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

WATER-SUPPLY PAPER 321

SURFACE WATER SUPPLY OF THE UNITED STATES

1912

PART I. NORTH ATLANTIC COAST BASINS

BY

C. C. BABB, C. C. COVERT, AND
J. G. MATHERS

WASHINGTON
GOVERNMENT PRINTING OFFICE
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SURFACE WATER SUPPLY OF THE NORTH ATLANTIC COAST BASINS, 1912.

By C. C. BABB, C. C. COVERT, and J. G. MATHERS.

AUTHORIZATION AND SCOPE OF WORK.

This volume is one of a series of twelve reports presenting results of measurements of flow made on streams in the United States during the calendar year 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 16.

Measurements of stream flow have been made at about 2,000 points in the United States, and also at many points in small areas in

Seward Peninsula and the Yukon-Tanana region, Alaska, and in the Hawaiian Islands. During 1912, gaging stations were maintained by the Survey and the cooperating organizations at about 1,500 points, and many discharge measurements were made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in the regular water supply papers from time to time.

PUBLICATIONS.

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 basins.
II	322	South Atlantic coast and eastern Gulf of Mexico basins.
III	323	Ohio River basin.
IV	324	St. Lawrence River basin.
V	325	Upper Mississippi River and Hudson Bay basins.
VI	326	Missouri River basin.
VII	327	Lower Mississippi River basin.
VIII	328	Western Gulf of Mexico basins.
IX	329	Colorado River basin.
X	330	Great Basin.
XI	331	Pacific coast basins in California.
XII	332	North Pacific coast basins.

[a] For the purpose of uniformity in the presentation of reports, a general plan has been agreed upon by the United States Reclamation Service, the United States Forest Service, the United States Weather Bureau, and the United States Geological Survey, according to which the area of the United States has been divided into twelve 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 1912. The data for any particular station will be found in the reports covering the years during which the station was maintained.

For example, data for any station in the area covered by Part I are published in Water-Supply Papers 97, 124, 165, 201, 241, 261, 281, 301, and 321, which contain records for the New England streams from 1903 to 1912. The year covered by the report is indicated at the head of the column in which the paper is listed.

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

	1899 [a]	1900 [b]	1901	1902	1903	1904
North Atlantic coast (St. John River to York River)	35	47, [c] 48	65, 75	82	97	[d] 124, [e] 125, [f] 126
South Atlantic coast and eastern Gulf of Mexico (James River to the Mississippi)	[g] 35, 36	48	65, 75	[g] 82, 83	[g] 97, 98	[f] 126, 127
Ohio River basin	36	48, [h] 49	65, 75	83	98	128
St. Lawrence River and Great Lakes	36	49	65, 75	[i] 82, 83	97	129
Hudson Bay and upper Mississippi River	36	49	[j] 65, 66, 75	[j] 83, 85	[j] 98, 99, 100	[j] 128, 130
Missouri River	[k] 36, 37	49, [l] 50	66, 75	84	99	130, [m] 131
Lower Mississippi River	37	50	[j] 65, 66, 75	[j] 83, 84	[j] 98, 99	[j] 128, 131
Western Gulf of Mexico	37	50	66, 75	84	99	132
Colorado River	[n] 37, 38	50	66, 75	85	100	133
Great Basin	38, [p] 39	51	66, 75	85	100	133, [q] 134
Pacific coast in California	38, [r] 39	51	66, 75	85	100	134
North Pacific coast	38	51	66, 75	85	100	135

	1905	1906	1907–8	1909	1910	1911	1912
North Atlantic coast (St. John River to York River)	[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)	[f] 167, 168	[f] 203, 204	242	262	282	302	322
Ohio River basin	169	205	243	263	283	303	323
St. Lawrence River and Great Lakes	170	206	244	264	284	304	324
Hudson Bay and upper Mississippi River	171	207	245	265	285	305	325
Missouri River	172	208	246	266	286	306	326
Lower Mississippi River	[j] 169, 173	[j] 205, 209	247	267	287	307	327
Western Gulf of Mexico	174	210	248	268	288	308	328
Colorado River	175, [o] 177	211	249	269	289	309	329
Great Basin	176, [q] 177	212, [q] 213	250, [q] 251	270, [q] 271	290	310	330
Pacific coast in California	177	213	251	271	291	311	331
North Pacific coast	[s] 177, 178	214	252	272	292	312	332

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Estimates for 1899 in Twenty-first Ann. Rept., pt. 4.
[b] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Estimates for 1900 in 22d An. Rept., Pt. IV.
[c] Wissahickon and Schuylkill Rivers to James River.
[d] New England rivers only.
[e] Hudson River to Delaware River, inclusive.
[f] Susquehanna River to Yadkin River, inclusive.
[g] James River only.
[h] Scioto River.
[i] Lake Ontario and tributaries to St. Lawrence River proper.
[j] Tributaries of Mississippi from east.
[k] Gallatin River.
[l] Loup and Platte rivers near Columbus, Nebr., and all tributaries below junction with Platte.
[m] Platte and Kansas rivers.
[n] Green and Gunnison rivers and Grand River above junction with Gunnison.
[o] Below junction with Gila.
[p] Mohave River only.
[q] Great Basin in California, excepting Truckee and Carson drainage basins.
[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.
Newport, Ky., Federal Building.
St. Paul, Minn., Old Capitol Building.
Helena, Mont., Montana National Bank Building.
Denver, Colo., 302 Chamber of Commerce Building.
Salt Lake City, Utah, Brooks Arcade.
Boise, Idaho, 615 Idaho Building.
Tacoma, Wash., Federal Building.
Portland, Oreg., 416 Couch Building.
San Francisco, Cal., 505 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 one day by the number of days.

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

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

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

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

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

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

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

1 second-foot for one year covers 1 square mile 1.131 feet or 13.572 inches deep.

1 second-foot for one year equals 31,536,000 cubic feet.

1 second-foot equals about 1 acre-inch per hour.

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

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

EXPLANATION OF DATA.

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 discharge and run-off. For stations located at weirs or dams the gage-height table is omitted.

In addition to statements regarding the location and installation of current-meter stations the descriptions give information in regard to any conditions which may affect the constancy of the relation of gage height to discharge, covering such points as ice, logging, shifting channels, and backwater; also information regarding diversions which

decrease the total flow at the measuring section. Statements are also made regarding the accuracy and reliability of the data.

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

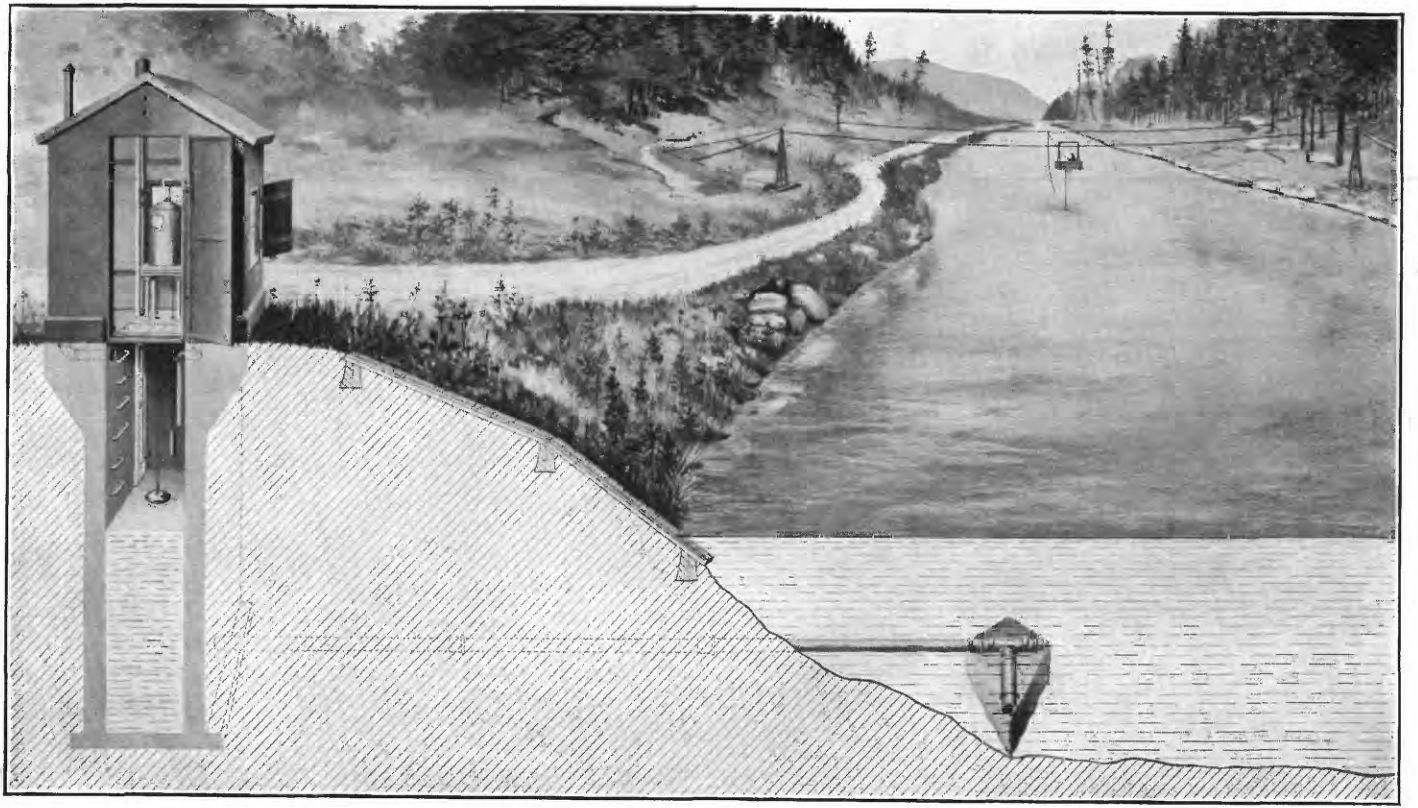
The discharge measurements and gage heights are the base data from which rating tables, daily discharge tables, and monthly discharge tables are computed.

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 height in feet as ordinates and discharge in second-feet as abscissas.

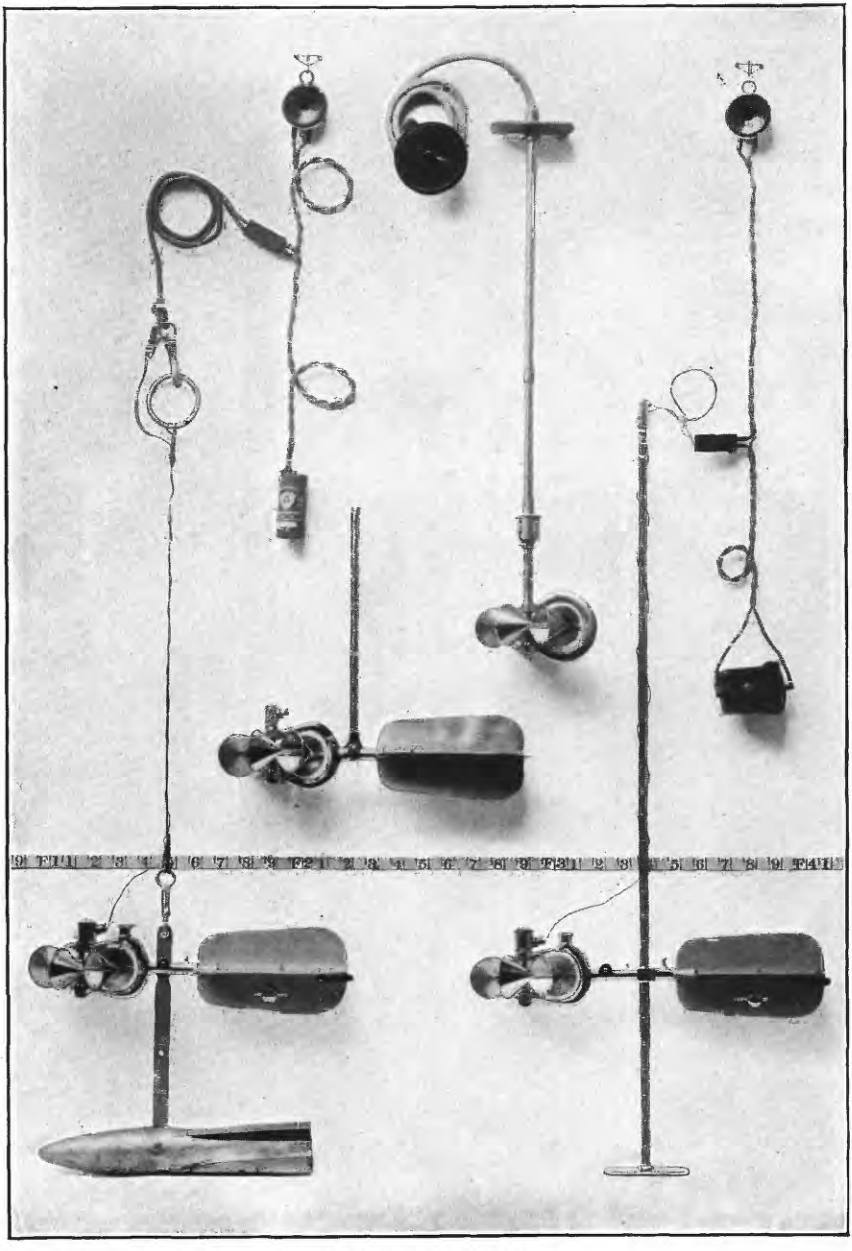
The table of daily discharge gives the discharge in second feet corresponding to the observed gage heights as determined from the rating tables.

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

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



TYPICAL GAGING STATIONS.



PRICE CURRENT METERS.

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 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 also to afford any engineer the means of examining and adjusting to his own needs the results of the computations. The table of monthly discharge is so arranged as to give only a general idea of the flow at the station and should not be used for other than preliminary estimates.

The determinations of daily discharge allow more detailed studies of the variation in flow by which the period of deficiency may be determined.

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

COOPERATION.

All gaging stations in Maine were maintained in cooperation with the Maine State Water Storage Commission, William T. Haines, Governor, chairman, and Cyrus C. Babb, chief engineer.

Hydrometric work in Vermont and Massachusetts has been carried on under a cooperative agreement between the governors of the States and the Director of the United States Geological Survey.

In New York hydrometric work is carried on in cooperation with the State Conservation Commission and also with the State engineer and surveyor.

DIVISION OF WORK.

The field data for Maine were collected by Cyrus C. Babb, chief engineer, Maine State Water Storage Commission, assisted by F. E. Pressey, assistant engineer; the ratings and special studies were made by C. C. Babb, assisted by F. E. Pressey and by H. J. Jackson, assistant engineer. Data were prepared for publication and the estimates of flow during the period when the relation of gage height to discharge was affected by ice were made by H. J. Jackson. The computations were made under the direction of H. J. Jackson by C. L. Batchelder, G. A. Wallace, and M. I. Walters.

The field data for New York and New England, outside of Maine, were collected under the direction of C. C. Covert, district engineer, by G. K. Larrison, O. W. Hartwell, C. S. DeGolyer, G. H. Canfield, Frank Weber, J. G. Mathers, and R. S. Barnes. The ratings and studies of completed data were made by O. W. Hartwell, C. H. Pierce, and J. G. Mathers. The computations and ice estimates were made under the direction of O. W. Hartwell by C. H. Pierce, J. G. Mathers, R. S. Barnes, and W. S. Easterly.

The field data for the Middle Atlantic States were collected under the direction of R. H. Bolster by J. G. Mathers.

The complete manuscript was edited by Mrs. B. D. Wood.

STATION RECORDS.

ST. JOHN RIVER BASIN.

ST. JOHN RIVER AT FORT KENT, MAINE.

Location.—At the suspension footbridge in the town of Fort Kent, a short distance above the mouth of Fish River and about 15 miles below the mouth of St. Francis River.

Records available.—October 13, 1905, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—4,880 square miles.

Gage.—Inclined staff, 22 feet long, in two sections, attached to the new concrete pier nearest the New Brunswick shore of the river. The lower part of the gage is placed in a groove in the side of the pier; the upper part is fastened to the downstream end of the same pier. The gage datum has remained unchanged during the maintenance of the station.

Channel.—Practically permanent; both banks high, rocky, cleared, and not subject to overflow except in extreme freshets.

Discharge measurements.—Made from footbridge. None made during 1912.

Winter flow.—Affected by ice.

Artificial control.—A few dams on the upper headwaters are used for log driving; the operation of these dams only slightly affects the flow past the gage. No corrections applied in 1912 data.

Accuracy.—Relation between gage height and discharge is occasionally affected by backwater caused by logs jamming on the bridge piers and, during the winter, by ice; otherwise the conditions for accurate determination of discharge are fair. A fairly good discharge rating curve has been developed.

Daily gage height, in feet, of St. John River at Fort Kent, Maine, for 1912.

[A. V. Currie, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	5.1	13.9	16.05	4.95	3.55	4.7	4.3	8.0	5.6
2	.....	.....	.....	.....	13.5	16.0	4.8	3.9	4.6	4.7	7.85	5.45
3	.....	.....	.....	.....	13.35	13.75	4.65	4.15	4.55	5.15	7.5	5.35
4	.....	.....	.....	.....	13.55	12.4	4.55	4.2	4.35	5.35	7.25	5.3
5	.....	.....	5.2	.....	13.85	11.4	4.5	4.1	4.2	5.4	7.0	5.3
6	.....	5.6	.....	.....	13.95	10.7	4.4	4.05	4.1	5.4	6.9	5.2
7	.....	.....	.....	.....	14.15	10.2	4.25	3.95	4.05	5.3	6.95	5.2
8	5.9	.....	.....	.....	13.85	9.9	4.1	3.85	4.0	5.25	8.5	5.2
9	.....	.....	.....	6.2	14.4	9.6	4.0	3.9	3.9	5.15	12.5	5.15
10	.....	.....	.....	.....	14.55	9.15	3.85	5.25	3.9	5.05	12.35	5.1
11	.....	.....	.....	.....	14.5	8.65	3.75	9.25	3.8	4.95	10.85	5.1
12	.....	.....	5.3	.....	13.5	8.4	3.7	12.15	3.8	4.85	9.35	5.05
13	.....	5.4	.....	.....	14.15	9.0	3.65	12.25	3.8	4.75	9.0	5.0
14	.....	.....	.....	.....	14.8	10.55	3.6	10.8	3.8	4.7	8.9	5.0
.....	.....	.....	.....	.....	14.05	10.65	3.55	9.45	3.7	4.7	8.5	5.0
.....	6.2	.....	.....	6.4	12.85	.....	3.5	8.35	3.7	4.6	7.95	5.0
.....	.....	.....	.....	7.0	11.95	10.25	3.5	7.35	3.7	4.7	7.55	5.0
.....	.....	.....	.....	8.2	12.35	10.05	3.5	6.8	3.7	4.65	7.2	5.05
.....	.....	.....	5.2	8.45	13.0	9.5	3.5	6.3	3.7	4.6	6.9	5.2
.....	.....	5.3	.....	8.3	12.45	8.9	3.6	5.9	3.7	4.55	6.85	5.25
1	.....	.....	.....	8.85	11.9	8.35	3.6	5.5	3.7	4.45	6.6	5.3
22	.....	.....	.....	9.7	11.0	7.6	3.5	5.2	.....	4.4	6.35	5.3
23	6.0	.....	.....	10.25	10.2	7.3	3.4	5.3	5.8	4.3	6.3	5.2
24	.....	.....	.....	11.3	10.0	6.9	3.3	5.2	5.65	4.5	6.2	5.15
25	.....	.....	.....	13.2	10.8	6.5	3.35	5.1	5.3	5.2	6.15	5.15
26	.....	.....	5.1	13.75	.....	6.2	3.45	5.3	5.0	7.45	6.1	5.35
27	.....	5.2	.....	16.55	11.3	5.95	3.55	6.05	4.85	10.05	6.05	5.4
28	.....	.....	.....	16.3	9.9	5.7	3.55	5.85	4.65	10.2	5.9	5.4
29	.....	.....	.....	14.75	9.95	5.45	3.4	5.35	4.45	9.65	5.85	5.3
30	5.8	.....	.....	14.15	12.5	.....	3.5	5.05	4.35	8.55	5.75	5.3
31	.....	.....	.....	.....	14.6	.....	3.5	4.85	.....	8.0	.....	5.2

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 19; average thickness of ice, 0.4 to 2.3 feet.

Daily discharge, in second-feet, of St. John River at Fort Kent, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	46,100	59,400	4,760	1,740	4,110	3,140	15,800	6,690
2	.....	43,700	59,100	4,370	2,320	3,860	4,110	15,200	6,220
3	.....	42,800	45,200	3,980	2,820	3,740	5,320	13,700	5,920
4	.....	44,000	37,400	3,740	2,920	3,260	5,920	12,700	5,770
5	.....	45,800	32,000	3,610	2,710	2,920	6,070	11,700	5,770
6	.....	46,400	28,400	3,370	2,610	2,710	6,070	11,300	5,470
7	.....	47,600	25,900	3,030	2,420	2,610	5,770	11,500	5,470
8	.....	45,800	24,400	2,710	2,230	2,510	5,620	18,000	5,470
9	.....	49,100	23,000	2,510	2,320	2,320	5,320	38,000	5,320
10	.....	50,000	20,900	2,230	5,620	2,320	5,040	37,100	5,180
11	.....	49,700	18,600	2,060	21,400	2,140	4,760	29,100	5,180
12	.....	43,700	17,500	1,970	36,000	2,140	4,500	21,800	5,040
13	.....	47,600	20,200	1,890	36,600	2,140	4,240	20,200	4,900
14	.....	51,600	27,600	1,810	28,900	2,140	4,110	19,800	4,900
15	.....	47,000	28,100	1,740	22,300	1,970	4,110	18,000	4,900
16	.....	39,900	27,100	1,660	17,300	1,970	3,860	15,600	4,900
17	.....	34,900	26,100	1,660	13,100	1,970	4,110	13,900	4,900
18	.....	37,100	25,100	1,660	10,900	1,970	3,980	12,500	5,040
19	.....	40,800	22,500	1,660	9,040	1,970	3,860	11,300	5,470
20	17,100	37,700	19,800	1,810	7,660	1,970	3,740	11,100	5,620
21	19,500	34,700	17,300	1,810	6,380	1,970	3,490	10,100	5,770
22	23,500	29,900	14,100	1,660	5,470	2,500	3,370	9,220	5,770
23	26,100	25,900	12,900	1,520	5,770	7,330	3,140	9,040	5,470
24	31,500	24,900	11,300	1,390	5,470	6,850	3,610	8,690	5,320
25	42,000	28,900	9,770	1,460	5,180	5,770	5,470	8,520	5,320
26	45,200	33,000	8,690	1,590	5,770	4,900	13,500	8,340	5,920
27	62,700	31,500	7,830	1,740	8,170	4,500	25,100	8,170	6,070
28	61,000	24,400	7,010	1,740	7,500	3,980	25,900	7,660	6,070
29	51,300	24,700	6,220	1,520	5,920	3,490	23,200	7,500	5,770
30	47,600	38,000	5,490	1,660	5,040	3,260	18,200	7,170	5,770
31	.....	50,300	.....	1,660	4,500	.....	15,800	.....	5,470

NOTE.—Daily discharge computed from a fairly well defined rating curve. Discharge Jan. 1 to Apr. 19 estimated, because of ice, from weekly gage heights, observer's notes, climatologic records, and discharge of other drainage areas. It should be noted that these estimates are only approximate and may be 50 per cent or more in error. Estimated mean discharge January, 1,400 second-feet; February, 900 second-feet; March, 1,600 second-feet; Apr. 1 to 19, 3,500 second-feet. Daily discharge May 26 and Sept. 22 estimated by comparison with flow at Van Buren. Daily discharge June 16 and 30 interpolated.

Monthly discharge of St. John River at Fort Kent, Maine, for 1912.

[Drainage area, 4,880 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	1,400	0.287	0.33	
February	.....	.....	900	.184	.20	
March	.....	.....	1,600	.328	.38	
April	62,700	.....	16,500	3.38	3.77	D.
May	51,600	24,400	39,900	8.18	9.43	B.
June	59,400	5,490	23,000	4.71	5.26	B.
July	4,760	1,390	2,260	.463	.53	A.
August	36,600	1,740	9,550	1.96	2.26	B.
September	7,330	1,970	3,180	.652	.73	A.
October	25,900	3,140	7,560	1.55	1.79	A.
November	38,000	7,170	14,800	3.03	3.38	A.
December	6,690	4,900	5,520	1.13	1.30	B.
The year	62,700	.....	10,500	2.15	29.36	

NOTE.—See footnotes to table of daily discharge.

ST. JOHN RIVER AT VAN BUREN, MAINE.

Location.—At new International Bridge at Van Buren, Maine, about 14 miles above Grand Falls, New Brunswick.

Records available.—May 4, 1908, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—8,270 square miles.

Gage.—Painted vertically on second pier from Van Buren side of bridge; zero of gage is 407.69 feet above sea level; daily gage heights for 1910 and 1911 were read on a vertical rod attached to the pier of the sawdust carrier of Hammonds mill, about 700 feet below the International Bridge, but as published they are reduced to the bridge datum. Daily gage heights for 1912 were read on the gage at the International Bridge and no reduction was necessary.

Discharge measurements.—Made from the International Bridge. None made during 1912.

Winter flow.—Affected by ice.

Artificial control.—The little storage above for log driving probably does not affect the discharge.

Accuracy.—Relation between gage heights and discharge is probably not materially affected by the control of the stream for log driving; for the winter months an ice rating curve has been developed. A good open-channel discharge rating curve has also been constructed.

Cooperation.—Station established by the International Commission, River St. John, but maintained since May 6, 1912, by the Maine State Water Storage Commission.

Daily gage height, in feet, of St. John River at Van Buren, Maine, for 1912.

[W. H. Scott, observer.]

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	22.9	6.6	3.05	4.45	3.2	9.75	6.8
2	.....	23.3	6.25	3.75	4.25	3.15	9.5	6.8
3	.....	21.5	5.95	3.95	3.95	3.3	9.1	7.0
4	.....	19.55	5.65	3.65	3.75	3.25	8.95	8.4
5	.....	17.85	5.35	3.5	3.65	3.4	8.5	9.75
6	18.8	16.55	5.15	3.2	3.45	4.5	7.95	11.0
7	19.35	15.55	4.85	3.0	3.4	4.4	7.75	11.55
8	19.6	14.9	4.65	2.95	3.25	4.25	10.35	11.2
9	20.15	14.3	4.45	2.85	3.1	3.95	14.95	10.25
10	21.35	13.55	4.25	3.5	3.0	3.75	16.6	9.45
11	21.6	12.85	3.95	6.15	3.1	3.55	14.65	9.95
12	20.9	12.45	3.75	13.45	3.2	3.4	13.2	10.25
13	21.0	12.45	3.5	15.6	3.1	3.3	12.2	9.8
14	22.2	14.25	3.45	14.4	3.0	3.3	11.2	8.4
15	22.75	14.8	3.65	12.5	3.0	3.4	10.65	7.6
16	21.3	14.05	3.45	10.65	3.0	3.3	10.0	8.1
17	19.55	13.65	3.3	9.25	2.95	3.35	9.35	8.45
18	19.3	13.95	3.2	8.05	2.9	3.45	9.05	8.05
19	19.9	13.9	3.05	7.3	2.8	3.35	8.75	7.8
20	19.45	13.05	3.0	6.65	2.7	3.25	8.35	8.0
21	17.85	12.2	3.0	5.7	2.7	3.2	8.05	7.85
22	16.3	11.35	3.0	5.15	2.75	3.2	7.85	7.3
23	15.05	10.55	3.0	5.55	3.45	3.2	7.6	7.0
24	14.4	9.8	2.9	5.4	4.9	3.35	7.55	7.05
25	15.4	9.1	2.8	5.4	4.6	4.1	7.45	7.15
26	17.7	8.6	2.85	5.25	4.05	7.55	8.35	7.0
27	17.25	8.1	2.95	5.3	3.85	12.75	7.7	6.85
28	15.6	7.6	2.85	5.4	3.6	13.95	7.1	6.65
29	14.8	7.15	2.75	5.4	3.45	12.65	6.75	6.35
30	17.45	6.9	2.65	5.1	3.2	11.45	6.8	6.0
31	20.5	.....	2.85	4.85	.....	10.5	.....	6.0

NOTE.—Gage heights are referred to datum of gage on International Bridge. To reduce readings to elevation above sea level add 407.7 feet. May 6–14, logs running. Dec. 8, observer notes: "River froze up solid last night." Relation of gage height to discharge probably affected by ice about Dec. 4–14.

Daily discharge in second-feet of St. John River at Van Buren, Maine, for 1912.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	100,000	14,900	5,680	9,100	6,030	25,400	15,500
2	.....	103,000	13,900	7,350	8,600	5,920	24,500	15,500
3	.....	89,900	13,100	7,840	7,840	6,260	23,060	16,100
4	.....	76,400	12,200	7,110	7,350	6,150	22,500	.....
5	.....	65,600	11,400	6,740	7,110	6,500	20,900	.....
6	71,600	57,900	10,900	6,030	6,620	9,230	19,100	.....
7	75,100	52,300	10,100	5,570	6,500	8,980	18,400	.....
8	76,800	48,800	9,610	5,460	6,150	8,600	27,700	.....
9	80,500	45,700	9,100	5,230	5,800	7,840	49,100	.....
10	88,900	42,000	8,600	6,740	5,570	7,350	58,200	.....
11	90,700	38,600	7,840	13,600	5,800	6,860	47,500	.....
12	85,700	36,700	7,350	41,500	6,030	6,500	40,300	.....
13	86,400	36,700	6,740	52,600	5,800	6,260	35,500	.....
14	95,100	45,400	6,620	46,200	5,570	6,260	31,200	.....
15	99,200	48,300	7,110	36,900	5,570	6,500	28,900	17,900
16	88,500	44,400	6,620	28,900	5,570	6,260	26,400	19,600
17	76,400	42,500	6,260	23,600	5,460	6,380	23,900	20,800
18	74,800	44,000	6,030	19,400	5,340	6,620	22,800	19,400
19	78,800	43,700	5,680	17,000	5,120	6,380	21,800	18,600
20	75,800	39,500	5,570	15,000	4,900	6,150	20,400	19,200
21	65,600	35,500	5,570	12,400	4,900	6,030	19,400	18,700
22	56,500	31,800	5,570	10,900	5,010	6,030	18,700	17,000
23	49,600	28,500	5,570	12,000	6,620	6,030	17,900	16,100
24	46,200	25,600	5,340	11,600	10,300	6,380	17,800	16,200
25	51,500	23,000	5,120	11,600	9,480	8,220	17,400	16,500
26	64,700	21,300	5,230	11,200	8,100	17,800	20,400	16,100
27	62,000	19,600	5,460	11,300	7,600	38,100	18,200	15,600
28	52,600	17,900	5,230	11,600	6,980	44,000	16,400	15,000
29	48,300	16,500	5,010	11,600	6,620	37,600	15,300	14,200
30	63,200	15,800	4,780	10,800	6,030	32,200	15,500	13,200
31	82,900	.....	5,230	10,100	.....	28,300	.....	13,200

NOTE.—Daily discharge computed from a rating curve well defined below 73,000 second-feet. Discharge Dec. 4–14 estimated, because of ice, from observer's notes and comparison with discharge at Fort Kent. Mean discharge Dec. 4–14 estimated 21,000 second-feet, varying from about 19,000 to 25,000 second-feet.

Monthly discharge of St. John River at Van Buren, Maine, for 1912.

[Drainage area, 8,270 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
May 6–31	99,200	46,200	72,600	8.78	8.49	B.
June	103,000	15,800	44,600	5.39	6.01	A.
July	14,900	4,780	7,670	.927	1.07	A.
August	52,600	5,230	15,600	1.89	2.18	A.
September	10,300	4,900	6,580	.796	.89	A.
October	44,000	5,920	11,900	1.44	1.66	A.
November	58,200	15,300	25,500	3.08	3.44	A.
December	(a)	13,200	18,200	2.20	2.54	C.

a See footnote to table of daily discharge.

ST. CROIX RIVER BASIN.

WEST BRANCH OF ST. CROIX RIVER NEAR BAILEYVILLE, MAINE.

Location.—At highway bridge 1 mile from Baileyville railroad station, about 4 miles below Princeton, and about half a mile above the mouth of Tomah Stream.

Records available.—May 10, 1910, to October 24, 1912, when station was discontinued. The dam under construction at Grand Falls, 3 miles below, will flood this station out—probably early in the spring of 1913.

Drainage area.—509 square miles.

Gage.—Standard chain, attached to the floor of the bridge on the easterly span.

Channel.—Practically permanent; broken by four piers of the bridge; during extreme high stages water is liable to flow around abutments of the bridge.

Discharge measurements.—Made from downstream side of bridge.

Winter flow.—River generally does not freeze completely over.

Artificial control.—The lake system on West Branch is extensive and is largely under artificial regulation. The dams are operated both for log driving and storage powers below.

Accuracy.—Relation between gage height and discharge probably somewhat affected by ice during the winter and to some extent also by backwater from log jams. Results of discharge measurements are too discordant to warrant publishing estimates of discharge based thereon. Discordant results may be due to effect of log jams, but there are no data available upon which to base an interpretation of the results.

Discharge measurements of West Branch of St. Croix River near Baileyville, Maine, in 1912.

[Hydrographer, F. E. Pressey.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-feet.*		*Feet.*	*Sec.-feet.*
March 20	[a] 5.98	473	May 7	5.29	1,000
April 24	9.00	3,270	May 8	5.14	974
April 25	8.92	2,950	May 10	5.31	890
April 26	8.60	3,080			

[a] Ice jam below station.

Daily gage height, in feet, of West Branch of St. Croix River near Baileyville, Maine, for 1912.

[Mrs. W. M. Woodard, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.	Oct.
1	5.50	4.85	4.70	5.30	5.82	8.05	5.45	4.75	4.55	5.1
2	5.30	5.00	4.70	5.40	5.70	8.30	5.42	4.85	4.40	5.7
3	5.15	4.95	4.65	5.60	5.50	8.20	5.40	5.05	4.45	6.2
4	5.70	4.95	4.68	5.55	5.50	7.85	4.90	4.95	4.48	5.5
5	5.95	4.95	4.65	5.50	5.50	7.38	4.80	5.22	4.45	5.0
6	5.75	4.90	4.72	5.65	5.50	6.95	4.85	5.10	4.50	4.95
7	5.60	4.80	4.70	5.75	5.38	6.80	4.90	4.70	4.50	5.55
8	5.55	4.60	4.75	5.90	5.15	6.15	4.80	4.65	4.50	5.4
9	5.40	4.62	4.72	5.88	5.12	6.12	4.68	4.65	4.40	5.95
10	5.65	4.75	4.70	5.50	5.32	6.05	4.50	4.78	4.35	6.0
11	5.85	4.72	4.58	5.60	5.42	5.85	4.40	4.75	4.35	6.0
12	6.15	4.62	4.62	5.60	5.42	5.50	4.45	4.60	4.30	5.4
13	6.15	4.62	4.80	5.48	5.45	5.60	4.50	4.52	4.40	4.35
14	5.12	4.52	4.90	5.55	5.42	5.62	4.52	4.62	4.50	5.25
15	5.15	4.60	4.60	5.45	5.35	5.60	4.95	4.70	4.45	5.5
16	5.22	4.50	4.80	6.10	5.42	5.50	5.20	4.60	4.55	5.6
17	5.20	4.50	5.60	6.35	5.42	5.50	5.05	5.90	4.45	5.1
18	5.10	4.30	5.80	6.88	5.48	5.52	5.10	5.85	4.30	4.95
19	5.08	4.30	5.80	7.75	5.45	5.38	5.20	5.45	4.42	4.55
20	5.00	4.80	6.00	8.75	5.40	5.45	4.60	5.45	4.52	4.55
21	4.80	4.70	6.02	8.95	5.30	5.60	4.45	5.15	4.50	5.45
22	4.80	4.75	5.80	8.75	5.12	5.55	4.60	5.22	4.45	5.0
23	5.05	4.75	5.85	8.70	5.10	4.95	4.80	5.15	4.58	4.5
24	5.00	5.30	5.52	9.05	5.30	5.52	4.70	5.15	4.55	4.6
25	4.95	4.60	5.20	9.05	5.22	5.55	4.75	5.05	4.60	.....
26	4.80	4.75	5.05	8.62	5.28	5.52	4.70	4.70	4.60	.....
27	4.90	4.80	6.28	8.30	5.15	5.40	4.75	4.80	4.60	.....
28	4.70	4.90	5.45	7.50	5.30	4.90	4.75	4.65	4.58	.....
29	5.08	4.85	5.30	6.98	5.20	4.90	4.58	4.68	4.55	.....
30	5.00	.....	5.40	6.25	6.05	4.70	4.50	4.62	4.62	.....
31	4.95	.....	5.20	.....	7.10	.....	4.80	4.60	.....	.....

NOTE.—Relation of gage height to discharge probably affected by ice Jan. 1 to about Apr. 15.

MACHIAS RIVER BASIN.

MACHIAS RIVER AT WHITNEYVILLE, MAINE.

Location.—Wooden highway bridge in the town of Whitneyville; 4 miles above Machias; 200 feet below a storage dam.

Records available.—October 17, 1903, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—465 square miles.

Gage.—A standard chain gage installed on the wooden highway bridge October 10, 1911. Prior to October 3, 1905, a chain gage was located on the Washington County railroad bridge. Backwater was occasionally experienced here, however, from the dam at Machias, and on October 3, 1905, a staff gage was installed on the highway bridge three-fourths mile farther up stream. The datum of the present chain gage is the same as that of the staff gage on the highway bridge.

Channel.—Practically permanent.

Discharge measurements.—Still made at the railroad bridge, as the section there is better than above. Low-water measurements may be made by wading at a point 200 feet above the railroad bridge.

Winter flow.—River does not ordinarily freeze over at the gage, although the relation of gage height to discharge is more or less affected by ice.

Log driving.—There is a certain amount of log driving every year and jams of short duration occasionally occur.

Artificial control.—The gates in the storage dam immediately above the station are opened and closed each day during low stages of the river; as a result considerable fluctuation occurs at such times.

Accuracy.—A fair rating curve has been developed except at low stages, when quantities are somewhat uncertain. The operations of the gates of the storage dam also render results somewhat uncertain.

The following discharge measurement was made by F. E. Pressey:

March 21, 1912: Gage height, 8.25 feet; discharge, 2,850 second-feet. Considerable anchor ice was running during the measurement.

Daily gage height, in feet, of Machias River at Whitneyville, Maine, for 1912.

[Ira S. Albee, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.3	4.4	4.9	6.8	6.5	10.0	3.3	3.6	3.8	3.6	5.4	4.5
2	4.2	4.4	4.8	6.5	6.4	9.4	3.3	4.0	3.8	3.7	5.6	4.6
3	4.2	4.4	4.8	6.1	6.2	9.0	3.3	4.2	3.7	3.8	5.8	4.8
4	4.1	4.35	4.7	5.8	6.0	8.7	3.3	4.3	3.65	3.9	5.7	5.6
5	4.0	4.3	4.6	5.6	6.1	8.4	3.3	4.3	3.6	4.0	5.3	5.4
6	3.9	4.3	4.5	5.4	6.2	8.0	3.2	4.1	3.6	4.0	5.0	5.3
7	3.9	4.3	4.4	5.2	6.3	7.5	3.2	3.9	3.6	4.0	4.8	5.2
8	4.0	4.25	4.4	5.15	6.4	7.0	3.2	3.8	3.6	3.9	5.3	5.0
9	4.1	4.2	4.4	5.1	6.4	6.5	3.1	3.7	3.6	3.8	7.2	4.9
10	4.3	4.2	4.4	5.1	6.0	6.3	3.1	3.7	3.6	3.7	9.1	4.8
11	4.3	4.2	4.45	5.05	5.7	6.2	3.1	3.7	3.6	3.6	7.8	4.7
12	4.3	4.2	4.5	5.0	5.8	6.1	3.1	3.7	3.6	3.5	6.6	4.5
13	4.2	4.1	4.7	4.9	5.8	6.0	3.1	3.7	3.6	3.5	6.2	4.4
14	4.2	4.0	7.0	4.9	5.8	6.0	3.1	3.8	3.6	3.4	5.9	4.3
15	4.2	3.9	7.9	5.0	5.8	5.8	3.1	3.8	3.6	3.4	5.7	4.2
16	4.2	3.8	11.0	5.1	6.0	5.6	3.5	3.8	3.6	3.4	5.6	4.1
17	4.2	3.8	12.1	5.2	6.6	5.4	3.9	3.75	3.65	3.5	5.5	4.1
18	4.2	3.8	11.1	5.3	7.2	5.3	3.9	3.7	3.7	3.6	5.4	4.1
19	4.5	3.8	9.4	5.4	6.0	4.9	3.9	3.7	3.7	3.7	5.3	4.8
20	5.0	3.8	9.1	6.0	5.8	4.6	3.9	3.7	3.8	3.7	5.2	6.5

Daily gage height, in feet, of Machias River at Whitneyville, Maine, for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	5.2	3.8	8.2	7.0	5.2	4.3	4.1	3.7	3.9	3.7	5.0	6.2
22	5.2	4.5	7.6	7.3	4.7	4.0	4.2	3.7	4.0	3.7	4.9	5.4
23	5.2	5.6	7.0	7.9	4.2	3.6	4.3	3.7	3.9	3.7	4.8	5.3
24	5.1	6.1	6.4	8.3	4.2	3.5	4.4	3.7	3.8	3.9	4.7	5.2
25	5.0	5.9	6.0	8.0	4.8	3.4	4.4	3.75	3.7	6.3	5.0	5.2
26	4.9	5.5	5.6	7.8	4.9	3.4	4.3	3.8	3.6	10.6	5.7	5.2
27	4.8	5.3	5.2	7.4	4.9	3.4	4.1	3.85	3.5	9.7	5.5	5.3
28	4.7	5.1	5.2	7.1	4.9	3.35	3.8	3.9	3.5	8.3	5.1	5.4
29	4.6	5.0	6.0	6.8	4.9	3.35	3.6	3.9	3.5	7.4	4.9	5.4
30	4.4	.....	7.2	6.6	6.9	3.3	3.5	3.9	3.5	5.9	4.7	5.6
31	4.4	.....	7.4	.....	9.2	.....	3.5	3.8	.....	5.3	.....	6.6

NOTE.—Relation of gage height to discharge probably affected by ice about Mar. 14 to 26. No notes relating to log jams, but there may have been some backwater from logs for short periods during April, May, and June.

Daily discharge, in second-feet, of Machias River at Whitneyville, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	642	698	1,000	2,470	2,200	5,680	191	300	387	300	1,350	755
2	587	698	937	2,200	2,120	5,020	191	482	387	343	1,490	814
3	587	698	937	1,880	1,960	4,580	191	587	343	387	1,640	937
4	534	670	875	1,640	1,800	4,280	191	642	322	433	1,560	1,490
5	482	642	814	1,490	1,880	3,980	191	642	300	482	1,280	1,350
6	433	642	755	1,350	1,960	3,580	161	534	300	482	1,070	1,280
7	433	642	698	1,210	2,040	3,100	161	433	300	482	937	1,210
8	482	614	698	1,180	2,120	2,650	161	387	300	433	1,280	1,070
9	534	587	698	1,140	2,120	2,200	132	343	300	387	2,830	1,000
10	642	587	698	1,140	1,800	2,040	132	343	300	343	4,690	937
11	642	587	726	1,100	1,560	1,960	132	343	300	300	3,380	875
12	642	587	755	1,070	1,640	1,880	132	343	300	260	2,290	755
13	587	534	875	1,000	1,640	1,800	132	343	300	260	1,960	698
14	587	482	.....	1,000	1,640	1,800	132	387	300	224	1,720	642
15	587	433	.....	1,070	1,640	1,640	132	387	300	224	1,560	587
16	587	387	.....	1,140	1,800	1,490	260	387	300	224	1,490	534
17	587	387	.....	1,210	2,290	1,350	433	365	322	260	1,420	534
18	587	387	.....	1,280	2,830	1,280	433	343	343	300	1,350	534
19	755	387	.....	1,350	1,800	1,000	433	343	343	343	1,280	937
20	1,070	387	.....	1,800	1,640	814	433	343	387	343	1,210	2,200
21	1,210	387	.....	2,650	1,210	642	534	343	433	343	1,070	1,960
22	1,210	755	.....	2,920	875	482	587	343	482	343	1,000	1,350
23	1,210	1,490	.....	3,480	587	300	642	343	433	343	937	1,280
24	1,140	1,880	.....	3,880	587	260	698	343	387	433	875	1,210
25	1,070	1,720	.....	3,580	937	224	698	365	343	2,040	1,070	1,210
26	1,000	1,420	.....	3,380	1,000	224	642	387	300	6,340	1,560	1,210
27	937	1,280	1,210	3,010	1,000	224	534	410	260	5,350	1,420	1,280
28	875	1,140	1,210	2,740	1,000	208	387	433	260	3,880	1,140	1,350
29	814	1,070	1,800	2,470	1,000	208	300	433	260	3,010	1,000	1,350
30	698	.....	2,830	2,290	2,560	191	260	433	260	1,720	875	1,490
31	698	.....	3,010	.....	4,800	.....	260	387	.....	1,280	.....	2,290

NOTE.—Daily discharge computed from a rating curve well defined between 200 and 4,000 second-feet. Discharge Mar. 14 to 26 estimated, because of ice, from one discharge measurement, observer's notes, and climatologic records. Mean discharge Mar. 14 to 26 estimated 2,700 second-feet, varying from about 1,300 to 5,000 second-feet.

Monthly discharge of Machias River at Whitneyville, Maine, for 1912.

[Drainage area, 465 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	1,210	433	737	1.58	1.82	C.
February	1,880	387	765	1.65	1.78	B.
March	(a)	698	1,790	3.85	4.44	C.
April	3,880	1,000	1,940	4.17	4.65	B.
May	4,800	587	1,740	3.74	4.31	B.
June	5,680	191	1,840	3.96	4.42	B.
July	698	132	319	.686	.79	C.
August	642	300	403	.867	1.00	B.
September	482	260	328	.705	.79	B.
October	6,340	224	1,030	2.22	2.56	B.
November	4,690	875	1,560	3.35	3.74	B.
December	2,290	534	1,130	2.43	2.80	B.
The year	6,340	132	1,130	2.43	33.10	

[a] See footnotes to table of daily discharge.

UNION RIVER BASIN.

UNION RIVER AT AMHERST, MAINE.

Location.—At highway bridge three-fourths of a mile west of Amherst post office on road to Bangor, about a mile below the highway bridge at the old tannery dam.

Records available.—July 25, 1909, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—140 square miles.

Gage.—Standard chain, established June 2, 1910, and placed at same datum as old vertical gage nailed to log abutment.

Channel.—Gravel, but not liable to change except in an unusual flood.

Discharge measurements.—Made from downstream side of the bridge.

Winter flow.—Affected by ice.

Artificial control.—A few log-driving dams above the station, but the regimen of stream is only slightly affected by them.

Accuracy.—Relation between gage height and discharge is affected by ice and to a certain extent, but for short periods, by backwater from log jams. A good rating curve has been developed under 700 second-feet. Discharge values above that point should be used with caution. No corrections have been made for possible backwater from log jams.

Discharge measurements of Union River at Amherst, Maine, in 1912.

[F. E. Pressey, hydrographer.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
April 10	9.22	685	May 15	8.28	549	May 22	7.58	391
10	9.26	688	15	8.25	547	22	7.56	385
10	9.26	671	15	8.24	535	22	7.54	374
11	9.17	639	16	8.12	515	22	7.52	369
11	9.18	650	16	8.12	513	22	7.52	374
11	9.26	678	16	8.10	501	23	7.48	374
11	9.22	634	17	8.22	537	23	7.48	363
12	9.17	654	17	8.22	527	24	7.46	364
12	9.10	646	21	7.70	410	24	7.46	363
May 14	8.40	559	21	7.70	408	24	7.46	362
14	8.40	583	21	7.68	422	24	7.46	362
14	8.40	581	21	7.68	408	24	7.46	362
14	8.40	597	21	7.66	402	Sept. 6	5.67	57
15	8.29	553	22	7.58	421	6	5.67	56

Daily gage height, in feet, of Union River at Amherst, Maine, for 1912.

[Mrs. Clara Nickerson, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	9.25	8.98	9.80	5.97	5.85	5.81	5.94	8.50	7.15
2	.....	.....	8.68	9.20	8.70	9.90	5.92	5.85	5.80	5.94	8.86	7.42
3	10.48	8.60	.....	9.12	8.45	10.00	5.88	5.90	5.78	5.95	8.72	7.44
4	.....	.....	.....	9.00	8.20	10.00	5.80	6.21	5.76	5.99	8.46	7.46
5	.....	.....	.....	8.90	7.88	9.80	5.77	6.05	5.71	6.00	8.28	7.38
6	9.90	.....	8.60	8.65	7.80	9 47	5.72	6.05	5.67	6.61	8.08	7.38
7	.....	8.30	.....	8.57	7.70	9.09	5.69	6.05	5.62	6.00	7.98	7.68
8	.....	.....	.....	9.35	7.60	8.70	5.63	6.00	5.60	5.98	9.25	7.87
9	.....	.....	8.40	9.22	7.80	8.33	5.60	6.00	5.57	5.94	9.65	7.42
10	10.10	8.25	.....	9.22	7.95	7.95	5.58	5.92	5.52	5.91	9.25	7.99
11	.....	.....	.....	9.17	8.05	7.72	5.56	5.91	5.57	5.88	9.00	7.58
12	.....	.....	.....	9.14	8.05	7.48	5.56	5.88	5.57	5.89	8.90	7.10
13	9.65	.....	9.00	9.00	8.08	7.58	5.57	5.85	5.55	5.96	8.75	7.75
14	.....	8.00	.....	8.84	8.40	7.50	5.51	5.85	5.51	5.91	8.60	8.08
15	.....	.....	.....	8.69	8.29	7.40	5.48	6.15	4.84	5.88	8.50	8.32
16	.....	.....	14.10	8.60	8.12	7.28	5.41	6.10	5.57	5.87	8.40	7.99
17	9.50	7.80	.....	8.82	8.22	7.25	5.38	6.15	5.67	5.84	8.23	7.05
18	.....	.....	.....	8.94	8.15	7.18	5.35	6.16	5.59	5.82	8.12	7.20
19	.....	.....	.....	10.19	7.95	7.03	5.45	6.16	5.77	5.80	7.99	6.80
20	9.65	.....	12.60	10.67	7.79	6.92	5.37	6.15	5.84	6.02	7.89	7.05
21	.....	7.80	.....	10.87	7.70	6.81	5.31	5.18	5.98	5.99	7.73	7.34
22	.....	.....	.....	10.90	7.58	6.70	6.16	6.10	6.00	5.98	7.60	8.05
23	.....	.....	11.50	11.37	7.45	6.60	6.01	6.00	5.99	5.98	7.54	8.52
24	9.28	8.80	.....	11.60	7.46	6.52	5.80	5.05	5.97	6.08	7.36	8.92
25	.....	.....	.....	10.92	7.54	6.43	5.84	5.18	5.97	7.78	7.37	9.42
26	.....	.....	.....	10.52	7.44	6.35	5.89	5.19	5.95	8.47	7.44	8.60
27	9.05	.....	8.82	10.25	7.37	6.26	5.80	5.18	5.91	8.30	7.35	8.50
28	.....	8.85	8.50	9.90	7.30	6.20	5.87	5.19	5.87	8.19	7.25	.....
29	.....	.....	8.42	9.45	7.20	6.11	5.88	5.16	5.81	8.40	7.19	8.55
30	.....	.....	9.75	9.27	8.03	6.03	5.85	5.19	6.00	8.68	7.09	8.55
31	8.80	.....	9.60	.....	9.40	.....	5.80	5.17	.....	8.62	.....	9.44

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 17. Probably no material effect from ice during December.

Daily discharge, in second-feet, of Union River at Amherst, Maine, for 1909–1912.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1909.							1909.						
1	.....	36	17	1,150	236	628	16	.....	16	15	217	199	.....
2	.....	34	18	984	212	566	17	.....	16	15	208	182	.....
3	.....	31	18	934	206	515	18	.....	24	16	192	212	.....
4	.....	28	16	869	390	.....	19	.....	22	18	190	204	.....
5	.....	26	15	783	380	.....	20	.....	22	18	173	190	.....
6	.....	24	19	648	358	.....	21	.....	21	16	156	188	
7	.....	23	17	513	336	.....	22	.....	19	16	164	187	.....
8	.....	23	16	450	304	.....	23	.....	19	16	164	185	.....
9	.....	22	15	404	306	.....	24	.....	21	19	173	182	.....
10	.....	22	14	325	274	.....	25	56	19	22	190	251	.....
11	.....	23	16	282	260	.....	26	55	16	19	241	913	.....
12	.....	21	16	243	245	.....	27	51	16	143	241	738	.....
13	.....	18	15	224	239	.....	28	47	19	254	264	679	.....
14	.....	18	15	192	222	.....	29	42	18	2,110	294	648	.....
15	.....	15	15	171	208	.....	30	40	18	1,400	284	628	.....
							31	40	18	.....	249	.....	.....

Daily discharge, in second-feet, of Union River at Amherst, Maine, for 1909–1912—Con.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.										
1	.....	568	738	173	161	40	34	38	63	72
2	.....	592	753	173	153	40	33	38	57	72
3	.....	585	580	158	130	41	28	37	55	81
4	.....	568	580	150	175	44	24	34	55	.....
5	.....	556	556	137	134	222	24	37	57	.....
6	.....	532	532	125	119	170	23	35	57	.....
7	.....	544	503	118	106	178	34	35	60	.....
8	.....	556	461	113	118	190	31	37	58	.....
9	.....	556	426	113	110	187	30	35	63	.....
10	830	537	392	113	92	178	30	36	61	.....
11	605	532	358	112	81	176	30	34	61	.....
12	605	508	325	103	74	126	28	32	61	.....
13	580	450	304	150	67	110	28	31	57	.....
14	556	410	274	138	58	96	53	29	55	.....
15	508	369	254	128	55	83	47	28	53	.....
16	472	343	236	122	54	73	47	27	51	.....
17	450	304	208	113	53	66	53	27	53	.....
18	426	284	187	161	49	63	55	26	50	.....
19	369	380	190	173	43	66	53	26	46	.....
20	329	585	176	182	41	71	49	24	48	.....
21	343	635	159	178	43	49	47	24	48	.....
22	345	688	148	187	41	49	44	22	80	.....
23	329	710	140	175	41	47	40	23	39	.....
24	321	682	132	164	41	48	40	23	53	.....
25	336	682	128	158	41	53	38	23	53	.....
26	461	669	128	146	41	46	38	24	53	.....
27	461	966	156	137	47	42	36	37	47	.....
28	461	862	159	148	40	42	39	44	49	.....
29	461	768	156	153	40	39	38	49	57	.....
30	496	682	156	156	40	39	37	57	59	.....
31	508	.....	170	.....	38	34	.....	50	.....	.....

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.									
1	.....	869	170	96	103	52	70	40	270
2	.....	830	199	78	125	53	66	37	308
3	.....	768	190	72	140	52	65	35	461
4	.....	669	173	68	143	51	65	34	.....
5	.....	605	170	63	128	44	83	33	.....
6	.....	556	164	59	110	40	78	31	.....
7	.....	484	140	72	96	47	68	34	.....
8	.....	461	125	63	83	47	65	83	.....
9	.....	410	110	61	72	47	49	66	.....
10	.....	358	96	57	68	49	35	57	204
11	1,030	347	83	53	68	47	35	55	201
12	1,010	336	83	49	63	46	38	55	212
13	1,000	317	110	47	59	63	37	78	215
14	852	304	156	46	55	63	34	83	219
15	1,400	284	173	40	46	55	34	93	219
16	1,250	270	245	40	51	68	35	176	219
17	1,180	245	369	37	46	65	38	164	217
18	1,220	226	325	37	44	63	53	148	217
19	1,180	208	304	40	47	57	41	208	.....
20	1,150	195	284	39	47	59	34	208	.....
21	1,130	182	264	37	49	63	27	194	.....
22	1,000	173	245	37	51	63	28	190	.....
23	896	208	208	40	53	68	55	217	.....
24	846	226	173	40	51	68	47	173	.....
25	798	241	140	44	47	68	41	208	.....
26	798	245	125	44	44	69	37	217	.....
27	798	236	110	55	40	71	35	204	542
28	830	226	96	53	39	68	35	190	600
29	830	208	103	72	44	68	35	264	710
30	930	199	103	90	47	72	34	319	800
31	.....	173	.....	83	52	.....	34	.....	1,000

Daily discharge, in second-feet, of Union River at Amherst, Maine, for 1909–1912—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.									
1	.....	732	1,000	92	78	73	88	605	294
2	.....	656	1,040	86	78	72	88	699	351
3	.....	592	1,070	81	83	70	90	661	356
4	.....	532	1,070	72	126	68	95	595	360
5	.....	456	1,000	69	103	64	96	551	343
6	.....	438	886	65	103	61	192	503	343
7	.....	415	765	62	103	57	96	479	410
8	.....	392	656	57	96	55	93	814	454
9	.....	438	563	55	96	53	88	948	351
10	.....	472	472	53	86	49	84	814	482
11	.....	496	420	52	84	53	81	738	387
12	.....	496	365	52	81	53	82	710	284
13	.....	503	387	53	78	51	91	669	426
14	.....	580	369	48	78	48	84	630	503
15	.....	554	347	46	118	14	81	605	561
16	.....	513	321	41	110	53	80	580	482
17	.....	537	314	39	118	61	76	539	274
18	721	520	300	37	119	54	74	513	304
19	1,140	472	270	44	119	69	72	482	226
20	1,320	436	249	38	118	76	99	459	274
21	1,390	415	228	35	27	93	95	422	334
22	1,400	387	208	119	110	96	93	392	496
23	1,590	358	190	97	96	95	93	378	610
24	1,680	360	176	72	21	92	107	338	716
25	1,410	378	161	76	27	92	433	340	869
26	1,260	356	148	82	28	90	598	356	630
27	1,160	340	134	72	27	84	556	336	605
28	1,040	325	125	80	28	80	530	314	612
29	879	304	112	81	26	73	580	302	618
30	820	491	100	78	28	96	651	282	618
31	.....	862	.....	72	26	.....	635	.....	876

NOTE.—Daily discharge computed from a rating curve well defined between 15 and 700 second-feet. The curve is simply an extension above 700 second-feet and discharge values above that point should be used with caution. Discharge Dec. 4, 1909, to Mar. 9, 1910, Dec. 4, 1910, to Apr. 10, 1911, Dec. 4 to 9 and 19 to 26, 1911, and Dec. 30, 1911, to Apr. 17, 1912, estimated, because of ice, from discharge measurements, gage heights, gage observer's notes, climatologic records, and discharge of adjacent drainage areas:

Period.	Mean discharge (second-feet).		Period.	Mean discharge (second-feet).	
	Estimate.	Range.		Estimate.	Range.
Dec. 4–31, 1909	270	150–400	Apr., 1–10, 1911	700	.....
Jan., 1910	200	70–500	Dec. 4–9, 1911	400	250–600
Feb., 1910	450	150–900	Dec. 19–26, 1911	440	200–700
Mar. 1–9, 1910	800	700–1,000	Jan., 1912	400	.....
Dec. 4–31, 1910	80	20–200	Feb., 1912	220	.....
Jan., 1911	100	.....	Mar., 1912	650	.....
Feb., 1911	40	.....	Apr. 1–17, 1912	600	500–700
Mar., 1911	120	.....			

Discharge Dec. 28, 1912, interpolated.

Monthly discharge of Union River at Amherst, Maine, for 1909–1912.

[Drainage area, 140 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1909.						
August	36	15	21.5	0.154	0.18	D.
September	2,110	14	145	1.04	1.16	D.
October	1,150	156	373	2.66	3.07	C.
November	913	182	325	2.32	2.59	C.
December	628	.....	299	2.14	2.47	D.
1910.						
January	.....	.....	200	1.43	1.65	D.
February	.....	.....	450	3.21	3.34	D.
March	.....	321	563	4.02	4.64	C.
April	966	284	570	4.07	4.54	B.
May	753	128	312	2.23	2.57	C.
June	187	103	145	1.04	1.16	C.
July	175	38	75.0	.536	.62	B.
August	222	34	87.4	.624	.72	B.
September	55	23	37.7	.269	.30	C.
October	57	22	33.0	.236	.27	C.
November	80	39	55.3	.395	.44	C.
December	.....	.....	79.5	.568	.65	D.
The year	.....	.....	216	1.54	20.90	
1911.						
January	.....	.....	100	0.714	0.82	D.
February	.....	.....	40	.286	.30	D.
March	.....	.....	120	.857	.99	D.
April	.....	.....	904	6.46	7.21	C.
May	869	173	357	2.55	2.94	B.
June	389	83	175	1.25	1.40	B.
July	96	37	55.2	.394	.45	B.
August	143	39	68.1	.486	.56	B.
September	72	40	58.2	.416	.46	A.
October	83	27	46.2	.330	.38	A.
November	319	31	130	.929	1.04	A.
December	.....	.....	404	2.89	3.33	C.
The year	.....	.....	205	1.46	19.88	
1912.						
January	.....	.....	400	2.86	3.30	D.
February	.....	.....	220	1.57	1.69	D.
March	.....	.....	650	4.64	5.35	D.
April	1,680	.....	867	6.19	6.91	B.
May	862	304	478	3.41	3.93	A.
June	1,070	100	448	3.20	3.57	B.
July	119	35	64.7	.462	.53	A.
August	126	21	78.0	.557	.64	B.
September	96	14	68.2	.487	.54	A.
October	651	72	200	1.43	1.65	B.
November	948	282	535	3.82	4.26	A.
December	876	226	466	3.33	3.84	B.
The year	1,680	14	373	2.66	36.21	

NOTE.—See footnotes to tables of daily discharge.

GREEN LAKE AT GREENLAKE, MAINE.

Location.—At highway bridge at head of lake, 600 feet from Greenlake railroad station.

Records available.—July 1, 1909, to December 31, 1912.

Area of lake surface.—4.43 square miles.

Gage.—Staff nailed to log abutment of highway bridge. Record shows the fluctuation of the lake level.

Cooperation.—The cooperative observer is Mr. H. F. Lord, of Greenlake, Maine.

Daily gage height, in feet, of Green Lake at Greenlake, Maine, for 1912.

[H. F. Lord, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1				8.3	8.2	8.3	6.9	6.3	5.5	3.6	3.9	6.0
2				8.3	8.2	8.3	6.8	6.35	5.5	3.5	3.9	6.1
3			5.85	8.3	8.1	8.2	6.8	6.3	5.5	3.5	4.0	6.1
4				8.3	8.1	8.1	6.7	6.3	5.5	3.5	4.0	6.2
5				8.3	8.0	8.1	6.7	6.3	5.4	3.4	4.05	6.2
6				8.3	8.0	8.0	6.7	6.3	5.4	3.4	4.1	6.2
7				8.3	7.9	7.9	6.6	6.3	5.4	3.2	4.1	6.25
8				8.3	7.9	7.9	6.6	6.25	5.4	3.2	4.2	6.3
9				8.3	7.9	7.9	6.6	6.25	5.4	3.2	4.5	6.3
10			6.15	8.3	7.8	7.9	6.5	6.2	5.4	3.1	4.7	6.3
11				8.2	7.8	7.9	6.5	6.2	5.3	3.0	4.8	6.35
12	5.15			8.2	7.8	7.8	6.5	6.2	5.3	2.95	4.9	6.35
13				8.2	7.8	7.8	6.4	6.1	5.3	2.9	5.0	6.4
14				8.1	7.9	7.7	6.4	6.1	5.2	2.9	5.1	6.4
15				8.1	7.9	7.7	6.4	6.1	5.1	2.8	5.2	6.5
16				8.2	7.9	7.7	6.4	6.1	5.0	2.8	5.3	6.6
17				8.2	7.9	7.7	6.3	6.0	4.9	2.8	5.3	6.6
18			7.95	8.2	7.9	7.7	6.3	6.0	4.8	2.7	5.35	6.6
19				8.3	7.9	7.6	6.3	5.9	4.7	2.7	5.4	6.6
20				8.4	7.9	7.6	6.3	5.9	4.6	2.6	5.4	6.6
21				8.4	7.9	7.5	6.4	5.9	4.5	2.6	5.45	6.7
22			8.25	8.45	7.9	7.5	6.4	5.8	4.4	2.6	5.5	6.7
23				8.4	7.8	7.4	6.4	5.8	4.3	2.5	5.5	6.7
24				8.45	7.8	7.3	6.4	5.8	4.3	2.5	5.6	6.7
25				8.45	7.8	7.3	6.4	5.8	4.2	3.2	5.65	6.8
26				8.45	7.8	7.2	6.4	5.7	4.1	3.4	5.7	6.9
27				8.45	7.8	7.1	6.4	5.7	4.0	3.6	5.75	6.9
28				8.45	7.9	7.0	6.3	5.7	3.9	3.7	5.8	7.0
29				8.4	7.9	7.0	6.3	5.6	3.8	3.75	5.9	7.0
30				8.3	8.0	7.0	6.3	5.6	3.7	3.75	5.9	7.0
31					8.2		6.3	5.6		3.8		7.1

NOTE.—Observer reports as follows: "Apr. 23: Ice left the lake. Dec. 24: Lake closed."

GREEN LAKE STREAM AT LAKEWOOD, MAINE.

Location.—At highway bridge half a mile below dam at outlet of Green Lake, half a mile from Lakewood post office, and 8 miles from Ellsworth.

Records available.—July 1, 1909, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—47 square miles.

Gage.—Seven-foot staff, nailed to right-hand abutment, upstream side of bridge.

Channel.—Practically permanent; banks not subject to overflow.

Discharge measurements.—Made from lower side of bridge.

Winter flow.—Ice does not affect the relation of gage height to discharge every year at this station.

Artificial control.—The dam half a mile above the station at the outlet of the lake controls the storage of the lake, and records do not show the natural flow.

The following discharge measurement was made by F. E. Pressey:

March 22: Gage height, 3.60 feet; discharge, 206 second-feet. Relation of gage height to discharge affected by ice.

Daily gage height, in feet, of Green Lake Stream at Lakewood, Maine, for 1912.

[Martin A. Garland, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.3	2.6	2.70	3.72	3.55	3.50	2.90	2.80	2.78	3.20	2.60	2.48
2	.....	.....	2.70	3.72	3.50	3.50	2.90	2.80	2.78	3.20	2.60	2.48
3	.....	.....	2.70	3.72	3.40	3.50	2.90	2.80	2.78	3.20	2.60	2.48
4	.....	.....	2.70	3.72	3.35	3.50	2.90	2.80	2.78	3.20	2.40	2.50
5	.....	.....	2.70	3.72	3.30	3.50	2.90	2.80	2.78	3.20	2.40	2.50
6	.....	2.70	2.70	3.72	3.28	3.50	2.90	2.80	2.78	3.20	2.40	2.50
7	.....	2.70	2.70	3.68	3.25	3.50	2.90	2.80	2.78	3.20	2.40	2.50
8	.....	2.70	2.70	3.60	3.22	3.50	2.90	2.80	2.78	3.20	2.40	2.50
9	.....	2.70	2.70	3.55	3.20	3.45	2.90	2.80	2.78	3.20	2.40	2.50
10	.....	2.70	2.70	3.50	3.20	3.40	2.90	2.80	2.78	2.90	2.40	2.50
11	.....	2.70	2.70	3.50	3.20	3.38	2.88	2.80	3.20	2.90	2 40	2.52
12	.....	2.70	2.88	3.50	3.20	3.35	2.85	2.80	3.20	2.90	2.40	2.55
13	.....	2.70	2.80	3.50	3.20	3.30	2.85	2.80	3.20	2.70	2.40	2.58
14	.....	2.70	2.80	3.50	3.20	3.25	2.82	2.80	3.20	2.70	2.40	2.60
15	.....	2.70	2.90	3.48	3.20	3.20	2.80	2.78	3.20	2.70	2.40	2.70
16	.....	2.70	3.00	3.48	3.20	3.15	2.78	2.78	3.20	2.70	2.40	2.80
17	.....	2.70	3.20	3.45	3.20	3.10	2.75	2.78	3.20	2.70	2.40	2.80
18	.....	2.70	.....	3.42	3.20	3.10	2.75	2.78	3.20	2.70	2.42	2.80
19	2.6	2.70	.....	3.40	3.20	3.10	2.72	2.80	3.20	2.70	2.45	2.85
20	.....	2.70	.....	3.60	3.20	3.10	2.70	2.80	3.20	2.70	2.45	2.85
21	.....	2.70	.....	3.60	3.20	3.00	2.70	2.80	3.20	2.70	2.45	2.85
22	.....	2.70	3.60	3.60	3.20	3.00	2.72	2.80	3.20	2.70	2.45	2.85
23	.....	2.70	3.60	3.80	3.20	3.00	2.75	2.80	3.20	2.70	2.45	2.85
24	2.6	2.70	3.60	3.80	3.18	2.98	2.78	2.80	3.20	2.70	2.45	2.85
25	.....	2.70	3.60	3.78	3.18	2.98	2.78	2.80	3.20	2.75	2.45	2.85
26	.....	2.70	3.60	3.75	3.18	2.95	2.78	2.80	3.20	2.80	2.45	2.85
27	.....	2.70	3.60	3.70	3.18	2.92	2.78	2.80	3.20	2.80	2.45	2.85
28	.....	2.70	3.60	3.65	3.18	2.90	2.78	2.78	3.20	2.60	2.45	2.85
29	.....	2.70	3.70	3.60	3.18	2.90	2.78	2.78	3.20	2.60	2.45	2.85
30	.....	.....	3.72	3.55	3.30	2.90	2.78	2.78	3.20	2.60	2.45	2.85
31	.....	.....	3.72	.....	3.50	.....	2.78	2.78	.....	2.60	.....	2.85

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 17. Observer noted conditions as follows: Apr. 20 and Sept. 11, gates partly open at outlet; Oct. 10 and 13, gates closed at outlet; Oct. 28, gates tightly closed; Nov. 4, gates tightly closed, flow simply leakage through dam.

Daily discharge, in second-feet, of Green Lake Stream at Lakewood, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	268	248	77	62	59	146	38	26
2	.....	248	248	77	62	59	146	38	26
3	.....	211	248	77	62	59	146	38	26
4	.....	194	248	77	62	59	146	19	28
5	.....	177	248	77	62	59	146	19	28
6	.....	171	248	77	62	59	146	19	28
7	.....	162	248	77	62	59	146	19	28
8	.....	152	248	77	62	59	146	19	28
9	.....	146	230	77	62	59	146	19	28
10	.....	146	211	77	62	59	77	19	28
11	.....	146	204	74	62	146	77	19	30
12	.....	146	194	70	62	146	77	19	33
13	.....	146	177	70	62	146	49	19	36
14	.....	146	162	65	62	146	49	19	38
15	.....	146	146	62	59	146	49	19	49
16	.....	146	132	59	59	146	49	19	62
17	.....	146	119	56	59	146	49	19	62
18	.....	146	119	56	59	146	49	21	62
19	211	146	119	52	62	146	49	24	70
20	288	146	119	49	62	146	49	24	70
21	288	146	96	49	62	146	49	24	70
22	288	146	96	52	62	146	49	24	70
23	376	146	96	56	62	146	49	24	70
24	376	141	92	59	62	146	49	24	70
25	367	141	92	59	62	146	56	24	70

Daily discharge, in second-feet, of Green Lake Stream at Lakewood, Maine, for 1912—Con.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
26	354	141	86	59	62	146	62	24	70
27	331	141	81	59	62	146	62	24	70
28	310	141	77	59	59	146	38	24	70
29	288	141	77	59	59	146	38	24	70
30	268	177	77	59	59	146	38	24	70
31	.....	248	.....	59	59	.....	38	.....	70

NOTE.—Daily discharge computed from a rating curve fairly well defined above 20 second-feet.
Discharge Jan. 1 to Apr. 18, estimated, because of ice, from one discharge measurement, gage heights, observer's notes, and climatologic records:

Period.	Estimated discharge (second-feet).	
	Mean.	Range.
January	20	10–35
February	30	25–40
March	120	35–250
April 1–18	230	200–250

Monthly discharge of Green Lake Stream at Lakewood, Maine.

[Drainage area, 47 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	20	0.426	0.49	
February	.....	.....	30	.638	.69	
March	.....	.....	120	2.55	2.94	D.
April	376	.....	263	5.60	6.25	C.
May	268	141	163	3.47	4.00	B.
June	248	77	160	3.40	3.79	B.
July	77	49	64.9	1.38	1.59	B.
August	62	59	61.2	1.30	1.50	B.
September	146	59	117	2.49	2.78	B.
October	146	38	79.5	1.69	1.95	B.
November	38	a 19	23.0	.489	.55	C.
December	70	26	50.2	1.07	1.23	C.
The year	376	.....	95.8	2.04	27.76	

aFlow, simply leakage through dam.

NOTE.—See footnotes to tables of daily gage height and daily discharge.

BRANCH LAKE NEAR ELLSWORTH, MAINE.

Location.—Near the intake to the wheels of the Branch Pond Lumber Co.'s mill, at the lower end of Branch Lake, in Ellsworth, Maine.

Records available.—June 29, 1909, to December 31, 1912.

Area of lake surface.—4.33 square miles.

Gage.—Staff; datum unchanged. Readings indicate height of lake.

Altitude.—Altitude as determined by Geological Survey, 236 feet above sea level, and this height was assumed as the height of the water surface at the time of the Union River surface reconnaissance.[1] In accordance with this assumption, the top of the mill-pond dam at the lower end of the lake is 240 feet above sea level.

[1] U. S. Geol. Survey Water-Supply Paper 281, p. 57, 1912.

Daily gage height, in feet, of Branch Lake near Ellsworth, Maine, for 1912.

[L. H. Cushman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.00				9.25				6.10			6.80
2					9.18	8.85						
3	4.00		4.70								6.00	
4								6.90				
5		4.45			9.12							
6				7.90			7.55			5.10		
7							7.50					
8							7.45		5.95			7.10
9						8.40						
10			4.70				7.3				6.65	
11	4.20	4.40						6.70				
12					9.20	8.20					6.70	
13					9.12	8.25			5.80	5.00		
14	4.20			8.25			7.25					
15	4.20								5.70			7.10
16				8.32		8.15						
17	4.30		6.40	8.38	9.08			6.60			6.65	
18		4.30		8.40			7.1					
19					9.00				5.50			
20					8.88	8.05				4.70		
21	4.45			8.70	8.80		7.05			4.60		
22				8.85	8.70				5.50			7.30
23					8.65	8.00						
24	4.55										6.70	
25		4.60	7.15					6.40				
26					8.55							
27									5.35	5.80		
28	4.50			9.28			7.05					
29									5.25			7.40
30			7.50		8.58	7.80		6.15		5.85		
31												

NOTE.—Observer reported the following: May 20: Took off planks in waste gate, 6 feet 6 inches by 14 inches; June 20: Planks put back in waste gate at noon; July 6: Removed planks in waste gate at noon, 6 feet 6 inches by 18 inches; July 10: Planks returned to gate.

BRANCH LAKE STREAM NEAR ELLSWORTH, MAINE.

Location.—At small highway bridge immediately below the sawmill at outlet of Branch Lake, 5 miles from Ellsworth.

Records available.—July 1, 1909, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—31 square miles.

Gage.—Seven-foot staff nailed to right abutment downstream side of bridge. Lake levels are taken on 8½-foot staff nailed to corner of mill near intake of wheel.

Channel.—Gravelly and permanent in natural condition; fills up with sawmill waste, but generally clears itself during spring freshets.

Discharge measurements.—Made from highway bridge.

Winter flow.—Relation between gage height and discharge affected by ice.

Artificial control.—The flow from the lake is regulated in the interest of the sawmill and power plants of Ellsworth.

Accuracy.—Estimates of discharge for 1912 are withheld because of uncertainty of the discharge rating curve after about May 15.

The following discharge measurement was made by F. E. Pressey:

March 22, 1912: Gage height, 4.50 feet; discharge, 64 second-feet.

Daily gage height, in feet, of Branch Lake Stream at Ellsworth, Maine, for 1912.

[L. H. Cushman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.20				4.42				4.15			4.20
2					4.42	4.70						
3	4.20		4.20								4.15	
4								4.20				
5		4.15			4.25							
6				4.30			4.38			4.20		
7							4.60					
8							4.60		4.15			4.20
9						4.70						
10			4.17				4.38				4.20	
11	4.20	4.15						4.25				
12					4.20	4.50						
13					4.45				4.32	4.15		
14	4.20			4.25			4.15				4.70	
15	4.15		4.20						4.58		4.70	4.20
16				4.20		4.25						
17	4.30		4.40	4.20	4.70			4.30			4.25	
18		4.10		4.18			4.15					
19					4.70				4.48			
20					4.70	4.20				4.45		
21	4.20			4.20	4.70		4.15			4.35		
22			4.50	4.20	4.70				4.20			4.15
23					4.70	4.15						
24	4.20										4.25	
25		4.15	4.45					43.0				
26					4.60							
27									4.25	4.42		
28	4.15			4.30			4.15					
29		4.40							4.20			4.15
30					4.62	4.15		4.25		4.30		
31												

NOTE.—Observer noted the following: Nov. 14 and 15, sawing all day—9 hours. Dec. 22 and 29, stream clear of ice except edges.

PENOBSCOT RIVER BASIN.

WEST BRANCH OF PENOBSCOT RIVER AT MILLINOCKET, MAINE.

Location.—Quakish Lake dam and the Millinocket mill of the Great Northern Paper Co. at Millinocket, Maine.

Records available.—January 11, 1901, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,880 square miles.

Gage.—Automatic recording gage at Quakish Lake dam and gages in the forebay and tail races at the mill.

Channel.—Crest of concrete dam.

Determination of discharge.—The flow is computed by considering the flow over the dam, the flow through the wheels, and the water used from time to time through the log sluices, filters, etc. The wheels were rated at Holyoke, Mass., before being placed in position. As the head under which they work, averaging about 110 feet, is much greater than the head under which they were tested, numerous tube-float measurements of flow in the channel leading to the mill have been made by engineers of the company, in order to determine just how much water the mill used under different conditions of gate opening. In addition to this, a series of current-meter measurements were made by the United States Geological Survey to check the float measurements. It is believed that by means of the various checks on measurements, the estimates of discharge through the wheels are excellent. When the flow of the river is less than 2,500 second-feet, all of the water generally flows through the wheels of the mill.

Winter flow.—No difficulty is experienced in the winter on account of ice affecting the estimates of discharge or the running of the wheels. Ferguson Pond, just above the entrance to the canal, eliminates effect from anchor ice.

Artificial control.—Storage dams at the outlet of North Twin Lake and at the outlet of Chesuncook Lake store water on a surface of about 65 square miles with a capacity of about 32,000,000,000 cubic feet. Except during the time (usually in August) when excess water has to be supplied for log driving on the river below Millinocket and for a short time during the spring freshet, run-off is regulated by storage.

Cooperation.—Results obtained and computations made by engineers of the Great Northern Paper Co., who furnish these data to the Survey. For 1912 the company has preferred to furnish values of monthly discharge only.

Monthly discharge of West Branch of Penobscot River at Millinocket, Maine, for 1912.

[Drainage area, 1,880 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).	Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.			Mean.	Per square mile.	
January	2,060	1.10	1.27	August	2,390	1.27	1.46
February	2,040	1.09	1.18	September	2,210	1.18	1.32
March	2,030	1.08	1.24	October	2,240	1.19	1.37
April	2,300	1.22	1.36	November	6,340	3.37	3.76
May	6,630	3.53	4.07	December	3,270	1.74	2.01
June	7,510	4.00	4.46				
July	3,400	1.81	2.09	The year	3,520	1.88	25.59

PENOBSCOT RIVER AT WEST ENFIELD, MAINE.

Location.—At the steel highway bridge 1 mile below the village of West Enfield, Maine; 1,000 feet below the mouth of Piscataquis River.

Records available.—January 1, 1902, to December 31, 1912. Data also in annual reports of the Maine State Water Storage Commission.

Drainage area.—6,600 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent; broken by four bridge piers; banks high and rocky and not subject to overflow.

Winter flow.—Affected by ice.

Artificial control.—Flow of the river since about 1900 largely controlled by storage, principally in the lakes tributary to the West Branch. About 1 mile above the station is the dam of the International Paper Co., and the Piscataquis is dammed near its entrance into the Penobscot. Considerable water is held above these two dams at night. At low stages daily fluctuations in gage heights are caused by variations in wheel gate openings.

Accuracy.—Conditions favor the accurate determination of discharge.

Cooperation.—Many of the discharge measurements are made by the students of the University of Maine under the direction of Prof. H. S. Boardman.

Discharge measurements of Penobscot River at West Enfield, Maine, in 1912.

[Made by students of University of Maine under direction of Prof. H. S. Boardman.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-feet.*		*Feet.*	*Sec.-feet.*
Sept. 28	3.20	6,050	Oct. 19	3.49	6,580
Sept. 28	3.20	6,040	Oct. 23	3.69	6,820
Oct. 5	4.18	8,540	Oct. 23	3.69	7,150
Oct. 19	3.49	6,460			

Daily gage height, in feet, of Penobscot River at West Enfield, Maine, for 1912.

[A. H. Hanson, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.2	.....	.....	8.8	10.7	13.3	4.5	3.05	4.8	3.8	7.65	5.5
2	4.95	.....	5.65	.....	10.3	13.55	4.45	3.3	4.7	3.9	7.2	5.35
3	5.05	5.45	.....	8.9	9.6	13.3	4.35	3.9	4.55	4.05	7.05	5.75
4	5.0	.....	5.2	.....	8.95	12.95	4.05	4.05	4.25	4.15	6.9	5.75
5	5.2	5.35	.....	8.6	8.55	12.2	3.4	3.9	4.05	4.2	7.2	6.15
6	5.55	.....	.....	.....	7.85	11.45	3.7	3.9	3.45	3.9	7.1	6.4
7	5.95	.....	5.35	8.6	7.75	10.4	3.85	3.7	3.65	3.65	7.2	6.2
8	6.35	5.25	.....	8.95	7.7	10.3	3.95	3.3	3.5	3.8	9.2	6.65
9	6.1	.....	5.3	9.4	7.5	8.7	4.0	3.2	3.3	3.65	14.65	5.95
10	5.95	.....	.....	10.5	7.85	7.55	4.0	3.45	3.2	3.6	12.9	5.4
11	5.95	.....	5.05	10.25	8.2	7.25	4.0	4.55	3.25	3.5	11.8	5.65
12	5.85	4.95	.....	9.65	8.4	7.1	4.1	6.0	3.1	3.35	11.05	5.4
13	5.7	.....	.....	8.55	8.8	7.35	4.0	7.4	2.8	3.2	10.7	4.9
14	.....	5.2	5.5	8.0	9.05	7.55	3.75	7.3	2.75	3.15	10.6	4.25
15	6.15	.....	.....	7.9	9.55	7.55	3.75	7.1	2.7	3.7	9.75	4.6
16	.....	.....	6.9	8.35	9.25	7.45	4.15	7.15	2.35	3.65	9.0	4.75
17	6.1	5.2	8.0	9.85	9.05	7.35	4.1	6.9	3.55	3.4	8.8	4.9
18	.....	.....	8.4	11.1	9.35	7.05	4.0	6.35	3.35	3.25	8.35	4.8
19	5.95	4.6	.....	11.4	9.2	6.9	3.8	5.85	3.25	3.4	8.1	4.6
20	.....	.....	9.0	11.45	8.7	6.65	3.65	5.5	3.45	3.25	7.7	4.95
21	.....	4.85	.....	11.35	8.2	6.6	3.6	5.15	3.7	3.3	7.4	5.55
22	5.4	.....	.....	11.45	7.6	6.4	3.65	4.8	3.8	3.55	7.15	5.3
23	.....	.....	8.8	12.15	7.75	6.25	4.4	4.45	3.65	3.7	6.9	5.15
24	5.3	5.45	.....	14.05	7.95	5.55	4.6	4.6	3.85	3.7	6.75	4.45
25	.....	.....	7.9	13.4	8.25	5.6	4.15	4.75	3.6	6.5	6.7	4.75
26	5.85	5.5	.....	12.55	8.1	5.5	3.95	5.1	3.35	11.5	6.5	3.9
27	.....	.....	.....	12.15	7.95	5.45	3.75	5.0	3.15	12.55	6.5	3.65
28	.....	5.45	.....	11.75	7.8	5.55	3.55	4.9	3.15	10.75	6.15	4.1
29	5.4	.....	7.65	11.35	8.0	5.3	3.05	4.9	2.95	9.7	5.9	4.2
30	.....	.....	.....	10.55	8.25	4.9	2.95	5.1	2.9	8.75	5.75	4.0
31	5.6	.....	8.7	.....	11.85	.....	3.0	4.95	.....	8.1	.....	3.5

NOTE.—Observer reported the following conditions: Apr. 10, ice went out; June 3, logs running thick in river; July 13, river full of logs; July 20, river clear of logs.

Daily discharge, in second-feet, of Penobscot River at West Enfield, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	38,000	54,400	9,420	5,540	10,300	7,440	21,300	12,600
2	.....	35,600	56,000	9,270	6,140	10,000	7,710	19,300	12,100
3	.....	31,600	54,400	8,980	7,710	9,570	8,120	18,600	13,500
4	.....	27,900	52,100	8,120	8,120	8,680	8,400	18,000	13,500
5	.....	25,700	47,300	6,390	7,710	8,120	8,540	19,300	15,000
6	.....	22,200	42,600	7,170	7,710	6,520	7,710	18,800	16,000
7	.....	21,800	36,200	7,580	7,170	7,040	7,040	19,300	15,200
8	.....	21,500	35,600	7,840	6,140	6,650	7,440	29,300	17,000
9	.....	20,600	26,500	7,980	5,890	6,140	7,040	63,200	14,300
10	.....	22,200	20,800	7,980	6,520	5,890	6,910	51,800	12,300
11	35,400	23,900	19,500	7,980	9,570	6,020	6,650	44,800	13,200
12	31,800	25,000	18,800	8,260	14,400	5,650	6,260	40,200	12,300
13	25,700	27,100	19,900	7,980	20,200	4,960	5,890	38,000	10,700
14	23,000	28,500	20,800	7,300	19,700	4,840	5,770	37,400	8,680
15	22,500	31,200	20,800	7,300	18,800	4,730	7,170	32,400	9,720
16	24,700	29,600	20,400	8,400	19,100	3,950	7,040	28,200	10,200
17	33.000	28,500	19,900	8,260	18,000	6,780	6,390	27,100	10,700
18	40,500	30,100	18,600	7,980	15,800	6,260	6,020	24,700	10,300
19	42,300	29,300	18,000	7,440	13,900	6,020	6,390	23,400	9,720
20	42,600	26,500	17,000	7,040	12,600	6,520	6,020	21,500	10,800
21	42,000	23,900	16,800	6,910	11,500	7,170	6,140	20,200	12,800
22	42,600	21,100	16,000	7,040	10,300	7,440	6,780	19,100	12,000
23	47,000	21,800	15,400	9,120	9,270	7,040	7,170	18,000	11,500
24	59,200	22,700	12,800	9,720	9,720	7,580	7,170	17,400	9,270
25	55,000	24,200	13,000	8,400	10,200	6,910	16,400	17,200	10,200
26	49,500	23,400	12,600	7,840	11,300	6,260	43,000	16,400	7,710
27	47,000	22,700	12,500	7,300	11,000	5,770	49,500	16,400	7,040
28	44,500	22,000	12,800	6,780	10,700	5,770	38,400	15,000	8,260
29	42,000	23,000	12,000	5,540	10,700	5,300	32,100	14,100	8,540
30	37,200	24,200	10,700	5,300	11,300	5,190	26,800	13,500	7,980
31	.....	45,100	.....	5,420	10,800	.....	23,400	.....	6,650

NOTE.—Daily discharge computed from a well-defined rating curve.
Discharge Jan. 1 to Apr. 10, estimated, because of ice, from gage heights, climatologic records, and discharge of adjacent drainage areas: January, 8,400 second-feet; February, 6,800 second-feet; March, 12,000 second-feet; Apr. 1-10, 20,000 second-feet.

Monthly discharge of Penobscot River at West Enfield, Maine, for 1912.

[Drainage area, 6,600 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	8,400	1.27	1.46	D.
February	.....	.....	6,800	1.03	1.11	D.
March	.....	.....	12,000	1.82	2.10	D.
April	59,200	.....	32,900	4.98	5.56	C.
May	45,100	20,600	26,500	4.02	4.64	A.
June	56,000	10,700	25,100	3.80	4.24	B.
July	9,720	5,300	7,680	1.16	1.34	B.
August	20,200	5,540	11,200	1.70	1.96	A.
September	10,300	3,950	6,640	1.01	1.13	A.
October	49,500	5,770	12,800	1.94	2.24	A.
November	63,200	13,500	25,500	3.86	4.31	A.
December	17,000	6,650	11,300	1.71	1.97	B.
The year	63,200	.....	15,500	2.35	32.06	

NOTE.—See footnotes to table of daily discharge.

EAST BRANCH OF PENOBSCOT RIVER AT GRAND LAKE DAM, MAINE.

Location.—At the dam at the outlet of Grand Lake, T. 6, Rs. 8 and 9, about 47 miles above the mouth of the river.

Records available.—April 18 to July 12, 1912. Records simply show fluctuation of the level of the lake.

Drainage area.—496 square miles. Includes Chamberlain Lake drainage area, 270 square miles.

Gage.—Staff gage at the dam.

Channel.—The dam at the outlet of Grand Lake is a timber crib about 185 feet long between ledge abutments and affords a head of 14 feet. There are five gates 8 feet wide and one sluice gate 17 feet wide. The elevation of gate sills is about 641.2 feet.

Discharge measurements.—None made at this station.

Artificial control.—The dam at this station, as well as the one at the outlet of Chamberlain Lake, is operated in the interests of log driving. The gates are generally closed down in the spring as soon as the ice goes out, and the spring freshet flow is thus stored. The gates are subsequently manipulated when running logs, and at the end of the drive are left open for the balance of the season. During the fall of the year the flow from Grand Lake and the lower course of the East Branch is generally the natural flow.

Cooperation.—Records are furnished by Mr. George H. Hamlin, of Orono, through the office of the Maine State Water Storage Commission.

Daily gage height, in feet, of East Branch of Penobscot River at Grand Lake dam, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1	.....	13.5	15.5	13.1	11	.....	13.0	14.1	9.75	21	10.75	13.50	14.0	.....
2	.....	12.85	15.75	12.9	12	.....	13.25	14.1	9.5	22	11.25	13.50	14.0	.....
3	.....	12.35	15.9	12.65	13	.....	13.5	14.5	.....	23	11.5	13.65	14.0	.....
4	.....	12.4	15.4	12.4	14	.....	13.75	14.65	.....	24	12.0	13.75	13.9	.....
5	.....	12.75	14.9	12.15	15	.....	14.0	14.85	.....	25	12.5	13.9	13.9	.....
6	.....	13.15	14.5	11.85	16	.....	13.75	14.6	.....	26	12.65	14.0	13.85	.....
7	.....	13.35	14.35	11.15	17	.....	13.75	14.35	.....	27	12.6	14.15	13.85	.....
8	.....	13.15	14.35	10.75	18	8.5	13.75	14.25	.....	28	12.5	14.35	13.65	.....
9	.....	13.0	14.25	10.35	19	9.75	13.75	14.15	.....	29	13.1	14.50	13.5	.....
10	.....	12.85	14.15	10.0	20	10.25	13.50	14.1	.....	30	13.35	15.0	13.25	.....
										31	.....	15.25	.....	.....

EAST BRANCH OF PENOBSCOT RIVER AT GRINDSTONE, MAINE.

Location.—Bangor & Aroostook Railroad bridge half a mile south of railroad station at Grindstone, one-eighth mile above Grindstone Falls, and about 8 miles above the mouth at Medway.

Records available.—October 23, 1902, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,100 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent; stream confined by abutments of bridge and broken by one pier at ordinary stages; velocity of current medium at moderate and high stages, but sluggish at low water.

Discharge measurements.—Made from railroad bridge.

Winter flow.—Affected by ice.

Artificial control.—Several dams are maintained at the outlets of a number of lakes and ponds near the source of the river and regulated in the interests of log driving. During the summer and fall gates are generally left open. The basin of the East Branch since about 1840 includes about 270 square miles of additional territory draining into Chamberlain Lake that formerly drained into the St. John River basin. This diversion is made through what is known as the Telso canal.

Accuracy.—The relation between gage height and discharge is materially affected by backwater from log jams that form at the station and at Grindstone Falls immediately below and during the winter months by ice. Results believed to be fair for moderate and high stages, but uncertain for low water.

The following discharge measurement was made by F. E. Pressey:

March 7, 1912: Gage height, 5.64 feet; discharge, 375 second-feet. Relation of gage height to discharge affected by ice.

Daily gage height, in feet, of East Branch of Penobscot River at Grindstone, Maine, for 1912.

[Geo. H. Goddard, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	5.50	.....	.....	9.25	10.05	7.08	5.58	6.68	5.55	7.40	6.10
2	6.80	.....	.....	.....	8.98	9.75	7.00	5.90	6.58	5.68	7.62	6.10
3	6.70	.....	6.10	6.80	8.68	9.30	6.90	6.22	6.48	5.80	8.10	6.48
4	.....	5.40	.....	.....	8.22	9.20	6.75	6.20	6.35	5.78	7.65	6.62
5	.....	.....	.....	.....	7.50	8.95	6.60	5.95	6.12	5.68	7.52	6.35
6	.....	.....	.....	.....	7.25	8.72	6.68	5.38	5.98	5.62	7.40	6.20
7	6.40	.....	5.60	7.00	7.75	8.52	6.90	4.88	5.80	5.55	7.65	6.55
8	.....	5.40	.....	.....	7.60	8.40	6.95	4.78	5.65	5.50	8.95	6.48
9	.....	.....	.....	.....	7.90	8.25	6.80	5.25	5.52	5.38	10.55	6.18
10	6.20	.....	5.60	6.90	8.00	8.10	6.65	6.52	5.40	5.40	9.40	5.90
11	.....	5.30	.....	.....	7.50	8.10	6.35	7.05	5.32	5.40	8.35	5.98
12	.....	.....	.....	.....	7.05	8.00	6.15	7.55	5.30	5.28	8.08	6.00
13	6.00	.....	.....	.....	7.00	8.00	5.80	7.3	5.22	5.35	7.92	5.90
14	.....	.....	5.90	6.80	7.70	8.15	5.50	6.95	5.15	5.50	7.88	5.90
15	.....	5.25	.....	.....	8.00	8.10	5.35	7.20	4.95	5.50	7.52	5.80
16	.....	.....	.....	.....	7.95	7.85	5.40	7.28	5.00	5.48	7.40	5.85
17	6.10	.....	7.00	8.20	7.80	7.80	5.30	6.88	5.00	5.42	7.40	6.00
18	.....	5.20	.....	9.20	7.75	7.80	5.30	6.50	5.05	5.38	7.25	5.90
19	.....	.....	.....	8.70	7.65	7.70	5.52	6.08	5.10	5.30	6.95	6.10
20	.....	.....	7.20	8.45	7.60	7.55	6.00	6.00	5.20	5.38	6.80	6.30
21	6.00	.....	.....	8.42	7.45	7.30	5.80	5.98	5.62	5.40	6.80	6.20
22	.....	5.70	.....	8.50	7.32	7.20	5.60	5.90	5.62	5.28	6.80	6.00
23	.....	.....	.....	9.18	7.35	7.10	5.75	5.85	5.58	5.22	6.75	5.90
24	5.80	.....	7.20	10.75	7.50	7.00	5.72	5.85	5.45	5.38	6.70	5.90
25	.....	6.10	.....	10.30	7.50	7.10	5.65	5.80	5.35	8.80	6.62	5.80
26	.....	.....	.....	9.70	7.50	7.10	5.50	5.78	5.30	11.45	6.60	5.80
27	.....	.....	6.10	9.75	7.50	7.10	5.42	5.60	5.28	10.80	6.48	5.80
28	5.70	.....	.....	10.00	7.40	7.10	5.38	5.58	5.22	9.10	6.25	5.90
29	.....	6.10	.....	9.50	8.35	7.10	5.35	6.20	5.20	8.05	6.20	5.90
30	.....	.....	.....	9.45	9.45	7.10	5.30	6.80	5.32	7.55	6.12	5.90
31	.....	.....	6.90	.....	10.05	.....	5.42	6.82	.....	7.38	.....	5.90

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 18; average thickness of ice from 0.7 to 2.1 feet. Gage observer reported anchor ice in river on Dec. 10; river partly frozen over Dec. 21 and river frozen over Dec. 30. Relation of gage height to discharge may have been affected by ice during these periods in December, but effect is not considered sufficient to warrant correction.

Daily discharge, in second-feet, of East Branch of Penobscot River at Grindstone, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		8,170	10,100	3,470	1,110	2,760	1,080	4,090	1,810
2		7,530	9,380	3,320	1,520	2,590	1,230	4,530	1,810
3		6,840	8,290	3,140	1,990	2,420	1,380	5,550	2,420
4		5,810	8,050	2,880	1,960	2,200	1,350	4,600	2,650
5		4,290	7,460	2,620	1,590	1,840	1,230	4,330	2,200
6		3,800	6,940	2,760	902	1,630	1,150	4,090	1,960
7		4,800	6,480	3,140	549	1,380	1,080	4,600	2,540
8		4,490	6,210	3,230	495	1,190	1,020	7,460	2,420
9		5,120	5,880	2,960	790	1,040	902	11,400	1,930
10		5,330	5,550	2,700	2,480	920	920	8,530	1,520
11		4,290	5,550	2,200	3,420	848	920	6,100	1,630
12		3,420	5,330	1,880	4,390	830	814	5,510	1,660
13		3,320	5,330	1,380	3,890	766	875	5,160	1,520
14		4,700	5,660	1,020	3,230	715	1,020	5,080	1,520
15		5,330	5,550	875	3,700	590	1,020	4,330	1,380
16		5,220	5,020	920	3,850	620	1,000	4,090	1,450
17		4,910	4,910	830	3,100	620	940	4,090	1,660
18		4,800	4,910	830	2,450	650	902	3,800	1,520
19	6,890	4,600	4,700	1,040	1,780	680	830	3,230	1,810
20	6,320	4,490	4,390	1,660	1,660	750	902	2,960	2,120
21	6,250	4,190	3,890	1,380	1,630	1,150	920	2,960	1,960
22	6,430	3,930	3,700	1,130	1,520	1,150	814	2,960	1,660
23	8,000	3,990	3,510	1,320	1,450	1,110	766	2,880	1,520
24	11,900	4,290	3,320	1,280	1,450	970	902	2,790	1,520
25	10,800	4,290	3,510	1,190	1,380	875	7,120	2,650	1,380
26	9,250	4,290	3,510	1,020	1,350	830	13,800	2,620	1,380
27	9,380	4,290	3,510	940	1,130	814	12,000	2,420	1,380
28	10,000	4,090	3,510	902	1,110	766	7,810	2,040	1,520
29	8,770	6,100	3,510	875	1,960	750	5,440	1,960	1,520
30	8,650	8,650	3,510	830	2,960	848	4,390	1,840	1,520
31		10,100		940	3,000		4,050		1,520

NOTE.—Daily discharge computed from a rating curve fairly well defined between 400 and 10,000 second-feet. Discharge Jan. 1 to Apr. 18 estimated, because of ice, from one discharge measurement, gage heights, observer's notes, and climatologic records: January, 750 second-feet; February, 480 second-feet; March, 1,000 second-feet, varying from about 350 to 1,800 second-feet; Apr. 1–18, 2,800 second-feet, varying from about 2,000 to 6,000 second-feet. See footnotes to table of daily gage heights relative to possible ice effect during December.

Monthly discharge of East Branch of Penobscot River at Grindstone, Maine, for 1912.

[Drainage area, 1,100 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January			750	0.682	0.79	D.
February			480	.436	.47	D.
March			1,000	.909	1.05	C.
April	11,900		5,100	4.64	5.18	C.
May	10,100	3,320	5,140	4.67	5.38	A.
June	10,100	3,320	5,370	4.88	5.44	A.
July	3,470	830	1,760	1.60	1.84	A.
August	4,390	495	2,060	1.87	2.16	A.
September	2,760	590	1,140	1.04	1.16	A.
October	13,800	766	2,530	2.30	2.65	A.
November	11,400	1,840	4,290	3.90	4.35	B.
December	2,650	1,380	1,760	1.60	1.84	B.
The year	13,800		2,610	2.37	32.31	

NOTE.—See footnotes to table of daily discharge.

MATTAWAMKEAG RIVER AT MATTAWAMKEAG, MAINE.

Location.—At Maine Central Railroad bridge at the village of Mattawamkeag, half a mile above the mouth of the river.

Records available.—August 26, 1902, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,500 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent; broken by two bridge piers.

Discharge measurements.—Made from the bridge, which is slightly oblique to the current; low-water measurements made by wading at a point about 1 mile above the station.

Winter flow.—Affected by ice.

Artificial control.—Dams are maintained at the outlets of several large lakes and ponds, but the stored water is used only for log driving.

Accuracy.—Relation between gage height and discharge is at times affected by backwater from log jams that form during short periods in the log-driving season, and, during the winter months, by ice. A very good open-channel discharge rating curve has been developed.

Discharge measurements of Mattawamkeag River at Mattawamkeag, Maine, in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Mar. 4–5	F. E. Pressey	7.30	[a] 806
Nov. 2	do	6.88	4,900

[a] Measurement made under ice cover.

Daily gage height, in feet, of Mattawamkeag River at Mattawamkeag, Maine, for 1912.

[W. T. Mincher, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.1	.....	.....	.....	8.8	10.15	5.4	4.3	5.15	4.75	7.45	5.8
2	7.35	.....	.....	.....	8.55	10.75	5.2	4.55	5.0	5.05	7.15	5.7
3	7.65	.....	7.1	.....	8.3	12.15	5.0	4.6	4.9	5.35	6.8	5.6
4	7.8	8.1	7.3	.....	8.2	12.15	4.7	4.7	4.8	5.4	6.9	5.95
5	7.7	.....	7.3	.....	8.05	11.85	4.5	5.35	4.7	5.5	7.0	6.3
6	7.7	.....	.....	.....	7.8	10.35	4.4	5.15	4.6	5.4	6.9	6.3
7	.....	.....	.....	9.4	7.55	9.45	4.35	5.0	4.5	5.3	6.8	6.3
8	.....	.....	.....	.....	7.15	8.65	4.2	4.8	4.4	5.05	8.35	6.3
9	.....	.....	.....	.....	7.1	7.0	4.05	4.9	4.3	5.0	10.3	6.2
10	.....	.....	7.0	.....	7.45	6.85	3.9	5.0	4.3	4.9	10.75	6.1
11	.....	8.0	.....	8.5	7.7	6.6	3.65	5.8	4.3	4.95	10.45	6.1
12	.....	.....	.....	8.05	7.7	6.7	3.4	6.15	4.3	5.15	10.4	6.0
13	.....	.....	.....	7.9	7.6	6.7	3.3	7.1	4.2	5.15	9.9	6.0
14	6.0	.....	.....	8.0	7.5	6.9	3.3	7.75	4.1	5.0	9.4	5.9
15	.....	.....	.....	8.2	7.5	7.0	3.3	8.05	4.0	5.0	8.95	5.9
16	.....	.....	.....	8.45	7.4	7.1	3.2	7.85	4.25	4.9	8.65	5.8
17	.....	.....	8.3	9.0	7.4	7.1	3.2	7.65	4.5	4.9	8.35	5.7
18	.....	6.6	.....	9.4	7.5	7.0	3.4	7.35	4.6	5.0	8.05	5.6
19	.....	.....	.....	9.6	7.25	7.0	3.8	7.1	4.7	5.15	7.75	5.5
20	.....	.....	.....	9.6	7.0	6.8	3.8	6.7	4.7	5.1	7.7	5.4
21	8.6	.....	.....	9.7	6.75	6.7	3.65	6.2	4.7	5.1	7.7	5.4
22	.....	.....	.....	9.8	6.55	6.6	3.4	5.9	4.7	5.1	7.6	5.4
23	.....	.....	.....	9.7	6.3	6.4	3.4	5.75	4.7	5.1	7.45	5.4
24	.....	.....	8.7	9.65	6.5	6.2	3.3	5.7	4.8	5.15	7.15	5.3
25	.....	.....	.....	9.45	6.7	6.0	3.85	5.8	4.8	6.0	6.75	5.3
26	.....	6.5	.....	9.4	6.6	5.9	4.45	6.05	4.7	7.05	6.6	5.3
27	.....	.....	.....	9.3	6.45	5.8	4.4	6.1	4.6	7.75	6.4	5.3
28	8.2	.....	.....	9.1	6.4	5.7	4.3	6.0	4.5	8.25	6.3	5.3
29	.....	.....	.....	9.1	6.65	5.6	4.2	5.9	4.55	8.05	6.2	.....
30	.....	.....	.....	9.0	8.2	5.5	4.1	5.7	4.6	7.85	5.95	.....
31	.....	.....	9.7	.....	9.75	.....	4.0	5.45	.....	7.65	.....	.....

NOTE.—Relation of gage height to discharge affected by ice about Jan. 1 to Apr. 11, and about Dec. 26 to 31.

Daily discharge, in second-feet, of Mattawamkeag River at Mattawamkeag, Maine, for 1912.

Day.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5,280	.....	9,420	13,200	2,200	906	1,880	1,380	6,030	2,820
2	.....	.....	8,770	15,000	1,950	1,160	1,690	1,760	5,380	2,660
3	.....	.....	8,120	19,500	1,690	1,210	1,560	2,150	4,680	2,500
4	.....	.....	7,860	19,500	1,320	1,320	1,440	2,220	4,880	3,070
5	.....	.....	7,480	18,500	1,100	2,150	1,320	2,360	5,080	3,710
6	.....	.....	6,850	13,800	1,000	1,880	1,210	2,220	4,880	3,710
7	.....	.....	6,250	11,200	953	1,690	1,100	2,080	4,680	3,710
8	.....	.....	5,380	9,030	818	1,440	1,000	1,760	8,250	3,710
9	.....	.....	5,280	5,080	698	1,560	906	1,690	13,600	3,520
10	.....	.....	6,030	4,780	590	1,690	906	1,560	15,000	3,340
11	.....	.....	6,600	4,280	445	2,820	906	1,620	14,100	3,340
12	.....	7,480	6,600	4,480	334	3,430	906	1,880	13,900	3,160
13	.....	7,100	6,360	4,480	295	5,280	818	1,880	12,400	3,160
14	.....	7,350	6,140	4,880	295	6,720	736	1,690	11,000	2,980
15	.....	7,860	6,140	5,080	295	7,480	660	1,690	9,820	2,980
16	.....	8,510	5,920	5,280	258	6,980	862	1,560	9,030	2,820
17	.....	9,960	5,920	5,280	258	6,480	1,100	1,560	8,250	2,660
18	.....	11,000	6,140	5,080	334	5,810	1,210	1,690	7,480	2,500
19	.....	11,600	5,600	5,080	525	5,280	1,320	1,880	6,720	2,360
20	.....	11,600	5,080	4,680	525	4,480	1,320	1,820	6,600	2,220
21	.....	11,900	4,580	4,480	445	3,520	1,320	1,820	6,600	2,220
22	.....	12,200	4,180	4,280	334	2,980	1,320	1,820	6,360	2,220
23	.....	11,900	3,710	3,900	334	2,740	1,320	1,820	6,030	2,220
24	.....	11,700	4,090	3,520	295	2,660	1,440	1,880	5,380	2,080
25	.....	11,200	4,480	3,160	558	2,820	1,440	3,160	4,580	2,080
26	.....	11,000	4,280	2,980	1,050	3,250	1,320	5,180	4,280	.....
27	.....	10,800	4,000	2,820	1,000	3,340	1,210	6,720	3,900	.....
28	.....	10,200	3,900	2,660	906	3,160	1,100	7,990	3,710	.....
29	.....	10,200	4,380	2,500	818	2,980	1,160	7,480	3,520	.....
30	.....	9,960	7,860	2,360	736	2,660	1,210	6,980	3,070	.....
31	.....	.....	12,000	.....	660	2,290	.....	6,480	.....	.....

NOTE.—Daily discharge computed from a well-defined rating curve.
Discharge Jan. 2 to Apr. 11 and Dec. 26–31 estimated, because of ice, from one discharge measurement, gage heights, observer's notes, climatologic records, and discharge of adjacent drainage areas: Jan. 2–31, 2,000 second-feet; February, 1,400 second-feet; March, 2,300 second-feet, varying from about 750 to 4,500 second-feet; Apr. 1–11, 5,000 second-feet, varying from about 4,500 to 6,500 second-feet; Dec. 26–31, 1,700 second-feet.

Monthly discharge of Mattawamkeag River at Mattawamkeag, Maine, for 1912.

[Drainage area, 1,500 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	2,110	1.41	1.63	D.
February	.....	.....	1,400	.933	1.01	D.
March	.....	.....	2,300	1.53	1.76	D.
April	12,200	.....	8,280	5.52	6.16	C.
May	12,000	3,710	6,110	4.07	4.69	A.
June	19,500	2,360	7,030	4.69	5.23	B.
July	2,200	258	743	.495	.57	B.
August	7,480	906	3,300	2.20	2.54	A.
September	1,880	660	1,190	.793	.88	A.
October	7,990	1,380	2,830	1.89	2.18	A.
November	15,000	3,070	7,310	4.87	5.43	A.
December	3,710	.....	2,640	1.76	2.03	C.
The year	19,500	.....	3,760	2.51	34.11	

NOTE.—See footnotes to table of daily discharge.

PISCATAQUIS RIVER NEAR FOXCROFT, MAINE.

Location.—At Low's highway bridge, about halfway between Guilford and Foxcroft, three-fourths of a mile above the mouth of Black Stream and 3 miles below Mill Stream.

Records available.—August 17, 1902, to December 31, 1912. Data also in annual report of the Maine State Water Storage Commission.

Drainage area.—286 square miles.

Gage.—Staff, attached to left abutment of bridge; datum unchanged.

Channel.—Practically permanent; banks high and overflowed only during extreme floods.

Discharge measurements.—At medium and high stages made from the bridge; at low stages made by wading either above or below the bridge, where the bed is of fine gravel but the velocity is greater than at the bridge.

Winter flow.—Affected by ice during some years.

Artificial control.—The stream is used to develop power at several manufacturing plants above the station.

Accuracy.—The relation between gage height and discharge at low stages is considerably affected by the irregular use of the water at the mills; during some winters it is also affected by backwater from log jams, as little log driving is now done on the river. A very good rating curve has been developed for medium stages, but the curve for high and low stages is not yet accurately defined.

Discharge measurements of Piscataquis River near Foxcroft, Maine, in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Mar. 19	F. E. Pressey	5.20	[a] 985
Nov. 5	do	3.40	729

[a] Under ice cover.

Daily gage height, in feet, of Piscataquis River near Foxcroft, Maine, for 1912.

[A. F. D. Harlow, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	3.5	4.05	4.85	5.0	6.05	2.4	2.9	2.2	2.55	3.8	3.1
2	5.4	3.5	4.05	4.1	5.0	5.2	2.35	3.5	2.2	2.7	4.2	3.3
3	5.1	3.45	4.1	4.05	4.9	4.8	2.35	3.4	2.2	2.7	4.0	3.3
4	4.8	3.3	4.15	4.1	4.5	4.4	2.25	3.15	2.2	2.7	3.65	3.3
5	4.7	3.35	4.2	4.1	4.3	4.3	2.25	3.05	2.2	2.55	3.5	3.3
6	4.4	3.5	4.25	4.1	4.55	4.2	2.0	2.95	2.2	2.55	3.4	3.35
7	4.1	3.85	4.25	3.7	4.45	4.05	2.0	2.75	2.2	2.5	3.5	3.5
8	4.0	3.85	4.15	4.8	4.45	4.05	2.0	2.6	2.15	2.5	7.6	3.35
9	4.3	3.85	3.9	4.55	4.4	3.6	2.0	2.5	2.15	2.3	6.4	3.4
10	4.25	3.85	3.8	4.45	4.05	3.6	2.1	2.35	2.15	2.2	5.1	3.4
11	4.2	3.85	3.9	4.7	3.8	3.5	2.1	2.5	2.15	2.2	4.5	3.3
12	4.2	3.85	3.9	4.7	3.8	3.4	2.1	3.6	2.1	2.25	4.4	3.3
13	4.05	3.85	4.3	4.7	4.2	3.15	2.2	3.9	2.1	2.3	4.35	3.3
14	3.8	3.85	4.8	4.65	4.75	3.1	2.2	3.5	2.1	2.35	4.05	3.3
15	4.0	3.5	5.15	4.75	4.75	2.95	2.2	3.2	2.1	2.4	3.9	2.85
16	4.2	3.5	5.2	5.85	4.7	2.8	2.0	3.1	2.1	2.35	3.8	2.8
17	4.2	3.5	5.5	6.7	4.7	2.8	2.0	2.9	1.95	2.25	3.5	2.85
18	4.1	3.35	5.4	6.9	4.7	2.8	2.2	2.5	1.95	2.2	3.4	2.85
19	3.9	3.35	5.15	6.6	4.5	2.8	2.45	2.65	1.95	2.2	3.2	3.0
20	3.9	3.45	5.15	6.05	4.4	2.8	2.25	2.65	2.55	2.2	3.2	3.2
21	3.6	3.7	4.95	5.8	4.15	2.7	1.9	2.65	3.1	2.2	3.1	3.15
22	3.8	3.6	4.8	5.85	4.15	2.7	2.5	2.65	2.95	2.25	3.1	3.2
23	3.8	4.25	4.4	9.1	4.15	2.5	2.6	2.65	2.9	2.45	3.15	3.15
24	3.75	4.5	4.2	7.6	4.4	2.45	2.6	2.65	2.65	3.05	3.15	3.0
25	3.7	4.35	4.1	6.35	4.7	2.45	2.6	2.5	2.6	7.25	3.15	2.9
26	3.7	4.35	4.2	6.15	4.7	2.5	2.6	2.65	2.4	8.05	3.15	2.75
27	3.7	4.35	3.9	6.25	4.35	2.5	2.5	2.7	2.25	6.5	3.15	2.75
28	3.6	4.3	3.7	5.5	3.9	2.5	2.25	2.5	2.1	5.3	3.15	2.75
29	3.4	4.2	3.75	5.35	3.8	2.45	2.25	2.5	2.05	4.25	3.15	2.65
30	3.25	.....	4.7	5.1	5.6	2.4	2.4	2.2	2.35	4.0	3.15	2.6
31	3.25	.....	4.8	.....	6.8	.....	2.55	2.2	.....	4.0	.....	2.6

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 18. Observer notes Apr. 28, logs began to run at noon.

