The following discharge measurement was made from cable by Lasley Lee:

Sept. 23, 1912: Gage height, 1.68 feet; discharge, 560 second-feet.

Daily discharge, in second-feet, of North Fork of Feather River near Prattville, Cal., for 1911-12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911.									
1	606			2,600	3,065	3,130	1,500	945	790
2	607			2,940	3,000	3,130	1,500	925	790
3	589			3,225	3,130	3,160	1,412	900	810
4	589	880	770	3,320	3,500	3,220	1,480	900	810
5	589			3,100	4,050	3,290	1,357	885	850
6	607			3,100	4,120	3,230	1,330	885	850
7	607			3,130	3,500	3,230	1,330	885	850
8	607			3,200	3,225	3,200	1,330	885	810
9	625			3,290	3,065	3,130	1,310	885	810
10	607			3,000	2,940	3,030	1,280	885	790
11	535	1,000	760	2,590	2,835	2,970	1,260	885	790
12	530			2,300	2,905	3,000	1,235	885	790
13	535			2,100	3,035	3,000	1,210	885	790
14	571			1,995	3,065	2,940	1,185	865	790
15	553			1,960	2,905	2,870	1,210	850	790
16	571			2,050	2,775	2,870	1,210	850	770
17	580			2,240	2,715	2,750	1,310	850	770
18	580	1,000	805	2,565	2,650	2,625	1,330	825	770
19	607			2,775	2,620	2,535	1,260	825	765
20	697			2,870	2,565	2,450	1,235	825	765
21	643			2,970	2,565	2,330	1,185	825	770
22	625			3,130	2,715	2,210	1,140	825	770
23	625			3,395	2,970	2,100	1,050	810	770
24	643			3,690	3,225	1,990	1,050	810	770
25	661	752	1,500	3,950	3,200	1,960	1,050	810	770
26	643			4,190	3,060	1,830	1,025	810	790
27	643			4,080	3,000	1,780	1,005	820	790
28	625			3,600	2,870	1,730	985	820	790
29				3,200	2,940	1,630	945	820	770
30				3,065	3,000	1,580	945	820	770
31					3,060		925	820	770

Daily discharge, in second-feet, of North Fork of Feather River near Prattville, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	765	575	615	555	615	635	775	1,175	1,152	615	605	546
2.....	770	555	615	555	580	650	790	1,125	1,147	610	605	550
3.....	765	555	650	550	615	650	781	1,005	1,175	605	605	570
4.....	785	555	650	550	615	675	790	940	1,195	610	582	574
5.....	795	580	650	550	615	705	770	895	1,195	605	574	570
6.....	790	615	650	550	615	970	765	895	1,167	600	570	635
7.....	785	615	650	580	630	890	790	910	1,125	585	570	788
8.....	765	615	615	605	670	830	792	925	1,075	585	570	770
9.....	770	615	615	615	765	790	800	990	1,033	585	570	580
10.....	785	665	615	615	770	785	830	1,025	990	575	570	635
11.....	770	665	615	650	780	765	830	1,090	955	570	566	610
12.....	765	640	610	665	750	767	812	1,125	910	575	566	595
13.....	755	650	610	690	710	735	774	1,160	895	560	562	586
14.....	745	650	610	705	725	705	765	1,175	910	560	562	574
15.....	745	650	610	680	705	725	790	1,185	895	560	558	570
16.....	735	665	610	680	700	670	758	1,195	890	550	562	570
17.....	735	665	615	690	720	690	770	1,195	890	550	562	566
18.....	735	650	555	665	875	702	792	1,195	875	582	558	566
19.....	735	650	550	650	1,085	725	765	1,195	875	582	562	562
20.....	735	650	580	650	835	742	763	1,255	887	560	558	562
21.....	735	650	580	650	735	720	752	1,385	895	560	554	558
22.....	735	650	580	635	690	732	700	1,385	910	557	550	558
23.....	735	615	580	635	670	765	715	1,210	870	525	546	554
24.....	850	615	580	705	635	835	774	1,160	830	550	542	550
25.....	855	615	555	875	615	880	765	1,110	800	547	538	550
26.....	905	615	555	1,070	615	885	765	1,140	735	530	538	550
27.....	910	615	580	1,070	615	865	781	1,195	690	525	538	546
28.....	910	615	555	710	635	842	815	1,175	665	515	538	554
29.....	850	615	555	700	635	830	927	1,170	645	520	538	562
30.....	955	615	555	680	782	1,090	1,195	630	519	534	562
31.....	850	555	635	780	1,195	519	538

NOTE.—Recording gage was out of order during February and March, 1911. Discharge interpolated by engineers of the United States Geological Survey May 29-31, June 4, Aug. 6-11, Sept. 24 and 30, Dec. 31, 1911; Jan. 3-6, Mar. 31, May 24, and June 30, 1912. Discharge estimated by Great Western Power Co., June 22-29, 1912.

Monthly discharge of North Fork of Feather River near Prattville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1911.				
January 1-28.....	697	530	604	33,500
February.....
March.....
April.....	4,190	1,960	2,990	178,000
May.....	4,120	2,560	3,040	187,000
June.....	3,290	1,580	2,630	156,000
July.....	1,500	925	1,210	74,400
August.....	945	810	855	52,600
September.....	850	765	790	47,000
1911-12.				
October.....	955	735	791	48,600
November.....	665	623	37,100
December.....	650	550	597	36,700
January.....	1,070	550	672	41,300
February.....	1,080	580	697	40,100
March.....	970	635	764	47,000
April.....	1,090	700	792	47,100
May.....	1,380	895	1,130	69,500
June.....	1,200	630	930	55,300
July.....	825	515	572	35,200
August.....	605	534	561	34,500
September.....	788	546	584	34,800
The year.....	1,380	515	727	527,000

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

NORTH FORK OF FEATHER RIVER AT BIG BAR, CAL.

Location.—In the NW. $\frac{1}{4}$ sec. 32, T. 23 N., R. 5 E., one-fourth of a mile above Big Bar station on Western Pacific Railway, and about 7 miles above intake of Great Western Power Co.'s power plant at Big Bend.

Records available.—February 24, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Bristol water stage register with auxiliary staff gage on right bank. Zero of gage is 1,348.96 feet above sea level (United States Geological Survey datum).

Channel.—Solid rock, boulders, and gravel; practically permanent.

Discharge measurements.—Made from car and cable 40 feet below gage.

Accuracy.—Results are considered fair by company. The rating curve is not very well defined.

Cooperation.—Station maintained and complete data furnished by Great Western Power Co. through L. P. Cornell, engineer.

Daily gage height, in feet, of North Fork of Feather River at Big Bar, Cal., for 1911-12.

Day.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911.								
1.....		4.5	13.3	11.8	11.2	6.5	3.7	2.9
2.....		4.6	13.9	11.7	11.6	6.3	3.6	2.9
3.....		4.9	14.2	12.1	11.5	6.1	3.5	2.9
4.....		5.6	14.0	12.9	11.7	6.0	3.5	2.8
5.....		6.4	15.3	13.7	11.5	5.9	3.5	2.9
6.....		9.0	15.6	13.4	11.3	5.8	3.5	2.9
7.....		10.9	14.4	12.3	11.3	5.7	3.4	2.9
8.....		9.8	13.9	11.9	11.2	5.5	3.4	2.9
9.....		8.8	13.7	11.7	11.0	5.4	3.4	2.8
10.....		8.0	13.2	11.4	10.8	5.3	3.4	2.8
11.....		7.7	12.0	11.5	10.8	5.2	3.3	2.8
12.....		7.5	10.9	11.6	10.5	5.1	3.3	2.7
13.....		7.2	10.1	11.7	10.5	5.0	3.3	2.7
14.....		7.1	9.5	11.5	10.3	4.9	3.3	2.7
15.....		7.2	9.2	11.0	10.1	4.9	3.3	2.8
16.....		7.2	9.3	10.9	10.0	4.9	3.2	2.7
17.....		7.5	9.8	10.4	9.8	4.8	3.2	2.7
18.....		7.6	10.8	10.8	9.5	4.8	3.2	2.7
19.....		7.9	11.4	10.8	9.3	4.7	3.2	2.7
20.....		8.2	11.4	10.5	9.1	4.6	3.2	2.7
21.....		8.6	11.5	10.7	8.5	4.6	3.2	2.7
22.....		9.1	11.9	11.4	8.0	4.5	3.2	2.7
23.....		9.7	12.6	11.7	7.8	4.3	3.1	2.7
24.....	4.7	10.3	13.6	11.7	7.6	4.3	3.1	2.7
25.....	4.7	10.7	14.3	11.5	7.3	4.2	3.1	2.7
26.....	4.6	10.3	14.6	11.1	7.3	4.2	3.0	2.7
27.....	4.5	10.1	14.2	10.9	7.2	4.1	3.0	2.7
28.....	4.5	10.2	13.0	10.8	7.0	4.0	3.0	2.7
29.....		10.8	12.1	10.8	6.8	4.0	2.9	2.7
30.....		11.6	11.8	11.1	6.7	3.9	2.9	2.7
31.....		12.5		11.2		3.8	2.9	

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	2.7	3.0	2.9	3.0	3.7	3.6	4.7	7.3	6.9	3.0	2.5	2.2
2.....	2.6	2.9	3.0	2.9	3.7	3.6	4.7	7.0	6.9	2.9	2.5	2.2
3.....	2.7	2.9	3.0	2.6	3.7	3.5	4.8	6.9	6.9	2.9	2.5	2.5
4.....	2.7	2.9	3.0	2.6	3.6	3.5	4.7	6.7	6.7	2.9	2.5	2.4
5.....	2.7	2.9	3.1	2.8	3.6	4.7	4.7	6.5	6.6	2.9	2.5	2.4
6.....	2.7	2.8	3.1	2.9	3.6	4.6	4.7	6.6	6.4	3.0	2.5	4.1
7.....	2.7	2.9	3.1	3.2	3.7	4.2	4.9	6.7	6.0	2.7	2.5	4.2
8.....	2.7	2.9	3.1	3.2	3.8	3.7	4.9		5.8	3.1	2.5	3.4
9.....	2.7	3.0	3.0	3.6	4.0	3.3	4.8		5.3	3.0	2.5	3.0
10.....	2.7	3.9	3.0	3.7	4.1	3.8	4.8		5.3	2.9	2.5	2.8
11.....	2.7	3.2	2.9	3.8	4.1	3.8	4.7		5.1	2.9	2.5	2.6
12.....	2.8	3.1	3.0	3.8	4.0	3.8	4.5	5.9	4.9	2.9	2.4	2.6
13.....	2.8	3.1	3.0	3.8	3.9	3.8	4.3	5.9	4.9	2.9	2.3	2.5
14.....	2.8	3.1	3.0	3.9	4.0	3.5	4.4	5.8	4.9	2.8	2.3	2.5
15.....	2.8	3.3	3.0	3.9	3.9	3.6	4.4	5.7	4.7	2.8	2.3	2.4

Daily gage height, in feet, of North Fork of Feather River at Big Bar, Cal., for 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
16.....	2.8	3.2	3.1	3.9	3.9	3.6	4.5	5.7	4.4	2.7	2.3	2.4
17.....	2.8	3.1	3.1	3.9	4.1	4.3	4.5	5.7	4.3	2.7	2.3	2.4
18.....	2.8	3.1	3.0	3.9	4.7	4.3	4.5	5.5	4.1	2.6	2.3	2.4
19.....	2.8	3.1	3.0	4.0	4.6	4.3	4.5	5.4	4.0	2.6	2.3	2.4
20.....	2.8	3.0	2.9	4.0	4.3	4.3	4.5	5.5	3.8	2.5	2.3	2.4
21.....	2.8	3.0	2.9	3.7	4.1	4.3	4.4	5.6	3.8	2.5	2.3	2.3
22.....	2.8	2.9	2.9	3.6	3.9	4.4	4.4	5.4	3.8	2.5	2.3	2.3
23.....	2.9	2.9	2.9	3.5	3.8	4.4	4.4	5.4	3.7	2.5	2.3	2.3
24.....	2.9	2.9	3.0	3.5	3.6	4.5	4.4	5.4	3.8	2.5	2.2	2.3
25.....	2.9	3.0	3.0	5.7	3.5	4.7	4.5	6.0	3.8	2.5	2.2	2.3
26.....	2.9	3.0	2.9	7.3	3.4	4.9	4.5	6.6	3.6	2.5	2.2	2.3
27.....	2.9	3.1	2.9	5.5	3.4	5.0	4.5	7.1	3.6	2.5	2.2	2.3
28.....	3.0	3.0	3.0	4.7	3.5	5.1	4.6	7.0	3.5	2.5	2.1	2.3
29.....	3.0	2.9	3.0	4.3	3.6	5.2	5.7	7.0	3.3	2.5	2.2	2.3
30.....	3.0	2.9	3.1	3.9	-----	5.0	6.4	6.9	3.1	2.5	2.2	2.3
31.....	3.0	-----	3.0	3.8	-----	4.7	-----	6.9	-----	2.5	2.2	-----

Daily discharge, in second-feet, of North Fork of Feather River at Big Bar, Cal., for 1911-12.

Day.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.
1911.								
1.....	-----	2,340	13,350	11,100	10,240	3,740	1,810	1,265
2.....	-----	2,410	14,350	10,960	10,820	3,595	1,740	1,265
3.....	-----	2,625	14,800	11,550	10,670	3,450	1,670	1,265
4.....	-----	3,100	14,500	12,750	10,960	3,380	1,670	1,200
5.....	-----	3,670	16,700	14,050	10,670	3,300	1,670	1,265
6.....	-----	6,500	17,200	13,500	10,380	3,220	1,670	1,265
7.....	-----	9,780	15,100	11,850	10,380	3,160	1,600	1,265
8.....	-----	7,860	14,350	11,250	10,240	2,960	1,600	1,265
9.....	-----	6,150	14,050	10,960	9,950	2,920	1,600	1,200
10.....	-----	4,980	13,200	10,520	9,610	2,870	1,600	1,200
11.....	-----	4,650	11,400	10,675	9,610	2,820	1,525	1,200
12.....	-----	4,475	9,780	10,820	9,090	2,760	1,525	1,150
13.....	-----	4,250	8,395	10,960	9,090	2,700	1,525	1,150
14.....	-----	4,175	7,355	10,670	8,740	2,625	1,525	1,150
15.....	-----	4,250	6,850	9,950	8,395	2,625	1,525	1,200
16.....	-----	4,250	7,020	9,780	8,210	2,625	1,450	1,150
17.....	-----	4,475	7,860	8,900	7,860	2,550	1,450	1,150
18.....	-----	4,550	9,610	9,610	7,355	2,550	1,450	1,150
19.....	-----	4,865	10,520	9,610	7,020	2,480	1,450	1,150
20.....	-----	5,200	10,520	9,090	6,675	2,410	1,450	1,150
21.....	-----	5,820	10,670	9,445	5,660	2,410	1,450	1,150
22.....	-----	6,675	11,250	10,520	4,980	2,340	1,450	1,150
23.....	-----	7,690	12,300	10,960	4,750	2,195	1,390	1,150
24.....	2,480	8,740	13,900	10,960	4,550	2,195	1,390	1,150
25.....	2,480	9,445	14,950	10,670	4,325	2,120	1,390	1,150
26.....	2,410	8,740	15,400	10,095	4,325	2,120	1,330	1,150
27.....	2,340	8,395	14,800	9,780	4,250	2,060	1,330	1,150
28.....	2,340	8,580	12,900	9,610	4,100	2,000	1,330	1,150
29.....	-----	9,610	11,550	9,610	3,950	2,000	1,265	1,150
30.....	-----	10,820	11,100	10,095	3,780	1,940	1,265	1,150
31.....	-----	12,150	-----	10,240	-----	1,880	1,265	-----

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	1,150	1,330	1,265	1,330	1,810	1,740	2,480	4,325	4,025	1,330	1,050	880
2.....	1,100	1,265	1,330	1,265	1,810	1,740	2,480	4,100	4,025	1,265	1,050	880
3.....	1,150	1,265	1,330	1,100	1,810	1,670	2,550	4,025	4,025	1,265	1,050	1,050
4.....	1,150	1,265	1,330	1,100	1,740	1,670	2,480	3,780	3,780	1,265	1,050	1,000
5.....	1,150	1,265	1,390	1,200	1,740	2,480	2,480	3,740	3,710	1,265	1,050	1,000
6.....	1,150	1,200	1,390	1,265	1,740	2,410	2,480	3,710	3,670	1,330	1,050	2,060
7.....	1,150	1,265	1,390	1,450	1,810	2,120	2,625	3,780	3,380	1,150	1,050	2,120
8.....	1,150	1,265	1,390	1,450	1,880	1,810	2,625	4,175	3,220	1,390	1,050	1,600
9.....	1,150	1,330	1,330	1,740	2,000	1,525	2,550	4,250	2,870	1,330	1,050	1,330
10.....	1,150	1,940	1,330	1,810	2,060	1,880	2,550	4,250	2,870	1,265	1,050	1,200

Daily discharge, in second-feet, of North Fork of Feather River at Big Bar, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
11.....	1,150	1,450	1,265	1,880	2,060	1,880	2,480	4,325	2,760	1,265	1,050	1,100
12.....	1,200	1,390	1,330	1,880	2,000	1,880	2,340	3,300	2,625	1,265	1,000	1,100
13.....	1,200	1,390	1,330	1,880	1,940	1,880	2,195	3,300	2,625	1,265	940	1,050
14.....	1,200	1,390	1,330	1,940	2,000	1,670	2,270	3,220	2,625	1,200	940	1,050
15.....	1,200	1,525	1,330	1,940	1,940	1,740	2,270	3,160	2,480	1,200	940	1,000
16.....	1,200	1,450	1,390	1,940	1,940	1,740	2,340	3,160	2,270	1,150	940	1,000
17.....	1,200	1,390	1,390	1,940	2,060	2,195	2,340	3,160	2,195	1,150	940	1,000
18.....	1,200	1,390	1,330	1,940	2,480	2,195	2,340	2,960	2,060	1,100	940	1,000
19.....	1,200	1,390	1,330	2,000	2,410	2,195	2,340	2,920	2,000	1,100	940	1,000
20.....	1,200	1,330	1,265	2,000	2,195	2,195	2,340	3,960	1,880	1,050	940	1,000
21.....	1,200	1,330	1,265	1,810	2,000	2,195	2,270	3,100	1,880	1,050	940	940
22.....	1,200	1,265	1,265	1,740	1,940	2,270	2,270	2,920	1,880	1,050	940	940
23.....	1,265	1,265	1,265	1,670	1,880	2,270	2,270	2,920	1,810	1,050	940	940
24.....	1,265	1,265	1,330	1,670	1,740	2,340	2,270	2,920	1,880	1,050	880	940
25.....	1,265	1,330	1,330	3,160	1,670	2,480	2,340	3,960	1,880	1,050	880	940
26.....	1,265	1,330	1,265	4,325	1,600	2,625	2,340	3,710	1,740	1,050	880	940
27.....	1,265	1,390	1,265	2,960	1,600	2,700	2,340	4,175	1,740	1,050	880	940
28.....	1,330	1,330	1,330	2,480	1,670	2,760	2,410	4,100	1,670	1,050	820	940
29.....	1,330	1,265	1,330	2,195	1,740	2,820	3,160	4,100	1,525	1,050	880	940
30.....	1,330	1,265	1,390	1,940	2,700	3,670	4,025	1,390	1,050	880	940
31.....	1,330	1,330	1,880	2,480	4,025	1,050	880

Monthly discharge of North Fork of Feather River at Big Bar, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1911.				
March.....	12,150	2,340	6,170	379,000
April.....	17,200	6,850	12,200	726,000
May.....	14,050	8,900	10,700	658,000
June.....	10,960	3,780	7,690	458,000
July.....	3,740	1,880	2,650	183,000
August.....	1,810	1,265	1,500	92,200
September.....	1,265	1,150	1,190	70,800
The period.....	2,550,000
1911-12.				
October.....	1,330	1,100	1,210	74,400
November.....	1,940	1,200	1,350	80,300
December.....	1,390	1,265	1,330	81,800
January.....	4,325	1,100	1,900	117,000
February.....	2,480	1,600	1,910	110,000
March.....	2,820	1,525	2,140	132,000
April.....	3,670	2,195	2,460	146,000
May.....	4,325	2,920	3,610	222,000
June.....	4,025	1,390	2,550	152,000
July.....	1,390	1,050	1,170	71,900
August.....	1,050	820	964	59,300
September.....	2,120	880	1,090	64,900
The year.....	4,325	820	1,810	1,310,000

FEATHER RIVER AT OROVILLE, CAL.

Location.—At highway bridge at Oroville, in sec. 8, T. 19 N., R. 4 E., 6 miles below junction of North and Middle forks and 30 miles above the mouth of Yuba River.

Records available.—January 1, 1902, to September 30, 1912.

Drainage area.—3,640 square miles.

Gage.—United States Weather Bureau vertical staff gage in two sections on pier of highway bridge near right bank. This gage was read from 1902 to 1905. In December, 1905, a gage was installed on the left bank at the cable, about 1,000

feet upstream from the bridge. Gage heights for 1906-1910 were referred to this gage. The Weather Bureau gage was read during 1911 and 1912. In November, 1912, a Friez water-stage register was installed. These records show that the minimum stage for the day occurs at about 7 a. m., the time at which the Weather Bureau observations are recorded.

Channel.—Somewhat shifting at high stages.

Discharge measurements.—Made from car and cable 1,000 feet above bridge. At extreme low water in 1912 measurements were made from a boat about 1,000 feet below bridge.

Accuracy.—Rating curve is well defined and results are good. Daily discharges at low water, computed from the Weather Bureau record, are about 10 per cent low.

Cooperation.—Gage-height record furnished by United States Weather Bureau, through N. R. Taylor, local forecaster.

Discharge measurements of Feather River at Oroville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 6	J. E. Stewart.....	1.70	1,960	July 16	Lasley Lee.....	0.80	1,100
1912.				Sept. 28 ^b	Stewart and Lee.....	.36	949
Mar. 6do.....	5.72	9,060	28 ^bdo.....	.32	897
May 16do.....	5.21	7,560				

^a Gage height determined from readings on cable gage and gage-relation curve.

^b Made from boat, 1,000 feet below bridge.

Daily gage height, in feet, of Feather River at Oroville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	0.9	1.0	1.0	1.6	3.2	1.9	3.0	5.4	5.3	1.6	0.7	0.0
2.....	1.0	1.2	1.0	1.6	3.2	2.3	3.0	5.2	5.3	1.5	.7	.1
3.....	1.0	1.2	1.0	1.5	2.7	2.1	3.7	5.2	5.2	1.4	.8	.4
4.....	1.0	1.3	1.0	1.6	2.7	2.1	3.7	5.0	5.1	1.3	.8	.6
5.....	1.1	1.2	.9	1.5	2.6	2.5	3.9	5.0	5.0	1.2	.8	.6
6.....	1.0	1.4	1.1	1.5	2.7	6.1	3.9	5.0	4.9	1.2	.7	.8
7.....	1.0	.7	1.1	1.3	2.6	5.2	3.9	5.4	4.5	1.2	.7	3.8
8.....	1.0	.8	1.2	1.4	2.9	4.5	3.9	5.6	4.1	1.2	.7	2.5
9.....	1.3	1.0	1.1	1.4	2.9	4.0	4.3	5.7	4.0	1.1	.7	1.6
10.....	1.3	2.0	1.2	1.9	2.7	3.9	4.5	5.8	3.9	.9	.7	1.1
11.....	1.2	2.3	1.1	2.6	2.9	3.8	4.5	5.8	4.0	.9	.7	.7
12.....	1.1	1.6	1.1	2.5	2.9	3.3	4.0	5.8	4.0	.8	.6	.7
13.....	1.0	1.5	1.1	2.6	2.7	4.3	3.7	5.7	4.0	.8	.6	.7
14.....	1.1	1.6	1.1	2.4	2.9	3.9	3.6	5.7	3.9	.7	.6	.7
15.....	1.0	1.5	1.2	2.3	2.9	3.3	3.5	5.7	3.8	.7	.6	.7
16.....	1.0	2.0	1.2	2.5	2.6	3.1	3.5	5.6	3.6	.6	.5	.6
17.....	1.0	1.6	1.4	2.9	2.6	2.9	3.5	5.4	3.5	.6	.4	.5
18.....	1.0	1.5	1.3	2.9	2.7	3.1	3.6	5.3	3.5	.6	.2	.5
19.....	.9	1.5	1.3	3.6	2.6	3.1	3.3	5.2	3.4	.6	.0	.5
20.....	.8	1.7	1.3	3.6	2.3	3.1	3.2	5.1	3.3	.6	.4	.5
21.....	.8	1.4	1.2	3.6	2.3	3.0	3.2	5.4	3.1	.5	.0	.4
22.....	1.2	1.3	1.3	3.4	2.1	3.0	3.4	5.2	2.6	.5	.2	.5
23.....	1.0	1.3	1.3	1.9	2.1	3.0	2.9	5.1	2.4	.5	.4	.5
24.....	1.5	1.3	1.3	1.9	2.2	3.0	2.8	5.0	2.4	.6	.7	.6
25.....	1.2	1.1	1.2	2.0	2.0	3.0	3.3	5.0	2.3	.7	.5	.4
26.....	1.2	1.3	1.2	7.1	2.0	3.3	3.8	5.7	2.1	.8	.0	.4
27.....	1.1	1.2	1.2	6.4	2.2	3.6	3.3	5.9	1.9	.9	.0	.4
28.....	1.1	1.0	1.4	4.0	2.3	3.8	3.3	5.6	1.7	.8	.0	.4
29.....	1.1	1.0	1.4	3.6	2.0	4.0	3.8	5.6	1.6	.8	.0	.4
30.....	1.1	1.2	1.4	3.4	4.0	5.1	5.6	1.4	.7	.0	.4
31.....	1.2	1.5	3.4	3.3	5.47	.0

NOTE.—Gage heights from about October to December, 1911, liable to error.

Daily discharge, in second-feet, of Feather River at Oroville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1,200	1,276	1,270	1,750	3,490	2,010	3,230	8,130	7,820	1,710	1,060	820
2.....	1,270	1,430	1,270	1,750	3,490	2,420	3,230	7,520	7,820	1,620	1,060	845
3.....	1,270	1,430	1,270	1,670	2,870	2,20	4,200	7,520	7,520	1,530	1,110	840
4.....	1,270	1,510	1,270	1,750	2,870	2,200	4,200	6,950	7,230	1,450	1,110	1,020
5.....	1,350	1,430	1,200	1,670	2,750	2,640	4,530	6,950	6,950	1,370	1,110	1,020
6.....	1,270	1,590	1,350	1,670	2,870	10,900	4,530	6,950	6,680	1,370	1,060	1,110
7.....	1,270	1,060	1,350	1,510	2,750	7,520	4,530	8,130	5,700	1,370	1,060	4,360
8.....	1,270	1,130	1,430	1,590	3,110	5,700	4,530	8,800	4,880	1,370	1,060	2,630
9.....	1,510	1,270	1,350	1,590	3,110	4,700	5,270	9,180	4,700	1,290	1,060	1,710
10.....	1,510	2,100	1,430	2,010	2,870	4,530	5,700	9,580	4,530	1,160	1,060	1,290
11.....	1,430	2,420	1,350	2,750	3,110	4,360	5,700	9,580	4,700	1,160	1,060	1,060
12.....	1,350	1,750	1,350	2,640	3,110	3,620	4,700	9,580	4,700	1,110	1,020	1,060
13.....	1,270	1,670	1,350	2,750	2,870	5,270	4,200	9,180	4,700	1,110	1,020	1,060
14.....	1,350	1,750	1,350	2,530	3,110	4,530	4,050	9,180	4,530	1,060	1,020	1,060
15.....	1,270	1,670	1,430	2,420	3,110	3,620	3,900	9,180	4,360	1,060	1,020	1,060
16.....	1,270	2,100	1,430	2,640	2,750	3,360	3,900	8,800	4,050	1,020	980	1,020
17.....	1,270	1,750	1,590	3,110	2,750	3,110	3,900	8,130	3,900	1,020	940	980
18.....	1,270	1,670	1,510	3,110	2,870	3,360	4,050	7,820	3,900	1,020	875	980
19.....	1,200	1,670	1,510	4,050	2,750	3,360	3,620	7,520	3,760	1,020	820	980
20.....	1,130	1,830	1,510	4,050	2,420	3,360	3,490	7,230	3,620	1,020	940	980
21.....	1,130	1,590	1,430	4,050	2,420	3,230	3,490	8,130	3,360	980	820	940
22.....	1,430	1,510	1,510	3,760	2,200	3,230	3,760	7,520	2,750	980	875	980
23.....	1,270	1,510	1,510	2,010	2,200	3,230	3,110	7,230	2,530	980	940	980
24.....	1,670	1,510	1,510	2,010	2,310	3,230	2,960	6,950	2,530	1,020	1,060	1,020
25.....	1,430	1,350	1,430	2,100	2,100	3,230	3,620	6,950	2,420	1,060	980	940
26.....	1,430	1,510	1,430	16,400	2,100	3,620	4,360	9,180	2,200	1,110	820	940
27.....	1,350	1,430	1,430	12,400	2,310	4,050	3,620	10,000	2,010	1,160	820	940
28.....	1,350	1,270	1,590	4,700	2,420	4,360	3,620	8,800	1,830	1,110	820	940
29.....	1,350	1,270	1,590	4,050	2,100	4,700	4,360	8,800	1,750	1,110	820	940
30.....	1,350	1,430	1,590	3,760	4,700	7,230	8,800	1,590	1,060	820	940
31.....	1,430	1,670	3,760	3,620	8,130	1,060	820

NOTE.—Daily discharge determined from two rating curves well defined above 3,000 second-feet and fairly well below, applicable Jan. 1, 1911 to June 30, 1912, and July 1 to Sept. 30, 1912. The daily values are liable to considerable error during low stages owing to the gage reading not being the mean for the day as noted in the description.

Monthly discharge of Feather River at Oroville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	1,670	1,130	1,330	81,800	C.
November.....	2,420	1,060	1,560	92,800	B.
December.....	1,670	1,200	1,430	87,900	B.
January.....	16,400	1,510	3,420	210,000	B.
February.....	3,490	2,100	2,730	157,000	B.
March.....	10,900	2,010	4,000	246,000	A.
April.....	7,230	2,990	4,190	249,000	A.
May.....	10,000	6,950	8,270	508,000	A.
June.....	7,820	1,590	4,300	256,000	A.
July.....	1,710	980	1,180	72,600	C.
August.....	1,110	820	969	59,600	C.
September.....	4,360	820	1,180	70,200	C.
The year.....	16,400	820	2,880	2,090,000	

BUTT CREEK AT BUTTE VALLEY, CAL.

Location.—At lower end of Butte Valley, 100 feet below footbridge, 2 miles above junction with North Fork of Feather River, 1,000 feet above the intake to the Great Western Power Co.'s diversion flume, and about one-fourth mile south of Butte Valley post office.

Records available.—June 14, 1905, to September 30, 1912.

Drainage area.—73 square miles at original station.

Gage.—A vertical staff on left bank, installed July 19, 1912, seven-eighths of a mile upstream from original vertical staff which was on right bank; the new gage is out of the influence of a newly completed low diversion dam near the flume intake for the Great Western Power Co.'s Butt Creek plant.

Discharge measurements.—Made from footbridge at gage.

Channel.—Sand, gravel, and clay; appears permanent.

Diversions.—Water is diverted from Butt Creek above the station into Yellow Creek watershed through Wallack ditch by the Oro Light & Power Co. The ditch has a capacity of from 15 to 20 second-feet. Pending litigation with the Great Western Power Co., only a small amount of water is diverted. From July 5 to 15, 1912, about 15 second-feet were diverted. There are no other diversions above the station.

Cooperation.—Station maintained and complete data furnished by Great Western Power Co., through L. P. Cornell, engineer.

Discharge measurements of Butt Creek at Butte Valley, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 8	S. H. Cabot.....	2.25	37	Apr. 30	S. H. Cabot.....	2.92	122
9	do.....	2.25	38	30	do.....	2.88	114
9	do.....	2.25	33	30	do.....	2.84
30	do.....	2.22	34	May 1	do.....	3.30	188
Nov. 28	do.....	2.20	32	1	do.....	3.32	190
Dec. 22	do.....	2.62	54	1	do.....	3.35	188
1912.				July 19 ^a	E. M. Whitlock.....	1.30	31
Jan. 10	do.....	3.40	63	21	E. W. Hutchins.....	1.29	31
23	do.....	2.30	42	27	do.....	1.28	32
Feb. 11	do.....	2.40	64	Aug. 5	L. P. Clark.....	1.27	26
21	do.....	2.40	59	8	do.....	1.26	24
Mar. 9	do.....	2.45	69	19	do.....	1.25	25
9	do.....	2.45	70	23	do.....	1.24	23
10	do.....	2.40	63	30	do.....	1.25	24
25	do.....	2.60	84	Sept. 5	do.....	1.31	31
25	do.....	2.60	125	6	do.....	1.50	43
				17	do.....	1.33	26

^a Discharge measurements beginning this date were taken at new station established about seven-eighths of a mile above intake of Great Western Power Co.'s Butt Creek plant diversion flume.

NOTE.—Measurements furnished by Great Western Power Co.

Daily gage height, in feet, of Butt Creek at Butte Valley, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.				2.3	2.3	2.35	2.6	2.85	2.8	2.21	1.27	1.26
2.				2.3	2.3	2.45	2.6	2.9	2.8	2.21	1.29	1.26
3.				2.3	2.3	2.4	2.65	2.8	2.76	2.21	1.29	1.33
4.				2.3	2.32	2.4	2.65	2.75	2.74	2.21	1.27	1.32
5.				2.3	2.35	2.41	2.6	2.7	2.65	2.21	1.27	1.31
6.				2.4	2.35	2.55	2.75	2.95	2.6	2.19	1.27	1.5
7.				2.4	2.38	2.65	2.8	2.8	2.6	2.12	1.26	1.86
8.				2.5	2.38	2.6	2.78	2.8	2.56	2.08	1.26	1.46
9.				2.6	2.4	2.45	2.8	2.85	2.5	2.08	1.25	1.4
10.				2.7	2.38	2.45	2.8	2.85	2.42	2.08	1.25	1.37
11.				2.8	2.4	2.37	2.52	2.9	2.34	2.07	1.25	1.35
12.				2.6	2.38	2.38	2.5	2.97	2.32	2.0	1.26	1.34
13.				2.4	2.35	2.35	2.5	2.93	2.32	2.0	1.25	1.34
14.				2.4	2.35	2.32	2.5	2.7	2.3	2.0	1.25	1.33
15.				2.35	2.3	2.35	2.48	2.7	2.3	2.06	1.26	1.34
16.				2.4	2.35	2.4	2.48	2.7	2.3	2.06	1.26	1.33
17.				2.35	2.38	2.34	2.45	2.7	2.3	2.08	1.26	1.33
18.				2.35	2.8	2.35	2.45	2.8	2.27	2.08	1.27	1.33
19.				2.32	2.6	2.34	2.42	2.87	2.28	1.3	1.26	1.33
20.				2.32	2.4	2.34	2.44	2.9	2.26	1.3	1.26	1.33
21.				2.3	2.35	2.35	2.4	3.1	2.26	1.29	1.26	1.33
22.				2.35	2.35	2.38	2.34	3.1	2.26	1.29	1.26	1.33
23.				2.4	2.3	2.46	2.35	3.07	2.25	1.29	1.24	1.33
24.				2.9	2.3	2.52	2.34	2.98	2.24	1.28	1.24	1.33
25.				3.33	2.29	2.6	2.36	2.95	2.2	1.28	1.25	1.33
26.				2.9	2.28	2.6	2.4	2.93	2.26	1.28	1.25	1.33
27.				2.5	2.26	2.68	2.4	2.87	2.26	1.28	1.25	1.34
28.				2.4	2.26	2.7	2.45	2.83	2.24	1.27	1.25	1.34
29.				2.35	2.3	2.8	2.8	2.85	2.24	1.27	1.25	1.33
30.				2.35	2.35	2.62	2.85	2.8	2.23	1.26	1.26	1.33
31.				2.35	2.35	2.62	2.62	2.8	2.23	1.26	1.26	1.33

Daily discharge, in second-feet, of Butt Creek at Butte Valley, Cal., for 1910-1912.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.												
1.....	26.1	26	34	33	-----	-----	419	355	980	90	28	32
2.....	26.1	26	33	33	810	-----	441	371	980	87	38	32
3.....	26.1	26	81	33	-----	62	441	411	1,025	85	37	32
4.....	26.1	26	58	32	-----	64	396	505	1,060	80	37	32
5.....	26.1	26	44	32	-----	71	419	570	1,025	75	35	34
6.....	26.1	26	39	32	-----	75	458	464	1,025	73	35	34
7.....	26.1	26	37	32	-----	81	375	455	1,025	70	35	34
8.....	26.1	27	44	32	-----	89	351	435	1,010	67	35	32
9.....	26.1	29	167	34	-----	99	375	452	980	65	35	32
10.....	27	29	132	34	-----	84	307	377	930	62	35	32
11.....	27.8	32	140	37	-----	71	262	407	900	60	35	32
12.....	28	35	94	-----	-----	62	219	430	920	58	34	32
13.....	28	29	52	-----	-----	65	198	464	920	57	34	32
14.....	27.2	28	65	-----	-----	67	267	396	875	57	35	32
15.....	26.1	28	42	-----	-----	71	185	380	875	56	35	32
16.....	26.1	29	41	-----	-----	74	207	371	840	56	35	32
17.....	26.2	30	40	-----	-----	80	245	330	805	57	35	32
18.....	26.2	32	39	-----	-----	88	290	355	750	52	35	32
19.....	26.2	29	37	-----	-----	99	309	357	720	40	35	32
20.....	26.2	30	37	-----	-----	110	294	358	670	38	35	32
21.....	26.2	30	37	-----	-----	123	322	371	620	37	35	32
22.....	26.2	31	36	-----	-----	160	365	435	580	37	35	32
23.....	26.1	32	36	-----	-----	195	430	505	525	37	35	32
24.....	26.1	67	36	-----	-----	220	290	464	475	37	35	32
25.....	26.1	85	34	-----	-----	225	510	375	-----	40	35	33
26.....	26.1	65	33	-----	-----	200	600	362	-----	38	35	34
27.....	26.1	47	33	-----	-----	205	510	350	-----	37	34	33
28.....	26.1	46	32	-----	273	210	419	337	-----	36	33	33
29.....	26.1	34	33	-----	-----	250	345	345	-----	36	32	33
30.....	26.2	34	34	-----	-----	290	350	355	-----	36	32	33
31.....	26.2	-----	34	-----	-----	340	-----	385	-----	36	32	-----
1911-12.												
1.....	33	32	29	48	48	54	86	118	111	35	25	24
2.....	33	32	29	48	48	67	86	124	111	35	27	24
3.....	33	32	29	48	48	60	92	111	106	35	27	32
4.....	33	32	29	48	51	60	92	104	103	35	25	30
5.....	34	32	30	48	54	61	86	100	98	35	25	29
6.....	34	32	31	60	54	79	104	132	87	32	25	50
7.....	33	32	30	60	58	92	111	111	87	24	24	88
8.....	33	32	29	73	58	86	107	111	80	22	24	46
9.....	33	32	29	86	60	67	111	118	72	22	23	41
10.....	33	35	29	98	58	67	111	118	63	22	23	36
11.....	33	49	29	111	60	56	75	124	53	21	23	34
12.....	33	45	28	86	58	57	73	134	51	18	24	33
13.....	32	38	28	60	54	54	73	128	51	18	23	33
14.....	32	35	29	60	54	50	73	100	47	18	23	32
15.....	32	38	29	54	48	54	70	100	47	20	24	33
16.....	32	190	29	60	54	60	70	100	47	20	24	32
17.....	32	38	28	54	58	53	67	100	47	22	24	32
18.....	32	36	28	54	111	54	67	111	44	22	25	32
19.....	32	33	29	54	86	53	62	120	45	28	24	32
20.....	32	32	30	50	60	53	64	124	43	28	24	32
21.....	32	32	30	50	54	54	60	152	43	27	24	32
22.....	32	32	30	48	54	57	53	152	43	27	24	32
23.....	32	32	30	54	48	68	54	148	41	27	22	32
24.....	32	30	30	60	48	75	53	136	40	26	22	32
25.....	32	30	30	124	45	86	55	132	40	26	23	32
26.....	33	30	29	195	45	86	60	128	43	26	23	32
27.....	33	32	29	124	42	95	60	120	43	26	23	33
28.....	33	32	29	73	42	98	67	116	40	25	23	33
29.....	32	30	29	60	48	111	111	118	40	25	23	32
30.....	32	30	30	54	-----	88	118	111	39	24	24	32
31.....	32	-----	30	54	-----	88	-----	111	-----	23	24	-----

Monthly discharge of Butt Creek at Butte Valley, Cal., for 1910-1912.

[Drainage area, 73 square miles.]

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
1910-11.				
October.....	28	26.1	26.4	1,620
November.....	85	26	34.7	2,060
December.....	167	32	52.7	3,240
January 1-11.....	37	32	33.1	722
February.....				
March 3-31.....	340	62	132	7,590
April.....	600	185	353	21,000
May.....	570	330	404	24,800
June 1-24.....	1,060	475	855	40,700
July.....	90	36	54.6	3,360
August.....	38	32	34.9	2,150
September.....	34	32	32.4	1,930
1911-12.				
October.....	34	32	32.5	2,000
November.....	190	30	38.9	2,310
December.....	31	28	29.3	1,800
January.....	195	48	69.5	4,270
February.....	111	42	55.4	3,190
March.....	111	50	69.1	4,250
April.....	118	53	79.0	4,700
May.....	152	100	120	7,380
June.....	111	39	60	3,570
July.....	35	18	25.6	1,570
August.....	27	22	23.9	1,470
September.....	88	24	34.9	2,080
The year.....	195	18	53.2	38,600

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

INDIAN CREEK NEAR CRESCENT MILLS, CAL.

Location.—At the lower end of Indian Valley, in the SW. $\frac{1}{4}$ sec. 25, T. 26 N., R. 9 E., about 2,000 feet below Arlington Bridge and $1\frac{1}{4}$ miles below Crescent Mills. Spanish Creek enters 4 miles below the station.

Records available.—January 1, 1906, to December 31, 1909, and September 10, 1911, to September 30, 1912.

Drainage area.—740 square miles.

Gage.—Vertical staff in three sections on right bank near observer's house.

Channel.—Fairly permanent. At low stages water is deep and sluggish at gage.

Discharge measurements.—Made from Arlington Bridge or by wading during 1912. Impossible to make measurements from the bridge at flood stages. The car and cable, which were destroyed by the flood of 1907, were replaced, about 30 feet below the gage, in September, 1912.

Diversions.—Water is diverted from Indian Creek for irrigation in Indian and Genesee valleys.

Estimates are withheld until additional measurements are available.

Discharge measurements of Indian Creek near Crescent Mills, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		Feet.	Sec.-ft.	1912.		Feet.	Sec.-ft.
Oct. 23	G. T. Peekema.....	1.57	85	Mar. 9	J. E. Stewart.....	2.95	279
1912.				May 6	Lasley Lee.....	4.31	745
Feb. 1	Lasley Lee.....	2.20	174	Sept. 22do.....	1.17	35

NOTE.—Measurements Oct. 23, 1911, and Sept. 22, 1912, were made by wading; all others made from bridge.

Daily gage height, in feet, of Indian Creek near Crescent Mills, Cal., for 1911-12.

[Eugene Cook, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.45	1.6	1.9	1.75	2.25	2.15	3.0	4.2	3.4	1.65	0.95	0.85
2.....	1.45	1.6	1.9	1.75	2.2	2.25	3.1	4.4	3.4	1.65	.95	.85
3.....	1.45	1.6	1.9	1.75	2.2	2.2	3.1	4.4	3.3	1.6	.95	.95
4.....	1.5	1.6	1.9	1.75	2.15	2.2	3.2	4.2	3.2	1.6	.95	1.05
5.....	1.55	1.6	1.9	1.75	2.15	2.8	3.1	4.3	2.95	1.55	.9	1.15
6.....	1.6	1.6	1.9	1.75	2.15	3.4	3.1	4.3	2.95	1.5	.9	1.25
7.....	1.6	1.65	1.9	1.8	2.15	3.6	3.1	4.4	2.9	1.5	.9	1.3
8.....	1.6	1.7	1.9	1.95	2.15	3.2	3.2	4.4	2.7	1.45	.9	1.35
9.....	1.6	1.7	1.9	2.15	2.15	2.9	3.2	4.4	2.6	1.35	.9	1.3
10.....	1.55	2.0	1.85	2.25	2.2	2.75	3.2	4.2	2.5	1.25	.9	1.25
11.....	1.55	2.0	1.85	2.4	2.3	2.7	3.1	4.2	2.4	1.15	.9	1.25
12.....	1.55	1.95	1.85	2.45	2.3	2.7	2.95	4.2	2.3	1.1	.9	1.25
13.....	1.55	1.95	1.8	2.55	2.3	2.7	2.8	4.2	2.2	1.1	.9	1.25
14.....	1.55	2.0	1.8	2.45	2.3	2.6	2.75	4.0	2.1	1.1	.9	1.2
15.....	1.55	2.1	1.8	2.35	2.3	2.6	2.7	3.9	2.0	1.1	.9	1.2
16.....	1.55	2.15	1.8	2.35	2.3	2.75	2.7	3.8	1.9	1.1	.9	1.2
17.....	1.55	2.2	1.8	2.3	2.3	2.8	2.7	3.7	1.8	1.1	.85	1.2
18.....	1.55	2.2	1.8	2.3	2.95	2.8	2.7	3.6	1.7	1.1	.85	1.15
19.....	1.55	2.15	1.8	2.3	3.0	2.85	2.7	3.5	1.7	1.1	.85	1.15
20.....	1.55	2.1	1.8	2.3	2.7	2.9	2.65	3.7	1.65	1.1	.85	1.15
21.....	1.55	2.05	1.8	2.2	2.55	2.8	2.6	3.8	1.7	1.1	.85	1.15
22.....	1.55	2.0	1.8	2.1	2.45	2.7	2.6	3.8	1.75	1.1	.85	1.15
23.....	1.55	2.0	1.8	2.05	2.3	2.65	2.55	3.7	1.9	1.1	.85	1.18
24.....	1.55	2.0	1.75	2.05	2.2	2.65	2.7	3.6	1.9	1.1	.85	1.18
25.....	1.55	1.95	1.75	2.1	2.15	2.7	2.8	3.6	1.9	1.1	.85	1.15
26.....	1.55	1.95	1.75	3.1	2.1	2.8	2.85	3.6	1.85	1.05	.85	1.15
27.....	1.55	1.9	1.75	3.0	2.1	2.9	2.9	3.6	1.7	1.05	.85	1.15
28.....	1.55	1.9	1.75	2.6	2.1	3.0	2.95	3.6	1.7	1.05	.85	1.15
29.....	1.6	1.9	1.75	2.5	2.1	3.2	3.4	3.6	1.7	1.0	.85	1.15
30.....	1.6	1.9	1.75	2.35	3.2	3.8	3.6	1.7	1.0	.85	1.15
31.....	1.6	1.75	2.3	3.1	3.595	.85

SPANISH CREEK AT KEDDIE, CAL.

Location.—At highway bridge at Keddle, in the SW. $\frac{1}{4}$ sec. 22, T. 25 N., R. 9 E., 2 miles above junction with Indian Creek.

Records available.—October 22, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—High-water section painted on left abutment of bridge. A vertical section for low water is fastened to a stump on left bank 20 feet below bridge.

Channel.—Gravel.

Discharge measurements.—Made from downstream side of bridge or by wading.

Diversions.—Water is diverted from Spanish Creek for irrigation in American Valley.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of Spanish Creek at Keddle, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 22	G. T. Peekema.....	<i>Feet.</i> 1.71	<i>Sec.-ft.</i> 69	1912. Mar. 9	J. E. Stewart.....	<i>Feet.</i> 2.48	<i>Sec.-ft.</i> 183
1912. Feb. 1	Lasley Lee.....	2.05	123	May 5	Lasley Lee.....	3.10	365
4	do.....	1.97	107	7	do.....	3.13	373
				Sept. 26	R. C. Rice.....	1.42	36

NOTE.—Measurements May 5 and 7 made from bridge; all others made by wading.

Daily gage height, in feet, of Spanish Creek at Keddie, Cal., for 1911-12.

[R. F. Koonter, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		1.71	1.78	1.90	2.05	2.0	2.5	3.25	2.65	1.74	1.40	1.24
2.....		1.71	1.78	1.80	2.0	1.98	2.5	3.3	2.65	1.70	1.39	1.24
3.....		1.71	1.78	1.70	1.95	1.95	2.5	3.05	2.6	1.66	1.38	1.40
4.....		1.71	1.80	2.1	2.0	2.0	2.5	3.05	2.55	1.65	1.36	1.45
5.....		1.72	1.80	2.0	1.95	2.9	2.5	3.1	2.5	1.60	1.36	1.50
6.....		1.72	1.81	2.1	1.90	4.0	2.5	3.05	2.5	1.58	1.34	1.80
7.....		1.72	1.83	2.2	1.85	3.0	2.5	3.0	4.5	1.56	1.34	2.00
8.....		1.73	1.81	2.2	1.95	2.7	2.5	3.0	2.35	1.56	1.34	2.00
9.....		1.73	1.80	2.3	2.0	2.5	2.5	3.0	2.25	1.55	1.32	1.80
10.....		1.75	1.80	2.4	2.05	2.45	2.5	3.0	2.2	1.53	1.32	1.60
11.....		1.76	1.78	2.4	2.05	2.4	2.5	2.9	2.2	1.50	1.30	1.50
12.....		1.78	1.78	2.3	2.0	2.4	2.45	2.9	2.1	1.50	1.30	1.49
13.....		1.81	1.80	2.3	2.0	2.4	2.4	2.9	2.05	1.48	1.28	1.49
14.....		1.86	1.79	2.1	2.05	2.3	2.3	2.8	2.05	1.47	1.27	1.49
15.....		1.88	1.78	2.0	2.0	2.4	2.3	2.8	2.0	1.47	1.27	1.50
16.....		1.91	1.78	2.1	2.0	2.4	2.3	2.75	2.0	1.47	1.27	1.48
17.....		1.90	1.80	2.2	2.1	2.35	2.3	2.75	1.95	1.47	1.27	1.46
18.....		1.88	1.80	2.2	2.15	2.35	2.3	2.7	1.90	1.47	1.26	1.45
19.....		1.85	1.79	2.4	2.15	2.35	2.3	2.7	1.85	1.47	1.26	1.45
20.....		1.84	1.79	2.2	2.15	2.35	2.25	2.75	1.80	1.47	1.24	1.45
21.....		1.82	1.78	2.1	2.15	2.35	2.25	2.9	1.80	1.46	1.24	1.45
22.....	1.71	1.75	1.78	2.0	2.15	2.3	2.2	2.95	1.82	1.46	1.24	1.44
23.....	1.71	1.74	1.78	2.0	2.1	2.25	2.2	2.95	1.90	1.45	1.22	1.44
24.....	1.70	1.72	1.79	2.0	2.1	2.4	2.2	2.9	2.0	1.44	1.23	1.42
25.....	1.70	1.73	1.79	2.4	1.90	2.4	2.3	2.9	1.90	1.44	1.23	1.42
26.....	1.71	1.76	1.80	4.0	1.86	2.4	2.4	2.9	1.82	1.42	1.23	1.42
27.....	1.71	1.77	1.80	2.9	2.0	2.45	2.4	2.95	1.80	1.40	1.23	1.43
28.....	1.70	1.77	1.82	2.5	2.0	2.45	2.4	3.0	1.80	1.40	1.22	1.45
29.....	1.71	1.78	1.82	2.3	2.0	2.5	3.0	2.95	1.76	1.40	1.22	1.50
30.....	1.72	1.77	1.80	2.2	-----	2.5	3.1	2.85	1.74	1.40	1.23	1.50
31.....	1.72	-----	1.81	2.1	-----	-----	-----	2.8	-----	1.40	1.23	-----

Daily discharge, in second-feet, of Spanish Creek at Keddie, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		69	78	93	114	107	198	415	234	73	34	21
2.....		69	78	80	107	104	198	432	234	68	33	21
3.....		69	78	68	100	100	198	349	221	63	32	3 $\frac{1}{2}$
4.....		69	80	122	107	107	198	349	210	62	31	45
5.....		70	80	107	100	302	198	365	198	56	31	04
6.....		70	81	122	93	715	198	349	198	54	30	80
7.....		70	84	138	86	333	198	333	955	52	30	107
8.....		72	81	138	100	246	198	333	166	52	30	107
9.....		72	80	156	107	198	198	333	147	50	28	80
10.....		74	80	176	114	187	198	333	138	48	28	56
11.....		75	78	176	114	176	198	302	138	45	26	45
12.....		78	78	156	107	176	187	302	122	45	26	44
13.....		81	80	156	107	176	176	302	114	43	24	44
14.....		88	79	122	114	156	156	273	114	42	24	44
15.....		90	78	107	107	176	156	273	107	42	24	45
16.....		94	78	122	107	176	156	260	107	42	24	43
17.....		93	80	138	122	166	156	260	100	42	24	41
18.....		90	80	138	130	166	156	246	93	42	23	40
19.....		86	79	176	130	166	156	246	86	42	23	40
20.....		85	79	138	130	166	147	260	80	42	21	40
21.....		83	78	122	130	166	147	302	80	41	21	40
22.....	69	74	78	107	130	156	138	318	83	41	21	38
23.....	69	73	78	107	122	147	138	318	93	40	20	38
24.....	68	70	79	107	122	176	138	302	107	38	20	36
25.....	68	72	79	176	93	176	156	302	93	38	20	36
26.....	69	75	80	715	88	176	176	302	83	36	20	36
27.....	69	76	80	302	107	187	176	318	80	34	20	37
28.....	68	76	83	198	107	187	176	333	80	34	20	40
29.....	69	78	83	156	107	198	333	318	75	34	20	45
30.....	70	76	80	138	-----	198	365	288	73	34	20	45
31.....	70	-----	81	122	-----	198	-----	273	-----	34	20	-----

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

Monthly discharge of Spanish Creek at Keddie, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 22-31.....	70	68	68.9	1,370	B.
November.....	94	69	77.2	4,590	B.
December.....	84	78	79.6	4,890	B.
January.....	715	68	157	9,650	B.
February.....	130	86	110	6,330	B.
March.....	715	100	196	12,100	A.
April.....	365	138	186	11,100	A.
May.....	432	246	313	19,200	A.
June.....	955	73	154	9,160	B.
July.....	73	34	45.5	2,800	B.
August.....	34	20	24.8	1,520	C.
September.....	107	21	46.9	2,790	B.
The period.....				85,500	

MIDDLE FORK OF FEATHER RIVER AT CROMBERG, CAL.

Location.—At California White Pine Co.'s log chute, in the N. $\frac{1}{2}$ sec. 24, T. 23 N., R. 11 E., 600 feet southwest of post office at Cromberg, in Plumas National Forest. Jamison Creek enters 4 miles above and Jackson Creek half a mile below the station.

Records available.—November 3, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff on downstream end of pier of log chute, near left bank.

Channel.—Gravel and cobblestones.

Discharge measurements.—Made from car and cable 200 feet above gage, or by wading.

Accuracy.—Estimates are withheld until additional measurements are made.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Middle Fork of Feather River at Cromberg, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
1911. Oct. 28	G. T. Peckema.....	<i>Feet.</i> 2.54	<i>Sec.-ft.</i> 89	1912. Mar. 10	J. E. Stewart.....	<i>Feet.</i> 3.27	<i>Sec.-ft.</i> 259
1912. Feb. 3	Lasley Lee.....	2.92	189	May 5*	Lasley Lee.....	4.27	748
Mar. 10*	J. E. Stewart.....	3.29	243	Sept. 25	R. C. Rice.....	2.22	44

* Made from cable; all others by wading.

Daily gage height, in feet, of Middle Fork of Feather River at Cromberg, Cal., for 1911-12.

[J. E. Nail, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		2.6			3.15	2.9	3.2	3.75	3.9	2.65	2.3	2.2
2.....	2.6	2.6			3.15	2.9		3.9	3.95		2.3	2.2
3.....	2.6		2.9		2.92			3.8	3.9	2.6		2.2
4.....	2.6	2.6	2.9	3.0				3.75		2.6		2.2
5.....		2.6	2.9			3.15		4.3				
6.....	2.6	2.6	2.9		3.2				3.8		2.3	2.3
7.....	2.6	2.6	2.9			3.2		4.0	3.75	2.5	2.3	2.7
8.....	2.6		2.9			3.2			3.75	2.6	2.3	
9.....	2.6		2.85						3.9		2.3	
10.....			2.85	3.0		3.3	3.25					2.5

Daily gage height, in feet, of Middle Fork of Feather River at Cromberg, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	2.6			3.0	-----	3.25	3.25	-----		2.4		2.5
12.....		2.7	-----	-----	-----	-----	3.25	4.0	3.9	2.4	2.3	2.5
13.....		2.7	-----	-----	-----	3.2	3.25	-----	3.9	2.4	2.3	2.5
14.....			-----	2.9	3.5	3.15	3.2	3.9	-----	-----	-----	-----
15.....			-----	2.9	3.45	-----	-----	4.0	-----	-----	-----	-----
16.....			2.85	2.9	3.45	3.15	-----	3.9	-----	-----	-----	2.45
17.....			2.85	3.0	3.45	3.2	-----	3.9	-----	-----	2.25	-----
18.....			2.85	3.1	3.4	3.35	-----	3.9	3.0	-----	2.25	-----
19.....			2.85	3.45	3.4	3.3	-----	3.85	3.0	2.4	2.25	-----
20.....			-----	3.45	3.4	3.3	-----	4.0	3.05	2.4	-----	-----
21.....	2.6	-----	-----	3.5	3.4	3.15	2.9	-----	2.95	2.4	-----	-----
22.....			2.8	3.5	-----	3.0	-----	4.0	-----	-----	2.2	-----
23.....			2.8	-----	-----	3.05	-----	4.05	-----	-----	2.2	2.25
24.....		2.9	-----	3.4	3.4	3.0	-----	3.7	-----	-----	2.2	2.25
25.....	2.6	2.9	-----	3.4	3.0	-----	-----	3.8	-----	2.35	2.2	2.25
26.....	2.6	2.9	-----	3.4	2.85	-----	-----	3.9	-----	2.35	-----	2.25
27.....	2.6	2.9	-----	-----	2.9	-----	3.05	3.9	2.75	2.35	2.2	-----
28.....			-----	3.2	2.9	3.1	3.1	-----	2.75	-----	2.2	2.25
29.....		2.9	-----	3.15	2.9	3.2	3.25	-----	2.7	-----	-----	-----
30.....	2.6	2.9	-----	3.15	-----	3.2	3.6	3.95	-----	2.3	-----	-----
31.....	2.6	-----	-----	3.15	-----	3.2	-----	3.9	-----	2.3	-----	-----

MIDDLE FORK OF FEATHER RIVER NEAR OROVILLE, CAL.

Location.—At highway bridge at Bidwell Bar, in the NW. $\frac{1}{4}$ sec. 32, T. 26 N., R. 5 E., 2 miles above junction with the North Fork and 7 miles northeast of Oroville. South Fork enters $1\frac{1}{4}$ miles above, and Canyon Creek three-fourths of a mile below the station.

Records available.—October 7, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in three sections: High-water section is fastened to lower end of bridge pier near left bank. Remainder of gage is fastened to a sycamore tree on left bank 100 feet above bridge.

Channel.—Boulders and gravel.

Discharge measurements.—Made from car and cable one-half mile below bridge.

Diversions.—The Palermo Land & Water Co.'s canal and the South Feather Land & Water Co.'s canal divert from South Fork of Feather River.

Accuracy.—Rating curve well defined; results excellent.

Discharge measurements of Middle Fork of Feather River near Oroville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 15	F. C. Ebert.....	2.90	368	Mar. 8	J. E. Stewart.....	4.97	1,530
				May 17	do.....	6.22	2,730
1912.				July 14	Lasley Lee.....	2.88	360
Jan. 31	Lasley Lee.....	3.97	875	Sept. 17	R. C. Rice.....	2.42	221
Mar. 7	J. E. Stewart.....	5.35	1,900	29	J. E. Stewart.....	2.36	207

NOTE.—All measurements were made from cable.

29050°—WSP 331—14—19

Daily gage height, in feet, of Middle Fork of Feather River near Oroville, Cal., for 1911-12.

[T. W. Curry, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-----	2.8	2.9	3.1	3.9	3.5	4.6	6.6	6.1	3.35	2.5	2.22
2.....	-----	2.75	2.9	2.9	3.8	3.7	4.7	6.2	5.9	3.3	2.5	2.22
3.....	-----	2.75	2.9	2.9	3.75	3.5	4.9	5.9	5.9	3.3	2.55	2.32
4.....	-----	2.8	2.9	2.75	3.7	3.45	4.9	5.8	5.8	3.2	2.55	2.55
5.....	-----	2.8	2.9	2.8	3.65	4.4	4.8	6.0	5.7	3.2	2.55	2.55
6.....	-----	2.8	2.9	2.9	3.6	7.0	4.9	6.1	5.5	3.15	2.5	2.8
7.....	2.8	2.8	2.95	3.0	3.6	5.7	5.0	6.3	5.4	3.1	2.5	4.0
8.....	2.8	2.8	2.95	3.2	3.8	5.0	5.2	6.7	5.2	3.1	2.5	3.35
9.....	2.9	2.85	2.95	3.35	4.0	4.7	5.2	6.7	4.9	3.0	2.48	2.85
10.....	2.9	4.6	2.9	3.6	4.0	4.5	5.3	6.8	4.8	3.0	2.45	2.7
11.....	2.9	3.8	2.95	4.1	4.0	4.4	5.1	6.8	4.6	2.95	2.42	2.6
12.....	2.85	3.25	2.95	3.65	3.9	4.4	4.8	6.8	4.6	2.9	2.42	2.5
13.....	2.85	3.15	2.85	3.5	3.95	4.7	4.7	6.8	5.0	2.9	2.40	2.5
14.....	2.8	3.0	2.85	3.45	4.1	4.5	4.6	6.6	4.6	2.9	2.38	2.5
15.....	2.8	3.05	2.85	3.3	4.0	4.3	4.6	6.6	4.4	2.85	2.35	2.48
16.....	2.75	3.2	2.9	3.5	3.95	4.5	4.6	6.6	4.2	2.8	2.35	2.45
17.....	2.75	3.25	3.0	3.75	3.9	4.3	4.8	6.4	4.1	2.8	2.35	2.42
18.....	2.75	3.1	2.9	3.5	4.6	4.5	4.8	6.2	4.0	2.8	2.32	2.40
19.....	2.7	3.15	2.85	4.2	4.6	4.4	4.6	6.2	4.0	2.8	2.32	2.40
20.....	2.7	3.1	2.85	4.0	4.2	4.4	4.6	6.2	3.8	2.8	2.32	2.40
21.....	2.7	3.1	2.8	3.8	4.1	4.3	4.5	6.2	3.8	2.8	2.30	2.38
22.....	2.75	3.0	2.7	3.7	4.0	4.2	4.4	5.8	3.8	2.75	2.30	2.35
23.....	2.75	3.0	2.8	3.7	3.85	4.2	4.4	5.7	3.9	2.7	2.28	2.35
24.....	2.7	3.0	2.9	3.7	3.8	4.2	4.5	5.6	3.9	2.7	2.25	2.35
25.....	2.7	3.0	2.7	3.7	3.7	4.2	4.6	5.8	3.8	2.7	2.22	2.32
26.....	2.8	3.0	2.65	6.2	3.6	4.3	4.8	6.6	3.6	2.7	2.22	2.32
27.....	2.9	3.0	2.7	5.2	3.6	4.4	4.8	6.8	3.6	2.65	2.22	2.32
28.....	2.8	2.95	3.1	4.6	3.6	4.6	4.8	6.5	3.5	2.6	2.22	2.32
29.....	2.8	2.95	2.95	4.2	3.55	4.9	5.5	6.5	3.4	2.6	2.22	2.32
30.....	2.8	2.95	2.9	4.1	-----	4.8	6.1	6.4	3.4	2.6	2.22	2.32
31.....	2.8	-----	2.9	3.95	-----	4.6	-----	6.2	-----	2.55	2.22	-----

Daily discharge, in second-feet, of Middle Fork of Feather River near Oroville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-----	330	365	440	825	620	1,280	3,130	2,610	548	245	184
2.....	-----	315	365	365	770	720	1,350	2,710	2,410	525	245	184
3.....	-----	315	365	365	745	620	1,500	2,410	2,410	525	258	204
4.....	-----	330	365	315	720	595	1,500	2,310	2,310	480	258	258
5.....	-----	330	365	330	695	1,140	1,420	2,510	2,210	480	258	258
6.....	-----	330	365	365	670	3,570	1,500	2,610	2,020	460	245	330
7.....	330	330	382	400	670	2,210	1,580	2,810	1,930	440	245	880
8.....	330	330	382	480	770	1,580	1,750	3,240	1,750	440	245	548
9.....	365	348	382	548	880	1,350	1,750	3,240	1,500	400	240	348
10.....	365	1,280	365	670	880	1,210	1,840	3,350	1,420	400	232	300
11.....	365	770	382	940	880	1,140	1,660	3,350	1,280	382	225	270
12.....	348	502	382	695	825	1,140	1,420	3,350	1,280	365	225	245
13.....	348	460	348	620	852	1,350	1,350	3,350	1,580	365	220	245
14.....	330	400	348	595	940	1,210	1,280	3,130	1,280	365	216	245
15.....	330	420	348	525	880	1,070	1,280	3,130	1,140	348	210	240
16.....	315	480	365	620	852	1,210	1,280	3,130	1,000	330	210	232
17.....	315	502	400	745	825	1,070	1,420	2,910	940	330	210	225
18.....	315	440	365	620	1,280	1,210	1,420	2,710	880	330	204	220
19.....	300	460	348	1,000	1,280	1,140	1,280	2,710	880	330	204	220
20.....	300	440	348	880	1,000	1,140	1,280	2,710	770	330	204	220
21.....	300	440	330	770	940	1,070	1,210	2,710	770	330	200	216
22.....	315	400	300	720	880	1,000	1,140	2,310	770	315	200	210
23.....	315	400	330	720	798	1,000	1,140	2,210	825	300	196	210
24.....	300	400	365	720	770	1,000	1,210	2,120	825	300	190	210
25.....	300	400	300	720	720	1,000	1,280	2,310	770	300	184	204
26.....	330	400	285	2,710	670	1,070	1,420	3,130	670	300	184	204
27.....	365	400	300	1,750	670	1,140	1,420	3,350	670	285	184	204
28.....	330	382	440	1,280	670	1,280	1,420	3,020	620	270	184	204
29.....	330	382	382	1,000	645	1,500	2,020	3,020	570	270	184	204
30.....	330	382	365	940	-----	1,420	2,610	2,910	570	270	184	204
31.....	330	-----	365	852	-----	1,280	-----	2,710	-----	258	184	-----

NOTE.—Daily discharge determined from a well-defined rating curve. Discharges from Oct. 7 to June 30, 1912, supersede those published in Water-Supply Paper 298, p. 243.

Monthly discharge of Middle Fork of Feather River near Oroville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 7-31.....	365	300	328	16,300	A.
November.....	1,280	315	437	26,000	A.
December.....	440	285	358	22,000	A.
January.....	2,710	315	765	47,000	A.
February.....	1,280	645	828	47,600	A.
March.....	3,570	595	1,230	75,600	A.
April.....	2,610	1,140	1,470	87,500	A.
May.....	3,350	2,120	2,860	178,000	A.
June.....	2,610	570	1,290	76,800	A.
July.....	548	258	367	22,600	A.
August.....	258	184	215	13,200	A.
September.....	880	184	264	15,700	A.
The period.....				626,000	

SOUTH FORK OF FEATHER RIVER AT ENTERPRISE, CAL.

Location.—One-half mile above highway bridge at Enterprise, in the NE. $\frac{1}{4}$ sec. 1, T. 19 N., R. 6 E., and about 700 feet above mouth of Powell Creek.

Records available.—October 8, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank one-half mile above bridge.

Channel.—Gravel and small boulders.

Discharge measurements.—Made from bridge below gage or by wading.

Diversions.—The diversion dam of the Palermo Land & Water Co.'s canal is located 1 mile above the station. The canal record must be added to obtain the total run-off from this drainage. The South Feather Land & Water Co.'s canal takes water from Lost, Pinkard, and Oroleeve creeks, which is used for irrigation in the vicinity of Wyandotte and Bangor.

Accuracy.—Rating curve is well defined and results are good.

Discharge measurements of South Fork of Feather River at Enterprise, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec. ft.</i>	1912.		<i>Feet.</i>	<i>Sec. ft.</i>
Oct. 8	J. E. Stewart.....	0.87	6.0	Mar. 7 ^a	J. E. Stewart.....	3.22	5 503
Dec. 17	F. C. Ebert.....	1.40	44	May 17 ^a	do.....	3.29	c 492
				July 15	Lasley Lee.....	.75	3.6
1912.				Sept. 24	J. E. Stewart.....	.77	4.2
Jan. 30	Lasley Lee.....	2.10	178				

^a Made from bridge; all others by wading.

^b Twelve second-feet (estimated) deducted from measured discharge. This represents inflow between gage and bridge.

^c Inflow between gage and bridge not measured nor deducted.

Daily gage height, in feet, of South Fork of Feather River at Enterprise, Cal., in 1911-12.

[Gus Alm, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		1.1	1.3	1.62	2.1	1.70	2.5	3.9	3.1	1.31	0.60	0.60
2.....		1.0	1.3	1.48	2.1	1.82	2.6	3.4	3.1	1.33	.60	.60
3.....		1.0	1.3	1.40	1.84	1.74	2.7	3.4	2.8	1.35	.60	.63
4.....		1.1	1.2	1.42	1.80	1.74	2.7	3.2	2.8	1.23	.60	.85
5.....		1.1	1.2	1.38	1.80	2.9	2.65	3.2	2.8	1.17	.60	.85
6.....		1.05	1.2	1.45	1.80	4.5	2.7	3.3	2.65	1.12	.60	1.10
7.....		1.05	1.2	1.44	1.80	3.4	2.75	3.2	2.55	1.10	.60	1.95
8.....	0.85	1.05	1.2	1.65	1.80	2.8	2.8	3.4	2.4	1.08	.60	1.40
9.....	1.0	1.05	1.2	1.65	1.90	2.6	2.95	3.5	2.2	1.04	.60	1.20
10.....	1.2	2.4	1.2	1.68	1.93	2.55	3.0	3.6	2.1	1.00	.60	1.00

Daily gage height, in feet, of South Fork of Feather River at Enterprise, Cal., in 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	1.1	1.65	1.2	2.2	2.0	2.3	3.0	3.6	2.15	1.00	0.60	1.03
12.....	1.05	1.4	1.2	1.85	1.96	2.5	2.65	3.6	2.25	.93	.60	1.00
13.....	1.05	1.3	1.2	1.80	2.0	2.6	2.6	3.5	2.0	.88	.60	1.00
14.....	1.05	1.3	1.2	1.70	2.1	2.6	2.5	3.5	1.93	.80	.60	.90
15.....	1.0	1.3	1.2	1.70	2.05	2.8	2.55	3.578	.60	.95
16.....	1.0	1.6	1.49	2.1	1.90	2.45	2.55	3.3	1.82	.70	.60	.96
17.....	1.0	1.45	1.33	2.0	1.90	2.45	2.6	3.3	1.75	.69	.60	.87
18.....	.95	1.35	1.31	1.80	2.5	2.3	2.7	3.2	1.68	.69	.60	.85
19.....	.75	1.25	1.31	2.4	2.3	2.3	2.6	3.0	1.62	.70	.60	.83
20.....	.75	1.2	1.31	2.0	2.2	2.3	2.5	3.3	1.62	.64	.60	.82
21.....	.75	1.3	1.32	1.88	2.1	2.3	2.5	3.2	1.56	.61	.60	.81
22.....	.75	1.3	1.35	1.80	2.1	2.3	2.4	3.3	1.59	.62	.60	.80
23.....	.75	1.3	1.35	1.80	2.0	2.3	2.4	3.0	1.73	.62	.60	.78
24.....	.75	1.3	1.32	1.80	1.80	2.3	2.4	2.9	1.68	.65	.60	.78
25.....	.85	1.3	1.32	1.80	1.80	2.3	2.4	3.1	1.55	.64	.60	.70
26.....	1.0	1.3	1.32	2.4	1.78	2.3	2.8	3.4	1.48	.64	.60	.70
27.....	1.2	1.3	1.43	3.0	1.78	2.5	2.6	3.6	1.45	.63	.60	.70
28.....	1.2	1.3	1.49	2.4	1.78	2.6	2.8	3.5	1.41	.60	.60	.78
29.....	1.2	1.3	1.49	2.4	1.78	2.65	3.5	3.5	1.39	.60	.60	.77
30.....	1.2	1.3	1.45	2.1	2.55	3.5	3.3	1.33	.60	.60	.77
31.....	1.1	1.51	2.1	2.5	3.360	.60

Daily discharge, in second-feet, of South Fork of Feather River at Enterprise, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	17	33	75	170	89	270	850	457	34	1.4	1.4
2.....	12	33	54	170	111	298	588	457	36	1.4	1.4
3.....	12	33	44	115	96	326	588	355	38	1.4	1.8
4.....	17	24	47	107	96	326	498	355	27	1.4	5.7
5.....	17	24	42	107	385	312	498	355	22	1.4	5.7
6.....	14	24	50	107	1,210	326	542	312	18	1.4	17
7.....	14	24	49	107	588	340	498	284	17	1.4	138
8.....	5.7	14	24	80	107	355	355	588	244	16	1.4	44
9.....	12	14	24	80	127	298	402	636	194	14	1.4	24
10.....	24	244	24	86	133	284	419	686	170	12	1.4	12
11.....	17	80	24	194	148	219	419	686	182	12	1.4	14
12.....	14	44	24	117	140	270	312	686	206	8.6	1.4	12
13.....	14	33	24	107	148	298	298	636	148	6.6	1.4	12
14.....	14	33	24	89	170	298	270	636	133	4.2	1.4	7.2
15.....	12	33	24	89	159	355	284	636	122	3.9	1.4	9.6
16.....	12	72	56	170	127	257	284	542	111	2.8	1.4	10
17.....	12	50	36	148	127	257	298	542	98	2.7	1.4	6.3
18.....	9.6	38	34	107	270	219	326	498	86	2.7	1.4	5.7
19.....	3.5	28	34	244	219	219	298	419	75	2.8	1.4	5.1
20.....	3.5	24	34	148	194	219	270	542	75	2.0	1.4	4.8
21.....	3.5	33	35	123	170	219	270	498	66	1.5	1.4	4.5
22.....	3.5	33	38	107	170	219	244	542	91	1.7	1.4	4.2
23.....	3.5	33	38	107	148	219	244	419	74	1.7	1.4	3.9
24.....	3.5	33	35	107	107	219	244	385	86	2.1	1.4	3.9
25.....	5.7	33	35	107	107	219	244	457	64	2.0	1.4	2.8
26.....	12	33	35	244	103	219	355	588	54	2.0	1.4	2.8
27.....	24	33	48	419	103	270	298	686	50	1.8	1.4	2.8
28.....	24	33	56	244	103	298	355	636	45	1.4	1.4	3.8
29.....	24	33	56	244	103	312	636	636	43	1.4	1.4	3.8
30.....	24	33	50	170	284	636	542	36	1.4	1.4	3.8
31.....	17	58	170	270	542	1.4	1.4

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge values above 400 second-feet, January to June, 1912, supersede those published in Water-Supply Paper 298, p. 247.

Monthly discharge of South Fork of Feather River at Enterprise, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 8-31.....	24	3.5	12.4	590	A.
November.....	244	12	38.0	2,260	A.
December.....	58	24	34.4	2,120	A.
January.....	419	42	131	8,060	A.
February.....	270	103	140	8,050	A.
March.....	1,210	89	286	17,600	A.
April.....	636	244	332	19,800	A.
May.....	850	385	572	35,200	A.
June.....	457	36	168	10,000	A.
July.....	38	1.4	9.70	596	B.
August.....	1.4	1.4	1.40	86.1	C.
September.....	138	1.4	12.5	744	B.
The period.....				105,000	

PALERMO LAND & WATER CO.'S CANAL AT ENTERPRISE, CAL.

Location.—About 2,000 feet above highway bridge, in the NE. $\frac{1}{4}$ sec. 1, T. 19 N., R. 6 E., at Enterprise.

Records available.—October 8, 1911, to September 30, 1912.

Gage.—Vertical staff fastened to post on right bank.

Channel.—Gravel and sand.

Discharge measurements.—Made by wading.

Accuracy.—Rating curve fairly well defined and results are good.

This canal furnishes water for irrigation below Oroville.

Discharge measurements of Palermo Land & Water Co.'s canal at Enterprise, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 8	J. E. Stewart.....	1.30	37	May 17	J. E. Stewart.....	1.32	34
Dec. 17	F. C. Ebert.....	.36	12	July 15	Lasley Lee.....	1.46	39
				Sept. 24	J. E. Stewart.....	.84	22
1912.							
Jan. 30	Lasley Lee.....	— .40	1.0				
Mar. 7	J. E. Stewart.....	.61	14				

NOTE.—Measurement Jan. 30, 1912, discharge estimated. Dec. 17, 1911, and July 15, 1912, made from footbridge; others made by wading.

Daily gage height, in feet, of Palermo Land & Water Co.'s canal at Enterprise, Cal., for 1911-12.