Daily discharge, in second-feet, of Piscataquis River near Foxcroft, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	2,350	4,060	148	374	100	199	1,020	502
2	.....	2,350	2,640	135	782	100	267	1,400	638
3	.....	2,220	2,080	135	709	100	267	1,210	638
4	.....	1,720	1,620	111	536	100	267	898	638
5	.....	1,510	1,510	111	470	100	199	782	638
6	.....	1,780	1,400	64	405	100	199	709	674
7	.....	1,670	1,260	64	292	100	180	782	782
8	.....	1,670	1,260	64	220	90	180	7,010	674
9	.....	1,620	858	64	180	90	123	4,700	709
10	.....	1,260	858	81	135	90	100	2,490	709
11	.....	1,020	782	81	180	90	100	1,720	638
12	.....	1,020	709	81	858	81	111	1,620	638
13	.....	1,400	536	100	1,110	81	123	1,560	638
14	.....	2,020	502	100	782	81	135	1,260	638
15	.....	2,020	405	100	569	81	148	1,110	345
16	.....	1,960	318	64	502	81	135	1,020	318
17	.....	1,960	318	64	374	58	111	782	345
18	.....	1,960	318	100	180	58	100	709	345
19	5,080	1,720	318	163	243	58	100	569	437
20	4,060	1,620	318	111	243	199	100	569	569
21	3,610	1,350	267	51	243	502	100	502	536
22	3,700	1,350	267	180	243	405	111	502	569
23	10,100	1,350	180	220	243	374	163	536	536
24	7,010	1,620	163	220	243	243	470	536	437
25	4,610	1,960	163	220	180	220	6,330	536	374
26	4,240	1,960	180	220	243	148	7,910	536	292
27	4,430	1,560	180	180	267	111	4,890	536	292
28	3,100	1,110	180	111	180	81	2,780	536	292
29	2,860	1,020	163	111	180	72	1,460	536	243
30	2,490	3,260	148	148	100	135	1,210	536	220
31	.....	5,460	.....	199	100	.....	1,210	.....	220

NOTE.—Daily discharge computed from a rating curve well defined between 20 and 4,000 second-feet, above which point the curve is simply an extension. Discharge Jan. 1 to Apr. 18 estimated, because of ice, from one discharge measurement, daily gage heights, climatologic records, and discharge of adjacent drainage areas: January, 450 second-feet; February, 320 second-feet; March, 650 second-feet; Apr. 1–18, 1,300 second-feet.

Monthly discharge of Piscataquis River near Foxcroft, Maine, for 1912.

[Drainage area, 286 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	450	1.57	1.81	D.
February	.....	.....	320	1.12	1.21	D.
March	.....	.....	650	2.27	2.62	D.
April	10,100	.....	2,620	9.16	10.22	D.
May	5,460	1,020	1,830	6.40	7.38	B.
June	4,060	148	799	2.79	3.11	A.
July	220	51	123	.430	.50	B.
August	1,110	100	366	1.28	1.48	A.
September	502	58	138	.483	.54	B.
October	7,910	100	961	3.36	3.87	B.
November	7,010	502	1,240	4.34	4.84	B.
December	782	220	501	1.75	2.02	B.
The year	10,100	.....	832	2.91	39.60	

NOTE.—See footnotes to table of daily discharge.

KENDUSKEAG STREAM NEAR BANGOR, MAINE.

Location.—At highway bridge at Sixmile Falls, about 6 miles northwest of Bangor.

Records available.—September 15, 1908, to December 31, 1912. Data also in annual reports of Maine State Water Storage Commission.

Drainage area.—191 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent; broken by one pier; banks high and not subject to overflow.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Artificial control.—A number of years ago an artificial cut was made for log driving through a low divide between Souadabscook Stream and Black Stream, the latter a tributary to the Kenduskeag, entering about 7 miles above the gaging station. During high stages of the Souadabscook a portion of its waters finds its way through the artificial cut into the Kenduskeag; at low stages of the Souadabscook all the flow continues down its own channel. Black Stream probably sends its waters only to the Kenduskeag.

Accuracy.—A good discharge rating curve has been developed, although more measurements are needed at high stages.

Discharge measurements of Kenduskeag Stream near Bangor, Maine, in 1912.

[Hydrographer, F. E. Pressey.]

Date.	Gage height.	Discharge.
	Feet.	*Sec.-feet.*
Mar. 11	3.54	[a] 82
June 1	7.01	2,560
Sept. 4	1.80	44

[a] Measurement made under ice cover.

Daily gage height, in feet, of Kenduskeag Stream near Bangor, Maine, for 1912.

[Fred Cort, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1				6.3	3.9	7.0	1.8	2.2	2.05	2.3	4.5	3.6
2				6.05	3.6	6.7	1.8	2.25	2.0	2.3	4.4	3.7
3			4.0	5.6	3.3	6.3	1.9	2.25	2.0	2.3	4.5	3.85
4		3.2		5.3	3.0	5.6	2.0	2.3	1.9	2.45	4.4	4.3
5				4.85	3.05	4.7	1.95	2.25	1.9	2.65	4.4	4.5
6				4.55	3.15	3.9	1.9	2.25	1.8	2.85	4.3	4.4
7	4.0			5.25	3.0	3.45	1.95	2.2	1.9	3.0	4.45	4.55
8				6.3	3.0	3.4	1.95	2.3	1.9	2.75	5.25	4.45
9				6.55	3.4	3.2	1.85	2.15	2.0	2.55	6.5	4.55
10			3.6	6.25	3.25	3.05	1.9	2.05	2.0	2.35	6.2	4.25
11		2.6	3.5	5.8	3.75	3.0	1.9	2.0	2.0	2.3	5.05	4.1
12				5.65	3.65	2.9	1.9	2.15	2.1	2.3	4.7	3.9
13				5.45	3.45	2.85	1.9	2.25	2.0	2.3	4.95	3.8
14	3.5			5.5	3.85	2.95	1.85	2.25	2.05	2.4	4.9	3.7
15				5.55	3.85	2.75	1.9	2.2	2.15	2.5	4.7	3.75
16				5.9	3.85	2.7	1.8	2.1	2.35	2.6	4.6	3.65
17				6.3	3.7	2.9	1.75	2.1	2.5	2.5	4.5	3.7
18		3.0		6.2	3.7	2.65	1.7	2.1	2.35	2.45	4.55	3.7
19				6.55	3.65	2.5	1.8	2.0	2.3	2.4	4.45	3.65
20				6.75	3.2	2.35	1.85	2.0	2.3	2.3	4.3	3.55
21	3.5			6.05	2.95	2.55	1.9	2.1	2.25	2.4	4.0	3.4
22				5.5	3.2	2.45	2.05	2.2	2.2	2.45	4.1	3.5
23				5.55	3.25	2.5	2.15	2.35	2.2	2.4	3.95	3.45
24				6.1	3.35	2.55	2.15	2.45	2.25	3.5	3.85	3.55
25		4.5		5.7	3.4	2.45	2.15	2.5	2.15	5.65	3.7	3.6
26				5.5	3.3	2.3	2.05	2.45	2.1	7.25	3.65	3.65
27				4.9	3.1	2.25	2.0	2.45	2.05	7.2	3.45	3.7
28	3.5			4.4	2.95	2.05	1.9	2.4	2.2	6.25	3.6	3.65
29				4.0	3.05	1.95	1.9	2.25	2.25	5.25	3.55	3.7
30				3.8	4.3	1.9	2.0	2.15	2.2	4.3	3.6	3.75
31					6.15		2.15	2.05		4.5		4.4

NOTE.—Relation of gage height to discharge affected by ice about Jan. 1 to Apr. 15; average thickness of ice from 1 to 1½ feet.

Daily discharge, in second-feet, of Kenduskeag Stream near Bangor, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	576	2,600	45	102	78	119	845	465
2	.....	465	2,340	45	110	71	119	795	501
3	.....	366	2,020	57	110	71	119	845	557
4	.....	276	1,500	71	119	57	146	795	745
5	.....	290	950	64	110	57	188	795	845
6	.....	320	576	57	110	45	236	745	795
7	.....	276	414	64	102	57	276	820	870
8	.....	276	398	64	119	57	211	1,270	820
9	.....	398	335	51	94	71	166	2,180	870
10	.....	350	290	57	78	71	128	1,940	722
11	.....	520	276	57	71	71	119	1,150	655
12	.....	483	249	57	94	86	119	950	576
13	.....	414	236	57	110	71	119	1,090	538
14	.....	557	262	51	110	78	137	1,060	501
15	.....	557	211	57	102	94	156	950	520
16	1,720	557	199	45	86	128	177	895	483
17	2,020	501	249	40	86	156	156	845	501
18	1,940	501	188	34	86	128	146	870	501
19	2,220	483	156	45	71	119	137	820	483
20	2,390	335	128	51	71	119	119	745	448
21	1,830	262	166	57	86	110	137	615	398
22	1,440	335	146	78	102	102	146	655	431
23	1,470	350	156	94	128	102	137	596	414
24	1,860	382	166	94	146	110	431	557	448
25	1,580	398	146	94	156	94	1,540	501	465
26	1,440	366	119	78	146	86	2,820	483	483
27	1,060	305	110	71	146	78	2,780	414	501
28	795	262	78	57	137	102	1,980	465	483
29	615	290	64	57	110	110	1,270	448	501
30	538	745	57	71	94	102	745	465	520
31	.....	1,900	.....	94	78	.....	845	.....	795

NOTE.—Daily discharge computed from a rating curve well defined between 10 and 300 second-feet, and fairly well defined throughout the remainder of the range of stage during 1912.

Discharge Jan. 1 to Apr. 15 estimated, because of ice, from one discharge measurement, gage heights, observer's notes, climatologic records, and discharge of adjacent drainage areas: January, 250 second-feet; February, 150 second-feet; March, 400 second-feet, varying from about 80 to 1,000 second-feet; Apr. 1-15, 1,000 second-feet, varying from about 700 to 1,500 second-feet.

Monthly discharge of Kenduskeag Stream near Bangor, Maine, for 1912.

[Drainage area, 191 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	250	1.31	1.51	D.
February	.....	.....	150	.785	.85	D.
March	.....	.....	400	2.09	2.41	D.
April	2,390	.....	1,260	6.60	7.36	C.
May	1,900	262	455	2.38	2.74	B.
June	2,600	57	493	2.58	2.88	B.
July	94	34	61.7	.323	.37	B.
August	156	71	105	.550	.63	A.
September	156	45	89.4	.468	.52	A.
October	2,820	119	514	2.69	3.10	B.
November	2,180	414	853	4.47	4.99	B.
December	870	398	575	3.01	3.47	B.
The year	2,820	.....	433	2.27	30.83	

NOTE.—See footnotes to table of daily discharge.

KENNEBEC RIVER BASIN.

MOOSE RIVER NEAR ROCKWOOD, MAINE.

Location.—At a deserted cabin one-fourth mile above the house of Edilbert Arsenault, 2 miles above the mouth of the river; reached by steamer or rowboat from Kineo.

Records available.—September 7, 1902, to December 31, 1908; May 16, 1910, to September 18, 1912. Data in annual reports of Maine State Water Storage Commission.

Drainage area.—680 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent.

Discharge measurements.—Made from a car suspended from a steel cable or, at low stages, by wading at a section a short distance downstream.

Winter flow.—Affected by ice.

Artificial control.—Dams are maintained at the outlets of several of the lakes above the station, but all such stored water is used for log driving and the effect on the regimen of flow is but temporary.

Accuracy.—The relation between gage height and discharge is at times affected by backwater from log jams, and during the winter by ice; otherwise conditions favor accurate determination of discharge, and a good discharge rating curve has been developed except for extremely low stages.

Daily gage height, in feet, of Moose River near Rockwood, Maine, for 1912.

[Edilbert Arsenault, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	3.9	2.6	2.3	3.55	8.15	6.6	5.25	2.0	2.9
2	3.9	2.5	2.2	3.6	8.35	6.6	5.0	2.0	2.9
3	3.9	2.4	2.2	3.4	8.4	6.5	4.65	2.0	2.9
4	3.8	2.4	2.2	3.4	8.55	6.5	4.45	2.0	2.85
5	3.8	2.4	2.1	3.4	8.2	6.55	4.1	2.25	2.8
6	3.7	2.6	2.1	3.3	7.95	6.55	3.8	2.35	2.7
7	3.7	2.7	2.1	3.3	7.65	6.4	3.5	2.4	2.85
8	3.7	2.85	2.0	3.3	7.3	6.4	3.4	2.55	2.7
9	3.7	3.25	2.0	3.3	7.3	6.4	3.3	2.6	2.6
10	3.7	3.3	2.0	3.3	7.0	6.25	3.25	2.7	2.5
11	3.8	3.3	2.0	3.2	7.05	6.15	3.2	2.8	2.45
12	4.0	3.2	2.0	3.25	6.9	6.1	3.2	2.95	2.4
13	4.0	3.2	2.1	3.45	6.7	6.0	3.1	3.1	2.3
14	3.9	3.1	2.2	3.65	6.6	5.9	2.95	3.2	2.3
15	3.8	3.05	2.2	4.0	6.6	5.7	2.85	3.35	2.2
16	3.7	2.9	2.2	4.05	6.4	5.55	2.7	3.45	2.2
17	3.6	2.9	2.2	4.3	6.4	5.4	2.6	3.6	2.3
18	3.5	2.8	2.2	4.85	6.35	5.4	2.5	3.6	2.3
19	3.4	2.8	2.3	5.15	6.35	5.4	2.4	3.5	.....
20	3.3	2.8	2.3	5.5	6.2	5.4	2.3	3.4	.....
21	3.25	2.7	2.4	5.9	6.1	5.5	2.3	3.3	.....
22	3.2	2.7	2.5	6.15	6.0	5.35	2.2	3.3	.....
23	3.2	2.6	2.5	6.5	6.0	5.5	2.15	3.2	.....
24	3.2	2.65	2.6	6.9	5.9	5.5	2.05	3.2	.....
25	3.2	2.7	2.7	7.05	5.8	5.4	2.0	3.1	.....
26	3.2	2.7	2.7	7.15	5.65	5.4	2.0	3.1	.....
27	3.2	2.6	2.7	7.3	5.8	5.35	2.0	3.0	.....
28	3.2	2.5	3.1	7.45	5.95	5.3	2.0	3.0	.....
29	2.95	2.4	3.65	7.65	6.05	5.4	1.9	3.0	.....
30	2.8	.....	3.85	8.0	6.15	5.4	1.95	2.9	.....
31	2.65	.....	3.9	.....	6.5	.....	2.0	2.9	.....

NOTE.—Relation of gage height to discharge affected by ice about Jan. 7 to Feb. 22. Gage heights during March probably not materially affected by ice. Observer noted: Jan. 12 and Feb. 9, frozen across at gage section; Feb. 21, opened; May 6, logs commenced running in river, no jam to date.

Daily discharge, in second-feet, of Moose River near Rockwood, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1,170	.....	338	937	5,460	3,670	2,290	238	584
2	1,170	.....	303	968	5,700	3,670	2,060	238	584
3	1,170	.....	303	846	5,760	3,560	1,750	238	584
4	1,100	.....	303	846	5,940	3,560	1,580	238	562
5	1,100	.....	270	846	5,520	3,620	1,310	320	539
6	1,030	.....	270	788	5,220	3,620	1,100	356	496
7	.....	.....	270	788	4,860	3,460	906	375	562
8	.....	.....	238	788	4,460	3,460	846	434	496
9	.....	.....	238	788	4,460	3,460	788	454	454
10	.....	.....	238	788	4,110	3,300	760	496	414
11	.....	.....	238	733	4,170	3,190	733	539	394
12	.....	.....	238	760	4,000	3,140	733	608	375
13	.....	.....	270	876	3,780	3,040	681	681	338
14	.....	.....	303	1,000	3,670	2,930	608	733	338
15	.....	.....	303	1,240	3,670	2,730	562	817	303
16	.....	.....	303	1,270	3,460	2,580	496	876	303
17	.....	.....	303	1,460	3,460	2,430	454	968	338
18	.....	.....	303	1,920	3,400	2,430	414	968	338
19	.....	.....	338	2,190	3,400	2,430	375	906	.....
20	.....	.....	338	2,530	3,240	2,430	338	846	.....
21	.....	.....	375	2,930	3,140	2,530	338	788	.....
22	.....	.....	414	3,190	3,040	2,380	303	788	.....
23	.....	454	414	3,560	3,040	2,530	286	733	.....
24	.....	475	454	4,000	2,930	2,530	254	733	.....
25	.....	496	496	4,170	2,830	2,430	238	681	.....
26	.....	496	496	4,280	2,680	2,430	238	681	.....
27	.....	454	496	4,460	2,830	2,380	238	631	.....
28	.....	414	681	4,630	2,980	2,340	238	631	.....
29	.....	375	1,000	4,860	3,090	2,430	207	631	.....
30	.....	.....	1,130	5,280	3,190	2,430	222	584	.....
31	.....	.....	1,170	.....	3,560	.....	238	584	.....

NOTE.—Discharge Jan. 7 to Feb. 22 estimated, because of ice, from climatologic records, gage observer's notes, and discharge of adjacent areas: Jan. 7–31, 430 second-feet, varying from about 250 to 900 second-feet; Feb. 1–22, 320 second-feet, varying from about 300 to 400 second-feet.

Monthly discharge of Moose River near Rockwood, Maine, for 1912.

[Drainage area, 680 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	1,170	.....	564	0.829	0.96	D.
February	496	.....	352	.518	.56	D.
March	1,170	238	414	.609	.70	C.
April	5,280	733	2,120	3.12	3.48	C.
May	5,940	2,680	3,900	5.74	6.62	B.
June	3,670	2,340	2,900	4.26	4.75	B.
July	2,290	207	696	1.02	1.18	A.
August	968	238	696	.891	1.03	A.
September 1–18	584	303	445	.654	.44	B.

MOOSEHEAD LAKE AT EAST OUTLET, MAINE.

Location.—At the wharf at the east outlet of the lake, about 8 miles from Kineo.

Records available.—April 1, 1895, to December 31, 1912.

Drainage area.—1,240 square miles.

Gage.—Staff, at end of boat landing; two datums have been used at the east outlet; the original datum is at elevation 1,011.30 feet above mean sea level and approximately 10 feet below the sills of the outlet gates; gage is read to this datum; the second, to which all gage readings published to and including 1911 have been referred, is 10 feet higher; that is, the zero is at the sill of the gates. It is believed that low water may go below the sill of the gates (zero of second datum) and so gage heights in this report are published as read; that is, to the original datum 1,011.30 feet above mean sea level.

Artificial control.—The lake is regulated to a capacity of 23,735,000,000 cubic feet. The dam at the east outlet is controlled by 35 gates; 15 old gates are at gage height 10 feet (original datum) and 20 gates at sill-gate height 8 feet (original datum). At extreme low stages the flow from the lake is controlled not by the gates but by a bar above the dam at an approximate gage height of 9 feet (original datum). The records show only fluctuations in the level of the lake, and are used in the studies of regulation of the lake and in computing the natural flow of the Kennebec at The Forks station.

Storage capacity.—Approximately equal to a discharge of 124 second-feet for one month (30 days) for each tenth foot of depth over the surface of Moosehead Lake.

Cooperation.—Record kept and furnished for publication by the Hollingsworth & Whitney Co.

Daily gage height, in feet, of Moosehead Lake at east outlet, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.9		13.4	13.4	17.2		17.3				15.35	
2		14.0						15.7	15.4	15.1		17.05
3	13.95			13.5	17.0	17.55	17.2					
4			13.3						15.4	15.15	15.55	16.95
5	14.2	14.0		13.5		17.5	17.2	15.6				
6			13.2		17.45						15.6	16.95
7		13.9				17.5		15.5	15.35	15.2		
8	14.3		13.15	13.6	17.45		17.05				16.0	
9		13.9						15.45	15.3	15.15		16.85
10	14.3			13.6	17.55		16.95					
11			13.05						15.25		16.2	17.0
12		13.8		13.85		17.5	16.85	15.5		15.2		
13			13.0		17.55				15.2		16.3	17.0
14		13.8				17.5		15.6		15.1		
15	14.15		13.1	13.95	17.6		16.6				16.6	
16		13.75				17.0		15.75	15.1	15.1		17.0
17	14.1			14.2	17.55		16.5				16.8	
18			13.2						15.1	15.05		17.0
19	14.1	13.6		14.5		17.5	16.3	15.7				
20			13.3		17.45				15.05		16.9	17.05
21		13.5				17.5	16.2	15.65		15.0		
22	14.1		13.3	15.0	17.45						17.0	
23		13.5						15.6	15.15	14.9		16.95
24	14.1			15.5	17.55	17.4	16.1					
25			13.3			17.35			15.15	15.0	17.1	16.85
26	14.1	13.4		16.05			15.9	15.6				
27			13.3		17.5				15.1		17.0	16.8
28		13.5				17.3		15.5		15.1		
29	14.1		13.35	16.85			15.8				17.05	
30								15.45	15.1	15.3		
31	14.1				17.6		15.7					16.8

NOTE.—Gage heights refer to original datum, elevation 1,011.30 feet above mean sea level. See "Gage" in description.

KENNEBEC RIVER AT THE FORKS, MAINE.

Location.—At wooden highway bridge across river about 2,000 feet above the mouth of Dead River.

Records available.—September 28, 1901, to December 31, 1912. Data also in annual reports of Maine State Water Storage Commission.

Drainage area.—1,570 square miles.

Gages.—Standard chain, attached to bridge, a staff gage attached to timber retaining wall on left bank 75 feet above the bridge, and an automatic gage installed June 21, 1912, on the left abutment. Datum of gages unchanged.

Channel.—Practically permanent; unbroken by piers.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Artificial control.—The flow of the Kennebec above The Forks is controlled through Moosehead Lake (see p. 47); Indian Pond, about 12 miles above the station, is under regulation for log driving from about May 1 to July 31 of each year.

Accuracy.—The relation between gage height and discharge is affected by the regulation of the stream for log driving and for the extensive water-power plants below and, during the winter, by ice. The operation of the gates at Indian Pond Dam (from about May 1 to July 31 of each year) causes fluctuations in daily gage heights at The Forks ranging from 2 feet to more than 5 feet. A good rating curve has been developed for the station. The variations in gage heights have been closely noted, record being kept of the maximum and minimum heights for each day during the log-driving season, the length of time that the driving head continues, and the hours at which the gates at Indian Pond are opened and closed each day. Although set to the same datum in practically the same cross section, the automatic gage does not read the same as the chain gage above about 1.2 feet, as shown by the table of relation below. A careful determination of the cross section of the water surface at chain-gage height 5.5 feet clearly showed the transverse slope and checked the table of relation at that stage. It should be noted that the left abutment is on the concave side of a distinct bend in the river and that the chain gage is about 90 feet from the left abutment. A discharge rating curve referred to automatic gage heights was developed from the discharge rating curve referred to chain-gage heights by means of the table of gage relation. Discharge for each 4-hour period, June 21 to December 31, was computed from this rating curve and the daily discharge as published is the mean of the discharge for six periods and therefore more accurate than the discharge obtained by entering the rating table with the published mean daily gage height.

Discharge measurements of Kennebec River at The Forks, Me., in 1911–12.

[F. E. Pressey, hydrographer.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
1911.	*Feet.*	*Sec.-ft.*	1911.	*Feet.*	*Sec.-ft.*	1911.	*Feet.*	*Sec.-ft.*
Aug. 19	5.39	6,800	Aug. 22	5.26	6,470	Aug. 23	4.82	5,440
19	5.32	6,570	22	5.19	6,290	23	3.94	3,950
19	5.20	6,340	22	4.84	5,580	Oct. 25	.50	298
21	5.35	6,610	22	[a].64	282			
21	5.15	6,250	22	[a].60	279	1912.		
21	4.54	4,960	23	5.22	6,230	Feb. 21 [b]	3.78	1,600
21	3.46	3,090	23	5.15	6,150			

[a] Backwater from Dead River probably affected gage height.
[b] Measurement made under complete ice cover.

NOTE.—The measurements for 1911 listed above were omitted from Water-Supply Paper 301.

Daily gage height, in feet, of Kennebec River at The Forks, Maine, for 1912.

[W. S. Young, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	6.25	8.30	2.54	2.26	2.51	1.89	1.99	2.90
2	.....	.....	3.80	.....	8.70	6.70	.....	2.47	2.45	1.84	1.48	3.00
3	.....	3.80	.....	.....	8.25	6.35	.....	2.44	2.22	1.72	.....	2.95
4	.....	.....	.....	.....	6.15	6.30	.....	2.58	2.12	1.63	1.48	2.62
5	.....	.....	.....	.....	4.40	6.30	.....	2.81	2.33	1.54	1.42	2.54
6	.....	.....	.....	2.20	3.25	6.20	.....	2.76	2.47	1.47	1.44	2.12
7	.....	.....	.....	.....	4.75	6.10	.....	2.44	2.52	1.47	2.36	2.10
8	.....	.....	.....	.....	6.30	6.10	.....	2.37	2.18	1.79	2.90	2.10
9	.....	.....	3.80	.....	6.20	5.65	2.27	2.27	1.80	1.88	2.89	2.15
10	.....	3.80	.....	.....	6.15	4.00	2.72	2.38	2.04	1.90	2.74	2.36
11	.....	.....	.....	.....	6.35	4.10	2.95	2.42	2.23	2.19	2.54	2.35
12	.....	.....	.....	.....	6.35	4.30	2.46	2.51	1.94	2.23	2.38	2.36
13	2.00	.....	.....	1.70	6.40	4.25	3.23	3.05	2.20	2.25	2.23	2.36
14	.....	.....	.....	.....	6.35	4.25	2.87	2.92	2.42	2.28	2.15	2.35
15	.....	.....	.....	.....	6.30	4.25	2.81	2.53	2.45	2.30	2.13	.....
16	.....	.....	3.60	2.10	6.30	4.20	2.79	.....	2.50	2.28	1.97	2.37
17	.....	3.80	.....	3.50	6.35	4.10	2.46	.....	2.48	2.22	1.74	2.37
18	.....	.....	.....	3.75	6.30	3.50	2.45	.....	2.24	2.20	1.52	2.38
19	.....	.....	.....	4.15	6.20	3.60	2.76	.....	2.30	2.32	1.50	2.40
20	2.30	.....	.....	3.95	6.25	3.45	2.44	.....	2.60	2.40	1.50	2.39
21	.....	3.78	.....	3.75	6.15	3.28	2.48	2.24	2.74	2.40	1.55	2.39
22	.....	.....	3.20	4.15	5.65	3.59	2.74	3.00	2.62	2.41	2.10	.....
23	.....	.....	.....	4.60	5.50	3.16	2.87	2.88	2.41	2.40	2.18	2.45
24	.....	3.80	.....	4.40	5.45	3.30	2.46	2.34	1.97	2.37	2.20	2.46
25	.....	.....	.....	4.40	5.95	3.28	2.55	1.75	1.77	2.17	2.27	2.45
26	.....	.....	.....	4.85	6.80	3.17	2.70	1.45	1.67	2.20	2.79	2.45
27	2.80	.....	.....	4.35	6.00	3.43	.....	2.10	1.58	2.33	3.60	2.46
28	.....	.....	.....	4.35	6.20	3.15	2.53	2.58	1.54	2.12	2.99	2.44
29	.....	.....	.....	4.65	6.35	2.76	2.46	2.76	1.84	1.88	1.60	.....
30	.....	.....	2.90	4.40	6.70	2.92	2.27	2.47	2.08	1.70	1.69	2.43
31	.....	.....	.....	.....	8.30	.....	2.45	2.54	.....	1.58	.....	2.45

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to Apr. 15. Probably no material effect during December. Gates at Indian Pond were closed June 10. Gage heights June 10 to 20 are not true indices of discharge, owing to the effect of regulation for the purpose of log driving. Gage heights missing July 2 to 8, July 27, Aug. 16 to 20, Nov. 3, and Dec. 5, 22, and 29 because automatic gage did not work satisfactorily and no observations were made with chain gage. Gage heights Jan. 1 to June 9, from chain gage, and June 21 to Dec. 31, from automatic gage. See *Accuracy* in station description.

Relation of chain gage and automatic gage, Kennebec River at The Forks, Maine, 1912.

Chain gage.	Automatic gage.	Chain gage.	Automatic gage.	Chain gage.	Automatic gage.
Feet.	*Feet.*	*Feet.*	*Feet.*	*Feet.*	*Feet.*
0.50	0.50	2.40	2.35	4.30	4.08
.60	.60	2.50	2.45	4.40	4.16
.70	.70	2.60	2.54	4.50	4.25
.80	.80	2.70	2.64	4.60	4.33
.90	.90	2.80	2.74	4.70	4.41
1.00	1.00	2.90	2.84	4.80	4.50
1.10	1.10	3.00	2.93	4.90	4.57
1.20	1.20	3.10	3.03	5.00	4.65
1.30	1.29	3.20	3.12	5.10	4.73
1.40	1.39	3.30	3.22	5.20	4.81
1.50	1.49	3.40	3.31	5.30	4.90
1.60	1.58	3.50	3.40	5.40	4.97
1.70	1.68	3.60	3.49	5.50	5.05
1.80	1.78	3.70	3.58	5.60	5.12
1.90	1.88	3.80	3.67	5.70	5.20
2.00	1.97	3.90	3.75	5.80	5.28
2.10	2.07	4.00	3.83	5.90	5.35
2.20	2.16	4.10	3.92		
2.30	2.25	4.20	4.00		

The above table is not applicable for ice or obstructed channel conditions. It is based on comparative readings made during 1912 and is well defined.

Daily discharge, in second-feet, of Kennebec River at The Forks, Maine, for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	8,520	13,400	2,580	2,060	1,960	1,260	1,350	2,420
2	.....	14,400	9,520	3,180	2,470	1,860	1,210	909	2,540
3	.....	13,200	8,740	3,140	2,360	1,620	1,110	910	2,480
4	.....	8,300	8,630	3,090	2,490	1,520	1,030	909	2,060
5	.....	4,690	8,630	3,040	2,960	1,750	952	861	1,960
6	.....	2,800	8,410	2,990	2,840	1,900	901	877	1,480
7	.....	5,360	8,190	2,940	2,400	1,970	896	1,740	1,460
8	.....	8,630	8,190	2,900	2,290	1,580	1,160	2,420	1,460
9	.....	8,410	7,220	2,120	2,050	1,200	1,250	2,400	1,510
10	.....	8,300	3,820	2,800	2,210	1,420	1,270	2,210	1,740
11	.....	8,740	3,100	3,170	2,370	1,610	1,560	1,960	1,730
12	.....	8,740	3,410	2,470	2,510	1,300	1,600	1,770	1,740
13	.....	8,850	3,320	3,520	3,380	1,570	1,620	1,600	1,740
14	.....	8,740	3,320	3,000	2,450	1,810	1,650	1,510	1,730
15	.....	8,630	3,320	2,930	2,040	1,850	1,680	1,490	1,740
16	1,430	8,630	3,250	2,970	1,970	1,910	1,650	1,330	1,760
17	3,170	8,740	3,100	2,500	1,900	1,890	1,590	1,120	1,760
18	3,560	8,630	2,420	2,520	1,830	1,610	1,570	941	1,770
19	4,240	8,410	2,520	2,900	1,760	1,680	1,700	925	1,790
20	3,900	8,520	2,380	2,470	1,680	2,040	1,780	925	1,780
21	3,560	8,300	3,390	2,490	1,610	2,220	1,800	965	1,780
22	4,240	7,220	3,840	2,870	2,600	2,060	1,810	1,460	1,820
23	5,070	6,900	3,510	3,100	2,410	1,800	1,790	1,540	1,850
24	4,690	6,800	3,780	2,460	1,730	1,330	1,760	1,560	1,860
25	4,690	7,860	3,630	2,580	1,130	1,150	1,530	1,640	1,850
26	5,560	9,750	3,250	2,710	886	1,060	1,570	2,270	1,850
27	4,600	7,970	3,900	2,640	1,470	985	1,710	3,500	1,860
28	4,600	8,410	3,550	2,570	2,030	953	1,480	2,530	1,840
29	5,170	8,740	2,920	2,440	2,270	1,210	1,250	1,000	1,830
30	4,690	9,520	3,170	2,100	1,890	1,440	1,090	1,080	1,830
31	.....	13,400	.....	2,420	1,990	.....	986	.....	1,850

NOTE.—Daily discharge determined from two well-defined discharge rating curves. (See *Accuracy* in station description.) The determinations for June 10 to 20 are approximate, however, as a result of possible errors in computed discharge caused by controlled flow for flushing logs down the river and backwater from log jams. The daily discharge for this period was computed by applying the rating table to the several gage readings taken during any given day, and weighting the values in accordance with the proportional part of the day to which each gage height is applicable. Daily discharge estimated for days when gage heights are missing. No correction was made for possible effect of backwater from ice during December. Discharge Jan. 1 to Apr. 15 estimated, because of ice, from one discharge measurement, observer's notes, climatologic records, discharge of adjacent drainage areas, and storage in Moosehead Lake:

Period.	Mean discharge (second-feet).	
	Estimate.	Range.
January	750	650–900
February	1,400	900–1,800
March	1,200	800–1,800
April 1–15	700	550–1,200

Monthly discharge of Kennebec River at The Forks, Maine, for 1912.

[Drainage area, 1,570 miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	750	0.478	0.55	D.
February	.....	.....	1,400	.892	.96	C.
March	.....	.....	1,200	.764	.88	D.
April	5,560	.....	2,460	1.57	1.75	C.
May	14,400	2,800	8,520	5.43	6.26	A.
June	13,400	2,380	4,990	3.18	3.55	B.
July	3,520	2,100	2,760	1.76	2.03	A.
August	3,380	886	2,130	1.36	1.57	A.
September	2,220	953	1,610	1.03	1.15	A.
October	1,810	896	1,430	.911	1.05	A.
November	3,500	861	1,520	.968	1.08	A.
December	2,540	1,460	1,830	1.17	1.35	A.
The year	14,400	.....	2,560	1.63	22.18	

NOTE.—See footnotes to table of daily discharge.

KENNEBEC RIVER AT WATERVILLE, MAINE.

Location.—At the dam and mill of the Hollingsworth & Whitney Co., at Waterville, 2 miles above the mouth of Sebasticook River and about 3½ miles above the mouth of Messalonskee Stream.

Records available.—March 22, 1892, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—4,270 square miles.

Gage.—Rod gages in the pond above the dam and in the tailrace of the mill.

Determination of discharge.—The discharge is computed from the flow over the dam, through the logway, and through 18 wheels of the mill. Most of the wheels were rated at Holyoke, Mass., under practically the same head as that used at Waterville—about 23 feet. Methods and diagrams for estimating the flow have been developed by the company, and the amount lost by leakage and used for washing and various purposes in the mill is estimated. When the flow of the river is less than about 3,500 second-feet all the water is used through the wheels.

Winter flow.—As a rule, not affected by ice. During most years the winter flow passes through the wheels of the mill.

Artificial control.—Numerous power plants and much storage above the station.

Accuracy.—Results are considered fair only, as many wheels are in operation and only one reading a day is made for each wheel, but the record is valuable because of its length and continuity.

Cooperation.—Records are obtained and estimates of daily discharge are frunished by the Hollingsworth & Whitney Co.

Daily discharge, in second-feet, of Kennebec River at Waterville, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,630	3,100	3,220	9,100	20,200	36,300	4,150	3,610	a2,770	3,760	5,900	a2,010
2	2,960	3,150	3,270	9,060	20,000	a35,800	3,900	3,870	3,930	3,790	6,150	4,330
3	3,070	3,440	a1,520	7,570	28,900	25,800	4,080	4,190	3,970	3,760	a7,480	5,350
4	3,180	a2,220	3,580	9,030	24,000	23,500	3,150	a3,600	3,740	3,710	6,290	6,780
5	3,190	3,450	3,580	6,060	a16,500	22,100	5,290	6,610	3,530	3,380	5,710	6,960
6	3,060	3,330	3,270	5,740	16,700	18,900	5,400	6,220	3,560	a1,700	4,860	6,070
7	a928	3,210	3,000	a6,000	18,800	17,300	a3,550	6,010	3,270	3,140	4,960	7,120
8	3,050	3,020	2,830	9,160	21,300	16,100	4,150	5,200	a1,580	3,570	6,120	a7,310
9	3,150	3,200	3,100	22,000	19,600	a14,600	4,060	4,560	3,730	3,280	25,700	4,460
10	2,940	3,090	a1,460	19,200	22,200	14,500	3,810	4,230	3,060	2,440	a14,500	5,580
11	2,550	a1,540	2,630	19,900	22,100	11,300	3,570	a2,710	3,350	2,660	12,200	5,010
12	2,980	3,140	3,320	18,300	a22,900	8,070	5,400	4,320	2,310	2,870	10,400	5,340
13	3,090	2,980	3,220	18,400	20,800	9,290	5,570	7,470	2,430	a1,330	8,580	7,150
14	a1,240	2,800	3,740	a17,500	22,200	8,890	a2,760	7,430	2,800	4,170	6,990	4,810
15	3,020	2,800	4,120	19,600	26,500	7,910	3,750	6,760	a1,500	4,090	7,390	a2,140
16	4,010	2,560	5,910	21,000	22,700	a6,690	3,680	6,640	3,730	3,860	7,660	5,460
17	3,660	3,210	a6,420	21,300	19,700	5,900	5,640	6,170	3,780	3,450	a7,140	5,310
18	3,660	a1,160	8,090	32,600	25,100	8,070	3,560	a3,200	3,650	3,470	6,450	4,680
19	3,730	3,130	7,520	40,500	a24,200	8,010	3,640	4,540	3,730	3,500	6,670	4,340
20	3,400	3,100	8,490	35,400	19,700	8,110	3,460	4,400	3,330	a1,730	5,270	4,710
21	a1,890	3,060	8,250	a29,200	16,800	7,810	a2,200	4,460	4,020	3,800	5,080	5,750
22	3,600	3,280	7,340	28,600	17,100	7,160	3,660	4,380	a5,990	3,670	4,840	a2,950
23	3,600	3,280	8,670	28,000	14,900	a5,710	3,700	3,920	6,340	3,460	4,650	4,880
24	3,550	3,230	a6,560	45,500	13,500	7,420	3,650	4,610	5,440	3,460	a5,270	4,610
25	3,560	a2,250	5,390	34,600	17,800	5,580	3,060	a1,640	4,550	7,480	5,640	2,720
26	3,630	3,620	5,960	29,500	a18,700	6,610	3,190	2,910	3,870	24,400	5,730	4,730
27	3,380	3,730	3,830	29,500	18,900	3,710	3,230	3,720	3,390	a24,600	5,900	3,870
28	a2,320	3,560	4,370	a25,100	17,300	5,280	a2,370	3,210	3,330	16,700	5,280	3,730
29	3,300	3,520	4,690	26,900	15,500	5,070	3,420	3,970	a2,040	11,000	6,150	a1,630
30	2,910	.....	6,000	21,900	11,900	a3,610	3,410	4,050	3,330	8,840	5,070	3,510
31	3,140	.....	a4,040	.....	35,300	.....	3,670	3,760	.....	6,590	.....	3,940

a Sunday.

Monthly discharge of Kennebec River at Waterville, Maine, for 1912.

[Drainage area, 4,270 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	4,010	928	3,040	0.712	0.82
February	3,730	1,160	3,010	.705	.76
March	8,670	1,460	4,750	1.11	1.28
April	45,500	5,740	21,500	5.04	5.62
May	35,300	11,900	20,400	4.78	5.51
June	36,300	3,610	12,200	2.86	3.19
July	5,640	2,200	3,810	.892	1.03
August	7,470	1,640	4,590	1.07	1.23
September	6,340	1,500	3,540	.829	.92
October	24,600	1,330	5,730	1.34	1.54
November	25,700	4,650	7,330	1.72	1.92
December	7,310	1,630	4,750	1.11	1.28
The year	45,500	928	7,880	1.85	25.10

DEAD RIVER AT THE FORKS, MAINE.

Location.—One-eighth mile above farmhouse of Jeremiah Durgin, 1½ miles west of the Forks.

Records available.—September 29, 1901, to August 15, 1907; March 16, 1910, to December 31, 1912. Data also in annual report of Maine State Water Storage Commission.

Drainage area.—878 square miles.

Gage.—Inclined staff bolted to large bowlder on the left bank, a short distance from observer's house; datum unchanged.

Channel.—Practically permanent; banks medium high; overflowed only at extreme high water.

Discharge measurements.—Made from a car suspended from a cable a short distance above the gage.

Winter flow.—Affected by ice.

Artificial control.—A number of dams on the lakes above; used solely for log driving.

Accuracy.—Relation between gage height and discharge affected by ice during the winter and by the control of the stream for log driving during May and June. Special note is made of the length and time of the drive and of the maximum and minimum head used.

Discharge measurements of Dead River at The Forks, Maine, in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 22	F. E. Pressey	2.52	282
Aug. 22	do	1.85	1,470
23	do	1.18	589

Daily gage height, in feet, of Dead River at The Forks, Maine, for 1912.

[Eva M. Forsythe, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.40	.....	.....	3.00	4.25	4.00	1.25	0.85	1.10	1.25	1.90	1.50
2	1.35	.....	.....	2.90	3.85	3.60	1.20	1.00	1.10	1.40	1.82	1.60
3	1.30	.....	2.00	2.85	3.10	3.60	1.15	1.15	1.00	1.45	1.82	1.72
4	1.30	2.10	.....	2.75	3.20	3.55	1.10	1.90	1.00	1.55	1.75	1.75
5	1.45	.....	.....	2.70	3.05	2.45	1.05	2.00	.95	1.45	1.65	1.80
6	1.50	.....	.....	2.60	4.00	2.80	1.00	2.00	.90	1.35	1.58	1.88
7	1.50	.....	.....	2.65	3.10	2.55	1.10	1.85	1.00	1.30	1.58	1.80
8	1.50	.....	.....	2.75	2.45	2.45	1.10	1.45	1.10	1.25	2.08	1.80
9	1.50	.....	.....	2.75	3.55	2.90	1.10	1.65	1.20	1.20	3.08	1.80
10	1.50	.....	2.70	2.65	2.75	2.00	1.05	1.80	1.10	1.20	2.98	1.80
11	1.50	2.40	.....	2.40	4.60	1.85	1.00	1.75	1.10	1.20	2.60	1.80
12	1.50	.....	.....	2.30	4.45	1.80	.90	1.40	1.10	1.25	2.38	1.78
13	1.55	.....	.....	2.35	7.50	1.70	.90	2.50	1.00	1.35	2.15	1.75
14	1.90	.....	.....	2.45	7.75	2.05	.90	2.30	1.05	1.40	2.10	1.70
15	2.25	.....	.....	2.65	7.00	1.80	.90	2.10	1.25	1.30	2.00	1.70
16	2.45	.....	.....	2.70	3.10	1.70	.90	2.50	1.30	1.30	2.00	1.68
17	2.50	.....	3.00	3.90	3.70	1.75	.90	2.50	1.15	1.30	1.90	1.60
18	2.65	2.20	.....	4.55	2.75	1.75	.80	2.00	1.15	1.25	1.88	1.50
19	2.75	.....	.....	4.95	2.70	1.60	.80	2.00	1.20	1.20	1.80	1.50
20	2.80	.....	.....	4.75	2.85	1.75	.80	2.10	1.40	1.20	1.75	1.50
21	.....	.....	.....	4.45	3.05	1.65	.80	1.85	2.35	1.10	1.70	1.58
22	.....	2.52	.....	3.10	3.20	1.85	.80	1.80	2.50	1.10	1.62	1.50
23	.....	.....	.....	4.75	3.30	1.60	.80	1.20	2.25	1.10	1.60	1.50
24	.....	2.50	3.00	5.30	2.95	1.70	.80	1.15	2.00	1.20	1.60	1.48
25	.....	.....	.....	4.70	3.20	1.60	.80	1.20	1.85	1.85	1.60	1.45
26	.....	.....	.....	5.00	3.05	1.60	.80	1.30	1.60	3.60	1.60	1.48
27	.....	.....	.....	4.40	3.45	1.60	.80	1.65	1.35	3.65	1.60	1.50
28	1.40	.....	.....	4.30	2.80	1.50	.80	1.45	1.25	3.05	1.58	1.50
29	.....	.....	.....	3.00	2.85	1.45	.80	1.45	1.20	2.52	1.52	1.50
30	.....	.....	.....	3.20	3.40	1.35	.80	1.25	1.20	2.15	1.50	1.50
31	.....	.....	3.00	.....	3.30	.....	.80	1.15	.....	2.00	.....	1.50

NOTE.—Relation of gage height to discharge affected by ice about Jan. 5 to Apr. 11. Observer notes: Apr. 9, ice went out of river; May 10 and 13, water from dam; Aug. 13, driving pulp in river. Gage heights affected little if any by ice during December.

Daily discharge, in second-feet, of Dead River at The Forks, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	840	.....	.....	.....	6,960	6,140	665	282	510	665	1,540	965
2	780	.....	.....	.....	5,680	4,970	610	415	510	840	1,420	1,100
3	720	.....	.....	.....	3,770	4,970	560	560	415	902	1,420	1,270
4	720	.....	.....	.....	3,990	4,840	510	1,540	415	1,030	1,320	1,320
5	.....	.....	.....	.....	3,660	2,470	462	1,700	370	902	1,170	1,390
6	.....	.....	.....	.....	6,140	3,140	415	1,700	325	780	1,070	1,510
7	.....	.....	.....	.....	3,770	2,660	510	1,460	415	720	1,070	1,390
8	.....	.....	.....	.....	2,470	2,470	510	902	510	665	1,830	1,390
9	.....	.....	.....	.....	4,840	3,340	510	1,170	610	610	3,730	1,390
10	.....	.....	.....	.....	3,040	1,700	462	1,390	510	610	3,510	1,390
11	.....	.....	.....	.....	8,200	1,460	415	1,320	510	610	2,750	1,390
12	.....	.....	.....	2,200	7,660	1,390	325	840	510	665	2,340	1,360
13	.....	.....	.....	2,290	20,600	1,240	325	2,560	415	780	1,940	1,320
14	.....	.....	.....	2,470	21,900	1,780	325	2,200	462	840	1,860	1,240
15	.....	.....	.....	2,840	18,200	1,390	325	1,860	665	720	1,700	1,240
16	.....	.....	.....	2,940	3,770	1,240	325	2,560	720	720	1,700	1,210
17	.....	.....	.....	5,830	5,240	1,320	325	2,560	560	720	1,540	1,100
18	.....	.....	.....	8,020	3,040	1,320	240	1,700	560	665	1,510	965
19	.....	.....	.....	9,510	2,940	1,100	240	1,700	610	610	1,390	965
20	.....	.....	.....	8,760	3,240	1,320	240	1,860	840	610	1,320	965
21	.....	.....	.....	7,660	3,660	1,170	240	1,460	2,290	510	1,240	1,070
22	.....	.....	.....	3,770	3,990	1,460	240	1,390	2,560	510	1,130	965
23	.....	.....	.....	8,760	4,220	1,100	240	610	2,120	510	1,100	965
24	.....	.....	.....	10,900	3,440	1,240	240	560	1,700	610	1,100	940
25	.....	.....	.....	8,570	3,990	1,100	240	610	1,460	1,460	1,100	902
26	.....	.....	.....	9,700	3,660	1,100	240	720	1,100	4,970	1,100	940
27	.....	.....	.....	7,480	4,580	1,100	240	1,170	780	5,100	1,100	965
28	.....	.....	.....	7,130	3,140	965	240	902	665	3,660	1,070	965
29	.....	.....	.....	3,550	3,240	902	240	902	610	2,600	992	965
30	.....	.....	.....	3,990	4,460	780	240	665	610	1,940	965	965
31	.....	.....	.....	.....	4,220	.....	240	560	.....	1,700	.....	965

NOTE.—Daily discharge computed from a rating curve fairly well defined below 16,000 second-feet. High discharge May 11 to 15, result of artificial control. Discharge Jan. 5 to Apr. 11, estimated, because of ice, from one discharge measurement, gage observer's notes, climatologic records, and discharge of adjacent drainage areas:

Period.	Mean discharge (second-feet).	
	Estimate.	Range.
January 5–31	430	230–700
February	270	250–290
March	650	300–1,000
April 1–11	1,300	1,000–2,000

Monthly discharge of Dead River at The Forks, Maine, for 1912.

[Drainage area, 878 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	473	0.539	0.62	D.
February	.....	.....	270	.308	.33	C.
March	.....	.....	650	.740	.85	D.
April	10,900	.....	4,360	4.97	5.54	C.
May	21,900	2,470	5,860	6.67	7.69	B.
June	6,140	780	2,040	2.32	2.59	A.
July	665	240	353	.402	.46	B.
August	2,560	282	1,280	1.46	1.68	A.
September	2,560	325	811	.924	1.03	A.
October	5,100	510	1,230	1.40	1.61	A.
November	3,730	965	1,570	1.79	2.00	A.
December	1,510	902	1,140	1.30	1.50	B.
The year	21,900	.....	1,670	1.90	25.90	

NOTE.—See footnotes to table of daily discharge.

SANDY RIVER NEAR FARMINGTON, MAINE.

Location.—At Fairbanks highway bridge, 3 miles above Farmington.

Records available.—July 11, 1910, to December 31, 1912. Data also in annual reports of Maine State Water Storage Commission.

Drainage area.—270 square miles.

Gage.—Standard chain.

Channel.—Practically permanent; left bank high; right bank subject to overflow in extreme freshets; current swift at high and medium stages but sluggish during low water.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Artificial control.—No storage basins above the station; the water-power dam at Phillips may slightly affect the flow at the station.

Discharge measurements of Sandy River near Farmington, Maine, in 1912.

[Hydrographer, F. E. Pressey.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	Feet.	*Sec.-feet.*		*Feet.*	*Sec.-feet.*		*Feet.*	*Sec.-feet.*
Apr. 29	5.22	1,440	May 1	5.31	1,430	May 2	5.17	1,370
30	5.24	1,420	1	5.17	1,350	3	5.12	1,330
30	5.11	1,300	2	5.36	1,520	3	5.02	1,230

Daily gage height, in feet, of Sandy River near Farmington, Maine, for 1912.

[L. A. Daggitt, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	5.1	5.3	6.6	2.4	2.5	2.5	3.1	3.6	3.9
2	.....	.....	4.0	5.0	5.4	5.2	2.4	2.6	2.4	3.0	4.7	3.5
3	.....	4.0	.....	4.6	5.1	5.0	2.4	2.8	2.4	2.9	4.0	4.0
4	.....	.....	.....	4.5	5.1	4.6	2.4	3.3	2.5	2.7	3.7	4.4
5	.....	.....	.....	4.3	4.8	4.1	2.4	2.7	2.5	2.7	3.6	3.9
6	4.0	.....	.....	4.0	4.8	3.9	2.4	2.7	2.4	2.7	3.7	3.9
7	.....	.....	.....	5.0	5.05	4.0	2.4	2.5	2.5	2.6	3.7	3.9
8	.....	.....	.....	6.4	4.95	3.7	.....	2.4	2.5	2.5	8.65	3.9
9	.....	.....	4.0	5.1	4.9	3.7	2.4	2.4	2.4	2.6	5.8	3.5
10	.....	4.0	.....	4.7	5.45	3.6	2.4	2.4	2.3	2.5	4.6	5.0
11	.....	.....	.....	4.5	5.6	3.3	2.4	2.5	2.35	2.5	4.2	4.9
12	.....	.....	.....	4.5	4.7	3.3	2.3	4.0	2.5	2.5	4.0	4.9
13	3.8	.....	.....	4.7	5.25	3.4	2.3	5.25	2.4	2.7	3.9	4.9
14	.....	.....	.....	5.0	6.2	3.3	2.3	3.5	2.3	2.7	3.8	5.5
15	.....	.....	.....	5.5	5.0	3.2	2.4	3.2	2.3	2.7	3.8	5.5
16	.....	.....	5.2	7.6	4.5	3.2	2.3	2.7	2.3	2.7	3.7	5.4
17	.....	4.0	.....	8.2	5.5	3.2	2.25	2.7	2.7	2.6	3.7	5.1
18	.....	.....	.....	6.7	5.7	3.1	2.2	2.6	2.5	2.6	3.7	4.8
19	.....	.....	.....	7.0	4.7	3.0	2.3	2.5	2.4	2.6	3.5	4.9
20	4.3	.....	.....	6.4	4.3	3.0	2.3	2.5	2.6	2.6	3.4	5.1
21	.....	.....	.....	6.0	4.3	2.9	2.4	2.5	3.6	2.6	3.5	4.9
22	.....	.....	.....	6.6	4.2	3.0	2.3	2.4	3.15	2.5	3.5	4.9
23	.....	.....	4.8	8.75	4.0	.....	2.6	2.4	2.9	2.5	3.6	4.6
24	.....	5.6	.....	6.8	4.0	2.7	2.4	2.4	2.7	5.2	3.7	4.5
25	.....	.....	.....	6.0	5.0	2.7	2.3	2.5	2.6	9.45	3.7	4.4
26	.....	.....	.....	6.2	4.2	2.6	2.25	3.4	2.6	7.9	3.7	4.2
27	4.0	.....	.....	6.7	3.9	2.6	2.25	2.8	2.5	5.6	3.6	4.2
28	.....	.....	.....	6.4	3.7	2.5	2.25	2.7	2.5	4.5	3.6	4.3
29	.....	.....	4.5	5.4	3.5	2.5	2.25	2.7	2.5	4.0	4.2	4.3
30	.....	.....	5.2	5.2	9.1	2.4	2.3	2.7	3.5	3.9	4.0	4.4
31	.....	.....	.....	.....	6.4	.....	2.3	2.6	.....	3.7	.....	4.7

NOTE.—Relation of gage height to discharge affected by ice about Jan. 1 to Apr. 11, and Nov. 29 to Dec. 1.

Daily discharge, in second-feet, of Sandy River near Farmington, Maine, for 1911–12.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.									
1	.....	3,400	495	68	167	101	353	193	431
2	.....	2,690	517	52	101	83	221	193	353
3	.....	2,140	283	67	101	83	167	193	283
4	.....	1,140	221	38	67	101	283	167	221
5	.....	923	167	38	52	101	473	167	473
6	.....	787	121	52	38	83	391	167	667
7	.....	993	143	38	38	353	251	193	562
8	.....	923	83	38	52	167	193	667	517
9	.....	1,140	101	25	143	101	167	473	353
10	.....	923	101	38	101	121	101	317	283
11	.....	923	101	25	52	83	143	283	353
12	.....	517	317	25	52	83	101	283	431
13	.....	613	495	38	67	83	101	317	2,040
14	.....	517	517	13	38	83	121	517	1,220
15	.....	391	391	13	38	83	101	353	667
16	.....	317	283	83	83	101	83	431	517
17	.....	317	317	67	517	101	83	562	473
18	1,730	251	251	52	283	167	83	725	391
19	1,460	251	193	193	251	121	452	923	353
20	1,300	221	193	101	391	121	1,140	517	283
21	1,220	221	143	67	221	83	923	251	353
22	1,060	167	121	52	143	83	283	283	473
23	923	221	101	67	101	167	562	431	562
24	787	167	101	38	67	101	562	353	1,380
25	1,540	251	83	25	67	101	391	283	725
26	2,140	251	67	38	67	517	431	353	562
27	2,040	283	83	38	67	391	391	353	473
28	2,800	167	67	25	67	193	317	283	391
29	3,160	167	67	92	101	167	221	353	350
30	2,800	121	83	431	391	193	193	667	350
31	.....	121	.....	221	221	.....	193	.....	300
1912.									
1	.....	1,460	2,800	67	83	83	221	391	360
2	.....	1,540	1,380	67	101	67	193	993	353
3	.....	1,300	1,220	67	143	67	167	562	562
4	.....	1,300	923	67	283	83	121	431	787
5	.....	1,060	613	67	121	83	121	391	517
6	.....	1,060	517	67	121	67	121	431	517
7	.....	1,260	562	67	83	83	101	431	517
8	.....	1,180	431	67	67	83	83	5,520	517
9	.....	1,140	431	67	67	67	101	1,930	353
10	.....	1,590	391	67	67	52	83	923	1,220
11	.....	1,730	283	67	83	60	83	667	1,140
12	853	993	283	52	562	83	83	562	1,140
13	993	1,420	317	52	1,420	67	121	517	1,140
14	1,220	2,360	283	52	353	52	121	473	1,640
15	1,640	1,220	251	67	251	52	121	473	1,640
16	4,050	853	251	52	121	52	121	431	1,540
17	4,880	1,640	251	45	121	121	101	431	1,300
18	2,920	1,830	221	38	101	83	101	431	1,060
19	3,280	993	193	52	83	67	101	353	1,140
20	2,580	725	193	52	83	101	101	317	1,300
21	2,140	725	167	67	83	391	101	353	1,140
22	2,800	667	193	52	67	236	83	353	1,140
23	5,680	562	157	101	67	167	83	391	923
24	3,040	562	121	67	67	121	1,380	431	853
25	2,140	1,220	121	52	83	101	6,720	431	787
26	2,360	667	101	45	317	101	4,460	431	667
27	2,920	517	101	45	143	83	1,730	391	667
28	2,580	431	83	45	121	83	853	391	725
29	1,540	353	83	45	121	83	562	380	725
30	1,380	6,200	67	52	121	353	517	370	787
31	.....	2,580	.....	52	101	.....	431	.....	993

NOTE.—Daily discharge computed from a rating curve well defined between 50 and 2,000 second-feet. Above 2,000 second-feet curve is simply an extension and estimates of daily discharge should be used with caution. Discharge Jan. 1 to Apr. 17, 1911, Dec. 29, 1911, to Apr. 11, 1912, and Nov. 29 to Dec. 1, 1912, estimated, because of ice, from gage observer's notes, weekly gage heights, climatologic records, and discharge of adjacent drainage areas: January, 1911, 100 second-feet; February, 1911, 80 second-feet; March, 1911, 130 second-feet; Apr. 1–17, 1911, 600 second-feet; January, 1912, 170 second-feet; February, 1912, 130 second-feet; March, 1912, 300 second-feet; Apr. 1–11, 1912, 700 second-feet; Daily discharge interpolated for days when gage was not read.

Monthly discharge of Sandy River near Farmington, Maine, for 1911–12.

[Drainage area, 270 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
January	.....	.....	100	0.370	0.43	D.
February	.....	.....	80	.296	.31	D.
March	.....	.....	130	.481	.55	D.
April	.....	.....	1,110	4.11	4.59	C.
May	3,400	121	694	2.57	2.96	B.
June	517	67	207	.767	.86	A.
July	431	13	69.6	.258	.30	B.
August	517	38	134	.496	.57	A.
September	517	83	144	.533	.59	A.
October	1,140	83	306	1.13	1.30	A.
November	923	167	375	1.39	1.55	A.
December	2,040	221	542	2.01	2.32	B.
The year	3,400	.....	324	1.20	16.33	
1912.						
January	.....	.....	170	0.630	0.73	D.
February	.....	.....	130	.481	.52	D.
March	.....	.....	300	1.11	1.28	D.
April	5,680	.....	1,890	7.00	7.81	C.
May	6,200	353	1,330	4.93	5.68	A.
June	2,800	67	433	1.60	1.78	A.
July	101	38	58.8	.218	.25	B.
August	1,420	67	181	.670	.77	A.
September	391	52	106	.393	.44	A.
October	6,720	83	622	2.30	2.65	B.
November	5,520	317	686	2.54	2.83	B.
December	1,640	353	908	3.36	3.87	B.
The year	6,720	.....	568	2.10	28.61	

NOTE.—See footnotes to table of daily discharge.

SEBASTICOOK RIVER AT PITTSFIELD, MAINE.

Location.—At steel highway bridge just above the Maine Central Railroad bridge in the town of Pittsfield.

Records available.—July 27, 1908, to December 31, 1912. Data also in annual reports of Maine State Water Storage Commission.

Drainage area.—320 square miles.

Gage.—Standard chain; datum unchanged.

Channel.—Practically permanent; banks high and rocky and not subject to overflow; stream confined between the abutments of the bridge.

Discharge measurements.—Made from the highway bridge.

Winter flow.—Not generally affected by ice, as the rapid fall and proximity of the power plant immediately above the station tend to keep the river open.

Artificial control.—About 800 feet upstream from the station is the dam of the Robert Dobson Co. and the Smith Wooden Co.; about half a mile farther upstream is the dam of the Waverly woolen mill. About 5 miles below the station and 2 miles from Burnham is the dam of the Sebasticook Power Co., but the fall of the stream prevents backwater from the lower dam.

Accuracy.—The accuracy of the mean daily gage height given in the table below is more or less affected by fluctuations in stage caused by the operation of the dams above the station for night storage. Conditions favor the accurate determination of discharge, and a fair rating curve has been developed; a few more measurements are needed to closely determine the flow at extreme high and extreme low stages.

Daily gage height, in feet, of Sebasticook River at Pittsfield, Maine, for 1912.

[Easter B. Morrill, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.9	3.4	3.05	4.7	4.55	5.05	2.9	3.2	2.65	3.05	4.2	3.6
2	3.85	3.5	3.05	4.7	4.5	5.0	3.0	3.1	3.3	3.0	4.25	3.6
3	3.8	3.4	2.9	4.75	4.4	5.2	2.95	2.9	3.25	3.05	4.2	3.5
4	3.75	2.9	3.15	4.65	4.2	5.0	2.95	2.8	3.2	3.05	4.2	3.5
5	3.65	3.1	3.3	4.75	3.8	5.1	2.95	3.05	3.3	2.75	4.25	3.55
6	3.55	3.4	3.25	4.6	3.55	5.0	3.0	2.95	3.25	2.55	4.3	3.8
7	2.9	3.45	3.25	4.35	3.7	4.45	2.95	3.0	2.6	2.8	4.15	3.7
8	3.7	3.35	3.2	4.75	3.65	4.05	2.85	2.9	2.65	2.8	4.15	3.5
9	3.65	3.35	2.9	4.95	3.65	4.0	2.75	3.25	3.15	2.9	4.7	3.8
10	3.7	3.05	2.75	5.15	3.6	4.1	2.85	3.2	3.2	2.9	5.2	3.95
11	3.6	2.85	2.9	5.1	3.45	4.0	2.8	2.85	3.3	2.7	5.3	3.9
12	3.55	3.05	3.15	5.05	3.7	4.15	2.8	3.05	3.2	2.4	5.05	3.8
13	3.45	3.3	3.35	4.95	3.6	3.9	2.75	3.25	3.15	2.4	4.9	3.75
14	3.2	3.2	3.4	4.9	3.75	3.8	2.45	3.25	2.8	2.95	4.7	3.5
15	3.65	3.25	3.75	5.15	3.8	3.6	2.95	3.05	2.5	2.95	4.6	3.4
16	3.65	3.3	3.9	5.9	3.75	3.4	3.0	2.9	3.0	2.9	4.45	3.85
17	3.65	3.1	3.25	6.05	3.7	3.55	3.0	2.85	3.0	3.05	4.4	3.7
18	3.65	2.85	4.0	6.2	3.55	3.6	3.05	2.8	3.2	3.15	4.3	3.5
19	3.45	3.0	4.35	6.4	3.65	3.7	3.05	3.15	3.15	2.9	4.25	3.5
20	3.15	3.25	4.55	6.6	3.9	3.6	2.8	3.15	3.15	2.8	4.1	3.6
21	2.9	3.1	4.6	6.7	3.85	3.5	2.7	3.2	2.9	3.1	4.0	3.7
22	3.4	3.3	4.5	6.65	4.05	3.45	2.95	3.05	2.6	3.2	3.95	3.5
23	3.35	3.3	4.55	6.5	4.1	3.15	3.05	3.15	3.1	3.3	3.85	3.5
24	3.35	3.25	4.5	6.4	3.7	3.5	3.05	3.0	3.15	3.5	3.7	3.6
25	3.5	2.9	4.35	6.35	3.7	3.35	2.9	2.85	3.2	3.6	3.9	3.2
26	3.4	3.05	4.2	6.3	3.5	3.4	3.0	3.15	3.15	3.75	3.9	3.3
27	3.1	3.2	4.25	6.2	3.65	3.5	2.85	3.2	3.2	3.7	3.9	3.3
28	2.9	3.3	4.45	5.7	4.05	3.5	2.8	3.25	2.95	3.95	3.7	3.4
29	3.2	3.15	4.65	5.2	4.4	2.85	3.1	3.35	2.5	4.15	3.7	3.2
30	3.35	.....	4.6	5.0	4.85	2.7	3.1	3.25	2.9	4.25	3.6	3.35
31	3.4	.....	4.55	.....	4.7	.....	3.1	2.95	.....	4.3	.....	3.4

NOTE.—Relation of gage height to discharge probably not affected by ice during 1912.

Daily discharge, in second-feet, of Sebasticook River at Pittsfield, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	668	395	250	1,470	1,300	1,900	193	310	111	250	938	485
2	634	438	250	1,470	1,250	1,830	230	270	352	230	989	485
3	600	395	193	1,530	1,140	2,080	212	193	331	250	938	438
4	570	193	290	1,420	938	1,830	212	158	310	250	938	438
5	512	270	352	1,530	600	1,960	212	250	352	142	989	462
6	462	395	331	1,360	462	1,830	230	212	331	84	1,040	600
7	193	416	331	1,090	540	1,200	212	230	97	158	888	540
8	540	374	310	1,530	512	792	176	193	111	158	888	438
9	512	374	193	1,770	512	745	142	331	290	193	1,470	600
10	540	250	142	2,020	485	838	176	310	310	193	2,080	706
11	485	176	193	1,960	416	745	158	176	352	125	2,200	668
12	462	250	290	1,900	540	888	158	250	310	50	1,900	600
13	416	352	374	1,770	485	668	142	331	290	50	1,710	570
14	310	310	395	1,710	570	600	60	331	158	212	1,470	438
15	512	331	570	2,020	600	485	212	250	71	212	1,360	395
16	512	352	668	2,990	570	395	230	193	230	193	1,200	634
17	512	270	331	3,200	540	462	230	176	230	250	1,140	540
18	512	176	745	3,400	462	485	250	158	310	290	1,040	438
19	416	230	1,090	3,660	512	540	250	290	290	193	989	438
20	290	331	1,300	3,940	668	485	158	290	290	158	838	485
21	193	270	1,360	4,070	634	438	125	310	193	270	745	540
22	395	352	1,250	4,000	792	416	212	250	97	310	706	438
23	374	352	1,300	3,800	838	290	250	290	270	352	634	438
24	374	331	1,250	3,660	540	438	250	230	290	438	540	485
25	438	193	1,090	3,600	540	374	193	176	310	485	668	310
26	395	250	938	3,530	438	395	230	290	290	570	668	352
27	270	310	989	3,400	512	438	176	310	310	540	668	352
28	193	352	1,200	2,720	792	438	158	331	212	706	540	395
29	310	290	1,420	2,080	1,140	176	270	374	71	888	540	310
30	374	.....	1,360	1,830	1,650	125	270	331	193	989	485	374
31	395	.....	1,300	.....	1,470	.....	270	212	.....	1,040	.....	395

NOTE.—Daily discharge computed from a rating curve fairly well defined above 70 second-feet, and poorly defined below that point.

Monthly discharge of Sebasticook River at Pittsfield, Maine, for 1912.

[Drainage area 320 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	668	193	431	1.35	1.56	B.
February	438	176	310	.969	1.05	B.
March	1,420	142	711	2.22	2.56	B.
April	4,070	1,090	2,480	7.75	8.65	B.
May	1,650	416	724	2.26	2.61	B.
June	2,080	125	810	2.53	2.82	B.
July	270	60	202	.631	.73	B.
August	374	158	258	.806	.93	B.
September	352	71	245	.766	.85	B.
October	1,040	50	330	1.03	1.19	B.
November	2,200	485	1,040	3.25	3.63	B.
December	706	310	477	1.49	1.72	B.
The year	4,070	50	665	2.08	28.30	

COBBOSSEECONTEE STREAM AT GARDINER, MAINE.

Location.—At the dam of the Gardiner Water Power Co., in the city of Gardiner.

Records available.—June 16, 1890, to December 31, 1912.

Drainage area.—220 square miles. Measured on recently completed topographic sheets. Value given in previous reports about 10 per cent too large. See *Accuracy.*

Gages.—One in pond above dam and one in tailrace of power house.

Determination of flow.—The discharge is determined by considering (1) the flow over the dam, usually nothing except for a short time in the spring; (2) the flow through two gates; and (3) the flow through a 39-inch Hercules wheel. The computations of daily discharge are made by the engineers of the S. D. Warren Co. from tables of discharge based on careful experiments.

Winter flow.—Not affected by ice.

Artificial control.—The extensive lakes in the basin are controlled by storage dams and the stream affords a remarkable example of the regularity of flow that can be obtained with proper storage. Except for a short time in the spring no water is wasted.

Accuracy.—Results are considered good for a station of this type. Run-off per square mile and depth in inches on drainage area, as published in earlier reports, should be recomputed by means of new value for drainage area.

Cooperation.—Station maintained by the S. D. Warren Co., which furnished the records of daily discharge for publication.

Daily discharge, in second-feet, of Cobbosseecontee Stream at Gardiner, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	180	200	230	580	285	1,580	260	250	*a* 0	190	210	*a* 0
2	180	200	230	580	285	*a*1,550	260	250	260	190	210	260
3	180	200	*a* 0	570	285	1,580	260	250	260	190	*a* 0	260
4	180	*a* 0	230	540	285	1,470	130	*a* 0	260	190	260	260
5	170	200	230	530	*a* 0	1,270	170	260	260	190	250	260
6	170	215	230	520	270	940	260	260	260	*a* 0	250	260
7	*a* 0	230	230	*a* 500	270	490	*a* 0	260	260	190	250	260
8	170	230	230	540	270	290	250	260	*a* 0	190	250	*a* 0
9	170	230	200	660	270	*a* 0	250	260	250	190	250	260
10	170	230	*a* 0	800	270	290	250	260	250	190	*a* 0	260

a Sunday.

Daily discharge, in second-feet, of Cobbosseecontee Stream at Gardiner, Maine, for 1912— Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	170	a 0	230	870	270	290	250	a 0	250	190	260	260
12	170	230	230	930	a 0	290	250	260	250	190	260	260
13	170	230	230	940	260	290	250	260	250	a 0	260	260
14	a 0	230	240	a 930	260	290	a 0	260	250	190	260	260
15	170	230	250	930	260	290	250	260	a 0	190	260	a 0
16	170	230	280	1,040	260	a 0	250	260	190	190	260	260
17	170	230	a 650	1,130	260	260	250	260	190	190	a 0	260
18	170	a 0	720	960	400	260	250	a 0	190	190	260	260
19	170	230	740	860	a 530	260	250	260	190	190	260	260
20	170	230	770	900	560	260	250	260	190	a 0	260	260
21	a 0	230	800	a1,050	560	260	a 0	260	190	190	260	260
22	200	230	780	980	430	260	250	260	a 0	190	260	a 0
23	200	230	730	980	310	a 0	250	260	190	190	260	260
24	200	230	a 660	1,000	300	260	250	260	190	190	a 0	260
25	200	a 0	570	1,000	290	260	250	a 0	190	190	260	130
26	200	230	380	850	a 0	260	250	260	190	190	260	130
27	200	230	310	680	290	260	250	260	190	a 0	260	260
28	a 0	230	310	a 400	290	260	a 0	260	190	210	130	260
29	200	230	310	300	290	260	250	260	a 0	210	130	a 0
30	200	.....	350	285	300	a 0	250	260	190	210	250	260
31	200	.....	a 470	.....	1,000	.....	250	260	.....	210	.....	260

a Sunday.

Monthly discharge of Cobbosseecontee Stream at Gardiner, Maine, for 1912.

[Drainage area, 220 square miles.]

Month.	Discharge in second-feet.				Run-off, (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	200	0	158	0.718	0.83
February	230	0	194	.882	.95
March	800	0	381	1.73	1.99
April	1,130	285	761	3.46	3.86
May	1,000	0	310	1.41	1.63
June	1,580	0	468	2.13	2.38
July	260	0	215	.968	1.12
August	260	0	225	1.02	1.18
September	260	0	184	.836	.93
October	210	0	174	.791	.91
November	260	0	211	.959	1.07
December	260	0	210	.955	1.10
The year	1,580	0	290	1.32	17.95

ANDROSCOGGIN RIVER BASIN.

ANDROSCOGGIN RIVER AT ERROL DAM, N. H.

Location.—Errol dam, 1 mile above the town of Errol, N. H.

Records available.—January 1, 1905, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,095 square miles.

Gage.—Movable rod gage; readings taken each day from the sill of deep gate No. 6; elevation of zero of gage or sill of gate is 1,231.3 feet above mean sea level.

Discharge.—Computed from discharge through 14 gates in the dam by means of coefficients determined from a few discharge measurements.

The dam is a wooden structure completely housed over, about 175 feet between abutments. Extensive repairs were made on the dam during November and December, 1912. The entire flow passes through gates of different sizes, 14 in all. There is no provision for overflow besides the gates. Beginning at the left end, the gates are as follows:

One gate 10 feet deep by 15 feet wide, seldom used; three gates 10½ feet deep by 15 feet wide, open most of the time; nine gates 15 feet deep by 7 feet wide in the clear (so-called deep gates), open a portion of the time only; one gate 15 feet deep by 5 feet wide, gristmill gate and used only occasionally. The cap of all the 14 gates is one continuous beam and on the same level, thus making the bottom of the various gates at different levels.

A "deadhead" of 2.66 feet exists a short distance above the present dam, this point at present controlling the low flow.

The depth on the deep gates does not indicate the true height of water in Umbagog Lake on account of this "deadhead" formed by the old dam and by the bar at "Quick Water Point," the lowest point of which is about 4 feet above the sill of the present dam.

Winter flow.—Little affected by ice.

Artificial control.—Errol dam controls the storage of Umbagog Lake, the lower of the Rangeley series of lakes, comprising the principal storage of the Androscoggin River and amounting to about 19 billion cubic feet, and also a recently developed storage site on Magalloway River created by the Azicohos dam, which amounts to about 8 billion cubic feet, thus making the total storage about 28 billion cubic feet. Errol dam is located about 5 miles below the outlet of Umbagog Lake and about 3.5 miles below the mouth of Magalloway River, thus making this latter stream one of the feeders of Umbagog Lake.

Accuracy.—The discharge is derived from coefficients applied to the various gate openings as determined from a number of current meter gagings. The ratings, however, are not as thorough as could be desired, and the results are considered very roughly approximate.

Cooperation.—Records are obtained and computations of daily discharge made under the direction of Mr. Walter H. Sawyer, agent for Union Water Power Co., who furnished data to the survey.

Daily discharge, in second-feet, of Androscoggin River at Errol dam, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1	1,910	1,570	1,940	1,490	1,730	4,930	1,890	1,540	1,380	976
2	1,890	1,570	1,920	1,430	1,740	5,930	1,810	1,670	1,420	1,220
3	1,860	1,570	1,900	1,400	2,360	6,000	1,730	1,660	1,490	1,350
4	1,780	1,620	1,870	1,360	1,930	6,020	1,710	1,660	1,540	1,420
5	1,650	1,640	1,820	1,300	2,350	5,940	1,740	1,660	1,560	1,490
6	1,770	1,670	1,790	1,300	2,460	5,860	1,740	1,670	1,690	1,580
7	1,830	1,740	1,760	1,270	2,470	5,640	1,730	1,670	1,850	1,580
8	1,890	1,710	1,710	1,290	2,470	3,620	1,710	1,680	1,630	1,520
9	1,920	1,710	1,660	1,360	2,330	3,300	1,720	1,680	1,420	1,500
10	1,800	1,770	1,590	1,360	2,160	4,390	1,690	1,700	1,360	1,660
11	1,810	1,840	1,560	1,360	2,300	4,310	1,690	1,530	1,320	1,720
12	1,790	1,820	1,510	1,340	2,181	3,770	1,680	1,290	1,450	1,680
13	1,690	1,840	1,500	1,330	2,070	3,760	1,680	1,220	1,410	1,640
14	1,640	1,840	1,500	1,330	1,700	3,760	1,690	1,470	1,580	1,360
15	1,660	1,840	1,510	1,330	2,250	3,210	1,640	1,570	1,620	1,190
16	1,540	1,840	1,540	1,330	2,320	2,560	1,600	1,530	1,330	1,110
17	1,520	1,840	1,540	1,540	2,300	2,280	1,660	1,250	1,590	1,110
18	1,580	1,820	1,540	2,010	2,070	2,160	1,720	1,440	1,600	1,160
19	1,570	1,800	1,510	2,350	1,680	2,070	1,690	1,440	1,550	1,280
20	1,540	1,800	1,470	2,020	2,200	1,880	1,680	1,400	1,120	1,220

Daily discharge, in second-feet, of Androscoggin River at Errol dam, N. H., for 1912— Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
21	1,520	1,800	1,450	1,860	1,750	1,850	1,650	1,330	1,030	1,440
22	1,520	1,800	1,400	1,990	2,110	1,820	1,400	1,300	1,150	1,340
23	1,490	1,800	1,390	2,060	2,230	1,820	1,510	1,270	1,420	1,340
24	1,470	1,820	1,360	2,230	2,220	1,800	1,660	1,200	1,770	1,340
25	1,450	1,840	1,320	1,790	1,980	1,770	1,760	1,250	1,900	1,350
26	1,490	1,870	1,300	1,240	1,660	1,810	1,740	1,050	1,720	1,730
27	1,490	1,900	1,390	1,280	2,270	1,830	1,700	1,160	1,600	1,580
28	1,490	1,920	1,460	1,850	2,360	1,840	1,650	1,000	1,550	1,440
29	1,490	1,940	1,460	2,420	2,380	1,850	1,640	1,240	1,550	1,420
30	1,540	.....	1,490	2,010	2,380	1,890	1,650	1,320	1,290	1,390
31	1,570	.....	1,490	.....	3,300	.....	1,540	1,410	.....	1,440

Monthly discharge of Androscoggin River at Errol dam, N. H., for 1912.

[Drainage area, 1,095 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	1,920	1,450	1,650	1.51	1.74
February	1,940	1,570	1,780	1.63	1.76
March	1,940	1,300	1,570	1.43	1.65
April	2,420	1,240	1,610	1.47	1.64
May	3,300	1,660	2,180	1.99	2.29
June	6,020	1,770	3,320	3.03	3.38
July	1,890	1,400	1,680	1.53	1.76
August	1,700	1,000	1,430	1.31	1.51
September	1,900	1,030	1,500	1.37	1.53
October	1,730	976	1,410	1.29	1.49
November	.....	.....	[a]1,450	1.32	1.47
December	.....	.....	[a]1,450	1.32	1.52
The year	6,020	.....	1,750	1.60	21.74

[a] Estimated from probable discharge at the Ponticook dam (about 18 miles below), which is used as a regulating dam for the mills of Berlin, N. H.

ANDROSCOGGIN RIVER AT RUMFORD FALLS, MAINE.

Location.—Dam of the Rumford Falls Power Co., at Rumford Falls.

Records available.—May 18, 1892, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—2,090 square miles.

Gage.—One located in pond above dam and one in tailrace of power house.

Discharge.—Computed from discharge over the dam, using the customary Francis weir formula with modified coefficient, and the quantities passing through the various wheels of the power house, which have been thoroughly rated.

Winter flow.—Little affected by ice.

Artificial control.—The storage in the Rangeley system of lakes at the headwaters of Androscoggin River, aggregating 28,000,000,000 cubic feet, is largely under complete control. The stored water is regulated in the interests of the water-power users below and is under such excellent management that this is one of the best water-power streams in the country.

Accuracy.—Results are believed to be excellent.

Cooperation.—Records are obtained and computations made by Mr. Charles A. Mixer, engineer Rumford Falls Power Co., who furnishes the data through the district office.

Daily discharge, in second-feet, of Androscoggin River at Rumford Falls, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,670	2,200	2,420	3,700	6,120	9,150	2,110	1,980	a1,480	2,600	2,670	a1,720
2	2,840	2,210	2,390	3,490	5,950	a9,080	2,190	2,240	1,600	2,630	3,130	2,250
3	2,780	2,180	a2,370	3,210	5,180	9,090	2,230	2,310	1,840	2,540	a3,150	4,030
4	2,820	a2,140	2,450	3,000	5,190	9,080	2,160	a2,460	1,880	2,360	2,860	3,990
5	2,780	2,090	2,470	2,950	a4,650	8,250	2,090	2,550	1,880	2,300	2,550	3,520
6	2,270	2,220	2,450	3,350	5,180	7,720	2,090	2,220	1,910	a2,020	2,490	3,540
7	a2,660	2,240	2,370	a6,020	6,030	6,750	a1,740	2,110	1,950	2,180	2,740	4,660
8	2,340	2,220	2,260	11,200	5,930	6,520	2,150	2,070	a1,960	2,180	9,170	a3,560
9	2,430	2,260	2,330	7,870	5,960	a5,480	2,060	2,070	2,020	2,250	5,560	2,600
10	2,360	2,200	a2,270	5,110	6,320	3,830	1,990	2,060	1,960	2,060	a3,900	2,760
11	2,290	a2,150	2,210	5,280	5,990	4,710	2,040	a2,430	1,760	2,140	3,590	3,150
12	2,190	2,200	2,280	5,500	a5,120	4,770	1,940	3,920	2,110	2,050	3,170	2,820
13	2,130	2,400	2,260	5,710	6,440	4,410	1,830	3,180	1,950	a1,930	2,850	2,240
14	a2,180	2,310	2,320	a5,930	7,140	4,060	a1,590	2,520	1,940	2,180	2,880	2,450
15	2,260	2,320	2,340	6,690	5,630	4,020	2,110	2,560	a1,910	2,180	2,900	a2,520
16	2,360	2,360	2,440	12,100	4,850	a3,530	2,020	2,400	2,730	1,990	2,780	3,150
17	2,130	2,350	a2,570	17,000	7,110	3,410	1,930	2,280	2,780	2,020	a2,510	2,820
18	2,210	a2,340	2,840	13,900	7,090	3,130	1,930	a2,000	2,540	1,880	2,790	2,790
19	2,320	2,320	2,950	11,100	a5,540	2,830	2,000	2,060	2,370	1,900	2,740	2,990
20	2,300	2,360	3,200	9,590	4,420	2,730	2,050	2,110	4,170	a1,850	2,750	3,010
21	a2,260	2,360	2,960	a8,480	4,870	2,650	a1,650	1,940	4,740	1,960	2,760	2,500
22	2,230	2,370	2,810	8,920	5,590	2,590	2,240	1,930	a3,170	2,000	2,820	a2,120
23	2,260	2,390	2,770	12,800	4,700	a1,880	2,190	1,970	2,980	1,930	3,050	2,470
24	2,240	2,420	a2,660	12,100	4,440	2,200	1,800	1,960	2,540	5,450	a2,610	2,410
25	2,230	a2,390	2,550	8,810	4,770	2,320	1,920	a1,970	2,510	12,840	2,970	1,760
26	2,180	2,360	2,530	8,400	a4,270	2,080	1,920	2,280	2,540	8,450	2,740	2,190
27	2,140	2,460	2,450	8,440	3,400	2,110	1,870	2,280	2,490	a5,310	2,670	2,380
28	a2,070	2,390	2,430	a8,580	3,340	2,110	a1,600	2,170	2,410	4,150	2,620	2,240
29	2,060	2,350	2,720	7,000	3,590	2,120	1,920	1,980	a1,930	3,760	2,400	a2,220
30	2,070	.....	3,520	6,330	6,450	a1,840	1,990	1,850	2,680	2,820	2,580	2,700
31	2,150	.....	a3,540	.....	8,330	.....	1,900	1,770	.....	2,730	.....	2,870

a Sunday.

Monthly discharge of Androscoggin River at Rumford Falls, Maine, for 1912.

[Drainage area, 2,090 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	2,840	2,060	2,330	1.11	1.28
February	2,460	2,090	2,300	1.10	1.19
March	3,540	2,210	2,580	1.23	1.42
April	17,000	2,950	7,750	3.71	4.14
May	8,330	3,340	5,470	2.62	3.02
June	9,150	1,840	4,480	2.14	2.39
July	2,240	1,590	1,980	.947	1.09
August	3,920	1,770	2,250	1.08	1.24
September	4,740	1,480	2,360	1.13	1.26
October	12,840	1,850	3,050	1.46	1.68
November	9,170	2,400	3,150	1.51	1.68
December	4,660	1,720	2,790	1.34	1.54
The year	17,000	1,480	3,370	1.61	21.93

PRESUMPSCOT RIVER BASIN.

PRESUMPSCOT RIVER AT OUTLET OF SEBAGO LAKE, MAINE.

Location.—Outlet dam at Sebago Lake and the hydroelectric plant at Eel Weir Falls, 1 mile below lake outlet.

Records available.—January 1, 1887, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission, in the second of which reports are published results of a recomputation of all data from 1887 to 1911.

Drainage area.—436 square miles.

Gages.—On the bulkhead of the gatehouse at the outlet dam and in the fore bay and tailrace of the power plant.

Discharge.—Prior to March, 1904, the discharge was deduced from the records of the opening of the gates in the dam, the discharge capacity of which under different conditions of head has been determined and tabulated by Mr. Hiram F. Mills, of Lowell.

In March, 1904, a hydroelectric plant was completed at Eel Weir Falls, the water being brought directly from the outlet dam to the plant by means of a canal about a mile long. This new plant has necessitated a different method of recording the flow from the lake. The water passes through three pairs of 30-inch Hercules wheels, the amount being recorded by three Allen meters, one on each pair. These meters were rated by the result of a test at Holyoke, Mass., of one pair of wheels. Since the station was finished the performance of the wheels and of the recording meters has been checked by current-meter measurements, brake tests of the wheels, and electrical readings of the generator output. It is usually desired to keep a constant flow through the canal, and when demands for power are not sufficient to utilize the entire flow through the wheels, the excess of water is run off through a pair of regulating gates at the power station. A record of the opening of these gates is kept and the flow computed from a coefficient determined from current-meter tests.

At times the flow from the lake may be greater than is safe to carry through the canal, though this has not yet happened. At such times it will be necessary to draw a part of the water through the old regulating gates in the main dam.

Winter flow.—No trouble from ice.

Artificial control.—Sebago Lake, with an area of 46 square miles, is under complete control for storage. It is a magnificent natural storage reservoir and its utilization for this purpose has made the flow of the Presumpscot extremely regular.

Accuracy.—Results very good for a station of this type.

Cooperation.—Records obtained and computations of daily discharge made and furnished by the S. D. Warren Co.

Daily discharge, in second-feet, of Presumpscot River at outlet of Sebago Lake, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	542	542	542	310	537	287	537	593	a 308	660	678	a 238
2	538	543	528	353	535	a 180	535	595	667	673	675	680
3	542	535	a 208	330	533	465	538	585	667	675	a 230	682
4	543	a 188	537	423	537	535	188	a 310	667	670	670	678
5	542	540	538	428	a 168	537	542	577	667	665	667	682
6	532	538	543	378	518	537	532	607	667	a 223	670	682
7	a 187	537	533	a 107	535	537	a 188	607	667	670	672	628
8	538	538	532	145	537	532	535	607	a 317	667	668	a 233
9	540	542	535	270	535	a 290	537	605	667	670	663	813
10	542	538	a 202	240	533	533	533	605	667	662	a 248	817

a Sundays.

Daily discharge, in second-feet, of Presumpscot River at outlet of Sebago Lake, Maine, for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	540	a 215	533	288	495	535	538	a 342	667	670	668	820
12	540	538	530	418	a 185	535	543	600	667	662	675	808
13	533	538	357	307	532	535	538	600	667	a 230	672	812
14	a 228	537	272	a 112	540	533	a 185	598	667	665	668	808
15	537	537	302	333	535	532	542	603	a 298	648	652	a 248
16	542	535	225	393	490	a 185	538	600	650	668	547	818
17	545	530	a 33	357	422	537	535	603	658	663	a 228	823
18	545	a 192	203	362	412	537	532	a 328	667	657	675	820
19	543	535	203	298	a 187	538	538	595	658	630	648	685
20	538	535	203	285	533	537	532	595	658	a 322	677	633
21	a 182	547	260	a 238	537	538	a 190	595	658	670	680	808
22	540	483	340	373	537	533	540	602	a 222	673	672	a 238
23	540	518	408	452	535	a 193	535	595	667	665	670	815
24	543	515	a 110	433	535	537	535	592	658	667	a 245	765
25	542	a 188	440	458	535	535	533	a 312	667	650	587	672
26	540	528	465	490	a 223	538	532	663	658	665	643	813
27	530	537	502	503	535	535	538	660	667	a 227	672	810
28	a 203	537	496	a 193	535	537	a 343	667	658	678	580	822
29	540	537	233	543	530	535	583	663	a 298	667	663	a 402
30	545	.....	150	538	435	a 213	598	663	663	675	673	772
31	545	.....	a 135	.....	317	.....	593	658	.....	665	.....	686

a Sunday.

Monthly discharge of Presumpscot River at outlet of Sebago Lake, Maine, for 1912.

[Drainage area, 436 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	545	182	496	1.14	1.31
February	547	188	487	1.12	1.21
March	543	33	358	.821	.95
April	543	107	345	.791	.88
May	540	168	469	1.08	1.24
June	538	180	471	1.08	1.20
July	598	185	491	1.13	1.30
August	667	310	575	1.32	1.52
September	667	222	601	1.38	1.54
October	678	223	611	1.40	1.61
November	680	228	601	1.38	1.54
December	823	233	678	1.56	1.80
The year	823	33	516	1.18	16.10

SACO RIVER BASIN.

SACO RIVER NEAR CENTER CONWAY, N. H.

Location.—At the wooden highway bridge between Center Conway and Redstone, N. H., about 2 miles from each place, about 3 miles below the mouth of Swift River, and 2 miles above the outlet of Conway Lake.

Records available.—August 26, 1903, to June 30, 1912. Data also in annual reports of the Maine State Water Storage Commission.

Drainage area.—385 square miles.

Gage.—Chain attached to bridge; datum unchanged.

Channel.—Recent measurements indicate radical changes in conditions of flow; but insufficient measurements have been taken to define the new discharge rating curve. Channel broken by one pier.

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

Winter flow.—So affected by ice that gage-height observations are discontinued.

Daily gage height, in feet, of Saco River near Center Conway, N. H., for 1912.

Day.	Apr.	May.	June.	Day.	Apr.	May.	June.	Day.	Apr.	May.	June.
1	.....	5.70	6.06	11	5.29	5.65	3.95	21	6.36	5.77	3.23
2	4.68	5.66	5.24	12	5.26	5.36	3.84	22	6.48	5.97	3.18
3	4.46	5.32	5.12	13	5.36	7.09	3.78	23	9.18	5.43	3.12
4	4.17	5.38	5.02	14	5.62	7.62	3.67	24	7.24	5.19	3.07
5	4.03	5.28	4.61	15	5.58	5.82	3.54	25	6.48	5.20	3.05
6	5.18	5.48	4.38	16	7.21	5.32	3.48	26	6.42	4.88	2.98
7	5.99	5.52	4.42	17	8.73	7.36	3.69	27	6.78	4.61	2.94
8	7.85	5.84	4.24	18	7.83	6.56	3.56	28	6.82	4.43	2.88
9	6.08	5.58	4.04	19	7.18	5.71	3.38	29	6.00	4.29	2.82
10	5.49	5.71	3.94	20	6.64	5.36	3.29	30	5.70	6.36	2.78
								31	.....	6.28	.....

SACO RIVER AT WEST BUXTON, MAINE.

Location.—At hydroelectric plant of the Portland Electric Co. at West Buxton, Maine.

Records available.—October 19, 1907, to December 31, 1912. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,550 square miles.

Gages.—One in pond above dam and one in tailrace of power house.

Channel.—Crest of the concrete dam, about 300 feet long.

Discharge.—The flow over the dam and through the rated wheels of the power plant is determined by means of gage readings taken every hour.

Winter flow.—No trouble from ice.

Artificial control.—There are dams on numerous although comparatively small lakes in the basin above the station. Regulation of storage probably has some effect on the regimen of the stream but not to the extent that obtains in the other basins in the State of Maine, where natural storage facilities are better and more fully developed.

Accuracy.—Results believed to be good for a station of this type.

Cooperation.—Records obtained and computations of daily discharge made and furnished by the Cumberland County Power & Light Co.

Daily discharge, in second-feet, of Saco River at West Buxton, Maine, for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,210	1,330	1,170	8,020	8,660	6,300	1,390	1,170	a 838	1,590	3,640	a1,300
2	1,610	1,300	1,080	7,960	8,010	a5,910	1,370	1,180	822	1,430	3,640	1,840
3	1,430	1,260	a 505	7,760	7,420	6,540	1,290	1,300	1,110	1,300	a3,140	1,680
4	1,400	a 880	1,310	8,080	6,770	6,150	1,120	a1,180	1,090	1,260	3,470	1,820
5	1,530	1,480	1,190	7,300	a5,560	5,770	1,190	1,150	1,060	1,010	3,230	1,920
6	1,260	1,380	1,230	7,140	6,020	5,460	1,400	1,430	1,040	a 912	3,010	2,000
7	a 774	1,250	1,120	a8,920	5,680	5,150	a 924	1,330	950	1,320	2,970	2,280
8	1,330	1,250	1,150	10,500	5,650	4,680	1,370	1,620	a 851	1,360	3,200	a2,070
9	1,340	1,180	1,130	10,300	5,440	a3,990	1,470	1,240	1,000	1,320	3,720	2,540
10	1,750	1,020	a 633	8,670	5,920	4,140	1,410	912	1,020	1,150	a3,950	2,180
11	1,690	a 707	1,140	8,920	5,630	3,720	1,400	a1,100	905	1,280	4,580	2,230
12	1,480	1,340	999	8,910	a5,020	3,390	1,460	1,240	1,070	1,120	4,660	2,160
13	1,100	1,120	1,180	8,810	5,410	3,240	1,220	1,160	903	a 847	4,610	1,960
14	a 801	1,030	1,460	a8,750	5,390	3,010	a1,090	1,680	828	1,170	4,580	1,620
15	1,170	1,030	2,430	8,980	5,540	2,690	1,410	2,160	a 557	1,080	4,380	a1,170
16	1,330	1,090	3,660	8,830	5,670	a2,320	1,500	1,970	945	918	3,700	1,700
17	1,220	956	a4,440	9,370	6,280	3,480	1,390	1,920	969	915	a1,560	1,680
18	1,260	a 683	4,460	9,710	6,590	2,540	1,360	a1,450	779	904	2,920	1,860
19	1,290	1,180	4,420	11,400	a6,340	3,050	1,420	2,060	840	866	2,530	1,800
20	1,230	1,130	5,030	13,000	6,780	2,800	1,180	1,850	848	a 690	2,340	1,980
21	a1,030	1,040	5,290	a12,600	6,630	2,600	a1,010	1,650	840	956	2,210	1,880
22	1,610	870	5,070	12,400	6,810	2,800	1,200	1,360	a 789	1,020	2,040	a1,440
23	1,580	938	4,740	11,900	6,550	a1,730	1,320	1,330	1,710	1,100	1,910	1,800
24	1,540	934	a4,260	11,200	6,560	2,370	1,280	1,360	1,960	974	a1,430	1,620
25	1,440	a721	4,280	11,200	6,430	2,040	1,430	a1,120	2,010	1,310	2,100	1,030
26	1,540	1,420	4,020	11,100	a5,810	1,940	1,420	1,350	1,840	2,430	1,970	1,540
27	1,520	1,260	3,860	10,800	5,870	1,870	1,100	1,320	1,840	a2,880	1,980	1,500
28	a1,280	1,250	3,710	a9,920	5,360	1,620	a 620	1,250	1,360	3,580	1,400	1,620
29	1,740	1,200	4,630	10,100	4,850	1,470	701	1,300	a1,250	3,590	1,930	a1,740
30	1,620	.....	6,200	8,970	5,220	a 875	780	1,170	1,690	3,770	1,690	2,330
31	1,520	.....	a7,440	.....	5,890	.....	888	978	.....	3,930	.....	2,440

a Sunday.

Monthly discharge of Saco River at West Buxton, Maine, for 1912.

[Drainage area 1,550 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	1,750	774	1,380	0.890	1.03
February	1,480	683	1,110	.716	.77
March	7,440	505	3,010	1.94	2.24
April	13,000	7,140	9,720	6.27	7.00
May	8,660	4,850	6,120	3.95	4.55
June	6,540	875	3,450	2.23	2.49
July	1,500	620	1,230	.794	.92
August	2,160	912	1,400	.903	1.04
September	2,010	557	1,120	.723	.81
October	3,930	690	1,550	1.00	1.15
November	4,660	1,400	2,950	1.90	2.12
December	2,540	1,030	1,830	1.18	1.36
The year	13,000	505	2,900	1.87	25.48

MERRIMAC RIVER BASIN.

MIDDLE BRANCH OF PEMIGEWASSET RIVER AT NORTH WOODSTOCK, N. H.

Location.—At a dam about half a mile upstream from the North Woodstock post office.

Records available.—September 18, 1911, to October 31, 1912.

Drainage area.—28.6 square miles.

Gage.—Vertical staff, attached to wall of forebay, near the racks; an automatic gage was set on a shelf over the forebay April 4 to October 31, 1912.

Channel.—Gage heights at this station indicate the head on the crest of the spillway at the dam. The spillway is 110.85 feet long and has an ogee section. The crest is comparatively level, having a mean gage height of 0.1 foot. The dam is constructed for the installation of two wheels, neither of which has yet been put in. There is no leakage through the dam or through the unfinished penstocks.

Discharge measurements.—Made by wading below the dam.

Winter flow.—The crest of the dam was cleared of ice before the gage heights were obtained, so that open water prevailed for the entire period of the record.

Accuracy.—Estimates for the extreme low flow at this station are good. No measurements were made at the high stages to check up a coefficient for the spillway.

Cooperation.—Maintained in cooperation with the Department of Agriculture in connection with the intensive studies for the acquisition of lands for the protection of watersheds of navigable streams.

Discharge measurements of Middle Branch of Pemigewasset River at North Woodstock, N. H., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Jan. 26	C. R. Adams	[a] 0.31	27.2
Feb. 1	R. J. Coffin	a. 28	20.5
15	....do	a. 23	16.5
20	....do	a. 24	15.6
Mar. 7	R. A. Smead	b. 20	14.4

[a] 34 feet of spillway at east end completely blocked off by ice. [b] Entire length of spillway clear.

Daily gage height, in feet, and discharge, in second-feet, of Middle Branch of Pemigewasset River at North Woodstock, N. H., for 1911.

[L. M. Watchie, observer.]

Day.	September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1	.....	.....	0.47	89	0.49	96	0.53	111
2	.....	.....	.56	122	.44	79	.48	92
3	.....	.....	.50	99	.41	68	.42	72
4	.....	.....	.89	275	.38	59	.37	56
5	.....	.....	.92	291	.37	56	.37	56
6	.....	.....	.66	164	.36	53	.48	92
7	.....	.....	.60	138	.73	196	.48	92
8	.....	.....	.52	107	.77	216	.42	72
9	.....	.....	.47	89	.50	99	.39	62
10	.....	.....	.42	72	.43	75	.40	65
11	.....	.....	.42	72	.43	75	.46	85
12	.....	.....	.40	65	.41	68	.74	201
13	.....	.....	.37	56	.91	285	1.19	444
14	.....	.....	.36	53	.58	130	.79	225
15	.....	.....	.34	48	.52	107	.62	147
16	.....	.....	.33	45	.48	92	.56	122
17	.....	.....	.32	42	.44	79	.50	99
18	0.41	68	.36	53	.47	89	.48	92
19	.37	56	1.22	463	.52	107	.44	79
20	.34	48	.70	182	.46	85	.39	62
21	.32	42	.55	118	.43	75	.40	65
22	.44	79	.62	147	.40	65	.40	65
23	.37	56	1.33	532	.38	59	1.38	565
24	.34	48	.71	187	.40	65	.76	211
25	.32	42	.57	126	.39	62	.62	147
26	.41	68	.51	103	.38	59	.53	111
27	.38	59	.49	96	.36	53	.50	99
28	.44	79	.47	89	.34	48	.42	72
29	.39	62	.43	75	.97	317	.40	65
30	.55	118	.41	68	.68	173	.38	59
31	.....	.....	.40	65	.....	.....	.38	59

NOTE.—Gage heights read from a staff Jan. 1 to Mar. 31, 1912. The spillway cleared of all obstruction prior to taking of observation, Jan. 1 to Jan. 11, inclusive. Fourteen feet of spillway at east end completely shut off by ice when observation was taken Jan. 12 to 25, inclusive. Thirty-four feet of spillway at east end completely shut off by ice when gage height was taken Jan. 26 to Feb. 26, inclusive. Spillway was entirely open when gage height was taken from Feb. 27 to Oct. 31, inclusive. Mean gage height, Apr. 4 to Oct. 31, taken from automatic record. Days of no record caused by automatic gage stopping.

Daily gage height, in feet, of Middle Branch of Pemigewasset River at North Woodstock, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1	0.38	0.28	0.21	.....	0.82	0.94	0.25	0.26	0.30	0.49
2	.35	.28	.21	.....	.80	.76	.24	.27	.35	.43
3	.34	.27	.21	.....	.....	.90	.25	.42	.42	.39
4	.34	.....	.20	0.43	.....	.77	.23	.46	.41	.37
5	.34	.27	.20	.40	.80	.66	.22	.36	.36	.34
6	.29	.26	.20	.40	1.02	.62	.21	.28	.40	.34
7	.29	.26	.20	1.00	1.01	.67	.21	.27	.40	.33
8	.....	.26	.20	1.30	.98	.60	.20	.26	.....	.32
9	.30	.25	.20	.91	.90	.56	.21	.24	.....	.30
10	.31	.26	.....	.75	1.01	.51	.20	.23	.....	.....
11	.29	.....	.....	.68	.93	.49	.28	1.17	.....	.....
12	.29	.26	.....	.71	1.00	.48	.22	.83	.....	.....
13	.30	.26	.....	1.13	1.5	.47	.22	.54	.....	.50
14	.30	.26	.....	1.20	1.40	.43	.21	.42	.....	.40
15	.29	.24	.....	.....	.89	.39	.22	.47	.....	.36

Daily gage height, in feet, of Middle Branch of Pemigewasset River at North Woodstock, N. H., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
16	.28	.23	.....	.....	.87	.41	.22	.53	.55	.33
17	.28	.23	.....	.....	1.15	.60	.22	.42	.41	.32
18	.28	.23	.....	.....	.89	.49	.23	.40	.36	.33
19	.27	.23	.....	.....	.75	.43	.23	.38	.32	.35
20	.30	.23	.....	.....	.71	.39	.23	.36	.45	.38
21	.33	.22	.....	.91	1.02	.38	.31	.31	.60	.37
22	.30	.27	.....	1.06	.92	.35	.45	.....	.45	.36
23	.29	.28	.....	1.86	.81	.32	.35	.....	.40	.89
24	.28	.27	.....	1.10	.78	.32	.25	.....	.38	1.59
25	.27	.32	.....	1.00	.80	.32	.23	.....	.33	1.10
26	.30	.32	.....	1.05	.70	.30	.21	.....	.31	.79
27	.30	.23	.....	.....	.62	.30	.20	.40	.31	.66
28	.30	.23	.....	.....	.58	.30	.21	.33	.32	.55
29	.29	.23	.70	.82	.73	.30	.21	.30	.35	.50
30	.29	.....	.60	.80	1.22	.28	.20	.29	.64	.44
31	.29	.....	.....	.....	1.04	.....	.20	.30	.....	.....

Daily discharge, in second-feet, of Middle Branch of Pemigewasset River at North Woodstock, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
1	59	23	15	.....	240	301	24	27	36	96
2	50	23	15	.....	230	211	22	29	50	75
3	48	21	15	.....	230	280	24	72	72	62
4	48	21	13	75	230	216	20	85	68	56
5	48	21	13	65	230	164	18	53	53	48
6	34	20	13	65	344	147	15	31	65	48
7	34	20	13	333	339	169	15	29	65	45
8	35	20	13	513	322	138	13	27	.....	42
9	36	18	13	285	280	122	15	22	.....	36
10	39	20	.....	206	339	103	13	20	.....	.....
11	34	20	.....	173	296	96	31	432	.....	.....
12	30	20	.....	187	333	92	18	245	.....	.....
13	31	20	.....	408	646	89	18	115	.....	99
14	31	20	.....	450	578	75	15	72	.....	65
15	30	16	.....	.....	275	62	18	89	.....	53
16	27	15	.....	.....	265	68	18	111	118	45
17	27	15	.....	.....	420	138	18	72	68	42
18	27	15	.....	.....	275	96	20	65	53	45
19	25	15	.....	.....	206	75	20	59	42	50
20	31	15	.....	.....	187	62	20	53	82	59
21	39	13	.....	285	344	59	39	39	138	56
22	31	21	.....	367	291	50	82	.....	82	53
23	30	23	.....	910	235	42	50	.....	65	275
24	27	21	.....	390	220	42	24	.....	59	709
25	25	30	.....	333	230	42	20	.....	45	390
26	26	30	.....	361	182	36	15	.....	39	225
27	26	20	.....	450	147	36	13	65	39	164
28	26	20	.....	333	130	36	15	45	42	118
29	24	20	182	240	196	36	15	36	50	99
30	24	.....	138	230	463	31	13	34	156	79
31	24	.....	.....	.....	356	.....	13	36	.....	.....

NOTE.—Daily discharge determined from rating curve computed by using a coefficient of 3.50 in the formula $Q=CHL\frac{3}{2}$.

Monthly discharge of Middle Branch of Pemigewasset River at North Woodstock, N. H., for 1911–12.

[Drainage area, 28.6 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
September 18-30	118	42	63.5	2.22	1.07	A.
October	532	42	133	4.65	5.36	A.
November	285	48	103	3.60	4.02	A.
December	565	56	124	4.34	5.00	A.
1912.						
January	59	24	33.1	1.16	1.34	A.
February	30	13	20.1	.703	.76	A.
March 1-9, 29-30	182	13	40.3	1.41	.57	C.
April	910	65	292	10.2	11.4	B.
May	646	130	292	10.2	11.8	B.
June	301	31	104	3.64	4.06	B.
July	82	13	21.7	.759	.88	A.
August	432	20	71.4	2.50	2.88	B.
September	138	36	74.1	2.59	2.89	B.
October	709	36	111	3.89	4.34	B.

NOTE.—Discharge for periods for which gage records are missing determined by interpolation and by use of climatologic data.

PEMIGEWASSET RIVER AT PLYMOUTH, N. H.

Location.—In the town of Plymouth, about 40 feet above the covered wooden highway bridge three-fourths of a mile below the mouth of Bakers River.

Records available.—1886 to December 31, 1912.

Drainage area.—615 square miles.

Gages.—Two gages have been maintained at this station. From September 4, 1903, to June 30, 1907, readings were taken with the chain gage established by the United States Geological Survey on the upstream side of the bridge; the datum of this gage has remained the same during the maintenance of the station. Since June 30, 1907, gage heights have been furnished by the Locks & Canals Co., of Lowell, Mass., from readings taken on the staff gage, the low and medium stage sections of which are about 40 feet above the bridge and on the same side of the river as the chain gage. The high-stage section is bolted to the upstream side of the right abutment; the datum of this gage is 1.11 feet higher than that of the chain gage. All gage readings prior to 1910 were reduced to chain-gage datum. At low stages the difference in readings between the two gages is 1.11 feet; at 8.1 feet on the staff gage the difference is 0.99 feet. Owing to the slight difference in the relation of stage to discharge at the locations of the two gages and to the fact that gage readings are now taken on the staff gage, it is considered advisable to publish all gage heights beginning with 1910 exactly as received from the Locks & Canals Co., namely, as referred to the staff-gage datum.

Channel.—Rocky and probably fairly permanent in the right channel; fine gravel, shifting occasionally at times of high floods, in the left channel.

Discharge measurements.—Made from the bridge at ordinary and high stages. At low stages the right channel is measured from the bridge and the left channel by wading.

Artificial control.—The nearest dam upstream is at the pulp mills at Livermore Falls, 3 miles above; downstream the nearest dam is at Franklin, 25 miles distant. The control of the flow at Livermore Falls and also at the dam at Woodstock, 17 miles upstream, affects the low-water discharge slightly.

Winter flow.—Affected by ice, which forms on the control about 300 feet below the bridge. Discharge from sewer entering a short distance above the gage usually keeps the river open on right bank near the staff gage.

Accuracy.—Estimates of discharge covering the period from 1886–1903 were made and published in Water-Supply Paper 124, pages 97–101. At the time these estimates were published it was believed that conditions of flow were stable, but two quite radical changes have since occurred, one in 1905 and one in 1910, the discharge at a stage of 1.2 feet (chain gage) having varied as follows: 1904, discharge 110 second-feet; 1905, discharge 158 second-feet; 1910, discharge 213 second-feet. Hence, these earlier estimates of discharge should be used with caution for low stages, although they are probably essentially correct for medium and high stages. For the period since 1903 good discharge rating curves have been developed. Conditions for obtaining accurate discharge data are good, except at low stages, when the control of the flow at Livermore Falls affects the accuracy of the computed values of daily discharge.

Cooperation.—Gage heights since June 30, 1907, furnished by the Locks & Canals Co., of Lowell, Mass.

Discharge measurements of Pemigewasset River at Plymouth, N. H., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 27	Coffin and Moore	[a] 1.90	349	Feb. 18	C. R. Adams	[a] 1.60	291
29	R. J. Coffin	[a] 1.80	355	28	Adams and Coffin	[a] 1.90	290
29	Adams and Coffin	[a] 1.81	374	Mar. 6	do	[a] 1.82	293
Feb. 3	do	[a] 1.74	343	12	Smead and Moore	[a] 1.70	304
12	do	[a] 1.58	260	Apr. 19	C. R. Adams	5.90	6,160

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

NOTE.—All gage heights refer to staff gage.

Daily gage height, in feet, of Pemigewasset River at Plymouth, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.6	1.8	1.8	5.8	3.1	4.9	0.42	0.38	.....	1.5	1.8	.....
2	2.5	1.9	1.8	6.2	2.9	.....	.38	.5	0.7	1.1	3.3	1.25
3	2.5	1.8	.....	6.0	2.8	3.7	.35	.85	.9	.95	.....	2.8
4	2.3	.....	1.8	3.6	2.7	2.9	.33	.....	.85	.9	1.9	2.5
5	2.2	1.7	1.7	2.7	.....	2.4	.29	.9	.9	.9	1.6	2.4
6	2.4	1.7	1.8	4.3	2.7	2.1	.25	.85	.9	.....	1.5	2.6
7	.....	1.7	1.8	6.5	3.8	2.5	.....	.6	.7	.75	1.4	3.4
8	2.2	1.7	1.8	10.6	3.8	2.0	.25	.46	.....	.75	8.6	.....
9	2.2	1.7	1.8	5.3	3.4	.....	.29	.42	.6	.8	5.5	1.9
10	2.5	1.6	.....	4.1	3.2	1.5	.25	.42	.6	.7	.....	1.8
11	2.4	.....	1.7	3.6	3.4	1.5	.21	5.5	.55	.75	2.8	1.75
12	2.2	1.15	1.7	3.6	.....	1.5	.21	4.2	.5	.9	2.5	1.6
13	2.1	1.6	1.8	3.9	4.3	1.4	.19	2.3	.5	.....	2.2	1.6
14	.....	1.6	2.1	.....	6.2	1.3	.....	1.5	.5	1.35	2.2	1.4
15	2.0	1.6	2.2	3.8	3.8	1.2	.25	1.1	.....	1.1	2.8	.....
16	2.1	1.6	2.9	6.1	3.0	.....	.29	1.0	.6	1.1	2.5	1.3
17	1.9	1.6	.....	9.1	4.6	1.25	.29	.8	1.3	1.1	.....	1.25
18	1.9	.....	4.2	7.6	4.1	1.5	.25	.....	1.1	.95	2.0	1.25
19	1.8	1.6	4.0	6.4	.....	1.2	.33	.7	.9	1.0	1.8	1.45
20	6.0	1.7	4.3	5.5	2.8	1.1	.27	.75	.9	.....	1.7	2.6
21	.....	1.7	4.5	.....	3.5	1.0	.....	.6	2.5	1.05	1.5	2.4
22	2.4	1.8	3.8	5.0	4.5	.9	.65	.5	.....	.85	1.4	.....
23	2.3	1.9	3.2	9.1	3.8	.....	1.1	.55	1.35	1.35	1.45	2.3
24	2.2	1.9	.....	6.6	3.2	.65	.55	.6	1.2	6.7	.....	2.0
25	2.2	.....	2.7	4.5	3.2	.6	.5	.....	1.05	8.6	1.6	1.9
26	2.0	1.8	2.5	4.2	.....	.7	.42	.55	.85	5.3	1.5	1.6
27	1.9	1.9	2.3	4.8	2.4	.6	.42	.9	.75	.....	1.45	1.3
28	.....	1.9	2.3	.....	2.3	.55	.....	1.05	.7	3.1	1.4	1.3
29	1.8	1.8	2.6	3.8	1.8	.5	.38	.85	.....	2.4	1.4	.....
30	1.8	.....	6.5	3.3	3.6	.....	.33	.6	1.35	2.0	1.4	1.5
31	1.9	.....	.....	.....	4.9	.....	.33	.6	.....	1.9	.....	2.6

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Mar. 31.

Daily discharge, in second-feet, of Pemigewasset River at Plymouth, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	375	290	6,320	2,560	4,910	339	322	452	1,020	1,260	890
2	.....	425	290	7,000	2,330	4,080	322	375	480	730	2,780	835
3	.....	343	290	6,660	2,230	3,260	309	570	600	632	2,060	2,230
4	.....	340	290	3,140	2,120	2,340	300	585	570	600	1,350	1,920
5	.....	330	290	2,120	2,120	1,820	284	600	600	600	1,100	1,820
6	.....	330	293	4,050	2,120	1,530	269	570	600	555	1,020	2,020
7	.....	330	375	7,530	3,380	1,920	269	425	480	510	945	2,900
8	.....	330	375	15,800	3,380	1,440	269	357	452	510	11,600	2,120
9	.....	330	375	5,520	2,900	1,230	284	339	425	540	5,840	1,350
10	.....	288	350	3,780	2,660	1,020	269	339	425	480	4,040	1,260
11	.....	288	330	3,140	2,900	1,020	254	5,840	400	510	2,230	1,220
12	.....	260	304	3,140	3,480	1,020	254	3,920	375	600	1,920	1,100
13	.....	288	375	3,520	4,050	945	247	1,720	375	754	1,620	1,100
14	.....	288	.....	3,450	7,000	870	258	1,020	375	908	1,620	945
15	.....	288	.....	3,380	3,380	800	269	730	400	730	2,230	908
16	.....	288	.....	6,830	2,440	818	284	665	425	730	1,920	870
17	.....	288	.....	12,600	4,470	835	284	540	870	730	1,680	835
18	.....	291	.....	9,590	3,780	1,020	269	510	730	632	1,440	835
19	.....	290	.....	7,350	3,000	800	300	480	600	665	1,260	982
20	.....	290	.....	5,840	2,230	730	277	510	600	682	1,180	2,020
21	.....	290	.....	5,450	3,020	665	340	425	1,920	698	1,020	1,820
22	.....	290	.....	5,060	4,330	600	452	375	1,410	570	945	1,770
23	.....	290	.....	12,600	3,380	526	730	400	908	908	982	1,720
24	.....	290	.....	7,710	2,660	452	400	425	800	7,890	1,040	1,440
25	.....	290	.....	4,330	2,660	425	375	412	698	11,600	1,100	1,350
26	.....	290	.....	3,920	2,240	480	339	400	570	5,520	1,020	1,100
27	349	290	.....	4,760	1,820	425	339	600	510	4,040	982	870
28	350	290	.....	4,070	1,720	400	330	698	480	2,560	945	870
29	364	290	.....	3,380	1,260	375	322	570	694	1,820	945	945
30	375	.....	.....	2,780	3,140	357	300	425	908	1,440	945	1,020
31	425	.....	.....	.....	4,910	.....	300	425	.....	1,350	.....	2,020

NOTE.—Daily discharge Jan. 27 to Mar. 13, inclusive, computed by correcting gage heights according to the amount of backwater from ice indicated by discharge measurements made during that period; this effect is so consistent that the discharge values should be good. Discharge interpolated for days on which gage was not read.

Monthly discharge of Pemigewasset River at Plymouth, N. H., for 1912.

[Drainage area, 615 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	1,070	1.74	2.00	D.
February	425	260	307	.499	.54	B.
March	.....	.....	1,410	2.29	2.64	D.
April	15,800	2,120	5,830	9.48	10.58	B.
May	7,000	1,260	3,020	4.91	5.66	B.
June	4,910	357	1,240	2.02	2.25	B.
July	730	247	317	.515	.59	B.
August	5,840	322	825	1.34	1.54	B.
September	1,920	375	638	1.04	1.16	B.
October	11,600	480	1,660	2.70	3.11	B.
November	11,600	945	1,970	3.20	3.57	B.
December	2,900	835	1,390	2.26	2.61	B.
The year	15,800	247	1,640	2.67	36.25	

NOTE.—Mean discharge Jan. 1–26 and Mar. 14–31, inclusive, estimated by comparison with records at North Woodstock station and from climatologic data.

MERRIMAC RIVER AT FRANKLIN JUNCTION, N. H.

Location.—At covered wooden bridge of the Boston & Maine Railroad near Franklin Junction, N. H., about 1 mile below the confluence of Pemigewasset and Winnepesaukee rivers.

Records available.—July 8, 1903, to December 31, 1912.

Drainage area.—1,460 square miles.

Gage.—Standard chain fastened to floor of bridge on upstream side over the right-hand channel. A gage painted on the downstream right-hand side of the center pier is used by the United States Weather Bureau for high-water readings.

Channel.—Coarse gravel and bowlders; fairly permanent.

Discharge measurements.—Made from upstream side of the bridge.

Winter flow.—Ice usually affects the relation between gage height and discharge for short periods during the winter months.

Artificial control.—Several dams above the station on both Pemigewasset and Winnepesaukee rivers affect the discharge. The operation of the mills above the station causes more or less fluctuation in stage each working day. It is not known how much this affects the reliability of the records. Winnepesaukee, Squam, and New Found lakes also offer opportunities for storage and are under more or less regulation.

Accuracy.—During open-water periods the results are believed to be fairly good.

Cooperation.—All of the data published by the United States Geological Survey are based on chain gage readings which have been furnished by the Locks & Canals Co., of Lowell, Mass., since June 30, 1907.

No discharge measurements were made during 1912.

Daily gage height, in feet, of Merrimac River at Franklin Junction, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.4	.....	.....	7.6	6.2	.....	3.85	4.25	.....	4.8	5.4	.....
2	4.9	.....	.....	7.6	6.2	.....	3.9	4.25	.....	4.7	5.6	5.0
3	4.8	.....	.....	8.6	6.2	6.5	3.9	4.35	4.6	4.6	.....	5.2
4	4.7	.....	.....	8.6	6.1	6.4	4.0	.....	4.6	4.5	5.6	6.1
5	4.5	.....	.....	6.5	.....	6.2	4.0	4.5	4.6	4.4	5.4	6.0
6	4.5	.....	.....	7.0	6.2	6.2	3.9	4.8	4.6	.....	5.4	5.8
7	.....	.....	.....	.....	6.0	6.2	.....	4.7	4.5	4.4	5.3	5.7
8	5.0	.....	.....	12.6	6.2	5.6	4.0	4.5	.....	4.4	9.1	.....
9	5.0	.....	.....	9.1	6.2	.....	3.95	4.35	4.35	4.35	8.3	5.4
10	5.6	.....	.....	7.2	6.2	5.4	3.9	4.4	4.4	4.4	.....	5.4
11	5.7	.....	.....	6.8	6.3	5.2	4.0	.....	4.4	4.4	6.1	5.4
12	5.6	.....	.....	4.8	.....	5.2	3.95	7.2	4.4	4.4	6.0	5.4
13	5.7	.....	5.0	6.8	6.3	5.0	3.85	6.1	4.25	.....	5.8	5.0
14	.....	.....	5.0	.....	6.2	5.0	.....	5.4	4.2	4.5	6.2	4.7
15	5.9	.....	5.2	6.8	6.4	5.0	4.0	5.1	.....	4.5	6.3	.....
16	5.9	.....	6.5	8.3	6.4	.....	4.05	4.9	4.4	4.4	5.7	4.8
17	6.1	.....	.....	12.4	7.5	5.0	4.05	4.6	4.9	4.4	.....	4.8
18	6.2	.....	6.4	10.5	6.8	4.8	4.0	.....	4.7	4.3	5.5	4.8
19	6.1	.....	6.4	10.4	.....	4.8	4.0	4.4	4.6	4.2	5.4	5.1
20	6.1	.....	7.0	8.6	6.1	4.6	4.0	4.6	4.7	.....	5.5	5.4
21	.....	.....	7.0	.....	.....	4.6	.....	4.5	4.8	4.2	5.3	5.2
22	6.2	.....	6.6	7.5	7.5	4.6	4.4	4.5	.....	4.35	5.2	.....
23	6.0	.....	6.2	8.9	6.8	.....	4.7	4.4	4.7	4.4	5.2	4.8
24	5.8	.....	.....	9.0	6.6	4.4	4.5	4.3	4.8	9.9	.....	4.8
25	5.7	.....	5.4	7.8	6.4	4.4	4.3	.....	4.7	.....	5.2	.....
26	5.8	.....	5.3	7.2	.....	4.4	4.2	4.3	4.6	.....	5.2	4.8
27	5.9	.....	5.2	7.0	6.2	4.4	4.05	4.5	4.6	.....	5.2	4.8
28	.....	.....	5.4	.....	6.1	4.0	.....	4.6	4.5	.....	.....	4.8
29	5.9	.....	5.8	6.9	6.0	3.9	4.05	4.6	.....	5.7	5.2	.....
30	5.9	.....	8.0	6.8	.....	.....	4.0	4.6	4.8	5.6	5.1	4.7
31	5.9	.....	.....	.....	7.2	.....	4.2	.....	.....	5.5	.....	5.2

NOTE.—Relation of gage height to discharge affected by ice during January, February, and March.

Daily discharge, in second-feet, of Merrimac River at Franklin Junction, N. H., for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	7,000	4,360	6,220	900	1,360	1,810	2,090	3,000	2,460
2	7,000	4,360	5,560	950	1,360	1,810	1,950	3,320	2,380
3	9,000	4,360	4,900	950	1,480	1,810	1,810	3,320	2,680
4	9,000	4,180	4,720	1,060	1,580	1,810	1,680	3,320	4,180
5	4,900	4,270	4,360	1,060	1,680	1,810	1,550	3,000	4,000
6	5,840	4,360	4,360	950	2,090	1,810	1,550	3,000	3,660
7	11,600	4,000	4,360	1,000	1,950	1,680	1,550	2,840	3,490
8	17,400	4,360	3,320	1,060	1,680	1,580	1,550	10,000	3,240
9	10,000	4,360	3,160	1,000	1,480	1,480	1,480	8,400	3,000
10	6,220	4,360	3,000	950	1,550	1,550	1,550	6,290	3,000
11	5,460	4,540	2,680	1,060	3,880	1,550	1,550	4,180	3,000
12	2,090	4,540	2,680	1,000	6,220	1,550	1,550	4,000	3,000
13	5,460	4,540	2,380	900	4,180	1,360	1,620	3,660	2,380
14	5,460	4,360	2,380	980	3,000	1,300	1,680	4,360	1,950
15	5,460	4,720	2,380	1,060	2,530	1,420	1,680	4,540	2,020
16	8,400	4,720	2,380	1,120	2,230	1,550	1,550	3,490	2,090
17	17,000	6,800	2,380	1,120	1,810	2,230	1,550	3,320	2,090
18	13,000	5,460	2,090	1,060	1,680	1,950	1,420	3,160	2,090
19	12,800	4,820	2,090	1,060	1,550	1,810	1,200	3,000	2,530
20	9,000	4,180	1,810	1,060	1,810	1,950	1,300	3,160	3,000
21	7,900	5,490	1,810	1,300	1,680	2,090	1,300	2,840	2,680
22	6,800	6,800	1,810	1,550	1,680	2,020	1,480	2,680	2,380
23	9,600	5,460	1,680	1,950	1,550	1,950	1,550	2,680	2,090
24	9,810	5,080	1,550	1,680	1,420	2,090	11,700	2,680	2,090
25	7,400	4,720	1,550	1,420	1,420	1,950	16,000	2,680	2,090
26	6,220	4,540	1,550	1,300	1,420	1,810	10,000	2,680	2,090
27	5,840	4,360	1,550	1,120	1,680	1,810	7,000	2,680	2,090
28	5,740	4,180	1,060	1,120	1,810	1,680	5,000	2,680	2,090
29	5,650	4,000	950	1,120	1,810	1,880	3,490	2,680	2,020
30	5,460	5,110	925	1,060	1,810	2,090	3,320	2,530	1,950
31	.....	6,220	.....	1,300	1,810	.....	3,160	.....	2,680

NOTE.—Daily discharge determined from somewhat uncertain rating curve. No measurements were made during 1912 to verify this curve. Discharge Oct. 25 to 28, inclusive, estimated by comparison with records of Pemigewasset River at Plymouth, N. H., assuming a constant rate of flow during this period from Lake Winnepesaukee. Discharge interpolated for other days on which gage was not read.

Monthly discharge of Merrimac River at Franklin Junction, N. H., for 1912.

[Drainage area, 1,460 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	1,800	1.23	1.42	D.
February	.....	.....	1,850	1.27	1.37	D.
March	.....	.....	3,500	2.40	2.77	D.
April	17,400	2,090	8,080	5.53	6.17	B.
May	6,800	4,000	4,760	3.26	3.76	B.
June	[a] 6,220	[a] 925	2,720	1.86	2.08	B.
July	1,950	900	1,140	.781	.90	C.
August	6,220	1,360	2,040	1.40	1.61	C.
September	2,230	1,300	1,770	1.21	1.35	C.
October	[b] 16,000	1,300	3,100	2.12	2.44	B.
November	10,000	2,530	3,670	2.51	2.80	B.
December	4,180	1,950	2,600	1.78	2.05	B.
The year	17,400	900	3,080	2.11	28.72	

[a] Interpolated. [b] Estimated.

NOTE.—Discharge Jan. 1-Mar. 31 estimated by comparison with the flow at other stations in the Merrimac Basin.

MERRIMAC RIVER AT GARVINS FALLS, N. H.

Location.—At the dam of the Manchester Traction, Light & Power Co., 4 miles below Concord, N. H. The Garvins Falls plant is one of a system including three water-power plants and one steam-power plant operated by this company. The Garvins Falls site, one of the best on Merrimac River, has been utilized since 1815, first in connection with Old Bow Canal and later to furnish power for a pulp mill.

Records available.—1904 to 1912.

Drainage area.—2,340 square miles.

Dam.—During 1903–4 an overfall dam of the ogee type, somewhat similar in cross section to the dam at Holyoke, was completed. This dam is 550 feet long between abutments, and about 800 feet over all, including the head gates, and is of stone masonry, substantially built. The new dam and head gates are situated about 800 feet downstream from the old dam, which was destroyed on the completion of the new structure.

Canal and wasteways.—A canal has been completed which is about 500 feet long and 74 feet wide at the water line; in the sides of this canal wasteways are provided, one 90 feet long at elevation 102 feet (the main crest of the dam being taken as elevation 100) and another 45 feet long at elevation 103 feet. A waste gate, 10 feet wide and capable of being lowered to elevation 93 feet, is also provided for use in floating out any obstructions which lodge against the racks.

Turbines.—There are six triplex turbines, of somewhat more than 1,000 horsepower each, and one small duplex turbine of 75 horsepower used in running exciters; each large unit has three 39-inch runners mounted on a horizontal shaft which revolves at 180 revolutions a minute. Two of the wheels in each set discharge through a common T center and draft tube near the forebay wall. The third wheel is set opposite a quarter turn at the downstream end of the casing and discharges through this quarter turn into a smaller draft tube. The top of the penstock opening is at elevation 95.5; the lower ends of the draft tubes are horizontal and are about 2 feet below the elevation of usual tail water. The gates for the runners are of the plain cylindrical pattern, without fingers, and are controlled by governors. The average head on the wheels is about 29 feet, and there are six 650-kilowatt 3-phase generators directly connected with the turbines.

Utilization of power.—The power developed is transmitted at 12,000 volts tension to Manchester, about 14 miles away, where it enters a substation and is transformed to a lower voltage and utilized through a distributing switchboard for light and power.

Computations of discharge.—Careful records of the pond and tailrace levels, wheel openings, etc., have been kept by the company since completion of the dam in 1904 and have been furnished for computations of flow by J. Brodie Smith, manager. A number of current-meter measurements have been made from time to time by engineers of the United States Geological Survey for the purpose of rating turbines and to assist in computing the flow over the dam.

Winter flow.—The flow over the dam is somewhat affected by ice during the winter.

Accuracy.—Conditions at this station favor accurate determinations of discharge.

Cooperation.—Records furnished for publication by Hollis French and Allen Hubbard.

Daily discharge, in second-feet, of Merrimac River at Garvins Falls, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,891	2,135	1,790	14,981	6,631	11,217	1,153	1,925	1,065	1,774	1,904	1,205
2	3,315	2,409	1,873	14,890	6,214	10,141	1,147	1,800	1,309	1,958	1,791	2,048
3	3,408	2,577	1,811	12,725	5,829	8,845	1,053	1,715	1,706	1,960	1,739	2,167
4	3,199	4,719	1,699	10,715	5,183	8,404	1,077	1,515	1,793	1,886	2,116	2,434
5	2,880	2,325	1,457	8,995	5,040	7,704	1,410	1,879	1,836	1,717	1,819	2,362
6	2,345	2,273	1,487	9,559	4,959	6,457	1,153	1,745	1,767	1,282	2,013	2,112
7	2,989	2,231	1,873	14,230	5,874	5,682	985	1,762	1,725	1,772	2,019	2,260
8	2,063	4,026	1,749	20,031	6,796	5,449	1,412	1 802	1 137	1,960	2,006	2,256
9	2,061	4,181	2,059	23,243	6,704	4,704	1,393	1,725	1,777	2,069	5,692	2,318
10	2,795	3,586	2,165	16,570	6,566	4,369	1,137	2,119	1,681	2,056	2,897	2,072
11	2,255	3,795	2,080	12,546	6,228	3,592	1,220	1,222	1,746	2,198	2,845	2,113
12	2,551	3,199	1,815	11,293	5,816	3,324	1,719	2,233	1,621	1,981	2,340	2,099
13	2,568	3,038	2,462	10,729	5,491	3,112	1,681	2,223	1,695	1,286	2,364	1,423
14	2,227	2,862	3,455	10,720	7,224	2,906	1,013	1,848	1,591	2,275	2,134	1,051
15	2,071	2,755	4,942	10,705	8,471	2,744	1,395	1,722	1,114	3,357	2,388	562
16	2,755	3,709	7,269	10,487	6,333	2,422	1,819	1,744	1,735	2,945	2,929	2,065
17	2,301	3,489	9,483	16,213	5,777	2,550	1,705	1,515	1,943	2,755	1,942	1,866
18	2,525	3,501	10,388	18,838	10,996	2,521	1,706	1,313	2,074	2,349	2,368	2,146
19	3,032	3,519	11,881	16,886	9,538	2,645	1,704	1,917	2,056	1,805	2,036	2,218
20	3,011	3,046	13,649	16,263	7,631	2,350	1,688	1,883	1,963	1,242	2,114	1,962
21	4,355	2,898	13,290	12,462	6,778	2,111	1,036	2,135	1,799	2,073	1,982	1,719
22	2,964	1,927	11,179	11,871	8,324	1,790	1,843	2,197	8,755	2,419	2,100	1,150
23	2,817	1,970	9,690	11,372	9,546	1,669	1,828	1,961	5,433	2,427	2,071	1,471
24	2,780	2,125	7,828	16,799	8,996	2,194	1,689	1,660	4,981	3,293	1,190	1,694
25	2,466	2,354	6,524	12,058	7,893	2,080	1,449	1,082	5,930	4,459	1,975	1,278
26	2,281	2,124	5,341	9,730	6,797	1,643	1,706	1,675	4,398	4,041	2,164	2,014
27	2,192	1,916	5,188	8,907	6,004	1,386	1,392	1,623	3,505	2,632	2,080	1,948
28	3,401	1,860	5,299	9,741	5,237	1,487	1,223	1,662	2,798	2,629	1,342	1,898
29	2,783	1,720	6,371	8,983	4,659	1,297	1,732	1,810	2,366	2,258	1,930	1,183
30	1,933	.....	12,172	7,157	4,817	826	1,692	1,651	2,314	1,946	1,893	2,075
31	2,096	.....	13,862	.....	9,572	.....	1,838	1,545	.....	1,993	.....	2,007

Monthly discharge of Merrimac River at Garvins Falls, N. H., for 1912.

[Drainage area, 2,340 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per sq. mile.	
January	4,355	1,933	2,720	1.16	1.34
February	4,719	1,720	2,837	1.21	1.30
March	13,862	1,857	5,875	2.51	2.89
April	23,243	7,157	12,290	5.25	5.86
May	10,996	4,659	6,836	2.92	3.37
June	11,217	826	3,921	1.68	1.87
July	1,838	985	1,452	.621	.72
August	2,233	1,082	1,762	.753	.87
September	8,755	1,065	2,520	1.08	1.20
October	4,459	1,242	2,284	.976	1.13
November	5,692	1,190	2,206	.943	1.05
December	2,434	562	1,844	.788	.91
The year	23,243	562	3,879	1.66	22.51

MERRIMAC RIVER AT LAWRENCE, MASS.

Location.—At the dam of the Essex Water Power Co. in Lawrence.

Records available.—1890–1912.

Diversions.—Water is diverted from the drainage basins of Sudbury and Nashua rivers for use by the Metropolitan district in the vicinity of Boston, but during a portion of the year water is wasted into the Merrimac at these diversion dams; consequently the drainage area is somewhat variable.

Drainage area.—

	Square miles.
Total of Merrimac River drainage basin above Lawrence	4,663
Nashua River drainage basin above gaging station at Clinton, Mass.	118
Sudbury River drainage basin, Framingham Dam No. 1	75
Cochituate River drainage basin	18
Total of Nashua, Sudbury, and Cochituate river drainage basins	211
Net drainage of Merrimac River, excluding Nashua, Sudbury, and Cochituate river basins	4,452

Computations of discharge.—Careful record is kept of the flow over the dam and through the various wheels and gates in connection with the sale of power, and the quantity measured at Lawrence includes the water wasted into the Merrimac from the Sudbury, Nashua, and Cochituate drainage basins. In getting the absolute yield of the river this fact should be considered in reference to the drainage areas, either by deducting it from the Merrimac flow and using the net area and the net flow of the Merrimac, or by getting the total yield of both Sudbury and Nashua rivers with the Merrimac and using the total area. The estimate of the quantity wasted from Sudbury and Nashua drainage basins into the Merrimac is based on data furnished by the Metropolitan Water and Sewerage Board of Boston.

Accuracy.—Such care is taken in procuring the base data used and in making computations that the records are regarded as excellent.

Coöperation.—Records furnished for publication by R. A. Hale, principal assistant engineer of the Essex Water Power Co.

Average weekly discharge, in second-feet, of Merrimac River at Lawrence, Mass., for 1912.

[Weeks arranged in order of dryness at Lawrence.]

Week ending Sunday—	Merrimac River at Lawrence (total drainage area, 4,663 square miles).	Wasting into Merrimac River from diverted drainage basins (211 square miles).	Net yield of Merrimac River from 4,452 square miles.		Week ending Sunday—	Merrimac River at Lawrence (total drainage area, 4,663 square miles).	Wasting into Merrimac River from diverted drainage basins (211 square miles).	Net yield Merrimac River from 4,452 square miles.	
			For week	Per square mile.				For week	Per square mile.
	Sec.-ft.	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*		*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*
July 14	1,604	5	1,599	.359	Dec. 1	4,483	30	4,453	1.000
July 21	1,740	5	1,735	.390	Dec. 22	4,546	21	4,525	1.016
July 7	1,748	5	1,743	.392	June 16	4,652	9	4,643	1.043
Aug. 4	1,853	7	1,846	.415	Nov. 24	4,804	12	4,792	1.076
Oct. 13	1,885	5	1,880	.422	Dec. 15	4,805	15	4,790	1.076
Sept. 1	1,886	5	1,881	.423	Nov. 3	5,032	5	5,027	1.129
Sept 8	1,954	5	1,949	.438	Oct. 27	5,212	5	5,207	1.170
Sept. 15	2,020	5	2,015	.453	Dec. 8	5,702	37	5,665	1.272
July 28	2,097	7	2,090	.469	Nov. 10	6,456	9	6,447	1.448
Oct. 20	2,100	9	2,091	.470	Nov. 17	6,884	16	6,868	1.543
Oct. 6	2,101	5	2,096	.471	May 5	9,578	117	9,461	2.125
Aug. 25	2,110	6	2,104	.473	May 12	9,767	177	9,590	2.154
Aug. 11	2,126	7	2,119	.476	June 9	10,232	56	10,176	2.286
Sept. 22	2,277	5	2,272	.510	June 2	10,941	239	10,702	2.404
June 30	2,490	5	2,485	.558	May 19	11,695	278	11,417	2.564
Feb. 18	2,558	7	2,551	.573	May 26	12,079	308	11,771	2.644
Sept. 29	2,637	5	2,632	.591	Mar. 17	12,977	439	12,538	2.816
Feb. 11	2,758	27	2,731	.613	Mar. 31	15,640	282	15,358	3.450
Aug. 18	2,887	6	2 881	.647	Apr. 28	15,883	133	15,750	3.538
Feb. 4	2,964	16	2,948	.662	Apr. 21	19,754	196	19,558	4.393
Jan. 14	3,135	16	3,119	.701	Apr. 7	22,086	350	21,736	4.882
Jan. 21	3,212	23	3,189	.716	Apr. 14	22,234	176,	22,058	4.955
June 23	3,306	5	3,301	.741	Mar. 24	22,461	314	22,147	4.975
Mar. 10	3,315	47	3,268	.734					
Feb. 25	3,607	89	3,518	.790	52 weeks total	324,518	3,757	320,761	72.049
Jan. 28	3,844	26	3,818	.858					
Dec. 29	3,913	31	3,882	.872					
Jan. 7	4,164	25	4,139	.930	Weekly average	6,241	72	6,169	1.386
Mar. 3	4,324	124	4,200	.943					

Daily discharge, in second-feet, of Merrimac River at Lawrence, Mass., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5,300	2,962	4,511	25,394	9,910	15,218	2,359	2,384	a231	2,827	4,314	a2,995
2	4,715	3,075	3,171	24,821	9,584	a14,985	2,622	2,263	500	2,371	2,999	5,197
3	5,053	2,251	a2,195	24,771	9,032	13,631	2,561	1,452	2,848	2,452	a3,265	3,899
4	4,706	a1,527	4,735	22,306	7,384	12,727	500	a196	2,771	2,606	5,953	4,142
5	4,608	3,894	3,525	18,986	a7,205	11,840	2,268	2,476	2,720	1,855	4,835	6,891
6	2,728	3,277	3,345	17,881	8,471	10,236	1,539	2,784	2,619	a175	4,434	6,607
7	a2,039	3,028	3,286	a20,440	7,886	8,946	a384	2,664	1,877	2,600	4,185	6,054
8	4,547	2,855	3,447	26,173	9,899	7,367	1,941	2,648	a342	2,769	4,190	a7,122
9	3,946	2,954	2,751	30,720	10,465	a6,880	1,738	2,581	2,841	2,429	9,931	7,549
10	3,003	2,297	a2,118	26,689	11,063	7,744	2,080	1,539	2,904	2,363	a11,667	6,002
11	3,291	a1,003	4,944	21 254	10,683	5,290	2,131	a187	2,758	2,480	9,059	5,274
12	3,275	3,522	4,428	18,416	a9,901	4,936	1,931	2,297	2,143	328	6,972	4,999
13	2,433	2,962	6,562	16,678	10,269	4,554	1,189	4,160	2,004	a223	6,066	4,703
14	a1,452	2,826	10,091	a15,709	9,961	4,519	a219	4.670	1,318	2,359	5,639	2,723
15	4,021	2,716	16,600	16,201	11,331	2,879	1,987	3,580	a175	2,482	6,126	a2,387
16	3,383	2,814	23,200	15,672	10,767	a2,641	2,249	3.264	2,351	2,426	7,397	5,105
17	3,231	2,216	a25,012	17,604	10,878	5,139	2.141	1,891	2,659	2,696	a6,927	4,149
18	2,920	a851	26,067	22,816	14,212	3,853	1,992	a345	2,690	2,757	6,982	3,892
19	3.373	3.190	25,863	23,500	a14.444	3,197	2,131	3.087	2,694	1,797	5,897	4,142
20	2,514	3,144	25,262	22,394	12,699	3,625	1,464	2,896	2,978	a186	5,436	4,705
21	a3,041	3,231	25,017	a20,089	10,909	3,975	a213	2,462	1,987	2,192	5,016	4,880
22	4,814	2,742	21,445	17,964	11.087	2,556	2.361	2.272	a577	2,070	4,407	a4,951
23	4,539	5,339	18,030	16,689	13,252	a796	2,309	2,299	4,005	2,049	2,881	5,821
24	4,310	3,848	a15,546	18,622	13,215	3,892	2,486	1,474	3,318	2,508	a3,011	4,517
25	4,085	a3,758	12,967	18,508	12,250	3,284	2,713	a277	2,971	6,075	5,294	1,926
26	4,150	5,964	11,425	14,552	a11,143	3,108	2,878	2.857	2,913	12,358	4,939	4,788
27	2,550	5,098	10,888	12,877	10,662	2,939	1,753	2,296	3,008	a9,234	5,388	4,199
28	a2,462	4,812	10,650	a11,972	9,219	2,386	a175	2,187	1,959	8,185	3,703	2,864
29	4,376	4,518	13,241	12,994	8,234	1,620	2,227	2,179	a285	6,356	5,585	a3,276
30	3,453	.....	23,802	10,940	6,945	a201	2,189	2,169	2,422	5,392	3,479	6,059
31	3,104	.....	a26,509	.....	11,325	.....	2,259	1,282	.....	4,716	.....	6,676

a Sunday.

Monthly discharge of Merrimac River at Lawrence, Mass., for 1912.

[Drainage area, 4,452 square miles.]

Month.	Mean discharge of Merrimac River at Lawrence as measured (total drainage area, 4,663 square miles).	Wasting into Merrimac River from diverted drainage basins (211 square miles).	Average yield of Merrimac River from 4,452 square miles.		Run-off (depth in inches on drainage area).
			Mean.	Per square mile.	
	Sec.-ft.	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*	
January	3,594	22	3,572	0.802	0.92
February	3,196	51	3,145	.706	.76
March	12,601	255	12,346	2.773	3.19
April	19,454	208	19,246	4.323	4.82
May	10,461	236	10,225	2.297	2.65
June	5,832	26	5,806	1.304	1.45
July	1,838	5	1,833	.412	.48
August	2,230	7	2,223	.499	.58
September	2,162	5	2,157	.485	.54
October	3,268	6	3,262	.733	.85
November	5,533	15	5,518	1.239	1.38
December	4,790	32	4,758	1.069	1.23
The year	6,246	72	6,174	1.387	18.85

SOUHEGAN RIVER AT MERRIMAC, N. H.

Location.—Just above Atherton Falls, about 1½ miles above the dam of the W. H. McElwain Co., below the mouth of Stony Branch, and just above the junction of the Souhegan with the Merrimac.

Records available.—July 13, 1909, to December 31, 1912.

Drainage area.—168 square miles.

Gages.—Vertical staff on the left bank 40 feet above the falls, used until April 11, 1911, when it was washed out. On April 12, 1911, a chain gage was attached to a tree about 300 feet upstream from the staff gage. Both gages refer to the same datum.

Channel.—One at all stages. Not liable to shift.

Discharge measurements.—At high stages from bridges above and below the station; at low stages by wading at a section below the gage.

Artificial control.—Flow affected by the operation of mills at Milford, about 8 to 10 miles above, which causes a few hundredths of a foot difference between the morning and afternoon readings. In determining the daily discharge, it is assumed that the average of these readings gives essentially the true 24-hour mean. No information is available regarding night storage at Milford.

Winter flow.—Relation of gage height to discharge is not greatly affected by ice.

Accuracy.—Discharge rating curve quite well developed.

Cooperation.—Established and maintained in cooperation with the W. H. McElwain Co.

Discharge measurements of Souhegan River at Merrimac, N. H., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Aug. 8	G. H. Canfield	2.10	25.6
8	do	2.09	25.3

Daily gage height, in feet, of Souhegan River at Merrimac, N. H., for 1912.

[R. J. Sylvester, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	3.0	5.0	3.5	3.65	2.21	2.28	2.17	2.18	2.46	2.80
2	.....	.....	2.98	5.1	3.3	3.5	2.18	2.34	2.16	2.20	2.50	2.78
3	.....	.....	2.76	5.1	3.3	3.25	2.18	2.32	2.18	2.21	2.52	3.45
4	.....	.....	2.75	5.0	3.3	3.25	2.18	2.28	2.35	2.17	2.51	2.92
5	.....	.....	2.76	5.1	3.3	3.2	2.18	2.24	2.39	2.14	2.55	3.35
6	.....	.....	2.76	5.1	3.3	2.91	2.20	2.19	2.42	2.17	2.50	3.35
7	.....	.....	2.78	5.1	3.3	2.86	2.20	2.16	2.34	2.20	2.48	3.6
8	.....	2.73	2.92	5.2	3.4	2.86	2.18	2.10	2.34	2.22	3.65	3.35
9	.....	2.72	3.1	5.2	3.6	2.67	2.16	2.10	2.32	2.20	3.6	3.2
10	.....	2.73	3.1	5.2	3.95	2.63	2.14	2.09	2.24	2.19	3.25	3.4
11	.....	2.72	3.1	5.1	3.7	2.60	2.16	2.16	2.24	2.20	2.96	3.25
12	.....	2.73	3.4	4.9	3.4	2.57	2.14	2.21	2.20	2.18	2.99	3.05
13	.....	2.75	4.8	3.45	3.35	2.53	2.15	2.25	2.18	2.15	2.93	2.80
14	.....	2.75	5.3	3.85	3.35	2.52	2.28	2.26	2.16	2.16	3.0	2.78
15	.....	2.84	5.9	3.35	3.3	2.50	2.35	2.32	2.20	2.20	4.1	2.76
16	.....	2.78	6.5	2.97	3.4	2.50	2.42	2.33	2.38	2.20	4.1	2.75
17	.....	3.15	6.4	3.25	4.1	2.48	2.38	2.32	2.46	2.19	4.0	2.78
18	.....	.....	6.1	3.55	4.0	2.48	2.40	2.94	2.46	2.19	3.1	2.80
19	.....	.....	5.6	4.3	3.55	2.45	2.36	2.37	2.36	2.19	3.1	2.99
20	.....	.....	5.3	4.3	3.5	2.42	2.33	2.42	2.30	2.20	3.05	3.7
21	.....	.....	4.8	3.9	3.7	2.39	2.40	2.40	2.28	2.16	2.98	3.5
22	.....	.....	4.5	3.7	4.1	2.40	2.42	2.38	2.26	2.02	2.92	3.1
23	.....	.....	4.2	3.75	4.0	2.42	2.44	2.40	2.25	2.12	2.82	2.94
24	.....	.....	3.75	3.8	3.85	2.40	2.42	2.42	2.24	2.56	2.84	2.75
25	.....	3.2	3.7	3.85	3.7	2.40	2.40	2.36	2.22	3.12	3.15	2.82
26	.....	3.25	3.6	3.9	3.2	2.38	2.36	2.29	2.20	2.94	3.45	2.77
27	.....	3.2	3.55	3.85	3.15	2.36	2.31	2.24	2.20	2.70	3.3	3.05
28	.....	3.15	3.5	3.2	3.1	2.35	2.20	2.09	2.20	2.63	3.05	3.2
29	.....	3.05	4.7	3.2	3.1	2.29	2.28	2.18	2.20	2.60	2.80	3.0
30	.....	.....	6.6	3.45	3.4	2.22	2.26	2.18	2.18	2.52	2.80	3.15
31	.....	.....	5.5	.....	3.6	.....	2.24	2.16	.....	2.52	.....	4.8

NOTE.—No record Jan. 1 to Feb. 7 or Feb. 18 to 24, inclusive.

Daily discharge, in second-feet, of Souhegan River at Merrimac, N. H., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	230	1,400	447	521	38	47	34	35	75	161
2	.....	.....	223	1,470	355	447	35	55	33	37	83	155
3	.....	.....	149	1,470	355	333	35	52	35	38	87	424
4	.....	.....	146	1,400	355	333	35	47	56	34	85	201
5	.....	.....	149	1,470	355	311	35	42	62	32	94	378
6	.....	.....	149	1,470	355	198	37	36	68	34	83	378
7	.....	.....	155	1,470	355	181	37	33	55	37	79	496
8	.....	140	201	1,550	400	181	35	28	55	39	521	378
9	.....	137	269	1,550	496	123	33	28	52	37	496	311
10	.....	140	269	1,550	682	113	32	27	42	36	333	400
11	.....	137	269	1,470	546	105	33	33	42	37	216	333
12	.....	140	400	1,320	400	98	32	38	37	35	226	250
13	.....	146	1,240	424	378	90	32	43	35	32	205	161
14	.....	146	1,630	626	378	87	47	44	33	33	230	155
15	.....	174	2,130	378	355	83	56	52	37	37	770	149
16	.....	155	2,670	219	400	83	68	54	61	37	770	146
17	.....	290	2,580	333	770	79	61	52	75	36	710	155
18	.....	.....	2,310	472	710	79	64	208	75	36	269	161
19	.....	.....	1,880	895	472	74	58	60	58	36	269	226
20	.....	.....	1,630	895	447	68	54	68	49	37	250	546
21	.....	.....	1,240	653	546	62	64	64	47	33	223	447
22	.....	.....	1,030	546	770	64	68	61	44	22	201	269
23	.....	.....	830	572	710	68	72	64	43	30	168	208
24	.....	.....	572	599	626	64	68	68	42	96	174	146
25	.....	311	546	626	546	64	64	58	39	277	290	168
26	.....	333	496	653	311	61	58	48	37	208	424	152
27	.....	311	472	626	290	58	50	42	37	131	355	250
28	.....	290	447	311	269	56	37	27	37	113	250	311
29	.....	250	1,170	311	269	48	47	35	37	105	161	230
30	.....	.....	2,760	424	400	39	44	35	35	87	161	290
31	.....	.....	1,790	.....	496	.....	42	33	.....	87	.....	1,240

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

Monthly discharge of Souhegan River at Merrimac, N. H., for 1912.

[Drainage area, 168 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
March	2,670	146	969	5.77	6.65	A.
April	1,550	219	905	5.39	6.01	A.
May	770	269	459	2.73	3.15	A.
June	521	39	139	.828	.92	A.
July	72	32	47.5	.283	.33	B.
August	208	27	51.0	.304	.35	B.
September	75	33	46.4	.276	.31	B.
October	277	22	61.4	.366	.42	B.
November	770	75	275	1.64	1.83	A.
December	1,240	68	299	1.78	2.05	A.

SOUTH BRANCH OF NASHUA RIVER (WACHUSETT DRAINAGE AREA) AT CLINTON, MASS.

Location.—At Clinton, Mass.

Records available.—July, 1896, to December, 1912.

Drainage area.—118.19 square miles.

Computations of discharge.—A large reservoir, storing about 8,500,000,000 cubic feet, was constructed at Clinton, Mass., and has stored water since 1903. Beginning with 1897 the estimates of discharge have been corrected for gain and loss of storage in reservoirs and mill ponds, so that the results show the natural flow of the stream.

The yield reported per square mile is the yield of the drainage area, including the water surfaces. In the Wachusett basin this water surface for the years 1897 to 1902, inclusive, amounted to 2.2 per cent of the whole area; in 1903, 2.4

per cent; in 1904, 3.6 per cent; in 1905, 4.1 per cent; in 1906, 5.1 per cent; in 1907, 6.0 per cent; and in 1908 and subsequent years, 7.0 per cent.

The accompanying tables give data on discharge and precipitation for 1912, also the average for the years 1897–1912, inclusive, precipitation averages being based on records at several stations in the Nashua drainage basin.

Cooperation.—Data furnished for publication by the Metropolitan Water and Sewerage Board, Dexter Brackett, chief engineer.

Yield and rainfall in South Branch of Nashua River basin (Wachusett drainage area) at Clinton, Mass., for 1912, and summaries for 1897–1912.

[Drainage area, 118.19 square miles.]

Month.	Total yield (million gallons).	Yield per square mile.		Rainfall (inches).	Rainfall collected.	
		Million gallons per day.	Second-feet.		Inches. [a]	Per cent.
1912.						
January	2,859.8	0.780	1.208	2.57	1.392	54.2
February	3,177.2	.927	1.434	2.42	1.547	63.8
March	10,372.0	2.831	4.380	5.69	5.050	88.8
April	8,088.4	2.281	3.530	4.06	3,938	97.0
May	6,583.4	1.797	2.780	5.76	3.206	55.7
June	1,173.7	.331	.512	.48	.571	119.6
July	493.0	.135	.208	2.65	.240	9.1
August	459.2	.125	.194	2.89	.224	7.7
September	316.8	.089	.138	2.17	.154	7.1
October	530.8	.145	.224	2.53	.258	10.2
November	1,565.6	.442	.683	4.02	.762	18.9
December	2,904.3	.793	1.227	4.95	1.414	28.5
The year	38,524.2	.891	1.378	40.19	18.756	46.7
1897–1912.						
January	69,440.7	1.184	1.832	3.67	2.113	57.6
February	74,509.6	1.398	2.162	3.81	2.267	59.6
March	158,208.7	2.698	4.174	4.31	4.814	111.7
April	122,479.7	2.159	3.340	3.87	3.727	96.2
May	69,833.2	1.191	1.843	3.47	2.125	61.3
June	44,232.8	.780	1.206	3.82	1.346	35.3
July	23,339.5	.398	.616	4.01	.710	17.7
August	23,543.4	.402	.621	4.22	.717	17.0
September	20,876.6	.368	.569	3.77	.635	16.9
October	30,669.5	.523	.809	3.40	.933	27.4
November	45,866.6	.809	1.251	3.48	1.396	40.1
December	72,136.2	1.231	1.904	4.30	2.195	51.1
The year	755,136.5	1.094	1.692	46.13	22.978	49.8

[a] For 1912, total for month; 1897–1912, average of totals per calendar month.

SUDBURY RIVER AT FRAMINGHAM AND LAKE COCHITUATE AT COCHITUATE, MASS.

Location.—On Sudbury River at Framingham and on Lake Cochituate at Cochituate.

Records available.—Sudbury River and Lake Cochituate have been studied by the engineers of the city of Boston, the State Board of Health of Massachusetts, and the Metropolitan Water and Sewerage Board; records of rainfall have been kept in the Sudbury basin since 1875 and in the Cochituate basin since 1852, but the latter are considered of doubtful accuracy previous to 1872.

Storage reservoirs.—Storage reservoirs have been constructed by the city of Boston and the Metropolitan Water and Sewerage Board controlling the greater part of the flow from these basins. Lake Cochituate, which drains into Sudbury River a short distance below Framingham, is controlled as a storage reservoir by the Metropolitan Waterworks. In the Sudbury River basin the water surfaces exposed by evaporation have been increased from time to time by the construction of additional storage reservoirs. From 1875 to 1878, inclusive, the water surface amounted to 1.9 per cent of the total area; from 1879 to 1884, to 3.0 per cent; 1885 to 1893, to 3.4 per cent; 1894 to 1897, to 3.9 per cent; 1898 and subsequent years, 6.5 per cent.

Determinations of discharge.—The recorded yields of both the Sudbury and Cochituate drainage areas are somewhat affected by the fact that the towns of Framingham, Natick, and Westboro draw public water supplies from within the basins and discharge the sewerage outside. Although the quantities diverted are taken into consideration in determining the run-off, the results are probably less accurate since the sewerage diversion works were constructed.

The public water and sewerage works were installed in these towns as follows:

	Water supply.	Sewerage works.
Framingham	1885	1889
Natick	1874	1896
Westboro	1879	1892

All the water drawn from the Wachusett drainage area is passed through the reservoirs in the Sudbury basin, and as the measurement of these quantities must be used in determining the yield of the Sudbury basin, the unavoidable small percentages of error in the measurement of large quantities of water render less accurate the figures giving yields of the Sudbury water supply during months of low yield for years subsequent to 1897.

Cooperation.—Data furnished for publication by the Metropolitan Water and Sewerage Board, Dexter Brackett, chief engineer.

Yield and rainfall in Sudbury River basin at Framingham, Mass., for 1912, and summaries for 1875–1912.

[Drainage area, 75.2 square miles.]

Month.	Total yield (million gallons).	Yield per square mile.		Rainfall (inches).	Rainfall collected.	
		Million gallons per day.	Second-feet.		Inches.[a]	Per cent.
1912.						
January	1,697.4	0.728	1.127	2.94	1.299	44.1
February	2,610.8	1.197	1.852	2.77	1.998	72.2
March	7,207.2	3.092	4.783	6.46	5.516	85.3
April	5,043.0	2.235	3.459	4.37	3.859	88.3
May	3,372.1	1.447	2.238	4.55	2.580	56.7
June	333.7	.148	.229	.46	.255	56.1
July	−178.7	−.077	−.119	3.24	−.137	−4.2
August	− 68.7	−.029	−.046	3.05	−.052	−1.7
September	− 64.1	−.028	−.044	1.76	−.049	−2.8
October	− 32.0	−.014	−.021	2.35	−.024	−1.0
November	372.5	.165	.255	3.64	.285	7.8
December	1,152.5	.494	.765	5.13	.882	17.2
The year	21,445.7	.779	1.206	40.72	16.410	40.3
1875–1912.						
January	105,946.4	1.196	1.850	4.11	2.134	52.0
February	138,859.7	1.721	2.663	4.17	2.796	67.1
March	247,893.2	2.798	4.329	4.42	4.992	112.8
April	171,088.5	1.996	3.087	3.52	3.445	97.9
May	94,593.9	1.068	1.652	3.31	1.905	57.6
June	42,650.5	.498	.770	3.06	.859	28.0
July	14,109.0	.159	.246	3.54	.284	8.0
August	20,724.4	.234	.362	3.86	.417	10.8
September	20,461.4	.239	.369	3.45	.412	11.9
October	38,721.5	.437	.676	3.88	.780	20.1
November	67,458.1	.787	1.217	3.85	1.358	35.3
December	83,751.8	1.002	1.549	3.84	1.787	46.6
The year	1,051,258.4	1.007	1.558	45.01	21.169	47.0

[a] For 1912, total for month; 1875–1912, average of totals per calendar month.

Yield and rainfall in Lake Cochituate basin at Cochituate, Mass., for 1912, and summaries for 1863–1911.

[Drainage area, 17.58 square miles.]

Month.	Total yield (million gallons).	Yield per square mile.		Rainfall (inches).	Rainfall collected.	
		Million gallons per day.	Second-feet.		Inches.[a]	Per cent.
1912.						
January	345.4	0.634	0.981	3.10	1.13	36.5
February	587.4	1.152	1.783	2.51	1.92	76.6
March	1,501.3	2.755	4.262	6.32	4.91	77.0
April	1,031.2	1.955	3.025	4.16	3.38	81.1
May	790.6	1.451	2.245	5.23	2.59	49.5
June	142.2	.270	.417	.47	.46	98.0
July	21.9	.040	.062	3.00	.07	2.4
August	41.6	.076	.118	2.26	.14	6.0
September	119.6	.227	.351	1.82	.39	21.5
October	149.7	.275	.425	2.99	.49	16.4
November	176.0	.334	.516	3.24	.58	17.8
December	335.6	.616	.953	4.96	1.10	22.1
The year	5,242.5	.815	1.261	40.12	17.16	42.8
1863–1912.						
January	29,850.3	1.095	1.694	3.91	1.95	50.0
February	37,946.8	1.529	2.365	3.94	2.48	63.1
March	58,770.4	2.157	3.337	4.33	3.85	88.8
April	44,012.4	1.669	2.582	3.60	2.88	80.0
May	25,925.0	.951	1.472	3.61	1.70	47.0
June	11,996.0	.455	.704	3.00	.78	26.2
July	7,433.8	.273	.422	3.91	.49	12.4
August	10,651.6	.391	.605	4.14	.70	16.8
September	10,933.6	.415	.642	3.54	.72	20.2
October	14,694.7	.539	.834	4.11	.96	23.4
November	20,341.0	.771	1.193	4.03	1.33	33.0
December	25,048.4	.919	1.422	3.59	1.64	45.7
The year	297,604.0	.927	1.434	45.71	19.48	42.6

[a] For 1912, total for month; 1863–1912, average of totals per calendar month.

BLACKSTONE RIVER BASIN.

BRANCH RIVER AT BRANCH VILLAGE, R. I.

Location.—At Branch Village, just below the mill of James Pitts & Son, three-quarters of a mile from Forestdale and about 2 miles from Woonsocket.

Records available.—September 2, 1909, to December 31, 1912.

Drainage area.—93 square miles.

Gages.—Staff, bolted to a ledge about 500 feet below the dam and mill; also a chain gage attached to a tree on top of the ledge. Gage heights referred to the staff gage.

Channel.—Fairly favorable for accurate measurements.

Discharge measurements.—At low and medium stages made by wading; at high stages from the bridge above the dam or from a boat.

Artificial control.—Gage heights are affected by the mill control directly above the station and also by one farther up the river. The available storage above the Pitts Mill is small, and water passes over the dam much of the time.

Winter flow.—Relation between the gage heights and discharge affected by ice only in severe weather.

Accuracy.—Accurate computation of the diurnal fluctuation of discharge caused by the operation of the mills above the station has been rendered impossible by insufficient funds.

Cooperation.—Established and maintained in cooperation with the Natural Resources Survey of the State of Rhode Island. Gage heights furnished by James Pitts & Son.

Daily gage height, in feet, of Branch River at Branch Village, R. I., for 1912.

Day.	January.		February.		March.		April.		May.		June.	
	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.
1	2.4	2.4	1.4	2.45	2.2	2.5	3.35	3.35	2.8	3.0	2.1	1.6
2	2.4	2.6	1.6	2.45	2.0	1.95	3.1	3.3	2.5	2.6	1.85	1.85
3	2.25	2.5	1.5	1.65	1.3	1.45	3.35	3.6	2.2	2.5	1.9	2.4
4	2.05	2.5	1.55	1.55	1.9	2.5	3.2	3.1	2.1	2.0	1.8	2.3
5	1.95	2.55	1.5	2.45	1.9	2.35	2.8	3.0	1.85	1.85	1.35	2.2
6	1.85	2.4	1.5	2.4	1.7	2.5	2.7	1.9	1.95	2.5	1.3	2.25
7	1.75	1.75	1.5	2.4	1.6	2.45	2.0	2.05	2.2	2.55	1.3	2.1
8	1.7	2.5	1.5	2.4	1.6	2.55	2.7	3.15	2.2	2.6	1.3	1.0
9	1.9	2.65	1.55	2.4	1.6	1.65	2.85	2.95	2.45	2.8	1.6	1.6
10	1.85	2.5	1.5	2.4	1.8	1.9	2.65	2.9	2.45	2.7	1.65	1.9
11	2.0	2.5	1.55	1.55	1.9	2.3	2.55	2.8	2.45	2.3	1.2	1.8
12	1.9	2.5	1.55	2.4	1.9	2.5	2.35	2.7	2.5	2.6	1.1	1.95
13	1.65	1.95	1.4	2.35	3.35	5.5	3.35	2.2	2.7	2.9	.85	1.9
14	1.45	1.5	1.1	2.35	4.7	3.7	2.3	2.35	2.5	2.8	.65	1.9
15	1.5	2.55	1.25	2.3	3.35	3.6	2.4	2.8	2.2	2.45	.65	1.25
16	1.65	2.5	1.45	2.25	5.85	5.75	2.45	2.8	2.0	2.7	.6	.6
17	1.85	2.5	1.2	1.4	3.75	3.5	2.45	2.75	2.75	3.05	.6	1.8
18	1.8	2.5	1.45	1.5	3.35	3.3	2.6	3.1	2.6	2.4	.65	1.9
19	1.9	2.9	1.5	2.4	2.95	3.0	3.3	3.6	2.15	2.15	.65	2.05
20	2.5	2.7	1.3	2.4	2.65	3.0	3.2	3.0	2.2	2.5	.65	1.9
21	2.3	2.3	2.0	2.5	2.45	2.8	2.6	2.6	2.1	2.4	.7	1.8
22	2.35	2.5	3.85	4.85	2.65	3.0	2.65	2.95	2.05	2.4	.8	1.0
23	2.25	2.5	2.95	2.85	2.6	2.75	2.15	3.0	2.1	2.4	1.0	1.0
24	2.05	2.5	2.55	2.7	2.8	2.85	2.5	3.0	1.9	2.35	1.05	1.9
25	2.0	2.5	2.2	2.2	3.2	3.2	2.5	2.85	2.2	1.9	1.0	1.95
26	1.9	2.45	2.35	2.75	2.9	3.0	2.4	2.8	2.3	2.3	1.05	2.0
27	1.95	2.0	3.1	3.7	2.75	3.05	2.45	2.4	2.2	2.55	.75	1.9
28	1.5	1.5	3.0	2.9	2.95	3.2	2.3	2.3	2.05	2.4	.8	1.9
29	1.95	2.4	2.55	2.6	3.0	4.4	2.3	2.75	1.75	2.3	.9	1.35
30	1.5	2.4	.....	.....	5.0	4.85	2.7	3.1	1.7	2.2	1.0	1.0
31	1.45	2.45	.....	.....	4.6	4.4	.....	.....	2.0	2.5	.....	.....

Day.	July.		August.		September.		October.		November.		December.	
	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.	A. M.	P. M.
1	1.05	1.7	0.85	1.95	0.85	0.85	0.6	1.15	0.7	1.85	0.85	0.85
2	1.05	2.0	.9	1.9	.9	.9	.6	1.9	.75	1.45	.85	1.95
3	1.05	2.0	.9	1.25	.9	1.95	.6	1.8	.7	.7	.9	1.9
4	.95	1.0	.55	.55	.9	1.9	.85	1.65	.7	1.65	.85	1.9
5	1.05	1.2	.55	1.9	.9	1.95	.95	1.45	.7	1.65	.85	1.9
6	.6	.8	.9	1.9	.9	1.9	.9	.9	.65	1.5	.9	1.9
7	.75	.75	.85	1.9	.85	1.65	.9	1.6	.7	1.65	.9	1.5
8	.8	1.95	.9	1.9	.8	.8	.85	1.7	.85	1.75	.85	.85
9	.65	1.95	.9	1.9	.8	1.9	.85	1.7	.65	1.35	.85	1.9
10	.7	2.0	.9	1.65	.7	1.9	.8	1.6	.6	.6	.9	1.8
11	.6	1.95	.8	.85	.8	1.95	.75	1.0	.6	1.9	.9	1.9
12	.65	2.0	.9	1.9	.8	1.8	.75	.85	.8	1.9	.85	1.9
13	.7	1.3	.85	1.95	.85	1.7	.85	.85	.8	1.9	.85	1.9
14	.7	.7	.85	1.95	.7	1.35	.85	.7	.85	1.95	.85	1.55
15	.8	1.9	.9	1.95	.7	.7	.65	.9	.85	1.9	.8	.8
16	.8	1.9	.9	1.95	.7	1.95	.6	.8	.85	1.7	.8	1.9
17	.9	1.9	.9	1.5	.75	1.9	.6	.85	.75	.75	.8	1.7
18	.9	1.95	.85	.9	.8	1.95	.6	.8	.8	1.9	.8	1.75
19	.95	1.9	.9	1.9	.8	1.85	.6	.9	.85	1.9	.85	1.75
20	.9	1.4	1.1	1.95	1.0	1.65	.6	.6	.85	1.9	.85	1.85
21	.9	.9	.95	1.9	.7	1.4	.6	1.5	.85	1.9	.85	1.55
22	.95	1.95	.9	1.9	.85	.85	.6	1.45	.85	1.95	.85	.85
23	1.05	1.9	.9	1.9	.9	1.95	.6	1.5	.8	1.6	.85	1.9
24	.9	1.9	.9	1.45	.7	1.85	.7	1.55	.8	.8	.85	2.0
25	.95	1.9	.9	.9	.7	1.7	.6	1.65	.85	1.9	.85	2.0
26	.95	1.95	.95	1.95	.75	1.7	.75	1.0	.85	1.9	.85	2.0
27	.95	1.35	.9	1.95	.7	1.6	.6	.6	.85	2.0	.9	2.1
28	.8	.8	.9	1.95	.7	1.2	.65	1.65	.85	.85	.9	1.6
29	.85	1.9	.9	1.95	.6	.6	.65	1.65	.85	1.85	.9	.9
30	.8	1.95	.9	1.95	.6	1.25	.7	1.65	.9	1.6	.9	2.2
31	.8	1.9	.85	1.6	.....	.....	.6	1.55	.....	.....	2.6	3.5

NOTE.—Gage read at about 6.30 a. m. and 5.30 p. m., except on Saturdays, when the last reading is taken about noon.

CONNECTICUT RIVER BASIN.

CONNECTICUT RIVER AT ORFORD, N. H.

Location.—At covered highway bridge between Orford, N. H., and Fairlee, Vt. Approximately 10 miles downstream (by river) from the mouth of Waits River.

Records available.—August 6, 1900, to December 31, 1912.

Drainage area.—3,300 square miles.

Gage.—Chain attached to the bridge; read once daily, datum unchanged.

Channel.—Wide and deep; gravelly bottom; subject to change.

Discharge measurements.—Made from the downstream side of the bridge by working through the open space near roof.

Artificial control.—There are numerous power plants on the tributaries of the Connecticut River and also on the main stream above the station which may have a slight effect on the variation of the daily discharge. The nearest dam downstream is at Wilder, 18 miles below the station. Backwater from this dam is believed to reach within a few miles of Orford.

Winter flow.—The relation of daily gage height to discharge is affected by ice during the winter months, usually from the first part of December to the last part of March, and sometimes well into April.

Accuracy.—Discharge rating curve fairly well defined. Open-water estimates considered fairly good. The upper part of the rating curve is defined by measurements made by the vertical velocity curve method and is considered stable. Frequent changes in the lower part of the curve have been necessitated during recent years by changes in the relation of gage height to discharge. Numerous measurements made under ice cover have defined fairly good rating curves for use in the periods during which ice existed. Owing to the smooth ice cover which forms at this station each year and the freedom from ice jams or needle ice, curves developed in earlier years are considered fairly good indexes of discharge in later years.

Cooperation.—Station maintained in cooperation with several New England power companies.

Discharge measurements of Connecticut River at Orford, N. H., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 21[a]	G. H. Canfield	5.28	1,370
Oct. 22	C. S. DeGolyer	5.31	2,550

[a] Made under complete ice cover 75 feet above bridge.

Daily gage height, in feet, of Connecticut River at Orford, N. H., for 1912.

[F. H. Gardner, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.9	5.2	.....	14.7	13.2	20.8	4.7	3.0	5.7	7.6	6.6	6.0
2	9.4	.....	5.2	15.2	11.7	21.8	4.4	3.4	5.6	7.8	6.9	6.0
3	9.0	5.4	.....	13.8	11.0	20.8	4.2	3.8	5.4	7.4	6.9	7.0
4	8.9	.....	5.2	13.0	10.6	19.4	4.1	4.4	5.0	6.8	6.6	8.6
5	8.4	5.5	.....	12.5	10.0	17.0	4.0	5.1	4.8	6.4	6.6	9.8
6	8.0	.....	5.2	12.6	10.7	15.5	4.5	5.0	4.8	6.2	6.4	9.2
7	7.4	5.3	.....	16.6	10.6	13.4	4.4	4.6	4.6	5.8	6.2	9.4
8	7.5	.....	5.2	24.6	10.9	12.0	4.3	4.3	4.6	5.5	10.5	9.4
9	7.6	5.3	.....	23.6	10.6	11.6	4.1	4.1	4.4	5.3	12.0	8.6
10	6.6	.....	5.3	19.2	10.5	10.5	3.8	4.1	4.5	5.4	12.8	7.9

Daily gage height, in feet, of Connecticut River at Orford, N. H., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	6.4	5.3	.....	17.3	10.8	9.8	3.4	4.1	4.4	5.4	11.2	7.9
12	6.2	.....	5.2	16.2	10.8	9.4	3.6	4.5	4.4	5.4	9.6	8.0
13	6.2	5.0	.....	15.0	10.9	9.2	3.6	5.0	6.0	5.5	8.6	8.6
14	5.8	.....	5.3	14.6	11.6	9.0	3.8	4.6	6.4	5.4	8.4	8.4
15	.....	5.1	.....	14.7	12.2	8.8	3.6	4.6	6.5	5.8	8.7	8.5
16	6.0	.....	6.4	17.6	11.7	8.4	3.4	5.7	6.2	6.2	8.7	8.7
17	.....	5.2	8.0	22.3	12.6	8.0	3.4	6.5	7.6	6.2	8.7	8.6
18	5.9	.....	8.7	23.8	12.8	7.8	3.4	5.2	7.0	5.6	7.9	7.9
19	.....	5.1	10.0	24.4	12.2	6.6	3.3	4.8	6.9	5.4	7.6	7.8
20	6.0	.....	11.3	23.4	11.2	7.2	3.2	4.4	7.6	5.2	7.2	8.8
21	.....	5.2	12.2	20.8	12.2	6.8	3.2	3.9	11.3	5.2	7.0	8.6
22	6.3	.....	11.1	18.0	14.2	6.5	3.7	3.8	12.2	5.4	6.9	8.0
23	.....	5.4	10.2	17.2	13.2	6.2	4.0	3.6	11.5	5.6	7.0	7.0
24	6.2	.....	9.6	19.4	11.6	5.8	4.0	3.6	9.4	8.6	7.2	6.9
25	.....	5.5	9.2	19.8	11.4	5.6	3.8	3.6	8.0	10.4	7.4	6.8
26	6.2	.....	8.7	19.0	11.2	5.4	3.6	4.0	7.2	9.6	7.3	6.6
27	.....	5.5	8.2	16.9	10.8	5.2	3.5	6.3	6.4	8.8	7.2	6.6
28	5.8	.....	8.0	16.0	9.8	5.1	3.4	7.8	6.0	8.3	7.0	6.6
29	.....	5.3	9.3	15.8	9.0	5.4	3.4	7.1	5.7	7.8	6.4	6.5
30	5.7	.....	11.0	14.9	12.9	4.8	3.2	6.2	6.2	7.2	6.2	6.6
31	.....	.....	14.0	.....	17.2	.....	2.8	5.9	.....	6.8	.....	7.8

NOTE.—Relation between gage height and discharge affected by ice Jan. 7 to Apr. 7.

Daily discharge, in second-feet, of Connecticut River at Orford, N. H., for 1912.

[Drainage area, 3,300 square miles.]

Day.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6,760	.....	13,300	28,400	2,080	950	2,990	5,080	3,930	3,290
2	7,460	.....	10,800	30,600	1,840	1,170	2,890	5,330	4,160	3,290
3	6,900	.....	9,770	28,400	1,690	1,420	2,700	4,840	4,160	4,380
4	6,760	.....	9,180	25,400	1,620	1,840	2,340	4,050	3,930	6,360
5	6,100	.....	8,300	20,500	1,550	2,420	2,160	3,710	3,930	8,020
6	5,580	.....	9,320	17,600	1,920	2,340	2,160	3,500	3,710	7,180
7	.....	.....	9,180	13,700	1,840	2,000	2,000	3,090	3,500	7,460
8	.....	36,700	9,620	11,300	1,760	1,760	2,000	2,790	9,030	7,460
9	.....	34,500	9,180	10,700	1,620	1,620	1,840	2,600	11,300	6,360
10	.....	25,000	9,030	9,030	1,420	1,620	1,920	2,700	12,600	5,460
11	.....	21,100	9,470	8,020	1,170	1,620	1,840	2,700	10,100	5,460
12	.....	18,900	9,470	7,460	1,290	1,920	1,840	2,700	7,740	5,580
13	.....	16,600	9,620	7,180	1,290	2,340	3,290	2,790	6,360	6,360
14	.....	15,900	10,700	6,900	1,420	2,000	3,710	2,700	6,100	6,100
15	.....	16,100	11,600	6,630	1,290	2,000	3,820	3,090	6,700	6,220
16	.....	21,700	10,800	6,100	1,170	2,990	3,500	3,500	6,700	6,700
17	.....	31,700	12,300	5,580	1,170	3,820	5,080	3,500	6,700	6,360
18	.....	35,000	12,600	5,330	1,170	2,520	4,380	2,890	5,460	5,460
19	.....	36,300	11,600	3,930	1,110	2,160	4,160	2,700	5,080	5,330
20	.....	34,100	10,100	4,610	1,060	1,840	5,080	2,520	4,610	6,630
21	.....	28,400	11,600	4,050	1,060	1,480	10,200	2,520	4,380	6,360
22	.....	22,500	15,200	3,820	1,360	1,420	11,600	2,700	4,160	5,580
23	.....	20,900	13,300	3,500	1,550	1,290	10,500	2,890	4,380	4,380
24	.....	25,400	10,700	3,090	1,550	1,290	7,460	2,890	4,610	4,160
25	.....	26,300	10,400	2,890	1,420	1,290	5,580	8,880	4,840	4,050
26	.....	24,600	10,100	2,700	1,290	1,550	4,610	7,740	4,720	3,930
27	.....	20,300	9,470	2,520	1,230	3,600	3,710	6,630	4,610	3,930
28	.....	18,500	8,020	2,420	1,170	5,330	3,290	5,960	4,380	3,930
29	.....	18,200	6,900	2,700	1,170	4,500	2,990	5,330	3,710	3,820
30	.....	16,400	12,800	2,160	1,060	3,500	3,500	4,610	3,500	3,930
31	.....	.....	20,900	.....	850	3,090	.....	4,050	.....	5,330

NOTE.—Daily discharge for open-water periods determined from a well-defined rating curve.

Monthly discharge of Connecticut River at Orford, N. H., for 1912.

[Drainage area, 3,300 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	3,110	0.942	1.09	C.
February	.....	.....	1,420	.430	.46	C.
March	.....	.....	3,840	1.16	1.34	D.
April	36,700	.....	21,800	6.61	7.38	B.
May	20,900	6,900	10,800	3.27	3.77	A.
June	30,600	2,160	9,570	2.90	3.24	A.
July	2,080	850	1,390	.421	.49	A.
August	5,330	950	2,220	.673	.78	A.
September	11,600	1,840	4,100	1.24	1.38	A.
October	8,880	2,520	3,900	1.18	1.36	A.
November	12,600	3,500	5,640	1.71	1.91	A.
December	8,020	3,290	5,450	1.65	1.90	A.
The year	36,700	850	6,080	1.84	25.10	

NOTE.—Discharge Jan. 7 to Apr. 7, estimated from one discharge measurement, climatologic data and comparison records at Sunderland, Mass.

CONNECTICUT RIVER AT SUNDERLAND, MASS.

Location.—At the five-span steel highway bridge at Sunderland, Mass., on the road leading to South Deerfield, about 18 miles in a direct line and about 26 miles by river above the dam at Holyoke. Deerfield River enters the Connecticut from the west about 8 to 10 miles above the station.

Records available.—March 31, 1904, to December 31, 1912. From 1880 to 1899 a record of the discharge of this stream was maintained at Holyoke, Mass.

Drainage area.—7,700 square miles.

Gage.—Chain gage attached to highway bridge; read twice daily.

Channel.—Deep; coarse gravel; subject to change.

Discharge measurements.—Made from highway bridge.

Artificial control.—The first dam is about 12 miles above the station at Turners Falls, Mass.; the next about 29 miles above, near Hinsdale, N. H. There are others farther upstream and also on Deerfield, Millers, and other tributaries that operate to affect, more or less, the normal flow of the stream.

Winter flow.—During portions of December and up to early March relation of gage height to discharge is considerably affected by ice.

Accuracy.—Discharge rating curve fairly well defined; open-water estimates considered good.

Cooperation.—Station maintained in cooperation with several New England power companies.

Discharge measurements of Connecticut River at Sunderland, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Feb. 12[a]	G. H. Canfield	4.39	3,130
13[a]	....do	5.19	4,310

[a] Measurement made under complete ice cover, just above bridge.

Daily gage height, in feet, of Connecticut River at Sunderland, Mass., for 1912.

[V. Lawer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.4	6.2	5.8	15.4	12.0	15.8	2.2	2.4	3.3	4.3	6.6	6.5
2	8.8	.....	.....	17.6	10.9	16.6	3.8	2.9	2.8	4.8	6.4	4.3
3	8.6	6.2	.....	15.8	9.9	16.5	3.8	3.1	3.8	5.4	8.2	5.8
4	8.6	.....	.....	13.0	9.1	16.5	3.4	2.4	4.2	5.2	6.7	9.4
5	8.4	.....	5.4	11.2	9.1	15.1	1.8	1.9	4.2	5.0	6.3	8.8
6	8.3	5.6	.....	13.5	6.3	13.4	2.1	2.5	4.0	4.6	5.8	9.0
7	8.2	.....	5.6	19.2	8.6	11.9	1.6	3.0	4.0	4.4	6.0	9.9
8	7.3	6.0	.....	23.5	9.0	11.0	1.6	3.0	3.6	4.2	8.0	9.4
9	7.6	.....	5.8	24.6	8.9	10.2	3.2	3.0	3.3	4.1	12.2	8.0
10	7.4	6.0	.....	21.5	9.0	7.4	3.2	2.9	3.6	4.2	12.5	7.4
11	7.4	4.2	6.0	18.2	8.6	8.0	3.0	2.8	3.8	4.2	9.7	6.6
12	7.2	.....	.....	16.1	8.2	7.2	3.1	2.8	3.6	4.0	9.6	6.4
13	.....	5.1	7.4	14.9	8.5	6.8	3.2	3.7	3.6	2.6	8.4	6.0
14	6.2	.....	9.0	14.6	8.7	6.8	2.4	3.8	3.4	3.0	8.4	6.0
15	.....	5.0	9.4	14.3	8.8	6.6	2.2	3.7	2.6	4.1	9.6	5.8
16	.....	.....	14.0	15.0	9.0	6.4	2.5	3.8	4.2	4.3	9.2	5.4
17	6.8	4.9	15.8	18.8	12.2	4.9	2.2	3.9	6.1	4.2	10.6	5.7
18	.....	.....	14.8	20.1	13.9	5.8	2.2	3.2	5.6	4.2	6.0	5.6
19	.....	.....	17.8	20.4	12.1	5.4	2.7	3.8	5.5	4.1	7.2	5.4
20	6.8	5.2	15.8	20.8	10.6	5.4	3.4	4.2	5.3	3.2	6.8	6.4
21	.....	.....	14.8	19.4	10.1	5.1	2.6	4.1	6.6	3.7	6.8	7.4
22	7.8	5.8	12.3	17.6	11.4	4.8	2.4	3.6	6.9	4.4	6.2	8.0
23	.....	.....	10.5	16.3	13.1	3.6	2.6	3.2	8.0	6.3	6.4	4.8
24	7.6	5.9	9.4	16.4	12.1	4.4	2.8	3.0	8.0	15.2	8.1	5.1
25	.....	.....	8.2	16.0	10.8	4.6	2.9	2.7	7.0	17.6	4.8	6.7
26	.....	.....	7.7	15.6	9.9	4.5	3.4	2.4	5.7	15.4	6.0	7.7
27	6.6	6.0	7.3	14.8	8.6	4.4	3.4	2.7	5.0	13.4	6.3	7.1
28	.....	.....	7.0	13.8	8.6	4.4	2.6	3.0	4.6	8.0	6.0	7.3
29	.....	.....	8.7	12.2	7.9	4.2	2.3	3.7	4.7	8.8	5.8	7.0
30	6.2	.....	14.2	12.5	9.3	2.4	2.2	4.0	3.9	7.4	5.7	6.4
31	.....	.....	14.6	.....	14.4	.....	1.8	4.4	.....	7.2	.....	9.1

NOTE.—Relation between gage height and discharge affected by ice, Jan. 11 to Mar. 19.

Daily discharge, in second-feet, of Connecticut River at Sunderland, Mass., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	18,500	.....	.....	46,800	32,300	48,500	2,450	2,720	4,210	6,270	12,500	12,200
2	19,900	.....	.....	56,600	28,000	52,100	5,200	3,500	3,330	7,420	11,900	6,270
3	19,200	.....	.....	48,500	24,100	51,600	5,200	3,850	5,200	8,920	17,800	10,000
4	19,200	.....	.....	36,400	21,000	51,600	4,400	2,720	6,050	8,400	12,800	22,200
5	18,500	.....	.....	29,100	21,000	45,400	1,960	2,080	6,050	7,900	11,600	19,900
6	18,200	.....	.....	38,500	11,600	38,100	2,320	2,870	5,620	6,950	10,000	20,700
7	17,800	.....	.....	63,900	19,200	31,900	1,740	3,670	5,620	6,490	10,600	24,100
8	14,800	.....	.....	83,700	20,700	28,300	1,740	3,670	4,790	6,050	17,100	22,200
9	15,800	.....	.....	88,800	20,300	25,200	4,030	3,670	4,210	5,830	33,100	17,100
10	15,100	.....	.....	74,500	20,700	15,100	4,038	3,500	4,790	6,050	34,300	15,100
11	.....	.....	.....	59,300	19,200	17,100	3,670	3,330	5,200	6,050	23,300	12,500
12	.....	3,130	.....	49,800	17,800	14,400	3,850	3,330	4,790	5,620	22,900	11,900
13	.....	4,310	.....	44,600	18,900	13,100	4,030	4,990	4,790	3,020	18,500	10,600
14	.....	.....	.....	43,200	19,600	13,100	2,720	5,200	4,400	3,670	18,500	10,600
15	.....	.....	.....	41,900	19,900	12,500	2,450	4,990	3,020	5,830	22,900	10,000
16	.....	.....	.....	45,000	20,700	11,900	2,870	5,200	6,050	6,270	21,400	8,920
17	.....	.....	.....	62,100	33,100	7,660	2,450	5,410	11,000	6,050	26,800	9,760
18	.....	.....	.....	68,100	40,200	10,000	2,450	4,030	9,470	6,050	10,600	9,470
19	.....	.....	.....	69,400	32,700	8,920	3,170	5,200	9,190	5,830	14,400	8,920
20	.....	.....	48,500	71,300	26,800	8,920	4,400	6,050	8,660	4,030	13,100	11,900
21	.....	.....	44,100	64,800	24,800	8,150	3,020	5,830	12,500	4,990	13,100	15,100
22	.....	.....	33,500	56,600	29,900	7,420	2,720	4,790	13,500	6,490	11,200	17,100
23	.....	.....	26,400	50,800	36,800	4,790	3,020	4,030	17,100	11,600	11,900	7,420
24	.....	.....	22,200	51,200	32,700	6,490	3,330	3,670	17,100	45,900	17,500	8,150
25	.....	.....	17,800	49,400	27,600	6,950	3,500	3,170	13,800	56,600	7,420	12,800
26	.....	.....	16,100	47,600	24,100	6,720	4,400	2,720	9,760	46,800	10,600	16,100
27	.....	.....	14,800	44,100	19,200	6,490	4,400	3,170	7,900	38,100	11,600	14,100
28	.....	.....	13,800	39,800	19,200	6,490	3,020	3,670	6,950	17,100	10,600	14,800
29	.....	.....	19,600	33,100	16,800	6,050	2,580	4,990	7,180	19,900	10,000	13,800
30	.....	.....	41,500	34,300	21,800	2,720	2,450	5,620	5,410	15,100	9,760	11,900
31	.....	.....	43,200	.....	42,400	.....	1,960	6,490	.....	14,400	.....	21,000

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

Monthly discharge of Connecticut River at Sunderland, Mass., for 1912.

[Drainage area, 7,700 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	9,000	1.17	1.35	D.
February	.....	.....	5,000	.649	.70	D.
March	.....	.....	11,000	1.43	1.65	D.
April	88,800	29,100	53,100	6.90	7.70	B.
May	42,400	11,600	24,600	3.19	3.68	A.
June	52,100	2,720	18,900	2.45	2.73	A.
July	5,200	1,740	3,210	.417	.48	A.
August	6,490	2,080	4,130	.536	.62	A.
September	17,100	3,020	7,590	.986	1.10	A.
October	56,600	3,020	12,900	1.68	1.94	A.
November	34,300	7,420	15,900	2.06	2.30	A.
December	24,100	6,270	13,800	1.79	2.06	A.
The year	88,800	1,740	14,900	1.94	26.31	

NOTE.—Discharge Jan. 11 to Mar. 19, inclusive, estimated from two discharge measurements, climatologic data and comparison with records at Orford, N. H.

PASSUMPSIC RIVER NEAR ST. JOHNSBURY, VT.

Location.—At suspension footbridge just below dam of Pierce's mills, about 5 miles above St. Johnsbury, 2 miles below the mouth of Sheldon Branch, 4 miles above the mouth of Moose River, and 5 miles above the mouth of Sleepers River.

Records available.—May 26, 1909, to December 31, 1912. A station was established June 29, 1903, on Passumpsic River at St. Johnsbury Center, but was discontinued November 30 of the same year because of backwater from the dam at St. Johnsbury.

Drainage area.—237 square miles.

Gage.—Staff, in two sections; low-water section a vertical staff bolted to ledge just above bridge; high-water section an inclined staff bolted to ledge just below bridge.

Channel.—Semipermanent; bed composed chiefly of gravel, but near right bank consists of a rock ledge.

Discharge measurements.—At high stages made from downstream side of bridge; at low stages, by wading 200 feet below.

Winter flow.—River freezes over under the bridge and at control point 300 feet below; relation of gage height to discharge is therefore affected by ice.

Artificial control.—Discharge affected by the operation of Pierce's mills, just above station, and by other mills farther upstream. The storage at Pierce's mills is small and the use of water nearly uniform during the day and night, so that the daily gage readings are fairly accurate indices of the daily discharge.

Accuracy.—The discharge rating curve is well defined.

Discharge measurements of Passumpsic River near St. Johnsbury, Vt., for 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 23[a]	G. H. Canfield	2.73	196
Aug. 24	J. G. Mathers	1.75	177
24	....do	1.69	162
Oct. 17	C. S. De Golyer	1.90	219

[a] Made under complete ice cover 200 feet below bridge.

Daily gage height, in feet, of Passumpsic River near St. Johnsbury, Vt., for 1912.

[Joseph Cox, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.6	2.6	2.5	4.9	3.4	6.6	1.60	1.48	1.55	2.2	2.0	2.05
2	2.5	2.6	2.5	3.6	3.3	4.3	1.58	1.39	1.60	2.2	2.55	2.15
3	2.35	2.5	2.4	3.1	3.1	4.6	1.55	1.74	1.58	1.98	2.15	4.1
4	2.4	2.5	2.45	2.85	3.0	4.0	1.50	1.99	1.59	1.90	2.0	2.9
5	2.3	2.5	2.5	2.4	2.85	4.2	1.56	1.68	1.52	1.86	1.99	2.6
6	2.45	2.4	2.5	4.0	3.3	3.4	1.59	1.58	1.65	1.80	1.98	3.0
7	2.65	2.4	2.45	7.0	3.4	3.9	1.60	1.59	1.62	1.76	2.1	3.2
8	3.0	2.5	2.4	10.2	3.0	3.2	1.45	1.48	1.84	1.80	5.8	2.55
9	2.65	2.5	2.5	5.0	2.9	2.9	1.46	1.45	1.58	1.69	3.7	2.1
10	2.7	2.35	.....	4.0	2.85	2.7	1.44	1.42	1.54	1.78	2.95	2.4
11	2.8	2.3	2.5	3.9	2.75	2.9	1.42	1.62	2.85	1.76	2.65	2.35
12	2.8	2.5	2.5	4.2	2.6	2.6	1.42	1.80	2.85	1.81	2.5	2.15
13	2.7	2.4	2.5	4.3	2.8	2.8	1.41	1.73	1.84	2.8	2.45	2.0
14	2.6	2.5	2.7	4.4	4.3	2.6	1.50	1.49	1.55	2.2	3.3	1.98
15	2.55	2.45	2.7	5.6	3.2	2.4	1.52	1.49	1.60	2.05	3.3	2.0
16	2.6	2.4	2.8	10.5	2.8	2.5	1.50	1.46	2.8	2.05	2.8	2.05
17	2.6	2.45	3.1	9.8	4.0	2.7	1.44	1.38	1.95	1.96	2.5	2.05
18	2.5	2.3	3.0	6.8	3.7	2.4	1.36	1.28	1.71	1.88	2.35	1.98
19	2.5	2.45	3.4	6.6	2.95	2.2	1.38	1.48	3.5	1.84	2.35	2.75
20	2.65	2.45	4.1	5.6	2.7	2.1	1.45	1.41	3.8	2.0	2.4	3.2
21	2.5	2.4	3.2	5.0	4.8	2.1	1.36	1.41	3.4	1.88	2.35	2.3
22	2.6	2.55	3.0	5.2	3.7	2.0	1.84	1.38	2.5	1.80	2.4	2.2
23	2.55	2.6	2.55	8.7	3.5	1.91	1.66	1.34	2.15	1.84	2.4	2.4
24	2.5	2.65	2.5	5.9	3.1	1.86	1.45	1.7	2.1	4.7	2.3	2.2
25	2.5	2.5	2.5	4.8	3.2	1.76	1.39	2.15	1.96	3.4	2.3	2.3
26	2.6	2.5	2.1	4.7	2.75	2.1	1.36	2.1	1.82	2.9	2.3	2.3
27	2.4	2.55	2.4	5.0	2.6	1.91	1.34	2.2	1.72	2.6	2.2	2.2
28	2.4	2.6	2.25	4.6	2.4	1.78	1.30	1.81	1.70	2.35	2.1	.....
29	2.55	2.5	3.6	3.8	2.4	1.72	1.45	1.62	1.81	2.2	1.92	2.1
30	2.5	.....	6.3	3.5	7.1	1.61	1.51	1.59	2.85	2.15	2.15	.....
31	2.5	.....	5.0	.....	7.3	.....	1.48	1.49	.....	2.05	.....	3.1

NOTE.—Daily gage heights, Jan. 1 to Mar. 31, affected by ice. Gage heights for the first few days in April probably somewhat affected also.

Daily di charge, in second-feet, of Passumpsic River near St. Johnsbury, Vt., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	1,430	777	2,180	141	111	129	315	250	266
2	.....	.....	.....	863	735	1,164	136	92	141	315	438	298
3	.....	.....	.....	651	651	1,290	129	176	136	244	298	1,080
4	.....	.....	.....	550	610	1,040	117	247	139	220	250	570
5	.....	.....	.....	384	550	1,120	131	161	122	209	247	456
6	.....	.....	.....	1,040	735	777	139	136	154	192	244	610
7	.....	.....	.....	2,360	777	992	141	139	146	182	282	693
8	.....	.....	.....	3,800	610	693	106	111	203	192	1,820	438
9	.....	.....	.....	1,470	570	570	108	106	136	164	906	282
10	.....	.....	.....	1,040	550	493	103	99	127	187	590	384
11	.....	.....	.....	992	512	570	100	146	550	182	474	366
12	.....	.....	.....	1,120	456	456	100	192	550	195	420	298
13	.....	.....	.....	1,160	531	531	96	174	203	531	402	250
14	.....	.....	.....	1,210	1,160	456	117	115	129	315	735	244
15	.....	.....	.....	1,740	693	384	122	115	141	266	735	250
16	.....	.....	.....	3,940	531	420	117	108	531	266	531	266
17	.....	.....	.....	3,620	1,040	493	103	90	235	238	420	266
18	.....	.....	.....	2,280	906	384	85	68	169	214	366	244
19	.....	.....	.....	2,180	590	315	90	111	820	203	366	512
20	.....	.....	.....	1,740	493	282	106	96	949	250	384	693
21	.....	.....	.....	1,470	1,380	282	85	96	777	214	366	349
22	.....	.....	.....	1,560	906	250	203	90	420	192	384	315
23	.....	196	.....	3,130	820	223	156	81	298	203	384	384
24	.....	.....	.....	1,870	651	209	106	166	282	1,340	349	315
25	.....	.....	.....	1,380	693	182	92	298	238	777	349	349
26	.....	.....	.....	1,340	512	282	85	282	198	570	349	349
27	.....	.....	.....	1,470	456	223	81	315	171	456	315	315
28	.....	.....	.....	1,290	384	187	72	195	166	366	282	300
29	.....	.....	.....	949	384	171	106	146	195	315	226	282
30	.....	.....	.....	820	2,410	144	119	139	550	298	298	280
31	.....	.....	.....	.....	2,500	.....	111	115	.....	266	.....	651

NOTE.—Daily discharge determined from a well-defined rating curvs. Discharge for the first few days in April probably somewhat doubtful because of ice effect. Discharge Dec. 28 and 30 estimated.

Monthly discharge of Passumpsic River near St. Johnsbury, Vt., for 1912.

[Drainage area, 390 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
April	3,940	384	1,630	4.18	4.66	A.
May	2,500	384	793	2.03	2.34	A.
June	2,180	144	559	1.43	1.60	A.
July	203	72	113	.290	.33	B.
August	315	68	146	.374	.43	B.
September	949	122	300	.769	.86	A.
October	1,340	164	319	.818	.94	A.
November	1,820	226	449	1.15	1.28	A.
December	1,080	244	399	1.02	1.18	A.

WHITE RIVER NEAR SHARON, VT.

Location.—About 1,500 feet below the dam of the Vermont Copper Co., near Sharon, Vt., and about 800 feet above the Central Vermont Railway bridge.

Records available.—May 13, 1909, to December 31, 1912.

Drainage area.—686 square miles.

Gage.—An inclined staff reading to 10 feet, attached to a large rock on the left bank. A chain gage for use at high stages is nailed to trees about 80 feet upstream from the staff gage.

Channel.—Divided by an island above the gages.

Discharge measurements.—Formerly made from two suspension bridges which connect the island with the banks. These bridges were washed out in 1911 and were not replaced.

Artificial control.—There are several power plants above the station, but it was assumed that fluctuations in daily stage caused by operation of these plants was sufficiently equalized at the dam of the Vermont Copper Co., until 1912, when the power plant was put into operation.

Winter flow.—Affected by ice.

Accuracy.—A fairly good rating curve has been established for this station, so that the accuracy of the computed discharge depends entirely on the accuracy of mean daily gage heights. The published gage heights do not represent the mean, as the gage was read but once a day, and the discharge figures represent the flow only at the time the gage was read.

Discharge measurements of White River near Sharon, Vt., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Feb. 17[a]	G. H. Canfield	[b]5.25	431
Sept. 2[c]	J. G. Mathers	3.45	162

[a] Made under complete ice cover in left channel and partial ice cover in right channel.
[b] Crest gage, 102.82 feet.
[c] Made by wading at head of island.

Gage height, in feet, and discharge, in second-feet, of White River near Sharon, Vt., for 1912.

[C. H. Tucker, observer.]

Day.	January.		February.		March.		April.		May.		June.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1	4.5						7.8	6,420	5.4	1,970		
2	4.5						6.3	3,380	5.1	1,560		
3	4.6						5.7	2,410	5.1	1,560	6.2	3,200
4	4.5								5.0	1,430	5.8	2,560
5	4.5						5.2	1,700	5.1	1,560	5.6	2,260
6	4.6						9.0	9,080			5.3	1,830
7	4.8						9.9	11,200	5.0	1,430	5.3	1,830
8	5.0						14.4		4.9	1,300		
9	5.0						8.6	8,180	4.8	1,180	4.9	1,300
10	5.0										4.8	1,180
11	5.2						6.3	3,380	4.6	965		
12							6.3	3,380	4.5	865	4.6	965
13							6.5	3,740				
14									4.7	1,070	4.5	865
15							6.7	4,130			4.4	770
16							9.4	10,000	4.6	965	4.3	680
17							9.2	9,540	6.8	4,320	4.3	680
18											4.3	680
19							9.6	10,500	5.4	1,970	4.2	595
20					6.8						4.1	515
21							6.7	4,130			4.1	515
22					5.3		6.6	3,940	7.2	5,140	4.0	440
23					5.1		8.0	6,850			3.9	370
24					5.0				5.8	2,560	3.8	310
25							6.4	3,560			3.7	255
26							6.1	3,040			3.6	210
27					4.5		6.1	3,040	5.0	1,430	3.7	255
28					4.5		5.9	2,720			3.6	210
29					6.0	2,870	5.7	2,410	4.7	1,070		
30					7.3	5,350			7.9	6,630	3.6	210
31									8.5	7,960		

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1					3.3	104	4.1	515				
2	3.5	175	3.5	175					4.3	680	4.1	515
3												
4	3.5	175	3.3	104	3.6	210	3.9	370	4.65	1,020		
5	3.4	140										
6											5.1	1,560
7	3.5	175	3.4	140			3.8	310				
8	3.5	175			4.7	1,070			6.4	3,560	5.0	1,430
9	3.4	140	3.4	140								
10	3.35	122							5.3	1,830		
11			3.3	104			3.7	255				
12											4.4	770
13	3.35	122										
14			3.4	140	3.5	175	4.3	680	5.3	1,830		
15	3.5	175										
16											4.4	770
17	3.4	140			4.1	515						
18			3.4	140			3.9	370	4.8	1,180		
19	3.4	140					4.0	440			5.0	1,430
20			3.5	175								
21					4.9	1,300			4.5	865	4.5	865
22					4.4	770						
23	3.9	370	3.5	175			13.1					
24	3.7	255							4.4	770	4.2	595
25			3.3	104								
26					3.9	370	6.0	2,870				
27	3.4	140										
28	3.35	122							4.3	680		
29	3.3	104	3.5	175							4.2	595
30							4.7	1,070	4.1	515		
31	3.2	74									5.3	1,830

NOTE.—Relation of gage height to discharge affected by ice Jan. 12 to Mar. 28. Daily discharge obtained from a fairly well defined rating curve applicable to readings on the staff gage below the dam. See "Accuracy" in station description.

DEERFIELD RIVER AT HOOSAC TUNNEL, MASS.

Location.—At wooden highway bridge near Hoosac Tunnel railroad station, about 4½ miles below the mouth of Dunbar Brook, 4 miles above Pelham Brook, and 4 miles above Cold Brook.

Records available.—August 8, 1909, to December 31, 1912. A measurement was made at the bridge October 29, 1906.

Drainage area.—257 square miles.

Gage.—Chain, fastened to left-hand downstream side of bridge; datum unchanged.

Channel.—Permanent. The bed is of coarse gravel and is very rough.

Discharge measurements.—At high stages made from upstream side of highway bridge; at low stages by wading.

Winter flow.—Relation of gage height to discharge is affected by ice, as the river freezes completely over.

Artificial control.—The operation of numerous mills on the main river and its tributaries above the station completely controls the flow of the river except at high stages and causes considerable fluctuations in gage heights during the day. The nearest mill is at Monroe Bridge about 7 miles upstream. For this reason it is not advisable to attempt to estimate the mean daily discharge from semidaily gage readings. The gage reader's observations are being published, together with the rate of flow corresponding to each.

Discharge measurements of Deerfield River at Hoosac Tunnel, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 11	C. A. Moore	3.28	203	Mar. 6	Alexander McMillan	2.68	123
Feb. 15	G. H. Canfield	3.32	241	6	do	3.00	152
16	do	2.44	123	13	do	3.66	359

NOTE.—All measurements made 100 feet below the highway bridge and under complete ice cover. Gage heights affected by ice.

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12.

[Mary A. Galbraith, observer.]

Day.	April.						Day.	April—Continued.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.		Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*		*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.50	2.92	719	5.40	2.78	620	16	7.30	5.78	4,100	5.30	4.58	2,330
2	7.30	2.48	440	5.30	2.58	495	17	7.45	4.38	2,090	5.45	4.08	1,750
3	7.25	2.4	398	5.40	2.68	555	18	7.30	3.78	1,440	5.25	3.68	1,340
4	7.20	2.18	300	5.45	2.5	450	19	7.50	3.68	1,340	5.50	3.78	1,440
5	7.50	2.22	317	5.20	2.48	440	20	7.45	3.58	1,250	5.20	3.78	1,440
6	7.35	2.98	765	5.25	4.98	2,860	21	7.30	3.48	1,160	5.45	3.88	1,540
7	7.30	5.98	4,460	5.45	6.38	5,250	22	7.15	3.98	1,640	5.55	3.68	1,340
8	7.35	5.18	3,160	5.50	5.18	3,160	23	7.35	3.78	1,440	5.35	3.58	1,250
9	7.40	4.48	2,210	5.35	4.28	1,970	24	7.50	3.48	1,160	6.00	3.78	1,440
10	7.20	3.78	1,440	5.15	3.68	1,340	25	7.20	4.4	2,110	5.30	4.52	2,250
11	7.20	3.28	1,000	6.55	3.58	1,250	26	7.20	4.98	2,860	5.25	4.8	2,610
12	7.50	3.18	924	5.30	3.38	1,080	27	7.15	5.18	3,160	5.15	5.1	3,040
13	7.15	3.38	1,080	5.35	3.88	1,540	28	7.25	5.55	3,720	6.10	5.9	4,310
14	7.35	4.08	1,750	5.25	4.58	2,330	29	7.35	5.58	3,770	6.30	5.8	4,130
15	7.20	5.98	4,460	5.50	5.58	3,770	30	7.45	5.3	3,640	5.20	4.92	2,780

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12—Continued.

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	5.1	3,040	5.45	4.88	2,720
2	7.35	6.8	6,150	5.45	5.98	4,460
3	7.50	4.98	2,860	5.45	4.58	2,330
4	7.15	4.18	1,860	5.45	3.88	1,540
5	7.10	3.78	1,440	5.50	3.68	1,340
6	7.50	3.58	1,250	5.50	3.32	1,040
7	7.50	2.98	765	6.00	2.58	495
8	7.50	2.98	765	5.50	2.08	262
9	7.45	2.7	567	5.45	2.78	620
10	7.40	2.6	506	5.40	2.5	450
11	7.45	2.22	317	5.35	2.35	374
12	7.30	2.38	389	5.55	2.3	351
13	7.25	2.5	450	5.25	2.48	440
14	7.35	2.3	351	5.45	2.28	342
15	7.40	2.22	317	5.45	2.18	300
16	7.45	2.32	360	5.50	2.08	262
17	7.35	2.1	269	5.30	1.98	228
18	7.40	2.0	234	5.30	1.7	147
19	7.35	2.18	300	5.45	2.48	440
20	7.30	2.3	351	5.40	2.32	360
21	7.40	2.32	360	5.30	2.18	300
22	7.35	2.35	374	5.40	2.22	317
23	7.35	2.18	300	5.35	1.98	228
24	7.40	2.0	234	5.30	2.08	262
25	7.45	1.92	208	5.50	2.12	277
26	7.30	1.98	228	5.30	2.22	317
27	7.45	2.08	262	5.35	1.98	228
28	7.40	1.82	179	5.40	1.8	173
29	7.35	1.78	168	5.30	1.5	103
30	7.40	1.48	99	5.35	1.5	103
31	7.35	1.5	103	5.40	1.98	228

Day.	June.			July.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.40	1.7	147	5.45	2.28	342
2	7.35	2.42	408	5.40	2.28	342
3	7.45	1.88	196	5.45	1.95	218
4	7.30	2.08	262	5.35	1.72	.152
5	7.30	1.48	99	5.40	1.92	208
6	7.35	1.62	129	5.30	1.68	142
7	7.30	2.22	317	5.30	3.78	1,440
8	7.30	3.52	1,200	5.25	3.18	920
9	7.35	2.68	555	5.30	2.62	518
10	7.30	2.58	495	5.40	2.52	461
11	7.45	2.38	389	5.30	2.28	342
12	7.40	2.7	567	5.30	2.88	690
13	7.35	5.08	3,010	5.35	4.48	2,210
14	7.35	4.08	1,750	5.35	3.68	1,340
15	7.40	3.38	1,080	5.35	3.28	1,000
16	7.35	3.28	1,000	5.40	2.88	690
17	7.20	2.78	620	5.30	2.7	567
18	7.40	2.48	440	5.30	2.42	408
19	7.30	2.3	351	5.40	2.2	308
20	7.30	2.32	360	5.30	2.25	330
21	7.35	2.2	308	5.30	2.1	269
22	7.30	1.9	202	5.30	2.15	288
23	7.30	1.8	173	5.30	2.0	234
24	7.35	1.5	103	5.40	1.85	188
25	7.40	1.3	67	5.30	1.5	103
26	7.30	1.88	196	5.30	2.0	234
27	7.30	1.92	208	5.30	2.4	398
28	7.35	1.95	218	5.30	2.1	269
29	7.30	1.9	202	5.25	1.8	173
30	7.30	1.98	228	5.30	1.5	103
31						

Day.	July.			August.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	1.5	103	5.30	1.52	107
2	7.40	1.7	147	5.45	1.1	39
3	7.35	1.3	67	4.00	1.7	147
4	7.40	1.8	173	5.40	1.2	52
5	7.30	1.0	28	5.30	1.5	103
6	7.30	1.42	88	5.30	1.52	107
7	7.35	1.0	28	5.35	1.48	99
8	7.30	1.05	34	5.30	1.4	84
9	7.40	1.0	28	5.35	1.3	67
10	7.30	1.0	28	5.40	1.45	94
11	7.35	1.55	114	5.35	1.3	67
12	7.30	1.0	28	5.40	1.5	103
13	7.35	1.3	67	5.35	.9	19
14	7.35	1.1	39	5.30	1.65	136
15	7.30	1.02	30	5.30	1.52	107
16	7.40	1.0	28	5.30	1.2	52
17	7.40	1.02	30	5.30	1.0	28
18	7.30	1.5	103	5.30	1.2	52
19	7.30	1.42	88	5.30	1.02	30
20	7.30	1.4	84	5.35	1.4	84
21	7.30	1.0	28	5.40	1.2	52
22	7.30	1.45	94	5.35	1.2	52
23	7.40	1.0	28	5.30	1.0	28
24	7.30	1.1	39	5.30	1.5	103
25	7.30	1.5	103	5.30	2.6	506
26	7.35	2.1	269	5.30	2.3	351
27	7.30	1.5	103	5.30	1.5	103
28	7.30	1.42	88	5.30	1.5	103
29	7.35	1.52	107	5.30	2.3	351
30	7.40	1.22	55	5.30	2.1	269
31	7.30	1.8	173	5.30	2.0	234

Day.	August.		
	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*
1	7.30	1.35	76
2	7.30	1.45	94
3	7.35	1.35	76
4	7.35	1.45	94
5	7.30	1.25	60
6	7.30	.95	24
7	7.30	1.25	60
8	7.30	1.28	64
9	7.30	1.65	136
10	7.30	1.32	70
11	7.30	1.25	60
12	7.30	1.38	81
13	7.30	1.25	60
14	7.30	.95	24
15	7.30	1.05	34
16	7.30	2.15	288
17	7.30	1.75	160
18	7.30	1.45	94
19	7.30	1.4	84
20	7.45	1.68	142
21	7.30	1.1	39
22	7.30	1.52	107
23	7.30	.95	24
24	7.30	1.35	76
25	7.30	1.45	94
26	7.45	1.3	67
27	7.30	1.85	188
28	7.30	1.45	94
29	7.30	4.95	2,820
30	7.30	3.08	844
31	7.30	2.45	424

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12—Continued.

Day.	September.						October.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	2.12	277	5.30	2.3	351	7.30	2.9	704	5.40	2.82	647
2	7.30	1.92	208	5.30	1.75	160	7.30	4.05	1,720	5.30	3.85	1,510
3	7.40	2.0	234	5.30	2.6	506	7.30	3.45	1,140	5.30	3.25	980
4	7.30	2.4	398	5.30	2.25	330	7.30	2.85	668	5.30	4.95	2,820
5	7.30	1.95	218	5.30	2.15	288	7.30	4.4	2,110	4.00	3.92	1,580
6	7.30	2.0	234	5.30	3.25	980	8.00	3.32	1,040	4.00	3.2	940
7	7.30	3.2	940	5.30	2.85	668	8.00	3.1	860	4.00	3.12	876
8	7.30	2.65	536	5.30	3.45	1,140	7.00	3.35	1,060	3.30	3.28	1,000
9	7.30	3.15	900	5.30	5.75	4,040	8.00	3.3	1,020	4.00	3.22	956
10	7.30	4.55	2,290	5.30	3.8	1,460	8.00	3.18	924	4.00	3.05	820
11	7.30	3.3	1,020	5.30	2.9	704	8.00	2.82	647	4.00	2.78	620
12	7.30	2.55	478	5.30	2.45	424	8.00	2.58	495	4.00	2.6	506
13	7.30	2.4	398	5.30	2.25	330	8.00	2.4	398	4.00	2.45	424
14	7.30	2.05	252	5.30	2.12	277	8.00	2.28	342	4.00	2.22	317
15	7.30	1.65	136	5.30	2.45	424	7.00	2.3	351	2.30	2.32	360
16	7.30	3.05	820	5.30	2.95	742	8.00	2.12	277	4.00	2.25	330
17	7.30	2.75	600	5.30	2.45	424	8.00	2.1	269	4.00	2.12	277
18	7.30	2.3	351	5.30	2.15	288	8.00	2.28	342	4.00	5.3	3,340
19	7.30	2.05	252	5.30	2.2	308	8.00	7.45	7,650	4.00	6.75	6,040
20	7.30	2.12	277	5.30	1.85	188	8.00	5.5	3,640	4.00	4.98	2,860
21	7.30	2.15	288	5.30	1.75	160	8.00	4.3	1,990	4.00	4.35	2,050
22	7.30	2.2	308	5.30	2.55	478	7.00	5.38	3,460	3.00	4.98	2,860
23	7.30	2.6	506	5.30	2.45	424	8.00	5.28	3,310	4.00	5.1	3,040
24	7.45	2.1	269	5.30	2.55	478	8.00	4.3	1,990	4.00	4.1	1,770
25	7.30	2.5	450	5.30	2.35	374	8.00	3.65	1,320	4.00	3.42	1,120
26	7.30	2.3	351	5.30	2.15	288	8.00	3.2	940	4.00	3.18	924
27	7.30	2.15	288	5.30	2.08	262	8.00	2.92	719	4.00	2.9	704
28	7.30	2.4	398	5.30	2.42	408	8.00	2.75	600	4.00	2.72	580
29	7.30	2.3	351	5.30	2.6	506	7.00	2.65	536	3.00	2.6	506
30	7.30	3.75	1,410	5.30	3.35	1,060	8.00	2.5	450	4.00	2.48	440
31	.....	.....	.....	.....	.....	.....	8.00	2.48	440	4.00	2.65	536

Day.	November.						December.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.00	3.35	1,060	4.00	3.2	940	8.00	3.25	980	4.00	3.0	780
2	8.00	3.0	780	4.00	2.88	690	8.00	2.9	704	4.00	2.95	742
3	8.00	2.6	506	4.00	2.62	518	7.00	2.62	518	3.00	2.5	450
4	8.00	2.72	580	4.00	2.6	506	8.00	2.32	360	4.00	2.3	351
5	7.00	2.28	342	3.00	2.4	398	8.00	2.22	317	4.00	2.18	300
6	8.00	2.38	389	4.00	2.5	450	8.00	2.35	374	4.00	2.15	288
7	8.00	3.2	940	4.00	3.25	980	8.00	2.35	374	4.00	2.28	342
8	8.00	3.55	1,220	4.00	3.42	1,120	8.00	2.45	424	4.00	2.38	389
9	8.00	3.1	860	4.00	3.0	780	8.00	2.15	288	4.00	2.35	374
10	8.00	2.88	690	4.00	2.98	765	7.00	2.4	398	3.00	2.45	424
11	8.00	3.05	820	4.00	3.08	844	8.00	2.42	408	4.00	2.28	342
12	7.00	2.95	742	3.00	2.7	567	8.00	2.8	633	4.00	2.95	742
13	8.00	3.88	1,540	4.00	3.42	1,120	8.00	3.08	844	4.00	3.12	876
14	8.00	3.1	860	4.00	3.05	820	8.00	3.0	780	4.00	2.95	742
15	8.00	2.98	765	4.00	2.95	742	8.00	2.85	668	4.00	2.88	690
16	8.00	2.68	555	4.00	2.8	633	8.00	2.85	668	4.00	2.98	765
17	8.00	2.58	495	4.00	2.48	440	7.30	3.6	1,270	3.00	3.8	1,460
18	8.00	2.85	668	4.00	4.25	1,940	8.00	3.38	1,080	4.00	3.2	940
19	7.00	4.2	1,880	3.00	3.9	1,560	8.00	2.65	536	4.00	2.7	567
20	8.00	3.5	1,180	4.00	3.45	1,140	8.00	2.4	398	4.00	2.3	351
21	8.00	3.22	956	4.00	2.9	704	8.00	2.22	317	4.00	2.38	389
22	8.00	2.82	647	4.00	2.72	580	8.00	2.5	450	4.00	2.55	478
23	8.00	2.5	450	4.00	2.55	478	8.00	4.2	1,880	4.00	6.25	4,990
24	8.00	2.78	620	4.00	2.82	647	7.00	4.65	2,420	12.20	4.5	2,230
25	8.00	2.75	600	4.00	2.7	567	7.00	4.0	1,660	1.10	3.9	1,560
26	7.00	2.5	450	3.00	2.42	408	7.00	3.6	1,270	12.45	3.5	1,180
27	8.00	2.32	360	4.00	2.38	389	7.00	4.0	1,660	1.10	3.6	1,270
28	8.00	2.48	440	4.00	2.42	408	7.00	3.5	1,180	1.10	3.4	1,100
29	8.00	4.95	2,820	4.00	4.5	2,230	8.00	2.32	360	4.00	2.3	351
30	8.00	3.72	1,380	4.00	3.58	1,250	8.00	2.45	424	4.00	2.52	461
31	.....	.....	.....	.....	.....	.....	7.00	2.5	450	3.00	2.35	374

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12—Continued.

Day.	January.			February.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.00	2.45	424	4.00	2.48	440
2	8.00	2.3	351	4.00	2.32	360
3	8.00	2.35	374	4.00	2.32	360
4	8.00	2.22	317	4.00	2.2	308
5	8.00	2.12	277	4.00	2.28	342
6						
7						
8	10.00	2.7	144			
9						
10						
11						
12						
13						
14				2.00	2.85	160
15						
16						
17						
18	10.00	3.15	207	5.00	2.85	160
19				2.00	3.25	228
20	8.00	3.7	372	12.00	4.3	690
21	8.00	4.0	513			
22						
23						
24						
25	10.00	3.5	298			
26						
27	10.00	3.4	267			
28						
29						
30						
31						

Day.	February.			March.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15	3.00	3.35	254			
16	3.00	3.3	240			
17	3.00	3.15	207			
18	3.00	3.0	180			
19	3.00	3.1	197			
20	3.00	2.9	166			
21	3.00	2.85	160			
22	3.00	3.4	267			
23	3.00	3.45	282			
24	3.00	3.65	352			
25	3.00	3.55	316			
26	3.00	3.5	298			
27	3.00	3.55	316			
28	3.00	3.5	298			
29	3.00	3.55	316			
30						
31						

Day.	March.			April.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*
1	3.00	3.4	267	7.00	5.6	3,800
2	3.00	3.45	282	7.00	4.8	2,610
3	3.00	3.42	273	7.00	4.5	2,230
4	3.00	3.45	282	7.00	3.5	1,130
5	3.00	3.2	217	7.00	3.3	1,020
6	3.00	2.82	156	7.00	5.4	3,490
7	3.00	2.4	120	7.00	6.1	4,690
8	3.00	2.52	129	7.00	6.9	6,370
9	3.00	2.62	137	7.00	5.9	4,310
10	3.00	3.3	240	7.00	4.2	1,880
11	3.00	3.12	201	7.00	3.78	1,440
12	3.00	2.52	129	7.30	3.65	1,320
13	3.00	3.6	333	7.00	3.7	1,360
14	3.00	4.2	627	7.00	3.9	1,560
15	3.00	4.6	903	7.00	4.28	1,970
16	3.00	4.9	2,750	7.00	5.6	3,800
17	3.00	4.1	1,770	7.00	6.3	5,090
18	3.00	4.25	1,940	7.00	5.3	3,340
19	3.00	4.3	1,990	7.00	5.25	3,260
20	3.00	5.0	2,890	7.00	4.4	2,110
21	3.00	3.8	1,460	7.00	4.0	1,660
22	3.00	3.25	980	7.00	4.32	2,010
23	3.00	2.75	600	7.00	5.3	3,340
24	3.00	2.8	633	7.00	4.7	2,480
25	3.00	2.45	424	7.00	3.5	1,180
26	5.00	2.6	506	7.00	3.8	1,460
27	5.00	2.4	398	7.00	3.8	1,460
28	5.00	2.65	536	7.00	3.65	1,320
29	5.00	4.2	1,880	7.00	3.5	1,180
30	5.00	4.35	2,050	7.00	3.3	1,020
31	5.30	4.3	1,990			

Day.	April.		
	Time.	Gage height.	Discharge.
1912.	*p. m.*	*Feet.*	*Sec.-ft.*
1	5.00	5.4	3,490
2	5.00	5.0	2,890
3	5.00	4.1	1,770
4	5.00	3.1	860
5	5.00	3.7	1,360
6	5.00	6.4	5,290
7	6.00	7.6	8,010
8	5.00	4.82	2,640
9	5.00	4.82	2,640
10	5.30	4.05	1,720
11	5.30	3.8	1,460
12	5.00	3.4	1,100
13	5.30	3.8	1,460
14	5.00	4.4	2,110
15	5.00	4.5	2,230
16	5.00	6.75	6,040
17	5.00	6.0	4,500
18	6.00	5.3	3,340
19	5.00	4.95	2,820
20	6.00	4.3	1,990
21	6.00	3.9	1,560
22	5.00	4.5	2,230
23	6.00	5.1	3,040
24	6.00	4.68	2,450
25	3.00	3.7	1,360
26	5.00	3.6	1,270
27	5.00	3.58	1,250
28	6.00	3.6	1,270
29	5.00	3.4	1,100
30	5.00	3.25	980
31			

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12—Continued.