[Gus Alm, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		0.95	0.7	0.45	0.14	0.78	0.78	0.80	1.44	1.43	1.12	0.81
2.....		.95	.7	.43	.24	.78	.78	.80	1.44	1.44	1.10	.81
3.....		.95	.7	.47	.60	.78	.78	.79	1.45	1.42	1.10	1.03
4.....		.95	.7	.81	.60	.78	.77	1.00	1.47	1.42	1.10	.94
5.....		.95	.7	.83	.60	.70	.78	1.00	1.47	1.44	1.06	1.05
6.....		.95	.7	.83	.60	.60	.79	1.00	1.47	1.47	1.03	.72
7.....		.95	.7	.63	.60	.61	.80	1.00	1.45	1.47	1.03	.78
8.....	1.3	.95	.7	.40	.60	.61	.79	1.01	1.45	1.47	1.00	.73
9.....	1.3	1.0	.7	.42	.60	.61	.79	1.00	1.43	1.47	1.00	.73
10.....	1.2	1.0	.7	.42	.60	.58	.38	1.01	1.42	1.48	1.00	.73
11.....	1.05	.9	.7	.45	.63	.58	.59	1.02	1.46	1.48	.96	.73
12.....	1.15	.9	.7	.47	.20	.58	.58	1.04	1.47	1.48	.96	.73
13.....	1.1	.9	.7	.45	.74	.40	.58	1.15	1.50	1.43	.92	.73
14.....	.95	.9	.7	.43	.80	.58	.59	1.15	1.48	1.45	.92	.73
15.....	1.05	.9	.7	.43	.24	.58	.55	1.27	1.45	1.46	.92	.73

Daily gage height, in feet, of Palermo Land & Water Co.'s canal at Enterprise, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
16.....	1.05	0.9	0.7	0.20	0.78	0.58	0.63	1.32	1.43	1.45	0.92	0.73
17.....	1.05	.9	.36	.42	.78	.58	.68	1.32	1.48	1.44	.92	.85
18.....	1.05	.9	.40	.42	.80	.24	.69	1.32	1.45	1.42	.92	.85
19.....	1.3	.9	.40	.42	.80	.26	.96	1.30	1.49	1.45	.92	.85
20.....	1.3	.7	.40	.45	.80	.75	.96	1.03	1.48	1.40	.90	.85
21.....	1.3	.7	.39	.44	.80	.75	.97	1.02	1.50	1.31	.88	.85
22.....	1.3	.7	.39	.44	.80	.75	.97	1.02	1.47	1.31	.85	.85
23.....	1.3	.7	.43	.44	.80	.73	.94	1.02	1.42	1.30	.85	.85
24.....	1.3	.7	.42	.44	.78	.75	.96	1.17	1.40	1.28	.85	.85
25.....	1.3	.7	.51	.42	.78	.75	.96	1.18	1.42	1.24	.82	.83
26.....	1.3	.7	.62	.30	.80	.74	.97	1.23	1.44	1.23	.82	.83
27.....	1.2	.7	.52	.28	.80	.32	.98	1.37	1.45	1.23	.80	.83
28.....	1.1	.7	.45	.43	.80	.32	.98	1.42	1.44	1.18	.80	.80
29.....	1.0	.7	.45	.14	.80	.78	1.01	1.39	1.44	1.15	.80	.80
30.....	1.0	.7	.43	.18	.78	.78	.73	1.46	1.43	1.15	.80	.80
31.....	.9543	.2079	1.46	1.12	.80

NOTE.—On Jan. 29, 30, 31; Feb. 1, 2, 12, 15; and Mar. 18, 19, 27, and 28, the water was turned out of the canal during a portion of the day, which accounts for the low mean gage height. On Apr. 10 and May 20 the observer noted: "Water turned out on account of heavy rain."

Daily discharge, in second-feet, of Palermo Land & Water Co.'s canal at Enterprise, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	27	20	14	7.4	19.5	19.5	20	38	38	29	20
2.....	27	20	13.5	6.8	19.5	19.5	20	38	38	28	20
3.....	27	20	14.5	15	19.5	19.5	19.5	38	37	28	26
4.....	27	20	23	15	19.5	19	26	39	37	28	24
5.....	27	20	24	15	17.5	19.5	26	39	38	27	27
6.....	27	20	24	15	15	19.5	26	39	39	26	18
7.....	27	20	18.5	15	15	20	26	38	39	26	19.5
8.....	37	27	20	13	15	15	19.5	26	38	39	26	18
9.....	37	28	20	13.5	15	15	19.5	26	38	39	26	18
10.....	34	28	20	13.5	15	14.5	9.6	26	37	39	26	18
11.....	30	25	20	14	15.5	14.5	14.5	26	39	39	24	18
12.....	32	25	20	14.5	6	14.5	14.5	27	39	39	24	18
13.....	31	25	20	14	18.5	10	14.5	30	40	38	23	18
14.....	27	25	20	13.5	20	14.5	14.5	30	39	38	23	18
15.....	30	25	20	13.5	6.8	14.5	13.5	33	38	39	23	18
16.....	30	25	20	8.6	19.5	14.5	15.5	35	38	38	23	21
17.....	30	25	12	13.5	19.5	14.5	17	35	39	38	23	21
18.....	30	25	13	13.5	20	6.8	17	35	38	37	23	21
19.....	37	25	13	13.5	20	7.2	24	34	39	38	23	21
20.....	37	20	13	14	20	18.5	24	26	39	37	23	21
21.....	37	20	12.5	14	20	18.5	25	26	40	34	22	21
22.....	37	20	12.5	14	20	18.5	25	26	39	34	21	21
23.....	37	20	13.5	14	20	18	24	26	37	34	21	21
24.....	37	20	13.5	14	19.5	18.5	24	30	37	33	21	21
25.....	37	20	15.5	13.5	19.5	18.5	24	30	37	32	20	21
26.....	37	20	18	10.5	20	18.5	25	32	38	32	20	21
27.....	34	20	16	10	20	8.4	25	36	38	32	20	21
28.....	31	20	14	13.5	20	8.4	25	37	38	30	20	20
29.....	28	20	14	7.4	20	19.5	26	37	38	30	20	20
30.....	28	20	13.5	8.2	19.5	19.5	39	38	30	20	20
31.....	27	13.5	8.6	19.5	39	29	20

NOTE.—Daily discharge determined from two curves applicable Oct. 8, 1911, to Feb. 1, 1912, somewhat poorly defined and Feb. 2 to Sept. 30, 1912, fairly well defined. Discharges Feb. 2 to June 30 supersede those published in Water-Supply Paper 298, p. 249.

Monthly discharge of Palermo Land & Water Co.'s canal at Enterprise, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 8-31.....	37	27	33.0	1,570	A.
November.....	28	20	23.9	1,420	B.
December.....	20	12	17.0	1,050	B.
January.....	24	7.4	13.9	855	B.
February.....	20	6	16.5	949	B.
March.....	19.5	6.8	15.7	965	B.
April.....	26	9.6	19.9	1,180	B.
May.....	39	19.5	29.4	1,810	B.
June.....	40	37	38.3	2,280	B.
July.....	39	29	35.9	2,210	B.
August.....	29	20	23.5	1,440	B.
September.....	27	18	20.4	1,210	B.
The period.....				16,900	

NOTE.—Values for February to June supersede those published in Water-Supply Paper 298, p. 249.

MIDDLE FORK OF YUBA RIVER¹ NEAR NORTH SAN JUAN, CAL.

Location.—Below highway bridge at Freeman's Crossing, in the N. $\frac{1}{2}$ NW. $\frac{1}{4}$ sec. 23, T. 18 N., R. 8 E., in the Tahoe National Forest, $1\frac{1}{4}$ miles northeast of North San Juan. Oregon Creek enters three-fourths mile above, Moonshine Creek one-fourth mile below, and North Fork of Yuba River about 4 miles below the station.

Records available.—October 27, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff wedged between two large boulders on right bank one-fourth mile below the bridge.

Channel.—Gravel and small boulders.

Discharge measurements.—Made from car and cable 200 feet above the gage or by wading.

Winter flow.—Some ice in the stream during December, 1911, and January, 1912. This occurrence is unusual.

Accuracy.—As measurements made from the bridge are not considered reliable, estimates are withheld until high-water measurements at the cable section are available.

Discharge measurements of Middle Fork of Yuba River near North San Juan, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.
1911. Nov. 9	G. T. Peekema.....	<i>Feet.</i> 4.32	<i>Sec.-ft.</i> 78
1912. May 21	J. E. Stewart.....	5.92	722
Sept. 12do.....	4.21	53

NOTE.—Measurement made from cable May 21, 1912; all others made by wading.

¹ Known locally as Middle Yuba River.

Daily gage height, in feet, of Middle Fork of Yuba River near North San Juan, Cal., for 1911-12.

[H. Zurhorst, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.3	4.3	4.4	4.3	4.8	4.6	4.9	6.4	6.3	4.7	4.3	4.1
2.....	4.4	4.3	4.4	4.4	4.7	4.6	5.1	6.1	6.3	4.7	4.3	4.1
3.....	4.3	4.3	4.4	4.4	4.7	4.6	5.1	5.8	6.3	4.7	4.3	4.35
4.....	4.3	4.3	4.4	4.6	4.7	4.6	5.1	5.8	6.3	4.7	4.2	4.3
5.....	4.4	4.3	4.3	4.7	4.6	5.1	5.1	5.8	6.2	4.6	4.2	4.3
6.....	4.5	4.3	4.3	4.6	4.6	6.1	5.1	5.7	6.1	4.6	4.2	4.2
7.....	4.4	4.3	4.4	4.5	4.6	5.5	5.3	6.0	6.1	4.6	4.2	4.8
8.....	4.4	4.3	4.4	4.7	4.6	5.2	5.3	6.2	5.9	4.5	4.2	4.5
9.....	4.4	4.3	4.4	4.9	4.7	5.1	5.3	6.1	5.7	4.5	4.2	4.3
10.....	4.5	5.2	4.3	5.0	4.6	5.0	5.3	6.2	5.6	4.5	4.2	4.3
11.....	4.5	4.6	4.3	4.9	4.7	4.9	5.2	6.3	5.6	4.5	4.2	4.2
12.....	4.4	4.4	4.3	4.8	4.6	4.9	5.1	6.1	5.6	4.5	4.2	4.2
13.....	4.3	4.4	4.3	4.7	4.6	5.0	5.0	6.1	5.7	4.4	4.2	4.2
14.....	4.4	4.4	4.3	4.6	4.6	4.9	5.0	6.3	5.5	4.4	4.2	4.2
15.....	4.5	4.4	4.3	4.5	4.6	4.9	5.0	6.3	5.4	4.4	4.2	4.2
16.....	4.4	4.8	4.3	5.0	4.6	5.0	5.1	6.3	5.2	4.4	4.2	4.2
17.....	4.4	4.5	4.4	4.8	4.6	5.0	5.1	6.3	5.2	4.4	4.1	4.2
18.....	4.4	4.5	4.3	4.7	5.1	4.9	5.1	6.3	5.1	4.4	4.1	4.2
19.....	4.4	4.5	4.3	5.0	4.9	5.0	5.1	6.2	5.1	4.4	4.1	4.2
20.....	4.4	4.5	4.3	4.8	4.8	5.1	5.0	6.3	5.1	4.4	4.1	4.2
21.....	4.3	4.4	4.3	4.8	4.8	5.0	5.0	5.9	5.0	4.3	4.1	4.2
22.....	4.3	4.4	4.3	4.7	4.7	4.9	5.0	5.8	5.0	4.3	4.1	4.2
23.....	4.3	4.4	4.3	4.6	4.7	4.9	5.0	5.7	5.0	4.3	4.1	4.2
24.....	4.3	4.4	4.3	4.6	4.6	4.9	5.1	5.7	5.0	4.3	4.1	4.2
25.....	4.4	4.4	4.4	4.7	4.6	5.0	5.2	6.1	4.9	4.3	4.1	4.1
26.....	4.4	4.4	4.6	6.0	4.6	5.0	5.3	6.5	4.9	4.3	4.1	4.1
27.....	4.4	4.3	4.3	5.3	4.6	5.0	5.2	6.3	4.8	4.3	4.1	4.1
28.....	4.4	4.3	4.4	5.1	4.6	5.1	5.2	6.3	4.8	4.3	4.1	4.1
29.....	4.4	4.4	4.4	4.9	4.6	5.1	6.3	6.5	4.8	4.3	4.1	4.1
30.....	4.4	4.4	4.3	4.8	5.1	6.1	6.4	4.7	4.3	4.1	4.1
31.....	4.4	4.3	4.8	5.1	6.3	4.3	4.1

YUBA RIVER NEAR SMARTSVILLE, CAL.

Location.—At The Narrows, in sec. 22, T. 16 N., R. 6 E., 1 mile north of Smartsville and 18 miles above the junction with Feather River, 6½ miles below mouth of South Fork, 1 mile below mouth of Deer Creek, 7 miles above mouth of Dry Creek.

Records available.—June 2, 1903, to September 30, 1912.

Drainage area.—1,220 square miles.

Gage.—Staff in three sections, bolted to solid rock on left bank. On account of the gradual erosion of the channel the gage datum was lowered 10 feet on August 1, 1906.

Channel.—Gravel and small boulders, and is shifting. As the result of extensive placer mining in the early days, the channel has been filled with an enormous quantity of tailings. At the station the depth of mining débris is more than 80 feet.

Discharge measurements.—Made from car and cable at gage.

Diversions and storage.—Water is diverted for power and irrigation above the station. Several small glacial lakes near the headwaters of the South Fork of Yuba are utilized as storage reservoirs. A part of this water is diverted into the Bear and American river drainage basins.

Accuracy.—Conditions for obtaining accurate discharge data at high stages are poor, owing to the shifting of the channel and the torrential nature of the stream. Results at low and medium stages are good; at high water they should be considered approximate.

Discharge measurements of Yuba River near Smartsville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet</i>	<i>Sec.-ft.</i>
Oct. 5	J. E. Stewart.....	4.33	547	Apr. 3	J. R. McKeel.....	6.14	2,250
Dec. 19	J. R. McKeel.....	4.35	538	3	Lasley Lee.....	6.18	2,270
				May 4	J. R. McKeel.....	7.28	4,090
1912.				July 13	do.....	4.09	602
Feb. 11	do.....	5.00	969	Aug. 28	do.....	3.52	259
Mar. 3	do.....	4.65	766				

NOTE.—All made from cable.

Daily gage height, in feet, of Yuba River near Smartsville, Cal., for 1911-12.

[J. R. McKeel, observer.]

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1911.				1911.				1911.			
1.....	7.9	4.7	4.2	11.....	6.9	4.5	21.....	5.6	4.1
2.....	8.0	4.7	12.....	6.8	4.5	22.....	5.4	4.3
3.....	7.8	4.7	4.2	13.....	6.8	4.5	4.2	23.....	5.2	4.3	4.1
4.....	4.7	14.....	6.6	4.4	24.....	5.2	4.3
5.....	7.5	4.6	15.....	6.6	4.4	25.....	5.1	4.1
6.....	7.6	4.6	4.2	16.....	6.7	4.4	4.2	26.....	5.0	4.3	4.2
7.....	7.5	17.....	6.6	4.4	4.2	27.....	4.9	4.3
8.....	7.3	4.6	4.2	18.....	6.5	4.4	28.....	4.9	4.2	4.2
9.....	7.2	4.5	19.....	6.2	4.4	4.1	29.....	4.8	4.2
10.....	7.1	4.5	4.2	20.....	5.8	4.3	30.....	4.2	4.2
								31.....	4.8

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	4.2	4.2	4.3	4.3	5.1	4.6	5.7	8.6	8.6	4.6	3.77	3.52
2.....	4.2	4.25	4.35	5.0	4.65	5.9	7.8	8.8	4.55	3.77	3.52
3.....	4.15	4.25	4.2	5.0	4.65	6.2	7.4	8.9	4.45	3.77	3.60
4.....	4.2	4.1	4.05	4.9	4.6	6.2	7.3	8.8	4.4	3.77	4.1
5.....	4.33	4.25	4.15	4.9	5.5	6.2	7.4	8.4	3.77	3.84
6.....	4.3	4.1	4.15	4.8	9.0	6.2	7.4	8.2	4.3	3.75	4.0
7.....	4.25	4.25	4.4	4.8	7.2	6.5	7.8	8.2	4.3	3.75	5.0
8.....	4.1	4.8	4.65	6.5	6.6	8.3	7.8	4.2	3.75	4.45
9.....	4.3	4.1	4.25	5.3	4.8	6.1	6.5	8.4	7.3	4.2	3.73	4.05
10.....	4.35	6.4	5.5	4.9	5.7	6.8	8.6	7.1	4.15	3.70	3.90
11.....	4.3	4.85	4.2	5.7	5.0	5.4	6.4	8.6	6.8	4.15	3.65	3.78
12.....	4.25	4.5	4.15	5.3	4.9	5.5	6.3	8.8	7.0	4.1	3.62	3.74
13.....	4.2	4.4	5.0	4.9	6.25	6.2	9.0	7.9	4.1	3.72	3.72
14.....	4.2	4.4	4.15	4.9	5.0	5.8	5.7	8.6	6.9	4.1	3.65	3.69
15.....	4.4	5.5	5.1	5.5	5.6	8.9	6.5	4.05	3.65	3.65
16.....	4.2	5.1	4.1	5.7	4.9	6.4	5.6	9.0	6.1	4.05	3.63	3.65
17.....	4.6	4.35	5.5	4.8	5.7	6.0	8.6	5.7	4.05	3.63	3.65
18.....	4.2	4.5	4.25	5.1	5.3	5.6	5.9	8.5	5.4	4.0	3.62	3.63
19.....	4.2	4.4	5.0	5.7	5.6	5.8	8.6	5.6	3.96	3.62	3.63
20.....	4.3	5.0	5.3	5.8	5.6	8.1	5.4	3.95	3.61	3.63
21.....	4.15	4.4	4.25	5.0	5.1	5.7	5.6	7.8	5.3	3.93	3.61	3.61
22.....	4.9	5.0	5.0	5.6	5.4	7.6	5.1	3.90	3.60	3.60
23.....	4.1	4.3	4.2	4.8	4.9	5.45	5.3	7.2	5.2	3.88	3.60	3.58
24.....	4.8	4.9	5.45	5.5	5.7	8.9	5.1	3.88	3.59	3.57
25.....	4.1	4.3	4.2	4.8	4.8	5.6	6.0	7.9	5.05	3.85	3.57	3.55
26.....	4.15	8.8	4.8	5.6	5.8	8.9	5.0	3.84	3.55	3.55
27.....	4.4	4.3	4.3	7.1	4.65	5.7	6.1	8.5	4.9	3.82	3.53	3.55
28.....	4.25	4.3	4.5	6.1	4.55	5.9	6.2	8.6	4.8	3.79	3.52	3.55
29.....	4.4	5.6	4.55	6.1	7.4	8.9	4.7	3.78	3.52	3.55
30.....	4.2	4.3	4.4	5.4	6.2	8.2	8.4	4.65	3.78	3.52	3.55
31.....	4.2	4.4	5.2	5.3	8.6	3.78	3.52

NOTE.—All gage heights below 6 feet from July 1, 1911, to Sept. 30 have been corrected and supersede those previously published in Water-Supply Papers 298 and 311.

Daily discharge, in second-feet, of Yuba River near Smartsville, Cal., for 1911-12.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1911.				1911.				1911.			
1.....	4,800	790	465	11.....	3,100	650	465	21.....	1,570	525	410
2.....	5,000	790	465	12.....	2,960	650	465	22.....	1,370	525	410
3.....	4,610	790	465	13.....	2,960	650	465	23.....	1,180	525	410
4.....	4,340	790	465	14.....	2,700	585	465	24.....	1,180	525	410
5.....	4,060	720	465	15.....	2,700	585	465	25.....	1,100	525	410
6.....	4,240	720	465	16.....	2,830	585	465	26.....	1,020	525	465
7.....	4,060	720	465	17.....	2,700	585	465	27.....	940	495	525
8.....	3,720	720	465	18.....	2,580	585	438	28.....	940	465	465
9.....	3,560	650	465	19.....	2,220	585	410	29.....	865	465	465
10.....	3,400	650	465	20.....	1,780	525	410	30.....	865	465	465
								31.....	865	465

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	465	465	525	525	1,100	720	1,680	6,760	6,760	885	375	263
2.....	465	452	495	555	1,020	755	1,920	5,100	7,200	848	375	263
3.....	465	438	495	465	1,020	755	2,320	4,310	7,420	775	375	295
4.....	465	410	495	385	940	720	2,320	4,120	7,200	740	375	550
5.....	543	410	495	438	940	1,470	2,320	4,310	6,340	708	375	410
6.....	525	410	495	438	865	7,640	2,320	4,310	5,920	675	365	495
7.....	495	410	495	585	865	3,940	2,770	5,100	5,920	675	365	1,200
8.....	510	410	495	865	755	2,770	2,920	6,130	5,100	610	365	775
9.....	525	410	495	1,280	865	2,180	2,770	6,340	4,120	610	355	522
10.....	555	2,460	480	1,470	940	1,680	3,240	6,760	3,760	580	340	440
11.....	525	902	465	1,680	1,020	1,370	6,620	6,760	3,250	580	318	380
12.....	495	650	438	1,280	940	1,470	2,470	7,200	3,580	550	304	360
13.....	465	585	438	1,020	940	2,400	2,320	7,640	5,300	550	350	350
14.....	465	585	438	940	1,020	1,800	1,680	6,760	3,410	550	318	336
15.....	465	585	424	1,470	1,100	1,470	1,580	7,420	2,810	522	318	318
16.....	465	1,100	410	1,680	940	2,620	1,580	7,640	2,290	522	308	318
17.....	465	720	555	1,470	865	1,680	2,050	6,760	1,850	522	308	318
18.....	465	650	495	1,100	1,280	1,580	1,920	6,550	1,560	495	304	308
19.....	465	585	510	1,020	1,680	1,580	1,800	6,760	1,750	473	304	308
20.....	452	585	525	1,020	1,280	1,800	1,580	5,710	1,560	468	300	308
21.....	438	585	495	1,020	1,100	1,680	1,580	5,100	1,470	456	300	300
22.....	424	555	480	940	1,020	1,580	1,370	4,700	1,290	440	295	295
23.....	410	525	465	865	940	1,420	1,280	3,940	1,380	430	295	287
24.....	410	525	465	865	940	1,420	1,470	3,940	1,290	430	291	283
25.....	410	525	465	865	865	1,580	2,050	5,300	1,250	415	283	275
26.....	438	525	495	6,710	865	1,580	1,800	7,420	1,200	410	275	275
27.....	585	525	525	3,400	755	1,680	2,180	6,550	1,120	400	267	275
28.....	495	525	650	2,110	685	1,920	2,320	6,760	1,040	385	263	275
29.....	480	525	585	1,570	685	2,180	4,310	7,420	960	380	263	275
30.....	465	525	585	1,370	2,320	5,920	6,340	922	380	263	275
31.....	465	585	1,180	1,800	6,760	380	263

NOTE.—Daily discharge determined from three fairly well defined rating curves applicable July 1, 1911, to Mar. 5, 1912; Mar. 6 to May 1, and May 2 to Sept. 30, 1912. Discharge values from July 1 to Dec. 31, 1911, supersede those published in Water-Supply Paper 311, p. 178, and values July 1, 1911, to June 30, 1912, supersede those published in Water-Supply Paper 298, pp. 264 and 265.

Monthly discharge of Yuba River near Smartsville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
July.....	5,000	865	2,590	159,000	B.
August.....	790	465	607	37,300	A.
September.....	525	410	453	27,000	A.
October.....	585	410	476	29,300	A.
November.....	2,460	410	619	36,800	A.
December.....	650	410	499	30,700	A.
January.....	6,710	385	1,310	80,600	B.
February.....	1,680	685	973	56,000	B.
March.....	7,640	720	1,920	118,000	B.
April.....	5,920	1,280	2,280	136,000	B.
May.....	7,640	3,940	6,020	370,000	B.
June.....	7,420	922	3,300	196,000	B.
July.....	885	380	543	33,400	A.
August.....	375	263	318	19,600	A.
September.....	1,200	263	378	22,500	A.
The year.....	7,640	263	1,560	1,130,000	

NOTE.—Monthly values supersede those previously published in Water-Supply Papers 298 and 311.

NORTH FORK OF YUBA RIVER¹ NEAR SIERRA CITY, CAL.

Location.—At footbridge $1\frac{1}{2}$ miles west of Sierra City, in the Tahoe National Forest, $2\frac{1}{2}$ miles below junction of North and Souths forks of North Fork of Yuba River.

Records available.—November 1, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to upstream end of left abutment of footbridge

Channel.—Bowlders and gravel.

Discharge measurements.—Made from footbridge or by wading.

Cooperation.—Gage-height record furnished by United States Forest Service.

Estimates are withheld until additional measurements are made.

Discharge measurements of North Fork of Yuba River near Sierra City, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 1	G. T. Peekema	1.95	89
1912.			
Sept. 14	J. E. Stewart	1.80	54

Daily gage height, in feet, of North Fork of Yuba River near Sierra City, Cal., for 1911-12.

[A. H. Walton, observer.]

Day.	Oct.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.	Sept.
1.		1.95				3.65	2.4		1.7
2.			2.0		2.6				
3.			2.1					1.95	
4.							2.35		
5.		2.3							
6.					3.0				
7.						3.75		1.8	
8.				2.2					2.0
9.					3.8				
10.		2.0					2.2		
11.						3.5			
12.				2.25				1.75	
13.		2.75			4.1	3.8			
14.									
15.							2.3		
16.									
17.				2.4			2.1	1.8	1.85
18.					3.95				
19.						3.5			
20.									1.85
21.					3.6				
22.									
23.						3.0	2.2		
24.									
25.		2.3						1.85	
26.						2.9			1.8
27.									
28.									
29.				2.5	3.55	2.75			
30.		2.35						1.8	1.7
31.							2.0		

¹ Known locally as North Yuba River.

NORTH FORK OF YUBA RIVER AT GOODYEAR BAR, CAL.

Location.—At highway bridge at Goodyear Bar, in the E. $\frac{1}{2}$ SW. $\frac{1}{4}$ sec. 5, T. 19 N., R. 10 E., in the Tahoe National Forest. North Fork of North Fork of Yuba River enters at Downieville, 4 miles above, and Rock Creek and Goodyear Creek one-eighth and one-fourth mile, respectively, below the station.

Records available.—October 31, 1910, to September 30, 1912.

Drainage area.—214 square miles.

Gage.—Vertical staff in two sections on left bank. Low-water section is fastened to old piling under bridge, while remainder of gage is bolted to left abutment of bridge.

Channel.—Solid rock, small bowlders, and gravel; appears permanent.

Discharge measurements.—Made from downstream side of bridge, or by wading.

Accuracy.—Results are good.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of North Fork of Yuba River at Goodyear Bar, Cal., in 1911–12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 3	G. T. Peekema.....	3.46	173
1912.			
Sept. 13a	J. E. Stewart.....	3.38	148

a Wading 200 feet above gage.

Daily gage height, in feet, of North Fork of Yuba River at Goodyear Bar, Cal., for 1911–12.

[George E. King, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.5	3.45	-----	3.4	3.6	3.55	3.85	4.65	6.0	3.9	3.5	3.35
2.....	3.5	3.45	3.45	3.4	3.6	3.6	3.95	4.4	6.1	3.85	3.5	3.35
3.....	3.5	3.45	3.45	3.45	3.55	3.55	4.05	4.3	5.9	3.85	3.5	3.4
4.....	3.6	3.45	3.45	3.45	3.55	3.6	4.05	4.35	5.9	3.8	3.45	3.45
5.....	-----	3.45	-----	3.45	3.55	3.8	4.0	4.45	6.0	3.8	3.45	3.45
6.....	3.55	3.45	3.4	3.4	3.55	4.2	4.05	4.5	5.8	3.8	3.45	3.7
7.....	3.55	3.45	3.4	3.5	3.55	3.9	4.1	4.7	5.7	3.8	3.4	3.7
8.....	3.55	3.45	3.4	3.45	3.55	3.8	4.15	5.15	5.3	-----	3.4	3.5
9.....	3.55	3.55	3.4	3.65	3.6	3.75	4.2	5.3	5.1	3.7	3.4	3.45
10.....	3.55	4.0	3.4	3.65	3.6	3.7	4.2	5.2	5.0	3.65	3.4	-----
11.....	-----	3.55	3.4	3.6	3.6	3.7	4.1	5.6	4.9	3.65	3.4	3.4
12.....	3.5	-----	3.4	3.55	3.6	3.75	4.1	5.8	5.4	3.65	3.4	3.35
13.....	3.5	3.5	3.4	3.5	3.6	3.7	3.95	5.7	-----	3.6	3.4	3.4
14.....	3.5	3.5	3.4	3.5	3.6	3.7	4.0	5.7	4.85	3.6	3.4	3.35
15.....	3.5	3.7	3.4	3.5	3.6	3.75	4.0	6.0	4.6	3.6	3.4	3.35
16.....	3.5	3.65	3.4	3.7	3.65	3.7	4.0	5.8	4.5	3.6	3.4	3.35
17.....	-----	3.55	3.4	3.6	3.65	3.65	3.95	5.9	4.4	3.6	3.4	-----
18.....	3.5	3.5	3.4	3.65	3.95	3.65	4.0	5.5	4.35	3.6	3.4	3.3
19.....	3.5	3.5	3.4	3.6	3.8	3.7	3.9	5.4	4.3	3.6	-----	3.3
20.....	3.5	3.55	3.35	3.55	3.7	3.7	3.9	5.3	4.3	3.6	-----	3.3
21.....	3.5	3.5	3.35	3.55	3.65	3.65	3.9	5.0	4.3	3.55	3.35	3.3
22.....	3.5	3.5	3.35	3.5	3.6	3.65	3.85	4.8	4.3	3.55	3.35	3.3
23.....	3.5	3.45	3.35	3.5	3.6	3.65	-----	4.85	4.3	3.5	3.35	3.3
24.....	3.5	3.45	-----	3.5	3.55	3.65	3.85	4.9	4.2	3.5	3.3	3.3
25.....	3.5	3.45	3.3	3.65	3.5	3.7	3.95	5.3	4.15	3.5	3.3	3.3
26.....	3.45	3.45	3.3	4.1	-----	3.75	4.0	5.5	4.1	3.5	3.3	-----
27.....	-----	3.45	3.45	3.8	3.5	3.8	4.0	5.6	4.1	3.5	3.3	-----
28.....	-----	3.5	3.5	3.7	3.5	3.85	4.05	5.9	4.0	3.5	3.35	3.3
29.....	-----	3.5	3.45	3.7	3.5	3.9	4.7	5.7	4.0	3.5	3.35	3.3
30.....	3.45	3.45	3.45	3.65	-----	3.85	4.5	5.7	4.0	3.5	3.35	3.3
31.....	3.45	-----	3.45	3.6	-----	3.85	-----	5.8	-----	3.5	3.35	-----

¹ Known locally as North Yuba River.

Daily discharge, in second-feet, of North Fork of Yuba River at Goodyear Bar, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	184	167	167	150	220	202	330	828	2, 170	355	184	135
2.	184	167	167	150	220	220	380	645	2, 290	330	184	135
3.	184	167	167	167	202	202	432	580	2, 050	330	184	150
4.	220	167	167	167	202	220	432	612	2, 050	305	167	167
5.	211	167	158	167	202	305	405	680	2, 170	305	167	167
6.	202	167	150	150	202	520	432	715	1, 930	305	167	260
7.	202	167	150	184	202	355	460	865	1, 820	305	150	260
8.	202	167	150	167	202	305	490	1, 260	1, 400	282	150	184
9.	202	202	150	240	220	282	520	1, 400	1, 210	260	150	167
10.	202	405	150	240	220	260	520	1, 300	1, 120	240	150	158
11.	193	202	150	220	220	260	460	1, 710	1, 030	240	150	150
12.	184	193	150	202	220	282	460	1, 930	1, 500	240	150	135
13.	184	184	150	184	220	260	380	1, 820	1, 240	220	150	150
14.	184	184	150	184	220	260	405	1, 820	988	220	150	135
15.	184	260	150	184	220	282	405	2, 170	790	220	150	135
16.	184	240	150	260	240	260	405	1, 930	715	220	150	135
17.	184	202	150	220	240	240	380	2, 050	645	220	150	128
18.	184	184	150	240	380	240	405	1, 600	612	220	150	120
19.	184	184	150	220	305	260	355	1, 500	580	220	145	120
20.	184	202	135	202	260	260	355	1, 400	580	220	140	120
21.	184	184	135	202	240	240	355	1, 120	580	202	135	120
22.	184	184	135	184	220	240	330	945	580	202	135	120
23.	184	167	135	184	220	240	330	988	580	184	135	120
24.	184	167	128	184	202	240	330	1, 030	520	184	120	120
25.	184	167	120	240	184	260	380	1, 400	490	184	120	120
26.	167	167	120	460	184	282	405	1, 600	460	184	120	120
27.	167	167	167	305	184	305	405	1, 710	460	184	120	120
28.	167	184	184	260	184	330	432	2, 050	405	184	135	120
29.	167	184	167	260	184	355	865	1, 820	405	184	135	120
30.	167	167	167	240	330	715	1, 820	405	184	135	120
31.	167	167	220	330	1, 930	184	135

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated for days on which gage was not read.

Monthly discharge of North Fork of Yuba River at Goodyear Bar, Cal., for 1912.

[Drainage area, 214 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.....	220	167	186	0.869	1.00	11,400	A.
November.....	405	167	191	.893	1.00	11,400	A.
December.....	184	120	151	.706	.81	9,280	A.
January.....	460	150	214	1.00	1.15	13,200	A.
February.....	380	184	221	1.03	1.11	12,700	A.
March.....	520	202	278	1.30	1.50	17,100	A.
April.....	865	330	432	2.02	2.25	25,700	A.
May.....	2, 170	580	1,390	6.50	7.49	85,500	A.
June.....	2, 290	405	1,060	4.95	5.52	63,100	A.
July.....	355	184	236	1.10	1.27	14,500	A.
August.....	184	120	147	.687	.79	9,040	A.
September.....	260	120	144	.673	.75	8,570	A.
The year.....	2,290	120	388	1.81	24.64	281,000	

NORTH FORK OF NORTH FORK OF YUBA RIVER¹ AT DOWNIEVILLE, CAL.

Location.—At upper highway bridge in Downieville, in the NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 35, T. 20 N., R. 10 E., 500 feet above dam and one-fourth mile above junction with North Fork of Yuba River. Middle Fork of North Fork enters $1\frac{1}{4}$ miles above and East Fork of North Fork one-eighth mile above the station.

¹ Known locally as North Fork of North Yuba River.

Records available.—November 1, 1910, to September 30, 1912.

Drainage area.—71.2 square miles.

Gage.—Vertical staff fastened to right abutment of bridge.

Channel.—Gravel and small bowlders and appears permanent.

Discharge measurements.—Usually made from bridge just above mouth or by wading.

Winter flow.—Some ice in stream during November and December, 1911. It is believed that the ice affected the discharge but little, and no correction has been applied.

Diversions.—The intake of the municipal water system of Downieville is above the station.

Accuracy.—Gage-height record is considered very reliable and rating curve is well defined. Results are excellent.

Cooperation.—Gage-height record furnished by John T. Mason.

Discharge measurements of North Fork of North Fork of Yuba River at Downieville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Nov. 2 ^a	G. T. Peekema.....	Feet. 2.73	Sec.-ft. 69
1912. Sept. 15 ^b	J. E. Stewart.....	2.64	49

^a Lower bridge, 300 feet above mouth.

^b Wading 25 feet above gage.

Daily gage height, in feet, of North Fork of North Fork of Yuba River at Downieville, Cal., for 1911-12.

[J. T. Mason, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.8	2.75	2.65	2.65	2.8	2.8	3.1	3.4	4.05	3.0	2.75	2.6
2.....	2.75	2.74	2.67	2.7	2.8	2.8	3.2	3.3	3.95	3.0	2.7	2.6
3.....	2.75	2.75	2.6	2.7	2.8	2.8	3.2	3.3	4.05	3.0	2.7	2.6
4.....	2.85	2.75	2.65	2.7	2.8	2.9	3.2	3.3	3.95	3.0	2.7	2.6
5.....	2.8	2.75	2.67	2.7	2.8	3.0	3.2	3.3	3.85	2.9	2.7	2.6
6.....	2.8	2.75	2.67	2.7	2.8	3.3	3.25	3.6	3.9	2.9	2.65	2.78
7.....	2.8	2.75	2.7	2.8	2.8	3.0	3.25	3.7	3.65	2.9	2.65	2.85
8.....	2.8	2.75	2.7	2.7	2.8	3.0	3.3	3.85	3.65	2.9	2.65	2.72
9.....	2.8	2.8	2.7	2.9	2.8	3.0	3.3	3.8	3.55	2.9	2.65	2.65
10.....	2.8	2.8	2.7	2.8	2.8	2.9	3.3	3.8	3.55	2.9	2.6	2.65
11.....	2.8	2.8	2.6	2.8	2.8	2.9	3.2	3.85	3.52	2.9	2.6	2.65
12.....	2.8	2.8	2.65	2.8	2.8	3.0	3.1	4.2	3.7	2.9	2.6	2.65
13.....	2.8	2.7	2.65	2.8	2.8	2.9	3.05	3.9	3.65	2.9	2.6	2.7
14.....	2.8	2.7	2.65	2.8	2.8	2.9	3.05	3.95	3.52	2.9	2.6	2.7
15.....	2.8	2.8	2.65	2.8	2.8	2.9	3.1	4.05	3.52	2.9	2.6	2.62
16.....	2.75	2.7	2.65	2.8	2.8	3.0	3.1	3.9	3.3	2.9	2.6	2.6
17.....	2.75	2.75	2.65	2.8	2.85	2.9	3.2	3.95	3.3	2.85	2.55	2.6
18.....	2.75	2.75	2.65	2.85	3.25	2.9	3.2	3.9	3.3	2.85	2.55	2.6
19.....	2.75	2.75	2.65	2.85	3.1	2.9	3.2	3.8	3.2	2.8	2.55	2.6
20.....	2.75	2.8	2.65	2.85	3.1	2.9	3.1	3.7	3.2	2.8	2.55	2.6
21.....	2.75	2.8	2.65	2.8	3.0	2.9	3.0	3.6	3.2	2.8	2.55	2.6
22.....	2.75	2.8	2.65	2.8	2.9	2.9	3.0	3.5	3.2	2.8	2.55	2.6
23.....	2.75	2.8	2.65	2.8	2.9	2.9	3.0	3.45	3.2	2.8	2.55	2.6
24.....	2.75	2.75	2.63	2.8	2.8	2.9	3.1	3.5	3.2	2.8	2.55	2.6
25.....	2.75	2.7	2.6	2.9	2.8	3.0	3.0	3.6	3.1	2.8	2.55	2.6
26.....	2.75	2.7	2.6	3.2	2.8	3.1	3.1	3.9	3.1	2.8	2.55	2.6
27.....	2.75	2.7	3.0	2.8	3.0	3.1	3.9	3.1	2.8	2.55	2.6
28.....	2.75	2.67	2.6	2.9	2.8	3.0	3.1	4.0	3.0	2.75	2.55	2.6
29.....	2.75	2.66	2.65	2.85	2.8	3.1	3.5	4.0	3.0	2.75	2.55	2.6
30.....	2.75	2.65	2.65	2.8	3.2	3.35	3.9	3.0	2.75	2.55	2.6
31.....	2.75	2.65	2.8	3.1	3.9	2.75	2.6

Daily discharge, in second-feet, of North Fork of North Fork of Yuba River at Downieville Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	78	68	50	50	78	78	165	300	730	130	68	42
2.....	68	65	52	57	78	78	205	250	655	130	57	42
3.....	68	68	42	57	78	78	205	250	730	130	57	42
4.....	90	68	50	57	78	103	205	250	655	130	57	42
5.....	78	68	52	57	78	130	205	250	585	103	57	42
6.....	78	68	52	57	78	250	228	415	620	103	50	74
7.....	78	68	57	78	78	130	228	480	448	103	50	90
8.....	78	68	57	78	78	130	250	585	448	103	50	61
9.....	78	78	57	103	78	130	250	550	385	103	50	50
10.....	78	78	57	78	78	103	250	550	385	103	42	50
11.....	78	78	42	78	78	103	205	585	367	103	42	50
12.....	78	78	50	78	78	130	165	860	480	103	42	50
13.....	78	57	50	78	78	103	148	620	448	103	42	57
14.....	78	57	50	78	78	103	148	655	367	103	42	57
15.....	78	78	50	78	78	103	165	730	367	103	42	45
16.....	68	57	50	78	78	130	165	620	250	103	42	42
17.....	68	68	50	78	90	103	205	655	250	90	36	42
18.....	68	68	50	90	228	103	205	620	250	90	36	42
19.....	68	68	50	90	165	103	205	550	205	78	36	42
20.....	68	78	50	90	165	103	165	480	205	78	36	42
21.....	68	78	50	78	130	103	130	415	205	78	36	42
22.....	68	78	50	78	103	103	130	355	205	78	36	42
23.....	68	78	50	78	103	103	130	328	205	78	36	42
24.....	68	68	46	78	78	103	165	355	205	78	36	42
25.....	68	57	42	103	78	130	130	415	165	78	36	42
26.....	68	57	42	205	78	165	165	620	165	78	36	42
27.....	68	57	42	130	78	130	165	620	165	78	36	42
28.....	68	52	42	103	78	130	165	690	130	68	36	42
29.....	68	50	50	90	78	165	355	690	130	68	36	42
30.....	68	50	50	78	205	275	620	130	68	36	42
31.....	68	50	78	165	620	68	42

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

Monthly discharge of North Fork of North Fork of Yuba River at Downieville, Cal., for 1911-12.

[Drainage area, 71.2 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	90	68	72.6	1.02	1.18	4,460	A.
November.....	78	50	67.0	.941	1.05	3,990	A.
December.....	57	42	49.4	.694	.80	3,040	A.
January.....	205	50	82.8	1.16	1.34	5,090	A.
February.....	228	78	93.1	1.31	1.41	5,360	A.
March.....	250	78	122	1.71	1.97	7,500	A.
April.....	355	130	193	2.71	3.02	11,500	A.
May.....	860	250	516	7.26	8.37	31,700	A.
June.....	730	130	351	4.93	5.50	20,900	A.
July.....	130	68	93.9	1.32	1.52	5,770	A.
August.....	68	36	43.1	.605	.70	2,650	A.
September.....	90	42	47.5	.667	.74	2,830	A.
The year.....	860	36	144	2.02	27.60	105,000	

ROCK CREEK AT GOODYEAR BAR, CAL.

Location.—At the footbridge at Goodyear Bar, in the W. $\frac{1}{2}$ SW. $\frac{1}{4}$ sec. 5, T. 19 N., R. 10 E., in the Tahoe National Forest. Woodruff Creek enters 350 feet above and Rock Creek joins the North Fork of Yuba River 600 feet below the station.

Records available.—October 30, 1910, to September 30, 1912.

Drainage area.—10.8 square miles.

Gage.—Vertical staff fastened to an alder tree on right bank 40 feet below bridge.

Channel.—Boulders and gravel, and is rough. Section appears permanent.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Three small ditches, having a total capacity of about 10 second-feet, head above the station.

Accuracy.—Results are fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Rock Creek at Goodyear Bar, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911 Nov. 3	G. T. Peekema.....	<i>Feet.</i> 2.20	<i>Sec.-ft.</i> 1.7
1912 Sept. 13	J. E. Stewart.....	2.15	1.4

NOTE.—Measurements made by wading 100 feet above gage.

Daily gage height, in feet, of Rock Creek at Goodyear Bar, Cal., for 1911-12.

[G. E. King, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.2	2.2	-----	2.25	2.58	2.45	2.80	3.55	3.05	2.4	1.95	2.05
2.....	2.2	2.2	2.3	2.25	2.55	2.50	2.82	3.40	3.00	2.4	2.0	2.05
3.....	2.2	2.2	2.25	2.25	2.52	2.45	2.82	3.40	2.90	2.35	2.0	2.1
4.....	2.3	2.2	2.25	2.25	2.50	2.52	2.80	3.30	2.90	2.35	2.0	2.2
5.....	-----	2.2	-----	2.28	2.50	3.00	2.80	3.25	2.90	2.35	2.0	2.2
6.....	2.3	2.2	2.25	2.28	2.50	3.5	2.80	3.30	2.80	2.35	2.0	2.7
7.....	2.3	2.2	2.25	2.35	2.50	3.05	2.85	3.20	2.80	2.3	2.0	2.3
8.....	2.25	2.2	2.25	2.30	2.50	2.90	2.90	3.35	2.75	-----	2.0	2.2
9.....	2.25	2.3	2.2	2.80	2.50	2.80	2.90	3.40	2.75	2.2	2.0	2.2
10.....	2.25	2.8	2.2	2.80	2.50	2.75	2.95	3.40	2.70	2.2	2.0	-----
11.....	-----	2.35	2.2	2.75	2.50	2.70	2.85	3.40	2.65	2.2	2.0	2.15
12.....	2.2	-----	2.2	2.55	2.50	2.75	2.85	3.40	2.80	2.2	2.0	2.15
13.....	2.2	2.3	2.2	2.50	2.50	2.70	2.80	3.40	-----	2.15	2.0	2.15
14.....	2.2	2.3	2.25	2.50	2.50	2.70	2.80	3.35	2.65	2.15	2.0	2.1
15.....	2.2	2.65	2.25	2.50	2.50	2.70	2.82	3.30	2.60	2.1	2.0	2.1
16.....	2.2	2.45	2.25	2.70	2.50	2.70	2.90	3.30	2.60	2.2	2.0	2.1
17.....	-----	2.85	2.25	2.55	2.55	2.70	2.85	3.30	2.55	2.2	2.05	-----
18.....	2.2	2.3	2.25	2.60	2.70	2.70	2.85	3.20	2.55	2.2	2.05	2.1
19.....	2.2	2.3	2.25	2.70	2.60	2.70	2.80	3.20	2.50	2.15	-----	2.1
20.....	2.2	2.35	2.25	2.55	2.52	2.75	2.80	3.20	2.50	2.05	-----	2.1
21.....	2.2	2.3	2.25	2.55	2.50	2.70	2.80	3.20	2.50	2.05	2.0	2.05
22.....	2.2	2.3	2.25	2.50	2.50	2.70	2.75	3.20	2.50	2.05	2.0	2.0
23.....	2.2	2.25	2.25	2.48	2.50	2.70	-----	3.15	2.55	2.05	2.0	2.0
24.....	2.2	2.3	-----	2.48	2.50	2.70	2.80	3.15	2.50	2.05	2.0	2.0
25.....	2.2	-----	2.2	2.70	2.50	2.72	2.85	3.40	2.50	2.05	2.0	2.0
26.....	2.2	2.3	2.25	3.25	2.50	2.75	2.95	3.40	2.50	2.05	2.0	-----
27.....	-----	2.3	2.3	2.90	2.45	2.80	2.95	3.40	2.50	2.05	2.0	-----
28.....	-----	2.3	2.3	2.75	2.42	2.80	2.95	3.30	2.45	2.05	2.05	2.0
29.....	-----	2.3	2.25	2.70	2.42	2.80	3.7	3.20	2.40	1.95	2.05	2.0
30.....	2.2	2.3	2.25	2.65	-----	2.80	3.45	3.20	2.40	1.95	2.05	2.0
31.....	2.2	-----	2.25	2.60	-----	2.80	-----	3.10	-----	1.95	2.05	-----

Daily discharge, in second-feet, of Rock Creek at Goodyear Bar, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.7	1.7	2.5	2.1	6.6	4.2	14	78	30	3.5	0.4	0.8
2.....	1.7	1.7	2.5	2.1	6	5	15	62	26	3.5	.5	.8
3.....	1.7	1.7	2.1	2.1	5.4	4.2	15	62	19	3.0	.5	1.0
4.....	2.5	1.7	2.1	2.1	5	5.4	14	52	19	3.0	.5	1.7
5.....	2.5	1.7	2.1	2.3	5	26	14	48	19	3.0	.5	1.7
6.....	2.5	1.7	2.1	2.3	5	72	14	52	14	3.0	.5	10
7.....	2.5	1.7	2.1	3.0	5	30	16	43	14	2.5	.5	2.5
8.....	2.1	1.7	2.1	2.5	5	19	19	57	12	2.1	.5	1.7
9.....	2.1	2.5	1.7	14	5	14	19	62	12	1.7	.5	1.7
10.....	2.1	14	1.7	14	5	12	22	62	10	1.7	.5	1.6
11.....	1.9	3.0	1.7	12	5	10	16	62	8.5	1.7	.5	1.4
12.....	1.7	2.8	1.7	6	5	12	16	62	14	1.7	.5	1.4
13.....	1.7	2.5	1.7	5	5	10	14	62	11	1.4	.5	1.4
14.....	1.7	2.5	2.1	5	5	10	14	57	8.5	1.4	.5	1.0
15.....	1.7	8.5	2.1	5	5	10	15	52	7	1.0	.5	1.0
16.....	1.7	4.2	2.1	10	5	10	19	52	7	1.7	.5	1.0
17.....	1.7	16	2.1	6	6	10	16	52	6	1.7	.8	1.0
18.....	1.7	2.5	2.1	7	10	10	16	43	6	1.7	.8	1.0
19.....	1.7	2.5	2.1	10	7	10	14	43	5	1.4	.7	1.0
20.....	1.7	3.0	2.1	6	5.4	12	14	43	5	.8	.6	1.0
21.....	1.7	2.5	2.1	6	5	10	14	43	5	.8	.5	.8
22.....	1.7	2.5	2.1	5	5	10	12	43	5	.8	.5	.5
23.....	1.7	2.1	2.1	4.7	5	10	13	38	6	.8	.5	.5
24.....	1.7	2.5	1.9	4.7	5	10	14	38	5	.8	.5	.5
25.....	1.7	2.5	1.7	10	5	11	16	62	5	.8	.5	.5
26.....	1.7	2.5	2.1	48	5	12	22	62	5	.8	.5	.5
27.....	1.7	2.5	2.5	19	4.2	14	22	62	5	.8	.5	.5
28.....	1.7	2.5	2.5	12	3.8	14	22	52	4.2	.8	.8	.5
29.....	1.7	2.5	2.1	10	3.8	14	95	43	3.5	.4	.8	.5
30.....	1.7	2.5	2.1	8.5	14	67	43	3.5	.4	.8	.5
31.....	1.7	2.1	7	14	344	.8

NOTE.—Daily discharge determined from a rating curve fairly well defined below 300 second-feet. Discharge interpolated for days on which gage was not read.

Monthly discharge of Rock Creek at Goodyear Bar, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	2.5	1.7	1.85	114	D.
November.....	16	1.7	3.41	203	D.
December.....	2.5	1.7	2.07	127	D.
January.....	48	2.1	8.17	502	D.
February.....	10	3.8	5.28	304	D.
March.....	72	4.2	13.8	848	D.
April.....	95	12	20.4	1,210	C.
May.....	78	34	52.5	3,230	B.
June.....	30	3.5	10.0	595	D.
July.....	3.5	.4	1.58	97.2	D.
August.....	.8	.4	.56	34.4	D.
September.....	10	.5	1.33	79.1	D.
The year.....	95	.4	10.1	7,340	

GOODYEAR CREEK AT GOODYEAR BAR, CAL.

Location.—At trail bridge in the W. $\frac{1}{2}$ SW. $\frac{1}{4}$ sec. 5, T. 19 N., R. 10 E., in the Tahoe National Forest, 300 feet above junction with North Fork of Yuba River and half a mile north of Goodyear Bar.

Records available.—October 30, 1910, to September 30, 1912.

Drainage area.—12.2 square miles.

Gage.—Vertical staff fastened to an alder tree on left bank 200 feet above bridge.

Channel.—Solid rock and gravel; appears permanent.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Three small irrigation ditches, having a total capacity of about 7½ second-feet, head above the station.

Accuracy.—Rating curve is well defined at low and medium stages and results are good. The high-water record is approximate.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Goodyear Creek at Goodyear Bar, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Nov. 3	G. T. Peekema.....	<i>Feet.</i> 1.51	<i>Sec.-ft.</i> 7.0
1912. Sept. 13	J. E. Stewart.....	1.41	3.1

NOTE.—Made by wading.

Daily gage height, in feet, of Goodyear Creek at Goodyear Bar, Cal., for 1911-12.

[G. E. King, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.5	1.5	1.50	1.80	1.75	1.95	2.8	2.20	1.65	1.45	1.5
2.....	1.5	1.5	1.5	1.50	1.80	1.75	2.15	2.65	2.15	1.65	1.45	1.5
3.....	1.45	1.5	1.5	1.50	1.75	1.75	2.20	2.7	2.00	1.65	1.45	1.55
4.....	1.5	1.5	1.5	1.50	1.72	1.80	2.20	2.6	1.95	1.6	1.45	1.55
5.....	1.5	1.50	1.72	2.10	2.20	2.55	1.95	1.6	1.45	1.5
6.....	1.5	1.5	1.5	1.50	1.72	2.65	2.22	2.65	1.90	1.6	1.45	1.85
7.....	1.5	1.5	1.5	1.60	1.72	2.25	2.25	2.7	1.90	1.6	1.45	1.5
8.....	1.5	1.5	1.5	1.55	1.75	2.10	2.30	2.7	1.85	1.45	1.5
9.....	1.5	1.55	1.5	1.80	1.80	2.05	2.30	2.7	1.90	1.55	1.45	1.5
10.....	1.5	2.05	1.5	1.90	1.80	2.00	2.30	2.65	1.90	1.55	1.45
11.....	1.6	1.5	1.75	1.80	1.95	2.20	2.65	1.85	1.55	1.45	1.5
12.....	1.5	1.5	1.70	1.75	2.00	2.20	2.6	2.10	1.55	1.45	1.5
13.....	1.5	1.55	1.5	1.68	1.75	1.95	2.10	2.55	1.55	1.45	1.42
14.....	1.5	1.55	1.5	1.68	1.75	1.90	2.10	2.45	1.80	1.55	1.45	1.4
15.....	1.5	1.85	1.5	1.68	1.80	1.90	2.10	2.40	1.80	1.55	1.45	1.4
16.....	1.5	1.6	1.5	1.85	1.80	1.95	2.15	2.40	1.80	1.55	1.45	1.4
17.....	1.6	1.5	1.70	1.90	1.90	2.15	2.30	1.80	1.55	1.45
18.....	1.5	1.65	1.5	1.75	2.20	1.90	2.10	2.25	1.80	1.55	1.5	1.4
19.....	1.5	1.5	1.5	1.80	1.90	1.90	2.10	2.25	1.80	1.55	1.4
20.....	1.5	1.5	1.5	1.70	1.85	1.90	2.10	2.35	1.75	1.5	1.4
21.....	1.5	1.45	1.5	1.70	1.80	1.90	2.05	2.35	1.75	1.5	1.5	1.4
22.....	1.5	1.5	1.5	1.65	1.80	1.90	2.00	2.30	1.75	1.5	1.5	1.4
23.....	1.5	1.5	1.5	1.65	1.80	1.90	2.30	1.75	1.5	1.5	1.4
24.....	1.5	1.5	1.65	1.80	1.90	2.10	2.35	1.75	1.5	1.5	1.4
25.....	1.5	1.45	1.90	1.75	1.95	2.20	2.6	1.75	1.5	1.5	1.45
26.....	1.5	1.5	1.45	2.40	2.00	2.25	2.6	1.70	1.5	1.5
27.....	1.5	1.5	1.95	1.70	2.15	2.25	2.6	1.70	1.5	1.5
28.....	1.5	1.6	1.92	1.70	2.20	2.25	2.45	1.65	1.5	1.5	1.5
29.....	1.5	1.5	1.85	1.70	2.22	2.55	2.35	1.65	1.5	1.5	1.5
30.....	1.5	1.5	1.5	1.80	2.20	2.6	2.30	1.65	1.45	1.5	1.5
31.....	1.5	1.5	1.80	2.15	2.25	1.45	1.5

Daily discharge, in second-feet, of Goodyear Creek at Goodyear Bar, Cal., for 1911-12.

Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.	Day.	July.	Aug.	Sept.
1911.				1911.				1911.			
1.....	14	6	5	11.....	12	5	5	21.....	8	5	5
2.....	17	6	5	12.....	12	5	5	22.....	8	5	5
3.....	17	6	5	13.....	12	5	5	23.....	8	5	5
4.....	14	6	5	14.....	10	6	5	24.....	8	5	5
5.....	14	6	5	15.....	9	5	5	25.....	6	5	5
6.....	12	5	5	16.....	8	5	5	26.....	6	5	5
7.....	12	5	5	17.....	8	5	5	27.....	8	5	5
8.....	14	5	5	18.....	8	5	5	28.....	6	5	5
9.....	14	5	5	19.....	8	5	5	29.....	6	5	5
10.....	12	5	5	20.....	8	5	5	30.....	6	5	5
								31.....	6	5

Daily discharge, in second-feet, of Goodyear Creek at Goodyear Bar, Cal., for 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	5	5	5	5	17	14	28	118	49	10	4	5
2.....	5	5	5	5	17	14	44	99	44	10	4	5
3.....	4	5	5	5	14	14	49	105	32	10	4	6
4.....	5	5	5	5	13	17	49	93	28	8	4	6
5.....	5	5	5	5	13	40	49	87	28	8	4	5
6.....	5	5	5	5	13	99	51	99	24	8	4	20
7.....	5	5	5	8	13	54	54	105	24	8	4	5
8.....	5	5	5	6	14	40	59	105	20	7	4	5
9.....	5	6	5	17	17	36	59	105	24	6	4	5
10.....	5	36	5	24	17	32	59	99	24	6	4	5
11.....	5	8	5	14	17	28	49	99	20	6	4	5
12.....	5	7	5	12	14	32	49	93	40	6	4	5
13.....	5	6	5	11	14	28	40	87	28	6	4	3
14.....	5	6	5	11	14	24	40	76	17	6	4	3
15.....	5	20	5	11	17	24	40	70	17	6	4	3
16.....	5	8	5	20	17	28	44	70	17	6	4	3
17.....	5	8	5	12	24	24	44	59	17	6	4	3
18.....	5	10	5	14	49	24	40	54	17	6	5	3
19.....	5	5	5	17	24	24	40	54	17	6	5	3
20.....	5	5	5	12	20	24	40	64	14	5	5	3
21.....	5	4	5	12	17	24	36	64	14	5	5	3
22.....	5	5	5	10	17	24	32	59	14	5	5	3
23.....	5	5	5	10	17	24	36	59	14	5	5	3
24.....	5	5	4	10	17	24	40	64	14	5	5	3
25.....	5	5	4	24	14	28	49	93	14	5	5	4
26.....	5	5	4	70	13	32	54	93	12	5	5	4
27.....	5	5	5	28	12	44	54	93	12	5	5	5
28.....	5	5	8	26	12	49	54	76	10	5	5	5
29.....	5	5	5	20	12	51	87	64	10	5	5	5
30.....	5	5	5	17	-----	49	93	59	10	4	5	5
31.....	5	-----	5	17	-----	44	-----	54	-----	4	5	-----

NOTE.—Daily discharge determined from a rating curve well defined below 300 second-feet. Discharge interpolated for days on which gage was not read. Discharge values July to December, 1911, supersede those published in Water-Supply Paper 311, p. 189, and values July, 1911, to June, 1912, supersede those published in Water-Supply Paper 298, p. 286.

Monthly discharge of Goodyear Creek at Goodyear Bar, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
July	17	6	10.0	615	B.
August.....	6	5	5.2	320	C.
September.....	5	5	5.0	298	C.
1911-12.					
October.....	5	4	5.0	307	C.
November.....	36	4	7.1	422	C.
December.....	8	4	5.0	307	C.
January.....	70	5	14.9	916	B.
February.....	49	12	16.9	972	B.
March.....	99	14	32.7	2,010	B.
April.....	93	28	48.7	2,900	A.
May.....	118	54	81.3	5,000	A.
June.....	49	10	20.8	1,230	B.
July.....	10	4	6.2	381	C.
August.....	5	4	4.5	277	C.
September.....	20	3	4.7	280	C.
The year.....	118	3	20.7	15,000	

NOTE.—Values for July, 1911, to June, 1912, supersede those previously published.

OREGON CREEK NEAR NORTH SAN JUAN, CAL.

Location.—Below highway bridge in the N. $\frac{1}{2}$ SE. $\frac{1}{4}$ sec. 28, T. 18 N., R. 8 E., in the Tahoe National Forest, 500 feet above the mouth, half a mile above Freemans Bridge, and 2 miles northeast of North San Juan.

Records available.—October 28, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on right bank 150 feet below bridge.

Channel.—Small bowlders and gravel and shifts at high stages.

Discharge measurements.—Made from car and cable, 30 feet below gage, or by wading.

Accuracy.—Estimates are withheld until high-water measurements are made at the cable section.

Discharge measurements of Oregon Creek near North San Juan, Cal., in 1911–12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Nov. 8	G. T. Peekema.....	Feet. 4.01	Sec.-ft. 8.9
1912. May 21	J. E. Stewart.....	4.66	66
Sept. 12do.....	3.82	5.4

NOTE.—Measurement made from cable May 21, 1912; all others made by wading.

Daily gage height, in feet, of Oregon Creek near North San Juan, Cal., for 1911–12.

[H. Zurhorst, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.9	3.9	4.0	4.0	4.4	4.2	4.6	4.6	4.6	4.1	3.8	3.7
2.....	3.9	3.9	4.0	4.0	4.3	4.2	4.6	4.6	4.5	4.1	3.8	3.7
3.....	3.9	3.9	4.0	4.0	4.3	4.2	4.5	4.5	4.4	4.0	3.8	3.8
4.....	3.9	3.9	4.0	4.0	4.3	4.2	4.5	4.5	4.4	4.0	3.8	3.9
5.....	4.0	3.9	3.9	4.1	4.2	4.8	4.5	4.5	4.4	4.0	3.8	3.8
6.....	4.0	3.9	3.9	4.0	4.2	5.8	4.5	4.5	4.3	4.0	3.8	3.8
7.....	3.9	3.9	4.0	4.0	4.2	5.1	4.5	4.5	4.3	4.0	3.8	4.2
8.....	3.9	3.9	3.9	4.1	4.3	4.9	4.5	4.5	4.3	4.0	3.8	4.0
9.....	3.9	4.1	3.9	4.4	4.3	4.8	4.5	4.5	4.3	4.0	3.8	3.9
10.....	4.0	4.7	3.9	4.6	4.3	4.7	4.7	4.7	4.3	4.0	3.8	3.9
11.....	3.9	4.2	3.9	4.6	4.3	4.6	4.6	4.6	4.2	4.0	3.8	3.9
12.....	3.9	4.1	3.9	4.5	4.2	4.6	4.5	4.5	4.2	3.9	3.8	3.8
13.....	3.9	4.0	3.9	4.4	4.3	4.7	4.5	4.5	4.4	3.9	3.8	3.8
14.....	3.9	4.1	3.9	4.4	4.3	4.6	4.5	4.5	4.3	3.9	3.8	3.8
15.....	3.9	4.1	3.9	4.3	4.3	4.6	4.5	4.5	4.2	3.9	3.8	3.8
16.....	3.9	4.3	3.9	4.8	4.2	4.7	4.6	4.6	4.2	3.9	3.8	3.8
17.....	3.9	4.0	4.0	4.5	4.2	4.6	4.6	4.6	4.2	3.9	3.7	3.8
18.....	3.9	4.1	4.0	4.4	4.6	4.6	4.6	4.6	4.2	3.9	3.7	3.8
19.....	3.9	4.1	4.0	4.9	4.5	4.7	4.6	4.6	4.2	3.9	3.7	3.8
20.....	3.9	4.0	4.0	4.6	4.4	4.8	4.5	4.5	4.1	3.9	3.7	3.8
21.....	3.9	4.0	4.0	4.6	4.3	4.7	4.5	4.5	4.1	3.8	3.7	3.8
22.....	3.9	4.0	4.0	4.4	4.3	4.6	4.5	4.5	4.1	3.8	3.7	3.8
23.....	3.9	4.0	4.0	4.3	4.3	4.6	4.5	4.5	4.2	3.8	3.7	3.8
24.....	3.9	4.0	4.0	4.3	4.2	4.6	4.6	4.6	4.1	3.8	3.7	3.8
25.....	3.9	4.0	3.9	4.4	4.2	4.6	4.6	4.7	4.1	3.8	3.7	3.8
26.....	3.9	4.0	3.9	5.4	4.2	4.6	4.6	4.8	4.1	3.8	3.7	3.8
27.....	4.0	3.9	3.9	4.9	4.2	4.6	4.6	4.8	4.1	3.8	3.7	3.8
28.....	3.9	3.9	4.0	4.7	4.2	4.6	4.6	4.7	4.1	3.8	3.7	3.8
29.....	3.9	3.9	4.0	4.5	4.2	4.7	4.7	5.1	4.1	3.8	3.7	3.8
30.....	3.9	4.0	4.0	4.4	4.7	4.7	5.3	4.1	3.8	3.7	3.8
31.....	3.9	4.0	4.4	4.7	3.8	3.7

BEAR RIVER NEAR COLFAX, CAL.

Location.—At Pacific Gas & Electric Co.'s diversion dam in sec. 22, T. 15 N., R. 9 E., about half a mile below mouth of Greenhorn River and 3 miles north of Colfax.

Records available.—November 1, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—A vertical staff in three sections, on the left bank, 50 feet above the dam, installed January 1, 1912, to replace the gage which was installed October 20, 1911, on left bank, about 500 feet above the dam, and was read during November and December, 1911. The records from this gage give only the flow over the dam.

Channel.—Gravel; will shift.

Discharge measurements.—Made from car and cable 500 feet above dam or by wading.

Diversions and storage.—A small amount of storage has been developed above the station. Some stored water from South Fork of Yuba River is diverted into this drainage above the station.

Accuracy.—Rating curve is fairly well defined and results are good: Discharge of Pacific Gas & Electric Co.'s canal must be added to obtain total flow of river.

Cooperation.—Gage-height record furnished by Pacific Gas & Electric Co., through James H. Wise, assistant general manager.

Discharge measurements of Bear River and Pacific Gas & Electric Co.'s power canal near Colfax, Cal., in 1911-12.

Date.	Hydrographer.	Gage height at cable.	Discharge at cable.	Discharge of canal.	Gage height at dam.	Discharge over dam.
1911.						
Oct. 20 ^a	J. E. Stewart.....					2.1
20 ^b	do.....	1.41	38			
Dec. 9 ^c	F. C. Ebert.....	1.38	34			
1912.						
Jan. 26 ^c	J. E. Stewart.....	3.32	612	e 16.0	6.18	596
Mar. 26 ^d	Lasley Lee.....		133	e 28.8	5.43	105
May 2 ^c	do.....	3.02	616	37.4	6.20	578
22 ^c	J. E. Stewart.....	2.49	298	e 42.9	5.72	255

^a Wading 200 feet above temporary gage at highway bridge. Gage height, temporary gage, 0.99 foot.

^b Wading 200 feet below gage.

^c Cable.

^d Wading 300 feet above gage at dam.

^e From daily discharge furnished by company. Canal not measured.

NOTE.—On Dec. 9 1911, new gage installed at dam read 5.21. Discharge over dam was not measured. Amount was small.

Daily gage height, in feet, of Bear River near Colfax, Cal., for 1911-12.

[J. H. Chubb, observer.]

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.41	1.44	5.40	5.5	5.30	5.30	6.20	5.70	5.35	5.20	5.30
2.....	1.42	1.38	5.35	5.45	5.35	5.40	6.20	5.75	5.35	5.25	5.25
3.....	1.42	1.35	5.30	5.40	5.30	5.45	6.10	5.60	5.25	5.20	5.35
4.....	1.47	1.36	5.45	5.35	5.50	5.90	5.55	5.20	5.25	5.35
5.....	1.71	1.35	5.40	5.40	5.45	5.90	5.50	5.18	5.20	5.40
6.....	1.72	1.36	5.30	6.00	5.40	5.95	5.45	5.20	5.25	5.75
7.....	1.43	1.34	5.30	5.45	5.80	5.50	5.95	5.40	5.25	5.20	5.75
8.....	1.42	1.30	5.40	5.40	5.50	5.55	5.70	5.45	5.20	5.30	5.35
9.....	1.50	1.34	5.55	5.35	5.45	5.50	5.75	5.50	5.20	5.25	5.35
10.....	2.40	1.33	5.70	5.40	5.50	5.50	5.60	5.45	5.20	5.20	5.30

Daily gage height, in feet, of Bear River near Colfax, Cal., for 1911-12—Continued.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
11.....	1.60	1.34	5.80	5.30	5.45	5.55	5.65	5.40	5.25	5.20	-----
12.....	1.62	1.30	5.50	5.35	5.40	5.50	5.50	5.50	5.20	5.20	-----
13.....	1.61	1.33	5.45	5.40	5.50	5.55	5.45	5.45	5.20	5.25	-----
14.....	1.60	1.30	5.40	5.35	5.50	5.50	5.45	5.55	5.20	5.20	-----
15.....	1.63	1.32	5.45	5.40	5.45	5.55	5.50	5.45	5.20	5.18	-----
16.....	1.85	1.33	5.60	5.35	5.60	5.50	5.45	5.40	5.25	5.20	-----
17.....	1.60	1.45	5.55	5.30	5.55	5.45	5.40	5.45	5.20	5.20	-----
18.....	1.61	1.33	5.53	5.35	5.50	5.40	5.55	5.50	5.18	5.18	-----
19.....	1.60	1.32	5.60	5.35	5.50	5.45	5.60	5.55	-----	5.20	-----
20.....	1.50	1.30	5.50	5.30	5.45	5.45	5.55	5.50	-----	5.20	-----
21.....	1.49	1.19	5.50	5.35	5.40	5.40	5.70	5.55	5.20	5.18	-----
22.....	1.60	1.24	5.55	5.35	5.40	5.45	5.75	5.50	5.20	5.20	-----
23.....	1.49	1.35	5.40	5.30	5.45	5.40	5.60	5.55	5.18	5.18	-----
24.....	1.48	1.30	5.45	5.30	5.50	5.45	5.65	5.55	5.20	5.20	-----
25.....	1.48	1.20	5.35	5.25	5.50	5.40	5.60	5.56	5.20	5.18	-----
26.....	1.47	1.30	6.20	5.30	5.45	5.45	5.85	5.55	5.18	5.18	-----
27.....	1.49	1.32	5.70	5.35	5.40	5.45	5.80	5.50	5.18	5.20	-----
28.....	1.47	1.40	5.50	5.30	5.50	5.40	5.70	5.50	-----	5.20	-----
29.....	1.48	1.55	5.45	5.30	5.45	6.30	5.75	5.50	-----	5.25	-----
30.....	1.45	1.50	5.50	-----	5.40	6.55	5.75	5.35	5.20	5.30	-----
31.....	-----	1.51	5.50	-----	5.45	-----	5.70	-----	5.18	5.25	-----

NOTE.—Gage heights Nov. 1 to Dec. 31, 1911, refer to gage at cable. After Jan. 1, 1912, they refer to gage 50 feet above the dam. No flow over dam Sept. 11-30, 1912.

Daily discharge, in second-feet, of Bear River near Colfax, Cal., for 1911-12.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	37	42	80	125	40	40	580	230	60	5	40
2.....	39	34	60	102	60	80	580	260	60	22	22
3.....	39	30	40	80	40	102	510	175	22	5	60
4.....	46	31	40	102	60	125	355	150	5	22	60
5.....	84	30	40	80	80	102	355	125	0	5	80
6.....	86	31	40	40	425	80	390	102	5	22	260
7.....	40	29	40	102	290	125	390	80	22	5	260
8.....	39	24	80	80	125	150	230	102	5	40	60
9.....	50	29	150	60	102	125	260	125	5	22	60
10.....	240	28	230	80	125	125	175	102	5	5	40
11.....	65	29	290	40	102	150	202	80	22	5	-----
12.....	68	24	125	60	80	125	125	125	5	5	-----
13.....	67	28	102	80	125	150	102	102	5	22	-----
14.....	65	24	80	60	125	125	102	150	5	5	-----
15.....	70	26	102	80	102	150	125	102	5	0	-----
16.....	110	28	175	60	175	125	102	80	22	5	-----
17.....	65	43	150	40	150	102	80	102	5	5	-----
18.....	67	28	140	60	125	80	150	125	0	0	-----
19.....	65	26	175	60	125	102	175	150	0	5	-----
20.....	50	24	125	40	102	102	150	125	0	5	-----
21.....	49	15	125	60	80	80	230	150	5	0	-----
22.....	50	19	150	60	80	102	260	125	5	5	-----
23.....	49	30	80	40	102	80	175	150	0	0	-----
24.....	47	24	102	40	125	102	202	155	5	5	-----
25.....	47	16	60	22	125	80	175	155	5	0	-----
26.....	46	24	580	40	102	102	322	150	0	0	-----
27.....	49	26	230	60	80	102	290	125	0	5	-----
28.....	46	36	125	40	125	80	230	125	0	5	-----
29.....	47	58	102	40	102	660	260	125	0	22	-----
30.....	43	50	125	-----	80	868	260	60	5	40	-----
31.....	-----	52	125	-----	102	-----	230	-----	0	22	-----

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable Nov. 1 to Dec. 31, 1911, and Jan. 1 to Sept. 30, 1912. No flow over dam Sept. 11-30, 1912, all water taken in canal. Discharge Nov. 1 to Dec. 30, 1911, includes flow in canal, but discharge January to September, 1912, is only the flow over the dam. Total flow of river is given in combined table.

Monthly discharge of Bear River near Colfax, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
November.....	240	37	62.2	3,700	C.
December.....	58	15	30.3	1,860	C.
January.....	580	40	131	8,060	B.
February.....	125	22	63.2	3,640	B.
March.....	425	40	118	7,260	B.
April.....	868	40	151	8,980	B.
May.....	580	80	251	15,400	B.
June.....	260	60	130	7,740	B.
July.....	60	0	9.13	561	D.
August.....	40	0	10.1	621	D.
September.....	260	0	31.4	1,870	C.
The period.....				59,700	

Combined daily discharge, in second-feet, of Bear River and Pacific Gas & Electric Co.'s power canal near Colfax, Cal., for 1911-12.

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	37	42	111	152	70	69	611	280	110	56	92
2.....	39	34	91	127	90	109	614	310	110	72	72
3.....	39	30	71	106	70	131	545	226	72	57	112
4.....	46	31	70	131	91	154	391	200	56	74	112
5.....	84	30	71	109	110	131	392	176	50	57	132
6.....	86	31	71	70	454	109	433	152	56	74	312
7.....	40	29	71	132	319	154	436	130	72	57	303
8.....	39	24	111	110	154	179	276	152	56	92	112
9.....	50	29	181	90	131	154	309	176	56	74	112
10.....	240	28	260	110	125	154	226	152	56	57	92
11.....	65	29	319	70	102	179	252	130	72	57	46
12.....	68	24	155	90	80	154	176	176	56	57	43
13.....	67	28	131	110	125	179	152	152	56	74	50
14.....	65	24	108	90	125	154	152	200	56	57	46
15.....	70	26	132	110	102	179	176	152	56	52	40
16.....	110	28	206	90	175	154	152	130	72	57	43
17.....	65	43	180	70	150	131	130	152	56	57	39
18.....	67	28	170	90	125	109	200	176	50	52	36
19.....	65	26	204	90	125	131	226	200	50	57	36
20.....	50	24	156	70	131	131	200	176	50	57	34
21.....	49	15	155	90	109	109	270	200	56	52	33
22.....	50	19	180	90	109	131	303	176	56	57	33
23.....	49	30	109	70	131	109	220	200	50	52	34
24.....	47	24	132	70	154	131	245	206	56	57	34
25.....	47	16	90	52	154	109	220	206	56	52	34
26.....	46	24	596	70	131	131	365	200	50	52	34
27.....	49	26	254	90	109	131	336	176	50	57	34
28.....	46	36	150	70	154	111	280	176	50	57	34
29.....	47	58	130	70	131	691	310	176	47	74	34
30.....	43	50	153		109	897	310	110	53	92	34
31.....		42	152		131		280		50	74	

Combined monthly discharge of Bear River and Pacific Gas & Electric Co.'s power canal near Colfax, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
November.....	240	37	62.2	3,700
December.....	58	15	30.3	1,860
January.....	596	70	160	9,840
February.....	152	52	92.7	5,330
March.....	454	70	138	8,480
April.....	897	69	180	10,700
May.....	614	130	296	18,200
June.....	310	110	181	10,800
July.....	110	47	59.4	3,650
August.....	92	52	62.0	3,810
September.....	312	33	73.4	4,370
The period.....				80,700

PACIFIC GAS & ELECTRIC CO.'S CANAL NEAR COLFAX, CAL.

Location.—750 feet below headgate at diversion dam, in sec. 22, T. 15 N., R. 9 E., about 3 miles north of Colfax.

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

Gage.—Float type in stilling box on right side of flume about 40 feet below spillway.

Discharge measurements.—Made from foot plank across flume at gage.

Cooperation.—Gage-height record and estimates of daily discharge furnished by Pacific Gas & Electric Co., through James H. Wise, assistant general manager.

Discharge measurements of Pacific Gas & Electric Co.'s power canal near Colfax, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Sept. 28	F. C. Ebert.....	<i>Feet.</i> 2.87	<i>Sec.ft.</i> 46.0
1912. May 2	Lasley Lee.....	2.42	37.4
Sept. 11 ^a	J. E. Stewart.....	2.91	51.4

^a No water flowing over dam. About one-half second-foot leaking between gates and gage.

NOTE.—All measurements made from plank over flume at gage.

Daily gage height, in feet, of Pacific Gas & Electric Co.'s power canal near Colfax, Cal., for 1912.

[J. H. Chubb, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.19	2.00	2.17	2.12	2.20	3.00	3.00	3.00	3.02
2.....	2.20	1.95	2.16	2.10	2.30	3.00	3.00	3.00	3.00
3.....	2.19	2.00	2.17	2.11	2.35	3.00	3.00	3.03	3.03
4.....	2.17	2.10	2.18	2.12	2.40	3.00	3.00	3.03	3.03
5.....	2.20	2.10	2.17	2.10	2.45	3.00	3.00	3.03	3.03
6.....	2.20	2.15	2.10	2.11	2.70	3.00	3.00	3.03	3.03
7.....	2.20	2.16	2.10	2.12	2.80	3.00	3.00	3.03	2.70
8.....	2.19	2.16	2.10	2.11	2.85	3.00	3.00	3.03	3.03
9.....	2.20	2.15	2.11	2.12	2.95	3.00	3.00	3.03	3.03
10.....	2.17	2.17	2.10	3.00	3.00	3.00	3.03	3.03
11.....	2.10	2.17	2.10	3.00	3.00	3.00	3.03	2.80
12.....	2.15	2.17	2.12	3.00	3.00	3.00	3.03	2.70
13.....	2.12	2.16	2.12	3.00	3.00	3.00	3.03	2.98
14.....	2.14	2.15	2.11	3.00	3.00	3.00	3.03	2.81
15.....	2.15	2.17	2.10	3.00	3.00	3.00	3.03	2.60
16.....	2.18	2.16	2.12	3.00	3.00	3.00	3.03	2.72
17.....	2.17	2.15	2.12	3.00	3.00	3.00	3.03	2.55
18.....	2.16	2.17	2.11	3.00	3.00	3.00	3.03	2.41
19.....	2.10	2.16	2.12	3.00	3.00	3.00	3.03	2.40
20.....	2.18	2.17	2.10	2.11	3.00	3.00	3.00	3.03	2.32
21.....	2.15	2.17	2.11	2.12	2.60	3.00	3.00	3.03	2.27
22.....	2.16	2.16	2.10	2.10	2.70	3.00	3.00	3.03	2.28
23.....	2.12	2.15	2.11	2.12	2.80	3.00	3.00	3.03	2.30
24.....	2.15	2.17	2.12	2.12	2.70	3.00	3.00	3.03	2.32
25.....	2.14	2.16	2.11	2.12	2.80	3.00	3.00	3.02	2.30
26.....	1.50	2.16	2.10	2.12	2.70	3.00	3.00	3.02	2.34
27.....	1.90	2.17	2.10	2.12	2.85	3.00	3.00	3.02	2.33
28.....	1.95	2.17	2.12	2.20	3.00	3.00	3.00	3.02	2.32
29.....	2.05	2.16	2.11	2.20	3.00	3.00	2.85	3.04	2.30
30.....	2.07	2.10	2.12	3.00	3.00	2.90	3.03	2.30
31.....	2.00	2.12	3.00	3.00	3.04

NOTE.—Mar. 10-19 canal being cleaned and no water flowing.

Daily discharge, in second-feet, of Pacific Gas & Electric Co.'s canal near Colfax, Cal., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	30.9	26.5	30.4	29.3	31.1	50.5	50.5	50.5	51.7
2.....	31.1	25.4	30.2	28.8	33.5	50.5	50.5	50.5	50.5
3.....	30.9	26.5	30.4	29.1	34.7	50.5	50.5	52	52
4.....	30.4	28.8	30.7	29.3	35.8	50.5	50.5	52	52
5.....	31.1	28.8	30.4	28.8	37.0	50.5	50.5	52	52
6.....	31.1	30.0	28.8	29.1	42.9	50.5	50.5	52	52
7.....	31.1	30.2	28.8	29.3	45.5	50.5	50.5	52	43
8.....	30.9	30.2	28.8	29.1	46.4	50.5	50.5	52	52
9.....	31.1	30.0	29.1	29.3	49.1	50.5	50.5	52	52
10.....	30.4	30.4	28.8	50.5	50.5	50.5	52	52
11.....	28.8	30.4	28.8	50.5	50.5	50.5	52	45.5
12.....	30.0	30.4	29.3	50.5	50.5	50.5	52	43
13.....	29.3	30.2	29.3	50.5	50.5	50.5	52	50.5
14.....	27.7	30.0	29.1	50.5	50.5	50.5	52	45.7
15.....	30.0	30.4	28.8	50.5	50.5	50.5	52	40.5
16.....	30.7	30.2	29.3	50.5	50.5	50.5	52	43.3
17.....	30.4	30.0	29.3	50.5	50.5	50.5	52	39.2
18.....	30.2	30.4	29.1	50.5	50.5	50.5	52	36
19.....	28.8	30.2	29.3	50.5	50.5	50.5	52	35.7
20.....	30.7	30.4	28.8	29.1	50.5	50.5	50.5	52	34
21.....	30.0	30.4	29.1	29.3	40.5	50.5	50.5	52	32.7
22.....	30.2	30.2	28.8	28.8	42.9	50.5	50.5	52	33
23.....	29.3	30.0	29.1	29.3	45.5	50.5	50.5	52	33.5
24.....	30.0	30.4	29.3	29.3	42.9	50.5	50.5	52	34
25.....	29.7	30.2	29.1	29.3	45.5	50.5	50.5	51.7	33.5
26.....	16.0	30.2	28.8	29.3	42.9	50.5	50.5	51.7	34.4
27.....	24.3	30.4	28.8	29.3	46.4	50.5	50.5	51.7	34.2
28.....	25.4	30.4	29.3	31.1	50.5	50.5	50.5	51.7	34
29.....	27.7	30.2	29.1	31.1	50.5	50.5	47.0	52.3	33.5
30.....	28.1	28.8	29.3	50.5	50.5	48.2	52	33.5
31.....	26.5	29.3	50.5	50.5	52.3

Monthly discharge of Pacific Gas & Electric Co.'s power canal near Colfax, Cal., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
January.....	31.1	16.0	29.1	1,790
February.....	30.4	25.4	29.7	1,710
March.....	30.7	0	19.9	1,220
April.....	31.1	28.8	29.3	1,740
May.....	50.5	31.1	45.8	2,820
June.....	50.5	50.5	50.5	3,000
July.....	50.5	47.0	50.3	3,090
August.....	52.3	50.5	51.9	3,190
September.....	52	32.7	42.0	2,500
The period.....	21,100

BEAR RIVER AT VAN TRENT, CAL.

Location.—Below highway bridge at McCourtney crossing, in the SE. $\frac{1}{4}$ sec. 21, T. 14 N., R. 6 E., 1 mile below Van Trent and 8 miles above Wheatland.

Records available.—October 8, 1904, to September 30, 1912.

Drainage area.—263 square miles.

Gage.—Staff in five sections on left bank 500 feet below bridge.

Channel.—Solid rock, boulders, and gravel. Shifts slightly at high water.

Discharge measurements.—In November, 1909, the car and cable were removed; since this date measurements have been made only by wading.

¹ Known formerly as "above Wheatland."

Diversions and storage.—Water is diverted above station for power and irrigation.

A small amount of storage is developed on the headwaters of this stream. Some stored water from South Fork of Yuba River is diverted into this drainage above the Colfax station.

Accuracy.—Results are good at medium and low stages. Estimates for high water are approximate, as rating curve is not well defined.

Discharge measurements of Bear River at Van Trent, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 4	J. E. Stewart.....	<i>Feet.</i> 1.11	<i>Sec.-ft.</i> 40
1912. July 13	Lasley Lee.....	.78	7.4

NOTE.—Made by wading 200 feet above gage.

Daily gage height, in feet, of Bear River at Van Trent, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.1	1.2	1.2	1.4	2.0	1.3	1.9	3.3	2.0	1.0	0.9	0.9
2.....	1.1	1.1	1.2	1.5	1.9	1.3	1.9	3.9	2.0	1.0	.95	.9
3.....	1.1	1.0	1.1	1.3	1.9	1.3	1.9	3.2	1.9	1.0	.95	.95
4.....	1.1	1.0	1.1	1.2	1.9	1.3	1.9	2.9	1.9	1.0	.95	1.1
5.....	1.1	1.3	1.0	1.1	1.8	1.5	1.9	2.8	1.9	1.0	1.0	1.0
6.....	1.3	1.3	1.1	1.2	1.7	3.9	1.8	2.6	1.7	.9	.95	1.0
7.....	1.3	1.2	1.1	1.2	1.7	3.5	1.8	2.5	1.6	1.0	.9	1.9
8.....	1.2	1.1	1.0	1.7	1.8	2.7	1.8	2.6	1.5	1.0	.9	1.4
9.....	1.1	1.0	1.0	1.7	1.7	2.4	2.0	2.4	1.4	1.0	.9	1.2
10.....	1.3	1.85	1.0	2.8	1.7	2.3	2.3	2.3	1.4	.9	.85	1.1
11.....	1.3	1.8	1.0	2.6	1.6	2.2	2.8	2.2	1.4	.9	.85	1.0
12.....	1.3	1.3	1.0	2.3	1.5	2.2	2.5	2.1	1.4	.9	.95	1.0
13.....	1.3	1.3	1.0	1.9	1.5	2.9	2.4	2.1	1.8	1.0	.9	1.0
14.....	1.2	1.1	1.0	1.8	1.6	2.8	2.3	2.1	1.7	1.0	.9	1.0
15.....	1.2	1.1	1.0	1.7	1.6	2.5	2.2	2.0	1.5	1.0	.9	.95
16.....	1.1	1.8	.9	1.7	1.5	3.4	2.1	2.0	1.4	.9	.85	.95
17.....	1.1	1.6	.9	2.3	1.5	2.8	2.1	1.9	1.3	.9	.85	.95
18.....	1.0	1.5	1.1	1.9	1.5	2.6	2.1	1.9	1.2	.85	.85	.9
19.....	1.0	1.4	1.1	2.0	1.5	2.5	2.1	1.9	1.1	.85	1.0	.9
20.....	1.0	1.3	1.0	2.1	1.6	2.4	2.0	2.0	1.1	.8	.95	.9
21.....	.9	1.3	1.0	1.9	1.5	2.3	2.0	2.7	1.1	.95	.85	.9
22.....	.9	1.2	.9	1.6	1.5	2.1	2.0	2.6	1.1	1.0	.85	.9
23.....	1.0	1.3	.9	1.6	1.5	2.0	2.0	2.5	1.1	.9	.9	.95
24.....	1.0	1.2	.9	1.6	1.5	2.0	2.0	2.3	1.3	.95	.9	.9
25.....	1.2	1.1	.9	1.5	1.5	2.0	2.2	2.3	1.2	.9	.9	.85
26.....	1.1	1.1	1.0	3.7	1.4	2.0	2.2	2.6	1.1	.9	.95	.8
27.....	1.3	1.1	1.0	3.8	1.4	2.0	2.4	2.5	1.1	.85	.9	.8
28.....	1.5	1.1	1.0	2.7	1.4	2.0	2.2	2.3	1.0	.85	.9	.85
29.....	1.4	1.1	1.1	2.3	1.4	2.0	2.95	2.2	1.0	1.0	.85	.9
30.....	1.3	1.2	1.1	2.1	2.0	4.3	2.5	1.0	.95	.85	.95
31.....	1.2	1.2	2.0	1.9	2.285	.85

Daily discharge, in second-feet, of Bear River at Van Trent, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	42	53	53	81	201	66	178	584	173	19	13	13
2.	42	42	53	97	178	66	178	835	173	19	16	13
3.	42	32	42	66	178	66	178	545	151	19	16	16
4.	42	32	42	53	156	66	178	434	151	19	16	27
5.	42	66	32	42	156	97	178	400	151	19	19	19
6.	66	66	42	53	135	835	156	335	112	13	16	19
7.	66	53	42	53	135	670	156	305	94	19	13	151
8.	53	42	32	135	156	390	156	335	77	19	13	62
9.	42	32	32	135	135	303	201	276	62	19	13	37
10.	66	167	32	420	135	276	276	248	62	13	10	27
11.	66	156	32	361	115	250	490	222	62	13	10	19
12.	66	66	32	276	97	250	332	197	62	13	16	19
13.	66	66	32	178	97	452	303	197	131	19	13	19
14.	53	42	32	156	115	420	276	197	112	19	13	19
15.	53	42	32	135	115	332	250	173	77	19	13	16
16.	42	156	23	135	97	632	225	173	62	13	10	16
17.	42	115	23	276	97	420	225	151	49	13	10	16
18.	32	97	42	178	97	361	225	151	37	10	10	13
19.	32	81	42	201	97	332	225	151	27	10	19	13
20.	32	66	32	225	115	303	201	173	27	8	16	13
21.	23	66	32	178	97	276	201	367	27	16	10	13
22.	23	53	23	115	97	225	201	335	27	19	10	13
23.	32	66	23	115	97	201	201	305	27	13	13	16
24.	32	53	23	115	97	201	201	248	49	16	13	13
25.	53	42	23	97	97	201	250	248	37	13	13	10
26.	42	42	32	749	81	201	250	335	27	13	16	8
27.	66	42	32	791	81	201	303	305	27	10	13	8
28.	97	42	32	390	81	201	250	248	19	10	13	10
29.	81	42	42	276	81	201	469	222	19	19	10	13
30.	66	53	42	225	201	1,020	305	19	16	10	10	16
31.	53	-----	53	201	-----	178	-----	222	-----	10	10	-----

NOTE.—Daily discharge determined from two rating curves fairly well defined below 2,000 second-feet and not defined at all above that discharge, applicable 1911 to Apr. 30, 1912, and May 1 to Sept. 30, 1912. Estimates for May and June supersede those published in Water-Supply Paper 298, p. 298.

Monthly discharge of Bear River at Van Trent, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	97	23	50.2	3,090	C.
November.....	167	32	65.8	3,920	C.
December.....	53	23	34.9	2,150	C.
January.....	791	42	210	12,900	C.
February.....	201	81	118	6,790	C.
March.....	835	66	286	17,600	C.
April.....	1,020	156	262	15,600	C.
May.....	835	151	297	18,300	C.
June.....	173	19	71.0	4,220	B.
July.....	19	8	15.2	935	B.
August.....	19	10	13.1	806	B.
September.....	151	8	22.2	1,320	B.
The year.....	1,020	8	121	87,600	

NOTE.—Monthly value for May and June supersede those published in Water-Supply Paper 298, p. 300.

AMERICAN RIVER AND TRIBUTARIES.

NORTH FORK OF AMERICAN RIVER NEAR COLFAX, CAL.

Location.—At bridge on Colfax and Forest Hill road, in the SW. $\frac{1}{4}$ sec. 19, T. 14 N., R. 10 E., 150 feet below mouth of Shirttail Canyon Creek, 11 miles above junction with the Middle Fork, and 5 miles southeast of Colfax.

Records available.—August 16, 1911, to August 31, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in three sections on right bank, about 50 feet below bridge.

Channel.—Gravel and small bowlders, tailings from placer mining; will probably shift during high water.

Discharge measurements.—Made from bridge or by wading.

Diversions.—A small ditch on the headwaters of the North Fork of the North Fork diverts water above the station.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of North Fork of American River near Colfax, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 10	Lasley Lee.....	3.10	75	May 3	Lasley Lee.....	5.12	1,090
1912.				20	J. E. Stewart.....	5.46	1,360
Jan. 26	J. E. Stewart.....	4.61	779	Sept. 11do.....	3.13	79
Mar. 26	Lasley Lee.....	3.92	370				

NOTE.—Measurements Jan. 26, May 3 and 20, 1912, made from bridge; all others made by wading.

Daily gage height, in feet, of North Fork of American River near Colfax, Cal., for 1911-12.

[C. J. McDonald, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	3.25	3.10	3.18	3.10	3.58	3.30	4.1	-----	5.6	3.62	3.10
2.....	3.25	3.10	3.18	3.10	3.58	3.30	4.3	-----	5.6	3.61	3.10
3.....	3.25	3.10	3.15	3.10	3.52	3.30	4.45	5.1	5.7	3.58	3.10
4.....	3.25	3.10	3.18	3.10	3.52	3.38	4.4	5.3	5.6	3.54	3.10
5.....	3.25	3.10	3.15	3.10	3.48	3.70	4.3	5.1	5.5	3.51	3.10
6.....	3.25	3.10	3.18	3.10	3.48	4.8	4.3	5.0	5.2	3.51	3.13
7.....	3.25	3.10	3.15	3.10	3.48	4.4	4.5	5.4	5.2	3.51	3.10
8.....	3.25	3.10	3.15	3.10	3.48	4.05	4.55	5.6	5.0	3.40	3.10
9.....	3.28	3.10	3.18	3.10	3.48	3.95	4.7	5.6	5.0	3.41	3.10
10.....	3.25	3.75	3.10	3.75	3.48	3.85	4.65	5.6	4.7	3.40	3.10
11.....	3.22	3.75	3.10	3.88	3.48	3.75	4.4	5.6	4.7	3.39	3.10
12.....	3.25	3.20	3.10	3.48	3.48	3.82	4.3	5.7	4.75	3.36	3.10
13.....	3.18	3.22	3.10	3.45	3.40	3.85	4.15	5.6	5.1	3.38	3.10
14.....	3.18	3.15	3.10	3.42	3.40	3.85	4.2	5.6	4.65	3.38	3.10
15.....	3.05	3.22	3.10	3.50	3.40	4.15	4.3	5.6	4.5	3.35	3.10
16.....	3.10	3.35	3.10	3.75	3.40	4.20	4.15	5.6	4.2	3.30	3.10
17.....	3.10	3.20	3.15	3.72	3.48	3.95	4.15	5.6	4.2	3.28	3.10
18.....	3.12	3.20	3.10	3.75	3.85	3.98	4.4	5.5	4.1	3.28	3.10
19.....	3.12	3.18	3.10	3.48	3.85	4.0	4.2	5.5	4.1	3.29	3.09
20.....	3.15	3.18	3.15	3.48	3.55	3.98	4.15	5.6	4.1	3.26	3.06
21.....	3.15	3.18	3.10	3.42	3.50	3.95	4.15	5.2	3.89	3.26	3.05
22.....	3.12	3.18	3.10	3.40	3.48	3.88	4.1	4.95	3.85	3.25	3.02
23.....	3.12	3.18	3.12	3.40	3.42	3.90	3.98	4.9	3.96	3.25	3.01
24.....	3.12	3.18	3.10	3.32	3.40	3.98	4.3	5.0	3.8	3.22	3.00
25.....	3.10	3.18	3.10	3.32	3.40	3.95	4.25	4.7	3.78	3.20	3.00
26.....	3.10	3.12	3.10	4.5	3.40	3.98	4.5	6.0	3.72	3.18	3.00
27.....	3.10	3.12	3.10	4.1	3.38	4.1	4.5	5.4	3.71	3.15	3.00
28.....	3.10	3.12	3.18	3.68	3.30	4.15	4.5	5.8	3.68	3.12	3.00
29.....	3.10	3.18	3.15	3.62	3.30	4.3	5.65	5.7	3.64	3.12	3.00
30.....	3.10	3.18	3.15	3.62	-----	4.3	5.4	5.8	3.60	3.12	3.00
31.....	3.30	-----	3.15	3.52	-----	4.05	-----	5.5	-----	3.12	3.00

NOTE.—No record for September, 1912.

Daily discharge, in second-feet, of North Fork of American River near Colfax, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	114	77	95	77	222	127	465	1,230	1,420	237	77
2.....	114	77	95	77	222	127	575	1,160	1,460	233	77
3.....	114	77	88	77	199	127	665	1,090	1,530	222	77
4.....	114	77	95	77	199	152	635	1,230	1,460	207	77
5.....	114	77	88	77	185	269	788	1,090	1,380	196	77
6.....	114	77	95	77	185	885	575	1,020	1,160	196	77
7.....	114	77	88	77	185	635	695	1,300	1,160	196	77
8.....	114	77	88	77	185	438	725	1,460	1,020	158	77
9.....	122	77	95	77	185	384	820	1,460	1,020	161	77
10.....	114	290	77	290	185	336	788	1,460	820	158	77
11.....	105	290	77	350	185	290	635	1,460	820	155	77
12.....	114	100	77	185	185	321	575	1,530	852	146	77
13.....	95	105	77	175	158	336	492	1,460	1,090	152	77
14.....	95	88	77	165	158	336	520	1,460	788	152	77
15.....	68	105	77	192	158	492	575	1,460	695	142	77
16.....	77	142	77	290	158	520	492	1,460	520	127	77
17.....	77	100	88	278	185	384	492	1,460	520	122	77
18.....	82	100	77	290	336	400	635	1,380	465	122	77
19.....	82	95	77	185	336	410	520	1,380	465	124	75
20.....	88	95	88	185	210	400	492	1,460	465	116	69
21.....	88	95	77	165	192	384	492	1,160	354	116	68
22.....	82	95	77	158	185	350	465	985	336	114	62
23.....	82	95	82	158	165	359	400	950	390	114	60
24.....	82	95	77	133	158	400	575	1,020	312	105	58
25.....	77	95	77	133	158	384	548	820	303	100	58
26.....	77	82	77	695	158	400	695	1,760	278	95	58
27.....	77	82	77	465	152	465	695	1,300	273	88	58
28.....	77	82	95	261	127	492	695	1,600	261	82	58
29.....	77	95	88	237	127	575	1,490	1,530	245	82	58
30.....	77	95	88	237	575	1,300	1,600	229	82	58
31.....	127	88	199	438	1,380	82	58

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated May 1-2 and June 1.

Monthly discharge of North Fork of American River near Colfax, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	127	68	95.3	5,860	A.
November.....	290	77	104	6,190	A.
December.....	95	77	83.8	5,150	A.
January.....	695	77	197	12,100	A.
February.....	336	127	188	10,830	A.
March.....	885	127	393	24,200	A.
April.....	1,490	400	643	38,300	A.
May.....	1,760	820	1,330	81,800	A.
June.....	1,530	229	736	43,800	A.
July.....	237	82	141	8,670	A.
August.....	77	58	70.5	4,330	A.
The period.....	241,000	

AMERICAN RIVER AT FAIROAKS, CAL.

Location.—At highway bridge, 1,500 feet northwest of Southern Pacific Co.'s railroad station at Fair Oaks Bridge and half a mile southeast of Fair Oaks.

Records available.—November 3, 1904, to September 30, 1912.

Drainage area.—1,910 square miles.

Gage.—Painted on right abutment of bridge near downstream end, with a vertical staff for low water. The position of the gage has been changed several times since the station was established, but no change has been made in its datum.

Channel.—Gravel and small bowlders; shifts slightly at high water.

Discharge measurements.—Made from downstream side of bridge and by wading.

Diversions.—Water is diverted and stored for power and irrigation above the station.

Accuracy.—Readings made by a new observer October 1 to December 31, 1911, are about 2 feet too high as compared with gage heights at Folsom and estimates of discharge at Placerville, Colfax, and East Auburn, and accordingly are not published. The rating curves developed for 1911 and 1912 are good. The mean discharge October, November, and December, 1911, is the combined discharge of North Fork of American River near Colfax, Middle Fork of American River near East Auburn, and South Fork of American River near Placerville, plus an assumed inflow of 20 to 30 second-feet.

Discharge measurements of American River at Fair Oaks, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 3	J. E. Stewart.....	2.58	361	June 9	Lasley Lee.....	5.75	6,100
				July 12do.....	3.11	802
1912.				Sept. 6	J. E. Stewart.....	2.43	384
Jan. 22	J. E. Stewart.....	3.26	768	21do.....	2.16	237
Mar. 30	Lasley Lee.....	4.26	2,290				

NOTE.—Measurements Oct. 3, 1911, Sept. 6 and 21, 1912, made by wading; others made from bridge.

Daily gage height, in feet, of American River at Fair Oaks, Cal., for 1912.

[O. C. Clark, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.0	3.3	3.25	4.0	5.7	7.0	3.6	2.5	1.6
2.....	3.0	3.3	3.35	4.1	5.9	7.8	3.55	2.4	1.6
3.....	2.80	3.15	3.35	4.4	5.6	7.2	3.5	2.4	1.6
4.....	2.80	3.1	3.25	4.6	5.4	7.6	3.5	2.4	1.6
5.....	2.60	3.0	3.5	4.6	5.4	7.4	3.6	2.4	1.8
6.....	2.90	3.0	4.5	4.5	5.4	6.8	3.55	2.4	2.3
7.....	3.0	3.15	5.3	4.5	5.5	6.1	3.5	2.2	3.2
8.....	3.0	3.15	4.4	4.8	6.0	6.0	3.4	2.0	3.7
9.....	3.4	3.1	4.2	4.8	6.3	5.6	3.2	2.0	3.3
10.....	3.6	3.0	4.5	5.0	6.2	5.6	3.2	2.0	3.0
11.....	4.0	3.0	4.0	4.9	6.5	5.5	3.3	2.0	2.7
12.....	4.6	3.0	4.1	4.7	7.1	5.6	3.15	2.0	2.5
13.....	3.8	3.0	4.0	4.6	6.6	6.7	3.05	2.0	2.3
14.....	4.0	3.0	4.2	4.5	6.4	5.5	3.0	2.0	2.1
15.....	3.6	3.0	4.4	4.6	6.5	5.2	3.0	2.0	2.2
16.....	3.6	3.0	4.2	4.4	6.8	5.0	3.0	2.0	2.4
17.....	3.4	3.0	4.1	4.5	6.4	5.0	3.2	2.0	2.45
18.....	3.0	3.15	4.0	4.4	6.6	4.6	3.2	2.0	2.0
19.....	3.0	3.45	4.0	4.2	7.4	4.5	3.3	2.0	2.0
20.....	3.0	3.6	3.95	4.0	7.2	4.5	3.15	2.0	2.0
21.....	3.5	3.55	4.0	4.0	6.4	4.4	3.0	2.0	2.0
22.....	3.25	3.5	3.95	4.0	5.9	4.0	3.0	2.0	2.0
23.....	3.2	3.4	3.8	4.0	5.6	4.0	3.0	1.9	2.0
24.....	3.15	3.3	3.9	4.2	5.6	4.1	2.8	1.8	2.0
25.....	3.1	3.2	3.8	4.5	5.7	4.0	2.8	1.8	2.0
26.....	3.65	3.3	3.85	4.6	6.6	4.0	2.6	1.6	2.0
27.....	4.9	3.25	3.9	4.6	6.8	4.0	2.5	1.6	2.0
28.....	4.0	3.0	4.0	4.4	6.5	3.8	2.5	1.6	2.0
29.....	3.8	3.0	4.2	5.2	6.6	3.8	2.5	1.6	2.0
30.....	3.55	4.2	6.5	6.8	3.8	2.5	1.6	2.0
31.....	3.35	4.2	6.6	2.5	1.6

Daily discharge, in second-feet, of American River at Fair Oaks, Cal., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	640	910	860	1,840	5,430	8,800	1,310	400	100
2.....	640	910	965	2,010	5,910	11,300	1,250	350	100
3.....	495	765	965	2,560	5,190	9,400	1,190	350	100
4.....	495	720	860	2,940	4,720	10,600	1,190	350	100
5.....	370	640	1,140	2,940	4,720	10,000	1,310	350	145
6.....	565	640	2,740	2,740	4,720	8,210	1,250	350	305
7.....	640	765	4,490	2,740	4,950	6,400	1,190	265	890
8.....	640	765	2,560	3,350	6,150	6,150	1,080	200	1,430
9.....	1,020	720	2,190	3,350	6,900	5,190	890	200	980
10.....	1,260	640	2,740	3,800	6,650	5,190	890	200	725
11.....	1,840	640	1,840	3,570	7,400	4,950	980	200	515
12.....	2,940	640	2,010	3,140	9,100	5,190	848	200	400
13.....	1,530	640	1,840	2,940	7,660	7,930	765	200	305
14.....	1,840	640	2,190	2,740	7,150	4,950	725	200	230
15.....	1,260	640	2,560	2,940	7,400	4,260	725	200	265
16.....	1,260	640	2,190	2,560	8,210	3,800	725	200	350
17.....	1,020	640	2,010	2,740	7,150	3,800	890	200	375
18.....	640	765	1,840	2,560	7,660	2,940	890	200	200
19.....	640	1,080	1,840	2,190	10,000	2,740	980	200	200
20.....	640	1,260	1,760	1,840	9,400	2,740	848	200	200
21.....	1,140	1,200	1,840	1,840	7,150	2,560	725	200	200
22.....	860	1,140	1,760	1,840	5,910	1,850	725	200	200
23.....	810	1,020	1,530	1,840	5,190	1,850	725	170	200
24.....	765	910	1,680	2,190	5,190	2,010	580	145	200
25.....	720	810	1,530	2,740	5,430	1,850	580	145	200
26.....	1,320	910	1,600	2,940	7,660	1,850	455	100	200
27.....	3,570	860	1,680	2,940	8,210	1,850	400	100	200
28.....	1,840	640	1,840	2,560	7,400	1,560	400	100	200
29.....	1,530	640	2,190	4,260	7,660	1,560	400	100	200
30.....	1,200	-----	2,190	7,400	8,210	1,560	400	100	200
31.....	965	-----	2,190	-----	7,660	-----	400	100	-----

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable Jan. 1 to June 2 and June 3 to Sept. 30, 1912. Discharge values supersede those published in Water-Supply Paper 298, p. 312.

Monthly discharge of American River at Fair Oaks, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	-----	-----	350	21,500	C.
November.....	-----	-----	430	25,600	C.
December.....	-----	-----	400	24,600	C.
January.....	3,570	370	1,130	69,500	B.
February.....	1,260	640	800	46,000	B.
March.....	4,490	860	1,920	118,000	B.
April.....	7,400	1,840	2,870	171,000	B.
May.....	10,000	4,720	6,840	421,000	B.
June.....	11,300	1,560	4,770	284,000	B.
July.....	1,310	400	830	51,000	B.
August.....	400	100	209	12,900	C.
September.....	1,430	100	330	19,600	C.
The year.....	11,300	-----	1,740	1,260,000	-----

NOTE.—Mean discharge October, November, and December, 1911, is the combined discharge (preliminary estimates) of North Fork of American River near Colfax, Middle Fork of American River near East Auburn, and South Fork of American River near Placerville, plus an assumed inflow of from 20 to 30 second-feet. Values January to June supersede those published in Water-Supply Paper 298, p. 314.

MIDDLE FORK OF AMERICAN RIVER NEAR EAST AUBURN, CAL.

Location.—At Mountain Quarry Co.'s plant, about $1\frac{1}{2}$ miles above the junction with North Fork of American River and $3\frac{1}{2}$ miles northeast of Auburn, in SE. $\frac{1}{4}$ sec. 6, T. 12 N., R. 9 E.

Records available.—October 22, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in two sections on left bank at pump house.

Channel.—Gravel and small boulders; will probably shift at high stages.

Discharge measurements.—Made from car and cable 300 feet below gage, or by wading.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of Middle Fork of American River near East Auburn, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 19 ^a	J. E. Stewart.....	1.60	105	Mar. 25 ^b	Lasley Lee.....	3.10	640
Dec. 11 ^a	F. C. Ebert.....	1.88	161	May 2 ^bdo.....	5.21	2,410
				June 5 ^bdo.....	6.42	3,910
1912.				Sept. 10 ^b	J. E. Stewart.....	2.12	219
Jan. 25 ^a	J. E. Stewart.....	2.21	220				
27 ^bdo.....	3.48	888				

^a Wading.

^b Cable.

Daily gage height, in feet, of Middle Fork of American River near East Auburn, Cal., for 1911-12.

[Wm. B. Arndt and H. M. Power, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.
1.....		1.7	1.7	2.6	2.1	3.6	5.4	6.9	3.0	1.8
2.....		1.7	1.7	1.9	2.6	2.1	3.6	5.2	7.0	3.0	1.8
3.....		1.7	1.7	1.9	2.6	2.1	3.9	5.2	6.4	2.8	1.8
4.....		1.7	1.7	1.9	2.4	2.2	3.8	5.1	6.8	2.7	1.7	2.6
5.....		1.7	1.7	1.9	2.4	3.6	3.6	5.0	6.6	2.7	1.7	2.5
6.....		1.7	1.7	1.9	2.4	4.8	3.5	5.1	5.9	2.6	1.7	2.3
7.....		1.7	1.9	2.0	2.4	3.7	3.7	6.3	5.9	2.6	1.7	2.1
8.....		1.7	2.0	2.1	2.4	3.4	3.7	6.3	5.4	2.6	1.7	1.9
9.....		1.7	1.9	2.3	2.3	3.4	4.4	6.4	5.3	2.6	1.7	1.9
10.....		2.4	1.9	2.4	2.3	3.2	4.3	6.8	5.3	2.5	1.6	1.9
11.....		2.3	1.9	2.3	2.3	3.2	3.9	6.4	5.0	2.5	1.6	1.9
12.....		2.0	1.8	2.2	2.3	3.2	3.8	7.0	5.0	2.4	1.6	1.9
13.....		1.9	1.8	2.1	2.3	3.3	3.6	6.9	4.8	2.4	1.5	1.8
14.....		1.9	1.8	2.2	2.3	3.4	3.4	7.0	4.6	2.4	1.5	1.8
15.....		1.9	1.8	2.2	2.3	3.4	3.4	6.8	4.4	2.4	1.5	1.8
16.....		2.0	1.8	2.7	2.3	3.4	3.4	6.8	4.0	2.4	1.5	1.8
17.....		2.0	1.9	2.7	2.3	3.3	3.5	7.0	3.9	2.3	1.5	1.8
18.....		1.8	1.9	2.4	2.3	3.3	3.6	7.2	3.7	2.3	1.8
19.....	1.6	1.8	1.9	2.3	2.3	3.3	3.6	7.0	3.7	2.2	1.8
20.....		1.8	1.9	2.3	2.3	3.3	3.5	6.8	3.7	2.2	1.7
21.....		1.8	1.9	2.3	3.2	3.3	3.5	5.2	3.5	2.2	1.7
22.....	1.6	1.7	1.9	2.3	3.1	3.2	3.3	5.2	3.3	2.1	1.6
23.....	1.6	1.7	1.9	2.2	3.0	3.2	3.2	5.4	3.5	2.0	1.6
24.....	1.6	1.7	1.9	2.2	2.7	3.1	3.2	5.9	3.4	2.0	1.6
25.....	1.7	1.7	1.9	2.1	2.6	3.1	3.6	6.0	3.3	2.0	1.6
26.....	1.9	1.7	1.9	3.8	2.5	3.1	3.6	6.8	3.3	2.0	1.6
27.....	1.8	1.7	1.9	3.6	2.4	3.2	3.7	6.8	3.2	1.9	1.6
28.....	1.7	1.7	1.9	3.0	2.3	3.6	3.9	6.9	3.2	1.9	1.6
29.....	1.7	1.7	1.9	2.9	2.2	3.8	4.6	7.2	3.1	1.9	1.6
30.....	1.7	1.7	2.1	2.8	3.6	5.9	7.4	3.1	1.9	1.6
31.....	1.7	2.2	2.7	3.3	6.9	1.8

Daily discharge, in second-feet, of Middle Fork of American River near East Auburn, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.
1		118	118	198	391	203	955	2,620	4,600	590	134	70
2		118	118	193	391	203	955	2,400	4,750	590	134	70
3		118	118	153	391	203	1,170	2,400	3,870	484	134	150
4		118	118	153	307	234	1,100	2,290	4,450	436	118	391
5		118	118	153	307	955	955	2,180	4,150	436	118	348
6		118	118	153	307	1,980	890	2,290	3,210	391	118	269
7		118	153	176	307	1,020	1,020	3,730	3,210	391	118	203
8		118	176	203	307	825	1,020	3,730	2,620	391	118	153
9		118	153	269	269	825	1,590	3,870	2,510	391	118	153
10		307	153	307	269	705	1,500	4,450	2,510	348	105	153
11		269	153	269	269	705	1,170	3,870	2,180	348	105	153
12		176	134	234	269	705	1,100	4,750	2,180	307	105	153
13		153	134	203	269	765	955	4,600	1,980	307	94	134
14		153	134	234	269	825	825	4,750	1,780	307	94	134
15		153	134	234	269	825	825	4,450	1,590	307	94	134
16		176	134	436	269	825	825	4,450	1,240	307	94	134
17		176	153	436	269	765	890	4,750	1,170	269	94	134
18		134	153	307	269	765	955	5,050	1,020	269	92	134
19	105	134	153	269	269	765	955	4,750	1,020	234	90	134
20	105	134	153	269	269	765	890	4,450	1,020	234	88	118
21	105	134	153	269	705	765	890	2,400	890	234	86	118
22	105	118	153	269	645	705	765	2,400	765	203	84	105
23	105	118	153	234	590	705	705	2,620	890	176	82	105
24	105	118	153	234	436	645	705	3,210	825	176	80	105
25	118	118	153	203	391	645	955	3,340	765	176	78	105
26	153	118	153	1,100	348	645	955	4,450	765	176	78	105
27	134	118	153	955	307	705	1,020	4,450	705	153	76	105
28	118	118	153	590	269	955	1,170	4,600	705	153	74	105
29	118	118	153	535	234	1,100	1,780	5,050	645	183	72	105
30	118	118	203	484	955	3,210	5,350	645	153	70	105
31	118	234	436	765	4,600	134	70

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated Oct. 20-21, 1911, and Jan. 1, 1912. Discharge estimated Aug. 18 to Sept. 3, 1912, by comparison of discharge of Rubicon River near Quintette and observer's notes.

Monthly discharge of Middle Fork of American River near East Auburn, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October 19-31.....	153	105	116	2,990	A.
November.....	307	118	141	8,390	A.
December.....	234	118	148	9,100	A.
January.....	1,100	153	326	20,000	A.
February.....	705	234	340	19,600	A.
March.....	1,980	203	757	46,500	A.
April.....	3,210	705	1,090	64,900	A.
May.....	5,350	2,180	3,820	235,000	A.
June.....	4,750	645	1,960	117,000	A.
July.....	590	134	298	18,300	A.
August.....	134	70	97.3	5,980	C.
September.....	391	70	146	8,690	A.
The period.....	556,000

RUBICON RIVER AT RUBICON SPRINGS, CAL.

Location.—In the SE. $\frac{1}{4}$ sec. 31, T. 14 N., R. 16 E., at Rubicon Springs, about three-fourths of a mile above the mouth of Millers Creek.

Records available.—February 1, 1910, to August 31, 1912.

Drainage area.—31.6 square miles.

Gage.—Staff.

29950°—WSR 331-14—21

Channel.—Sand and gravel; fairly permanent.

Discharge measurements.—Made from car and cable.

Winter flow.—Affected by ice.

Accuracy.—Results excellent except for winter months.

Cooperation.—Records of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Rubicon River at Rubicon Springs, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	18	3	6	6	0.5	10	6	31	70	642	120	22
2.....	18	3	6	6	.5	10	6	70	60	722	110	22
3.....	12	3	6	3	1	10	10	90	50	754	110	22
4.....	12	3	6	3	3	10	10	80	80	738	110	22
5.....	12	3	6	3	6	10	22	70	120	626	120	22
6.....	12	3	6	.5	10	10	50	120	140	611	130	22
7.....	6	3	6	.5	10	10	31	150	232	566	110	22
8.....	6	3	6	.5	10	10	31	180	287	422	110	22
9.....	6	3	6	.5	10	10	22	160	364	398	110	22
10.....	6	3	6	.5	10	10	22	110	410	410	110	22
11.....	6	3	10	.5	10	10	16	80	463	410	100	16
12.....	6	3	10	.5	10	10	16	70	449	463	90	16
13.....	6	3	10	.5	10	10	16	50	477	491	110	16
14.....	6	3	6	.5	6	10	10	40	449	353	80	16
15.....	6	3	10	.5	6	10	10	40	566	320	70	16
16.....	3	3	6	.5	6	7	10	40	596	254	80	10
17.....	3	3	6	22	6	20	10	40	581	243	170	6
18.....	3	3	6	22	6	25	10	60	611	298	130	6
19.....	3	3	6	22	8	30	10	50	463	331	100	6
20.....	3	6	6	16	8	25	10	40	309	243	90	6
21.....	3	6	6	10	8	12	10	31	221	180	60	6
22.....	3	6	6	6	8	10	10	31	160	150	60	6
23.....	3	6	6	3	8	10	10	31	180	130	50	6
24.....	3	10	6	3	8	10	16	60	232	110	50	6
25.....	3	16	6	1	8	10	22	50	287	130	50	6
26.....	3	10	16	1	22	10	22	50	265	160	40	3
27.....	3	6	22	1	22	10	60	60	287	180	31	3
28.....	3	6	31	1	22	10	60	100	477	180	22	3
29.....	3	6	31	10	22	10	40	100	551	180	22	3
30.....	3	6	31	16	22	31	70	521	150	22	1
31.....	6	22	22	31	690	22	1

Monthly discharge of Rubicon River at Rubicon Springs, Cal., for 1911-12.

[Drainage area, 31.6 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.
September.....	18	3	6.1	0.193	0.22	363
October.....	16	3	4.7	.149	.17	289
November.....	31	6	10.4	.329	.37	619
December.....	22	.5	5.89	.186	.21	362
January.....	22	.5	9.97	.316	.36	613
February.....	30	7	12.0	.380	.41	690
March.....	60	6	20.6	.652	.75	1,270
April.....	160	31	71.1	2.25	2.51	4,230
May.....	690	50	343	10.9	12.57	21,100
June.....	754	110	362	11.5	12.83	21,500
July.....	170	22	83.5	2.64	3.04	5,130
August.....	22	1	12.2	.386	.44	750
The year.....	754	.5	78.5	2.48	33.88	56,900

NOTE.—Computed by engineers of U. S. Geological Survey.

RUBICON RIVER NEAR QUINTETTE, CAL.

Location.—In the NW. $\frac{1}{4}$ SW. $\frac{1}{4}$ sec. 24, T. 13 N., R. 13 E., about 1 mile below mouth of Little South Fork of Rubicon River, half a mile above trail crossing to Ellicott, and $11\frac{1}{2}$ miles northeast of Quintette.

Records available.—November 21, 1909, to August 31, 1912.

Drainage area.—198 square miles.

Channel.—In solid rock.

Discharge measurements.—Made from car and cable.

Accuracy.—Results excellent.

Cooperation.—Records of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Rubicon River near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	54	21	21	54	99	110	126	384	780	1,900	310	95
2.....	54	21	21	42	95	95	126	495	610	1,900	310	95
3.....	54	21	21	42	91	95	126	530	610	2,050	310	81
4.....	42	28	15	42	88	95	126	570	650	2,050	310	56
5.....	42	28	15	42	84	95	220	462	825	2,050	310	56
6.....	42	28	15	130	81	95	334	570	970	2,125	310	56
7.....	42	28	15	113	9	95	220	735	1,490	1,975	310	56
8.....	42	28	15	95	9	95	220	780	1,620	2,050	310	45
9.....	34	28	21	68	9	95	200	870	1,830	1,900	310	45
10.....	34	28	97	56	20	95	180	735	1,975	1,130	310	45
11.....	27	28	42	56	27	95	180	530	2,125	870	310	45
12.....	27	28	35	56	20	95	180	435	2,200	870	286	45
13.....	27	28	35	45	20	95	180	384	2,125	920	241	45
14.....	27	28	35	45	20	95	180	384	2,050	920	241	35
15.....	27	28	42	27	27	95	161	384	2,125	970	241	35
16.....	27	21	42	35	35	95	161	435	2,370	780	241	35
17.....	20	15	42	27	45	110	180	435	2,370	462	263	27
18.....	20	15	42	27	56	241	240	462	2,370	462	263	27
19.....	20	15	42	20	68	241	240	409	2,200	435	263	27
20.....	15	15	42	20	68	200	260	359	1,755	435	241	27
21.....	15	15	42	15	81	180	260	334	1,310	435	200	27
22.....	15	15	42	20	81	143	260	310	1,130	384	200	27
23.....	15	15	35	15	81	143	260	310	1,185	334	200	27
24.....	15	15	35	9	81	126	290	435	1,490	435	161	27
25.....	15	21	35	9	81	110	340	462	1,830	530	126	27
26.....	15	21	35	9	180	110	340	495	1,830	530	110	27
27.....	15	28	35	9	126	110	450	462	1,755	530	110	15
28.....	15	28	42	12	110	95	490	610	2,125	460	110	15
29.....	15	28	54	12	110	110	570	870	2,370	410	110	15
30.....	15	21	54	15	110	460	735	2,370	360	110	12
31.....	21	15	95	384	2,280	95	12

Monthly discharge of Rubicon River near Quintette, Cal., for 1911-12.

[Drainage area, 198 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.
September.....	66.2	22	37.7	0.190	0.21	2,240
October.....	38.7	22.7	32.4	.164	.19	1,990
November.....	111	26.6	46.1	.233	.26	2,740
December.....	130	9	38.1	.192	.22	2,340
January.....	180	9	68.0	.343	.40	4,180
February.....	241	95	119	.601	.65	6,840
March.....	570	126	256	1.29	1.49	15,700
April.....	870	310	512	2.59	2.89	30,500
May.....	2,370	610	1,700	8.59	9.90	105,000
June.....	2,120	334	1,020	5.15	5.75	60,700
July.....	322	114	247	1.25	1.44	15,200
August.....	114	30.9	57.2	.289	.33	3,520
The year.....	2,370	9	345	1.74	23.73	251,000

NOTE.—This table includes the flow of Little South Fork ditch, thus giving the natural run-off from the drainage area. Computed by United States Geological Survey.

LITTLE SOUTH FORK OF RUBICON RIVER AT SAWMILL NEAR QUINTETTE, CAL.

Location.—In the NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 24, T. 13 N., R. 14 E., at South Fork sawmill, about half a mile above the mouth of Gerle Creek and 15 miles northeast of Quintette.

Records available.—February 1, 1910, to August 31, 1912.

Drainage area.—16.6 square miles.

Gage.—Staff.

Channel.—Compact gravel.

Discharge measurements.—Made from car and cable.

Winter flow.—Affected by ice.

Accuracy.—Results excellent except for winter months.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Little South Fork of Rubicon River at sawmill near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	2	1	2	9	5	9	9	37	61	205	15	2
2.....	2	1	2	9	5	9	9	48	61	185	15	2
3.....	2	1	2	5	5	9	9	61	76	246	9	2
4.....	1	1	2	5	5	15	9	48	92	205	9	2
5.....	1	1	2	5	5	15	15	48	92	147	9	2
6.....	1	1	2	9	5	15	15	76	147	147	9	2
7.....	1	1	2	9	5	15	15	92	185	110	9	1
8.....	1	1	2	9	5	15	9	76	185	92	9	1
9.....	1	1	2	9	5	15	15	92	205	48	9	1
10.....	1	2	5	9	15	15	9	48	205	48	5	1
11.....	1	2	5	9	21	15	9	37	246	61	5	1
12.....	1	2	5	9	15	9	9	28	246	185	5	1
13.....	1	1	5	9	15	9	9	28	267	110	5	1
14.....	1	1	5	5	15	9	9	28	205	76	5	1
15.....	1	1	5	5	9	9	9	28	246	61	5	1
16.....	1	1	5	5	9	9	9	37	225	37	5	1
17.....	1	1	5	5	9	9	9	37	225	37	9	1
18.....	1	1	5	9	9	21	9	37	205	28	5	1
19.....	1	1	5	9	9	15	15	28	166	37	5	1
20.....	1	2	5	9	9	9	15	28	128	37	5	1

Daily discharge, in second-feet, of Little South Fork of Rubicon River at sawmill near Quintette, Cal., for 1911-12—Continued.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
21.....	1	2	5	15	9	9	15	28	92	28	4	1
22.....	1	2	5	15	9	9	9	28	92	28	2	1
23.....	1	2	5	15	9	9	15	28	110	28	2	1
24.....	1	11	5	5	5	9	15	48	147	28	2	1
25.....	1	21	5	5	9	15	21	48	185	21	2	1
26.....	1	11	2	5	15	9	21	48	225	21	2	1
27.....	1	2	2	9	9	9	28	48	147	21	2	0
28.....	1	2	9	9	9	9	28	76	205	21	1	0
29.....	1	2	9	9	9	9	28	76	225	21	1	0
30.....	1	2	9	5	9	28	76	166	15	1	0
31.....	2	9	9	28	185	1	0

Monthly discharge of Little South Fork of Rubicon River at sawmill near Quintette, Cal., for 1911-12.

[Drainage area, 16.6 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.
September.....	2	1	1.1	0.066	0.07	65
October.....	21	1	2.7	.163	.19	166
November.....	9	2	4.3	.259	.29	256
December.....	15	5	8.2	.494	.57	504
January.....	21	5	9.2	.554	.64	566
February.....	21	9	11.5	.693	.75	662
March.....	28	9	14.6	.880	1.01	898
April.....	92	28	48.2	2.90	3.24	2,870
May.....	267	61	169	10.2	11.76	10,400
June.....	246	15	77.8	4.69	5.23	4,630
July.....	15	1	5.5	.331	.38	338
August.....	2	0	1.0	.060	.07	61
The year.....	267	0	29.5	1.78	24.20	21,400

NOTE.—Computed by United States Geological Survey.

LITTLE SOUTH FORK OF RUBICON RIVER BELOW GERLE CREEK, NEAR QUINTETTE, CAL.

Location.—In the SE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 21, T. 13 N., R. 14 E., one-fourth mile below Gerle Creek, 1 mile below South Fork sawmill, and 15 miles northeast of Quintette.

Records available.—February 1, 1910, to August 31, 1912.

Drainage area.—49.6 square miles.

Gage.—Staff.

Channel.—Gravel and boulders, practically permanent.

Discharge measurements.—Made from car and cable.

Diversions.—Water is diverted from Gerle Creek about $1\frac{1}{4}$ miles above the mouth and discharges into Pilot Creek above Uncle Tom's Cabin.

Winter flow.—Affected by ice.

Accuracy.—Results excellent except for winter months.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Little South Fork of Rubicon River below Gerle Creek, near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	7	3	7	28	9	9	22	102	170	440	39	5
2.....	7	3	7	28	7	9	18	128	155	440	33	5
3.....	7	3	7	28	7	9	22	141	170	470	27	5
4.....	7	3	7	24	7	9	18	128	225	440	22	5
5.....	7	3	7	24	7	9	33	115	225	350	22	5
6.....	7	3	7	94	7	11	27	187	410	300	14	4
7.....	7	3	7	74	7	11	27	187	575	250	6	4
8.....	7	3	7	57	9	9	27	170	505	187	6	4
9.....	7	3	7	43	16	11	27	187	470	170	6	4
10.....	5	3	9	37	12	11	22	141	505	155	5	4
11.....	5	3	16	32	12	14	22	115	650	141	5	5
12.....	5	3	12	28	12	14	22	90	650	350	5	5
13.....	5	3	9	24	12	14	22	79	650	205	6	5
14.....	5	3	9	16	12	18	27	79	470	155	5	5
15.....	5	3	12	20	12	14	18	90	540	115	6	5
16.....	10	3	9	16	12	14	27	115	440	102	5	5
17.....	5	3	9	16	12	22	22	115	470	90	18	5
18.....	3	3	9	16	12	52	33	115	470	45	6	5
19.....	5	3	9	12	13	33	39	90	410	69	5	5
20.....	3	7	9	9	12	33	39	79	380	69	5	4
21.....	3	7	9	7	12	22	39	79	325	69	6	4
22.....	3	7	7	9	12	22	33	69	300	69	5	4
23.....	3	7	7	7	12	18	39	69	350	90	5	4
24.....	3	15	9	5	12	22	52	128	505	79	5	4
25.....	5	24	7	5	12	27	60	128	540	60	5	4
26.....	3	16	16	5	16	22	60	141	690	52	5	4
27.....	3	9	20	5	16	14	79	128	470	45	5	4
28.....	3	8	28	5	16	14	90	170	540	45	5	4
29.....	3	8	28	7	16	18	102	187	540	45	5	4
30.....	3	7	28	9	16	79	205	410	39	5	4
31.....	7	9	16	79	440	5	4

Monthly discharge of Little South Fork of Rubicon River below Gerle Creek, near Quintette, Cal., for 1911-12.

[Drainage area, 49.6 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.
September.....	20.5	7.6	15.1	0.305	0.34	898
October.....	38.8	10.7	15.3	.308	.36	941
November.....	33.4	15	21.8	.440	.49	1,300
December.....	94	5	22.5	.454	.52	1,380
January.....	16	7	11.7	.236	.27	719
February.....	52	9	17.4	.351	.38	1,000
March.....	102	18	39.5	.796	.92	2,430
April.....	205	69	125	2.52	2.81	7,440
May.....	690	155	440	8.87	10.23	27,100
June.....	470	41.8	172	3.47	3.87	10,200
July.....	41.8	15.9	24.0	.484	.56	1,480
August.....	26	20	22.6	.456	.53	1,390
The year.....	690	5	77.5	1.56	21.28	56,300

NOTE.—This table includes the flow of Little South Fork ditch, thus giving the natural run-off from the drainage area. Computed by United States Geological Survey.

LITTLE SOUTH FORK DITCH AT SAWMILL NEAR QUINTETTE, CAL.

Location.—At flume across Little South Fork of Rubicon River, about half a mile above sawmill and 15 miles northeast of Quintette.

Records available.—June 7, 1910, to August 31, 1912.

Gage.—Staff.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

The intake of this canal is on Gerle Creek about $1\frac{1}{2}$ miles above the mouth; the course of the ditch is south until it crosses the Little Rubicon. It then flows down the valley to a point in the main Rubicon canyon, where it is carried by a tunnel into the Pilot Creek drainage area, a total distance of about 10 miles.

The South Fork ditch is used from June to November for conveying the stored water from Loon Lake to Pilot Creek, where the water is diverted into a ditch and used for irrigation on Georgetown divide. The ditch serves as a reservoir supply to Pilot Creek and is used only when Pilot Creek flow is not sufficient to supply the demand.

Daily discharge, in second-feet, of Little South Fork ditch at sawmill near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	June.	July.	Aug.	Day.	Sept.	Oct.	Nov.	June.	July.	Aug.
1.....	12.2	8.3	11.6	2.8	18.9	16.....	10.5	7.7	13	13.6	18.9
2.....	12.2	8.3	11.6	2.8	18.9	17.....	10.5	7.8	12	22	18.9
3.....	12.2	8.3	11.6	4.1	18.9	18.....	10.5	7.8	12	18.9	18.9
4.....	12.2	8.3	11.6	4.1	18.9	19.....	10.5	7.7	11	13.6	18.9
5.....	12.2	8.3	11.6	4.1	16	20.....	10.5	9.9	10	13.6	18.9
6.....	12.2	8.3	11.6	5.4	16	21.....	10.5	9.9	10	22	18.9
7.....	12.2	8.3	11.6	11.6	16	22.....	10.5	11.6	10	22	18.9
8.....	12.2	8.3	11.6	9.9	16	23.....	10.5	13.6	10	22	18.9
9.....	12.2	8.3	13.6	11.6	16	24.....	10.5	14.2	9	22	18.9
10.....	2.6	8.3	13.6	11.6	16	25.....	8.7	14.8	8	22	18.9
11.....	10.5	8.3	13.6	11.6	16	26.....	7	12.4	6	2.8	22	18.9
12.....	10.5	8.1	13.6	16	16	27.....	7	9.9	5.4	2.8	18.9	18.9
13.....	10.5	8.1	13.6	11.6	16	28.....	7	10.7	5.4	2.8	18.9	18.9
14.....	10.5	8	13.6	13.6	18.9	29.....	7	10.7	5.4	2.8	18.9	18.9
15.....	10.5	7.8	13	13.6	18.9	30.....	7	11.6	5.4	2.8	18.9	18.9
							31.....		11.6			18.9	22

Monthly discharge of Little South Fork ditch at sawmill near Quintette, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
September.....	12.2	2.6	10.1	601
October.....	14.8	7.7	9.52	585
November.....	13.6	5.4	10.7	637
June 26-30.....	2.8	2.8	2.8	28
July.....	22	2.8	14.3	879
August.....	22	16	18.2	1,120

NOTE.—Computed by United States Geological Survey.

GERLE CREEK NEAR RUBICON SPRINGS, CAL.

Location.—At the outlet of Loon Lake, in the SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 5, T. 13 N., R. 15 E., $3\frac{1}{2}$ miles southwest of Rubicon Springs.

Records available.—July 12, 1910, to August 31, 1912.

Drainage area.—9 square miles.

Gage.—Staff.

Channel.—Solid granite.

Discharge measurements.—Made from car and cable.

Winter flow.—Affected by ice.

Accuracy.—Results excellent except during winter season.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second-feet, of Gerle Creek near Rubicon Springs, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	24	21	21	21	4	2	2	6	93	3	24
2.....	22	21	21	20	4	2	2	6	93	3	24
3.....	21	21	21	20	4	2	2	5	85	2	24
4.....	18	19	21	19	4	2	2	5	77	2	24
5.....	16	16	19	19	4	2	2	5	69	1	24
6.....	14	14	18	77	3	2	3	4	62	1	24
7.....	12	11	16	65	3	2	3	4	54	2	24
8.....	10	9	14	52	3	2	3	4	47	2	24
9.....	8	9	13	39	3	2	3	3	46	4	24
10.....	12	10	11	35	3	2	3	3	44	6	24
11.....	16	11	11	31	3	2	3	3	42	8	24
12.....	16	12	10	27	3	2	3	2	40	8	24
13.....	16	12	9	23	3	3	3	2	39	8	24
14.....	17	13	9	19	4	3	3	2	36	8	25
15.....	17	12	10	15	4	4	3	2	33	11	27
16.....	17	11	11	11	4	5	3	2	30	11	28
17.....	18	10	12	10	4	5	4	2	27	11	30
18.....	18	9	13	9	4	6	4	2	24	11	31
19.....	18	11	14	7	4	2	4	2	24	11	32
20.....	18	14	15	6	4	2	4	2	24	24	32
21.....	18	16	16	5	4	2	4	2	24	24	32
22.....	18	17	16	4	3	2	5	2	24	24	32
23.....	18	18	17	3	3	2	5	2	21	24	32
24.....	13	19	19	3	3	2	5	2	19	24	32
25.....	10	19	20	3	2	2	5	2	16	24	32
26.....	10	20	21	3	2	2	5	2	13	24	32
27.....	9	21	21	3	2	2	5	2	10	24	32
28.....	9	21	21	3	2	2	6	3	7	24	32
29.....	9	21	21	3	2	2	6	3	4	24	32
30.....	9	21	21	3	2	6	3	4	24	32
31.....	21	3	2	6	24	32

Monthly discharge of Gerle Creek near Rubicon Springs, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
September.....	24	8	15.0	893
October.....	21	9	15.5	953
November.....	21	9	16.1	958
December.....	77	3	18.1	1,110
January.....	4	2	3.2	197
February.....	6	2	2.5	144
March.....	6	2	3.8	234
April.....	6	2	3.0	179
May.....
June.....	93	4	37.7	2,240
July.....	24	1	12.9	793
August.....	32	24	28.0	1,720

NOTE.—Computed by United States Geological Survey.

PILOT CREEK NEAR QUINTETTE, CAL.

Location.—At Bacchi road crossing, in the NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 10, T. 12 N., R. 12 E., about three-fourths mile southwest of Bacchi and 4 miles east of Quintette.

Records available.—February 24, 1910, to August 31, 1912.

Drainage area.—18.7 square miles; the natural run-off from the basin is increased by water diverted from Gerle Creek.

Gage.—Staff.

Channel.—Compact gravel.

Discharge measurements.—Made from car and cable.

Diversions.—Pilot Creek ditch.

Accuracy.—Results excellent.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

Daily discharge, in second feet, of Pilot Creek near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.....	6	6	16	8	12	16	6	28	128	36	12	12
2.....	6	6	16	8	12	12	6	28	128	36	12	12
3.....	4	6	16	8	12	12	6	28	112	28	10	12
4.....	4	6	16	8	12	12	6	28	96	28	10	12
5.....	4	6	16	6	12	8	6	28	96	22	10	12
6.....	4	6	16	6	12	8	6	22	96	16	10	12
7.....	6	12	16	8	12	8	6	22	96	16	10	12
8.....	6	8	16	6	12	8	6	22	84	16	10	12
9.....	6	12	16	6	12	8	6	22	72	16	10	12
10.....	6	12	36	6	16	8	6	22	72	16	10	12
11.....	4	12	22	6	22	8	6	22	72	16	10	12
12.....	6	12	16	6	22	8	6	22	52	16	10	12
13.....	6	12	16	6	22	8	6	22	52	16	10	12
14.....	6	12	22	6	22	8	6	22	52	16	10	12
15.....	6	8	22	6	22	8	6	22	52	16	10	12
16.....	6	8	16	6	16	8	6	22	52	16	8	8
17.....	6	8	16	6	16	8	6	22	52	12	8	8
18.....	6	8	16	6	16	8	6	22	44	12	12	8
19.....	6	8	16	6	16	8	6	22	36	12	12	8
20.....	6	8	12	6	16	8	6	22	44	12	12	8
21.....	6	12	12	22	16	8	6	22	44	12	12	8
22.....	6	12	12	22	16	6	6	22	44	12	12	8
23.....	6	12	12	16	16	6	8	22	44	12	12	8
24.....	6	12	12	12	16	6	8	28	36	12	12	8
25.....	6	12	12	8	16	6	8	36	44	12	12	8
26.....	6	12	8	6	44	6	8	36	52	12	12	8
27.....	6	16	8	8	44	6	8	36	52	12	12	8
28.....	6	16	8	12	28	6	28	36	44	12	12	8
29.....	6	16	8	12	22	6	28	96	44	12	12	8
30.....	6	16	8	8	22	28	112	44	12	12	8
31.....	16	6	22	28	36	12	8

Monthly discharge of Pilot Creek near Quintette, Cal., for 1911-12

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
September.....	6	4	5.7	339
October.....	16	6	10.6	652
November.....	36	8	15.1	898
December.....	22	6	8.5	523
January.....	44	12	18.6	1,140
February.....	16	6	8.1	466
March.....	28	6	9.2	566
April.....	112	22	30.5	1,810
May.....	128	36	63.6	3,910
June.....	36	12	16.5	982
July.....	12	8	10.9	670
August.....	12	8	9.9	609
The year.....	128	4	17.3	12,600

NOTE.—Computed by U. S. Geological Survey.

PILOT CREEK DITCH NEAR QUINTETTE, CAL.

Location.—Just south of gaging station on Pilot Creek.

Records available.—February 25, 1910, to August 31, 1912.

Cooperation.—Record of daily discharge furnished by Stone & Webster Engineering Corporation.

The amount diverted by the ditch is added to the flow at Bacchi road crossing to determine the total run-off from the drainage area of the creek above this point.

Daily discharge, in second feet, of Pilot Creek ditch near Quintette, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.
1.	5.1	12.7	12.7	6.8	2	2	8.6	10.6	12.7	14.8	12.7	14.8
2.	5.1	12.7	12.7	6.8	2	2.7	9.6	10.6	12.7	14.8	12.3	14.8
3.	5.1	12.7	12.7	6.8	2	2.7	10.6	10.6	12.7	14.8	11.9	14.6
4.	6.8	12.7	12.7	6.8	2	6.8	10.6	10.6	12.7	15.9	11.5	14.4
5.	6.8	12.7	12.7	6.8	2	6.8	10.6	10.6	12.7	17	11	14.2
6.	6.8	12.7	12.7	6.8	1.7	6.8	10.6	10.6	12.7	15.9	10.6	14
7.	10.6	12.7	12.7	6.8	1.7	6.8	10.6	10.6	12.7	14.8	10.6	13.7
8.	12.7	10.6	12.7	6.8	1.7	6.8	10.6	10.6	12.7	14.8	10.6	13.7
9.	12.7	12.7	12.7	6.8	1.7	6.8	10.6	10.6	12.7	14.8	12.7	13.7
10.	12.7	12.7	14.8	6.8	1.7	6.8	10.6	10.6	12.7	14.8	12.7	13.7
11.	8.6	12.7	12.7	8.6	1.7	6.8	10.6	10.6	12.7	14.8	12.7	13.7
12.	12.7	12.7	12.7	4.9	1.7	7.8	10.6	10.6	12.7	14.8	12.7	13.7
13.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	12.7	14.8	13.7	13.7
14.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	12.7	14.8	14	13.7
15.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	12.7	14.8	14.3	13.7
16.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	12.7	14.1	14.6	13.7
17.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	12.7	13.4	15	13.7
18.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	12.7	12.7	16	13.9
19.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	13	12	16.3	14
20.	12.7	10.6	12.7	1.5	1.5	8.6	10.6	10.6	13.3	11.3	16.6	14.2
21.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	13.6	10.6	16.9	14.4
22.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	14	11	17	14.5
23.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	14.4	11.5	17	14.7
24.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	14.8	11.9	17	14.8
25.	12.7	12.7	12.7	1.5	1.5	8.6	10.6	10.6	15.5	12.3	17	15.1
26.	12.7	12.7	10.6	1.5	1.5	8.6	10.6	10.6	16.3	12.7	17	15.4
27.	10.6	12.7	10.6	1.5	1.5	8.6	10.6	10.6	17	12.7	17	15.7
28.	10.6	12.7	8.6	1.5	1.5	8.6	10.6	10.6	16.5	12.7	16.7	16
29.	10.6	12.7	6.8	1.5	1.5	8.6	10.6	10.6	16.5	12.7	16.3	16.4
30.	10.6	12.7	6.8	1.5	1.5	-----	10.6	14.8	12.7	12.7	16	16.7
31.	-----	12.7	-----	2	2	-----	10.6	-----	12.7	-----	15.6	17

Monthly discharge of Pilot Creek ditch near Quintette, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).
	Maximum.	Minimum.	Mean.	
September	12.7	5.1	10.9	649
October	12.7	10.6	12.2	750
November	14.8	6.8	12.1	720
December	8.6	1.5	3.56	219
January	2	1.5	1.64	101
February	8.6	2	7.44	428
March	10.6	8.6	10.5	646
April	14.8	10.6	10.7	637
May	17	12.7	13.5	830
June	17	10.6	13.7	815
July	17	10.6	14.4	885
August	-----	13.7	14.5	892
The year	17	1.5	10.4	7,570

NOTE.—Computed by U. S. Geological Survey.

SOUTH FORK OF AMERICAN RIVER NEAR PLACERVILLE, CAL.

Location.—Below highway bridge at Chilli Bar, in the SE. $\frac{1}{4}$ sec. 26, T. 1J N., R. 10 E., about 1,000 feet below Big Canyon Creek, and 3 miles northwest of Placerville.

Records available.—August 11, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in two sections bolted to solid rock on right bank about 1,000 feet below bridge. The high-water section is painted on the rocks above second section.

Channel.—Boulders and gravel and appears permanent.

Discharge measurements.—Made from downstream side of bridge or by wading.

Diversions.—Just below the mouth of Silver Fork there is a diversion for irrigation, mining, and municipal supply for Placerville. Power is developed near the mouth of Rock Creek by the Western States Gas & Electric Co. Echo and Silver lakes are used as storage reservoirs.

Accuracy.—Rating curve is well defined and results are excellent.

Discharge measurements of South Fork of American River near Placerville, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1912.		<i>Feet.</i>	<i>Sec. ft.</i>	1912.		<i>Feet.</i>	<i>Sec. ft.</i>
Jan. 24	J. E. Stewart.....	4.48	233	Mar. 28	Lasley Lee.....	5.26	535
Mar. 6	H. D. McGlashan.....	7.46	1,770	June 7	do.....	8.76	2,910
8	do.....	5.68	722	Sept. 7	J. E. Stewart.....	4.98	394

NOTE.—Made from bridge.

Daily gage height, in feet, of South Fork of American River near Placerville, Cal., for 1911-12.

[Frank Baldschun, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.75	3.8	4.0	4.3	4.55	4.3	5.2	7.5	10.4	5.6	4.0	3.45
2.....	3.8	3.8	4.0	4.3	4.5	4.5	5.4	7.5	10.6	5.6	4.0	3.45
3.....	3.85	3.75	4.0	4.15	4.5	4.5	5.6	7.2	10.7	5.2	3.95	3.55
4.....	3.85	3.75	4.0	4.1	4.45	4.3	5.7	6.9	10.4	5.2	3.9	3.7
5.....	3.9	3.75	4.0	4.1	4.45	4.9	5.7	7.0	10.0	5.3	3.85	3.85
6.....	3.9	3.75	4.0	4.2	4.4	6.7	5.5	6.9	9.4	5.1	3.8	3.8
7.....	3.9	3.8	4.0	4.3	4.4	6.4	5.7	7.4	9.2	5.05	3.75	5.0
8.....	3.85	3.85	4.0	4.55	4.4	5.7	6.1	7.9	9.2	5.0	3.7	5.0
9.....	3.9	3.85	4.0	4.45	4.4	5.35	6.1	8.3	8.5	4.95	3.7	4.6
10.....	4.0	4.6	4.0	5.3	4.45	5.2	6.3	8.4	8.6	4.9	3.6	4.45
11.....	3.95	4.75	3.95	5.5	4.45	5.2	6.1	8.7	8.3	4.85	3.6	4.2
12.....	3.95	4.2	3.95	4.9	4.45	5.0	5.9	9.0	8.1	4.8	3.6	4.05
13.....	3.9	4.2	3.95	4.65	4.4	5.2	5.7	9.3	9.7	4.75	3.6	4.0
14.....	3.9	4.15	3.95	4.55	4.5	5.15	5.7	9.2	8.2	4.85	3.55	4.0
15.....	3.85	4.1	3.95	4.5	4.5	5.05	5.6	9.4	7.7	4.75	3.5	3.9
16.....	3.85	4.45	3.9	4.7	4.45	5.5	5.6	10.0	7.2	4.65	3.5	3.85
17.....	3.85	4.3	4.1	5.1	4.45	5.2	5.5	9.8	6.9	4.6	3.5	3.75
18.....	3.8	4.2	4.0	4.6	4.5	5.05	5.6	10.1	6.9	4.85	3.5	3.75
19.....	3.75	4.1	3.9	4.7	4.8	5.05	5.6	10.0	7.0	5.2	3.55	3.7
20.....	3.75	4.1	3.9	4.65	4.7	5.1	5.55	8.7	7.0	5.0	3.48	3.65
21.....	3.75	4.1	3.9	4.6	4.7	5.1	5.45	8.0	6.5	4.75	3.5	3.6
22.....	3.7	4.1	3.85	4.5	4.55	4.9	5.4	7.5	6.2	4.75	3.5	3.6
23.....	3.7	4.05	3.85	4.5	4.4	4.9	5.3	7.3	6.0	4.5	3.48	3.55
24.....	3.7	4.05	4.2	4.5	4.45	4.95	5.3	7.4	6.0	4.4	3.48	3.55
25.....	3.75	4.05	3.9	4.45	4.25	5.1	5.9	7.9	5.7	4.3	3.45	3.5
26.....	3.75	4.05	3.9	5.4	4.15	5.2	5.9	9.0	5.6	4.25	3.43	3.5
27.....	3.85	4.0	3.9	5.7	4.25	5.3	6.0	8.4	5.6	4.2	3.40	3.5
28.....	3.9	4.0	4.25	5.05	4.25	5.3	5.8	9.1	5.6	4.1	3.40	3.5
29.....	3.85	4.0	4.2	4.8	4.25	5.4	6.4	10.1	5.6	4.1	3.40	3.5
30.....	3.8	4.0	4.2	4.65	5.5	7.6	10.2	5.5	4.05	3.42	3.5
31.....	3.8	4.2	4.6	5.3	9.9	4.0	3.45

Daily discharge, in second feet, of South Fork of American River near Placerville, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	108	114	144	206	275	206	512	1,820	4,440	685	144	73
2.....	114	114	144	206	260	260	596	1,820	4,640	685	144	73
3.....	121	108	144	172	260	260	685	1,600	4,740	512	136	84
4.....	121	108	144	162	246	206	730	1,410	4,440	512	128	101
5.....	128	108	144	162	246	393	730	1,480	4,040	554	121	121
6.....	128	108	144	183	232	1,280	640	1,410	3,450	472	114	114
7.....	128	114	144	206	232	1,100	730	1,740	3,260	452	106	432
8.....	121	121	144	275	232	730	925	2,120	3,260	432	101	432
9.....	128	121	144	246	232	575	925	2,460	2,640	412	101	290
10.....	144	290	144	554	246	512	1,040	2,540	2,720	393	89	246
11.....	136	339	136	640	246	512	925	2,820	2,460	374	89	183
12.....	136	183	136	393	246	432	825	3,080	2,280	356	89	153
13.....	128	183	136	306	232	512	730	3,360	3,740	339	89	144
14.....	128	172	136	275	260	492	730	3,260	2,870	374	84	144
15.....	121	162	136	260	260	452	685	3,450	1,960	339	78	128
16.....	121	246	128	322	246	640	685	4,040	1,600	306	78	121
17.....	121	206	162	472	246	512	640	3,840	1,410	290	78	108
18.....	114	183	144	290	260	452	685	4,140	1,410	374	78	108
19.....	108	162	128	322	356	452	685	4,040	1,480	512	84	101
20.....	108	162	128	306	322	472	662	2,820	1,480	432	76	95
21.....	108	162	128	290	322	472	618	2,200	1,160	339	78	89
22.....	101	162	121	260	275	393	596	1,820	980	339	78	89
23.....	101	153	121	260	232	393	554	1,680	875	260	76	84
24.....	101	153	183	260	246	412	554	1,740	875	232	76	84
25.....	108	153	128	246	194	472	825	2,120	730	206	73	78
26.....	108	153	128	596	172	512	825	3,080	685	194	71	78
27.....	121	144	128	730	194	554	875	2,540	685	183	68	78
28.....	128	144	194	452	194	554	775	3,180	685	162	68	78
29.....	121	144	183	356	194	596	1,100	4,140	685	162	68	78
30.....	114	144	183	306	640	1,890	4,240	640	153	70	78
31.....	114	183	290	554	3,940	144	73

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

Monthly discharge of South Fork of American River near Placerville, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	144	101	119	7,320	A.
November.....	339	108	161	9,580	A.
December.....	194	121	145	8,920	A.
January.....	730	162	323	19,900	A.
February.....	356	172	247	14,200	A.
March.....	1,280	206	516	31,700	A.
April.....	1,890	512	719	46,400	A.
May.....	4,240	1,410	2,710	167,000	A.
June.....	4,740	640	2,190	130,000	A.
July.....	685	144	361	22,200	A.
August.....	144	68	90.6	5,570	A.
September.....	432	73	136	8,090	A.
The year.....	4,740	68	648	471,000	

CACHE CREEK AT LOWER LAKE, CAL.

Location.—Above highway bridge near outlet of Clear Lake, in the SE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 34, T. 13 N., R. 7 W., about 400 feet above mouth of Seigler Creek and 1 mile north of Lower Lake.

Records available.—January 1, 1901, to September 30, 1912.

Drainage area.—500 square miles.

Gage.—Vertical staff on left bank 400 feet above bridge. Previous to March 26, 1903, the gage was located at the bridge. The original datum has not been changed.

Channel.—Gravel and fairly permanent.

Discharge measurements.—Made from bridge or by wading. Flow of Seigler Creek is deducted when measurements are made from bridge.

Accuracy.—At high stages Seigler Creek deposits gravel at its junction with Cache Creek. This results in a small bar which somewhat affects the control. At low water the channel is sometimes deepened in order to increase the flow from the lake. This happened about the middle of September, 1912. The measurement made December 11, 1912, shows the amount of change. On account of the change in channel at low water and uncertainty of rating curve at high water, results are only fair at those stages.

Discharge measurements of Cache Creek at Lower Lake, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 30	E. O. Christiansen.....	<i>Feet.</i> 2.61	<i>Sec.-ft.</i> 39
Dec. 2	S. C. Whipple.....	2.43	25
1912. Dec. 11	R. C. Rice.....	1.69	8.5

NOTE.—Made by wading.

Daily gage height, in feet, of Cache Creek at Lower Lake, Cal., for 1911-12.