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.00	3.15	900	5.00	3.3	1,020	7.00	4.68	2,450	5.00	3.7	1,360
2	7.00	3.1	860	5.00	3.0	780	7.00	3.4	1,100	5.00	3.15	900
3	7.00	2.8	633	5.00	2.72	580	7.00	6.8	6,150	5.00	5.0	2,890
4	7.00	2.6	506	5.00	2.3	351	7.00	4.1	1,770	6.00	3.75	1,410
5	7.00	2.1	269	5.00	2.6	506	7.00	3.82	1,480	6.00	3.6	1,270
6	7.00	3.22	956	5.00	3.8	1,460	7.00	3.3	1,020	5.00	3.9	1,560
7	7.00	3.6	1,270	5.00	3.42	1,120	7.00	3.8	1,460	5.00	3.75	1,410
8	7.00	3.2	940	6.00	3.0	780	7.00	3.4	1,100	5.00	3.3	1,020
9	7.00	3.0	780	6.00	3.3	1,020	7.00	2.5	450	6.00	2.8	633
10	7.00	2.85	668	6.00	3.0	780	7.00	2.6	506	6.00	2.58	495
11	7.00	2.8	633	6.00	2.75	600	7.00	2.7	567	5.00	2.95	424
12	7.00	2.5	450	5.00	2.6	506	7.00	2.32	360	5.00	2.23	321
13	7.00	2.7	567	6.00	3.0	780	7.00	1.95	218	5.00	2.18	300
14	7.00	3.4	1,100	6.00	3.1	860	7.00	2.0	234	5.00	.85	188
15	7.00	2.9	704	5.00	2.88	690	7.00	1.68	142	5.00	1.75	160
16	7.00	2.7	567	6.00	2.7	567	7.00	1.9	202	5.00	1.75	160
17	7.00	5.8	4,130	6.00	5.6	3,800	7.00	1.82	179	5.00	2.25	330
18	7.00	4.35	2,050	6.00	3.85	1,510	7.00	1.8	173	5.00	1.8	173
19	7.00	3.45	1,140	6.00	3.25	980	7.00	1.78	168	5.00	1.8	173
20	7.00	3.1	860	6.00	3.05	820	7.00	1.4	84	5.00	1.62	129
21	7.00	3.3	1,020	7.00	3.25	980	7.00	1.5	103	5.00	1.4	84
22	7.00	3.9	1,560	6.30	3.6	1,270	7.00	1.35	76	5.00	1.5	103
23	7.00	3.5	1,180	7.00	3.2	940	7.00	1.0	28	5.00	1.65	136
24	7.00	3.1	860	6.30	3.3	1,020	7.00	1.28	64	5.00	1.5	103
25	7.00	3.2	940	5.00	3.0	780	7.00	1.3	67	5.00	1.4	84
26	7.00	2.8	633	6.30	2.7	567	7.00	1.3	67	5.00	1.33	72
27	7.00	2.65	536	5.00	2.58	495	7.00	1.28	64	5.00	1.45	94
28	7.00	2.4	398	6.00	2.6	506	7.00	1.32	70	5.00	1.2	52
29	7.00	2.3	351	6.00	2.5	450	7.00	1.15	46	5.00	1.28	64
30	7.00	5.8	4,130	6.00	5.8	4,130	7.00	1.0	28	5.00	1.02	30
31	7.00	5.0	2,890	6.00	4.8	2,610						

Day.	July.			August.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.00	1.25	60	5.00	1.48	99	7.00	1.3	67	5.00	1.25	60
2	7.00	1.22	55	5.00	1.38	81	7.00	1.18	49	5.00	.9	19
3	7.00	1.1	39	5.00	1.4	84	7.00	.9	19	5.00	.78	11
4	7.00	1.35	76	5.00	.72	8	7.00	1.0	28	5.00	.8	12
5	7.00	.9	19	5.00	.8	12	7.00	1.7	147	5.00	1.1	39
6	7.00	.8	12	5.00	.7	7	7.00	1.52	107	5.00	1.5	103
7	7.00	.68	6	5.00	1.8	173	7.00	1.3	67	5.00	1.2	52
8	7.00	1.78	168	5.00	1.55	114	7.00	.8	12	5.00	1.0	28
9	7.00	1.45	94	5.00	1.4	84	7.00	.9	19	5.00	1.05	34
10	7.00	1.35	76	5.00	1.3	67	7.00	.8	12	5.00	1.05	34
11	7.00	1.3	67	5.00	1.4	84	7.00	1.15	46	5.30	2.8	633
12	7.00	1.4	84	5.00	1.2	52	7.00	2.3	351	5.00	2.25	330
13	7.00	1.28	64	5.00	1.5	103	7.00	1.9	202	5.00	1.75	160
14	7.00	1.4	84	5.00	1.1	39	7.00	1.68	142	5.00	1.55	114
15	7.00	1.7	147	5.00	1.9	202	7.00	1.28	64	5.00	1.4	84
16	7.00	1.8	173	5.00	1.6	124	7.00	1.35	76	5.00	1.0	28
17	7.00	1.4	84	5.00	1.35	76	7.00	.8	12	5.00	1.0	28
18	7.00	1.2	52	5.00	1.7	147	7.00	1.2	52	5.00	1.0	28
19	7.00	2.45	424	5.00	2.0	234	7.00	2.1	269	5.00	2.0	234
20	7.00	1.9	202	5.00	1.78	168	7.00	2.2	308	5.00	2.1	269
21	7.00	1.6	124	5.00	1.2	52	7.00	1.85	188	5.00	1.78	168
22	7.00	1.7	147	5.00	2.1	269	7.00	1.43	90	5.00	1.5	103
23	7.00	1.6	124	5.00	1.45	94	7.00	1.3	67	5.00	2.1	269
24	7.00	1.48	99	5.00	1.5	103	7.00	2.5	450	5.00	2.35	374
25	7.00	1.35	76	5.00	1.28	64	7.00	2.0	234	5.00	2.05	252
26	7.00	1.38	81	5.00	1.45	94	7.00	2.5	450	5.00	2.48	440
27	7.00	1.3	67	5.00	1.38	81	7.00	2.55	478	5.00	1.9	202
28	7.00	1.1	39	5.00	.9	19	7.00	1.8	173	6.00	1.9	202
29	7.00	.8	12	5.00	.8	12	7.00	1.9	202	6.00	2.0	234
30	7.00	.7	7	5.00	1.0	28	7.00	1.98	228	5.00	1.75	160
31	7.00	1.3	67	5.00	1.4	84	7.00	.9	19	5.00	1.35	76

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1911–12—Continued.

Day.	September.			October.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.00	1.28	64	5.00	1.1	39	7.00	2.2	308	5.00	2.1	269
2	7.00	1.38	81	5.00	1.55	114	7.00	2.0	234	5.00	2.2	308
3	7.00	1.48	99	5.00	1.48	99	7.00	2.1	269	5.00	2.0	234
4	7.00	2.48	440	5.00	2.1	269	7.00	1.95	218	5.00	2.0	234
5	7.00	1.98	228	5.00	1.85	188	7.00	1.82	179	5.00	1.8	173
6	7.00	1.85	188	5.00	1.98	228	7.00	1.7	147	5.00	1.78	168
7	7.00	1.9	202	5.00	1.85	188	7.00	1.65	136	5.00	1.45	94
8	7.00	1.5	103	5.00	1.45	94	7.00	1.6	124	5.00	1.48	99
9	7.00	1.6	124	5.00	1.48	99	7.00	1.4	84	5.00	1.65	136
10	7.00	1.55	114	5.00	1.45	94	7.00	1.35	76	5.00	1.5	103
11	7.00	1.3	67	5.00	1.38	81	7.00	1.75	160	5.00	2.5	450
12	7.00	1.0	28	5.00	1.35	76	7.00	2.7	567	5.00	2.65	536
13	7.00	1.2	52	5.00	1.0	28	7.00	2.4	398	5.00	2.5	450
14	7.00	1.18	49	5.00	1.25	60	7.00	2.32	360	5.00	2.2	308
15	7.00	1.0	28	5.00	.8	12	7.00	2.22	317	5.00	2.0	234
16	7.00	1.8	173	5.00	3.45	1,140	7.00	1.85	188	5.00	1.68	142
17	7.00	2.6	506	5.00	2.45	424	7.00	1.75	160	5.00	1.7	147
18	7.00	2.1	269	5.00	1.85	188	7.00	1.8	173	5.00	1.82	179
19	7.00	1.8	173	5.00	1.78	168	7.00	1.85	188	5.00	2.5	450
20	7.00	1.5	103	5.00	1.65	136	7.00	2.1	269	5.00	2.0	234
21	7.00	1.9	202	5.00	2.1	269	7.00	2.15	288	5.00	2.1	269
22	7.00	2.08	252	5.00	2.0	234	7.00	2.1	269	5.00	1.85	188
23	7.00	1.9	202	5.00	1.85	188	7.00	1.5	103	5.00	6.5	5,500
24	7.00	1.82	179	5.00	1.78	168	6.30	10.7	17,250	5.00	7.7	8,250
25	7.00	1.65	136	5.00	1.5	103	7.00	6.1	4,690	5.00	5.5	3,640
26	7.00	1.35	76	5.00	1.48	99	7.00	5.25	3,260	5.00	4.55	2,290
27	7.00	1.3	67	5.00	1.1	39	7.00	5.2	3,190	5.00	4.5	2,230
28	7.00	1.5	103	5.00	1.35	76	7.00	3.4	1,100	5.00	3.2	940
29	7.00	1.1	39	5.00	1.18	49	7.00	3.0	780	5.00	2.9	704
30	7.00	2.1	269	5.00	2.0	234	7.00	2.8	633	5.00	2.0	234
31							7.00	1.5	103	5.00	2.3	351

Day.	November.			December.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.00	2.6	506	5.00	2.9	704	7.00	2.1	269	4.30	2.2	308
2	7.00	3.5	1,180	5.00	3.0	780	7.00	2.3	351	4.30	2.75	600
3	7.00	2.7	567	5.00	2.5	450	7.00	5.82	4,170	4.30	4.5	2,230
4	7.00	2.4	398	5.00	2.35	374	7.00	4.1	1,770	4.30	3.6	1,270
5	7.00	2.4	398	5.00	2.35	374	7.00	3.3	1,020	4.30	3.1	860
6	7.00	2.3	351	5.00	2.4	398	7.00	3.5	1,180	4.30	3.45	1,140
7	7.00	2.5	450	5.00	2.6	506	7.00	3.52	1,200	4.30	3.4	1,100
8	7.00	5.6	3,800	5.00	4.45	2,170	7.30	3.5	1,180	4.30	3.25	980
9	7.00	3.9	1,560	5.00	3.6	1,270	7.30	3.1	860	4.30	2.9	704
10	7.00	3.35	1,060	5.00	3.0	780	7.30	2.8	633	4.30	2.6	506
11	7.00	2.9	704	5.00	2.8	633	7.30	2.55	478	4.30	2.72	580
12	7.00	2.6	506	5.00	2.5	450	7.30	2.45	424	4.30	2.5	450
13	7.00	2.52	461	5.00	3.0	780	7.30	2.35	374	4.30	2.3	351
14	7.00	4.1	1,770	5.00	3.7	1,360	7.30	2.3	351	4.30	2.4	398
15	7.00	3.0	780	5.00	2.7	567	8.00	2.2	308	4.30	2.1	269
16	7.00	2.58	495	5.00	3.0	780	8.00	2.4	389	4.30	2.35	374
17	7.00	2.9	704	5.00	2.8	633	8.00	2.3	351	4.30	2.1	269
18	7.00	2.75	600	5.00	2.68	555	8.00	1.9	202	4.30	1.85	188
19	7.00	2.45	424	5.00	2.5	450	8.00	2.0	234	4.30	3.5	1,180
20	7.00	2.45	424	5.00	2.48	440	8.00	3.1	860	4.30	3.0	780
21	7.00	2.4	398	5.00	2.5	450	8.00	2.85	668	4.30	2.6	506
22	7.00	2.48	440	5.00	2.45	424	8.00	2.4	398	4.30	2.35	374
23	7.00	2.45	424	5.00	2.32	360	8.00	2.45	424	4.30	2.3	351
24	7.00	2.2	308	5.00	2.3	351	8.00	2.3	351	4.30	2.25	330
25	7.00	2.42	408	4.30	2.3	351	8.00	2.2	308	4.30	2.18	300
26	7.00	2.25	330	4.30	2.2	308	8.00	2.2	308	4.30	2.22	317
27	7.00	2.2	308	4.30	2.1	269	8.00	2.1	269	4.30	2.3	351
28	7.00	2.15	288	4.30	2.1	269	8.00	2.15	288	4.30	2.2	308
29	7.00	2.1	269	4.30	2.15	288	8.00	2.3	351	4.30	2.18	300
30	7.00	2.05	252	4.30	2.0	234	8.00	2.35	374	4.30	3.0	780
31							8.00	4.3	1,990	4.30	3.8	1,460

NOTE.—Relation of gage height to discharge affected by ice during January, February, and March, 1911, and Jan. 6 to about Mar. 13, 1912. Daily discharge determined from a fairly well-defined rating curve.

DEERFIELD RIVER AT SHELBURNE FALLS, MASS.

Location.—At the plant of the Greenfield Electric Light & Power Co. at Shelburne Falls.

Records available.—June 1, 1907, to December 31, 1912.

Drainage area.—501 square miles.

Dam and power plant.—The dam is of concrete, of ogee section, and is similar in form to one that has been rated. The height of the dam was increased 3 feet in the fall of 1908. Two units are now installed. Ratings of one of these units have been made by the Survey for use in conjunction with the Holyoke ratings of the wheels.

Computations of discharge.—The flow through the wheels is computed from the gate openings and from power readings made at half-hour intervals. The height of water on the dam, in the fore bay, in the tailrace, and at the wasteways is read three times daily. The total electrical output is measured twice a day.

Accuracy.—Owing to the extreme care with which the readings are made, winter and summer, the records at this station are considered good, particularly so since the dam was raised in 1908.

Cooperation.—Records furnished by H. K. Barrows, Boston, Mass.

Daily discharge, in second-feet, of Deerfield River at Shelburne Falls, Mass., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	656	346	307	6,060	1,640	2,450	120	126	118	388	1,190	659
2	331	218	299	5,750	1,290	1,590	147	142	145	311	2,060	967
3	297	317	305	3,960	1,280	5,820	153	151	291	327	1,660	5,250
4	414	332	299	2,700	978	2,620	110	183	570	274	1,340	2,560
5	200	323	275	3,420	923	1,980	93	188	424	238	1,180	1,780
6	185	336	258	8,120	1,280	1,830	81	142	276	213	1,060	3,680
7	251	306	268	11,140	2,030	2,460	60	118	247	142	1,340	3,220
8	368	348	289	8,120	1,470	1,580	199	122	200	212	4,320	2,100
9	381	272	341	3,960	1,280	1,320	164	110	154	182	2,670	1,580
10	411	296	369	2,940	1,470	717	142	101	188	142	2,000	1,430
11	293	271	285	2,460	1,270	643	110	431	146	270	1,490	1,260
12	299	276	300	2,250	909	342	92	561	122	474	1,500	930
13	252	272	2,950	2,460	987	344	107	313	113	308	1,510	839
14	333	262	1,640	3,630	1,650	338	73	200	116	592	3,820	986
15	260	266	2,440	3,410	1,270	322	124	137	51	396	3,110	421
16	267	264	5,600	7,760	1,840	403	219	148	351	281	2,020	651
17	265	248	3,650	6,050	5,110	385	146	107	650	267	1,820	1,000
18	273	279	3,700	5,430	2,670	343	147	143	374	223	1,680	865
19	297	264	4,540	4,760	1,580	334	438	425	274	225	1,340	1,450
20	669	294	4,840	2,910	1,290	334	364	462	278	212	1,190	1,780
21	649	300	3,160	2,390	1,460	298	230	257	292	295	1,340	1,150
22	633	372	2,260	2,680	2,250	218	238	165	280	290	1,350	1,060
23	476	366	1,280	3,950	1,640	215	252	245	266	4,350	1,180	858
24	455	357	1,240	2,930	1,290	238	191	417	276	13,910	1,140	472
25	424	340	1,130	2,250	1,440	251	165	317	282	6,760	1,510	365
26	420	379	840	1,840	1,075	198	118	340	205	4,540	1,350	525
27	266	371	987	1,630	849	212	125	498	202	2,420	1,190	635
28	251	353	847	1,980	847	181	134	360	149	2,060	1,140	619
29	341	340	3,970	1,650	993	161	86	266	148	1,690	470	657
30	368	.....	4,840	1,650	6,670	121	118	260	240	1,510	620	986
31	368	.....	3,640	.....	4,530	.....	100	178	.....	1,360	.....	3,460

Monthly discharge of Deerfield River at Shelburne Falls, Mass., for 1912.

[Drainage area, 501 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	669	185	366	0.73	0.84
February	379	218	309	.62	.67
March	5,600	258	1,840	3.68	4.24
April	11,140	1,630	4,010	8.00	8.93
May	6,670	847	1,780	3.55	4.09
June	5,820	121	940	1.88	2.10
July	438	60	156	.31	.36
August	561	101	245	.49	.56
September	650	51	248	.50	.55
October	13,910	142	1,450	2.89	3.33
November	4,320	470	1,650	3.30	3.68
December	5,250	365	1,430	2.84	3.27
The year	13,910	51	1,200	2.40	32.62

WARE RIVER AT GIBBS CROSSING, MASS.

Location.—Between the highway bridge and the electric railway bridge, about 3 miles below Ware, at the point known as Gibbs Crossing. Muddy Brook (drainage area, about 30 square miles) enters from the right at Ware; Beaver Brook (drainage area of about 29 square miles) enters from the right about 2½ miles below the station.

Records available.—August 20 to December 31, 1912.

Drainage area.—201 square miles.

Gage.—Automatic gage, protected by a wooden shelter 5 feet square, on the right bank just above the highway bridge, is set over a plank well 30 by 40 inches, the well being connected with the stream by a 4-inch cast-iron pipe. A sloping staff gage is set in the bank almost over the intake pipe to serve as a check on the automatic gage.

Channel.—Rough but practically permanent.

Discharge measurements.—Made from the downstream side of the highway bridge at extreme high stages, from the upstream side of the electric railway bridge at medium stages, and by wading at low stages.

Winter flow. Relation between gage height and discharge somewhat affected by ice during the coldest weather.

Artificial control.—The operation of mills at points upstream causes a large diurnal fluctuation at this station and makes automatic records necessary.

Accuracy.—The rating curve is well defined and estimates based on continuous records of gage height are good.

Discharge measurements of Ware River at Gibbs Crossing, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Aug. 31	G. H. Canfield	1.47	23.0
31	do	1.82	58.1
Oct. 30	J. G. Mathers	2.16	133
Nov. 13	C. S. DeGolyer	2.52	242
Dec. 17	do	2.49	238

Daily discharge, in second-feet, of Ware River at Gibbs Crossing, Mass., for 1912.

Date.	Aug.	Sept.	Oct.	Nov.	Dec.	Date.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	16	69	76	23	16	.....	57	46	133	121
2	.....	12	39	49	97	17	.....	49	44	134	121
3	.....	27	44	22	175	18	.....	39	47	145	99
4	.....	36	46	87	195	19	.....	39	38	145	125
5	.....	37	34	56	169	20	94	40	19	150	154
6	.....	41	16	43	180	21	86	40	46	105	152
7	.....	36	28	54	187	22	78	13	45	80	145
8	.....	26	43	134	194	23	79	79	62	54	160
9	.....	43	45	185	182	24	64	70	109	19	136
10	.....	42	45	133	189	25	26	49	96	106	52
11	.....	61	51	185	155	26	139	45	74	134	172
12	.....	73	26	81	149	27	96	46	20	148	162
13	.....	80	15	102	133	28	56	33	71	58	167
14	.....	45	31	113	76	29	36	13	61	156	176
15	.....	16	46	147	28	30	36	64	69	80	302
						31	38	.....	77	.....	817

NOTE.—Daily discharge is the average of 24 hourly discharges taken from the automatic record and based on a well-defined rating curve.

Monthly discharge of Ware River at Gibbs Crossing, Mass., for 1912.

[Drainage area, 201 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
August 20–31	139	26	69	0.343	0.15	A.
September	80	12	42	.209	.23	A.
October	109	15	48	.239	.28	A.
November	185	19	104	.517	.58	A.
December	817	23	168	.836	.96	A.

SWIFT RIVER NEAR WEST WARE, MASS.

Location.—Just below the wooden dam opposite the West Ware station of the Athol branch of the Boston & Albany Railroad, about 6 miles by river downstream from Enfield.

Records available.—July 15, 1910, to December 31, 1912.

Drainage area.—191 square miles.

Gages.—Standard chain gage attached to downstream side of footbridge, about 400 feet below the dam; in use July 15, 1910, to August 25, 1912; staff gage fastened to the headworks of the flume; and an automatic gage (used August 25 to December 31, 1912) on the left bank, about 600 feet below the dam. The automatic gage is protected by a wooden shelter 5 feet square, and set over a timber well 3 feet square. The well is far enough back from the bank to protect it from the frost and is connected with the river by a 4-inch cast-iron pipe.

Discharge measurements.—Made from cable 50 feet above the automatic gage during high and medium stages and by wading at low stages.

Artificial control.—Mills and power plants above the station cause a very marked diurnal fluctuation in the flow at this point. For this reason it is not advisable to attempt to estimate the daily discharge from semidaily gage readings at present. Therefore the gage reader's observations prior to the installation of the automatic gage are being published, together with the flow corresponding to each.

Accuracy.—A fairly good rating curve has been developed for this station and estimates based on continuous records of gage height are good.

Discharge measurements of Swift River near West Ware, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*			*Feet.*	*Sec.-feet.*
Feb. 10[a]	G. H. Canfield	3.41	138	Oct. 31[c]	J. G. Mathers	[d] 2.04	125
Apr. 24	C. S. De Golyer	4.98	676	31[c]	do	[d] 2.08	121
Aug. 23[b]	G. H. Canfield	1.53	31.5	Nov. 18[b]	C. S. De Golyer	[d] 2.50	172
30[b]	do	1.475	30.9	29[b]	do	[d] 2.24	151
30[b]	do	2.02	85.2	Dec. 18[b]	do	2.26	145
30[b]	do	1.87	70.3	18[b]	do	2.22	133

[a] River nearly free of ice at bridge, measurement made under four-fifths ice cover, 1,000 feet below gage.
[b] Measurement made by wading.
[c] Measurement made from footbridge 500 feet above gage. Section rough and irregular.
[d] Gage height somewhat uncertain because of defective hook gage.

NOTE.—Beginning Aug. 23 the gage height of all discharge measurements are referred to hook gage in new gage house.

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912.

[R. L. Shaw, observer.]

Day.	July.						August.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1							7.00	2.32	44	8.15	2.9	105
2							6.45	2.38	48	7.25	2.98	116
3							7.00	2.38	48	6.15	2.8	92
4							6.45	2.38	48	6.15	2.82	95
5							7.00	2.48	57	7.00	3.02	122
6							7.00	2.48	57	7.30	2.72	82
7							11.55	2.9	105			
8							6.45	2.92	108	5.45	3.15	142
9							6.45	2.72	82	6.45	3.12	137
10							6.45	2.6	69	6.00	3.08	131
11							6.45	2.68	78	5.45	3.02	122
12							6.30	2.6	69	7.30	3.08	131
13							7.30	2.48	57	7.15	2.95	112
14							11.45	2.48	57			
15				6.35	2.82	95	6.45	2.68	78	6.00	3.08	131
16	6.55	2.32	44	5.15	2.72	82	6.55	2.5	59	5.45	3.08	131
17	11.15	2.38	48				6.45	2.4	50	6.25	3.1	134
18	7.00	2.2	35	6.15	2.75	86	6.35	2.4	50	5.30	3.02	122
19	7.00	2.38	48	7.30	2.82	95	7.15	2.52	61	6.45	3.18	147
20	7.00	2.32	44	7.30	2.72	82	6.55	2.48	57	6.00	2.88	102
21	6.45	2.28	41	7.45	2.7	80	11.45	2.42	44			
22	7.00	2.28	41	5.40	2.7	80	7.00	2.48	57	6.40	3.05	126
23	6.45	2.3	42	7.00	2.38	48	7.00	2.4	50	7.00	3.02	122
24				1.15	2.3	42	6.35	2.5	59	6.45	2.9	105
25	6.30	2.25	38	6.45	2.9	105	6.45	2.4	50	5.45	2.88	102
26	6.55	2.3	42	6.30	2.78	90	7.00	2.38	48	6.30	2.78	90
27	7.00	2.3	42	6.45	2.65	74	6.45	2.35	46	5.20	2.48	57
28	7.00	2.32	44	6.30	2.62	71	11.55	2.3	42			
29	7.00	2.3	42	6.45	2.6	69	6.55	2.3	42	6.15	3.02	122
30	6.55	2.28	41	7.10	2.52	61	6.35	2.3	42	7.00	2.98	116
31	11.45	2.32	44				6.30	2.28	41	7.10	2.9	105

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	September.			October.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	6.35	2.28	41	5.00	2.82	95	7.00	2.3	42	6.00	2.65	74
2	7.00	2.25	38	6.15	2.9	105				12.00	2.4	50
3	6.45	2.2	35	6.15	2.48	57	7.30	2.3	42	6.00	2.4	50
4				12.15	2.35	46	7.00	2.25	38	5.30	2.88	102
5	7.00	2.45	54	5.30	2.65	74	7.30	2.28	41	6.00	2.7	80
6	7.00	2.65	74	6.00	3.28	166	7.30	2.32	44	5.30	2.72	82
7	7.00	2.62	71	6.00	3.12	137	7.30	2.32	44	5.30	2.72	82
8	6.45	2.52	61	6.45	3.15	142	7.15	2.32	44	5.30	2.4	50
9	7.00	2.68	78	6.00	3.25	159				1.30	2.12	30
10	7.00	2.68	78	5.55	3.1	134	7.30	2.58	67	6.00	2.98	116
11				1.30	2.75	86	7.30	2.5	59	5.30	2.92	108
12	7.00	2.8	92	7.00	3.12	137	7.30	2.2	35	6.55	2.65	74
13	6.45	2.5	59	6.10	3.12	137	7.30	2.2	35	5.30	2.9	105
14	6.50	2.48	57	6.00	3.2	150	7.15	2.2	35	5.30	2.88	102
15	7.00	2.45	54	5.30	3.05	126	7.15	2.2	35	5.30	2.55	64
16	7.00	2.4	50	6.10	3.08	131	11.00	2.25	38			
17	7.00	2.35	46	6.30	2.4	50	7.30	2.22	36	5.50	2.92	108
18				1.30	2.35	46	7.15	2.22	36	5.45	2.9	105
19	7.00	2.35	46	6.00	3.1	134	7.15	2.2	35	5.45	2.85	98
20	7.00	2.4	50	5.30	2.98	116	7.30	2.22	36	5.30	2.9	105
21	7.00	2.28	41	5.30	2.88	102	7.15	2.22	36	5.30	2.9	105
22	7.00	2.28	41	6.00	2.98	116	7.15	2.2	35	5.30	2.88	102
23	7.00	2.25	38	6.10	2.8	92				1.15	2.2	35
24	7.00	2.25	38	6.00	2.55	64	7.15	2.2	35	5.30	2.9	105
25				12.10	2.25	38	7.15	2.32	44	5.30	2.9	105
26	7.15	2.3	42	6.15	3.05	126	7.00	2.38	48	5.40	2.95	112
27	7.15	2.35	46	6.05	2.15	32	7.15	2.3	42	5.20	2.6	69
28	7.15	1.88	18	6.00	2.4	50	7.15	2.3	42	5.00	2.75	86
29	7.00	2.38	48	6.00	2.8	92	7.15	2.25	38	5.00	2.65	74
30	7.15	2.3	42	6.15	2.7	80				12.30	2.2	35
31							7.30	2.2	35	5.00	2.65	74

Day.	November.			December.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	2.3	42	5.00	2.65	74	7.30	2.5	59	4.30	3.2	150
2	7.30	2.3	42	5.30	2.7	80	7.30	2.52	61	4.30	3.05	126
3	7.30	2.42	52	5.00	3.02	122	7.30	2.5	59	4.30	2.88	102
4	7.30	2.38	48	5.30	3.2	150	11.30	2.55	64			
5	7.30	2.7	80	5.30	3.08	131	7.45	2.6	69	4.30	3.15	142
6				1.30	2.95	112	7.45	2.6	69	4.30	2.98	116
7	7.30	3.02	122	5.00	3.3	168	7.45	2.6	69	4.30	2.98	116
8	7.30	3.02	122	5.00	3.3	168	7.45	2.45	54	4.30	3.02	122
9	7.30	2.9	105	5.00	3.2	150	7.45	2.4	50	4.30	3.02	122
10	7.30	2.95	112	5.00	3.2	150	7.45	2.45	54	4.30	3.02	122
11	7.30	2.9	105	5.00	3.22	154				1.15	2.38	48
12	7.30	2.9	105	5.00	3.2	150	7.45	2.45	54	4.30	2.9	105
13	11.15	2.92	108				7.45	2.45	54	4.30	3.02	122
14	7.30	2.8	92	5.00	2.95	112	7.45	2.35	46	4.30	2.8	92
15	7.30	2.52	61	5.00	2.9	105	7.45	2.32	44	4.30	2.82	95
16	7.30	2.5	59	5.00	3.2	150	7.45	2.5	59	5.00	2.8	92
17	7.30	2.5	59	5.00	2.98	116	7.45	2.48	57	5.00	2.65	74
18	7.30	2.4	50	5.00	3.05	126				1.30	2.32	44
19	7.30	2.42	52	5.00	2.8	92	7.45	2.4	50	5.00	3.05	126
20				1.30	2.8	92	7.45	2.35	46	4.30	2.85	98
21	7.30	2.58	67	5.00	3.18	131	7.45	2.35	46	4.30	2.92	108
22	7.30	2.5	59	4.45	2.98	116	7.45	2.5	59	5.00	2.88	102
23	7.30	2.75	86	4.00	2.92	108	7.45	2.5	59	5.00	2.88	102
24	7.30	2.42	52	4.30	2.42	52	7.45	2.62	71	5.00	3.9	303
25	7.30	2.58	67	4.30	2.6	69	11.30	3.2	150			
26	7.30	2.5	59	4.30	2.58	67	7.45	3.22	154	4.45	3.32	172
27	11.30	2.42	52				7.45	3.5	208	4.30	3.52	212
28	7.30	2.5	59	4.00	3.12	137	7.45	3.5	208	4.30	3.45	198
29	7.30	2.5	59	4.30	3.1	134	7.45	3.4	187	4.30	3.4	187
30	7.30	2.5	59	4.30	3.2	150	7.45	3.45	198	4.30	3.4	187
31							7.30	3.32	112	4.30	3.4	187

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	January.			February.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	11.15	3.35	178	.....	.....	.....	7.45	3.6	230	5.00	3.5	208
2	7.45	3.35	178	4.30	3.5	208	7.45	3.6	230	5.00	3.15	142
3	7.45	3.6	230	4.30	3.8	277	7.45	3.22	154	5.00	3.2	150
4	7.45	4.05	344	4.30	4.15	373	7.45	3.02	122	5.00	3.3	168
5	7.45	4.32	427	4.30	4.15	373	.....	.....	.....	1.30	3.3	168
6	7.45	4.3	420	4.30	4.02	336	7.45	3.12	137	5.00	3.22	154
7	7.35	3.8	277	4.30	3.72	258	7.45	3.12	137	5.00	3.22	154
8	11.30	3.5	208	.....	.....	.....	7.45	3.1	134	5.00	3.25	159
9	7.45	3.5	208	4.30	3.45	198	7.45	3.05	126	5.00	3.38	183
10	7.45	3.32	172	4.30	3.5	208	7.45	2.98	116	5.00	3.3	168
11	7.45	3.32	172	4.30	3.45	198	7.45	3.05	126	5.00	3.3	168
12	7.45	3.35	178	4.30	3.35	178	.....	.....	.....	1.30	2.98	116
13	7.45	3.32	172	4.30	3.35	178	7.45	2.98	116	5.00	3.3	168
14	7.45	3.3	168	4.30	3.1	134	7.45	2.8	92	5.00	3.3	168
15	11.00	3.22	154	.....	.....	.....	7.45	2.82	95	5.00	3.25	159
16	7.45	2.82	95	4.30	3.25	159	7.45	2.82	95	5.00	3.3	168
17	7.45	3.25	159	5.00	3.3	168	7.45	2.85	98	5.00	3.3	168
18	7.45	3.1	134	5.00	3.32	172	7.45	2.72	82	5.00	3.12	137
19	7.45	2.9	105	5.00	3.25	159	.....	.....	.....	1.30	2.9	105
20	7.45	2.7	80	5.00	3.02	122	7.45	2.82	95	5.00	3.3	168
21	7.45	2.85	98	5.00	2.82	95	7.45	2.8	92	5.00	3.15	142
22	11.00	2.9	105	.....	.....	.....	7.45	3.25	159	5.00	3.05	126
23	7.45	2.85	98	5.00	3.15	142	7.45	2.75	86	5.00	3.1	134
24	7.45	2.52	61	5.00	3.02	122	7.45	2.7	80	5.00	2.7	80
25	7.45	2.5	59	5.00	3.15	142	7.45	2.88	102	5.00	2.88	102
26	7.45	2.5	59	5.00	3.02	122	11.45	2.9	105	.....	.....	.....
27	7.45	2.42	52	5.00	3.1	134	7.30	3.02	122	4.30	3.98	325
28	7.45	3.4	187	5.00	3.55	219	7.30	3.5	208	4.30	3.45	198
29	11.30	3.6	230	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	7.45	3.65	242	5.00	3.6	230	.....	.....	.....	.....	.....	.....
31	7.45	3.45	198	5.00	3.6	230	.....	.....	.....	.....	.....	.....

Day.	March.			April.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	3.4	187	4.30	3.4	187	7.30	5.75	1,040	6.00	5.42	377
2	7.30	3.42	191	4.30	3.42	191	11.45	4.98	682	.....	.....	.....
3	7.30	3.3	168	4.30	3.3	168	7.30	4.55	509	5.00	4.38	445
4	7.30	3.2	150	4.30	3.3	168	7.30	4.3	420	5.00	4.1	358
5	11.45	3.12	137	.....	.....	.....	7.30	4.05	344	5.00	4.02	336
6	7.30	2.9	105	4.30	2.98	116	7.30	4.1	358	5.00	4.6	528
7	7.30	2.7	80	5.00	3.3	168	7.30	4.85	628	5.00	5.2	777
8	7.30	2.7	80	5.00	3.2	150	7.30	5.5	915	5.00	5.4	868
9	7.30	2.7	80	5.00	3.22	154	.....	.....	.....	1.15	5.22	786
10	7.30	2.75	86	5.00	2.98	116	7.30	4.88	640	5.00	4.8	607
11	7.30	2.95	112	5.00	3.28	164	7.30	4.8	607	5.00	4.7	567
12	.....	.....	.....	1.30	3.1	134	7.30	4.6	528	5.00	4.52	497
13	7.30	2.92	108	5.00	3.42	191	7.30	4.5	490	5.00	4.4	454
14	7.30	3.02	122	5.00	3.4	187	7.00	4.3	420	6.00	4.3	420
15	7.30	4.3	420	5.00	4.85	628	7.30	4.5	490	6.00	4.6	528
16	7.30	4.98	682	6.00	5.1	733	.....	.....	.....	1.15	4.65	547
17	7.30	4.6	528	5.00	4.75	587	7.30	4.55	509	5.00	4.55	509
18	7.30	4.5	490	6.00	4.2	388	7.30	4.55	509	6.00	4.4	454
19	11.45	4.7	567	.....	.....	.....	7.30	4.22	394	6.00	4.15	373
20	7.00	3.72	258	5.00	4.2	388	7.30	4.2	388	5.30	4.15	373
21	7.30	3.8	277	5.00	3.98	325	7.30	4.05	344	6.00	4.02	336
22	7.30	3.9	303	5.00	3.95	317	7.30	4.1	358	6.00	4.05	344
23	7.30	4.1	358	5.00	4.12	364	.....	.....	.....	1.30	3.98	325
24	7.30	4.05	344	6.00	4.1	358	7.00	3.9	303	5.00	3.95	316
25	7.30	3.98	325	5.00	4.02	336	7.30	3.95	316	5.00	3.95	316
26	11.15	3.9	303	.....	.....	.....	7.30	3.82	282	6.00	3.85	290
27	7.30	3.85	290	5.00	4.3	420	7.30	3.9	303	6.00	3.8	277
28	7.30	5.55	938	5.00	6.35	1,350	7.30	3.8	277	6.00	3.82	282
29	7.30	6.35	1,350	5.00	6.15	1,240	7.30	3.8	277	6.00	3.75	265
30	7.30	6.2	1,260	5.00	6.22	1,270	11.30	3.8	277	.....	.....	.....
31	7.30	6.4	1,380	5.00	6.25	1,290	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	3.7	253	6.00	3.75	265	7.00	3.4	187	6.00	3.5	208
2	7.30	3.8	277	6.00	3.82	282	7.00	3.05	126	6.00	3.1	134
3	7.30	3.85	290	5.00	3.85	290	7.00	3.05	126	6.00	3.02	122
4	7.30	3.8	277	6.00	3.75	265	11.00	3.2	150	.....	.....	.....
5	7.30	3.75	265	6.00	3.75	265	7.00	3.1	134	6.00	3.35	177
6	7.30	3.6	230	6.00	3.6	230	7.00	3.2	150	6.00	3.4	187
7	11.00	3.62	235	.....	.....	.....	7.00	2.95	112	6.00	3.4	187
8	7.30	3.5	208	6.00	3.5	208	7.00	2.9	105	6.00	2.9	105
9	7.00	3.55	219	6.00	3.6	230	7.00	2.8	92	6.00	2.9	105
10	7.30	3.55	219	6.00	3.52	212	7.30	3.05	126	6.00	2.95	112
11	7.30	3.42	191	6.00	3.45	198	11.00	3.2	150	.....	.....	.....
12	7.30	3.5	208	6.00	3.5	208	7.00	3.2	150	6.00	3.3	163
13	7.00	3.4	187	6.00	3.4	187	7.30	2.8	92	6.00	3.45	198
14	11.00	3.42	191	.....	.....	.....	7.00	2.92	108	6.00	3.42	191
15	7.30	3.28	164	6.00	3.3	168	7.00	2.9	105	6.00	3.42	191
16	7.00	3.3	168	6.00	3.3	168	7.00	2.95	112	6.00	3.3	168
17	7.00	3.2	150	6.00	3.3	168	7.00	2.98	116	6.00	3.2	150
18	7.00	3.2	150	6.00	3.2	150	11.45	3.02	122	.....	.....	.....
19	7.00	3.2	150	6.00	3.32	172	7.00	2.92	108	6.00	3.22	154
20	7.00	3.45	198	6.00	3.65	242	7.00	2.72	82	6.00	3.3	168
21	11.00	3.75	265	.....	.....	.....	7.00	2.72	82	6.00	3.1	134
22	7.00	3.7	253	6.00	3.7	253	7.00	2.65	74	6.00	3.18	147
23	7.30	3.7	253	6.00	3.6	230	7.00	2.65	74	6.00	3.15	142
24	7.30	3.55	219	6.00	3.58	226	7.00	2.65	74	6.00	2.9	105
25	7.00	3.5	208	6.00	3.52	212	11.00	2.65	74	.....	.....	.....
26	7.00	3.5	208	6.00	3.45	198	7.00	2.6	69	6.00	3.1	134
27	7.00	3.45	198	6.00	3.4	187	7.00	2.6	69	6.00	3.1	134
28	.....	.....	.....	1.30	3.38	183	7.00	2.6	69	6.00	3.02	122
29	7.00	3.25	159	6.00	3.4	187	7.00	2.55	64	6.00	3.05	126
30	7.00	3.1	134	6.00	3.15	142	7.00	2.55	64	6.00	3.05	126
31	7.00	3.15	142	6.00	3.4	187	.....	.....	.....	.....	.....	.....

Day.	July.			August.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.00	2.52	61	6.00	3.02	122	6.30	2.65	74	6.30	2.7	80
2	11.00	2.52	61	.....	.....	.....	7.30	2.6	69	6.30	2.7	80
3	7.00	2.5	59	6.00	3.02	122	7.30	2.52	61	5.30	3.1	134
4	7.00	2.5	59	6.00	2.58	67	7.30	2.45	54	6.00	2.7	80
5	7.00	2.55	64	6.00	3.02	122	7.30	2.4	50	6.00	2.7	80
6	7.00	2.5	59	6.00	3.02	122	11.00	2.4	50	.....	.....	.....
7	7.00	2.5	59	6.00	3.05	126	7.30	2.75	86	6.30	3.1	134
8	7.00	2.52	61	6.00	3.02	122	7.30	2.45	54	6.30	2.9	105
9	11.00	2.5	59	.....	.....	.....	7.30	2.45	54	6.00	2.98	116
10	6.00	2.4	50	6.00	2.6	69	7.30	2.4	50	6.30	2.9	105
11	6.00	2.45	54	6.00	2.7	80	7.30	2.4	50	6.30	2.8	92
12	6.00	2.45	54	6.00	2.7	80	7.30	2.45	54	6.30	2.8	92
13	6.00	2.4	50	6.00	2.7	80	11.00	2.45	54	.....	.....	.....
14	6.45	2.4	50	6.00	2.65	74	7.30	2.45	54	6.30	3.05	126
15	7.00	2.4	50	6.00	2.6	69	7.30	2.42	52	6.30	3.1	134
16	.....	.....	.....	1.30	2.38	48	7.30	2.8	92	6.00	3.2	150
17	6.30	2.35	46	6.30	2.6	69	7.00	2.6	69	6.30	3.18	147
18	7.00	2.4	50	6.30	2.8	92	7.30	2.62	71	6.30	3.05	126
19	7.00	2.4	50	6.30	2.8	92	7.30	2.85	98	6.00	2.7	80
20	7.30	2.35	46	6.30	2.82	95	.....	.....	.....	1.30	2.75	86
21	7.30	2.4	50	6.30	2.8	92	7.30	2.75	86	6.30	3.1	134
22	7.00	2.38	48	6.30	2.8	92	7.30	2.6	69	6.00	3.2	150
23	11.30	2.4	50	.....	.....	.....	7.00	2.5	59	6.30	3.1	134
24	7.00	2.38	48	6.30	3.02	122	7.30	2.5	59	6.30	3.15	142
25	7.00	2.6	69	6.30	3.15	142	7.30	2.5	59	6.30	3.15	142
26	7.00	2.55	64	6.30	3.15	142	7.30	2.5	59	3.00	2.6	69
27	7.00	2.55	64	6.30	3.15	142	11.45	2.62	71	.....	.....	.....
28	7.00	2.55	64	6.30	2.9	105	7.30	2.75	86	6.30	2.8	92
29	7.30	2.98	116	5.30	2.95	112	7.30	2.9	105	6.00	3.45	198
30	11.00	2.95	112	.....	.....	.....	7.30	3.1	134	6.30	3.55	218
31	7.30	2.98	116	6.30	2.8	92	7.30	3.55	218	6.30	3.75	265

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	September.						October.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	3.8	277	6.00	3.8	277	.....	.....	.....	1.30	2.98	116
2	7.30	3.7	253	6.00	3.68	248	7.30	3.1	134	6.00	3.3	168
3	11.45	3.6	230	.....	.....	.....	7.30	3.15	142	5.30	3.5	208
4	7.30	3.45	198	6.00	3.22	154	7.30	3.15	142	5.30	3.65	244
5	7.30	3.22	154	6.00	3.15	142	7.30	3.4	187	5.30	3.6	230
6	7.30	3.2	150	6.30	3.32	172	7.30	3.45	198	5.00	3.45	198
7	7.00	2.98	116	6.30	3.05	126	7.30	3.5	208	5.00	3.55	219
8	7.30	2.9	105	6.00	3.35	178	10.30	3.55	219	.....	.....	.....
9	7.30	2.82	95	6.00	3.35	178	7.30	3.55	219	5.00	3.65	244
10	11.00	3.12	137	.....	.....	.....	7.30	3.55	219	5.00	3.5	208
11	7.30	3.02	122	6.00	3.4	187	7.30	3.32	172	5.00	3.5	208
12	7.00	2.8	92	6.00	3.4	187	7.30	3.3	168	5.00	3.4	187
13	7.00	2.8	92	6.30	3.05	126	7.30	3.12	137	5.00	3.15	142
14	7.30	2.75	86	6.00	3.3	168	7.30	3.12	137	5.00	3.15	142
15	7.30	2.8	92	6.00	3.02	122	11.00	3.1	134	.....	.....	.....
16	7.30	2.95	112	6.00	2.82	95	7.30	3.05	126	6.00	3.35	178
17	11.00	2.98	116	.....	.....	.....	7.30	2.85	98	5.30	3.4	187
18	7.30	2.8	92	6.00	2.98	116	7.30	2.8	92	5.00	3.6	230
19	7.30	2.75	86	6.00	3.12	137	7.30	5.02	699	5.00	5.3	822
20	7.30	2.8	92	6.00	3.3	168	7.30	6.2	1,260	5.00	6.2	1,260
21	7.30	2.8	92	6.00	3.15	142	7.30	5.9	1,110	5.00	5.7	1,010
22	7.30	2.7	80	6.00	3.02	122	11.00	5.98	1,150	.....	.....	.....
23	7.30	2.72	82	6.00	3.1	134	7.30	6.15	1,240	5.00	6.3	1,320
24	11.30	2.8	92	.....	.....	.....	7.30	6.15	1,240	5.00	6.1	1,210
25	7.00	2.78	90	6.00	3.15	142	7.30	5.7	1,010	5.00	5.7	1,010
26	7.30	2.65	74	6.00	3.15	142	7.30	5.22	786	5.00	5.1	733
27	7.30	2.6	69	6.00	3.2	150	7.30	4.95	669	5.00	4.8	607
28	7.30	2.75	86	6.00	3.1	134	7.30	4.65	548	5.00	4.65	548
29	7.30	2.6	69	6.00	3.2	150	11.00	4.4	454	.....	.....	.....
30	7.30	2.62	71	6.00	3.2	150	7.30	4.2	388	5.00	4.15	373
31	.....	.....	.....	.....	.....	.....	7.30	4.1	358	5.00	4.1	358

Day.	November.						December.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	4.05	344	5.00	4.1	358	7.30	4.4	454	5.00	4.4	454
2	7.30	4.05	344	5.00	4.1	358	7.30	4.4	454	5.00	4.4	454
3	7.30	3.98	325	5.00	4.05	344	11.00	4.2	388	.....	.....	.....
4	7.30	4.02	336	5.00	4.05	344	7.30	4.1	358	5.00	4.1	358
5	11.00	3.85	290	.....	.....	.....	7.30	4.1	358	5.00	4.1	358
6	7.30	3.75	265	5.00	3.9	303	7.30	4.1	358	5.00	4.05	344
7	7.30	3.98	325	5.00	4.05	344	7.30	3.95	316	5.00	3.95	316
8	7.30	4.2	388	5.00	4.2	388	7.30	3.85	290	5.00	3.85	290
9	7.30	4.1	358	5.00	4.2	388	7.30	3.85	290	5.00	3.85	290
10	7.30	4.1	358	5.00	4.1	358	11.00	3.85	290	.....	.....	.....
11	7.30	4.05	344	5.00	4.1	358	7.30	3.75	265	4.00	3.8	277
12	.....	.....	.....	1.30	4.05	344	7.30	3.9	303	4.00	3.95	316
13	7.30	4.1	358	5.00	4.1	358	7.30	3.9	303	4.00	3.9	303
14	7.30	4.12	364	5.00	4.1	358	7.30	3.9	303	4.00	3.9	303
15	7.30	4.3	420	5.00	4.35	437	7.30	3.9	303	4.00	4.02	336
16	7.30	4.4	454	5.00	4.42	461	7.30	4.05	344	4.00	4.1	358
17	7.30	4.45	472	5.00	4.45	472	11.30	4.4	454	.....	.....	.....
18	7.30	4.52	498	5.00	4.6	528	7.30	4.6	528	4.00	4.65	548
19	11.00	4.9	648	.....	.....	.....	7.30	4.7	567	4.00	4.6	528
20	7.30	5.05	712	5.00	5.05	712	7.30	4.4	454	4.00	4.4	454
21	7.30	5.05	712	5.00	5.05	712	7.30	4.3	420	4.00	4.2	420
22	7.30	4.9	648	5.00	4.98	682	7.30	4.15	373	4.00	4.15	373
23	7.30	4.7	567	5.00	4.65	548	7.30	4.65	548	4.00	4.7	567
24	7.30	4.55	509	5.00	4.7	567	10.30	5.05	712	.....	.....	.....
25	7.30	4.85	628	5.00	4.85	628	7.30	5.1	733	4.00	5.1	733
26	11.00	4.8	607	.....	.....	.....	7.30	5.05	712	4.00	5.1	733
27	7.30	4.8	607	5.00	4.8	607	7.30	4.9	648	4.00	5.0	690
28	7.30	4.75	587	5.00	4.75	587	7.30	4.82	615	4.00	4.85	628
29	7.30	4.7	567	5.00	4.7	567	7.30	4.6	528	4.00	4.6	528
30	7.30	4.5	490	5.00	4.5	490	7.30	4.65	548	4.00	4.65	548
31	.....	.....	.....	.....	.....	.....	11.30	4.3	420	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	January.			February.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	4.2	.....	4.00	4.15	.....
2	7.30	4.02	.....	4.00	4.22	.....
3	7.30	4.1	.....	4.00	4.1	.....
4	7.30	4.05	.....	4.00	4.05	.....
5	7.30	3.9	.....	4.00	3.98	.....
6	7.30	4.05	.....	4.00	3.85	.....
7	11.00	4.02	.....	.....	.....	.....
8	7.30	3.8	.....	4.00	3.8	.....
9	7.30	3.8	.....	4.00	3.8	.....
10	7.30	3.85	.....	4.00	3.85	.....
11	7.30	3.8	.....	4.00	3.8	.....
12	7.30	3.75	.....	4.00	3.8	.....
13	7.30	3.8	.....	4.00	3.8	.....
14	11.30	3.75	.....	.....	.....	.....
15	7.30	3.65	.....	4.00	3.7	.....
16	7.30	3.7	.....	4.00	3.7	.....
17	7.30	3.8	.....	4.00	3.8	.....
18	7.30	3.7	.....	4.00	3.7	.....
19	7.30	3.7	.....	4.00	4.05	.....
20	7.30	3.9	.....	4.00	3.9	.....
21	11.00	3.95	.....	.....	.....	.....
22	7.30	3.98	.....	4.00	3.98	.....
3	7.30	4.02	.....	4.00	4.02	.....
24	7.30	3.92	.....	4.00	3.95	.....
25	7.30	3.9	.....	4.00	3.8	.....
26	7.30	3.85	.....	4.00	3.85	.....
27	7.30	3.6	.....	4.00	3.6	.....
28	11.00	3.6	.....	.....	.....	.....
29	7.30	3.52	.....	4.00	3.52	.....
30	7.30	3.55	.....	4.00	3.55	.....
31	7.30	3.52	.....	4.00	3.52	.....

Day.	February.			March.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	3.52	.....	4.00	3.52	.....
2	7.30	3.52	.....	5.00	3.52	.....
3	7.30	3.5	.....	5.00	3.4	.....
4	11.00	3.42	.....	.....	.....	.....
5	7.30	3.42	.....	5.00	3.42	.....
6	7.30	3.4	.....	5.00	3.4	.....
7	7.30	3.52	.....	5.00	3.42	.....
8	7.30	3.32	.....	5.00	3.32	.....
9	7.30	3.35	.....	5.00	3.5	.....
10	7.30	3.35	.....	1.30	3.4	.....
11	11.30	3.35	.....	.....	.....	.....
12	7.30	3.42	.....	5.00	3.5	.....
13	7.30	3.7	.....	5.00	3.7	.....
14	7.30	3.6	.....	5.00	3.6	.....
15	7.30	3.4	.....	5.00	3.58	.....
16	7.30	3.25	.....	5.00	3.45	.....
17	7.30	3.25	.....	5.00	3.45	.....
18	11.00	3.15	.....	.....	.....	.....
19	7.30	3.25	.....	5.00	3.4	.....
20	7.30	3.25	.....	5.00	3.4	.....
21	7.30	3.5	.....	5.00	3.9	.....
22	7.30	4.5	.....	5.00	4.3	.....
23	7.30	4.4	.....	5.00	4.1	.....
24	7.30	4.1	.....	5.00	4.3	.....
25	11.00	4.12	.....	.....	.....	.....
26	7.30	4.2	.....	5.00	4.2	.....
27	7.30	4.4	.....	5.00	4.3	.....
28	7.30	4.2	.....	5.00	4.15	.....
29	7.30	4.05	.....	5.00	4.05	.....
30	.....	.....	.....	.....	.....	.....
31	.....	.....	.....	.....	.....	.....

Day.	March.			April.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	3.88	.....	5.00	3.95	.....
2	7.30	3.8	.....	5.00	3.8	.....
3	11.00	3.6	.....	.....	.....	.....
4	7.30	3.6	.....	5.00	3.6	.....
5	7.30	3.52	.....	5.00	3.55	.....
6	7.30	3.4	.....	5.00	3.65	.....
7	7.30	3.4	.....	5.00	3.6	.....
8	7.30	3.4	.....	5.00	3.6	.....
9	7.30	3.6	.....	5.00	3.7	.....
10	11.30	3.65	.....	.....	.....	.....
11	7.30	3.65	.....	5.00	3.8	.....
12	7.30	3.75	.....	5.00	3.75	.....
13	7.30	5.8	.....	5.00	5.75	.....
14	7.30	5.6	.....	5.00	6.02	.....
15	7.30	5.9	.....	5.00	6.28	.....
16	7.30	8.02	.....	5.00	9.28	.....
17	11.00	9.58	.....	.....	.....	.....
18	7.30	8.6	.....	5.00	7.92	2,390
19	7.30	7.22	1,880	5.00	6.92	1,690
20	7.30	6.62	1,510	5.00	6.42	1,390
21	7.30	6.22	1,270	5.00	6.02	1,170
22	7.30	5.62	972	5.00	5.58	953
23	7.30	5.28	813	5.00	5.12	742
24	11.00	4.92	656	.....	.....	.....
25	7.30	4.8	607	5.00	4.62	536
26	7.30	4.52	498	5.00	4.62	536
27	7.30	4.52	498	5.00	4.62	536
28	7.30	4.52	498	5.00	4.72	575
29	7.30	4.85	628	5.00	6.08	1,200
30	7.30	6.42	1,390	5.00	7.02	1,750
31	11.00	7.38	2,000	.....	.....	.....

Day.	April.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	6.92	1,690	5.00	6.72	1,570
2	7.30	6.48	1,430	5.00	6.62	1,510
3	7.30	6.92	1,690	5.00	7.12	1,810
4	7.30	7.28	1,930	5.00	7.12	1,810
5	7.30	6.8	1,620	5.00	6.62	1,510
6	7.30	6.42	1,390	5.00	6.42	1,390
7	.....	.....	.....	1.30	5.92	1,120
8	7.30	6.02	1,170	5.00	6.32	1,330
9	7.30	6.32	1,330	5.00	6.28	1,310
10	7.30	6.12	1,220	5.00	5.92	1,120
11	7.30	5.72	1,020	5.00	5.7	1,010
12	7.30	5.52	924	5.00	5.32	831
13	7.30	5.22	986	5.00	5.12	742
14	11.00	5.02	699	.....	.....	.....
15	7.30	4.92	656	5.00	4.92	656
16	7.30	5.02	699	5.00	5.02	699
17	7.30	5.22	786	5.00	5.22	786
18	7.30	5.28	813	5.00	5.32	831
19	7.30	5.52	924	5.00	5.62	972
20	7.30	5.42	877	5.00	5.42	877
21	11.00	5.22	786	.....	.....	.....
22	7.30	5.08	724	5.00	5.02	699
23	7.30	5.08	724	5.00	5.02	699
24	7.30	5.02	699	5.00	4.92	656
25	7.30	4.8	607	5.00	4.8	607
26	7.30	4.72	575	5.00	4.72	575
27	7.30	4.52	498	5.00	4.52	498
28	11.00	4.38	447	.....	.....	.....
29	7.30	4.32	427	5.00	4.32	427
30	7.30	4.42	461	5.00	4.42	461
31	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Swift River near West Ware, Mass., for 1910–1912—Continued.

Day.	May.						June.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	7.30	4.52	498	5.00	4.45	472	6.00	4.48	483	6.00	4.52	498
2	7.30	4.42	461	6.00	4.42	461	11.00	4.52	498	.....	.....	.....
3	7.30	4.42	461	6.00	4.42	461	6.00	4.42	461	6.00	4.32	427
4	7.30	4.28	414	6.00	4.22	394	6.00	4.18	382	6.00	4.12	364
5	11.00	4.02	336	.....	.....	.....	6.00	4.08	352	6.00	3.98	325
6	7.00	4.02	336	6.00	4.02	336	6.00	3.88	298	6.00	3.92	308
7	7.00	4.22	394	6.00	4.22	394	6.00	3.88	298	6.00	3.88	298
8	7.00	4.32	427	6.00	4.38	447	6.00	3.72	258	6.00	3.68	248
9	7.00	4.42	461	6.00	4.72	575	11.00	3.58	226	.....	.....	.....
10	7.00	4.8	607	6.00	4.72	575	6.00	3.52	212	6.00	3.52	212
11	7.00	4.72	575	6.00	4.72	575	6.00	3.52	212	6.00	3.42	191
12	11.00	4.68	559	.....	.....	.....	6.00	3.42	191	6.00	3.42	191
13	7.00	4.68	559	6.00	4.62	536	6.00	3.32	172	6.00	3.32	172
14	7.00	4.62	536	6.00	4.62	536	6.00	3.3	168	6.00	3.3	168
15	7.00	4.62	536	6.00	4.62	536	6.00	3.28	164	6.00	3.28	164
16	7.00	4.72	575	6.00	4.8	607	11.00	3.22	154	.....	.....	.....
17	7.00	5.12	742	6.00	5.22	786	6.00	3.18	147	6.00	6.22	154
18	7.00	5.82	1,070	6.00	5.62	972	6.00	2.88	102	6.00	3.28	164
19	11.00	5.42	877	.....	.....	.....	6.00	2.88	102	6.00	3.22	154
20	7.00	5.22	786	6.00	5.02	699	6.00	2.92	108	6.00	2.68	78
21	6.00	4.88	640	6.00	4.88	640	6.00	2.35	46	6.00	2.15	32
22	6.00	4.92	656	6.00	4.78	599	6.00	2.98	116	6.00	2.95	112
23	6.00	4.78	599	6.00	4.72	575	11.00	2.98	116	.....	.....	.....
24	6.00	4.65	548	6.00	4.88	640	6.00	2.92	108	6.00	2.88	102
25	6.00	5.02	699	6.00	4.72	575	6.00	2.78	90	6.00	2.72	82
26	11.00	4.48	483	.....	.....	.....	6.00	2.68	78	6.00	2.68	78
27	6.00	4.32	427	6.00	4.32	427	6.00	2.65	75	6.00	3.12	137
28	6.00	4.22	394	6.00	4.12	364	6.00	2.62	71	6.00	3.08	131
29	6.00	4.08	352	6.00	4.05	344	6.00	2.5	59	6.00	2.78	90
30	6.00	4.02	336	6.00	4.12	364	11.00	2.52	61	.....	.....	.....
31	6.00	4.35	437	6.00	4.42	461	.....	.....	.....	.....	.....	.....

Day.	July.						August.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	6.00	2.62	71	6.00	3.05	126	6.00	2.22	36	6.00	2.8	92
2	6.00	2.48	57	6.00	3.02	122	6.00	2.22	36	6.00	2.98	116
3	6.00	2.48	57	6.00	2.98	116	6.00	2.28	41	6.00	2.38	48
4	6.00	2.42	52	6.00	2.92	108	11.00	2.22	36	.....	.....	.....
5	6.00	2.38	48	6.00	2.85	98	6.00	2.42	52	6.00	2.42	52
6	6.00	2.52	61	6.00	2.72	82	6.00	2.28	41	6.00	2.92	108
7	11.00	2.48	57	.....	.....	.....	6.00	2.28	41	6.00	2.88	102
8	6.00	2.42	52	6.00	2.92	108	6.00	2.25	38	6.00	2.8	92
9	6.00	2.42	52	6.00	2.85	98	6.00	2.22	36	6.00	2.92	108
10	6.00	2.38	48	6.00	2.8	92	6.00	2.22	36	6.00	2.92	108
11	6.00	2.35	46	6.00	2.72	82	11.00	2.28	41	.....	.....	.....
12	6.00	2.38	48	6.00	2.78	90	7.00	2.32	44	6.00	3.02	122
13	6.00	2.28	41	6.00	2.72	82	7.00	2.32	44	6.00	2.92	108
14	11.00	2.32	44	.....	.....	.....	7.00	2.22	36	6.00	2.8	92
15	6.00	2.38	48	6.00	3.12	137	7.00	2.22	36	6.00	2.62	71
16	6.00	2.52	61	6.00	2.85	98	7.00	2.18	34	6.00	2.62	71
17	6.00	2.35	46	6.00	2.92	108	7.00	2.08	28	6.00	2.62	71
18	6.00	2.28	41	6.00	3.02	122	.....	.....	.....	1.30	2.28	41
19	6.00	2.32	44	6.00	2.72	82	7.00	2.22	36	6.00	3.12	137
20	6.00	2.28	41	6.00	2.62	71	7.00	2.38	48	6.00	3.02	122
21	11.00	2.62	71	.....	.....	.....	7.00	2.28	41	6.00	2.88	102
22	6.00	2.65	74	6.00	3.02	122	6.00	2.22	36	6.00	3.02	122
23	6.00	2.55	64	6.00	2.85	98	6.00	2.15	32	6.00	2.92	108
24	6.00	2.48	57	6.00	2.8	92	6.00	2.18	34	6.00	2.7	80
25	6.00	2.55	64	6.00	3.12	137	11.00	2.28	41	.....	.....	.....
26	6.00	2.42	52	6.00	3.12	137	6.00	2.2	35	6.00	2.9	105
27	6.00	2.35	46	6.00	2.92	108	7.00	2.22	36	6.00	2.98	116
28	11.00	2.62	71	.....	.....	.....	7.00	2.05	26	6.00	2.65	74
29	6.00	2.42	52	6.00	2.98	116	7.00	2.05	26	6.00	2.65	74
30	6.00	2.38	48	6.00	3.18	147	7.00	2.05	26	6.00	2.65	74
31	6.00	2.25	38	6.00	3.02	122	7.00	2.05	26	6.00	2.65	74

NOTE.—Gage heights refer to the chain gage. Discharge determined from a fairly well defined rating curve.

Daily discharge, in second-feet, of Swift River at West Ware, Mass., for 1912.

	Aug.	Sept.	Oct.	Nov.	Dec.		Aug.	Sept.	Oct.	Nov.	Dec.
1			64	58	79	16		55	60	a 140	105
2			61	59	104	17		61	52	a 145	87
3			56	38	110	18		66	51	140	88
4		67	54	80	117	19		62	44	121	103
5			48	64	120	20		62	24	112	139
6			24	66	142	21		51	58	106	146
7			58	64	162	22		32	55	97	126
8			54	101	163	23		68	48	84	133
9			36	184	159	24		62	64	82	119
10			48	a 188	135	25	37	57	69	105	124
11			47	a 153	132	26	73	55	63	104	115
12			46	149	122	27	68	54	41	112	116
13			24	131	105	28	57	35	84	83	143
14			45	a 130	93	29	53	a 55	71	95	147
15		26	77	a 135	79	30	52	a 67	53	92	224
						31	44		59		378

a Estimated.

NOTE.—Each daily discharge Aug. 25 to Dec. 31, 1912, is the average of 24 hourly discharges taken from the automatic record. Daily discharge based on a fairly well defined rating curve.

Monthly discharge of Swift River at West Ware, Mass., for 1912.

[Drainage area, 191 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
August 25–31	73	37	55	0.288	0.07	A.
September 4 and 15–30	68	26	55	.288	.18	A.
October	84	24	53	.278	.32	A.
November	a188	38	107	.560	.62	A.
December	378	79	133	.696	.80	A.

a Part of day estimated.

QUABOAG RIVER AT WEST BRIMFIELD, MASS.

Location.—At the highway bridge near the West Brimfield station on the Boston & Albany Railroad.

Records available.—August 23, 1909, to December 31, 1912.

Drainage area.—150 square miles.

Gages.—Staff, attached to the upstream side of the right abutment of the bridge; read twice daily, August 23, 1909, to August 19, 1912. An automatic gage is set over a well just behind the center pier of the bridge. The automatic gage is sheltered by a wooden house 5 feet square over a timber well about 3 feet square. A staff gage on the outside of the gage well serves as a check on the automatic gage. The automatic gage and the original staff gage have the same datum and read the same at low stages. At high stages a perceptible slope in the river causes the automatic gage heights to read slightly lower than observations on the original staff.

Discharge measurements.—Made from the bridge during high stages and by wading near the bridge at low stages.

Winter flow.—Affected by ice.

Artificial control.—Mills above the station cause a very decided diurnal fluctuation in the discharge at this point. For this reason it is not advisable to attempt to estimate the daily discharge from semidaily gage readings at present. Therefore the gage reader's observations prior to the installation of the automatic gage are being published together with the flow corresponding to each.

Accuracy.—A good rating curve has been developed for this station, and estimates based on continuous records of gage height are good.

Discharge measurements of Quaboag River at West Brimfield in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Feb. 9[a]	McMillan and Canfield	3.59	97.4
Aug. 19	G. H. Canfield	1.62	11.8
26	do	1.92	42.3
26	do	2.39	142
Nov. 15	C. S. DeGolyer	2.40	157
16	do	2.53	177

[a] Measurement made under complete ice cover.

NOTE.—Measurements made by wading at various sections except as noted. Beginning Aug. 26, gage heights refer to new hook gage.

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912.

[Mrs. W. E. Holland, observer.]

Day.	January.						February.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.45	2.0	.....	4.50	3.4	.....	.....	.....	.....	.....	.....	.....
2	8.40	3.1	.....	4.30	3.1	.....	.....	.....	.....	.....	.....	.....
3	8.30	3.1	.....	4.30	3.2	.....	.....	.....	.....	5.00	3.2	.....
4	8.40	1.55	.....	4.30	3.05	.....	.....	.....	.....	.....	.....	.....
5	8.40	1.6	.....	4.45	3.1	.....	.....	.....	.....	.....	.....	.....
6	8.30	2.1	.....	4.45	3.5	.....	.....	.....	.....	3.30	2.52	.....
7	9.00	4.48	.....	4.45	4.4	.....	.....	.....	.....	.....	.....	.....
8	8.30	4.28	.....	4.30	3.8	.....	.....	.....	.....	.....	.....	.....
9	8.00	3.1	.....	4.35	3.4	.....	.....	.....	.....	.....	.....	.....
10	8.40	4.0	.....	5.05	3.7	.....	.....	.....	.....	5.15	2.7	.....
11	8.30	4.0	.....	4.50	3.3	.....	.....	.....	.....	.....	.....	.....
12	9.00	4.08	.....	4.45	3.62	.....	.....	.....	.....	.....	.....	.....
13	8.30	4.1	.....	4.40	3.65	.....	.....	.....	.....	.....	.....	.....
14	8.00	4.05	.....	.....	.....	.....	.....	.....	.....	.30	2.9	.....
15	.....	.....	.....	4.45	3.6	.....	.....	.....	.....	.....	.....	.....
16	8.00	3.2	.....	4.45	3.05	.....	.....	.....	.....	.....	.....	.....
17	8.00	3.3	.....	5.00	2.9	.....	.....	.....	.....	.....	.....	.....
18	8.30	3.4	.....	.....	.....	.....	10.30	2.9	.....	.....	.....	.....
19	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.30	3.0	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	2.6	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.00	2.9	.....
22	7.30	5.92	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	.....	8.00	2.5	.....	.....	.....	.....
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	3.2	.....
25	.....	.....	.....	.....	.....	.....	8.30	3.1	.....	.....	.....	.....
26	.....	.....	.....	5.00	3.62	.....	.....	.....	.....	4.30	3.0	.....
27	.....	.....	.....	.....	.....	.....	11.30	3.0	.....	.....	.....	.....
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	5.1	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	.....	.....	.....	5.00	3.3	.....	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	March.						April.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.15	4.9	1,660	.....	.....	.....	9.00	3.08	371	6.00	3.0	335
2	.....	.....	.....	5.00	4.62	1,410	8.30	3.03	348	5.30	2.8	252
3	8.15	4.52	1,320	5.15	4.55	1,340	8.00	2.8	252	5.00	2.8	252
4	9.15	4.45	1,260	5.30	4.45	1,260	9.10	2.95	313	5.15	2.78	245
5	8.30	4.35	1,180	5.00	4.3	1,140	8.30	3.1	380	6.00	2.7	217
6	9.20	4.2	1,060	.....	4.17	1,040	8.30	3.1	380	6.00	2.7	217
7	8.30	4.38	1,200	5.00	4.35	1,180	8.15	3.1	380	6.00	2.6	185
8	8.00	4.3	1,140	5.30	4.23	1,080	7.25	2.58	179	4.00	2.74	231
9	8.30	4.2	1,060	5.00	4.15	1,020	8.30	2.8	252	6.00	2.6	185
10	9.00	4.05	945	5.30	3.98	896	8.00	2.4	131	5.30	2.4	131
11	9.00	3.95	875	5.15	3.88	726	8.50	2.78	245	6.00	2.6	185
12	8.00	3.85	805	4.45	3.8	770	9.00	3.0	335	6.00	2.85	272
13	8.00	3.6	645	4.50	3.6	645	9.00	3.04	353	6.15	2.7	217
14	8.30	3.7	705	5.10	3.48	574	8.15	3.0	335	4.45	2.65	201
15	8.10	3.5	585	5.15	3.38	520	8.00	2.88	283	5.00	2.6	185
16	8.45	3.4	530	5.15	3.4	530	8.00	2.78	245	6.15	2.5	156
17	8.40	3.3	480	5.20	3.5	585	8.00	2.5	156	5.00	2.8	252
18	8.45	3.4	530	5.10	3.3	480	8.45	2.9	291	3.4	2.62	191
19	8.30	3.3	480	5.20	3.13	395	9.00	2.85	272	6.00	2.9	291
20	8.00	3.1	380	4.30	3.1	380	9.00	3.2	430	5.15	2.84	268
21	9.15	3.25	455	5.00	3.2	430	6.15	2.78	245	5.30	2.78	245
22	9.15	3.28	470	5.10	3.08	371	9.00	2.98	326	5.30	2.7	217
23	8.00	3.0	335	4.30	3.10	380	9.00	3.0	335	5.45	2.68	211
24	9.00	3.14	400	6.00	3.04	353	.....	.....	.....	5.00	2.62	191
25	8.45	3.12	390	5.15	3.0	335	9.00	3.0	335	4.45	2.6	185
26	9.00	3.12	390	4.45	2.9	291	8.45	3.0	335	6.00	2.98	326
27	8.00	2.96	417	4.30	2.96	317	9.00	3.2	430	6.00	3.1	380
28	8.00	3.10	380	5.15	2.98	326	9.00	3.12	390	6.10	2.9	291
29	8.45	3.12	390	5.35	2.90	291	9.00	3.3	480	6.00	2.6	185
30	9.00	3.08	371	5.00	3.0	335	8.45	3.1	380	5.30	2.7	217
31	9.00	3.10	380	6.10	2.95	313	.....	.....	.....	.....	.....	.....

Day.	May.						June.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	3.1	380	4.00	2.85	272	8.30	3.0	335	4.30	2.5	156
2	9.15	3.2	430	5.30	2.7	217	8.30	2.9	291	5.10	2.52	162
3	8.45	3.03	348	6.00	2.74	231	8.45	2.8	252	5.15	2.4	131
4	8.45	3.0	335	5.45	2.7	217	8.30	3.0	335	5.00	1.65	14
5	9.00	3.0	335	5.30	2.78	245	8.15	2.2	89	4.15	2.3	109
6	9.15	3.1	380	5.45	2.73	228	8.20	2.42	136	4.45	2.52	162
7	6.45	2.7	217	6.00	2.6	185	8.20	2.9	291	4.45	2.5	156
8	8.30	2.6	185	5.45	2.6	185	8.00	2.35	120	4.45	2.5	156
9	9.15	2.88	283	6.00	2.8	252	7.45	2.32	113	4.00	2.52	162
10	8.45	2.9	291	5.00	2.65	201	8.00	2.35	120	4.15	2.52	162
11	9.00	2.85	272	5.20	2.67	207	8.20	2.65	201	4.00	2.6	185
12	8.30	2.9	291	5.30	2.7	217	8.00	2.6	185	4.30	2.65	201
13	8.30	3.0	335	5.17	2.65	201	9.00	3.03	348	4.15	2.6	185
14	9.00	2.88	283	5.30	2.5	156	8.40	2.68	211	4.30	2.58	179
15	8.45	2.55	170	4.30	2.6	185	8.35	2.68	211	4.00	2.65	201
16	8.45	2.9	291	5.00	2.6	185	8.45	3.2	430	4.30	2.7	217
17	8.45	2.98	326	5.00	2.68	211	8.00	2.68	211	5.00	3.08	371
18	8.50	2.9	291	2.35	2.2	89	8.10	2.65	201	4.30	2.38	127
19	.....	.....	.....	4.45	2.58	179	8.00	2.4	131	5.00	2.45	144
20	9.00	2.93	304	7.30	2.5	156	8.10	2.52	162	5.30	2.45	144
21	10.30	2.65	201	6.45	2.55	170	8.20	2.85	272	6.30	2.4	131
22	9.00	2.6	185	7.55	2.65	201	8.30	2.9	291	5.15	2.58	179
23	9.00	2.78	245	4.25	2.52	162	8.20	2.88	283	4.30	2.5	156
24	9.15	2.83	264	7.45	2.65	201	8.15	2.88	283	4.40	2.5	156
25	9.00	2.8	252	4.35	2.52	162	8.15	2.82	260	4.30	1.6	11
26	8.00	2.5	156	4.3	2.52	162	8.00	2.2	89	4.00	2.28	105
27	7.45	2.42	136	4.25	2.55	170	8.00	2.35	120	5.30	2.4	131
28	7.40	2.4	131	4.00	2.5	156	8.10	1.6	11	4.20	2.35	120
29	9.00	2.52	162	4.15	2.52	162	7.40	1.52	7	4.15	2.35	120
30	9.15	2.25	99	5.30	2.20	89	7.45	1.58	10	4.30	2.3	109
31	8.40	2.2	89	5.05	2.42	136	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	July.						August.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.05	2.15	80	4.30	2.32	113	8.30	2.35	120	5.30	2.68	211
2	8.15	2.82	260	5.30	1.65	14	9.00	2.4	131	5.40	2.6	185
3	8.15	2.0	54	4.15	2.0	54	9.00	1.68	17	5.30	2.32	113
4	8.05	2.1	71	.....	.....	.....	9.15	1.12	0	5.30	2.25	99
5	8.10	2.0	54	4.30	2.2	89	9.00	1.65	14	5.15	2.3	109
6	8.00	1.82	29	4.30	2.2	89	8.15	1.68	17	4.30	1.8	27
7	8.15	1.82	29	5.00	2.2	89	8.00	1.85	33	4.30	1.9	39
8	8.15	1.82	29	4.30	2.2	89	8.00	1.98	51	4.40	2.38	127
9	8.20	1.74	22	4.00	2.45	144	8.00	1.6	11	4.50	2.5	156
10	8.00	1.7	18	4.30	1.7	18	8.00	1.6	11	5.30	2.85	272
11	8.20	1.88	37	.....	2.3	109	8.25	1.88	37	5.30	2.3	109
12	8.15	1.8	27	5.30	2.1	71	8.20	1.92	42	5.45	2.3	109
13	10.00	2.5	156	5.40	2.5	156	8.20	1.9	39	5.00	2.3	109
14	8.00	1.6	11	5.30	2.5	156	8.00	2.0	54	4.30	2.0	54
15	8.00	1.64	14	4.30	1.75	22	9.30	2.7	217	5.00	2.3	109
16	7.50	1.68	17	4.00	1.65	14	8.30	1.7	18	5.20	2.3	109
17	8.00	1.7	18	6.00	1.9	39	8.15	1.65	14	4.30	2.3	109
18	8.00	1.9	39	6.20	2.3	109	8.15	1.62	12	5.00	2.3	109
19	8.10	1.65	14	4.40	2.28	105	8.15	1.65	14	5.10	2.3	109
20	8.40	1.65	14	4.15	2.3	109	9.30	2.4	131	5.10	1.65	14
21	8.15	1.65	14	4.30	2.35	120	8.00	1.65	14	4.00	1.7	18
22	8.15	1.68	17	4.30	2.28	105	9.00	2.3	109	5.30	2.2	89
23	8.20	1.65	14	4.30	1.65	14	8.30	1.65	14	5.15	2.25	99
24	7.45	1.8	27	4.00	1.85	33	8.20	1.62	12	5.00	2.2	89
25	8.30	1.97	50	4.30	2.35	120	8.30	1.65	14	5.30	2.0	54
26	8.40	1.7	18	5.00	2.28	105	8.15	1.6	11	5.30	2.0	54
27	8.00	1.38	2	4.40	2.3	109	8.20	1.6	11	6.00	1.5	6
28	8.40	1.68	17	4.30	2.28	105	8.00	1.65	14	5.00	1.95	46
29	8.40	1.65	14	4.40	2.25	99	8.40	2.55	170	5.00	1.6	11
30	8.00	1.58	10	4.30	1.8	27	8.45	2.5	156	5.35	1.95	46
31	8.00	2.0	54	6.00	2.12	75	8.15	1.6	11	6.00	2.0	54

Day.	September.						October.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	8.50	1.95	46	6.00	2.25	99	8.40	1.52	7.0	5.00	1.55	8.5
2	8.40	1.75	22	5.30	2.0	54	8.30	1.55	8.5	4.30	1.6	11
3	8.45	1.75	22	5.30	1.75	22	9.10	2.4	131	5.00	2.0	54
4	8.00	1.9	39	3.00	2.0	54	8.35	1.52	7.0	5.25	2.0	54
5	8.20	2.1	71	4.00	2.1	71	8.50	1.62	12	5.30	2.0	54
6	8.15	2.0	54	5.30	2.3	109	8.30	1.6	11	5.20	2.0	54
7	8.15	1.78	25	5.30	2.4	131	8.30	1.6	11	5.40	2.0	54
8	8.20	1.65	14	5.30	2.3	109	8.30	1.6	11	5.00	1.6	11
9	8.50	1.78	25	5.30	2.3	109	8.45	1.6	11	4.30	1.6	11
10	8.25	1.7	18	5.00	1.7	18	8.30	1.6	11	4.45	2.0	54
11	10.00	2.0	54	5.00	2.0	54	9.00	1.72	20	5.00	2.2	89
12	8.15	2.0	54	2.50	2.3	109	8.45	1.52	7.0	5.30	2.3	109
13	8.00	1.5	6.0	5.15	2.2	89	9.00	1.55	8.5	5.30	2.2	89
14	8.15	1.52	7.0	5.30	2.2	89	8.40	1.52	7.0	5.30	2.2	89
15	8.00	1.5	8.0	5.00	2.2	89	8.30	1.55	8.5	5.00	1.75	22
16	8.30	1.6	11	5.30	2.25	99	8.30	1.8	27	4.00	1.8	27
17	8.20	1.6	11	5.00	1.4	2.5	8.30	1.8	27	5.15	2.1	71
18	8.00	1.4	2.5	5.00	1.4	2.5	8.20	1.65	14	3.50	1.75	22
19	9.00	2.12	75	5.10	2.2	89	8.30	1.68	17	5.20	2.1	71
20	8.30	1.6	11	5.30	2.3	109	8.25	1.65	14	5.00	1.9	39
21	8.30	1.6	11	5.30	2.3	109	8.30	1.68	17	5.30	2.1	71
22	9.00	1.6	11	5.00	2.12	75	8.25	1.65	14	5.00	1.62	12
23	8.40	1.62	12	5.30	2.3	109	8.20	1.65	14	5.00	1.65	14
24	8.45	1.6	11	5.40	1.7	18	8.30	1.68	17	5.30	2.1	71
25	8.30	1.8	27	5.00	1.8	27	8.30	1.55	8.5	5.45	2.05	62
26	8.30	1.8	27	5.30	2.3	109	8.25	1.55	8.5	5.45	2.05	62
27	8.40	1.7	18	5.30	2.2	89	8.25	1.52	7.0	5.45	2.08	68
28	8.30	1.6	11	5.30	2.2	89	8.45	1.6	11	4.40	1.8	27
29	8.25	1.52	7.0	5.40	2.15	80	9.00	1.62	12	5.00	1.75	22
30	8.30	1.52	7.0	5.25	2.0	54	9.00	1.75	22	4.40	1.75	22
31	.....	.....	.....	.....	.....	.....	8.35	1.78	25	4.40	1.8	27

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	November.						December.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1910.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.10	1.65	14	5.00	2.0	54	8.30	1.65	14	3.00	2.04	61
2	8.50	1.65	14	5.00	2.0	54	8.20	1.62	12	4.30	2.0	54
3	8.50	1.68	17	4.40	2.1	71	8.30	1.65	14	5.00	1.75	22
4	8.30	1.65	14	5.00	2.1	71	8.00	1.75	22	4.20	1.75	22
5	8.50	1.65	14	4.00	1.9	39	8.40	1.8	27	4.30	1.9	39
6	8.00	1.9	39	4.00	1.95	46	8.30	1.68	17	3.30	2.2	89
7	8.40	2.0	54	4.50	2.3	109	8.40	1.65	14	4.30	2.0	54
8	8.50	1.75	22	4.40	2.35	120	8.30	1.7	18	4.40	1.95	46
9	8.30	1.53	7.5	4.30	2.38	127	8.45	1.68	17	4.00	2.2	89
10	8.30	1.58	10	5.00	2.35	120	8.30	1.65	14	4.00	1.65	14
11	8.30	1.78	25	4.30	2.35	120	8.20	1.68	17	4.30	1.7	18
12	8.40	1.75	22	4.00	1.88	37	8.30	1.75	22	3.30	2.1	71
13	8.00	1.9	39	4.00	1.9	39	.....	.....	.....	.....	.....	.....
14	8.40	1.95	46	4.45	2.3	109	.....	.....	.....	.....	.....	.....
15	8.30	1.78	25	4.40	2.35	120	.....	.....	.....	.....	.....	.....
16	8.30	1.65	14	4.25	2.3	109	.....	.....	.....	.....	.....	.....
17	8.30	1.6	11	4.40	2.3	109	.....	.....	.....	.....	.....	.....
18	8.30	1.58	10	4.35	2.28	105	.....	.....	.....	.....	.....	.....
19	8.45	1.65	14	4.40	1.65	14	.....	.....	.....	.....	.....	.....
20	9.00	1.68	17	4.00	1.68	17	.....	.....	.....	.....	.....	.....
21	9.15	2.5	156	4.20	2.2	89	8.30	1.65	.....	.....	.....	.....
22	8.40	1.68	17	4.30	2.2	89	.....	.....	.....	.....	.....	.....
23	8.30	1.65	14	4.00	2.05	62	.....	.....	.....	.....	.....	.....
24	8.30	1.58	10	4.10	2.25	99	9.10	3.3	.....	.....	.....	.....
25	9.15	2.5	156	4.30	2.2	89	.....	.....	.....	.....	.....	.....
26	9.00	1.9	39	4.00	1.65	14	.....	.....	.....	.....	.....	.....
27	8.20	1.6	11	4.15	1.6	11	.....	.....	.....	3.10	3.0	.....
28	8.30	1.65	14	4.20	2.1	71	.....	.....	.....	.....	.....	.....
29	8.20	1.65	14	4.25	2.12	75	.....	.....	.....	.....	.....	.....
30	8.40	1.65	14	4.25	2.12	75	.....	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.30	3.5	.....

Day.	January.						February.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	9.30	3.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00	3.3	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	9.30	3.7	.....	.....	.....	.....	8.45	3.2	.....	.....	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	9.25	2.8	.....	.....	.....	.....	.....	.....	.....	4.00	3.4	.....
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	.....	.....	.....	4.15	2.3	.....	.....	.....	.....	.....	.....	.....
15	.....	.....	.....	.....	.....	.....	11.30	3.0	.....	.....	.....	.....
16	9.00	3.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	2.3	.....
19	.....	.....	.....	5.00	3.3	.....	.....	.....	.....	.....	.....	.....
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	.....	.....	.....	.....	.....	.....	11.30	2.4	.....	.....	.....	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	.....	.....	.....	3.00	3.5	.....	.....	.....	.....	.....	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.00	2.35	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	.....	.....	.....	5.00	2.2	.....	.....	.....	.....	.....	.....	.....
29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	9.00	3.1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	March.			April.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	.....	.....	.....	4.00	2.4	.....
2	.....	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....
4	9.10	2.8	.....	.....	.....	.....
5	.....	.....	.....	.....	.....	.....
6	9.00	3.0	.....	.....	.....	.....
7	.....	.....	.....	.....	.....	.....
8	.....	.....	.....	.....	.....	.....
9	.....	.....	.....	.....	.....	.....
10	.....	.....	.....	.....	.....	.....
11	.....	.....	.....	4.30	2.4	.....
12	.....	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....	.....
14	9.00	3.0	.....	.....	.....	.....
15	.....	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....
17	.....	.....	.....	2.10	4.0	.....
18	.....	.....	.....	.....	.....	.....
19	.....	.....	.....	.....	.....	.....
20	.....	.....	.....	.....	.....	.....
21	9.00	3.28	.....	.....	.....	.....
22	.....	.....	.....	.....	.....	.....
23	.....	.....	.....	.....	.....	.....
24	.....	.....	.....	.....	.....	.....
25	.....	.....	.....	3.00	2.78	.....
26	.....	.....	.....	.....	.....	.....
27	.....	.....	.....	.....	.....	.....
28	11.00	3.3	.....	.....	.....	.....
29	.....	.....	.....	.....	.....	.....
30	.....	.....	.....	.....	.....	.....
31	8.35	3.25	.....	.....	.....	.....

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	2.8	252	4.50	2.75	234
2	8.45	2.78	245	5.00	2.72	224
3	9.00	2.8	252	4.45	2.7	217
4	9.10	2.8	252	6.00	2.75	234
5	9.00	2.7	217	5.30	2.6	185
6	8.50	2.65	201	5.00	2.5	156
7	10.00	2.5	156	4.50	2.55	170
8	8.30	2.55	170	5.00	2.6	185
9	9.10	2.65	201	5.00	2.48	151
10	10.00	2.68	211	6.00	2.4	131
11	9.00	2.7	217	6.00	2.4	131
12	9.00	2.68	211	5.15	2.4	131
13	8.55	2.65	201	4.50	2.2	89
14	9.00	2.28	105	4.00	2.3	109
15	9.40	2.6	185	4.40	2.25	99
16	9.00	2.53	165	4.50	2.28	105
17	8.40	2.6	185	4.00	2.28	105
18	9.00	2.58	179	5.00	2.3	109
19	8.40	2.65	201	4.40	2.3	109
20	9.00	2.7	217	4.00	1.88	37
21	9.00	1.92	42	4.55	2.6	185
22	8.30	2.7	217	5.00	2.48	151
23	9.00	2.78	245	4.40	2.45	144
24	8.45	2.7	217	4.45	2.4	131
25	8.50	2.68	211	4.50	2.4	131
26	9.10	2.75	234	5.00	2.42	136
27	8.30	2.7	217	5.00	2.18	85
28	8.30	2.2	89	4.50	2.28	105
29	9.00	1.9	39	4.30	2.15	80
30	8.50	1.92	42	4.00	2.2	89
31	8.40	1.8	27	4.40	2.15	80

Day.	April.			May.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	3.3	480	5.00	2.85	272
2	8.45	2.85	272	4.00	2.9	291
3	9.00	3.2	430	4.40	3.2	430
4	9.00	3.4	530	4.50	3.25	455
5	9.00	3.52	597	5.00	3.3	480
6	8.40	3.48	574	5.00	3.3	480
7	9.00	3.5	585	5.10	3.28	470
8	9.10	3.5	585	4.30	2.8	252
9	9.00	2.85	272	5.00	2.85	272
10	8.45	3.12	390	5.00	3.28	470
11	8.00	3.07	366	5.00	3.25	455
12	9.00	3.2	430	4.40	3.25	455
13	8.45	3.3	480	4.30	3.28	470
14	9.00	3.3	480	5.00	3.25	455
15	9.00	3.3	480	5.00	3.0	335
16	8.45	3.0	335	4.45	3.02	344
17	9.00	3.1	380	5.50	3.0	335
18	8.50	3.1	380	4.00	3.1	380
19	8.45	3.05	358	5.35	2.95	313
20	9.00	3.3	480	5.15	3.0	335
21	9.00	3.5	585	5.30	3.1	380
22	8.30	3.28	470	6.00	2.9	291
23	9.30	2.9	291	4.00	2.95	313
24	9.00	3.3	480	4.00	3.1	380
25	9.10	3.3	480	4.50	3.0	335
26	9.00	3.12	390	5.00	3.0	335
27	8.30	2.75	234	5.00	3.0	335
28	8.40	2.75	234	4.50	3.0	335
29	9.00	2.75	234	5.00	2.7	217
30	8.00	2.75	234	3.30	2.78	245
31	.....	.....	.....	.....	.....	.....

Day.	June.		
	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*
1	9.00	1.8	27
2	8.45	1.75	22
3	8.40	1.7	18
4	9.00	1.68	17
5	8.55	1.7	18
6	8.45	1.8	27
7	8.40	1.78	25
8	8.45	1.8	27
9	8.35	1.8	27
10	8.30	1.82	29
11	9.30	2.5	156
12	9.00	1.85	33
13	9.15	1.78	25
14	9.00	1.75	22
15	8.50	1.75	22
16	9.00	1.72	20
17	8.50	1.72	20
18	8.30	1.7	18
19	9.00	2.0	54
20	8.40	1.72	20
21	8.50	1.7	18
22	8.50	1.7	18
23	9.00	1.68	17
24	8.55	1.72	20
25	9.10	1.78	25
26	8.40	1.72	20
27	8.45	1.75	22
28	9.00	1.75	22
29	9.10	1.7	18
30	9.00	1.68	17
31	.....	.....	.....

Day.	April.			May.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	3.3	480	5.00	2.85	272
2	8.45	2.85	272	4.00	2.9	291
3	9.00	3.2	430	4.40	3.2	430
4	9.00	3.4	530	4.50	3.25	455
5	9.00	3.52	597	5.00	3.3	480
6	8.40	3.48	574	5.00	3.3	480
7	9.00	3.5	585	5.10	3.28	470
8	9.10	3.5	585	4.30	2.8	252
9	9.00	2.85	272	5.00	2.85	272
10	8.45	3.12	390	5.00	3.28	470
11	8.00	3.07	366	5.00	3.25	455
12	9.00	3.2	430	4.40	3.25	455
13	8.45	3.3	480	4.30	3.28	470
14	9.00	3.3	480	5.00	3.25	455
15	9.00	3.3	480	5.00	3.0	335
16	8.45	3.0	335	4.45	3.02	344
17	9.00	3.1	380	5.50	3.0	335
18	8.50	3.1	380	4.00	3.1	380
19	8.45	3.05	358	5.35	2.95	313
20	9.00	3.3	480	5.15	3.0	335
21	9.00	3.5	585	5.30	3.1	380
22	8.30	3.28	470	6.00	2.9	291
23	9.30	2.9	291	4.00	2.95	313
24	9.00	3.3	480	4.00	3.1	380
25	9.10	3.3	480	4.50	3.0	335
26	9.00	3.12	390	5.00	3.0	335
27	8.30	2.75	234	5.00	3.0	335
28	8.40	2.75	234	4.50	3.0	335
29	9.00	2.75	234	5.00	2.7	217
30	8.00	2.75	234	3.30	2.78	245
31	.....	.....	.....	.....	.....	.....

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	2.8	252	4.50	2.75	234
2	8.45	2.78	245	5.00	2.72	224
3	9.00	2.8	252	4.45	2.7	217
4	9.10	2.8	252	6.00	2.75	234
5	9.00	2.7	217	5.30	2.6	185
6	8.50	2.65	201	5.00	2.5	156
7	10.00	2.5	156	4.50	2.55	170
8	8.30	2.55	170	5.00	2.6	185
9	9.10	2.65	201	5.00	2.48	151
10	10.00	2.68	211	6.00	2.4	131
11	9.00	2.7	217	6.00	2.4	131
12	9.00	2.68	211	5.15	2.4	131
13	8.55	2.65	201	4.50	2.2	89
14	9.00	2.28	105	4.00	2.3	109
15	9.40	2.6	185	4.40	2.25	99
16	9.00	2.53	165	4.50	2.28	105
17	8.40	2.6	185	4.00	2.28	105
18	9.00	2.58	179	5.00	2.3	109
19	8.40	2.65	201	4.40	2.3	109
20	9.00	2.7	217	4.00	1.88	37
21	9.00	1.92	42	4.55	2.6	185
22	8.30	2.7	217	5.00	2.48	151
23	9.00	2.78	245	4.40	2.45	144
24	8.45	2.7	217	4.45	2.4	131
25	8.50	2.68	211	4.50	2.4	131
26	9.10	2.75	234	5.00	2.42	136
27	8.30	2.7	217	5.00	2.18	85
28	8.30	2.2	89	4.50	2.28	105
29	9.00	1.9	39	4.30	2.15	80
30	8.50	1.92	42	4.00	2.2	89
31	8.40	1.8	27	4.40	2.15	80

Day.	June.			July.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	1.8	27	4.00	2.0	54
2	8.45	1.75	22	4.30	1.95	46
3	8.40	1.7	18	6.30	1.9	39
4	9.00	1.68	17	5.00	1.95	46
5	8.55	1.7	18	4.00	2.12	75
6	8.45	1.8	27	5.00	2.3	109
7	8.40	1.78	25	5.00	2.28	105
8	8.45	1.8	27	5.40	2.3	109
9	8.35	1.8	27	5.00	2.28	105
10	8.30	1.82	29	5.00	2.4	131
11	9.30	2.5	156	6.30	2.0	54
12	9.00	1.85	33	5.00	2.3	109
13	9.15	1.78	25	4.50	2.25	99
14	9.00	1.75	22	6.00	2.3	109
15	8.50	1.75	22	5.50	2.3	109
16	9.00	1.72	20	5.00	2.25	99
17	8.50	1.72	20	4.00	1.65	14
18	8.30	1.7	18	5.00	1.95	46
19	9.00	2.0	54	5.15	2.2	89
20	8.40	1.72	20	5.00	2.3	109
21	8.50	1.7	18	4.50	2.28	105
22	8.50	1.7	18	4.10	2.3	109
23	9.00	1.68	17	5.15	2.25	99
24	8.55	1.72	20	4.10	1.75	22
25	9.10	1.78	25	4.00	1.82	29
26	8.40	1.72	20	4.40	1.8	27
27	8.45	1.75	22	4.10	2.3	109
28	9.00	1.75	22	4.15	2.3	109
29	9.10	1.7	18	4.15	2.28	105
30	9.00	1.68	17	4.30	2.3	109
31	.....	.....	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	July.			August.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	1.7	18	12.40	2.25	99	9.00	1.6	11	5.00	1.98	51
2	9.40	1.78	25	6.00	1.8	27	8.45	1.65	14	5.00	1.95	46
3	9.15	1.8	27	4.40	2.3	109	8.45	1.6	11	4.50	1.95	46
4	9.00	1.8	27	5.00	1.8	27	8.50	1.62	12	5.10	2.0	54
5	9.10	1.78	25	4.40	2.28	105	8.45	1.6	11	5.30	1.65	14
6	9.00	1.78	25	5.10	2.28	105	9.00	1.65	14	4.00	1.7	18
7	8.40	1.8	27	5.00	2.3	109	10.00	1.9	39	5.00	2.25	99
8	9.00	1.78	25	4.50	1.75	22	9.00	1.6	11	4.40	2.25	99
9	9.00	1.5	6.0	3.00	1.5	6.0	9.00	1.58	10	4.00	2.3	109
10	8.40	1.6	11	5.00	2.4	131	8.45	1.55	8.5	5.00	2.3	109
11	8.45	1.64	14	6.00	2.4	131	8.50	1.5	6.0	5.10	2.28	105
12	8.40	1.6	11	6.00	2.4	131	9.00	1.52	7.0	5.00	1.5	6.0
13	9.00	1.58	10	4.00	2.38	127	9.00	1.55	8.5	4.00	1.55	8.5
14	9.10	1.6	11	6.00	2.4	131	9.10	1.58	10	5.30	2.2	89
15	8.40	1.55	8.5	5.00	1.5	6.0	9.00	1.5	6.0	.....	.....	.....
16	9.00	1.53	7.5	4.00	1.55	8.5	9.00	1.52	7.0	6.30	2.25	99
17	8.40	1.55	8.5	5.00	1.85	33	8.45	1.5	6.0	5.00	2.25	99
18	9.00	1.58	10	5.00	1.8	27	8.30	1.5	6.0	4.40	2.28	105
19	11.00	2.0	54	4.45	1.8	27	9.00	1.55	8.5	4.00	1.5	6.0
20	8.45	1.55	8.5	5.00	1.85	33	9.15	1.55	8.5	4.00	1.58	10
21	9.00	1.55	8.5	4.50	1.85	33	9.00	1.58	10	4.00	2.0	54
22	9.00	1.5	6.0	4.00	1.6	11	9.00	1.5	6.0	5.00	2.05	62
23	9.10	1.6	11	4.40	1.65	14	8.45	1.52	7.0	4.50	2.0	54
24	9.00	1.68	17	5.00	1.85	33	8.50	1.5	6.0	5.00	1.98	51
25	9.00	1.72	20	5.00	1.9	39	8.45	1.55	8.5	5.15	2.0	54
26	8.45	1.7	18	4.45	1.98	51	9.00	1.52	7.0	4.00	1.58	10
27	8.50	1.7	18	5.00	1.95	46	9.00	1.55	8.5	4.10	1.58	10
28	9.00	1.65	14	5.10	2.0	54	8.40	1.6	11	5.00	2.0	54
29	8.45	1.55	8.5	4.00	1.6	11	8.40	1.88	37	5.00	2.3	109
30	9.00	1.68	17	6.10	2.2	89	9.00	1.9	39	4.45	2.3	109
31	9.10	1.65	14	6.00	2.2	89	8.45	2.0	54	5.00	2.25	99

Day.	September.			October.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	2.12	75	4.00	2.32	113	10.00	2.35	120	4.50	2.4	131
2	8.35	2.1	71	5.10	2.1	71	9.00	2.45	144	5.00	2.42	136
3	9.30	2.1	71	5.00	2.12	75	9.10	2.6	185	5.00	2.5	156
4	8.30	2.2	89	4.50	2.4	131	9.00	2.58	179	4.40	2.5	156
5	9.00	2.0	54	5.30	2.4	131	9.00	2.55	170	5.30	2.52	162
6	8.40	1.95	46	5.00	2.42	136	8.55	2.55	170	5.00	2.5	156
7	9.10	1.98	51	6.00	2.45	144	9.00	2.6	185	4.30	2.28	105
8	9.00	2.0	54	5.10	2.3	109	9.30	2.3	109	6.00	2.3	109
9	9.00	1.9	39	4.30	1.9	39	9.00	2.35	120	5.00	2.3	109
10	8.35	1.95	46	5.40	1.98	51	9.10	2.6	185	5.00	2.3	109
11	8.50	2.0	54	6.00	2.25	99	8.40	2.55	170	4.50	2.32	113
12	9.00	1.9	39	5.00	2.3	109	9.00	2.53	165	4.35	2.28	105
13	9.00	2.4	131	5.10	2.32	113	9.30	2.6	185	4.00	2.3	109
14	9.00	2.6	185	5.00	2.3	109	9.00	2.58	179	4.90	2.3	109
15	9.00	2.6	185	4.50	2.3	109	9.00	2.38	127	4.00	2.4	131
16	8.45	2.6	185	5.10	2.5	156	8.50	2.98	326	4.10	2.3	109
17	8.50	2.5	156	4.00	2.55	170	9.00	3.0	335	4.00	2.4	131
18	9.00	2.6	185	4.00	2.5	156	9.10	3.03	348	5.00	2.45	144
19	9.10	2.4	131	4.30	2.3	109	8.50	3.0	335	4.50	2.6	185
20	9.15	2.4	131	4.50	2.25	99	8.45	3.1	380	5.10	2.62	191
21	9.00	2.3	109	4.30	2.3	109	9.00	3.05	358	5.00	2.7	217
22	8.40	1.75	22	5.00	2.32	113	8.55	2.7	217	4.00	2.75	234
23	8.30	1.72	20	5.00	1.8	27	9.00	2.8	252	4.10	2.7	217
24	9.30	1.88	37	4.50	1.9	39	9.00	3.05	358	5.10	2.7	217
25	9.10	2.5	156	5.30	2.4	131	8.50	3.0	335	5.00	2.68	211
26	8.40	1.82	29	5.00	2.38	127	8.45	3.0	335	4.30	2.65	201
27	8.45	1.8	27	5.00	2.3	109	9.00	3.02	344	4.30	2.65	201
28	9.00	1.85	33	5.10	2.32	113	9.00	2.95	313	5.00	2.7	217
29	9.00	1.88	37	5.00	2.4	131	10.00	2.75	234	4.10	2.73	228
30	8.50	1.9	39	4.40	1.92	42	9.00	2.75	234	5.30	2.6	185
31	.....	.....	.....	.....	.....	.....	9.00	2.7	217	5.15	2.62	191

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	November.			December.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1911.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	2.68	211	4.50	2.55	170
2	8.50	2.65	201	4.45	2.52	162
3	9.00	2.6	185	5.00	2.5	156
4	8.50	2.6	185	4.30	2.3	109
5	10.00	2.6	185	5.00	2.65	201
6	9.00	2.68	211	4.50	2.6	185
7	8.55	2.63	195	3.30	2.68	211
8	8.10	2.6	185	5.30	2.65	201
9	8.45	2.62	191	5.00	2.67	207
10	8.30	2.6	185	4.50	2.65	201
11	9.00	2.58	179	5.00	2.3	109
12	10.00	2.35	120	3.00	2.38	127
13	10.00	2.58	179	5.00	2.62	191
14	8.10	2.6	185	4.50	2.68	211
15	9.00	2.65	201	4.35	2.65	201
16	8.50	2.6	185	5.00	2.65	201
17	8.40	2.68	211	5.00	2.7	217
18	8.55	2.72	224	4.30	2.68	211
19	9.00	2.68	211	4.25	2.68	211
20	8.50	2.7	217	4.40	2.7	217
21	9.00	2.7	217	4.00	2.72	224
22	10.00	3.0	335	4.00	2.80	252
23	9.45	3.08	371	4.40	2.78	245
24	9.00	2.9	291	4.10	2.82	260
25	9.00	2.95	313	4.00	3.0	335
26	10.00	3.0	335	3.30	3.05	358
27	9.00	3.0	335	5.00	3.00	335
28	8.50	2.98	326	4.50	3.12	390
29	8.50	2.95	313	5.00	3.05	358
30	8.55	3.0	335	5.10	3.10	380
31						

Day.	January.			March.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	3.1	380	4.30	3.12	390
2	9.00	3.1	380	4.10	3.2	430
3	8.30	3.5	585	4.15	3.2	430
4	9.30	3.5	585	5.00	3.25	455
5	8.40	3.8	770	5.00	3.38	520
6	9.10	4.0	910	4.00	3.4	530
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

Day.	March.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13				4.20	6.2	
14	9.10	5.5	2,250	3.50	5.3	2,050
15	9.00	5.2	1,950			
16	8.00	4.35	1,180	4.00	4.3	1,140
17	9.00	4.3	1,140	4.30	4.28	1,120
18	9.30	4.25	1,100	4.00	4.2	1,060
19	9.00	4.2	1,060	3.45	4.1	980
20	8.30	4.0	910	4.00	3.9	840
21	9.15	3.9	840	4.30	3.8	770
22	9.00	3.7	705	5.00	3.7	705
23	8.55	3.65	675	4.00	3.62	657
24	9.00	3.6	645	4.10	3.6	645
25	9.45	3.6	645	4.30	3.6	645
26	9.00	3.55	615	5.00	3.5	585
27	9.30	3.5	585	5.10	3.5	585
28	8.50	3.5	585	4.45	3.53	603
29	9.00	4.0	910	5.50	4.2	1,060
30	8.50	4.1	980	5.00	4.0	910
31	10.00	4.0	910	4.30	4.0	910

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	April.			May.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	4.0	910	4.50	4.0	910
2	8.40	4.0	910	5.00	4.0	910
3	8.50	4.0	910	4.10	4.0	910
4	9.00	4.0	910	4.30	4.0	910
5	9.30	4.0	910	5.00	4.0	910
6	8.30	4.0	910	4.50	3.95	875
7	10.00	3.95	875	5.00	3.95	875
8	9.00	3.92	854	4.40	3.9	840
9	8.45	3.9	840	5.00	3.9	840
10	9.30	3.9	840	4.10	3.92	854
11	9.00	3.92	854	5.00	3.9	840
12	10.00	3.88	826	5.30	3.85	805
13	9.00	3.8	770	5.00	3.8	770
14	9.10	3.78	757	5.00	3.75	738
15	8.40	3.7	705	4.35	3.7	705
16	9.00	3.65	675	4.50	3.65	675
17	9.00	3.7	705	4.10	3.7	705
18	9.10	3.75	738	5.10	3.75	738
19	9.30	3.8	770	5.40	3.88	826
20	10.00	3.85	805	4.50	3.85	805
21	9.00	3.8	770	4.00	3.8	770
22	9.10	3.8	770	4.10	3.78	757
23	9.00	3.75	738	5.50	3.75	738
24	8.40	3.75	738	6.00	3.7	705
25	8.55	3.68	693	5.00	3.65	675
26	9.00	3.6	645	5.10	3.55	615
27	9.00	3.45	558	5.00	3.35	505
28	10.00	3.35	505	5.50	3.35	505
29	8.30	3.35	505	5.10	3.35	505
30	9.30	3.32	490	5.30	3.32	490
31	9.00	3.3	480	6.00	3.3	480

Day.	May.			June.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.10	3.28	470	6.30	3.25	455
2	9.00	3.25	455	6.00	3.22	440
3	8.50	3.22	440	5.00	3.2	430
4	10.00	3.2	430	6.10	3.2	430
5	9.00	3.22	440	6.00	3.2	430
6	8.50	3.22	440	6.30	3.2	430
7	8.00	3.2	430	5.50	3.2	430
8	8.30	3.2	430	5.30	3.18	420
9	8.30	3.18	420	6.15	3.15	405
10	8.45	3.18	420	6.30	3.18	420
11	9.10	3.2	430	5.30	3.1	380
12	10.00	3.15	405	5.30	3.15	405
13	8.30	3.2	430	5.00	3.2	430
14	8.30	3.18	420	6.00	3.2	430
15	8.45	3.2	430	6.10	3.2	430
16	9.00	3.18	420	6.00	3.18	420
17	8.00	3.25	455	5.00	3.22	440
18	9.00	3.2	430	4.50	3.2	430
19	9.00	3.2	430	6.00	3.2	430
20	8.30	3.22	440	5.55	3.2	430
21	8.50	3.18	420	6.00	3.15	405
22	8.30	3.2	430	6.10	3.2	430
23	9.00	3.2	430	5.00	3.22	440
24	8.00	3.2	430	.....	.....	.....
25	8.30	3.25	455	6.00	3.1	380
26	9.00	3.1	380	5.30	3.15	405
27	9.30	3.25	455	5.50	3.2	430
28	8.30	3.15	405	6.00	3.15	405
29	8.50	3.15	405	5.30	3.1	380
30	9.00	3.12	390	4.50	3.1	380
31	9.00	3.1	380	5.00	3.1	380

Day.	June.			July.		
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*	*p. m.*	*Feet.*	*Sec.-ft.*
1	9.00	3.1	380	5.30	3.1	380
2	9.00	3.15	405	5.00	3.08	371
3	9.30	3.2	430	4.30	3.0	335
4	8.00	3.1	380	4.40	3.0	335
5	7.45	2.88	283	6.30	2.9	291
6	8.30	3.2	430	6.45	2.7	217
7	8.15	2.8	252	6.20	2.78	245
8	10.00	2.9	291	6.45	2.6	185
9	10.15	2.6	185	6.45	2.7	217
10	9.00	3.05	358	6.30	2.6	185
11	9.00	3.05	358	4.15	2.5	156
12	8.45	3.0	335	4.00	2.75	234
13	9.00	2.85	272	5.00	2.6	185
14	9.15	2.85	272	6.00	2.4	131
15	9.00	2.88	283	6.00	2.2	89
16	10.00	2.3	109	6.00	2.38	127
17	8.30	2.58	179	5.30	2.6	185
18	8.25	1.8	27	7.35	2.58	179
19	9.00	1.78	25	6.00	2.4	131
20	8.45	1.88	37	7.10	2.5	156
21	9.00	1.8	27	6.00	2.5	156
22	9.20	1.85	33	6.30	2.0	54
23	10.00	2.1	71	4.00	2.2	89
24	10.00	2.5	156	5.30	2.4	131
25	8.30	1.8	27	7.10	2.4	131
26	8.45	1.85	33	6.00	2.4	131
27	8.30	1.8	27	5.50	2.4	131
28	9.00	1.82	29	6.20	2.4	131
29	10.00	1.8	27	7.00	1.9	39
30	9.00	1.9	39	3.30	1.88	37
31	.....	.....	.....	.....	.....	.....

Day.	July.		
	Time.	Gage height.	Discharge.
1912.	*a. m.*	*Feet.*	*Sec.-ft.*
1	7.00	1.9	39
2	7.00	1.8	27
3	7.05	1.8	27
4	7.30	1.8	27
5	7.00	1.9	39
6	7.05	1.7	18
7	9.00	1.75	22
8	7.05	1.7	18
9	9.05	1.75	22
10	8.00	1.7	18
11	8.30	1.7	18
12	9.00	1.7	18
13	8.30	1.5	6
14	8.20	1.8	27
15	9.00	1.8	27
16	7.00	1.8	27
17	7.05	1.7	18
18	7.00	1.65	14
19	7.15	1.7	18
20	9.00	1.65	14
21	9.00	1.7	18
22	9.10	1.65	14
23	8.45	1.65	14
24	8.55	1.65	14
25	9.10	1.6	11
26	8.50	1.62	12
27	9.15	1.65	14
28	10.00	2.42	136
29	9.00	1.6	11
30	9.25	1.62	12
31	9.35	1.62	12

Day.	July.		
	Time.	Gage height.	Discharge.
1912.	*p. m.*	*Feet.*	*Sec.-ft.*
1	6.30	2.7	217
2	5.30	2.3	109
3	5.25	2.4	131
4	7.15	2.55	170
5	5.35	2.35	120
6	6.00	1.7	18
7	7.30	1.55	8
8	7.20	2.4	131
9	5.20	2.15	80
10	6.00	2.2	89
11	5.30	2.3	109
12	5.55	2.1	71
13	4.10	1.85	33
14	7.00	1.7	18
15	6.45	2.2	89
16	6.30	2.3	109
17	6.00	2.35	120
18	6.15	2.4	131
19	5.30	2.2	89
20	6.10	1.8	27
21	6.30	1.65	14
22	6.00	2.38	127
23	6.15	2.4	131
24	6.30	2.38	127
25	6.10	2.35	120
26	5.50	2.4	131
27	6.00	2.38	127
28	6.10	2.5	156
29	6.20	2.35	120
30	7.00	2.32	113
31	6.55	2.3	109

Gage height, in feet, and discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1910–1912—Continued.

Day.	August.						Day.	August.					
	Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.		Time.	Gage height.	Discharge.	Time.	Gage height.	Discharge.
1912.	*a.m.*	*Feet.*	*Sec.-ft.*	*p.m.*	*Feet.*	*Sec.-ft.*	1912.	*a.m.*	*Feet.*	*Sec.-ft.*	*p.m.*	*Feet.*	*Sec.-ft.*
1	9.00	1.6	11	6.00	2.3	109	16	9.00	1.62	12	6.00	2.3	109
2	8.45	1.62	12	6.10	2.3	109	17	9.30	1.62	12	6.15	1.85	33
3	9.10	1.6	11	6.30	1.98	51	18	10.00	1.95	46	4.30	2.03	59
4	9.15	2.1	71	6.40	2.28	105	19	9.00	2.03	59	6.00	2.3	109
5	9.15	2.3	109	5.30	2.32	113	20	9.00	1.62	12	6.10	2.3	109
6	9.00	1.62	12	6.00	2.3	109	21	9.00	1.62	12	5.50	2.32	113
7	9.00	1.65	14	6.10	2.3	109	22	8.50	1.62	12	6.00	2.4	131
8	8.45	1.6	11	6.55	2.32	113	23	9.20	1.6	11	5.00	2.32	113
9	9.20	1.68	17	6.10	2.3	109	24	9.45	1.7	18	5.50	1.7	18
10	9.00	1.68	17	6.00	1.8	27	25	.....	.....	.....	6.00	2.0	54
11	10.30	1.9	39	6.30	2.0	54	26	7.45	1.91	40	4.00	2.0	54
12	9.30	2.05	62	6.15	2.3	109	27	8.00	1.7	18	6.00	2.4	131
13	9.00	1.68	17	6.00	2.3	109	28	8.00	1.73	21	6.10	2.1	71
14	9.00	1.68	17	6.30	2.3	109	29	8.00	1.7	18	5.35	2.3	109
15	11.10	2.28	105	6.45	2.3	109	30	8.00	1.71	19	5.40	2.1	71
							31	8.50	1.72	20	4.00	1.72	20

Daily discharge in second-feet of Quaboag River at West Brimfield, Mass., for 1912.

	Aug.	Sept.	Oct.	Nov.	Dec.		Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	23	46	42	44	16	.....	67	31	62	90
2	.....	53	31	a 40	86	17	.....	47	32	63	87
3	.....	81	19	.....	96	18	.....	42	31	81	82
4	.....	53	.....	a 90	94	19	a 60	36	21	58	96
5	.....	50	.....	83	91	20	65	36	18	48	99
6	.....	50	.....	50	90	21	60	25	47	38	76
7	.....	27	a 50	65	82	22	65	15	47	50	94
8	.....	23	a 26	140	99	23	63	60	57	42	143
9	.....	68	32	123	a 87	24	33	35	42	48	159
10	.....	48	39	111	a 59	25	41	a 28	32	79	192
11	.....	a 48	47	81	64	26	74	35	35	46	304
12	.....	.....	41	104	70	27	56	39	43	a 58	183
13	.....	.....	24	82	.....	28	43	a 30	78	a 55	130
14	.....	.....	51	112	.....	29	47	.....	54	51	135
15	.....	.....	33	93	.....	30	45	a 72	a 40	56	186
						31	25	.....	35	.....	301

a Part of day estimated by interpolation and comparison.