[J. R. Anderson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.75	2.60	2.50	2.50	2.90	2.90	3.6	3.5	3.18	2.90	2.45	1.92
2.....	2.75	2.60	2.45	2.50	2.90	2.90	3.6	3.5	3.18	2.90	2.42	1.90
3.....	2.8	2.60	2.45	2.48	2.90	2.90	3.55	3.45	3.20	2.90	2.42	1.88
4.....	2.7	2.60	2.45	2.50	2.90	2.82	3.5	3.48	3.20	2.82	2.42	1.80
5.....	2.7	2.58	2.40	2.55	2.85	3.00	3.5	3.45	3.20	2.85	2.42	1.92
6.....	2.7	2.58	2.55	2.55	2.85	3.10	3.45	3.42	3.15	2.85	2.42	1.92
7.....	2.7	2.65	2.55	2.58	2.85	3.08	3.40	3.42	3.20	2.85	2.45	1.90
8.....	2.65	2.60	2.50	2.52	2.90	3.08	3.45	3.42	3.20	2.80	2.50	1.92
9.....	2.75	2.55	2.50	2.52	2.95	3.10	3.40	3.45	3.18	2.75	2.45	1.90
10.....	2.7	2.80	2.50	2.52	2.95	3.20	3.40	3.42	3.18	2.75	2.25	1.90
11.....	2.65	2.55	2.45	2.52	2.98	3.00	3.5	3.40	3.10	2.72	2.22	1.90
12.....	2.65	2.52	2.45	2.52	2.95	3.35	3.5	3.38	3.10	2.72	2.20	1.90
13.....	2.7	2.50	2.45	2.58	2.90	3.32	3.40	3.38	3.10	2.70	2.20	1.90
14.....	2.7	2.52	2.45	2.55	3.00	3.32	3.40	3.38	3.10	2.70	2.15	1.90
15.....	2.65	2.60	2.45	2.55	3.00	3.48	3.40	3.35	3.10	2.70	2.30	1.90
16.....	2.65	2.55	2.50	2.60	3.00	3.40	3.45	3.30	3.05	2.70	2.20	1.88
17.....	2.65	2.55	2.50	2.50	3.05	3.48	3.48	3.30	3.05	2.70	2.10	1.85
18.....	2.65	2.55	2.50	2.48	3.00	3.5	3.45	3.25	3.00	2.70	2.10	1.80
19.....	2.65	2.55	2.52	2.50	2.90	3.5	3.5	3.22	3.00	2.70	2.10	1.90
20.....	2.65	2.52	2.48	2.60	2.95	3.5	3.40	3.28	3.12	2.70	2.05	1.85
21.....	2.6	2.52	2.45	2.55	2.95	3.5	3.40	3.28	3.02	2.60	2.05	1.88
22.....	2.65	2.52	2.45	2.55	2.95	3.55	3.30	3.25	2.92	2.60	2.02	1.88
23.....	2.65	2.52	2.45	2.40	2.98	3.55	3.32	3.20	2.90	2.60	2.00	1.80
24.....	2.65	2.50	2.45	2.60	3.00	3.55	3.40	3.22	2.90	2.58	2.00	1.80
25.....	2.7	2.50	2.42	2.55	2.95	3.5	3.35	3.20	2.90	2.52	2.00	1.80
26.....	2.6	2.52	2.40	2.90	2.95	3.6	3.30	3.22	2.90	2.50	2.00	1.80
27.....	2.6	2.52	2.52	2.85	2.98	3.55	3.35	3.20	2.90	2.50	2.00	1.80
28.....	2.6	2.55	2.48	2.88	2.95	3.6	3.30	3.20	2.90	2.50	2.00	1.85
29.....	2.6	2.52	2.40	2.88	2.90	3.5	3.38	3.28	2.95	2.50	1.98	1.85
30.....	2.6	2.50	2.45	2.90	3.5	3.32	3.22	3.05	2.50	1.92	1.80
31.....	2.62	2.50	3.00	3.5	3.20	2.45	2.00

Daily discharge, in second-feet, of Cache Creek at Lower Lake, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	54	39	30	30	72	72	188	169	112	72	26	5
2.....	54	39	26	30	72	72	188	169	112	72	24	5
3.....	60	39	26	28	72	72	178	160	115	72	24	5
4.....	49	39	26	30	72	62	169	165	115	62	24	3
5.....	49	37	22	34	66	85	169	160	115	66	24	5
6.....	49	37	34	34	66	99	160	154	107	66	24	5
7.....	49	44	34	37	66	96	150	154	115	66	26	5
8.....	44	39	30	32	72	96	160	154	115	60	30	5
9.....	54	34	30	32	78	99	150	160	112	54	26	5
10.....	49	60	30	32	78	115	150	154	112	54	14	5
11.....	44	34	26	32	82	85	169	150	99	51	13	5
12.....	44	32	26	32	78	141	169	146	99	51	12	5
13.....	40	30	26	37	72	136	150	146	99	49	12	5
14.....	49	32	26	34	85	136	150	146	99	49	10	5
15.....	44	39	26	34	85	165	150	141	99	49	16	5
16.....	44	34	30	39	85	150	160	132	92	49	12	5
17.....	44	34	30	30	92	165	165	132	92	49	9	14
18.....	44	34	30	28	85	169	160	124	85	49	9	12
19.....	44	34	32	30	72	169	169	118	85	49	9	16
20.....	44	32	28	39	78	169	150	129	102	49	8	14
21.....	39	32	26	34	78	169	150	129	88	39	8	15
22.....	44	32	26	34	78	178	132	124	75	39	7	15
23.....	44	32	26	22	82	178	136	115	72	39	7	12
24.....	44	30	26	39	85	178	150	118	72	37	7	12
25.....	49	30	24	34	78	169	141	115	72	32	7	12
26.....	39	32	22	72	78	188	132	118	72	30	7	12
27.....	39	32	32	66	82	178	141	115	72	30	7	12
28.....	39	34	28	70	78	188	132	115	72	30	7	14
29.....	39	32	22	70	72	169	146	129	78	30	7	14
30.....	39	30	26	72	169	136	115	92	30	5	12
31.....	41	30	85	169	115	26	7

NOTE.—Daily discharge determined from two rating curves applicable as follows: 1911 to Sept. 16, 1912, well defined below 300 second-feet; Sept. 17-30, 1912, fairly well defined.

Monthly discharge of Cache Creek at Lower Lake, Cal., for 1911-12.

[Drainage area, 500 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	60	39	45.7	0.091	0.10	2,810	A.
November.....	60	30	35.3	.071	.08	2,100	A.
December.....	34	22	27.6	.055	.06	1,700	A.
January.....	85	22	40.4	.081	.09	2,480	A.
February.....	92	66	77.2	.154	.17	4,440	A.
March.....	188	62	138	.276	.32	8,480	A.
April.....	188	132	155	.310	.35	9,220	A.
May.....	169	115	138	.276	.32	8,480	A.
June.....	115	72	94.9	.190	.21	5,650	A.
July.....	72	26	48.4	.097	.11	2,980	A.
August.....	30	5	13.8	.028	.03	848	C.
September.....	16	3	8.8	.018	.02	524	C.
The year.....	188	3	68.5	.137	1.86	49,700	

CACHE CREEK AT YOLO, CAL.

Location.—At highway bridge one-half mile south of Yolo, in Río Jesús María grant, 1,000 feet above Southern Pacific Co.'s railroad bridge.

Records available.—January 1, 1903, to September 30, 1912.

Drainage area.—1,230 square miles.

Gage.—Staff in four sections. Lower section is vertical and fastened to pile under bridge. Second section, which is inclined, is on right bank, 30 feet above bridge. Third section is vertical and fastened to cottonwood tree on right bank 70 feet above bridge. Upper section is bolted to upper end of right abutment. This gage was installed October 2, 1904, at the same datum as the original gage at the bridge.

Channel.—Sand and gravel and somewhat shifting.

Discharge measurements.—Made from bridge or by wading.

Diversions.—Numerous ditches divert water for irrigation above the station.

Accuracy.—High-water estimates are fair. Otherwise the results are good.

Discharge measurements of Cache Creek at Yolo, Cal., in 1911–12.

Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
1911.			
Oct. 11 ^a	J. E. Stewart.....		0
Dec. 5 ^b	F. C. Ebert.....		0
1912.			
Jan. 29 ^c	J. E. Stewart.....	2.15	230
Mar. 12 ^c	Lasley Lee.....	2.06	216

^a Water standing in pools. Water level below zero flow.

^b Creek dry.

^c Wading 200 feet above gage.

Daily gage height, in feet, of Cache Creek at Yolo, Cal., for 1911–12.

[Cornelia W. Bigelow, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....	0.9				1.78		2.0	2.4	1.10
2.....	.9				1.72		1.95	2.6	1.05
3.....					1.68		1.95	2.65	1.00
4.....					1.65		1.90	2.35	.88
5.....					1.62		1.90	2.1	.80
6.....					1.60	1.30	1.88	1.98	.75
7.....					1.60	2.7	1.78	1.85	
8.....					1.58	2.8	1.75	1.78	
9.....					1.55	2.2	1.75	1.65	
10.....					1.55	2.1	1.75	1.48	
11.....					1.55	2.05	1.80	1.38	
12.....					1.55	2.1	1.78	1.30	
13.....					1.55	3.6	1.70	1.25	
14.....					1.50	2.9	1.70	1.20	
15.....					1.50	2.9	1.70	1.15	
16.....					1.45	2.8	1.70	1.10	
17.....					1.38	3.1	1.70	1.10	
18.....					1.22	2.85	1.70	1.10	
19.....					1.15	2.7	1.70	1.05	
20.....					1.10	2.65	1.70	1.05	
21.....					1.10	2.6	1.70	1.00	
22.....					1.10	2.5	1.70	1.00	
23.....					1.10	2.4	1.70	1.00	
24.....					1.10	2.35	1.62	1.00	
25.....					1.00	2.3	1.52	1.10	
26.....					.92	2.3	1.50	1.10	
27.....				3.0	.75	2.2	1.45	1.10	
28.....				2.55	.60	2.1	1.40	1.10	
29.....				2.25		2.05	1.40	1.10	
30.....				2.0		2.05	1.40	1.10	
31.....				1.88		2.0		1.10	

NOTE.—Creek was dry on days for which no gage heights are given.

Daily discharge, in second-feet, of Cache Creek at Yolo, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....	1				133	0	195	330	7
2.....	1				117	0	180	410	5
3.....					107	0	180	430	3
4.....					100	0	165	312	1
5.....					93	0	165	225	
6.....					88	27	160	189	
7.....					88	450	133	152	
8.....					84	495	125	133	
9.....					77	260	125	100	
10.....					77	225	125	62	
11.....					77	210	138	41	
12.....					77	225	133	27	
13.....					77	875	112	20	
14.....					66	540	112	14	
15.....					66	540	112	10	
16.....					56	495	112	7	
17.....					41	630	112	7	
18.....					17	518	112	7	
19.....					10	450	112	5	
20.....					7	430	112	5	
21.....					7	410	112	3	
22.....					7	370	112	3	
23.....					7	430	112	3	
24.....					7	312	93	3	
25.....					3	295	70	7	
26.....					1	295	66	7	
27.....					585	0	260	56	7
28.....					390	0	225	45	7
29.....					278	0	210	45	7
30.....					195		210	45	7
31.....					160		195		7

NOTE.—No flow in creek on days for which no estimates are given.

Monthly discharge of Cache Creek at Yolo, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	1	0	0.1	4	D.
November.....	0	0	0	0	
December.....	0	0	0	0	
January.....	585	0	51.9	3,190	C.
February.....	133	0	51.4	2,960	C.
March.....	875	0	306	18,800	A.
April.....	195	45	116	6,900	B.
May.....	430	3	82.2	5,050	B.
June.....	7	0	.5	32	D.
July.....	0	0	0	0	
August.....	0	0	0	0	
September.....	0	0	0	0	
The year.....	875	0	50.9	36,900	

PUTAH CREEK AT WINTERS, CAL.

Location.—Just below Southern Pacific Co.'s railroad bridge at Winters, in the Rio de los Putos grant.

Records available.—September 26, 1905, to September 30, 1912.

Drainage area.—805 square miles.

Gage.—Staff in five sections on left bank, 600 feet below bridge. An auxiliary vertical staff on right bank is used for low water. The original gage datum has been maintained.

Channel.—Sand and gravel and somewhat shifting. Two channels at low water.

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

Diversions.—With the exception of a small amount of water pumped for irrigation, there are no diversions above the station.

Accuracy.—On May 13, 1912, a temporary dam was constructed 500 feet below the station. This produced ponded water at the gage. From June 10 to September 11, 1912, a temporary gage, fastened to the downstream side of the dam was read. Discharge estimated May 13 to June 9, 1912. Results are fair.

Discharge measurements of Putah Creek at Winters, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
1911. Oct. 17	J. E. Stewart	4.54	8.2	1912. Mar. 1	Lasley Lee	^(c) 5.83	44
				June 10	do	^b 5.83	28
1912. Jan. 20	do	5.86	307	July 9	do	^b 5.55	6.2
	do	5.76	277	Aug. 1	do	^b 5.39	1.0

^a Referred to south channel gage.

^b Referred to temporary gage below dam.

NOTE.—All measurements made by wading except Jan. 20, which was made from cable.

Daily gage height, in feet, of Putah Creek at Winters, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		4.58	4.67	4.87	5.5	5.0	4.95	5.9	8.2	5.64	5.40	-----
2		4.58	4.66	4.87	5.45	5.0	4.92	6.0	7.9	5.60	5.40	-----
3	4.67	4.57	4.65	4.87	5.45	5.0	4.9	5.8	7.7	5.52	5.40	-----
4	4.67	4.57	4.67	4.87	5.4	5.0	4.9	5.7	7.6	5.52	5.40	-----
5	4.67	4.57	4.72	4.86	5.35	5.15	4.89	5.65	7.5	5.52	5.40	-----
6	4.62	4.57	4.76	4.86	5.3	8.5	4.85	5.6	7.4	5.51	5.40	-----
7	4.62	4.57	4.75	4.86	5.3	7.2	4.82	-----	7.3	5.51	5.39	-----
8	4.57	4.57	4.75	4.87	5.3	6.7	4.8	5.5	7.1	5.51	5.39	4.9
9	4.77	4.62	4.75	4.87	5.25	6.2	5.4	5.4	7.2	5.45	5.37	4.8
10	4.57	4.67	4.72	4.87	5.25	6.0	5.4	5.4	5.83	5.45	5.34	4.75
11	4.57	4.67	4.72	4.87	5.25	5.9	5.45	5.35	5.80	5.45	5.31	4.7
12	4.57	4.77	4.72	4.87	5.2	6.4	5.55	5.3	5.79	5.43	5.27	4.7
13	4.52	4.82	4.72	4.87	5.2	7.5	5.55	5.45	5.69	5.42	5.23	4.7
14	4.52	4.82	4.72	4.9	5.2	6.5	5.5	5.4	5.78	5.45	-----	4.7
15	4.47	4.77	4.72	4.97	5.2	6.3	5.4	6.6	5.72	5.42	-----	4.7
16	4.47	4.66	4.72	5.05	5.2	7.6	5.4	8.4	5.72	5.42	-----	4.6
17	4.52	4.66	4.72	5.05	5.2	6.6	5.35	-----	5.70	5.52	-----	4.8
18	4.52	4.66	4.72	5.15	5.2	6.1	5.35	8.5	5.70	5.42	-----	4.8
19	4.47	4.57	4.72	5.35	5.2	5.85	5.3	5.2	5.68	5.41	-----	4.7
20	4.47	4.57	4.72	5.8	5.2	5.7	5.3	5.2	5.63	5.40	-----	4.6
21	4.47	-----	4.69	5.4	5.2	5.65	5.25	6.0	5.60	5.40	-----	4.7
22	4.47	4.67	4.69	5.3	5.15	5.4	5.25	7.2	5.60	5.40	-----	4.8
23	4.47	4.67	4.74	5.1	5.1	5.35	5.2	7.0	5.75	5.40	-----	4.5
24	4.57	4.67	4.74	5.0	5.1	5.3	5.2	8.6	5.70	5.40	-----	4.58
25	4.62	4.67	4.75	5.0	5.1	5.2	5.2	7.2	5.71	5.40	-----	4.66
26	4.62	4.67	4.75	10.9	5.1	5.15	5.2	7.2	5.65	5.40	-----	4.7
27	4.62	4.67	4.77	6.8	5.05	5.1	5.2	7.2	5.65	5.40	-----	4.78
28	4.62	4.67	4.77	6.1	5.05	5.1	5.2	8.4	5.70	5.40	-----	4.7
29	4.62	4.67	4.77	5.6	5.05	5.05	5.25	7.9	5.70	5.40	-----	4.72
30	4.62	4.67	4.77	5.4	-----	5.0	6.2	7.5	5.65	5.40	-----	4.7
31	4.60	-----	4.87	5.2	-----	5.0	-----	8.3	-----	5.40	-----	-----

NOTE.—During 1911 and 1912 gage heights are read from various gages as follows:

Gage on right bank: Oct. 3, 1911, to Jan. 25, Feb. 1 to Mar. 15, Apr. 9 to June 9, Sept. 8-30, 1912.

Gage on left bank: Jan. 26-31 and Mar. 16 to Apr. 8, 1912.

Temporary gage at dam: June 10 to Aug. 13, 1912.

Gage heights affected by backwater from a temporary dam Oct. 1 and 2, 1911, May 13-18, and May 21 to June 9, 1912.

Daily discharge, in second-feet, of Putah Creek at Winters, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	20	9	17	26	140	38	43	284	11	1.5
2.....	20	9	16	26	126	38	39	327	8	1.5
3.....	17	8	15	26	126	38	36	243	4.8	1.5
4.....	17	8	17	26	113	38	36	205	4.8	1.5
5.....	17	8	22	25	101	60	35	188	4.8	1.5
6.....	12	8	27	25	89	2,180	30	171	4.4	1.5
7.....	12	8	26	25	89	1,060	27	156	4.4	1.4
8.....	8	8	26	26	89	705	25	140	4.4	1.4	14
9.....	28	12	26	26	78	420	113	113	2.8	1.2	2
10.....	8	17	22	26	78	327	113	113	29	2.8	.8	1
11.....	8	17	22	26	78	284	126	101	25	2.8	.5	.0
12.....	8	28	22	26	68	525	156	89	24	2.2	.3	.0
13.....	5	35	22	26	68	1,300	156	14	2.0	.1	.0
14.....	5	35	22	28	68	580	140	23	2.80
15.....	3	28	22	35	68	470	113	17	2.00
16.....	3	16	22	44	68	1,380	113	17	2.00
17.....	5	16	22	44	68	655	101	15	4.8	2
18.....	5	16	22	60	68	410	101	15	2.0	2
19.....	3	8	22	101	68	304	89	68	14	1.80
20.....	3	8	22	243	68	246	89	68	10	1.50
21.....	3	12	19	113	68	228	78	8	1.50
22.....	3	17	19	89	60	144	78	8	1.5	2
23.....	3	17	25	51	51	130	68	20	1.50
24.....	8	17	25	38	51	115	68	15	1.50
25.....	12	17	26	38	51	90	68	16	1.50
26.....	12	17	26	4,530	51	79	68	12	1.50
27.....	12	17	28	775	44	68	68	12	1.5	1.6
28.....	12	17	28	410	44	68	68	15	1.50
29.....	12	17	28	210	44	59	78	15	1.54
30.....	12	17	28	144	50	420	12	1.50
31.....	10	41	90	50	1.5

NOTE.—Daily discharge determined from fairly well defined rating curves applicable according to dates on which various gages were read. No discharge estimates made May 13-18, May 21-June 9, 1912, when gage heights were affected by backwater; nor Sept. 6 and 7, when observer notes flow in creek but gives no gage height. Creek reported dry Aug. 14 to Sept. 5, 1912.

Monthly discharge of Putah Creek at Winters, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	28	3	9.9	609	D.
November.....	35	8	15.6	928	D.
December.....	41	15	23.5	1,440	D.
January.....	4,530	25	238	14,600	C.
February.....	140	44	75.3	4,330	B.
March.....	2,180	38	392	24,100	C.
April.....	420	25	91.4	5,440	B.
May 1-12.....	327	89	178	4,240	B.
June 10-30.....	29	8	16.0	666	B.
July.....	11	1.5	2.99	184	D.
August.....	1.5	.0	.47	28.9	D.
September 8-30.....	14	.0	1.09	49.7	D.

NORTHERN PACIFIC OCEAN DRAINAGE BASINS.

RUSSIAN RIVER BASIN.

RUSSIAN RIVER NEAR UKIAH, CAL.

Location.—At Bailey's bridge, in the Yokayo grant, just above junction with East Fork, and 3 miles northeast of Ukiah.

Records available.—August 18, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Painted on left abutment of bridge; vertical staff for low water.

Channel.—Sand and gravel; may shift slightly at high water.

Discharge measurements.—Made from bridge or by wading.

Accuracy.—Rating curve well defined except for high stages; results are good.

Discharge measurements of Russian River near Ukiah, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Nov. 2	E. O. Christiansen.....	<i>Feet.</i> 3.10	<i>Sec.-ft.</i> 0.2	1912. Mar. 15 ^c	R. C. Rice.....	<i>Feet</i> 10.35	<i>Sec.-ft.</i> 3,390
20 ^b	Whipple and Stanley..	3.25	.5	16 ^c	do.....	6.78	1,080
				28 ^b	do.....	4.13	60
1912. Jan. 27 ^c	R. C. Rice.....	6.05	652	Apr. 5 ^b	do.....	3.85	32
Mar. 6 ^c	do.....	5.60	510	Aug. 19 ^b	J. E. Stewart.....	3.33	1.1

^a Estimated.

^b Wading.

^c Bridge.

Daily gage height, in feet, of Russian River near Ukiah, Cal., for 1911-12.

[W. F. Lawrance, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.95	3.14	3.16	4.22	4.12	3.90	4.02	7.2	3.75	3.50	3.35	3.25
2.....	3.00	3.10	3.20	3.88	4.10	3.90	3.95	6.15	3.70	3.50	3.35	3.28
3.....	2.96	3.10	3.30	3.62	3.92	3.82	3.90	5.35	3.70	3.50	3.35	3.30
4.....	2.96	3.10	3.30	3.55	3.90	3.85	3.85	4.95	3.70	3.50	3.35	3.35
5.....	2.97	3.11	3.30	3.51	3.90	4.00	3.88	4.70	3.68	3.48	3.35	3.35
6.....	2.96	3.11	3.32	3.50	3.80	5.55	3.88	4.60	3.65	3.48	3.32	3.40
7.....	2.97	3.11	3.32	3.52	4.20	5.15	3.90	4.50	3.60	3.48	3.30	3.40
8.....	2.96	3.11	3.35	3.56	4.20	4.80	3.90	4.40	3.60	3.48	3.30	3.40
9.....	2.98	3.12	3.38	4.22	4.15	4.60	3.90	4.30	3.60	3.50	3.30	3.40
10.....	2.98	3.14	3.38	3.98	4.12	4.50	3.90	4.25	3.60	3.50	3.28	3.40
11.....	2.97	3.14	3.38	3.90	4.05	4.50	4.75	4.10	3.60	3.48	3.30	3.40
12.....	2.97	3.14	3.38	3.86	4.00	7.5	4.65	4.05	3.60	3.48	3.28	3.40
13.....	2.98	3.14	3.38	4.05	4.22	8.1	4.35	4.00	3.60	3.45	3.28	3.40
14.....	2.98	3.14	3.38	4.02	4.65	6.2	4.22	3.90	3.58	3.42	3.28	3.40
15.....	2.98	3.14	3.40	4.05	4.50	8.0	4.05	3.90	3.58	3.40	3.28	3.40
16.....	2.98	3.14	3.40	4.18	4.50	7.0	4.00	3.95	3.58	3.38	3.28	3.38
17.....	3.02	3.16	3.45	4.04	5.25	5.9	4.00	3.90	3.58	3.38	3.25	3.38
18.....	3.01	3.16	3.45	4.39	5.95	5.55	3.92	3.80	3.58	3.38	3.25	3.38
19.....	3.04	3.16	3.40	4.24	5.0	5.05	3.90	3.80	3.55	3.38	3.22	3.38
20.....	3.04	3.16	3.40	3.95	4.70	4.85	3.85	4.00	3.50	3.38	3.22	3.35
21.....	3.04	3.20	3.38	3.90	4.50	4.80	3.85	3.90	3.50	3.38	3.22	3.35
22.....	3.01	3.20	3.38	3.85	4.35	4.70	3.80	3.90	3.50	3.38	3.22	3.35
23.....	3.04	3.20	3.38	3.80	4.20	4.65	3.80	3.90	3.50	3.38	3.22	3.35
24.....	3.04	3.20	3.38	3.88	4.05	4.45	3.80	3.90	3.50	3.35	3.22	3.35
25.....	3.04	3.20	3.38	9.4	4.10	4.35	3.75	3.90	3.50	3.38	3.22	3.32
26.....	3.04	3.20	3.38	7.7	4.00	4.32	3.75	3.90	3.52	3.35	3.22	3.32
27.....	3.04	3.18	3.51	6.05	4.00	4.25	3.80	4.00	3.52	3.20	3.22	3.32
28.....	3.04	3.18	3.78	5.05	3.95	4.12	3.80	4.00	3.50	3.20	3.22	3.32
29.....	3.04	3.18	3.70	4.55	3.90	4.10	5.85	3.90	3.50	3.35	3.22	3.32
30.....	3.04	3.16	3.55	4.45	4.05	5.65	3.80	3.50	3.35	3.22	3.32
31.....	3.04	3.75	4.32	4.05	3.80	3.35	3.22

NOTE.—Mar. 15, 1912, maximum recorded stage 11.8 feet at 1 p. m.

Daily discharge, in second-feet, of Russian River near Ukiah, Cal., for 1911-12.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1911.			1911.			1911.		
1.....		0.2	11.....		0.0	21.....	0.1	0.0
2.....		.2	12.....		.0	22.....	.2	.0
3.....		.2	13.....		.0	23.....	.3	.0
4.....		.2	14.....		.0	24.....	.3	.0
5.....		.2	15.....		.0	25.....	.3	.0
6.....		.2	16.....		.0	26.....	.2	.0
7.....		.3	17.....		.0	27.....	.2	.0
8.....		.3	18.....		.0	28.....	.2	.0
9.....		.3	19.....	0.2	.0	29.....	.2	.0
10.....		.2	20.....	.2	.0	30.....	.2	.0
						31.....	.2

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	0.0	0.3	0.3	75	59	34	46	1,290	22	8.0	2.5	0.7
2.....	.0	.2	.4	32	56	34	39	735	19	8.0	2.5	.9
3.....	.0	.2	1.0	14	36	28	34	389	19	8.0	2.5	1.0
4.....	.0	.2	1.0	10	34	30	30	253	19	8.0	2.5	2.5
5.....	.0	.2	1.0	8.5	34	44	32	182	18	7.2	2.5	2.5
6.....	.0	.2	1.6	8.0	26	468	32	157	16	7.2	1.6	4.0
7.....	.0	.2	1.6	9.0	71	317	34	133	13	7.2	1.0	4.0
8.....	.0	.2	2.5	11	71	209	34	110	13	7.2	1.0	4.0
9.....	.0	.2	3.4	75	64	157	34	89	13	8.0	1.0	4.0
10.....	.0	.3	3.4	42	59	133	34	80	13	8.0	.9	4.0
11.....	.0	.3	3.4	34	50	133	196	56	13	7.2	1.0	4.0
12.....	.0	.3	3.4	31	44	1,470	170	50	13	7.2	.9	4.0
13.....	.0	.3	3.4	50	75	1,860	100	44	13	6.0	.9	4.0
14.....	.0	.3	3.4	46	170	760	75	34	12	4.8	.9	4.0
15.....	.0	.3	4.0	50	133	1,790	50	34	12	4.0	.9	4.0
16.....	.0	.3	4.0	68	133	1,180	44	39	12	3.4	.9	3.4
17.....	.0	.3	6.0	49	352	620	44	34	12	3.4	.7	3.4
18.....	.0	.3	6.0	108	642	468	36	26	12	3.4	.7	3.4
19.....	.1	.3	4.0	78	268	284	34	26	10	3.4	.5	3.4
20.....	.1	.3	4.0	39	182	224	30	44	8.0	3.4	.5	2.5
21.....	.1	.4	3.4	34	133	209	30	34	8.0	3.4	.5	2.5
22.....	.0	.4	3.4	30	100	182	26	34	8.0	3.4	.5	2.5
23.....	.1	.4	3.4	26	71	170	26	34	8.0	3.4	.5	2.5
24.....	.1	.4	3.4	32	50	122	26	34	8.0	2.5	.5	2.5
25.....	.1	.4	3.4	2,730	56	100	22	34	8.0	3.4	.5	1.6
26.....	.1	.4	3.4	1,600	44	93	22	34	9.0	2.5	.5	1.6
27.....	.1	.4	8.5	688	44	80	26	44	9.0	.4	.5	1.6
28.....	.1	.4	25	284	39	59	26	44	8.0	.4	.5	1.6
29.....	.1	.4	19	145	34	56	598	34	8.0	2.5	.5	1.6
30.....	.1	.3	10	122	50	509	26	8.0	2.5	.5	1.6
31.....	.1	22	93	50	26	2.5	.5

Monthly discharge of Russian River near Ukiah, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
August 19-31.....	0.3	0.1	0.22	5.6	D.
September.....	.3	.0	.08	4.8	D.
1911-12.					
October.....	.1	.0	.04	2.5	D.
November.....	.4	.2	.30	17.9	D.
December.....	25	.3	5.25	323	D.
January.....	2,730	8.0	214	13,200	A.
February.....	642	26	108	6,210	A.
March.....	1,860	28	368	22,600	A.
April.....	588	22	81.3	4,840	A.
May.....	1,290	26	135	8,300	A.
June.....	22	8.0	12.1	720	C.
July.....	8.0	.4	4.84	298	D.
August.....	2.5	.5	1.01	62.1	D.
September.....	4.0	.7	2.78	165	D.
The year.....	2,730	.0	78.1	56,700	

RUSSIAN RIVER AT GEYSERVILLE, CAL.

Location.—At highway bridge, in the Tzabaco grant, half a mile northeast of Geyserville.

Records available.—December 5, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Painted on lower caisson of sixth pier from right end of bridge; a vertical staff for low water.

Channel.—Gravel and smooth; section shifts during high water. Overflow section on left bank.

Discharge measurements.—Made from upstream side of bridge or by wading.

Diversions.—Water is diverted from the South Eel to the East Fork of Russian River for use in power development at Potter Valley.

Estimates of daily and monthly discharge are withheld until additional high-water measurements can be made.

Discharge measurements of Russian River at Geyserville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 29 ^a	E. O. Christiansen.....	8.63	10	Mar. 5 ^b	R. C. Rice.....	9.75	503
Nov. 24 ^a	Whipple and Stanley....	8.85	40	Apr. 6 ^b	do.....	9.84	501
				Aug. 13 ^a	J. E. Stewart.....	9.07	18
1912.							
Jan. 28 ^b	R. C. Rice.....	10.69	2,000				

^a Wading.

^b Bridge, upstream side.

NOTE.—All gage heights corrected to datum of gage painted on pier.

Daily gage height, in feet, of Russian River near Geyserville, Cal., for 1911-12.

[R. E. Smith, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	8.10	8.58	8.88	9.10	9.95	9.78	9.9	11.5	9.85	9.5	9.18	8.7
2.....	8.10	8.60	8.88	9.10	9.90	9.78	9.88	11.3	9.84	9.48	9.18	8.5
3.....	8.15	8.60	8.88	9.10	9.85	9.78	9.85	11.0	9.82	9.48	9.15	8.3
4.....	8.12	8.62	8.90	9.08	9.80	9.80	9.85	10.85	9.82	9.48	9.12	8.3
5.....	8.12	8.62	8.90	9.08	9.78	9.86	9.85	10.5	9.82	9.48	9.1	8.15
6.....	8.10	8.65	8.90	9.08	9.75	10.7	9.85	10.3	9.85	9.48	9.1	9.68
7.....	8.10	8.65	8.92	9.08	9.72	10.9	9.85	10.25	9.85	9.45	9.1	9.58
8.....	8.20	8.65	8.95	9.10	9.72	10.5	9.88	10.2	9.7	9.45	9.18	9.55
9.....	8.50	8.68	8.98	9.10	9.80	10.2	9.88	10.1	9.7	9.42	9.18	9.48
10.....	8.50	8.68	8.98	9.08	9.80	10.18	9.89	10.05	9.72	9.4	9.18	9.5
11.....	8.55	8.68	8.98	9.18	9.80	10.15	10.15	10.0	9.72	9.4	9.12	9.4
12.....	8.55	8.70	8.98	9.55	9.82	12.2	10.28	9.98	9.72	9.4	9.12	9.38
13.....	8.60	8.72	8.95	9.55	9.82	11.6	10.05	9.98	9.72	9.35	9.08	9.35
14.....	8.70	8.72	8.95	9.52	9.85	11.6	9.92	9.98	9.72	9.35	9.08	9.32
15.....	8.68	8.72	8.95	9.52	9.85	11.5	9.9	9.95	9.72	9.35	9.05	9.3
16.....	8.55	8.78	8.95	9.58	9.90	12.0	9.9	9.92	9.7	9.32	9.05	9.3
17.....	8.65	8.80	8.98	9.60	9.90	11.3	9.88	9.9	9.7	9.3	9.05	9.28
18.....	8.65	8.80	8.98	9.72	10.38	11.0	9.85	9.88	9.7	9.3	9.02	9.28
19.....	8.62	8.82	8.95	10.00	10.15	10.7	9.82	9.88	9.68	9.3	9.02	9.28
20.....	8.62	8.82	8.95	9.90	10.00	10.5	9.82	9.88	9.68	9.28	9.0	9.28
21.....	8.62	8.85	8.95	9.80	9.90	10.35	9.82	9.88	9.65	9.28	9.0	9.28
22.....	8.60	8.88	8.95	9.50	9.80	10.32	9.82	9.88	9.62	9.28	8.98	9.25
23.....	8.68	8.88	8.95	9.60	9.75	10.2	9.82	9.88	9.62	9.25	8.95	9.22
24.....	8.58	8.88	8.95	9.80	9.72	10.2	9.85	9.88	9.62	9.22	8.95	9.2
25.....	8.50	8.88	8.98	12.1	9.72	10.1	9.85	9.9	9.62	9.22	8.92	9.18
26.....	8.50	8.88	8.98	13.5	9.70	10.1	9.85	9.9	9.6	9.22	8.92	9.15
27.....	8.50	8.85	8.98	11.5	9.70	10.1	9.85	9.92	9.58	9.22	8.9	9.15
28.....	8.52	8.88	9.00	10.75	9.75	10.08	10.1	9.9	9.55	9.22	8.88	9.12
29.....	8.55	8.88	9.02	10.35	9.75	10.08	10.9	9.88	9.55	9.2	8.88	9.12
30.....	8.55	8.88	9.02	10.20	10.08	11.05	9.85	9.52	9.2	8.8	9.12
31.....	8.52	9.10	10.00	10.0	9.85	9.18	8.75

NOTE.—Gage heights below 10.5 feet corrected for error in gage beginning Mar. 5, 1912. Gage heights Mar. 5 to June 30 supersede those published in Water-Supply Paper 300, p. 782.

EAST FORK OF RUSSIAN RIVER NEAR UKIAH, CAL.

Location.—At suspension footbridge in the Yokayo grant, about three-fourths mile above junction with Russian River and 3 miles northeast of Ukiah.

Records available.—August 19, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in two sections on left bank, 40 feet below bridge.

Channel.—Sand and gravel; shifts during high stages.

Discharge measurements.—Made from footbridge above gage or by wading.

Diversions.—The Snow Mountain Water & Power Co. diverts water by a tunnel from the South Eel for use in power development at Potter Valley. This water enters the East Fork about 14 miles above the station. At low stages regulation at the power plant causes a noticeable fluctuation in the discharge. On this account the low-water record is subject to some error, as only two gage readings are reported each day.

Accuracy.—Rating curves are fairly well defined and results are fair.

Discharge measurements of East Fork of Russian River near Ukiah, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 1 ^a	E. O. Christiansen.....	4.69	4.9	Mar. 6 ^b	R. C. Rice.....	7.07	610
20 ^a	Whipple and Stanley..	5.04	22	16 ^b	do.....	7.27	933
				28 ^b	do.....	6.18	284
1912.				Apr. 5 ^b	do.....	6.20	286
Jan. 27 ^b	R. C. Rice.....	6.69	373	Aug. 19 ^a	J. E. Stewart.....	5.24	18

^a Wading.

^b Suspension footbridge.

Daily gage height, in feet, of East Fork of Russian River near Ukiah, Cal., for 1911-12.

[E. L. and J. W. Rich, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.95	5.12	5.15	5.50	6.40	6.35	6.30	7.6	6.20	5.80	5.48	5.20
2.....	5.05	5.05	5.10	5.50	6.39	6.38	6.25	7.45	6.18	5.78	5.48	5.15
3.....	5.05	5.00	5.10	5.55	6.35	6.40	6.35	7.35	6.15	5.74	5.49	5.08
4.....	5.15	5.05	5.10	5.45	6.48	6.42	6.35	6.30	6.16	5.74	5.45	5.35
5.....	5.20	5.10	5.10	5.55	6.48	6.46	6.20	6.34	6.18	5.72	5.49	6.05
6.....	5.08	5.15	5.20	5.65	6.48	6.9	6.15	6.30	6.16	5.76	5.38	6.50
7.....	5.15	5.05	5.20	5.85	6.45	6.8	6.15	6.32	6.15	5.78	5.41	6.62
8.....	4.90	5.12	5.30	5.85	6.40	6.75	6.15	6.28	6.15	5.62	5.45	6.62
9.....	4.90	5.05	5.30	6.05	6.35	6.65	6.21	6.25	6.15	5.68	5.48	6.60
10.....	5.05	5.10	5.25	6.20	6.35	6.6	6.20	6.21	6.19	5.50	5.45	5.88
11.....	5.05	5.15	5.25	6.35	6.35	6.6	6.65	6.18	6.16	5.52	5.52	5.75
12.....	5.20	5.25	5.20	6.6	6.40	7.7	6.31	6.15	6.19	5.59	5.51	5.59
13.....	4.90	5.12	5.25	6.6	6.5	8.0	6.38	6.18	6.15	5.58	5.32	5.58
14.....	4.95	5.15	5.28	6.45	6.46	7.2	6.28	6.18	6.16	5.58	5.31	5.52
15.....	4.85	5.00	5.32	6.45	6.45	8.9	6.28	6.18	6.15	5.50	5.24	5.45
16.....	4.80	5.02	5.35	6.48	6.41	7.65	6.26	6.15	6.15	5.49	5.15	5.45
17.....	5.00	4.95	5.38	6.5	6.49	6.75	6.20	6.14	5.96	5.42	5.10	5.38
18.....	5.08	4.99	5.41	6.5	6.5	6.6	6.20	6.15	5.66	5.42	5.18	5.32
19.....	5.15	5.00	5.40	6.40	6.5	6.5	6.21	6.18	5.59	5.42	5.25	5.30
20.....	5.15	5.00	5.42	6.45	6.48	6.55	6.22	6.22	5.58	5.46	5.35	5.18
21.....	4.95	4.96	5.40	6.5	6.48	6.5	6.28	6.24	5.56	5.60	5.12	5.10
22.....	4.95	4.95	5.35	6.5	6.45	6.48	6.21	6.22	5.48	5.65	5.05	4.98
23.....	4.98	4.98	5.35	6.55	6.44	6.45	6.25	6.21	5.32	5.61	5.12	5.05
24.....	4.85	5.00	5.40	6.8	6.42	6.35	6.25	6.21	5.70	5.52	5.18	5.20
25.....	4.98	5.01	5.40	7.1	6.38	6.35	6.25	6.22	5.52	5.45	5.15	5.28
26.....	5.10	4.95	5.40	7.0	6.38	6.30	6.31	6.22	5.78	5.45	5.15	5.35
27.....	5.00	4.95	5.44	6.8	6.38	6.35	6.28	6.22	5.76	5.49	5.12	5.32
28.....	5.00	5.00	5.45	6.5	6.38	6.35	6.31	6.24	5.79	5.48	5.06	5.30
29.....	5.05	5.02	5.50	6.48	6.40	6.38	6.6	6.20	5.79	5.48	5.12	5.44
30.....	5.00	5.00	5.30	6.45	6.45	6.35	6.6	6.20	8.82	5.49	5.14	5.40
31.....	5.10	5.51	6.40	6.38	6.20	5.49	5.10

NOTE.—At low water gage heights are affected by operation of Snow Mountain Water & Power Co.'s plant.

Daily discharge, in second-feet, of East Fork of Russian River near Ukiah, Cal., for 1911-12.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1911.			1911.			1911.		
1.....		3.0	11.....		26	21.....	8	8.0
2.....		6.5	12.....		26	22.....	30	4.0
3.....		3.0	13.....		17	23.....	23	8.0
4.....		13	14.....		20	24.....	8	12
5.....		10	15.....		12	25.....	23	12
6.....		2	16.....		16	26.....	4.6	6.5
7.....		12	17.....		8.0	27.....	16	12
8.....		6.5	18.....		10	28.....	8	8.0
9.....		6.5	19.....		3	29.....	12	10
10.....		8.0	20.....		8	30.....	3	17
						31.....	2

Daily discharge, in second-feet, of East Fork of Russian River near Ukiah, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	10	18	20	48	270	252	330	1,160	285	141	59	23
2.....	14	14	17	48	266	263	308	1,040	277	135	59	20
3.....	14	12	17	54	252	270	352	962	265	123	61	16
4.....	20	14	17	43	298	277	352	330	269	123	54	38
5.....	23	17	17	54	298	291	285	348	277	117	61	228
6.....	16	20	23	68	298	495	265	330	269	129	42	425
7.....	20	20	23	104	288	440	265	339	265	135	47	486
8.....	8.0	18	30	104	270	415	265	321	265	90	54	486
9.....	8.0	14	30	154	252	368	290	308	265	106	59	425
10.....	14	17	26	200	252	345	285	290	281	63	54	168
11.....	14	20	26	252	252	345	502	277	269	67	67	126
12.....	23	26	23	345	270	1,040	334	265	281	83	65	83
13.....	8.0	20	26	345	305	1,310	366	277	265	81	35	81
14.....	10	20	29	288	291	670	321	277	269	81	33	67
15.....	6.5	12	32	288	288	2,190	321	277	265	63	27	54
16.....	5.0	13	34	298	274	1,200	312	265	265	61	20	54
17.....	12	10	36	305	301	560	285	261	196	49	17	42
18.....	16	12	39	305	305	475	285	265	100	49	22	35
19.....	20	12	38	270	305	425	290	277	83	49	28	32
20.....	20	12	40	288	298	450	294	294	81	56	38	22
21.....	10	10	38	305	298	425	321	303	76	85	18	17
22.....	10	10	34	305	288	415	290	294	59	98	14	11
23.....	11	11	34	325	284	400	308	290	35	88	18	14
24.....	6.5	12	38	440	277	352	308	290	111	67	22	29
25.....	11	12	38	610	263	352	308	294	148	54	20	30
26.....	17	10	38	550	263	330	334	294	135	54	20	38
27.....	12	10	42	440	263	352	321	294	129	61	18	35
28.....	12	12	43	305	263	352	334	303	138	59	15	32
29.....	14	13	48	298	270	366	475	285	138	59	18	52
30.....	12	12	48	288	352	475	285	148	61	19	45
31.....	17	49	270	366	285	61	17

Monthly discharge of East Fork of Russian River near Ukiah, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
August 19-30.....	30	3	7.79	294	C.
September.....	26	0.2	10.8	643	C.
1911-12.					
October.....	23	5.0	13.4	824	C.
November.....	26	10	14.4	857	C.
December.....	49	17	32.0	1,970	C.
January.....	610	43	258	15,900	B.
February.....	305	252	279	16,000	B.
March.....	2,190	252	521	32,000	B.
April.....	502	265	326	19,400	B.
May.....	1,160	261	367	22,600	B.
June.....	285	35	197	11,700	B.
July.....	141	49	82.2	5,050	B.
August.....	67	14	35.5	2,180	C.
September.....	486	11	107	6,370	B.
The year.....	2,190	5.0	186	135,000	

MATTOLE RIVER BASIN.

MATTOLE RIVER NEAR PETROLIA, CAL.

Location.—At highway bridge, in the SW. $\frac{1}{4}$ sec. 11, T. 2 S., R. 2 W., about 2 miles southeast of Petrolia.

Records available.—November 21, 1911, to September 30, 1912.

Drainage area.—264 square miles.

Gage.—Painted on the left pier at highway bridge. On January 13, 1912, a chain gage was installed on the bridge at same datum as original gage.

Channel.—Sand and gravel; will shift during high water.

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

Estimates of daily and monthly discharge are withheld until additional high-water measurements can be made.

Discharge measurements of Mattole River near Petrolia, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 21 ^a	E. O. Christiansen.....	5.70	114	Mar. 21 ^b	E. O. Christiansen.....	8.40	1,990
				May 23 ^bdo.....	7.97	1,650
1912.				25 ^bdo.....	7.80	1,250
Jan. 13 ^bdo.....	9.60	4,570	25 ^bdo.....	7.78	1,240
14 ^bdo.....	8.92	2,780	Sept. 1 ^a	Charles Leidl.....	6.16	57

^a Wading.

^b Bridge.

NOTE.—All gage heights have been referred to correct gage datum.

Daily gage height, in feet, of Mattole River near Petrolia, Cal., for 1911-12.

[S. F. Adams, observer.]

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		5.38	7.75	8.8	7.55	7.3	12.0	7.4	6.65	6.38	6.18
2.....		5.35	7.4	8.6	7.45	7.25	10.3	7.4	6.6	6.38	6.18
3.....		5.35	7.1	8.35	7.4	7.2	9.3	7.3	6.6	6.38	6.34
4.....		5.35	6.9	8.25	7.35	7.15	8.8	7.2	6.6	6.38	6.47
5.....		5.54	6.8	8.2	7.7	7.1	8.45	7.15	6.6	6.38	6.9
6.....		7.32	6.75	8.1	8.4	7.05	8.25	7.1	6.6	6.38	7.8
7.....		6.88	7.35	8.6	9.4	7.05	8.0	7.05	6.6	6.38	7.3
8.....		6.39	7.3	9.45	8.85	7.0	7.85	7.0	6.6	6.36	6.9
9.....		6.12	8.3	9.6	8.55	7.0	7.75	6.95	6.6	6.36	6.7
10.....		5.98	8.45	10.0	8.25	7.0	7.6	6.9	6.6	6.34	6.6
11.....		5.88	8.6	9.6	8.0	7.05	7.5	6.9	6.6	6.34	6.48
12.....		5.79	8.5	9.05	8.3	7.1	7.45	6.95	6.6	6.31	6.45
13.....		5.74	9.8	9.3	8.0	7.0	7.35	7.0	6.6	6.31	6.40
14.....		5.69	8.95	9.1	7.85	6.95	7.25	7.05	6.6	6.31	6.35
15.....		5.64	8.45	8.95	10.7	6.9	7.2	7.0	6.6	6.30	6.26
16.....		5.61	8.05	9.7	10.6	6.85	7.15	6.95	6.6	6.28	6.26
17.....		5.75	7.75	11.2	9.8	6.85	7.15	6.9	6.55	6.28	6.24
18.....		5.54	7.8	10.7	9.5	6.85	7.1	6.85	6.55	6.28	6.24
19.....		5.28	8.25	9.7	9.05	6.8	7.1	6.8	6.46	6.26	6.24
20.....		6.15	7.95	9.1	8.65	6.8	7.5	6.75	6.43	6.26	6.24
21.....	5.70	6.04	7.85	8.8	8.35	6.8	7.4	6.75	6.43	6.26	6.24
22.....	5.65	5.94	7.95	8.5	8.25	6.8	7.5	6.7	6.43	6.24	6.24
23.....	5.60	6.04	7.75	8.35	8.15	6.8	8.2	6.8	6.43	6.24	6.24
24.....	5.54	6.02	12.9	8.15	8.05	6.9	7.9	6.75	6.40	6.24	6.24
25.....	5.50	5.48	25.2	8.0	7.85	6.9	7.8	6.75	6.40	6.21	6.24
26.....	5.49	5.89	17.0	8.0	7.7	6.85	8.1	6.75	6.40	6.21	6.24
27.....	5.44	7.20	12.1	7.75	7.6	6.9	8.2	6.7	6.40	6.21	6.24
28.....	5.42	7.88	10.5	7.7	7.5	7.05	7.95	6.7	6.38	6.21	6.23
29.....	5.40	7.36	9.6	7.65	7.35	11.0	7.8	6.65	6.38	6.18	6.22
30.....	5.40	7.09	9.25		7.35	12.0	7.6	6.65	6.38	6.18	6.22
31.....		7.58	8.9		7.35		7.5		6.38	6.18	

EEL RIVER BASIN.

SOUTH EEL RIVER AT HEARST, CAL.

Location.—At highway bridge at Hearst, in the NE. $\frac{1}{4}$ sec. 20, T. 19 N., R. 12 W., and about 3 miles below Sanhedrin Creek. Salt Creek enters 300 feet below gage.

Records available.—December 8, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Painted on downstream caisson of left abutment of bridge; staff in two sections for lower stages.

Channel.—Gravel, with solid rock on left bank; will shift slightly at high stages.

Discharge measurements.—Made from upstream side of bridge or by wading.

Diversions.—The Snow Mountain Water & Power Co. diverts water for use in power development about 10 miles above the station. This water is discharged into the East Fork of Russian River at Potter Valley.

Estimates of daily and monthly discharge are withheld until additional high-water measurements can be made.

Discharge measurements of South Eel River at Hearst, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 4 ^a	E. O. Christiansen.....	7.09	4.6	Mar. 28 ^b	R. C. Rice.....	11.40	1,080
19 ^a	Whipple and Stanley...	7.26	8.7	Apr. 28 ^b	do.....	9.48	330
				4 ^a	do.....	9.46	264
1912.				Aug. 14 ^a	J. E. Stewart.....	7.13	8.6
Jan. 30 ^b	R. C. Rice.....	10.72	636				

^a Wading.

^b Bridge, upstream side.

Daily gage height, in feet, of South Eel River at Hearst, Cal., for 1911-12.

[C. M. Neighbor, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	7.02	7.02	7.20	7.35	9.7	8.3	9.8	17.2	9.8	7.60	7.20	7.10
2.....	7.05	7.02	7.20	7.45	9.6	8.2	9.6	14.0	9.7	7.58	7.30	7.10
3.....	7.08	7.10	7.20	7.45	9.5	8.05	9.5	13.0	9.4	7.55	7.30	7.20
4.....	7.02	7.10	7.22	7.5	8.6	8.5	9.45	12.4	9.1	7.52	7.30	7.20
5.....	7.05	7.10	7.25	7.65	8.35	12.6	9.3	12.3	9.0	7.50	7.20	7.30
6.....	7.02	7.08	7.22	7.85	8.35	12.3	9.1	12.2	8.8	7.48	7.20	9.05
7.....	7.02	7.10	7.20	8.0	9.8	10.9	8.9	12.0	8.5	7.45	7.30	8.45
8.....	7.05	7.10	7.20	8.3	9.95	11.1	9.2	11.8	8.4	7.40	7.25	7.65
9.....	7.22	7.10	7.25	8.95	9.35	10.7	9.15	11.7	8.3	7.38	7.30	7.50
10.....	7.22	7.70	7.22	8.96	9.3	10.5	9.5	11.5	8.2	7.35	7.30	7.40
11.....	7.18	7.30	7.25	8.58	9.35	10.3	11.3	11.3	8.2	7.32	7.25	7.32
12.....	7.12	7.20	7.25	8.85	9.2	10.3	11.4	10.9	8.2	7.30	7.30	7.30
13.....	7.10	7.20	7.25	8.4	9.6	10.9	9.7	10.9	8.1	7.30	7.20	7.25
14.....	7.10	7.25	7.25	8.38	10.0	11.2	10.35	10.5	7.9	7.30	7.20	7.22
15.....	7.10	7.40	7.25	8.3	9.6	15.6	10.25	10.3	7.9	7.30	7.20	7.22
16.....	7.10	7.25	7.32	8.3	9.9	11.9	10.15	10.1	7.88	7.35	7.20	7.22
17.....	7.08	7.22	7.50	8.38	10.2	11.9	10.0	9.85	7.8	7.30	7.20	7.22
18.....	7.08	7.18	7.45	8.4	11.8	11.8	9.9	9.8	7.8	7.30	7.20	7.22
19.....	7.08	7.18	7.38	8.38	11.0	11.8	9.7	9.7	7.78	7.30	7.20	7.20
20.....	7.08	7.22	7.35	8.2	10.5	11.5	9.5	10.3	7.72	7.30	7.15	7.20
21.....	7.08	7.22	7.35	8.1	10.0	11.5	9.3	10.0	7.7	7.35	7.15	7.20
22.....	7.08	7.22	7.40	7.98	9.95	10.8	9.2	9.9	7.7	7.40	7.15	7.20
23.....	7.10	7.22	7.38	7.92	9.8	10.7	9.1	10.1	7.72	7.35	7.15	7.20
24.....	7.05	7.22	7.30	9.75	9.7	10.6	9.2	10.5	7.7	7.35	7.15	7.20
25.....	7.08	7.22	7.28	18.7	9.6	10.5	9.1	11.0	7.7	7.30	7.15	7.20

Daily gage height, in feet, of South Eel River at Hearst, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
26.....	7.05	7.20	7.30	17.8	9.4	10.35	9.1	11.0	7.68	7.30	7.12	7.20
27.....	7.02	7.20	7.30	16.0	9.1	10.15	8.92	11.2	7.65	7.30	7.12	7.20
28.....	7.05	7.20	7.40	13.0	9.1	10.5	8.8	10.8	7.62	7.30	7.12	7.20
29.....	7.05	7.20	7.75	10.8	8.9	10.45	12.4	10.5	7.6	7.30	7.10	7.18
30.....	7.02	7.20	7.78	10.8	10.1	14.2	10.2	7.6	7.30	7.10	7.15
31.....	7.02	7.75	10.0	9.9	9.9	7.30	7.10

NOTE.—Gage height Mar. 7, 1912, is that recorded by observer at 8 a. m. and is probably in error, as the hydrographer read 11.9 feet at 6.15 p. m. on a falling stage.

EEL RIVER AT TWO RIVERS, CAL.¹

Location.—At highway bridge on Laytonville-Covelo road, in the SW. $\frac{1}{4}$ sec. 31, T. 22 N., R. 13 W., about 500 feet below junction of South and Middle Eel rivers, and about 12 miles east of Laytonville. Burger Creek enters about 1 mile below the station.

Records available.—November 15, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Inclined staff in three sections on right bank at bridge.

Channel.—Solid rock and coarse gravel; fairly permanent.

Discharge measurements.—Made from car and cable three-fourths of a mile below gage or by wading.

Diversions.—The Snow Mountain Water & Power Co. diverts water from the South Eel above Hearst to the East Fork of Russian River for use in power development at Potter Valley.

Estimates of daily and monthly discharge are withheld until additional high-water measurements can be made.

Discharge measurements of Eel River at Two Rivers, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.				1912.			
Nov. 15 ^a	Christiansen and Whipple.....	Feet. 7.85	Sec.-ft. 101	Feb. 1 ^b	R. C. Rice.....	Feet. 11.65	Sec.-ft. 1,940
1912.				Mar. 9 ^cdo.....	12.67	3,100
Jan. 20 ^b	E. O. Christiansen.....	10.19	792	Mar. 10 ^bdo.....	12.34	2,620
21 ^bdo.....	9.94	710	Apr. 1 ^bdo.....	11.49	1,850
				Aug. 17 ^a	J. E. Stewart.....	6.72	31

^a Wading.

^b Cable.

^c Downstream side of highway bridge at gage.

¹ Formerly called Eel River near Laytonville.

Daily gage height, in feet, of Eel River at Two Rivers, Cal., for 1911-12.

[H. H. Beard, observer.]

Day.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		7.16	9.6	11.8	10.4	11.6	23.2	11.9	8.90	6.82	6.40
2.....		7.15	9.4	11.4	10.3	11.5	18.9	11.8	8.85	6.70	6.52
3.....		7.10	8.4	11.2	10.1	11.4	15.8	11.6	8.65	7.00	6.65
4.....		7.16	8.4	10.8	10.1	11.2	15.2	11.4	8.45	7.00	6.65
5.....		7.20	8.55	10.8	11.5	11.1	15.3	11.2	8.40	7.00	7.60
6.....		7.40	8.55	10.6	14.4	11.0	15.6	11.0	8.40	7.00	11.4
7.....		8.00	9.6	11.4	16.0	11.0	15.0	10.8	8.30	6.88	10.6
8.....		8.00	10.8	13.4	14.1	11.1	14.2	10.6	8.30	6.81	9.45
9.....		7.65	12.0	13.5	12.8	11.2	14.2	10.4	8.15	6.72	8.88
10.....		7.52	11.8	12.9	12.4	11.5	13.5	10.4	8.32	6.65	8.69
11.....		7.41	11.7	11.8	12.0	12.8	13.2	10.2	8.20	6.70	8.19
12.....		7.40	10.5	11.7	12.6	13.4	13.1	10.1	8.08	6.70	7.95
13.....		7.41	11.8	11.9	15.0	13.4	12.9	10.1	8.02	6.70	7.78
14.....		7.36	11.4	12.2	14.5	12.4	12.2	10.0	7.95	6.60	7.65
15.....	8.80	7.30	10.8	11.8	18.2	12.0	12.0	9.95	7.90	6.50	7.54
16.....	9.10	7.40	10.7	11.6	16.8	12.0	12.0	9.75	7.82	6.50	7.46
17.....	8.60	8.60	10.9	14.5	14.8	11.8	12.0	9.7	7.72	6.55	7.39
18.....	8.25	8.40	10.6	16.7	18.9	11.9	11.8	9.55	7.68	6.75	7.34
19.....	7.90	8.08	10.5	14.6	13.4	11.5	11.6	9.4	7.60	6.75	7.19
20.....	7.62	7.88	10.2	13.5	13.0	11.3	12.0	9.35	7.54	6.71	7.12
21.....	7.52	7.72	9.95	13.3	12.6	11.2	12.0	9.5	7.48	6.62	7.12
22.....	7.50	7.55	9.8	12.4	12.4	11.0	11.8	9.45	7.40	6.62	7.12
23.....	7.49	7.50	9.9	11.9	12.0	11.1	11.8	9.5	7.40	6.60	6.98
24.....	7.44	7.62	10.0	11.6	12.3	11.2	12.0	9.45	7.38	6.58	6.95
25.....	7.30	7.60	28.6	11.3	12.2	11.2	13.3	9.35	7.31	6.55	6.98
26.....	7.30	7.50	26.4	11.0	12.0	11.0	13.2	9.25	7.20	6.54	7.00
27.....	7.26	8.40	19.2	10.9	12.0	10.8	13.4	9.15	7.30	6.55	6.99
28.....	7.21	9.60	15.5	10.5	12.2	10.8	12.8	9.05	7.15	6.55	7.00
29.....	7.20	9.20	14.5	10.6	12.2	17.8	12.5	9.0	7.05	6.40	7.00
30.....	7.20	8.95	12.5	-----	12.0	18.1	12.4	8.9	7.00	6.48	6.99
31.....	8.85	12.1	-----	-----	12.9	-----	12.1	-----	6.90	6.48	-----

NOTE.—Maximum gage height Jan. 25-26, during the night, was 33 feet. May 1 maximum observed gage height was 24 feet at noon.

EEL RIVER AT SCOTIA, CAL.

Location.—At Wildwood Ferry, in sec. 18, T. 1 N., R. 1 E., about one-half mile northeast of Scotia. Larabee Creek enters about 14 miles above and Van Duzen River 7 miles below the station.

Records available.—December 15, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in four sections on left bank. The three lower sections are 70 feet above ferry, and upper section is at mouth of Dean Creek, 150 feet farther upstream.

Channel.—Solid rock and gravel; fairly permanent.

Discharge measurements.—Made from ferryboat or by wading.

Accuracy.—Rating curve is fairly well defined and results are good.

Discharge measurements of Eel River at Scotia, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.				1912.			
Nov. 28 ^a	E. O. Christiansen.....	Feet. 9.98	Sec.-ft. 201	Mar. 19 ^b	E. O. Christiansen.....	Feet. 15.94	15,800
1912.				May 1 ^bdo.....	25.55	65,400
Feb. 3 ^bdo.....	13.28	5,880	31 ^bdo.....	12.85	5,200
				Sept. 4 ^a	Charles Leidl.....	10.02	244

^a Wading.

^b Ferryboat 40 feet below gage.

Daily gage height, in feet, of Eel River at Scotia, Cal., for 1911-12.

[H. A. Anderson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	9.6	9.6	9.95	11.75	14.0	12.4	12.6	25.4	12.7	10.87	10.06
2.....	9.6	9.6	9.95	11.8	13.5	12.4	12.5	23.2	12.5	10.82	10.04
3.....	9.6	9.6	9.95	11.65	13.2	12.2	12.5	19.1	12.4	10.79	10.03
4.....	9.6	9.6	9.95	11.35	13.0	12.1	12.4	17.2	12.3	10.76	10.02	10.02
5.....	9.6	9.6	10.08	11.2	12.8	12.7	12.3	16.2	12.1	10.74	10.02	10.08
6.....	9.6	9.6	10.22	11.05	12.7	16.6	12.2	15.6	12.0	10.71	9.99	11.2
7.....	9.6	9.6	10.22	11.6	12.8	18.8	12.3	15.1	11.95	10.69	9.99	12.2
8.....	9.6	9.6	10.25	12.9	13.4	17.5	12.1	14.7	11.85	10.66	9.99	12.35
9.....	9.6	9.6	10.25	13.4	14.1	16.0	12.1	14.4	11.75	10.61	9.96	11.75
10.....	9.6	9.98	10.22	14.0	14.1	15.1	12.3	14.1	11.7	10.56	9.96	11.3
11.....	9.6	10.22	10.20	14.2	14.0	14.5	13.2	13.8	11.6	10.52	9.96	10.95
12.....	9.6	10.22	10.13	13.4	13.7	14.4	13.1	13.6	11.55	10.47	9.94	10.61
13.....	9.6	10.25	10.10	13.3	13.9	15.4	13.1	13.4	11.55	10.46	9.92	10.37
14.....	9.6	10.38	10.02	13.6	14.2	15.4	12.9	13.2	11.6	14.43	10.28
15.....	9.6	10.45	10.00	13.0	14.2	16.5	12.6	13.0	11.55	10.41	10.24
16.....	9.6	10.60	10.06	12.5	14.1	21.0	12.5	12.9	11.5	10.38	10.18
17.....	9.6	10.68	10.25	12.5	15.4	18.3	12.5	12.7	11.35	10.33	10.17
18.....	9.6	10.78	10.45	12.4	18.9	16.8	12.4	12.6	11.3	10.31	10.14
19.....	9.6	10.52	10.51	12.7	17.4	15.9	12.3	12.5	11.2	10.26	10.13
20.....	9.6	10.42	10.60	12.4	15.7	15.3	12.2	12.6	11.2	10.22	10.11
21.....	9.6	10.22	10.58	12.2	14.8	14.6	12.1	13.0	11.15	10.21	10.09
22.....	9.6	10.10	10.32	12.0	14.2	14.1	12.0	13.0	11.15	10.18	10.08
23.....	9.6	10.50	10.30	11.9	13.8	13.8	12.0	12.9	11.2	10.18	10.03
24.....	9.6	10.25	10.34	14.2	13.5	13.6	11.55	13.0	11.2	10.17	10.00
25.....	9.6	9.95	10.30	29.8	13.2	13.5	12.1	13.3	11.15	10.15	9.95
26.....	9.6	9.95	10.25	36.5	13.0	13.3	12.2	13.6	11.1	10.14	9.93
27.....	9.6	9.95	10.58	25.8	12.8	13.2	12.1	13.5	11.1	10.13
28.....	9.6	9.95	11.60	19.3	12.6	13.0	12.2	13.5	11.1	10.11
29.....	9.6	9.95	11.71	16.8	12.5	13.0	18.0	13.2	11.0	10.09
30.....	9.6	9.95	11.55	15.4	13.0	22.2	13.0	11.95	10.08
31.....	9.6	11.50	14.5	12.8	12.8	10.06

NOTE.—Gage was out of water at about gage height 9.9 feet and the estimates made by the observer below that were not reliable and therefore no record is published Aug. 14-Sept. 3 and Sept. 27-30, 1912. Gage heights for June, 1912, have been corrected and supersede those published in Water-Supply Paper 300, p. 790.

Daily discharge, in second-feet, of Eel River at Scotia, Cal., for 1910-1912.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1910-11.										
1.....	900	39,400	4,300	8,000	4,050	3,350	790	150	150
2.....	845	36,400	4,050	8,300	4,180	3,580	680	150	150
3.....	790	35,400	4,050	8,300	4,550	3,460	580	150	150
4.....	735	25,900	4,550	7,550	5,200	3,350	580	150	150
5.....	680	21,200	8,600	19,800	5,070	3,020	532	150	150
6.....	630	18,700	27,400	33,800	5,200	2,920	485	150	150
7.....	218	15,600	57,800	20,100	4,550	2,710	485	150	150
8.....	680	12,400	43,700	13,800	4,050	2,710	395	150	150
9.....	960	10,400	30,100	11,600	4,050	2,320	395	150	150
10.....	1,520	10,200	21,400	17,000	3,810	2,320	355	150	150
11.....	4,550	19,000	16,600	14,200	3,350	2,320	355	150	150
12.....	13,600	18,500	13,400	9,300	3,350	2,130	315	150	100
13.....	10,200	23,000	11,200	7,550	3,460	2,040	315	150	100
14.....	9,120	22,100	9,650	7,550	3,350	1,950	280	150	100
15.....	12,400	16,800	8,780	7,550	3,130	2,320	280	150	100
16.....	10,400	13,400	8,300	7,550	3,240	2,130	280	150	100
17.....	7,850	11,200	8,000	7,100	4,550	2,040	280	150	100
18.....	2,110	14,000	11,800	8,000	6,350	8,450	1,770	280	150
19.....	1,900	54,200	11,600	8,000	6,950	11,600	1,600	280	150
20.....	1,680	116,000	9,650	7,700	6,350	7,400	1,520	280	150
21.....	1,600	63,200	8,600	7,850	5,760	6,200	1,440	280	150
22.....	1,440	20,100	7,550	7,700	5,760	5,760	1,440	280	150
23.....	1,360	6,950	6,800	7,700	5,760	5,340	1,360	280	150
24.....	1,290	12,000	6,200	8,000	5,900	5,340	1,150	245	150
25.....	1,220	16,800	5,900	7,700	6,200	4,680	1,020	190	150

Daily discharge, in second-feet, of Eel River at Scotia, Cal., for 1910-1912—Continued.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
26.....	1,150	26,200	6,500	7,550	6,500	4,050	900	158	150	75
27.....	1,080	28,100	5,070	6,800	5,900	3,700	900	150	150	75
28.....	1,020	57,200	4,680	6,650	5,200	3,700	900	150	150	75
29.....	960	45,600	6,800	4,680	3,240	845	150	150	75
30.....	900	51,700	6,800	4,180	3,130	790	150	150	75
31.....	900	62,000	7,550	3,130	150	150

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	75	75	170	2,420	8,300	3,810	4,300	64,400	4,550	984	275	210
2.....	75	75	170	2,510	6,800	3,810	4,050	51,400	4,050	924	265	210
3.....	75	75	170	2,280	5,900	3,350	4,050	30,100	3,810	889	260	210
4.....	75	75	170	1,680	5,340	3,130	3,810	21,200	3,580	856	255	255
5.....	75	75	234	1,440	4,810	4,550	3,580	16,800	3,130	834	255	285
6.....	75	75	331	1,220	4,550	18,500	3,350	14,400	2,920	801	242	1,440
7.....	75	75	331	2,130	4,810	28,600	3,580	12,400	2,820	780	242	3,350
8.....	75	75	355	5,070	6,500	22,600	3,130	10,800	2,610	750	242	3,700
9.....	75	75	355	6,500	8,600	16,000	3,130	9,650	2,420	700	231	2,420
10.....	75	182	331	8,300	8,600	12,400	3,580	8,600	2,320	654	231	1,600
11.....	75	331	315	8,950	8,300	10,000	5,900	7,700	2,130	618	231	1,080
12.....	75	331	301	6,500	7,400	9,650	5,620	7,100	2,040	574	224	700
13.....	75	355	245	6,200	8,000	13,600	5,620	6,500	2,040	566	217	491
14.....	75	467	201	7,100	8,950	13,600	5,070	5,900	2,130	540	210	420
15.....	75	532	190	5,340	8,950	18,000	4,300	5,340	2,040	524	210	390
16.....	75	680	223	4,050	8,600	39,600	4,050	5,070	1,950	499	210	347
17.....	75	768	355	4,050	13,600	26,200	4,050	4,550	1,680	459	210	340
18.....	75	878	532	3,810	29,100	19,400	3,810	4,300	1,600	443	210	321
19.....	75	600	590	4,550	22,100	15,600	3,580	4,050	1,440	405	210	314
20.....	75	504	680	3,810	14,800	13,200	3,350	4,300	1,440	375	210	302
21.....	75	331	660	3,350	11,200	10,400	3,130	5,340	1,360	368	210	290
22.....	75	245	413	2,920	8,950	8,600	2,920	5,340	1,360	347	210	285
23.....	75	580	395	2,710	7,700	7,700	2,920	5,070	1,440	347	210	260
24.....	75	355	431	8,950	6,800	7,100	2,040	5,340	1,440	340	210	245
25.....	75	170	395	92,300	5,900	6,800	3,130	6,200	1,360	328	210	228
26.....	75	170	355	137,000	5,340	6,200	3,350	7,100	1,290	321	210	220
27.....	75	170	660	66,800	4,810	5,900	3,130	6,800	1,290	314	210	210
28.....	75	170	2,130	31,100	4,300	5,340	3,350	6,800	1,290	302	210	210
29.....	75	170	2,340	19,400	4,050	5,340	24,800	5,900	1,150	290	210	210
30.....	75	170	2,040	13,600	5,340	45,900	5,340	2,820	285	210	210
31.....	75	1,950	10,000	4,810	4,810	275	210

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable 1910 to May 1, 1912, and May 2, 1912, to Sept. 30, 1912. Discharge estimated July 28 to Sept. 23, 1911, Aug. 14 to Sept. 3 1912, and Sept. 27-30, 1912.

Monthly discharge of Eel River at Scotia, Cal., for 1910-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1910-11.					
December 18-31.....	2,110	900	1,330	36,900	B.
January.....	116,000	218	21,000	1,290,000	B.
February.....	39,400	4,680	15,500	861,000	B.
March.....	57,800	4,050	12,500	769,000	B.
April.....	33,800	4,180	9,480	564,000	B.
May.....	11,600	3,130	4,670	287,000	B.
June.....	3,580	790	2,010	120,000	B.
July.....	790	150	336	20,700	B.
August.....	150	150	150	9,220	C.
September.....	150	75	112	6,660	C.
The period.....				3,960,000	
1911-12.					
October.....	75	75	75.0	4,610	B.
November.....	878	75	294	17,500	B.
December.....	2,340	170	581	35,700	B.
January.....	137,000	1,220	15,400	947,000	B.
February.....	29,100	4,050	8,730	502,000	B.
March.....	39,600	3,130	11,900	732,000	B.
April.....	45,900	2,040	5,890	350,000	B.
May.....	64,400	4,050	11,600	713,000	B.
June.....	4,550	1,150	2,180	130,000	B.
July.....	984	275	538	33,100	B.
August.....	275	210	224	13,800	C.
September.....	3,700	210	692	41,200	B.
The year.....	137,000	75	4,840	3,520,000	

MIDDLE EEL RIVER NEAR COVELO, CAL.

Location.—Below highway bridge, near Covelo ranger station, in the E. $\frac{1}{4}$ sec. 36, T. 23 N., R. 12 W., and about 6 miles east of Covelo. Williams Creek enters about half a mile above the station.

Records available.—August 22, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Inclined staff in two sections on left bank, about one-fourth of a mile west of ranger station and 1 mile below bridge.

Channel.—Small boulders and gravel; appears fairly permanent.

Discharge measurements.—Made from downstream side of bridge above gage or by wading. When measurements are made from the bridge the discharge of Williams Creek is added to give flow at gage.

Cooperation.—Gage-height record furnished by United States Forest Service.

Estimates of daily and monthly discharge are withheld until additional high-water measurements are secured.

Discharge measurements of Middle Eel River near Covelo, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.	Date.	Hydrographer.	Gage height.	Dis- charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 7a	E. O. Christiansen.....	7.30	14	Mar. 12b	R. C. Rice.....	10.00	802
12a	S. C. Whipple.....	7.81	39do.....		10.44	1,130
				Aug. 15a	J. E. Stewart.....	7.43	20
1912.							
Jan. 23b	E. O. Christiansen.....	9.30	367				

^a Wading below mouth of Williams Creek.

^b Made at bridge and discharge of Williams Creek has been added.

Discharge measurements of Williams Creek near Covelo, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
Jan. 23	E. O. Christiansen	<i>Feet.</i>	<i>Sec.-ft.</i>	Mar. 31	R. C. Rice	<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 13	R. C. Rice		35 78				59

NOTE.—Measurements made by wading near mouth.

Daily gage height, in feet, of Middle Fork of Eel River near Covelo, Cal., for 1911-12.

[C. C. Brereton, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	7.30	7.30	7.50	7.9	10.2	9.6	10.4	14.5	11.0	8.7	7.8	7.25
2	7.29	7.30	7.55	7.9	10.2	9.5	10.35	12.6	10.9	8.7	7.8	7.3
3	7.30	7.29	7.60	8.0	10.0	9.4	10.4	12.7	10.7	8.6	7.8	7.45
4	7.30	7.30	7.60	8.1	10.0	9.4	10.2		10.5	8.6	7.8	7.6
5	7.31	7.29	7.60	8.1	10.0	9.5	10.2	12.8	10.4	8.5	7.8	7.75
6	7.20	7.30	7.75	8.1	10.0	10.4	10.35	13.1	10.2	8.5	7.75	11.5
7	7.28	7.30	8.00	9.0	10.8	10.4	10.3	13.0	10.0	8.4	7.7	9.75
8	7.31		7.95	9.5	12.3	10.2	10.4	12.8	10.0	8.4	7.65	9.0
9	7.32	7.35	7.85	10.3	11.2	10.0	10.3		9.8	8.4	7.6	8.6
10	7.40	8.25	7.80	9.8	10.9	9.8	11.4	12.1	9.7	8.4	7.55	8.4
11	7.40	8.08	7.80	9.5	10.9	9.8	11.1	12.1	9.6	8.3	7.5	8.2
12	7.35	7.80	7.70	9.3	10.8	10.0	10.7	12.1	9.6	8.3	7.5	8.0
13	7.38	7.72	7.70	9.6	10.6	9.8	10.5	11.6	9.5	8.25	7.5	7.9
14	7.35	7.70	7.70	10.3	10.5	9.9	10.6	11.6	9.5	8.2	7.5	7.9
15	7.34	8.15	7.65	10.0	10.6	10.6	10.6	11.4	9.5	8.2	7.45	7.9
16	7.32	8.85	7.72	10.0	10.7	10.3	10.6	11.0	9.4	8.1	7.45	7.9
17	7.30	8.30	7.88	9.7	15.0	10.3	10.6	10.9	9.1		7.45	7.9
18	7.30	8.15	7.65	9.5	13.3	10.4	10.5	10.8	9.1		7.4	7.8
19	7.28	8.02	7.70	9.35	12.1	10.4	10.4	10.8	9.1		7.4	7.8
20	7.28	8.05	7.70	9.3	11.4	10.5	10.3	11.0	9.1		7.4	7.8
21	7.28	7.95	7.70	9.3	11.1	10.5	10.1	10.7	9.1	7.9	7.4	7.7
22	7.28	7.84	7.70	9.3	10.6	10.6	10.0	10.8	9.0	7.9	7.4	7.7
23	7.28	7.80	7.70	9.3	10.4	10.7	10.1	10.8	9.0	7.9	7.4	7.7
24	7.28	7.74	7.72	11.0	10.2	10.3	10.15	11.4	9.0	7.9	7.4	7.7
25	7.26	7.70	7.75	18.6	10.0	10.7	10.1	12.6	9.0	7.9	7.38	7.7
26	7.30	7.70	7.78	15.6	9.7	10.4	10.1	12.0	8.95	7.85	7.38	7.6
27	7.30	7.68	7.95	13.0	9.7	10.7	10.0	11.9	8.9	7.85	7.35	7.6
28	7.30	7.65	8.00	12.9	9.6	11.0	10.6	11.7	8.8	7.85	7.3	7.6
29	7.35	7.64	7.85	10.9	9.6	11.2	12.6	11.5	8.8	7.8	7.3	7.6
30	7.35	7.60	7.85	10.6		10.6	13.5	11.5	8.75	7.8	7.25	7.55
31	7.31		7.95	10.4		10.4		11.3		7.8	7.2	

SOUTH FORK OF EEL RIVER AT GARBERVILLE, CAL.

Location.—At highway bridge, in the SW. $\frac{1}{4}$ sec. 24, T. 4 S., R. 3 E., about 1 mile southwest of Garberville.

Records available.—August 25, 1911, to September 30, 1912.

Drainage area.—84 square miles.

Gage.—Chain gage on downstream side of bridge; length of chain 50.93 feet.

Channel.—Boulders and gravel; somewhat shifting during high water.

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

Estimates of daily and monthly discharge are withheld until additional high-water measurements are secured.

Discharge measurements of South Fork of Eel River at Garberville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Nov. 18 ^a	E. O. Christiansen.....	<i>Feet.</i> 7.36	<i>Sec.-ft.</i> 157	1912. Mar. 17 ^b	E. O. Christiansen.....	<i>Feet.</i> 12.57	<i>Sec.-ft.</i> 5,750
1912. Jan. 16 ^bdo.....	9.14	1,120	May 27 ^bdo.....	8.90	1,050
				June 19 ^ado.....	7.62	296
				Sept. 3 ^a	Charles Leidl.....	6.78	86

^a Wading.

^b Bridge.

Daily gage height, in feet, of South Fork of Eel River at Garberville, Cal., for 1911-12.

[W. L. Hurlbutt, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	6.7	6.7	6.80	9.1	9.9	8.9	8.75	16.9	8.4	7.30	6.85	6.64
2.....	6.75	6.7	6.78	8.9	9.6	8.8	8.65	14.2	8.3	7.29	6.88	6.61
3.....	6.8	6.7	6.78	8.45	9.3	8.7	8.6	12.6	8.2	7.26	6.81	6.80
4.....	6.8	6.7	6.80	8.2	9.05	8.65	8.55	11.6	8.15	7.25	6.80	6.91
5.....	6.8	6.7	6.86	8.0	8.85	10.0	8.45	10.9	8.1	7.22	6.80	7.19
6.....	6.78	6.7	7.25	7.93	8.75	12.2	8.35	11.0	8.0	7.21	6.75	8.75
7.....	6.75	6.7	7.47	8.65	9.05	13.0	8.4	10.1	8.0	7.19	6.72	8.3
8.....	6.78	6.7	7.42	9.4	9.6	12.0	8.45	9.8	7.96	7.18	6.71	7.60
9.....	6.9	6.78	7.18	10.2	10.0	11.3	8.3	9.45	7.92	7.16	6.74	7.30
10.....	6.88	7.48	7.06	10.4	10.0	10.8	8.3	9.3	7.89	7.12	6.69	7.16
11.....	6.95	7.70	7.00	10.4	10.0	10.3	8.7	9.1	7.85	7.09	6.64	7.04
12.....	6.9	7.25	6.96	9.8	9.7	10.5	8.8	8.95	7.91	7.08	6.69	6.91
13.....	6.85	7.15	6.94	10.8	10.2	10.4	8.7	8.85	7.92	7.08	6.70	6.84
14.....	6.88	7.18	6.90	10.0	10.4	10.0	8.4	8.75	7.92	7.05	6.70	6.84
15.....	6.9	7.40	6.90	9.45	10.2	13.3	8.35	8.65	7.84	7.02	6.70	6.78
16.....	6.85	7.95	6.92	9.2	10.4	13.7	8.2	8.55	7.76	7.01	6.66	6.73
17.....	6.8	7.68	7.42	9.05	12.5	12.7	8.15	8.45	7.70	6.99	6.66	6.72
18.....	6.8	7.32	7.64	9.15	13.9	11.9	8.1	8.4	7.65	6.98	6.65	6.70
19.....	6.8	7.17	7.52	9.35	12.9	11.3	8.05	8.4	7.60	6.95	6.66	6.69
20.....	6.75	7.05	7.36	9.05	11.4	10.8	8.0	8.8	7.61	6.95	6.62	6.69
21.....	6.75	6.99	7.24	8.85	10.7	10.5	7.96	8.95	7.62	6.95	6.64	6.68
22.....	6.7	6.95	7.20	8.75	10.3	10.2	7.91	8.75	7.56	6.91	6.60	6.63
23.....	6.7	6.91	7.16	8.65	10.0	10.0	8.0	8.75	7.60	6.90	6.59	6.62
24.....	6.7	6.88	7.17	11.1	9.8	9.8	8.15	8.8	7.58	6.92	6.60	6.56
25.....	6.7	6.88	7.14	23.4	9.6	9.6	8.2	8.8	7.58	6.95	6.62	6.61
26.....	6.7	6.86	7.08	20.3	9.4	9.5	8.15	8.8	7.58	6.96	6.62	6.58
27.....	6.7	6.86	7.08	15.5	9.25	9.3	8.1	8.9	7.50	6.92	6.62	6.60
28.....	6.7	6.82	9.45	13.3	9.1	9.2	8.2	8.8	7.41	6.90	6.62	6.68
29.....	6.7	6.80	8.69	11.8	9.0	9.1	13.8	8.7	7.38	6.92	6.58	6.65
30.....	6.7	6.80	8.30	11.1	8.95	14.2	8.6	7.36	6.91	6.55	6.59
31.....	6.7	8.46	10.4	8.8	8.5	6.85	6.56

NOTE.—Chain gage was found to be 0.5 foot too long on June 30, 1912. Corrections to gage height have been made on the assumption that the change in datum was gradual. Also a correction has been applied from Sept. 5 to 30.

VAN DUZEN RIVER AT BRIDGEVILLE, CAL.

Location.—Just below highway bridge, at Bridgeville, in the SE. $\frac{1}{4}$ sec. 11, T. 1 N., R. 3 E.

Records available.—September 22, 1911, to September 30, 1912.

Drainage area.—194 square miles.

Gage.—Staff in three sections on right bank just below bridge.

Channel.—Gravel; somewhat shifting during high water.

Discharge measurements.—Made from car and cable 90 feet below gage or by wading.

Estimates of daily and monthly discharge are withheld until additional high-water measurements are secured.

Discharge measurements of Van Duzen River at Bridgeville, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 19 ^a	E. O. Christiansen	4.71	12	Apr. 26 ^b	E. O. Christiansen	7.35	569
				27 ^b	do.....	7.25	515
1912.				June 7 ^a	do.....	6.66	281
Jan. 6 ^a	do.....	6.02	1.55	Sept. 10 ^a	Charles Leidl	5.66	75
27 ^b	do.....	12.94	4,910	11 ^a	do.....	5.55	56
Mar. 12 ^b	do.....	8.70	1,320				

^a Wading.

^b Cable.

Daily gage height, in feet, of Van Duzen River at Bridgeville, Cal., for 1911-12.

[M. L. Ballard, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.59	4.64	4.90	6.0	8.0	6.55	7.4	17.2	7.1	5.92	5.20	5.00
2.....	4.60	4.65	4.90	5.88	7.9	6.5	7.4	13.4	7.0	5.91	5.20	5.05
3.....	4.62	4.66	4.89	5.81	7.75	6.5	7.25	10.8	6.9	5.86	5.20	5.30
4.....	4.66	4.65	4.88	5.8	7.55	6.4	7.0	9.6	6.9	5.81	5.20	5.60
5.....	4.66	4.63	5.12	5.85	7.5	9.2	7.0	8.9	6.9	5.79	5.20	5.85
6.....	4.64	4.65	5.46	6.05	7.6	10.4	7.0	8.8	6.9	5.78	5.19	6.8
7.....	4.61	4.67	5.80	9.8	8.0	9.4	7.0	8.6	6.75	5.74	5.18	6.7
8.....	4.62	4.72	5.47	8.2	9.0	9.6	7.0	8.4	6.7	5.71	5.16	6.45
9.....	4.81	5.12	5.36	10.0	8.6	9.4	7.0	8.2	6.6	5.66	5.15	6.05
10.....	4.88	5.65	5.24	9.8	8.7	8.4	6.9	7.95	6.5	5.61	5.15	6.7
11.....	4.81	5.61	5.18	9.3	8.5	8.0	7.0	7.75	6.5	5.56	5.14	5.51
12.....	4.79	5.61	5.06	8.9	8.4	8.4	7.0	7.65	6.5	5.50	5.13	5.45
13.....	4.75	5.46	4.92	10.8	8.8	8.2	7.15	7.5	6.5	5.46	5.12	5.42
14.....	4.82	5.48	5.05	9.2	8.4	8.0	7.0	7.45	6.5	5.45	5.11	5.38
15.....	4.88	6.30	5.25	8.2	8.3	10.0	7.0	7.2	6.5	5.42	5.10	5.35
16.....	4.78	6.50	5.50	7.75	10.8	10.0	7.0	7.15	6.48	5.41	5.10	5.35
17.....	4.77	6.05	5.60	7.4	14.4	9.5	6.9	7.05	6.38	5.39	5.09	5.35
18.....	4.74	5.02	5.56	7.7	12.6	9.0	6.8	7.0	6.28	5.38	5.06	5.34
19.....	4.70	5.48	5.62	7.8	10.8	8.6	6.8	7.1	6.19	5.36	5.06	5.32
20.....	4.69	5.32	5.65	7.6	9.1	8.3	6.8	7.65	6.12	5.31	5.05	5.32
21.....	4.65	5.25	5.55	7.2	8.6	8.1	6.7	7.8	6.1	5.29	5.05	5.30
22.....	4.65	5.16	5.62	7.05	8.0	7.95	6.7	7.8	6.0	5.28	5.04	5.30
23.....	4.65	5.05	5.68	7.0	7.95	7.95	6.75	8.2	6.08	5.28	5.02	5.30
24.....	4.66	5.04	5.72	13.9	7.65	7.9	7.1	8.6	6.08	5.27	5.02	5.28
25.....	4.68	5.01	5.62	24.1	7.5	7.9	7.4	8.7	6.04	5.26	5.01	5.25
26.....	4.69	4.96	5.60	18.0	7.3	7.85	7.45	8.5	6.01	5.25	5.00	5.22
27.....	4.67	4.91	6.40	13.6	7.0	7.8	7.15	8.4	6.0	5.25	5.00	5.20
28.....	4.65	4.91	6.20	10.8	7.0	7.75	7.7	7.95	5.98	5.20	5.00	5.22
29.....	4.65	4.90	6.00	9.9	6.85	7.7	16.8	7.75	5.98	5.20	5.00	5.20
30.....	4.66	4.90	5.95	9.1	7.55	15.5	7.4	5.95	5.20	5.00	5.11
31.....	4.68	6.00	8.4	7.45	7.25	5.20	5.00

NOTE.—Jan. 25, 1912, maximum recorded gage height 26.0 feet at 4.55 p. m.

YAGER CREEK AT CARLOTTA, CAL.

Location.—At highway bridge at Carlotta, in sec. 28, T. 2 N., R. 1 E., about half a mile above junction with Van Duzen River.

Records available.—August 29, 1911, to September 30, 1912.

Drainage area.—146 square miles.

Gage.—Vertical staff fastened to left abutment of bridge.

Channel.—Gravel and sand; shifts slightly at high stages.

Discharge measurements.—Made from railroad bridge 40 feet below gage, or by wading.

Accuracy.—Rating curve is fairly well defined and results are fair.

Discharge measurements of Yager Creek at Carlotta, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Oct. 20 ^a	E. O. Christiansen	<i>Feet.</i> 5.61	<i>Sec.-ft.</i> 1.2	1912. Apr. 28 ^b	E. O. Christiansen	<i>Feet.</i> 7.47	<i>Sec.-ft.</i> 394
				June 8 ^a	do.	6.78	68
1912. Jan. 7 ^b	do.	11.40	3,200	Sept. 8 ^a	do.	6.78	72
Mar. 14 ^b	do.	7.82	598	Sept. 12 ^a	Charles Leidl.	6.32	17

^a Wading.^b Bridge.*Daily gage height, in feet, of Yager Creek at Carlotta, Cal., for 1911-12.*

[H. V. Bianchi, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.	5.6	5.6	5.6	7.5	7.43	7.06	6.77	12.7	7.05	6.52	6.15	5.95
2.	5.6	5.6	5.6	7.0	7.23	6.98	6.80	10.8	7.01	6.50	6.18	6.00
3.	5.6	5.6	5.6	6.8	7.13	6.95	6.92	9.6	7.00	6.50	6.20	6.98
4.	5.6	5.6	5.6	6.7	6.99	6.88	6.82	8.8	6.96	6.50	6.20	6.30
5.	5.6	5.6	5.6	6.6	6.90	7.7	6.72	8.35	6.91	6.48	6.15	6.35
6.	5.6	5.6	5.7	6.6	6.90	9.6	6.66	8.05	6.86	6.45	6.15	7.35
7.	5.6	5.6	6.15	12.0	7.08	9.6	6.64	7.8	6.84	6.42	6.15	6.95
8.	5.6	5.6	5.9	9.9	8.45	8.7	6.64	7.6	6.80	6.40	6.15	6.75
9.	5.6	5.6	5.65	9.8	7.75	8.25	6.62	7.48	6.80	6.40	6.15	6.50
10.	5.6	5.8	5.6	9.4	7.7	8.0	6.62	7.4	6.80	6.40	6.15	6.50
11.	5.6	6.4	5.6	8.5	7.6	7.8	7.3	7.34	6.78	6.40	6.10	6.45
12.	5.6	5.95	5.6	8.05	7.44	7.1	7.7	7.29	6.81	6.40	6.10	6.32
13.	5.6	5.65	5.6	9.0	7.55	8.0	7.6	7.21	6.78	6.40	6.10	6.30
14.	5.6	6.05	5.6	8.05	7.55	7.8	7.5	7.16	6.75	6.35	6.10	6.30
15.	5.6	6.0	5.6	7.55	7.48	9.4	7.37	7.12	6.74	6.35	6.05	6.28
16.	5.6	7.0	5.6	7.26	10.7	10.0	7.17	7.06	6.71	6.35	6.05	6.25
17.	5.6	6.5	6.5	7.06	12.9	9.1	7.03	7.02	6.68	6.30	6.05	6.18
18.	5.6	6.2	6.5	6.92	11.2	8.5	7.05	7.00	6.65	6.30	6.00	6.15
19.	5.6	5.9	6.3	7.13	9.5	8.2	6.98	7.00	6.61	6.30	6.00	6.10
20.	5.6	5.8	6.7	6.93	8.7	7.9	6.95	7.21	6.60	6.30	6.00	6.10
21.	5.6	5.7	6.3	6.78	8.15	7.7	6.95	7.35	6.51	6.30	6.00	6.10
22.	5.6	5.6	6.25	6.68	7.85	7.49	6.9	7.38	6.50	6.25	6.00	6.10
23.	5.6	5.6	6.35	6.62	7.9	7.36	6.9	7.39	6.68	6.20	6.00	6.10
24.	5.6	5.6	6.75	8.9	7.65	7.29	6.88	7.5	6.75	6.20	6.00	6.05
25.	5.6	5.6	6.45	14.7	7.48	7.22	7.35	7.42	6.62	6.20	6.00	6.05
26.	5.6	5.6	6.4	12.2	7.38	7.13	7.75	7.34	6.60	6.20	5.95	6.02
27.	5.6	5.6	7.0	10.1	7.28	7.03	7.65	7.42	6.60	6.20	5.95	6.00
28.	5.6	5.6	7.75	9.1	7.18	6.94	7.7	7.30	6.58	6.20	5.95	6.00
29.	5.6	5.6	7.0	8.5	7.14	6.92	12.6	7.26	6.55	6.20	5.95	6.00
30.	5.6	5.6	6.8	7.95	-----	6.90	11.0	7.21	6.55	6.20	5.95	6.00
31.	5.6	-----	7.5	7.65	-----	6.78	-----	7.15	-----	6.18	5.95	-----

NOTE.—Jan. 25, 1912, maximum recorded gage height 15.7 feet at 4 p. m.

Daily discharge, in second-feet, of Yager Creek at Carlotta, Cal., for 1911-12.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1911.			1911.			1911.		
1.			11.		0.4	21.		0.4
2.		0.4	12.		.4	22.		.4
3.		.4	13.		.4	23.		.5
4.		.4	14.		.4	24.		.7
5.		.4	15.		.4	25.		.7
6.		.4	16.		.4	26.		.8
7.		.4	17.		.4	27.		.8
8.		.4	18.		.4	28.		.8
9.		.4	19.		.4	29.	0.5	.8
10.		.4	20.		.4	30.	.4	.8
						31.	.4	-----

Daily discharge, in second-feet, of Yager Creek at Carlotta, Cal., for 1911-12—Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	0.8	0.8	0.8	425	394	257	172	4,350	122	35	8.0	2.4
2.....	.8	.8	.8	238	316	232	180	2,600	112	33	9.2	3.0
3.....	.8	.8	.8	180	280	223	214	1,600	110	33	10	5.4
4.....	.8	.8	.8	154	235	202	186	1,000	102	33	10	15
5.....	.8	.8	.8	128	208	520	159	700	92	31	8.0	19
6.....	.8	.8	3.0	128	208	1,730	144	502	83	28	8.0	212
7.....	.8	.8	44	3,760	264	1,730	138	390	79	25	8.0	100
8.....	.8	.8	15	1,970	920	1,070	138	305	72	23	8.0	64
9.....	.8	.8	1.9	1,890	545	808	133	258	72	23	8.0	33
10.....	.8	8.0	.8	1,570	520	670	133	230	72	23	8.0	33
11.....	.8	83	.8	950	470	570	340	209	69	23	6.0	28
12.....	.8	20	.8	698	398	270	520	192	74	23	6.0	17
13.....	.8	1.9	.8	1,280	448	670	470	168	69	23	6.0	15
14.....	.8	31	.8	698	448	570	425	153	64	19	6.0	15
15.....	.8	25	.8	448	416	1,570	368	141	63	19	4.5	14
16.....	.8	238	.8	326	2,610	2,050	294	125	58	19	4.5	12
17.....	.8	104	104	257	4,600	1,350	248	115	54	15	4.5	9.2
18.....	.8	50	104	214	3,040	950	254	110	50	15	3.0	8.0
19.....	.8	15	65	280	1,650	780	232	110	45	15	3.0	6.0
20.....	.8	8.0	154	217	1,070	620	223	168	44	15	3.0	6.0
21.....	.8	3.0	65	175	752	520	223	212	34	15	3.0	6.0
22.....	.8	.8	58	149	595	420	208	223	33	12	3.0	6.0
23.....	.8	.8	74	133	620	364	208	226	54	10	3.0	6.0
24.....	.8	.8	167	1,210	495	336	202	265	64	10	3.0	4.5
25.....	.8	.8	94	6,400	416	312	360	237	47	10	3.0	4.5
26.....	.8	.8	83	3,940	372	280	545	209	44	10	2.4	3.6
27.....	.8	.8	238	2,130	333	248	495	237	44	10	2.4	3.0
28.....	.8	.8	545	1,350	298	220	520	195	42	10	2.4	3.0
29.....	.8	.8	238	950	284	214	4,300	183	38	10	2.4	3.0
30.....	.8	.8	180	645	208	2,860	168	38	10	2.4	3.0
31.....	.8	425	495	175	150	9.2	2.4

Monthly discharge of Yager Creek at Carlotta, Cal., for 1911-12.

[Drainage area, 146 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.	
1911.							
September.....	0.8	0.4	0.49	0.0034	0.004	29.2	D.
1911-12.							
October.....	.8	.8	.80	.0055	.006	49.2	D.
November.....	238	.8	20.0	.137	.15	1,190	C.
December.....	545	.8	86.0	.589	.68	5,290	C.
January.....	6,400	128	1,080	7.40	8.53	66,400	C.
February.....	4,600	208	800	5.48	5.91	46,000	B.
March.....	2,050	175	650	4.45	5.13	40,000	B.
April.....	4,300	133	496	3.40	3.79	29,500	B.
May.....	4,350	110	507	3.47	4.00	31,200	B.
June.....	122	33	64.8	.444	.50	3,860	C.
July.....	35	9.2	19.0	.130	.15	1,170	C.
August.....	10	2.4	5.20	.036	.04	320	C.
September.....	212	2.4	22.0	.151	.17	1,310	C.
The year.....	6,400	.8	311	2.13	29.06	226,000	

MAD RIVER BASIN.

MAD RIVER NEAR ARCATA, CAL.

Location.—At the Oregon & Eureka Railroad bridge at Essex, in sec. 15, T. 6 N., R. 1 E., 1 mile below Warren Creek and about 5 miles northeast of Arcata.

Records available.—December 29, 1910, to September 30, 1912.

Drainage area.—452 square miles.

Gage.—Vertical staff in two sections on right bank at railroad bridge.

Channel.—Sand and gravel; slightly shifting at high stages.

Discharge measurements.—Made from highway bridge just above gage, or by wading.

Estimates of daily and monthly discharge are withheld until additional high-water measurements are secured.

Discharge measurements of Mad River near Arcata, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 9 ^a	E. O. Christiansen.....	17.20	5,150	June 21 ^b	E. O. Christiansen.....	13.04	310
Mar. 6 ^a	do.....	16.70	3,840	Aug. 21 ^b	Charles Leidl.....	12.13	47
Apr. 22 ^a	do.....	14.02	740	Sept. 13 ^b	do.....	12.40	118
May 18 ^b	do.....	13.82	713				

^a Bridge.

^b Wading.

Daily gage height, in feet, of Mad River near Arcata, Cal., for 1911-12.

[Ernest McCloskey, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	11.8	11.80	12.00	14.35	15.4	14.35	14.55	22.2	14.25	12.70	12.28	12.10
2.....	11.8	11.80	12.08	13.6	15.0	14.3	14.4	18.4	13.9	12.70	12.25	12.10
3.....	11.8	11.80	12.08	13.2	14.9	14.25	14.35	17.8	13.9	12.68	12.25	12.60
4.....	11.8	11.80	12.08	13.15	14.7	14.2	14.3	16.9	13.75	12.65	12.22	12.60
5.....	11.8	11.80	12.05	12.9	14.6	14.8	14.2	16.2	13.5	12.65	12.22	12.80
6.....	11.8	11.80	12.05	12.9	14.5	16.7	14.2	16.0	13.5	12.62	12.20	13.7
7.....	11.82	11.80	12.30	18.0	14.6	17.0	14.1	15.5	13.45	12.60	12.20	13.5
8.....	11.85	11.82	12.25	16.9	16.2	16.2	14.1	15.2	13.4	12.60	12.20	12.95
9.....	11.85	11.85	12.20	17.2	16.2	16.0	14.05	15.1	13.35	12.55	12.18	12.80
10.....	11.85	12.40	12.18	16.6	16.0	15.6	14.05	14.7	13.3	12.55	12.18	12.55
11.....	11.85	12.40	12.15	16.0	15.9	15.4	14.5	14.65	13.2	12.52	12.15	12.50
12.....	11.85	12.25	12.10	15.4	15.7	15.2	14.6	14.4	13.3	12.48	12.15	12.42
13.....	11.85	12.18	12.08	18.4	15.5	15.2	14.55	14.2	13.3	12.48	12.15	12.40
14.....	11.88	12.10	12.08	16.6	15.4	15.1	14.4	14.1	13.4	12.45	12.15	12.30
15.....	11.85	13.12	12.05	15.7	15.6	15.4	14.35	14.0	13.3	12.45	12.15	12.30
16.....	11.85	13.55	12.10	15.3	18.4	16.7	14.3	14.0	13.2	12.42	12.15	12.30
17.....	11.85	13.00	12.74	14.95	23.5	16.6	14.25	13.8	13.1	12.40	12.15	12.25
18.....	11.85	12.70	12.75	14.7	20.8	16.2	14.2	13.8	13.1	12.40	12.15	12.22
19.....	11.85	12.35	12.60	14.6	18.5	16.0	14.2	13.75	13.0	12.38	12.12	12.20
20.....	11.85	12.30	12.58	14.3	16.8	15.8	14.15	14.1	13.05	12.38	12.12	12.18
21.....	11.85	12.20	12.55	14.05	16.0	15.5	14.1	14.3	13.05	12.38	12.12	12.18
22.....	11.85	12.20	12.48	13.85	15.8	15.2	14.0	14.4	13.0	12.35	12.10	12.15
23.....	11.82	12.18	12.50	13.7	15.3	15.1	13.95	14.5	13.0	12.35	12.10	12.15
24.....	11.82	12.10	12.52	14.2	15.3	15.0	14.1	14.95	12.98	12.32	12.10	12.15
25.....	11.82	12.08	12.58	23.8	15.0	15.0	14.5	15.0	12.98	12.32	12.10	12.15
26.....	11.82	12.02	12.60	23.1	14.85	14.9	14.9	15.0	12.90	12.30	12.10	12.12
27.....	11.82	12.00	13.29	19.0	14.7	14.9	14.9	14.85	12.88	12.30	12.10	12.12
28.....	11.82	12.00	14.60	17.7	14.55	14.9	14.8	14.8	12.85	12.28	12.08	12.12
29.....	11.82	12.00	13.60	16.6	14.45	14.8	19.1	14.65	12.80	12.28	12.08	12.12
30.....	11.82	12.00	13.40	16.2	14.7	19.9	14.4	12.78	12.28	12.08	12.10
31.....	11.82	14.05	15.7	14.6	14.3	12.28	12.08

REDWOOD CREEK BASIN.

REDWOOD CREEK NEAR KORBEL, CAL.

Location.—At highway bridge at Bair's ranch, in the SE. $\frac{1}{4}$ sec. 28, T. 7 N., R. 3 E., 200 feet above Minor Creek and about 9 miles northeast of Korbel.

Records available.—September 4, 1911, to September 30, 1912.

Drainage area.—81 square miles.

Gage.—Temporary staff gage located just above mouth of Minor Creek used until October 14, when chain gage was installed on downstream side of bridge at same datum as staff gage. Length of chain, 35.10 feet. On September 18, 1912, a vertical staff in two sections, fastened to tree on left bank 60 feet below bridge, was installed at same datum as chain gage.

Channel.—Sand and gravel; will probably shift slightly at high stages.

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

Accuracy.—Rating curve fairly well defined and results are good.

Discharge measurements of Redwood Creek near Korbel, Cal., in 1911–12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 14a	E. O. Christiansen	5.75	14	Feb. 17b	E. O. Christiansen	13.26	7,360
Dec. 28ado.	6.88	151	Apr. 13ado.	6.88	171
				June 14ado.	6.58	114
1912.				Aug. 19a	Charles Leidl	5.54	15
Feb. 6bdo.	7.20	231	Sept. 18ado.	5.67	19
16bdo.	11.28	3,830	23ado.	5.63	16

a Wading.

b Bridge.

Daily gage height, in feet, of Redwood Creek near Korbel, Cal., for 1911–12.

[John Johnson, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5.32	5.30	5.65	6.78	7.53	7.26	7.05	11.9	7.21	6.13	5.65	5.55
2.....	5.36	5.30	5.65	6.55	7.42	7.22	7.05	10.4	7.06	6.08	5.65	5.60
3.....	5.50	5.30	5.65	6.39	7.33	7.17	7.00	10.1	6.94	6.04	5.63	5.99
4.....	5.70	5.30	5.65	6.32	7.35	7.15	6.96	8.35	6.86	6.01	5.63	5.98
5.....	5.62	5.32	5.68	6.29	7.30	7.50	6.95	8.2	6.78	5.98	5.60	6.32
6.....	5.54	5.34	5.80	6.36	7.25	7.87	6.93	8.1	6.71	5.96	5.60	7.05
7.....	5.50	5.35	6.00	8.9	7.41	7.90	6.91	7.87	6.68	5.93	5.60	5.90
8.....	5.60	5.48	5.88	8.15	8.4	7.77	6.89	7.78	6.65	5.92	5.58	6.05
9.....	5.84	5.95	5.80	8.95	7.92	7.62	6.87	7.73	6.60	5.92	5.58	5.88
10.....	5.49	6.35	5.76	8.4	7.94	7.52	6.87	7.66	6.55	5.90	5.58	5.75
11.....	5.40	5.65	5.75	7.95	7.79	7.42	6.90	7.56	6.51	5.88	5.58
12.....	5.38	5.52	5.70	8.2	7.29	7.36	6.99	7.46	6.78	5.86	5.58
13.....	5.48	6.20	5.70	9.4	7.59	7.32	6.90	7.39	6.60	5.84	5.58
14.....	5.65	6.00	5.68	8.45	7.74	7.29	6.86	7.34	6.58	5.82	5.58
15.....	5.61	7.30	5.72	8.05	7.78	8.2	6.88	7.28	6.56	5.81	5.58
16.....	5.48	6.80	5.94	7.75	10.7	8.15	6.90	7.20	6.52	5.80	5.58
17.....	5.45	6.40	6.44	7.50	12.6	7.98	6.90	7.16	6.44	5.77	5.58
18.....	5.41	6.12	6.12	7.34	10.2	7.83	6.90	7.10	6.34	5.75	5.58	5.67
19.....	5.42	6.00	6.08	7.27	9.1	7.75	6.88	7.06	6.30	5.75	5.58
20.....	5.42	5.90	6.15	7.18	8.65	7.60	6.80	7.46	6.44	5.75	5.56
21.....	5.45	5.86	6.01	7.08	8.3	7.51	6.76	7.46	6.46	5.75	5.55
22.....	5.55	5.80	5.95	7.03	8.1	7.44	6.74	7.40	6.34	5.74	5.55
23.....	5.45	5.76	6.20	6.98	8.05	7.37	6.70	7.42	6.59	5.75	5.52	5.63
24.....	5.45	5.75	6.22	7.68	7.81	7.37	6.99	7.48	6.43	5.75	5.52	5.40
25.....	5.42	5.70	6.16	11.3	7.69	7.32	7.02	7.56	6.32	5.75	5.52	5.62
26.....	5.42	5.70	6.10	10.0	7.59	7.31	7.32	7.61	6.29	5.72	5.52	5.58
27.....	5.30	5.70	7.02	8.7	7.48	7.29	7.20	7.62	6.29	5.72	5.52	5.60
28.....	5.30	5.70	6.88	8.35	7.38	7.21	7.48	7.46	6.25	5.70	5.52	5.60
29.....	5.30	5.68	5.50	8.05	7.34	7.21	11.2	7.42	6.20	5.70	5.52	5.52
30.....	5.30	5.65	6.38	7.87	7.13	11.0	7.36	6.15	5.68	5.52	5.55
31.....	5.30	6.82	7.70	7.05	7.32	5.68	5.54

NOTE.—Gage heights from Apr. 26 to June 30, 1912, supersede those published in Water Supply Paper 300, p. 798.

Daily discharge, in second-feet, of Redwood Creek near Korbel, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		3.4	3	12	128	347	274	214	4,830	258	50	19	15
2		4.2	3	12	90	305	261	214	2,670	217	45	19	17
3		7	3	12	69	272	247	202	2,310	188	42	18	38
4	2.6	13	3	12	60	280	241	192	795	169	40	18	38
5	3.2	11	3.4	12	57	262	358	190	705	152	38	17	72
6		8.2	3.8	17	65	246	528	185	649	138	36	17	214
7	4.0	7	4	30	1,170	301	543	180	528	132	34	17	32
8	3.8	10	6.6	22	654	808	479	176	483	126	33	16	43
9	3.4	19	26	17	1,210	528	409	171	459	117	33	16	31
10	3	6.8	64	15	808	538	366	171	427	108	32	16	24
11	3	5	12	15	544	462	328	178	383	101	31	16	23
12	3	4.6	7.6	13	683	259	306	200	343	152	30	16	23
13	3	6.6	47	13	1,590	372	293	178	317	117	28	16	22
14	3	12	30	12	842	438	283	169	300	113	27	16	22
15	3	10	262	14	598	458	705	174	280	110	27	16	21
16	3	6.6	132	26	444	3,060	677	178	255	103	26	16	21
17	3	6	70	75	335	6,090	585	178	244	89	24	16	20
18	3	5.2	40	40	276	2,430	508	178	227	75	24	16	20
19	3	5.4	30	36	252	1,330	469	174	217	69	24	16	19
20	2.8	5.4	23	42	224	990	400	156	343	89	24	15	19
21	2	6	21	31	196	764	362	148	343	93	24	15	18
22	2	8.5	17	26	183	649	335	144	320	75	23	15	18
23	2	6	15	47	170	622	310	136	328	115	24	14	18
24	2	6	15	49	411	498	310	200	350	88	24	14	9
25	3	5.4	13	43	3,870	440	293	207	383	72	24	14	18
26	4	5.4	13	38	2,200	396	289	293	404	68	22	14	16
27	4	3	13	180	1,020	350	283	255	409	68	22	14	17
28	4	3	13	148	776	313	258	350	343	63	21	14	17
29	4	3	12	7	598	300	258	3,730	328	57	21	14	14
30	3.4	3	12	68	502	-----	235	3,450	306	52	20	14	15
31	-----	3	-----	136	420	-----	214	-----	293	-----	20	15	-----

NOTE.—Daily discharge determined from two fairly well defined rating curves applicable 1911 to Feb. 17, 1912, and Feb. 18 to Sept. 30, 1912. Discharge interpolated for days when gage was not read.

Monthly discharge of Redwood Creek near Korbel, Cal., for 1911-12.

[Drainage area, 81 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.	
1911.							
September 4-30.....	4	2.0	3.10	0.038	0.04	166	C.
1911-12.							
October.....	19	3.0	6.73	.083	.10	414	C.
November.....	262	3.0	30.6	.378	.42	1,820	B.
December.....	180	7.0	39.4	.486	.56	2,420	B.
January.....	3,870	57	660	8.15	9.40	40,600	B.
February.....	6,090	246	831	10.3	11.11	47,800	B.
March.....	705	214	368	4.54	5.23	22,600	B.
April.....	3,730	136	419	5.17	5.77	24,900	B.
May.....	4,830	217	664	8.20	9.45	40,800	B.
June.....	258	52	112	1.38	1.54	6,660	A.
July.....	50	20	28.8	.356	.41	1,770	B.
August.....	19	14	15.8	.195	.22	972	B.
September.....	214	9	29.8	.368	.41	1,770	C.
The year.....	6,090	3.0	265	3.27	44.62	193,000	

REDWOOD CREEK AT ORICK, CAL.

Location.—At highway bridge at Orick, in the NE. $\frac{1}{4}$ sec. 4, T. 10 N., R. 1 E., about $1\frac{1}{2}$ miles above mouth.

Records available.—September 10, 1911, to September 30, 1912.

Drainage area.—262 square miles.

Gage.—Chain gage on upstream side of bridge near left bank. Length of chain, 33.01 feet.

Channel.—Gravel and sand; somewhat shifting.

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

Estimates of daily and monthly discharge are withheld until additional high-water measurements are made.

Discharge measurements of Redwood Creek at Orick, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911. Dec. 17 ^a	E. O. Christiansen.....	<i>Feet.</i> 6.75	<i>Sec.-ft.</i> 432	1912. May 3 ^b	E. O. Christiansen.....	<i>Feet.</i> 10.37	<i>Sec.-ft.</i> 4,080
				4 ^b	do.....	9.57	3,150
				5 ^b	do.....	9.10	2,550
1912. Mar. 2 ^b	do.....	7.22	936	6 ^b	do.....	8.90	2,250
29 ^b	do.....	6.87	827	Aug. 28 ^a	Charles Leidl.....	5.14	41

^a Wading.^b Bridge.*Daily gage height, in feet, of Redwood Creek at Orick, Cal., for 1911-12.*

[R. F. Gruber, observer.]

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		5.16	5.15	5.28	8.4	7.9	7.55	6.55	12.9	7.1	3.60	5.26	6.42
2.....		5.15	5.14	5.22	7.65	7.75	7.45	6.45	11.4	7.0	4.08	5.25	6.29
3.....		5.14	5.12	5.20	6.55	8.0	7.25	6.4	10.4	6.95	4.48	5.25	6.14
4.....		5.12	5.12	5.28	6.6	8.3	7.5	6.35	9.6	6.8	4.89	5.22	5.95
5.....		5.19	5.12	5.45	8.9	8.1	7.8	6.25	9.2	6.7	5.42	5.22	5.80
6.....		5.28	5.16	5.52	10.1	7.8	8.4	6.2	8.8	6.65	5.80	5.22	5.69
7.....		5.35	5.22	5.48	9.6	7.45	8.9	6.15	8.7	6.65	5.96	5.21	5.60
8.....		5.40	5.32	5.38	9.4	7.55	8.7	6.1	8.4	6.6	6.22	5.20	5.58
9.....		5.42	5.75	5.32	10.2	7.8	8.3	6.25	8.3	6.55	6.42	5.20	5.56
10.....	5.20	5.45	6.52	5.25	10.0	8.0	7.8	6.5	8.0	6.55	6.34	5.18	5.55
11.....	5.20	5.45	6.48	5.20	9.6	8.3	7.35	6.45	7.85	6.6	6.08	5.18	5.54
12.....	5.20	5.48	6.40	5.20	10.0	8.5	7.2	6.4	7.8	6.65	5.96	5.16	5.52
13.....	5.20	5.48	6.35	5.35	13.1	9.2	7.2	6.35	7.65	6.7	5.91	5.15	5.50
14.....	5.20	5.50	6.45	5.52	11.5	10.4	7.65	6.25	7.6	6.7	5.80	5.15	5.50
15.....	5.20	5.50	6.58	5.61	9.9	10.4	8.1	6.2	7.5	6.65	5.69	5.14	5.48
16.....	5.18	5.49	6.62	5.80	9.1	12.6	8.6	6.15	7.45	6.6	5.61	5.12	5.48
17.....	5.16	5.46	6.25	6.02	8.6	17.6	8.8	6.05	7.4	6.45	5.54	5.12	5.45
18.....	5.15	5.44	6.00	6.05	7.85	14.7	9.0	6.35	7.3	6.3	5.51	5.12	5.42
19.....	5.14	5.41	5.60	5.70	8.1	11.9	8.4	6.75	7.25	6.0	5.49	5.11	5.41
20.....	5.12	5.36	5.25	5.50	8.1	11.4	7.95	6.85	7.2	5.68	5.46	5.10	5.40
21.....	5.11	5.28	5.45	5.38	7.6	10.9	7.75	6.6	7.35	5.39	5.45	5.10	5.38
22.....	5.10	5.22	5.65	5.30	7.35	10.8	7.5	6.45	7.5	5.15	5.42	5.10	5.35
23.....	5.10	5.22	5.62	5.36	8.0	10.6	7.35	6.65	7.3	4.92	5.40	5.14	5.31
24.....	5.10	5.20	5.59	5.45	9.8	10.4	7.2	6.85	7.3	4.76	5.39	5.40	5.28
25.....	5.14	5.18	5.56	5.55	13.7	10.0	7.1	7.2	7.45	4.65	5.38	6.00	5.22
26.....	5.20	5.18	5.52	5.85	13.5	9.3	7.0	7.5	7.65	4.56	5.36	6.6	5.16
27.....	5.20	5.18	5.50	6.55	12.4	8.6	7.0	8.1	7.7	4.40	5.35	6.9	5.15
28.....	5.20	5.16	5.48	7.25	11.0	8.0	7.95	8.6	7.7	4.18	5.32	6.9	5.10
29.....	5.19	5.15	5.39	7.55	9.8	7.65	6.85	9.1	7.6	3.92	5.31	6.9	5.14
30.....	5.18	5.15	5.32	7.75	8.7	6.75	10.2	7.5	3.61	5.30	6.65	5.19
31.....	5.15	8.10	8.3	6.6	7.25	5.28	6.5

KLAMATH RIVER BASIN.**WILLIAMSON RIVER ABOVE SPRING CREEK, NEAR CHILOQUIN, OREG.**

Location.—In sec. 24, T. 33 S., R. 7 E., at the falls 4 miles below Rocky Ford, 5 miles above the mouth of Spring Creek, and 8 miles above Chiloquin, since May 1, 1912. Original location in sec. 1, T. 33 S., R. 7 E., at Rocky Ford, 12 miles above Chiloquin.

Records available.—March 26, 1908, to June 30, 1910; May 1, 1912, to September 30, 1912.

Drainage area.—1,180 square miles.

Gage.—Vertical staff on left bank.

Channel.—Solid rock. Station is in box canyon.

Discharge measurements.—Made from cable 80 feet above the gage and from gaging bridge.

Winter flow.—If records are obtainable during winter they may be somewhat affected by ice.

Accuracy.—Except for the low velocity at low stages, conditions appear to be excellent and reliable results should be obtained.

Cooperation.—Maintained in cooperation with United States Indian Service.

Discharge measurements of Williamson River above Spring Creek, near Chiloquin, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
May 2	Howard Kimble	4.59	410	July 15	Howard Kimble	2.78	109
June 6do.....	3.39	167	Sept. 2do.....	2.42	85.2
19do.....	3.07	144				

Daily gage height, in feet, and discharge, in second-feet, of Williamson River above Spring Creek, near Chiloquin, Oreg., for 1912.

[D. M. Gentry, observer.]

Day.	May.		June.		July.		August.		September.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1.....	4.6	414	214	114	95	90
2.....	4.6	414	206	113	2.55	92	2.42	83
3.....	4.6	414	198	112	90	83
4.....	407	191	100	88	83
5.....	400	183	108	87	83
6.....	393	3.40	175	2.75	106	86	2.42	83
7.....	385	172	107	85	82
8.....	378	169	108	84	80
9.....	371	166	109	82	78
10.....	4.4	364	162	110	2.35	80	76
11.....	4.4	364	159	111	80	74
12.....	341	155	2.82	112	81	72
13.....	4.2	318	152	110	81	70
14.....	342	3.20	149	110	82	2.12	69
15.....	366	146	2.78	108	82	70
16.....	390	142	106	83	72
17.....	4.6	414	139	103	2.42	83	74
18.....	388	135	100	88	75
19.....	362	3.05	132	2.65	98	93	76
20.....	335	132	100	98	78

Daily gage height, in feet, and discharge, in second-feet, of Williamson River above Spring Creek, near Chiloquin, Oreg., for 1912—Continued.

Day.	May.		June.		July.		August.		September.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
21.....		309		132		102		104	2.35	80
22.....		282	3.05	132		105		109		82
23.....		256		130		107	2.85	114		84
24.....	3.75	230		128		110		112		86
25.....		230		126		112		110		88
26.....		230		124	2.85	114		108		90
27.....		230		122		111		105	2.55	92
28.....		230	2.92	120		108		102		92
29.....		230		118		105		100		92
30.....	3.75	230		116		102		98		93
31.....		222				98	2.62	96		

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated for days on which gage was not read.

Monthly discharge of Williamson River above Spring Creek, near Chiloquin, Oreg., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
May.....	414	222	330	20,300	B.
June.....	214	116	151	8,980	B.
July.....	114	98	107	6,580	B.
August.....	114	80	92.8	5,710	B.
September.....	93	69	81.0	4,820	B.

WILLIAMSON RIVER AT CHILOQUIN, OREG.

Location.—In sec. 3, T. 35 S., R. 7 E., at the highway bridge at Chiloquin, just above the mouth of Sprague River.

Records available.—July 25, 1911, to September 30, 1912.

Drainage area.—1,260 square miles.

Gage.—Vertical staff on the wagon bridge.

Channel.—Rocks and gravel, probably permanent. Two channels at high water.

Discharge measurements.—Made from wagon bridge.

Accuracy.—Conditions are not very favorable at this station. Estimates published in Water Supply Paper, 300, page 845, are liable to considerable error, as indicated by later measurements. Estimates of daily and monthly discharge are withheld until additional measurements can be made.

Cooperation.—This station is maintained by the United States Reclamation Service.

Discharge measurements of Williamson River at Chiloquin, Oreg., in 1911–12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 21	W. O. Harmon.....	4.40	740	May 3	H. Kimble.....	4.54	761
				June 30	L. Moser.....	4.00	576
1912.				July 14	H. Kimble.....	3.97	522
Feb. 20	L. Moser.....	5.40	1,400	Sept. 2do.....	3.92	476

Daily gage height, in feet, of Williamson River at Chiloquin, Oreg., for 1911-12.

[A. Gentry, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.9	4.2	4.5	4.2	4.7	5.2	4.9	4.5	4.2	4.0	3.9	3.9
2.....	3.9	4.2	4.5	4.2	4.7	5.2	4.9	4.5	4.2	4.0	3.9	3.9
3.....	3.9	4.2	4.5	4.2	4.8	5.2	4.8	4.6	4.2	4.0	3.9	3.8
4.....	3.9	4.2	4.5	4.2	4.8	5.2	4.8	4.6	4.2	4.0	3.9	3.8
5.....	3.9	4.2	4.5	4.2	4.8	5.2	4.8	4.6	4.2	3.9	3.9	3.9
6.....	3.9	4.2	4.5	4.2	4.8	5.3	4.7	4.6	4.2	3.9	3.9	3.9
7.....	3.9	4.2	4.5	4.2	4.9	5.3	4.7	4.6	4.1	3.9	3.9	3.9
8.....	3.9	4.2	4.5	4.2	4.9	5.3	4.7	4.5	4.1	3.9	4.0	3.9
9.....	3.9	4.2	4.5	4.2	4.9	5.2	4.7	4.5	4.1	4.0	3.9	3.9
10.....	3.9	4.2	4.5	4.2	4.9	5.2	4.7	4.4	4.1	4.0	3.8	3.9
11.....	3.9	4.2	4.5	4.2	4.9	5.2	4.7	4.4	4.1	4.0	3.8	3.9
12.....	3.9	4.2	4.5	4.2	4.9	5.2	4.7	4.4	4.1	3.9	3.9	3.8
13.....	4.0	4.2	4.5	4.2	5.0	5.1	4.7	4.4	4.1	3.9	3.8	3.8
14.....	4.1	4.2	4.5	4.2	5.1	5.1	4.7	4.4	4.1	3.9	3.8	3.9
15.....	4.1	4.2	4.5	4.2	5.2	5.1	4.6	4.4	4.1	3.9	3.8	3.9
16.....	4.0	4.3	4.5	4.2	5.3	5.0	4.6	4.3	4.1	3.9	3.8	3.9
17.....	4.1	4.3	4.5	4.2	5.3	5.0	4.6	4.3	4.1	3.9	3.9	3.9
18.....	4.1	4.3	4.5	4.3	5.3	5.0	4.6	4.4	4.1	3.9	3.8	3.9
19.....	4.1	4.3	4.5	4.3	5.3	5.0	4.6	4.4	4.1	3.9	3.9	3.9
20.....	4.1	4.3	4.5	4.3	5.3	5.0	4.6	4.3	4.1	3.9	4.0	3.9
21.....	4.1	4.3	4.4	4.3	5.3	5.0	4.6	4.3	4.0	3.9	3.8	3.9
22.....	4.1	4.4	4.4	4.3	5.3	5.0	4.6	4.3	4.0	3.9	3.7	3.9
23.....	4.1	4.4	4.3	4.4	5.3	5.0	4.6	4.3	4.0	3.9	3.7	3.9
24.....	4.1	4.4	4.3	4.4	5.3	4.9	4.5	4.3	4.0	4.0	3.7	3.9
25.....	4.1	4.4	4.2	4.5	5.3	4.9	4.5	4.3	4.0	3.9	3.8	3.9
26.....	4.2	4.4	4.2	4.5	5.3	4.9	4.5	4.2	4.0	3.9	3.9	3.9
27.....	4.2	4.4	4.2	4.5	5.3	4.9	4.5	4.2	4.0	3.9	3.9	3.9
28.....	4.2	4.5	4.2	4.5	5.3	4.9	4.5	4.3	4.0	3.9	3.9	3.9
29.....	4.2	4.5	4.2	4.5	5.2	4.9	4.5	4.3	4.0	3.9	3.9	4.0
30.....	4.2	4.5	4.2	4.6	-----	4.9	4.5	4.3	4.0	3.9	3.9	4.0
31.....	4.2	-----	4.2	4.6	-----	4.9	-----	4.3	-----	3.9	3.9	-----

UPPER KLAMATH LAKE NEAR KLAMATH FALLS, OREG.

Location.—In sec. 30, T. 38 S., R. 9 E., at the outlet of Upper Klamath Lake about 2 miles northwest of Klamath Falls.

Records available.—May 28, 1904, to September 30, 1912.

Gage.—A Friez automatic register.

Accuracy.—Gage heights are very much affected by the wind. The water is lowered as much as 6 inches near the outlet when the wind blows from the south and is raised as much above its normal level when the wind is in the opposite direction. There is a periodic oscillation when the wind blows for any length of time. The staff gage to which the automatic gage is referred was in poor condition during 1911, and as a result the 1911 record is subject to much uncertainty. The gage was repaired late in 1911, and the records obtained since that time are more reliable.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service but the results have been worked up by the Survey.

Daily gage height, in feet, of Upper Klamath Lake near Klamath Falls, Oreg., for 1911-12.

[Graham Kiehl, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	4.49	4.63	4.84	5.00	5.38	5.80	5.68	5.35	5.50	5.27	4.65	4.60
2.....	4.53	4.63	4.84	5.00	5.38	5.88	5.63	5.47	5.56	5.18	4.65	4.55
3.....	4.48	4.63	4.85	5.00	5.40	5.84	5.60	5.45	5.60	5.23	4.38
4.....	4.48	4.69	4.85	5.00	5.38	5.75	5.60	5.45	5.63	5.20	4.37
5.....	4.83	5.00	5.39	5.80	5.55	5.40	5.64	5.20	4.20
6.....	4.95	5.00	5.38	5.80	5.55	5.40	5.70	5.16	4.39
7.....	4.45	5.02	5.00	5.38	5.80	5.50	5.38	5.67	5.12	4.40
8.....	4.33	4.98	5.01	5.38	5.80	5.48	5.38	5.60	5.07	4.42
9.....	4.47	4.98	5.02	5.39	5.80	5.30	5.37	5.48	5.04	4.44
10.....	4.53	4.98	5.02	5.40	5.80	5.27	5.36	5.45	5.00	4.55	4.46
11.....	4.52	4.75	4.96	5.02	5.41	5.80	5.16	5.36	5.37	4.98	4.69	4.48
12.....	4.50	4.96	5.06	5.40	5.80	5.10	5.38	5.45	4.98	4.59	4.53
13.....	4.37	4.93	5.09	5.45	5.80	5.17	5.37	5.40	4.95	4.57	4.52
14.....	4.51	4.90	5.10	5.49	5.80	5.37	5.36	5.53	4.95	4.52	4.52
15.....	4.62	4.89	5.10	5.55	5.80	5.35	5.35	5.46	4.88	4.68	4.50
16.....	4.60	4.86	5.10	5.60	5.50	5.40	5.33	5.39	4.85	4.68	4.59
17.....	4.60	4.87	5.11	5.70	5.50	5.35	5.32	5.26	4.85	4.65	4.66
18.....	4.64	4.80	4.86	5.12	5.69	5.50	5.40	5.36	5.27	4.78	4.65	4.65
19.....	4.80	4.86	5.12	5.65	5.80	5.45	5.22	5.00	4.80	4.65	4.62
20.....	4.80	4.99	5.25	5.71	5.70	5.45	5.50	5.30	4.76	4.65	4.70
21.....	4.60	4.84	5.00	5.25	5.68	5.60	5.46	5.55	5.24	4.77	4.50	4.50
22.....	4.82	5.00	5.26	5.68	5.60	5.43	5.55	5.38	4.77	4.52	4.64
23.....	4.81	5.00	5.26	5.67	5.60	5.40	5.53	5.29	4.70	4.48	4.78
24.....	4.81	5.00	5.27	5.80	5.60	5.38	5.50	5.30	4.68	4.50	4.56
25.....	4.81	5.00	5.28	5.73	5.65	5.35	5.30	5.24	4.70	4.50	4.50
26.....	4.81	5.00	5.29	5.80	5.65	5.33	5.40	5.20	4.70	4.50	4.48
27.....	4.82	5.00	5.31	5.80	5.70	5.30	5.49	5.32	4.68	4.65	4.50
28.....	4.50	4.83	5.00	5.34	5.79	5.71	5.00	5.40	5.40	4.70	4.80	4.40
29.....	4.55	4.83	4.99	5.35	5.78	5.75	5.28	5.58	5.30	4.65	4.60	4.30
30.....	4.54	4.83	4.99	5.37	5.74	5.10	5.50	5.30	4.67	4.40	4.75
31.....	4.60	4.99	5.37	5.71	5.40	4.70	4.40

NOTE.—During 1911 the Friez automatic gage was not working well. The published values have been obtained by careful study of the gage sheets and comparison with readings on the staff gage. The breaks in the record were caused by the stopping of the automatic register or the loss of the record sheets. Lake probably frozen from Jan. 1 to about the middle of February, 1912.

LINK RIVER AT KLAMATH FALLS, OREG.

Location.—In sec. 32, T. 38 S., R. 9 E., at the county bridge over Link River at Klamath Falls, $1\frac{1}{4}$ miles below the outlet of Upper Klamath Lake and immediately at the head of Lake Ewanna.

Records available.—May 15, 1904, to Sept. 30, 1912.

Drainage area.—3,110 square miles.

Gage.—Chain gage at bridge. Since June 6, 1908, a Friez automatic gage has also been maintained in the rapids above the bridge. The location of the Friez gage was changed September 5, 1912.

Channel.—Fairly permanent at both gages; water swift at upper gage, sluggish at lower gage.

Discharge measurements.—Made at the county bridge.

Winter flow.—Gage height seldom if ever affected by ice.

Diversions.—Since about Sept. 1, 1908, water has been diverted around the Friez gage in the Keno canal on the west side of the river. This water after being used in the Moore Bros. power plant, has been returned to the river between the Friez gage and the bridge. The measurements and records of the United States Reclamation Service have made possible a fairly accurate estimate of this diversion. It has been measured at times, and has been maintained fairly constant between changes. Some water has been wasted over a spillway just above the power flume, probably averaging not more than 5 second-feet. Water has also been diverted in the main canal of the Klamath project on the east side of the river. Monthly discharges for this canal are given on page 371.

Accuracy.—The relation of gage height to discharge at the bridge is seriously affected by wind, and the discharge varies so materially, owing to surging of Upper Klamath Lake, that reliable estimates can not be computed from readings on this gage. A detailed account of the difficulties encountered and of the methods used in attempting to overcome them is given in Water-Supply Paper 311. From June 6, 1908, until some time during the summer of 1909 the records given by the Friez gage were reliable, but since that time on account of diversions, damage resulting from logs striking the gage well, backwater from logs, and failure to keep the gage always at proper datum, the records are subject to some uncertainty, but are still more reliable than can be secured from gage readings at the bridge.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service, the Survey working up and publishing the data.

Discharge measurements of Link River at Klamath Falls, Oreg., in 1910-1912.

Date.	Hydrographer.	At bridge.		Dis-charge in Keno Canal.	At rapids.	
		Gage height.	Dis-charge.		Gage height.	Dis-charge.
1910.		<i>Feet.</i>	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>	<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 12	Leland Moser	3.90	3,320	130	2.30	3,190
18do.....	4.12	3,640	130	2.48	3,510
28do.....	4.15	3,240	130	2.29	3,110
1911.						
Jan. 7do.....	4.12	3,010	130	2.14	2,880
June 1do.....	4.88	3,830	130	2.55	3,700
20do.....	4.40	2,970	130	2.22	2,840
July 1do.....	4.18	2,290	130	1.83	2,160
Aug. 26do.....	2.69	1,280	130	1.09	1,150
Nov. 21do.....	3.09	1,920	200	1.50	1,720
1912.						
Jan. 22do.....	3.51	2,380	200	1.76	2,180
Apr. 16do.....	4.08	3,130	200	2.05	2,930
Aug. 10do.....	3.03	1,520	200	1.11	1,320
19do.....	2.85	1,460	200	1.14	1,260

^a Gage height is mean for the day.

Daily gage height, in feet, of Link River at Klamath Falls, Oreg., for 1911-12.

[Gage at bridge.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.68	2.85	3.08	3.3	3.5	4.0	4.2	4.0	4.0	3.9	3.0	2.8
2.....	2.70	2.86	3.08	3.3	3.5	4.0	4.2	4.0	4.0	3.9	3.0	2.8
3.....	2.74	2.85	3.08	3.3	3.5	4.0	4.2	4.0	4.0	3.9	3.0	2.8
4.....	2.75	2.86	3.08	3.3	3.5	4.1	4.2	4.0	4.0	3.9	3.0	2.8
5.....	2.74	2.89	3.08	3.3	3.5	4.1	4.2	4.0	4.0	3.9	3.0	2.8
6.....	2.74	2.88	3.09	3.3	3.5	4.0	4.2	4.0	4.0	3.9	3.0	2.8
7.....	2.74	2.90	3.08	3.3	3.6	4.2	4.2	4.1	4.0	3.9	3.0	2.8
8.....	2.74	2.91	3.07	3.4	3.6	4.1	4.0	4.0	4.0	3.9	3.0
9.....	2.74	2.90	3.09	3.4	3.6	4.0	4.0	4.0	4.0	3.9	2.9
10.....	2.74	2.89	3.10	3.4	3.6	4.1	4.1	4.0	4.0	4.0	2.9
11.....	2.74	2.90	3.08	3.4	3.6	4.1	4.1	4.0	4.0	4.0	2.9
12.....	2.74	2.91	3.07	3.4	3.7	4.1	4.0	4.0	4.0	3.9	2.9
13.....	2.73	2.92	3.08	3.4	3.7	4.1	4.0	4.0	4.0	3.9	2.9
14.....	2.94	2.93	3.08	3.4	3.7	4.2	4.0	4.0	4.0	3.9	3.0
15.....	2.74	3.09	3.4	3.7	4.2	4.0	3.8	4.0	3.9	2.9
16.....	2.73	3.09	3.4	3.8	4.2	4.1	3.8	4.0	3.9	2.9
17.....	2.74	3.11	3.4	3.8	4.2	4.0	4.0	4.0	3.9	2.8
18.....	2.74	3.12	3.4	3.8	4.2	4.1	4.0	4.0	3.9	2.9
19.....	2.75	3.13	3.4	3.8	4.1	4.1	4.0	4.0	3.9	2.8
20.....	2.79	3.16	3.4	3.8	4.1	4.1	4.0	4.0	3.9	2.8
21.....	2.80	3.18	3.4	3.9	4.1	4.1	4.0	4.0	3.8	2.8
22.....	2.80	3.20	3.4	4.0	4.2	4.0	4.0	4.0	3.5	2.8
23.....	2.81	3.23	3.4	4.0	4.2	4.0	4.0	3.9	3.4	2.8
24.....	2.80	3.25	3.5	3.9	4.2	4.0	4.0	4.0	3.2	2.8
25.....	2.79	3.08	3.24	3.5	3.9	4.2	4.1	4.0	4.0	3.1	2.8

Daily gage height, in feet, of Link River at Klamath Falls, Oreg., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
26.....	2.80	3.09	3.25	3.5	4.0	4.2	4.0	3.9	3.9	3.1	2.8	-----
27.....	2.81	3.10	3.23	3.5	4.0	4.1	4.0	4.0	4.0	3.0	2.8	-----
28.....	2.81	3.09	-----	3.5	4.0	4.2	3.5	4.0	4.0	3.0	2.8	-----
29.....	2.82	3.08	-----	3.5	4.0	4.1	3.8	4.0	4.0	3.0	2.8	-----
30.....	2.84	3.09	-----	3.5	-----	4.0	4.2	4.0	4.0	3.0	2.8	-----
31.....	2.85	-----	-----	3.5	-----	-----	-----	4.0	-----	3.0	2.8	-----

Daily gage height, in feet, of Link River at Klamath Falls, Oreg., for 1911-12.

[Friez automatic gage.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-----	1.16	-----	-----	-----	2.20	2.25	1.88	1.99	1.83	1.47	-----
2.....	-----	1.16	1.58	-----	-----	2.12	2.05	1.98	2.05	1.78	1.47	-----
3.....	1.21	1.16	1.65	-----	1.71	2.10	2.18	1.93	2.00	1.70	-----	-----
4.....	1.30	1.12	-----	-----	1.70	1.95	2.28	1.91	1.96	1.77	-----	-----
5.....	1.22	1.10	-----	-----	1.70	1.90	2.17	1.97	1.96	1.77	-----	-----
6.....	1.22	1.08	-----	-----	1.68	1.95	2.17	1.88	1.90	-----	-----	-----
7.....	1.10	1.10	-----	-----	1.65	2.05	2.09	1.86	1.88	-----	-----	-----
8.....	-----	1.13	-----	-----	1.65	2.07	2.12	1.90	1.85	-----	-----	-----
9.....	1.25	-----	1.38	-----	1.65	2.49	2.12	1.92	1.97	-----	-----	-----
10.....	1.24	-----	1.37	1.30	1.68	2.35	2.22	1.92	1.90	-----	1.20	-----
11.....	1.22	1.28	1.40	1.31	1.73	2.21	2.20	1.85	1.85	-----	1.19	-----
12.....	1.20	1.20	1.39	1.38	1.70	2.45	2.18	1.83	1.80	-----	1.18	-----
13.....	-----	1.18	1.38	1.47	1.66	2.36	2.17	1.78	1.90	-----	1.18	-----
14.....	-----	1.31	1.38	1.48	1.72	2.15	2.20	1.70	2.00	1.18	1.15	5.63
15.....	1.12	1.62	1.38	1.48	1.65	2.28	2.23	1.80	1.96	1.18	1.16	5.55
16.....	1.05	1.50	1.38	1.50	1.73	2.25	2.29	1.83	1.89	-----	1.14	5.55
17.....	1.13	-----	1.37	1.50	1.98	2.32	2.30	1.84	1.85	-----	1.18	5.55
18.....	1.18	1.50	1.35	1.50	1.95	2.45	2.58	1.80	1.67	1.35	-----	5.57
19.....	1.12	1.51	1.36	1.50	1.86	2.33	2.20	1.82	1.90	1.43	-----	5.59
20.....	1.10	1.65	1.34	1.48	2.00	2.38	2.12	1.82	1.89	1.40	-----	5.60
21.....	1.00	1.52	1.33	1.47	1.93	2.31	1.89	1.80	1.95	1.67	-----	5.53
22.....	1.03	1.49	1.33	1.47	2.30	2.28	1.70	1.90	1.80	1.62	-----	5.54
23.....	1.02	1.49	-----	1.41	2.20	2.31	1.90	1.85	1.87	1.63	-----	5.58
24.....	1.10	1.50	-----	1.48	2.10	2.29	1.90	1.85	1.89	1.63	1.30	5.55
25.....	1.30	1.54	-----	1.50	2.10	2.29	1.89	1.85	1.79	1.63	1.40	5.53
26.....	1.20	1.56	-----	1.50	2.08	2.25	1.81	1.88	1.88	1.66	1.45	5.50
27.....	1.05	-----	-----	-----	2.10	2.20	1.77	1.98	1.97	1.51	1.50	5.50
28.....	1.10	-----	-----	-----	2.15	2.41	1.45	2.05	1.97	1.45	1.40	5.58
29.....	1.06	-----	-----	-----	2.18	2.42	1.64	1.99	1.97	1.40	1.30	5.55
30.....	1.12	-----	-----	-----	-----	2.25	1.60	1.98	1.88	1.40	1.10	5.57
31.....	1.18	-----	-----	-----	-----	2.30	-----	2.00	-----	1.50	-----	-----

NOTE.—The location of the Friez gage was changed Sept. 5, 1912. Readings after Sept. 14 are made from this gage at its new location. No measurements have been referred to present datum of gage, so no estimates are possible for September.

Daily discharge, in second-feet, of Link River at Klamath Falls, Oreg., for 1908-1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.
1908.						
1			2510	1,780	1,180	770
2			2530	1,790	1,200	740
3			2420	1,700	1,120	780
4			2260	1,760	1,120	710
5			2130	1,700	1,110	770
6			2,090	1,640	1,090	770
7			2,090	1,520	1,050	891
8			2,090	1,520	1,030	836
9			2,060	1,520	1,050	836
10			2,030	1,520	1,030	836
11			2,030	1,470	1,010	803
12			2,000	1,440	1,090	847
13			1,980	1,380	1,120	880
14			2,030	1,470	1,030	869
15			2,120	1,580	962	924
16			2,180	1,410	940	990
17			2,120	1,440	951	880
18			2,180	1,400	940	880
19			2,060	1,370	962	935
20			1,610	1,300	962	957
21			1,910	1,380	962	946
22			1,850	1,300	973	968
23			1,880	1,300	962	1,170
24			1,910	1,360	1,050	1,100
25			1,940	1,360	830	990
26			1,970	1,300	797	924
27			2,000	1,250	797	913
28			1,850	1,200	775	924
29			1,800	1,240	918	924
30			1,820	1,130	720	946
31				1,100	720	

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1908-9.												
1	1,220	1,720	2,260	1,980	2,620	3,680	3,580	3,200	2,860	1,860	1,360	1,020
2	1,350	1,730	2,330	2,000	2,460	3,770	3,580	3,180	2,860	1,780	1,200	1,020
3	1,040	1,840	2,330	2,010	3,600	3,810	3,590	3,160	2,840	1,940	1,230	982
4	990	1,800	2,260	2,020	3,430	3,850	3,590	3,430	2,970	2,010	1,240	1,020
5	946	1,840	2,090	2,190	3,600	3,900	3,590	3,150	2,940	1,830	1,340	1,020
6	968	1,860	1,920	2,240	3,260	3,940	3,590	3,230	2,860	1,860	1,340	993
7	946	1,860	1,960	2,240	3,680	3,940	3,590	3,150	2,830	1,680	1,180	982
8	924	1,850	2,030	2,240	3,680	4,080	3,590	3,100	2,800	1,720	1,180	982
9	990	1,850	1,880	2,540	3,650	4,110	3,600	3,130	2,770	1,740	993	1,100
10	1,170	1,840	1,800	2,430	3,650	4,110	3,600	3,100	2,740	1,700	982	1,200
11	1,420	1,840	1,880	2,420	3,630	4,020	3,600	3,180	2,710	1,770	1,030	1,050
12	1,350	1,840	2,030	2,400	3,600	4,020	3,520	3,050	2,680	1,740	1,110	1,050
13	1,220	1,830	2,000	2,400	3,560	3,910	3,570	3,070	2,650	1,780	1,050	1,020
14	770	1,830	1,960	2,470	3,520	3,680	3,570	3,070	2,620	1,830	1,070	1,020
15	550	1,820	1,960	2,540	3,520	3,770	3,520	3,070	2,580	1,650	1,090	960
16	590	1,820	1,730	2,650	3,680	3,680	3,430	3,080	2,550	1,680	1,050	1,070
17	670	1,820	1,960	2,650	3,600	3,860	3,430	3,090	2,520	1,680	1,070	1,070
18	1,480	1,810	1,960	2,670	3,570	3,600	3,680	3,100	2,490	1,680	1,090	1,020
19	2,300	1,810	1,960	2,590	3,680	3,600	3,770	3,160	2,460	1,540	1,070	1,070
20	2,260	1,800	1,960	2,340	3,680	2,620	3,770	3,130	2,310	1,350	1,220	1,120
21	1,660	1,800	1,980	2,700	4,280	3,520	3,500	3,070	2,240	1,400	1,070	982
22	1,750	1,880	2,020	2,980	3,910	3,600	3,380	2,940	2,140	1,430	1,160	938
23	1,760	1,880	2,020	3,260	3,600	3,520	3,400	2,910	2,180	1,490	1,040	750
24	1,780	1,880	2,000	2,860	3,600	3,520	3,400	2,860	2,250	1,500	1,040	760
25	1,810	1,800	1,980	3,100	3,990	3,600	3,410	2,970	2,100	1,540	1,000	971
26	1,810	1,680	1,980	3,520	3,970	3,570	3,420	2,990	2,020	1,570	1,100	1,120
27	1,780	1,720	1,970	3,570	3,910	3,580	3,430	2,940	2,160	1,360	1,160	982
28	1,690	1,780	1,970	3,550	3,860	3,580	3,430	2,750	1,830	1,230	905	800
29	1,420	1,880	1,960	3,230		3,580	3,260	2,700	850	1,200	1,020	960
30	1,720	1,840	1,960	3,100		3,580	3,230	2,760	1,820	1,160	960	938
31	1,720		1,940	2,620		3,580		2,800		1,300	960	

Daily discharge, in second-feet, of Link River at Klamath Falls, Oreg., for 1908-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1909-10.												
1.....	1,120	1,350	2,510	3,130	2,890	3,040	4,630	4,150	2,660	1,640	1,390	1,070
2.....	1,070	1,490	2,710	3,100	2,840	3,230	5,080	4,110	2,590	1,640	1,320	1,080
3.....	1,050	1,510	2,710	3,050	2,840	3,340	5,210	4,150	2,590	1,800	1,190	1,190
4.....	960	1,510	2,740	3,000	2,840	3,520	5,150	3,980	2,660	1,640	1,320	1,080
5.....	998	1,530	2,770	2,960	2,520	3,680	5,210	4,000	2,590	1,580	1,170	1,060
6.....	1,300	1,360	3,430	2,910	2,520	3,840	5,010	3,920	2,590	1,580	1,290	1,170
7.....	960	1,180	3,410	2,910	2,520	3,920	4,950	3,560	2,450	1,540	1,220	1,190
8.....	960	1,450	3,410	3,050	2,510	4,060	4,950	3,420	2,450	1,480	1,220	1,050
9.....	1,300	1,340	3,410	3,040	2,510	4,130	4,110	2,970	2,450	1,480	1,130	1,050
10.....	1,330	1,310	3,430	3,020	2,490	4,200	4,620	3,010	2,450	1,480	1,130	1,130
11.....	1,430	1,340	2,930	2,960	2,490	4,250	4,950	3,150	2,450	1,480	1,110	1,290
12.....	1,430	1,340	2,960	2,780	2,570	4,350	4,950	3,200	2,450	1,480	1,220	1,180
13.....	1,630	1,340	2,960	2,750	2,590	4,360	4,820	3,170	2,450	1,480	1,290	950
14.....	1,600	1,350	2,900	2,750	2,620	4,360	4,720	3,220	2,380	1,440	1,230	1,060
15.....	1,570	1,350	2,920	2,750	2,600	4,400	4,680	3,150	2,240	1,490	1,270	1,030
16.....	1,020	1,380	2,850	2,700	2,560	4,430	4,720	3,060	2,110	1,340	1,290	1,010
17.....	960	1,380	2,800	2,650	2,540	4,420	4,640	3,230	2,180	1,300	1,170	1,170
18.....	750	1,380	3,400	2,650	2,590	4,020	4,340	3,320	2,180	1,300	1,010	1,490
19.....	850	1,440	3,400	2,640	2,620	4,420	4,720	3,230	2,180	1,300	950	1,450
20.....	800	1,670	3,360	2,590	2,620	4,520	4,680	3,230	1,920	1,300	895	1,060
21.....	1,180	1,710	3,330	2,600	2,570	4,590	4,610	3,140	1,860	1,340	1,050	1,050
22.....	1,300	1,850	3,310	2,680	2,560	4,850	4,490	3,140	1,860	1,490	1,050	1,090
23.....	1,300	1,930	3,280	2,680	2,560	4,810	4,380	3,140	1,860	1,460	1,120	1,170
24.....	1,300	2,000	3,260	2,670	2,700	4,900	4,150	3,140	1,800	1,460	1,460	1,220
25.....	1,300	2,060	3,260	2,730	2,700	4,540	4,240	2,980	1,800	1,460	1,080	1,320
26.....	1,300	2,150	3,260	2,750	2,670	4,450	4,340	2,980	1,800	1,460	974	1,220
27.....	1,300	2,230	3,260	2,760	2,780	4,900	4,440	2,820	1,740	1,460	1,070	1,190
28.....	1,300	2,300	3,100	2,800	2,940	4,900	4,260	2,740	1,800	1,320	1,080	1,190
29.....	1,300	2,370	3,070	2,860	-----	4,810	4,320	2,660	1,740	1,270	1,320	1,220
30.....	1,120	2,440	3,070	2,880	-----	4,830	4,300	2,590	1,740	1,320	1,050	1,190
31.....	1,240	-----	3,100	2,990	-----	4,810	-----	2,740	-----	1,320	1,070	-----
1910-11.												
1.....	1,220	1,290	2,230	3,200	2,620	2,150	4,820	5,470	-----	3,060	2,000	1,270
2.....	1,460	1,260	2,210	3,150	2,610	2,080	4,870	5,770	-----	3,060	1,940	1,220
3.....	1,190	1,240	2,800	3,100	2,110	2,070	4,700	5,310	-----	3,080	1,940	1,180
4.....	1,310	1,210	2,860	3,060	1,840	2,240	-----	4,000	-----	3,080	2,210	1,390
5.....	1,320	1,190	2,900	3,040	1,860	2,240	-----	4,340	-----	2,900	2,080	1,310
6.....	1,330	1,140	2,860	3,020	1,880	2,260	-----	4,430	-----	2,720	1,970	1,170
7.....	1,310	1,320	2,900	2,990	1,880	2,320	-----	4,520	-----	2,550	1,860	1,220
8.....	1,320	1,190	2,970	2,970	1,880	1,970	-----	4,620	-----	2,370	1,760	1,200
9.....	1,290	1,170	3,130	2,950	1,970	1,890	-----	4,680	-----	2,370	1,660	1,260
10.....	1,170	1,600	3,170	2,950	2,070	1,890	-----	4,640	-----	2,540	1,560	1,160
11.....	1,260	1,880	3,200	3,020	2,210	1,910	-----	4,780	-----	2,540	1,460	1,060
12.....	1,470	1,830	3,240	3,020	2,230	1,890	-----	4,720	-----	2,500	1,460	1,060
13.....	1,570	1,820	3,280	2,990	2,230	2,460	-----	4,820	-----	2,450	1,460	1,220
14.....	1,670	1,730	3,310	2,950	2,230	2,540	-----	4,820	-----	2,410	1,460	1,170
15.....	1,570	1,660	3,420	2,970	2,210	2,970	-----	4,620	-----	2,360	1,430	1,130
16.....	1,570	1,640	3,740	2,960	2,210	3,420	-----	4,490	-----	2,320	1,390	1,300
17.....	1,670	1,710	3,800	2,940	2,210	3,510	-----	4,450	-----	2,270	1,430	1,300
18.....	1,670	1,700	3,560	2,920	2,210	3,640	-----	4,380	-----	2,230	1,400	1,300
19.....	1,570	1,670	3,510	2,910	2,210	3,760	-----	4,320	3,600	2,180	1,430	1,300
20.....	1,570	1,730	3,510	2,900	2,210	3,890	-----	4,400	3,330	2,140	1,360	1,300
21.....	1,590	1,820	3,420	2,880	2,210	4,020	-----	4,620	3,150	2,090	1,360	1,300
22.....	1,490	1,800	3,400	2,880	2,180	4,140	-----	4,760	3,280	2,050	1,220	1,310
23.....	1,450	2,260	3,310	2,860	2,160	4,270	-----	4,620	3,260	1,820	1,260	1,310
24.....	1,380	2,240	3,380	2,800	2,160	4,400	-----	4,620	3,130	1,260	1,180	1,310
25.....	1,470	2,180	3,330	2,830	2,180	4,530	-----	-----	3,080	1,600	1,150	1,310
26.....	1,570	1,820	3,280	2,810	2,230	4,620	-----	-----	3,380	1,530	1,310	1,310
27.....	1,350	2,050	3,260	2,800	2,210	4,720	-----	-----	3,460	1,590	1,200	1,360
28.....	1,320	2,230	3,220	2,830	2,190	4,870	-----	-----	3,560	1,700	1,230	1,340
29.....	1,320	2,350	3,200	2,640	-----	5,010	5,810	-----	3,370	1,730	1,200	1,390
30.....	1,290	2,370	3,240	2,640	-----	5,110	5,510	-----	3,150	1,820	1,170	1,430
31.....	1,310	-----	3,280	2,610	-----	5,210	-----	-----	-----	2,000	1,320	-----

Daily discharge, in second-feet, of Link River at Klamath Falls, Oreg., for 1908-1912—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.	1,470	1,470	2,080	1,690	2,200	3,130	3,220	2,580	2,760	2,490	1,920
2.	1,510	1,470	2,090	1,690	2,250	2,990	2,860	2,750	2,860	2,410	1,920
3.	1,540	1,470	2,200	1,690	2,300	2,950	3,090*	2,660	2,780	2,280	1,870
4.	1,670	1,420	2,130	1,680	2,280	2,700	3,270	2,630	2,710	2,390	1,820
5.	1,560	1,390	2,060	1,680	2,280	2,610	3,080	2,730	2,710	2,390	1,770
6.	1,560	1,360	1,990	1,680	2,250	2,700	3,080	2,580	2,610	2,300	1,720
7.	1,390	1,390	1,920	1,680	2,200	2,860	2,930	2,540	2,580	2,200	1,670
8.	1,500	1,430	1,850	1,680	2,200	2,900	2,990	2,610	2,520	2,100	1,620
9.	1,600	1,500	1,780	1,670	2,200	3,650	2,990	2,640	2,730	2,000	1,570
10.	1,590	1,570	1,770	1,670	2,250	3,400	3,170	2,640	2,610	1,900	1,530
11.	1,560	1,640	1,810	1,680	2,330	3,150	3,130	2,520	2,520	1,800	1,520
12.	1,530	1,530	1,800	1,780	2,280	3,580	3,090	2,490	2,440	1,700	1,500
13.	1,500	1,500	1,780	1,920	2,220	3,420	3,080	2,410	2,610	1,600	1,500
14.	1,460	1,680	1,780	1,930	2,310	3,040	3,130	2,280	2,780	1,500	1,460
15.	1,420	2,150	1,780	1,930	2,200	3,270	3,180	2,440	2,710	1,500	1,470
16.	1,320	1,960	1,780	1,960	2,330	3,220	3,290	2,490	2,590	1,580	1,450
17.	1,430	1,960	1,770	1,960	2,750	3,350	3,310	2,510	2,520	1,660	1,500
18.	1,500	1,960	1,740	1,960	2,700	3,580	3,810	2,440	2,230	1,740	1,520
19.	1,420	1,980	1,750	1,960	2,540	3,360	3,130	2,470	2,610	1,860	1,550
20.	1,390	2,200	1,730	1,930	2,780	3,450	2,990	2,470	2,590	1,810	1,570
21.	1,260	1,990	1,710	1,920	2,660	3,330	2,590	2,440	2,700	2,230	1,600
22.	1,300	1,940	1,710	1,920	3,310	3,270	2,280	2,610	2,440	2,150	1,620
23.	1,290	1,940	1,710	1,820	3,130	3,330	2,610	2,520	2,560	2,170	1,640
24.	1,390	1,960	1,710	1,930	2,950	3,290	2,610	2,520	2,590	2,170	1,670
25.	1,670	2,020	1,700	1,960	2,950	3,290	2,590	2,520	2,420	2,170	1,810
26.	1,530	2,060	1,700	1,960	2,920	3,220	2,460	2,580	2,580	2,220	1,880
27.	1,320	2,060	1,700	2,000	2,950	3,130	2,390	2,750	2,730	1,980	1,960
28.	1,390	2,070	1,700	2,040	3,040	3,510	1,880	2,860	2,730	1,880	1,810
29.	1,340	2,080	1,700	2,080	3,090	3,530	2,180	2,760	2,730	1,810	1,670
30.	1,420	2,080	1,690	2,120	3,220	2,120	2,750	2,580	1,810	1,390
31.	1,500	1,690	2,160	3,310	2,780	1,960	1,260

NOTE.—Daily discharge determined from rating tables applicable as follows: June 6, 1908, to Apr. 2, 1910, well defined; Apr. 3, 1910, to Sept. 5, 1912, fairly well defined. There has been added the discharge of Keno Canal, as furnished by the United States Reclamation Service, as follows: Sept. 1 to Oct. 31, 1908, 50 second-feet; Nov. 1 to Dec. 31, 1908, 75 second-feet; Jan. 1, 1909, to Sept. 15, 1911, 130 second-feet; Sept. 16, 1911, to September 5, 1912, 200 second-feet. Discharge June 1 to 5, 1908; Nov. 8 to Dec. 5, Dec. 11-17, 1909; May 17 to July 21, 1910, were obtained from gage heights read on the bridge gage and a rating table applicable thereto. Discharge estimated 5,200 second-feet Apr. 4-28, 4,000 second-feet May 25-31, and 3,600 second-feet June 1-18, 1911. Discharge interpolated for other days for which the gage height is missing. These discharges supersede those published in Water Supply Papers 251, p. 308; 271, pp. 226-227; 291, pp. 182-183; 300, pp. 816-819.