NOTE.—Relation of gage height to discharge affected by ice Jan. 18 to Feb. 28, 1910, Dec. 13, 1910, to Mar. 31, 1911, and Jan. 7 to Mar. 13, 1912. Daily discharge determined from a well-defined rating curve. Discharges Aug. 19 to Dec. 31, 1912, are averages of 24 hourly observations taken from the automatic record.

Monthly discharge of Quaboag River at West Brimfield, Mass., for 1912.

[Drainage area, 150 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
August 19–31	74	25	52	0.347	0.17	A.
September	81	15	44	.293	.33	A.
October	78	18	37	.247	.28	A.
November	140	38	70	.467	.52	A.
December	304	44	113	.753	.87	A.

NOTE—Discharge estimated Sept. 12–15, 29, Oct. 4–6, Nov. 3, and Dec. 13–15.

WESTFIELD RIVER AT KNIGHTVILLE, MASS.

Location.—At the steel highway bridge (locally known as the Pitcher Bridge) at Knightville, about 4½ miles north of the town of Huntington, 1 mile north of the outlet of Norwich Lake, and about 3 miles north of the junction with the middle branch of Westfield River.

Records available.—August 26, 1909, to December 31, 1912.

Drainage area.—162 square miles.

Gage.—Chain attached to the highway bridge; datum unchanged.

Channel.—Rough; bed composed of large gravel and ledge rock.

Discharge measurements.—Made from highway bridge.

Winter flow.—Relation between gage height and discharge during winter months affected by ice.

Artificial control.—It is believed that there is no mill control on this stream above the station.

Accuracy.—Discharge rating curve fairly well defined; estimates as published are good.

Discharge measurements of Westfield River at Knightville, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 7[a]	Alexander McMillan	1.95	105
Nov. 19	C. S. De Golyer	2.13	250
19	do	2.13	247

[a] Measurement made under complete ice cover at bridge.

Daily gage height, in feet, of Westfield River at Knightville, Mass., for 1912.

[G. A. Fisk and C. S. Burr, observers.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.3	.....	.....	3.8	2.7	2.5	1.14	0.90	1.18	1.12	1.78	1.84
2	2.15	.....	.....	4.3	2.5	2.35	1.14	.90	1.39	1.10	2.85	1.96
3	2.05	.....	.....	3.7	2.25	2.6	1.11	.91	1.08	1.15	2.55	3.8
4	2.05	.....	.....	3.1	2.15	2.4	1.00	.96	.99	1.15	2.05	2.8
5	2.0	.....	.....	3.4	2.15	2.25	1.00	.96	.97	1.15	1.90	2.3
6	2.1	.....	.....	3.5	2.4	2.1	1.00	.99	1.01	1.05	1.72	3.3
7	2.3	1.95	.....	3.6	2.9	2.6	1.00	.92	1.00	1.00	1.85	3.0
8	2.3	1.92	.....	4.5	2.7	2.3	1.00	.88	1.10	1.00	4.4	2.5
9	3.1	1.90	.....	4.0	2.6	2.1	1.00	.80	1.06	1.00	3.4	2.2
10	4.2	1.93	.....	4.0	2.5	1.92	.96	.92	1.08	1.00	3.5	2.25
11	.....	1.90	.....	3.6	2.7	1.90	.96	1.42	1.05	1.05	2.2	2.3
12	.....	1.87	.....	3.3	2.35	1.88	.96	1.64	1.08	1.28	2.2	2.2
13	.....	1.88	.....	3.3	2.7	1.86	.94	1.38	1.08	1.31	2.1	1.80
14	.....	1.88	.....	3.0	2.15	1.78	1.04	1.22	1.10	1.22	3.2	1.96
15	.....	1.91	8.6	3.3	2.05	1.70	1.00	1.01	1.13	1.20	2.95	1.88
16	.....	1.90	5.8	4.3	2.25	1.69	.96	.92	1.30	1.08	2.6	2.05
17	2.55	1.91	4.9	4.6	2.25	1.62	.95	.90	1.40	1.10	2.4	2.05
18	.....	1.92	4.6	4.7	2.15	1.56	.96	1.49	1.32	.98	2.25	1.98
19	.....	1.92	4.3	3.6	2.05	1.50	.94	1.46	1.27	1.02	2.1	2.65
20	.....	1.92	3.9	3.1	2.0	1.46	.92	1.46	1.24	1.05	2.05	2.6
21	.....	2.15	3.9	3.1	1.94	1.44	.96	1.36	1.23	.98	2.05	2.3
22	.....	2.25	3.7	3.4	3.3	1.43	1.00	1.46	1.23	1.08	2.0	1.94
23	.....	2.35	3.5	3.3	3.2	1.42	1.04	1.02	1.22	1.50	1.97	1.97
24	.....	2.5	3.0	3.2	2.6	1.40	.98	.96	1.22	5.2	1.95	1.97
25	.....	2.6	2.5	3.7	3.2	1.38	.96	.96	1.22	3.7	2.8	1.98
26	.....	2.7	2.45	3.3	2.05	1.36	.95	1.12	1.18	3.0	2.4	2.0
27	.....	3.0	2.35	3.0	1.96	1.27	.90	1.28	1.13	2.45	2.2	2.5
28	.....	.....	2.1	3.0	1.88	1.20	.90	1.11	1.08	2.0	2.05	2.5
29	.....	.....	5.0	2.95	1.84	1.16	.88	1.05	1.08	2.0	1.88	2.4
30	.....	.....	4.8	2.85	3.5	1.14	.84	.98	1.13	1.95	1.96	2.4
31	.....	.....	4.1	.....	3.5	.....	.86	.94	.....	1.75	.....	3.9

NOTE.—Relation of gage height to discharge affected by ice Jan. 9 to Mar. 14.

Daily discharge, in second-feet, of Westfield River at Knightville, Mass., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	320	.....	.....	1,180	510	410	41	20	46	39	148	164
2	262	.....	.....	1,500	410	342	41	20	73	37	592	198
3	228	.....	.....	1,120	300	460	38	21	35	42	435	1,180
4	228	.....	.....	735	262	365	28	25	27	42	228	565
5	210	.....	.....	920	262	300	28	25	26	42	180	320
6	245	.....	.....	985	365	245	28	27	29	32	134	855
7	320	105	.....	1,050	620	460	28	22	28	28	166	675
8	320	.....	.....	1,640	510	320	28	19	37	28	1,570	410
9	.....	.....	.....	1,310	460	245	28	13	33	28	920	280
10	.....	.....	.....	1,310	410	186	25	22	35	28	985	300
11	.....	.....	.....	1,050	510	180	25	77	32	32	280	320
12	.....	.....	.....	855	342	175	25	116	35	58	280	280
13	.....	.....	.....	855	510	169	23	71	35	61	245	153
14	.....	.....	.....	675	262	148	32	50	37	50	795	198
15	.....	.....	4,860	855	228	129	28	29	40	48	648	175
16	.....	.....	2,580	1,500	300	127	25	22	60	35	460	228
17	.....	.....	1,920	1,710	300	112	24	20	74	37	365	228
18	.....	.....	1,710	1,780	262	101	25	88	63	26	300	204
19	.....	.....	1,500	1,050	228	90	23	84	56	30	245	485
20	.....	.....	1,240	735	210	84	22	84	53	32	228	460
21	.....	.....	1,240	735	192	80	25	68	52	26	228	320
22	.....	.....	1,120	920	855	79	28	84	52	35	210	192
23	.....	.....	985	855	795	77	32	30	50	90	201	201
24	.....	.....	675	795	460	74	26	25	50	2,130	195	201
25	.....	.....	410	1,120	795	71	25	25	50	1,120	565	204
26	.....	.....	388	855	228	68	24	39	46	675	365	210
27	.....	.....	342	675	198	56	20	58	40	388	280	410
28	.....	.....	245	675	175	48	20	38	35	210	228	410
29	.....	.....	1,990	648	164	44	19	32	35	210	175	365
30	.....	.....	1,850	592	985	41	16	26	40	195	198	365
31	.....	.....	1,380	.....	985	.....	17	23	.....	141	.....	1,240

NOTE.—Daily discharge from a discharge rating curve that is well defined; 1912 measurements indicate that this curve is somewhat different from the one formerly used.

Monthly discharge of Westfield River at Knightville, Mass., for 1912.

[Drainage area, 162 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
March 15–31	4,860	245	1,440	8.89	5.62	B.
April	1,780	592	1,020	6.30	7.03	A.
May	985	164	422	2.60	3.00	A.
June	460	41	176	1.09	1.22	A.
July	41	16	26.4	.163	.19	C.
August	116	13	42.0	.259	.30	B.
September	73	26	43.5	.269	.30	B.
October	2,130	26	193	1.19	1.37	A.
November	1,570	134	395	2.44	2.72	A.
December	1,240	153	381	2.35	2.71	A.

MIDDLE BRANCH OF WESTFIELD RIVER AT GOSS HEIGHTS, MASS.

Location.—At a single-span highway bridge in the hamlet of Goss Heights, about 1½ miles above the village of Huntington and half a mile above the confluence of the Middle Branch and the North Branch of Westfield River.

Records available.—July 14, 1910, to December 31, 1912.

Drainage area.—53 square miles.

Gages.—Standard chain gage attached to the upstream side of the bridge, read twice daily from July 14, 1910, to September 7, 1912. Beginning September 8, 1912, an automatic gage on the right bank at the upstream side of the bridge abut-

ment was used. The automatic gage is protected by a wooden shelter about 5 feet square and set over a timber well about 3 feet square. The well is connected with the river by a 4-inch cast-iron pipe, having its outer end immediately under the chain gage. A sloping staff gage is set in the bank of the river practically over the intake to serve as a check on the automatic and chain gages.

Channel.—Coarse gravel and permanent.

Discharge measurements.—Made by wading at low and medium stages and from the highway bridge at high stages.

Artificial control.—The operation of a power plant about 2 miles above the station causes some diurnal fluctuation in the flow of this stream at low stages.

Discharge measurements of Middle Branch of Westfield River at Goss Heights, Mass., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Feb. 8[a]	G. H. Canfield	2.54	35.3	Oct. 29	J. G. Mathers	1.42	63.1
May 22	G. K. Larrison	1.96	256	29	do	1.41	59.4
Sept. 7[b]	G. H. Canfield	1.12	13.1	Nov. 20	C. S. De Golyer	1.47	74.2
8[b]	do	1.11	12.7	20[d]	do	1.46	66.2
9[c]	do	1.04	6.79	Dec. 19	do	1.98	243

[a] Measurement made under complete ice cover 75 feet below bridge.
[b] Measurement made by wading 500 feet below bridge.
[c] Measurement made by wading 200 feet above bridge.
[d] Measurement made by wading 300 feet below bridge.

Daily gage height, in feet, of Middle Branch of Westfield River at Goss Heights, Mass., for 1912.

[Monroe Rising, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1.7	2.8	.....	2.4	1.82	1.35	1.04	1.05	1.05
2	1.6	.....	.....	2.4	1.78	1.2	1.02	1.02	1.86
3	1.55	.....	.....	3.0	1.7	2.1	1.01	1.10	1.68
4	.....	.....	2.65	2.65	1.69	1.85	1.01	1.12	1.48
5	.....	.....	.....	2.5	1.6	1.35	1.00	1.10	1.25
6	.....	2.85	.....	2.6	1.82	1.35	.99	1.02	1.20
7	.....	.....	2.6	2.7	1.9	1.32	.99	1.02	1.18
8	1.9	2.55	.....	2.65	1.88	1.3	.99	.90	.....
9	.....	.....	.....	2.6	1.9	1.42	1.00	.90	.....
10	.....	.....	.....	2.3	1.85	1.4	.99	.89	.....
11	2.1	.....	.....	2.2	1.81	1.38	.98	1.14	.....
12	.....	2.6	2.9	2.1	1.69	1.34	1.00	1.05	.....
13	.....	.....	.....	2.0	1.65	1.31	1.08	1.05	.....
14	2.25	.....	2.1	1.98	1.62	1.29	1.14	1.05	.....
15	.....	.....	3.7	1.96	1.92	1.28	1.12	1.01	.....
16	.....	.....	4.5	1.95	1.88	1.25	1.09	1.00	.....
17	.....	.....	3.3	2.7	1.85	1.3	.90	.99	.....
18	2.35	.....	2.85	2.6	2.15	1.24	.90	.98	.....
19	.....	2.4	2.8	2.6	2.1	1.21	1.10	1.15	.....
20	.....	.....	2.7	2.3	1.95	1.2	1.08	1.14	.....
21	2.9	.....	2.7	1.92	1.8	1.18	1.00	1.34	.....
22	.....	.....	2.65	1.86	2.2	1.18	1.10	1.20	.....
23	.....	.....	2.6	1.81	2.1	1.15	1.05	1.10	.....
24	.....	2.8	2.4	1.75	1.9	1.12	1.02	1.20	.....
25	2.7	.....	2.15	1.7	1.72	1.12	1.00	1.10	.....
26	.....	.....	1.91	1.66	1.65	1.1	1.00	1.10	.....
27	.....	.....	2.05	1.62	1.6	1.1	.98	1.08	.....
28	.....	.....	1.76	1.71	1.51	1.09	.90	1.10	.....
29	2.8	.....	2.85	1.69	1.46	1.09	.88	1.04	.....
30	.....	.....	2.8	1.82	1.4	1.05	.80	1.10	.....
31	.....	.....	2.5	.....	1.38	.....	1.00	1.09	.....

NOTE.—Relation of gage height to discharge affected by ice Jan. 4 to Mar. 13. Daily gage height Sept. 9 to Dec. 31 not computed. See note under daily discharge table.

Daily discharge, in second-feet, of Middle Branch of Westfield River at Goss Heights, Mass., for 1910–1912.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.							1910.						
1	.....	7.8	8.6	6.9	6.9	21	16	8.6	10	6.9	5.2	22	.....
2	.....	10	8.6	4.4	8.6	24	17	6.9	7.8	4.4	6.9	24	.....
3	.....	7.8	0	.....	48	29	18	7.8	7.8	5.2	3.5	23	.....
4	.....	7.8	68	.....	138	.....	19	5.2	26	4.4	.....	32	.....
5	.....	23	113	.....	322	.....	20	7.8	29	4.4	.....	55	.....
6	.....	16	94	4.4	212	.....	21	8.6	7.8	.....	.....	68	.....
7	.....	11	196	10	68	.....	22	10	5.2	.....	11	36	.....
8	.....	8.6	122	6.9	48	.....	23	7.8	5.2	.....	14	30	.....
9	.....	8.6	48	7.8	42	.....	24	6.9	8.6	.....	12	35	.....
10	.....	7.8	30	8.6	26	.....	25	7.8	6.9	.....	13	26	.....
11	.....	23	13	6.9	59	.....	26	5.2	4.4	7.8	10	35	.....
12	.....	23	11	4.4	42	.....	27	6.9	7.8	6.9	6.9	29	.....
13	.....	12	7.8	6.9	40	.....	28	8.6	8.6	13	5.2	35	.....
14	5.2	11	6.9	4.4	30	.....	29	12	7.8	8.6	11	46	.....
15	6.9	14	6.9	6.9	30	.....	30	10	7.8	4.4	12	30	.....
							31	8.6	7.8	.....	13	.....	.....

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	.....	.....	.....	152	135	66	14	11	42	53	119	104
2	.....	.....	.....	132	212	49	12	12	53	196	110	96
3	.....	.....	.....	110	170	30	10	13	29	181	96	102
4	.....	.....	.....	96	138	24	7.8	11	24	142	59	83
5	.....	.....	.....	110	113	21	6.9	10	16	135	55	83
6	.....	.....	.....	1,030	102	66	13	8.6	24	119	48	91
7	.....	.....	.....	860	83	336	12	7.8	18	166	278	104
8	.....	.....	.....	535	62	192	11	10	13	173	196	104
9	.....	.....	.....	300	71	91	7.8	8.6	16	110	173	110
10	.....	.....	.....	255	71	110	6.9	7.8	85	83	145	96
11	.....	.....	.....	238	68	75	5.2	5.2	91	71	110	83
12	.....	.....	.....	196	59	96	3.5	3.5	78	59	83	80
13	.....	.....	.....	221	66	435	11	.....	75	49	152	78
14	.....	.....	.....	300	62	234	7.8	.....	57	36	138	78
15	.....	.....	.....	585	59	135	13	.....	46	29	177	102
16	.....	.....	.....	322	66	71	8.6	48	59	24	177	156
17	.....	.....	.....	221	42	66	10	16	48	24	177	345
18	.....	.....	.....	177	40	48	30	13	26	59	159	204
19	.....	.....	.....	177	91	40	14	11	22	1,760	300	142
20	.....	.....	.....	216	126	40	16	5.2	19	560	216	96
21	.....	.....	.....	189	102	36	12	6.9	16	485	156	113
22	.....	.....	.....	221	66	24	19	11	13	980	142	107
23	.....	.....	.....	212	55	30	16	13	24	1,090	110	560
24	.....	.....	.....	170	53	24	23	12	22	920	126	322
25	.....	.....	.....	142	53	24	21	12	14	695	208	196
26	.....	.....	.....	142	68	29	19	26	30	189	145	142
27	.....	.....	1,270	132	49	42	16	46	30	145	138	212
28	.....	.....	1,210	142	40	40	13	62	35	75	113	208
29	.....	.....	585	177	42	36	21	85	30	83	102	177
30	.....	.....	668	170	35	22	18	94	46	75	96	152
31	.....	.....	255	.....	30	.....	13	75	.....	83	.....	142
1912.												
1	138	.....	.....	435	181	48	6.9	7.8	7.8	9.8	46	60
2	107	.....	.....	435	166	23	5.2	5.2	196	6.9	126	110
3	94	.....	.....	750	138	300	4.4	12	132	8.0	90	475
4	.....	.....	.....	560	135	192	4.4	14	75	.....	65	195
5	.....	.....	.....	485	107	48	3.5	12	30	.....	47	139
6	.....	.....	.....	535	181	48	3.2	5.2	23	.....	43	306
7	.....	.....	.....	585	212	42	3.2	5.2	21	.....	.....	210
8	.....	.....	.....	560	204	38	3.2	.....	20	.....	.....	148
9	.....	.....	.....	535	212	62	3.5	.....	20	.....	.....	109
10	.....	.....	.....	390	192	57	3.2	.....	7.9	.....	.....	115
11	.....	.....	.....	345	177	53	.....	16	5.2	.....	.....	86
12	.....	.....	.....	300	135	46	3.5	7.8	6.1	.....	.....	78
13	.....	.....	.....	255	122	40	10	7.8	4.5	.....	.....	112
14	.....	.....	300	246	113	36	16	7.8	4.5	.....	.....	141
15	.....	.....	1,150	238	221	35	14	4.4	4.0	.....	245	121

Daily discharge, in second-feet, of Middle Branch of Westfield River at Goss Heights, Mass., for 1910–1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
16	.....	.....	1,690	234	204	30	11	3.5	13	.....	139	104
17	.....	.....	920	585	192	38	.....	3.2	15	.....	109	76
18	.....	.....	668	535	322	29	.....	.....	10	.....	97	59
19	.....	.....	640	535	300	24	12	18	7.9	.....	84	163
20	.....	.....	585	390	234	23	10	16	6.7	.....	70	152
21	.....	.....	585	221	173	21	3.5	46	5.6	5.8	66	104
22	.....	.....	560	196	345	21	12	23	4.0	.....	62	88
23	.....	.....	535	177	300	18	7.8	12	5.2	.....	58	117
24	.....	.....	435	156	212	14	5.2	23	4.9	.....	83	161
25	.....	.....	322	138	145	14	3.5	12	4.9	311	158	234
26	.....	.....	216	126	122	12	3.5	12	5.1	187	101	216
27	.....	.....	278	113	107	12	2.9	10	4.2	123	85	292
28	.....	.....	159	142	83	11	.....	12	4.4	97	72	151
29	.....	.....	668	135	71	11	.....	6.9	5.1	79	67	112
30	.....	.....	640	181	57	7.8	.....	12	5.0	68	63	337
31	.....	.....	485	.....	53	.....	.....	11	.....	.....	.....	447

NOTE.—Daily discharge tables for 1910–11 here published supersede those published in Water-Supply Papers 281 and 301. Measurements made during 1912 indicate that the rating curve is quite different from the one computed from 1910–11 measurements and is fairly well defined above 5 second-feet.

Mean daily discharge, Sept. 9, to Dec. 31, 1912, computed by scaling discharge for each hour from the automatic hydrograph. Twenty-four hourly discharges were then averaged to obtain the mean daily discharge. The gaps in this record are caused by stoppage of the clock before it was in proper adjustment.

Monthly discharge of Middle Branch of Westfield River at Goss Heights, Mass., for 1910–1912.

[Drainage area, 53 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1910.						
July 14–31	12	5.2	7.82	0.148	0.10	B.
August	29	4.4	11.3	.213	.25	B.
November	322	6.9	54.9	1.04	1.16	A.
1911.						
April	1,030	96	264	4.98	5.56	A.
May	212	30	78.4	1.48	1.71	A.
June	435	21	84.4	1.59	1.77	A.
July	30	3.5	13.3	.251	.29	B.
September	91	13	36.7	.692	.77	B.
October	1,760	24	285	5.38	6.20	A.
November	300	48	1.44	2.72	3.04	A.
December	560	78	1.51	2.85	3.29	A.
1912.						
March 14–31	1,690	159	602	11.4	7.63	B.
April	750	113	351	6.62	7.39	B.
May	345	53	175	3.30	3.80	A.
June	300	7.8	45.1	.851	.95	A.
September	196	4.0	21.9	.413	.46	A.
December	475	59	168	3.17	3.65	A.

NOTE.—Data for 1910 and 1911, supersede those published in Water Supply Papers 281 and 301.

WESTFIELD LITTLE RIVER NEAR BLANDFORD, MASS.

Location.—At the intake dam for the waterworks for the city of Springfield, Mass., a short distance below Borden Brook and Stow Brook.

Records available.—July 13, 1905, to December 31, 1909, for a point just below Borden Brook (drainage area 43 square miles); March 1, 1910, to December 31, 1911, for present site. Data for 1912 not available.

Drainage area.—48 square miles.

Cooperation.—Records collected under the direction of E. E. Lochridge, chief engineer, board of water commissioners, city of Springfield, Mass.

Daily discharge, in second-feet, of Westfield Little River near Blandford, Mass., for 1910–11.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.												
1	126	0	1,010	135	94	98	8.1	14	0.0	0.0	8.5	21
2	125	21	708	107	73	70	.0	18	.0	.0	26	21
3	126	75	348	94	60	59	37	13	12	.0	43	17
4	125	35	177	71	43	51	16	9.4	5.1	.0	140	10
5	133	29	194	65	19	32	20	18	25	.0	167	16
6	144	59	220	79	15	161	8.3	22	27	7.1	82	16
7	138	74	398	33	9.4	131	22	0.0	20	.0	47	15
8	136	90	298	24	16	94	.0	0.7	23	.0	39	16
9	135	122	230	47	21	65	.0	8.1	16	.0	42	14
10	131	138	138	27	21	122	.0	24	13	.0	20	13
11	135	102	93	33	16	321	.0	61	28	.0	54	12
12	135	121	104	66	22	389	.0	23	14	.0	30	12
13	128	128	113	54	35	246	.0	18	25	.0	36	4.7
14	132	103	79	32	72	127	42	16	.0	.0	31	7.6
15	128	111	64	63	59	99	15	25	.0	.0	23	4.0
16	125	110	76	63	28	85	16	9.5	.0	.0	21	2.4
17	128	112	99	64	48	112	34	13	.0	.0	21	1.0
18	125	226	63	74	53	111	18	6.6	.0	.0	18	6.1
19	128	288	96	127	78	93	17	9.6	.0	8.1	31	.0
20	125	274	139	127	56	63	20	11	.0	.0	36	.0
21	307	470	152	117	64	51	21	0.8	.0	.0	40	4.4
22	222	443	164	44	61	35	20	2.6	.0	.2	43	.0
23	334	237	215	35	57	29	15	6.6	2.0	6.5	43	.0
24	137	116	275	27	52	27	4.7	4.7	6.7	8.0	38	8.2
25	154	71	558	171	46	27	4.6	3.4	.0	8.0	.0	33
26	154	119	578	1,240	46	24	4.6	0.0	.0	8.1	23	34
27	137	197	273	498	45	24	.9	0.0	1.7	.0	15	33
28	149	639	181	128	38	26	.0	7.8	.0	.0	20	38
29	149	.....	249	94	32	0	5.8	15	24	.0	19	28
30	147	.....	312	105	32	15	11	3.1	2.9	6.9	15	34
31	137	.....	206	.....	138	.....	20	16	.....	.....	.....	54
1911.												
1	78	22	18	131	109	39	12	16	135	104	103	101
2	67	30	26	112	137	39	13	1.5	78	270	118	83
3	183	18	20	95	121	25	3.9	5.2	44	158	79	79
4	188	33	22	89	96	25	5.8	18	40	150	76	78
5	85	24	28	177	82	38	7.2	15	20	139	93	68
6	83	28	21	663	74	116	2	14	28	94	66	64
7	36	19	21	505	65	357	27	.0	23	144	195	66
8	38	25	29	268	66	214	17	.0	82	128	139	45
9	49	19	20	184	63	123	18	.9	237	89	113	55
10	54	17	20	170	56	75	.14	11	162	67	85	47
11	31	17	28	186	43	29	.0	9.3	160	59	73	63
12	44	3.2	23	164	41	89	.0	10	128	43	80	75
13	34	6.6	31	158	58	365	6.9	9.8	83	48	93	54
14	33	30	40	221	38	245	31	8.8	52	33	92	69
15	34	20	55	289	44	128	4.3	18	46	42	167	67
16	30	16	32	210	34	84	8.0	71	50	30	136	174
17	25	24	31	148	33	67	11	25	43	38	116	226
18	31	23	32	124	21	44	22	14	42	665	188	165
19	28	25	31	117	117	46	17	16	25	1,280	310	123
20	11	25	32	161	141	27	17	16	21	553	209	76
21	15	19	47	220	84	22	2.1	16	30	710	169	74
22	18	18	140	195	36	19	9.0	13	27	806	129	140
23	5.5	15	93	146	60	18	9.6	4.8	26	636	124	352
24	14	22	99	134	33	18	64	5.6	30	325	163	209
25	17	17	99	121	43	30	68	8.2	20	341	185	171
26	114	28	148	103	76	20	20	8.1	56	175	114	151
27	44	25	650	99	57	20	37	22	33	155	91	175
28	90	23	405	133	37	20	19	21	33	128	92	138
29	121	.....	260	111	20	.82	19	137	55	107	113	105
30	46	.....	223	115	29	38	14	110	83	101	128	102
31	40	.....	169	.....	17	.....	7.9	115	.....	80	.....	110

NOTE.—Daily discharge originally computed in terms of million gallons per 24 hours; converted into second-feet by engineers of the Survey.

Monthly discharge of Westfield Little River near Blandford, Mass., for 1910–11.

[Drainage area, 48 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1910.					
January	334	125	150	3.12	3.60
February	639	0.0	161	3.35	3.49
March	1,010	63	252	5.25	6.05
April	1,240	24	128	2.67	2.98
May	138	9.4	47	.979	1.13
June	389	.0	93	1.94	2.16
July	42	.0	12	.250	.29
August	61	.0	12	.250	.29
September	28	.0	8.2	.171	.19
October	8.1	.0	1.7	.035	.04
November	167	.0	39	.812	.91
December	54	.0	15	.312	.36
The year	1,240	.0	76.6	1.60	21.49
1911.					
January	188	5.5	50	1.04	1.20
February	33	3.2	21	.438	.46
March	650	18	93	1.94	2.24
April	663	89	184	3.83	4.27
May	141	17	62	1.29	1.49
June	365	.8	79	1.65	1.84
July	68	.0	16	.333	.38
August	137	.0	24	.500	.58
September	237	20	63	1.31	1.46
October	1,280	30	248	5.17	5.96
November	310	66	133	2.77	3.09
December	352	45	113	2.35	2.71
The year	1,280	0	90.5	1.89	25.68

NOTE.—Figures represent the natural flow of the stream excepting that no correction is made for evaporation and seepage from the reservoirs.

Discharge computed by Mr. Lochridge in million gallons per day; converted into second-feet by engineers of United States Geological Survey.

BORDEN BROOK NEAR BLANDFORD, MASS.

Location.—Near the town of Blandford, Mass., at the storage reservoir for the water supply of the city of Springfield, Mass.

Records available.—March 1, 1910, to December 31, 1911; records for 1912 not available.

Drainage area.—7.95 square miles.

Cooperation.—Data for publication collected under the direction of E. E. Lochridge, chief engineer, board of water commissioners, city of Springfield, Mass.

Daily discharge, in second-feet, of Borden Brook near Blandford, Mass., for 1910–11.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.												
1	1.4	0.0	93	15	22	8.1	7.3	0.0	0.0	0.0	8.5	0.0
2	.0	3.2	132	.0	22	7.6	7.3	.0	.0	.0	26	.0
3	1.5	6.4	57	20	20	7.6	18	.0	12	.0	43	.0
4	.0	6.4	41	20	17	7.8	7.3	.0	4.7	.0	36	.0
5	7.9	6.4	59	10	16	10	13	.0	.0	.0	1.2	.0
6	19	6.4	85	20	13	14	1.8	.0	9.9	7.1	19	.0
7	14	6.5	95	10	10	17	18	.0	.0	.0	1.2	.0
8	11	6.5	62	21	8.6	20	18	.0	.0	.0	1.2	.0
9	11	6.5	71	10	9	23	7.3	.0	.0	.0	1.7	.0
10	6.5	6.5	45	.0	13	27	.0	.0	9.9	.0	.0	.0
11	9.8	6.5	9.1	10	14	32	.0	.0	.0	.0	.0	.0
12	9.8	6.5	27	10	13	32	.0	.0	14	.0	.0	.0
13	3.3	13	27	10	12	32	.0	.0	25	.0	.0	.0
14	7.1	6.5	18	10	11	31	.0	.0	.0	.0	.0	.0
15	3.6	6.5	18	10	10	24	.0	.0	.0	.0	.0	.0
16	.0	13	18	11	9.4	17	.0	9.5	.0	.0	.0	.0
17	3.6	6.7	46	11	7.5	18	11	.0	.0	.0	.0	.0
18	.0	6.7	9.1	21	6.3	19	.0	.0	.0	.0	.0	.0
19	3.6	13	37	21	7.8	17	.0	4.7	.0	8.1	.0	.0
20	.0	13	27	21	8.6	15	.0	.0	.0	.0	.0	.0
21	182	47	27	11	9.5	12	.0	.0	.0	.0	.0	.0
22	98	34	55	11	11	8.3	.0	2.6	.0	.2	.0	.0
23	210	20	56	5.4	10	5.4	.0	.0	2	6.5	.0	.0
24	12	14	85	5.4	10	3.3	.0	.0	6.7	8	.0	.0
25	29	14	135	76	10	2.3	.0	.0	.0	8	.0	.0
26	29	14	108	239	10	1.5	.0	.0	.0	8.1	.0	.0
27	12	85	40	108	9.8	1.1	.0	.0	1.7	.0	.0	.0
28	24	152	40	5	5.6	13	.0	7.8	.0	.0	.0	.0
29	24	.....	60	5	3.1	7.3	.0	15	24	.0	.0	.0
30	22	.....	97	15	3.3	7.3	.0	3.1	2.9	6.9	.0	.0
31	13	.....	49	.....	6.8	.....	.....	16	.....	.....	.....	.....
1911.												
1	14	.0	.0	20	20	10	.0	.0	20	43	9.3	22
2	15	7.8	7.8	16	20	.0	2.4	.0	9.3	33	34	11
3	52	.0	.0	9	10	.0	.0	.0	.0	33	.6	9.3
4	23	7.8	.0	18	10	.0	.0	.0	12	33	1.1	11
5	15	.0	7.8	27	10	10	.0	.0	.0	22	33	11
6	7.6	7.8	.0	119	10	42	.0	.0	7.8	11	22	.0
7	7.6	.0	.0	64	10	74	.0	.0	.0	22	30	11
8	.0	7.8	7.8	46	10	43	.0	.0	31	22	18	.0
9	7.6	.0	.0	28	10	33	.0	.0	51	11	14	11
10	7.6	.0	.0	28	10	11	.0	.0	31	11	.0	.0
11	.0	7.8	7.8	28	.0	.0	.0	.0	42	11	8.7	11
12	7.6	.0	.0	28	.0	43	.0	.0	22	.0	15	22
13	7.6	.0	7.8	28	10	43	.0	.0	11	11	15	.0
14	7.8	7.8	16	47	.0	33	.0	.0	11	.0	19	22
15	7.8	.0	31	48	10	11	.0	.0	11	11	41	11
16	7.8	.0	7.8	38	.0	11	.0	.0	.0	.0	30	43
17	.0	7.8	7.8	19	.0	.0	.0	.0	9.3	9.3	30	30
18	7.8	.0	7.8	20	.0	.0	.0	.0	11	146	63	33
19	.0	.0	7.8	20	40	11	.0	.0	.0	128	41	22
20	.0	7.8	7.8	20	30	.0	.0	.0	.0	75	41	40
21	.0	.0	7.8	39	20	.0	.0	.0	11	294	41	11
22	.0	.0	23	30	.0	.0	.0	.0	.0	281	30	55
23	1.8	.0	16	20	10	.0	.0	.0	.0	255	41	65
24	.0	7.8	16	20	.0	.0	.0	.0	11	198	19	17
25	.0	.0	16	20	10	11	.0	.0	.0	83	19	33
26	.0	7.8	25	20	10	.0	.0	.0	11	9.3	8.6	33
27	25	7.8	108	10	10	.0	.0	.0	.0	19	.0	22
28	7.8	7.8	51	20	10	.0	.0	.0	.0	9.3	7.9	11
29	7.8	.....	121	10	.0	.0	.0	.0	11	9.3	8.6	22
30	.0	.....	97	20	10	.0	.0	.0	11	19	13	33
31	7.8	.....	36	.....	.0	.....	.0	24	.....	.0	.....	33

NOTE.—Daily discharge originally computed in terms of million gallons per 24 hours; converted into second-feet by engineers of the Survey.

Monthly discharge of Borden Brook near Blandford, Mass., for 1910–11.

[Drainage area, 7.95 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1910.					
January	210	0.0	24.8	3.12	3.60
February	152	.0	18.8	2.36	2.46
March	135	9.1	56	7.04	8.12
April	239	.0	25	3.14	3.50
May	22	3.1	11	1.38	1.59
June	32	1.1	15	1.89	2.11
July	18	.0	3.5	.440	.51
August	16	.0	1.9	.239	.28
September	25	.0	3.7	.465	.52
October	8.1	.0	1.7	.214	.25
November	43	.0	4.6	.579	.65
December	.0	.0	.0	.000	.00
The year	239	.0	13.8	1.74	23.59
1911.					
January	52	0.0	7.9	.994	1.15
February	7.8	.0	3.3	.415	.43
March	121	.0	21	2.64	3.04
April	119	9	29	3.65	4.07
May	40	.0	9.5	1.20	1.38
June	74	.0	13	1.64	1.83
July	2.4	.0	.08	.01	.01
August	24	.0	.80	.10	.10
September	51	.0	11	1.38	1.54
October	294	.0	58	7.30	8.42
November	63	.0	22	2.77	3.09
December	65	.0	20	2.52	2.91
The year	294	.0	16.3	2.05	27.91

NOTE.—Figures represent the natural flow of the stream, excepting that no correction is made for evaporation and seepage from the reservoir.
Discharge figures furnished by Mr. Lochridge, in million gallons per day; converted into second-feet by engineers of United States Geological Survey.

HOUSATONIC RIVER BASIN.

HOUSATONIC RIVER AT GAYLORDSVILLE, CONN.

Location.—At the covered wooden highway bridge at Gaylordsville, about 2 miles below the mouth of Tenmile River.

Records available.—October 24, 1900, to December 31, 1912.

Drainage area.—1,020 square miles.

Gage.—Chain attached to bridge; read once each day; datum unchanged.

Channel.—Conditions for obtaining accurate discharge data are good.

Discharge measurements.—Made from a cable 1¼ miles below the gage, as the cross section at the bridge is unfavorable for accurate measurements.

Artificial control.—Upstream, the nearest dam is at Bulls Bridge. Downstream, the nearest dam is at New Milford, about 7 miles below the station. At high stages backwater from the dam below may slightly affect the relation between gage height and discharge. Operation of power plants above the station causes a very marked diurnal fluctuation in the flow at this point. For this reason it is not advisable to attempt to estimate the daily discharge from daily gage heights, but the rate of flow corresponding to each gage reading is published. How near this rate approaches the mean for the day can not be stated at present.

Winter flow.—Affected by ice for short periods.

Accuracy.—A good discharge rating curve has been developed so that accuracy of records at this point depends entirely upon the accuracy of the gage heights.

Cooperation.—Gage heights from November to April, inclusive, are furnished by United States Weather Bureau.

Gage height, in feet, and discharge, in second-feet, of Housatonic River at Gaylordsville, Conn., for 1910–1912.

[G. H. Monroe, observer.]

Day.	January.		February.		March.		April.		May.		June.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1910.												
1	3.5	.....	4.9	1,900	9.4	12,600	5.8	3,450	5.0	2,950	5.4	2,690
2	3.5	.....	4.6	1,490	9.7	13,500	5.8	3,450	5.0	2,950	5.2	2,360
3	3.6	.....	4.7	1,620	9.3	12,300	5.7	3,250	5.3	2,520	5.0	2,050
4	3.5	.....	4.5	1,370	8.2	9,340	5.4	2,690	5.3	2,520	5.0	2,050
5	3.6	.....	4.5	1,370	7.6	7,730	5.3	2,520	5.3	2,520	4.6	1,490
6	3.6	.....	4.5	1,370	7.3	6,950	5.3	2,520	5.1	2,200	5.1	2,200
7	4.2	.....	4.1	970	7.7	7,990	5.0	2,050	5.1	2,200	5.1	2,200
8	4.8	.....	4.2	1,060	7.9	8,530	5.0	2,050	4.9	1,900	5.2	2,360
9	4.6	.....	4.3	1,160	7.5	7,470	5.1	2,200	4.9	1,900	5.1	2,200
10	4.6	.....	4.2	1,060	7.2	6,690	4.9	1,900	5.1	2,200	5.2	2,360
11	4.9	.....	4.6	1,490	6.6	5,210	5.0	2,050	4.9	1,900	5.3	2,520
12	4.7	.....	4.4	1,260	6.4	4,750	4.8	1,760	4.9	1,900	5.5	2,870
13	4.5	.....	4.5	1,370	6.3	4,520	5.1	2,200	4.8	1,760	5.4	2,690
14	4.4	.....	4.5	1,370	6.1	4,080	5.0	2,050	4.7	1,620	5.3	2,520
15	4.3	.....	4.4	1,260	6.1	4,080	5.0	2,050	4.4	1,260	5.3	2,520
16	4.0	.....	4.6	1,490	5.6	3,060	5.0	2,050	4.4	1,260	5.2	2,360
17	4.0	.....	4.8	1,760	5.7	3,250	4.6	1,490	4.0	890	5.1	2,200
18	3.8	.....	4.9	1,900	5.7	3,250	4.8	1,760	4.3	1,160	5.2	2,360
19	4.2	.....	4.9	1,900	5.7	3,250	5.3	2,520	4.7	1,620	5.1	2,200
20	4.5	.....	4.8	1,760	5.6	3,060	5.3	2,520	4.6	1,490	4.6	1,490
21	4.5	.....	4.8	1,760	5.6	3,060	5.3	2,520	4.6	1,490	4.7	1,620
22	11.2	.....	6.3	4,520	5.7	3,250	5.2	2,360	4.5	1,370	4.6	1,490
23	8.0	8,800	5.7	3,250	5.9	3,650	4.9	1,900	4.6	1,490	4.6	1,490
24	7.2	6,690	5.7	3,250	5.9	3,650	4.9	1,900	4.5	1,370	4.1	970
25	7.2	6,690	5.3	2,520	6.2	4,300	4.9	1,900	4.4	1,260	4.2	1,060
26	6.2	4,300	5.2	2,360	5.9	3,650	6.2	4,300	4.5	1,370	3.9	816
27	6.2	4,300	5.0	2,050	6.2	4,300	6.8	5,690	4.9	1,900	4.2	1,060
28	5.7	3,250	6.6	5,210	6.4	4,750	6.3	4,520	4.7	1,620	4.0	890
29	5.5	2,870	.....	.....	6.4	4,750	6.2	4,300	5.0	2,050	4.1	970
30	5.2	2,360	.....	.....	6.2	4,300	5.7	3,250	4.1	970	3.9	816
31	5.2	2,360	.....	.....	5.8	3,450	.....	.....	5.1	2,200	.....	.....

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge
1910.												
1	4.0	890	3.7	682	3.0	305	3.1	352	3.2	401	3.7	682
2	3.6	620	3.5	561	2.9	261	2.8	220	3.2	401	4.2	1,060
3	3.2	401	3.3	452	3.2	401	3.2	401	3.1	352	3.9	816
4	3.3	452	3.5	561	2.8	220	3.3	452	3.5	561	3.4	505
5	3.3	452	3.8	747	3.3	452	3.2	401	5.3	2,520	3.5	.....
6	3.2	401	4.2	1,060	3.6	620	3.3	452	4.5	1,370	3.5	.....
7	3.3	452	3.5	561	4.5	1,370	3.2	401	4.4	1,260	3.3	.....
8	3.6	620	3.2	401	4.0	890	3.2	401	4.2	1,060	3.8	.....
9	3.7	682	3.1	352	4.2	1,060	2.4	83	4.2	1,060	3.6	.....
10	3.0	305	3.0	305	4.2	1,060	3.0	305	3.7	682	3.6	.....
11	3.5	561	4.9	1,900	3.2	401	3.3	452	4.2	1,060	3.2	.....
12	3.5	561	4.2	1,060	3.4	505	3.0	305	4.0	890	3.4	.....
13	3.0	305	3.9	816	2.9	261	3.0	305	3.4	505	3.6	.....
14	3.0	305	3.2	401	3.4	505	3.0	305	4.1	970	3.6	.....
15	2.9	261	3.1	352	3.4	505	3.1	352	3.5	561	3.6	.....
16	3.5	561	3.5	561	3.4	505	2.7	182	3.9	816	3.6	.....
17	3.5	561	3.3	452	3.7	682	3.3	452	3.7	682	3.5	.....
18	3.4	505	3.1	352	3.1	352	3.0	305	3.5	561	3.0	.....
19	3.3	452	3.3	452	3.6	620	3.0	305	3.3	452	3.3	.....
20	3.4	505	3.8	747	3.3	452	3.0	305	3.2	401	3.6	.....
21	3.4	505	3.4	505	3.3	452	2.9	261	3.6	620	3.5	.....
22	3.3	452	3.4	505	3.3	452	2.9	261	3.5	561	3.5	.....
23	3.0	305	3.3	452	3.3	452	2.7	182	3.2	401	3.5	.....
24	2.7	182	3.3	452	3.2	401	3.2	401	3.0	305	3.5	.....
25	3.2	401	3.2	401	2.8	220	3.2	401	3.5	561	5.5	2,870
26	3.2	401	3.3	452	3.5	561	3.1	352	3.6	620	4.5	1,370
27	3.1	352	3.4	505	3.0	305	3.2	401	4.0	890	4.5	1,370
28	3.2	401	2.9	261	3.1	352	3.1	352	3.6	620	4.7	1,620
29	3.2	401	3.2	401	3.4	505	3.1	352	3.7	682	4.6	1,490
30	3.3	452	3.2	401	3.6	620	2.4	83	3.7	682	4.6	1,490
31	3.2	401	2.9	261	.....	.....	2.9	261	.....	.....	4.3	1,160

Gage height, in feet, and discharge, in second-feet, of Housatonic River at Gaylordsville, Conn., for 1910–1912—Continued.

Day.	January.		February.		March.		April.		May.		June.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	4.0	890	4.7	1,620	4.5	1,370	6.5	4,980	5.0	2,050	3.9	816
2	4.5	1,370	4.5	1,370	4.4	1,260	6.2	4,300	4.9	1,900	4.1	970
3	4.7	1,620	4.0	890	4.2	1,060	5.5	2,870	5.2	2,360	3.7	682
4	5.0	2,050	4.0	890	4.2	1,060	5.4	2,690	5.2	2,360	3.7	682
5	5.0	2,050	4.5	1,370	3.7	682	5.3	2,520	5.2	2,360	3.5	561
6	5.0	2,050	4.2	1,060	4.6	1,490	5.9	3,650	4.9	1,900	3.7	682
7	4.8	1,760	4.0	890	3.9	816	6.3	4,520	4.8	1,760	4.2	1,060
8	4.8	1,760	3.9	816	3.8	747	6.3	4,520	4.8	1,760	4.6	1,490
9	4.7	1,620	4.0	890	3.8	747	6.3	4,520	4.8	1,760	4.5	1,370
10	4.7	1,620	4.0	890	4.1	970	6.3	4,520	4.8	1,760	4.3	1,160
11	4.5	1,370	4.0	890	4.0	890	6.3	4,520	4.7	1,620	3.8	747
12	4.5	1,370	4.0	890	3.9	816	5.9	3,650	4.8	1,760	4.0	890
13	4.5	1,370	4.0	890	4.2	1,060	5.8	3,450	4.7	1,620	4.7	1,620
14	4.6	1,490	3.8	747	4.1	970	5.7	3,250	4.3	1,160	5.3	2,520
15	4.8	1,760	3.5	561	4.8	1,760	6.0	3,860	4.3	1,160	5.0	2,050
16	4.7	1,620	3.5	561	5.5	2,870	6.2	4,300	4.2	1,060	4.7	1,620
17	4.3	1,160	3.6	620	4.9	1,900	6.2	4,300	4.3	1,160	4.7	1,620
18	4.1	970	3.8	747	5.1	2,200	5.8	3,450	4.5	1,370	4.5	1,370
19	4.0	890	3.6	620	4.5	1,370	5.8	3,450	4.5	1,370	4.2	1,060
20	4.3	1,160	3.8	747	4.4	1,260	5.6	3,060	4.7	1,620	4.2	1,060
21	4.0	890	3.8	747	4.8	1,760	5.7	3,250	4.5	1,370	4.2	1,060
22	4.0	890	3.6	620	5.2	2,360	5.6	3,060	4.5	1,370	4.0	890
23	4.0	890	3.6	620	5.4	2,690	5.6	3,060	4.3	1,160	3.9	816
24	4.0	890	3.6	620	5.1	2,200	5.3	2,520	4.4	1,260	3.9	816
25	3.6	620	3.6	620	4.8	1,760	5.3	2,520	4.1	970	3.6	620
26	3.6	620	3.7	682	4.8	1,760	5.2	2,360	4.1	970	3.5	561
27	3.7	682	4.2	1,060	5.0	2,050	5.2	2,360	4.0	890	3.0	305
28	5.0	2,050	4.8	1,760	6.6	5,210	5.1	2,200	3.5	561	3.7	682
29	5.0	2,050	.....	.....	6.3	4,520	5.1	2,200	3.8	747	3.7	682
30	5.0	2,050	.....	.....	7.9	8,530	5.0	2,050	3.4	505	3.6	620
31	4.8	1,760	.....	.....	7.4	7,210	.....	.....	3.9	816	.....	.....

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	3.5	561	3.2	401	5.0	2,050	3.6	620	5.3	2,520	5.2	2,360
2	3.3	452	3.2	401	4.6	1,490	4.4	1,260	5.3	2,520	5.3	2,520
3	3.3	452	3.1	352	4.3	1,160	4.5	1,370	5.3	2,520	5.2	2,360
4	3.2	401	3.0	305	3.8	747	4.3	1,160	5.2	2,360	5.0	2,050
5	3.1	352	2.9	261	3.6	620	4.5	1,370	5.0	2,050	4.6	1,490
6	3.2	401	2.5	114	3.6	620	4.5	1,370	4.7	1,620	4.7	1,620
7	3.1	352	2.8	220	3.6	620	4.4	1,260	5.3	2,520	4.6	1,490
8	3.8	747	2.8	220	3.7	682	4.7	1,620	5.2	2,360	4.8	1,760
9	3.2	401	3.0	305	4.1	970	4.4	1,260	5.2	2,360	4.7	1,620
10	2.9	261	2.9	261	4.6	1,490	4.1	970	5.1	2,200	4.7	1,620
11	2.8	220	2.9	261	4.4	1,260	3.9	816	4.7	1,620	4.8	1,760
12	3.0	305	2.9	261	4.4	1,260	4.1	970	4.8	1,760	4.7	1,620
13	2.8	220	2.6	147	4.3	1,160	4.1	970	5.1	2,200	4.6	1,490
14	2.8	220	2.7	182	4.0	890	4.0	890	4.9	1,900	4.7	1,620
15	2.8	220	2.9	261	4.0	890	4.1	970	5.1	2,200	4.9	1,900
16	2.8	220	3.0	305	3.9	816	3.7	682	5.3	2,520	4.9	1,900
17	3.4	505	2.8	220	3.9	816	3.7	682	5.2	2,360	5.2	2,360
18	3.4	505	3.2	401	3.6	620	3.9	816	5.3	2,520	5.2	2,360
19	3.5	561	3.1	352	3.5	561	7.7	7,990	6.2	4,300	5.2	2,360
20	3.3	452	3.0	305	3.5	561	7.0	6,180	6.0	3,860	5.1	2,200
21	3.5	561	3.1	352	3.6	620	6.7	5,450	5.6	3,060	4.8	1,760
22	3.4	505	3.0	305	3.9	816	7.8	8,260	5.6	3,060	5.0	2,050
23	3.2	401	2.9	261	4.0	890	7.9	8,530	5.5	2,870	5.5	2,870
24	3.2	401	3.2	401	3.7	682	7.5	7,470	5.7	3,250	5.8	3,450
25	3.9	816	3.2	401	3.5	561	6.9	5,930	5.6	3,060	5.7	3,250
26	4.1	970	3.1	352	3.6	620	6.6	5,210	5.6	3,060	5.7	3,250
27	3.7	682	3.3	452	3.4	505	6.6	5,210	5.4	2,690	5.6	3,060
28	3.1	352	3.4	505	3.8	747	6.0	3,860	5.4	2,690	5.7	3,250
29	3.2	401	3.4	505	3.7	682	5.5	2,870	5.4	2,690	5.3	2,520
30	3.2	401	4.9	1,900	3.7	682	5.7	3,250	5.2	2,360	4.9	1,900
31	3.4	505	4.8	1,760	.....	.....	5.5	2,870	.....	.....	5.0	2,050

Gage height, in feet, and discharge, in second-feet, of Housatonic River at Gaylordsville, Conn., for 1910–1912—Continued.

Day.	January.		February.		March.		April.		May.		June.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1	5.1	2,200	4.3	1,160	5.0	2,050	6.8	5,690	6.2	4,300	5 5	2,870
2	5.0	2,050	4.4	1,260	4.7	1,620	6.8	5,690	6.0	3,860	5.6	3,060
3	5.1	2,200	4.5	1,370	4.5	1,370	7.8	8,260	5.8	3,450	5.4	2,690
4	4.9	1,900	4.3	1,160	4.5	1,370	7.5	7,470	5.7	3,250	5.5	2,870
5	4.9	1,900	4.3	1,160	4.5	1,370	7.1	6,430	5.7	3,250	5.5	2,870
6	4.4	1,260	4.3	1,160	4.5	1,370	6.8	5,690	5.7	3,250	5.4	2,690
7	4.3	1,160	4.3	1,160	4.4	1,260	6.5	4,980	5.9	3,650	5.3	2,520
8	4.5	1,370	4.2	1,060	4.5	1,370	7.4	7,210	5.8	3,450	5.2	2,360
9	4.6	1,490	4.3	1,160	4.6	1,490	7.5	7,470	5.8	3,450	5.0	2,050
10	4.5	1,370	4.3	1,160	4.5	1,370	7.2	6,690	5.7	3,250	4.8	1,760
11	4.4	1,260	3.9	816	4.5	1,370	7.0	6,180	5.7	3,250	4.8	1,760
12	4.4	1,260	4.0	890	4.5	1,370	6.8	5,690	5.7	3,250	4.8	1,760
13	4.4	1,260	4.0	890	8.8	10,960	6.6	5,210	5.5	2,870	4.9	1,900
14	4.3	1,160	4.3	1,160	6.5	4,980	6.6	5,210	5.5	2,870	4.7	1,620
15	4.4	1,260	4.4	1,260	6.5	4,980	6.1	4,080	5.6	3,060	4.7	1,620
16	4.4	1,260	4.3	1,160	9.2	12,060	6.4	4,750	5.6	3,060	4.3	1,160
17	4.2	1,060	4.3	1,160	7.6	7,730	6.7	5,450	6.2	4,300	4.3	1,160
18	4.4	1,260	4.0	890	7.5	7,470	6.9	5,930	6.2	4,300	4.2	1,060
19	4.5	1,370	4.0	890	7.1	6,430	7.1	6,430	6.0	3,860	4.1	970
20	5.0	2,050	4.5	1,370	6.7	5,450	6.8	5,690	5.8	3,450	4.2	1,060
21	4.8	1,760	4.7	1,620	6.5	4,980	6.5	4,980	5.6	3,060	4.1	970
22	4.8	1,760	9.0	11,500	6.3	4,520	6.5	4,980	5.6	3,060	4.2	1,060
23	5.0	2,050	6.0	3,860	6.1	4,080	6.5	4,980	5.5	2,870	3.7	682
24	4.8	1,760	5.4	2,690	6.0	3,860	6.4	4,750	5.5	2,870	3.7	682
25	4.5	1,370	5.1	2,200	6.3	4,520	6.5	4,980	5.3	2,520	3.8	747
26	4.5	1,370	5.2	2,360	5.6	3,060	6.5	4,980	5.4	2,690	3.7	682
27	4.5	1,370	7.5	7,470	5.6	3,060	6.0	3,860	5.0	2,050	3.5	561
28	4.4	1,260	6.0	3,860	5.9	3,650	5.9	3,650	5.1	2,200	3.7	682
29	4.6	1,490	5.2	2,360	6.9	5,930	5.7	3,250	5.0	2,050	3.9	816
30	4.4	1,260	.....	.....	7.8	8,260	6.6	5,210	5.4	2,690	3.5	561
31	4.4	1,260	.....	.....	7.3	6,950	.....	.....	5.9	3,650	.....	.....

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1	3.5	561	3.0	305	3.0	305	3.2	401	4.6	1,490	4.6	1,490
2	3.5	561	3.1	352	3.4	505	3.4	505	4.5	1,370	4.3	1,160
3	3.5	561	3.2	401	4.0	890	3.5	561	4.8	1,760	5.0	2,050
4	3.3	452	2.9	261	3.9	816	3.5	561	4.5	1,370	5.6	3,060
5	3.2	401	3.3	452	3.8	747	3.5	561	4.6	1,490	5.5	2,870
6	3.0	305	3.3	452	4.1	970	2.9	261	4.5	1,370	5.7	3,250
7	2.9	261	3.3	452	4.0	890	3.5	561	4.3	1,160	5.8	3,450
8	3.0	305	3.2	401	3.6	620	3.4	505	5.9	3,650	5.6	3,060
9	3.1	352	3.2	401	4.0	890	3.3	452	5.8	3,450	5.3	2,520
10	3.1	352	3.0	305	3.8	747	3.4	505	5.7	3,250	5.2	2,360
11	3.3	452	2.6	147	3.5	561	3.1	352	5.1	2,200	5.0	2,050
12	3.5	561	4.8	1,760	3.7	682	3.2	401	5.0	2,050	5.0	2,050
13	3.2	401	4.2	1,060	4.0	890	2.9	261	5.1	2,200	4.7	1,620
14	3.2	401	4.0	890	3.8	747	2.9	261	5.2	2,360	4.9	1,900
15	3.4	505	4.1	970	3.5	561	3.2	401	5.2	2,360	4.7	1,620
16	3.0	305	3.7	682	3.8	747	3.3	452	5.2	2,360	4.3	1,160
17	3.4	505	3.3	452	3.7	682	3.3	452	5.2	2,360	4.7	1,620
18	3.1	352	3.4	505	3.6	620	3.0	305	4.6	1,490	4.9	1,900
19	3.3	452	3.9	816	3.7	682	3.0	305	4.7	1,620	5.0	2,050
20	3.6	620	3.7	682	3.7	682	2.9	261	4.8	1,760	5.4	2,690
21	3.0	305	4.0	890	3.7	682	3.4	505	4.8	1,760	5.5	2,870
22	3.7	682	4.0	890	3.2	401	3.2	401	4.8	1,760	5.1	2,200
23	3.5	561	3.9	816	3.5	561	3.4	505	4.8	1,760	5.0	2,050
24	3.4	505	3.8	747	3.1	352	5.9	3,650	4.6	1,490	5.0	2,050
25	3.5	561	3.5	561	3.2	401	5.9	3,650	4.6	1,490	4.8	1,760
26	3.3	452	3.7	682	3.2	401	6.1	4,080	5.0	2,050	4.8	1,760
27	3.2	401	3.7	682	3.4	505	6.0	3,860	5.0	2,050	4.7	1,620
28	2.6	147	3.9	816	3.3	452	5.6	3,060	5.0	2,050	5.4	2,690
29	3.3	452	4.0	890	2.9	261	5.1	2,200	4.8	1,760	5.1	2,200
30	3.1	352	3.6	620	3.3	452	4.9	1,900	4.8	1,760	5.4	2,690
31	3.0	305	3.6	620	.....	.....	4.9	1,900	.....	.....	6.6	5,210

NOTE.—Gage read once daily at 8 a. m. Relation of gage height to discharge affected by ice Jan. 1 to about Jan. 21, and about Dec. 5-24, 1910. Probably little or no ice effect during 1911 or 1912. Discharge determined from a well-defined rating curve.

HUDSON RIVER BASIN.

COMPARATIVE DISCHARGE OF STREAMS IN THE HUDSON RIVER BASIN.

A comparison of discharge of streams in Hudson River basin, containing two tables for the years 1904 to 1911, inclusive, appears on pages 117–122 of Water-Supply Paper 301. The comparison is continued in the following tables:

Comparison (by monthly means) of discharge in the Hudson River drainage basin for 1912.

Month.	Hudson, North Creek.	Schroon, River-bank.	North Creek+ River-bank.	Hudson, Thurman.	Sacandaga.		Thurman+ Hadley.	Hudson.	
					Hope.	Hadley.		Corinth.	Mechanicville+ Champlain Canal.[a]
January	800	720	1,520	1,700	600	1,070	2,770	3,320	4,760
February	1,060	349	1,409	1,500	300	655	2,155	2,540	3,400
March	818	364	1,182	1,300	900	2,130	3,430	4,860	10,000
April	5,850	3,840	9,690	9,880	4,980	9,110	18,990	23,400	27,600
May	3,800	2,130	5,930	6,370	2,190	3,710	10,080	11,900	13,090
June	1,140	885	2,025	2,230	489	975	3,205	3,480	5,730
July	681	148	829	894	110	213	1,107	1,210	1,500
August	911	192	1,103	1,160	90.7	191	1,351	1,420	1,460
September	892	245	1,137	1,220	259	571	1,791	1,810	2,680
October	1,270	391	1,661	1,800	746	1,570	3,370	4,010	7,120
November	1,830	1,150	2,980	3,000	1,420	2,700	5,700	7,390	10,990
December	1,220	800	2,020	2,100	1,220	2,360	4,460	4,490	8,640
The year	1,690	931	2,621	2,750	1,110	2,100	4,850	5,820	8,060

[a] Canal assumed in operation May to November, inclusive, and to be carrying 190 second-feet.

Comparison (by monthly ratios) of discharge in the Hudson River drainage basin for 1912.

	Ratio of North Creek+ River-bank to Thurman.	Ratio of Thurman +Hadley to Corinth.	Ratio of Thurman +Hadley to Mechanicville.	Ratio of Corinth to Mechanicville.
Drainage area ratio	0.86	0.95	0.58	0.61
January	.89	.83	.58	.70
February	.94	.85	.63	.75
March	.91	.71	.34	.49
April	.98	.81	.69	.85
May	.93	.85	.77	.91
June	.91	.92	.56	.61
July	.93	.92	.74	.81
August	.95	.95	.93	.97
September	.93	.99	.67	.68
October	.92	.84	.47	.56
November	.99	.77	.52	.67
December	.96	.99	.52	.52
The year	.95	.83	.60	.72

HUDSON RIVER AT NORTH CREEK, N. Y.

Location.—At the highway bridge in the village of North Creek, immediately above the mouth of North Creek, which enters the Hudson from the right.

Records available.—September 21, 1907, to December 31, 1912. Data also in annual reports of the State Water Supply Commission and the State engineer and surveyor, and in the 1911 report of the State of New York Conservation Commission.

Drainage area.—804 square miles.

Gage.—Chain, read twice daily; datum, unchanged.

Channel.—Heavy gravel; considered fairly permanent.

Discharge measurements.—Made from the two-span steel highway bridge.

Artificial control.—The numerous lakes and ponds in the basin of the upper Hudson have a decided effect on the low-water flow; especially is this true of Indian Lake.[1] The use of these storage reservoirs in the spring in connection with log driving tends to vitiate the daily records at this station. Where possible, allowance is made for the effect of logging operations.

Winter flow.—Winters are severe in the northern part of the State and determinations of flow for the winter months are approximate because of ice.

Accuracy.—Discharge rating curve very well defined. Determinations of discharge for open-water periods considered excellent.

Discharge measurements of Hudson River at North Creek, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 19[a]	Frank Weber	4.60	883	Mar. 14[a]	Frank Weber	5.03	821
Feb. 8[a]	do	4.89	1,090	23[a]	do	4.74	773
29[a]	do	5.26	989	June 22	G. H. Canfield	2.52	466

[a] Measurement made under complete ice cover.

Daily gage height, in feet, of Hudson River at North Creek, N. Y., for 1912.

[Gilbert Dean, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.1	.....	.....	.....	4.8	4.9	2.65	2.7	3.0	2.9	3.3	2.8
2	3.0	.....	.....	.....	4.5	4.6	2.65	2.7	3.1	3.1	3.45	2.8
3	2.95	.....	.....	5.6	3.6	4.2	2.6	2.9	3.1	3.05	3.45	3.5
4	2.9	.....	.....	.....	3.85	4.0	2.6	3.0	3.2	2.95	3.35	3.95
5	2.85	.....	.....	.....	4.7	3.85	2.65	3.05	3.2	2.8	3.25	3.85
6	3.95	.....	5.2	5.6	4.1	3.65	2.65	3.05	3.2	2.75	3.15	3.8
7	.....	4.8	.....	6.0	4.4	3.55	2.65	3.0	3.2	2.7	3.1	4.0
8	.....	4.9	.....	6.7	3.65	3.40	2.6	3.0	3.3	2.65	4.7	4.0
9	.....	.....	.....	6.4	4.3	3.1	2.95	3.0	3.2	2.75	5.4	3.7
10	4.4	.....	.....	5.8	3.85	3.25	3.05	3.0	3.1	2.9	5.1	3.55
11	.....	.....	.....	5.2	4.3	3.1	2.85	3.0	3.0	2.95	4.7	3.45
12	.....	.....	.....	4.8	3.8	3.15	2.8	3.05	2.95	3.1	4.3	3.3
13	.....	.....	4.8	4.6	4.6	3.05	2.8	3.05	2.95	3.3	4.0	3.1
14	.....	4.8	5.0	4.7	5.6	2.95	2.85	3.15	2.9	3.6	3.95	3.05
15	.....	.....	.....	4.9	4.6	2.75	2.85	3.1	2.9	3.7	4.1	3.0
16	.....	.....	.....	6.7	5.4	2.75	2.8	3.1	3.0	3.55	4.1	3.0
17	3.8	.....	.....	8.2	6.0	2.75	2.75	3.05	3.05	3.25	3.95	2.9
18	.....	.....	.....	8.0	5.0	2.75	2.75	3.0	3.05	3.0	3.75	2.85
19	4.60	.....	.....	7.7	4.9	2.7	2.75	3.0	3.15	2.9	3.55	3.0
20	.....	.....	5.0	7.0	4.7	2.6	2.75	3.0	2.8	2.8	3.6	3.4
21	.....	4.8	.....	6.4	5.7	2.6	2.75	3.0	2.7	2.75	3.7	3.45
22	.....	.....	.....	6.3	6.6	2.55	2.95	3.05	2.9	2.65	3.5	3.4
23	.....	.....	4.7	7.1	6.2	2.5	2.95	3.05	2.85	2.65	3.3	3.3
24	4.3	.....	.....	6.8	6.0	2.75	2.95	3.05	2.8	3.1	3.2	3.15
25	.....	.....	.....	6.1	5.5	2.75	2.9	3.05	2.8	4.6	3.2	3.1
26	.....	.....	.....	5.3	4.9	2.75	2.8	3.0	2.95	4.7	3.1	3.0
27	.....	.....	4.4	5.2	4.6	2.75	2.8	3.05	3.05	4.5	3.0	2.95
28	.....	.....	.....	5.2	4.3	2.65	2.75	3.15	2.95	4.2	3.0	2.9
29	.....	5.3	.....	5.4	4.2	2.7	2.75	3.15	2.8	3.9	2.9	2.85
30	.....	.....	.....	4.6	4.8	2.65	2.75	3.1	2.75	3.6	2.8	2.9
31	4.5	.....	.....	.....	5.1	.....	2.7	3.05	.....	3.45	.....	2.9

NOTE.—Relation of gage height to discharge affected by ice Jan. 6 to Apr. 5.

[1] See Indian Lake at Indian Lake, N. Y., p. 144.

Daily discharge, in second-feet, of Hudson River at North Creek, N. Y., for 1912.

Day.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	990	.....	3,680	3,880	570	610	890	790	1,220	700
2	890	.....	3,100	3,290	570	610	990	990	1,420	700
3	840	.....	1,620	2,570	530	790	990	940	1,420	1,480
4	790	.....	2,000	2,240	530	890	1,100	840	1,280	2,160
5	745	.....	3,480	2,000	570	940	1,100	700	1,160	2,000
6	.....	5,440	2,400	1,700	570	940	1,100	655	1,040	1,920
7	.....	6,430	2,920	1,550	570	890	1,100	610	990	2,240
8	.....	8,330	1,700	1,350	530	890	1,220	570	3,480	2,240
9	.....	7,490	2,740	990	840	890	1,100	655	4,970	1,770
10	.....	5,930	2,000	1,160	940	890	990	790	4,300	1,550
11	.....	4,520	2,740	990	745	890	890	840	3,480	1,420
12	.....	3,680	1,920	1,040	700	940	840	990	2,740	1,220
13	.....	3,290	3,290	940	700	940	840	1,220	2,240	990
14	.....	3,480	5,440	840	745	1,040	790	1,620	2,160	940
15	.....	3,880	3,290	655	745	990	790	1,770	2,400	890
16	.....	8,330	4,970	655	700	990	890	1,550	2,400	890
17	.....	12,900	6,430	655	655	940	940	1,160	2,160	790
18	.....	12,300	4,090	655	655	890	940	890	1,840	745
19	.....	11,300	3,880	610	655	890	1,040	790	1,550	890
20	.....	9,200	3,480	530	655	890	700	700	1,620	1,350
21	.....	7,490	5,680	530	655	890	610	655	1,770	1,420
22	.....	7,220	8,050	495	840	940	790	570	1,480	1,350
23	.....	9,490	6,950	460	840	940	745	570	1,220	1,220
24	.....	8,620	6,430	655	840	940	700	990	1,100	1,040
25	.....	6,690	5,200	655	790	940	700	3,290	1,100	990
26	.....	4,740	3,880	655	700	890	840	3,480	990	890
27	.....	4,520	3,290	655	700	940	940	3,100	890	840
28	.....	4,520	2,740	570	655	1,040	840	2,570	890	790
29	.....	4,970	2,570	610	655	1,040	700	2,080	790	745
30	.....	3,290	3,680	570	655	990	655	1,620	700	790
31	.....	.....	4,300	.....	610	940	.....	1,420	.....	790

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

Monthly discharge of Hudson River at North Creek, N. Y., for 1912.

[Drainage area, 804 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	800	0.995	1.15	B.
February	.....	.....	1,060	1.32	1.42	B.
March	.....	.....	818	1.02	1.18	B.
April	12,900	800	5,850	7.28	8.12	A.
May	8,050	1,620	3,800	4.73	5.45	A.
June	3,880	460	1,140	1.42	1.58	A.
July	940	530	681	.847	.98	A.
August	1,040	610	911	1.13	1.30	A.
September	1,220	610	892	1.11	1.24	A.
October	3,480	570	1,270	1.58	1.82	A.
November	4,970	700	1,830	2.28	2.54	A.
December	2,240	700	1,220	1.52	1.75	A.
The year	12,900	.....	1,690	2.10	28.53	

NOTE.—Discharge Jan. 6 to Apr. 5 estimated by means of 5 measurements made with ice present, climatologic records, consideration of storage, and comparison of the discharge with that at other stations.
Mean discharge Jan. 6 to 31 estimated 790 second-feet.
Mean discharge Apr. 1 to 5 estimated 1,540 second-feet.

HUDSON RIVER AT THURMAN, N. Y.

Location.—At the Delaware & Hudson Railroad bridge leading from Thurman to Warrensburg, about 950 feet below the highway bridge to Warrensburg, about 2,000 feet below the mouth of Schroon River, and about 13 miles above the mouth of Sacandaga River, which enters from the right.

Records available.—September 1, 1907, to December 31, 1912; data also in annual reports of the New York State Water Supply Commission, the State engineer and surveyor, and the State Conservation Commission of New York.

Drainage area.—1,550 square miles.

Gage.—Chain; read three times daily; datum unchanged.

Channel.—Sand and gravel; liable to shift.

Discharge measurements.—Made from the bridge.

Artificial control.—The influence of storage at Indian Lake and of mill control on Schroon River is observable at this station.

Winter flow.—Winter flow estimated from the determinations of combined flow at Riverbank and North Creek plus an estimated inflow between the two stations.

Accuracy.—Accuracy of the determinations to some extent impaired as the result of accumulations of logs at the control point below the section and also around the piers of the bridge. Discharge rating curve very well defined, and determinations of flow during the open-water season are considered fairly accurate.

Cooperation.—Gage heights, January to March and December, furnished by Albany office of United States Weather Bureau.

Discharge measurements of Hudson River at Thurman, N. Y., 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		*Feet.*	*Sec.-ft.*
June 21	G. H. Canfield	2.87	1,190
28	....do	2.80	1,110
July 4	....do	2.32	616
Aug. 1	J. G. Mathers	2.54	796

Daily gage height, in feet, of Hudson River at Thurman, N. Y., for 1912.

[S. H. Spencer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.8	5.4	5.2	5.8	5.2	4.8	2.7	2.5	2.65	2.85	3.4	3.1
2	6.2	5.4	5.1	5.6	4.9	4.6	2.48	2.46	2.95	3.05	3.4	3.0
3	6.5	5.5	5.1	5.4	4.7	4.4	2.46	2.55	3.0	2.95	3.4	3.7
4	6.5	5.6	5.1	5.1	3.85	4.1	2.34	2.6	3.1	2.85	3.4	3.9
5	6.2	5.6	5.2	5.0	5.0	4.0	2.55	2.9	2.95	2.8	3.3	3.9
6	5.5	5.4	5.1	5.4	3.85	3.8	2.47	2.8	2.95	2.38	3.2	3.8
7	5.4	5.4	5.2	6.7	4.7	3.75	2.31	2.8	3.0	2.8	3.2	4.0
8	5.9	5.3	5.2	6.7	3.85	3.6	2.65	2.85	2.85	2.7	4.6	4.0
9	6.0	5.3	5.1	6.7	4.2	3.05	2.50	2.85	3.0	2.75	5.0	3.7
10	6.2	5.3	5.1	6.4	4.2	3.35	3.0	2.95	2.95	2.85	4.8	3.6
11	5.8	5.3	5.1	6.0	4.0	3.25	2.7	2.65	2.85	3.0	4.5	3.5
12	5.5	5.4	5.1	5.6	4.1	3.35	2.65	2.95	2.8	2.95	4.2	3.4
13	5.3	5.3	5.2	5.4	4.8	3.15	2.55	3.0	2.8	2.85	4.1	3.3
14	5.3	5.3	5.2	5.4	5.3	3.15	2.50	3.0	2.75	3.4	4.0	3.2
15	5.4	5.1	5.1	5.5	5.0	2.95	2.8	2.9	2.55	3.5	4.2	3.1
16	5.3	5.1	5.2	6.7	5.1	2.7	2.7	2.9	3.05	3.35	4.2	3.1
17	5.4	5.1	5.3	7.9	4.8	3.0	2.65	2.8	3.05	3.2	4.1	3.0
18	5.8	5.1	5.4	8.0	4.7	3.0	2.6	2.65	3.0	2.85	4.0	3.0
19	5.8	5.0	5.3	7.9	4.7	3.0	2.55	2.85	3.1	2.75	3.8	3.2
20	5.6	5.0	5.5	7.4	4.6	2.95	2.55	2.8	2.95	2.6	3.65	3.3
21	5.4	5.0	5.3	6.8	5.2	2.85	2.50	2.85	2.75	2.8	3.7	3.5
22	5.4	5.2	5.1	6.6	6.2	2.8	2.8	2.9	2.50	2.65	3.6	3.4
23	5.3	5.2	4.9	7.5	6.0	2.32	2.75	2.9	3.0	2.75	3.45	3.4
24	5.3	5.3	4.9	7.0	5.7	2.95	2.75	2.9	2.8	3.4	3.35	3.2
25	5.3	5.2	4.6	6.6	5.6	3.0	2.65	2.65	2.8	4.3	3.4	3.0
26	5.3	5.2	4.6	5.9	5.1	2.85	2.6	3.0	2.8	4.3	3.3	3.0
27	5.5	5.2	4.5	6.2	4.9	2.8	2.6	2.95	2.9	4.2	3.2	3.0
28	5.3	5.3	4.6	5.7	4.6	2.85	2.6	3.0	2.9	3.95	3.1	3.1
29	5.7	5.2	4.6	5.8	4.4	2.8	2.7	2.95	2.46	3.75	3.0	3.1
30	5.5	.....	4.7	5.2	4.8	2.38	2.6	2.95	2.9	3.5	3.1	3.1
31	5.5	.....	5.3	.....	5.0	.....	2.55	2.8	.....	3.45	.....	3.2

NOTE.—Relation of gage height to discharge affected by ice Jan. 1 to about Apr. 5. A log jam formed June 17 and caused some backwater at the gage for the remainder of the year. There were other log jams before June 17, but apparently they did not affect the gage heights.

Daily discharge, in second-feet, of Hudson River at Thurman, N. Y., for 1912.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	7,520	6,320	990	770	935	1,180	2,150	1,560
2	.....	6,620	5,730	752	734	1,320	1,470	2,150	1,390
3	.....	6,020	5,150	734	825	1,390	1,320	2,150	2,840
4	.....	3,610	4,290	632	880	1,560	1,180	2,150	3,330
5	.....	6,920	4,010	825	1,240	1,320	1,110	1,940	3,330
6	8,120	3,610	3,480	743	1,110	1,320	664	1,740	3,080
7	12,000	6,020	3,360	608	1,110	1,390	1,110	1,740	3,590
8	12,000	3,610	2,990	935	1,180	1,180	990	5,290	3,590
9	12,000	4,570	1,760	770	1,180	1,390	1,050	6,470	2,840
10	11,100	4,570	2,400	1,390	1,320	1,320	1,180	5,870	2,600
11	9,920	4,010	2,180	990	935	1,180	1,390	5,000	2,370
12	8,720	4,290	2,400	935	1,320	1,110	1,320	4,140	2,150
13	8,120	6,320	1,960	825	1,390	1,110	1,180	3,860	1,940
14	8,120	7,820	1,960	770	1,390	1,050	2,150	3,590	1,740
15	8,420	6,920	1,560	1,110	1,240	825	2,370	4,140	1,560
16	12,000	7,220	1,140	990	1,240	1,480	2,040	4,140	1,560
17	15,600	6,320	1,390	935	1,110	1,480	1,740	3,860	1,390
18	15,900	6,020	1,390	880	935	1,390	1,180	3,590	1,390
19	15,600	6,020	1,390	825	1,180	1,560	1,050	3,080	1,740
20	14,100	5,730	1,320	825	1,110	1,320	880	2,720	1,940
21	12,300	7,520	1,180	770	1,180	1,050	1,110	2,840	2,370
22	11,700	10,500	1,110	1,110	1,240	770	940	2,600	2,150
23	14,400	9,920	616	1,050	1,240	1,390	1,050	2,260	2,150
24	12,900	9,020	1,320	1,050	1,240	1,110	2,150	2,040	1,740
25	11,700	8,720	1,390	935	935	1,110	4,420	2,150	1,390
26	9,620	7,220	1,180	880	1,390	1,110	4,420	1,940	1,390
27	10,500	6,620	1,110	880	1,320	1,240	4,140	1,740	1,390
28	9,020	5,730	1,180	880	1,390	1,240	3,460	1,560	1,560
29	9,320	5,150	1,110	990	1,320	734	2,960	1,390	1,560
30	7,520	6,320	664	880	1,320	1,240	2,370	1,560	1,560
31	.....	6,920	.....	825	1,110	.....	2,260	.....	1,740

NOTE.—Daily discharge determined from two fairly well defined rating curves, one applicable Apr. 6 to June 16, and the other June 17 to Dec. 31, the latter based on measurements made during the existence of a log jam.

Monthly discharge of Hudson River at Thurman, N. Y., for 1912.

[Drainage area, 1,550 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	1,700	1.10	1.27	C.
February	.....	.....	1,500	.968	1.04	C.
March	.....	.....	1,300	.839	.97	C.
April	15,900	1,650	9,880	6.37	7.11	B.
May	10,500	3,610	6,370	4.11	4.74	B.
June	6,320	616	2,230	1.44	1.61	B.
July	1,390	608	894	.577	.67	B.
August	1,390	734	1,160	.748	.86	B.
September	1,560	770	1,220	.787	.88	B.
October	4,420	664	1,800	1.16	1.34	B.
November	6,470	1,390	3,000	1.94	2.16	B.
December	3,590	1,390	2,100	1.35	1.56	B.
The year	15,900	608	2,750	1.77	24.21	

NOTE.—Discharge Jan. 1 to Apr. 5 estimated from the combined discharge of Schroon River and Hudson River at North Creek, considering the probable inflow between North Creek and Thurman.
Mean discharge Apr. 1 to 5 estimated 3,110 second-feet.

HUDSON RIVER AT CORINTH, N. Y.

Location.—One-half mile upstream from highway bridge crossing the Hudson at Corinth and one-half mile north of the Corinth post office, at the mouth of the second brook, upstream, tributary to the Hudson from the right; 5 miles by river below the village of Luzerne and 1½ miles above the dam of the International Paper Co. at Palmer Falls.

Records available.—June 1, 1904, to December 31, 1912.

Drainage area.—2,760 square miles.[1]

Gage.—Vertical staff bolted to the left-hand abutment on the downstream side of the highway bridge over the brook. The gage is about 25 feet from low-water line in Hudson River, but as there is practically no slope to the tributary stream low-water readings can be considered fair. The zero of the gage, unchanged since established, is at the same elevation as the crest of the Palmer Falls dams, which is assumed as 100 feet.

Channel.—Permanent; composed of coarse gravel and bowlders; fairly straight for upward of 2 miles above the gage, and current sluggish. The river begins to bend to the left almost at the gage and in the next 1,000 feet turns nearly 90°, then flows straight for 200 or 300 feet to the head of a rocky reef, which is practically a control for the gage. In the 1,000 feet between the point of control and the three-span steel highway bridge that crosses the Hudson at this point the river falls 3 or 4 feet.

Discharge measurements.—At low and medium stages made from a boat or by wading just above the point of control and about 1,100 feet downstream from the gage; at high stages from the upstream side of the highway bridge. None made during 1912.

Winter flow.—Ice forms in the river to a thickness of 2 or 3 feet in the vicinity of the gage and down to within 500 feet of the control. In a section at the control, however, the river is usually open and it is believed that there is no very marked effect from ice.

Artificial control.—The low-water flow is modified by release of stored water from Indian Lake and to some extent by release of water from other small ponds on the upper Hudson. The only dam on the main stream above the station is that which furnishes power to a paper mill at Luzerne, 5 miles above. Below the bridge and on the left-hand side of the stream is a low dam built in November, 1905, by the Corinth Electric Power Co., to divert water to a small electric plant which furnishes light and power for the villages of Corinth and Palmer Falls. In September, 1909, a temporary brush dam was built at this point by the same company. The dam of the International Paper Co. is about one-half mile farther downstream. Neither dam affects the records at the gage.

Point of zero flow.—Soundings near the point of control indicate that there would be no flow past the gage if the water fell below 123 feet on the gage.

Accuracy.—Conditions are not entirely favorable for accurate determination of flow. During the greater part of the time log jams rest against the two bridge piers and often extend upstream above the point of control, causing back water at the gage. Construction work on the temporary brush dam in the fall of 1909 may have produced a slight effect at the gage. The discharge curve has been developed from measurements made by engineers of the United States Geological Survey and probably represents the discharge at the station fairly well for conditions unaffected by log jams or ice.

Cooperation.—Gage installed and gage heights furnished by the International Paper Co.

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[1] The figure formerly published was 2,728 square miles, but the new figure is probably more nearly correct.

Daily gage height, in feet, of Hudson River at Corinth, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	127.4	126.15	126.1	129.2	129.0	128.4	125.45	125.4	125.55	125.85	126.9	126.2
2	127.2	126.2	126.1	129.4	128.8	128.0	125.4	125.4	125.5	125.9	126.85	126.25
3	126.95	126.3	126.05	129.3	128.2	127.8	125.4	125.4	125.6	125.95	126.95	127.7
4	126.85	126.25	126.1	129.2	127.9	127.5	125.4	125.45	125.8	125.9	126.8	127.4
5	126.7	126.25	126.05	129.3	128.5	127.3	125.4	125.55	125.8	125.75	126.65	127.4
6	126.55	126.25	126.05	130.0	127.9	127.1	125.4	125.55	125.8	125.65	126.5	127.3
7	126.3	126.2	126.05	131.4	128.2	126.9	125.4	125.55	125.75	125.6	126.5	127.4
8	126.35	126.25	126.0	132.7	127.8	126.75	125.4	125.7	125.7	125.65	128.8	127.4
9	126.6	126.15	126.05	132.5	128.1	126.5	125.4	125.55	125.75	125.6	129.7	127.1
10	126.65	126.15	126.0	131.8	127.7	126.35	125.6	125.6	125.7	125.6	129.7	127.7
11	126.45	126.1	126.05	131.1	127.6	126.4	125.55	125.65	125.65	125.7	129.2	127.5
12	126.2	126.1	126.05	130.3	127.3	126.3	125.45	125.65	125.6	125.75	128.8	127.2
13	126.2	126.1	126.05	129.9	127.7	126.25	125.4	125.65	125.6	125.9	128.3	126.6
14	126.1	126.05	126.1	129.7	128.2	126.2	125.5	125.65	125.55	126.0	128.1	126.6
15	126.05	126.05	126.15	129.8	128.2	126.0	125.55	125.65	125.55	126.2	128.2	126.5
16	126.05	126.05	126.95	130.7	128.4	125.9	125.55	125.65	125.8	126.2	128.1	126.55
17	126.0	126.0	127.3	132.3	128.5	125.85	125.5	125.65	125.95	126.1	127.9	126.4
18	126.0	126.0	127.5	132.9	128.9	125.95	125.45	125.55	125.9	125.9	127.7	126.35
19	126.4	126.0	127.7	133.1	128.7	125.95	125.45	125.6	126.0	125.8	127.4	126.6
20	126.45	126.05	127.9	132.8	128.5	125.9	125.4	125.55	126.1	125.75	127.2	126.1
21	126.35	126.0	127 9	132.0	129.1	125.8	125.45	125.55	125.9	125.8	127.1	126.2
22	126.35	126.05	127.7	131.5	130.1	125.75	125.55	125.6	125.75	125.85	127.0	126.45
23	126.35	126.1	127.5	131.8	130.2	125.6	125.6	125.6	125.7	125.9	126.85	126.95
24	126.25	126.15	127.4	132.1	129.8	125.55	125.6	125.65	125.75	127.2	126.65	126.55
25	126.2	126.2	127.3	131.5	129.8	125.75	125.55	125.6	125.8	128.6	126.8	126.35
26	126.15	126.2	127.0	130.8	129.2	125.75	125.5	125.6	126.1	129.1	126.7	126.3
27	126.15	126.2	126.9	130.1	128.9	125.7	125.4	125.65	126.2	128.9	126.65	126.3
28	126.15	126.15	126.75	130.2	128.4	125.65	125.4	125.6	126.1	128.5	126.55	126.3
29	126.2	126.1	127.1	129.9	128.1	125.6	125.4	125.7	125.9	128.0	126.35	126.25
30	126.2	.....	128.1	129.7	128.3	125.5	125.4	125.65	125.8	127.6	126.3	126.3
31	126.15	.....	128.4	.....	128.6	.....	125.4	125.6	.....	127.2	.....	126.6

NOTE.—Gage heights probably affected by backwater at high stages from the dam which is being constructed below the station. This effect is more marked during the last months of the year.

Daily discharge, in second-feet, of Hudson River at Corinth, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6,860	2,580	2,460	14,900	14,000	11,200	1,190	1,110	1,360	1,910	4,950	2,710
2	6,070	2,710	2,460	15,900	13,000	9,410	1,110	1,110	1,270	2,010	4,770	2,840
3	5,140	2,980	2,340	15,400	10,300	8,530	1,110	1,110	1,440	2,120	5,140	8,100
4	4,770	2,840	2,460	14,900	8,970	7,270	1,110	1,190	1,810	2,020	4,590	6,860
5	4,240	2,840	2,340	15,400	11,700	6,460	1,110	1,360	1,810	1,720	4,070	6,860
6	3,740	2,840	2,340	18,800	8,970	5,690	1,110	1,360	1,810	1,530	3,580	6,460
7	2,980	2,710	2,340	25,900	10,300	4,950	1,110	1,360	1,720	1,440	3,580	6,860
8	3,120	2,840	2,230	32,700	8,530	4,420	1,110	1,620	1,620	1,530	13,000	6,860
9	3,900	2,580	2,340	31,600	9,850	3,580	1,110	1,360	1,720	1,440	18,300	5,690
10	4,170	2,580	2,230	28,000	8,100	3,120	1,440	1,440	1,620	1,440	18,300	8,100
11	3,420	2,460	2,340	24,300	7,680	3,270	1,360	1,530	1,530	1,620	14,900	7,270
12	2,710	2,460	2,340	20,300	6,460	2,980	1,190	1,530	1,440	1,720	13,000	6,070
13	2,710	2,460	2,340	18,300	8,100	2,840	1,110	1,530	1,440	2,010	10,800	3,900
14	2,460	2,340	2,460	17,300	10,300	2,710	1,270	1,530	1,360	2,230	9,850	3,900
15	2,340	2,340	2,580	17,800	10,300	2,230	1,360	1,530	1,360	2,710	10,300	3,580
16	2,340	2,340	5,140	22,300	11,200	2,010	1,360	1,530	1,810	2,710	9,850	3,740
17	2,230	2,230	6,460	30,600	11,700	1,910	1,270	1,530	2,120	2,460	8,970	3,270
18	2,230	2,230	7,270	33,800	13,500	2,120	1,190	1,360	2,010	2,010	8,100	3,120
19	3,270	2,230	8,100	34,800	12,600	2,120	1,190	1,440	2,230	1,810	6,860	3,900
20	3,420	2,340	8,970	33,200	11,700	2,010	1,110	1,360	2,460	1,720	6,070	2,460
21	3,120	2,230	8,970	29,000	14,400	1,810	1,190	1,360	2,010	1,810	5,690	2,710
22	3,120	2,340	8,100	26,400	19,300	1,720	1,360	1,440	1,720	1,910	5,320	3,420
23	3,120	2,460	7,270	28,000	19,800	1,440	1,440	1,440	1,620	2,010	4,770	5,140
24	2,840	2,580	6,860	29,500	17,800	1,360	1,440	1,530	1,720	6,070	4,070	3,740
25	2,710	2,710	6,460	26,400	17,800	1,720	1,360	1,440	1,810	12,100	4,590	3,120
26	2,580	2,710	5,320	22,800	14,900	1,720	1,270	1,440	2,460	14,000	4,240	2,980
27	2,580	2,710	4,950	19,300	13,500	1,620	1,110	1,530	2,710	13,500	4,070	2,980
28	2,580	2,580	4,420	19,800	11,200	1,530	1,110	1,440	2,460	11,700	3,740	2,980
29	2,710	2,460	5,690	18,300	9,850	1,440	1,110	1,620	2,010	9,410	3,120	2,840
30	2,710	.....	9,850	17,300	10,800	1,270	1,110	1,530	1,810	7,680	2,980	2,980
31	2,580	.....	11,200	.....	12,100	.....	1,110	1,440	.....	6,070	.....	3,900

Monthly discharge of Hudson River at Corinth, N. Y., for 1912.

[Drainage area, 2,760 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	6,860	2,230	3,320	1.21	1.40	B.
February	2,980	2,230	2,540	.921	.99	B.
March	11,200	2,230	4,860	1.76	2.03	B.
April	34,800	14,900	23,400	8.48	9.46	B.
May	19,800	6,460	11,900	4.31	4.97	B.
June	11,200	1,270	3,480	1.26	1.41	B.
July	1,440	1,110	1,210	.438	.50	C.
August	1,620	1,110	1,420	.514	.59	C.
September	2,710	1,270	1,810	.656	.73	B.
October	14,000	1,440	4,010	1.45	1.67	B.
November	18,300	2,980	7,390	2.68	2.99	B.
December	8,100	2,460	4,490	1.63	1.88	B.
The year	34,800	1,110	5,820	2.11	28.62	

HUDSON RIVER AT SPIER FALLS, N. Y.

Location.—On the river road, half a mile below the Spier Falls dam, about 11½ miles below the mouth of Sacandaga River. This station is most easily accessible from Glens Falls, N. Y., a distance of 11 miles. (See Pl. III, *B*.)

Records available.—October 6 to December 31, 1912.

Drainage area.—2,800 square miles (from United States Geological Survey topographic sheets).

Gage.—Recording hydrograph and auxiliary sloping staff gage. The automatic gage is in a brick shelter 5 feet square inside dimensions. Underneath the shelter is a brick well 3½ feet square, 21 feet deep. This well is connected with the river by a 4-inch cast-iron water pipe 78 feet long. A shear gate valve is set at the inner end of the pipe for use in cleaning the well when necessary. The outer end is fastened firmly in a concrete anchorage and is submerged at all stages. Inside the well is a hook gage used for setting the automatic gage. The sloping staff gage is mounted on small concrete piers 10 feet upstream from the shelter.

Channel.—Coarse gravel and bowlders.

Discharge measurements.—Made from a cable and car located about 1,000 feet downstream from the automatic gage. The cable is of 450 feet span, supported on the left bank by a pulley hung from a frame about 4 feet high; on the right bank by a pulley hung from a frame about 20 feet high.

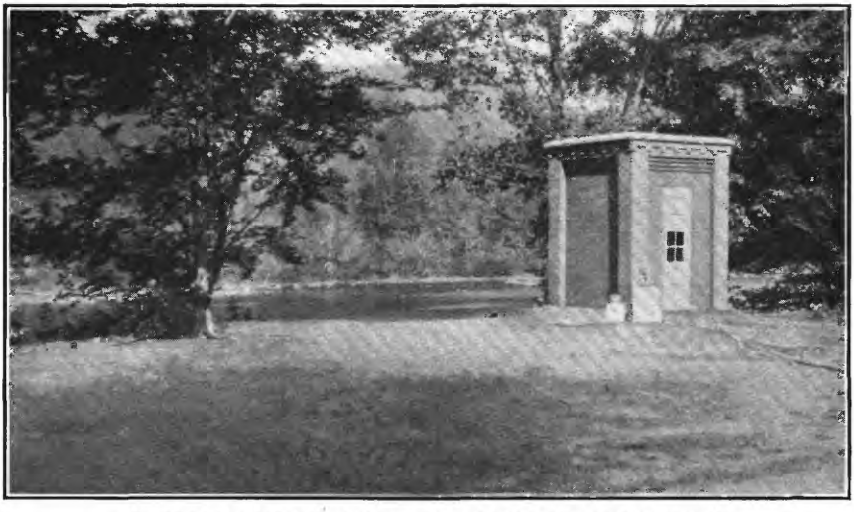
Winter flow.—Ice prevails during extremely cold weather. It is not known how much this will affect the relation between gage height and discharge. Efforts will be made to obtain frequent discharge measurements.

Artificial control.—Control at the Spier Falls dam is indicated by the hydrograph.

Accuracy.—Very consistent meter measurements have been made covering the range of gage heights for 1912 and the record is excellent.

Cooperation.—Station maintained in cooperation with the Adirondack Electric Power Corporation, the International Paper Co., the Union Bag & Paper Co., and the Finch, Pruyn Paper Co.

A. GAGING STATION ON SACANDAGA RIVER NEAR HOPE, N. Y.



B. RECORDING GAGE HOUSE, HUDSON RIVER AT SPIER FALLS, N. Y.

Discharge measurements of Hudson River at Spier Falls, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Sept. 15[a]	C. C. Covert	−0.06	5.7	Nov. 2	C. S. De Golyer	4.58	4,660
Oct. 31	C. S. De Golyer	4.85	5,320	15	J. G. Mathers	5.95	8,400
31	do	4.86	5,330	15	do	6.01	8,710
Nov. 1	do	4.73	5,030	29	do	3.97	3,370
1	do	4.50	4,360	30	do	3.90	3,150

[a] Made by wading in tailrace of power plant. Plant shut down.

Daily gage height, in feet, and discharge, in second-feet, of Hudson River at Spier Falls, N. Y., for 1912.

[Geo. E. Fifield, observer.]

Day.	October.		November.		December.		Day.	October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge		Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1			4.41	4,280	3.61	2,710	16	3.59	2,670	5.85	8,160	4.09	3,610
2			4.39	4,240	3.75	2,960	17	3.43	2,390	5.59	7,380	3.91	3,260
3			4.47	4,420	5.27	6,450	18	3.35	2,260	5.35	6,680	3.82	3,090
4			4.33	4,110	6.15	9,090	19	3.33	2,220	5.06	5,870	4.15	3,730
5			4.17	3,770	6.16	9,120	20	1.75	514	4.84	5,300	4.71	4,980
6			4.04	3,510	6.03	8,710	21	3.17	1,960	4.76	5,100	4.86	5,350
7	3.35	2,260	4.18	3,790	6.09	8,900	22	2.76	1,400	4.47	4,420	4.62	4,770
8	2.71	1,340	6.55	10,400	6.11	8,960	23	2.71	1,340	4.46	4,400	4.39	4,240
9	2.89	1,570	7.47	13,800	5.82	8,070	24	4.43	4,330	4.26	3,960	4.14	3,710
10	2.56	1,170	7.56	14,100	5.30	6,530	25	6.27	9,480	4.37	4,190	3.81	3,070
11	2.75	1,390	7.13	12,500	5.15	6,120	26	6.71	11,000	4.34	4,130	3.82	3,090
12	3.03	1,760	6.57	10,500	4.85	5,320	27	6.49	10,200	4.14	3,710	3.72	2,910
13	3.14	1,920	6.07	8,840	4.23	3,890	28	6.10	8,930	4.06	3,550	3.74	2,940
14	3.49	2,490	5.84	8,130	4.07	3,570	29	5.64	7,530	3.91	3,260	3.52	2,550
15	3.47	2,460	5.90	8,310	4.04	3,510	30	5.14	6,090	3.75	2,960	3.72	2,910
							31	4.71	4,980			4.10	3,630

NOTE.—Mean daily gage height obtained by averaging hourly readings for each 24-hour period. Discharge determined from a well-defined rating curve.

Monthly discharge of Hudson River at Spier Falls, N. Y., for 1912.

[Drainage area, 2,800 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
October 7–31	11,000	514	3,750	1.34	1.25	A.
November	14,100	2,960	6,260	2.24	2.50	A.
December	9,120	2,710	4,900	1.75	2.02	A.

HUDSON RIVER AT MECHANICVILLE, N. Y.

Location.—At the Duncan dam of the West Virginia Pulp & Paper Co., in the village of Mechanicville, about 3,700 feet above the mouth of Anthony Kill (coming in from the right), 1¼ miles below the mouth of Hoosic River (coming in from the left), and about 19 miles above the mouth of the Mohawk River, which enters from the right at Cohoes.

Records available.—1892 to 1912. Data also in annual reports of the State engineer and surveyor of New York, of the State Water Supply Commission of New York, and (for 1911) the first annual report of the State of New York Conservation Commission. The records which have been kept at this station are among the longest in the State. They have been used as basic data in all studies of storage problems on the upper Hudson.

Drainage area.—4,500 square miles.

Gage.—Recording gage installed at the dam in the summer of 1910 for the purpose of obtaining a more accurate register of the daily flow over the crest of the dam; previous to 1910 two gage readings daily on the crest of the dam.

Discharge measurements.—Determinations of discharge for periods previous to the summer of 1910 computed by using two daily gage readings on the crest of the dam and continuous record of the run of the wheels in the adjoining paper mill. In 1904 the dam was raised and a concrete crest and apron were added, so that it now has a rounded or ogee section. A discharge curve has been calculated by means of coefficients derived from the United States Geological Survey experiments on dams of ogee section.

Accuracy.—Records at this station are very carefully made and may be considered good for this type of station. In using these records it should be remembered that water is diverted past this station in the Champlain Canal.

Diversions.—Water is diverted past this station through the Champlain Canal. No correction has been made for this diversion. During 1912 the canal was in operation from about May 5 to Dec. 1. See Water Supply Paper 281, page 193.

Cooperation.—Records are computed and furnished by Mr. R. P. Bloss, engineer of the West Virginia Pulp & Paper Co.

Daily discharge, in second-feet, of Hudson River at Mechanicville, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	9,078	4,205	3,308	21,856	16,338	14,992	2,463	1,168	a 997	3,074	9,357	a 2,861
2	8,404	4,205	3,706	22,571	15,408	a 13,171	1,665	1,102	1,428	2,948	8,519	7,315
3	7,579	3,901	a 5,157	22,564	13,230	15,567	1,177	1,144	1,178	2,307	a 6,889	8,285
4	6,186	a 1,268	2,250	20,260	12,384	11,344	760	a 960	1,239	2,452	9,284	10,327
5	5,927	3,039	3,483	19,403	a 9,312	9,652	931	1,124	1,092	3,141	6,909	10,911
6	4,177	3,450	3,080	24,396	12,876	6,962	1,557	978	1,754	a 1,536	7,221	11,033
7	a 3,880	3,990	2,318	a 30,250	10,983	8,479	a 1,016	1,420	1,414	2,474	7,445	11,434
8	5,390	3,351	2,323	47,275	12,243	7,544	1,825	925	a 920	2,369	21,688	a 8,247
9	4,771	3,397	3,905	41,415	9,773	a 6,289	1,359	1,082	2,040	1,801	20,173	11,111
10	4,362	3,166	a 6,327	35,752	11,424	6,339	1,412	1,398	2,355	3,818	17,685	11,556
11	4,921	a 3,929	3,742	30,701	8,674	5,141	1,695	a 834	1,589	1,667	17,625	11,405
12	4,971	2,138	3,783	25,713	a 9,354	4,908	1,440	1,337	1,599	2,533	15,374	11,183
13	4,072	3,655	15,944	22,559	9,121	4,753	1,369	2,030	1,216	a 2,630	13,268	9,052
14	a 5,178	3,357	10,493	a 21,900	9,459	4,586	a 687	1,431	1,296	2,843	10,776	8,873
15	3,978	2,626	9,334	21,780	11,178	4,026	827	1,399	a 849	3,490	10,968	a 6,073
16	3,590	2,542	28,889	24,020	10,538	a 3,189	2,173	1,411	3,208	3,078	13,683	8,472
17	3,965	2,500	a 17,200	31,082	11,956	4,445	1,350	1,407	4,329	3,233	a 12,627	6,894
18	2,513	a 600	16,991	34,767	12,586	3,383	1,265	a 677	3,503	3,160	12,627	6,164
19	3,243	1,491	16,608	37,401	a 12,482	3,212	1,305	1,381	3,784	3,078	9,931	7,254
20	4,069	3,306	12,455	36,943	12,612	4,077	1,723	1,961	3,986	a 748	9,254	8,057
21	a 5,725	4,606	15,325	a 31,820	12,596	3,425	a 1,005	1,403	4,289	2,831	9,296	9,398
22	5,975	3,534	12,804	28,581	17,343	2,707	1,209	1,323	a 3,455	3,066	9,009	a 8,367
23	4,445	2,786	11,067	25,246	19,915	a 2,729	1,154	1,188	4,266	3,230	8,378	9,685
24	4,116	4,378	a 9,584	31,340	18,484	2,442	1,136	1,607	3,726	27,618	a 6,617	11,215
25	3,955	a 4,400	10,564	29,936	17,325	3,270	1,180	a 810	3,443	19,496	9,771	6,942
26	3,931	4,842	8,222	26,071	a 15,576	2,152	1,188	1,285	2,416	32,235	9,067	7,366
27	3,297	5,420	7,370	21,825	14,645	1,734	1,173	1,636	2,515	a 25,599	9,696	6,453
28	a 5,264	4,412	7,445	a 20,800	11,974	1,729	a 906	1,211	3,453	15,089	7,107	5,362
29	3,447	4,019	16,532	20,683	9,852	1,612	1,291	1,172	a 3,026	12,402	6,704	a 7,132
30	4,228	.....	22,017	20,044	14,475	a 2,300	1,172	1,291	4,190	10,646	6,341	9,132
31	2,808	.....	a 17,690	.....	14,484	.....	1,091	1,372	.....	10,184	.....	10,347

a Sunday.

Monthly discharge of Hudson River at Mechanicville, N. Y., for 1912.

[Drainage area, 4,500 square miles.]

Month.	Drainage, in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	9,078	2,513	4,760	1.06	1.22
February	5,420	600	3,400	.756	.82
March	28,889	2,250	10,000	2.22	2.56
April	47,275	19,403	27,600	6.13	6.84
May	19,915	9,121	12,900	2.87	3.31
June	15,567	1,612	5,540	1.23	1.37
July	2,463	760	1,310	.291	.34
August	2,030	677	1,270	.282	.33
September	4,329	849	2,590	.553	.62
October	32,235	748	6,930	1.54	1.78
November	21,688	6,341	10,800	2.40	2.68
December	11,556	2,861	8,640	1.92	2.21
The year	47,275	600	7,950	1.77	24.08

CEDAR RIVER NEAR INDIAN LAKE, N. Y.

Location.—At the steel highway bridge about 2 miles west of Indian Lake village, on the road leading to Blue Mountain Lake, about 12 miles by river above its confluence with the Hudson, 8 miles by river above the mouth of Rock River (tributary from the left) and 10 miles by river below Cedar River Flow (Wakely dam).

Records available.—July 15, 1911, to December 31, 1912. Published also in first annual report of State of New York Conservation Commission.

Drainage area.—85 square miles.

Gage.—Standard chain and weight.

Channel.—Coarse gravel and small bowlders, fairly permanent. Low-water control is gravel rift about 200 feet below the bridge.

Storage.—The basin contains many lakes and swamps affording favorable sites for storage reservoirs which would be influential in regulating the discharge of Hudson River. Those that are important are Cedar Lakes and Cedar River Flow. Cedar River Flow is controlled by a lumberman's dam and is used principally during the logging season.

Accuracy.—Discharge rating curve fairly well defined.

Discharge measurements of Cedar River near Indian Lake, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Mar. 11[a]	Frank Weber	4.41	50.5
June 24	G. H. Canfield	2.86	54.2

[a] Under complete ice cover.

Daily gage height, in feet, of Cedar River near Indian Lake, N. Y., for 1912.

[Chauncy Hill, observer.]

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	6.4	9.85	4.85	2.6	2.5	2.85	3.35	3.1	3.3
2	.....	7.1	3.85	4.15	2.6	2.5	2.9	3.7	4.05	3.3
3	.....	6.8	4.85	3.4	2.6	2.9	3.2	3.65	3.6	5.75
4	.....	6.4	10.05	3.95	2.6	2.95	3.05	3.6	3.4	5.3
5	.....	6.25	5.35	4.0	2.55	2.8	2.95	3.4	3.35	5.2
6	.....	6.9	5.45	3.8	2.8	2.8	3.1	3.2	3.3	5.2
7	.....	9.7	5.35	3.75	2.7	2.75	3.05	3.15	3.4	4.7
8	.....	10.15	3.65	2.9	2.65	2.55	2.9	3.05	6.8	4.65
9	.....	8.95	3.45	3.95	2.6	2.55	2.85	3.1	6.7	4.25
10	.....	8.0	3.55	3.0	2.6	2.6	2.85	3.25	6.0	6.15
11	4.35	6.6	3.45	4.3	2.65	2.8	2.9	3.0	5.8	5.6
12	4.45	6.25	3.65	4.0	2.65	2.85	2.8	3.25	5.0	4.8
13	4.35	5.5	3.6	3.9	2.65	2.8	2.8	3.3	3.95	4.8
14	4.45	6.15	9.65	3.75	3.9	2.8	2.8	3.1	3.6	4.75
15	4.4	6.1	3.3	3.0	3.5	2.65	2.75	3.05	3.5	4.7
16	5.8	9.65	3.5	2.95	2.9	2.6	3.3	2.8	3.65	4.7
17	6.55	9.55	4.35	2.85	2.7	2.55	3.0	2.8	3.45	4.5
18	6.15	7.4	5.45	2.9	2.6	2.6	2.9	2.85	3.4	4.7
19	5.9	7.05	5.65	2.85	3.0	2.65	3.1	2.95	4.75	4.9
20	6.0	6.1	5.95	2.85	2.5	2.6	3.35	3.0	4.55	5.4
21	6.0	5.75	6.05	2.95	3.3	2.6	3.4	2.8	4.7	5.35
22	5.75	6.3	6.45	2.85	3.2	2.95	4.35	2.9	4.3	5.25
23	5.6	10.15	5.95	2.8	2.6	2.8	4.5	3.0	3.6	4.95
24	5.75	4.85	9.0	2.8	2.7	2.8	3.6	3.9	3.3	4.9
25	5.5	4.25	5.0	2.82	2.6	2.75	3.7	6.3	3.5	4.85
26	5.3	4.4	4.65	2.78	2.6	2.7	3.95	5.6	3.45	4.45
27	5.6	4.45	4.25	2.75	2.6	2.8	4.2	5.35	3.4	4.4
28	5.25	9.15	4.25	2.7	2.5	2.85	3.7	4.65	3.1	4.4
29	5.5	4.1	4.0	2.65	2.5	2.75	3.3	4.4	2.8	4.4
30	6.0	3.85	5.65	2.6	2.6	2.7	3.3	4.2	3.3	4.35
31	6.1	.....	5.15	.....	2.6	2.8	.....	4.15	.....	4.3

NOTE.—Relation of gage height to discharge affected by ice Mar. 11 to Apr. 15 and Dec. 10–13 and 20–31. Ice and log jam Apr. 16. River open Apr. 17.

Daily discharge, in second-feet, of Cedar River near Indian Lake, N. Y., for 1911–12.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.							1911.						
1	.....	30	26	35	155	243	16	29	26	80	50	74	479
2	.....	29	26	50	196	243	17	29	29	254	52	176	404
3	.....	29	34	46	232	132	18	43	29	83	50	231	369
4	.....	29	29	107	93	123	19	32	32	69	54	294	179
5	.....	26	29	123	96	132	20	29	32	50	69	257	140
6	.....	26	29	221	100	175	21	34	29	48	69	140	123
7	.....	26	54	243	140	190	22	32	29	48	69	132	107
8	.....	26	54	243	169	190	23	29	29	50	179	150	804
9	.....	26	100	221	180	150	24	30	29	50	243	107	731
10	.....	26	132	54	180	326	25	29	28	29	243	107	517
11	.....	29	137	54	180	404	26	26	32	29	100	107	364
12	.....	29	110	59	180	957	27	26	29	29	100	104	300
13	.....	29	100	59	150	786	28	29	41	26	159	110	250
14	.....	28	61	52	120	804	29	32	52	32	107	343	200
15	30	26	57	50	100	508	30	30	42	35	96	318	180
							31	30	34	.....	107	.....	150

Daily discharge, in second-feet, of Cedar River near Indian Lake, for 1911–12—Continued.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.									
1	.....	2,520	459	35	29	54	115	80	107
2	.....	210	478	35	29	59	179	254	107
3	.....	459	123	35	59	93	169	159	749
4	.....	2,620	232	35	64	74	159	123	595
5	.....	612	243	32	50	64	123	115	563
6	.....	645	200	50	50	80	93	107	563
7	.....	612	190	42	46	74	86	123	417
8	.....	169	59	38	32	59	74	1,160	404
9	.....	132	232	35	32	54	80	1,120	301
10	.....	150	69	35	35	54	100	842	.....
11	.....	132	313	38	50	59	69	767	.....
12	.....	169	243	38	54	50	100	502	.....
13	.....	159	221	38	50	50	107	232	.....
14	.....	2,420	190	221	50	50	80	159	431
15	.....	107	69	140	38	46	74	140	417
16	2,420	140	64	59	35	107	50	169	417
17	2,370	326	54	42	32	69	50	132	364
18	1,410	645	59	35	35	59	54	123	417
19	1,260	714	54	69	38	80	64	431	473
20	880	823	54	29	35	115	69	377	.....
21	749	861	64	107	35	123	50	417	.....
22	957	1,020	54	93	64	326	59	313	.....
23	2,670	823	50	35	50	364	69	159	.....
24	459	2,120	50	42	50	159	221	107	.....
25	301	502	52	35	46	179	957	140	.....
26	338	404	48	35	42	232	696	132	.....
27	351	301	46	35	50	289	612	123	.....
28	2,180	301	42	29	54	179	404	80	.....
29	266	243	38	29	46	107	338	50	.....
30	210	714	35	35	42	107	289	107	.....
31	.....	548	.....	35	50	.....	278	.....	.....

NOTE.—Daily discharge determined from a fairly well-defined rating curve based on measurements made in 1912 and 1913. Discharges Nov. 9–15 and Dec. 27–31, 1911, estimated.

Monthly discharge of Cedar River near Indian Lake, N. Y., for 1911–12.

[Drainage area, 85 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
July 15–31	43	26	30.5	0.359	0.23	B.
August	52	26	30.2	.355	.41	B.
September	254	26	63.0	.741	.83	B.
October	243	35	109	1.28	1.47	A.
November	343	74	164	1.93	2.15	A.
December	957	107	344	4.05	4.67	A.
1912.						
May	2,620	107	697	8.20	9.45	B.
June	478	35	136	1.60	1.78	A.
July	221	29	51.3	.604	.70	B.
August	64	29	44.3	.521	.60	B.
September	364	46	114	1.34	1.50	B.
October	957	50	189	2.22	2.56	A.
November	1,160	50	291	3.42	3.82	A.

INDIAN LAKE RESERVOIR AT INDIAN LAKE, N. Y.

Location.—At the masonry storage dam at the outlet of Indian Lake, about 7½ miles above the confluence of Indian River with the Hudson and about 23½ miles above the village of North Creek.

Records available.—July 22, 1900, to December 31, 1912. Data also in annual reports of the State engineer and surveyor, State Water Supply Commission, and State Conservation Commission.

Drainage area.—131 square miles, including about 9.3 square miles of water surface of Indian Lake at the elevation of the spillway of the dam.

Gage.—Staff; read once daily. November 17, 1911, a chain gage was installed on the crest of the dam to replace the staff gage. Datum of both gages the same and unchanged since the establishment of the station.

Discharge measurements.—The record of this station includes elevation of water surface in the reservoir, depth of water flowing over the spillway or flashboards, depth of opening, and the effective head on each of the 5-foot sluice gates. A meteorologic station has also been established at the dam by the United States Weather Bureau and records are kept of the rainfall, temperature, etc. The crest of the dam is 106.05 feet in the clear. To facilitate the calculation of discharge over the spillway, experiments were made at Cornell University in 1899 on a full-size model of the spillway section, 6.58 feet long, from which the coefficient of discharge has been determined. No computations of discharge have been made pending current meter measurements to rate discharge through gates. At present, records of reservoir level and gate openings are available. The elevation of the crest of the spillway above mean tide is 1,650 feet.

Artificial control.—The flow of the upper Hudson has been controlled to a considerable extent during the dry season by the use of Indian Lake reservoir since its completion in 1899. The storage provided, about 4,700,000,000 cubic feet, affording a discharge of nearly 600 second-feet for a period of 90 to 130 days each year.

Maximum and minimum gage heights.—Maximum gage height at Indian Lake Reservoir since the establishment of the station recorded April 27, 1908, 37.00 feet; minimum gage height, recorded March 9 to 18, 1907, and January 3 to 17, 1910, 2.00 feet.