Monthly discharge of Link River at Klamath Falls, Oreg., for 1908-1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1908.					
June 6-30.....	2,180	1,610	1,980	98,200	A.
July.....	1,790	1,100	1,440	88,500	A.
August.....	1,200	720	982	60,400	A.
September.....	1,170	710	889	52,900	A.
1908-9.					
October.....	2,300	550	1,360	83,600	A.
November.....	1,880	1,680	1,820	108,000	C.
December.....	2,330	1,730	2,000	123,000	A.
January.....	3,570	1,980	2,630	162,000	A.
February.....	4,280	2,460	3,600	200,000	A.
March.....	4,110	2,620	3,720	229,000	B.
April.....	3,770	3,230	3,520	209,000	C.
May.....	3,430	2,700	3,050	188,000	A.
June.....	2,970	850	2,450	146,000	C.
July.....	2,010	1,160	1,610	99,000	A.
August.....	1,360	905	1,110	68,200	A.
September.....	1,200	750	999	59,400	A.
The year.....	4,280	550	2,310	1,680,000	
1909-10.					
October.....	1,630	750	1,190	73,200	B.
November.....	2,440	1,180	1,640	97,600	C.
December.....	3,430	2,510	3,110	191,000	C.
January.....	3,130	2,590	2,830	174,000	B.
February.....	2,940	2,490	2,630	146,000	B.
March.....	4,990	3,040	4,290	264,000	B.
April.....	5,210	4,110	4,660	277,000	B.
May.....	4,150	2,590	3,270	201,000	C.
June.....	2,660	1,740	2,200	131,000	C.
July.....	1,800	1,270	1,450	89,200	C.
August.....	1,460	895	1,170	71,900	B.
September.....	1,490	950	1,150	68,400	B.
The year.....	5,210	750	2,470	1,780,000	
1910-11.					
October.....	1,670	1,170	1,420	87,300	B.
November.....	2,370	1,140	1,710	102,000	B.
December.....	3,800	2,210	3,190	196,000	B.
January.....	3,200	2,610	2,920	180,000	B.
February.....	2,620	1,840	2,160	120,000	B.
March.....	5,210	1,890	3,290	202,000	B.
April.....			5,190	309,000	D.
May.....			4,520	278,000	C.
June.....			3,480	207,000	D.
July.....	3,080	1,260	2,270	140,000	C.
August.....	2,210	1,150	1,510	92,800	C.
September.....	1,430	1,060	1,260	75,000	C.
The year.....			2,750	1,990,000	
1911-12.					
October.....	1,670	1,260	1,460	89,800	B.
November.....	2,200	1,360	1,770	105,000	B.
December.....	2,200	1,690	1,820	112,000	C.
January.....	2,160	1,670	1,860	114,000	C.
February.....	3,310	2,200	2,550	147,000	B.
March.....	3,650	2,610	3,220	198,000	B.
April.....	3,810	1,880	2,880	171,000	B.
May.....	2,860	2,280	2,580	159,000	B.
June.....	2,860	2,230	2,620	156,000	B.
July.....	2,490	1,500	1,990	122,000	C.
August.....	1,960	1,260	1,640	101,000	C.
The period.....				1,470,000	

Monthly discharge of Klamath main canal near Klamath Falls, Oreg., for 1911 and 1912.

Month.	1911		1912	
	Discharge (second- feet).	Run-off (total in acre-feet).	Discharge (second- feet).	Run-off (total in acre-feet).
May.....	122	7,500	114	6,987
June.....	190	11,282	167	9,950
July.....	197	12,121	223	13,690
August.....	165	10,123	141	8,668
September.....	79.0	4,700	41.0	2,438
The period.....	150	45,726	138	41,733

NOTE.—Values for total run-off in acre-feet furnished by U. S. Reclamation Service.

LOWER KLAMATH LAKE NEAR BROWNELL, CAL.

Location.—In sec. 35, T. 47 N., R. 2 E., at Lairds Landing at the extreme southern end of Lower Klamath Lake.

Records available.—August 1 to September 30, 1912.

Gage.—Vertical staff.

Cooperation.—Station is maintained by the United States Reclamation Service.

Daily gage height, in feet, of Lower Klamath Lake near Brownell, Cal., for 1912.

[Marguerite Laird, observer.]

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1.....	0.9	0.7	11.....	0.8	0.7	21.....	0.7	0.7
2.....	.9	.7	12.....	.9	.7	22.....	.7	.7
3.....	.9	.8	13.....	.9	.8	23.....	.7	.8
4.....	.9	.8	14.....	.7	.8	24.....	.8	.6
5.....	.9	.8	15.....	.8	.7	25.....	.7	.6
6.....	.9	.7	16.....	.8	.7	26.....	.6	.7
7.....	.9	.7	17.....	.8	.7	27.....	.5	.7
8.....	.9	.7	18.....	.8	.7	28.....	.6	.8
9.....	.9	.7	19.....	.7	.7	29.....	.6	.8
10.....	.8	.7	20.....	.8	.7	30.....	.6	.8
						31.....	.7

KLAMATH RIVER AT KENO, OREG.

Location.—In sec. 31, T. 39 S., R. 8 E., at the county bridge at Keno.

Records available.—May 31, 1904, to September 30, 1912.

Drainage area.—3,150 square miles (excluding Lower Klamath Lake drainage area).

Gage.—Vertical staff nailed to bridge. The datum has not been changed since the station was established.

Channel.—Sand and clay. Fairly permanent. A growth of aquatic plants accumulates during low water. Immediately below the station the river breaks over a rocky ledge with a fall of about 200 feet to the mile.

Discharge measurements.—From standard cable and car about 1,000 feet below the gage.

Winter flow.—River usually freezes over in winter, but as water is deep and the ice never very thick, gage-height records are not seriously affected.

Accuracy.—During low water the accuracy of the record is somewhat affected by the growth of weeds. Wind also has an effect at times. No measurements have been secured since 1909, and later estimates are somewhat uncertain.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service.

Daily gage height, in feet, of Klamath River at Keno, Oreg., for 1911-12.

[H. Snowgoose, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	11.95	12.15	12.35	12.5	12.8	13.0	13.2	13.1	13.0	12.8	12.3	12.1
2.....	11.95	12.15	12.35	12.5	12.8	13.0	13.2	13.1	13.0	12.9	12.3	12.1
3.....	12.00	12.15	12.35	12.5	12.8	13.1	13.2	13.1	13.0	12.9	12.4	12.1
4.....	11.95	12.15	12.40	12.5	12.8	13.1	13.2	13.1	13.0	12.8	12.4	12.1
5.....	11.95	12.10	12.45	12.6	12.8	13.2	13.2	13.1	13.0	12.8	12.4	12.1
6.....	12.05	12.10	12.40	12.6	12.8	13.2	13.2	13.1	13.0	12.8	12.3	12.1
7.....	12.05	12.15	12.40	12.7	12.9	13.2	13.2	13.1	13.0	12.8	12.4	12.1
8.....	12.05	12.05	12.40	12.7	12.8	13.2	13.2	13.1	13.0	12.8	12.3	12.2
9.....	11.95	12.05	12.40	12.7	12.8	13.2	13.2	13.1	13.0	12.8	12.2	12.2
10.....	12.00	12.25	12.40	12.7	12.8	13.2	13.1	13.1	13.0	12.8	12.3	12.2
11.....	12.00	12.25	12.45	12.7	12.8	13.2	13.2	13.1	13.0	12.7	12.3	12.2
12.....	12.05	12.25	12.45	12.7	12.8	13.2	13.1	13.2	12.9	12.7	12.3	12.2
13.....	12.15	12.25	12.45	12.6	12.8	13.2	13.1	13.1	12.9	12.6	12.3	12.2
14.....	11.95	12.25	12.45	12.7	12.8	13.2	13.2	13.1	12.9	12.6	12.2	12.2
15.....	12.05	12.25	12.45	12.7	12.8	13.3	13.2	13.0	13.0	12.7	12.1	12.2
16.....	12.05	12.25	12.45	12.7	12.8	13.3	13.2	13.1	13.0	12.6	12.2	12.2
17.....	12.05	12.25	12.45	12.7	12.8	13.2	13.1	13.0	13.0	12.6	12.2	12.2
18.....	12.05	12.30	12.45	12.7	12.9	13.2	13.0	13.1	13.0	12.6	12.2	12.2
19.....	12.05	12.30	12.45	12.7	13.0	13.2	13.0	13.0	12.8	12.6	12.2	12.2
20.....	12.10	12.30	12.45	12.7	13.0	13.2	13.1	13.1	12.9	12.6	12.2	12.2
21.....	12.10	12.30	12.45	12.7	13.0	13.2	13.2	13.1	12.8	12.5	12.2	12.2
22.....	12.05	12.30	12.45	12.7	12.9	13.2	13.1	13.0	12.9	12.5	12.1	12.1
23.....	12.05	12.35	12.45	12.7	12.9	13.2	13.2	13.0	13.0	12.5	12.1	12.1
24.....	12.10	12.35	12.45	12.8	13.0	13.2	13.1	13.0	13.0	12.5	12.1	12.2
25.....	12.10	12.30	12.45	12.8	13.0	13.2	13.1	13.0	13.0	12.4	12.1	12.2
26.....	12.10	12.35	12.45	12.8	13.0	13.2	13.1	13.0	12.9	12.4	12.1	12.2
27.....	12.10	12.35	12.45	12.7	12.9	13.2	13.1	13.0	12.9	12.4	12.1	12.2
28.....	12.10	12.35	12.45	12.7	13.0	13.2	13.1	13.0	12.9	12.4	12.0	12.1
29.....	12.10	12.35	12.45	12.7	13.0	13.2	13.1	13.0	12.8	12.4	12.1	12.2
30.....	12.10	12.35	12.45	12.8	13.1	13.2	13.0	12.9	12.4	12.0	12.1
31.....	12.15	12.45	12.8	13.2	13.0	12.4	12.0

NOTE.—Gage heights little affected by ice.

Daily discharge, in second-feet, of Klamath River at Keno, Oreg., for 1911-12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911.									
1.....	2,360	2,690	2,200	2,360	3,250	3,450	2,520	1,450	1,020
2.....	2,360	2,690	2,200	2,360	3,250	3,450	2,360	1,450	1,020
3.....	2,360	2,520	2,360	2,200	3,250	3,450	2,360	1,450	970
4.....	2,360	2,360	2,360	2,360	3,660	3,450	2,360	1,390	970
5.....	2,360	2,360	2,360	2,360	3,450	3,250	2,360	1,390	914
6.....	2,360	2,360	2,360	2,520	3,660	3,250	2,200	1,330	1,020
7.....	2,360	2,360	2,360	2,690	3,450	3,250	2,200	1,270	1,020
8.....	2,360	2,360	2,360	2,690	3,450	3,250	2,200	1,270	970
9.....	2,360	2,360	2,360	2,690	3,450	3,250	2,200	1,330	970
10.....	2,360	2,520	2,360	2,690	3,450	3,060	2,050	1,270	1,020
11.....	2,360	2,520	2,360	2,870	3,450	3,060	2,050	1,270	1,020
12.....	2,360	2,520	2,360	2,870	3,250	3,060	2,050	1,270	1,060
13.....	2,360	2,360	2,360	3,060	3,450	3,060	2,050	1,220	970
14.....	2,360	2,360	2,360	3,060	3,660	3,060	2,050	1,270	935
15.....	2,360	2,360	2,360	3,060	3,450	3,060	2,050	1,160	935
16.....	2,360	2,360	2,360	3,060	3,450	2,870	2,050	1,160	970
17.....	2,520	2,360	2,360	3,060	3,450	2,690	2,050	1,160	970
18.....	2,520	2,360	2,360	3,060	3,450	2,870	2,050	1,160	970
19.....	2,520	2,360	2,360	3,060	3,660	2,870	1,900	1,060	970
20.....	2,520	2,360	2,360	3,060	3,450	2,870	1,900	1,110	1,020
21.....	2,520	2,360	2,360	3,060	3,450	2,870	1,760	1,110	914
22.....	2,520	2,360	2,360	3,060	3,450	2,690	1,760	1,110	970
23.....	2,520	2,360	2,200	3,250	3,250	2,520	1,760	1,110	970
24.....	2,520	2,360	2,360	3,250	3,450	2,690	1,760	1,110	1,020
25.....	2,520	2,360	2,360	3,250	3,450	2,690	1,570	1,110	970
26.....	2,520	2,360	2,360	3,250	3,450	2,520	1,570	1,110	1,060
27.....	2,520	2,360	2,360	3,250	3,450	2,520	1,570	1,060	935
28.....	2,520	2,200	2,360	3,250	3,450	2,360	1,570	1,060	1,020
29.....	2,520	2,360	3,250	3,450	2,360	1,510	1,060	1,020
30.....	2,520	2,360	3,250	3,450	2,360	1,510	1,060	1,020
31.....	2,690	2,360	3,450	1,510	1,020

Daily discharge, in second-feet, of Klamath River at Keno, Oreg., for 1911-12—Contd.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	1,020	1,220	1,450	1,630	2,050	2,360	2,690	2,520	2,360	2,050	1,390	1,160
2.....	1,020	1,220	1,450	1,630	2,050	2,360	2,690	2,520	2,360	2,200	1,390	1,160
3.....	1,060	1,220	1,450	1,630	2,050	2,520	2,690	2,520	2,360	2,200	1,510	1,160
4.....	1,020	1,220	1,510	1,630	2,050	2,520	2,690	2,520	2,360	2,050	1,510	1,160
5.....	1,020	1,160	1,570	1,760	2,050	2,690	2,690	2,520	2,360	2,050	1,510	1,160
6.....	1,110	1,160	1,510	1,760	2,050	2,690	2,690	2,520	2,360	2,050	1,390	1,160
7.....	1,110	1,220	1,510	1,900	2,200	2,690	2,690	2,520	2,360	2,050	1,510	1,160
8.....	1,110	1,110	1,510	1,900	2,050	2,690	2,690	2,520	2,360	2,050	1,390	1,270
9.....	1,020	1,110	1,510	1,900	2,050	2,690	2,690	2,520	2,360	2,050	1,270	1,270
10.....	1,060	1,330	1,510	1,900	2,050	2,690	2,520	2,520	2,360	2,050	1,390	1,270
11.....	1,060	1,330	1,570	1,900	2,050	2,690	2,690	2,520	2,360	1,900	1,390	1,270
12.....	1,110	1,330	1,570	1,900	2,050	2,690	2,520	2,690	2,200	1,900	1,390	1,270
13.....	1,220	1,330	1,570	1,760	2,050	2,690	2,520	2,520	2,200	1,760	1,390	1,270
14.....	1,020	1,330	1,570	1,900	2,050	2,690	2,690	2,520	2,200	1,760	1,270	1,270
15.....	1,110	1,330	1,570	1,900	2,050	2,870	2,690	2,360	2,360	1,900	1,160	1,270
16.....	1,110	1,330	1,570	1,900	2,050	2,870	2,690	2,520	2,360	1,760	1,270	1,270
17.....	1,110	1,330	1,570	1,900	2,050	2,690	2,520	2,360	2,360	1,760	1,270	1,270
18.....	1,110	1,390	1,570	1,900	2,200	2,690	2,360	2,520	2,360	1,760	1,270	1,270
19.....	1,110	1,390	1,570	1,900	2,360	2,690	2,360	2,360	2,050	1,760	1,270	1,270
20.....	1,160	1,390	1,570	1,900	2,360	2,690	2,520	2,520	2,200	1,760	1,270	1,270
21.....	1,160	1,390	1,570	1,900	2,360	2,690	2,690	2,520	2,050	1,630	1,270	1,270
22.....	1,110	1,390	1,570	1,900	2,200	2,690	2,520	2,360	2,200	1,630	1,160	1,160
23.....	1,110	1,450	1,570	1,900	2,200	2,690	2,690	2,360	2,360	1,630	1,160	1,160
24.....	1,160	1,450	1,570	2,050	2,360	2,690	2,520	2,360	2,360	1,630	1,160	1,270
25.....	1,160	1,390	1,570	2,050	2,360	2,690	2,520	2,360	2,360	1,510	1,160	1,270
26.....	1,160	1,450	1,570	2,050	2,360	2,690	2,520	2,360	2,200	1,510	1,160	1,270
27.....	1,160	1,450	1,570	1,900	2,200	2,690	2,520	2,360	2,200	1,510	1,160	1,270
28.....	1,160	1,450	1,570	1,900	2,360	2,690	2,520	2,360	2,200	1,510	1,060	1,160
29.....	1,160	1,450	1,570	1,900	2,360	2,690	2,520	2,360	2,050	1,510	1,160	1,270
30.....	1,160	1,450	1,570	2,050	2,520	2,690	2,360	2,200	1,510	1,060	1,160
31.....	1,220	1,570	2,050	2,690	2,360	1,510	1,060

Monthly discharge of Klamath River at Keno, Oreg., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
January.....	2,690	2,360	2,440	150,000	B.
February.....	2,690	2,200	2,400	133,000	B.
March.....	2,360	2,200	2,340	144,000	B.
April.....	3,250	2,200	2,910	173,000	B.
May.....	3,660	3,250	3,440	212,000	B.
June.....	3,450	2,360	2,940	175,000	B.
July.....	2,520	1,510	1,960	121,000	B.
August.....	1,450	1,020	1,210	74,400	B.
September.....	1,060	914	987	58,700	B.
The period.....				1,240,000	
1911-12.					
October.....	1,220	1,020	1,110	68,200	B.
November.....	1,110	1,330	1,220	79,100	B.
December.....	1,570	1,450	1,550	95,300	B.
January.....	2,050	1,630	1,880	116,000	B.
February.....	2,360	2,050	2,160	124,000	B.
March.....	2,870	2,360	2,660	164,000	B.
April.....	2,690	2,360	2,600	155,000	B.
May.....	2,690	2,360	2,460	151,000	B.
June.....	2,360	2,050	2,280	136,000	B.
July.....	2,200	1,510	1,800	111,000	B.
August.....	1,510	1,060	1,280	78,700	B.
September.....	1,270	1,160	1,230	73,200	B.
The year.....	2,870	1,020	1,860	1,350,000	

KLAMATH RIVER NEAR HAPPY CAMP, CAL.

Location.—At Evans Ferry, in the NW. $\frac{1}{4}$ sec. 16, T. 16 N., R. 8 E., and about 4 miles southeast of Happy Camp. Indian Creek enters $3\frac{1}{2}$ miles below the station.

Records available.—September 10, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank. Low-water section is 60 feet and upper section 1,200 feet below ferry cable.

Channel.—Boulders and gravel; probably permanent.

Discharge measurements.—Made from suspension bridge about 2,000 feet above gage.

Diversions.—Water is diverted from main river and tributaries above the station for use in irrigation, placer mining, and power development.

Accuracy.—Rating curve is well defined for low and medium stages. Results, except at high stages, are good.

Mr. Gordon, at Evans Ferry, has kept a record of the maximum floods on Klamath River. These records, reduced to the datum of the United States Geological Survey gage, are as follows:

	<i>Feet.</i>
1861	30.0
1890	27.0
1904 (Feb. 22)	20.9
1904 (Mar. 8)	21.2

Discharge measurements of Klamath River near Happy Camp, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 14 ^a	H. J. Tompkins	5.38	6,530
17 ^b	do	4.48	4,060
May 25 ^a	Lasley Lee	5.55	6,810
26 ^a	do	5.75	7,440

^a Bridge 2,000 feet above gage.

^b Bridge 4 miles above gage.

NOTE.—Gage-height record discontinued Sept. 23, 1912. New station established near Seiad Valley, Nov. 23, 1912.

Daily gage height, in feet, of Klamath River near Happy Camp, Cal., for 1911-12.

[C. J. Schuffler and T. Deatherage, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.6	2.9	3.3	3.4	4.5	4.9	4.9	6.8	5.9	4.3	3.2	2.8
2	2.65	2.9	3.3	3.4	4.5	4.8	5.0	6.8	5.9	4.3	3.1	2.8
3	2.8	2.9	3.3	3.4	4.4	4.7	5.0	6.2	6.0	4.2	3.2	2.9
4	2.8	2.9	3.3	3.5	4.3	4.8	5.0	6.0	5.9	4.2	3.1	2.9
5	2.7	2.9	3.3	3.4	4.4	4.8	4.9	5.9	6.0	4.2	3.1	2.9
6	2.7	2.9	3.4	3.4	4.6	5.0	4.9	5.9	6.0	4.1	3.0	3.3
7	2.7	3.0	3.3	3.6	4.6	5.1	4.9	6.0	5.9	4.0	3.0	3.4
8	2.8	3.0	3.3	3.7	4.8	5.0	4.9	6.2	5.9	4.0	3.0	3.3
9	3.0	3.0	3.3	4.0	5.0	4.9	4.9	6.2	5.7	4.0	3.0	3.2
10	2.75	3.0	3.3	4.1	5.2	4.8	5.1	6.3	5.5	4.0	3.0	3.2
11	2.8	3.0	3.3	4.0	5.2	4.8	5.3	6.2	5.4	3.9	3.0	3.1
12	2.8	3.0	3.3	5.4	5.0	4.8	5.3	6.2	5.3	3.9	3.0	3.0
13	2.9	3.1	3.3	6.3	4.8	4.8	5.0	6.2	5.5	3.8	3.0	3.0
14	3.0	3.1	3.3	5.4	4.8	4.8	5.0	6.2	5.4	3.8	3.0	3.0
15	2.9	3.5	3.3	4.9	4.7	5.0	5.0	6.3	5.2	3.7	3.0	3.0

Daily gage height, in feet, of Klamath River near Happy Camp, Cal., for 1911-12—
Continued.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
16.....	2.8	3.5	3.3	4.6	5.9	5.2	4.9	6.2	5.0	3.7	2.9	3.0
17.....	2.8	3.4	3.4	4.5	9.2	5.2	4.8	6.1	4.9	3.6	2.9	3.0
18.....	2.8	3.3	3.4	4.4	10.1	5.3	4.8	6.0	4.8	3.6	2.9	3.0
19.....	2.8	3.3	3.3	4.3	7.8	5.1	4.8	6.0	4.8	3.6	2.9	2.9
20.....	2.8	3.3	3.3	4.2	6.8	5.0	4.8	6.0	4.8	3.6	2.9	2.9
21.....	2.8	3.3	3.3	4.1	6.2	5.0	4.8	6.0	4.8	3.6	2.9	2.9
22.....	2.8	3.2	3.4	4.1	5.8	4.9	4.7	5.8	4.7	3.5	2.9	2.9
23.....	2.8	3.2	3.3	4.1	5.6	4.9	4.7	5.6	4.8	3.4	2.8	2.9
24.....	2.8	3.2	3.4	4.2	5.4	4.9	4.8	5.6	5.0	3.4	2.8	2.8
25.....	2.8	3.2	3.4	6.9	5.3	5.0	4.8	5.6	4.9	3.4	2.8	2.9
26.....	2.8	3.2	3.4	7.4	5.2	5.0	4.8	5.7	4.8	3.4	2.8	2.9
27.....	2.9	3.2	3.4	6.2	5.1	5.0	4.8	5.9	4.7	3.3	2.8	2.9
28.....	2.9	3.2	3.4	5.4	5.0	5.0	4.8	5.8	4.6	3.3	2.8	2.9
29.....	2.9	3.2	3.3	5.0	5.0	5.0	5.1	6.1	4.5	3.2	2.8	-----
30.....	2.9	3.2	3.4	4.7	-----	4.9	5.6	6.0	4.4	3.2	2.8	-----
31.....	2.9	-----	3.5	4.6	-----	4.9	-----	6.0	-----	3.2	2.8	-----

Daily discharge, in second-feet, of Klamath River near Happy Camp, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	-----	1,720	2,020	2,480	2,610	4,500	5,360	5,360	10,600	7,820	4,100	2,360	1,920
2.....	-----	1,770	2,020	2,480	2,610	4,500	5,140	5,590	10,600	7,820	4,100	2,240	1,920
3.....	-----	1,920	2,020	2,480	2,610	4,300	4,920	5,590	8,680	8,100	3,910	2,360	2,020
4.....	-----	1,920	2,020	2,480	2,740	4,100	5,140	5,590	8,100	7,820	3,910	2,240	2,020
5.....	-----	1,820	2,020	2,480	2,610	4,300	5,140	5,360	7,820	8,100	3,910	2,240	2,020
6.....	-----	1,820	2,020	2,610	2,610	4,710	5,590	5,360	7,820	8,100	3,720	2,130	2,480
7.....	-----	1,820	2,130	2,480	2,880	4,710	5,820	5,360	8,100	7,820	3,540	2,130	2,610
8.....	-----	1,920	2,130	2,480	3,030	5,140	5,590	5,360	8,680	7,820	3,540	2,130	2,480
9.....	-----	2,130	2,130	2,480	3,540	5,590	5,360	5,360	8,680	7,300	3,540	2,130	2,360
10.....	1,670	1,870	2,130	2,480	3,720	6,060	5,140	5,820	8,980	6,790	3,540	2,130	2,360
11.....	1,670	1,920	2,130	2,480	3,540	6,060	5,140	6,300	8,680	6,540	3,360	3,130	2,240
12.....	1,720	1,920	2,130	2,480	6,540	5,590	5,140	6,300	8,680	6,300	3,360	2,130	2,130
13.....	1,720	2,020	2,240	2,480	8,980	5,140	5,140	5,590	8,680	6,790	3,190	2,130	2,130
14.....	1,720	2,130	2,240	2,480	6,540	5,140	5,140	5,590	8,680	6,540	3,190	2,130	2,130
15.....	1,720	2,020	2,740	2,480	5,360	4,920	5,590	5,590	8,980	6,060	3,030	2,130	2,130
16.....	1,670	1,920	2,740	2,480	4,710	7,820	6,060	5,360	8,680	5,590	3,030	2,020	2,130
17.....	1,670	1,920	2,610	2,610	4,500	18,700	6,060	5,140	8,380	5,360	2,880	2,020	2,130
18.....	1,720	1,920	2,480	2,610	4,300	22,000	6,300	5,140	8,100	5,140	2,880	2,020	2,130
19.....	1,720	1,920	2,480	2,480	4,100	13,800	5,820	5,140	8,100	5,140	2,880	2,020	2,020
20.....	1,720	1,920	2,480	2,480	3,910	10,600	5,590	5,140	8,100	5,140	2,880	2,020	2,020
21.....	1,720	1,920	2,480	2,480	3,720	8,680	5,590	5,140	8,100	5,140	2,880	2,020	2,020
22.....	1,720	1,920	2,360	2,610	3,720	7,560	5,360	4,920	7,560	4,920	2,740	2,020	2,020
23.....	1,720	1,920	2,360	2,480	3,720	7,040	5,360	4,920	7,040	5,140	2,610	1,920	2,020
24.....	1,720	1,920	2,360	2,610	3,910	6,540	5,360	5,140	7,040	5,590	2,610	1,920	1,920
25.....	1,770	1,920	2,360	2,610	10,900	6,300	5,590	5,140	7,040	5,360	2,610	1,920	2,020
26.....	1,720	1,920	2,360	2,610	12,500	6,060	5,590	5,140	7,300	5,140	2,610	1,920	2,020
27.....	1,820	2,020	2,360	2,610	8,680	5,820	5,590	5,140	7,820	4,920	2,480	1,920	2,020
28.....	1,770	2,020	2,360	2,610	6,540	5,590	5,590	5,140	7,560	4,710	2,480	1,920	2,020
29.....	1,720	2,020	2,360	2,480	5,590	5,590	5,590	5,820	8,380	4,500	2,360	1,920	2,020
30.....	1,720	2,020	2,360	2,610	4,920	-----	5,360	7,040	8,100	4,300	2,360	1,920	2,020
31.....	-----	2,020	-----	2,740	4,710	-----	5,360	-----	8,100	-----	2,360	1,920	-----

NOTE.—Daily discharge determined from a rating curve well defined up to 8,000 second-feet and not defined above. Discharge estimated Sept. 29 and 30, 1912.

Monthly discharge of Klamath River near Happy Camp, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
September 10-30.....	1,820	1,670	1,720	71,600	A.
1911-12.					
October.....	2,130	1,720	1,930	119,000	A.
November.....	2,740	2,020	2,290	136,000	A.
December.....	2,740	2,480	2,530	156,000	A.
January.....	12,500	2,610	4,850	298,000	A.
February.....	22,000	4,100	7,130	410,000	A.
March.....	6,300	4,920	5,470	336,000	A.
April.....	7,040	4,920	5,450	324,000	A.
May.....	10,600	7,040	8,300	510,000	B.
June.....	8,100	4,300	6,190	368,000	A.
July.....	4,100	2,360	3,120	192,000	A.
August.....	2,360	1,920	2,070	127,000	A.
September.....	2,610	1,920	2,120	126,000	A.
The year.....	22,000	1,720	4,270	3,100,000	

KLAMATH RIVER NEAR REQUA, CAL.

Location.—At Scofield Ferry, in sec. 29, T. 13 N., R. 2 E., 30 miles below mouth of Trinity River and about 9 miles above Requa and the mouth of the river.

Records available.—December 25, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in four sections on right bank at ferry cable.

Channel.—Gravel; fairly permanent.

Discharge measurements.—Made from ferryboat.

Diversions.—Water is diverted for irrigation and power development from main river and tributaries in Oregon and California.

Estimates are withheld until additional measurements can be made.

Discharge measurements of Klamath River near Requa, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis- charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 15 ^a	E. O. Christiansen.....	6.36	3,770
1912.			
Feb. 25 ^ado.....	12.91	24,300
May 8 ^ado.....	15.01	38,800
Aug. 26 ^a	Charles Leidl.....	6.36	3,720
Sept. 30 ^bdo.....	6.48	3,390

^a Ferryboat at gage.

^b Cable (ferry cable used).

Daily gage height, in feet, of Klamath River near Requa, Cal., for 1911-12.

[M. F. Scofield, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5.50	5.70	6.32	6.8	12.0	11.2	11.2	18.8	13.6	9.1	7.2	6.2
2.....	5.50	5.70	6.28	6.7	11.5	10.9	11.1	18.4	13.6	9.0	7.2	6.6
3.....	5.52	5.70	6.28	6.7	11.0	10.8	11.2	16.8	13.5	8.8	7.2	6.8
4.....	5.65	5.70	6.28	6.6	10.8	10.6	11.2	15.8	13.5	8.8	7.1	6.9
5.....	5.65	5.70	6.35	6.6	12.1	10.9	11.1	14.8	13.4	8.8	7.0	7.2
6.....	5.60	5.70	6.82	6.8	12.0	11.6	11.1	14.7	13.2	8.7	7.0	9.1
7.....	5.60	5.70	6.85	9.9	11.9	12.0	11.1	14.8	13.0	8.6	7.0	8.6
8.....	5.62	5.82	6.78	10.2	13.3	12.1	11.1	15.0	13.6	8.5	6.9	8.0
9.....	5.95	6.12	6.60	12.0	13.9	11.9	11.0	15.2	12.3	8.4	6.9	7.8
10.....	5.85	6.88	6.52	12.8	13.9	11.6	11.4	14.9	12.0	8.4	6.8	7.6
11.....	5.85	6.55	6.45	13.1	13.6	11.3	11.6	14.7	11.8	8.3	6.8	7.4
12.....	5.75	6.20	6.40	19.7	13.1	11.1	11.4	14.5	11.8	8.2	6.8	7.2
13.....	5.75	6.55	6.35	16.0	12.5	11.2	11.1	14.2	11.7	8.2	6.7	7.2
14.....	6.00	6.70	6.35	14.3	12.0	11.2	10.8	14.2	11.6	8.2	6.7	7.0
15.....	6.00	8.78	6.35	13.2	13.3	12.3	10.8	14.1	11.0	8.2	6.7	7.0
16.....	5.80	8.98	6.60	12.6	18.3	12.2	10.7	13.8	10.6	8.1	6.7	6.9
17.....	5.78	7.65	7.02	11.8	27.3	12.1	10.6	13.7	10.4	8.0	6.6	6.8
18.....	5.70	7.22	6.82	11.1	25.2	12.0	10.6	13.5	10.3	8.0	6.6	6.8
19.....	5.70	6.90	6.70	10.8	21.0	12.0	10.5	13.4	10.4	8.1	6.6	6.7
20.....	5.65	6.80	6.62	10.3	18.1	11.9	10.4	13.6	10.4	8.0	6.6	6.7
21.....	5.65	6.70	6.52	10.0	15.9	11.9	10.4	13.0	10.2	7.9	6.5	6.7
22.....	5.65	6.60	6.65	9.9	14.8	11.5	10.2	12.5	9.8	7.8	6.5	6.7
23.....	5.62	6.50	6.80	9.8	14.0	11.6	10.2	12.4	9.9	7.7	6.4	6.6
24.....	5.65	6.42	6.85	10.6	13.3	11.6	10.0	12.2	9.8	7.6	6.4	6.6
25.....	5.65	6.38	6.80	20.9	12.8	11.5	9.9	12.7	9.8	7.6	6.4	6.6
26.....	5.68	6.35	6.82	25.2	12.3	11.5	10.4	13.8	9.6	7.5	6.4
27.....	5.70	6.32	7.40	19.4	11.9	11.6	10.4	14.0	9.5	7.5	6.4
28.....	5.70	6.30	7.60	15.9	11.6	11.8	11.7	14.2	9.4	7.4	6.3	6.5
29.....	5.70	6.32	7.85	14.2	11.4	11.6	13.4	14.0	9.3	7.3	6.3	6.5
30.....	5.70	6.35	7.80	13.2	11.4	15.5	13.8	9.2	7.2	6.3	6.5
31.....	5.70	7.20	12.6	11.3	13.7	7.2	6.4

MILLER CREEK NEAR CRESCENT, OREG.

Location.—In sec. 2, T. 28 S., R. 7 E., about 4 miles above the Knott ranch and about 20 miles south of Crescent.

Records available.—November 14, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff.

Channel.—Sand and gravel; probably permanent.

Discharge measurements.—By wading and from foot logs.

Accuracy.—Limited by the frequency of gage readings. At present it is impossible to secure more than one reading a week. The creek sinks completely a few miles below the gage, and it is probable that there is some underflow at the station. Miscellaneous measurements, May 12, 1912, show about 2 second-feet more water 3 miles above the gage than at the gage and about 11 second-feet more water at the gage than 4 miles below. On this account it is impossible to place the gage in a more accessible place than at present.

Cooperation.—This station is maintained in cooperation with the Hunter Land Co.

Discharge measurements of Miller Creek near Crescent, Oreg., for 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 14	W. O. Harmon.....	0.92	10.3	June —	J. Ringo ^a	2.73	100
1912.				July 16	H. Kimble.....	1.78	38.5
May 12	H. Kimble.....	1.12	21.5	Sept. 1do.....	.90	12.9

^a Measured by floats at outlet of Fish Lake and added estimate of Wheeler Creek. Gage height determined by H. Kimble July 16. Not much weight should be given this measurement.

Daily gage height, in feet, of Miller Creek near Crescent, Oreg., for 1911-12.

[John Knott, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.												0.90
2.												
3.											1.43	
4.												
5.								0.94	2.10			
6.						1.60				1.95		
7.							0.65					.82
8.												
9.												
10.			1.25						2.40		1.28	
11.												
12.								1.12				
13.										1.82		
14.		0.92										.77
15.												
16.				2.35					2.60	1.78		
17.											1.20	
18.						1.15						
19.					0.98							
20.										1.70		
21.												.64
22.												
23.								1.50	2.30			
24.											1.09	
25.		2.00										
26.						.80						
27.			1.60		1.25					1.49		
28.												.60
29.								1.70	2.15			
30.												
31.											.90	

Daily discharge, in second-feet, of Miller Creek near Crescent, Oreg., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.								12	43	54	27	13
2.								13	47	52	27	13
3.								13	50	50	27	12
4.								14	52	49	27	12
5.								14	54	48	26	11
6.						32		15	57	46	25	11
7.							8	15	60	46	24	11
8.								16	64	45	23	11
9.								16	68	44	22	11
10.			22					17	72	43	22	11
11.								17	74	42	22	10
12.								18	76	41	21	10
13.								19	78	41	21	10
14.		13						20	80	40	21	10
15.								21	82	39	21	10
16.				69				22	85	38	20	9
17.								23	83	38	20	9
18.						18		24	80	37	20	9
19.					15			25	77	37	19	9
20.								26	74	36	19	8
21.								27	71	35	18	8
22.								28	68	34	18	8
23.								29	66	33	17	8
24.								30	64	32	17	8
25.		49						31	63	31	16	7
26.						11		32	62	30	16	7
27.			32		22			34	61	29	15	7
28.								35	59	29	15	7
29.								36	57	29	14	7
30.								38	55	28	14	6
31.								40		28	13	

NOTE.—Daily discharge determined from a rating curve fairly well defined between 10 second-feet and 40 second-feet and poorly defined above 40 second-feet. Discharge interpolated for days when gage was not read during May to September.

Monthly discharge of Miller Creek near Crescent, Oreg., for 1912.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
May.....	40	12	23.2	1,430	C.
June.....	85	43	66.1	3,930	C.
July.....	54	28	38.8	2,390	C.
August.....	27	13	20.2	1,240	C.
September.....	13	6	9.4	559	C.

SPRAGUE RIVER NEAR YAINAX, OREG.

Location.—In sec. 18, T. 36 S., R. 13 E., 1 mile above the highway bridge on the main road between Yainax and Silver Lake, about 3 miles above the mouth of Sycan River and about 10 miles east of Yainax.

Records available.—April 19, 1912, to September 30, 1912.

Drainage area.—513 square miles.

Gage.—Vertical staff.

Channel.—Rocks and gravel. May shift slightly.

Discharge measurements.—Made from cable about 100 feet below the gage.

Accuracy.—Field conditions are good but it is impossible at present to get enough gage records to make reliable estimates.

Diversions.—There is a considerable amount of diversion on the forks above this station.

Cooperation.—This station is maintained in cooperation with the United States Indian Service.

Discharge measurements of Sprague River near Yainax, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
May 17	H. Kimble.....	<i>Feet.</i> 5.22	<i>Sec.-ft.</i> a 538
June 23do.....	2.54	313
July 11do.....	1.30	161

a About 50 second-feet more passing around gage and cable.

Daily gage height, in feet, of Sprague River near Yainax, Oreg., for 1912.

[David Chocktoot, observer.]

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Day.	Apr.	May.	June.	July.	Aug.	Sept.
1.....							16.....		5.09				
2.....							17.....		5.27	3.77		1.20	
3.....							18.....						
4.....				1.67			19.....	2.62	5.27				
5.....		4.37				1.30	20.....						
6.....							21.....						
7.....							22.....						
8.....							23.....		4.72	2.54			
9.....		3.59	4.57				24.....		4.77	2.57			
10.....							25.....					1.10	
11.....				1.30			26.....		4.77				
12.....							27.....						
13.....							28.....				1.20		
14.....							29.....						
15.....				1.20			30.....						
							31.....						

SPRAGUE RIVER AT CHILOQUIN, OREG.

Location.—At the Southern Pacific Co.'s railroad bridge in sec. 3, T. 35 S., R. 7 E., 200 feet above the mouth of the river.

Records available.—July 25, 1911, to September 30, 1912.

Drainage area.—1,550 square miles.

Gage.—Chain gage on railroad bridge.

Channel.—Rocky; probably permanent; current swift.

Discharge measurements.—Made from railroad bridge.

Accuracy.—Gage heights will probably not be affected by backwater from Williamson River.

Cooperation.—Station established and maintained by United States Reclamation Service to obtain data for studies of inflow to upper Klamath Lake.

Estimates are withheld until additional data are secured.

Discharge measurements of Sprague River at Chiloquin, Oreg., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 21	W. O. Harmon.....	1.22	424	May 7	H. Kimble.....	2.33	1,420
1912.				June 30	L. Moser.....	1.48	706
Feb. 20	L. Moser.....	2.05	1,140	July 14	H. Kimble.....	1.16	465
Mar. 9	do.....	1.62	652	Aug. 9	L. Moser.....	1.10	341
May 3	H. Kimble.....	1.93	941	Sept. 2	H. Kimble.....	1.08	407

Daily gage height, in feet, of Sprague River at Chiloquin, Oreg., for 1911-12.

[Alfred Gentry, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.1	1.1	1.2	1.1	1.5	1.7	1.8	1.8	2.4	1.4	1.1	1.1
2.....	1.1	1.1	1.2	1.1	1.5	1.6	1.7	1.9	2.4	1.4	1.1	1.1
3.....	1.1	1.1	1.2	1.1	1.5	1.6	1.7	2.0	2.4	1.4	1.1	1.2
4.....	1.1	1.1	1.2	1.2	1.5	1.6	1.7	2.1	2.4	1.3	1.1	1.2
5.....	1.1	1.1	1.2	1.2	1.5	1.6	1.6	2.2	2.4	1.3	1.1	1.2
6.....	1.1	1.1	1.2	1.2	1.5	1.6	1.6	2.3	2.4	1.3	1.1	1.1
7.....	1.1	1.1	1.2	1.2	1.6	1.6	1.6	2.3	2.3	1.3	1.1	1.1
8.....	1.1	1.1	1.2	1.2	1.6	1.6	1.7	2.3	2.3	1.3	1.1	1.1
9.....	1.1	1.1	1.2	1.2	1.6	1.6	1.7	2.2	2.3	1.3	1.0	1.1
10.....	1.1	1.1	1.2	1.3	1.6	1.6	1.8	2.2	2.2	1.3	1.0	1.1
11.....	1.1	1.2	1.2	1.3	1.7	1.6	1.8	2.1	2.1	1.3	1.1	1.1
12.....	1.1	1.2	1.2	1.3	1.7	1.6	1.8	2.1	2.1	1.2	1.1	1.1
13.....	1.1	1.2	1.2	1.3	1.8	1.6	1.8	2.0	2.1	1.2	1.0	1.1
14.....	1.1	1.2	1.2	1.4	1.8	1.6	1.8	2.0	2.1	1.2	1.1	1.1
15.....	1.1	1.2	1.2	1.5	1.9	1.6	1.8	2.1	2.1	1.2	1.2	1.1
16.....	1.1	1.2	1.2	1.5	1.9	1.6	1.8	2.1	2.1	1.1	1.1	1.1
17.....	1.1	1.2	1.2	1.4	1.9	1.6	1.8	2.2	2.1	1.1	1.0	1.2
18.....	1.1	1.2	1.2	1.4	2.0	1.5	1.8	2.2	2.0	1.1	1.0	1.1
19.....	1.1	1.2	1.2	1.3	2.0	1.5	1.8	2.3	1.9	1.1	1.2	1.1
20.....	1.1	1.2	1.2	1.3	1.9	1.5	1.8	2.4	1.9	1.1	1.3	1.1
21.....	1.1	1.2	1.2	1.3	1.9	1.5	1.6	2.5	1.9	1.1	1.2	1.1
22.....	1.1	1.2	1.2	1.3	1.9	1.5	1.6	2.5	1.9	1.1	1.2	1.1
23.....	1.1	1.2	1.2	1.4	1.9	1.5	1.6	2.6	1.8	1.1	1.1	1.1
24.....	1.1	1.2	1.2	1.4	1.9	1.6	1.6	2.6	1.7	1.1	1.0	1.0
25.....	1.1	1.2	1.2	1.4	1.9	1.6	1.6	2.6	1.7	1.0	1.0	1.0
26.....	1.1	1.2	1.2	1.5	1.9	1.6	1.7	2.6	1.7	1.1	1.1	1.1
27.....	1.1	1.2	1.1	1.5	1.8	1.6	1.7	2.6	1.7	1.1	1.1	1.1
28.....	1.1	1.2	1.1	1.5	1.8	1.7	1.7	2.5	1.6	1.1	1.1	1.1
29.....	1.1	1.2	1.1	1.5	1.8	1.7	1.8	2.5	1.5	1.0	1.0	1.2
30.....	1.1	1.2	1.1	1.5	1.5	1.8	1.8	2.5	1.5	1.0	1.1	1.2
31.....	1.1	1.1	1.1	1.5	1.5	1.8	1.8	2.4	1.1	1.1	1.1	1.1

SYCAN RIVER NEAR YAINAX, OREG.

Location.—Sec. 3, T. 36 S., R. 12 E., at the house of David Chocktoot, $2\frac{1}{2}$ miles above the junction of Sycan and Sprague rivers and about 13 miles above Yainax.

Records available.—November 25, 1911, to September 30, 1912.

Drainage area.—527 square miles.

Gage.—Vertical staff.

Channel.—Sand and gravel, somewhat shifting.

Discharge measurements.—Made from a standard car and cable about 3 miles above the gage.

Accuracy.—On account of the shifting nature of the channel and the inaccessibility of this station, it will be difficult to get accurate results. It may be necessary later to move the gage up nearer the cable.

Cooperation.—This station is maintained in cooperation with the United States Indian Service.

Estimates of daily and monthly discharge are withheld until additional data are secured.

Discharge measurements of Sycan River near Yainax, Oreg., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 25	W. O. Harmon.....	1.77	32.0	May 9	H. Kimble.....	3.75	288
				17do.....	5.35	587
1912.				June 23do.....	3.15	157
Apr. 18	H. Kimble.....	2.50	124				

Daily gage height, in feet, of Sycan River near Yainax, Oreg., for 1911-12.

[David Chocktoot, observer.]

Day.	Nov.	Dec.	Apr.	May.	June.	July.	Aug.
1							2.0
2				5.0		2.6	2.0
3				5.2	4.9	2.5	2.0
4				4.9	4.9		2.0
5		1.8		5.3	4.7	2.5	2.0
6		1.8		4.6	4.5	2.4	2.0
7		1.7		4.3			1.9
8		1.7		3.9		2.3	1.9
9		1.8		3.6		2.3	1.9
10		1.8		3.8	4.5	2.3	1.9
11				3.8	4.3	2.3	
12					4.3	2.2	
13					4.1	2.2	
14				4.5	4.1	2.0	
15					4.0	2.0	
16				5.4		2.0	
17				5.4	4.0	2.1	
18		1.4	2.5	5.5	3.9		
19		1.5	2.4	5.5	3.6		
20		1.4	2.4	5.6			
21		1.4	2.4	5.8		2.0	
22		1.4		5.8		2.2	
23		1.4		5.6	3.4		
24				5.3	3.1		
25	1.8		2.6	5.2	3.1	2.0	
26	1.8		2.6	5.2			
27	1.8		2.6	5.4	3.1	2.0	
28	1.6		2.5	5.4		2.0	
29	1.8		2.7	5.3		2.0	
30	1.6		3.3	5.3		2.0	
31				5.4		2.0	

NOTE.—Gage heights Dec. 18 to 23 are questionable.

WOOD RIVER AT FORT KLAMATH, OREG.

Location.—In sec. 22, T. 33 S., R. 7½ E., at a highway bridge one-fourth mile north of Fort Klamath.

Records available.—August 5, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff attached to bridge.

Channel.—Clean gravel, liable to shift slightly.

Discharge measurements.—Made from highway bridge.

Accuracy.—Field conditions are excellent at this station and reliable results should be secured.

Cooperation.—This station is maintained by the United States Reclamation Service.

Estimates of daily and monthly discharge are withheld until additional measurements are secured.

The following discharge measurement was made by W. O. Harmon, Nov. 18, 1911: Gage height, 1.52 feet; discharge, 274 second-feet.

Daily gage height, in feet, of Wood River at Fort Klamath, Oreg., for 1911-12.

[Guss Page, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.45	1.40	1.46	1.30	1.32	1.30	1.40	1.22	1.25	1.50	1.65	1.45
2.....	1.45	1.40	1.45	1.25	1.35	1.30	1.35	1.22	1.30	1.30	1.65	1.50
3.....	1.45	1.40	1.45	1.20	1.30	1.30	1.32	1.20	1.30	1.30	1.65	1.50
4.....	1.50	1.40	1.42	1.20	1.30	1.25	1.30	1.20	1.25	1.30	1.60	1.55
5.....	1.50	1.38	1.45	1.20	1.32	1.30	1.28	1.25	1.30	1.20	1.55	1.60
6.....	1.45	1.40	1.48	1.25	1.35	1.35	1.25	1.25	1.40	1.20	1.55	1.70
7.....	1.45	1.45	1.45	1.27	1.35	1.30	1.28	1.28	1.45	1.30	1.50	1.70
8.....	1.45	1.50	1.43	1.30	1.40	1.25	1.25	1.30	1.45	1.30	1.50	1.65
9.....	1.45	1.50	1.40	1.32	1.45	1.25	1.25	1.32	1.40	1.30	1.50	1.60
10.....	1.45	1.50	1.40	1.40	1.50	1.25	1.30	1.35	1.30	1.50	1.50	1.55
11.....	1.45	1.50	1.40	1.45	1.45	1.25	1.30	1.35	1.30	1.60	1.50	1.50
12.....	1.45	1.55	1.40	1.50	1.38	1.25	1.25	1.30	1.40	1.50	1.50	1.45
13.....	1.45	1.60	1.45	1.50	1.35	1.25	1.25	1.30	1.30	1.40	1.50	1.45
14.....	1.45	1.65	1.48	1.55	1.35	1.25	1.22	1.30	1.30	1.40	1.50	1.40
15.....	1.45	1.80	1.50	1.60	1.40	1.25	1.20	1.30	1.30	1.50	1.50	1.45
16.....	1.45	1.65	1.45	1.60	1.75	1.25	1.20	1.32	1.25	1.40	1.45
17.....	1.45	1.55	1.40	1.55	2.80	1.25	1.20	1.30	1.25	1.45	1.45
18.....	1.45	1.60	1.40	1.55	1.90	1.25	1.20	1.25	1.20	1.45	1.50	1.45
19.....	1.45	1.55	1.35	1.50	1.55	1.20	1.20	1.25	1.30	1.30	1.50	1.45
20.....	1.45	1.50	1.30	1.45	1.45	1.20	1.20	1.20	1.40	1.30	1.50	1.45
21.....	1.45	1.50	1.20	1.40	1.35	1.20	1.20	1.15	1.50	1.40	1.50	1.45
22.....	1.45	1.50	1.20	1.35	1.35	1.20	1.20	1.10	1.50	1.50	1.45	1.50
23.....	1.40	1.48	1.25	1.35	1.35	1.25	1.20	1.10	1.85	1.50	1.45	1.50
24.....	1.40	1.48	1.25	1.38	1.25	1.30	1.20	1.05	1.80	1.50	1.45	1.50
25.....	1.40	1.46	1.25	1.43	1.30	1.35	1.20	1.05	1.80	1.50	1.45	1.50
26.....	1.40	1.45	1.30	1.45	1.35	1.40	1.20	1.10	1.80	1.40	1.40	1.50
27.....	1.40	1.45	1.30	1.40	1.30	1.45	1.22	1.10	1.75	1.45	1.40	1.50
28.....	1.40	1.44	1.25	1.38	1.30	1.45	1.25	1.15	1.70	1.50	1.40	1.45
29.....	1.40	1.45	1.25	1.35	1.30	1.45	1.25	1.20	1.70	1.50	1.40	1.45
30.....	1.40	1.50	1.27	1.35	1.40	1.25	1.20	1.70	1.60	1.40	1.45
31.....	1.40	1.30	1.32	1.35	1.20	1.65	1.45

FOURMILE CREEK NEAR ODESSA, OREG.

Location.—In sec. 9, T. 36 S., R. 5 E., just below the outlet of Four Mile Lake, about 15 miles northwest of Odessa.

Records available.—April 6, 1912, to August 8, 1912.

Drainage area.—Not measured.

Gage.—A vertical staff 10 feet below dam at outlet.

Channel.—Rocks and gravel; probably permanent.

Discharge measurements.—Made from a footbridge near the gage or by wading.

Artificial control.—A dam has been built at the outlet of the lake and a gate for controlling the flow has been constructed. This gate has been kept open since the station has been maintained and therefore there has been no artificial control.

Accuracy.—Fair results should be obtained at this point.

Cooperation.—This station is maintained in cooperation with the Rogue River Valley Canal Co., which furnishes part of the gage readings.

Estimates of daily and monthly discharge are withheld until additional data are obtained.

Discharge measurements of Fourmile Creek near Odessa, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 6	R. C. Pierce.....	1.00	5.77	Apr. 7	R. C. Pierce.....	1.13	8.65
6do.....	.81	2.91	June 11	H. Kimble.....	2.03	58.9

Daily gage height, in feet, of Fourmile Creek at Fourmile Lake, near Odessa, Oreg., for 1912.

[M. H. Wampler, observer.]

Day.	Apr.	May.	June.	July.	Aug.	Day.	Apr.	May.	June.	July.	Aug.
1.....		1.22		1.97	1.13	16.....	1.14		2.00		
2.....						17.....	1.14				
3.....						18.....				1.65	
4.....			2.00			19.....					
5.....			2.01			20.....		1.71			
6.....	1.00					21.....		1.73	2.05		
7.....	1.12	1.25		1.91		22.....					
8.....	1.12	1.28	2.50		.93	23.....	1.12				
9.....	1.11					24.....	1.14			1.30	
10.....	1.11					25.....	1.16				
11.....			2.03			26.....					
12.....	1.12			1.87		27.....		1.81	2.00		
13.....	1.12	1.43				28.....		1.80		1.20	
14.....	1.13	1.42				29.....					
15.....	1.14					30.....	1.22				
						31.....					

NOTE.—Gage-height record discontinued for the summer Aug. 8, 1912, as discharge was very small.

LOST RIVER AT OLENE, OREG.

Location.—In sec. 14, T. 39 S., R. 10 E., at the highway bridge at Olene.

Records available.—May 24 to July 30, 1904; May 20, 1907, to March 16, 1912.

Drainage area.—1,290 square miles.

Gage.—Vertical staff.

Channel.—A permanent rocky riffle, 200 feet below the gage, controls the gage heights.

Discharge measurements.—Made from highway bridge except during extreme low water, when the river can be better waded at the riffle.

Winter flow.—Gage heights have never been seriously affected by ice.

Diversions.—At a point 5 miles below this station a dam has been built to divert the water of Lost River through a slough into Klamath River and thus reclaim lands bordering on Tule Lake. Backwater from this dam drowned out the Olene station about March 16, 1912, and the readings were discontinued.

Accuracy.—The conditions at this station have been favorable for good results.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service but the records have been worked up by the U. S. Geological Survey.

Daily gage height, in feet, of Lost River at Olene, Oreg., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1.....	4.52	4.54	4.54	4.53	5.60	5.55	16.....	4.52	4.54	4.53	4.66	5.60	5.43
2.....	4.52	4.52	4.54	4.53	5.50	5.55	17.....	4.52	4.54	4.53	4.82	5.75
3.....	4.52	4.52	4.54	4.53	5.50	5.50	18.....	4.52	4.54	4.53	4.98	6.80
4.....	4.52	4.52	4.54	4.53	5.50	5.48	19.....	4.52	4.54	4.53	5.28	8.40
5.....	4.52	4.52	4.54	4.53	5.50	5.47	20.....	4.52	4.54	4.53	5.26	7.00
6.....	4.52	4.52	4.53	4.53	5.50	5.45	21.....	4.52	4.54	4.53	5.26	6.40
7.....	4.52	4.52	4.53	4.54	5.55	5.40	22.....	4.52	4.54	4.53	5.26	6.30
8.....	4.52	4.52	4.53	4.56	5.60	5.38	23.....	4.52	4.54	4.53	5.27	5.80
9.....	4.52	4.52	4.53	4.56	5.60	5.40	24.....	4.52	4.54	4.53	5.30	5.70
10.....	4.52	4.52	4.53	4.56	5.65	5.40	25.....	4.52	4.54	4.53	5.34	5.65
11.....	4.52	4.52	4.53	4.58	5.95	5.40	26.....	4.54	4.54	4.53	5.38	5.60
12.....	4.52	4.52	4.53	4.60	6.00	5.41	27.....	4.54	4.54	4.53	5.75	5.55
13.....	4.52	4.52	4.53	4.66	5.95	5.42	28.....	4.54	4.54	4.53	5.90	5.55
14.....	4.52	4.52	4.53	4.66	5.75	5.42	29.....	4.54	4.54	4.53	5.90	5.55
15.....	4.52	4.53	4.53	4.66	5.65	5.43	30.....	4.54	4.54	4.53	5.80
							31.....	4.54	4.53	5.70

Daily discharge, in second-feet, of Lost River at Olene, Oreg., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
1.....	107	112	112	109	605	572	16.....	107	112	109	142	605	494
2.....	107	107	112	109	540	572	17.....	107	112	109	186	705
3.....	107	107	112	109	540	540	18.....	107	112	109	242	1,480
4.....	107	107	112	109	540	527	19.....	107	112	109	398	2,790
5.....	107	107	112	109	540	520	20.....	107	112	109	386	1,630
6.....	107	107	109	109	540	508	21.....	107	112	109	386	1,180
7.....	107	107	109	112	540	475	22.....	107	112	109	386	1,100
8.....	107	107	109	116	605	462	23.....	107	112	109	392	740
9.....	107	107	109	116	605	475	24.....	107	112	109	410	670
10.....	107	107	109	116	638	475	25.....	107	112	109	436	638
11.....	107	107	109	121	845	475	26.....	112	112	109	462	605
12.....	107	107	109	126	880	482	27.....	112	112	109	705	572
13.....	107	107	109	142	845	488	28.....	112	112	109	810	572
14.....	107	107	109	142	705	488	29.....	112	112	109	810	572
15.....	107	109	109	142	638	494	30.....	112	112	109	740
							31.....	112	109	670

NOTE.—Daily discharge determined from a well-defined rating curve, based on measurements in 1910 and 1911.

LOST RIVER AT WILSON BRIDGE, NEAR OLENE, OREG.

Location.—In sec. 32, T. 39 S., R. 10 E., at Wilson Bridge, about one-fourth mile below the diversion dam and about 5 miles below Olene.

Records available.—March 14, 1912 to May 11, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff attached to highway bridge.

Channel.—Clean sand and rocks.

Discharge measurements.—Made from the highway bridge.

Diversions.—This station is located just below the dam at which water is at present diverted into Lost River Slough and thence into Klamath River. During low water all the water will be diverted from Lost River.

Accuracy.—During the period when there was no diversion the records at this station should be fairly reliable as a good rating has been determined.

Cooperation.—This station is maintained by the United States Reclamation Service and the records worked up and published by the Survey.

Discharge measurements of Lost River at Wilson Bridge, near Olene, Oreg., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 20	L. Moser	7.55	1,390	Apr. 17	L. Moser	1.62	255
20	do.	5.10	851	May 3	do.	4.00	663
22	do.	3.60	625	4	do.	4.80	780
24	do.	2.40	409	9	do.	.19	80.0
26	do.	1.50	210	10	do.	— .30	27.8

Daily gage height, in feet, of Lost River at Wilson Bridge, near Olene, Oreg., for 1912.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1.		1.50	2.27	11.		1.50	—0.30	21.	1.33	0.95	
2.		1.20	2.94	12.		1.55		22.	1.33	.96	
3.		1.18	3.86	13.		1.90		23.	1.10	.94	
4.		1.30	4.62	14.		0.92	1.85	24.	1.05	.93	
5.		1.45	3.54	15.		1.25	1.75	25.	1.00	1.11	
6.		1.00	2.10	16.		.95	1.65	26.	1.20	1.00	
7.		1.08	1.42	17.		.92	1.65	27.	1.28	.50	
8.		1.20	.70	18.		.95	1.50	28.	1.30	.98	
9.		1.10	.18	19.		.90	1.30	29.	1.30	1.40	
10.		1.30	— .25	20.		1.09	1.10	30.	1.30	1.45	
								31.	1.30		

Daily discharge, in second-feet, of Lost River at Wilson Bridge, near Olene, Oreg., for 1912.

Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.	Day.	Mar.	Apr.	May.
1.		221	340	11.		221	30	21.	197	149	
2.		180	459	12.		228		22.	197	150	
3.		177	637	13.		280		23.	167	148	
4.		193	789	14.		145	272	24.	161	147	
5.		214	573	15.		186	258	25.	155	168	
6.		155	312	16.		149	242	26.	180	155	
7.		165	210	17.		145	242	27.	190	100	
8.		180	121	18.		149	221	28.	193	153	
9.		167	69	19.		143	193	29.	193	207	
10.		193	34	20.		166	167	30.	193	214	
								31.	193		

NOTE.—Discharge determined from a fairly well defined rating curve. May 12 to Sept. 30, 1912, all flow was diverted above the dam, but there was more or less seepage through the flashboards. During August this seepage was estimated by the United States Reclamation Service engineers to be about 30 acre-feet.

Monthly discharge of Lost River at Wilson Bridge, near Olene, Oreg., for 1912.

[Drainage area, 1,290 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
March 14-31.	197	143	172	0.133	0.09	6,140	B.
April.	280	100	192	.149	.17	11,400	B.
May.	789	0	115	.089	.10	7,070	C.

TULE LAKE NEAR MERRILL, OREG.

Location.—In sec. 8, T. 41 S., R. 11 E., at J. F. Adams's ranch near the mouth of Lost River, 3 miles east of Merrill.

Records available.—May 17, 1904, to July 31, 1912.

Gage.—Vertical staff fastened to post driven in lake bed. The datum of the gage at present is 0.83 foot higher than when originally established.

Accuracy.—In May, 1907, the gage was found to be 0.83 foot higher than when last checked in October, 1904. This was verified in June, 1907, and again in November, 1907. A graph of the gage heights has failed to reveal any critical points that would account for a sudden change. It is therefore likely that the gage was raised by the ice a little at a time during the winters of 1905-6 and 1906-7. On account of this error the gage heights prior to May, 1907, should not be used for detailed studies.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service and the records have been prepared for publication by the Survey.

Daily gage height, in feet, of Tule Lake near Merrill, Oreg., for 1911-12.

[J. Frank Adams, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.
1.									6.40	
2.			6.10			6.50				
3.					6.15					
4.		6.10						6.55		
5.										
6.				6.10			6.45			6.00
7.	6.30									
8.									6.35	
9.			6.10			6.45				
10.					6.30					
11.		6.10						6.60		
12.										
13.				6.10			6.40			6.00
14.	6.30									
15.									6.25	
16.			6.10			6.40				
17.					6.40					
18.		6.10						6.55		
19.										
20.				6.10			6.45			6.00
21.	6.20									
22.										
23.			6.10			6.40			6.20	
24.					6.50					
25.		6.10						6.40		
26.										
27.				6.10			6.50			5.80
28.	6.10									
29.									6.00	
30.			6.10			6.50				
31.										

NOTE.—Gage-height record considered unreliable after July due to uncertainties of gage datum, and so is not published.

MILLER CREEK NEAR LORELLA, OREG.

Location.—In sec. 7, T. 40 S., R. 14 E., at the highway bridge 3 miles south of Lorella and 1 mile east of the Swingle ranch in Langell Valley. August 10, 1904, to December, 1908, at station in sec. 12, T. 39 S., R. 13 E., 9 miles northeast of Lorella at the lower end of Horsefly Valley.

Records available.—April 1, 1909, to September 30, 1912, at present site.

Drainage area.—At old station 220 square miles. At new station 270 square miles.

Gage.—Friez automatic register. No change in datum.

Channel.—Rocky and fairly permanent.

Discharge measurements.—During medium and high water, from highway bridge. Low-water measurements are made by wading at riffle.

Divisions.—A small irrigating flume carrying about 1 second-foot diverts just above the present station.

Winter flow.—During the winter months the river freezes over completely, and the data obtained at such periods are not reliable. As the total annual flow, however, is the important feature, a large error during such periods is admissible without affecting the desired results.

Accuracy.—The records at this station were somewhat fragmentary until the Friez gage was installed January 30, 1910, but estimates have been made for all missing periods and the resulting values of total run-off have been fairly accurate.

Cooperation.—Since May, 1909, this station has been maintained by the United States Reclamation Service, and the records computed by the U. S. Geol. Survey.

No measurements have been secured since 1911.

Daily gage height, in feet, of Miller Creek near Lorella, Oreg., for 1911–12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.60	2.80	3.12	3.63	3.30	3.80	5.80	3.08	2.88	2.37	2.60
2.....	2.80	2.80	3.13	3.50	3.40	3.80	6.10	2.98	2.88	2.37	2.62
3.....	2.80	2.80	3.13	3.58	3.50	3.80	5.95	2.82	2.88	2.39	2.67
4.....	2.80	2.80	3.05	3.63	3.70	3.80	5.27	2.78	2.88	2.41	2.68
5.....	2.81	2.80	3.00	4.20	3.70	3.80	4.75	2.57	2.85	2.41	2.69
6.....	2.82	2.81	3.00	4.10	3.70	3.80	4.85	2.45	2.80	2.40	2.72
7.....	2.68	2.83	2.82	3.00	4.10	3.70	3.80	4.50	2.42	2.78	2.38	2.75
8.....	2.67	2.86	2.82	3.00	4.95	3.70	3.95	4.18	2.45	2.75	2.37	2.75
9.....	2.68	2.97	2.90	3.00	5.10	3.66	3.97	3.91	2.70	2.74	2.35	2.72
10.....	2.97	2.90	3.00	5.20	3.64	4.00	3.78	2.58	2.71	2.38	2.69
11.....	3.00	2.90	3.00	4.86	3.52	4.36	3.67	2.45	2.70	2.40	2.68
12.....	3.00	2.90	3.15	4.22	3.47	4.30	3.60	2.40	2.68	2.39	2.67
13.....	3.00	2.90	3.52	3.98	3.65	4.15	3.50	2.49	2.67	2.39	2.66
14.....	2.70	2.97	2.90	3.65	4.04	3.50	4.09	3.49	2.55	2.50	2.39	2.70
15.....	2.98	2.90	3.59	5.00	3.38	4.19	3.23	2.62	2.44	2.45	2.69
16.....	3.10	2.92	3.45	7.90	3.48	3.90	3.12	2.78	2.40	2.57	2.69
17.....	3.14	2.92	3.38	8.40	3.55	3.84	3.08	2.65	2.39	2.50	2.69
18.....	3.07	2.93	3.27	6.00	3.90	3.99	3.00	2.53	2.40	2.55	2.69
19.....	3.00	2.93	3.25	4.50	3.96	3.75	2.98	2.40	2.41	2.58	2.69
20.....	2.94	2.93	3.25	3.52	3.80	3.75	2.92	2.30	2.40	2.59	2.69
21.....	2.80	2.90	2.94	3.25	3.50	3.65	3.65	3.05	2.29	2.39	2.62	2.69
22.....	2.88	3.05	3.48	3.50	3.60	3.70	3.28	2.35	2.41	2.65	2.60
23.....	2.88	3.40	3.50	3.50	3.80	3.75	3.41	2.49	2.43	2.64
24.....	2.88	3.40	4.42	3.29	4.00	3.80	3.49	2.53	2.42	2.61
25.....	2.80	3.40	6.50	3.29	4.00	3.90	3.50	2.53	2.41	2.59
26.....	2.80	3.40	6.10	3.29	3.98	4.00	3.54	2.65	2.40	2.54
27.....	2.80	3.40	4.70	3.11	3.96	4.12	3.54	2.88	2.40	2.50
28.....	2.80	4.40	3.15	3.96	3.92	3.49	2.91	2.39	2.50	2.60
29.....	2.80	4.10	3.20	3.96	4.48	3.42	2.91	2.38	2.50	2.60
30.....	3.85	3.98	5.70	3.22	2.89	2.38	2.50	2.60
31.....	3.75	3.80	3.10	2.37	2.60

NOTE.—River freezes over at the gage during the winter, but not at the riffle control, so the discharge is not materially affected.

Daily discharge, in second-feet, of Miller Creek near Lorella, Oreg., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....	4.0	7.7	7.7	18	66	30	86	626	16
2.....	4.0	7.7	7.7	19	50	39	86	770	12
3.....	4.2	7.7	7.7	19	60	50	86	696	8.2
4.....	4.4	7.7	7.7	15	66	74	86	416	7.3
5.....	4.8	7.9	7.7	13	144	74	86	268	3.6
6.....	5.0	8.2	7.9	13	127	74	86	293	2.0
7.....	5.4	8.4	8.2	13	127	74	86	207	1.7
8.....	5.2	9.1	8.2	13	320	74	105	141	2.0
9.....	5.4	12	10	13	362	69	108	100	5.7
10.....	5.4	12	10	13	393	67	112	84	3.7
11.....	5.5	13	10	13	296	52	176	70	2.0
12.....	5.6	13	10	20	148	47	163	62	1.5
13.....	5.6	13	10	52	109	68	136	50	2.5
14.....	5.7	12	10	68	118	50	126	49	3.3
15.....	6.0	12	10	61	333	37	142	25	4.3
16.....	6.3	17	11	44	2,070	48	99	18	7.3
17.....	6.6	19	11	37	2,520	56	91	16	4.8
18.....	6.9	16	11	28	720	99	111	13	3.0
19.....	7.2	13	11	26	207	107	80	12	1.5
20.....	7.5	11	11	26	52	86	80	11	.7
21.....	7.7	10	11	26	50	68	68	15	.6
22.....	7.7	9.6	15	48	50	62	74	29	1.1
23.....	7.7	9.6	39	50	50	86	80	40	2.5
24.....	7.7	9.6	39	189	29	112	86	49	3.0
25.....	7.7	7.7	39	1,000	29	112	99	50	3.0
26.....	7.7	7.7	39	770	29	109	112	55	4.8
27.....	7.7	7.7	39	255	18	107	130	55	9.6
28.....	7.7	7.7	39	184	20	107	102	49	10.4
29.....	7.7	7.7	34	127	23	107	202	41	10.4
30.....	7.7	7.7	28	92	-----	109	582	24	10
31.....	7.7	-----	23	80	-----	86	-----	17	-----

NOTE.—Discharge determined from a fairly well defined rating curve applicable Jan. 1, 1911, to June 30, 1912. On days when gage was not read the discharge was interpolated or estimated from hydrographs of neighboring streams. Discharge below 10 second-feet are only approximate. Owing to lack of recent measurements and uncertainties in gage-height record, it was not considered advisable to make estimates after June 30, 1912.

Monthly discharge of Miller Creek near Lorella, Oreg., for 1911-12.

[Drainage area, 270 square miles.]

Month.	Discharge in second-feet.				Run-off.		Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in acre-feet.	
October.....	7.7	4	6.30	0.023	0.03	388	D.
November.....	19	7.7	10.4	.038	.04	619	D.
December.....	39	7.7	17.2	.064	.07	1,060	D.
January.....	1,000	13	108	.400	.46	6,640	B.
February.....	2,520	18	296	1.10	1.19	17,000	B.
March.....	112	30	75.5	.280	.32	4,640	B.
April.....	582	68	122	.452	.50	7,260	B.
May.....	770	11	140	.519	.60	8,610	B.
June.....	16	.6	4.95	.018	.02	295	C.
The period.....						46,500	

SHASTA RIVER NEAR MONTAGUE, CAL.

Location.—At highway bridge, in the N. $\frac{1}{2}$ NE. $\frac{1}{4}$ sec. 33, T. 45 N., R. 6 W., and $1\frac{1}{2}$ miles southwest of Montague. Little Shasta River enters 1 mile above and Yreka Creek $5\frac{1}{2}$ miles below the station.

Records available.—August 24, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—In two sections; high-water gage painted on upstream caisson of bridge pier near right bank; vertical staff for low water on same pier.

Channel.—Small boulders and gravel; fairly permanent.

Discharge measurements.—Made from upstream side of bridge or by wading.

Diversions.—Water is diverted for irrigation and power purposes above the station.

Estimates are withheld until additional measurements can be made.

Discharge measurements of Shasta River near Montague, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Oct. 25	Harry Barnes.....	<i>Feet.</i> 2.82	<i>Sec.-ft.</i> 158	1912. May 21	Lasley Lee.....	<i>Feet.</i> 3.50	<i>Sec.-ft.</i> 344
1912. Jan. 24	H. J. Tompkins.....	2.98	322	22	do.....	3.61	382
				28	do.....	3.34	298

NOTE.—All measurements made by wading except Jan. 24, which was made from bridge.

Daily gage height, in feet, of Shasta River at Montague, Cal., for 1911-12.

[D. S. Lucas and Manuel Borda, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.65	2.85	3.0	2.95	3.1	3.0	2.8	4.0	3.35	3.1	2.85	2.7
2.....	2.7	2.85	3.0	2.9	3.1	2.95	2.8	3.6	3.3	3.1	2.85	2.7
3.....	2.7	2.9	3.0	2.9	3.1	2.95	2.8	3.6	3.3	3.1	2.85	2.8
4.....	2.7	2.9	3.0	2.9	3.1	2.95	2.8	3.4	3.3	3.0	3.0	2.9
5.....	2.7	2.9	3.0	2.9	3.05	3.0	2.8	3.4	3.3	2.9	3.0	2.9
6.....	2.7	2.9	3.0	2.9	3.05	3.3	2.8	3.0	2.8	2.8	3.5
7.....	2.7	2.9	3.0	2.9	3.05	3.3	2.8	3.0	2.8	2.8	3.6
8.....	2.7	2.9	3.0	3.0	3.05	3.3	2.8	3.0	2.8	2.8	3.6
9.....	2.8	2.9	3.0	3.15	3.1	3.1	2.8	3.4	2.7	2.8	3.45
10.....	2.85	2.9	3.0	3.15	3.1	3.05	2.8	3.2	2.7	2.8	3.2
11.....	2.8	2.95	3.0	3.15	3.1	3.1	2.8	3.2	2.7	2.8	3.0
12.....	2.8	2.95	3.0	3.1	3.1	3.05	2.8	3.2	3.2	2.7	2.8	3.1
13.....	2.8	2.95	3.0	3.1	3.05	3.1	2.85	3.1	3.2	2.8	2.8	3.1
14.....	2.8	2.95	3.0	3.1	3.05	3.1	2.85	3.1	3.2	2.8	2.8	3.0
15.....	2.8	2.95	3.0	3.15	3.05	3.1	2.9	3.1	3.2	2.8	2.8	3.0
16.....	2.8	2.95	3.0	3.1	3.3	3.1	2.9	3.1	3.0	2.8	2.8	3.0
17.....	2.8	2.95	3.0	3.1	3.7	3.1	2.8	3.0	3.0	2.8	2.8	3.0
18.....	2.8	3.0	3.0	3.1	4.0	3.1	2.8	3.1	3.0	2.85	2.8	3.0
19.....	2.8	2.95	3.0	3.1	3.6	3.1	2.8	3.2	2.8	2.8	2.75	2.9
20.....	2.8	3.0	3.0	3.1	3.2	3.05	2.8	3.3	2.8	2.8	2.75	2.9
21.....	2.8	2.95	2.95	3.0	3.2	3.05	2.8	3.5	3.0	2.9	2.7	2.85
22.....	2.8	2.95	3.0	3.0	3.1	3.0	2.8	3.6	3.2	2.9	2.7	2.85
23.....	2.8	3.0	3.0	3.0	3.1	3.05	2.8	3.5	3.5	2.95	2.7	2.85
24.....	2.8	3.0	3.0	3.0	3.05	3.0	2.9	3.4	3.8	2.95	2.7	2.85
25.....	2.8	3.0	3.0	3.0	3.0	2.9	3.35	3.6	2.85	2.7	2.85
26.....	2.85	3.0	3.0	3.0	3.0	2.9	3.3	3.2	2.85	2.7	2.9
27.....	2.85	3.0	3.0	3.0	2.9	2.8	3.3	3.35	2.85	2.7	2.9
28.....	2.85	3.0	3.0	3.3	3.0	2.9	2.9	3.35	3.0	2.8	2.7	2.9
29.....	2.85	3.0	2.95	3.3	3.0	2.9	3.4	3.35	3.0	2.8	2.7	2.9
30.....	2.85	3.0	2.95	3.2	2.85	3.7	3.35	3.1	2.8	2.75	2.9
31.....	2.85	2.95	3.2	2.8	3.35	2.8	2.75

EAST FORK OF SCOTT RIVER NEAR CALLAHAN, CAL.

Location.—About 500 feet west of W. Schneider's ranch house, in sec. 18, T. 40 N.,

R. 7 W., in the Shasta National Forest, and about 6 miles east of Callahan.

Records available.—November 1, 1910, to June 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to a willow tree on left bank 30 feet above foot log.

Channel.—Gravel and bowlders; fairly permanent.

Discharge measurements.—Made from foot log below gage or by wading.

Accuracy.—Rating curve is fairly well defined. Results are good for periods covered by gage heights.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

The following discharge measurement was made by H. J. Tompkins by wading 20 feet below gage.

January 21, 1912: Gage height, 3 feet; discharge, 8.9 second-feet.

Daily gage height, in feet, of East Fork of Scott River near Callahan, Cal., for 1911-12.

[W. L. Schneider, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1		2.0		3.0		2.9			3.8
2	2.8							5.0	
3			3.0		3.05				
4						3.0			
5									
6							2.9	4.5	
7						3.4			
8									
9					3.0				
10						3.2	2.8		
11									3.6
12				3.1					
13									
14									
15	2.8				3.0		3.0	4.4	
16		2.9				3.2			
17									3.5
18			3.0						
19					3.0	3.2			
20							3.3	4.4	
21				3.0					
22									3.4
23									3.9
24				3.3			3.9		3.7
25				4.0	2.9				3.6
26				3.7		3.5			
27				3.4				4.0	
28				3.1			4.5		3.4
29									
30		2.9				3.3			
31	2.0		3.0						

Daily discharge, in second-feet, of East Fork of Scott River near Callahan, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.
1		0		7		4			88
2	2							435	
3			7		9				
4						7			
5									
6							4	265	
7						32			
8									
9					7				
10						16	2		
11									56
12				11					
13									
14									
15	2				7		7	235	
16		4				16			
17									43
18			7						
19					7	16			
20							23	235	
21				7					
22									32
23									108
24				23			108		71
25				130	4				56
26				71		43			
27				32				130	
28				11			265		32
29									
30		4				23			
31	0		7						

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

SCOTT RIVER AT CALLAHAN, CAL.

Location.—Just above power house, about 2,000 feet above highway bridge, 1 mile below junction of South Fork, and 1 mile northwest of Callahan.

Records available.—June 12, 1911, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff fastened to tree on right bank near power house.

Channel.—Gravel and bowlders.

Discharge measurements.—Made by wading or from highway bridge 2,000 feet below gage. If made from bridge it is necessary to deduct discharge of Wildcat Creek.

Cooperation.—Gage-height record and discharge measurements furnished by United States Forest Service.

Estimates are withheld until additional measurements are secured.

The following discharge measurement was made by H. J. Tompkins:

January 23, 1912: Gage height, 0.70 foot; discharge, 43 second-feet.

Daily gage height, in feet, of Scott River at Callahan, Cal., for 1911-12.

[E. P. Cunningham, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.			0.5		1.25	1.3						
2.		0.35					1.3					
3.										1.5		
4.			.5								0.7	
5.							1.2					
6.	0.4				1.25							
7.		.35		0.5		1.7						
8.			.5		1.3							1.1
9.							1.4	2.6				
10.	.45	.4										
11.			.5	1.5								
12.							1.75					.6
13.					1.3	1.3						
14.		.35					1.7	2.9				
15.			.45	1.0		1.3				1.2	.6	
16.												
17.												
18.	.4	.35						2.9				
19.												
20.												
21.												
22.		.6		.7		1.3						
23.				.7						1.0		
24.								2.85				
25.				3.1								
26.						1.3						
27.					1.3							
28.	.4										.5	
29.										.7		
30.				1.25			1.8		1.5			
31.	.4					1.35		3.0				

SCOTT RIVER NEAR SCOTT BAR, CAL.

Location.—At highway bridge, $2\frac{1}{2}$ miles west of Scott Bar, in the NW. $\frac{1}{4}$ sec. 6, T. 45 N., R. 10 W., and about half a mile above junction with Klamath River.

Records available.—September 12, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to left abutment of bridge near upstream end.

Channel.—Boulders and gravel; somewhat shifting.

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

Winter flow.—Some ice during December, 1911, but it is not believed that it affected the flow at the gage.

Diversions.—Water is diverted for use in mining and irrigation above the station.

Accuracy.—Rating curve is fairly well defined and results are good.

Discharge measurements of Scott River near Scott Bar, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis-charge.
1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 19 ^a	H. J. Tompkins.	2.41	439
May 24 ^b	Lasley Lee	3.53	1,470
27 ^b	do.	4.09	2,210

^a Made from bridge at gage.

^b Made from bridge $2\frac{1}{2}$ miles above gage.

Daily gage height, in feet, of Scott River near Scott Bar, Cal., for 1911-12.

[G. A. Milne, observer.]

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		1.5	1.6	1.7	1.7	2.4	2.6	2.6	3.6	4.1	3.1	2.5	2.25
2		1.5	1.6	1.7	1.7	2.3	2.6	2.6	3.6	4.2	3.1	2.48	2.25
3		1.5	1.6	1.7	1.7	2.2	2.6	2.6	3.5	4.2	3.1	2.48	2.30
4		1.5	1.6	1.7	1.7	2.2	2.5	2.6	3.3	4.4	3.05	2.48	2.30
5		1.5	1.6	1.75	1.7	2.5	2.5	2.6	3.3	4.5	3.0	2.45	2.30
6		1.5	1.6	1.75	1.7	2.6	2.6	2.6	3.3	4.4	3.0	2.45	2.40
7		1.5	1.6	1.75	1.8	2.5	2.65	2.6	3.5	4.4	2.95	2.42	2.7
8		1.5	1.6	1.7	1.8	2.8	2.6	2.6	3.5	4.2	2.95	2.40	2.6
9		1.5	1.6	1.7	2.0	3.0	2.5	2.6	3.9	4.1	2.9	2.40	2.6
10		1.5	1.7	1.7	2.1	3.2	2.5	2.7	4.0	3.95	2.9	2.40	2.55
11		1.5	1.7	1.7	2.0	3.2	2.5	2.8	4.0	3.8	2.9	2.40	2.5
12	1.5	1.5	1.7	1.7	2.7	3.0	2.5	2.8	4.0	4.0	2.9	2.35	2.5
13	1.5	1.5	1.7	1.7	3.4	2.8	2.5	2.7	4.0	3.9	2.9	2.32	2.5
14	1.5	1.7	1.7	1.7	3.4	2.7	2.4	2.7	4.1	3.7	2.9	2.32	2.5
15	1.5	1.6	2.3	1.7	3.1	2.75	2.6	2.7	4.1	3.55	2.9	2.30	2.48
16	1.5	1.6	1.9	1.7	2.8	3.3	2.6	2.6	4.2	3.4	2.85	2.30	2.45
17	1.5	1.6	1.9	1.75	2.6	5.3	2.6	2.6	4.1	3.4	2.8	2.30	2.42
18	1.5	1.6	1.9	1.75	2.5	5.4	2.7	2.6	4.0	3.4	2.75	2.30	2.40
19	1.5	1.6	1.8	1.7	2.4	4.5	2.6	2.6	4.0	3.4	2.75	2.30	2.40
20	1.5	1.6	1.8	1.7	2.4	4.0	2.6	2.55	4.1	3.45	2.7	2.30	2.38
21	1.5	1.6	1.8	1.7	2.35	3.8	2.5	2.5	4.1	3.45	2.7	2.30	2.35
22	1.5	1.55	1.8	1.7	2.3	3.4	2.5	2.5	3.8	4.0	2.65	2.30	2.32
23	1.5	1.55	1.8	1.7	2.3	3.2	2.5	2.5	3.6	3.6	2.6	2.30	2.32
24	1.4	1.55	1.8	1.7	2.3	3.1	2.5	2.5	3.4	3.5	2.6	2.25	2.32
25	1.4	1.55	1.8	1.7	4.1	3.0	2.5	2.5	3.4	3.4	2.55	2.25	2.30
26	1.4	1.7	1.8	1.7	4.5	2.8	2.5	2.5	4.0	3.3	2.5	2.25	2.30
27	1.5	1.7	1.7	1.7	3.6	2.8	2.5	2.4	4.2	3.3	2.5	2.25	2.30
28	1.5	1.7	1.7	1.7	3.4	2.7	2.5	2.4	4.0	3.3	2.5	2.22	2.30
29	1.5	1.6	1.7	1.7	2.8	2.7	2.55	2.7	4.2	3.25	2.5	2.22	2.30
30	1.5	1.6	1.7	1.7	2.8	2.6	3.0	4.4	4.2	3.2	2.5	2.22	2.30
31		1.6		1.7	2.5		2.6		4.2		2.5	2.22	

Daily discharge, in second-feet, of Scott River near Scott Bar, Cal., for 1911-12.

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1		88	106	130	130	430	570	570	1,560	2,220	1,000	500	345
2		88	106	130	130	370	570	570	1,560	2,360	1,000	486	345
3		88	106	130	130	320	570	570	1,440	2,360	1,000	486	370
4		88	106	130	130	320	500	570	1,210	2,650	950	486	370
5		88	106	145	130	500	500	570	1,210	2,800	900	465	370
6		88	106	145	130	570	570	570	1,210	2,650	900	465	430
7		88	106	145	160	500	605	570	1,440	2,650	855	444	640
8		88	106	130	160	720	570	570	1,440	2,360	855	430	570
9		88	106	130	230	900	500	570	1,940	2,220	810	430	570
10		88	130	130	270	1,100	500	640	2,080	2,010	810	430	535
11		88	130	130	230	1,100	500	720	2,080	1,810	810	430	500
12	88	88	130	130	640	900	500	720	2,080	2,080	810	400	500
13	88	88	130	130	1,320	720	500	640	2,080	1,940	810	382	500
14	88	130	130	130	1,320	640	430	640	2,220	1,680	810	382	500
15	88	106	370	130	1,000	680	570	640	2,220	1,500	810	370	486
16	88	106	190	130	720	1,210	570	570	2,360	1,320	765	370	465
17	88	106	190	145	570	4,020	570	570	2,220	1,320	720	370	444
18	88	106	190	145	500	4,180	640	570	2,080	1,320	680	370	430
19	88	106	160	130	430	2,800	570	570	2,080	1,320	680	370	430
20	88	106	160	130	430	2,080	570	535	2,220	1,380	640	370	418
21	88	106	160	130	400	1,810	500	500	2,220	1,380	640	370	400
22	88	97	160	130	370	1,320	500	500	1,810	2,080	605	370	382
23	88	97	160	130	370	1,100	500	500	1,560	1,560	570	370	382
24	73	97	160	130	370	1,000	500	500	1,320	1,440	570	345	382
25	73	97	160	130	2,220	900	500	500	1,320	1,320	535	345	370
26	73	130	160	130	2,800	720	500	500	2,080	1,210	500	345	370
27	88	130	130	130	1,560	720	500	430	2,360	1,210	500	345	370
28	88	130	130	130	1,320	640	500	430	2,080	1,210	500	330	370
29	88	106	130	130	720	640	535	640	2,360	1,160	500	330	370
30	88	106	130	130	720		570	900	2,650	1,100	500	330	370
31		106		130	500		570		2,360		500	330	

NOTE.—Daily discharge determined from a rating curve well defined between 300 and 3,500 second-feet.

Monthly discharge of Scott River near Scott Bar, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	130	88	100	6,150	B.
November.....	370	106	145	8,630	B.
December.....	145	130	132	8,120	B.
January.....	2,800	130	649	39,900	A.
February.....	4,180	320	1,130	65,000	A.
March.....	640	430	534	32,800	A.
April.....	900	430	578	34,400	A.
May.....	2,650	1,210	1,900	117,000	A.
June.....	2,800	1,100	1,790	107,000	A.
July.....	1,000	500	727	44,700	A.
August.....	500	330	395	24,300	A.
September.....	640	345	433	25,800	A.
The year.....	4,180	88	707	514,000	

INDIAN CREEK NEAR HAPPY CAMP, CAL.

Location.—Above highway bridge at Roberts ranch, in the NW. $\frac{1}{4}$ sec. 22, T. 17 N., R. 7 E., in Klamath National Forest, and about 4 miles north of Happy Camp and the mouth of the creek.

Records available.—September 8, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to alder tree on left bank, about 700 feet above bridge.

Channel.—Small boulders and gravel.

Discharge measurements.—Made from bridge below gage or by wading.

Diversions.—The Reeve Davis Consolidated Mining Co.'s ditch diverts water above and returns it to the stream below the station; other small ditches use water for mining purposes.

Cooperation.—Gage-height record furnished by United States Forest Service.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of Indian Creek near Happy Camp, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 16	H. J. Tompkins.....	4.55	888
May 25	Lasley Lee.....	4.09	592

NOTE.—Made from bridge.

Daily gage height, in feet, of Indian Creek near Happy Camp, Cal., for 1911-12.

[M. M. Morgan, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.55		2.7	4.3	4.0	3.8	5.2	4.15	3.2
2.....	2.5			2.8	4.2	4.0	3.8	4.6	4.3	2.8
3.....			2.6		4.1	4.0	3.8	4.35	4.05		2.8
4.....	2.6			2.7	4.35	3.8	3.8		4.05	3.1	2.8	2.8
5.....	2.6				5.1	3.9	3.8	4.3	4.05		2.75
6.....	2.6	2.5	3.6	2.8	4.7	3.9	3.8	4.5	4.05	3.1	2.75	3.3
7.....	2.5			3.0	4.8	3.9	3.8	4.85	4.05	
8.....	2.7			3.9	5.3	3.8	3.75	5.0		3.1	2.7
9.....	2.6	2.95	2.9	3.7	5.5	3.8		5.0	3.8		2.7
10.....	2.6	2.8		4.2	5.6	3.9		4.8	3.7	3.05	2.8
11.....			2.8	3.9	5.4	3.8	3.8				
12.....	2.6		2.7	6.6	5.0	3.8		4.6		2.9	2.7
13.....	2.65		2.7	6.6	4.9	3.8	3.8			3.0	2.65
14.....	2.7	3.0	2.7	5.7	4.6	4.1	3.6	4.55			2.65	2.65
15.....		4.4	2.7	5.6	4.5	4.2	3.6	4.45		2.9
16.....	2.6	3.6		4.55	7.5	4.2		4.35			
17.....	2.6	3.3	2.8	4.15	10.6	4.1		4.35	3.5		2.65
18.....				4.3	7.8	4.0		4.35				2.75
19.....	2.6			4.2	6.3	4.0			3.5	2.9	
20.....	2.55		2.7	4.2	5.5	4.0			3.5	2.9	2.65	2.6
21.....	2.5			4.1	5.3	3.8			3.5		2.65
22.....		3.0	2.7	4.0	5.2	3.8	3.55	4.1			2.65
23.....	2.5			4.0	4.8	3.8			3.4		
24.....			2.8	6.8	4.3	3.9		4.1		2.85	2.6	2.7
25.....	2.5			7.4	4.2	3.9	3.6	4.1	3.4		2.6
26.....		3.0	2.7	6.0	4.2	3.9	3.6	4.1			2.7
27.....	2.55			5.2	4.2	3.8			3.35		
28.....	2.55	3.0	2.8	4.8	4.1	3.9	3.8		4.15			2.7
29.....				4.6	4.0	4.0	4.2	4.3	3.3		2.6	2.8
30.....	2.55	2.8	2.7	4.2		4.0	4.6			2.8		2.75
31.....				4.3				4.1		2.8	

NOTE.—Water turned out of Davis ditch Sept. 17.

REEVE DAVIS CONSOLIDATED MINING CO.'S FLUME NEAR HAPPY CAMP,
CAL.

Location.—In flume, in the SE. $\frac{1}{4}$ sec. 16, T. 17 N., R. 7 E., about 5 miles north of Happy Camp.

Records available.—September 8, 1911, to September 30, 1912 (fragmentary).

Gage.—Vertical staff fastened to right side of flume. In November, 1911, this gage was destroyed. During 1912 observer recorded depth of water in flume at point where gage was installed. All gage heights are referred to the same datum—the floor of the flume.

Discharge measurements.—Made from footbridge at gage.

Accuracy.—Rating curve is well defined and results are good.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Reeve Davis Consolidated Mining Co.'s flume near Happy Camp, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		Feet.	Sec.-ft.
Jan. 16	H. J. Tompkins.....	1.10	20
May 25	Lasley Lee.....	1.80	41

NOTE.—Made from foot plank at gage.

Daily gage height, in feet, and discharge, in second-feet, of Reeve Davis Consolidated Mining Co.'s flume near Happy Camp, Cal., for 1911-12.

[M. M. Morgan, observer.]

Day.	September.		October.		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.
1.....			0.75	10			1.5	32	1.7	38		29		21
2.....				11				32		38		29		22
3.....			.8	12				32		38	1.45	30		22
4.....				12				33		38		30	1.21	23
5.....			.8	12				33	1.7	38		31		23
6.....				11				34		38		32		23
7.....			.75	10				34		38		33		23
8.....	0.75	10		12				35		38		34		22
9.....	.7	9.3	.9	14				35		37		35		22
10.....		9.6		13			1.65	36		37		36	1.20	22
11.....	.75	10	.8	12				36		37		37		21
12.....	.8	12		12				36		36		38		19
13.....	.85	13	.85	13	1.75	39		36		36	1.7	38	1.02	17
14.....	.8	12		13	1.75	39		36		36		38	1.02	17
15.....		12	.9	14		39		36	1.65	36		38		
16.....		11		13		39		36		36		38		
17.....	.75	10	.8	12		40		36		35		38		
18.....		10		12		40		36		35		38		
19.....	.75	10	.8	12		40		36		34		38		
20.....		9.9		10		40		36	1.6	34		38		
21.....	.72	9.8	.7	9		41	1.65	36		34		38		
22.....		9.5		9		41		36		33		38		
23.....	.7	9.3	.7	9		41		36		32		38		
24.....		9.6	.75	10		41		36		31		38		
25.....	.75	10	.78	11	1.8	41		37		30		38		
26.....		9.9		7.4		40		37		30	1.7	38		
27.....	.72	9.8	.4	3.7		39		37		29		33		
28.....		9.8	.75	10		38		38		28		28		
29.....	.72	9.8		10		37		38		28		24		
30.....		9.9		11		36		38	1.40	28	1.13	20		
31.....			.78	11		34				28		20		

NOTE.—Daily discharge determined from a well-defined rating curve. Water turned out of ditch Sept. 17 and there was no flow Sept. 17-30, 1912. Discharge interpolated for days when gage was not read. No record Nov. 1, 1911, to May 13, 1912, on account of gage being destroyed.

Monthly discharge of Reeve Davis Consolidated Mining Co.'s flume near Happy Camp, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
Sept. 8-30.....	13	9.3	10.3	470	B.
October.....	14	3.7	11.0	676	B.
May 13-31.....	41	34	39.2	1,480	C.
June.....	38	32	35.5	2,110	C.
July.....	38	28	34.3	2,110	C.
August.....	38	20	33.9	2,080	C.
Sept. 1-14.....	23	17	21.2	589	C.

SALMON RIVER AT SOMESBAR, CAL.

Location.—Below bridge, about 600 feet northeast of Somesbar post office, in SE. $\frac{1}{4}$ sec. 2, T. 13 N., R. 6 E., and about $1\frac{1}{2}$ miles above junction with Klamath River.

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

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on right bank about 900 feet below bridge.

Channel.—Boulders and gravel; appears permanent.

Discharge measurements.—Made from bridge above gage or by wading.

Estimates are withheld until additional measurements are made.

Discharge measurements of Salmon River at Somesbar, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Feb. 13	E. O. Christiansen.....	<i>Feet.</i> 5.82	<i>Sec.-ft.</i> 2,460
14	Christiansen and Hotelling.....	5.72	1,940

NOTE.—Made from bridge.

Daily gage height, in feet, of Salmon River at Somesbar, Cal., for 1911–12.

[W. H. Hotelling, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.65	3.55	3.65	3.8	5.4	5.0	5.1	7.5	6.8	4.8	4.00	3.61
2.....	3.6	3.55	3.65	3.8	5.2	4.95	5.1	6.9	7.0	4.8	4.02	3.60
3.....	3.6	3.5	3.65	3.8	5.0	4.9	5.1	6.5	7.0	4.8	4.01	4.00
4.....	3.7	3.5	3.65	3.8	5.0	4.9	5.1	6.3	7.0	4.75	4.00	3.90
5.....	3.65	3.5	3.7	3.8	5.2	5.0	5.1	6.5	7.0	4.65	3.98	3.89
6.....	3.5	3.5	4.0	3.9	5.4	5.05	5.1	6.6	7.0	4.4	3.96	4.80
7.....	3.5	3.5	4.0	4.2	5.4	5.0	5.1	6.8	7.0	4.3	3.94	4.60
8.....	3.5	3.55	3.9	4.9	5.9	4.9	5.15	7.0	7.0	4.5	3.92	4.20
9.....	3.8	3.8	3.9	5.2	6.3	4.9	5.15	7.1	6.1	4.6	3.90	4.20
10.....	3.8	4.0	3.8	5.4	6.6	4.9	5.45	7.1	6.1	4.7	3.89	4.10
11.....	3.75	3.8	3.8	5.7	6.2	4.85	5.45	6.9	6.1	4.65	3.86	4.02
12.....	3.7	3.8	3.75	6.3	6.0	4.8	5.2	6.9	6.0	4.6	3.84	4.00
13.....	3.65	3.8	3.7	9.7	5.8	4.8	5.2	7.0	6.1	4.65	3.84	3.96
14.....	3.85	3.9	3.7	8.9	5.7	4.8	4.9	6.9	5.9	4.41	3.80	3.91
15.....	3.85	5.0	3.7	8.0	5.6	4.9	4.9	6.9	5.9	4.40	3.79	3.89
16.....	3.75	4.7	3.8	7.6	7.9	5.1	4.9	6.8	5.7	4.40	3.78	3.86
17.....	3.7	4.2	3.8	7.0	13.4	5.1	4.9	6.7	5.6	4.30	3.78	3.80
18.....	3.65	3.9	3.8	6.6	10.8	5.1	5.0	6.6	5.4	4.31	3.77	3.78
19.....	3.65	3.9	3.85	6.1	8.0	5.1	5.0	6.7	5.6	4.30	3.76	3.74
20.....	3.6	3.9	3.8	5.6	7.2	5.1	4.95	6.7	5.4	4.30	3.74	3.71
21.....	3.6	3.9	3.9	5.1	6.8	5.1	4.9	6.8	5.25	4.28	3.70	3.70
22.....	3.6	3.85	3.9	5.0	6.2	5.1	4.9	6.0	5.2	4.26	3.70	3.70
23.....	3.55	3.6	3.9	5.0	6.1	5.1	4.9	6.0	5.1	4.20	3.69	3.69
24.....	3.55	3.8	3.9	5.6	5.8	5.2	4.85	6.2	5.1	4.10	3.69	3.69
25.....	3.55	3.7	3.9	9.1	5.6	5.3	4.85	6.5	5.1	4.10	3.68	3.68
25.....	3.55	3.7	3.9	8.4	5.5	5.3	4.85	6.5	5.15	4.10	3.66	3.68
27.....	3.6	3.7	4.0	8.1	5.3	5.3	4.85	6.3	5.1	4.08	3.65	3.68
28.....	3.6	3.7	4.2	7.9	5.3	5.2	4.85	6.4	5.1	4.08	3.64	3.68
29.....	3.6	3.7	4.2	7.1	5.1	5.2	5.65	6.7	5.0	4.04	3.64	3.68
30.....	3.6	3.65	4.0	6.6	5.15	5.9	6.8	5.0	4.00	3.62	3.68
31.....	3.6	3.9	5.8	5.2	6.8	4.00	3.62

NOTE.—Feb. 17, maximum recorded gage height 14.1 feet at 3.30 p. m.

TRINITY RIVER NEAR TRINITY CENTER, CAL.

Location.—Below highway bridge, in the NE. $\frac{1}{4}$ sec. 16, T. 36 N., R. 7 W., in the Shasta National Forest, and $1\frac{1}{2}$ miles southeast of Trinity Center. Coffee Creek enters 6 miles above, Hatchet Creek $1\frac{1}{2}$ miles above, East Fork three-fourths mile below, and Swift Creek $1\frac{1}{4}$ miles below the station.

Records available.—December 15, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff on right bank 650 feet below bridge. From August 29, 1911, to January 21, 1912, a temporary vertical staff, 400 feet below bridge, was read. This gage was set to read the same as original gage.

Channel.—Gravel; will shift during high water.

Discharge measurements.—Made from downstream side of bridge above gage, or by wading.

Diversions.—Water is diverted from North Fork of Swift Creek for placer mining at Trinity Center. This water enters Trinity River above the station.

Accuracy.—Rating curve fairly well defined; results fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Trinity River near Trinity Center, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 2 ^a	H. J. Tompkins.....	2.62	122
1912.			
Feb. 6 ^ado.....	3.49	443
July 28 ^b	Lasley Lee.....	3.32	201
29 ^bdo.....	3.13	250

^a Made by wading. ^b Made at bridge. (Two channels.)

NOTE.—All measurements referenced to original gage.

Daily gage height, in feet, of Trinity River near Trinity Center, Cal., in 1911-12.

[H. L. and R. W. Doney, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July	Aug.	Sept.
1.						3.4					3.26	
2.	2.62		2.61								3.1	
3.				2.6	3.4				6.1			2.9
4.		2.61										
5.										3.85		
6.	2.6				3.5			5.05				
7.						3.8		5.3				
8.					3.7							3.5
9.				2.9						3.9		
10.					4.1						2.92	
11.				2.8	3.95							
12.								5.7				
13.				3.4	3.8							
14.			2.68						4.8			
15.				3.2	3.65	3.7		5.8				
16.					3.8						2.89	
17.	2.6				5.8							3.01
18.					5.1							
19.												
20.					4.3							
21.				3.2	4.05							
22.								5.3				
23.					3.85							
24.		2.61							4.3			
25.			2.7	7.0		4.0						
26.					3.6			7.1		3.05		
27.	2.61		2.6						4.2	3.28		
28.										3.32	2.76	
29.			2.7									2.85
30.				3.7							2.75	
31.						4.1						

Daily discharge, in second-feet, of Trinity River near Trinity Center, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	May.	June.	July.	Aug.	Sept.
1.....	122	121	118	150	459	363	2,600	3,560	820	289	132
2.....	121	120	118	140	411	407	2,500	3,380	780	218	141
3.....	120	119	118	116	363	451	2,400	3,210	740	210	150
4.....	118	118	118	130	382	495	2,200	3,050	700	202	218
5.....	117	118	118	144	400	540	2,000	2,900	662	194	260
6.....	116	118	150	158	420	585	1,840	2,750	670	187	940
7.....	115	118	170	172	488	630	2,150	2,600	680	180	625
8.....	114	118	165	197	555	620	2,250	2,450	690	172	421
9.....	122	118	160	202	702	610	2,350	2,300	700	164	395
10.....	130	130	155	185	850	600	2,450	2,150	670	156	369
11.....	130	130	150	168	745	591	2,550	2,000	640	154	343
12.....	130	130	145	304	688	582	2,660	1,850	610	152	316
13.....	135	130	140	440	630	573	2,700	1,700	580	152	290
14.....	150	130	135	385	575	564	2,750	1,550	550	152	263
15.....	135	130	140	330	520	555	2,800	1,490	520	150	237
16.....	120	170	145	330	630	577	2,700	1,430	490	148	211
17.....	116	150	155	330	2,800	599	2,600	1,380	460	146	185
18.....	114	120	155	330	1,900	621	2,510	1,330	440	144	181
19.....	112	120	155	330	1,460	643	2,420	1,280	410	141	177
20.....	110	120	155	330	1,030	665	2,330	1,230	380	138	173
21.....	110	120	148	330	810	687	2,240	1,180	350	135	169
22.....	110	118	140	400	738	709	2,150	1,130	320	132	165
23.....	110	118	140	600	668	731	2,770	1,080	290	130	161
24.....	110	118	140	2,000	607	753	3,390	1,030	260	127	158
25.....	110	118	140	4,650	546	775	4,010	1,000	230	124	154
26.....	112	118	116	3,000	485	787	4,640	970	200	121	150
27.....	118	118	120	2,000	454	799	4,460	940	298	119	146
28.....	135	118	128	1,000	424	811	4,280	910	319	117	142
29.....	130	118	140	700	393	824	4,100	880	312	116	138
30.....	125	118	160	555	837	3,920	860	304	115	134
31.....	122	170	507	850	3,740	296	124

NOTE.—Daily discharge determined from fairly well defined rating curves applicable as follows: Dec. 15, 1910, to Jan. 25, 1912, and Jan. 30 to Sept. 30, 1912. Discharge interpolated or estimated from discharge of neighboring streams for days on which gage was not read.

Monthly discharge of Trinity River near Trinity Center, Cal.; for 1911-12.

Month.	Mean discharge in second-feet.	Run-off (total in acre-feet).	Accuracy.
October.....	121	7,440	C.
November.....	124	7,380	C.
December.....	142	8,730	C.
January.....	665	40,900	C.
February.....	729	41,900	C.
March.....	640	39,400	C.
May.....	2,850	175,000	C.
June.....	1,790	107,000	C.
July.....	496	30,500	C.
August.....	155	9,530	C.
September.....	251	14,900	C.

TRINITY RIVER AT LEWISTON, CAL.

Location.—At highway bridge at Lewiston, in the NE. $\frac{1}{4}$ sec. 19, T. 33 N., R. 8 W., and about 9 miles below Stewarts Fork. Indian Creek enters 6 miles below the station.

Records available.—August 28, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank at bridge

Channel.—Small boulders and gravel; fairly permanent.

Discharge measurements.—Made from bridges at gage or by wading.

Diversions.—Water is diverted above the station for irrigation, placer mining, and power development.

Accuracy.—Rating curve is well defined except at extreme high and low stages. Results are good.

Discharge measurements of Trinity River at Lewiston, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Jan. 31	H. J. Tompkins.....	<i>Feet.</i> 4.00	<i>Sec.-ft.</i> 1,010
July 23	Lasley Lee.....	3.23	535

NOTE.—Made from bridge.

Daily gage height, in feet, of Trinity River at Lewiston, Cal., for 1911–12.

[W. W. Phillips, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	2.43	2.47	2.44	2.60	3.6	3.7	4.9	7.4	7.4	4.2	2.80	2.40
2.....	2.45	2.47	2.44	2.66	3.6	3.7	5.0	6.6	7.6	4.25	2.85	2.40
3.....	2.49	2.45	2.48	2.50	3.55	3.7	5.2	6.0	7.4	4.05	2.88	2.45
4.....	2.45	2.46	2.49	2.60	3.55	3.7	5.2	5.7	7.6	4.05	2.85	2.70
5.....	2.45	2.45	2.48	2.66	3.65	3.85	4.9	6.2	7.5	4.1	2.70	2.80
6.....	2.44	2.44	2.68	2.68	3.75	4.8	4.8	6.3	7.5	4.1	2.75	4.5
7.....	2.41	2.49	2.78	2.65	3.85	4.4	5.0	6.4	7.6	4.0	2.70	3.9
8.....	2.40	2.49	2.71	2.89	4.4	4.05	4.8	6.8	7.2	4.0	2.70	3.7
9.....	2.58	2.50	2.62	2.94	4.45	4.6	4.8	6.8	6.9	4.0	2.75	3.6
10.....	2.59	2.49	2.65	3.0	4.8	4.22	5.9	7.6	6.4	3.95	2.70	3.45
11.....	2.53	2.59	2.59	2.99	4.8	4.1	5.6	7.2	6.6	3.9	2.70	3.4
12.....	2.51	2.52	2.53	2.98	4.45	4.35	5.3	7.6	6.6	3.9	2.65	3.3
13.....	2.51	2.53	2.51	4.1	4.8	4.4	5.0	7.7	6.2	3.8	2.70	3.2
14.....	2.71	2.55	2.49	3.8	4.4	4.35	4.9	7.5	6.0	3.8	2.60	3.2
15.....	2.61	2.53	2.51	3.45	4.1	4.4	4.9	7.6	5.4	3.65	2.52	3.0
16.....	2.52	2.82	2.53	4.15	4.2	5.0	4.8	7.4	5.4	3.72	2.60	2.90
17.....	2.52	2.80	2.59	3.7	6.3	4.6	4.7	7.2	5.4	3.7	2.60	2.90
18.....	2.50	2.55	2.56	3.75	7.2	4.6	4.8	7.2	5.3	3.5	2.60	2.85
19.....	2.51	2.58	2.54	3.65	6.6	4.6	4.8	7.2	5.4	3.6	2.55	2.80
20.....	2.45	2.59	2.53	3.5	5.3	4.45	4.7	8.1	5.3	3.5	2.50	2.70
21.....	2.42	2.60	2.53	3.5	4.9	4.3	4.7	7.8	5.0	3.2	2.50	2.70
22.....	2.41	2.58	2.49	3.6	4.5	4.4	4.5	7.6	4.9	3.1	2.50	2.70
23.....	2.44	2.57	2.51	3.65	4.3	4.3	4.6	6.7	5.2	3.2	2.50	2.70
24.....	2.44	2.59	2.51	4.3	4.05	4.5	4.5	6.6	4.9	3.15	2.50	2.70
25.....	2.46	2.58	2.49	9.8	4.0	4.5	4.3	8.7	4.7	3.1	2.45	2.60
26.....	2.48	2.59	2.50	8.2	4.0	4.7	4.2	9.6	4.8	3.0	2.40	2.60
27.....	2.59	2.58	2.50	6.3	4.05	4.9	4.25	8.8	4.45	3.0	2.40	2.60
28.....	2.61	2.54	2.55	5.1	3.95	5.2	4.3	8.2	4.6	3.0	2.40	2.60
29.....	2.58	2.54	2.64	5.0	3.85	5.3	6.2	8.1	4.5	2.90	2.40	2.60
30.....	2.52	2.48	2.71	4.45	5.3	6.1	8.1	4.4	2.85	2.40	2.60
31.....	2.47	2.75	4.0	5.0	7.4	2.90	2.40

Daily discharge, in second-feet, of Trinity River at Lewiston, Cal., for 1911–12.

Day.	Aug.	Sept.	Day.	Aug.	Sept.	Day.	Aug.	Sept.
1911.			1911.			1911.		
1.....		145	11.....		172	21.....		155
2.....		150	12.....		165	22.....		155
3.....		148	13.....		170	23.....		155
4.....		150	14.....		199	24.....		152
5.....		175	15.....		172	25.....		155
6.....		155	16.....		165	26.....		216
7.....		160	17.....		162	27.....		202
8.....		160	18.....		175	28.....	150	202
9.....		160	19.....		162	29.....	150	193
10.....		162	20.....		158	30.....	148	193
						31.....	148

Daily discharge, in second-feet, of Trinity River at Lewiston, Cal., for 1911-12—Con.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1911-12.												
1.....	184	196	187	240	765	835	1,890	5,320	5,320	1,220	315	175
2.....	190	196	187	261	765	835	2,000	4,090	5,640	1,260	338	175
3.....	202	190	199	205	732	835	2,230	3,250	5,320	1,100	351	190
4.....	190	193	202	240	732	835	2,230	2,860	5,640	1,100	338	275
5.....	190	190	199	261	800	942	1,890	3,520	5,480	1,140	275	315
6.....	187	187	268	268	870	1,780	1,780	3,660	5,480	1,140	295	1,480
7.....	178	202	307	258	942	1,390	2,000	3,800	5,640	1,060	275	980
8.....	175	202	279	356	1,390	1,100	1,780	4,390	5,000	1,060	275	838
9.....	233	205	247	380	1,440	1,580	1,780	4,390	4,540	1,060	295	765
10.....	236	202	258	410	1,780	1,240	3,120	5,640	3,800	1,020	275	668
11.....	216	236	236	405	1,780	1,140	2,730	5,000	4,090	980	275	635
12.....	208	212	216	400	1,440	1,340	2,350	5,640	4,090	980	258	575
13.....	208	216	208	1,140	1,780	1,390	2,000	5,810	3,520	905	275	515
14.....	279	222	202	905	1,390	1,340	1,890	5,480	3,250	905	240	515
15.....	244	216	208	668	1,140	1,390	1,890	5,640	2,470	800	212	410
16.....	212	234	216	1,180	1,220	2,000	1,780	5,320	2,470	849	240	360
17.....	212	315	236	835	3,660	1,580	1,680	5,000	2,470	835	240	360
18.....	205	222	226	870	5,000	1,580	1,780	5,000	2,350	700	240	338
19.....	208	233	219	800	4,090	1,580	1,780	5,000	2,470	765	222	315
20.....	190	236	216	700	2,350	1,440	1,680	6,500	2,350	700	205	275
21.....	181	240	216	700	1,890	1,300	1,680	5,980	2,000	515	205	275
22.....	178	233	202	765	1,480	1,390	1,480	5,640	1,890	460	205	275
23.....	187	230	208	800	1,300	1,300	1,580	4,240	2,230	515	205	275
24.....	187	236	208	1,300	1,100	1,480	1,480	4,090	1,890	488	205	275
25.....	193	233	202	9,960	1,060	1,480	1,300	7,650	1,680	460	190	240
26.....	199	236	205	6,680	1,060	1,680	1,220	9,520	1,780	410	175	240
27.....	236	233	205	3,660	1,100	1,890	1,260	7,850	1,440	410	175	240
28.....	244	219	222	2,110	1,020	2,230	1,300	6,680	1,580	410	175	240
29.....	233	219	254	2,000	942	2,350	3,520	6,500	1,480	360	175	240
30.....	212	199	279	1,440	2,350	3,380	6,500	1,390	338	175	240
31.....	196	295	1,060	2,000	5,320	360	175

NOTE.—Daily discharge determined from a rating curve well defined between 150 and 6,000 second-feet. Discharges for August to Dec. 31, 1911, supersede those published in Water Supply Paper 311, p. 261, and Water Supply Paper 300, p. 898.

Monthly discharge of Trinity River at Lewiston, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
1911.					
September.....	216	145	168	10,000	B.
1911-12.					
October.....	279	175	206	12,700	A.
November.....	324	187	222	13,200	A.
December.....	307	187	226	13,900	A.
January.....	9,960	205	1,330	81,200	A.
February.....	5,000	732	1,550	89,200	A.
March.....	2,350	835	1,470	90,400	A.
April.....	3,520	1,220	1,950	116,000	A.
May.....	9,520	2,860	5,330	328,000	A.
June.....	5,640	1,390	3,290	196,000	A.
July.....	1,260	338	784	48,200	A.
August.....	351	175	242	14,900	A.
September.....	1,480	175	423	25,200	A.
The year.....	9,960	175	1,420	1,030,000	

NOTE.—Monthly values for 1911 supersede those previously published.

TRINITY RIVER NEAR CHINA FLAT, CAL.

Location.—At suspension footbridge in sec. 14, T. 6 N., R. 5 E., about 2 miles above junction with South Fork and 8 miles above China Flat.

Records available.—October 11, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections bolted to rock ledge on left bank, 40 feet above bridge.

Channel.—Boulders and gravel partly covered with silt, the débris of placer mining; somewhat shifting.

Discharge measurements.—Made from suspension bridge at gage.

Diversions.—A small amount of water is diverted above the station for use in irrigation, power development, and placer mining.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of Trinity River near China Flat, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Dec. 31	E. O. Christiansen.....	Feet. 5.00	Sec.-ft. 588	1912. Apr. 15	E. O. Christiansen.....	Feet. 8.88	Sec.-ft. 3,510
				June 12do.....	10.50	5,980
1912. Feb. 8do.....	9.69	3,490	Aug. 17	Charles Leidl.....	4.85	554
				Sept. 21do.....	4.95	606

Daily gage height, in feet, of Trinity River near China Flat, Cal., for 1911-12.

[Nels Anderberg, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		4.80	5.00	5.15	9.1	8.1	9.08	15.18	12.18	7.52	5.45	4.55
2.....		4.80	4.95	5.2	8.85	7.98	9.25	14.35	13.48	7.32	5.38	4.55
3.....		4.80	4.95	5.0	8.4	7.85	9.45	12.9	13.55	7.20	5.40	4.90
4.....		4.80	4.95	5.0	8.3	7.72	9.32	12.3	13.29	7.10	5.38	5.10
5.....		4.78	4.95	4.95	8.45	7.95	9.1	12.2	13.4	7.20	5.35	5.35
6.....		4.78	5.10	5.0	8.45	8.92	9.0	12.6	12.8	7.30	5.35	6.85
7.....		4.78	5.30	5.6	8.7	9.3	8.98	12.9	12.75	7.25	5.35	7.76
8.....		4.78	5.40	6.3	9.6	9.1	9.18	12.9	12.32	7.15	5.32	6.80
9.....		4.80	5.30	6.85	10.9	8.85	9.0	13.25	11.22	7.10	5.28	6.30
10.....		5.22	5.15	6.9	10.55	8.75	9.85	13.5	10.9	7.05	5.22	5.98
11.....		5.12	5.10	6.7	10.4	8.45	10.3	13.3	10.7	6.95	5.15	5.95
12.....	4.90	5.00	5.08	6.8	10.0	8.35	10.0	12.95	11.55	6.90	5.10	5.88
13.....	4.90	5.00	5.00	10.0	9.65	8.85	9.35	13.25	11.2	6.90	5.05	5.80
14.....	4.90	5.00	5.00	9.1	9.45	8.65	9.1	12.8	10.2	6.85	5.00	5.78
15.....	5.00	5.38	5.05	8.1	9.35	8.95	8.9	13.28	9.68	6.78	4.95	5.70
16.....	5.00	5.90	5.20	7.8	11.4	9.6	8.9	12.8	9.11	6.65	4.92	5.65
17.....	4.94	5.68	5.20	7.8	18.3	9.3	9.0	12.28	8.91	6.58	4.90	5.45
18.....	4.90	5.45	5.20	7.3	18.25	9.25	8.95	12.22	9.02	6.48	4.90	5.32
19.....	4.90	5.30	5.10	7.45	14.0	9.3	8.95	12.1	9.39	6.45	4.85	5.20
20.....	4.85	5.28	5.08	7.2	12.3	9.3	8.85	13.45	9.32	6.45	4.82	5.12
21.....	4.85	5.20	5.15	7.0	11.2	9.25	8.7	12.2	8.85	6.38	4.80	5.00
22.....	4.82	5.20	5.00	7.0	10.1	9.1	8.4	11.28	8.3	6.25	4.78	4.95
23.....	4.80	5.12	5.00	6.8	9.8	9.0	8.4	10.8	8.26	6.15	4.75	4.85
24.....	4.78	5.02	5.08	7.0	9.45	9.0	8.35	10.65	8.65	6.05	4.75	4.80
25.....	4.78	5.00	5.00	22.5	9.1	9.3	8.22	14.1	8.22	5.92	4.72	4.72
26.....	4.78	5.00	4.98	21.5	8.85	9.25	8.15	14.85	8.15	5.82	4.70	4.70
27.....	4.80	5.00	5.20	15.0	8.62	9.4	8.2	15.65	8.22	5.78	4.68	4.65
28.....	4.80	5.00	5.25	12.0	8.4	9.65	8.2	13.7	8.12	5.75	4.62	4.62
29.....	4.85	5.00	5.15	10.8	8.15	9.92	10.78	13.8	8.0	5.62	4.60	4.65
30.....	4.85	5.00	5.10	10.0	9.65	12.3	13.8	7.86	5.58	4.55	4.70
31.....	4.82	5.00	9.45	9.28	12.7	5.50	4.52

TRINITY RIVER AT HOOPA, CAL.

Location.—At Hoopa Indian Agency, in the NW. $\frac{1}{4}$ sec. 25, T. 8 N., R. 4 E., about 1 mile above Hoopa Ferry, and about 11 miles above junction with Klamath River.

Records available.—September 3, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Staff in three sections on left bank 800 feet above mouth of Supply Creek.

Channel.—Sand and gravel; fairly permanent.

Discharge measurements.—Made from ferry 1 mile below gage. As Supply Creek enters between gage and ferry, it is necessary to deduct discharge of this stream from measurements made at ferry to obtain flow at gage.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of Trinity River at Hoopa, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 8	E. O. Christiansen.....	4.70	492	Apr. 18	E. O. Christiansen.....	8.79	5,580
Dec. 30do.....	5.30	812	June 13do.....	^a 9.82	8,510
				Aug. 18	Charles Leidl.....	5.12	808
1912.				Sept. 20do.....	5.22	924
Feb. 11do.....	9.50	7,380	22do.....	5.13	808

^a Observer's reading at end of measurement. E. O. Christiansen did not read gage.

NOTE.—Measurements were made below mouth of Supply Creek. Supply Creek measured and deducted.

Discharge measurements of Supply Creek at Hoopa, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.^a</i>	<i>Sec.-ft.</i>
Oct. 9	E. O. Christiansen.....	3.7	Apr. 18	E. O. Christiansen.....	30
Dec. 29do.....	25	June 13do.....	-9.51	25
				Aug. 18	Charles Leidl.....	-9.92	5.9
1912.				Sept. 20do.....	-9.85	7.4
Feb. 11do.....	53	22do.....	-9.92	6.6

^a Distance below reference point.

NOTE.—June 5, 1912, reference point established as follows: Top edge of first-floor beam from left end of bridge. Edge notched.

Daily gage height, in feet, of Trinity River at Hoopa, Cal., for 1911-12.

[J. Marshall, observer.]

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		4.65	4.71	4.92	5.3	8.9	8.2	9.1	15.6	11.5	7.3	5.45	4.85
2.....		4.62	4.70	4.90	5.3	8.6	8.2	8.9	14.6	11.4	7.1	5.4	4.85
3.....	4.40	4.68	4.70	4.90	5.3	8.4	8.0	9.2	13.8	11.2	7.1	5.4	4.9
4.....	4.44	4.72	4.70	4.92	5.0	8.3	7.8	9.2	12.5	11.2	7.1	5.4	5.3
5.....	4.49	4.74	4.70	5.08	5.0	8.2	8.1	9.0	12.1	11.1	7.0	5.35	5.75
6.....	4.50	4.70	4.70	5.28	5.15	8.2	9.2	8.8	12.0	10.9	7.0	5.3	7.0
7.....	4.52	4.70	4.70	5.38	6.2	8.2	9.6	8.8	12.0	10.8	7.0	5.3	7.8
8.....	4.54	4.69	4.71	5.28	6.7	9.4	9.4	9.0	12.0	10.4	7.0	5.3	6.9
9.....	4.52	4.75	4.82	5.20	7.8	9.8	9.1	8.8	12.2	9.8	6.9	5.3	6.4
10.....	4.50	4.85	5.32	5.16	7.8	9.8	9.0	9.2	12.0	9.6	6.8	5.25	6.2
11.....	4.51	4.91	5.30	5.04	7.4	9.7	8.8	9.6	11.8	9.7	6.7	5.2	6.0
12.....	4.56	4.89	5.12	5.02	7.5	9.3	8.8	9.4	11.8	9.6	6.7	5.2	5.9
13.....	4.60	4.84	5.18	5.00	10.4	9.0	9.2	9.1	11.6	9.9	6.6	5.15	5.8
14.....	4.62	4.91	5.15	5.00	9.6	9.0	8.9	8.8	11.7	9.1	6.5	5.15	5.8
15.....	4.61	4.98	5.90	5.00	8.8	8.9	9.2	8.7	11.6	8.9	6.4	5.15	5.95
16.....	4.58	4.98	6.22	5.11	8.4	10.7	10.0	8.7	11.5	8.6	6.3	5.1	5.6
17.....	4.55	4.88	5.92	5.38	8.2	15.9	9.9	8.7	11.0	8.3	6.3	5.1	5.4
18.....	4.51	4.82	5.68	5.26	7.9	16.0	9.7	8.7	10.8	8.4	6.2	5.1	5.4
19.....	4.49	4.80	5.60	5.20	7.9	13.7	9.7	8.6	10.8	8.6	6.2	5.05	5.3
20.....	4.49	4.76	5.35	5.20	7.8	12.1	9.6	8.4	12.7	8.5	6.2	5.0	5.2
21.....	4.48	4.71	5.19	5.12	7.5	11.2	9.5	8.3	11.2	8.2	6.1	5.0	5.2
22.....	4.46	4.70	5.19	5.00	7.3	10.4	9.3	8.2	10.4	8.0	6.1	4.95	5.15
23.....	4.44	4.70	5.12	5.11	7.6	9.9	9.2	8.1	10.0	8.1	5.95	4.95	5.1
24.....	4.42	4.70	5.05	5.18	19.5	10.0	9.3	8.3	10.0	8.2	5.8	4.95	5.05
25.....	4.49	4.70	5.00	5.06	21.5	9.2	9.4	8.2	11.2	8.0	5.8	4.9	5.05
26.....	4.60	4.70	5.00	5.05	14.8	9.0	9.3	8.1	12.5	7.8	5.8	4.9	5.0
27.....	4.65	4.70	5.00	5.40	11.6	8.9	9.4	8.1	12.0	7.8	5.8	4.85	5.0
28.....	4.70	4.72	4.98	5.46	10.4	8.5	9.6	8.2	12.6	7.7	5.7	4.8	5.05
29.....	4.69	4.78	4.95	5.35	10.0	8.3	9.7	11.2	12.0	7.6	5.6	4.8	5.05
30.....	4.66	4.74	4.95	5.30	9.3	9.6	13.2	12.6	7.4	5.5	4.8	5.0
31.....	4.72	5.26	9.2	9.4	11.0	5.45	4.8

COFFEE CREEK AT COFFEE, CAL.

Location.—At private highway bridge at Coffee, in the NW. $\frac{1}{4}$ sec. 4, T. 37 N., R. 8 W., in the Shasta National Forest, and 5 miles above junction with Trinity River. Boulder Creek enters 400 feet above and Little Boulder Creek $1\frac{1}{4}$ miles below the station.

Records available.—December 16, 1910, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened near upstream end of bridge pier near right bank.

Channel.—Gravel and bowlders; fairly permanent.

Discharge measurements.—Made from downstream side of bridge at gage or by wading.

Winter flow.—Slightly affected by ice during December and January.

Artificial control.—From April to July, inclusive, and occasionally throughout the remainder of the year, two dams with automatic or "self-shooting" gates are operated about 10 miles above the station. The Nash mine operates a dam having a working capacity of about 125 acre-feet. The Holland mine, on the East Fork, operates a dam having a working capacity of about 40 acre-feet. At the beginning of the season, in April, these dams fill and "shoot" about once an hour; at the end of the season, in July, once in 20 or 24 hours. During high water these "floods" are hardly perceptible, but late in the season their effect is pronounced. An effort is made to secure gage readings when the flow is normal.

Accuracy.—The gage-height record, on account of the operation of the self-shooting dam, is subject to some error. Otherwise the results are good.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of Coffee Creek at Coffee, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.
1911. Oct. 3 ^a	H. J. Tompkins.....	Feet. 3.40	Sec.-ft. 41
1912. Feb. 5 ^bdo.....	3.95	122
July 26 ^b	Lasley Lee.....	4.03	105
29 ^bdo.....	3.97	100

^a Made by wading 25 feet below gage.^b Made from bridge.*Daily gage height, in feet, of Coffee Creek at Coffee, Cal., for 1911-12.*

[F. H. Williams, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	3.42	3.48	3.37	3.5	3.9	4.0	4.8	3.65
2.....	3.42	3.48	3.38	3.5	3.9	4.0	4.7	6.8	4.80	3.65
3.....	4.00	3.50	3.38	3.5	3.87	4.0	4.7	7.0	4.80	3.75
4.....	3.42	3.50	3.40	3.5	3.85	4.0	4.9	7.0	4.70	3.87	3.80
5.....	3.42	3.50	3.40	3.5	3.8	4.1	5.2	7.0	3.85	4.00
6.....	3.41	3.52	3.40	3.5	3.85	4.1	5.3	4.28
7.....	3.42	3.52	3.40	3.55	3.85	4.1	5.5	6.8	4.65	4.20
8.....	3.42	3.52	3.40	3.6	3.9	4.0	5.5	6.5
9.....	3.42	3.52	3.42	3.7	3.95	4.0	5.5	5.8	4.18
10.....	3.42	3.52	3.42	3.75	4.0	4.0	5.6
11.....	3.42	3.52	3.45	3.8	4.1	4.0	5.6	3.70	4.15
12.....	3.42	3.55	3.45	3.85	4.1	4.0	5.7	5.5	3.70
13.....	3.42	3.55	3.45	3.9	4.15	4.0	5.8	3.67
14.....	3.42	3.58	3.45	3.9	4.0	5.8	4.05
15.....	3.42	3.58	3.45	3.95	4.2	4.0	5.8	4.40	3.63	3.97
16.....	3.42	3.60	3.45	3.95	4.6	4.0	5.0	4.40	3.87
17.....	3.42	3.58	3.45	3.95	5.6	4.0	4.30	3.70	3.80
18.....	3.43	3.55	3.45	3.95	5.2	4.0	5.6	3.72	3.73
19.....	3.43	3.50	3.47	4.0	5.0	3.9	5.7	3.72
20.....	3.44	3.50	3.47	4.2	4.5	3.9	5.6	5.0	4.20	3.72	3.67
21.....	3.44	3.48	3.47	4.25	3.9	5.7	5.0	4.20	3.65
22.....	3.44	3.48	3.48	4.5	4.2	4.0	5.8	5.0	4.15	3.70
23.....	3.44	3.45	3.48	5.2	4.2	4.0	4.5	5.8	5.2	4.15
24.....	3.44	3.42	5.3	4.15	4.1	4.5	6.2	3.68
25.....	3.45	3.40	5.2	4.1	4.2	4.5	6.5
26.....	3.45	3.38	3.50	4.5	4.05	4.2	4.6	6.5	5.0	4.00	3.68
27.....	3.45	3.38	3.50	4.3	4.05	4.3	4.6	7.0	4.9
28.....	3.46	3.35	3.50	4.1	4.0	4.4	4.7	6.8	4.00	3.66
29.....	3.46	3.35	3.50	4.0	4.0	4.5	4.8	6.8	3.97	3.64
30.....	3.48	3.35	3.50	4.0	4.6	4.8	6.8	4.9	3.65	3.64
31.....	3.48	3.50	3.9	4.65	3.65

^a Nash mine dam in operation.

NOTE.—Observer away Apr. 1-22, 1912.

Daily discharge, in second-feet, of Coffee Creek at Coffee, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	46	52	41	54	111	133	445	2,390	435	86	49
2.....	46	52	42	54	111	133	390	2,390	405	83	49
3.....	46	54	42	54	106	133	390	2,630	405	80	60
4.....	46	54	44	54	102	133	510	2,630	350	77	66
5.....	46	54	44	54	93	159	735	2,630	342	74	102
6.....	45	56	44	54	102	159	820	2,510	333	71	177
7.....	46	56	44	60	102	159	1,000	2,390	325	67	153
8.....	46	56	44	65	111	133	1,000	2,050	312	63	150
9.....	46	56	46	78	122	133	1,000	1,230	298	60	148
10.....	46	56	46	86	133	133	1,100	1,140	284	57	144
11.....	46	56	49	93	159	133	1,100	1,040	271	54	140
12.....	46	60	49	102	159	133	1,190	940	258	54	131
13.....	46	60	49	111	174	133	1,290	830	244	51	123
14.....	46	63	49	111	182	133	1,290	730	230	49	114
15.....	46	63	49	122	189	133	1,290	630	217	47	96
16.....	46	65	49	122	340	133	1,230	530	217	50	77
17.....	46	63	49	122	1,100	133	1,160	530	183	54	66
18.....	47	60	49	122	735	133	1,100	530	173	56	58
19.....	47	54	51	133	580	111	1,190	530	163	56	54
20.....	48	54	51	189	297	111	1,100	530	153	56	51
21.....	48	52	51	206	243	111	1,190	530	153	55	49
22.....	48	52	52	297	189	133	1,290	530	140	54	49
23.....	48	49	52	735	189	133	297	1,290	680	140	53	49
24.....	48	46	53	820	174	159	297	1,720	630	127	52	49
25.....	49	44	53	735	159	189	297	2,050	580	115	52	49
26.....	49	42	54	297	146	189	340	2,050	530	102	52	48
27.....	49	42	54	222	146	222	340	2,630	465	102	51	48
28.....	50	40	54	159	133	258	390	2,390	465	102	50	48
29.....	50	40	54	133	133	297	445	2,390	465	96	50	48
30.....	52	40	54	133	340	445	2,390	465	93	49	48
31.....	52	54	111	365	2,390	90	49

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge Oct. 3, 1911, estimated. Discharge interpolated on other days when gage was not read except Apr. 1-22, 1912.

Monthly discharge of Coffee Creek at Coffee, Cal., for 1911-12.

Month.	Discharge in second-feet.			Run-off (total in acre-feet).	Accu- racy.
	Maximum.	Minimum.	Mean.		
October.....	52	45	47.3	2,910	B.
November.....	65	40	53.0	3,150	B.
December.....	54	41	48.9	3,010	B.
January.....	820	54	183	11,300	A.
February.....	1,100	93	225	12,900	A.
March.....	365	111	164	10,100	A.
April 23-30.....	445	297	356	5,650	A.
May.....	2,630	390	1,330	81,800	B.
June.....	2,630	465	1,140	67,800	B.
July.....	435	90	221	13,600	B.
August.....	86	47	58.5	3,600	C.
September.....	177	48	83.1	4,940	C.

EAST FORK OF TRINITY RIVER NEAR TRINITY CENTER, CAL.

Location.—At highway bridge, $2\frac{1}{4}$ miles southeast of Trinity Center, in the SW. $\frac{1}{4}$ sec. 15, T. 36 N., R. 7 W., in the Shasta National Forest, and one-fourth mile above junction with Trinity River.

Records available.—December 15, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff on downstream end of left abutment of bridge.

Channel.—Gravel and small bowlders; appears permanent. The section at the bridge is poor for measurements at low stages because of ponded water.

Discharge measurements.—Made from downstream side of bridge or by wading.

Diversions.—About 400 acres are irrigated from this stream. The principal diversion is the Trinity Farm & Cattle Co.'s canal, which heads about 4 miles above the station. Some water is also used for mining purposes.

Accuracy.—Rating curve is fairly well defined and results are fair.

Cooperation.—Gage-height record furnished by United States Forest Service.

Discharge measurements of East Fork of Trinity River near Trinity Center, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.
1911. Oct. 2 ^a	H. J. Tompkins	<i>Feet.</i> 3.55	<i>Sec.-ft.</i> 12
1912. Feb. 6 ^bdo.....	4.46	132
July 28 ^a	Lasley Lee	3.72	21

^a Made by wading.

^b Made from bridge.

Daily gage height, in feet, of East Fork of Trinity River near Trinity Center, Cal., for 1911-12.

[H. L. and R. W. Doney, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	May.	June.	July.	Aug.	Sept.
1.....						4.4				3.70
2.....	3.55		3.6							3.62	
3.....								5.7			3.60
4.....		3.61									
5.....									4.10		
6.....	3.6				4.46		5.85				
7.....							5.9				
8.....					4.6				4.10		4.20
9.....								5.05			
10.....					4.9					3.60	
11.....											
12.....							6.1				
13.....											
14.....			3.61					4.9			
15.....							6.25				
16.....										3.65	
17.....	3.6								3.80		3.80
18.....											
19.....											
20.....											
21.....				4.1							
22.....							5.5				
23.....					4.75						
24.....		3.6						4.9			
25.....							7.6				
26.....					4.6	5.2			3.80		
27.....	3.62							4.4			
28.....									3.72	3.45	
29.....											3.72
30.....				4.6						3.42	
31.....						5.1					

Daily discharge, in second-feet, of East Fork of Trinity River near Trinity Center, Cal., for 1911-12.

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	May.	June.	July.	Aug.	Sept.
1.....	11	14	13			115				18	
2.....	11	14	13							14	
3.....	12	14	13					770			13
4.....	12	14	13								
5.....	12	15	13						52		
6.....	13	15	13		133		885				
7.....	13	15	13				925				
8.....	13	15	14		180				52		68
9.....	13	15	14					370			
10.....	13	15	14		300					13	
11.....	13	15	14								
12.....	13	15	14				1,090				
13.....	13	15	14								
14.....	13	15	14					300			
15.....	13	15	14				1,220				
16.....	13	15	14							16	
17.....	13	15	14						24		24
18.....	13	15	14								
19.....	13	15	14								
20.....	13	15	14								
21.....	13	15	15	52							
22.....	13	15	15				630				
23.....	14	15	15		235						
24.....	14	13	15					300			
25.....	14	13	15				2,610				
26.....	14	13	15		180	450			24		
27.....	14	13	15					115			
28.....	14	13	15						19	8	
29.....	14	13	15								19
30.....	14	13	15	180						7	
31.....	14		15			395					

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge interpolated or estimated for days on which the gage was not read during 1911.

SWIFT CREEK NEAR TRINITY CENTER, CAL.

Location.—One-fourth mile above junction with North Fork of Swift Creek, in the E. $\frac{1}{4}$ sec. 13, T. 36 N., R. 8 W., in the Shasta National Forest, and about $2\frac{1}{2}$ miles southwest of Trinity Center.

Records available.—December 17, 1910, to September 30, 1912 (fragmentary).

Drainage area.—Not measured.

Gage.—Vertical staff in two sections on left bank 100 feet below foot log. From August 19, 1911, to March 20, 1912, a temporary vertical staff, located at foot log at an independent datum, was read.

Channel.—Boulders and is rough; fairly permanent.

Discharge measurements.—Made from foot log or by wading.

Cooperation.—Gage-height record furnished by United States Forest Service.

Estimates are withheld until additional measurements are made.

Discharge measurements of Swift Creek near Trinity Center, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.		Discharge.
		Regular gage.	Foot-log gage.	
1911. Oct. 1 ^a	H. J. Tompkins.....		1.50	Sec.-ft. 16
1912. Feb. 6 ^b	do.....		2.06	
July 28 ^a	Lasley Lee.....	1.98	1.88	77 61

^a Made by wading.

^b Made from foot log.

Daily gage height, in feet, of Swift Creek near Trinity Center, Cal., for 1911-12.

[H. L. and R. W. Doney, observers.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1.50											
2												
3												
4		1.50										
5								2.42		2.35	1.79	
6					2.06							
7												1.93
8										2.30		
9	1.52											
10												
11												
12								2.90				
13												
14												
15										2.20		
16									2.80		1.70	
17												
18												
19					2.40							
20						2.00						
21					2.20							
22												
23												
24												
25		1.50			2.10				2.40			1.72
26												
27										1.98		
28	1.50							3.20		1.98	1.65	
29					2.00						1.64	
30												
31												

NOTE.—Gage heights Oct. 1, 1911, to Mar. 20, 1912, read from temporary gage at foot log; all others refer to permanent gage.

NORTH FORK OF TRINITY RIVER AT HELENA, CAL.

Location.—Just above highway bridge at Helena, in sec. 28, T. 34 N., R. 11 W., about one-fourth mile above junction with Trinity River.

Records available.—August 23, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff fastened to an alder tree on left bank, 150 feet above bridge.

Channel.—Small bowlders and gravel; appears permanent.

Discharge measurements.—Made from bridge or by wading.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of North Fork of Trinity River at Helena, Cal., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
Feb. 1 ^a	H. J. Tompkins.....	<i>Feet.</i>	<i>Sec.-ft.</i>
July 24 ^b	Lasley Lee.....	2.65	408
		1.96	130

^a Made from bridge.

^b Made by wading below gage.

Daily gage height, in feet, of North Fork of Trinity River at Helena, Cal., for 1911-12.

[H. L. Knowles, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	1.4	1.4	1.45	1.5	2.65	2.5	2.95	5.2	3.6	2.35	1.85	1.45
2.....	1.4	1.4	1.45	1.48	2.65	2.5	2.95	4.8	3.6	2.35	1.85	1.45
3.....	1.4	1.4	1.43	1.48	2.65	2.65	2.9	4.4	3.6	2.35	1.85	1.45
4.....	1.4	1.4	1.43	1.45	2.65	2.6	2.95	4.0	3.6	2.35	1.85	1.65
5.....	1.4	1.4	1.43	1.45	2.65	2.75	2.95	3.8	3.6	2.3	1.8	1.8
6.....	1.4	1.4	1.58	1.45	2.7	2.9	2.95	3.9	3.6	2.3	1.8	2.5
7.....	1.4	1.4	1.7	1.7	2.8	2.9	2.9	4.0	3.5	2.35	1.8	2.25
8.....	1.5	1.4	1.65	2.1	3.5	2.9	2.9	4.0	3.45	2.35	1.8	2.15
9.....	1.5	1.4	1.6	2.6	3.5	2.8	2.9	4.0	3.45	2.3	1.75	2.1
10.....	1.5	1.55	1.58	2.8	2.9	2.75	3.05	3.8	3.4	2.3	1.75	2.05
11.....	1.5	1.48	1.55	3.0	2.85	2.7	3.0	3.8	3.4	2.25	1.75	2.00
12.....	1.5	1.45	1.5	3.0	2.85	2.7	3.0	3.8	3.4	2.25	1.75	2.0
13.....	1.55	1.45	1.5	4.2	3.0	2.8	2.95	3.7	3.3	2.25	1.7	2.0
14.....	1.55	1.45	1.5	4.0	3.05	2.8	2.9	3.7	3.25	2.25	1.7	1.95
15.....	1.55	1.45	1.5	3.1	3.6	2.85	2.9	3.7	3.15	2.2	1.7	1.92
16.....	1.5	1.55	1.5	2.6	4.7	2.85	2.9	3.7	3.0	2.2	1.7	1.90
17.....	1.45	2.0	1.5	2.4	7.6	2.85	2.85	3.7	3.0	2.2	1.7	1.88
18.....	1.4	1.8	1.5	2.3	5.2	2.85	2.85	3.6	2.9	2.2	1.7	1.80
19.....	1.4	1.65	1.5	2.2	4.4	2.9	2.8	3.6	2.85	2.2	1.65	1.80
20.....	1.4	1.5	1.5	2.2	4.0	2.95	2.7	3.6	2.8	2.2	1.65	1.85
21.....	1.4	1.48	1.5	2.25	3.6	2.95	2.7	3.6	2.7	2.2	1.6	1.80
22.....	1.4	1.45	1.5	2.15	3.5	2.9	2.7	3.6	2.6	2.15	1.55	1.75
23.....	1.4	1.45	1.5	2.1	3.4	2.9	2.65	3.6	2.55	1.95	1.55	1.70
24.....	1.4	1.45	1.5	3.0	3.35	2.9	2.6	3.6	2.5	1.95	1.55	1.65
25.....	1.4	1.45	1.5	7.6	3.25	2.9	2.55	3.6	2.45	1.95	1.5	1.60
26.....	1.4	1.45	1.5	7.0	3.15	2.9	2.5	3.6	2.45	1.9	1.5	1.60
27.....	1.4	1.45	1.5	5.6	3.05	3.0	2.5	3.6	2.45	1.9	1.5	1.58
28.....	1.4	1.45	1.55	4.8	2.85	3.1	2.5	3.6	2.4	1.9	1.5	1.55
29.....	1.4	1.45	1.55	3.2	2.7	3.1	2.65	3.6	2.4	1.9	1.5	1.55
30.....	1.4	1.45	1.5	3.05	3.1	4.0	3.7	2.35	1.9	1.5	1.55
31.....	1.4	1.5	2.8	3.0	3.6	1.85	1.45

SOUTH FORK OF TRINITY RIVER NEAR CHINA FLAT, CAL.

Location.—At suspension footbridge, in sec. 17, T. 6 N., R. 5 E., one-fourth mile above junction with Trinity River, and about 6 miles above China Flat.

Records available.—October 12, 1911, to September 30, 1912.

Drainage area.—Not measured.

Gage.—Vertical staff bolted to rock ledge on right bank, 30 feet above bridge.

Channel.—Boulders and gravel; somewhat shifting.

Discharge measurements.—Made from bridge below gage or by wading.

Accuracy.—At medium and high stages backwater from Trinity River reaches this station.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of South Fork of Trinity River near China Flat, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 12 ^a	E. O. Christiansen.....	3.84	102	Apr. 16 ^b	E. O. Christiansen.....	6.52	1,400
Dec. 31 ^ado.....	4.16	202	June 12 ^bdo.....	7.00	1,040
				Aug. 17 ^a	Charles Leidl.....	3.87	153
1912.				Sept. 21 ^ado.....	3.90	172
Feb. 8 ^bdo.....	7.64	2,240				

^a Wading.

^b Bridge.

Daily gage height, in feet, of South Fork of Trinity River near China Flat, Cal., for 1911-12.

[Nels Anderberg, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....		3.75	3.85	4.2	7.2	6.3	7.2	13.2	8.8	4.95	4.08	3.70
2.....		3.75	3.85	4.15	6.9	6.2	7.1	12.4	8.8	4.9	4.05	3.75
3.....		3.75	3.85	4.1	6.6	6.1	7.0	10.7	8.6	4.85	4.02	3.80
4.....		3.75	3.85	4.05	6.45	6.0	7.0	10.2	8.8	4.8	4.02	4.00
5.....		3.75	3.85	4.0	6.3	6.2	6.8	10.0	8.6	4.8	4.02	4.15
6.....		3.75	4.0	4.0	6.25	7.7	6.7	9.8	8.1	4.75	4.02	5.25
7.....		3.75	4.08	4.2	6.6	8.0	6.6	9.6	8.1	4.7	4.02	6.1
8.....		3.75	4.08	4.85	7.6	7.8	6.8	9.5	8.0	4.7	4.00	5.0
9.....		3.8	4.0	5.55	7.8	7.4	6.6	9.6	7.2	4.6	3.98	4.55
10.....		4.0	3.95	5.45	7.6	7.4	7.0	9.4	6.8	4.55	3.95	4.38
11.....		4.1	3.92	5.35	7.4	7.2	7.3	9.2	6.8	4.55	3.95	4.22
12.....	3.85	4.0	3.9	5.4	7.1	7.2	7.1	9.0	6.6	4.48	3.95	4.15
13.....	3.85	4.0	3.9	7.3	7.1	7.4	6.8	9.1	7.1	4.45	3.92	4.10
14.....	3.85	4.0	3.9	6.8	7.1	7.1	6.6	8.9	6.6	4.42	3.90	4.05
15.....	3.85	4.12	3.88	6.0	7.0	7.4	6.6	8.6	6.2	4.38	3.88	4.00
16.....	3.85	4.48	4.0	5.8	8.2	8.2	6.6	8.6	5.9	4.35	3.85	4.00
17.....	3.85	4.3	4.15	5.8	12.6	8.0	6.5	8.3	5.7	4.35	3.82	3.95
18.....	3.85	4.2	4.08	5.45	12.9	8.0	6.45	8.2	5.75	4.32	3.82	3.92
19.....	3.8	4.0	4.02	5.65	11.4	8.0	6.45	8.0	5.8	4.30	3.82	3.90
20.....	3.8	4.0	4.0	5.55	9.3	8.0	6.3	8.8	5.7	4.30	3.80	3.90
21.....	3.78	4.0	4.0	5.45	8.4	7.8	6.2	8.3	5.6	4.32	3.80	3.88
22.....	3.78	3.95	4.0	5.3	8.1	7.5	6.05	7.8	5.4	4.28	3.78	3.88
23.....	3.75	3.92	4.0	5.2	7.8	7.4	6.0	7.5	5.4	4.28	3.75	3.88
24.....	3.75	3.9	4.02	5.45	7.4	7.4	6.0	7.6	5.55	4.22	3.75	3.85
25.....	3.75	3.9	4.0	18.4	7.1	7.6	6.0	9.8	5.35	4.22	3.72	3.82
26.....	3.75	3.85	3.98	18.2	7.0	7.6	6.0	9.8	5.3	4.22	3.72	3.80
27.....	3.75	3.85	4.2	11.8	6.8	7.6	6.0	10.3	5.3	4.22	3.72	3.80
28.....	3.75	3.85	4.25	10.0	6.45	7.8	6.0	9.5	5.25	4.20	3.70	3.80
29.....	3.75	3.85	4.2	9.0	6.4	7.8	8.4	9.2	5.1	4.22	3.72	3.82
30.....	3.75	3.85	4.12	8.0	-----	7.6	11.1	9.2	5.0	4.15	3.72	3.82
31.....	3.75	-----	4.15	7.6	-----	7.3	-----	8.6	-----	4.12	3.72	-----

SMITH RIVER BASIN.

SOUTH FORK OF SMITH RIVER NEAR CRESCENT CITY, CAL.

Location.—Just below highway bridge, in the SW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 10, T. 16 N., R. 1 E., one-eighth mile above mouth and 9 miles northeast of Crescent City.

Records available.—September 9, 1911, to September 30, 1912.

Drainage area.—290 square miles.

Gage.—Staff in four sections on left bank 200 feet below bridge.

Channel.—Bowlders and gravel; somewhat shifting.

Discharge measurements.—Made from car and cable 400 feet below gage or by wading.

Cooperation.—Maintained in cooperation with Mountain Power Co., through H. E. Green, engineer.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of South Fork of Smith River near Crescent City, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Dis-charge.	Date.	Hydrographer.	Gage height.	Dis-charge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 13 ^a	E. O. Christiansen.....	6.21	469	July 17 ^a	G. T. Berry.....	4.95	421
1912.				25 ^a	do.....	4.85	380
Feb. 28 ^a	do.....	7.20	1,720	26 ^b	do.....	4.84	369
29 ^a	do.....	7.03	1,520	Aug. 3 ^b	H. E. Green.....	4.70	332
Mar. 27 ^a	do.....	6.93	1,630	10 ^b	Green and Bently.....	4.60	279
May 10 ^a	do.....	7.74	2,450	17 ^b	C. C. Bently.....	4.55	274
25 ^a	do.....	6.90	1,600	24 ^b	do.....	4.44	217
June 2 ^a	E. M. Gilbert.....	6.68	1,400	25 ^c	Charles Leidl.....	4.44	204
10 ^c	do.....	6.00	850	25 ^c	do.....	4.44	192
30 ^a	H. E. Green.....	5.56	665	31 ^c	H. E. Green.....	4.47	229
July 7 ^a	G. T. Berry.....	5.24	460	Sept. 27 ^c	do.....	4.40	199

^a Made from cable.

^b Made from boat at cable section.

^c Made by wading 200 feet below gage.

^d Some rocks removed from control Aug. 25, 1912.

^e Meter point found broken at end of measurement.

NOTE.—Messrs. Gilbert, Green, Bently, and Berry engineers of Mountain Power Co.

Daily gage height, in feet, of South Fork of Smith River near Crescent City, Cal., for 1911-12.

[Ruby Christensen, observer.]

Day.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....	5.45	5.50	6.00	7.9	8.1	7.0	6.6	14.7	6.8	5.5	4.75	4.61
2.....	5.48	5.52	5.94	7.6	7.8	6.8	6.5	11.0	6.6	5.45	4.70	4.82
3.....	5.45	5.58	6.00	7.6	7.9	6.6	6.45	9.4	6.6	5.4	4.70	5.1
4.....	5.50	5.55	5.99	7.8	8.6	6.45	6.4	8.6	6.6	5.35	4.70	4.92
5.....	5.50	5.54	6.10	7.6	9.0	6.3	6.4	8.2	6.45	5.3	4.65	5.2
6.....	5.60	5.54	7.40	8.0	8.8	6.7	6.5	8.2	6.4	5.2	4.65	6.2
7.....	5.61	5.51	7.20	8.2	8.4	7.2	6.5	8.0	6.4	5.2	4.65	5.85
8.....	5.55	5.49	6.65	9.0	9.7	7.4	6.45	8.1	6.35	5.2	4.65	5.35
9.....	5.52	5.48	6.56	13.8	9.7	7.7	6.4	8.0	6.2	5.15	4.65	5.1
10.....	6.49	5.44	6.41	13.4	9.3	7.1	6.4	7.8	5.95	5.1	4.60	4.91
11.....	5.50	5.41	6.25	13.6	9.3	6.9	6.4	7.6	5.95	5.1	4.60	4.82
12.....	5.51	5.40	6.20	20.9	9.5	6.6	6.3	7.4	6.2	5.1	4.60	4.70
13.....	5.59	5.30	6.15	21.2	9.0	8.4	6.3	7.4	6.55	5.1	4.55	4.69
14.....	5.69	5.34	6.21	18.2	9.3	9.2	6.25	7.2	6.65	5.1	4.50	4.66
15.....	5.76	5.40	6.28	13.4	10.6	9.8	6.2	7.2	6.4	5.0	4.58	4.62
16.....	5.74	5.42	6.66	9.6	15.6	11.1	6.15	6.8	6.25	5.0	4.60	4.61
17.....	6.40	5.64	6.89	9.2	26.4	9.8	6.1	6.6	6.2	4.98	4.58	4.58
18.....	6.30	6.85	6.84	8.8	21.8	8.8	6.1	6.6	6.05	4.95	4.55	4.55
19.....	6.25	7.38	6.96	8.4	13.6	8.0	6.05	6.6	5.9	4.95	4.50	4.52
20.....	6.20	7.35	7.00	8.1	10.5	7.4	6.0	7.2	5.95	4.90	4.50	4.50
21.....	5.72	7.41	6.98	8.2	9.0	7.3	6.1	7.0	5.95	4.90	4.50	4.48
22.....	5.71	7.40	7.00	8.1	8.5	7.2	6.15	6.8	5.9	4.90	4.50	4.47
23.....	5.72	7.30	7.22	8.2	8.3	7.1	6.2	6.6	5.9	4.90	4.45	4.46
24.....	5.70	7.20	7.26	9.8	8.0	7.0	6.7	6.8	5.8	4.90	4.43	4.44
25.....	5.65	9.55	7.40	16.2	7.7	7.0	7.0	6.9	5.85	4.88	4.41	4.42
26.....	5.62	7.20	7.59	18.4	7.4	6.9	7.0	7.4	5.7	4.85	4.41	4.40
27.....	5.60	6.95	7.66	13.8	7.3	6.8	6.8	7.8	5.7	4.82	4.41	4.40
28.....	5.59	6.82	7.99	9.4	7.2	6.8	7.0	7.3	5.7	4.80	4.41	4.40
29.....	5.55	6.70	7.31	8.9	7.0	6.8	10.2	7.3	5.6	4.80	4.40	4.42
30.....	5.51	6.58	8.18	8.8	6.7	12.8	7.1	5.55	4.75	4.46	4.41
31.....	5.50	7.95	8.4	6.6	6.8	4.75	4.50

NOTE.—Gage heights probably affected by backwater from Smith River during high stages.

NORTH FORK OF SMITH RIVER NEAR CRESCENT CITY, CAL.

Location.—Half a mile northeast of Gasquet, in the SW. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 20, T. 17 N., R. 2 E., half a mile above junction of North and Middle forks and about 15 miles northeast of Crescent City.

Records available.—September 8, 1911, to September 30, 1912.

Drainage area.—81 square miles.

Gage.—Staff in four sections on left bank, installed December 3, 1911. Original gage, which was destroyed by high water on November 15, 1911, was located one-eighth mile below present gage. Original datum has not been maintained.

Channel.—Bowlders and gravel and is rough; fairly permanent.

Discharge measurements.—Made from car and cable at gage.

Cooperation.—Maintained in cooperation with the United States Forest Service and Mountain Power Co., through H. E. Green, engineer.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of North Fork of Smith River near Crescent City, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911.		<i>Feet.</i>	<i>Sec.-ft.</i>	1912.		<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 6 ^a	E. O. Christiansen	12.82	1,440	June 5 ^a	E. M. Gilbert	10.76	457
				July 5 ^a	H. E. Green	9.95	251
1912.				14 ^a	G. T. Berry	9.60	185
Feb. 27 ^ado.....	11.77	907	27 ^ado.....	9.40	150
Mar. 26 ^ado.....	11.74	824	Aug. 11 ^a	H. E. Green	9.15	121
May 9 ^ado.....	11.64	845	24 ^b	Charles Leidl	9.02	95
27 ^a	E. M. Gilbert	12.55	1,390	28 ^c	H. E. Green	9.22	119

^a Made from cable.

^c Made by wading 30 feet above gage.

^b Made by wading 200 feet above gage.

NOTE.—Beginning Dec. 6, 1911, all measurements are referred to new gage. Messrs. Gilbert, Green, and Berry engineers of Mountain Power Co.

Daily gage height, in feet, of North Fork of Smith River near Crescent City, Cal., for 1911-12.

[A. W. Davis, observer.]