Daily gage height, in feet, of Indian Lake Reservoir at Indian Lake, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.35	26.50	17.35	15.20	34.55	34.95	32.60	26.20	16.90	14.60	17.30	23.80
2	29.45	26.20	17.00	15.50	34.65	34.90	32.45	26.00	16.60	14.70	17.70	24.00
3	29.55	25.90	16.70	15.80	34.80	34.80	32.30	25.80	16.40	14.80	17.90	24.30
4	29.65	25.55	16.40	16.05	34.90	34.70	32.20	25.40	16.15	14.90	18.10	24.60
5	29.75	25.20	16.10	16.45	35.00	34.60	32.10	25.05	15.95	15.00	18.30	24.90
6	29.80	24.85	15.80	16.45	35.10	34.50	32.00	24.70	15.70	15.05	18.40	25.20
7	29.70	24.50	15.50	17.70	35.15	34.40	31.90	24.40	15.50	15.10	18.65	25.50
8	29.50	24.20	15.20	18.80	35.10	34.30	31.80	24.05	15.25	15.10	19.70	25.85
9	29.30	23.90	14.95	19.70	35.15	34.30	31.30	23.75	15.00	14.90	20.50	25.95
10	29.40	23.55	14.70	20.30	35.00	34.30	31.05	23.40	14.70	14.75	21.00	26.00
11	29.45	23.15	14.45	20.60	34.85	34.25	30.80	23.05	14.40	14.65	21.25	26.10
12	29.50	22.85	14.20	20.90	34.80	34.15	30.55	22.90	14.10	14.65	21.50	26.20
13	29.55	22.55	13.95	21.20	34.72	34.10	30.35	22.60	13.80	14.50	21.70	26.30
14	29.60	22.25	13.70	21.90	34.75	34.05	30.15	22.20	13.60	14.40	21.95	26.40
15	29.65	21.85	13.50	22.90	34.80	34.05	29.90	21.90	13.30	14.30	22.20	26.50
16	29.70	21.50	13.30	23.90	34.85	34.00	29.65	21.60	13.20	14.20	22.35	26.60
17	29.55	21.15	13.10	24.90	35.10	34.00	29.50	21.15	13.10	14.30	22.55	26.70
18	29.35	20.85	13.00	25.70	35.20	34.00	29.25	20.90	13.00	14.40	22.65	26.75
19	29.10	20.50	13.20	26.70	35.20	33.95	29.00	20.60	13.00	14.50	22.80	26.90
20	28.90	20.20	13.50	27.50	35.25	33.90	28.70	20.30	13.15	14.55	22.90	27.10

Daily gage height, in feet, of Indian Lake Reservoir at Indian Lake, N. Y., for 1912—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	28.70	19.90	13.60	28.20	35.40	33.85	28.65	20.05	13.25	14.65	23.00	27.30
22	28.50	19.60	13.70	28.90	35.60	33.80	28.40	19.80	13.40	14.75	23.10	27.40
23	28.30	19.30	13.80	30.40	35.65	33.80	28.20	19.55	13.50	14.85	23.15	27.50
24	28.10	18.95	13.90	31.30	35.60	33.70	28.00	19.25	13.60	15.00	23.20	27.60
25	27.95	18.70	14.00	31.85	35.50	33.55	27.80	19.00	13.75	15.75	23.35	27.70
26	27.80	18.40	14.15	32.30	35.40	33.35	27.60	18.70	14.00	16.20	23.50	27.80
27	27.65	18.15	14.25	33.00	35.25	33.25	27.35	18.40	14.15	16.60	23.60	27.90
28	27.45	17.90	14.35	33.60	35.10	33.15	27.10	18.10	14.25	16.80	23.65	28.00
29	27.25	17.65	14.45	34.10	35.00	32.95	26.85	17.80	14.35	16.95	23.70	28.10
30	27.05	.....	14.60	34.35	34.95	32.75	26.70	17.50	14.40	17.10	23.75	28.20
31	26.85	.....	14.85	.....	35.00	.....	26.45	17.20	.....	17.20	.....	28.25

Gage openings, in feet, of Indian Lake Reservoir at Indian Lake, N. Y., for 1912.

Date.	Sluice Gate A open.	Sluice Gate B open.	Date.	Sluice Gate A open.	Sluice Gate B open.
Jan. 7–Jan. 9	.....	5.0	June 23–July 7	.....	2.5
Jan. 16–Mar. 17	.....	5.0	July 8–July 9 [a]	5.0	.....
Jan. 31–Feb. 14	2.5	.....	July 8–Sept. 18	.....	5.0
Feb. 15–Mar. 17	3.0	.....	Aug. 2–Sept. 18	2.5	.....
May 6–May 14	.6	.....	Oct. 8–Oct. 16	.....	5.0

[a] This date not recorded. Estimated from gage heights on Indian River at Indian Lake.

INDIAN RIVER NEAR INDIAN LAKE, N. Y.

Location.—About three-fourths of a mile below State dam, at the outlet of Indian Lake, 1 mile above the mouth of Big Brook (the only important tributary of Indian River below this station), and 8 miles above the point where it enters the Hudson.

Records available.—Miscellaneous measurements, 1911; July 1 to December 31, 1912.

Drainage area.—132 square miles.

Gage.—Vertical staff, nailed to stump.

Channel.—Pond of still water at head of rocky rapids; a well-defined, permanent, rock control exists below the station.

Artificial control.—The flow of Indian River is controlled at the lake.

Discharge measurements.—Made by wading at head of rapids about 150 feet below gage.

Winter flow.—Because of the swift current in the rapids the water probably never freezes on the control and, although ice will form around the gage in the still water, the relation of gage height to discharge will probably not be seriously affected.

Accuracy.—The rating curve is not yet developed.

Discharge measurements of Indian River near Indian Lake, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
June 27[a]	G. H. Canfield	2.34	364
27[b]	.....do	1.12	83.1

[a] Made at bridge. [b] Made by wading 150 feet below gage.

Daily gage height, in feet, of Indian River near Indian Lake, N. Y., for 1912.

[Lester Severie, observer.]

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.3	2.55	2.85	0.15	0.15	0.1	16	2.7	3.1	2.65	2.15	.15	.25
2	2.3	2.55	2.85	.1	.15	.15	17	2.7	3.1	2.6	.1	.15	.25
3	2.3	3.25	2.85	.1	.15	.2	18	2.7	3.1	2.6	.1	.15	.25
4	2.3	3.25	2.8	.1	.15	.2	19	2.65	3.05	.1	.1	.15	.3
5	2.3	3.25	2.8	.1	.15	.2	20	2.65	3.05	.1	.1	.15	.3
6	2.3	3.25	2.8	.1	.15	.2	21	2.65	3.05	.1	.1	.15	.3
7	2.3	3.25	2.75	.1	.15	.25	22	2.65	3.05	.1	.1	.15	.3
8	3.65	3.2	2.75	.1	.4	.25	23	2.65	3.05	.15	.15	.15	.3
9	3.65	3.2	2.75	2.2	.3	.25	24	2.65	3.0	.15	.15	.15	.3
10	2.75	3.2	2.75	2.2	.2	.25	25	2.6	3.0	.15	.15	.15	.3
11	2.75	3.2	2.7	2.2	.2	.25	26	2.6	3.0	.15	.15	.15	.3
12	2.75	3.15	2.7	2.2	.15	.25	27	2.6	2.95	.15	.15	.15	.25
13	2.7	3.15	2.7	2.15	.15	.25	28	2.6	2.95	.15	.15	.15	.25
14	2.7	3.15	2.65	2.15	.2	.25	29	2.6	2.95	.15	.15	.1	.4
15	2.7	3.15	2.65	2.15	.2	.25	30	2.6	2.9	.15	.15	.1	.4
							31	2.6	2.9	.15	.15	.....	.4

Daily discharge, in second-feet, of Indian River near Indian Lake, N. Y., for 1912.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	353	436	545	1.5	1.5	1.0	16	489	643	471	307	1.5	3.5
2	353	436	545	1.0	1.5	1.5	17	489	643	453	1.0	1.5	3.5
3	353	704	545	1.0	1.5	2.0	18	489	643	453	1.0	1.5	3.5
4	353	704	526	1.0	1.5	2.0	19	471	623	1.0	1.0	1.5	5.0
5	353	704	526	1.0	1.5	2.0	20	471	623	1.0	1.0	1.5	5.0
6	353	704	526	1.0	1.5	2.0	21	471	623	1.0	1.0	1.5	5.0
7	353	704	508	1.0	1.5	3.5	22	471	623	1.0	1.0	1.5	5.0
8	875	684	508	1.0	9.0	3.5	23	471	623	1.5	1.5	1.5	5.0
9	875	684	508	322	5.0	3.5	24	471	603	1.5	1.5	1.5	5.0
10	508	684	508	322	2.0	3.5	25	453	603	1.5	1.5	1.5	5.0
11	508	684	489	322	2.0	3.5	26	453	603	1.5	1.5	1.5	5.0
12	508	663	489	322	1.5	3.5	27	453	584	1.5	1.5	1.5	3.5
13	489	663	489	307	1.5	3.5	28	453	584	1.5	1.5	1.5	3.5
14	489	663	471	307	2.0	3.5	29	453	584	1.5	1.5	1.0	9.0
15	489	663	471	307	2.0	3.5	30	453	564	1.5	1.5	1.0	9.0
							31	453	564	.....	1.5	.....	9.0

NOTE.—Daily discharge determined from a rating curve well defined above 15 second-feet and based on measurements made during 1912 and 1913. Discharge for days when gates were changed may be considerably in error.

Monthly discharge of Indian River near Indian Lake, N. Y., for 1912.

[Drainage area, 146 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
July	875	353	473	3.24	3.74	A.
August	704	436	629	4.31	4.97	A.
September	545	1	302	2.07	2.31	A.
October	322	1	82.1	.562	.65	B.
November	9	1	1.90	.013	.01	D.
December	9	1	4.08	.028	.03	D.

SCHROON RIVER AT RIVERBANK, N. Y.

Location.—At the highway bridge 12 miles above the confluence of Schroon River with the Hudson, 9 miles below the mouth of Schroon Lake, about 3½ miles below the outlet of Brant Lake (coming in from the left), and 1 mile below Tumblehead Falls, which extend upstream about a mile farther. The station is about 9 miles north of Warrensburg, where there are several dams used for power development.

Records available.—September 2, 1907, to December 31, 1912. Data also in annual reports of New York State Water Supply Commission, State engineer and surveyor, and State Conservation Commission.

Drainage area.—534 square miles.

Gage.—Chain; read once daily; datum unchanged.

Channel.—Gravel; smooth and permanent.

Discharge measurements.—Made from the bridge.

Artificial control.—Since 1907 the regimen of flow of Schroon River, from the low-water period to the high, has been somewhat affected by storage in Schroon Lake. In September, 1907, a timber crib dam was constructed at Starbuckville about 6 miles above the station. This dam affords a head of about 8 feet and ponds water to Schroon Lake.

Winter flow.—Affected by ice.

Accuracy.—Open-water curve well developed. Measurements made through the ice have developed a fairly good ice-discharge curve.

Discharge measurements of Schroon River at Riverbank, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
1912.		*Feet.*	*Sec.-ft.*
Jan. 21[a]	G. H. Canfield	3.60	546
Feb. 9[b]	Frank Weber	2.80	394
Mar. 1[b]	Alexander McMillan	2.66	330
June 7[c]	Frank Weber	3.62	1,090
7[c]	do	3.61	1,090

[a] Measurement made under complete ice cover 2,000 feet downstream from bridge.
[b] Made at regular section, under complete ice cover.
[c] Log jam below gage.

Daily gage height, in feet, of Schroon River at Riverbank, N. Y., for 1912.

[T. H. Roberts, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.6	3.0	2.66	2.8	4.7	4.5	1.35	1.35	1.30	1.30	3.1	2.9
2	3.6	2.8	2.5	3.6	4.4	4.3	1.35	1.35	1.45	1.32	3.1	2.85
3	3.6	3.4	2.55	3.8	4.2	4.3	1.25	1.35	1.50	1.28	2.95	2.95
4	3.5	3.3	2.5	3.8	4.2	4.0	1.20	1.30	1.45	1.30	2.9	3.0
5	3.4	3.2	2.4	4.0	4.1	4.0	1.30	1.32	1.45	1.8	2.9	3.1
6	3.9	3.2	2.45	4.4	4.1	3.8	1.35	1.30	1.48	1.30	2.9	3.1
7	4.1	3.0	2.4	5.0	4.4	3.6	1.35	2.1	1.50	2.0	3.0	3.0
8	4.0	2.8	2.3	6.0	4.4	3.4	1.38	1.75	1.50	2.0	3.2	3.3
9	4.4	2.8	2.35	6.8	4.5	3.3	1.35	2.05	1.48	2.0	3.5	3.4
10	4.2	2.85	2.25	6.8	4.3	3.5	1.50	1.55	1.35	2.0	3.8	3.4
11	4.6	2.9	2.25	6.6	4.3	3.8	1.40	1.50	1.50	1.9	3.8	3.4
12	4.5	2.9	2.25	6.2	4.0	3.6	1.40	1.55	1.50	1.85	3.8	3.3
13	4.6	2.9	2.25	5.9	4.3	3.6	1.50	1.50	1.45	1.25	3.8	3.2
14	4.9	2.85	2.30	5.8	3.9	3.4	1.40	1.45	1.50	2.0	3.8	3.1
15	5.2	2.8	2.3	5.6	4.0	3.4	1.35	1.40	2.1	2.0	3.9	3.0

Daily gage height, in feet, of Schroon River at Riverbank, N. Y., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	4.0	2.75	2.5	5.8	4.4	1.9	1.30	1.38	2.0	2.0	4.0	2.9
17	4.3	2.7	2.5	6.4	3.0	3.0	1.30	1.55	2.0	1.9	4.0	2.8
18	4.0	2.75	2.5	7.0	4.5	2.9	1.35	1.40	2.0	2.0	3.9	2.8
19	4.1	2.55	2.6	7.3	4.6	2.95	1.30	1.40	2.0	1.55	3.7	2.9
20	3.6	2.45	2.55	7.4	4.9	2.85	1.40	1.45	2.0	1.6	3.6	3.0
21	3.0	2.35	2.5	7.1	5.0	2.6	1.40	1.45	1.8	1.95	3.6	3.0
22	2.6	2.4	2.55	6.8	5.4	2.05	1.40	1.45	1.25	2.0	3.5	2.85
23	2.45	2.4	2.6	6.8	5.5	2.3	1.35	1.95	1.8	2.0	3.3	2.9
24	2.45	2.45	2.6	6.9	5.7	2.3	1.40	1.8	2.0	2.25	3.3	2.9
25	3.6	2.5	2.65	6.6	5.8	2.5	1.40	1.35	2.0	2.35	3.3	2.7
26	3.6	2.55	2.55	6.2	5.6	2.5	1.40	2.0	2.05	2.55	3.2	2.6
27	3.4	2.55	2.6	5.9	5.4	2.6	1.40	1.55	2.0	3.0	3.2	2.55
28	2.35	2.65	2.6	5.6	5.0	1.55	1.35	1.42	1.7	3.0	3.1	2.6
29	3.4	2.6	2.8	5.4	4.8	1.55	1.40	1.32	1.25	3.1	3.0	2.55
30	3.2	.....	2.8	5.0	4.6	1.35	1.40	1.28	2.0	3.1	3.0	2.5
31	3.1	.....	2.85	.....	4.6	.....	1.40	1.25	.....	3.1	.....	1.65

NOTE.—Relation of gage height to discharge affected by ice Jan. 6 to Mar. 26. Relation of gage height to discharge affected by log jams Apr. 5–8 and May 7 to June 13.

Daily discharge, in second-feet, of Schroon River at Riverbank, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,290	400	330	721	2,440	1,880	143	143	130	130	900	776
2	1,290	400	260	1,290	2,100	1,680	143	143	170	135	900	748
3	1,290	400	282	1,470	1,890	1,680	118	143	184	125	806	806
4	1,200	400	260	1,470	1,890	1,400	105	130	170	130	776	836
5	1,120	400	220	1,400	1,780	1,400	130	135	170	276	776	900
6	1,100	400	240	1,780	1,780	1,240	143	130	178	130	776	900
7	1,050	400	220	2,440	1,780	1,080	143	390	184	350	836	836
8	1,000	395	180	3,690	1,780	940	151	259	184	350	966	1,040
9	950	394	200	5,200	1,880	875	143	370	178	350	1,200	1,120
10	900	420	160	5,200	1,680	1,010	184	198	143	350	1,470	1,120
11	850	445	160	4,900	1,680	1,240	156	184	184	312	1,470	1,120
12	800	445	160	4,310	1,400	1,080	156	198	184	294	1,470	1,040
13	750	445	160	3,900	1,680	1,080	184	184	170	118	1,470	966
14	700	420	180	3,770	1,320	1,120	156	170	184	350	1,470	900
15	650	395	180	3,520	1,400	1,120	143	156	390	350	1,570	836
16	500	372	260	3,770	1,780	312	130	151	350	350	1,670	776
17	600	350	260	4,600	1,880	836	130	198	350	312	1,670	721
18	550	372	290	5,500	1,880	776	143	156	350	350	1,570	721
19	550	282	370	5,960	1,990	806	130	156	350	198	1,380	776
20	546	240	380	6,120	2,320	748	156	170	350	212	1,290	836
21	500	200	390	5,640	2,440	618	156	170	276	331	1,290	836
22	500	220	450	5,200	2,920	370	156	170	118	350	1,200	748
23	440	220	510	5,200	3,040	476	143	331	276	350	1,040	776
24	440	240	540	5,350	3,290	476	156	276	350	454	1,040	776
25	420	260	610	4,900	3,420	568	156	143	350	500	1,040	668
26	400	282	593	4,310	3,160	568	156	350	370	593	966	618
27	390	282	618	3,900	2,920	618	156	198	350	836	966	593
28	370	328	618	3,520	2,440	198	143	162	242	836	900	618
29	390	305	721	3,280	2,210	198	156	135	118	900	836	593
30	390	.....	721	2,800	1,990	143	156	125	350	900	836	568
31	400	.....	748	.....	1,990	.....	156	118	.....	900	.....	226

NOTE.—Daily discharge Jan. 1–5, Apr. 9 to May 6, and June 14 to Dec. 31 determined from a well-defined rating curve. Daily discharge Jan. 6 to Apr. 4 determined by means of a rating curve based on measurements made with ice present, observers' notes, and climatological records. Daily discharge Apr. 5–8 and May 7 to June 13 determined from a fairly well-defined rating curve based on measurements made during the existence of log jams.

Monthly discharge of Schroon River at Riverbank, N. Y., for 1912

[Drainage area, 534 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	1,290	370	720	1.35	1.56	C.
February	445	200	349	.654	.71	C.
March	748	160	364	.682	.79	C.
April	6,120	721	3,840	7.19	8.02	B.
May	3,420	1,320	2,130	3.99	4.60	B.
June	1,880	143	885	1.66	1.85	B.
July	184	105	148	.277	.32	B.
August	390	118	192	.360	.42	B.
September	390	118	245	.459	.51	B.
October	900	118	391	.732	.84	B.
November	1,670	776	1,150	2.15	2.40	B.
December	1,120	226	800	1.50	1.73	B.
The year	6,120	105	931	1.74	23.75	

SACANDAGA RIVER NEAR HOPE, N. Y.

Location.—About 3½ miles above the post office at Hope, 4 miles below the village of Wells, 12 miles above Northville (the nearest railroad station), and 1½ miles below the junction of the East and West branches of the Sacandaga. (See Pl. III, *A*, p. 138.)

Records available.—September 15, 1911, to December 31, 1912.

Drainage area.—494 square miles.

Gage.—Staff in two sections; a sloping staff reading from 1.00 foot to 4.30 feet, on a slope of 2.5 to 1; a vertical staff (for high water records) attached to a rocky cliff in line with the sloping gage.

Channel.—Very rough, but permanent; banks are fairly free from timber; high and rocky; channel has been cleared of bowlders to some extent.

Discharge measurements.—Made from a cable with a span of 214 feet.

Accuracy.—The open-water rating curve is well defined and estimates for this period are good.

Discharge measurements of Sacandaga River near Hope, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 3	C. S. De Golyer	4.24	2,290	Apr. 8	C. S. De Golyer	6.70	8,440
4	do	4.02	1,910	9	do	5.65	5,400
5	do	3.99	1,930	Aug. 6[a]	J. G. Mathers	1.53	75.4
5	do	4.34	2,420	Sept. 12[a]	G. H. Canfield	1.76	141
6	do	5.01	3,820	13[a]	do	1.50	71.5

[a] Measurement made by wading at regular section.

Daily gage height, in feet, of Sacandaga River near Hope, N. Y., for 1912.

[Edgar Coulombe, observer.]

Day.	Jan.	Feb.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.55	5.5	4.4	4.2	3.7	1.67	1.44	1.36	2.34	3.00	2.65
2	3.4	5.0	4.4	4.2	3.45	1.65	1.48	1.60	2.44	3.30	2.75
3	3.25	4.8	4.2	4.0	3.4	1.71	1.58	1.86	2.31	3.15	5.0
4	3.1	4.8	4.1	4.0	3.25	1.70	1.56	2.00	2.30	3.0	4.4
5	3.1	4.7	4.2	3.6	3.1	1.64	1.54	1.85	2.24	2.95	4.2
6	2.9	4.7	5.4	4.2	2.95	1.62	1.52	1.78	2.20	2.90	4.2
7	2.8	4.6	6.7	4.1	2.9	1.66	1.48	1.83	2.13	3.45	4.3
8	2.9	.....	6.6	3.95	2.85	1.74	1.48	1.73	2.06	6.0	4.1
9	2.85	.....	5.6	3.8	2.75	1.65	1.47	1.72	2.01	5.0	3.55
10	2.85	.....	5.1	3.85	2.6	1.59	1.52	1.60	2.02	4.5	3.6
11	2.9	.....	4.8	3.9	2.5	1.54	1.74	1.64	2.10	4.2	3.55
12	3.0	.....	4.5	3.9	2.42	1.57	1.80	1.68	2.23	3.9	3.2
13	3.7	.....	5.0	3.7	2.40	1.48	1.55	1.50	2.28	3.8	2.95
14	4.0	.....	4.7	3.65	2.32	1.60	1.60	1.52	2.30	3.85	3.0
15	4.6	.....	5.5	3.7	2.29	1.87	1.47	1.60	2.20	3.9	3.0
16	4.8	.....	6.6	3.9	2.30	1.88	1.52	2.50	2.14	3.7	2.95
17	5.0	.....	6.8	4.4	2.30	1.68	1.52	2.44	2.08	3.6	2.8
18	5.1	.....	6.6	4.9	2.25	1.57	1.54	2.02	2.05	3.5	2.85
19	5.3	.....	6.6	4.2	2.18	1.62	1.58	2.16	2.20	3.4	3.3
20	5.8	.....	6.0	4.5	2.04	1.47	1.56	2.20	2.6	3.3	3.5
21	6.0	.....	5.7	5.3	1.94	1.56	1.54	2.10	2.55	3.2	3.5
22	6.0	.....	5.6	4.5	1.98	2.00	1.65	2.01	2.48	3.1	3.25
23	6.0	.....	7.1	5.1	1.83	1.84	1.73	1.96	2.65	3.05	3.15
24	6.0	.....	6.1	4.7	1.87	1.68	1.73	2.20	4.1	3.0	3.05
25	6.0	.....	5.6	4.6	1.83	1.77	1.65	2.60	5.1	3.0	3.0
26	5.7	.....	5.5	4.1	1.84	1.66	1.66	2.85	4.3	3.0	2.8
27	5.5	.....	5.1	4.0	1.82	1.54	1.66	2.60	3.95	2.9	2.85
28	5.5	.....	4.8	3.75	1.74	1.42	1.61	2.48	3.65	2.7	2.75
29	5.5	.....	4.2	3.45	1.70	1.39	1.58	2.36	3.5	2.65	2.75
30	5.5	.....	4.5	4.0	1.69	1.40	1.46	2.38	3.30	2.75	2.75
31	5.5	.....	.....	3.9	.....	1.42	1.45	.....	3.05	.....	3.4

NOTE.—Relation of gage height to discharge affected by ice Jan. 11 to Mar. 21, 1912.

Daily discharge, in second-feet, of Sacandaga River near Hope, N. Y., for 1911–12.

Day.	Sept.	Oct.	Nov.	Dec.	Day.	Sept.	Oct.	Nov.	Dec.
1911.					16	435	440	1,290	2,070
1	.....	358	990	1,290	17	362	424	990	2,560
2	.....	666	900	1,460	18	303	1,090	2,390	2,070
3	.....	598	820	1,140	19	256	2,740	1,850	1,720
4	.....	1,850	740	820	20	227	2,070	1,580	1,240
5	.....	1,240	703	740	21	204	1,780	1,400	1,290
6	.....	900	666	820	22	219	1,650	1,240	1,290
7	.....	945	1,040	740	23	219	2,740	990	5,250
8	.....	1,040	2,070	666	24	204	2,230	1,090	3,540
9	.....	990	1,720	703	25	192	1,780	990	2,560
10	.....	860	1,520	860	26	174	1,460	900	2,390
11	.....	780	1,520	1,240	27	171	1,240	860	2,230
12	.....	666	1,400	2,390	28	171	1,140	780	1,920
13	.....	598	1,920	4,230	29	235	1,040	1,650	1,290
14	.....	534	1,650	3,330	30	377	900	1,520	1,400
15	339	474	1,460	2,560	31	.....	900	.....	1,370

Daily discharge, in second-feet, of Sacandaga River near Hope, N. Y., for 1911–12— Continued.

Day.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.										
1	1,340	2,560	2,230	1,520	118	57	40	387	820	566
2	1,190	2,560	2,230	1,240	112	66	97	440	1,090	632
3	1,040	2,230	1,920	1,190	130	92	182	372	945	3,760
4	900	2,070	1,920	1,040	127	87	235	367	820	2,560
5	900	2,230	1,400	900	109	81	178	339	780	2,230
6	740	4,730	2,230	780	103	76	153	321	740	2,230
7	666	8,450	2,070	740	115	66	171	290	1,240	2,390
8	740	8,140	1,850	703	140	66	137	260	6,350	2,070
9	703	5,250	1,650	632	112	64	134	239	3,760	1,340
10	703	3,990	1,720	534	94	76	97	243	2,740	1,400
11	.....	3,330	1,780	474	81	140	109	277	2,230	1,340
12	.....	2,740	1,780	429	89	160	121	335	1,780	990
13	.....	3,760	1,520	418	66	84	71	358	1,650	780
14	.....	3,130	1,460	377	97	97	76	367	1,720	820
15	.....	4,990	1,520	362	185	64	97	321	1,780	820
16	.....	8,140	1,780	367	189	76	474	295	1,520	780
17	.....	8,760	2,560	367	121	76	440	269	1,400	666
18	.....	8,140	3,540	344	89	81	243	256	1,290	703
19	.....	8,140	2,230	312	103	92	303	321	1,190	1,090
20	.....	6,350	2,740	252	64	87	321	534	1,090	1,290
21	.....	5,520	4,480	212	87	81	277	504	990	1,290
22	.....	5,250	2,740	227	235	112	239	463	900	1,040
23	.....	9,690	3,990	171	174	137	219	566	860	945
24	.....	6,640	3,130	185	121	137	321	2,070	820	860
25	.....	5,250	2,930	171	150	112	534	3,990	820	820
26	.....	4,990	2,070	174	115	115	703	2,390	820	666
27	.....	3,990	1,920	167	81	115	534	1,850	740	703
28	.....	3,330	1,580	140	53	100	463	1,460	598	632
29	.....	2,230	1,240	127	46	92	398	1,290	566	632
30	.....	2,740	1,920	124	48	62	408	1,090	632	632
31	.....	.....	1,780	.....	53	60	.....	860	.....	1,190

NOTE.—Daily discharge Sept. 15, 1911, to Jan. 10, 1912, and Apr. 1 to Dec. 31, 1912, determined from a well-defined rating curve.

Monthly discharge of Sacandaga River near Hope, N. Y., for 1911–12.

[Drainage area, 494 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
September 15–30	435	171	256	0.518	0.31	A.
October	2,740	358	1,170	2.37	2.73	A.
November	2,390	666	1,290	2.61	2.91	A.
December	5,250	666	1,840	3.72	4.29	A.
1912.						
January	.....	.....	600	1.21	1.40	C.
February	.....	.....	300	.607	.65	C.
March	.....	.....	900	1.82	2.10	C.
April	9,690	2,070	4,980	10.1	11.27	A.
May	4,480	1,240	2,190	4.43	5.11	A.
June	1,520	124	489	.990	1.10	A.
July	235	46	110	.223	.26	A.
August	160	57	90.7	.184	.21	A.
September	703	40	259	.524	.58	A.
October	3,990	239	746	1.51	1.74	A.
November	6,350	566	1,420	2.87	3.20	A.
December	3,760	566	1,220	2.47	2.85	A.
The year	9,690	40	1,110	2.25	30.47	

NOTE.—Discharge Jan. 11 to Mar. 31, 1912, estimated by comparison with the discharge at Hadley. Mean discharge Jan. 11 to 31, 1912, estimated 460 second-feet.

SACANDAGA RIVER AT HADLEY, N. Y.

Location.—About half a mile west of the railroad station at Hadley, 1 mile above the confluence of Sacandaga River with the Hudson, and 4½ miles below the site of the proposed storage dam at Conklingville. No tributaries between this station and the mouth of the river. Location selected to avoid inaccuracies in the records caused by backwater from log jams. This station replaces the upper bridge station and the lower bridge station.

Records available.—September 13, 1907, to December 31, 1910, upper bridge station; September 24, 1909, to July 7, 1911, lower bridge station; January 1, 1911, to December 31, 1912, present station. Data also in annual reports of the New York State Water Supply Commission, State Conservation Commission, and State engineer and surveyor.

Drainage area.—1,060 square miles.

Gage.—Recording hydrograph 30 feet downstream from the cable, in a concrete well 3 feet square, inside dimensions. The bottom of the well is about 2 feet below low water and 12 feet below ground surface. It is connected with the river by a 4-inch cast-iron water pipe 48 feet long, its intake end pointing downstream and protected by a fine wire screen. Inside the well and securely bolted to the side is a staff gage, its zero at elevation 573.36 and referred to a United States Geological Survey aluminum tablet set in the foundation wall of the Union Bag & Paper Co.'s mill at Hadley. On top of the well is a concrete shelter 6 feet high and 3 feet square, inside dimensions, for protecting the recording gage. The staff gage is used only as a reference gage.

Channel.—Very rough but permanent. The channel at the cable was cleared of bowlders as far as feasible, so that fairly accurate discharge measurements can be made at medium and high stages. Low-water measurements are made at a section about three-fourths of a mile above the cable, where the bottom is smooth and gravelly.

Discharge measurements.—At medium and high stages, made from cable; at low stages, made from a boat or by wading at a section about three-fourths of a mile above the cable.

Winter flow.—The water in the well and in the intake pipe never freezes because its level is below the frost line. The relation of gage height to discharge is, however, considerably affected by ice in the river.

Accuracy.—The discharge rating curve which has been developed for this station is well defined.

Discharge measurements of Sacandaga River at Hadley, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Jan. 18[a]	G. H. Canfield	5.08	774	Mar. 29[d]	Frank Weber	5.22	2,440
21[b]	Frank Weber	5.40	1,010	June 20	G. H. Canfield	3.28	530
Feb. 7[b]	do	4.43	580	July 3	do	2.69	195
28[c]	Alexander McMillan	4.11	650	5	do	2.76	229
Mar. 8[c]	Frank Weber	3.62	537	17	O. W. Hartwell	2.80	275
15[c]	do	4.18	775	Aug. 2[e]	J. G. Mathers	2.40	104
22[d]	do	6.16	3,710				

[a] Made at boat section ½ mile above cable under partial ice cover.
[b] Made at highway bridge below cable under partial ice cover.
[c] Made at boat section under complete ice cover.
[d] Made from cable, partial ice cover.
[e] Made by wading about ¼ mile above gage.

Daily gage height, in feet, of Sacandaga River at Hadley, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.2	4.4	4.2	7.1	6.2	5.3	2.78	2.37	2.60	3.7	4.7	3.95
2	4.9	4.4	4.15	7.4	5.9	5.1	2.73	2.42	2.60	3.65	4.6	4.1
3	4.6	4.5	4.1	7.4	5.7	4.9	2.70	2.54	2.64	3.65	4.7	5.6
4	4.45	4.45	4.05	7.3	5.5	4.7	2.70	2.52	3.00	3.65	4.6	6.1
5	4.4	4.5	3.85	7.4	5.4	4.5	2.77	2.53	3.15	3.55	4.4	6.1
6	4.2	4.4	3.9	7.3	5.1	4.35	2.72	2.53	3.10	3.5	4.25	6.1
7	4.1	4.45	3.75	7.8	5.2	4.25	2.67	2.51	3.05	3.4	4.4	6.1
8	4.05	4.45	3.65	8.4	5.3	4.2	2.66	2.48	2.98	3.3	5.9	6.0
9	4.05	4.4	3.7	9.0	5.2	4.05	2.67	2.47	2.92	3.2	6.6	5.8
10	4.0	4.45	3.8	8.5	5.0	3.9	2.68	2.59	2.87	3.2	6.7	5.4
11	4.3	.....	3.9	7.8	4.9	3.8	2.65	2.73	2.85	3.2	6.5	5.3
12	4.6	.....	3.7	7.2	4.9	3.7	2.62	2.84	2.81	3.3	6.2	5.0
13	5.0	4.5	3.8	6.8	4.7	3.6	2.59	2.86	2.80	3.4	5.9	4.4
14	5.2	4.4	4.05	6.7	5.0	3.5	2.70	2.79	2.80	3.4	5.7	4.3
15	5.1	4.3	4.2	6.7	5.0	3.5	2.75	2.69	2.82	3.45	5.6	4.3
16	5.0	4.15	5.4	7.0	5.0	3.45	2.80	2.68	3.10	3.45	5.4	4.3
17	5.1	3.95	6.1	7.6	5.4	3.4	2.80	2.59	3.45	3.4	5.2	4.2
18	5.1	3.8	6.2	8.4	5.7	3.4	2.75	2.61	3.45	3.35	5.0	4.15
19	4.9	3.75	6.4	8.7	5.8	3.35	2.70	2.63	3.55	3.3	4.9	4.4
20	5.0	3.75	6.4	8.7	5.6	3.25	2.64	2.63	3.75	3.4	4.7	4.9
21	5.3	3.8	6.3	8.3	5.8	3.2	2.64	2.62	3.65	3.7	4.6	5.0
22	5.4	4.1	6.3	7.9	6.3	3.15	2.71	2.63	3.55	3.7	4.5	4.8
23	.....	4.6	6.1	7.8	6.6	3.1	2.80	2.65	3.45	3.8	4.4	4.6
24	.....	4.5	5.9	8.0	6.6	.....	2.86	2.67	3.4	5.1	4.3	4.4
25	.....	4.4	5.7	8.0	6.4	.....	2.75	2.71	3.5	6.1	4.35	4.2
26	.....	4.25	5.5	7.6	6.3	.....	2.62	2.73	4.1	6.4	4.4	4.1
27	.....	4.2	5.2	7.3	6.0	.....	2.62	2.74	4.2	6.4	4.35	4.05
28	4.9	4.2	5.0	7.0	5.7	.....	2.59	2.71	4.0	6.1	4.25	4.05
29	4.6	4.2	5.4	6.8	5.4	2.82	2.57	2.69	3.85	5.7	4.05	4.05
30	4.45	.....	6.2	6.4	5.5	2.80	2.55	2.69	3.7	5.3	4.0	4.1
31	4.4	.....	6.7	.....	5.5	.....	2.48	2.66	.....	5.0	.....	4.35

NOTE.—Relation of gage height to discharge affected by ice Jan. 9 to Apr. 3. On days having little fluctuation in stage the mean gage height was obtained by an inspection of the hydrograph traced by the gage; on days when the fluctuation was considerable the mean gage height is the average of 6 readings during each 24-hour period.

Daily discharge, in second-feet, of Sacandaga River at Hadley, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,890	580	750	7,470	5,080	3,080	254	95	176	864	2,050	1,110
2	2,370	580	722	8,430	4,360	2,710	232	111	176	821	1,900	1,270
3	1,900	600	695	8,430	3,900	2,370	218	153	193	821	2,050	3,680
4	1,700	590	670	8,180	3,470	2,050	218	146	366	821	1,900	4,840
5	1,630	600	580	8,480	3,270	1,760	250	149	455	738	1,630	4,840
6	1,380	580	600	8,180	2,710	1,570	227	149	424	698	1,440	4,840
7	1,270	590	545	9,680	2,890	1,440	205	142	395	622	1,630	4,840
8	1,220	590	518	11,500	3,080	1,380	201	131	355	552	4,360	4,600
9	1,220	580	530	13,300	2,890	1,220	205	128	323	486	6,120	4,130
10	1,000	590	560	11,800	2,540	1,060	210	172	297	486	6,400	3,270
11	920	593	600	9,680	2,370	956	197	232	288	486	5,850	3,080
12	840	597	530	7,880	2,370	864	184	283	268	552	5,080	2,540
13	750	600	560	6,690	2,050	778	172	292	263	622	4,360	1,630
14	850	580	670	6,400	2,540	698	218	258	263	622	3,900	1,500
15	795	565	750	6,400	2,540	698	240	214	273	660	3,680	1,500
16	750	722	2,160	7,280	2,540	660	263	210	424	660	3,270	1,500
17	795	622	3,540	9,080	3,270	622	263	172	660	622	2,890	1,380
18	795	560	3,760	11,500	3,900	622	240	180	660	587	2,540	1,330
19	710	545	4,200	12,400	4,130	587	218	189	738	552	2,370	1,630
20	750	545	4,200	12,400	3,680	519	193	189	910	622	2,050	2,370
21	915	560	3,980	11,200	4,130	486	193	184	821	864	1,900	2,540
22	990	695	3,970	9,980	5,330	455	222	189	738	864	1,760	2,210
23	943	1,060	3,650	9,680	6,120	424	263	197	660	956	1,630	1,900
24	897	960	3,350	10,300	6,120	395	292	205	622	2,710	1,500	1,630
25	850	880	3,050	10,300	5,590	366	240	222	698	4,840	1,570	1,380
26	803	780	2,770	9,080	5,330	339	184	232	1,270	5,590	1,630	1,270
27	756	750	2,360	8,180	4,600	312	184	236	1,380	5,590	1,570	1,220
28	710	750	2,100	7,280	3,900	297	172	222	1,160	4,840	1,440	1,220
29	620	750	2,760	6,690	3,270	273	165	214	1,010	3,900	1,220	1,220
30	590	.....	4,760	5,590	3,470	263	157	214	864	3,080	1,160	1,270
31	580	.....	6,220	.....	3,470	.....	131	201	.....	2,540	.....	1,570

NOTE.—Daily discharge Jan. 1–9 and Apr. 4 to Dec. 31 determined from a fairly well defined rating curve. Daily discharge Jan. 10 to Apr. 3 estimated by means of numerous discharge measurements made during the period, climatologic records, and observer's notes.

Monthly discharge of Sacandaga River at Hadley, N. Y., for 1912.

[Drainage area, 1,060 square miles.]

Month.	Maximum.				Minimum.	Mean.	Per square mile.	Run-off (depth in inches).	Accuracy.
	Day.	Hour.	Gage height.	Discharge.					
			Feet.	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*	*Sec.-ft.*		
January	22	12 m.	5.44	[a] 3,140	[b] 580	1,070	1.01	1.16	B.
February	12	4 p. m.	4.80	[c] 1,150	[b] 545	655	.618	.67	B.
March	31	11.50 p.m	6.92	[d] 6,900	[b] 518	2,130	2.01	2.32	B.
April	9	10 a. m.	9.05	13,400	5,590	9,110	8.59	9.58	A.
May	24	2 a. m.	6.61	6,150	2,050	3,710	3.50	4.04	A.
June	1	12 m.	5.40	3,270	263	975	.920	1.03	A.
July	24	10 a. m.	2.88	302	131	213	.201	.23	A.
August	13	6 a. m.	2.88	302	95	191	.180	.21	A.
September	26	10 p. m.	4.28	1,480	176	571	.539	.60	A.
October	26	9 a. m.	6.41	5,620	486	1,570	1.48	1.71	A.
November	9	10. p. m.	6.75	6,540	1,160	2,700	2.55	2.84	A.
December	5	2 a. m.	6.15	4,960	1,110	2,360	2.23	2.57	A.
The year	Apr. 9	10 a. m.	9.05	13,400	95	2,100	1.98	26.96	

[a] Occurred Jan. 1, 12.15 a. m. Open water.
[b] From ice curves. Accuracy "D."
[c] Occurred Feb. 23, 10 a. m. Ice conditions. Accuracy "D."
[d] Occurred Mar. 20, 10 a. m. Ice conditions. Accuracy "D."

WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS, N. Y.

Location.—On the highway bridge known as Blackbridge, about 3 miles west of Wells and 2 miles above the junction of the East and West branches of Sacandaga River. Replaces station formerly located at Whitehouse.

Records available.—March 14, 1911, to December 31, 1912.

Drainage area.—211 square miles.

Gage.—Chain, attached to upstream side of the highway bridge; read twice daily; datum unchanged.

Channel.—Rocky and practically permanent; two channels at extreme high water.

Discharge measurements.—Made from the bridge and by wading. Section beneath the bridge was cleared of bowlders in September, 1911.

Artificial control.—Gage heights slightly affected by storage dams used for logging in the spring.

Winter flow.—Probably little affected by ice. Stream open during greater part of the winter.

Accuracy.—The open-water rating curve is very well defined. Estimates for this period are good.

Discharge measurements of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Apr. 4	C. S. De Golyer	5.24	1,040	Aug. 7[a]	J. G. Mathers	2.85	40.6
6	do	6.04	1,870	7[a]	do	2.85	41.4
8	do	6.60	2,800	Sept. 13[b]	G. H. Canfield	3.02	61.1
9	do	6.50	2,580				

[a] Wading 20 feet below regular section. [b] Wading at regular section.

Daily gage height, in feet, of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1912.

[Cornelius De Groff, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.75	7.2	.....	5.7	5.6	7.1	2.84	2.80	2.84	3.65	4.4	3.8
2	4.8	7.4	.....	5.8	5.35	5.35	2.80	2.80	3.11	3.85	4.5	3.85
3	4.6	7.1	.....	5.5	5.1	4.55	2.80	2.88	3.35	3.9	4.3	5.8
4	4.5	.....	.....	5.35	5.1	4.75	2.81	2.88	3.32	3.8	4.2	5.8
5	4.3	.....	.....	5.3	4.8	4.4	2.81	2.80	3.32	3.8	4.1	5.6
6	4.3	.....	.....	6.0	6.2	4.3	2.82	2.80	3.20	3.7	4.05	5.6
7	4.25	.....	.....	7.1	4.75	4.15	2.82	2.82	3.15	3.7	4.65	5.6
8	4.05	.....	.....	6.8	4.8	4.1	2.82	2.80	3.31	3.55	6.6	5.3
9	3.9	.....	.....	6.5	4.65	3.9	2.82	2.80	3.25	3.55	6.1	5.15
10	3.85	.....	.....	6.2	4.5	3.8	2.80	2.80	2.95	3.5	5.9	4.95
11	3.95	.....	.....	5.9	5.15	3.75	2.90	2.82	2.94	3.6	.....	4.9
12	3.75	.....	.....	5.6	4.85	3.65	2.90	2.82	3.35	3.7	5.6	4.75
13	3.7	.....	.....	5.4	4.95	3.55	2.90	2.82	3.10	3.75	5.4	4.5
14	3.6	.....	.....	5.8	5.15	3.5	3.15	2.82	2.95	3.7	5.3	4.25
15	3.85	.....	.....	6.1	5.15	3.42	2.91	2.82	2.94	3.6	5.15	4.3
16	3.75	.....	.....	7.2	5.3	3.45	2.91	2.82	3.85	3.55	5.0	4.2
17	3.6	.....	.....	7.3	5.7	3.46	2.90	2.81	3.65	3.5	4.9	4.3
18	3.45	.....	.....	7.5	5.6	3.40	2.90	2.84	3.41	3.55	4.8	4.1
19	3.85	.....	.....	7.4	5.3	3.30	2.84	2.80	3.65	3.5	4.7	4.7
20	4.55	.....	.....	6.9	5.6	3.25	2.85	2.80	3.7	5.6	4.65	4.75
21	4.85	.....	.....	6.9	6.4	3.20	2.84	2.84	3.5	4.1	4.5	4.8
22	5.2	.....	.....	7.1	6.4	3.12	2.34	2.84	3.42	4.1	4.4	4.6
23	5.2	.....	.....	7.0	5.6	3.10	2.32	2.82	3.45	4.05	4.3	4.5
24	5.2	.....	.....	6.5	5.9	3.05	2.91	2.85	3.7	3.55	4.3	4.4
25	5.45	.....	.....	6.4	5.7	3.00	2.90	2.80	4.2	5.8	4.2	4.3
26	.....	.....	.....	6.4	5.4	3.00	2.86	2.85	4.5	5.4	4.1	4.15
27	.....	.....	.....	6.4	5.2	2.90	2.82	2.55	4.3	5.3	4.3	4.25
28	.....	.....	.....	6.1	5.1	2.92	2.82	2.86	4.0	5.1	4.05	4.0
29	.....	.....	.....	5.9	5.0	2.90	2.80	2.85	3.9	4.95	3.9	3.95
30	.....	.....	.....	5.8	4.9	2.90	2.80	2.80	3.85	4.8	3.85	4.05
31	.....	.....	5.7	.....	6.0	.....	2.88	2.80	.....	4.5	.....	4.7

NOTE.—Relation of gage height to discharge affected by ice Jan. 20 to Mar. 31, 1912.

Daily discharge, in second-feet, of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1911–12.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.									
1	735	2,760	464	189	51	152	189	439	667
2	634	4,380	326	189	46	96	218	490	604
3	545	2,270	306	176	41	134	251	464	490
4	573	2,120	218	163	45	106	464	391	439
5	573	1,980	414	152	40	86	604	439	439
6	735	1,380	306	140	204	251	517	347	391
7	1,490	886	517	140	124	269	414	545	326
8	1,490	1,050	439	140	66	347	73	1,010	326
9	1,140	490	306	136	104	414	517	968	368
10	1,050	418	326	128	80	414	545	968	517
11	926	347	287	120	57	391	490	886	667
12	1,090	368	234	116	53	287	391	926	1,600
13	1,280	545	634	113	41	251	326	1,050	2,420
14	1,850	735	1,230	106	31	234	79	968	1,380
15	1,980	464	735	97	22	251	490	2,580	1,600
16	1,980	464	735	124	136	218	218	545	1,380
17	1,850	1,380	545	132	111	176	204	2,120	1,380
18	1,720	604	464	120	52	140	517	926	1,380
19	1,720	700	391	91	42	120	391	1,180	1,050
20	1,600	1,010	306	83	57	105	1,010	968	1,010
21	1,850	667	234	69	51	92	1,010	886	808
22	1,720	700	218	52	44	84	1,000	545	667
23	1,600	1,010	204	69	38	78	1,490	439	3,120
24	1,600	846	176	96	34	69	1,180	634	1,380
25	1,490	886	163	120	30	72	439	545	1,230
26	2,420	846	152	89	38	72	926	391	1,280
27	2,940	414	163	78	46	72	886	391	1,380
28	4,200	326	204	69	78	72	604	391	604
29	4,200	326	163	61	347	163	517	604	808
30	3,660	326	189	53	251	218	414	700	667
31	.....	347	.....	56	176	.....	251	.....	808

Daily discharge, in second-feet, of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1911–12—Continued.

Day.	Jan.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.										
1	667	1,490	1,380	3,660	40	36	40	176	464	218
2	700	1,600	1,140	1,140	36	36	73	234	517	234
3	573	1,280	926	545	36	44	111	251	414	1,600
4	517	1,140	926	667	37	44	106	218	368	1,600
5	414	1,090	700	464	37	36	106	218	326	1,380
6	414	1,850	2,120	414	38	36	86	189	306	1,380
7	391	3,660	667	347	38	38	79	189	604	1,380
8	306	3,120	700	326	38	36	104	152	2,760	1,090
9	251	2,580	604	251	38	36	94	152	1,980	968
10	234	2,120	517	218	36	36	52	140	1,720	808
11	269	1,720	968	204	46	38	51	163	1,550	770
12	204	1,380	735	176	46	38	111	189	1,380	667
13	189	1,180	808	152	46	38	72	204	1,180	517
14	163	1,600	886	140	79	38	52	189	1,090	391
15	234	1,980	886	124	47	38	51	163	968	414
16	204	3,840	1,090	130	47	38	234	152	846	368
17	163	4,020	1,490	132	46	37	176	140	770	414
18	130	4,380	1,380	120	46	40	122	152	700	326
19	234	4,200	1,090	102	40	36	176	140	634	634
20	.....	3,300	1,380	94	41	36	189	1,380	604	667
21	.....	3,300	2,420	86	40	40	140	326	517	700
22	.....	3,660	2,420	75	5	40	124	326	464	573
23	.....	3,480	1,380	72	4	38	130	306	414	517
24	.....	2,580	1,720	65	47	41	189	152	414	464
25	.....	2,420	1,490	58	46	36	368	1,600	368	414
26	.....	2,420	1,180	58	42	41	517	1,180	326	347
27	.....	2,420	1,010	46	38	15	414	1,090	414	391
28	.....	1,980	926	48	38	42	287	926	306	287
29	.....	1,720	846	46	36	41	251	808	251	269
30	.....	1,600	770	46	36	36	234	700	234	306
31	.....	.....	1,850	.....	44	36	.....	517	.....	634

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge on days for which no gage heights are given estimated from the discharge at Hope.

Monthly discharge of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1911–12.

[Drainage area 211 square miles.]

Month	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
April	4,200	545	1,690	8.01	8.94	A.
May	4,380	326	1,000	4.74	5.46	A.
June	1,230	152	368	1.74	1.94	A.
July	189	52	112	.531	.61	A.
August	347	30	81.8	.388	.45	A.
September	414	69	181	.858	.96	A.
October	1,490	73	536	2.54	2.93	A.
November	2,580	347	791	3.75	4.18	A.
December	3,120	326	1,010	4.79	5.52	A.
1912.						
January	.....	.....	250	1.18	1.36	D.
February	.....	.....	130	.616	.66	D.
March	.....	.....	400	1.90	2.19	D.
April	4,380	1,090	2,440	11.6	12.94	A.
May	2,420	517	1,170	5.55	6.40	A.
June	3,660	46	334	1.58	1.76	A.
July	79	4	39.8	.189	.22	A.
August	44	15	37.5	.178	.21	A.
September	517	40	158	.749	.84	A.
October	1,600	140	410	1.94	2.24	A.
November	2,760	234	763	3.62	4.04	A.
December	1,600	218	669	3.17	3.66	A.
The year	4,380	4	565	2.68	36.52	

NOTE.—Discharge Jan. 20 to Mar. 31 estimated by comparison with the discharge at Hadley. Mean discharge Jan. 20–31 estimated 125 second-feet.

HOOSIC RIVER NEAR EAGLE BRIDGE, N. Y.

Location.—1½ miles above the village of Eagle Bridge and ½ mile below the mouth of Walloomsac River coming in from the right. Owlkill Creek enters from the right at Eagle Bridge. Replaces station formerly maintained at Buskirk. The Buskirk station was abandoned because the relation between gage height and discharge was affected by backwater caused by the construction of a dam at Johnsonville.

Records available.—August 13, 1910, to December 31, 1912. For the station formerly maintained at Buskirk, 4 miles below, records are available from September 25, 1903, to December 31, 1908. Data published also in annual reports of New York State engineer and surveyor.

Drainage area.—512 square miles.

Gage.—Standard chain, supported by cantilever arm on a tree on the left bank about 400 feet above the residence of James Russell. Datum unchanged.

Channel.—Bed of river composed of gravel; liable to shift. Control point about 400 feet below the gage.

Discharge measurements.—At low stages made by wading; at high stages formerly made from the highway bridge in the village of Eagle Bridge, 1½ miles below. A cable was erected at this station during 1912, ½ mile below the gage for high-water measurements.

Artificial control.—The dam of Walter A. Wood & Co. is located at Hoosic Falls, about 2 miles above the gage. Walloomsac River is also partly controlled, and the effect of the operation of the mills is observable at the gage. On this account the gage heights should be used with caution.

Accuracy.—Except for possible inaccuracies in gage heights due to artificial control records are good.

Discharge measurements of Hoosic River near Eagle Bridge, N. Y., in 1912.

Date.		Hydrographer.	Gage height.	Discharge.
			Feet.	*Sec.-ft.*
Feb.	27[a]	C. S. De Golyer	9.52	684
Mar.	1[a]	do	8.28	241
	14	Alexander McMillan	9.80	1,850
	16	C. S. De Golyer	12.33	4,950
	17	do	10.28	8,320

[a] Measurements made under complete ice cover.

Daily gage height, in feet, of Hoosic River near Eagle Bridge, N. Y., for 1912.

[Vashti Russell, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.7	8.0	8.55	11.1	9.2	9.9	7.5	7.0	6.92	7.48	8.35	8.0
2	8.7	8.1	8.3	11.7	9.0	9.4	7.32	7.25	7.00	7.40	8.4	8.1
3	8.5	8.1	8.45	11.6	8.8	11.8	7.30	7.02	7.30	7.30	8.3	10.7
4	8.4	8.0	8.5	10.5	8.6	10.2	7.05	7.05	7.45	7.20	8.2	9.6
5	8.2	8.5	8.4	10.8	8.6	9.8	7.25	7.30	7.35	7.18	8.0	9.0
6	8.1	8.55	8.4	11.4	9.0	9.4	7.30	7.22	7.32	7.05	8.0	9.6
7	7.9	8.3	8.45	12.5	9.2	9.9	7.02	7.12	7.20	7.00	8.0	9.7
8	8.0	8.2	9.1	.....	8.8	9.2	7.35	6.98	7.00	7.32	10.8	9.1
9	8.3	8.45	10.7	11.3	8.8	9.0	7.22	6.98	7.25	7.02	9.5	8.9
10	8.3	8.75	9.4	10.9	9.3	8.8	7.20	6.85	7.20	7.15	9.0	8.8
11	8.4	8.75	9.2	10.5	8.8	8.6	7.15	6.98	7.25	7.35	8.8	8.7
12	8.7	8.85	9.0	10.1	8.6	8.4	7.40	7.5	7.20	7.45	8.7	8.6
13	8.6	8.85	.....	10.0	8.8	8.3	7.00	7.08	7.22	7.25	8.4	8.35
14	8.4	8.8	9.9	10.3	8.9	8.15	7.00	6.92	7.08	7.50	9.1	8.3
15	8.5	8.65	9.8	10.5	8.8	8.1	7.30	7.00	6.95	7.40	9.4	8.2
16	8.6	8.4	12.4	11.4	8.8	8.0	7.18	7.02	7.7	7.25	9.0	8.3
17	8.6	8.35	10.5	11.6	10.6	8.2	7.36	6.75	7.6	7.15	8.7	8.1
18	8.4	8.25	10.6	10.9	9.8	8.0	7.25	6.90	7.32	7.12	8.6	8.1
19	9.4	8.35	10.6	10.8	9.3	7.9	7.8	7.05	7.28	7.55	8.4	8.8
20	9.8	8.55	10.8	10.3	9.2	7.9	7.40	7.00	7.65	7.38	8.3	9.1
21	9.2	9.0	10.0	9.9	9.2	7.7	7.08	7.00	7.22	7.28	8.3	8.45
22	9.1	10.6	9.6	9.9	9.8	7.8	7.38	7.10	7.10	7.25	8.25	8.2
23	8.6	9.4	9.0	10.4	9.2	7.42	7.28	7.18	7.32	7.42	8.2	8.3
24	8.6	8.9	9.0	10.0	9.0	7.6	7.20	7.7	7.22	.....	8.0	8.2
25	8.2	9.6	8.9	10.0	9.3	7.6	7.20	7.20	7.12	11.6	8.8	7.9
26	8.3	10.2	8.6	9.6	9.0	7.48	7.25	7.40	7.12	10.2	8.45	8.25
27	8.2	9.4	8.6	9.5	8.8	7.42	7.25	7.10	7.15	9.5	8.25	8.3
28	8.2	9.1	8.7	9.2	8.6	7.48	6.95	7.32	7.12	9.2	8.05	8.35
29	8.2	8.7	11.5	9.1	8.4	7.30	6.95	6.95	7.02	8.8	8.15	8.25
30	8.2	.....	11.8	9.4	11.4	7.05	7.25	7.08	7.18	8.6	8.1	8.6
31	8.0	.....	10.4	.....	10.7	.....	7.25	7.02	.....	8.4	.....	10.8

NOTE.—Relation of gage height to discharge affected by ice Jan. 8 to Mar. 15.

Daily discharge, in second-feet, of Hoosic River near Eagle Bridge, N. Y., for 1910–1912.

Day.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.											
1	.....	116	152	116	310	16	140	195	105	425	880
2	.....	112	84	112	238	17	140	195	128	400	880
3	.....	128	128	230	290	18	152	135	128	332	680
4	.....	128	140	950	212	19	180	152	116	355	620
5	.....	128	128	880	270	20	105	180	128	310	745
6	.....	270	152	745	270	21	75	160	105	310	745
7	.....	1,400	142	532	270	22	140	121	84	290	620
8	.....	532	135	400	290	23	128	105	135	378	560
9	.....	310	116	355	290	24	105	94	128	223	1,090
10	.....	262	195	400	290	25	152	84	140	290	2,990
11	.....	195	152	532	290	26	105	140	165	310	1,730
12	.....	230	128	290	310	27	94	195	152	195	1,640
13	223	212	171	310	478	28	75	212	165	378	1,400
14	94	165	128	450	778	29	105	212	250	355	1,560
15	145	212	105	450	680	30	90	140	165	223	2,880
						31	116	.....	165	.....	1,730

Daily discharge, in second-feet, of Hoosic River near Eagle Bridge, N. Y., for 1910-1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	.....	778	.....	1,400	1,480	355	174	189	250	620	1,240	1,320
2	.....	650	.....	950	2,670	332	212	165	250	880	950	1,160
3	5,040	532	.....	950	1,730	332	195	145	174	810	950	950
4	3,340	745	.....	950	1,400	195	165	152	195	880	810	950
5	1,560	810	.....	1,560	1,090	332	160	88	165	1,640	745	745
6	1,400	532	.....	3,220	1,020	378	152	94	270	1,020	810	778
7	1,400	532	.....	4,720	810	478	171	180	478	1,240	1,020	778
8	1,090	620	.....	2,880	810	450	180	189	620	1,160	1,090	778
9	.....	532	.....	2,470	745	355	105	180	332	1,020	880	778
10	.....	560	.....	2,090	650	270	160	116	1,910	880	845	712
11	.....	505	.....	1,730	590	212	212	160	950	745	810	745
12	.....	532	.....	1,730	560	400	116	88	745	680	680	880
13	.....	505	.....	1,730	620	1,820	160	91	505	680	1,640	950
14	.....	.....	.....	2,470	590	1,820	135	68	450	505	1,090	810
15	.....	.....	2,470	4,720	650	1,090	75	88	378	478	1,090	810
16	.....	.....	1,090	3,100	532	880	79	116	532	532	1,090	1,160
17	.....	.....	650	2,280	478	778	180	152	532	505	880	1,480
18	.....	.....	650	1,730	450	560	171	145	450	532	1,640	1,480
19	.....	.....	560	1,730	505	532	148	189	478	5,040	2,000	1,240
20	.....	.....	680	1,560	950	560	160	128	400	2,880	1,480	950
21	.....	.....	560	1,480	590	425	128	140	378	2,000	1,400	880
22	.....	.....	745	1,560	505	425	140	84	310	2,990	1,240	950
23	.....	.....	1,730	1,400	450	355	94	94	378	3,840	1,020	3,840
24	.....	.....	880	1,240	378	332	160	128	355	2,670	1,160	2,470
25	.....	.....	650	1,480	400	222	355	81	378	1,910	1,320	1,910
26	.....	.....	810	1,730	425	332	195	105	298	1,560	950	1,730
27	.....	.....	3,580	1,730	332	355	171	152	310	1,400	1,090	1,910
28	.....	.....	6,000	1,910	310	355	140	230	332	1,240	1,020	1,640
29	1,400	.....	2,090	1,730	310	310	230	1,240	355	1,090	2,280	1,090
30	1,400	.....	3,710	1,560	212	302	171	745	620	1,020	1,560	1,020
31	590	.....	1,910	.....	270	.....	195	425	.....	950	.....	950
1912.												
1	1,020	.....	.....	3,220	1,400	2,000	310	140	121	302	778	560
2	1,020	.....	.....	3,980	1,240	1,560	238	212	140	270	810	620
3	880	.....	.....	3,840	1,090	4,120	230	145	230	230	745	2,780
4	810	.....	.....	2,570	950	2,280	152	152	290	195	680	1,730
5	680	.....	.....	2,880	950	1,910	212	230	250	189	560	1,240
6	620	.....	.....	3,580	1,240	1,560	230	202	238	152	560	1,730
7	505	.....	.....	5,200	1,400	2,000	145	171	195	140	560	1,820
8	.....	.....	.....	5,600	1,090	1,400	250	135	140	238	2,880	1,320
9	.....	.....	.....	3,460	1,090	1,240	202	135	212	145	1,640	1,160
10	.....	.....	.....	2,990	1,480	1,090	195	105	195	180	1,240	1,090
11	.....	.....	.....	2,570	1,090	950	180	135	212	250	1,090	1,020
12	.....	.....	.....	2,180	950	810	270	310	195	290	1,020	950
13	.....	.....	.....	2,090	1,090	745	140	160	202	212	810	778
14	.....	.....	.....	2,380	1,160	650	140	121	160	310	1,320	745
15	.....	.....	.....	2,570	1,090	620	230	140	128	270	1,560	680
16	.....	.....	5,040	3,580	1,090	560	189	145	400	212	1,240	745
17	.....	.....	2,570	3,840	2,670	680	230	84	355	180	1,020	620
18	.....	.....	2,670	2,990	1,910	560	212	116	238	171	950	620
19	.....	.....	2,670	2,880	1,480	505	450	152	223	332	810	1,090
20	.....	.....	2,880	2,380	1,400	505	270	140	378	262	745	1,320
21	.....	.....	2,090	2,000	1,400	400	160	140	202	223	745	845
22	.....	.....	1,730	2,000	1,910	450	262	165	165	212	712	680
23	.....	.....	1,240	2,470	1,400	278	223	189	238	278	680	745
24	.....	.....	1,240	2,090	1,240	355	195	400	202	5,500	560	680
25	.....	.....	1,160	2,090	1,480	355	195	195	171	3,840	1,090	505
26	.....	.....	950	1,730	1,240	302	212	270	171	2,280	845	712
27	.....	.....	950	1,640	1,090	278	212	165	180	1,640	712	745
28	.....	.....	1,020	1,400	950	302	128	238	171	1,400	590	778
29	.....	.....	3,710	1,320	810	230	128	128	145	1,090	650	712
30	.....	.....	4,120	1,560	3,580	152	212	160	189	950	620	950
31	.....	.....	2,470	.....	2,780	.....	212	145	.....	810	.....	2,880

NOTE.—Daily discharge determined from a fairly well defined rating curve. On April 8 and Oct. 24 the water was so high that the observer could not get to the gage. This was at least gage height 13 feet. Discharge estimated for these days.

Monthly discharge of Hoosic River near Eagle Bridge, N. Y., for 1910–1912.

[Drainage area, 512 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1910.						
August 13-31	223	75	124	0.242	0.17	B.
September	1,400	84	224	.438	.49	B.
October	250	84	139	.271	.31	B.
November	950	112	384	.750	.84	B.
December	2,990	212	839	1.64	1.89	A.
1911.						
January	.....	.....	1,000	1.95	2.25	C.
February	.....	.....	512	1.00	1.04	C.
March	6,000	.....	1,060	2.07	2.39	C.
April	4,720	950	1,990	3.89	4.34	A.
May	2,670	212	726	1.42	1.64	A.
June	1,820	195	518	1.01	1.13	B.
July	355	75	164	.320	.37	B.
August	1,240	68	198	.387	.45	B.
September	1,910	165	459	.896	1.00	B.
October	5,040	478	1,400	2.73	3.15	A.
November	2,280	680	1,160	2.27	2.53	A.
December	3,840	712	1,220	2.38	2.74	A.
The year	6,000	68	869	1.70	23.03	
1912.						
January	.....	.....	570	1.11	1.28	C.
February	.....	.....	460	.898	.97	B.
March	5,040	.....	1,510	2.95	3.40	B.
April	5,600	1,320	2,770	5.41	6.04	A.
May	3,580	810	1,410	2.75	3.17	A.
June	4,120	152	962	1.88	2.10	A.
July	450	128	213	.416	.48	B.
August	400	84	172	.336	.39	B.
September	400	121	211	.412	.46	B.
October	5,500	140	734	1.43	1.65	A.
November	2,880	560	941	1.84	2.05	A.
December	2,880	505	1,060	2.07	2.39	A.
The year	5,600	84	917	1.79	24.38	

NOTE.—Discharge Jan. 1 and 2, 9 to 28, and Feb. 14 to Mar. 14, 1911, estimated from climatological records and comparative run-off. Discharge Jan. 8 to Feb. 9, 1912, estimated from climatological records, observer's notes, and measurements made after this period; discharge Feb. 10, to Mar. 14, 1912, estimated from measurements made during the period: Jan. 1–2, 1911, 2,000 second-feet; Jan. 9–28, 1911, 490 second-feet; Feb. 14–28, 1911, 435 second-feet; Mar. 1–14, 1911, 505 second-feet; Jan. 8–31, 1912, 505 second-feet; Feb. 1–10, 1912, 400 second-feet.

MOHAWK RIVER AT LITTLE FALLS, N. Y.

Location.—At the lower (Gilbert's) dam in the city of Little Falls, N. Y.

Records available.—1898 to 1912. Data also in the report of the Board of Engineers on Deep Water Ways (1900) and the annual reports of the New York State engineer and surveyor.

Drainage area.—1,306 square miles.

Computations of discharge.—Records show the flow over a masonry dam and the run of the water wheels at the Astoranga Knitting Mill and the mill of the Little Falls Paper Co.

Diversion.—Water is diverted from Mohawk River above this station to feed the Erie Canal. The records at this point do not indicate the total run-off from the drainage area. They indicate the amount of water flowing in the river after it leaves Little Falls.

Cooperation.—Records obtained and furnished for publication under the direction of the New York State engineer and surveyor.

Daily discharge in second-feet of Mohawk River at Little Falls, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,537	1,437	2,056	15,312	5,041	2,857	898	673	a 554	2,076	1,934	a1,499
2	2,821	1,283	1,990	14,103	5,457	a2,267	742	633	567	2,927	2,080	1,897
3	2,753	1,286	a 1,501	10,866	4,828	2,993	717	769	975	2,739	a2,044	7,387
4	2,254	a 954	1,730	9,579	4,321	2,759	435	a 887	1,288	2,119	2,095	6,934
5	1,871	1,316	1,717	9,584	a3,559	2,269	873	1,128	1,273	1,854	1,844	4,686
6	1,363	1,318	1,518	11,308	3,896	1,993	728	904	1,505	a1,440	1,690	4,691
7	a 915	1,248	1,448	a16,360	4,996	1,731	a 401	775	1,754	1,696	1,759	5,750
8	1,401	1,136	1,931	17,991	3,888	1,640	693	843	a1,006	1,357	10,062	a4,592
9	1,528	1,090	2,593	12,856	3,449	a1,357	613	643	1,195	1,249	9,045	3,772
10	1,323	1,133	a 2,558	9,224	2,861	1,982	419	642	961	1,301	a4,993	3,180
11	1,402	a 828	2,252	7,993	2,396	1,579	386	a 838	828	1,593	3,673	3,053
12	1,441	1,262	2,367	6,712	a1,607	1,483	438	975	937	1,952	2,643	2,640
13	1,330	1,169	2,253	7,152	1,994	1,387	238	829	996	a1,758	2,055	1,709
14	a1,297	1,135	1,488	a 8,054	2,132	1,305	a 696	902	812	2,411	2,848	2,239
15	1,706	1,320	1,866	10,663	1,705	1,451	994	738	a 548	1,909	4,026	a2,114
16	1,528	1,185	4,127	12,928	1,610	a1,130	1,020	738	1,688	1,437	3,173	3,053
17	1,568	1,168	a 5,128	14,151	2,821	2,120	843	842	2,774	1,663	a2,402	2,870
18	1,529	a 868	6,291	12,170	4,454	1,410	788	a 435	1,774	2,417	2,143	2,938
19	1,564	1,281	8,234	11,965	a3,557	1,017	666	761	2,214	1,362	1,946	5,185
20	1,999	1,434	9,270	9,629	3,146	942	566	843	2,374	a2,550	2,244	5,997
21	a1,935	2,208	7,578	a6,939	5,301	720	a 401	724	1,982	2,716	2,033	5,220
22	2,318	2,365	6,400	7,177	7,404	647	1,100	806	a1,406	1,768	1,822	a4,229
23	1,946	2,242	5,508	12,228	5,495	a 372	1,128	789	1,681	1,607	1,928	3,587
24	1,758	2,188	a 4,931	8,490	4,060	662	834	769	2,459	2,811	a1,449	2,478
25	1,607	a2,270	3,868	7,516	3,214	747	798	a 617	4,676	5,924	2,583	2,580
26	1,525	2,365	3,011	6,350	a2,240	809	673	886	5,139	5,988	2,880	2,718
27	1,330	2,319	3,065	6,782	2,245	646	775	804	3,559	a4,062	2,768	2,660
28	a 735	2,415	3,606	a7,180	1,345	373	a 435	739	2,340	3,583	2,338	2,358
29	1,601	2,254	7,913	6,278	1,326	491	367	742	a1,563	2,825	2,099	a1,651
30	1,407	.....	10,693	5,743	2,537	a 574	645	639	2,052	2,403	2,028	1,945
31	1,289	.....	a11,937	.....	3,459	.....	597	255	.....	1,991	.....	2,587

a Sunday.

Monthly discharge of Mohawk River at Little Falls, N. Y., for 1912.

Month.	Discharge in second-feet.			Month.	Discharge in second-feet.		
	Maximum.	Minimum.	Mean.		Maximum.	Minimum.	Mean.
January	2,821	735	1,664	August	1,128	255	760
February	2,415	828	1,534	September	5,139	548	1,763
March	11,937	1,448	4,220	October	5,988	1,249	2,371
April	17,991	5,743	10,109	November	10,062	1,449	2,888
May	7,404	1,326	3,430	December	7,387	1,499	3,490
June	2,993	372	1,390	The year	17,991	238	2,850
July	1,128	238	674				

MOHAWK RIVER AT TRIBES HILL, N. Y.

Location.—At the suspension bridge between the towns of Fort Hunter and Tribes Hill.

Records available.—April 3, 1904, to December 31, 1912. Data also in the annual reports of the New York State engineer and surveyor.

Drainage area.—3,113 square miles.

Gage.—Chain gage on bridge.

Channel.—Favorable for current-meter measurements.

Discharge measurements.—Made from the downstream side of the suspension bridge.

Cooperation.—Established and maintained by the New York State engineer and surveyor, who furnishes the records for publication.

Daily discharge, in second-feet, of Mohawk River at Tribes Hill, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	7,000	550	1,520	36,800	14,100	6,825	1,775	1,120	a1,520	4,000	3,850	a 3,420
2	7,800	550	1,120	(b)	13,800	a7,000	1,775	1,120	1,520	4,000	3,700	5,100
3	7,000	525	a 1,120	33,600	11,850	7,000	1,775	1,300	1,520	4,300	a 4,000	26,950
4	6,275	a 525	1,120	26,950	9,600	7,000	1,775	a1,300	1,775	4,000	4,300	16,800
5	5,250	525	1,520	26,950	a 8,875	5,925	1,775	1,300	2,162	3,700	4,300	14,100
6	4,600	520	1,520	36,800	9,600	5,250	1,648	1,300	2,575	a 3,420	3,850	14,700
7	a4,300	520	2,025	(a b)	9,100	4,950	a1,410	1,300	2,850	3,125	3,700	16,800
8	4,000	520	2,025	(b)	8,250	4,600	1,300	1,300	a2,988	2,438	20,100	a14,100
9	3,700	515	2,025	41,250	6,825	a4,300	1,300	1,648	2,988	2,300	24,900	7,600
10	3,420	515	a 2,025	30,100	6,100	3,700	1,300	1,520	2,575	2,162	a11,100	6,100
11	3,125	a 515	2,025	27,800	5,925	3,700	1,300	a1,520	2,575	2,025	9,350	7,600
12	2,575	515	2,575	25,300	a 5,600	3,850	1,300	1,648	2,300	2,300	7,600	7,600
13	2,300	515	5,600	22,300	5,250	3,700	1,300	2,162	2,025	a 2,162	6,650	4,950
14	a2,300	510	10,600	a24,125	4,600	3,560	a1,300	2,575	2,025	2,300	7,800	4,450
15	2,025	510	17,500	28,700	4,600	3,700	1,520	2,438	a2,575	2,162	9,350	a 4,775
16	2,025	510	46,000	39,300	4,950	a3,420	1,520	2,025	3,125	2,300	7,000	4,950
17	1,775	510	a25,700	43,700	8,250	3,420	1,520	1,775	5,925	2,300	a 6,650	5,425
18	1,775	a 510	26,100	38,650	12,650	3,420	1,520	a1,775	5,600	2,300	5,762	5,250
19	1,520	510	29,150	31,600	a11,100	3,420	1,520	1,775	3,700	2,575	5,250	6,100
20	1,520	510	36,800	30,600	9,100	3,125	1,520	2,025	4,600	a 4,775	5,600	8,250
21	a1,300	525	30,600	a23,750	9,600	2,712	a1,520	2,162	5,600	5,925	5,425	8,875
22	1,120	630	14,700	24,500	11,600	2,438	1,520	2,162	a5,250	4,775	5,425	a 8,650
23	1,120	630	16,200	27,375	10,850	a2,300	1,410	1,648	4,600	5,250	5,600	7,800
24	960	630	a14,400	29,600	10,050	2,300	1,410	1,300	4,600	10,325	a 5,762	7,200
25	710	a 630	11,100	24,500	8,875	2,162	1,520	a1,648	8,875	18,425	7,400	6,462
26	710	630	9,100	20,800	a 7,400	2,025	1,520	1,775	11,850	17,500	7,000	5,425
27	630	1,520	7,200	16,800	7,200	1,900	1,520	1,775	9,600	a15,300	5,925	5,425
28	a 630	1,520	13,250	a13,800	7,600	1,775	a1,520	1,775	6,650	10,325	5,250	5,600
29	630	1,520	26,100	15,300	7,400	1,775	1,410	1,520	a4,950	7,600	4,775	a 6,422
30	575	.....	(b)	16,800	7,000	a1,775	1,300	1,520	4,300	5,762	4,600	8,250
31	550	.....	(a b)	.....	8,025	.....	1,120	1,520	.....	4,000	.....	10,850

a Sunday. b Beyond limits of rating curve.

Monthly discharge of Mohawk River at Tribes Hill, N. Y., for 1912.

Month.	Discharge in second-feet.			Month.	Discharge in second-feet.		
	Maximum.	Minimum.	Mean.		Maximum.	Minimum.	Mean.
January	7,800	550	2,685	August	2,575	1,120	1,669
February	1,520	510	642	September	11,850	1,520	4,107
March	a 46,000	1,120	12,439	October	18,425	2,025	5,285
April	a 43,700	13,800	28,065	November	24,900	3,700	7,066
May	14,100	4,600	8,572	December	26,950	3,420	8,581
June	7,000	1,775	3,768	The year	a 46,000	510	7,020
July	1,775	1,120	1,481				

a Actual maximum beyond limits of rating curve.

WEST CANADA CREEK AT WILMURT, N. Y.

Location.—At the highway bridge in the town of Wilmurt, N. Y.

Records available.—June 28, 1909, to December 31, 1912. Data also in annual reports of the New York State engineer and surveyor.

Drainage area.—198 square miles.

Gage.—Enameled steel scale, attached to the planking on the right side of the center pier at the downstream side of the bridge. High-water gage attached to a telegraph pole near the Flansburgh residence.

Discharge measurements.—Made by wading below the bridge at low water and from the bridge at high water.

Cooperation.—Established and maintained by the New York State engineer and surveyor, who furnishes the records for publication.

Daily discharge, in second-feet, of West Canada Creek at Wilmurt, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	744	410	410	2,060	476	1,000	50	98	a383	916	1,685	a267
2	676	410	410	1,630	3,700	a820	50	98	476	1,050	1,870	2,420
3	600	410	a410	1,457	410	638	48	240	638	1,150	a1,685	(b)
4	476	a410	410	1,300	600	600	48	a356	600	916	1,457	2,270
5	476	410	410	1,457	a600	570	48	443	540	1,150	1,200	1,404
6	540	410	410	2,955	2,345	540	48	383	638	a916	1,510	1,300
7	a540	410	138	(ab)	1,570	540	a48	240	744	1,100	1,457	1,050
8	540	410	410	(b)	1,300	744	48	240	a676	1,300	1,805	a820
9	540	410	410	(b)	443	a916	48	190	570	1,100	2,955	676
10	540	410	a410	3,520	410	744	48	215	540	958	(a) b	744
11	540	a410	410	2,270	638	638	58	a383	476	916	(b)	676
12	540	410	410	1,404	a676	600	65	410	600	820	3,440	570
13	540	410	410	1,200	868	600	58	356	782	a820	2,710	508
14	a540	410	410	a2,345	820	820	a164	325	676	744	1,457	443
15	540	410	410	3,780	710	676	164	294	a710	744	1,200	a410
16	540	410	1,300	(b)	638	a570	118	240	958	710	1,100	410
17	540	410	a1,935	(b)	1,935	443	72	190	868	676	a916	410
18	476	a410	2,490	(b)	(b)	410	72	a215	782	744	744	410
19	476	476	3,200	(b)	(ab)	267	65	190	1,050	916	638	1,050
20	476	676	2,710	(b)	2,710	215	58	190	1,250	a1,100	570	1,250
21	a410	676	2,270	a2,270	(b)	190	a72	164	820	1,150	782	1,300
22	410	600	1,685	(b)	(b)	a138	190	138	a676	1,050	820	a1,050
23	410	540	1,200	(b)	(b)	85	138	190	820	1,457	476	958
24	410	476	a1,000	(b)	2,345	72	85	190	1,457	1,805	a383	782
25	410	a476	600	2,120	1,510	58	72	a240	2,345	2,420	294	570
26	410	476	410	3,440	a958	58	72	240	2,270	3,200	240	508
27	410	410	325	(b)	820	58	58	190	2,060	a3,700	240	410
28	a410	a10	294	a (b)	744	50	a58	240	1,570	3,200	240	476
29	410	410	710	(b)	744	50	50	240	a1,250	2,560	294	a443
30	410	.....	2,060	(b)	782	a50	50	190	1,100	2,120	294	540
31	410	.....	a1,740	.....	1,200	.....	50	294	.....	1,630	.....	1,250

a Sunday. b Beyond limits of rating curve.

Monthly discharge of West Canada Creek at Wilmurt, N. Y., for 1912.

[Drainage area, 198 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	744	410	496	2.51	2.89
February	676	410	448	2.26	2.44
March	3,200	138	962	4.86	5.60
April (15 days)	a3,780	1,200	2,214	11.18	12.48
May (26 days)	a3,700	410	1,152	5.82	6.71
June	1,000	50	439	2.22	2.48
July	190	48	73	.369	.426
August	443	98	246	1.24	1.43
September	2,345	383	944	4.76	5.31
October	3,700	676	1,388	7.01	8.08
November (28 days)	a3,440	240	1,159	5.85	6.53
December (30 days)	a2,420	267	846	4.27	4.92

a Actual maximum beyond limits of rating curve.

WEST CANADA CREEK AT KAST BRIDGE, N. Y.

Location.—On the highway bridge about 4 miles above the mouth and about 3 miles above the village of Herkimer.

Records available.—May 15, 1905, to December 31, 1912. Data also in the annual reports of the New York State engineer and surveyor.

Drainage area.—575 square miles.

Gage.—Horton tape gage on bridge, near east abutment.

Channel.—Favorable for good meter measurements.

Discharge measurements.—Made from bridge.

Cooperation.—Records furnished by the New York State engineer and surveyor.

Daily discharge, in second-feet, of West Canada Creek at Kast Bridge, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,274	1,324	1,385	6,280	2,970	1,735	194	295	a200	1,120	916	a694
2	1,140	1,274	1,490	5,864	2,602	a1,630	248	271	243	1,910	1,350	811
3	1,070	1,274	a1,299	3,560	2,602	1,490	257	351	248	1,197	a1,420	7,021
4	789	a1,420	1,350	2,740	2,372	1,248	280	a409	267	1,095	1,095	5,340
5	577	1,420	1,222	3,746	a2,234	1,070	299	442	636	1,095	1,018	3,206
6	475	1,197	1,197	7,276	2,418	1,018	257	304	584	a826	942	3,914
7	a526	1,805	1,172	a11,706	3,147	826	a234	295	752	716	1,665	3,560
8	680	1,385	1,140	10,412	2,694	752	188	309	a518	621	9,876	a2,878
9	665	1,630	1,420	7,343	2,326	a708	234	243	423	533	7,410	1,525
10	548	1,350	a1,324	5,400	1,770	562	295	276	314	570	a4,180	1,350
11	672	a1,525	1,350	4,242	1,299	548	200	a295	248	643	2,464	1,350
12	694	1,735	1,248	3,147	a1,197	562	182	446	333	811	1,875	1,095
13	665	1,420	1,385	4,056	1,350	504	215	418	342	a1,044	1,630	621
14	a651	1,420	.....	a5,400	1,700	461	a280	342	314	1,140	2,418	847
15	797	1,197	.....	7,476	1,299	428	599	285	a342	916	2,556	a811
16	737	993	5,574	11,048	1,420	a437	518	323	1,455	752	2,234	891
17	745	1,490	a5,340	12,028	2,464	489	257	370	1,630	628	a1,700	797
18	866	a1,274	2,878	9,950	3,206	482	271	a399	833	621	1,490	826
19	1,350	1,120	3,870	10,025	a2,832	394	243	215	1,420	891	1,095	3,622
20	1,595	1,875	4,614	7,476	1,770	351	257	248	1,299	a2,050	1,197	3,088
21	a1,665	2,510	2,740	a5,574	5,280	356	a390	271	1,172	1,770	1,095	2,464
22	2,096	2,234	1,805	6,220	6,280	276	442	351	a833	1,070	993	a1,805
23	1,350	1,700	1,770	12,594	4,366	a418	651	323	782	993	916	1,350
24	1,350	1,875	a1,490	8,928	2,602	399	409	333	1,420	2,326	a942	1,095
25	1,299	a1,875	1,274	5,516	2,050	347	319	a342	2,464	4,366	1,120	1,070
26	1,070	1,770	1,222	4,428	a1,945	333	243	257	2,970	4,490	1,140	866
27	1,095	1,875	1,018	5,100	1,490	356	262	328	1,840	a3,029	942	811
28	a1,350	1,735	1,248	a5,690	1,044	323	a285	356	1,248	1,980	847	767
29	1,140	1,560	4,860	4,800	1,018	285	208	295	a891	1,630	701	a730
30	1,140	.....	4,920	3,870	2,602	a267	230	262	942	1,248	730	891
31	1,018	.....	a5,040	.....	2,648	.....	333	437	.....	1,140	.....	1,945

a Sunday.

Monthly discharge of West Canada Creek at Kast Bridge, N. Y., for 1912.

[Drainage area, 575 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	2,096	475	1,003	1.74	2.01
February	2,510	993	1,561	2.71	2.92
March (29 days)	5,574	1,018	2,298	3.99	4.60
April	12,594	2,740	6,730	11.70	13.05
May	6,280	1,018	2,419	4.21	4.85
June	1,735	267	635	1.10	1.23
July	651	182	299	.520	.600
August	446	215	326	.567	.654
September	2,970	200	899	1.56	1.74
October	4,490	533	1,394	2.42	2.79
November	9,876	701	1,932	3.36	3.75
December	7,021	621	1,873	3.26	3.76

EAST CANADA CREEK AT DOLGEVILLE, N. Y.

Location.—At the dam of the Herkimer County Light & Power Co. at High Falls, near Dolgeville, about 7 miles above the mouth. Spruce Creek, the principal tributary, enters from the right about 1 mile above Dolgeville.

Records available.—1898 to 1912. Data also in the report of the Board of Engineers on Deep Waterways (1900) and the annual reports of the New York State engineer and surveyor.

Drainage area.—256 square miles.

Computations of discharge.—Discharge at this point consists of the flow over the spillway of the dam and the flow through the water wheels. The records have been computed from a discharge curve based on experiments with a full-sized model of this dam made at Cornell University. The flow through the turbines has been computed from current meter measurements made in the tailrace of the power plant.

Cooperation.—Records furnished for publication by the State engineer and surveyor.

Daily discharge, in second-feet, of East Canada Creek at Dolgeville, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	582	227	192	3,361	1,180	441	100	100	a 88	305	486	.....
2	384	227	209	2,588	1,144	a 338	113	85	112	423	317	.....
3	348	218	a 159	2,385	903	491	125	92	183	349	a 547	.....
4	191	a 247	218	1,705	742	406	121	a 110	252	379	461	.....
5	190	186	211	1,825	a 1,044	382	95	85	172	385	404	.....
6	170	239	194	4,037	1,542	359	89	105	230	a 283	420	.....
7	a 519	255	190	a 5,007	1,276	350	a 81	95	212	244	453	.....
8	114	247	199	4,488	496	226	85	95	a 144	243	.....	.....
9	209	244	213	3,151	495	a 257	105	95	117	243	.....	.....
10	227	234	a 223	2,528	486	245	95	100	121	243	.....	.....
11	220	a 271	200	1,842	424	226	85	a 175	117	304	.....	.....
12	252	210	195	1,460	a 300	223	85	123	141	380	.....	.....
13	193	200	394	1,236	395	214	95	105	130	a 176	.....	.....
14	a 205	189	342	a 2,470	398	210	a 95	100	105	260	.....	.....
15	230	168	468	3,713	389	180	124	105	a 126	282	.....	.....
16	226	196	909	4,860	406	a 195	126	100	204	243	.....	.....
17	222	163	a 1,353	5,225	992	179	113	100	227	298	.....	.....
18	200	a 125	772	4,504	1,086	199	101	a 93	191	243	.....	.....
19	226	160	393	4,256	a 976	183	95	100	479	447	.....	.....
20	345	243	404	2,918	1,097	253	94	85	399	a 828	.....	.....
21	a 401	243	557	a 2,608	1,340	261	a 100	134	346	765	.....	.....
22	376	243	758	4,987	1,419	138	129	126	a 261	546	.....	.....
23	346	227	753	4,518	1,619	a 138	107	105	249	595	.....	.....
24	344	301	a 550	3,470	1,235	127	102	256	329	689	.....	.....
25	339	a 237	632	2,038	971	128	127	a 115	994	1,926	.....	.....
26	284	204	862	1,950	a 503	130	95	95	1,017	1,648	.....	.....
27	359	241	1,078	2,395	550	142	105	115	668	a 1,364	.....	.....
28	a 229	227	687	a 2,149	505	155	a 106	99	401	960	.....	.....
29	227	209	745	1,659	919	137	75	105	a 219	608	.....	.....
30	227	.....	1,039	1,663	432	a 149	95	85	262	454	.....	.....
31	227	.....	a 634	.....	566	.....	95	85	.....	369	.....	.....

a Sunday.

Monthly discharge of East Canada Creek at Dolgeville, N. Y., for 1912.

[Drainage area, 256 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	582	114	278	1.09	1.26
February	301	125	220	.859	.926
March	1,353	159	508	1.98	2.28
April	5,225	1,236	2,935	11.5	12.8
May	1,619	300	833	3.25	3.75
June	491	127	235	.918	1.02
July	129	75	102	.398	.459
August	256	85	109	.426	.491
September	1,017	88	273	1.07	1.19
October	926	176	532	2.08	2.40

SCHOHARIE CREEK AT PRATTSVILLE, N. Y.

Location.—At the single-span steel highway bridge at Prattsville.

Records available.—November 7, 1902, to December 31, 1912. Data also in reports of State engineer and surveyor, State of New York.

Drainage area.—240 square miles.

Gage.—Standard Board of Water Supply chain gage attached to the floor of the bridge on the upstream side near the left bank; established May 7, 1907, to replace the old gage, which was dilapidated and unwieldy. The old datum, 1,130.03 feet (United States Geological Survey bench mark), was preserved. Gage was read morning and evening by Miss Edna M. Snyder, of Prattsville, N. Y., until September 30, 1910, and by her brother, Charles Snyder, after that date.

Channel.—All the water passes between the abutments of the bridge except at the very highest stages.

Discharge measurements.—Made from the bridge at high stages; at low stages measurements may be made by wading at a point about 500 feet below the bridge.

Winter flow.—The winter record is obtained from a temporary gage established at a point about 500 feet below the bridge, where there is a sufficient velocity to prevent the channel from freezing over.

Artificial control.—Flow probably practically unaffected by fluctuations of stage from storage above Prattsville.

Cooperation.—Station assumed May 7, 1907, by the Board of Water Supply of the City of New York, by which data were furnished for publication.

Daily discharge, in second-feet, of Schoharie Creek at Prattsville, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	369	325	349	1,820	655	325	43	33	69	88	295	183
2	340	325	337	2,980	580	267	37	27	103	82	433	670
3	279	290	330	2,905	537	252	35	29	97	69	325	1,465
4	205	290	303	1,358	522	307	35	29	88	69	252	866
5	199	290	675	1,760	470	252	31	29	82	73	212	670
6	193	260	711	2,065	490	237	39	21	88	69	212	1,368
7	188	260	675	2,578	367	227	31	21	82	69	212	1,200
8	186	235	675	2,438	421	191	27	13	82	63	1,616	875
9	186	235	502	1,616	496	191	29	13	73	59	884	686
10	180	225	470	1,465	490	151	31	33	73	43	625	655
11	180	212	411	1,200	483	163	163	457	59	49	509	522
12	176	234	441	1,010	537	136	118	262	73	43	433	496
13	178	324	5,070	992	566	136	69	212	63	73	385	367
14	184	324	1,976	938	537	118	63	127	63	43	409	421
15	184	324	5,666	1,143	580	112	49	94	59	49	451	433
16	184	360	4,595	4,014	632	118	43	73	118	43	361	325
17	184	324	2,065	2,200	1,976	106	39	69	127	39	307	237
18	184	360	1,640	2,620	1,284	88	43	69	118	39	289	277
19	197	445	1,358	2,410	965	82	39	69	88	43	252	766
20	287	920	1,105	1,544	814	88	39	69	112	63	252	537
21	357	1,075	920	1,181	655	76	39	82	112	43	237	397
22	369	2,330	766	1,010	710	67	33	82	88	39	227	331
23	330	1,284	686	902	655	63	29	262	69	790	171	337
24	330	610	580	857	509	71	23	103	63	1,856	191	331
25	380	558	522	814	427	63	21	97	88	1,760	433	397
26	380	558	522	710	325	57	23	88	63	1,368	349	496
27	376	750	470	580	277	51	23	97	82	848	301	349
28	376	427	537	537	267	47	19	88	82	655	237	337
29	376	349	4,235	734	289	43	33	88	88	490	227	445
30	373	.....	3,470	814	457	37	25	82	73	409	203	702
31	373	.....	1,640	.....	385	.....	33	82	.....	325	.....	1,263

Monthly discharge of Schoharie Creek at Prattsville, N. Y., for 1912.

[Drainage area, 240 square miles.]

Month.	Discharge in second-feet.				Run-off.		Rainfall (inches).
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches.	Per cent of rainfall.	
January	380	176	270	1.12	1.296	78	1.66
February	2,830	212	517	2.15	2.321	108	2.14
March	5,666	303	1,410	5.88	6.768	167	4.06
April	4,014	537	1,573	6.55	7.305	150	4.88
May	1,976	267	592	2.47	2.843	78	3.64
June	325	37	137	.57	.639	42	1.52
July	163	19	42	.18	.205	8	2.60
August	457	13	94	.39	.452	12	3.84
September	127	59	84	.35	.394	11	3.48
October	1,856	39	315	1.31	1.512	45	3.31
November	1,616	171	376	1.57	1.749	56	3.14
December	1,465	183	594	2.48	2.851	100	2.86
The year	5,666	13	500	2.08	28.335	76	37.13

KINDERHOOK CREEK AT ROSSMAN, N. Y.

Location.—On highway bridge at Rossman, N. Y., 3¼ miles above the confluence of the creek, through Stockport Creek, with Hudson River, 1 mile above the mouth of Claversack Creek, which it joins to form Stockport Creek, and 9 miles by road above the village of Hudson.

Records available.—March 17, 1906, to December 31, 1912. Data published also in annual reports of State engineer and surveyor, State of New York.

Drainage area.—331 square miles.

Gage.—Tape and weight type attached to highway bridge; read twice daily; datum unchanged since established.

Channel.—Rock with some soil on sides.

Discharge measurements.—Made from single-span steel highway bridge.

Artificial control.—Low-water flow practically controlled by several power plants and paper mills above the station. Several small lakes also tend to affect low-water flow for short periods.

Winter flow.—Considerably affected by ice.

Accuracy.—Open-channel discharge rating curve very well defined. Accuracy of estimates depends entirely on accuracy of mean daily gage heights. "See Special study" below.

Special study.—A portable automatic gage was set up near the observer's gage and a continuous automatic record of gage heights was obtained from August 3 to August 12, and November 30 to December 5, 1912, inclusive. The true mean daily discharge was determined from hourly gage heights from the continuous record and was compared with the discharge obtained from semidaily observations. It appeared that daily discharges computed from semidaily observations were fairly good for discharges above 100 second-feet. The mean daily gage heights obtained from semidaily observations are being published, together with estimates for the periods when the daily discharge is above 100 second-feet. Further studies will be made with a view to determining whether gage readings for low-water periods can be made more valuable.

Daily measurements of Kinderhook Creek at Rossman, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Aug. 8[a]	Frank Weber	26.53	62
Sept. 9[b]	J. G. Mathers	26.77	120
Oct. 29	Frank Weber	27.90	749
Dec. 2	C. S. De Golyer	27.39	406

[a] Made by wading in tail race; about 3 second-feet leaking from flume.
[b] Made by wading below the gage.

Daily gage height, in feet, of Kinderhook Creek at Rossman, N. Y., for 1911–12.

[Lester Allen, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	28.6	27.38	26.86	28.2	27.37	26.66	26.66	26.51	27.30	27.0	27.7	27.7
2	28.8	27.55	27.06	27.85	27.47	26.71	26.45	26.34	27.13	27.42	27.65	27.65
3	28.8	27.46	26.96	27.7	27.6	26.66	26.50	26.35	26.82	27.35	27.65	27.55
4	28.25	27.55	27.08	27.7	27.55	26.66	26.50	26.48	26.87	27.46	27.6	27.5
5	28.05	27.42	27.8	27.75	27.45	26.65	26.56	26.30	26.76	27.75	27.5	27.5
6	28.15	27.55	27.65	29.0	27.29	26.69	26.69	26.28	26.83	27.65	27.42	27.38
7	28.25	27.6	27.48	29.5	27.29	27.12	26.64	26.52	26.98	27.5	27.42	27.22
8	28.25	27.55	27.43	28.9	27.18	26.95	26.55	26.61	27.19	27.5	27.5	27.31
9	27.8	27.3	27.35	28.6	27.17	26.95	26.44	26.48	27.48	27.5	27.44	27.38
10	27.75	27.13	27.29	28.6	27.02	26.85	26.55	26.18	28.1	27.43	27.43	27.32
11	27.6	27.0	27.22	28.8	27.04	26.69	26.56	26.09	27.7	27.34	27.42	27.41
12	27.55	26.83	27.1	28.6	26.91	26.69	26.58	26.04	27.48	27.14	27.25	27.4
13	27.7	26.7	27.48	28.25	26.95	28.15	26.66	26.22	27.25	26.98	27.8	27.41
14	27.7	26.56	27.8	28.3	27.12	28.5	26.57	26.44	27.11	26.9	27.65	27.36
15	27.55	26.59	29.6	28.35	27.01	28.15	26.12	26.48	27.2	26.95	27.6	27.41
16	27.35	26.5	28.7	28.7	26.86	27.85	26.16	26.51	27.14	26.95	27.65	27.55
17	27.36	26.66	27.48	28.5	26.94	27.46	26.38	26.63	27.11	27.0	27.5	27.95
18	27.33	26.8	27.13	28.2	26.87	27.25	26.55	26.41	27.13	27.22	27.6	27.8
19	27.37	27.75	27.36	28.15	26.97	27.18	26.58	26.38	26.98	29.1	28.15	27.6
20	27.55	27.85	27.48	28.0	26.97	27.2	26.70	26.20	26.96	28.5	27.85	27.5
21	27.28	27.43	27.55	27.85	26.97	27.02	26.53	26.27	26.92	28.35	27.75	27.39
22	27.46	26.63	27.7	27.8	26.86	26.88	26.55	26.44	26.85	28.7	27.65	27.55
23	27.13	26.34	28.15	27.7	27.8	26.74	26.34	26.32	27.08	29.4	27.6	28.3
24	27.02	26.36	27.85	27.75	26.81	26.72	26.55	26.50	27.05	29.6	27.6	28.45
25	26.8	26.63	27.35	27.65	26.82	26.66	26.42	26.62	26.82	29.0	27.9	28.4
26	26.82	27.26	27.38	27.44	26.78	26.66	26.56	26.44	26.70	28.6	27.65	27.85
27	26.78	27.26	28.5	27.44	26.76	26.74	26.52	26.30	26.9	28.25	27.65	28.1
28	29.1	27.1	30.2	27.46	26.68	26.68	26.61	26.51	26.85	28.1	27.7	28.2
29	27.95	.....	28.8	27.38	26.69	26.73	26.28	27.48	26.96	27.85	28.1	27.8
30	27.85	.....	30.1	27.40	26.62	26.75	26.26	27.75	26.94	27.8	27.85	27.6
31	27.55	.....	29.0	.....	26.59	.....	26.51	27.45	.....	27.65	.....	27.6
1912.												
1	27.5	.....	.....	29.1	28.05	28.25	26.69	26.24	26.26	26.48	27.47	27.37
2	27.55	.....	.....	29.2	27.75	28.0	26.62	26.35	26.33	26.50	27.44	27.7
3	27.6	.....	.....	30.2	27.6	28.2	26.60	26.34	26.74	26.58	27.31	28.1
4	27.65	.....	.....	29.2	27.6	28.2	26.40	26.30	26.72	26.53	27.24	28.05
5	27.36	.....	.....	29.0	27.6	27.85	26.37	26.20	26.76	26.52	27.21	27.85
6	27.25	.....	.....	29.1	27.6	27.7	26.23	26.27	26.64	26.39	27.22	27.9
7	27.11	.....	.....	29.3	27.85	27.95	26.22	26.32	26.69	26.42	27.31	27.95
8	27.4	.....	.....	30.8	27.6	27.75	26.14	26.22	26.68	26.55	28.2	27.8
9	27.41	.....	.....	29.6	27.65	27.5	26.15	26.22	26.76	26.52	28.2	27.6
10	27.42	.....	.....	29.4	28.0	27.43	26.46	26.15	26.52	26.49	27.9	27.55
11	27.5	.....	.....	29.2	27.9	27.36	26.58	26.29	26.60	26.48	27.75	27.55
12	27.50	.....	.....	28.8	27.7	27.18	26.60	26.16	26.5	26.55	27.65	27.41
13	27.75	.....	.....	28.6	27.7	27.13	26.53	26.15	26.58	26.32	27.48	27.36
14	27.8	.....	.....	28.4	27.7	27.15	26.59	26.16	26.40	26.35	27.41	27.28
15	27.75	.....	.....	28.3	27.65	27.28	26.63	26.19	26.38	26.54	27.8	27.22
16	27.9	.....	28.7	28.9	27.7	27.15	26.41	26.16	26.68	26.59	27.6	27.36
17	27.95	.....	30.8	29.6	28.45	26.92	26.34	26.14	26.85	26.58	27.48	27.32
18	28.1	.....	29.2	29.4	28.25	26.95	26.42	26.22	26.75	26.56	27.38	27.33
19	28.0	.....	29.4	29.1	28.1	26.88	26.45	26.14	26.74	26.52	27.29	27.65
20	28.4	.....	29.1	28.9	27.9	26.91	26.46	26.16	26.72	26.42	27.29	28.1
21	.....	.....	28.8	28.5	27.85	26.85	26.32	26.28	26.65	26.31	27.34	27.8
22	.....	.....	28.35	28.4	27.95	26.84	26.51	26.14	26.66	26.52	27.34	27.55
23	.....	.....	28.15	28.4	27.85	26.76	26.53	26.18	26.61	26.70	27.31	27.5
24	.....	.....	27.38	28.6	27.65	26.77	26.56	26.42	26.61	29.80	27.21	27.48
25	.....	.....	27.8	28.5	27.55	26.74	26.48	26.35	26.68	29.6	28.0	27.5
26	.....	.....	27.9	28.3	27.50	26.72	26.18	26.42	26.67	28.50	28.0	27.8
27	.....	.....	28.2	28.2	27.45	26.76	26.25	26.36	26.62	28.30	27.8	27.9
28	.....	.....	28.3	27.9	27.43	26.68	26.27	26.38	26.66	27.9	27.6	27.8
29	.....	.....	29.3	27.9	27.55	26.58	26.19	26.18	26.50	27.7	27.5	27.65
30	.....	.....	29.7	28.1	28.8	26.40	26.16	26.28	26.28	27.55	27.5	27.7
31	.....	.....	28.9	.....	28.35	.....	26.42	26.28	.....	27.5	.....	28.6

NOTE.—Relation of gage height to discharge during 1911 little if at all affected by ice. In 1912 the relation of gage height to discharge was affected by ice Jan. 21 to Mar. 15.

Daily discharge, in second-feet, of Kinderhook Creek at Rossman, N. Y., for 1911–12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	1,340	401	173	988	380	111	111	.....	359	225	602	602
2	1,540	502	249	710	453	125	.....	.....	278	424	568	568
3	1,540	467	209	602	534	111	.....	.....	160	386	568	502
4	1,030	502	257	602	502	111	.....	.....	160	447	534	470
5	866	424	673	638	441	108	.....	.....	141	638	470	470
6	948	502	568	1,750	354	119	119	.....	163	568	424	401
7	1,030	534	458	2,340	354	274	105	.....	218	470	424	320
8	1,030	502	429	1,640	301	206	.....	.....	305	470	470	364
9	673	359	386	1,340	296	206	.....	.....	458	470	435	401
10	638	278	354	1,340	233	170	.....	.....	906	429	429	370
11	534	255	320	1,540	241	119	.....	.....	602	379	424	418
12	502	163	265	1,340	191	119	.....	.....	458	283	334	412
13	602	122	458	1,070	206	947	111	.....	334	218	673	418
14	602	82	673	1,070	274	1,250	.....	.....	270	187	568	390
15	502	90	2,460	1,120	229	947	.....	.....	310	206	534	418
16	386	77	1,440	1,440	173	710	.....	.....	283	206	568	502
17	391	111	458	1,250	202	447	.....	102	270	225	470	787
18	375	153	278	988	177	334	.....	.....	278	320	534	673
19	396	638	391	947	214	301	.....	.....	218	1,860	947	534
20	502	710	458	826	214	310	122	.....	210	1,250	710	470
21	349	429	502	710	214	233	.....	.....	195	1,110	638	407
22	447	102	602	673	173	180	.....	.....	170	1,440	568	502
23	278	60	947	602	673	134	.....	.....	257	2,210	534	1,070
24	233	64	710	638	156	128	.....	.....	245	2,460	534	1,210
25	153	102	386	568	160	111	.....	.....	160	1,750	748	1,160
26	160	339	401	435	146	111	.....	.....	122	1,440	568	710
27	147	339	1,250	435	141	134	.....	.....	187	1,030	568	906
28	1,860	265	3,280	447	116	116	.....	.....	170	906	602	988
29	787	.....	1,540	401	119	131	.....	458	210	710	906	673
30	710	.....	3,140	412	100	138	.....	638	202	673	710	534
31	502	.....	1,750	.....	92	.....	.....	441	.....	568	.....	534
1912.												
1	470	.....	.....	1,860	866	1,030	119	.....	.....	.....	453	396
2	502	.....	.....	1,980	638	826	100	.....	.....	.....	435	602
3	534	.....	.....	3,280	534	988	.....	.....	134	.....	364	906
4	568	.....	.....	1,980	534	988	.....	.....	128	.....	330	866
5	391	.....	.....	1,750	534	710	.....	.....	141	.....	315	710
6	334	.....	.....	1,860	534	602	.....	.....	105	.....	320	748
7	270	.....	.....	2,090	710	787	.....	.....	119	.....	364	787
8	412	.....	.....	4,200	534	638	.....	.....	116	.....	988	673
9	418	.....	.....	2,460	568	470	.....	.....	141	.....	988	534
10	424	.....	.....	2,210	826	429	.....	.....	.....	.....	748	502
11	470	.....	.....	1,980	748	391	.....	.....	.....	.....	638	502
12	470	.....	.....	1,540	602	301	.....	.....	.....	.....	568	418
13	638	.....	.....	1,340	602	278	.....	.....	.....	.....	458	391
14	673	.....	.....	1,160	602	288	.....	.....	.....	.....	418	349
15	638	.....	.....	1,070	568	349	102	.....	.....	.....	673	320
16	748	.....	1,440	1,640	602	288	.....	.....	116	.....	534	391
17	787	.....	4,200	2,460	1,210	195	.....	.....	170	.....	458	370
18	906	.....	1,980	2,210	1,030	206	.....	.....	138	.....	401	375
19	826	.....	2,210	1,860	906	180	.....	.....	134	.....	354	568
20	1,160	.....	1,860	1,640	748	191	.....	.....	128	.....	354	906
21	.....	.....	1,540	1,250	710	170	.....	.....	108	.....	380	673
22	.....	.....	1,120	1,160	787	167	.....	.....	111	.....	380	502
23	.....	.....	947	1,160	710	141	.....	.....	.....	122	364	470
24	.....	.....	401	1,340	568	144	.....	.....	.....	2,720	315	458
25	.....	.....	673	1,250	502	134	.....	.....	116	2,460	826	470
26	.....	.....	748	1,070	470	128	.....	.....	114	1,250	826	673
27	.....	.....	988	988	441	141	.....	.....	100	1,070	673	748
28	.....	.....	1,070	748	429	116	.....	.....	111	748	534	673
29	.....	.....	2,090	748	502	90	.....	.....	.....	602	470	568
30	.....	.....	2,590	906	1,540	70	.....	.....	.....	502	470	602
31	.....	.....	1,640	.....	1,120	.....	.....	.....	.....	470	.....	1,340

NOTE.—Daily discharge determined from a rating curve that is not well defined for high stages. When flow is below 100 second-feet, discharge given does not represent mean for the day, because of diurnal fluctuation.

Monthly discharge of Kinderhook Creek at Rossman, N. Y., for 1911–12.

[Drainage area, 331 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
January	1,860	147	679	2.05	2.36	B.
February	710	60	306	.924	.96	B.
March	3,280	173	821	2.48	2.86	B.
April	2,340	401	962	2.91	3.25	B.
May	673	92	260	.785	.91	B.
June	1,250	108	281	.849	.95	B.
September	906	122	277	.837	.93	B.
October	2,460	187	773	2.34	2.70	B.
November	947	334	569	1.72	1.92	B.
December	1,210	320	587	1.77	2.04	B.
1912.						
March 16–31	4,200	401	1,590	4.80	2.86	B.
April	4,200	748	1,710	5.17	5.77	B.
May	1,540	429	699	2.11	2.43	B.
June	1,030	70	381	1.15	1.28	B.
October 23–31	2,720	122	1,100	3.32	1.11	B.
November	988	315	513	1.55	1.73	B.
December	1,340	320	596	1.80	2.08	B.

ESOPUS CREEK NEAR OLIVEBRIDGE, N. Y.

Location.—About 1 mile below Olivebridge post office, at a weir constructed for the purpose of determining the flow of the creek.

Records available.—October 17, 1906, to December 31, 1912. Data also in annual reports of the New York State engineer and surveyor

Drainage area.—239 square miles.

Gage.—Automatic water-stage register geared 1 to 1 and running 24 hours, in a well 24 inches in diameter, situated 53 feet upstream from the crest of the weir. Water is admitted to this well through a three-fourths-inch pipe extending 16 feet out into the stream in which, spaced 6 inches apart, are one-eighth-inch holes bored vertically through the pipe. The center of this pipe is 18 inches above the bed of the stream. The automatic gage was installed December 5, 1906. From October 17, 1906, to December 5, 1906, head of water on the weir was read three times daily and reduced in the usual manner.

Discharge measurement.—Computations of discharge over the weir are made from a formula deduced from the results of experiments made by the United States Geological Survey in the hydraulic laboratory at Cornell University in series 30, described in Water-Supply Papers 150 and 200. The weir is of concrete, 193.90 feet between abutments and 7.54 feet (average height for entire length) above the rock in which it is founded. To form a channel of approach the abutments have been extended upstream at right angles with the axis of the weir for a distance of 16 feet; area of channel of approach below crest of weir, 1,462 square feet. Abutments extend 14 feet above the level of the crest; it is estimated that a flow of 40,000 cubic feet per second can be taken care of.

Winter flow.—The ice which forms between the wing walls which define the channel of approach is kept cut away during the winter so that there may be no change in conditions of flow caused by ice.

Artificial control.—The effect of such slight fluctuations in daily stage as may result from power control above Olivebridge is practically eliminated from the records by the use of the automatic gage.

Cooperation.—Weir constructed and operated and data furnished for publication by the Board of Water Supply of the city of New York.

Daily discharge, in second-feet, of Esopus Creek (weir station) near Olivebridge, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	620	215	667	2,415	1,033	370	67	57	150	122	493	286
2	467	175	509	3,470	876	366	67	53	256	122	600	493
3	448	144	389	5,100	760	362	62	62	228	122	483	1,509
4	410	150	380	2,750	668	299	62	57	215	116	428	1,129
5	333	182	307	1,850	597	290	72	48	182	110	392	945
6	264	162	231	1,980	684	296	133	44	194	100	366	1,495
7	196	133	255	2,800	611	301	105	44	194	94	650	1,373
8	307	110	336	2,950	598	255	78	40	175	94	1,780	1,105
9	243	110	544	1,796	626	234	72	44	156	89	1,217	910
10	292	110	424	1,410	590	214	122	144	144	94	978	785
11	243	84	372	1,110	584	189	110	1,551	133	89	830	693
12	278	116	380	908	584	182	105	483	144	89	725	600
13	337	84	3,826	761	692	174	94	308	150	78	640	475
14	307	105	1,443	670	682	157	105	242	144	72	693	467
15	266	133	4,150	800	655	162	105	215	139	72	600	428
16	266	116	5,510	3,205	1,700	175	89	175	156	67	525	410
17	196	110	3,870	2,142	2,700	175	78	144	156	67	475	375
18	196	110	2,318	2,455	1,850	162	78	188	144	67	448	358
19	208	117	2,220	2,378	1,565	150	72	215	144	67	410	753
20	667	208	2,238	1,780	1,082	144	62	235	139	62	382	640
21	606	255	1,850	1,365	910	122	72	242	127	62	358	550
22	456	1,439	1,410	1,090	830	122	84	301	116	62	333	512
23	395	1,381	1,135	1,035	728	110	62	400	116	1,165	312	483
24	410	1,088	934	855	603	105	57	366	127	1,810	467	456
25	365	1,062	748	907	550	105	53	308	169	1,593	763	428
26	255	1,275	571	802	475	100	53	271	150	1,191	502	400
27	208	1,734	500	774	452	94	53	242	127	898	420	532
28	220	1,439	723	658	405	84	48	208	122	732	375	542
29	208	983	2,900	800	384	78	53	182	122	620	333	448
30	220	.....	3,020	1,108	491	72	62	162	122	525	308	956
31	243	.....	2,165	.....	415	.....	57	150	.....	456	.....	1,321

Monthly discharge of Esopus Creek (weir station) near Olivebridge, N. Y., for 1912.

[Drainage area, 239 square miles.]

Month.	Discharge in second-feet.				Run-off.		Rainfall (inches).
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches.	Per cent of rainfall.	
January	667	196	327	1.37	1.577	66	2.38
February	1,734	84	460	1.92	2.071	70	2.96
March	5,510	231	1,494	6.25	7.208	121	5.96
April	5,100	658	1,737	7.27	8.107	141	5.76
May	2,700	384	819	3.43	3.948	91	4.36
June	370	72	188	.79	.876	51	1.72
July	133	48	77	.32	.370	11	3.25
August	1,551	40	232	.97	1.116	15	7.47
September	256	116	155	.65	.718	21	3.44
October	1,810	62	352	1.47	1.698	35	4.84
November	1,780	308	576	2.41	2.691	66	4.08
December	1,509	286	705	2.95	3.415	73	4.70
The year	5,510	40	594	2.49	33.795	66	50.92

ESOPUS CREEK AT MOUNT MARION, N. Y.

Location.—At the single-span steel highway bridge at Pleasant Valley, on the Saugerties road, 1 mile east of Mount Marion station on the West Shore Railroad.

Records available.—April 4, 1907, to December 31, 1912. Data also in annual reports of State engineer and surveyor, State of New York.

Drainage area.—378 square miles.

Gage.—Standard Board of Water Supply chain gage fastened to the downstream side of the bridge, read twice daily. In May, 1908, the floor of the bridge was renewed, but provision was made for accurate gage readings during that period.

Channel.—Straight for about 1,000 feet above the station and 600 feet below, one at all stages. Bed, ledge rock with strata steeply inclined, giving jagged corners and irregular but permanent cross section. Banks rocky and steep; right bank about 40 feet above water level; left bank at least 100 feet high.

Discharge measurements.—At high stages made from the bridge; at low stages at a wading section three-fourths of a mile above the bridge and about three-fourths of a mile below Glenerie Falls; 200 feet from the Kingston-Saugerties road which parallels the creek on the right bank. At the wading section, which is used only when the water is less than 3 feet deep, the bed is gravelly and liable to some change, but the current is swift and good measurements are obtained. The banks at the wading section are of the same character as those at the bridge.

Winter flow.—Affected by ice. Measurements through the ice; gage readings to ice and water.

Accuracy.—Such slight fluctuation in daily stage as may result from the operation of the power plants above Mount Marion probably causes no material error in the estimates of daily discharge.

Cooperation.—Established and maintained and records furnished for publication by Board of Water Supply, city of New York. Gage read morning and afternoon by John Sauer, of Saugerties.

Daily discharge, in second-feet, of Esopus Creek at Mount Marion, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	810	338	1,026	3,385	1,406	585	101	68	164	138	635	485
2	685	302	783	3,730	1,140	485	108	74	260	130	1,000	475
3	635	286	598	7,230	1,070	780	101	68	375	130	810	2,180
4	585	273	585	4,080	979	575	101	68	347	130	675	1,653
5	525	222	472	2,844	912	525	101	63	265	111	585	1,350
6	455	222	356	2,640	1,021	515	115	58	247	101	525	2,013
7	302	234	392	3,000	1,021	625	146	58	234	94	525	2,200
8	472	234	518	3,870	930	485	122	58	222	94	3,385	1,770
9	374	222	837	2,360	1,049	395	111	58	210	87	2,160	1,430
10	450	189	652	1,950	930	325	97	70	182	87	1,743	1,245
11	374	172	572	1,653	810	288	125	1,680	173	101	1,350	1,035
12	428	180	585	1,406	765	273	119	675	164	115	1,091	828
13	518	164	6,924	1,350	1,091	260	108	355	164	115	979	635
14	472	172	3,346	1,245	1,105	222	115	247	155	108	1,070	685
15	410	180	3,385	1,189	1,021	229	108	222	155	108	930	700
16	410	189	11,400	2,760	1,119	222	101	206	155	101	810	625
17	302	189	4,375	2,820	4,180	260	94	169	155	101	700	575
18	302	200	3,385	3,125	2,796	229	87	191	159	101	635	525
19	320	180	3,190	3,450	2,040	210	87	222	173	108	585	1,070
20	1,026	320	3,000	2,676	1,653	200	80	222	164	105	535	1,189
21	932	392	2,460	2,130	1,406	187	83	239	155	91	485	930
22	702	2,214	2,130	1,770	1,210	177	91	282	146	87	443	828
23	608	2,124	1,635	1,725	1,070	155	101	443	146	318	415	750
24	630	1,674	1,617	1,470	948	138	83	475	173	3,730	443	685
25	562	1,634	1,390	1,390	828	146	68	375	182	2,676	1,470	625
26	392	1,962	1,231	1,210	715	146	68	294	182	2,040	930	575
27	320	2,668	1,161	1,119	625	138	63	255	173	1,470	792	840
28	338	2,214	1,454	1,021	535	138	58	229	159	1,189	665	1,070
29	320	1,512	4,780	1,000	550	130	58	210	146	948	585	840
30	338	.....	5,412	1,887	948	115	53	195	146	780	535	900
31	374	.....	3,520	.....	750	.....	63	173	.....	685	.....	979

Monthly discharge of Esopus Creek at Mount Marion, N. Y., for 1912.

[Drainage area, 378 square miles.]

Month.	Discharge in second-feet.				Run-off.		Rainfall inches.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches.	Per cent of rainfall.	
January	1,026	302	496	1.31	1.510	66	2.29
February	2,668	164	719	1.90	2.057	73	2.81
March	11,400	356	2,360	6.24	7.198	122	5.90
April	7,230	1,000	2,383	6.31	7.033	129	5.47
May	4,180	535	1,181	3.12	3.598	84	4.26
June	780	115	305	.81	.904	51	1.78
July	146	53	94	.25	.289	9	3.09
August	1,680	58	258	.68	.790	11	6.90
September	375	146	191	.51	.562	17	3.34
October	3,730	87	522	1.38	1.594	34	4.66
November	3,385	415	916	2.42	2.708	69	3.93
December	2,200	475	1,022	2.70	3.114	68	4.56
The year	11,400	53	871	2.30	31.357	64	48.99

RONDOUT CREEK AT ROSENDALE, N. Y.

Location.—At single-span steel highway bridge at Rosendale.

Records available.—July 6, 1901, to December 31, 1912, except from November 7, 1903, to December, 1905. Data also in annual reports of the State engineer and surveyor, State of New York.

Drainage area.—380 square miles.

Gage.—Standard Board of Water Supply chain gage fastened to the middle panel of the downstream side of the bridge. This gage was established June 1, 1907, to replace the original gage.

Channel.—One at all stages.

Discharge measurements.—At high and medium stages made from the bridge; at low stages by wading at a point about 1,000 feet below the bridge.

Winter flow.—The winter flow is obtained by actual measurements at selected stations on the creek through the ice and by wading, and by comparison with gage readings to water and ice at the bridge.

Diversions.—A portion of the water of the creek is diverted by a dam below High Falls and sent through the Delaware & Hudson Canal, and is returned to the creek below the gaging station. At Rock Locks, about 1½ miles below Rosendale, there is an overflow weir from which the discharge of the canal may be approximately determined. The weir, the crest of which is 3.8 feet in length, is at the left end of the lock and is equipped with a standard Board of Water Supply staff gage.

Artificial control.—Slight daily fluctuations in stage are caused by storage at Honk Falls, Napanoch, and to some extent at High Falls. Proper allowance is made in the daily discharge records for the water diverted to the Delaware & Hudson Canal.

Cooperation.—Data furnished for publication by the Board of Water Supply of the City of New York, by which the station was assumed on June 1, 1907.

Daily discharge, in second-feet, of Rondout Creek at Rosendale, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	906	972	725	2,740	1,690	441	91	84	111	78	568	426
2	874	1,035	600	4,932	1,270	368	65	73	139	99	700	352
3	930	1,080	625	6,308	1,010	873	131	57	278	69	550	442
4	986	990	650	2,992	890	585	107	66	302	80	362	370
5	1,070	923	625	2,096	794	481	94	58	244	118	306	690
6	1,017	837	417	1,808	842	386	100	65	214	89	253	2,180
7	972	909	505	1,736	1,018	569	83	65	179	90	734	1,390
8	945	873	525	2,240	1,100	522	73	65	99	71	3,185	850
9	972	938	760	1,570	1,250	381	47	55	94	118	2,029	770
10	990	873	550	1,430	1,130	333	67	117	133	101	1,630	826
11	972	1,170	365	1,190	898	293	76	2,326	111	107	695	842
12	972	679	445	1,060	794	316	72	620	103	101	587	922
13	945	635	9,200	1,050	906	305	68	319	157	135	714	778
14	909	729	3,286	1,002	922	274	69	237	133	125	558	714
15	945	779	4,292	1,034	770	326	100	231	101	119	444	530
16	972	657	7,580	1,300	1,500	246	98	127	86	127	366	205
17	945	1,125	3,908	1,360	4,228	239	90	97	107	106	452	442
18	972	801	3,104	2,372	2,108	293	92	122	111	94	434	1,050
19	1,035	729	3,160	2,796	1,450	244	87	329	112	106	484	1,470
20	1,350	1,044	2,456	1,940	1,110	209	76	277	82	90	440	1,170
21	1,305	972	1,904	1,550	970	200	68	204	79	92	368	810
22	1,242	1,510	1,640	1,330	842	235	93	258	107	103	322	698
23	1,224	2,250	1,210	1,110	714	140	131	189	73	282	233	682
24	1,152	1,419	1,400	1,018	682	129	96	219	134	2,907	396	794
25	1,080	1,531	1,530	938	602	129	98	216	100	1,950	309	666
26	1,035	1,970	1,220	858	521	144	103	143	127	1,584	366	618
27	990	1,674	1,230	810	473	127	75	126	155	892	388	754
28	945	1,770	1,856	858	521	116	50	111	163	650	372	826
29	945	1,475	6,052	1,070	777	97	73	116	121	728	432	690
30	972	.....	5,444	3,104	784	108	50	71	115	529	402	954
31	990	.....	3,780	.....	545	.....	59	84	.....	516	.....	2,894

Monthly discharge of Rondout Creek at Rosendale, N. Y., for 1912.

[Drainage area 380 square miles.]

Month.	Discharge in second-feet.				Run-off.		Rainfall, inches.
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches.	Per cent of rainfall.	
January	1,350	874	1,018	2.68	3.087	153	2.02
February	2,250	635	2,250	2.93	3.163	139	2.27
March	9,200	365	2,292	6.03	6.953	119	5.82
April	6,308	810	1,853	4.87	5.444	104	5.24
May	4,228	473	1,068	2.81	3.247	85	3.80
June	873	97	304	.80	.892	50	1.79
July	131	47	83	.22	.254	10	2.65
August	2,326	55	230	.60	.693	11	6.20
September	302	73	136	.36	.398	11	3.59
October	2,907	69	395	1.04	1.202	31	3.86
November	3,185	233	636	1.67	1.867	61	3.06
December	2,894	205	865	2.28	2.623	57	4.58
The year	9,200	47	833	2.19	29.823	66	44.87

DELAWARE RIVER BASIN.

EAST BRANCH OF DELAWARE RIVER AT FISH EDDY, N. Y.

Location.—At the highway bridge near the New York, Ontario & Western Railway station at Fish Eddy, 5½ miles above the confluence of the East and West branches of the Delaware at Hancock.

Records available.—November 19 to December 31, 1912.

Drainage area.—790 square miles (Post Route map).

Gage.—Vertical staff, in two sections.

Channel.—Coarse gravel; apparently permanent.

Discharge measurements.—At low stages made by wading; at high stages from the highway bridge.

Winter flow.—Probably somewhat affected by ice.

Accuracy.—Discharge rating curve fairly well defined.

The following discharge measurement was made by Frank Weber:

November 20, 1912: Gage height 3.59 feet, discharge 1,050 second-feet.

Daily gage height, in feet, and discharge, in second-feet, of East Branch of Delaware River at Fish Eddy, N. Y., for 1912.

[Jonn J. Fininegan, observer.]

Day.	October.		November.		Day.	October.		November.	
	Gage height.	Discharge.	Gage height.	Discharge.		Gage height.	Discharge.	Gage height.	Discharge.
1			3.3	800	16			3.9	1,320
2			3.4	870	17			3.8	1,220
3			8.0	7,450	18			3.3	800
4			6.5	4,470	19	3.6	1,040	5.2	2,890
5			5.7	3,660	20	3.6	1,040	5.3	3,040
6			6.7	4,830	21	3.5	950	4.9	2,470
7			6.6	4,630	22	3.4	870	4.5	1,960
8			5.8	3,820	23	3.3	800	4.3	1,740
9			5.3	3,040	24	3.35	835	4.3	1,740
10			5.0	2,600	25	4.1	1,520	4.2	1,630
11			4.8	2,330	26	3.8	1,220	4.0	1,420
12			3.8	1,220	27	3.7	1,130	3.8	1,220
13			3.7	1,130	28	3.6	1,040	3.8	1,220
14			3.5	950	29	3.45	910	3.9	1,320
15			4.0	1,420	30	3.4	870	3.7	1,130
					31			6.1	3,810

NOTE.—Daily discharge determined from a fairly well-defined rating curve based on measurements made during 1912 and 1913.

Monthly discharge of East Branch of Delaware River at Fish Eddy, N. Y., for 1912.

[Drainage area, 790 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
November 19-30	1,520	800	1,020	1.29	0.576	B.
December	7,450	800	2,330	2.95	3.40	B.

EAST BRANCH OF DELAWARE RIVER AT HANCOCK, N. Y.

Location.—At the highway bridge half a mile southeast of the Erie Railroad station at Hancock, N. Y., about 1 mile above the junction of East and West branches of Delaware River and 10 miles below the mouth of Beaver Kill, the nearest tributary, which enters from the left.

Records available.—October 14, 1902, to December 31, 1912. Data also in annual reports of New York State engineer and surveyor.

Drainage area.—840 square miles.[1]

Gage.—Standard chain, fastened to upstream left-hand end of bridge; read once daily; datum unchanged.

Channel.—Both banks of medium height; not liable to overflow; bed composed of rocks and gravel.

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

Winter flow.—Affected by needle and cake ice which forms on the control point and produces backwater at the gage.

Accuracy.—Conditions fairly good for accurate determinations of discharge. High-water stage probably affected at times by backwater caused by gorging at junction with the West Branch. Low-water discharge controlled by riffles just below Erie Railroad bridge which sometimes shift and require many measurements and possibly a new discharge rating curve each year. Conditions, however, have been fairly permanent during the last two or three years.

Cooperation.—Maintained since January 1, 1908, in cooperation with the United States Weather Bureau.

Discharge measurements of East Branch of Delaware River at Hancock, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 22[a]	C. S. De Golyer	5.14	1,270
July 27[b]	Frank Weber	2.78	228
Nov. 20	....do	3.69	1,060
22	....do	3.58	910

[a] Measurements made under complete ice cover.
[b] Measurements made by wading at regular section.

Daily gage height, in feet, of East Branch of Delaware River at Hancock, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.2	4.5	5.0	6.9	5.1	3.6	2.7	2.8	3.2	3.2	3.8	3.5
2	3.9	4.5	4.8	6.9	4.8	3.5	2.7	2.7	3.5	3.3	4.2	3.5
3	4.0	4.4	4.7	10.0	4.6	3.5	2.6	2.7	3.8	3.2	4.0	6.7
4	4.5	4.4	4.6	7.1	4.4	3.6	2.6	2.7	3.8	3.2	3.8	5.6
5	4.2	4.3	4.6	6.0	4.3	3.5	2.6	2.7	3.6	3.1	3.7	5.2
6	3.7	4.3	4.5	5.9	4.2	3.4	2.6	2.7	3.5	3.1	3.7	5.0
7	3.8	4.3	4.4	6.3	4.3	3.6	2.6	2.6	3.5	3.1	3.7	5.6
8	3.9	4.3	4.4	7.6	4.2	3.6	2.6	2.5	3.4	3.0	5.9	5.2
9	4.9	4.2	4.6	6.3	4.4	3.4	2.6	2.5	3.3	3.0	5.3	4.9
10	4.8	4.2	4.8	5.7	4.4	3.3	3.0	2.7	3.3	3.0	4.9	4.6
11	4.8	4.1	4.6	5.4	4.2	3.3	2.9	4.4	3.2	3.1	4.6	4.4
12	4.8	4.1	4.4	5.1	4.0	3.2	2.9	3.8	3.2	3.1	4.5	4.3
13	4.6	4.1	4.8	5.2	4.2	3.2	2.8	3.4	3.2	3.1	4.3	4.0
14	4.6	4.1	5.6	5.0	4.1	3.2	2.9	3.3	3.1	3.0	4.2	4.0
15	4.6	4.1	5.1	4.9	4.0	3.1	3.0	3.1	3.0	3.0	4.2	4.0

[1] Revised measurement.

Daily gage height, in feet, of East Branch of Delaware River at Hancock, N. Y., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	4.6	4.1	10.9	7.4	4.0	3.1	2.9	3.1	3.2	3.0	4.0	3.9
17	4.5	4.1	6.9	7.3	5.0	3.1	2.8	3.0	3.2	2.9	3.9	3.8
18	4.5	4.2	6.6	6.8	4.9	3.1	3.4	3.1	3.1	2.9	3.8	3.7
19	4.7	4.2	6.7	7.5	4.6	3.0	3.5	3.3	3.1	2.9	3.7	4.0
20	4.9	4.2	6.7	6.7	4.5	3.0	3.2	3.4	3.2	3.0	3.7	5.0
21	5.0	4.3	6.6	6.9	4.4	2.9	3.0	3.3	3.1	3.0	3.6	4.5
22	4.9	4.9	5.5	5.4	4.2	2.9	3.1	3.8	3.0	3.0	3.6	4.3
23	4.9	5.6	4.9	5.3	4.2	2.9	3.0	3.9	3.0	3.0	3.5	4.2
24	4.8	5.3	4.9	5.1	4.0	2.9	2.9	4.3	3.1	6.1	3.5	4.2
25	4.7	5.2	4.7	5.2	4.0	2.9	2.8	3.9	3.4	5.9	3.9	4.2
26	4.7	5.3	4.3	4.8	3.8	2.8	2.8	4.0	3.5	5.1	3.9	4.0
27	4.7	5.4	4.3	4.7	3.7	2.8	2.8	3.8	3.4	4.7	3.7	4.0
28	4.7	5.8	5.5	4.7	3.6	2.8	2.7	3.6	3.3	4.4	3.7	3.9
29	4.6	5.4	7.8	4.5	3.5	2.7	2.7	3.5	3.2	4.3	3.6	4.0
30	4.6	.....	7.8	5.6	3.9	2.7	2.8	3.5	3.2	4.1	3.6	4.0
31	4.6	.....	6.3	.....	3.8	.....	2.8	3.3	.....	3.9	.....	5.4

NOTE.—Relation of discharge to gage height affected by ice Jan. 9 to Mar. 15.

Daily discharge, in second-feet, of East Branch of Delaware River at Hancock, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,880	.....	.....	8,810	3,750	940	190	240	520	520	1,220	820
2	1,380	.....	.....	8,810	3,070	820	190	190	820	610	1,880	820
3	1,540	.....	.....	19,800	2,640	820	144	190	1,220	520	1,540	8,170
4	2,440	.....	.....	9,470	2,250	940	144	190	1,220	520	1,220	4,990
5	1,880	.....	.....	6,070	2,060	820	144	190	940	440	1,070	3,990
6	1,070	.....	.....	5,790	1,880	710	144	190	820	440	1,070	3,520
7	1,220	.....	.....	6,930	2,060	940	144	144	820	440	1,070	4,990
8	1,380	.....	.....	11,100	1,880	940	144	104	710	370	5,790	3,990
9	.....	.....	.....	6,930	2,250	710	144	104	610	370	4,230	3,290
10	.....	.....	.....	5,250	2,250	610	370	190	610	370	3,290	2,640
11	.....	.....	.....	4,480	1,880	610	300	2,250	520	440	2,640	2,250
12	.....	.....	.....	3,750	1,540	520	300	1,220	520	440	2,440	2,060
13	.....	.....	.....	3,990	1,880	520	240	710	520	440	2,060	1,540
14	.....	.....	.....	3,520	1,710	520	300	610	440	370	1,880	1,540
15	.....	.....	.....	3,290	1,540	440	370	440	370	370	1,880	1,540
16	.....	.....	23,300	10,500	1,540	440	300	440	520	370	1,540	1,380
17	.....	.....	8,810	10,100	3,520	440	240	370	520	300	1,380	1,220
18	.....	.....	7,850	8,490	3,290	440	710	440	440	300	1,220	1,070
19	.....	.....	8,170	10,800	2,640	370	820	610	440	300	1,070	1,540
20	.....	.....	8,170	8,170	2,440	370	520	710	520	370	1,070	3,520
21	.....	.....	7,850	5,790	2,250	300	370	610	440	370	940	2,440
22	.....	1,270	4,730	4,480	1,880	300	440	1,220	370	370	940	2,060
23	.....	.....	3,290	4,230	1,880	300	370	1,380	370	370	820	1,880
24	.....	.....	3,290	3,750	1,540	300	300	2,060	440	6,350	820	1,880
25	.....	.....	2,850	3,990	1,540	300	240	1,380	710	5,790	1,380	1,880
26	.....	.....	2,060	3,070	1,220	240	240	1,540	820	3,750	1,380	1,540
27	.....	.....	2,060	2,850	1,070	240	240	1,220	710	2,850	1,070	1,540
28	.....	.....	4,730	2,850	940	240	190	940	610	2,250	1,070	1,380
29	.....	.....	11,800	2,440	820	190	190	820	520	2,060	940	1,540
30	.....	.....	11,800	4,990	1,380	190	240	820	520	1,710	940	1,540
31	.....	.....	6,930	.....	1,220	.....	240	610	.....	1,380	.....	4,480

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

Monthly discharge of East Branch of Delaware River at Hancock, N. Y., for 1912.

[Drainage area, 840 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	1,240	1.48	1.71	C.
February	.....	.....	1,010	1.20	1.29	C.
March	23,300	.....	4,660	5.55	6.40	B.
April	19,800	2,440	6,480	7.71	8.60	A.
May	3,750	820	1,990	2.37	2.73	A.
June	940	190	517	.615	.69	A.
July	820	144	288	.343	.40	A.
August	2,250	104	714	.850	.98	A.
September	1,220	370	620	.738	.82	A.
October	6,350	300	1,150	1.37	1.58	A.
November	5,790	820	1,660	1.98	2.21	A.
December	8,170	820	2,490	2.96	3.41	A.
The year	23,300	104	1,900	2.26	30.82	

NOTE.—Discharge Jan. 9 to Mar. 15 estimated from one discharge measurement made during this period, climatologic records, and comparative run-off. It is assumed that the ice caused 1 foot of backwater during nearly the whole frozen season.

DELAWARE RIVER AT PORT JERVIS, N. Y.

Location.—At the toll bridge at Port Jervis, 6 miles below the mouth of Mongaup River and 1 mile above the mouth of Neversink River, both entering from the north.

Records available.—October 12, 1904, to December 31, 1912. Data published also in the annual reports of the New York State engineer and surveyor.

Drainage area.—3,250 square miles.

Gage.—Standard chain, fastened to downstream side of bridge; read once daily. Considerable difficulty has been experienced in maintaining the datum of the gage. On September 4, 1908, in order to avoid negative readings, a change of about 2 feet was made in the original datum, as nearly as could be determined. The elevation of the datum of the gage is 414.89 feet above mean sea level. A correction varying from +1.7 to +2.0 has been applied to gage heights previous to September 4, 1908, so that all gage heights published by the Survey are referred to the same datum.

Channel.—Bed composed of gravel; banks high; seldom overflowed.

Discharge measurements.—Made from the highway bridge, except at low stages, when the left channel is sometimes measured by wading.

Winter flow.—Relation of gage height to discharge is usually not greatly affected by ice, except during severe winters. Ice jams sometimes occur at this station and the left channel is particularly subject to effect from ice.

Accuracy.—Conditions of flow at this point are constant and a good discharge rating curve has been developed for all stages. Careful comparison of records at this station with those obtained at Riegelsville and the two Hancock stations indicate that all the discharge data are reliable.

Cooperation.—Station established for the United States Weather Bureau by Irving Righter, city engineer of Port Jervis. Gage heights supplied to the Geological Survey by the Weather Bureau.

Discharge measurements of Delaware River at Port Jervis, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
July 29[a]	Frank Weber	1.36	557
Nov. 22	.....do	3.01	2,880

[a] Made by wading.

Daily gage height, in feet, of Delaware River at Port Jervis, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.9	.....	.....	7.5	6.2	3.2	1.5	1.4	2.0	2.9	4.6	3.0
2	3.9	.....	.....	7.8	5.6	3.3	1.5	1.3	2.3	2.7	3.5	2.9
3	3.7	.....	.....	10.2	5.2	3.5	1.4	1.3	3.3	2.6	3.7	3.2
4	3.4	.....	.....	8.7	4.8	3.2	1.4	1.3	3.3	2.6	3.7	6.8
5	3.3	.....	.....	7.2	4.6	3.1	1.2	1.2	3.0	2.5	3.3	6.0
6	2.9	.....	.....	6.4	4.2	2.9	1.4	1.1	3.0	2.3	3.2	5.0
7	2.7	.....	.....	6.3	4.4	3.5	1.3	1.3	2.8	2.2	3.0	6.1
8	2.5	.....	.....	7.2	4.4	3.1	1.4	1.3	2.6	2.2	3.4	5.5
9	2.7	.....	.....	7.5	5.0	2.9	1.3	1.4	2.5	2.1	5.9	5.0
10	2.7	.....	.....	6.3	4.9	2.7	1.3	1.4	2.4	2.1	5.1	4.6
11	3.0	.....	.....	5.8	4.6	2.6	1.3	3.2	2.2	2.1	4.8	4.3
12	3.0	.....	.....	5.6	4.5	2.5	1.2	2.5	1.8	2.1	4.6	4.1
13	.....	.....	.....	5.2	4.2	2.4	1.5	2.9	1.8	2.1	4.0	3.9
14	.....	.....	6.0	5.3	4.1	2.3	1.4	2.5	1.7	2.0	3.9	3.6
15	.....	.....	6.3	5.0	4.0	2.3	1.3	2.2	1.6	2.1	3.9	3.3
16	.....	.....	10.2	5.4	3.8	2.3	1.6	2.0	1.5	2.0	3.6	3.0
17	.....	.....	9.1	7.8	4.8	2.3	1.6	2.0	1.9	2.0	3.5	3.5
18	.....	.....	7.6	7.1	5.1	2.2	2.0	2.1	2.0	1.9	3.3	3.3
19	.....	.....	7.6	8.2	4.8	2.2	2.0	2.3	2.0	1.9	3.1	3.4
20	.....	.....	7.3	8.1	4.5	2.1	2.3	2.5	2.1	1.9	3.0	4.8
21	.....	.....	7.2	7.8	4.1	2.0	1.8	2.4	2.2	1.9	3.0	4.3
22	.....	.....	6.0	6.1	3.9	2.0	1.8	2.3	2.2	1.9	3.0	4.3
23	.....	.....	5.7	5.7	3.9	1.9	1.8	2.6	2.0	2.0	2.9	3.9
24	.....	.....	5.3	5.6	3.6	1.8	1.6	2.8	2.0	4.8	2.8	3.7
25	.....	.....	5.2	5.1	3.6	1.8	1.6	3.1	3.2	7.5	3.2	3.7
26	.....	.....	5.0	4.9	3.5	1.7	1.5	3.0	4.3	6.5	3.6	3.5
27	.....	.....	4.5	4.7	3.3	1.6	1.4	2.8	4.0	5.4	3.5	3.5
28	.....	.....	4.6	4.6	3.0	1.6	1.3	2.5	3.7	4.8	3.4	3.7
29	.....	.....	6.3	4.4	2.8	1.5	1.3	2.4	3.3	4.5	3.3	3.5
30	.....	.....	10.6	7.0	3.1	1.5	1.4	2.3	3.2	4.2	3.1	3.4
31	.....	.....	8.2	.....	3.3	.....	1.4	2.1	.....	4.4	.....	4.3

NOTE.—Relation of gage height to discharge affected by ice Jan. 13 to Mar. 13.

Daily discharge, in second-feet, of Delaware River at Port Jervis, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5,440	.....	.....	23,900	15,700	3,320	665	590	1,150	2,650	8,100	2,860
2	5,440	.....	.....	26,000	12,500	3,580	665	520	1,570	2,260	4,150	2,650
3	4,770	.....	.....	44,400	10,700	4,150	590	520	3,580	2,080	4,770	3,320
4	3,860	.....	.....	32,700	8,930	3,320	590	520	3,580	2,080	4,770	19,200
5	3,580	.....	.....	21,800	8,100	3,080	450	450	2,860	1,900	3,580	14,600
6	2,650	.....	.....	16,800	6,530	2,650	590	390	2,860	1,570	3,320	9,780
7	2,260	.....	.....	16,200	7,300	4,150	520	520	2,450	1,420	2,860	15,100
8	1,900	.....	.....	21,800	7,300	3,080	590	520	2,080	1,420	3,860	12,100
9	2,260	.....	.....	23,900	9,780	2,650	520	590	1,900	1,280	14,100	9,780
10	2,260	.....	.....	16,200	9,350	2,260	520	590	1,730	1,280	10,200	8,100
11	2,860	.....	.....	13,500	8,100	2,080	520	3,320	1,420	1,280	8,930	6,910
12	2,860	.....	.....	12,100	7,700	1,900	450	1,900	920	1,280	8,100	6,160
13	.....	.....	.....	10,700	6,530	1,730	665	2,650	920	1,280	5,800	5,440
14	.....	.....	14,600	11,100	6,160	1,570	590	1,900	825	1,150	5,440	4,450
15	.....	.....	16,200	9,780	5,800	1,570	520	1,420	740	1,280	5,440	3,580
16	.....	.....	44,400	11,600	5,100	1,570	740	1,150	665	1,150	4,450	2,860
17	.....	.....	35,800	26,000	8,930	1,570	740	1,150	1,030	1,150	4,150	4,150
18	.....	.....	24,600	21,200	10,200	1,420	1,150	1,280	1,150	1,030	3,580	3,580
19	.....	.....	24,600	29,000	8,930	1,420	1,150	1,570	1,150	1,030	3,080	3,860
20	.....	.....	22,500	28,200	7,700	1,280	1,570	1,900	1,280	1,030	2,860	8,930
21	.....	.....	21,800	26,000	6,160	1,150	920	1,730	1,420	1,030	2,860	6,910
22	.....	.....	14,600	15,100	5,440	1,150	920	1,570	1,420	1,030	2,860	6,910
23	.....	.....	13,000	13,000	5,440	1,030	920	2,080	1,150	1,150	2,650	5,440
24	.....	.....	11,100	12,500	4,450	920	740	2,450	1,150	8,930	2,450	4,770
25	.....	.....	10,700	10,200	4,450	920	740	3,080	3,320	23,900	3,320	4,770
26	.....	.....	9,780	9,350	4,150	825	665	2,860	6,910	18,400	4,450	4,150
27	.....	.....	7,700	8,510	3,580	740	590	2,450	5,800	11,600	4,150	4,150
28	.....	.....	8,100	8,100	2,860	740	520	1,900	4,770	8,930	3,860	4,770
29	.....	.....	16,200	7,300	2,450	665	520	1,730	3,580	7,700	3,580	4,150
30	.....	.....	47,600	20,500	3,080	665	590	1,570	3,320	6,530	3,080	3,860
31	.....	.....	29,000	.....	3,580	.....	590	1,280	.....	7,300	.....	6,910

NOTE.—Discharge determined from a well-defined rating curve, differing somewhat from the curve previously used.

Monthly discharge of Delaware River at Port Jervis, N. Y., for 1912.

[Drainage area, 3,250 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	2,950	0.914	1.05	B.
February	.....	.....	3,330	1.02	1.10	C.
March	47,600	.....	14,400	4.43	5.11	B.
April	44,400	7,300	18,200	5.60	6.25	A.
May	15,700	2,450	7,000	2.15	2.48	A.
June	4,150	665	1,910	.588	.66	A.
July	1,570	450	694	.214	.25	A.
August	3,320	390	1,490	.458	.53	A.
September	6,910	665	2,220	.683	.76	A.
October	23,900	1,030	4,040	1.24	1.43	A.
November	14,100	2,450	4,830	1.49	1.66	A.
December	19,200	2,650	6,590	2.03	2.34	A.
The year	47,600	390	5,640	1.74	23.62	

NOTE.—Discharge Jan. 13 to Mar. 13, inclusive, estimated by comparison with the station at Riegelsville, taking climatologic conditions into consideration.

DELAWARE RIVER AT RIEGELSVILLE, N. J.

Location.—At the toll suspension bridge between Riegelsville, N. J., and Riegelsville, Pa., 9 miles below the mouth of Lehigh River (entering from the west) and 600 feet above the mouth of the Musconetcong (entering from the east).

Records available.—July 3, 1906, to December 31, 1912.

Drainage area.—6,430 square miles.

Gage.—Chain, attached to the bridge; datum unchanged.

Channel.—The station is in a deep hole which extends about half a mile downstream to a permanent control composed of bowlders averaging 2 to 3 feet in diameter; immediately below the control are heavy rapids. Both banks are high and not subject to overflow.

Discharge measurements.—Made from the bridge. No measurements in 1912.

Winter flow.—Relation between gage height and discharge affected by ice only during severe winters.

Diversions.—The Delaware division of the Pennsylvania Canal, running from Easton, Pa., to Bristol, Pa., diverts water from the Lehigh at its mouth and at low stages takes practically the entire discharge of this tributary. The water is turned out of this canal during the winter period, or from about the middle of December to the last of March, but throughout the remainder of the year the average discharge is 250 to 300 second-feet.

Accuracy.—Conditions for obtaining accurate discharge data are very good, and an excellent discharge rating curve has been developed. The relation between gage height and discharge is affected by backwater from the Musconetcong only at rare intervals. Comparison of the records of flow with those at Port Jervis, N. Y., and Hancock, N. Y., show that full reliance can be placed on the estimates of monthly discharge at Riegelsville.

Daily discharge, in second-feet, of Delaware River at Riegelsville, N. J., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.7	3.4	6.1	11.6	9.5	4.5	2.5	2.2	2.65	4.1	4.9	4.1
2	5.4	3.5	5.4	11.9	8.4	4.2	2.5	2.15	2.85	4.0	5.3	4.1
3	5.4	3.3	4.9	13.1	7.7	4.3	2.4	2.2	3.2	3.7	5.0	5.3
4	5.4	3.3	4.6	14.2	7.1	4.4	2.4	2.15	3.8	3.6	4.9	7.6
5	4.7	3.2	4.5	11.2	6.4	4.2	2.35	2.2	3.7	3.5	4.6	7.6
6	3.8	3.1	4.1	9.8	6.3	4.2	2.4	2.15	3.4	3.3	4.4	7.0
7	3.8	3.2	4.2	9.2	6.4	4.4	2.4	2.05	3.3	3.2	4.3	7.7
8	3.8	3.2	4.4	9.9	7.4	4.3	2.4	2.05	3.5	3.1	6.1	7.8
9	3.7	3.1	4.5	11.0	7.8	4.1	2.4	2.05	3.3	3.0	7.3	7.0
10	3.7	2.85	4.4	9.5	7.9	3.9	2.3	2.15	3.1	2.95	7.4	6.3
11	3.8	3.0	4.9	8.5	7.3	3.7	2.35	3.8	2.9	3.2	7.6	5.8
12	4.2	2.9	5.0	7.9	6.9	3.5	2.55	4.8	2.75	3.3	6.1	5.6
13	4.0	2.9	12.2	7.5	6.4	3.4	2.45	3.9	2.75	3.0	5.6	5.0
14	3.8	2.9	10.1	7.4	6.1	3.3	2.4	3.7	2.6	3.1	5.5	4.7
15	4.0	2.95	12.2	7.2	6.0	3.3	2.6	3.2	2.55	3.0	5.3	4.4
16	3.8	2.95	17.4	7.1	5.9	3.3	2.6	3.1	3.1	2.9	5.1	4.6
17	3.9	3.0	16.9	9.8	7.5	3.4	2.5	2.85	3.2	2.8	4.8	4.7
18	4.0	3.0	12.8	10.8	7.9	3.3	2.7	2.75	2.9	2.75	4.6	4.5
19	4.2	3.2	11.9	12.3	7.3	3.2	2.6	3.0	2.95	2.7	4.4	4.8
20	4.5	3.4	11.5	12.0	6.8	3.2	2.75	3.6	3.0	2.65	4.3	5.7
21	4.4	4.0	11.2	10.6	6.4	3.1	2.95	3.5	3.0	2.7	4.2	6.5
22	4.3	8.7	9.8	9.3	5.9	2.9	2.95	3.3	2.95	2.7	4.1	5.7
23	4.4	5.3	8.7	8.6	5.6	2.85	2.7	3.3	2.85	3.4	4.0	5.3
24	4.5	5.2	8.7	8.2	5.4	2.9	2.65	3.3	2.85	6.1	4.1	5.1
25	4.2	5.7	9.0	7.7	5.2	2.85	2.6	3.4	5.2	9.7	4.9	4.6
26	3.9	5.9	8.4	7.3	5.0	2.85	2.4	3.6	6.4	9.5	4.8	4.4
27	3.8	8.1	7.7	6.9	4.8	2.85	2.3	3.3	6.2	8.0	4.8	4.8
28	3.6	6.8	7.8	6.8	4.5	2.75	2.25	3.2	5.6	6.9	4.6	5.5
29	3.6	6.3	9.2	6.4	4.4	2.65	2.2	3.1	4.8	6.3	4.4	5.0
30	3.6	.....	15.4	7.9	4.6	.....	2.2	2.85	4.5	5.7	4.2	5.2
31	3.6	.....	14.0	.....	4.6	.....	2.2	2.75	.....	5.2	.....	7.1

NOTE.—Relation of gage height to discharge not affected by ice during 1912. Water turned into the canal Mar. 25 and withdrawn Dec. 9.

Daily discharge, in second-feet, of Delaware River at Riegelsville, N. J., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	12,000	4,530	13,500	41,800	29,300	7,830	2,400	1,830	2,700	6,560	9,160	6,560
2	10,900	4,800	10,900	43,800	23,500	6,870	2,400	1,740	3,140	6,250	10,500	6,560
3	10,900	4,260	9,160	51,800	20,200	7,190	2,200	1,830	4,000	5,360	9,500	10,500
4	10,900	4,260	8,160	59,500	17,500	7,510	2,200	1,740	5,650	5,080	9,160	19,700
5	8,490	4,000	7,830	39,300	14,600	6,870	2,100	1,830	5,360	4,800	8,160	19,700
6	5,650	3,750	6,560	31,000	14,200	6,870	2,200	1,740	4,530	4,260	7,510	17,100
7	5,650	4,000	6,870	27,700	14,600	7,510	2,200	1,580	4,260	4,000	7,190	20,200
8	5,650	4,000	7,510	31,600	18,800	7,190	2,200	1,580	4,800	3,750	13,500	20,700
9	5,360	3,750	7,830	38,100	20,700	6,560	2,200	1,580	4,260	3,500	18,400	17,100
10	5,360	3,140	7,510	29,300	21,100	5,950	2,010	1,740	3,750	3,380	18,800	14,200
11	5,650	3,500	9,160	24,000	18,400	5,360	2,100	5,650	3,260	4,000	19,700	12,400
12	6,870	3,260	9,500	21,100	16,700	4,800	2,500	8,820	2,920	4,260	13,500	11,600
13	6,250	3,260	45,700	19,300	14,600	4,530	2,300	5,950	2,920	3,500	11,600	9,500
14	5,650	3,260	32,700	18,800	13,500	4,260	2,200	5,360	2,600	3,750	11,200	8,490
15	6,250	3,380	45,700	18,000	13,100	4,260	2,600	4,000	2,500	3,500	10,500	7,510
16	5,650	3,380	83,000	17,500	12,700	4,260	2,600	3,750	3,750	3,260	9,840	8,160
17	5,950	3,500	79,300	31,000	19,300	4,530	2,400	3,140	4,000	3,030	8,820	8,490
18	6,250	3,500	49,700	36,900	21,100	4,260	2,810	2,920	3,260	2,920	8,160	7,830
19	6,870	4,000	43,800	46,400	18,400	4,000	2,600	3,500	3,380	2,810	7,510	8,820
20	7,830	4,530	44,200	44,400	16,300	4,000	2,920	5,080	3,500	2,700	7,190	12,000
21	7,510	6,250	39,300	35,700	14,600	3,750	3,380	4,800	3,500	2,810	6,870	15,000
22	7,190	25,000	31,000	28,200	12,700	3,260	3,380	4,260	3,380	2,810	6,560	12,000
23	7,510	10,500	25,000	24,500	11,600	3,140	2,810	4,260	3,140	4,530	6,250	10,500
24	7,830	10,200	25,000	22,600	10,900	3,260	2,700	4,260	3,140	13,500	6,560	9,840
25	6,870	12,000	26,600	20,200	10,200	3,140	2,600	4,530	10,200	30,400	9,160	8,160
26	5,950	12,700	23,500	18,400	9,500	3,140	2,200	5,080	14,600	29,300	8,820	7,510
27	5,650	22,100	20,200	16,700	8,820	3,140	2,010	4,260	13,900	21,600	8,820	8,820
28	5,080	16,300	20,700	16,300	7,830	2,920	1,920	4,000	11,600	16,700	8,160	11,200
29	5,080	14,200	27,700	14,600	7,510	2,700	1,830	3,750	8,820	14,200	7,510	9,500
30	5,080	.....	68,200	21,100	8,160	2,550	1,830	3,140	7,830	12,000	6,870	10,200
31	5,080	.....	58,100	.....	8,160	.....	1,830	2,920	.....	10,200	.....	17,500

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

Monthly discharge of Delaware River at Riegelsville, N. J., for 1912.

[Drainage area, 6,430 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	12,000	5,080	6,870	1.07	1.23	A.
February	25,000	3,140	7,080	1.10	1.19	A.
March	83,000	6,560	28,800	4.49	5.18	A.
April	59,500	14,600	29,700	4.65	5.19	A.
May	29,300	7,510	15,100	2.40	2.77	A.
June	7,830	2,550	4,850	.796	.89	A.
July	3,380	1,830	2,380	.412	.48	A.
August	8,820	1,580	3,570	.597	.69	A.
September	14,600	2,500	5,160	.843	.94	A.
October	30,400	2,700	7,700	1.24	1.43	A.
November	19,700	6,250	9,850	1.57	1.75	A.
December	20,700	6,560	11,800	1.85	2.13	A.
The year	83,000	1,580	11,100	1.76	23.87	

NOTE.—In order to determine the discharge per square mile and the run-off depth in inches, 270 second-feet were added Mar. 25 to Dec. 8, 1912, before computing the discharge per square mile. Hence the first three columns indicate the actual quantity of water available in the river, and the two remaining columns represent the actual run-off from the drainage area above Riegelsville, including the discharge of the canal.

WEST BRANCH OF DELAWARE RIVER AT HALE EDDY, N. Y.

Location.—At highway bridge 400 feet west of the Erie Railroad station in the village of Hale Eddy, 8¼ miles above junction with East Branch at Hancock, 8 miles below the power dam of the Deposit Electric Co.

Records available.—November 15 to December 31, 1912.

Drainage area.—611 square miles (Post Route Map).

Gage.—A vertical staff gage in four sections.

Channel.—Bed of stream consists of coarse gravel and bowlders. The control is about three-fourths mile below the gage and is apparently permanent. Between the control and the gage there is low land behind the left bank which is overflowed by extreme high water.

Discharge measurements.—Made by wading across three channels above the bridge or one below, in low water. High-water measurements may be made from highway bridge.

Winter flow.—Gage heights seriously affected by ice during the winter months.

Accuracy.—Discharge rating curve well defined. Good conditions for meter measurements.

The following discharge measurement was made by Frank Weber:

November 21, 1912: Gage height, 2.99 feet; discharge, 646 second-feet.

Daily gage height, in feet, and discharge, in second-feet, of West Branch of Delaware River at Hale Eddy, N. Y., for 1912.

[William Seeley, observer.]

Day.	November.		December.		Day.	November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.		Gage height.	Discharge.	Gage height.	Discharge.
1			2.7	470	16	3.25	775	3.3	805
2			3.1	685	17	3.25	775	3.05	658
3			6.6	3,560	18	3.2	745	3.05	658
4			5.6	2,590	19	3.05	658	3.6	1,000
5			5.4	2,410	20	3.0	630	4.7	1,820
6			5.6	2,590	21	2.85	548	4.0	1,280
7			5.4	2,410	22	2.65	447	3.8	1,140
8			4.8	1,900	23	2.65	447	3.7	1,070
9			4.4	1,580	24	2.65	447	3.4	870
10			4.0	1,280	25	3.0	630	3.45	902
11			3.9	1,210	26	3.05	658	3.15	715
12			3.6	1,000	27	3.05	658	3.45	902
13			3.1	685	28	2.9	575	3.05	658
14			3.15	715	29	2.85	548	2.95	602
15	3.5	935	3.3	805	30	2.65	447	3.25	775
					31			5.10	2,160

NOTE.—Daily discharge determined from a well defined rating curve based on measurements made during 1912 and 1913.

Monthly discharge of West Branch of Delaware River at Hale Eddy, N. Y., for 1912.

[Drainage area, 611 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
November 15–30	935	447	620	1.01	0.60	B
December	3,560	470	1,290	2.11	2.43	B

WEST BRANCH OF DELAWARE RIVER AT HANCOCK, N. Y.

Location.—At the toll suspension bridge over Delaware River half a mile west of the Erie Railroad station at Hancock, N. Y., about 1 mile above the junction of the East and West branches of the Delaware, and about 10 miles below the mouth of Oquaga Creek, the nearest tributary, which enters from the right.

Records available.—October 15, 1902, to December 31, 1912. Data published also in annual reports of the New York State engineer and surveyor.

Drainage area.—660 square miles.[1]

Gage.—Standard chain, fastened to the upstream side of the bridge; read once daily; datum unchanged.

Channel.—Bed of river composed of gravel; one channel at all stages.

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

Winter flow.—Affected considerably by ice below the control point.

[1] Revised value.

Accuracy.—Conditions for determination of discharge not good. High-water stage affected by backwater from East Branch; low-water stage controlled by riffles about 800 feet below the bridge; frequent changes in the channel require many measurements and frequent new discharge rating curves.

Cooperation.—Maintained since January 1, 1908, in cooperation with the United States Weather Bureau.

Discharge measurements of West Branch of Delaware River at Hancock, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
Feb. 23[a]	C. S. De Golyer	5.99	1,670
July 27[b]	Frank Weber	2.58	67.8
27[b]	....do	2.58	68.7
Nov. 21	....do	3.71	658

[a] Measurement under partial ice cover. [b] Wading three-fourths mile above the gage.

Daily gage height, in feet, of West Branch of Delaware River at Hancock, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.0	4.0	5.5	7.2	4.5	3.5	2.4	2.5	3.0	3.5	3.5	3.3
2	3.4	4.0	5.6	7.2	4.6	3.3	2.6	2.5	4.3	3.5	4.1	3.5
3	3.6	3.9	5.6	8.2	4.4	3.5	2.4	2.5	3.9	3.3	3.9	6.2
4	3.5	3.9	5.4	6.6	4.2	3.5	2.5	2.5	3.7	3.3	3.6	5.7
5	3.5	3.9	5.1	6.1	4.1	3.5	2.5	2.5	3.5	3.2	3.5	5.3
6	2.9	3.7	5.4	6.0	4.0	3.5	2.5	2.5	3.4	3.1	3.5	5.5
7	3.4	3.7	5.2	6.1	4.1	3.6	2.5	2.5	3.3	3.1	3.5	5.6
8	4.0	3.8	5.1	7.2	4.1	3.5	2.5	2.5	3.2	3.0	6.9	5.1
9	4.6	3.6	6.0	6.1	4.2	3.4	2.5	2.5	3.2	2.9	5.9	4.7
10	4.7	3.6	6.0	5.7	4.1	3.2	2.5	2.5	3.0	3.0	5.3	4.2
11	4.7	3.5	5.6	5.5	3.9	3.1	2.5	3.4	2.9	3.0	4.9	4.3
12	4.7	3.5	5.2	5.3	3.8	3.2	2.6	3.1	3.0	3.1	4.6	4.0
13	4.6	3.6	7.2	5.5	3.8	3.0	2.5	2.9	3.0	3.0	4.4	3.6
14	4.4	3.7	10.8	5.2	3.7	3.0	2.6	2.9	2.9	3.0	4.4	3.5
15	4.7	3.5	5.5	5.0	3.7	3.0	2.6	2.8	2.9	2.9	4.2	3.9
16	4.5	3.5	10.0	7.6	3.6	3.0	2.6	2.8	2.9	2.9	4.0	3.8
17	4.5	3.6	6.8	7.0	4.2	3.1	2.5	2.7	2.9	2.9	4.0	3.7
18	4.5	3.6	6.8	7.1	4.6	3.0	2.6	2.7	3.0	2.8	3.8	3.7
19	4.6	3.8	6.7	7.4	4.3	3.0	2.8	3.0	3.2	2.9	3.7	4.0
20	4.7	3.8	6.9	6.8	4.1	2.8	2.6	3.1	3.2	2.9	3.7	5.0
21	5.2	4.1	6.0	6.0	4.1	2.8	2.5	3.0	3.1	2.9	3.6	4.4
22	4.9	4.8	5.3	6.0	4.1	2.7	2.5	3.3	3.0	2.9	3.5	4.2
23	4.7	6.0	5.0	5.5	3.9	2.7	2.5	3.3	3.0	3.0	3.5	4.0
24	4.6	5.5	4.9	5.4	3.8	2.9	2.5	3.6	3.1	5.5	3.4	3.8
25	4.5	5.4	4.5	5.2	3.7	2.7	2.5	3.3	4.0	6.3	3.5	4.0
26	4.4	6.0	4.1	5.1	3.6	2.6	2.4	3.6	3.9	5.3	3.7	3.8
27	4.3	6.0	4.2	4.8	3.5	2.6	2.5	3.2	3.8	5.2	3.7	3.9
28	4.3	6.5	4.3	4.7	3.4	2.5	2.5	3.0	3.5	4.4	3.6	3.6
29	4.2	6.0	6.8	4.4	3.4	2.6	2.6	3.0	3.3	4.2	3.5	3.5
30	4.2	.....	8.2	4.0	3.5	2.5	2.6	3.0	3.5	4.0	3.4	3.9
31	4.2	.....	6.5	.....	3.6	.....	2.6	2.9	.....	3.8	.....	4.8

NOTE.—Relation of gage height to discharge affected by ice Jan. 7 to Mar. 15.

Daily discharge, in second-feet, of West Branch of Delaware River at Hancock, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	918	.....	.....	7,090	1,420	506	28	50	225	506	506	380
2	440	.....	.....	7,090	1,530	380	76	50	1,210	506	1,010	506
3	576	.....	.....	10,400	1,310	506	28	50	826	380	826	4,390
4	506	.....	.....	5,390	1,110	506	50	50	652	380	576	3,310
5	506	.....	.....	4,160	1,010	506	50	50	506	324	506	2,570
6	182	.....	.....	3,940	918	506	50	50	440	272	506	2,930
7	.....	.....	.....	4,160	1,010	576	50	50	380	272	506	3,120
8	.....	.....	.....	7,090	1,010	506	50	50	324	225	6,210	2,230
9	.....	.....	.....	4,160	1,110	440	50	50	324	182	3,720	1,650
10	.....	.....	.....	3,310	1,010	324	50	50	225	225	2,570	1,110
11	.....	.....	.....	2,930	826	272	50	440	182	225	1,920	1,210
12	.....	.....	.....	2,570	736	324	76	272	225	272	1,530	918
13	.....	.....	.....	2,930	736	225	50	182	225	225	1,310	576
14	.....	.....	.....	2,400	652	225	76	182	182	225	1,310	506
15	.....	.....	.....	2,070	652	225	76	142	182	182	1,110	826
16	.....	.....	.....	17,100	8,360	576	225	76	142	182	182	918	736
17	.....	.....	.....	5,930	6,500	1,110	272	50	106	182	182	918	652
18	.....	.....	.....	5,930	6,790	1,530	225	76	106	225	142	736	652
19	.....	.....	.....	5,660	7,720	1,210	225	142	225	324	182	652	918
20	.....	.....	.....	6,210	5,930	1,010	142	76	272	324	182	652	2,070
21	.....	.....	.....	3,990	3,940	1,010	142	50	225	272	182	576	1,310
22	.....	.....	.....	2,570	3,940	1,010	106	50	380	225	182	506	1,110
23	.....	1,670	2,070	2,930	826	106	50	380	225	225	506	918
24	.....	.....	.....	1,920	2,750	736	182	50	576	272	2,930	440	736
25	.....	.....	.....	1,420	2,400	652	106	50	380	918	4,630	506	918
26	.....	.....	.....	1,010	2,230	576	76	28	576	826	2,570	652	736
27	.....	.....	.....	1,110	1,780	506	76	50	324	736	2,400	652	826
28	.....	.....	.....	1,210	1,650	440	50	50	225	506	1,310	576	576
29	.....	.....	.....	5,930	1,310	440	76	76	225	380	1,110	506	506
30	.....	.....	.....	10,400	918	506	50	76	225	506	918	440	826
31	.....	.....	.....	5,130	.....	576	.....	76	182	.....	736	.....	1,780

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

Monthly discharge of West Branch of Delaware River at Hancock, N. Y., for 1912.

[Drainage area, 660 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	523	0.792	0.91	C.
February	.....	.....	528	.800	.86	C.
March	17,100	.....	3,600	5.45	6.28	B.
April	10,400	918	4,290	6.50	7.25	A.
May	1,530	440	895	1.36	1.57	A.
June	576	50	270	.409	.46	A.
July	142	28	59.2	.090	.10	B.
August	576	50	202	.306	.35	A.
September	1,210	182	407	.617	.69	A.
October	4,630	182	725	1.10	1.27	A.
November	6,210	440	1,110	1.68	1.87	A.
December	4,390	380	1,340	2.03	2.34	A.
The year	17,100	28	1,160	1.76	23.95	

NOTE.—Discharge for the period during which ice existed—Jan. 7 to Mar. 15—estimated from one measurement taken during the period, climatologic records, and comparison with records for other stations: Jan. 8–31, 525 second-feet; Mar 1–15, 2,270 second-feet.

MONGAUP RIVER AT RIO, N. Y.

Location.—At the steel highway bridge on Partridge ranch, near Rio, 6 miles above Mongaup village and some 7 miles above the mouth of the stream.

Records available.—August 8, 1909, to December 31, 1912. Data also in annual report of New York State engineer and surveyor.

Drainage area.—189 square miles.

Gage.—Standard chain, attached to the downstream side of the bridge; read twice daily; datum unchanged.

Channel.—At low and medium stages divided into two parts by an island just below the bridge. Banks high and overflow only during high stages.

Discharge measurements.—At high stages made from the bridge; at low stages by wading.

Accuracy.—Conditions fairly good except at low-water stages, when the current becomes rather sluggish. A good discharge rating curve has been developed for stages below 3 feet.

The following discharge measurement was made by Frank Weber:
July 30, 1912: Gage height, 0.70 foot; discharge, 41.6 second-feet.

Daily gage height, in feet, of Mongaup River at Rio, N. Y., for 1912.

[Mrs. C. S. Rolles, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.65	.....	.....	2.9	2.7	1.32	0.89	0.80	1.04	1.22	1.48	1.31
2	1.6	.....	.....	2.9	2.3	1.25	.85	.74	1.25	1.24	1.6	1.34
3	1.65	.....	.....	3.8	2.2	2.3	.82	.76	1.34	1.16	1.48	2.30
4	1.6	.....	2.0	2.9	2.1	.....	.90	.79	1.14	1.12	1.42	1.9
5	1.55	.....	1.8	2.6	1.85	1.55	.86	.74	1.06	1.14	1.31	1.7
6	1.6	.....	1.55	2.4	1.9	1.5	.84	.71	1.01	1.09	1.28	2.1
7	1.5	.....	1.15	2.35	1.95	1.8	.80	.71	.92	1.01	1.31	2.1
8	1.65	.....	1.02	2.9	2.15	1.55	.76	.71	1.02	.95	2.0	1.6
9	1.8	.....	1.9	2.45	2.4	1.38	.74	.74	.95	1.14	1.7	1.7
10	1.8	.....	1.95	2.25	2.2	1.29	.72	.79	.91	1.05	1.55	1.65
11	1.8	.....	1.7	2.15	1.95	1.24	.74	2.35	.92	1.09	1.5	1.55
12	1.85	.....	1.7	2.10	1.8	1.21	.74	1.50	.90	1.10	1.41	1.49
13	2.35	.....	3.6	2.05	1.8	1.21	.72	1.05	.90	1.11	1.42	1.35
14	2.25	.....	3.1	2.0	1.7	1.15	.88	1.20	.85	1.08	1.5	1.48
15	2.1	.....	3.2	2.05	2.0	1.12	.88	1.00	.85	1.01	1.46	1.35
16	2.0	.....	4.5	.....	2.3	1.15	.83	.95	.88	1.01	1.39	1.4
17	.....	.....	3.2	2.35	2.0	1.09	.80	1.42	.86	.95	1.38	1.38
18	.....	.....	3.0	3.0	1.8	1.11	1.00	1.15	.94	.89	1.34	1.34
19	.....	.....	2.8	3.0	1.7	1.05	.98	1.42	1.15	.91	1.28	2.25
20	.....	.....	2.6	2.7	1.65	1.02	.84	1.30	1.14	.96	1.38	2.1
21	.....	.....	2.25	2.35	1.6	1.06	.85	1.12	1.01	.96	1.28	1.9
22	.....	.....	2.3	2.1	1.6	1.02	1.02	1.20	1.04	.92	1.26	1.75
23	.....	.....	1.95	2.25	1.48	.94	.95	1.05	1.01	1.35	1.22	1.7
24	.....	.....	2.05	2.1	1.43	.95	.76	1.14	1.18	2.8	1.36	1.6
25	.....	.....	2.2	2.1	1.45	.95	.84	1.04	2.05	2.6	1.7	1.55
26	.....	.....	1.95	1.9	1.7	.94	.84	.99	1.7	2.25	1.6	1.6
27	.....	.....	2.0	2.0	1.55	.98	.81	.96	1.45	1.95	1.5	1.7
28	.....	.....	2.2	1.9	1.40	.88	.80	1.04	1.32	1.8	1.42	1.8
29	.....	.....	4.2	1.8	1.42	.90	.79	1.00	1.28	1.7	1.40	1.65
30	.....	.....	3.60	3.2	1.65	.89	.75	.91	1.26	1.6	1.38	1.7
31	.....	.....	3.0	.....	1.38	.....	.72	.99	.....	1.5	.....	2.5

NOTE.—Relation of gage height to discharge affected by ice, Jan. 8 to Mar. 3.

Daily discharge, in second-feet, of Mongaup River at Rio, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	370	.....	100	1,180	1,020	228	84	63	129	192	292	224
2	345	.....	200	1,180	740	202	74	52	202	199	345	236
3	370	.....	300	2,010	680	740	68	55	236	171	292	740
4	345	.....	560	1,180	620	530	86	61	164	157	268	500
5	322	.....	445	950	472	322	77	52	136	164	224	395
6	345	.....	322	810	500	300	72	46	118	146	213	620
7	300	.....	168	775	530	445	63	46	92	118	224	620
8	.....	.....	122	1,180	650	322	55	46	122	100	560	345
9	.....	.....	500	845	810	252	52	52	100	164	395	395
10	.....	.....	530	710	680	216	48	61	89	132	322	370
11	.....	.....	395	650	530	199	52	775	92	146	300	322
12	.....	.....	395	620	445	188	52	300	86	150	264	296
13	.....	.....	1,810	590	445	188	48	132	86	154	268	240
14	.....	.....	1,350	560	395	168	81	185	74	143	300	292
15	.....	.....	1,440	590	560	157	81	115	74	118	284	240
16	.....	.....	2,790	680	740	168	70	100	81	118	256	260
17	.....	.....	1,440	775	560	146	63	268	77	100	252	252
18	.....	.....	1,260	1,260	445	154	115	168	98	84	236	236
19	.....	.....	1,100	1,260	395	132	109	268	168	89	213	710
20	.....	.....	950	1,020	370	122	72	220	164	103	252	620
21	.....	.....	710	775	345	136	74	157	118	103	213	500
22	.....	.....	740	620	345	122	122	185	129	92	206	420
23	.....	.....	530	710	292	98	100	132	118	240	192	395
24	.....	.....	590	620	272	100	55	164	178	1,100	244	345
25	.....	.....	680	620	280	100	72	129	590	950	395	322
26	.....	.....	530	500	395	98	72	112	395	710	345	345
27	.....	.....	560	560	322	109	65	103	280	530	300	395
28	.....	.....	680	500	260	81	63	129	228	445	268	445
29	.....	.....	2,440	445	268	86	61	115	213	395	260	370
30	.....	.....	1,810	1,440	370	84	54	89	206	345	252	395
31	.....	.....	1,260	.....	252	.....	48	112	.....	300	.....	880

NOTE.—Daily discharge determined from a rating curve well defined below 1,000 second-feet. Discharge Mar. 1—3 estimated. Discharge Apr. 16 and June 4 interpolated

Monthly discharge of Mongaup River at Rio, N. Y., for 1912.

[Drainage area, 189 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
March	2,790	.....	862	4.56	5.26	B.
April	2,010	445	854	4.52	5.04	A.
May	1,020	252	483	2.56	2.95	A.
June	740	81	206	1.09	1.22	A.
July	122	48	71	.376	.43	A.
August	775	46	145	.767	.88	A.
September	590	74	161	.852	.95	A.
October	1,100	84	257	1.36	1.57	A.
November	395	192	281	1.49	1.66	A.
December	880	224	410	2.17	2.50	A.

NEVERSINK RIVER AT GODEFFROY, N. Y.

Location.—At the suspension bridge half a mile east of the post office at Godeffroy, half a mile below the mouth of Brasher Kill (entering from the left), and 8 miles above the confluence of Neversink and Delaware rivers.

Records available.—August 4 to October 9, 1903; August 21 to December 25, 1909. Data also in the annual reports of the State engineer and surveyor of New York.

Drainage area.—314 square miles.

Gage.—Present gage, established August 1, 1910, standard chain, supported by a cantilever arm fastened to the left-hand downstream cable tower; datum of present gage (unchanged) is 0.98 foot lower than that of original gage washed out by flood October 9, 1903, and the same as that of second gage, an enameled staff bolted to the downstream end of left-hand abutment; destroyed by flood January 21, 1910; gage read twice daily, about 8 a. m. and 5 p. m.

Channel.—Bed of sand and gravel; liable to shift.

Artificial control.—There are several reservoirs in the upper part of the drainage area, two of which are now in use. The principal power plant is at Roses Point, near Cuddebackville, in the vicinity of the old Delaware & Hudson canal. About half a mile above this point a concrete dam diverts water through the old feeder ditch to the plant. This power plant supplies Port Jervis, Middletown, and other small places in the vicinity, with electric light and power. The low-water flow is controlled absolutely by the power plant. For this reason it is not advisable to attempt to estimate the daily discharge from semidaily gage readings at present. The gage reader's observations are being published, together with the rate of flow corresponding to each.

Accuracy.—Conditions are good for making measurements, but the channel is liable to shift from time to time, thus impairing the accuracy of the discharge rating curve. The curve for 1911 and 1912 is fairly good, and the accuracy of the records for these years depends on the accuracy of mean daily gage heights.

Discharge measurements of Neversink River at Godeffroy, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
July 31[a]	Frank Weber	2.79	58.7
Nov. 23	....do	3.45	298

[a] Made by wading.

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12.

Day.	January.				February.				March.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	.....	.....	.....	.....	3.92	628	3.61	399	3.36	260	3.46	312
2	.....	.....	.....	.....	3.89	602	3.57	375	3.36	260	3.45	307
3	10.0	.....	8.3	.....	3.86	579	3.55	363	3.39	275	3.46	312
4	6.0	3,780	5.0	2,080	4.05	750	4.2	910	3.42	291	3.47	318
5	5.0	2,080	5.3	2,590	4.05	750	4.15	855	3.37	265	3.49	329
6	7.0	.....	7.3	.....	4.0	700	4.0	700	3.29	225	3.38	270
7	7.0	.....	7.3	.....	3.88	694	4.05	750	3.96	664	4.15	855
8	4.25	970	3.95	655	3.86	579	4.0	700	3.97	673	4.15	855
9	4.05	750	4.95	2,000	3.76	502	3.96	664	4.05	750	4.2	910
10	4.0	700	4.3	1,030	3.46	312	3.76	502	4.05	750	4.15	855
11	3.78	517	3.56	369	3.36	260	3.66	432	4.0	700	4.15	855
12	3.82	548	3.66	432	3.34	250	3.67	438	4.05	750	4.1	800
13	3.79	525	3.42	291	3.31	235	3.61	399	4.0	700	4.05	750
14	3.72	473	3.80	532	3.30	230	3.47	318	4.05	750	4.15	855
15	3.56	369	3.81	540	3.32	240	3.43	296	4.1	800	4.15	855

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12—Continued.

Day.	January.				February.				March.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
16	3.60	392	3.86	579	3.29	225	3.46	312	4.05	750	4.15	855
17	3.56	369	4.05	750	3.31	235	3.45	307	4.05	750	4.15	855
18	3.66	432	4.1	800	3.33	245	3.51	340	4.0	700	4.1	800
19	3.55	363	4.1	800	3.36	260	3.54	357	3.97	673	4.1	800
20	3.36	260	4.0	700	3.39	275	3.56	369	4.25	970	4.75	1,680
21	3.81	540	3.61	399	3.38	270	3.55	363	4.75	1,680	4.95	2,000
22	3.79	525	3.46	312	3.39	275	3.57	375	4.85	1,840	5.0	2,080
23	3.72	473	3.56	369	3.35	255	3.53	351	4.95	2,000	5.9	3,610
24	3.64	418	3.87	587	3.34	250	3.52	346	3.96	664	4.45	1,230
25	3.61	399	3.72	473	3.32	240	3.51	340	4.9	1,920	4.35	1,100
26	3.59	386	3.76	502	3.36	260	3.54	357	4.85	1,840	4.4	1,160
27	3.55	363	3.47	318	3.44	302	3.69	451	4.8	1,760	4.45	1,230
28	3.58	380	3.66	432	3.58	380	3.75	495	5.4	2,760	6.8	.....
29	3.76	502	3.56	369	.....	.....	.....	.....	5.3	2,590	6.7	.....
30	3.82	548	3.54	357	.....	.....	.....	.....	5.4	2,760	5.6	3,100
31	3.88	694	3.56	369	.....	.....	.....	.....	5.2	2,420	5.5	2,930

Day.	April.				May.				June.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	5.2	2,420	5.4	2,760	4.25	970	4.5	1,300	2.69	40	2.97	102
2	5.1	2,250	5.3	2,590	4.45	1,230	4.85	1,840	2.64	33	3.01	113
3	5.1	2,250	5.3	2,570	4.25	970	4.75	1,680	2.66	35	2.98	104
4	5.1	2,250	5.3	2,590	4.45	1,230	4.05	750	2.69	40	3.03	120
5	5.0	2,080	5.3	2,590	4.45	1,230	4.5	1,300	3.43	296	3.91	619
6	5.0	2,080	5.3	2,590	4.55	1,380	4.75	1,680	3.63	412	3.90	610
7	5.0	2,080	5.2	2,420	4.5	1,300	4.7	1,600	3.82	548	4.1	800
8	5.3	2,590	5.4	2,760	4.25	970	4.55	1,380	3.84	563	4.05	750
9	5.0	2,080	5.1	2,250	4.2	910	4.5	1,300	3.76	502	3.95	655
10	4.35	1,100	4.3	1,030	4.15	855	4.45	1,230	3.69	451	3.89	602
11	4.65	1,520	4.75	1,680	4.15	855	4.4	1,160	3.73	480	3.91	619
12	4.15	855	4.25	970	4.1	800	4.4	1,160	.....	.....	.....	.....
13	4.25	970	4.4	1,160	4.15	855	4.4	1,160	.....	.....	.....	.....
14	4.65	1,520	4.75	1,680	4.1	800	4.4	1,160	.....	.....	.....	.....
15	4.6	1,450	4.65	1,520	4.1	800	4.35	1,100	.....	.....	.....	.....
16	4.55	1,380	4.6	1,450	4.1	800	4.4	1,160	.....	.....	.....	.....
17	4.6	1,450	4.7	1,600	3.74	488	3.92	628	.....	.....	.....	.....
18	4.6	1,450	4.65	1,520	3.75	495	3.90	610	.....	.....	.....	.....
19	4.6	1,450	4.7	1,600	3.72	473	3.91	619	.....	.....	.....	.....
20	4.55	1,380	4.65	1,520	3.64	418	3.89	602	.....	.....	.....	.....
21	4.55	1,380	4.65	1,520	3.04	124	3.19	180	.....	.....	.....	.....
22	4.55	1,380	4.65	1,520	2.54	20	2.94	93	.....	.....	.....	.....
23	4.5	1,300	4.6	1,450	2.34	4	2.74	48	.....	.....	.....	.....
24	4.5	1,300	4.6	1,450	2.24	1	2.54	20	.....	.....	.....	.....
25	4.5	1,300	4.6	1,450	2.84	68	3.83	555	.....	.....	.....	.....
26	4.45	1,230	4.55	1,380	2.54	20	2.84	68	.....	.....	.....	.....
27	4.5	1,300	4.55	1,380	2.34	4	2.44	10	.....	.....	.....	.....
28	4.55	1,380	4.65	1,520	2.74	48	2.94	93	.....	.....	.....	.....
29	4.55	1,380	4.7	1,600	2.70	41	2.95	96	.....	.....	.....	.....
30	4.6	1,450	4.7	1,600	2.68	38	2.98	104	.....	.....	.....	.....
31	.....	.....	.....	.....	2.66	35	3.00	110	.....	.....	.....	.....

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12—Continued.

Day.	July.				August.				September.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	.....	.....	.....	.....	3.1	144	3.1	144	4.6	1,450	4.5	1,300
2	.....	.....	.....	.....	3.05	127	3.1	144	4.5	1,300	4.3	1,030
3	.....	.....	.....	.....	3.1	144	3.0	110	3.6	392	3.8	532
4	.....	.....	.....	.....	3.2	184	2.8	59	3.2	184	3.4	280
5	.....	.....	.....	.....	3.1	144	2.7	41	3.3	230	3.5	334
6	.....	.....	.....	.....	2.7	41	2.7	41	4.0	700	3.8	532
7	.....	.....	.....	.....	2.7	41	3.2	184	3.6	392	3.7	458
8	.....	.....	.....	.....	3.1	144	3.1	144	3.5	334	3.6	392
9	.....	.....	.....	.....	2.7	41	3.1	144	3.4	280	3.5	334
10	.....	.....	.....	.....	2.7	41	2.7	41	3.7	458	3.5	334
11	.....	.....	.....	.....	2.7	41	3.1	144	3.55	363	3.7	458
12	.....	.....	.....	.....	2.6	27	3.0	110	3.5	334	3.6	392
13	.....	.....	.....	.....	2.8	59	2.7	41	3.7	458	3.8	532
14	.....	.....	.....	.....	2.7	41	2.6	27	3.8	532	3.7	458
15	.....	.....	.....	.....	2.8	59	2.7	41	3.5	334	3.6	392
16	.....	.....	.....	.....	2.7	41	2.6	27	3.4	280	3.3	230
17	.....	.....	.....	.....	2.8	59	2.7	41	3.3	230	3.4	280
18	.....	.....	.....	.....	2.9	82	2.8	59	3.2	184	3.2	184
19	.....	.....	.....	.....	2.7	41	2.6	27	3.1	144	3.3	230
20	.....	.....	.....	.....	2.7	41	2.8	59	3.2	184	3.2	184
21	2.8	59	1.7	0	2.75	50	2.7	41	3.4	280	3.5	334
22	2.05	0	2.75	50	2.75	50	2.65	34	3.3	230	3.3	230
23	3.1	144	2.8	59	2.6	27	2.7	41	3.2	184	3.25	207
24	3.5	334	3.6	392	2.7	41	2.8	59	3.3	230	3.2	184
25	3.4	280	3.5	334	3.0	110	3.2	184	3.3	230	3.1	144
26	3.4	280	3.2	184	3.2	184	3.25	207	3.2	184	3.3	230
27	3.2	184	3.15	164	3.2	184	3.0	110	3.4	280	3.35	255
28	3.0	110	2.1	0	3.1	144	3.05	12[illegible]	3.3	230	3.4	280
29	2.8	59	3.15	164	3.7	458	4.4	1,160	3.3	230	3.3	230
30	2.8	59	2.7	41	4.6	1,450	4.6	1,450	3.2	184	3.35	255
31	3.0	110	3.0	110	4.4	1,160	4.5	1,300	.....	.....	.....	.....

Day.	October.				November.				December.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1911.												
1	3.4	280	3.5	334	4.2	910	4.1	800	4.05	750	3.9	610
2	4.9	1,920	4.7	1,600	4.3	1,030	4.2	910	4.0	700	4.1	800
3	4.6	1,450	4.2	910	4.0	700	3.85	571	4.0	700	4.05	750
4	4.1	800	4.0	700	3.8	532	3.7	458	3.95	655	4.0	700
5	3.95	655	3.95	655	3.65	425	3.75	495	3.85	571	3.8	532
6	3.8	532	3.6	392	3.6	392	3.8	532	3.7	458	3.8	532
7	4.05	750	4.3	1,030	3.8	532	3.6	392	3.75	495	3.7	458
8	4.1	800	4.0	700	3.6	392	3.8	532	3.8	532	3.85	571
9	3.95	655	3.8	532	3.7	458	3.65	425	3.75	495	3.7	458
10	3.85	571	3.7	458	3.8	532	3.75	495	3.75	495	3.6	392
11	3.6	392	3.8	532	3.6	392	3.6	392	3.8	532	3.7	458
12	3.7	458	3.7	458	3.8	532	3.7	458	3.75	495	3.65	425
13	3.65	425	3.6	392	4.3	1,030	4.2	910	3.8	532	3.7	458
14	3.7	458	3.8	532	4.1	800	4.0	700	3.75	495	3.6	392
15	3.6	392	3.5	334	4.0	700	3.8	532	3.7	458	3.8	532
16	3.4	280	3.6	392	4.1	800	4.2	910	4.4	1,160	4.6	1,450
17	3.8	532	3.7	458	3.9	610	4.0	700	4.6	1,450	4.5	1,300
18	3.9	610	4.8	1,760	4.2	910	4.2	910	4.05	750	4.2	910
19	5.8	3,440	5.3	2,590	4.5	1,300	4.6	1,450	4.3	1,030	4.15	855
20	4.9	1,920	5.0	2,080	4.5	1,300	4.4	1,160	4.0	700	3.9	610
21	5.2	2,420	5.5	2,930	4.2	910	4.35	1,100	3.8	532	3.6	392
22	5.2	2,420	5.1	2,250	4.2	910	4.2	910	4.05	750	4.15	855
23	5.7	3,270	5.8	3,440	4.1	800	4.3	1,030	4.95	2,000	5.5	2,930
24	4.95	2,000	5.2	2,420	4.2	910	4.1	800	4.95	2,000	4.6	1,450
25	4.65	1,520	4.55	1,380	4.1	800	4.2	910	4.75	1,680	4.65	1,520
26	4.5	1,300	4.7	1,600	4.2	910	4.0	700	4.5	1,300	4.3	1,030
27	4.35	1,100	4.4	1,160	4.3	1,030	4.2	910	4.4	1,160	4.2	910
28	4.2	910	4.3	1,030	3.95	655	4.0	700	4.4	1,160	4.3	1,030
29	4.1	800	4.3	1,030	4.1	800	4.3	1,030	4.4	1,160	4.35	1,100
30	4.1	800	4.3	1,030	4.2	910	4.25	970	4.1	800	3.95	655
31	4.0	700	4.2	910	.....	.....	.....	.....	4.0	700	3.85	571

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12—Continued.

Day.	January.				February.				March.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1	3.90	610	3.70	458								
2	3.65	425	3.50	334								
3	3.60	392	3.60	392								
4	3.60	392	3.60	392								
5	3.65	425	3.62	405								
6	3.60	392	3.65	425								
7												
8												
9												
10									4.7	1,600	4.7	1,600
11									4.8	1,760	4.9	1,920
12									4.8	1,760	4.7	1,600
13									5.5	2,030	6.4	
14									4.9	1,920	4.7	1,600
15									4.9	1,920	5.5	2,930
16									6.7		5.8	3,440
17												
18									5.2	2,420	5.2	2,420
19									5.3	2,590	5.4	2,760
20									5.4	2,760	5.2	2,420
21									5.3	2,590	4.8	1,760
22									4.7	1,600	4.6	1,450
23									4.6	1,450	4.5	1,300
24									4.6	1,450	4.7	1,600
25									4.7	1,600	4.5	1,300
26									4.6	1,450	4.4	1,160
27									4.2	910	4.7	1,600
28									4.6	1,450	4.8	1,760
29									5.6	3,100	6.0	3,780
30									5.8	3,440	5.7	3,270
31									5.3	2,590		

Day.	April.				May.				June.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1					4.9	1,920	4.8	1,760	3.47	318	3.57	375
2					4.6	1,450	4.4	1,160	3.42	291	3.47	318
3					4.3	1,030	4.25	970	3.57	375	3.62	405
4					4.2	910	4.2	910	3.47	318	3.52	346
5					4.1	800	4.15	855	3.42	291	3.47	318
6					4.0	700	4.3	1,030	3.47	318	3.37	265
7					4.2	910	4.3	1,030	3.52	346	3.47	318
8					4.1	800	4.5	1,300	3.57	375	3.47	318
9					4.4	1,160	4.3	1,030	3.52	346	3.57	375
10					4.3	1,030	4.25	970	3.37	265	3.52	346
11					4.15	855	4.3	1,030	3.32	240	3.42	291
12					4.4	1,160	4.0	700	3.27	216	3.22	193
13					4.2	910	4.15	855	3.27	216	3.27	216
14					3.80	532	3.70	458	3.17	172	3.27	216
15	4.3	1,030	4.2	910	3.70	458	4.0	700	3.12	152	3.17	172
16	5.2	2,420	5.3	2,590	4.0	700	4.5	1,300	3.27	216	3.17	172
17	5.4	2,760	5.3	2,590	5.5	2,930	5.0	2,080	3.17	172	3.17	172
18	5.2	2,420	5.1	2,250	4.8	1,760	4.7	1,600	3.27	216	3.27	216
19	5.2	2,420	5.0	2,080	4.9	1,920	4.5	1,300	3.17	172	3.22	193
20	4.9	1,920	4.75	1,680	4.4	1,160	4.3	1,030	3.0	110	3.27	216
21	4.7	1,600	4.5	1,300	4.3	1,030	4.15	855	3.22	193	3.12	152
22	4.3	1,030	4.2	910	4.05	750	4.0	700	3.27	216	3.17	172
23	4.2	910	4.15	855	4.2	910	3.90	610	3.12	152	2.97	102
24	4.3	1,030	4.3	1,030	3.70	458	3.70	458	3.02	117	3.07	134
25	4.4	1,160	4.2	910	3.60	392	3.80	532	3.17	172	2.97	102
26	4.3	1,030	4.3	1,030	3.70	458	3.70	458	2.77	54	3.07	134
27	4.2	910	4.15	855	3.60	392	3.70	458	2.77	54	2.97	102
28	4.35	1,100	4.2	910	3.60	392	3.65	425	2.87	75	2.77	54
29	4.3	1,030	5.0	2,080	3.70	458	3.90	610	2.77	54	2.67	37
30	5.3	2,590	5.1	2,250	3.60	392	3.50	334	2.67	37	2.77	54
31					3.40	280	3.50	344				

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12—Continued.

Day.	July.				August.				September.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1	3.02	117	3.07	134	2.60	27	3.05	127	4.0	700	4.1	800
2	2.97	102	3.17	172	2.70	41	2.80	59	3.30	230	3.50	334
3	3.07	134	2.77	54	2.70	41	3.00	110	3.70	458	3.80	532
4	2.82	63	2.72	45	2.70	41	3.10	144	3.50	334	3.40	280
5	2.91	102	2.77	54	2.80	59	2.90	82	3.30	230	3.35	255
6	3.07	134	3.17	172	2.70	41	2.80	59	3.20	184	3.20	184
7	3.17	172	2.77	54	2.60	27	2.90	82	3.25	207	3.10	144
8	2.87	75	3.12	152	2.70	41	2.80	59	3.30	230	3.10	144
9	2.77	54	3.17	172	2.80	59	2.80	59	3.30	230	3.10	144
10	2.82	63	3.12	152	2.80	59	3.60	392	3.15	164	3.30	230
11	2.87	75	2.97	102	6.8	.....	5.1	2,250	3.10	144	3.20	184
12	2.97	102	3.17	172	4.9	1,920	4.2	910	2.90	82	3.00	110
13	3.12	152	3.07	134	3.90	610	3.70	458	3.00	110	3.10	144
14	2.87	75	2.97	102	3.40	280	3.20	184	3.10	144	3.05	127
15	2.77	54	3.12	152	3.25	207	3.20	184	2.70	41	3.00	110
16	2.82	63	3.17	172	3.30	230	3.35	255	3.05	127	3.10	144
17	2.97	102	3.17	172	3.20	184	3.20	184	3.10	144	3.10	144
18	2.77	54	3.22	193	3.50	334	3.45	307	3.05	127	3.10	144
19	3.12	152	3.17	172	3.30	230	3.40	280	3.00	110	3.10	144
20	2.97	102	3.27	216	3.40	280	3.30	230	3.10	144	3.20	184
21	3.17	172	3.22	193	3.45	307	3.20	184	3.20	184	3.10	144
22	3.12	152	3.17	172	3.35	255	3.30	230	2.80	59	3.05	127
23	2.87	75	3.07	134	3.50	334	3.40	280	3.00	110	2.80	59
24	3.07	134	3.17	172	3.40	280	3.40	280	3.10	144	3.10	144
25	2.77	54	3.07	134	3.30	230	3.35	255	3.50	334	3.60	392
26	2.77	54	2.97	102	3.25	207	3.30	230	3.50	334	3.60	392
27	2.87	75	3.07	134	3.15	164	3.20	184	3.30	230	3.20	184
28	2.67	37	3.17	172	3.20	184	3.25	207	3.10	144	3.15	164
29	2.77	54	2.87	75	3.10	144	3.20	184	3.15	164	3.20	184
30	2.67	37	2.77	54	3.15	164	3.15	164	3.15	164	3.20	184
31	2.77	54	2.9	82	3.10	144	3.20	184	.....	.....	.....	.....

Day.	October.				November.				December.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
1	3.00	110	2.70	41	3.72	473	3.82	548	3.47	318	3.47	318
2	3.10	144	3.00	110	3.82	548	3.72	473	3.50	334	3.57	375
3	3.20	184	2.90	82	3.77	510	3.62	405	5.0	2,080	5.0	2,080
4	3.00	110	2.80	59	3.62	405	3.52	346	4.9	1,920	4.50	1,300
5	2.90	82	2.70	41	3.72	473	3.42	291	4.7	1,600	4.65	1,520
6	3.00	110	2.75	50	3.52	346	3.47	318	4.40	1,160	4.35	1,100
7	2.85	70	2.65	34	3.32	240	3.42	291	4.25	970	4.10	800
8	3.00	110	2.85	70	3.22	193	3.37	265	4.10	800	4.05	750
9	.....	.....	.....	.....	3.27	216	3.12	152	3.92	628	3.97	673
10	.....	.....	.....	.....	2.82	63	2.82	63	4.00	700	3.82	548
11	.....	.....	.....	.....	3.77	510	3.82	548	3.92	628	3.87	587
12	.....	.....	.....	.....	3.77	510	3.82	548	3.82	548	3.82	548
13	.....	.....	.....	.....	3.72	473	3.67	438	3.52	346	3.57	375
14	.....	.....	.....	.....	3.62	405	3.67	438	3.82	548	3.72	473
15	.....	.....	.....	.....	3.82	548	3.82	548	3.87	587	3.82	548
16	.....	.....	.....	.....	3.77	510	3.82	548	3.77	510	3.52	346
17	.....	.....	.....	.....	3.77	510	3.77	510	3.72	473	3.67	438
18	.....	.....	.....	.....	3.57	375	3.62	405	3.82	548	3.72	473
19	.....	.....	.....	.....	3.42	291	3.47	318	3.92	628	4.00	700
20	.....	.....	.....	.....	3.42	291	3.42	291	4.22	934	4.10	800

Gage height, in feet, and discharge, in second-feet, of Neversink River at Godeffroy, N. Y., for 1911–12—Continued.

Day.	October.				November.				December.			
	A. M.		P. M.		A. M.		P. M.		A. M.		P. M.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1912.												
21					3.42	291	3.42	291	3.92	628	4.00	700
22	2.82	63	3.02	117	3.47	318	3.42	291	3.82	640	3.87	587
23	3.02	117	3.12	152	3.42	291	3.42	291	3.92	628	3.87	587
24	3.32	240	3.52	346	3.32	240	3.42	291	3.77	510	3.82	548
25	3.82	548	3.92	628	3.92	628	3.92	628	3.72	473	3.92	628
26	3.62	405	3.82	548	3.92	628	3.92	628	3.82	548	3.87	587
27	3.72	473	3.77	510	3.67	438	3.62	405	3.72	473	3.77	510
28	3.82	548	3.62	405	3.57	375	3.67	438	3.82	548	3.87	587
29	3.87	587	3.92	628	3.52	346	3.47	318	3.92	628	3.77	510
30	3.72	473	3.82	548	3.47	318	3.47	318	4.10	800	4.05	750
31	3.57	375	3.62	405					4.02	720	3.92	628

NOTE.—Relation of gage height to discharge affected by ice Jan. 1–7, 1911, and Jan. 7–Mar. 9, 1912. Discharge determined from a fairly well defined rating curve.

LEHIGH RIVER AT SOUTH BETHLEHEM, PA.

Location.—On the New Street Bridge connecting Bethlehem and South Bethlehem, Pa.

Records available.—September 22, 1902, to February 13, 1905; April 26, 1909, to December 31, 1912. Complete data 1902 to 1909 are published in Water Supply Paper 261.

Drainage area.—1,235 square miles.

Gage.—Chain and weight, similar to that employed when the station was first established; datum of the present gage 0.09 foot higher than that of the old one used prior to 1909; elevation of the zero of the present gage 210.64 feet above sea level.

Channel.—Straight for one-third mile above and several hundred feet below the station. A low rubble dam crosses a portion of the channel a few hundred feet below the bridge. The construction of this dam caused an alteration in the rating curve for 1902 and certain changes in the dam caused a further slight change in the rating curve between 1905 and 1909. The river bed consists of sand, gravel, and bowlders, and seems to be fairly permanent. Velocity good at low stages. Left bank low and overflows at high stages; right bank is high and does not overflow.

Discharge measurements.—Made from the bridge.

Winter flow.—Relation between gage height and discharge at this station is little affected by ice.

Canal.—Lehigh Canal follows the left bank and passes over Monocacy Creek and under the left span of the bridge. The creek also passes under the bridge and enters the river a short distance below. An ice plant and gristmill take water from the canal and return it to the river above the bridge. The canal is measured at Main Street Bridge, one-third mile above the station, and the discharge, reduced by the amount of tailrace flow of ice plant and gristmill, is added to the river discharge. At high stages the river overflows into the canal and creek.

Accuracy.—Good.

Cooperation.—Since its reestablishment this station has been maintained by the Water Supply Commission of Pennsylvania, and many of the measurements have been made by students of Lehigh University, under the direction of the civil-engineering department.

Daily gage height, in feet, of Lehigh River at South Bethlehem, Pa., for 1910–1912.

[J. E. Santee, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.												
1	1.97	3.13	8.39	2.77	4.74	3.33	2.49	1.80	2.01	1.69	1.59	2.20
2	2.02	3.02	8.00	2.69	4.43	3.21	2.42	1.68	1.90	1.60	1.88	2.21
3	2.34	3.02	7.56	2.74	4.19	3.21	2.40	1.67	1.94	1.73	2.00	2.12
4	2.09	2.99	6.52	2.54	4.09	3.28	2.36	1.71	2.30	1.58	1.90	1.94
5	2.45	2.90	5.89	2.62	3.86	3.07	2.35	1 91	2.25	1.61	2.26	2.05
6	2.14	2.79	5.66	2.67	3.53	3.55	2.31	1.85	1.94	1.54	2.18	2.03
7	2.33	2.51	6.04	2.86	3.42	3.32	2.25	1.73	2.00	1.71	2.24	1.90
8	2.74	2.50	5.98	2.82	3.28	3.07	2.44	1.78	2.04	1.67	2.14	1.86
9	2.50	2 78	5.32	2.70	3.56	2.95	2.39	1.89	1.95	1.61	2.07	1.77
10	2.47	2.79	4.85	2.62	3.60	3.01	2.32	2.02	1.84	1.64	2.08	1.72
11	2.34	2.64	4.54	2.58	3.40	3.21	2.57	2.24	1.75	1.57	1.97	1.71
12	2.25	2.48	4.30	2.54	3.27	3.35	2.38	2.12	1.89	1.55	2.31	1.77
13	2.25	2.44	4.01	2.46	3.14	3.30	2.20	1.94	1.82	1.57	2.19	1.95
14	2.23	2.48	3.78	2.47	3.02	3.07	2.02	1.86	2.37	1.49	2.26	1.85
15	2.09	2.56	3.75	2.42	2.90	2.92	2.07	1.96	2.34	1.33	2.19	1.94
16	1.99	2.65	3.72	2.35	2.86	3.02	2.00	1.89	2.14	1.52	2.08	1.87
17	2.15	2.74	3.62	2.31	2.77	3.59	2.24	1.82	1.89	1.63	2.17	2.06
18	2.23	3.62	3.51	4.70	2.74	3.54	2.27	1.72	1.80	1.62	2.06	1.84
19	2.59	3.28	3.33	5.92	2.75	4.42	2.14	1.69	1.87	1.46	2.05	1.92
20	3.01	3.04	3.28	5.50	2.71	4.08	2.07	1.82	1.79	1.62	1.93	1.96
21	3.03	5.00	3.42	5.03	3.26	3.78	2.02	1.76	1.62	1.58	2.07	1.86
22	12.74	6.68	3.46	4.64	3.19	3.34	1.94	1.75	1.76	1.61	2.02	1.80
23	7.37	5.65	3.34	4.24	3.08	3.20	1.92	1.76	1.63	1.62	2.03	1.77
24	5.63	4.43	3.27	4.12	3.06	3.04	1.83	1.72	1.58	1.92	1.86	2.50
25	4.90	3.89	3.19	7.42	4.95	2.91	1.89	1.73	1.60	1.69	1.96	3.18
26	4.27	3.64	3.14	7.93	5.20	2.82	1.85	1.68	1.77	1.63	1.99	2.71
27	4.05	3.71	3.06	7.00	4.75	2.82	1.75	1.44	1.78	1.64	1.96	2.73
28	3.79	5.89	3.10	5.82	4.26	2.82	1.82	1.56	1.83	1.66	2.03	2.61
29	3.63	.....	3.01	5.11	3.94	2.74	1.78	1.73	1.74	1.54	2.09	2.67
30	3.37	.....	2.92	5.46	3.68	2.66	1.68	1.60	1.79	1.46	2.13	2.85
31	3.35	.....	2.80	.....	3.40	.....	1.80	1.55	.....	1.64	.....	3.04
1911.												
1	3.01	2.78	2.97	3.63	3.32	3.45	2.41	2.05	6.76	2.66	3.28	3.40
2	3.52	2.82	2.94	3.51	3.75	3.22	2.34	2.05	5.17	5.75	3.14	3.29
3	5.49	2.50	2.86	3.33	3.21	2.93	2.34	2.04	4.27	4.54	3.01	3.15
4	6.11	2.81	2.74	3.29	3.12	2.74	2.30	2.63	3.82	3.89	2.94	3.27
5	4.74	3.52	2.54	3.92	3.05	2.61	2.33	2.37	3.39	3.59	2.91	3.09
6	4.21	2.75	2.60	4.17	2.90	2.66	2.25	2.30	3.60	3.28	2.86	3.11
7	3.97	2.53	2.54	4.11	2.83	2.87	2.17	2.18	3.66	3.57	3.69	3.07
8	3.68	2.78	2.36	4.01	2.79	2.68	2.42	2.59	3.41	3.24	3.25	3.02
9	3.62	2.70	2.53	3.95	2.72	2.53	2.15	2.33	3.25	3.15	3.06	2.95
10	3.24	2.63	2.69	4.01	2.70	2.43	2.20	2.15	3.55	3.04	3.01	2.85
11	3.16	2.51	3.11	3.88	2.68	2.34	2.21	2.03	3.31	3.10	2.90	2.96
12	3.24	2.42	2.80	3.82	2.64	4.01	2.16	1.98	3.76	3.17	2.76	2.93
13	3.42	2.99	2.97	3.68	2.57	5.78	2.04	1.90	3.34	3.02	3.30	2.89
14	4.07	2.85	2.87	3.74	2.51	6.55	2.05	2.06	3.15	2.86	3.25	2.86
15	4.73	2.61	3.08	4.27	2.52	5.32	2.38	1.93	3.07	2.78	3.17	2.93
16	4.25	2.43	3.41	3.89	2.46	4.58	2.10	1.98	3.08	2.87	3.12	3.40
17	3.64	2.61	2.71	3.86	2.45	4.39	2.94	1.93	2.94	2.77	3.04	4.15
18	3.47	3.01	3.21	3.72	2.46	3.87	3.12	2.03	2.85	4.00	3.75	3.73
19	3.32	3.30	2.97	3.59	2.43	3.42	2.50	1.88	2.75	4.86	4.46	3.55
20	3.30	2.80	3.02	4.65	2.61	3.26	2.30	1.80	2.66	4.36	4.21	3.37
21	3.26	2.53	3.15	4.79	2.42	3.06	2.37	1.91	2.58	4.17	3.92	3.27
22	3.16	2.44	3.04	4.70	2.39	2.94	2.47	1.73	2.70	4.72	3.65	3.39
23	3.03	2.52	3.11	4.67	2.33	3.18	2.32	1.78	2.53	5.45	3.49	3.87
24	2.86	2.43	3.19	4.38	2.32	2.97	2.54	1.78	2.52	5.28	3.60	4.04
25	2.64	2.51	2.97	4.07	2.22	2.93	2.79	2.10	2.44	4.73	3.70	3.90
26	2.82	3.13	3.04	3.84	2.26	2.93	2.50	2.33	2.33	4.28	3.38	3.82
27	2.78	3.23	3.50	3.70	2.31	2.92	2.37	2.27	2.37	4.06	3.38	3.99
28	2.99	3.38	4.82	3.55	2.12	2.78	2.27	2.31	2.28	3.86	3.32	3.83
29	3.26	.....	4.38	3.43	2.22	2.69	2.15	3.80	2.47	3.58	3.56	3.41
30	3.15	.....	4.21	3.34	2.23	2.57	2.07	5.62	2.99	3.50	3.44	3.39
31	2.94	.....	3.92	.....	2.40	.....	2.16	6.02	.....	3.35	.....	3.60

Daily gage height, in feet, of Lehigh River at South Bethlehem, Pa., for 1910–1912—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
1	3.43	2.26	3.41	5.47	4.28	2.63	1.95	1.68	1.64	2.90	3.08	2.74
2	3.38	2.28	3.17	5.43	4.02	2.52	1.87	1.70	2.04	2.78	3.27	3.15
3	3.20	2.09	2.86	5.77	3.83	2.81	1.83	1.64	2.16	2.64	3.06	4.13
4	3.09	1.98	2.93	5.11	3.63	2.63	1.67	1.60	2.01	2.57	3.01	4.18
5	2.92	2.53	2.85	4.79	3.53	2.52	1.93	1.72	1.88	2.44	2.90	3.92
6	2.86	2.54	2.69	4.53	3.54	2.58	1.97	1.69	1.98	2.30	2.85	3.94
7	3.16	2.34	2.77	4.40	3.83	2.91	1.95	1.59	2.37	2.34	3.02	4.05
8	3.22	2.11	3.19	4.73	4.65	2.61	1.97	1.57	2.40	2.32	4.79	3.80
9	3.14	2.03	3.16	4.31	4.47	2.47	1.75	1.66	2.07	2.22	4.34	3.66
10	3.16	2.20	2.85	4.12	4.23	2.46	1.84	1.70	1.71	2.22	3.90	3.47
11	2.98	2.36	2.86	3.93	4.03	2.35	2.06	2.92	1.70	2.67	3.77	3.40
12	2.88	2.23	3.54	3.80	3.92	2.27	1.97	2.40	1.77	2.55	3.53	3.25
13	2.82	2.06	8.37	3.80	3.81	2.25	1.90	2.24	1.64	2.28	3.39	2.78
14	2.62	2.05	4.94	3.72	3.63	2.22	1.76	2.19	1.68	2.38	3.40	2.91
15	2.72	2.05	9.06	3.69	3.53	2.17	1.97	2.23	1.56	2.27	3.29	2.91
16	2.91	2.07	8.73	3.68	3.74	2.23	1.86	2.17	2.42	2.19	3.12	3.00
17	2.95	2.06	6.26	3.90	4.49	2.34	1.88	1.89	2.22	2.17	2.92	2.93
18	2.71	2.12	5.60	5.09	4.03	2.34	2.04	1.71	2.10	2.12	2.92	2.92
19	2.85	2.42	5.36	5.97	3.78	2.23	1.91	2.10	2.11	2.08	2.87	3.13
20	2.96	2.75	5.21	5.28	3.61	2.12	1.83	2.70	2.22	1.94	2.83	3.60
21	2.89	4.30	4.86	4.65	3.38	2.09	1.74	2.41	2.01	2.07	2.75	3.23
22	2.86	6.95	4.46	4.50	3.18	2.06	2.07	2.23	1.86	2.10	2.72	2.99
23	2.64	3.67	4.44	4.35	3.14	2.02	1.90	2.26	2.03	2.76	2.69	3.01
24	2.57	3.40	4.59	4.05	3.08	2.05	1.84	2.09	2.45	4.55	3.09	2.94
25	2.51	3.41	5.05	3.89	2.99	2.06	1.78	1.95	5.14	5.04	3.56	2.77
26	2.46	3.81	4.71	3.73	2.88	2.06	1.74	2.01	4.99	4.39	3.17	2.91
27	2.38	5.11	4.54	3.65	2.80	2.02	1.63	1.80	4.16	3.99	3.02	2.95
28	2.21	4.09	4.64	3.69	2.69	1.97	1.68	1.82	3.47	3.73	2.92	3.32
29	2.29	3.70	5.38	3.55	2.84	1.95	1.84	1.83	3.19	3.47	2.90	2.95
30	2.38	.....	7.03	4.36	2.87	1.87	1.70	1.82	3.14	3.30	2.79	3.12
31	2.32	.....	5.85	.....	2.85	.....	1.53	1.75	.....	3.15	.....	4.69

NOTE.—Relation of gage height to discharge probably affected by ice Jan. 1–21, 1910. No material ice effect during other years. Gage heights for 1910–11 supersede those published in Water Supply Papers 281 and 301.

Daily discharge, in second-feet, of Lehigh River at South Bethlehem, Pa., for 1910–1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1910.												
1	508	1,820	14,400	1,380	4,880	2,170	1,040	430	584	359	300	750
2	547	1,660	13,200	1,280	4,200	1,980	967	353	500	305	486	760
3	840	1,660	12,000	1,340	3,700	1,980	945	347	530	384	575	678
4	606	1,620	9,210	1,100	3,510	2,090	905	372	845	294	500	530
5	955	1,500	7,600	1,190	3,080	1,780	895	508	798	311	807	618
6	651	1,360	7,030	1,250	2,500	2,530	855	465	530	272	732	600
7	830	1,020	7,980	1,490	2,310	2,150	798	384	575	373	788	500
8	1,300	1,010	7,820	1,440	2,090	1,780	989	417	609	347	696	472
9	1,010	1,340	6,200	1,290	2,550	1,610	935	493	538	311	634	410
10	977	1,360	5,080	1,190	2,620	1,690	865	592	458	329	643	378
11	840	1,170	4,390	1,150	2,280	1,980	1,140	788	398	288	552	372
12	752	988	3,880	1,100	2,070	2,200	925	678	493	278	855	410
13	752	944	3,310	1,010	1,880	2,120	750	530	444	288	741	538
14	734	988	2,890	1,020	1,710	1,780	592	472	915	244	807	465
15	606	1,080	2,880	967	1,540	1,570	634	545	885	160	741	530
16	522	1,180	2,830	895	1,490	1,710	575	493	696	261	643	479
17	660	1,300	2,650	855	1,380	2,600	788	444	493	323	723	626
18	734	2,600	2,460	4,780	1,340	2,510	816	378	430	317	626	458
19	1,110	2,040	2,170	7,720	1,350	4,180	696	359	479	228	618	515
20	1,650	1,690	2,090	6,680	1,300	3,490	634	444	424	317	522	545
21	1,680	5,430	2,310	5,550	2,060	2,930	592	404	317	294	634	472
22	28,400	9,630	2,380	4,650	1,950	2,180	530	398	404	311	592	430
23	11,500	7,000	2,180	3,800	1,790	1,960	515	404	323	317	600	410
24	6,960	4,150	2,070	3,560	1,760	1,740	451	378	294	444	472	1,060
25	5,200	3,090	1,950	11,600	5,360	1,560	493	384	305	359	545	1,940
26	3,820	2,640	1,880	13,100	5,960	1,440	465	353	410	323	568	1,300
27	3,380	2,760	1,760	10,500	4,900	1,440	398	217	417	329	545	1,330
28	2,910	7,600	1,820	7,480	3,840	1,440	444	283	451	341	600	1,180
29	2,620	.....	1,690	5,740	3,220	1,340	417	384	391	272	652	1,250
30	2,190	.....	1,570	6,580	2,760	1,240	353	305	424	228	687	1,480
31	2,160	.....	1,420	.....	2,280	.....	430	278	.....	329	.....	1,740

Daily discharge, in second-feet, of Lehigh River at South Bethlehem, Pa., for 1910–1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	1,650	1,340	1,590	2,670	2,150	2,360	956	618	9,880	1,240	2,090	2,280
2	2,430	1,400	1,550	2,460	2,880	2,000	885	618	5,880	7,300	1,880	2,100
3	6,610	1,010	1,450	2,170	1,980	1,590	885	609	3,860	4,430	1,690	1,850
4	8,160	1,380	1,300	2,100	1,850	1,340	845	1,210	3,010	3,130	1,600	2,030
5	4,830	2,430	1,060	3,190	1,750	1,180	875	915	2,260	2,600	1,560	1,760
6	3,700	1,310	1,120	3,660	1,540	1,240	798	845	2,620	2,090	1,490	1,790
7	3,230	1,040	1,060	3,540	1,450	1,500	723	732	2,720	2,560	2,770	1,730
8	2,710	1,340	860	3,350	1,400	1,270	967	1,160	2,300	2,030	2,040	1,660
9	2,600	1,240	1,040	3,240	1,320	1,090	705	875	2,040	1,890	1,760	1,570
10	1,980	1,160	1,230	3,350	1,290	978	750	705	2,530	1,740	1,690	1,440
11	1,860	1,020	1,790	3,110	1,270	885	760	600	2,140	1,820	1,540	1,580
12	1,980	922	1,370	3,010	1,220	3,350	714	560	2,900	1,920	1,360	1,540
13	2,270	1,620	1,590	2,760	1,140	7,380	609	500	2,180	1,710	2,120	1,490
14	3,420	1,440	1,460	2,860	1,070	9,340	617	626	1,890	1,490	2,040	1,450
15	4,810	1,140	1,790	3,860	1,080	6,240	925	522	1,780	1,390	1,920	1,540
16	3,780	933	2,300	3,130	1,010	4,520	660	560	1,790	1,510	1,850	2,240
17	2,640	1,140	1,300	3,080	1,000	4,110	1,600	522	1,600	1,380	1,740	3,580
18	2,350	1,650	1,980	2,830	1,010	3,100	1,850	600	1,480	3,340	2,880	2,800
19	2,110	2,080	1,640	2,600	978	2,310	1,060	486	1,350	5,150	4,260	2,480
20	2,080	1,370	1,710	4,680	1,180	2,060	845	430	1,240	4,050	3,740	2,190
21	2,010	1,040	1,890	4,990	967	1,760	915	508	1,150	3,660	3,190	2,030
22	1,860	944	1,740	4,780	935	1,600	1,020	384	1,290	4,830	2,700	2,220
23	1,680	1,030	1,830	4,720	875	1,940	865	417	1,090	6,560	2,430	3,050
24	1,450	933	1,950	4,090	865	1,640	1,100	417	1,080	6,150	2,620	3,370
25	1,170	1,020	1,640	3,470	769	1,590	1,400	660	989	4,850	2,790	3,100
26	1,400	1,820	1,740	3,040	807	1,590	1,060	875	875	3,880	2,250	2,960
27	1,340	1,970	2,440	2,790	855	1,570	915	816	915	3,450	2,250	3,270
28	1,620	2,200	5,060	2,530	678	1,390	816	855	826	3,080	2,150	2,980
29	2,010	.....	4,090	2,330	769	1,280	705	2,970	1,020	2,580	2,550	2,250
30	1,850	.....	3,740	2,180	778	1,140	634	6,980	1,670	2,440	2,350	2,220
31	1,550	.....	3,190	.....	945	.....	714	7,980	.....	2,200	.....	2,570
1912.												
1	2,470	910	2,440	6,800	4,080	1,360	655	430	400	1,720	1,970	1,500
2	2,390	930	2,060	6,700	3,560	1,240	584	445	738	1,550	2,260	2,070
3	2,100	740	1,610	7,560	3,200	1,590	550	400	855	1,370	1,940	3,730
4	1,940	637	1,710	5,900	2,850	1,360	422	370	710	1,290	1,870	3,830
5	1,700	1,200	1,600	5,150	2,680	1,240	637	461	593	1,150	1,720	3,320
6	1,610	1,210	1,390	4,570	2,690	1,300	673	438	682	995	1,640	3,360
7	2,040	994	1,490	4,280	3,200	1,730	655	363	1,070	1,040	1,880	3,570
8	2,130	760	2,080	5,010	4,880	1,340	673	349	1,100	1,020	5,190	3,100
9	2,010	684	2,040	4,090	4,480	1,180	485	415	766	915	4,200	2,850
10	2,040	850	1,600	3,710	3,980	1,170	559	445	453	915	3,320	2,530
11	1,780	1,020	1,610	3,340	3,580	1,050	757	1,740	445	1,410	3,090	2,420
12	1,640	880	2,650	3,100	3,360	965	673	1,100	501	1,270	2,680	2,180
13	1,560	712	14,600	3,100	3,160	945	610	935	400	975	2,450	1,500
14	1,300	702	5,500	2,960	2,850	915	493	885	430	1,080	2,460	1,680
15	1,430	702	16,600	2,900	2,680	865	673	925	342	965	2,290	1,680
16	1,680	722	15,600	2,890	3,040	925	576	865	1,130	885	2,020	1,810
17	1,740	712	8,800	3,280	4,520	1,040	593	602	915	865	1,740	1,710
18	1,410	770	7,130	5,860	3,580	1,040	738	453	795	815	1,740	1,700
19	1,600	1,080	6,530	8,060	3,110	925	619	795	805	776	1,670	2,000
20	1,750	1,460	6,160	6,330	2,810	815	550	1,440	915	646	1,620	2,750
21	1,660	4,070	5,310	4,830	2,430	786	477	1,120	710	766	1,510	2,150
22	1,610	10,600	4,410	4,500	2,120	757	766	925	576	795	1,470	1,800
23	1,330	2,870	4,370	4,180	2,060	719	610	955	728	1,520	1,430	1,820
24	1,250	2,420	4,700	3,570	1,970	748	559	786	1,160	4,660	1,980	1,730
25	1,180	2,440	5,760	3,260	1,840	757	509	655	6,020	5,780	2,730	1,490
26	1,130	3,120	4,960	3,020	1,690	757	477	710	5,660	4,300	2,100	1,680
27	1,040	5,900	4,590	2,880	1,580	719	392	525	3,840	3,500	1,880	1,740
28	860	3,650	4,810	2,950	1,430	973	430	542	2,580	3,020	1,740	2,290
29	940	2,920	6,580	2,710	1,630	655	559	550	2,130	2,580	1,720	1,740
30	1,040	.....	10,800	4,240	1,670	584	445	542	2,060	2,300	1,560	1,980
31	972	.....	7,760	.....	1,640	.....	321	485	.....	2,070	.....	4,920

NOTE.—Daily discharge determined from a well-defined rating curve. No corrections for ice effect. Daily discharge tables for 1910–11 supersede those published in Water-Supply Papers 281 and 301.

Monthly discharge of Lehigh River at South Bethlehem, Pa., for 1912.

[Drainage area, 1,235 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1910.					
January	28,400	508	[a] 2,820	2.28	2.63
February	9,630	944	2,520	2.04	2.12
March	14,400	1,420	4,550	3.68	4.24
April	13,100	855	3,720	3.01	3.36
May	5,960	1,300	2,700	2.19	2.52
June	4,180	1,240	2,040	1.65	1.84
July	1,140	353	704	.570	.66
August	788	217	428	.346	.40
September	915	294	512	.415	.46
October	444	160	308	.249	.29
November	855	300	629	.509	.57
December	1,940	372	749	.606	.70
The year	28,400	160	1,800	1.46	19.79
1911.					
January	8,160	1,170	2,680	2.17	2.50
February	2,430	922	1,350	1.09	1.14
March	5,060	860	1,890	1.53	1.76
April	4,990	2,100	3,220	2.61	2.91
May	2,880	678	1,220	.988	1.14
June	9,340	885	2,440	1.98	2.21
July	1,850	609	909	.736	.85
August	7,980	384	1,180	.955	1.10
September	9,880	826	2,210	1.79	2.00
October	7,300	1,240	3,110	2.52	2.90
November	4,260	1,360	2,240	1.81	2.02
December	3,580	1,440	2,230	1.81	2.09
The year	9,880	384	2,060	1.67	22.62
1912.					
January	2,470	860	1,590	1.29	1.49
February	14,200	637	1,920	1.55	1.67
March	21,900	1,390	5,400	4.37	5.04
April	8,060	2,710	4,390	3.55	3.96
May	4,880	1,430	2,850	2.31	2.66
June	1,730	584	1,000	.810	.90
July	766	321	572	.463	.53
August	1,740	349	698	.565	.65
September	6,020	342	1,320	1.07	1.19
October	5,780	646	1,710	1.38	1.59
November	5,190	1,430	2,200	1.78	1.99
December	4,920	1,500	2,340	1.89	2.18
The year	21,900	321	2,170	1.76	23.85

[a] May be somewhat high because of ice.

TOHICKON CREEK AT POINT PLEASANT, PA.

Location.—About one-eighth mile above the mouth of the creek.

Records available.—1883 to 1912, except 1900.

Drainage area.—102 square miles.

Gage.—Automatic register.

Discharge measurements.—High stage determined from a curve developed from current meter measurements. The lower part of the rating curve has been developed from the computed discharge over a weir.

Accuracy.—Discharge rating curve well defined.

Cooperation.—Records obtained and furnished by the Philadelphia Bureau of Water, Department of Public Works.

Monthly discharge of Tohickon Creek at Point Pleasant, Pa., for 1912.

[Drainage area, 102 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).	Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.			Mean.	Per square mile.	
January	196	1.92	2.21	August	37.5	.368	0.42
February	372	3.65	3.94	September	122	1.20	1.34
March	706	6.92	7.98	October	210	2.06	2.38
April	173	1.70	1.90	November	250	2.45	2.73
May	118	1.16	1.34	December	310	3.04	3.50
June	11.0	.108	.12				
July	6.2	.061	.07	The year	209	2.05	27.93

NESHAMINY CREEK BELOW THE FORKS, PA.

Location.—A short distance below the junction of Big and Little Neshaminy creeks.

Records available.—1884 to 1912.

Drainage area.—139 square miles.

Gage.—Automatic register.

Discharge measurements.—Discharge at high stages determined from a curve developed from current meter measurements; lower part of rating curve developed from the computed discharge over a weir.

Accuracy.—Discharge rating curve well defined.

Cooperation.—Records obtained and furnished by Philadelphia Bureau of Water, Department of Public Works.

Monthly discharge of Neshaminy Creek below the forks, Pa., for 1912.

[Drainage area, 139 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).	Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.			Mean.	Per square mile.	
January	220	1.58	1.82	August	89.4	0.643	0.74
February	477	3.43	3.70	September	117	.842	.94
March	759	5.46	6.30	October	294	2.12	2.44
April	248	1.78	1.99	November	253	1.82	2.03
May	130	.935	1.08	December	348	2.50	2.88
June	26.5	.191	.21				
July	19.9	.143	.16	The year	248	1.78	24.29

SCHUYLKILL RIVER NEAR PHILADELPHIA, PA.

Location.—At Fairmount Dam, near Philadelphia.

Records available.—1898 to 1912.

Drainage area.—1,920 square miles.

Discharge measurements.—Computed daily discharge represents the total flow of the river as determined from the amount wasted over the flashboards at Fairmount Dam, the pumpage from the river, the leakage, and the quantity used for power at Fairmount.

Diversions.—Except for a small amount of water drawn from the Delaware, the entire water supply for the city of Philadelphia is taken from the Schuylkill.

Cooperation.—Records obtained and furnished by the Philadelphia Bureau of Water, Department of Public Works.