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.			3.50		12.2	12.4	11.4	11.2	19.2	11.3	10.15	9.3	9.3
2.					11.8	12.1	11.2	11.2	16.0	11.1	10.1	9.3	9.45
3.		3.60		8.90	11.5	11.9	11.2	11.1	14.3	11.0	10.0	9.25	10.15
4.			3.45	8.80	11.4	12.4	11.1	11.0	13.4	10.8	10.0	9.2	9.8
5.		3.62		9.0	11.4	14.0	11.2	10.9		10.8	9.95	9.2	11.1
6.				12.90	11.6	12.9	11.8	10.8	12.4	10.6	9.9	9.2	12.2
7.		3.52		12.00	16.9	12.7	12.9			10.6	9.85	9.2	12.1
8.	3.60			11.50	15.0	14.0	12.6	10.8		10.5	9.8	9.2	11.2
9.	3.60	4.25		11.20	18.3	14.6	12.2	10.7	11.6	10.5	9.8	9.15	10.7
10.	3.60		6.1	11.00	17.6	16.0		10.65	11.4	10.4	9.75	9.15	10.4
11.	3.62		5.1	10.88	15.1	15.1	11.7	10.65	11.3	10.3	9.7	9.15	10.1
12.	3.69			10.75	22.7	14.0	11.6	10.7		10.8	9.7	9.1	9.9
13.	3.75	4.30		10.68	20.8	13.6	11.7	10.7	11.0	12.1	9.65	9.1	9.8
14.	3.62	4.40			16.0	14.0	11.6		10.9	12.2	9.6	9.15	9.75
15.	3.62		(a)			13.5	15.8		10.8	11.6	9.6	9.2	9.65
16.	3.65				13.8	20.8	15.1		10.7	11.2	9.6	9.2	9.6
17.	3.58				13.1	23.8	14.2			11.0	9.5	9.1	9.55
18.					12.6	18.4	13.8		10.6	10.85	9.55	9.1	9.5
19.					12.5	15.7	13.3			10.7	9.5	9.0	9.4
20.					12.4	14.3	12.8		10.85	11.8	9.5	9.0	9.4
21.					12.0	13.5	12.5		11.3	10.8	9.5	9.0	9.2
22.				11.45	11.8	12.9	12.3		11.1	10.8	9.5	9.0	9.35
23.		3.52		12.28	11.8	12.8	12.2		11.0	10.8	9.45	9.0	9.3
24.				12.00	12.2	12.5			10.9	10.65	9.45	9.0	9.3
25.	3.52	3.52			19.6	12.2	11.9		10.9	10.6	9.45	9.0	9.25
26.	3.62				19.3	12.0	11.8	12.3		10.5	9.4	9.0	9.2
27.	3.68			12.55	16.5	11.8	11.7	12.0	12.7	10.45	9.4	9.05	9.2
28.	3.55	3.50				11.6	11.6		11.9	10.35	9.35	9.0	9.25
29.	3.52				14.2	11.5	11.6	16.0	11.9	10.25	9.3	9.0	9.25
30.	3.52				13.4		11.4	16.8	11.8	10.2	9.3	9.0	9.25
31.					12.9				11.8		9.3	9.05	

^a Gage washed out Nov. 15, 1911; new gage installed at arbitrary datum Dec. 3, 1911.

MIDDLE FORK OF SMITH RIVER NEAR CRESCENT CITY, CAL.

Location.—At highway bridge, in the NE. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 20, T. 17 N., R. 2 E., 800 feet above junction of North and Middle forks, one-eighth mile east of Gasquet, and 14 miles northeast of Crescent City.

Records available.—September 8, 1911, to September 30, 1912.

Drainage area.—146 square miles.

Gage.—Chain gage attached to downstream guardrail of bridge.

Channel.—Bowlders and gravel, and is rough; somewhat shifting.

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

Cooperation.—Maintained in cooperation with the United States Forest Service and Mountain Power Co., through H. E. Green, engineer.

Estimates are withheld until additional high-water measurements are made.

Discharge measurements of Middle Fork of Smith River near Crescent City, Cal., in 1911-12.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
1911		<i>Fect.</i>	<i>Sec.-ft.</i>	1911.		<i>Fect.</i>	<i>Sec.-ft.</i>
Dec. 5 ^a	E. O. Christiansen.....	4.49	131	June 5 ^b	E. M. Gilbert.....	5.34	380
1912.				July 5 ^b	H. E. Green.....	4.40	199
Feb. 27 ^bdo.....	5.95	766	14 ^b	G. T. Berry.....	4.28	157
Mar. 26 ^bdo.....	5.83	615	27 ^bdo.....	4.10	151
May 9 ^bdo.....	6.32	1,200	Aug. 11 ^b	Green and Bently.....	3.91	99
27 ^b	E. M. Gilbert.....	6.00	627	24 ^a	Charles Leidl.....	3.94	77
				Sept. 28 ^a	Green and Terry.....	3.94	91

^a Made by wading below gage.

^b Made from bridge.

NOTE.—Messrs. Gilbert, Green, Berry, Bently, and Terry, engineers of Mountain Power Co.

Daily gage height, in feet, of Middle Fork of Smith River near Crescent City, Cal., for 1911-12.

[A. W. Lewis, observer.]

Day.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1.....			4.02	4.40	5.48	6.62	5.72	5.53	11.72	5.62	4.52	4.12	4.15
2.....				4.40	5.16	6.32	5.62	5.48	8.97	5.39	4.54	4.03	4.48
3.....		4.10		4.38	5.14	6.25	5.54	5.48	7.74	5.38	4.55	4.09	4.65
4.....			4.00	4.35	4.96	6.35	5.49	5.38	7.22	7.31	4.42	4.01	4.37
5.....		4.15		4.65	4.92	6.85	5.66	5.33	5.28	4.40	4.07	4.92
6.....				5.28	4.96	6.60	5.92	5.33	6.50	5.12	4.36	4.11	5.26
7.....		4.08		5.08	8.34	6.40	6.26	6.40	5.10	4.42	4.10	4.92
8.....	4.10			4.86	7.29	6.68	6.19	5.26	5.06	4.45	3.98	4.65
9.....	4.10	4.45		4.73	9.46	7.08	5.87	5.16	6.35	4.95	4.41	3.97	4.42
10.....	4.10		5.00	4.66	10.07	7.68	5.26	6.00	4.90	4.38	4.04	4.35
11.....	4.10		4.52	4.58	7.92	7.77	5.74	5.21	5.98	4.89	4.38	4.07	4.18
12.....	4.15			4.54	13.22	7.34	5.74	5.21	5.75	5.10	4.36	4.02	4.16
13.....	4.25	4.42		4.51	12.42	7.11	5.87	5.11	5.76	5.16	4.33	4.00	4.15
14.....	4.12	4.50		9.00	7.66	5.77	5.70	5.25	4.32	3.95	4.09
15.....	4.12		8.60	7.46	7.37	5.59	5.05	4.33	4.04	4.05
16.....	4.12			7.50	13.19	7.82	5.35	4.82	4.28	4.05	4.07
17.....	4.10			7.08	16.39	7.62	5.32	4.76	4.23	3.95	4.07
18.....				6.68	11.69	7.12	5.32	4.65	4.25	3.94	4.07
19.....				6.58	9.46	6.80	5.35	4.70	4.15	3.94	4.09
20.....				6.38	8.20	6.38	5.70	4.82	4.18	3.95	4.07
21.....				6.16	7.54	6.10	5.70	4.89	4.17	3.90	4.07
22.....				4.90	6.01	7.14	6.00	5.55	4.80	4.21	3.90	4.03
23.....		4.05		5.27	5.96	6.90	6.05	5.42	4.84	4.20	3.94	3.99
24.....				5.10	6.46	6.49	5.42	4.79	4.24	3.92	3.95
25.....	4.08	4.05		12.76	6.25	5.90	5.52	4.64	4.18	3.89	3.97
26.....	4.15			4.95	12.14	6.18	5.82	5.54	5.58	4.68	4.16	3.91	3.98
27.....	4.10			5.52	9.64	6.00	5.78	5.42	6.12	4.69	4.12	3.88	3.98
28.....	4.10	4.05		5.86	5.73	5.80	4.64	4.06	3.97	4.05
29.....	4.08			7.79	5.79	5.83	7.38	5.88	4.54	4.09	3.96	4.05
30.....	4.05		4.42	7.42	5.70	8.62	5.85	4.56	4.09	3.92	3.91
31.....				5.60	4.06	4.05

MISCELLANEOUS MEASUREMENTS.

Miscellaneous measurements in 1911-12.

Southern Pacific Ocean drainage basins.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
June 28, 1912	Ellis flume.....	Diverts from Sweetwater River.	In flume, one-half mile below point of diversion, near Descanso, Cal.	0.1
May 1, 1912	San Diego River...	Pacific Ocean.....	Diverting dam, just below junction of Boulder Creek, 13 miles northeast of Lakeside, Cal., in NE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 11, T. 14 S., R. 2 E.	2.00	22
Do.....	do.....	do.....	About 2 $\frac{1}{2}$ miles east of San Diego, Cal.	1.00	39
May 4, 1912	do.....	do.....	do.....	.99	34
May 20, 1912 ^a	do.....	do.....	do.....	.90	25
May 25, 1912	do.....	do.....	do.....	.82	13
June 6, 1912 ^a	do.....	do.....	do.....	.45	b.1
Aug. 18, 1912	do.....	do.....	do.....	Dry.
Aug. 16, 1912	San Diego flume...	Diverts from San Diego River.	115 feet below section house Chocolate Creek, about 8 miles east of Lakeside, Cal., in SW. $\frac{1}{4}$ sec. 8, T. 15 S., R. 2 E.	c. 60	7.1
Aug. 20, 1912 ^a	do.....	do.....	do.....	c. 50	d5.1
May 6, 1912	San Vicente Creek.	San Diego River..	One-half mile above Foster, Cal., above concrete diverting dam, NW. $\frac{1}{4}$ sec. 31, T. 14 S., R. 1 E.	2.1
Apr. 20, 1912 ^a	San Luis Rey River.	Pacific Ocean.....	Upper end of Rincon Indian Reservation, near Valley Center, Cal., SW. $\frac{1}{4}$ sec. 36, T. 10 S., R. 1 W.	88
May 2, 1912	do.....	do.....	do.....	22
May 14, 1912 ^a	do.....	do.....	do.....	14
May 22, 1912	do.....	do.....	do.....	4.6
June 16, 1912 ^a	do.....	do.....	do.....	6.4
June 25, 1912 ^a	do.....	do.....	do.....	4.0
July 11, 1912	do.....	do.....	do.....	1.0
Aug. 4, 1912 ^a	do.....	do.....	do.....	b.1
Mar. 28, 1912 ^a	do.....	do.....	Highway bridge on Escondido-Pala road at Pala, Cal., in NW. $\frac{1}{4}$ SE. $\frac{1}{4}$ sec. 26, T. 9 S., R. 2 W.	64
Apr. 18, 1912 ^a	do.....	do.....	Concrete arch bridge near Oceanside, Cal., below United States Geological Survey gage., SE. $\frac{1}{4}$ NE. $\frac{1}{4}$ sec. 22, T. 11 S., R. 5 W.	(c)	164
Apr. 19, 1912 ^a	do.....	do.....	Mission bridge 1 mile north of San Luis Rey, Cal., in NE. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 8, T. 11 S., R. 4 W.	55.23	167
Feb. 12, 1912	Pauma Creek.....	San Luis Rey River.	One-half mile above Pauma Indian Reservation Reservoir near Pauma Indian Reservation.	1.4
Apr. 20, 1912 ^a	do.....	do.....	Near county highway bridge on road from Pala to Pauma Indian Reservation near Pala, Cal.	1.18	22
May 2, 1912	do.....	do.....	do.....	.96	6.6
May 22, 1912	do.....	do.....	do.....	.83	4.1
June 15, 1912 ^a	do.....	do.....	do.....	f Dry.
July 11, 1912	do.....	do.....	1,500 feet above intake for Pauma Indian Reservation canal, about 2 miles above county highway bridge near Pala, Cal.	g 2.10	h 1.9

^a Made by engineers of Volcan Land & Water Co.^b Estimated.^c Depth in flume.^d Diversion of 1 inch under 4-inch head at Barlow ranch.^e Water surface 0.80 foot above ridge at bottom of lowest form board on south side of south pier, marked by sixpenny nail driven into the concrete.^f Creek has apparently been dry for at least 10 days.^g Temporary staff gage.^h Creek dry at county highway bridge, former measuring section.

*Miscellaneous measurements in 1911-12—Continued.***Southern Pacific Ocean drainage basins—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
Mar. 29, 1912 ^a	Agua Tibia Creek..	San Luis Bey River.	Above highway crossing near mouth, about 3 miles south-east of Pala, Cal., sec. 31, T. 9 S., R. 1 W.	<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 20, 1912 ^ado.....do.....do.....	1.3
June 26, 1912 ^a	Morena ditch.....	Diverts from San Luis Rey River.	Pala, Cal.....	2.7
July 12, 1912do.....do.....do.....	2.1
Aug. 4, 1912 ^ado.....do.....do.....	b 1.75	1.2
May 3, 1912	San Luis Rey ditch.do.....	About one-half mile below intake about 2½ miles northeast of San Luis Rey, Cal., in SW. ¼ NW. ¼ sec. 3, T. 11 S., R. 4 W.	c 1.23	.9
Do.....	Libby ditch.....do.....	Near intake, below intake of San Luis Rey ditch, about 2½ miles northeast of San Luis Rey, Cal., NE. ¼ NE. ¼ sec. 4, T. 11 S., R. 4 W.	1.62	2.4
Aug. 27, 1912	Keller Creek.....	Santa Ana River..	Mouth, in NW. ¼ sec. 26, T. 1 N., R. 2 W.	1.51	1.6
Do.....	Alder Creek.....do.....	In southern California, Edison Co.'s flume near intake about one-fourth mile above mouth, in NE. ¼ sec. 27, T. 1 N., R. 2 W. Water taken across Santa Ana River into power canal of Southern California Edison Co.'s plant No. 2.	d.1
Aug. 28, 1912	City Creek.....do.....	In City Creek canal about 1,500 feet below intake. All water of creek in canal.	2.6
Aug. 26, 1912	Southern California Edison Power Co.'s canal.	Diverts from Lytle Creek.	In concretelined section about 1,000 feet below intake, in sec. 26, T. 2 N., R. 6 W., near west line of section. Includes flow of Lytle Creek and a small flow developed from gravels by diverting dam.	17
Aug. 22, 1912	San Gabriel River.	Pacific Ocean.....	Just above junction with West Fork of San Gabriel River, in NE. ¼ sec. 29, T. 2 N., R. 9 W.	21
Do.....	West Fork of San Gabriel River.	San Gabriel River.	Just above mouth, in NE. ¼ sec. 29 T. 2 N., R. 9 W.	11
Jan. 30, 1912	Duarte canal.....	Diverts from San Gabriel River.	About one-fourth mile below tailrace of Pacific Light & Power Co.'s power house at Azusa, Cal.	9.9
Aug. 9, 1912do.....do.....do.....	7.8
Jan. 30, 1912	Azusa Covina canal.do.....	300 feet below tailrace of Pacific Light & Power Co.'s power house at Azusa, Cal.	(e)	27
Jan. 25, 1912	Sabin canal f.....	Diverts from Piru Creek.	About 450 feet above Southern Pacific Co.'s bridge at Piru, Cal., about 1½ miles below United States Geological Survey gaging station on Piru Creek.	5.5
May 13, 1912	Fillmore Irrigation Co.'s ditch.	Diverts from Sespe Creek.	One-fourth mile below intake, which is 4 miles above United States Geological Survey gaging station on Sespe Creek near Sespe, Cal.	3.5

^a Made by engineers of Volcan Land & Water Co.^b Temporary staff gage.^c New staff gage 10 feet below road crossing. Old gage was destroyed about July 13 or 14, 1912.^d Estimated.^e Water surface 1.7 feet below top of measuring bridge at right up stream end.^f A galvanized-iron pipe line diverts water from Piru Creek above intake.

*Miscellaneous measurements in 1911-12—Continued.***Southern Pacific Ocean drainage basins—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 27, 1911	Sisar Creek.....	Santa Paula Creek.	Near mouth, just above United States Geological Survey gaging station on Santa Paula Creek. SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 16, T. 4 N., R. 21 W.		1.0
Jan. 6, 1912	do.....	do.....	do.....		1.2
Feb. 2, 1912	do.....	do.....	do.....		1.0
Mar. 24, 1912	do.....	do.....	do.....		5.1
May 14, 1912	do.....	do.....	do.....		2.9
Aug. 5, 1912 ^a	do.....	do.....	do.....		<i>b</i> 3
Aug. 20, 1912	do.....	do.....	do.....		.5
Oct. 23, 1911	Matilija Creek....	Ventura River....	200 feet above junction with North Fork of Matilija Creek, in SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 28, T. 5 N., R. 23 W.		9.0
Jan. 6, 1912	do.....	do.....	do.....		10
Oct. 23, 1911	North Fork of Matilija Creek.	do.....	Near mouth, below Sheldon flume, near Nordhoff, Cal., SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 28 T. 5 N., R. 23 W.		20
Jan. 6, 1912	do.....	do.....	do.....		3.4
Feb. 2, 1912	do.....	do.....	do.....		2.1
Feb. 27, 1912	do.....	do.....	do.....		2.0
Mar. 23, 1912	do.....	do.....	do.....		6.1
Apr. 23, 1912	do.....	do.....	do.....		7.4
May 14, 1912	do.....	do.....	do.....		3.0
June 26, 1912	do.....	do.....	Near mouth, above Sheldon flume.	(c)	2.1
Aug. 6, 1912	do.....	do.....	do.....	(d)	1.0
Aug. 21, 1912 ^e	North Fork of Matilija Creek.	Ventura River....	Near mouth, below Sheldon flume.		.2
Oct. 23, 1911	Sheldon flume....	Diverts f r o m North fork of Matilija Creek.	Intake, SW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 28, T. 5 N., R. 23 W.		1.3
Aug. 6, 1912	do.....	do.....	do.....		1.0
Aug. 21, 1912	do.....	do.....	do.....		1.3
Mar. 23, 1912	Coyote Creek.....	Ventura River....	Near mouth, about $\frac{1}{4}$ mile above United States Geological Survey gaging station on Ventura River, about 6 miles north of Ventura, Cal.		8.0
Apr. 23, 1912	do.....	do.....	do.....		7.3
May 15, 1912	do.....	do.....	do.....		3.0
Aug. 6, 1912	do.....	do.....	do.....		<i>b</i> 1.0
Aug. 20, 1912	do.....	do.....	do.....		.5
July 28, 1912	Clark Colony Water Co.'s canal.	Arroyo Seco (Salinas River).	2 miles below gage at headgate, about 1 mile southwest of Greenfield, Cal., and about 1 $\frac{1}{2}$ miles below United States Geological Survey gaging station on Arroyo Seco.	3.52	1.9

Streams tributary to San Francisco Bay.

Feb. 22, 1912	San Pablo Creek...	San Pablo Bay....	100 feet below mouth of Bear Creek, $\frac{1}{2}$ miles northwest of Orinda, Cal.		<i>b</i> 1
Do.....	Bear Creek.....	San Pablo Creek..	Mouth. One and one-fourth miles northwest of Orinda, Cal.		<i>b</i> .5

^a Sulphur Mountain spring resort diverts water one-fourth mile above.^b Estimated.^c Water surface 1.95 feet below paint mark on rock on right bank.^d Water surface 2.1 feet below reference point established June 25, 1912.^e Water surface 2.1 feet below reference point established June 25, 1912; corresponding discharge, creek and diversion, is 1.5 second-feet.

*Miscellaneous measurements in 1911-12—Continued.***San Joaquin River basin.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
May 16, 1912	Rankin ditch.....	Diverts from Basin Creek.	Above United States Geological Survey gaging station on Basin Creek, near Havilah, Cal.	1.3
Sept. 28, 1912	Kern River.....	Tulare Lake basin.	Wading near Southern California Edison Power Co.'s proposed power-house site for Edison system No. 3, about 10 miles below United States Geological Survey gaging station on Kern River above Kernville, about 1 mile below mouth of Bullrun Creek.	2.04	153
Sept. 26, 1912do.....do.....	Wading 1,500 feet below Borel power house, about 4 miles southwest of Bodfish post office, Cal.	177
Sept. 25, 1912do.....do.....	Wading below intake of Southern California Edison Power Co.'s flume, Edison system No. 1, opposite house of headworks watchman, about 100 feet below sand box on flume. Discharge is leakage from dam and flume.4
Do.....	Southern California Edison Power Co.'s flume.	Diverts from Kern River.	About $\frac{1}{2}$ mile below Democrat Springs, Cal., about 1,500 feet below Southern California Edison Power Co.'s dam at intake, Edison system No. 1, about 100 feet below concrete sand box, opposite house of headworks watchman, 37 feet above gage.	3.72	175
Sept. 24, 1912	Kern River.....	Tulare Lake basin.	Southern California Edison Power Co.'s weir, plant No. 1. Practically all water in canal, about 15 miles northeast of Bakersfield, Cal.	1.30	165
Sept. 23, 1912	Kern River.....	Tulare Lake basin.	Kern County Land Co.'s gaging station at mouth of lower canyon, in sec. 2, T. 29 S., R. 28 E., 5 miles northeast of Bakersfield, Cal.	2.13	164
Sept. 30, 1912	McClure Creek.....	Kern River.....	Trail crossing, near mouth, sec. 35, T. 22 S., R. 32 W., about $\frac{1}{2}$ mile above mouth of Brush Creek.8
Do.....	Brush Creek.....do.....	200 feet above mouth, sec. 36, T. 22 S., R. 32 W.	2.4
Sept. 29, 1912	Tobias Creek.....do.....	500 feet above mouth, sec. 23, T. 23 S., R. 32 W.	2.9
Do.....	Salmon Creek.....do.....	Road crossing, near mouth, sec. 30, T. 23 S., R. 33 E.	2.5
Do.....	Corral Creek.....do.....	Road crossing, near mouth, sec. 6, T. 24 S., R. 33 E.3
Sept. 28, 1912	Cannell Creek.....do.....	Near mouth, sec. 32, T. 24 S., R. 33 E.	Dry.
Do.....	Bullrun Creek.....do.....	Near highway crossing, sec. 4, T. 25 S., R. 33 E. Entire flow in Peterson ditch.3
May 20, 1912	Big Blue Mountain ditch. ^a	Diverts from Kern River.	200 feet below intake, 2 miles above Kernville, Cal.	52
Nov. 17, 1911	Kern River Power Co.'s canal.do.....	Isabella, Cal., NW. $\frac{1}{2}$ sec. 17, T. 26 S., R. 33 E.	b 5.70	322
Apr. 29, 1912do.....do.....do.....	b 8.34	508
Nov. 16, 1911	Powers ditch.....	Diverts from South Fork of Kern River.	Warren Rankin ranch, near Onyx, Cal., above United States Geological Survey gaging station on South Fork of Kern River, in NW. $\frac{1}{2}$ sec. 24, T. 25 S., R. 35 E.	1.1
Sept. 23, 1912	Ersine Creek.....	Kern River.....	Road crossing, about $\frac{1}{2}$ mile above mouth, in sec. 6, T. 27 S., R. 33 E.	Dry.
Do.....	Bedfish Creek.....do.....	Road crossing, about $\frac{1}{2}$ mile above mouth, in sec. 12, T. 27 S., R. 32 E., at Bodfish, Cal.	Dry.

^a Used by Orahana Mining & Milling Co.^b United States Geological Survey gage.

*Miscellaneous measurements in 1911-12—Continued.***San Joaquin River basin—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
Sept. 23, 1912	Clear Creek.....	Kern River.....	Road crossing, near mouth, about 1 mile south of Borel, Cal.	Dry.
Do.....	Mill Creek.....	do.....	Road crossing, near mouth, in sec. 35 (probably), T. 27 S., R. 32 E.	Dry.
Do.....	Cottonwood Creek.....	do.....	Road crossing, near mouth, about 12 miles of Bakersfield, Cal.	Dry.
May 25, 1912	White River.....	Tulare Lake basin.	Above ford at White River, Cal.	5.5
Do.....	Rancheria Creek.....	Bear Creek.....	300 feet below United States Geological Survey gaging station on Bear Creek, about 6 miles northeast of Springville, Cal.	2.1
Sept. 15, 1912	Tule ditch.....	Diverts from Tule River.	300 feet above United States Geological Survey gaging station on Tule River near Porterville, Cal., in NW. $\frac{1}{4}$ NW. $\frac{1}{4}$ sec. 25, T. 21 S., R. 23 E.	1.3
Sept. 20, 1912	South Fork of Kaweah River.	Kaweah River....	1,200 feet above Mehrten ditch, above all diversions, about $\frac{1}{2}$ mile below Battle Creek (Kaweah quadrangle).	5.6
Nov. 23, 1911	Mehrten ditch.....	Diverts from South Fork of Kaweah River.	Cinnamon Creek crossing, about 2 miles below intake, above United States Geological Survey gaging station on South Fork of Kaweah River.5
Aug. 15, 1912	Middle Fork of Kings River.	Tulare Lake basin.	Trail ford above Horseshoe Creek in Simpson Meadow (Tehipte quadrangle).	199
Aug. 16, 1912	do.....	do.....	200 feet below big rock pool at foot of Crown Meadow trail, $\frac{1}{2}$ mile south of mouth of Crown Creek, in Tehipte Valley (Tehipte quadrangle).	214
Aug. 13, 1912	South Fork of Kings River.	Kings River.....	Below Bench Lake outlet and just above outlet of unnamed lake northwest of Bench Lake (Mount Whitney quadrangle).	25
July 17, 1912	Sanger Lumber Co.'s flume.	Diverts from Kings River.	Opposite United States Geological Survey gaging station on Kings River near Sanger, Cal., in NW. $\frac{1}{4}$ sec. 8, T. 13 S., R. 24 E.	3.6
July 24, 1912	South Fork of San Joaquin River.	San Joaquin River.	200 feet below Hot Springs, in Blaney Meadows (Mount Goddard quadrangle).	317
July 25, 1912	Piute Creek.....	South Fork of San Joaquin River.	Old trail ford, about 2,000 feet above mouth of French Canyon Creek (Mt. Goddard quadrangle).	58
Aug. 7, 1912	do.....	do.....	37
July 25, 1912	do.....	do.....	$\frac{1}{2}$ miles below French Canyon Creek, close to trail (Mount Goddard quadrangle) at section marked by three large veins of white quartz which cross at approximately right angles to stream.	99
Nov. 10, 1911	Madera-Sugar Pine Co.'s lumber flume.	Diverts from Fresno River.	Near United States Geological Survey gage on Fresno River, 6 miles northeast of Knowles, Cal., in NW. $\frac{1}{4}$ sec. 15, T. 8 S., R. 20 E.	10
Mar. 6, 1912	do.....	do.....	do.....	9.3
Apr. 16, 1912	do.....	do.....	do.....	5.0
Oct. 15, 1912	do.....	do.....	do.....	4.5
Oct. 31, 1912	do.....	do.....	do.....	5.4
May 11, 1912	Fresno Flume & Irrigation Co.'s flume.	Diverts from Stevenson Creek, sec. 13, T. 9 S., R. 24 E.	Measurement made at end of lumber flume near line between secs. 4 and 9, T. 13 S., R. 21 E., about 11 miles south of Friant, Cal.	9.9

Miscellaneous measurements in 1911-12—Continued.

San Joaquin River basin—Continued.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 22, 1912	Golden Rock ditch.	Diverts from South Fork at Tuolumne River.	Just above Kanaka ditch (a diversion) above ranger station near Hamilton post office, Cal.	6.9
Apr. 27, 1912	Utica Gold Mining Co.'s flume.	Diverts from North Fork of Stanislaus River.	Below spillway near head gates, about 4½ miles northeast of Avery, Cal.	63
Oct. 12, 1911	Mokelumne River.	San Joaquin River.	600 feet above power house of Pacific Gas & Electric Co., at Electra, Cal.	.16	51
Oct. 13, 1911do.....do.....	200 feet below toll bridge on Mokelumne Hill to Jackson, Cal., 1 mile northwest of Mokelumne Hill, Cal.	223
Oct. 10, 1911	Upper flume.....	Diverts from North Fork of Mokelumne River.	At gaging station of Pacific Gas & Electric Co., about 2½ miles northwest of West Point, Cal.	3.78	129
Do.....	Lower flume.....do.....	In flume opposite suspension footbridge, about 2½ miles northwest of West Point, Cal.	54
Oct. 11, 1911	South Fork of Mokelumne River.	Mokelumne River.	300 feet below bridge, 1 mile north of Railroad Flat, Cal.	16
Do.....	Licking Fork of Mokelumne River.	South Fork of Mokelumne River.	30 feet below bridge, on West Point to Railroad Flat, Cal. 1½ miles north of Railroad Flat, Cal.	11
Oct. 6, 1911	Dry Creek.....do.....	600 feet below mouth of Jackson Creek, 7 miles southwest of Ione, Cal.	8.1
Oct. 8, 1911	Sutter Creek.....	Dry Creek.....	At dam site, about ½ mile below Volcano, Cal.	3.5
Do.....do.....do.....do.....	3.3
Oct. 6, 1911	Jackson Creek.....do.....	At mouth, 7 miles southwest of Ione, Cal.	Dry.
Oct. 12, 1911	Middle Fork of Cosumnes River.	South Fork of Cosumnes River.	At Bakers Ford, Placerville quadrangle.	19

Sacramento River basin.

Oct. 15, 1911	Sacramento River.	San Francisco Bay.	Downstream side of highway bridge at Colusa, Cal.	a 1.84	6,470
Oct. 16, 1911do.....do.....	Downstream side of railroad bridge at Knights Landing, Grafton post office.	a b. 60	6,100
Dec. 19, 1911do.....do.....do.....	a c. 86	6,450
Jan. 30, 1912do.....do.....do.....	ad 10.29	16,000
Mar. 2, 1912do.....do.....do.....	a 3.68	8,800
Mar. 27, 1912do.....do.....do.....	a 7.40	12,600
July 10, 1912do.....do.....do.....	a 1.17	6,200
July 31, 1912do.....do.....do.....	a -.36	5,150
Sept. 18, 1912do.....do.....do.....	ae-.06	5,600
May 12, 1912	Hat Creek.....	Sacramento River.	Bridge at Hall's ranch, 12 miles south of Hat Creek, Cal., in NW. ¼ sec. 33, T. 33 N., R. 5 E., above all diversions.	(f)	199
Sept. 5, 1912	Burney Creek.....	Pit River.....	Top of Burney Falls, Shasta County.	146
May 16, 1912	Nelson Creek.....do.....	1,000 feet above mouth, ¾ mile above Henderson, Cal., sec. 31, T. 37 N., R. 1 E.	76
Oct. 30, 1912do.....do.....do.....	25

a Weather Bureau gage.

b Southern Pacific Co.'s gage read 23.40 feet.

c Southern Pacific Co.'s gage read 23.60 feet.

d Southern Pacific Co.'s gage read 33.02 feet.

e Southern Pacific Co.'s gage read 22.80 feet.

f Water surface 0.92 foot below center of head of horseshoe nail in upstream end of log of left abutment.

g Measurement furnished by Frank J. Sheehan, San Francisco, Cal.

h This water comes from an underground flow from the lava rock and rises about one-quarter mile from the falls. No surface water gets into the creek at this point.

*Miscellaneous measurements in 1911-12—Continued.***Sacramento River basin—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
May 17, 1912	Hatchet Creek.....	Pit River.....	Near bridge on Upper road, Montgomery Creek to Henderson, Cal., sec. 19, T. 35 N., R. 1 E.	95
Sept. 18, 1912 ^ado.....do.....	One mile above bridge on Cove or Lower road, Montgomery Creek to Henderson, Cal., sec. 24, T. 35 N., R. 1 W.	17
May 17, 1912	Roaring Creek.....	Hatchet Creek.....	Near bridge on Upper road, Montgomery Creek to Henderson, Cal., sec. 6, T. 35 N., R. 1 E.	21
Sept. 19, 1912 ^ado.....do.....	1½ miles above bridge on Cove or Lower road, Montgomery Creek to Henderson, Cal., sec. 12, T. 35 N., R. 1 W.	9.7
May 17, 1912	Burgess Creek.....	Roaring Creek.....	Near bridge on Upper road, sec. 6, T. 35 N., R. 1 E.	7.9
Do.....	Richardson Creek.....do.....	Near bridge on Upper road, sec. 7, T. 35 N., R. 1 E.	1.6
Do.....	Butter Creek.....	Richardson Creek.....do.....7
Do.....	Hall Creek.....	Roaring Creek.....	Near bridge on Upper road, sec. 13, T. 35 N., R. 1 E.	2.5
Do.....	Spring Creek.....	Hall Creek.....do.....	1.2
Sept. 18, 1912 ^a	Montgomery Creek.....	Pit River.....	½ mile above bridge at Montgomery Creek, Cal.	15
Oct. 5, 1911 ^a	Upper flume Terry Lumber Co.	Diverts from Montgomery Creek.	Johnson place above mill.....	^b 6.4
Do. ^a	Lower flume Terry Lumber Co.do.....	Road crossing of small road from Montgomery Creek.	^b 4.4
Oct. 12, 1911	Cottonwood Creek.....	Sacramento River.	7 miles above Cottonwood, Cal.	28
May 19, 1912	Brandy Creek.....	Clear Creek.....	One-fourth mile above mouth (900 feet below United States Geological Survey gaging station on Clear Creek), in sec. 17, T. 32 N., R. 6 W.	34
Do.....	Whisky Creek.....do.....	Highway bridge in Whisky-town, Cal., 500 feet above mouth, in sec. 16, T. 32 N., R. 6 W.	15
May 31, 1912	Churn Creek.....	Sacramento River.	6 miles above mouth on Palo Cedro road, 3 miles east of Redding, Cal., in NW. ¼ sec. 9, T. 31 N., R. 4 W.	12
Do.....	Stillwater Creek.....do.....	7 miles above mouth on Palo Cedro road, 5 miles southeast of Redding, Cal., in NW. ¼ sec. 11, T. 31 N., R. 4 W.	17
Do.....	Oak Run Creek.....	Cow Creek.....	One-half mile above mouth, 1½ miles northwest of Millville, Cal., in SW. ¼ sec. 3, T. 31 N., R. 3 W.	13
Oct. 9, 1911	Antelope Creek.....	Sacramento River.	200 feet below old power dam near mouth of canyon, near Red Bluff, Cal.	83
Sept. 23, 1912	North Fork of Feather River.	Feather River.....	At Great Western Power Co.'s gaging station, about 5 miles southeast of Prattville, Cal., in NW. ¼ sec. 33, T. 26 N., R. 3 E.	1.68	560
Oct. 20, 1911	Bear River.....	Sacramento River.	Below Pacific Gas & Electric Co.'s diverting dam, near Colfax, Cal.	2.1
Oct. 29, 1911	Kelsey Creek.....	Clear Lake.....	Highway bridge at Kelseyville, Cal.	Dry.
Oct. 30, 1911	Seigler Creek.....	Cache Creek.....	At mouth, at Lower Lake, Cal.	^c ½

^a Measurement furnished by Frank J. Sheehan, San Francisco, Cal.^b Flume running at practically full capacity.^c Estimated.

NOTE.—Water diverted by Terry Lumber Co., from Montgomery Creek is used in lumber flume and finally turned into Cow Creek.

*Miscellaneous measurements in 1911-12—Continued.***Northern Pacific Ocean drainage basins.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
Nov. 2, 1911	Ackerman Creek...	Russian River....	Wagon bridge near mouth, about 2 miles north of Ukiah, Cal.	<i>Feet.</i>	<i>Sec.-ft.</i> Dry.
Do.....	Orr Creek.....	do.....	Wagon bridge near mouth, about $\frac{1}{2}$ mile north of Ukiah, Cal.		Dry.
Oct. 29, 1911	Pieta Creek.....	do.....	Near mouth, about 1 mile south of Pieta, Cal.		a 2
May 17, 1912	Mattole River....	Pacific Ocean....	Wading at ford below mouth of Bear Creek, at Eterburg, Cal., NW. $\frac{1}{2}$ sec. 7, T. 4. S., R. 2 E.		95
May 26, 1912	Bear Creek or West Fork.	Mattole River....	Mouth, at Eterburg, Cal., NW. $\frac{1}{2}$ sec. 7, T. 4. S., R. 2 E.		352
Sept. 2, 1912	do.....	do.....	do.....		11
Nov. 20, 1911	Honey Dew Creek.	do.....	Mouth, sec. 6, T. 3 S., R. 1 E.		13
Jan. 15, 1912	do.....	do.....	Wading at ford above Upper Mattole, Cal., NW. $\frac{1}{2}$ sec. 7, T. 3 S., R. 1 E.		70
May 26, 1912	do.....	do.....	do.....		294
Sept. 1, 1912	do.....	do.....	Mouth, sec. 7, T. 3 S., R. 1 E.		7.4
Nov. 21, 1911	Squaw Creek.....	do.....	Mouth, sec. 30, T. 2 S., R. 1 W.		a 2
May 26, 1912	do.....	do.....	do.....		90
Do.....	Cummings Creek.	do.....	36 miles from Ferndale, Cal., NW. $\frac{1}{2}$ sec. 24, T. 2 S., R. 2 W.		10
Nov. 22, 1911	North Fork of Mattole River.	do.....	Near mouth, NW. $\frac{1}{2}$ sec. 4, T. 2 S., R. 2 W.		a 3
Mar. 21, 1912	do.....	do.....	do.....		224
May 23, 1912	do.....	do.....	do.....		131
Aug. 31, 1912	do.....	do.....	do.....		6.9
May 22, 1912	Zanoni Creek.....	Pacific Ocean....	Near mouth, near Petrolia, Cal., SW. $\frac{1}{2}$ sec. 30, T. 1 S., R. 2 W.		11
Nov. 22, 1911	Davis Creek.....	do.....	Road crossing near mouth, sec. 13, T. 1 S., R. 3 W.		a $\frac{1}{2}$
Mar. 22, 1912	do.....	do.....	do.....		a 4
May 22, 1912	do.....	do.....	do.....		15
Do.....	Singley Creek.....	do.....	Road crossing near mouth, near Petrolia, Cal., NW. $\frac{1}{2}$ sec. 34, T. 1 N., R. 3 W.		10
Nov. 22, 1911	Bear River.....	do.....	Near mouth, Capetown, Cal., sec. 13, T. 1 N., R. 3 W.		a 5
May 21, 1912	do.....	do.....	Highway bridge, Capetown, Cal., SW. $\frac{1}{2}$ sec. 13, T. 1 N., R. 3 W.	(b)	229
Aug. 31, 1912	do.....	do.....	do.....	(c)	14
Aug. 15, 1912	Middle Eel River..	Eel River.....	200 feet below ford, on road from Hearst to Covelo, Cal., SE. $\frac{1}{2}$ sec. 6, T. 21 N., R. 12 W.		23
Aug. 16, 1912	North Fork of Middle Eel River.	Middle Eel River.	Wading 150 feet above junction with Middle Eel River, sec. 28, T. 23 N., R. 11 W.		16
Aug. 16, 1911	South Fork of Middle Eel River.	do.....	Wading 400 feet above junction with Middle Eel River, sec. 28, T. 23 N., R. 11 W.		6.0
Jan. 23, 1912	Williams Creek....	do.....	Mouth, NW. $\frac{1}{2}$ sec. 31, T. 23 N., R. 11 W.		35
Mar. 13, 1912	do.....	do.....	do.....		78
Mar. 31, 1912	do.....	do.....	do.....		59
Nov. 4, 1911	Tomki Creek.....	South Eel River..	Road crossing on road from Willits to Hearst, Cal., sec. 36, T. 19 N., R. 13 W.		Dry
Apr. 4, 1912	do.....	do.....	do.....		a 4
Apr. 3, 1912	Outlet (or Deep) Creek.	do.....	Wading near railroad bridge above mouth of Long Valley Creek, 12 miles south of Laytonville, Cal., sec. 33, T. 20 N., R. 14 W.		61
Do.....	Long Valley Creek.	Outlet Creek....	Mouth.....		a 4
Nov. 5, 1911	Burger Creek.....	Eel River.....	Bridge on road between Laytonville and Two Rivers, Cal., sec. 10, T. 21 N., R. 14 W.		a $\frac{1}{2}$
Nov. 16, 1911	do.....	do.....	do.....		a 1
Jan. 19, 1912	do.....	do.....	do.....		a 5
Feb. 1, 1912	do.....	do.....	do.....		a 3
Apr. 2, 1912	do.....	do.....	do.....		a 3

a Estimated.

b Water surface 5.75 feet below reference point marked on downstream pier of bridge in white paint, first lap seam from top.

c Water surface 5.43 feet below reference point established May 21, 1912

*Miscellaneous measurements in 1911-12—Continued.***Northern Pacific Ocean drainage basins—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
Nov. 19, 1911	Redwood Creek...	South Fork of Eel River.	Briceland, Cal., SW. $\frac{1}{2}$ sec. 18, T. 4 S., R. 3 E.	<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 15, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
May 27, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
May 28, 1912	Buck Creek.....	do.....	Garberville, Cal.		$a \frac{1}{2}$
Do.....	Bohne Creek.....	do.....	Highway bridge, SW. $\frac{1}{2}$ sec. 1, T. 4 S., R. 3 E.		20
Mar. 18, 1912	Bear Creek.....	do.....	Highway bridge, 3 miles north of Garberville, Cal.		$a \frac{1}{2}$
Do.....	Rocky Glen (or Rock) Creek.	do.....	Highway bridge, near mouth, 2 miles south of Phillipsville, Cal., SW. $\frac{1}{2}$ sec. 19, T. 3 S., R. 4 E.		$a \frac{1}{2}$
May 28, 1912	do.....	do.....	do.....		13
Do.....	Elk Creek.....	do.....	Below highway bridge near Miranda, Cal., NW. $\frac{1}{2}$ sec. 21, T. 2 S., R. 3 E.		12
May 29, 1912	Bear Creek.....	Eel River.....	Near mouth near Dyerville, Cal., NW. $\frac{1}{2}$ sec. 32, T. 1 N., R. 2 E.		16
Do.....	Monument Creek..	do.....	Highway bridge near Rio Dell, Cal., sec. 18, T. 1 N., R. 1 E.		13
June 7, 1912	Little Larabee Creek.	Van Duzen River.	Above highway bridge near Bridgeville, Cal., sec. 7, T. 1 N., R. 3 E.		9.3
Oct. 19, 1911	Healy Creek.....	do.....	Near mouth, bridge on road from Carlotta to Bridgeville, Cal.		$a \frac{1}{2}$
Apr. 27, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
Sept. 10, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
Oct. 19, 1911	Grizzly Creek.....	do.....	do.....		$a \frac{1}{2}$
Jan. 6, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
Apr. 27, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
June 7, 1912	do.....	do.....	do.....		5.6
Sept. 10, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
Apr. 27, 1912	Salmon Creek.....	do.....	Near mouth, at ford on road from Carlotta to Bridgeville, Cal.		$a \frac{1}{2}$
Sept. 10, 1912	do.....	do.....	do.....		Dry.
June 10, 1912	North Fork of Mad River.	Mad River.....	600 feet below highway bridge at Korbel, Cal.	(b)	25
Aug. 15, 1912	do.....	do.....	do.....	(c)	5.8
Sept. 17, 1912	do.....	do.....	do.....	(d)	8.4
Nov. 29, 1911	Little River.....	Pacific Ocean.....	Railroad bridge, about $\frac{1}{2}$ miles southeast of Trinidad, Cal., sec. 9, T. 7 N., R. 1 E.		$a \frac{1}{2}$
Do.....	Maple Creek.....	Big Lagoon.....	Wagon bridge, sec. 20, T. 9 N., R. 1 E.		$a \frac{1}{2}$
Feb. 23, 1912	do.....	do.....	do.....		$a \frac{1}{2}$
Apr. 14, 1912	Redwood Creek.....	Pacific Ocean.....	Below Berry's highway bridge about 4 miles above United States Geological Survey gage at T. Bair's ranch (regular gaging station), NW. $\frac{1}{2}$ sec. 14, T. 6 N., R. 3 E.	(e)	169
June 11, 1912	Redwood Creek...	Pacific Ocean.....	Below Berry's highway bridge about 4 miles above United States Geological Survey gage at T. Bair's ranch (regular gaging station), NW. $\frac{1}{2}$ sec. 14, T. 6 N., R. 3 E.	(f)	103
Aug. 16, 1912	do.....	do.....	do.....		16.3
Oct. 14, 1911	Minor Creek.....	Redwood Creek...	Mouth, at T. Bair's ranch, sec. 28, T. 7 N., R. 3 E.	(g)	$a \frac{1}{2}$
Apr. 13, 1912	do.....	do.....	Above abandoned upper wagon bridge on T. Bair's ranch, near mouth, sec. 28, T. 7 N., R. 3 E.		19
Sept. 17, 1912	do.....	do.....	do.....		2.2

^a Estimated.^b Water surface 10.30 feet below horizontal surface of cap piece of center or main pier of bridge, marked with white paint.^c Water surface 10.63 feet below reference point, established June 10, 1912.^d Water surface 10.45 feet below reference point, established June 10, 1912.^e Water surface 3.62 feet below white paint mark and arrow on edge of flat surface of left pier near lower downstream corner.^f Water surface 4.13 feet below reference point established Apr. 14, 1912.^g Water surface 4.75 feet below reference point established Apr. 14, 1912.

*Miscellaneous measurements in 1911-12—Continued.***Northern Pacific Ocean drainage basins—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
				<i>Feet.</i>	<i>Sec.-ft.</i>
Nov. 29, 1911	Prairie Creek.....	Redwood Creek...	Wagon bridge at Prairie, Cal., sec. 2, T. 11 N., R. 1 E.	<i>a</i> 2
May 5, 1912do.....do.....	About 1½ miles above wagon bridge near mouth, about 3 miles northeast of Orick, Cal.	149
Aug. 28, 1912do.....do.....	About 700 feet below wagon bridge at Prairie, Cal.	13
May 28, 1912	Yreka Creek.....	Shasta River.....	1,000 feet above Miner Street bridge in Yreka, Cal., sec. 22, T. 45 N., R. 7 W.	5.6
July 28, 1912	Trinity Farm & Cat-tle Co.'s ditch.	Diverts from East Fork of Trinity River.	About 450 feet above road crossing opposite United States Geological Survey gaging station on river, 3 miles south-east of Trinity Center, Cal., sec. 15, T. 36 N., R. 7 W.	5.8
Feb. 2, 1912	Humboldt Gas & Electric Co.'s ditch.	Diverts from Can-yon Creek.	Near highway bridge above Junction City, Cal.	59
June 12, 1912	Madden Creek.....	South Fork of Trinity River.	Mouth, near China Flat, Cal., sec. 15, T. 6 N., R. 5 E.	47
Oct. 7, 1911	Willow Creek.....	Trinity River.....	Below bridge near mouth at China Flat, Cal., sec. 29, T. 7 N., R. 5 E.	(b)	7.3
Dec. 30, 1911do.....do.....do.....	(c)	36
Apr. 14, 1912do.....do.....	Above bridge near mouth at China Flat, Cal.	(d)	90
June 11, 1912do.....do.....do.....	(e)	65
Aug. 17, 1912do.....do.....	Below bridge near mouth at China Flat, Cal.	(f, h)	14
Sept. 21, 1912do.....do.....do.....	(g, f)	18
Oct. 9, 1911	Campbell Creek...do.....	Road crossing near mouth near south boundary of Hoopa Indian Reservation, sec. 6, T. 7 N., R. 5 E.	<i>a</i> 2
Dec. 30, 1911do.....do.....do.....	<i>a</i> ½
Apr. 19, 1912do.....do.....do.....	<i>a</i> 5
June 13, 1912do.....do.....do.....	12
Oct. 9, 1911	Hospital Creek...do.....	Highway bridge near mouth, near Hoopa, Cal.	Dry.
Dec. 30, 1911do.....do.....do.....	<i>a</i> 3
Apr. 19, 1912do.....do.....do.....	<i>a</i> 2
Oct. 9, 1911	Supply Creek.....do.....	Bridge, near Hoopa, Cal.....	(j)	3.7
Dec. 29, 1911do.....do.....	1,200 feet above mouth, near Hoopa, Cal.	25
Feb. 11, 1912do.....do.....	Bridge, near Hoopa, Cal.....	53
Apr. 18, 1912do.....do.....do.....	30
June 5, 1912do.....do.....do.....	(k)	25
Aug. 18, 1912do.....do.....do.....	(l)	5.9
Sept. 20, 1912do.....do.....do.....	(m)	7.4
Sept. 22, 1912do.....do.....do.....	(n)	6.6
June 13, 1912	Mill Creek.....do.....	Just above ford, near Hoopa, Cal.	10
Dec. 14, 1911	Prairie Creek.....	Hunter Creek.....	Highway bridge about ½ mile northeast of Requa, Cal., above mouth, sec. 33, T. 14 N., R. 1 E.	<i>a</i> 5
Feb. 26, 1912do.....do.....do.....	<i>a</i> 8

a Estimated.*b* Water surface 2 feet below paint mark on rock under left end of bridge.*c* Water surface 1.64 feet below reference point established Oct. 7, 1911.*d* Water surface 1.30 feet below reference point established Oct. 7, 1911.*e* Water surface 1.45 feet below reference point established Oct. 7, 1911.*f* Water surface 1.97 feet below reference point established Oct. 7, 1911.*g* Water surface 1.87 feet below reference point established Oct. 7, 1911.*h* Water surface 15.2 feet below paint mark on upstream stringer of bridge at edge of planking near center of bridge.*i* Water surface 15.1 feet below reference point established Aug. 17, 1912.*j* Water surface 1 foot below paint mark on bowlder under right end of bridge.*k* Water surface 9.51 feet below top edge of first floor beam from left end of bridge, edge notched.*l* Water surface 9.92 feet below reference point established June 5, 1912.*m* Water surface 9.85 feet below reference point established June 5, 1912.*n* Water surface 9.92 feet below reference point established June 5, 1912.

*Miscellaneous measurements in 1911-12—Continued.***Northern Pacific Ocean drainage basins—Continued.**

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis-charge.
Nov. 29, 1911	Wilson Creek.....	Pacific Ocean.....	Road crossing about $4\frac{1}{2}$ miles northwest of Requa, Cal., sec. 18, T. 14 N., R. 1 E.	<i>Feet.</i>	<i>Sec.-ft.</i>
Dec. 1, 1911	Mill Creek.....	Smith Creek.....	Highway bridge near mouth on road from Crescent City to Gasquet, Cal., sec. 19, T. 16 N., R. 1 E.	^a 2
Feb. 29, 1912do.....do.....do.....	^a 10
May 11, 1912do.....do.....do.....	^a 10

^a Estimated.**FLUCTUATIONS IN GROUND-WATER LEVELS IN THE VALLEY OF SOUTHERN CALIFORNIA.**

By W. C. MENDENHALL.

Measurements of fluctuations in ground-water levels were made in a series of selected wells in southern California at various times during the years 1904 to 1908, inclusive, as an incident in general studies of the origin, quantity, and use of the ground-water resources of that part of California, and the results were published in Water-Supply Papers 213 and 251. A few additional measurements were made in 1909 and 1910 and in the summer of 1912, the latter under the direction of Mr. Charles H. Lee in connection with a study for the California Conservation Commission of the results of certain measures for the conservation of water taken by the larger water companies of the San Bernardino Valley.

Results of the later measurements are here assembled as records for future comparison and for the use of students of this important resource, on which the prosperity of southern California has come to depend in so large a measure.

The decade preceding 1904 was a period of very low rainfall in this region, so that the ground-water levels at the end of this dry decade—the beginning of the period during which measurements have been made—were presumably lower than at any time since settlement began. Since 1904 the precipitation has been somewhat above the general average, the three winters of 1904-5, 1905-6, and 1906-7 having yielded an excess of about 25 per cent. During 1907-8, 1909-10, and 1910-11 there was some deficiency, and in the winter of 1908-9 precipitation was above the average. On the whole, this period of seven seasons has been somewhat more favorable for the maintenance of ground-water levels than can be expected as a general average and very much more favorable than the preceding decade.

As is to be expected, the wells that have been measured do not exhibit uniform behavior nor even uniform tendencies. Those situated near large streams are restored to their normal level each winter, no matter how severely they may have been taxed during the preceding irrigation season. Others, remote from sources of supply and heavily drawn upon, have exhibited decrease even during the most favorable seasons. In some important districts the ground-water level is now (autumn, 1912) well above the alarmingly low level of 1904; in others the latest measurements are near, and in still others definitely below the lowest level of that period. Two important areas in which new low levels are recorded are in the vicinity of Los Angeles and at Perris Valley. The condition in and about Los Angeles, however, will be cured by the completion of the aqueduct and the introduction of Owens Valley water supplies.

Generally speaking, except near the larger streams the ground waters have not regained and can not be expected to regain their original average level. Where developments are extensive and increasing and sources of supply are remote and inadequate the present levels—the lowest yet attained—will be still further lowered.

It is true, however, that one winter of heavy and well-distributed rainfall may do much to counteract the depletion of ground-water levels that results from several dry seasons, with their necessary accompaniment of severe pumping drafts required to supply the deficiency in surface waters that is the first and most direct result of meager rainfall.

As the data furnished by a series of measurements such as this are essential to conclusions as to the amount of water that can be taken from underground reservoirs without too greatly depleting the supply the Geological Survey has arranged to continue the work by making at least two measurements of each well annually, one about the time of maximum recharge in the spring and the other at the time of maximum depletion in the autumn.

Variations of water level in wells in southern California.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
1. P. R. Kildson, three-fourths mile northeast of Slauson.		2. Chinese gardeners, one-half mile southwest of Slauson.	
1909.	<i>Ft. in.</i>	1909.	
Mar. 30	46 6	Mar. 30	Dry.
July 7	47 5	July 7	Dry.
Oct. 7	48 8	Oct. 7	Dry.
1910.		1910.	
Jan. 27 (destroyed)	Jan. 27	Dry at 21 ft.

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
3. Elma Connolly, 1½ miles north of Sunnyside.		7. A. B. Caldwell, one-fourth mile south of Moneta.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Mar. 30.....	23 6	Mar. 30.....	25
July 7.....	25 11	July 7.....	33 6
October.....	26	Oct. 7.....	30 1
1910.		1910.	
Jan. 27.....	24 7	Jan. 27.....	25 4
Aug. 13.....	28	Aug. 13.....	35(?)
Dec. 30.....	27	Dec. 30 (inaccessible).....	
1912.			
May 20 (windmill working slowly).....	30 6		
July 21.....	33 1		
Oct. 14.....	31 11		
4. Mrs. Mary Vigus (formerly owned by Mr. Till), 2½ miles south of Slauson.		8. H. J. Harris, one-half mile north of Moneta.	
1909.		1909.	
Mar. 30.....	30 11	Mar. 30.....	26 3
July 7 (pumping).....	32 11	July 7.....	37 3
Oct. 7.....		Oct. 7.....	31 10
1910.		1910.	
Jan. 27.....	32 3	Jan. 27.....	26 9
Aug. 13.....	34	Aug. 13.....	36 8
Dec. 30.....	34 2	Dec. 30.....	28 10
1912.		1912.	
May 20.....	35	July 21 (mill running very slowly).....	39 8
July 21.....	36	Oct. 14 (mill running very slowly).....	35 1
Oct. 14.....	37		
5. J. P. Brockley, three-fourths mile north of Howard Summit.		9. Stanley Bates, three-fourths mile northwest of Moneta.	
1909.		1909.	
Mar. 30.....	85 2	Mar. 30.....	38 11
July 7.....	86 5	July 7.....	87 6
Oct. 7.....	87 6	Oct. 7.....	74
1910.		1910.	
Jan. 27.....	86 5	Jan. 27.....	63
Aug. 13.....	89 7	Aug. 13.....	47 3
Dec. 30.....	93 11	Dec. 30.....	53 10
1912.			
May 20 (well dry).....	87 2		
July 21 (well dry).....			
Oct. 14 (well dry).....			
6. F. H. Carrell, 1½ miles southwest of Gardena.		10. Post and Lockhart, 2 miles west of Howard Summit.	
1909.		1909.	
Mar. 30.....	26 11	Mar. 30.....	36 3
July 7.....	30 9	July 7.....	38 4
Oct. 7.....	M u d a t about 80 ft.	Oct. 7.....	39 4
1910.		1910.	
Jan. 27.....	26 11½	Jan. 27.....	36 10
Aug. 13.....	31 11	Aug. 13.....	43 1
Dec. 30.....	28 8	Dec. 30.....	49
1912.		1912.	
May 20.....	30 6	May 20.....	38 6
July 21 (dry at 32 feet).....			
Oct. 14.....	31 5		
11. William Bayley, Chester Place, Los Angeles.		11. William Bayley, Chester Place, Los Angeles.	
1909.		1909.	
Mar. 29.....	72 1	Mar. 29.....	72 1
July 8.....	72 2	July 8.....	72 2
Oct. 8.....	72 7	Oct. 8.....	72 7
1910.		1910.	
Jan. 28.....	72 10	Jan. 28.....	72 10
Aug. 12.....	72 8	Aug. 12.....	72 8
Dec. 31.....	74 8	Dec. 31.....	74 8
1912.		1912.	
May 21.....	77 7	May 21.....	77 7
Oct. 12.....	83 8	Oct. 12.....	83 8

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
12. Tong Bright, West Jefferson Street, Los Angeles.		18. José Sesma, 1 mile north of Ivy station.	
Well filled and measurements there- fore discontinued.....	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
		Mar. 29.....	44 11
		July 8.....	44 9
		Oct. 8.....	44 9
13. Mrs. Showers, West Jefferson Street, Los Angeles.		1910.	
Well filled and measurements there- fore discontinued.....		Jan. 28.....	44 9
		Aug. 12.....	45 1
		Dec. 31 (pumping).....	
		1912.	
		July 23 (pump removed).....	45 0
		Oct. 12.....	45 11
14. Artesian Land & Water Co., three-fourths mile north of Cienaga station.		19. J. H. Whitworth, 2 miles south of Sherman.	
1909.		1909.	
Mar. 29.....	7 3	Mar. 29.....	3 9
July 8.....	7 10	July 8.....	5 2
Oct. 8.....	8 8	Oct. 8.....	4 10
1910.		1910.	
Jan. 28.....	7 5	Jan. 28.....	3 4
Aug. 12.....	9 2	Aug. 12.....	8 10½
Dec. 31.....	9 2	Dec. 31.....	5 3
1912.		1912.	
May 21.....	10 7	July 23.....	19 5
July 23.....	11 7	Oct. 12.....	9 8
Oct. 12.....	12 5		
15. Los Angeles County, Ivy station.		20. Hammel and Decker, 1 mile south of Sherman.	
1909.		1909.	
Mar. 29.....	11 7	Mar. 29.....	24 9
July 8.....	12 4	July 8 (not accessible).....	
Oct. 8.....	13	Oct. 8 (not accessible).....	
1910.		1910.	
Jan. 28.....	12 4	Jan. 28.....	12 6
Aug. 12.....	13 1	Aug. 12 (not accessible).....	
Dec. 31 (pumping).....		Dec. 31 (not accessible).....	
16. M. P. Kane, Palms.		21. William Niles, three-fourths mile south of Sherman.	
1909.		1909.	
Mar. 29.....	50 10	Mar. 29.....	2 4
July 8.....	51 5	July 8.....	3 4
Oct. 8.....	51 5	Oct. 8.....	2 9
1910.		1910.	
Jan. 28.....	51 2	Jan. 28.....	1 8
Aug. 12.....	53 6	Aug. 12.....	7 4
Dec. 31.....	52	Dec. 31.....	6
17. F. P. Bojórquez, Palms.		1912.	
1909.		May 21.....	6 10
Mar. 29.....	45 10	July 23.....	7 11
July 8.....	45 9	Oct. 13 (mill running slow).....	11 7
Oct. 8.....	46		
1910.		22. Los Angeles County, 1 mile east of Sherman.	
Jan. 28.....	46	Well filled and measurements there- fore discontinued.....	
Aug. 12.....	48 8		
Dec. 31.....	47 9		
1912.			
May 21 (pump off 15 minutes).....	50 2		
July 23 (not pumping).....	48 7		
Oct. 12 (not pumping).....	49 1		

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
23. Mr. Hurlbut, Pasadena.		29. J. A. Law, one-half mile west of El Monte.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Mar. 27.....	72 11	Mar. 27.....	5 11
July 16.....	72 7	July 16.....	8 11
Oct. 9.....	73 8	Oct. 9.....	9 2
1910.		1910.	
Jan. 29.....	72	Jan. 29.....	7 8
Aug. 15.....	72 9	Aug. 15.....	10 5
Dec. 29.....	74 3	Dec. 29.....	10 10
1912.		1912.	
May 23.....	79 8	May 23.....	9 10
July 25.....	73 8	July 25.....	10 11
Oct. 13.....	75 1	Oct. 13.....	11 4
24. L. V. Harkness, 1½ miles southeast of Pasadena.		30. M. Ritter, El Monte.	
1909.		1909.	
Mar. 27.....	117 10	Mar. 27.....	8 3
July 16.....	119 7	July 16.....	9 7
Oct. 9.....	118 6	Oct. 9.....	10 9
1910.		1910.	
Jan. 29.....	116 8	Jan. 29.....	9 5
Aug. 15.....	119 5	Aug. 15.....	10 6
Dec. 29.....	121	Dec. 29.....	13 4
1912.		1912.	
May 23.....		May 23.....	11 4
July 25.....		July 25.....	12 5
Oct. 13.....		Oct. 13.....	13 7
25. Titus ranch, Sunny Slope Station.		31. Mrs. McClure, three-fourths mile south of El Monte.	
Well destroyed.....		1909.	
26. John McClain estate, 1 mile south of San Gabriel.		Mar. 27.....	6 3
1909.		July 16.....	8
Mar. 27.....	64 4	Oct. 9.....	8 8
27. F. E. Wilson, 2 miles south of San Gabriel.		1910.	
1909.		Jan. 29.....	7 6
Mar. 27.....	16 6	Aug. 15.....	10 4
July 16.....	15 10	Dec. 29.....	10 6
Oct. 9.....	16 6	1912.	
1910.		May 23.....	9 4
Jan. 29.....	16 ½	July 25.....	11 4
Aug. 15.....	17 4	Oct. 13.....	12 6
Dec. 29.....	18 4	32. T. D. Andrews, 1½ miles southeast of El Monte.	
1912.		1909.	
May 23 (pumping a little).....	16 10	Mar. 27.....	8 2
July 25 (pumping a little).....	17 6	July 16.....	9 2
Oct. 13 (pumping a little).....	17 8	Oct. 9.....	10 6
28. G. B. Renfro, three-fourths mile southwest of Savannah.		1910.	
1909.		Jan. 29.....	8 1
Mar. 27.....	13	Aug. 15.....	11 7
July 16.....	14 11	Dec. 29.....	12 4
Oct. 9.....	14 5	1912.	
1910.		May 23.....	10 1
Jan. 29.....	12 10	July 25.....	11 7
Aug. 15.....	13 11	Oct. 13.....	12 8
Dec. 29.....	13 7	33. Jackson Frees, 2 miles southeast of El Monte.	
1912.		1909.	
May 23.....	13 1	Mar. 27.....	15 1
July 25.....	13 1	July 16.....	16 2
Oct. 13.....	13 0	Oct. 9.....	16 9
		1910.	
		Jan. 29.....	14
		Aug. 15.....	16
		Dec. 29.....	16 6

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
34. E. Gurado, 3 miles southwest of Whittier.		41. J. B. Woff, 1½ miles south of Anaheim.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Mar. 31.....	7 2	Feb. 27.....	40 2
July 6.....	8 4	Mar. 31.....	38 8
Oct. 11.....	9 1	Apr. 17.....	38 1
		Apr. 30.....	38 2
1910.		1912.	
Jan. 31.....	8	Feb. 6.....	44 4
Aug. 12.....	9 2	Feb. 29.....	46 7
Dec. 28.....	9 3	Apr. 1.....	45 1
		Apr. 30.....	45 4
36. H. C. Baldwin, one-half mile southeast of Whittier.		June 1.....	48 6
1909.		July 1.....	50
Mar. 31.....	64	Aug. 1.....	52 1
July 6.....	63 7	Sept. 4.....	52 6
Oct. 11.....	63	Sept. 30.....	52 2
		Nov. 1.....	51 6
1910.			
Jan. 31 (well closed).....		42. Vineland district school, Vineland.	
37. C. A. Landreth, 1 mile south of Whittier.		1909.	
1909.		Apr. 5.....	70 1
Mar. 31.....	26 5	July 10.....	67 2
July 6.....	25 9	Oct. 13.....	73 7
Oct. 11.....	27 6	1910.	
1910.		Feb. 2.....	70 2
Jan. 31.....	26 11	Aug. 9.....	75 7
Aug. 12.....	27 8	1911.	
Dec. 28.....	28	Jan. 4.....	82 1
1912.		1912.	
May 22.....	26 6	May 24 (good).....	77 7
July 21.....	29 0	July 26.....	74 10
Oct. 10.....	27 1	Oct. 22 (several pumps running within ½ mile).....	84 8
38. J. W. Sharp, Santa Fe Springs.		43. G. F. Chamberlain, 2 miles southwest of Covina.	
1909.		1909.	
Mar. 31.....	22 7	Apr. 5.....	93 7
July 6.....	23 4	July 10.....	86 10
Oct. 11.....	23 11	Oct. 13.....	88 8
1910.		1910.	
Jan. 31.....	23 1	Feb. 2.....	89 3
Aug. 12 not accessible.....		Aug. 9.....	89 6
Dec. 28.....	24 8	1911.	
1912.		Jan. 4.....	94 4
May 22 (pump running slowly).....	25 4	1912.	
July 21 (pump running slowly).....	27 11	May 24 (mill had been pumping; off 10 minutes).....	117 5
Oct. 10 (pump running hard).....	28 8	July 26 (not pumping strong).....	112 1
		Oct. 22 (pumping).....	115 8
40. Norwalk Builders' Association, Norwalk.		44. H. Heinze, Puente.	
1909.		1909.	
Mar. 31.....	9 8	Apr. 5.....	26 8
July 6.....	15 2	July 10.....	16 11
Oct. 11.....	16 11	Oct. 13.....	19 2
1910.		1910.	
Jan. 31.....	12 2	Feb. 2.....	14 9
Aug. 12.....	43 3	Aug. 9.....	21 11
Dec. 28.....	16 7	1911.	
1912.		Jan. 4.....	21 5
May 22 (mill running very slowly).....	26 7	1912.	
July 21 (mill running before measurement).....	34 1	May 24 (pumping).....	28
Oct. 10.....	16 8	July 26.....	21 5
		Oct. 22 (mill pumping hard).....	39

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
45. William Rowland, one-fourth mile south of Rowland.		49. Sidney Deacon, 2 miles west of San Dimas.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Apr. 5.....	21 10	Apr. 4.....	65 4
July 10.....	25 5	July 9.....	71 9
Oct. 13.....	21 10	Oct. 12.....	75
1910.		1910.	
Feb. 2.....	20 4	Feb. 1.....	76 8
Aug. 9.....	25 4	Aug. 9.....	82 4
1911.		1911.	
Jan. 4.....	22 3	Jan. 3.....	86 4
1912.		50. William Ferry, 1½ miles southwest of San Dimas.	
July 26 (pump across road pumping)...	26 2	1909.	
Oct. 22.....	24 2	Apr. 4.....	203 3
46. B. Yorba, 1½ miles east of Rowland.		July 9.....	203 6
1909.		Oct. 12.....	203 7
Apr. 5.....	27 8	1910.	
July 10.....	29 6	Feb. 1.....	203 4
Oct. 13.....	31 1	Aug. 9.....	203 3
1910.		1911.	
Feb. 2.....	28 3	Jan. 3.....	205
Aug. 9.....	31 4	1912.	
1911.		May 25.....	211 5
Jan. 4.....	28 3	July 27.....	225
1912.		Oct. 21.....	204 8
May 24 (mill had been running).....	29 4	51. Azusa Irrigation Co., San Dimas wash.	
July 26 (not running).....	31 1	Well filled and measurements there- fore discontinued.....	
Oct. 22 (mill running slowly).....	34 10	52. Emil Firth, San Dimas wash.	
47. F. Bowers, Lemon.		1909.	
1909.		Apr. 4.....	67 10
Apr. 5.....	18 10	July 9.....	73 0
July 10.....	18 6	Oct. 12 (pumping).....	
Oct. 13.....	18 9	1910.	
1910.		Feb. 1.....	81 8
Feb. 2.....	16 5	Aug. 8.....	99 5
Aug. 9.....	20 2	1911.	
1911.		Jan. 3.....	112 6
Jan. 4.....	19	1912.	
1912.		May 25.....	112 10
May 24.....	18 8	July 27.....	115
July 26.....	21 10	Oct. 21 (several pumps running in neighborhood).....	127
Oct. 22.....	17 10	53. Charles Alley, 1 mile northwest of Lordsburg.	
48. S. E. Hicks, one-fourth mile west of Spadra.		1909.	
1909.		Apr. 4.....	143 3
Apr. 5.....	30 5	July 9.....	143 4
July 10.....	31 11	Oct. 12.....	144 10
Oct. 13.....	31 10	1910.	
1910.		Feb. 1.....	142 6
Feb. 2.....	27 4	Aug. 9.....	144 8
Aug. 9.....	28 11	1911.	
1911.		Jan. 3.....	153 4
Jan. 4.....	26 8	1912.	
1912.		May 25.....	142 2
May 24.....	24 1	July 27.....	143 1
July 26.....	26 5	Oct. 21 (pump ¼ mile west, running) ..	168 8
Oct. 22 (irrigating pump ¼ mile north, running).....	26 8		

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
54. Mr. Massey, three-fourths mile northeast of Lordsburg.		60. J. J. White, Pomona.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Apr. 4.....	151 6	Apr. 4.....	62 6
July 9.....	153	July 9.....	62 7
Oct. 12.....	155 3	Oct. 12 (clogged).....
1910.			
Feb. 1 (pumping).....		
Aug. 9.....	149 4		
1911.			
Jan. 3.....	154 8		
1912.			
May 25.....	147		
July 27.....	150 8		
Oct. 21.....	155 10		
55. Ontario Water Co., 1 mile north of Claremont.		61. Wm. J. Huebsch (formerly owned by Mrs. Tieg), 1½ miles southeast of Pomona.	
1909.		1909.	
Apr. 4.....	52 5	Apr. 4 (not accessible).....
July 9.....	33	July 9 (pumping).....
Oct. 12.....	36 1	Oct. 12 (pumping).....
1910.		1910.	
Feb. 1.....	36 9	Feb. 1.....	88 10
Aug. 9 (pumping).....	Aug. 8.....	94 ½
1911.		1911.	
Jan. 3.....	47 8	Jan. 3.....	89 6
1912.		1912.	
May 24 (company's record).....	54 10	May 31.....	92 1
July 8 (not pumping).....	61	July 27 (pump running hard).....	125
Oct. 3 (not pumping).....	64		
56. R. Bieley, Claremont.		62. R. Riemers, 2½ miles southeast of Pomona.	
1909.		1909.	
Apr. 4.....	28 1	Apr. 4.....	35 1
July 9.....	34	July 9.....	37 3
Oct. 12.....	31	Oct. 12.....	37 4
1910.		1910.	
Feb. 1.....	23 7	Feb. 1.....	33 8
Aug. 8.....	27 8	Aug. 8.....	37 ½
1911.		1911.	
Jan. 3.....	26 11	Jan. 3.....	36 4
1912.		1912.	
May 25.....	31 11	May 31.....	34 11
July 27 (no pumping near).....	31 8	July 27.....	37 2
Oct. 21.....	32 10	Oct. 21.....	39 4
57. San Antonio Water Co., one-half mile southwest of Claremont.		63. C. P. Brown, 2½ miles southeast of Pomona.	
Well filled and measurements there- fore discontinued.....	1909.	
		Apr. 4.....	2 6
		July 9.....	17 6
		Oct. 12.....	7 6
		1910.	
		Feb. 1.....	2 4
		Aug. 8.....	15 4
		1911.	
		Jan. 3.....	3 7
		1912.	
		May 31 (pump going near by).....	9 4
		July 27.....	19 10
		Oct. 21.....	9 1
58. Dr. A. R. Reed, 1½ miles northeast of Pomona.		69. Riverside County, 2½ miles south of Alessandro.	
1909.		1909.	
Apr. 4.....	10 9	Apr. 3.....	51 11
July 9.....	13 1	July 12.....	52 2
Oct. 12.....	17	Oct. 15.....	52 6
1910.		1910.	
Feb. 1 (flowing).....	10 9	Feb. 4.....	51 7
Aug. 8.....	13 9	Aug. 11.....	51 8
1911.		1911.	
Jan. 3.....	16 5	Jan. 6.....	51 1
1912.		1912.	
May 31 (flowing).....	10 8	May 28 (pumping slowly).....	54 7
July 27 (quiet).....	17 8	July 27.....	52 5
Oct. 21 (quiet).....	20 10	Oct. 18.....	51 1

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
70. Well 4 miles northeast of Perris.		74. E. E. Waters, Ethanac.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Apr. 3.....	31 10	Apr. 3.....	48 4
July 12.....	32 3	July 11.....	53 5
Oct. 15.....	32 7	Oct. 14.....	55 2
1910.		1910.	
Feb. 4.....	31 4	Feb. 3.....	50 7
Aug. 11.....	33 ½	Aug. 10 (not accessible).....	
1911.		1911.	
Jan. 6.....	34 ¾	Jan. 5 (not accessible).....	
1912.			
May 28.....	37 2		
July 29.....	37 1		
Oct. 18.....	38 11		
71. C. Lossman, 2½ miles north of Perris.		75. Temescal Water Co., 1½ miles west of Ethanac.	
1909.		1909.	
Apr. 3 (pumping).....		Apr. 2.....	33 9
July 12.....	67 7	July 11.....	35 1
Oct. 15.....	69 6	Oct. 14.....	36 3
1910.		1910.	
Feb. 4.....	69 10	Feb. 3.....	35 4
Aug. 11.....	72 11	Aug. 10.....	39
1911.		1911.	
Jan. 6.....	74 8	Jan. 5.....	41 8
1912.		1912.	
May 28 (dry).....	76 0	May 29.....	47 2
July 29 (dry).....	76 0	July 30.....	48 0
Oct. 18 (dry).....	76 0	Oct. 18.....	49 11
72. Crawford Carter, Perris.		76. Dr. Reese, 2½ miles south of Perris.	
1909.		1909.	
Apr. 2.....	37 3	Apr. 2.....	17 11
July 11.....	38 4	July 11.....	18 6
Oct. 14.....	39 6	Oct. 14.....	18 7
1910.		1910.	
Feb. 3.....	39 5	Feb. 3.....	18 3
Aug. 10.....	41 5	Aug. 10.....	19 6
1911.		1911.	
Jan. 5.....	42 1	Jan. 5.....	20 9
1912.		1912.	
May 28.....	45 6	May 29 (pumping slowly).....	27 8
July 29.....	47 2	July 30.....	25 1
Oct. 18 (mill had been pumping slowly for 3 hours).....	38 11	Oct. 18.....	26 4
73. Mrs. L. R. Harford, 3½ miles east of Perris.		77. William Newport, 4½ miles south of Perris.	
1909.		1909.	
Apr. 2.....	44 7	Apr. 2.....	43
July 11.....	43 11	July 11.....	42 7
Oct. 14.....	46 11	Oct. 14.....	43 7
1910.		1910.	
Feb. 3.....	46 6	Feb. 3.....	43 10
Aug. 10.....	45 11	Aug. 10.....	45 5
1911.		1911.	
Jan. 5.....	49 1	Jan. 5.....	49 1
		1912.	
		May 29.....	53 2
		July 30.....	56 1
		Oct. 18.....	57 8

Variations of water level in wells in southern California—Continued.

Date of measurement.	Depth to water.	Date of measurement.	Depth to water.
78. William Newport, Menifee Valley.		82. J. E. Garrigan, 1 mile west of Hemet.	
1909.	<i>Ft. in.</i>	1909.	<i>Ft. in.</i>
Apr. 2.....	21 6	Apr. 2.....	31 7
July 11.....	22 5	July 11.....	31 6
Oct. 14.....	23 4	Oct. 14.....	31 4
1910.		1910.	
Feb. 3.....	22	Feb. 3.....	31 2
Aug. 10.....	22 11	Aug. 11.....	31 1
1911.		1911.	
Jan. 5.....	23 8	Jan. 5.....	30 10
1912.			
May 29.....	25 2		
July 30.....	26 8		
Oct. 18.....	31 9		
79. H. H. Lindenger, 4 miles southwest of Winchester.		83. H. R. Kumlér (formerly owned by Mrs. Ruby Hewitt), one-half mile east of Bowers.	
1909.		1909.	
Apr. 2.....	16 4	Apr. 3.....	Flowing.
July 11.....	20 2		
Oct. 14.....	18 4		
1910.			
Feb. 3.....	17 9		
Aug. 10 (pumping).....			
1911.			
Jan. 5.....	19 3		
1912.			
May 29.....	20 9		
July 30.....	21 4		
Oct. 18.....	21 9		
80. M. M. Patterson, Winchester.		84. C. A. Holmes (formerly owned by J. Carmichael), Bowers.	
1909.		Date of measurement.	Condition of water.
Apr. 2.....	19 9	1909.	
July 11 (pumping).....		Apr. 3.....	Flowing.
Oct. 14.....	19 10	July 11.....	Flowing about 1 miner's inch.
1910.		Oct. 14.....	Flowing as usual.
Feb. 3.....	19 6	1910.	
Aug. 10.....	19 10	Feb. 3.....	Flowing.
1911.		Aug. 11.....	Not flowing.
Jan. 5.....	19 9	1911.	
1912.		Jan. 5.....	Do.
May 29.....	20 8		
Oct. 18.....	21 4		
81. Mrs. Maud F. Walker, 3 miles southwest of Hemet.		85. E. D. McDonough (formerly owned by K. D. Harger), Lakeview.	
1909.		Date of measurement.	Depth to water.
Apr. 2.....	9 7	1909.	<i>Ft. in.</i>
July 11 (pumping).....		Apr. 3.....	28 8
Oct. 14 (pumping).....		July 12.....	28 8
1910.		Oct. 15.....	28 10
Feb. 3.....	9 4	1910.	
Aug. 10.....	10 3	Feb. 4.....	28 7
1911.		Aug. 11.....	28 7
Jan. 5.....	38 1	1911.	
		Jan. 6.....	28 8

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