Monthly discharge of Schuylkill River near Philadelphia, Pa., for 1912.

[Drainage area, 1,920 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).	Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.			Mean.	Per square mile.	
January	1,880	0.979	1.13	August	1,250	0.651	0.75
February	3,510	1.83	1.97	September	1,470	.766	.85
March	7,810	4.07	4.69	October	1,500	.781	.90
April	3,620	1.89	2.11	November	1,930	1.01	1.13
May	2,370	1.23	1.42	December	2,570	1.34	1.54
June	641	.334	.37				
July	615	.320	.37	The year	2,430	1.27	17.23

PERKIOMEN CREEK NEAR FREDERICK, PA.

Location.—About 12 miles above the mouth of the creek and above the East Branch.

Records available.—1884 to 1912.

Drainage area.—152 square miles.

Gage.—Automatic register.

Discharge measurements.—Discharge at high stages determined from a curve developed from current-meter measurements; lower part of rating curve developed from the computed discharge over a weir.

Accuracy.—Discharge rating curve well defined.

Cooperation.—Records obtained and furnished by Philadelphia Bureau of Water, Department of Public Works.

Monthly discharge of Perkiomen Creek near Frederick, Pa., for 1912.

[Drainage area, 152 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).	Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.			Mean.	Per square mile.	
January	266	1.75	2.02	August	117	0.770	0.89
February	494	3.25	3.50	September	270	1.78	1.99
March	877	5.77	6.65	October	191	1.26	1.45
April	246	1.62	1.81	November	246	1.62	1.81
May	256	1.68	1.94	December	362	2.38	2.74
June	70.1	.461	.51				
July	58.8	.387	.45	The year	288	1.89	25.75

SUSQUEHANNA RIVER BASIN.

SUSQUEHANNA RIVER AT CONKLIN, N. Y.

Location.—At highway bridge three-tenths mile below Conklin P. O., on Lackawanna Railroad, 8 miles above the junction with the Chenango at Binghamton and 5 miles below mouth of Big Snake Creek, coming in from left.

Records available.—November 13 to December 31, 1912.

Drainage area.—Not measured.

Gage.—Staff gage in two sections. The upper section is vertical and bolted to upstream side of left abutment of bridge. The lower section is an inclined gage located 15 feet upstream.

Channel.—Bed of stream consists of cobble and bowlders embedded in coarse gravel and sand. Measuring section is divided into three parts at all stages by the two piers of the bridge.

Discharge measurements.—Made from upstream side of highway bridge; low-water measurements made by wading below the bridge.

Accuracy.—Discharge rating curve well defined. Conditions good for making measurements.

Discharge measurements of Susquehanna River at Conklin, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*
July 25	Frank Weber	2.10	361
Nov. 14	.....do	5.57	4,570

Daily gage height, in feet, and discharge, in second-feet, of Susquehanna River at Conklin, N. Y., for 1912.

[Daniel Ames, observer.]

Day.	November.		December.		Day.	November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.		Gage height.	Discharge.	Gage height.	Discharge.
1			4.3	2,390	16	5.3	4,040	4.4	2,540
2			5.1	3,680	17	5.0	3,500	4.4	2,540
3			8.5	11,500	18	4.8	3,160	4.3	2,390
4			8.1	10,500	19	4.7	3,000	5.0	3,500
5			7.0	7,800	20	4.6	2,840	6.4	6,400
6			7.0	7,800	21	4.4	2,540	5.7	4,840
7			7.2	8,280	22	4.4	2,540	5.0	3,500
8			6.6	6,860	23	4.2	2,240	4.7	3,000
9			5.9	5,280	24	4.2	2,240	4.8	3,160
10			5.3	4,040	25	4.4	2,540	4.6	2,840
11			5.0	3,500	26	4.7	3,000	4.5	2,690
12			5.0	3,500	27	4.8	3,160	4.4	2,540
13	5.5	4,430	4.6	2,840	28	4.7	3,000	4.4	2,540
14	5.5	4,430	4.3	2,390	29	4.6	2,840	4.2	2,240
15	5.4	4,230	4.4	2,540	30	4.4	2,540	4.4	2,540
					31			5.2	3,860

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

Monthly discharge of Susquehanna River at Conklin, N. Y., for 1912.

[Drainage area, 2,350 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
November 13–30	4,430	2,240	3,130	1.33	0.89	A.
December	11,500	2,240	4,320	1.84	2.12	A.

SUSQUEHANNA RIVER AT BINGHAMTON, N. Y.

Location.—At the Washington Street Bridge in Binghamton, about 800 feet above the mouth of Chenango River. No important tributaries between the station and the mouth of Unadilla Creek, about 50 miles upstream.

Records available.—July 31, 1901, to December 31, 1912. Data also in annual reports of State engineer and surveyor, State of New York.

Drainage area.—2,400 square miles.

Gage.—Standard chain fastened to upstream side of bridge, read twice daily; datum unchanged.

Channel.—Bed composed of rocks and gravel. Current swift but somewhat irregular. Channel at times clogged with grass and bars.

Discharge measurements.—Usually made at the Exchange Street Bridge, 1,900 feet above the Washington Street Bridge.

Artificial control.—2,800 feet upstream from the bridge is a timber crib dam affording 6 feet head; used for power development. There is no material control of the water by this dam.

Winter flow.—As a rule not greatly affected by ice.

Accuracy.—Discharge rating curve for low and medium stages is not well developed. The measurements plot erratically due to changes in conditions of flow. High-stage gage heights liable to considerable error because of backwater from ice jams which form near Willow Bend and also by backwater from Chenango River. Published data not very satisfactory.

Cooperation.—Gage heights for 1912 furnished by the United States Weather Bureau.

Discharge measurements of Susquehanna River at Binghamton, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-ft.*			*Feet.*	*Sec.-ft.*
Mar. 17 [a]	G. C. Covert	10.68	24,100	Apr. 6 [a]	Frank Weber	8.70	13,700
19 [a]	Alexander McMillan	9.68	16,300	7 [a]	do	10.40	18,000
20 [a]	do	10.67	19,500	July 24 [b]	do	1.87	355

[a] Measure made at Exchange Street Bridge. [b] Measure made by wading.

Daily gage height, in feet, of Susquehanna River at Binghamton, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.3	2.5	4.7	11.7	5.0	2.8	2.0	1.9	2.1	3.5	3.2	3.0
2	3.4	2.5	4.1	13.3	4.3	2.7	2.0	1.9	3.5	3.4	3.2	3.0
3	3.2	3.0	3.8	13.2	3.8	2.7	2.0	1.9	3.1	3.1	3.2	7.6
4	3.1	2.5	3.6	9.0	3.3	2.9	2.0	1.8	2.6	2.9	3.1	7.6
5	2.9	3.2	3.1	7.4	3.2	2.8	2.0	1.9	2.5	2.8	2.9	6.0
6	2.8	2.9	3.1	8.8	3.2	2.7	2.0	1.9	2.5	2.7	2.8	5.6
7	2.9	2.4	2.6	10.2	3.2	2.7	2.0	1.9	2.4	2.6	2.8	6.4
8	3.4	2.6	2.7	12.0	3.4	2.6	2.0	1.9	2.3	2.5	6.8	5.6
9	3.3	3.0	3.5	10.9	3.5	2.5	2.0	1.9	2.3	2.5	7.1	4.7
10	3.7	3.0	4.0	8.7	3.4	2.4	2.0	1.8	2.2	2.5	5.9	4.1
11	4.2	2.4	3.8	7.4	3.3	2.4	2.0	2.1	2.2	2.4	4.9	3.7
12	3.8	2.7	3.1	7.1	3.1	2.4	2.0	2.0	2.2	2.5	4.4	3.5
13	3.4	2.5	3.5	7.0	3.3	2.3	2.0	2.2	2.2	2.6	4.0	3.2
14	3.4	2.4	4.2	6.9	3.1	2.3	1.9	2.1	2.1	2.6	3.9	2.7
15	3.2	2.5	5.0	6.2	2.9	2.3	2.0	2.1	2.1	2.7	4.0	2.9
16	3.4	2.4	8.2	8.3	2.9	2.2	1.9	2.0	2.3	2.6	3.8	3.1
17	3.1	2.2	11.3	7.7	3.9	2.2	2.0	2.0	2.2	2.5	3.6	3.0
18	2.8	2.2	10.0	7.2	4.3	2.2	2.0	1.9	2.5	2.5	3.4	2.9
19	2.8	2.3	9.8	7.4	4.0	2.2	1.9	2.0	2.5	2.5	3.3	3.1
20	3.4	2.4	10.7	7.1	3.5	2.2	1.9	2.0	2.5	2.4	3.2	4.7

Daily gage height, in feet, of Susquehanna River at Binghamton, N. Y., for 1912—Contd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	3.0	2.8	9.1	6.0	3.2	2.2	1.9	2.0	2.6	2.5	3.1	4.4
22	3.3	4.0	7.0	5.2	3.1	2.2	1.9	2.1	2.6	2.4	3.1	3.7
23	3.1	5.1	5.5	5.4	3.0	2.2	1.9	2.4	2.5	2.4	3.0	3.4
24	2.9	4.8	5.1	5.7	3.1	2.1	1.9	2.5	2.8	2.6	3.0	3.2
25	3.2	4.6	4.6	5.2	2.9	2.1	1.9	2.4	5.1	6.8	3.1	3.1
26	2.8	4.9	4.0	4.7	2.8	2.1	1.9	2.8	5.3	6.1	3.3	2.9
27	2.6	5.1	3.7	4.2	2.7	2.1	1.9	2.5	4.7	4.9	3.4	3.0
28	2.6	5.7	3.9	4.0	2.6	2.0	1.9	2.3	4.1	4.3	3.3	2.9
29	2.5	5.7	7.4	3.8	2.6	2.1	1.9	2.2	3.4	3.8	3.2	2.8
30	2.5	.....	13.0	5.2	2.9	2.0	1.9	2.1	3.6	3.6	3.1	3.0
31	2.5	.....	11.8	.....	3.3	.....	1.9	2.1	.....	3.4	.....	3.6

NOTE.—Gage heights Mar. 18–21 and Apr. 1–9 affected by backwater from Chenango River and are means of several readings.

Daily discharge, in second-feet, of Susquehanna River at Binghamton, N. Y., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,290	1,440	6,930	28,800	7,760	2,100	540	410	690	3,790	3,050	2,570
2	3,540	1,440	5,320	34,500	5,850	1,870	540	410	3,790	3,540	3,050	2,570
3	3,050	2,570	4,540	34,100	4,540	1,870	540	410	2,810	2,810	3,050	15,400
4	2,810	1,440	4,040	19,800	3,290	2,330	540	300	1,650	2,330	2,810	15,400
5	2,330	3,050	2,810	10,600	3,050	2,100	540	410	1,440	2,100	2,330	10,600
6	2,100	2,330	2,810	13,700	3,050	1,870	540	410	1,440	1,870	2,100	9,440
7	2,330	1,240	1,650	18,000	3,050	1,870	540	410	1,240	1,650	2,100	11,800
8	3,540	1,650	1,870	22,400	3,540	1,650	540	410	1,050	1,440	13,000	9,440
9	3,290	2,570	3,790	21,400	3,790	1,440	540	410	1,050	1,440	13,900	6,930
10	4,290	2,570	5,060	18,800	3,540	1,240	540	300	860	1,440	10,300	5,320
11	5,580	1,240	4,540	14,800	3,290	1,240	540	690	860	1,240	7,480	4,290
12	4,540	1,870	2,810	13,900	2,810	1,240	540	540	860	1,440	6,120	3,790
13	3,540	1,440	3,790	13,600	3,290	1,050	540	860	860	1,650	5,060	3,050
14	3,540	1,240	5,580	13,200	2,810	1,050	410	690	690	1,650	4,800	1,870
15	3,050	1,440	7,760	11,200	2,330	1,050	540	690	690	1,870	5,060	2,330
16	3,540	1,240	17,300	17,600	2,330	860	410	540	1,050	1,650	4,540	2,810
17	2,810	860	27,400	15,700	4,800	860	540	540	860	1,440	4,040	2,570
18	2,100	860	19,800	14,200	5,850	860	540	410	1,440	1,440	3,540	2,330
19	2,100	1,050	16,300	14,800	5,060	860	410	540	1,440	1,440	3,290	2,810
20	3,540	1,240	18,000	13,900	3,790	860	410	540	1,440	1,240	3,050	6,930
21	2,570	2,100	17,300	10,600	3,050	860	410	540	1,650	1,440	2,810	6,120
22	3,290	5,060	13,900	8,320	2,810	860	410	690	1,650	1,240	2,810	4,290
23	2,810	8,040	9,160	8,880	2,570	860	410	1,240	1,440	1,240	2,570	3,540
24	2,330	7,200	8,040	9,720	2,810	690	410	1,440	2,100	1,650	2,570	3,050
25	3,050	6,660	6,660	8,320	2,330	690	410	1,240	8,040	13,000	2,810	2,810
26	2,100	7,480	5,060	6,930	2,100	690	410	2,100	8,600	10,900	3,290	2,330
27	1,650	8,040	4,290	5,580	1,870	690	410	1,440	6,930	7,480	3,540	2,570
28	1,650	9,720	4,800	5,060	1,650	540	410	1,050	5,320	5,850	3,290	2,330
29	1,440	9,720	14,800	4,540	1,650	690	410	860	3,540	4,540	3,050	2,100
30	1,440	.....	33,400	8,320	2,330	540	410	690	4,040	4,040	2,810	2,570
31	1,440	.....	29,200	.....	3,290	.....	410	690	.....	3,540	.....	4,040

NOTE.—Daily discharge determined from a fairly well defined rating curve. Discharge Mar. 18–21 and Apr. 1–9 estimated from discharge measurements and computed effect of backwater from Chenango River.

Monthly discharge of Susquehanna River at Binghamton, N. Y., for 1912.

[Drainage area, 2,400 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	5,580	1,440	2,860	1.19	1.37	B.
February	9,720	860	3,340	1.39	1.50	B.
March	33,400	1,650	9,960	4.15	4.78	C.
April	34,500	4,540	14,700	6.12	6.83	C.
May	7,760	1,650	3,360	1.40	1.61	B.
June	2,330	540	1,180	.492	.55	C.
July	540	410	477	.199	.23	C.
August	2,100	300	706	.294	.34	C.
September	8,600	690	2,320	.967	1.08	B.
October	13,000	1,240	2,980	1.24	1.43	B.
November	13,900	2,100	4,410	1.84	2.05	B.
December	15,400	1,870	5,100	2.12	2.44	B.
The year	34,500	300	4,270	1.78	24.21	

SUSQUEHANNA RIVER AT WILKES-BARRE, PA.

Location.—At the Market Street Bridge, Wilkes-Barre.

Records available.—1888 to December 31, 1912.

Drainage area.—9,810 square miles.

Gage.—The Weather Bureau gage, on which readings were begun in 1888, was on the left pier of the bridge. A chain gage established by the United States Geological Survey in 1899 was fastened to the bridge and its datum was made 4 feet lower than the datum of the Weather Bureau gage to avoid negative readings. This datum was soon after adopted by the Weather Bureau. Since April 1, 1905, when the Survey discontinued reading the gage, the gage heights have been furnished by the Weather Bureau. On July 20, 1910, the Weather Bureau installed a Mott type gage in the same position and at the same datum as the chain gage. The datum adopted by the United States Geological Survey gage has remained constant. Records obtained by the Weather Bureau prior to the adoption of the Geological Survey gage datum should have 4 feet added to reduce them to the present datum.

Channel.—The station is situated in a deep pool with steep high banks which seldom overflow.

Discharge measurements.—Made from the bridge.

Winter flow.—Relation between gage height and discharge at this station affected by ice during the winter. Water is often backed up many feet by ice gorges.

Accuracy.—Conditions of flow subject to change at irregular intervals. A fairly good discharge rating curve has been developed.

Cooperation.—Complete data for this station were furnished by the Water Supply Commission of Pennsylvania, but their computations were revised slightly by the Geological Survey.

The following measurement was made by Boehringer and Reckord:

May 21, 1912: Gage height, 7.39 feet; discharge, 18,000 second-feet.

Daily gage height, in feet, of Susquehanna River at Wilkes-Barre, Pa., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.74	3.44	7.24	17.94	13.74	5.34	2.54	2.13	3.13	7.53	5.63	5.43
2	5.44	3.74	6.64	18.74	11.04	5.14	2.54	2.13	3.43	7.03	5.43	5.33
3	5.54	3.84	5.74	22.24	9.14	4.74	2.44	2.23	10.03	6.63	5.23	8.53
4	5.14	3.54	5.24	20.54	7.94	4.44	2.44	2.23	7.83	6.23	5.13	11.83
5	5.04	3.54	4.94	16.14	7.14	5.14	2.54	2.23	6.33	5.73	5.03	11.73
6	7.94	3.44	5.54	13.54	6.64	4.84	2.54	2.23	6.63	5.23	4.83	10.33
7	6.34	3.34	6.64	15.24	6.34	4.44	2.44	2.23	6.53	5.03	4.73	10.43
8	5.94	3.44	5.24	16.34	6.44	4.24	2.44	2.23	5.13	4.63	7.73	10.73
9	5.54	3.24	5.24	17.44	7.34	4.04	2.44	2.23	4.63	4.43	11.23	9.53
10	5.34	3.34	5.34	15.54	7.94	3.94	2.44	2.23	4.03	4.23	11.13	8.33
11	5.74	3.04	6.44	13.24	7.44	3.74	2.44	2.33	3.73	4.13	9.63	7.33
12	5.34	2.94	5.94	11.44	6.84	3.54	2.44	2.90	3.63	4.03	8.43	6.63
13	5.64	2.74	7.74	10.84	6.54	3.34	2.34	2.83	3.83	4.53	7.63	6.03
14	5.64	2.84	6.74	11.54	7.24	3.34	2.34	2.83	3.63	4.53	7.03	5.93
15	5.44	2.74	6.74	10.54	7.14	3.24	2.54	2.90	3.43	4.43	6.73	5.33
16	5.14	2.74	14.64	10.94	6.44	3.14	2.54	2.83	3.43	4.33	6.63	5.13
17	4.94	2.74	16.74	12.94	7.14	3.14	2.54	2.73	3.33	4.23	6.33	5.23
18	4.84	2.64	15.64	12.74	11.44	3.04	2.44	2.73	3.93	4.03	6.03	5.13
19	5.14	2.74	17.64	12.74	9.44	3.04	2.44	2.73	4.03	3.93	5.73	5.23
20	5.04	2.84	15.84	12.04	8.44	2.94	2.54	2.73	4.43	3.73	5.53	6.43
21	4.84	3.34	16.44	11.04	7.34	2.84	2.54	2.73	4.33	3.73	5.33	7.53
22	4.54	4.54	13.94	9.44	6.54	2.94	2.54	2.63	4.23	3.63	5.23	7.23
23	4.74	5.94	10.94	8.94	6.04	2.84	2.44	2.63	4.13	3.83	5.23	6.43
24	4.94	5.94	9.74	8.74	5.84	2.84	2.34	2.83	4.43	4.23	5.23	5.83
25	4.84	6.44	9.04	9.24	5.44	2.74	2.24	3.33	14.93	5.83	5.23	5.43
26	4.44	7.24	8.14	8.64	5.14	2.74	2.24	3.53	14.33	8.73	5.43	5.03
27	4.24	7.84	7.74	8.14	4.94	2.74	2.24	3.23	11.03	9.13	5.63	5.23
28	4.24	9.44	7.74	7.34	4.64	2.64	2.24	4.03	9.63	8.23	5.83	5.03
29	3.94	8.24	11.34	6.94	4.34	2.64	2.24	3.53	8.33	7.13	5.83	4.93
30	3.64	.....	20.04	10.04	4.24	2.54	2.24	3.33	7.53	6.43	5.63	4.83
31	3.54	.....	21.74	.....	4.14	.....	2.14	3.13	.....	5.93	.....	5.63

NOTE.—Relation of gage height to discharge affected by ice Jan. 6 to Feb. 25.

Daily discharge, in second-feet, of Susquehanna River at Wilkes-Barre, Pa., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	10,200	.....	16,200	80,000	50,600	8,790	1,420	893	2,450	17,500	9,830	9,110
2	9,140	.....	13,700	86,400	34,800	8,090	1,420	893	3,110	15,300	9,110	8,760
3	9,500	.....	10,200	118,000	25,000	6,730	1,280	1,010	29,500	13,700	8,400	22,100
4	8,090	.....	8,440	102,000	19,300	5,780	1,280	1,010	18,800	12,100	8,060	39,200
5	7,740	.....	7,400	66,500	15,800	8,090	1,420	1,010	12,500	10,200	7,700	38,700
6	.....	.....	9,500	49,300	13,700	7,060	1,420	1,010	13,700	8,400	7,030	31,100
7	.....	.....	13,700	60,300	12,500	5,780	1,280	1,010	13,300	7,700	6,700	31,600
8	.....	.....	8,440	67,900	12,900	5,190	1,280	1,010	8,060	6,380	18,400	33,200
9	.....	.....	8,440	76,200	16,700	4,630	1,280	1,010	6,380	5,750	35,900	27,000
10	.....	.....	8,790	62,300	19,300	4,360	1,280	1,010	4,600	5,160	35,300	21,100
11	.....	.....	12,900	47,500	17,100	3,840	1,280	1,130	3,820	4,870	27,500	16,600
12	.....	.....	11,000	37,000	14,500	3,360	1,280	2,000	3,570	4,600	21,600	13,700
13	.....	.....	18,400	33,700	13,300	2,910	1,140	1,870	4,070	6,060	17,900	11,300
14	.....	.....	14,100	37,600	16,200	2,910	1,140	1,870	3,570	6,060	15,300	10,900
15	.....	.....	14,100	32,200	15,800	2,690	1,420	2,000	3,110	5,750	14,100	8,760
16	.....	.....	56,400	34,300	12,900	2,470	1,420	1,870	3,110	5,450	13,700	8,060
17	.....	.....	70,900	45,700	15,800	2,470	1,420	1,710	2,890	5,160	12,500	8,400
18	.....	.....	63,000	44,500	37,000	2,270	1,280	1,710	4,330	4,600	11,300	8,060
19	.....	.....	77,700	44,500	26,500	2,270	1,280	1,710	4,600	4,330	10,200	8,400
20	.....	.....	64,400	40,400	21,600	2,080	1,420	1,710	5,750	3,820	9,470	12,900
21	.....	.....	68,700	34,800	16,700	1,890	1,420	1,710	5,450	3,820	8,760	17,500
22	.....	.....	51,900	26,500	13,300	2,080	1,420	1,560	5,160	3,570	8,400	16,200
23	.....	.....	34,300	24,100	11,400	1,890	1,280	1,560	4,870	4,070	8,400	12,900
24	.....	.....	28,000	23,100	10,600	1,890	1,140	1,870	5,750	5,160	8,400	10,600
25	.....	.....	24,500	25,500	9,140	1,720	1,020	2,890	58,200	10,600	8,400	9,110
26	.....	16,200	20,200	22,600	8,090	1,720	1,020	3,340	54,400	23,000	9,110	7,700
27	.....	18,900	18,400	20,200	7,400	1,720	1,020	2,670	34,800	25,000	9,830	8,400
28	.....	26,500	18,400	16,700	6,410	1,570	1,020	4,600	27,500	20,700	10,600	7,700
29	.....	20,700	36,500	14,900	5,480	1,570	1,020	3,340	21,100	15,700	10,600	7,360
30	.....	.....	97,400	29,600	5,190	1,420	1,020	2,890	17,500	12,900	9,830	7,030
31	.....	.....	113,000	.....	4,900	.....	904	2,450	.....	10,900	.....	9,830

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

Monthly discharge of Susquehanna River at Wilkes-Barre, Pa., for 1912.

[Drainage area, 9,810 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	10,200	.....	6,800	0.693	0.80	C.
February	26,500	.....	8,100	.826	.89	C.
March	113,000	7,400	32,900	3.35	3.86	A.
April	118,000	14,900	46,800	4.77	5.32	A.
May	50,600	4,900	16,400	1.67	1.92	A.
June	8,790	1,420	3,640	.371	.41	A.
July	1,420	904	1,250	.127	.15	A.
August	4,600	893	1,820	.186	.21	A.
September	58,200	2,450	12,900	1.31	1.46	A.
October	25,000	3,570	9,300	.948	1.09	A.
November	35,900	6,700	13,100	1.34	1.50	A.
December	39,200	7,030	15,600	1.59	1.83	A.
The year	118,000	893	14,000	1.43	19.44	

NOTE.—Discharge Jan. 6–Feb. 25 estimated, on account of ice, from climatologic records, and the flow at adjacent stations. Mean discharge Jan. 6–31 estimated 6,400 second-feet; mean discharge Feb. 1–25 estimated 6,000 second-feet. Monthly discharge changed slightly to conform with survey computation rules.

SUSQUEHANNA RIVER AT DANVILLE, PA.

Location.—At the Mill Street Bridge in Danville, 52 miles below Wilkes-Barre, and 1 miles above the mouth of the West Branch of the Susquehanna. No important tributaries enter the Susquehanna within several miles of the station.

Records available.—March 25, 1899, to December 31, 1912.

Drainage area.—11,100 square miles.

Gage.—Chain attached to the bridge March 24, 1905. On March 9, 1904, the bridge to which the gage was attached was carried away by an ice freshet and from that date until the spring of 1905, when the new steel bridge was completed, observations were made from temporary gages and were constantly liable to error for stages less than 5 feet. Except during this period, the datum of the chain gage has remained constant.

Channel.—Practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Considerably affected by ice.

Accuracy.—An excellent discharge rating curve has been developed.

Cooperation.—Complete data for 1912 furnished by Water Supply Commission of Pennsylvania.

The following discharge measurement was made by Boehringer and Reckord: May 20, 1912: Gage height, 7.55 feet; discharge, 25,600 second-feet.

Daily gage height, in feet, of Susquehanna River at Danville, Pa., for 1912.

[Edward F. Bell, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.02	3.88	6.45	15.39	10.91	3.86	2.39	2.09	2.88	6.44	4.92	4.79
2	4.75	3.80	5.98	15.12	10.07	4.62	2.39	2.09	2.83	6.22	4.82	4.77
3	4.68	3.78	5.70	17.52	8.34	4.35	2.35	2.10	5.23	5.78	4.72	6.32
4	4.58	3.75	4.70	17.29	7.19	4.10	2.29	2.12	7.80	5.48	4.49	9.02
5	4.10	3.70	4.18	13.81	6.54	3.96	2.44	2.10	5.86	5.10	4.39	10.47
6	4.25	3.66	4.00	11.37	5.99	4.31	2.47	2.10	5.03	4.78	4.39	9.57
7	5.60	3.50	3.78	11.09	5.79	4.10	2.41	2.09	5.63	4.43	5.12	9.47
8	4.80	3.60	4.12	12.59	5.91	3.88	2.31	2.10	5.18	4.23	5.97	9.37
9	4.70	3.56	4.55	13.69	6.51	3.70	2.29	2.09	4.50	3.93	8.42	8.57
10	4.90	3.51	5.70	12.87	7.09	3.52	2.35	2.17	3.79	3.86	10.12	7.49

Daily gage height, in feet, of Susquehanna River at Danville, Pa., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	5.20	3.50	5.48	11.17	6.84	3.42	2.39	2.51	3.48	3.88	9.12	6.57
12	5.12	3.42	5.30	9.87	6.39	3.25	2.34	2.57	3.30	3.78	7.59	5.97
13	4.08	3.42	6.65	9.07	6.44	3.12	2.34	2.79	3.22	3.68	6.75	5.62
14	5.10	3.48	7.10	8.99	6.59	3.06	2.30	2.80	3.26	3.98	6.25	5.25
15	5.18	3.50	7.70	8.97	6.71	3.00	2.47	2.76	3.18	3.88	5.92	5.07
16	5.20	3.49	12.04	8.94	6.24	2.96	2.43	2.83	3.18	3.76	5.71	4.87
17	5.28	3.61	13.59	10.64	6.59	2.96	2.39	2.71	3.08	3.74	5.57	4.51
18	5.28	3.58	12.79	10.94	8.35	2.90	2.37	2.69	3.26	3.66	5.32	4.72
19	5.45	3.60	14.39	10.74	8.99	2.87	2.33	3.10	4.08	3.54	5.04	5.32
20	5.85	3.90	13.14	10.48	7.67	2.82	2.29	3.34	3.93	3.46	4.82	5.72
21	5.50	4.30	13.49	9.24	6.79	2.80	2.29	3.14	4.09	3.37	4.65	5.75
22	5.08	6.10	11.59	8.79	6.00	2.72	2.31	2.94	4.03	3.33	4.28	5.47
23	4.95	6.25	9.67	7.99	5.48	2.68	2.29	2.61	4.46	3.34	4.41	5.87
24	4.95	6.75	8.29	7.54	5.20	2.66	2.27	2.63	3.93	3.68	4.50	5.42
25	4.80	7.25	7.91	7.84	4.95	2.63	2.22	2.74	9.18	4.78	4.59	4.89
26	4.70	8.10	7.39	7.54	4.74	2.58	2.19	2.95	12.56	5.66	4.71	4.77
27	4.62	11.65	6.79	6.84	4.45	2.54	2.17	3.17	10.28	8.08	4.82	4.71
28	4.50	9.95	7.04	6.19	4.22	2.50	2.15	3.09	8.70	7.30	4.89	4.68
29	4.40	7.42	8.84	6.14	3.94	2.49	2.10	3.37	7.88	6.40	4.99	4.49
30	4.25	.....	15.12	7.27	3.85	2.44	2.09	3.17	6.76	5.73	4.92	4.52
31	4.10	.....	17.52	.....	3.72	.....	2.14	2.99	.....	5.28	.....	4.97

NOTE.—Relation of gage height to discharge affected by ice Jan. 6–Feb. 26.

Daily discharge, in second-feet, of Susquehanna River at Danville, Pa., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	12,900	.....	20,500	101,000	54,000	7,480	2,280	1,600	3,720	20,400	12,400	11,800
2	11,600	.....	17,900	97,800	46,500	11,000	2,280	1,600	3,560	19,200	11,900	11,700
3	11,200	.....	16,400	129,000	32,500	9,690	2,180	1,620	14,000	16,800	11,400	19,800
4	10,800	.....	11,300	126,000	24,900	8,550	2,040	1,660	28,800	15,200	10,300	37,700
5	8,550	.....	8,910	83,000	21,000	7,920	2,400	1,620	17,200	13,300	9,870	50,000
6	.....	.....	8,100	58,200	17,900	9,510	2,480	1,620	13,000	11,700	9,870	42,200
7	.....	.....	7,140	55,600	16,900	8,550	2,330	1,600	16,000	10,100	13,400	41,400
8	.....	.....	8,640	70,200	17,500	7,570	2,080	1,620	13,700	9,140	17,800	40,500
9	.....	.....	10,600	81,800	20,800	6,800	2,040	1,600	10,400	7,790	33,000	34,200
10	.....	.....	16,400	73,100	24,200	6,080	2,180	1,770	7,180	7,480	46,900	26,800
11	.....	.....	15,200	56,400	22,700	5,680	2,280	2,590	5,920	7,570	38,500	21,200
12	.....	.....	14,300	44,800	20,100	5,030	2,160	2,760	5,220	7,140	27,400	17,800
13	.....	.....	21,600	38,100	20,400	4,550	2,160	3,430	4,920	6,720	22,200	16,000
14	.....	.....	24,300	37,400	21,300	4,340	2,060	3,460	5,070	8,010	19,400	14,100
15	.....	.....	28,100	37,300	22,000	4,120	2,480	3,330	4,770	7,570	17,600	13,200
16	.....	.....	64,700	37,000	19,300	3,980	2,380	3,560	4,770	7,050	16,400	12,200
17	.....	.....	80,700	51,600	21,300	3,980	2,280	3,170	4,410	6,970	15,700	10,400
18	.....	.....	72,200	54,300	32,500	3,780	2,230	3,110	5,070	6,640	14,400	11,400
19	.....	.....	89,400	52,400	37,400	3,680	2,130	4,480	8,460	6,160	13,000	14,400
20	.....	.....	75,900	50,100	27,900	3,520	2,040	5,370	7,790	5,840	11,900	16,500
21	.....	.....	79,600	39,400	22,500	3,460	2,040	4,620	8,500	5,490	11,100	16,700
22	.....	.....	60,300	35,800	18,000	3,200	2,080	3,920	8,240	5,330	9,370	15,200
23	.....	.....	43,000	30,000	15,200	3,080	2,040	2,870	10,200	5,370	9,970	17,300
24	.....	.....	32,100	27,100	13,800	3,020	1,990	2,930	7,790	6,720	10,400	14,900
25	.....	.....	29,500	29,000	12,600	2,930	1,880	3,270	39,000	11,700	10,800	12,300
26	.....	.....	26,100	27,100	11,500	2,780	1,810	3,950	69,900	16,200	11,400	11,700
27	.....	60,900	22,500	22,700	10,200	2,670	1,770	4,730	48,400	30,600	11,900	11,400
28	.....	45,500	23,900	19,000	9,090	2,560	1,720	4,440	35,100	25,600	12,300	11,200
29	.....	26,300	36,200	18,800	7,840	2,530	1,620	5,490	29,300	20,200	12,800	10,300
30	.....	.....	97,800	25,400	7,440	2,400	1,600	4,730	22,300	16,500	12,400	10,500
31	.....	.....	129,000	.....	6,880	.....	1,700	4,090	.....	14,200	.....	12,700

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

Monthly discharge of Susquehanna River at Danville, Pa., for 1912.

[Drainage area, 11,100 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	.....	.....	7,800	0.703	0.81
February	60,900	.....	10,800	.973	1.05
March	129,000	7,140	38,500	3.47	4.00
April	129,000	18,800	53,600	4.83	5.39
May	54,000	6,880	21,200	1.91	2.20
June	11,000	2,400	5,150	.464	.52
July	2,480	1,600	2,090	.188	.22
August	5,490	1,600	3,120	.281	.32
September	69,900	3,560	15,400	1.39	1.55
October	30,600	5,330	11,600	1.05	1.21
November	46,900	9,370	16,200	1.46	1.63
December	50,000	10,300	19,600	1.77	2.04
The year	129,000	1,600	17,100	1.54	20.94

NOTE.—Discharge Jan. 6 to Feb. 26 estimated by comparison with other stations in the Susquehanna River basin. Mean discharge Jan. 6–31 estimated 7,180 second feet. Mean discharge Feb. 1–26 estimated 6,920 second-feet. Monthly discharge changed slightly to conform with survey computation rules.

SUSQUEHANNA RIVER AT HARRISBURG, PA.

Location.—At the Walnut Street Bridge at Harrisburg, 2 miles below the mouth of Conodoguinet Creek and 1½ miles above the mouth of Paxton Creek.

Records available.—1890 to December 31, 1912.

Drainage area.—24,000 square mile.

Gage.—The original gage established in 1890 by E. Mather, president of the Harrisburg water board, is located in the pump well at the pump house of the city waterworks, the well being connected with the river by two large mains. On July 18, 1904, a chain gage was installed on the Walnut Street Bridge. The data of both gages have remained constant since their establishment.[1]

Channel.—Fairly permanent. The river is divided into two channels by Foster Island which is overflowed at flood stages.

Discharge measurements.—Made from the bridge. No measurement has been made since 1908.

Winter flow.—Relation between gage height and discharge affected by ice.

Accuracy.—Conditions of flow relatively permanent; a good discharge rating curve has been developed.

Cooperation.—Complete data for 1912 furnished by the Water Supply Commission of Pennsylvania.

Daily gage height, in feet, of Susquehanna River at Harrisburg, Pa., for 1912.

[R. H. Hosmer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.40	3.05	6.00	12.53	6.71	2.56	1.13	1.32	1.65	4.47	3.35	2.72
2	4.08	2.99	4.98	11.46	8.44	2.48	1.11	1.25	1.65	4.22	3.11	2.65
3	4.05	2.88	4.50	12.68	7.30	2.87	1.08	1.11	1.88	3.97	3.04	2.73
4	3.69	2.80	4.00	14.13	6.27	2.69	1.05	1.07	2.37	3.65	2.92	4.00
5	3.54	2.66	3.46	11.55	5.59	2.47	1.07	1.00	4.67	3.40	2.76	5.49
6	3.00	2.55	3.08	9.31	4.96	2.36	1.02	.98	4.72	3.16	2.64	5.77
7	2.88	2.52	3.00	8.09	4.64	2.48	1.16	.93	3.95	2.83	2.62	5.66
8	2.54	2.53	2.83	8.44	5.11	2.36	1.06	.88	3.71	2.63	4.30	5.87
9	3.82	2.47	3.16	9.02	5.69	2.19	1.01	.93	3.09	2.44	6.07	6.05
10	3.46	2.44	3.63	8.87	5.88	2.00	1.00	1.11	2.61	2.33	6.35	5.43

[1] For full information regarding the two gages and changes in conditions of flow, see U. S. Geol. Survey Water-Supply Papers 109 and 167.

Daily gage height, in feet, of Susquehanna River at Harrisburg, Pa., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	3.53	2.42	3.97	7.79	5.85	1.88	1.01	1.43	2.29	2.26	6.25	4.78
12	3.70	2.37	3.92	6.81	5.50	1.81	.99	2.42	2.06	2.31	5.45	4.20
13	4.09	2.37	4.19	6.12	5.97	1.73	1.15	2.10	1.86	2.33	4.84	3.64
14	4.10	2.30	5.05	5.85	6.65	1.64	.99	1.88	1.71	2.50	4.42	3.21
15	4.17	2.29	5.67	5.96	5.99	1.60	.98	1.86	1.69	2.55	4.12	3.44
16	4.00	2.30	10.20	5.89	5.49	1.58	1.03	1.73	1.74	2.35	3.87	3.04
17	4.11	2.30	11.77	6.37	5.75	1.74	1.15	1.56	1.77	2.31	3.66	2.92
18	4.03	2.30	10.34	7.63	8.19	2.32	1.40	1.50	1.69	2.14	3.46	2.92
19	3.97	2.34	10.01	8.26	8.49	2.36	1.52	1.36	1.72	2.11	3.28	2.94
20	4.06	2.47	10.30	7.95	7.01	2.03	1.46	1.38	2.42	2.04	3.12	3.20
21	4.03	2.76	10.38	7.33	6.02	2.04	1.73	1.77	2.29	1.98	2.98	3.41
22	4.12	4.66	10.07	6.48	5.29	1.84	2.15	1.93	2.18	1.94	2.87	3.46
23	4.08	5.66	9.03	5.76	4.68	1.63	2.50	1.76	2.10	2.04	2.77	3.65
24	4.08	5.26	7.97	5.57	4.23	1.51	2.50	1.73	2.21	2.04	2.69	3.38
25	4.13	5.36	7.20	5.17	3.91	1.57	1.96	1.74	4.74	2.35	2.70	3.09
26	4.13	5.66	7.05	5.18	3.68	1.43	2.04	1.65	8.96	3.59	2.89	2.82
27	3.92	8.50	6.76	4.95	3.35	1.36	2.21	1.60	7.86	3.93	2.82	2.74
28	3.72	9.56	6.76	4.77	3.10	1.32	1.88	1.63	6.41	5.08	2.81	2.70
29	3.48	7.43	7.68	4.54	2.97	1.25	1.63	1.54	5.64	4.57	2.80	2.66
30	3.30	.....	11.41	4.88	2.83	1.23	1.52	1.53	4.97	4.07	2.81	2.72
31	3.23	.....	13.85	.....	2.68	.....	1.37	1.71	.....	3.67	.....	2.97

NOTE.—Relation of gage height to discharge affected by ice Jan. 9 to Feb. 26.

Daily discharge, in second-feet, of Susquehanna River at Harrisburg, Pa., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	42,600	.....	68,600	204,000	81,200	18,700	7,210	8,360	10,800	43,600	27,500	20,200
2	37,800	.....	51,500	178,000	114,000	17,900	7,090	7,930	10,800	39,800	24,300	19,500
3	37,300	.....	44,100	208,000	92,300	21,700	6,920	7,090	12,700	36,200	23,500	20,300
4	32,200	.....	36,600	246,000	73,300	19,900	6,760	6,870	16,900	31,600	22,200	36,600
5	30,100	.....	29,000	181,000	61,500	17,800	6,870	6,480	46,700	28,200	20,600	59,800
6	23,000	.....	23,900	132,000	51,200	16,800	6,590	6,370	47,500	24,900	19,400	64,600
7	21,800	.....	23,000	108,000	46,300	17,900	7,390	6,090	35,900	21,300	19,200	62,700
8	18,500	.....	21,300	114,000	53,600	16,800	6,810	5,830	32,400	19,300	41,000	66,300
9	.....	.....	24,900	126,000	63,200	15,300	6,530	6,090	24,000	17,500	69,800	69,500
10	.....	.....	31,300	123,000	66,500	13,700	6,480	7,090	19,100	16,600	74,800	58,800
11	.....	.....	36,200	102,000	66,000	12,700	6,530	9,110	16,200	15,900	73,000	48,400
12	.....	.....	35,500	83,000	60,000	12,100	6,420	17,400	14,200	16,400	59,200	39,500
13	.....	.....	39,400	70,700	68,100	11,400	7,330	14,600	12,500	16,600	49,400	31,500
14	.....	.....	52,600	66,000	80,100	10,700	6,420	12,700	11,300	18,100	42,900	25,600
15	.....	.....	62,900	67,900	68,400	10,400	6,370	12,500	11,100	18,600	38,300	28,700
16	.....	.....	150,000	66,700	59,800	10,200	6,640	11,400	11,500	16,700	34,800	23,500
17	.....	.....	186,000	75,100	64,300	11,500	7,330	10,100	11,800	16,400	31,700	22,200
18	.....	.....	153,000	98,600	110,000	16,500	8,900	9,610	11,100	14,900	29,000	22,200
19	.....	.....	146,000	111,000	115,000	16,800	9,760	8,630	11,300	14,600	26,500	22,400
20	.....	.....	152,000	105,000	86,800	13,900	9,330	8,770	17,400	14,000	24,400	25,400
21	.....	.....	154,000	92,900	69,000	14,000	11,400	11,800	16,200	13,500	22,800	28,300
22	.....	.....	147,000	77,000	56,500	12,300	15,000	13,100	15,200	13,200	21,700	29,000
23	.....	.....	126,000	64,400	46,900	10,600	18,100	11,700	14,600	14,000	20,700	31,600
24	.....	.....	105,000	61,200	40,000	9,690	18,100	11,400	15,500	14,000	19,900	27,900
25	.....	.....	90,400	54,500	35,300	10,100	13,300	11,500	47,800	16,700	20,000	24,000
26	.....	.....	87,600	54,700	32,000	9,110	14,000	10,800	125,000	30,800	21,900	21,200
27	.....	116,000	82,100	51,000	27,500	8,630	15,500	10,400	103,000	35,600	21,200	20,400
28	.....	137,000	82,100	48,300	24,200	8,360	12,700	10,600	75,800	53,100	21,100	20,000
29	.....	94,800	99,600	44,700	22,700	7,930	10,600	9,920	62,400	45,200	21,000	19,600
30	.....	.....	177,000	50,000	21,300	7,810	9,760	9,840	51,300	37,600	21,100	20,200
31	.....	.....	238,000	.....	19,800	.....	8,700	11,300	.....	31,900	.....	22,700

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

Monthly discharge of Susquehanna River at Harrisburg, Pa., for 1912.

[Drainage area, 24,000 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	20,800	0.867	1.00	C.
February	137,000	.....	25,600	1.07	1.15	C.
March	238,000	21,300	88,900	3.70	4.27	A.
April	246,000	44,700	102,000	4.25	4.74	A.
May	115,000	19,800	60,500	2.52	2.90	A.
June	21,700	7,810	13,400	.558	.62	B.
July	18,100	6,370	9,380	.391	.45	B.
August	17,400	5,830	9,850	.410	.47	B.
September	125,000	10,800	30,400	1.27	1.42	A.
October	53,100	13,200	24,100	1.00	1.15	A.
November	74,800	19,200	32,100	1.34	1.50	A.
December	69,500	19,500	33,300	1.39	1.60	A.
The year	246,000	5,830	37,500	1.56	21.27	

NOTE.—Discharge Jan. 9 to Feb. 26 estimated by comparison with the flow at other stations in the Susquehanna River basin. Mean discharge Jan. 9–31 estimated 17,500 second-feet. Mean discharge Feb. 1–26 estimated 15,200 second-feet. Monthly discharge changed slightly to conform with survey publication rules.

CHENANGO RIVER NEAR CHENANGO FORKS, N. Y.

Location.—Two miles by road below Chenango Forks post office, 1.5 miles below the mouth of Tioughnioga River (coming in from the right) above the mouth of river at Binghamton.

Records available.—November 11 to December 31, 1912.

Drainage area.—1,420 square miles.

Gage.—Inclined staff gage on the left bank.

Channel.—One channel at all stages; bed of stream small cobble filled in with sand and gravel, not liable to shift; current uniform across the entire section.

Discharge measurements.—Low-water measurements made by wading near the gage.

Winter flow.—Gage heights somewhat affected by ice during ordinary winters.

Accuracy.—Conditions good for meter measurements. Small diurnal fluctuation in gage height at low water.

Daily gage height, in feet, and discharge, in second-feet, of Chenango River near Chenango Forks, N. Y., for 1912.

[Erastus Ingraham, Observer.]

Day.	November.		December.		Day.	November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.		Gage height.	Discharge.	Gage height.	Discharge.
1	.....	.....	4.0	1,780	16	4.3	2,270	3.5	1,080
2	.....	.....	4.1	1,940	17	4.25	2,180	3.5	1,080
3	.....	.....	7.2	9,100	18	4.0	1,780	3.4	960
4	.....	.....	7.3	9,400	19	4.0	1,780	4.3	2,270
5	.....	.....	6.3	6,570	20	4.0	1,780	5.0	3,550
6	.....	.....	7.0	8,500	21	4.0	1,780	5.2	3,960
7	.....	.....	7.0	8,500	22	4.0	1,780	4.9	3,350
8	.....	.....	6.0	5,800	23	4.0	1,780	4.15	2,020
9	.....	.....	5.0	3,550	24	3.5	1,080	4.0	1,780
10	.....	.....	4.45	2,520	25	3.75	1,400	4.05	1,860
11	5.2	3,960	4.25	2,180	26	4.0	1,780	3.95	1,700
12	4.05	1,860	4.1	1,940	27	4.0	1,780	4.0	1,780
13	4.1	1,940	4.0	1,780	28	4.0	1,780	3.85	1,540
14	4.25	2,180	3.4	960	29	4.0	1,780	3.85	1,540
15	4.15	2,020	4.0	1,780	30	4.0	1,780	3.95	1,700
					31	.....	.....	4.8	3,160

NOTE.—Daily discharge determined from a well-defined rating curve based on measurements made during 1913 and 1914.

Monthly discharge of Chenango River near Chenango Forks, N. Y., for 1912.

[Drainage area, 1,420 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage (area.	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
November 11–30	3,960	1,080	1,920	1.35	1.00	B.
December	8,500	960	3,210	2.26	2.61	B.

CHENANGO RIVER AT BINGHAMTON, N. Y.

Location.—At the Court Street Bridge, Binghamton, N. Y., 300 feet below Noyes dam, about 2,500 feet above the junction with the Susquehanna, and 14 miles below the mouth of Tioughnioga River, coming in from the right.

Records available.—July 31, 1901, to December 31, 1911, and five discharge measurements during 1912. Data also in annual reports of New York State engineer and surveyor.

Drainage area.—1,530 square miles.

Gage.—Standard chain, fastened to the upstream side of the bridge; datum unchanged.

Channel.—Bed of river composed of cobble and gravel; fairly permanent. Very little vegetation at the bridge except at the sides.

Discharge measurements.—Made from the bridge.

Winter flow.—As a rule not greatly affected by the presence of ice, although at times ice jams form on the control point below the gage.

Diversion.—In estimating the run-off of the Chenango River basin the area directly tributary to the storage reservoirs from which water is diverted to supply the Erie Canal is deducted from the total natural drainage area. The diversion area of six reservoirs at the head of Chenango River, whose outflow is turned into the river canal through Limestone Creek, is 30 square miles. The diversion area of De Ruyter Reservoir at the head of Tioughnioga River, whose outflow is turned into Limestone Creek, is 18 square miles. These two drainage areas have been subtracted from the natural drainage area of 1,580 square miles, giving an effective area of 1,532 square miles. This estimate is approximate, as no allowance has been made for direct inflow to the feeder channels from additional areas nor for waste into the original stream. The gross area, from which more or less run-off is diverted, is about 105 square miles.

Accuracy.—Relation between gage height and discharge at times affected by backwater from Susquehanna River (at high stage) and ice jams on control point. At ordinary stages a slight riffle a short distance downstream from the bridge cuts off backwater from the Susquehanna.

Discharge measurements of Chenango River at Binghamton, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*
Feb. 21[a]	C. S. De Golyer	6.21	1,350
Mar. 17[b]	C. C. Covert	15.28	11,600
20	....do	14.46	15,800
Apr. 5	Frank Weber	11.04	8,350
6	....do	12.67	13,200

[a] Open-water measurements with some ice at control.
[b] Pronounced backwater effect from high water in Susquehanna.

CHEMUNG RIVER AT CHEMUNG, N. Y

Location.—About midway between Chemung, N. Y., and Willawana, Pa., about half a mile upstream from the State line, and about 10 miles above the junction with the Susquehanna.

Records available.—September 7, 1903, to December 31, 1912. Data also in annual reports of New York State engineer and surveyor.

Drainage area.—2,440 square miles.

Gage.—Tape and weight, read twice daily; located at different points, as follows: September 7, 1903, to April 19, 1911, on the suspension bridge; April 20, 1911, to February 18, 1912, temporarily located about 250 feet upstream from the bridge while the bridge was being replaced; February 19 to December 31, 1912, gage on the new two-span steel truss bridge, on the site of the old bridge; datum same for all locations of the gage.

Channel.—Right bank high, clear, and not subject to overflow; left bank of medium height, wooded, and overflowed at times of high water. Bed of river composed of sand and gravel; clear and fairly permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by backwater caused by needle ice.

Artificial control.—Largest water-power development on the river is at Elmira, N. Y. No dams on the river between Elmira and the mouth of the Chemung.

Accuracy.—Conditions for accurate determinations of discharge during the open period only fair. Determination of discharge during the winter months liable to be considerably in error as a result of backwater caused by needle ice.

Discharge measurements of Chemung River at Chemung, N. Y., in 1912.

Date.	Hydrographer.	Gage height.	Discharge.	Date.	Hydrographer.	Gage height.	Discharge.
		Feet.	*Sec.-feet.*			*Feet.*	*Sec.-feet.*
Feb. 19[a]	C. S. De Golyer	3.08	252	Apr. 3	Frank Weber	9.84	18,100
Mar. 16	C. C. Covert	12.03	25,600	4	do	8.12	12,300
18	do	10.51	18,000	July 20[b]	do	2.07	282
25	G. H. Canfield	4.35	2,480				

[a] Measurement under complete ice cover. [b] Measurement by wading 500 feet below gage.

NOTE.—All measurements, except that of Feb. 19, referred to gage on new bridge.

Daily gage height, in feet, of Chemung River at Chemung, N. Y., for 1912.

[D. L. Orcutt, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.23	.....	4.2	11.1	7.8	3.75	2.09	1.93	2.23	4.5	3.00	3.30
2	3.23	.....	3.75	11.5	6.4	3.35	2.02	1.91	4.5	4.6	3.05	3.35
3	3.11	.....	3.45	11.1	5.4	4.0	2.00	1.96	5.1	4.2	2.95	6.3
4	3.01	.....	3.35	8.0	4.8	4.3	1.96	1.93	4.4	3.85	2.85	5.9
5	.....	.....	3.25	7.4	4.4	3.60	2.10	2.05	3.65	3.60	2.85	5.1
6	.....	.....	3.00	10.2	4.3	3.30	2.08	2.03	3.60	3.40	2.75	5.6
7	.....	.....	3.00	9.0	4.6	3.10	2.02	1.97	3.45	3.25	2.75	6.3
8	.....	.....	3.10	9.8	4.7	3.00	2.03	1.95	3.15	3.10	5.9	5.2
9	.....	.....	4.6	7.6	5.4	2.90	2.00	2.03	2.90	2.95	5.8	4.6
10	.....	.....	5.0	6.7	5.1	2.75	1.92	2.03	2.75	2.95	5.1	4.1
11	.....	.....	4.2	6.1	4.7	2.60	2.20	1.95	2.65	3.45	4.6	4.1
12	.....	.....	3.9	5.6	4.2	2.60	2.40	2.03	2.70	3.75	4.3	3.75
13	.....	.....	3.7	6.8	4.5	2.55	2.48	2.11	2.60	3.40	4.0	3.35
14	.....	.....	3.4	6.3	4.7	2.50	2.40	2.19	2.45	3.15	4.0	3.15
15	.....	.....	3.9	6.0	4.2	2.49	2.25	2.09	2.35	3.00	3.95	3.30

Daily gage height, in feet, of Chemung River at Chemung, N. Y., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	.....	.....	12.7	6.7	4.1	2.41	2.22	2.09	3.10	2.80	3.75	3.50
17	.....	.....	9.4	6.3	9.5	2.45	2.28	1.97	3.45	2.75	3.55	3.35
18	.....	.....	10.2	5.7	7.1	2.41	2.24	1.99	3.20	2.70	3.45	3.25
19	.....	.....	9.4	5.6	5.8	2.35	2.25	2.04	3.05	2.65	3.35	3.55
20	.....	.....	9.7	5.1	5.1	2.33	2.12	2.05	3.00	2.65	3.25	3.90
21	.....	.....	7.2	4.7	4.7	2.28	2.10	2.11	2.90	2.37	3.25	3.55
22	.....	.....	5.8	4.5	4.4	2.25	2.12	2.15	2.65	2.55	3.15	3.35
23	.....	.....	5.2	4.7	4.4	2.19	2.05	2.33	2.80	2.55	3.05	3.05
24	.....	.....	4.9	4.9	4.0	2.27	1.95	2.24	5.1	2.75	3.05	3.05
25	.....	.....	4.4	4.6	3.70	2.19	1.95	2.21	8.4	4.2	3.25	3.15
26	.....	.....	4.0	4.4	3.50	2.15	1.95	2.22	6.5	4.6	3.45	3.00
27	.....	6.7	3.95	4.1	3.30	2.11	1.93	2.31	5.6	4.1	3.50	3.00
28	.....	6.2	5.0	4.0	3.20	2.10	2.00	2.77	5.0	3.70	3.50	2.85
29	.....	4.6	11.8	4.0	3.15	2.07	1.98	2.65	4.5	3.45	3.40	2.70
30	.....	.....	14.9	9.1	4.0	2.05	1.93	2.25	5.2	3.31	3.30	2.90
31	.....	.....	10.0	.....	4.4	.....	1.93	2.29	.....	3.15	.....	3.30

NOTE.—Relation of gage height to discharge affected by ice Jan. 5 to Feb. 26, 1912. There may have been some backwater from ice jams during March, 1912. On Apr. 20, 1911, the gage was removed from the old bridge and installed on the bank of the river about 250 feet above the bridge. On Feb. 19, 1912, it was placed on the new bridge at about the same location it had on the old bridge. All gage heights corrected so as to be comparable with those taken with the gage in its original position.

Daily discharge, in second-feet, of Chemung River at Chemung, N. Y., for 1911–12.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1911.												
1	2,000	1,500	.....	3,170	1,440	315	192	90	690	860	655	1,160
2	4,000	1,560	.....	2,470	2,800	325	176	108	520	1,620	815	1,010
3	11,400	1,220	.....	2,020	2,980	388	180	78	412	2,800	815	910
4	5,550	960	.....	1,820	2,020	330	192	78	335	1,680	690	815
5	2,800	1,010	.....	2,630	1,620	355	176	73	285	1,320	620	655
6	2,020	860	.....	9,600	1,380	365	130	90	275	1,320	599	730
7	1,950	730	.....	13,500	1,220	2,020	136	73	365	1,380	620	655
8	2,160	.....	.....	11,100	960	1,110	126	93	641	3,560	730	655
9	1,500	.....	.....	7,050	960	815	122	96	532	2,020	1,110	730
10	1,220	.....	.....	7,840	860	620	122	78	1,110	1,500	960	860
11	1,110	.....	4,620	6,050	815	490	126	84	1,560	1,440	815	1,620
12	1,500	.....	6,800	4,840	770	478	116	73	1,010	2,020	770	1,500
13	5,300	.....	1,270	3,960	690	2,800	102	66	770	1,750	815	2,020
14	3,760	.....	7,050	3,360	620	2,980	102	52	730	1,380	1,060	7,300
15	14,200	.....	7,050	4,400	585	1,620	96	96	585	1,110	910	4,400
16	6,550	.....	5,300	3,760	550	1,160	87	73	520	960	815	5,550
17	3,170	.....	2,630	3,170	550	860	99	84	655	860	770	6,050
18	2,310	.....	2,800	2,630	550	690	133	84	520	960	770	4,620
19	1,950	.....	2,160	2,470	550	550	136	119	460	1,620	1,380	3,360
20	1,750	.....	1,820	4,620	1,110	490	200	90	388	1,500	1,620	2,310
21	1,500	.....	1,880	7,300	1,160	412	208	96	335	1,220	1,270	1,820
22	1,380	.....	2,470	5,500	770	376	160	75	315	1,060	1,110	1,750
23	1,270	.....	5,550	6,050	620	315	122	78	275	1,110	1,010	1,820
24	960	.....	4,180	5,060	550	305	122	71	250	1,220	910	2,470
25	860	.....	2,310	3,760	585	275	112	96	260	1,060	960	1,880
26	860	.....	2,310	2,800	550	315	102	108	275	910	1,060	1,620
27	815	.....	4,180	2,310	472	255	102	84	235	770	960	1,680
28	4,180	.....	13,800	2,020	400	255	102	108	235	730	910	2,310
29	6,300	.....	7,840	1,680	550	220	96	960	315	690	1,060	1,270
30	3,960	.....	5,060	1,500	310	216	90	2,470	315	655	1,820	1,110
31	2,470	.....	4,180	.....	330	.....	78	1,110	.....	627	.....	1,160
1912.												
1	1,090	.....	2,310	23,800	11,100	1,680	265	192	335	2,800	860	1,160
2	1,090	.....	1,680	25,500	7,050	1,220	280	184	2,800	2,980	910	1,220
3	970	.....	1,320	23,800	4,620	2,020	220	204	3,960	2,310	815	6,800
4	870	.....	1,220	11,800	3,360	2,470	204	192	2,630	1,820	730	5,800
5	.....	.....	1,110	9,900	2,630	1,500	270	245	1,560	1,500	730	3,960
6	.....	.....	860	20,000	2,470	1,160	260	235	1,500	1,270	655	5,060
7	.....	.....	860	15,200	2,980	960	230	208	1,320	1,110	655	6,800
8	.....	.....	960	18,400	3,170	860	235	200	1,010	960	5,800	4,180
9	.....	.....	2,980	10,200	4,620	770	220	235	770	815	5,550	2,980
10	.....	.....	3,760	7,840	3,960	655	188	235	655	815	3,960	2,160

Daily discharge, in second-feet, of Chemung River at Chemung, N. Y., for 1911–12—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11			2,310	6,300	3,170	550	320	200	585	1,320	2,980	2,160
12			1,880	5,060	2,310	550	430	235	620	1,680	2,470	1,680
13			1,620	8,120	2,800	520	478	275	550	1,270	2,020	1,220
14			1,270	6,800	3,170	490	430	315	460	1,010	2,020	1,010
15			1,880	6,050	2,310	484	345	265	400	860	1,950	1,160
16			31,500	7,840	2,160	436	330	265	270	690	1,680	1,380
17			16,800	6,800	17,200	460	360	208	1,320	655	1,440	1,220
18			20,000	5,300	9,000	436	340	216	1,060	620	1,320	1,110
19			16,800	5,060	5,550	400	345	240	910	585	1,220	1,440
20			18,000	3,960	3,960	388	280	245	860	585	1,110	1,880
21			9,300	3,170	3,170	360	270	275	770	412	1,110	1,440
22			5,550	2,800	2,630	345	280	295	585	520	1,010	1,220
23			4,180	3,170	2,630	315	245	388	690	520	910	910
24			3,560	3,560	2,020	355	200	340	3,960	655	910	910
25			2,630	2,980	1,620	315	200	325	13,200	2,310	1,110	1,010
26			2,020	2,630	1,380	295	200	330	7,300	2,980	1,320	860
27		7,840	1,950	2,160	1,160	275	192	376	5,060	2,160	1,380	860
28		6,550	3,760	2,020	1,060	270	220	669	3,760	1,620	1,380	730
29		2,980	27,000	2,020	1,010	255	212	585	2,800	1,320	1,270	620
30			44,500	15,600	2,020	245	192	345	4,180	1,170	1,160	770
31			19,200	.....	2,630	.....	192	365	.....	1,010	.....	1,160

NOTE.—Daily discharge determined from a well-defined rating curve. Daily discharge for 1911 appears to be generally low, for reasons which have not yet been determined. It may be that construction work on the new bridge had some temporary effect on the relation of gage height to discharge.

Monthly discharge of Chemung River at Chemung, N. Y., for 1911–12.

[Drainage area, 2,440 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
January	14,200	815	3,250	1.33	1.53	C.
February	.....	.....	1,390	.570	.59	D.
March	13,800	.....	3,450	1.41	1.63	D.
April	13,500	1,500	4,610	1.89	2.11	C.
May	2,980	310	946	.388	.45	C.
June	2,980	216	724	.297	.33	C.
July	208	78	130	.053	.06	C.
August	2,470	52	224	.092	.11	C.
September	1,560	235	506	.207	.23	C.
October	3,560	627	1,350	.553	.64	C.
November	1,820	599	947	.388	.43	C.
December	7,300	655	2,120	.869	1.00	C.
The year	14,200	52	1,640	.672	9.11	
1912.						
January	.....	.....	700	.287	.33	D.
February	.....	.....	1,500	.615	.66	D.
March	44,500	860	8,150	3.34	3.85	C.
April	25,500	2,020	8,930	3.66	4.08	A.
May	17,200	1,010	3,830	1.57	1.81	A.
June	2,470	245	701	.287	.32	A.
July	478	188	272	.111	.13	A.
August	669	184	287	.118	.14	A.
September	13,200	270	2,200	.902	1.01	A.
October	2,980	412	1,300	.533	.61	A.
November	5,800	655	1,680	.689	.77	A.
December	6,800	620	2,090	.857	.99	A.
The year	44,500	184	2,640	1.08	14.70	

NOTE.—Discharge Feb. 8 to Mar. 10, 1911, and Jan. 5 to Feb. 26, 1912, estimated from climatologic records and comparison with the flow at adjacent stations. Mean discharge Feb. 8 to 28, 1911, estimated 1,480 second-feet. Mean discharge Mar. 1 to 10, 1911, estimated 1,170 second-feet. Mean discharge Jan. 4 to 31, 1912, estimated 660 second feet. Mean discharge Feb. 1 to 26, 1912, estimated 1,000 second feet. Discharge for 1911 appears to be low throughout the year. No definite reason can be assigned for this.

WEST BRANCH OF SUSQUEHANNA RIVER AT WILLIAMSPORT, PA.

Location.—At the Market Street Bridge in Williamsport, 2 miles below the mouth of Lycoming Creek and about 2 miles above the mouth of Loyalsock Creek.

Records available.—March 1, 1895, to December 31, 1912.

Drainage area.—5,640 square miles.

Gage.—Standard chain, fastened to the bridge August 16, 1901; datum unchanged.

Channel.—Permanent.

Discharge measurements.—Made from the bridge or by wading. No measurement has been made since 1908.

Artificial control.—There is a dam about one-half mile above the station, but the operation of this dam probably has no effect on the daily gage height.

Winter flow.—Affected by ice.

Accuracy.—Conditions of flow at this point are constant, and a good discharge rating curve has been developed.

Cooperation.—Complete data for 1912 furnished by the Water Supply Commission of Pennsylvania.

Daily gage height, in feet, of West Branch of Susquehanna River at Williamsport, Pa., for 1912.

[H. L. Guise, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.2	3.7	7.9	14.3	8.95	3.1	0.1	0.6	1.0	5.3	4.35	2.65
2	5.0	3.6	7.6	11.9	7.8	3.0	.1	.4	1.6	5.0	2.7	2.6
3	4.9	3.4	6.9	17.4	6.95	2.9	.1	.4	1.9	4.8	2.55	2.45
4	4.6	3.4	5.5	14.7	5.9	2.7	.1	.3	4.8	3.0	2.2	3.4
5	4.4	3.3	5.1	10.1	5.45	2.3	.1	.3	7.0	2.8	1.95	3.55
6	3.9	3.2	4.8	9.1	5.25	1.9	.2	.2	6.3	2.5	1.85	4.05
7	3.9	3.3	4.1	8.0	5.2	1.8	.3	.3	4.3	2.3	2.0	4.4
8	3.9	3.2	3.8	7.5	5.65	1.8	.2	.3	4.1	2.2	2.95	3.95
9	3.7	3.2	3.7	8.4	6.7	1.6	.2	.3	3.8	2.0	3.6	3.6
10	3.6	3.1	3.9	7.8	6.75	1.4	.0	1.3	3.5	1.7	4.85	3.25
11	3.5	3.1	4.9	7.1	6.35	1.3	.1	1.8	3.3	1.8	5.35	3.05
12	3.5	3.1	4.9	5.7	5.9	1.2	.1	2.5	3.1	1.7	4.5	2.9
13	3.4	3.1	5.6	5.5	4.95	1.1	.6	2.0	2.8	2.1	4.05	2.75
14	3.3	3.1	5.8	5.0	5.4	1.1	.4	1.4	2.5	2.3	4.4	2.6
15	3.3	3.0	5.5	5.3	5.25	1.0	.3	1.0	2.4	2.3	4.15	2.45
16	3.3	3.0	13.95	5.6	4.95	.9	.2	.8	2.4	2.2	3.85	2.35
17	3.3	3.0	10.4	5.4	5.4	1.1	.2	.7	2.2	2.0	3.7	2.4
18	3.3	2.9	9.7	5.2	10.95	1.4	.3	1.1	2.3	1.7	3.55	2.25
19	3.3	2.9	9.1	5.2	10.3	1.2	.5	1.3	2.2	1.7	3.3	2.5
20	3.9	3.2	8.4	5.0	7.15	.9	.3	1.3	1.9	1.6	3.25	2.65
21	3.9	3.4	8.3	5.0	5.85	.8	.5	1.2	1.9	1.6	3.15	2.45
22	3.9	3.5	10.0	4.8	5.0	.5	.9	1.0	1.9	1.6	3.2	2.5
23	3.9	3.5	9.8	4.5	4.85	.4	1.2	1.0	1.8	1.5	3.05	2.35
24	3.9	3.2	9.4	4.2	4.5	.3	1.3	.9	2.7	1.7	2.9	2.3
25	4.0	3.0	9.0	3.9	4.1	.3	1.4	1.0	5.6	2.0	2.75	2.25
26	4.2	3.7	8.2	3.9	3.9	.2	1.7	1.2	6.3	2.2	2.85	2.25
27	4.2	4.9	7.4	3.9	3.6	.2	1.5	1.1	6.6	5.0	2.7	2.2
28	4.2	5.5	6.8	3.7	3.5	.2	1.2	1.0	5.1	5.8	2.65	2.15
29	4.4	7.9	8.2	3.8	3.4	.2	1.0	1.1	5.3	6.2	2.6	2.0
30	4.5	.....	9.8	4.2	3.2	.0	.6	.8	5.4	4.9	2.45	1.95
31	4.1	.....	16.0	.....	3.1	.....	.7	.8	.....	4.6	.....	2.1

NOTE.—Relation of gage height to discharge affected by ice Jan. 5 to Feb. 26.

Daily discharge, in second-feet, of West Branch of Susquehanna River at Williamsport, Pa., for 1912.

[H. L. Guise, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	14,500	.....	27,500	71,800	33,200	6,870	370	1,090	1,820	14,900	11,000	5,620
2	13,600	.....	25,900	51,600	27,000	6,580	370	775	3,050	13,600	5,750	5,490
3	13,200	.....	22,400	103,000	22,600	6,300	370	775	3,740	12,800	5,360	5,100
4	11,900	.....	15,800	75,600	17,600	5,750	370	630	12,800	6,580	4,470	7,780
5	.....	.....	14,000	39,800	15,600	4,720	370	630	22,900	6,020	3,860	8,240
6	.....	.....	12,800	34,000	14,700	3,740	495	495	19,500	5,230	3,620	9,860
7	.....	.....	10,000	28,000	14,500	3,500	630	630	10,800	4,720	3,980	11,200
8	.....	.....	9,030	25,400	16,500	3,500	495	630	10,000	4,470	6,440	9,520
9	.....	.....	8,710	30,200	21,400	3,050	495	630	9,030	3,980	8,400	8,400
10	.....	.....	9,360	27,000	21,600	2,620	250	2,410	8,090	3,270	13,000	7,320
11	.....	.....	13,200	23,400	19,700	2,410	370	3,500	7,470	3,500	15,100	6,720
12	.....	.....	13,200	16,700	17,600	2,210	370	5,230	6,870	3,270	11,500	6,300
13	.....	.....	16,200	15,800	13,400	2,010	1,090	3,980	6,020	4,220	9,860	5,880
14	.....	.....	17,200	13,600	15,400	2,010	775	2,620	5,230	4,720	11,200	5,490
15	.....	.....	15,800	14,900	14,700	1,820	630	1,820	4,970	4,720	10,200	5,100
16	.....	.....	68,600	16,200	13,400	1,630	495	1,440	4,970	4,470	9,200	4,840
17	.....	.....	41,600	15,400	15,400	2,010	495	1,260	4,470	3,980	8,710	4,970
18	.....	.....	37,400	14,500	45,100	2,620	630	2,010	4,720	3,270	8,240	4,600
19	.....	.....	34,000	14,500	41,000	2,210	930	2,410	4,470	3,270	7,470	5,230
20	.....	.....	30,200	13,600	23,600	1,630	630	2,410	3,740	3,050	7,320	5,620
21	.....	.....	29,600	13,600	17,400	1,440	930	2,210	3,740	3,050	7,020	5,100
22	.....	.....	39,200	12,800	13,600	930	1,630	1,820	3,740	3,050	7,170	5,230
23	.....	.....	38,000	11,500	13,000	775	2,210	1,820	3,500	2,830	6,720	4,840
24	.....	.....	35,700	10,400	11,500	630	2,410	1,630	5,750	3,270	6,300	4,720
25	.....	.....	33,500	9,360	10,000	630	2,620	1,820	16,200	3,980	5,880	4,600
26	.....	.....	29,100	9,360	9,360	495	3,270	2,210	19,500	4,470	6,160	4,600
27	.....	13,200	24,900	9,360	8,400	495	2,830	2,010	20,900	13,600	5,750	4,470
28	.....	15,800	21,900	8,710	8,090	495	2,210	1,820	14,000	17,200	5,620	4,340
29	.....	27,500	29,100	9,030	7,780	495	1,820	2,010	14,900	19,000	5,490	3,980
30	.....	.....	38,000	10,400	7,170	250	1,090	1,440	15,400	13,200	5,100	3,860
31	.....	.....	88,400	.....	6,870	.....	1,260	1,440	.....	11,900	.....	4,220

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

Monthly discharge of West Branch of Susquehanna River at Williamsport, Pa., for 1912.

[Drainage area, 5,640 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January	14,500	.....	6,160	1.09	1.26
February	27,500	.....	5,240	.929	1.00
March	88,400	8,710	27,400	4.86	5.60
April	103,000	8,710	25,000	4.43	4.94
May	45,100	6,870	17,300	3.07	3.54
June	6,870	250	2,460	.436	.49
July	3,270	250	1,060	.188	.22
August	5,230	495	1,790	.317	.37
September	22,900	1,820	9,080	1.61	1.80
October	19,000	2,830	6,760	1.20	1.38
November	15,100	3,620	7,530	1.34	1.50
December	11,200	3,860	5,910	1.05	1.21
The year	103,000	250	9,650	1.71	23.31

NOTE.—Discharge Jan. 5 to Feb. 26 estimated by comparison with other stations in the Susquehanna River basin and climatologic records: Jan. 5–31, 5,100 second-feet: Feb. 1–26, 3,700 second-feet. Monthly discharge changed slightly to conform with survey computation rules.

JUNIATA RIVER AT NEWPORT, PA.

Location.—At the steel highway bridge, about 800 feet east of the public square at Newport, 1 mile below the mouth of Buffalo Creek and about 12 miles above the mouth of the river.

Records available.—March 21, 1899, to July 15, 1906; January 6, 1907, to December 31, 1912.

Drainage area.—3,480 square miles.

Gage.—Chain, attached to the bridge; datum unchanged.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Channel.—Conditions of flow liable to change from year to year.

Accuracy.—A good discharge rating curve has been developed for high and medium stages; low stage fair.

Cooperation.—Now maintained by Pennsylvania State Water Supply Commission, which furnished complete data for 1912.

Daily gage height, in feet, of Juniata River at Newport, Pa., for 1912.

[A. B. Bortel, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.30	4.80	5.75	8.50	7.25	4.10	3.39	3.97	3.13	4.53	3.73	3.43
2	5.40	4.73	5.05	7.65	6.60	4.00	3.45	3.75	3.18	4.25	3.55	3.45
3	5.25	4.67	4.50	8.60	6.05	4.00	3.35	3.65	3.65	4.05	3.55	3.55
4	4.85	4.65	4.38	8.05	5.65	4.00	3.30	3.50	4.20	3.88	3.57	3.65
5	4.45	4.58	4.05	7.00	5.50	4.05	3.28	3.55	4.10	3.90	3.32	3.55
6	4.25	4.37	4.05	6.40	4.98	3.72	3.25	3.47	3.80	3.77	3.55	3.77
7	3.80	4.43	3.88	5.90	5.02	3.60	3.18	3.42	3.60	3.65	3.67	4.03
8	3.35	4.35	4.02	5.65	6.35	3.60	3.22	3.40	3.55	3.55	5.40	4.45
9	3.70	4.27	4.65	5.55	7.50	3.60	3.16	3.28	3.60	3.55	5.75	4.25
10	5.05	4.35	4.95	5.35	6.80	3.60	3.25	3.55	3.45	3.55	5.20	4.05
11	5.50	4.35	4.50	5.00	5.95	3.40	3.10	3.77	3.35	3.57	4.75	3.99
12	6.05	4.23	4.35	4.80	5.55	3.35	3.12	4.05	3.30	3.65	4.60	3.90
13	6.15	4.15	4.75	4.70	9.90	3.30	3.08	3.80	3.20	3.60	4.33	3.67
14	6.20	4.17	4.82	4.60	10.90	3.30	3.09	3.55	3.10	3.62	4.23	•3.70
15	5.65	4.19	8.00	4.65	8.05	3.38	3.25	3.75	3.11	3.43	4.12	3.42
16	5.70	4.13	13.60	5.00	6.70	3.42	3.13	3.60	3.13	3.47	4.05	3.70
17	5.90	4.15	9.65	4.80	10.25	3.75	3.19	3.40	3.08	3.20	3.97	3.67
18	5.75	4.17	7.85	5.85	10.60	6.80	3.28	3.40	3.13	3.39	3.90	3.67
19	5.70	4.17	7.45	8.20	8.25	5.25	3.65	3.20	3.35	3.30	3.80	3.77
20	5.68	4.35	7.30	7.60	7.10	4.55	5.05	3.20	3.37	3.30	3.75	3.80
21	5.70	4.85	8.25	6.45	6.20	4.05	4.70	3.33	3.33	3.20	3.75	3.85
22	5.70	6.75	8.60	5.85	5.65	3.85	4.68	3.36	3.25	3.25	3.73	3.70
23	5.60	6.55	9.90	5.55	5.22	3.72	6.75	3.45	3.27	3.33	3.65	3.60
24	5.70	6.70	8.10	5.65	4.92	3.70	5.50	3.50	3.72	3.30	3.77	3.45
25	5.60	6.50	8.60	5.40	4.82	3.62	4.80	3.45	7.35	3.90	3.62	3.50
26	5.70	6.78	8.70	5.40	4.50	3.50	5.30	3.43	7.05	3.90	3.60	3.50
27	5.55	11.60	8.25	5.55	4.32	3.50	5.10	3.15	6.10	4.00	3.75	3.35
28	5.40	10.10	9.15	5.70	4.40	3.50	4.40	3.27	5.55	3.85	3.53	3.50
29	5.20	7.05	10.40	5.70	4.20	3.50	4.08	3.15	5.05	3.70	3.47	3.55
30	4.92	.....	12.10	6.50	4.30	3.55	3.95	3.23	4.70	3.80	3.30	3.55
31	4.88	.....	10.00	.....	4.20	.....	3.75	3.16	.....	3.65	.....	3.90

NOTE.—Relation of gage height to discharge affected by ice Jan. 10 to Feb. 26.

Daily discharge, in second-feet, of Juniata River at Newport, Pa., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6,690	.....	8,090	17,900	13,100	3,270	1,680	2,950	1,200	4,430	2,400	1,760
2	7,000	.....	5,930	14,600	10,900	3,020	1,800	2,440	1,280	3,660	2,000	1,800
3	6,540	.....	4,350	18,300	9,050	3,020	1,600	2,220	2,220	3,140	2,000	2,000
4	5,340	.....	4,020	16,200	7,780	3,020	1,500	1,900	3,530	2,730	2,050	2,220
5	4,210	.....	3,140	12,300	7,310	3,140	1,470	2,000	3,270	2,780	1,540	2,000
6	3,660	.....	3,140	10,200	5,720	2,370	1,410	1,840	2,550	2,480	2,000	2,480
7	2,550	.....	2,730	8,570	5,840	2,110	1,280	1,740	2,110	2,220	2,260	3,100
8	1,600	.....	3,070	7,780	10,000	2,110	1,360	1,700	2,000	2,000	7,000	4,210
9	2,330	.....	4,770	7,460	14,100	2,110	1,250	1,470	2,110	2,000	8,090	3,660
10	.....	.....	5,640	6,840	11,600	2,110	1,410	2,000	1,800	2,000	6,380	3,140
11	.....	.....	4,350	5,780	8,730	1,700	1,140	2,480	1,600	2,050	5,060	3,000
12	.....	.....	3,940	5,200	7,460	1,600	1,180	3,140	1,500	2,220	4,630	2,780
13	.....	.....	5,060	4,910	23,700	1,500	1,110	2,550	1,320	2,110	3,880	2,260
14	.....	.....	5,260	4,630	28,100	1,500	1,130	2,000	1,140	2,150	3,610	2,330
15	.....	.....	16,000	4,770	16,200	1,660	1,410	2,440	1,160	1,760	3,320	1,740
16	.....	.....	41,100	5,780	11,200	1,740	1,200	2,110	1,200	1,840	3,140	2,330
17	.....	.....	22,700	5,200	25,200	2,440	1,300	1,700	1,110	1,320	2,950	2,260
18	.....	.....	15,400	8,410	26,800	11,600	1,470	1,700	1,200	1,680	2,780	2,260
19	.....	.....	13,900	16,700	16,900	6,540	2,220	1,320	1,600	1,500	2,550	2,480
20	.....	.....	13,300	14,400	12,600	4,490	5,930	1,320	1,640	1,500	2,440	2,550
21	.....	.....	16,900	10,400	9,540	3,140	4,910	1,560	1,560	1,320	2,440	2,660
22	.....	.....	18,300	8,410	7,780	2,660	4,850	1,620	1,410	1,410	2,400	2,330
23	.....	.....	23,700	7,460	6,440	2,370	11,400	1,800	1,450	1,560	2,220	2,110
24	.....	.....	16,400	7,780	5,550	2,330	7,310	1,900	2,370	1,500	2,480	1,800
25	.....	.....	18,300	7,000	5,260	2,150	5,200	1,800	13,500	2,780	2,150	1,900
26	.....	.....	18,700	7,000	4,350	1,900	6,690	1,760	12,400	2,780	2,110	1,900
27	.....	31,300	16,900	7,460	3,850	1,900	6,080	1,230	9,210	3,020	2,440	1,600
28	.....	24,600	20,600	7,930	4,070	1,900	4,070	1,450	7,460	2,660	1,960	1,900
29	.....	12,400	25,900	7,930	3,530	1,900	3,220	1,230	5,930	2,330	1,840	2,000
30	.....	.....	33,600	10,500	3,800	2,000	2,900	1,380	4,910	2,550	1,500	2,000
31	.....	.....	24,100	.....	3,530	.....	2,440	1,250	.....	2,220	.....	2,780

NOTE.—Daily discharge determined from a rating curve well defined at medium and high stages and fairly well defined at low stages.

Monthly discharge of Juniata River at Newport, Pa., for 1912.

[Drainage area, 3,480 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	.....	.....	2,810	0.807	0.93	C.
February	31,300	.....	4,360	1.25	1.35	C.
March	41,100	2,730	13,500	3.88	4.47	A.
April	18,300	4,630	9,260	2.66	2.97	A.
May	28,100	3,530	10,600	3.05	3.52	A.
June	11,600	1,500	2,780	.799	.89	B.
July	11,400	1,110	2,970	.853	.98	B.
August	3,140	1,230	1,870	.537	.62	B.
September	13,500	1,110	3,190	.917	1.02	A.
October	4,430	1,320	2,250	.647	.75	A.
November	8,090	1,500	3,050	.876	.98	A.
December	4,210	1,600	2,370	.681	.79	A.
The year	41,100	1,110	4,930	1.42	19.27	

NOTE.—Discharge Jan. 5 to Feb. 26 estimated by comparison with other stations in the Susquehanna River basin and climatologic records: Jan. 10–31, 2,150 second-feet; Feb. 1–26, 2, 30 second-feet. Monthly discharge changed slightly to conform with survey computation rules.

PATUXENT RIVER BASIN.

PATUXENT RIVER NEAR BURTONSVILLE, MD.

Location.—At the Columbia turnpike bridge, 1½ miles northeast of Burtonsville and about 5 miles northwest of Laurel.

Records available.—July 21, 1911, to June 15, 1912.

Drainage area.—127.5 square miles.

Gage.—Vertical staff fastened to bridge pier.

Discharge measurements.—From bridge or by wading.

Cooperation.—Station established, maintained, and discharge measurements and gage heights furnished by the United States Engineer Office.

Discharge measurements of Patuxent River near Burtonsville, Md., in 1911–12.

[By U. S. Engineer Office.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
1911.	*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*		*Feet.*	*Sec.-ft.*
July 21	0.28	13.2	Sept. 18	0.60	59.8	Nov. 25	1.20	129.0
21	.28	13.5	25	.50	41.0			
28	.25	10.5	Oct. 18	2.35	303.9	1912.		
Sept. 1	1.90	288.9	21	.70	54.7	Feb. 26	1.97	288.8
7	.65	62.2						

NOTE.—All measurements made by wading.

Daily gage height, in feet, of Patuxent River near Burtonsville, Md., for 1911–12.

[Columbus Brashears, Observer.]

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1911.							1912.						
1	.....	0.25	1.20	0.55	0.62	0.90	1	1.70	1.50	1.10	1.55	0.95	1.02
2	.....	.20	1.20	.....	.62	.80	2	1.30	1.43	1.00	1.35	.90	1.00
3	.....	.....	.80	.65	.60	.75	3	1.40	1.36	.90	1.35	.90	.98
4	.....	.90	.60	.50	.58	.....	4	1.20	1.30	.90	1.30	.85	.98
5	.....	.88	.55	.50	.58	.....	5	1.10	1.30	.90	1.25	.85	.98
6	.....	.48	.65	.50	.62	.75	6	.....	1.30	.90	1.25	.80	.98
7	.....	1.38	.62	.50	2.75	.70	7	.....	1.30	2.50	1.25	2.50	1.50
8	.....	1.35	.60	.55	1.20	.70	8	.....	1.30	1.40	1.25	1.90	1.20
9	.....	.30	.....	.53	.80	.70	9	.....	1.30	1.60	1.20	1.00	1.00
10	.....	.30	.62	.53	.78	.75	10	.....	1.30	1.00	1.20	1.00	1.00
11	.....	.30	.62	.53	.75	.75	11	.....	1.20	2.30	1.20	.90	.98
12	.....	.50	.60	.50	.75	.75	12	.....	1.20	2.30	1.20	.86	.98
13	.....	.32	.55	.48	.75	.75	13	.....	1.20	6.50	1.25	.95	.98
14	.....	.30	.50	.48	.70	.75	14	.....	1.25	2.60	1.20	2.50	.98
15	.....	.40	1.00	.48	1.50	1.20	15	.....	1.30	5.50	1.10	2.00	.98
16	.....	.35	.95	.48	1.10	1.40	16	.....	1.30	2.40	1.10	1.90	.....
17	.....	.27	.85	.50	.90	1.40	17	1.80	1.30	1.80	1.50	1.20	.....
18	.....	.28	.75	1.90	1.70	1.20	18	2.00	4.90	1.65	1.30	1.00	.....
19	.....	.25	.60	.90	1.20	.80	19	2.60	3.90	1.50	1.10	1.00	.....
20	.....	.25	.55	.70	1.00	.....	20	2.20	2.80	1.40	1.05	1.00	.....
21	0.28	.25	.55	.70	.95	.80	21	1.80	6.40	1.40	1.05	1.00	.....
22	.....	.25	.53	.55	.90	.85	22	1.70	7.00	1.40	1.00	1.00	.....
23	.....	.22	.53	1.50	.92	2.70	23	1.60	1.40	1.40	1.00	.98	.....
24	.....	.20	.52	.90	.95	1.20	24	1.60	1.30	2.40	1.00	.98	.....
25	.35	.18	.50	.75	1.20	.90	25	1.75	.....	1.80	1.00	.95	.....
26	.35	1.80	.48	.75	.92	2.10	26	1.75	1.98	1.80	1.00	.95	.....
27	.....	3.50	.48	.75	.90	1.10	27	1.75	2.55	1.60	1.00	.95	.....
28	.30	2.02	.50	.75	.90	1.00	28	1.70	1.30	1.60	1.00	.95	.....
29	.28	.70	.65	.75	1.30	1.00	29	1.65	1.20	4.50	1.00	.95	.....
30	.28	1.40	.60	.70	1.00	1.10	30	1.60	.....	3.60	.95	1.00	.....
31	.24	12.45	.....	.65	.....	3.10	31	1.55	.....	1.80	.....	1.90	.....

Daily discharge, in second-feet, of Patuxent River near Burtonsville, Md., for 1911–12.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1911.							1912.						
1	.....	12	150	50	60	102	1	242	203	134	212	110	121
2	.....	7	150	57	60	87	2	167	190	118	176	102	118
3	.....	54	87	64	57	80	3	185	178	102	176	102	115
4	.....	102	57	43	54	80	4	150	167	102	167	94	115
5	.....	99	50	43	54	80	5	134	167	102	158	94	115
6	.....	40	64	43	60	80	6	.....	167	102	158	87	115
7	.....	181	60	43	486	72	7	.....	167	424	158	424	203
8	.....	176	57	50	150	72	8	.....	167	185	158	284	150
9	.....	16	58	47	87	72	9	.....	167	225	150	118	118
10	.....	16	60	47	84	80	10	.....	167	118	150	118	118
11	.....	16	60	47	80	80	11	.....	150	376	150	102	115
12	.....	43	57	43	80	80	12	.....	150	376	150	96	115
13	.....	19	50	40	80	80	13	.....	150	1,620	158	110	115
14	.....	16	43	40	72	80	14	.....	158	449	150	424	115
15	.....	29	118	40	203	150	15	.....	167	1,290	134	306	115
16	.....	22	110	40	134	185	16	.....	167	400	134	284	.....
17	.....	13	94	43	102	185	17	263	167	263	203	150	.....
18	.....	14	80	284	242	150	18	306	1,100	232	167	118	.....
19	.....	12	57	102	150	87	19	449	801	203	134	118	.....
20	.....	12	50	72	118	87	20	352	499	185	126	118	.....
21	14	12	50	72	110	87	21	263	1,580	185	126	118	.....
22	16	12	47	50	102	94	22	242	1,790	185	118	118	.....
23	18	9	47	203	105	474	23	222	185	185	118	115	.....
24	20	7	46	102	110	150	24	222	167	400	118	115	.....
25	22	6	43	80	150	102	25	252	234	263	118	110	.....
26	22	263	40	80	105	329	26	252	302	263	118	110	.....
27	19	688	40	80	102	134	27	252	436	222	118	110	.....
28	16	311	43	80	102	118	28	242	167	222	118	110	.....
29	14	72	64	80	167	118	29	232	150	978	118	110	.....
30	14	185	57	72	118	134	30	222	.....	716	110	118	.....
31	11	3,870	.....	64	.....	578	31	212	.....	263	.....	284	.....

NOTE.—Daily discharge determined from a rating curve well defined between 10 and 1,000 second-feet, based on measurements made during 1911 to 1914 by the U. S. Engineer Office and the U. S. Geological Survey.

Monthly discharge of Patuxent River near Burtonsville, Md., for 1911–12.

[Drainage area, 127 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1911.						
July 21–31	22	11	16.9	0.133	0.05	B.
August	3,870	6	204	1.61	1.86	C.
September	150	40	66.3	.522	.58	B.
October	284	40	71.0	.559	.64	B.
November	486	54	119	.937	1.05	B.
December	578	72	138	1.09	1.26	B.
1912.						
January	449	.....	199	1.57	1.81	D.
February	1,790	150	354	2.79	3.01	B.
March	1,620	102	351	2.76	3.18	B.
April	212	110	145	1.14	1.27	B.
May	424	87	154	1.21	1.40	B.
June 1–15	203	115	124	.976	.54	B.

NOTE.—Discharge computed by engineers of the U. S. Geological Survey from field data furnished by the U. S. Engineer Office. Discharge Jan. 5–16, estimated.

POTOMAC RIVER BASIN.

POTOMAC RIVER AT POINT OF ROCKS, MD.

Location.—At the steel highway bridge at Point of Rocks, about one-third mile below the mouth of Catoctin Creek and about 6 miles above the mouth of Monocacy River.

Records available.—February 17, 1895, to December 31, 1912.

Drainage area.—9,650 square miles.

Gage.—Chain, attached to bridge. Datum constant since September 2, 1902; prior to this date datum was 0.45 foot higher than at present.

Channel.—Practically permanent. The discharge is controlled by a ledge a few hundred feet below the station, the ledge extending completely across the river except for one relatively unimportant channel.

Discharge measurements.—Made from the bridge.

Winter flow.—Little affected by ice.

Canal.—The Chesapeake & Ohio Canal parallels the Potomac on the Maryland side. The average discharge of the canal is 75 to 100 second-feet. This discharge is not included in the following tables.

Accuracy.—Present discharge rating curve considered very accurate; should require relatively little change in the future.

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1912.

[G. H. Hickman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.5	3.3	5.9	7.6	3.6	2.3	2.5	2.5	0.86	2.5	1.25	1.05
2	5.2	3.2	4.8	6.7	3.5	2.1	2.3	2.7	1.1	2.3	1.25	1.15
3	5.0	3.2	4.1	5.6	3.4	2.3	2.2	2.6	1.35	2.1	1.2	1.05
4	4.6	3.0	3.6	5.4	3.3	2.1	2.5	1.9	1.5	1.85	1.1	1.1
5	3.8	2.8	3.3	4.9	2.8	2.0	1.9	1.8	1.35	1.65	1.1	1.2
6	2.4	2.8	3.2	4.8	2.7	2.1	1.8	1.55	2.0	1.5	1.15	1.4
7	2.3	2.8	3.0	4.5	2.6	2.2	1.85	1.4	1.3	1.65	1.15	1.45
8	2.1	2.8	2.8	3.8	4.5	2.0	1.95	1.35	1.25	1.55	1.8	1.3
9	1.9	2.6	2.8	3.6	4.6	1.8	1.85	1.6	1.2	1.35	.....	1.6
10	4.7	2.5	3.0	3.4	4.0	1.85	1.75	1.45	1.25	1.3	2.6	1.65
11	5.0	2.6	3.2	3.0	3.5	1.65	1.7	1.35	1.15	1.25	2.4	1.7
12	4.9	2.6	3.0	3.0	4.6	1.75	1.8	1.55	1.1	1.15	2.3	1.75
13	4.8	2.6	3.6	2.6	8.8	1.85	1.9	1.6	1.05	1.05	1.8	1.45
14	4.4	2.4	4.4	2.6	11.6	1.6	1.65	1.7	1.15	1.45	1.65	1.3
15	4.4	2.5	5.9	3.0	7.6	1.75	1.95	1.6	.96	1.2	1.6	1.15
16	4.3	2.7	12.0	3.0	6.3	2.6	1.7	1.35	1.0	1.15	1.45	1.45
17	4.3	2.7	13.0	2.9	9.0	2.3	1.65	1.3	.91	1.2	1.45	1.55
18	4.3	2.6	8.7	3.8	11.1	2.4	2.8	1.35	.96	1.05	1.45	1.5
19	4.3	2.9	6.5	4.7	7.0	2.3	2.4	1.25	1.0	1.15	1.4	1.6
20	4.5	3.0	5.8	6.0	6.3	2.3	2.3	1.3	1.0	1.2	1.3	1.55
21	4.0	3.2	5.7	4.8	5.0	2.0	3.0	1.25	.96	1.25	1.2	1.5
22	4.0	4.0	10.4	4.4	4.0	1.85	3.2	1.3	1.05	1.15	1.15	1.35
23	4.9	5.7	9.3	4.0	3.8	1.85	3.5	1.25	1.05	1.2	1.15	1.45
24	4.8	8.2	7.1	3.6	3.5	2.0	3.6	1.2	3.1	1.2	1.1	1.5
25	4.7	6.6	7.9	3.4	3.3	2.2	3.0	1.2	7.4	1.15	1.15	1.45
26	4.7	6.8	8.0	3.2	3.0	2.2	8.8	1.2	7.9	1.05	1.2	1.55
27	4.7	12.6	6.8	3.2	2.9	2.1	5.7	1.2	5.1	1.2	1.05	1.55
28	4.0	13.0	5.9	3.3	2.6	2.1	4.1	1.2	3.5	1.3	1.15	1.6
29	3.9	8.6	6.3	3.4	2.5	2.3	3.1	1.2	3.3	1.25	1.1	1.65
30	3.4	.....	9.7	3.5	2.4	2.1	2.9	1.05	2.9	1.2	1.05	1.7
31	3.4	.....	9.9	.....	2.3	.....	2.6	1.1	.....	1.25	.....	2.8

NOTE.—Relation of gage height to discharge affected by ice Jan. 10–29 and Feb. 23–26.

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	16,800	10,500	25,500	37,100	12,000	6,130	6,920	6,920	1,640	6,920	2,660	2,120
2	21,100	10,000	18,600	30,800	11,500	5,380	6,130	7,750	2,250	6,130	2,660	2,380
3	19,800	10,000	14,600	23,600	11,000	6,130	5,750	7,330	2,940	5,380	2,520	2,120
4	17,400	9,070	12,000	22,300	10,500	5,380	6,920	4,670	3,390	4,500	2,250	2,250
5	13,000	8,180	10,500	19,200	8,180	5,020	4,670	4,330	2,940	3,860	2,250	2,520
6	6,520	8,180	10,000	18,600	7,750	5,380	4,330	3,540	5,020	3,390	2,380	3,090
7	6,130	8,180	9,070	16,800	7,330	5,750	4,500	3,090	2,800	3,860	2,380	3,240
8	5,380	8,180	8,180	13,000	16,800	5,020	4,840	2,940	2,660	3,540	4,330	2,800
9	4,670	7,330	8,180	12,000	17,400	4,330	4,500	3,700	2,520	2,940	5,830	3,700
10	.....	6,920	9,070	11,000	14,100	4,500	4,170	3,240	2,660	2,800	7,330	3,860
11	.....	7,330	10,000	9,070	11,500	3,860	4,010	2,940	2,380	2,660	6,520	4,010
12	.....	7,330	9,070	9,070	17,400	4,170	4,330	3,540	2,250	2,380	6,130	4,170
13	.....	7,330	12,000	7,330	46,000	4,500	4,670	3,700	2,120	2,120	4,330	3,240
14	.....	6,520	16,300	7,330	68,900	3,700	3,860	4,010	2,380	3,240	3,860	2,800
15	.....	6,920	25,500	9,070	37,100	4,170	4,840	3,700	1,890	2,520	3,700	2,380
16	.....	7,750	72,200	9,070	28,100	7,330	4,010	2,940	1,990	2,380	3,240	3,240
17	.....	7,750	80,500	8,620	47,600	6,130	3,860	2,800	1,760	2,520	3,240	3,540
18	.....	7,330	45,300	13,000	64,700	6,520	8,180	2,940	1,890	2,120	3,240	3,390
19	.....	8,620	29,400	18,000	32,800	6,130	6,520	2,660	1,990	2,380	3,090	3,700
20	.....	9,070	24,800	26,100	28,100	6,130	6,130	2,800	1,990	2,520	2,800	3,540
21	.....	10,000	24,200	18,600	19,800	5,020	9,070	2,660	1,890	2,660	2,520	3,390
22	.....	14,100	58,900	16,300	14,100	4,500	10,000	2,800	2,120	2,380	2,380	2,940
23	.....	18,000	50,000	14,100	13,000	4,500	11,500	2,660	2,120	2,520	2,380	3,240
24	.....	20,000	33,500	12,000	11,500	5,020	12,000	2,520	9,530	2,520	2,250	3,390
25	.....	24,000	39,200	11,000	10,500	5,750	9,070	2,520	35,600	2,380	2,380	3,240
26	.....	26,000	40,000	10,000	9,070	5,750	46,000	2,520	39,200	2,120	2,520	3,540
27	.....	77,200	31,500	10,000	8,620	5,380	24,200	2,520	20,400	2,520	2,120	3,540
28	.....	80,500	25,500	10,500	7,330	5,380	14,600	2,520	11,500	2,800	2,380	3,700
29	.....	44,500	28,100	11,000	6,920	6,130	9,530	2,520	10,500	2,660	2,250	3,860
30	11,000	.....	53,200	11,500	6,520	5,380	8,620	2,120	8,620	2,520	2,120	4,010
31	11,000	.....	54,800	.....	6,130	.....	7,330	2,250	.....	2,660	.....	8,180

NOTE.—Daily discharge determined from a well-defined rating curve. Discharge Feb. 23–26, estimated.

Monthly discharge of Potomac River at Point of Rocks, Md., for 1912.

[Drainage area, 9,650 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	21,100	4,670	9,450	0.979	1.13	D.
February	80,500	6,520	16,400	1.70	1.83	C.
March	80,500	8,180	28,700	2.97	3.42	A.
April	37,100	7,330	14,900	1.54	1.72	A.
May	68,900	6,130	19,800	2.05	2.36	A.
June	7,330	3,700	5,280	.547	.61	A.
July	46,000	3,860	8,550	.886	1.02	A.
August	7,750	2,120	3,460	.359	.41	A.
September	39,200	1,640	6,360	.659	.74	A.
October	6,920	2,120	3,090	.320	.37	A.
November	7,330	2,120	3,270	.339	.38	A.
December	8,180	2,120	3,390	.351	.40	A.
The year	80,500	1,640	10,200	1.06	14.39	

NOTE.—Mean discharge Jan. 10–29 estimated 8,000 second-feet because of ice.

MONOCACY RIVER NEAR FREDERICK, MD.

Location.—At the county bridge on the toll road leading from Frederick to Mount Pleasant, Md., about 3,000 feet below the mouth of Tuscarora Creek (entering from the right) and about 2,000 feet above Israel Creek (entering from the left).
Records available.—August 4, 1896, to December 31, 1912.
Drainage area.—660 square miles.
Gage.—Chain, attached to the bridge; datum unchanged.
Channel.—Liable to change somewhat from year to year.
Discharge measurements.—Made from the bridge or by wading.
Winter flow.—More or less affected by ice.
Accuracy.—Changes in rating curve are required by change in conditions of flow.

Daily gage height, in feet, of Monocacy River near Frederick, Md., for 1912.

[E. L. Derr, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	9.5	5.6	7.5	7.6	6.5	4.9	4.9	4.7	4.3	6.3	4.4	4.4
2	7.5	5.6	6.9	7.4	5.7	4.8	4.7	4.9	4.3	5.8	4.4	4.4
3	6.5	5.6	6.2	8.5	5.5	4.7	4.6	4.6	4.3	5.3	4.5	4.5
4	6.3	5.5	5.9	6.7	5.4	4.7	4.6	4.5	4.6	5.2	4.3	4.7
5	6.1	5.6	5.5	6.5	5.3	4.7	4.7	4.3	4.5	5.1	4.5	4.7
6	5.9	5.9	5.7	6.4	5.3	4.7	4.6	4.4	4.4	5.0	4.5	5.3
7	6.0	5.8	5.9	6.2	6.4	4.7	4.6	4.3	4.4	4.9	4.5	6.8
8	6.4	5.8	6.4	8.2	6.2	4.7	4.5	4.3	4.5	4.8	7.5	5.1
9	7.0	5.8	6.6	6.9	6.7	4.7	4.4	4.7	4.4	4.8	6.3	5.0
10	7.0	5.8	6.5	6.5	6.4	4.6	4.3	4.7	4.3	4.7	5.2	4.9
11	6.9	5.9	6.3	6.3	5.7	4.5	4.4	9.1	4.3	4.7	5.2	4.7
12	6.5	5.9	6.0	5.8	6.0	4.5	4.7	8.5	4.2	4.7	5.0	4.5
13	6.5	5.8	13.5	5.8	6.5	4.5	5.3	6.9	4.0	4.7	4.8	4.3
14	6.5	5.8	13.8	6.9	5.7	4.5	5.0	4.9	4.0	4.6	4.7	4.3
15	6.5	5.8	17.4	6.1	5.7	4.5	4.7	4.6	4.0	4.6	4.6	4.5
16	6.4	5.7	19.4	7.1	5.7	5.0	4.6	4.6	4.0	4.5	4.6	4.5
17	6.4	5.5	9.7	7.0	7.5	4.9	4.6	4.5	4.0	4.5	4.6	4.5
18	5.9	5.3	8.5	7.4	6.9	4.8	8.6	4.5	4.0	4.5	4.5	4.6
19	6.0	5.2	8.2	7.1	5.7	4.8	7.6	4.5	4.2	4.5	4.5	5.4
20	6.2	7.1	8.0	6.4	5.3	4.8	5.0	4.5	4.1	4.5	4.5	5.3
21	6.1	7.5	8.7	6.2	5.4	4.7	5.0	4.8	4.1	4.5	4.5	5.2
22	5.9	18.5	8.3	5.9	5.3	4.6	6.3	4.6	4.1	4.6	4.5	5.2
23	5.9	9.0	7.5	5.8	5.2	4.6	5.6	4.5	4.25	4.7	4.5	5.2
24	5.9	7.1	12.9	5.6	5.1	4.6	5.5	4.5	7.0	4.9	4.5	5.3
25	5.7	6.5	12.0	.5	5.1	5.2	6.0	4.5	22.7	4.9	4.5	5.5
26	5.7	14.1	9.5	5.5	5.0	5.2	5.5	4.4	18.5	4.7	4.5	5.6
27	5.6	15.4	8.4	6.0	4.8	7.7	5.1	4.3	7.9	4.6	4.5	6.3
28	5.5	9.5	7.4	5.9	4.8	5.7	4.9	4.3	7.5	4.6	4.5	6.7
29	5.5	8.9	18.0	5.8	4.8	5.2	4.7	4.3	6.9	4.6	4.4	6.0
30	5.5	.....	10.9	6.9	5.0	5.0	4.9	4.3	6.5	4.5	4.4	10.6
31	5.5	.....	8.5	.....	5.0	.....	4.8	4.3	.....	4.4	.....	15.0

NOTE.—Relation of gage height to discharge affected by ice Jan. 7–27 and Feb. 6–17.

Daily discharge, in second-feet, of Monocacy River near Frederick, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4,160	846	2,280	2,370	1,440	484	484	398	250	1,300	284	284
2	2,280	846	1,760	2,190	904	440	398	484	250	964	284	284
3	1,440	846	1,220	3,200	790	398	358	358	250	680	320	320
4	1,300	790	1,030	1,600	734	398	358	320	358	628	320	398
5	1,160	846	790	1,440	680	398	398	250	320	578	320	398
6	1,030	.....	904	1,360	680	398	358	284	284	530	320	680
7	.....	.....	1,030	1,220	1,360	398	358	250	284	484	320	1,680
8	.....	.....	1,360	2,920	1,220	398	320	250	320	440	2,280	578
9	.....	.....	1,520	1,760	1,600	398	284	398	284	440	1,300	530
10	.....	.....	1,440	1,440	1,360	358	250	398	250	398	628	484

Daily discharge, in second-feet, of Monocacy River near Frederick, Md., for 1912—Contd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	.....	.....	1,300	1,300	904	320	284	3,780	250	398	628	398
12	.....	.....	1,090	964	1,090	320	398	3,200	218	398	530	320
13	.....	.....	8,180	964	1,440	320	680	1,760	158	398	440	250
14	.....	.....	8,490	1,760	904	320	530	484	158	358	398	250
15	.....	.....	12,300	1,160	904	320	398	358	158	358	358	320
16	.....	.....	14,400	1,940	904	530	358	358	158	320	358	320
17	.....	.....	4,340	1,850	2,280	484	358	320	158	320	358	320
18	.....	680	3,200	2,190	1,760	440	3,300	320	158	320	320	358
19	.....	628	2,920	1,940	904	440	2,370	320	218	320	320	734
20	.....	1,940	2,730	1,360	680	440	530	320	188	320	320	680
21	.....	2,280	3,400	1,220	734	398	530	440	188	320	320	628
22	.....	13,400	3,020	1,030	680	358	1,300	358	188	358	320	628
23	.....	3,680	2,280	964	628	358	846	320	234	398	320	268
24	.....	1,940	7,540	846	578	358	790	320	1,850	484	320	680
25	.....	1,440	6,610	790	578	628	1,090	320	17,800	484	320	790
26	.....	8,800	4,160	790	530	628	790	284	13,400	398	320	846
27	.....	10,200	3,110	1,090	440	2,460	578	250	2,640	358	320	1,300
28	790	4,160	2,190	1,030	440	904	484	250	2,280	358	320	1,600
29	790	3,580	12,900	964	440	628	398	250	1,760	358	284	1,090
30	790	.....	5,510	1,760	530	530	484	250	1,440	320	284	5,210
31	790	.....	3,200	.....	530	.....	440	250	.....	284	.....	9,750

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

Monthly discharge of Monocacy River near Frederick, Md., for 1912.

[Drainage area, 660 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	4,160	790	1,010	1.53	1.76	D.
February	13,400	628	2,230	3.38	3.64	D.
March	14,400	790	4,070	6.17	7.11	B.
April	3,200	790	1,510	2.29	2.56	B.
May	2,280	440	924	1.40	1.61	B.
June	2,460	320	508	.770	.86	B.
July	3,300	250	661	1.00	1.15	B.
August	3,780	250	577	.874	1.01	B.
September	17,800	158	1,550	2.35	2.62	B.
October	1,300	284	454	.688	.79	B.
November	2,280	284	451	.683	.76	B.
December	9,750	250	1,060	1.61	1.86	B.
The year	17,800	158	1,250	1.89	25.73	

NOTE.—Mean discharge Jan. 7–27 estimated 800 second-feet. Mean discharge Feb. 6–17 estimated 650 second-feet.

GOOSE CREEK NEAR LEESBURG, VA.

Location.—At Evergreen Mills about 7 miles directly south of Leesburg (the most convenient railroad station), about 1 mile below the mouth of Little River and 10 miles above the mouth of Goose Creek.

Records available.—July 12, 1909, to December 31, 1912.

Drainage area.—338 square miles.

Gage.—Vertical staff, spiked to a tree on the left bank immediately below the tail-race of the mill.

Channel.—Fairly permanent.

Discharge measurements.—Made between the mill and the dam, either by wading or from the highway bridge. The discharge of the mill race is also measured and added to the discharge between the mill and the dam.

Artificial control.—The dam at this point is of timber and rock and at low stages most of the water passes through it. The mill race carries water at all times, three or four times more when the mill is running than when it is idle. This variation in flow causes variation in the gage heights ranging from a few hundredths to about 0.15 foot; but as the mill is run only four or five hours a day the fluctuation has a relatively small effect on the accuracy of estimates.

Daily gage height, in feet, of Goose Creek near Leesburg, Va., for 1912.

[J. O. Daniel, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.5	1.6	3.6	3.8	2.4	2.6	2.2	2.7	1.0	2.9	1.3	1.2
2	3.4	1.6	3.5	3.4	2.4	2.8	2.15	2.7	.75	2.8	1.3	1.22
3	3.4	1.55	3.0	3.6	2.4	2.8	2.1	2.9	.6	2.8	1.3	1.22
4	3.4	1.55	2.8	3.2	2.5	2.7	2.05	2.8	.6	2.8	1.3	1.2
5	3.2	1.5	2.6	3.1	2.5	2.5	2.15	2.8	.6	2.5	1.28	1.3
6	3.2	1.5	2.5	2.8	2.5	3.3	2.1	3.0	.75	2.2	1.28	1.3
7	3.0	1.5	2.8	3.2	2.6	2.7	2.0	2.9	1.2	2.0	1.27	1.3
8	2.8	1.48	2.8	2.8	2.8	2.6	1.8	2.8	1.6	1.75	1.25	1.28
9	2.6	1.48	2.6	2.3	2.7	2.6	1.4	2.8	1.5	1.3	1.25	1.28
10	2.4	1.46	2.6	2.4	2.7	2.6	1.2	2.4	1.0	1.3	1.26	1.26
11	2.15	1.5	2.6	2.35	4.0	2.5	1.0	2.2	.8	1.3	1.26	1.2
12	2.1	1.5	3.0	2.45	4.5	2.4	1.1	2.0	.6	1.3	1.26	1.2
13	2.05	1.48	4.5	2.3	5.0	2.4	1.2	1.9	.4	1.3	1.26	1.2
14	2.05	1.46	4.0	2.2	5.5	2.4	1.4	1.8	.3	1.3	1.26	1.2
15	2.0	1.46	5.5	2.1	4.0	2.5	1.4	2.0	.3	1.3	1.26	1.2
16	2.0	1.48	4.6	2.1	3.8	3.0	1.5	1.8	.3	1.3	1.26	1.4
17	1.85	1.5	4.0	2.2	4.0	3.5	1.6	1.4	.3	1.3	1.26	1.4
18	1.8	1.6	3.5	2.4	3.3	2.9	1.65	1.3	.5	1.3	1.26	1.38
19	1.8	1.6	2.8	2.5	5.0	3.1	1.65	1.2	2.1	1.3	1.26	1.36
20	1.85	2.5	2.6	2.6	4.8	3.2	1.65	1.0	2.1	1.3	1.26	1.35
21	1.8	2.7	2.3	2.5	4.2	3.1	1.65	.95	2.2	1.3	1.26	1.35
22	1.8	3.0	2.6	2.5	3.4	3.0	1.7	.95	2.2	1.3	1.26	1.35
23	1.8	4.5	2.8	2.5	3.2	3.0	1.7	1.0	3.0	1.25	1.26	1.35
24	1.7	4.0	2.9	2.45	2.7	2.8	2.1	.85	.....	1.25	1.24	1.38
25	1.7	3.5	2.7	2.4	2.5	2.8	2.0	.85	.....	1.25	1.24	1.4
26	1.7	3.6	2.7	2.5	2.4	2.7	1.8	.85	5.0	1.25	1.23	1.45
27	1.65	5.0	2.5	2.4	2.4	2.6	1.7	1.0	4.0	1.3	1.22	1.5
28	1.65	4.0	2.45	2.6	2.6	2.5	1.7	1.2	3.0	1.3	1.2	1.5
29	1.65	3.8	6.0	2.5	2.8	2.2	1.7	1.2	3.0	1.3	1.2	1.5
30	1.65	.....	4.5	2.5	2.7	2.25	1.9	1.2	3.0	1.3	1.2	8.5
31	1.65	.....	3.0	.....	2.7	.....	2.8	1.2	.....	1.3	.....	5.0

NOTE.—Relation of gage height to discharge affected by ice during parts of January and February. On Sept. 24 and 25 water was above the gage which reads to 16.0 feet.

Daily discharge, in second-feet, of Goose Creek near Leesburg, Va., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	944	240	985	1,070	513	588	441	626	84	704	155	130
2	903	240	944	903	513	665	423	626	42	665	155	135
3	903	225	743	985	513	665	405	704	25	665	155	135
4	903	225	665	823	550	626	388	665	25	665	155	130
5	823	210	588	783	550	550	423	665	25	550	150	155
6	823	210	550	665	550	863	405	743	42	441	150	155
7	743	210	665	823	588	626	370	704	130	370	148	155
8	665	204	665	665	665	588	303	665	240	287	142	150
9	588	204	588	477	626	588	182	665	210	155	142	150
10	513	199	588	513	626	588	130	513	84	155	145	145
11	423	210	588	495	1,150	550	84	441	49	155	145	130
12	405	210	743	532	1,370	513	106	370	25	155	145	130
13	388	204	1,370	477	1,590	513	130	336	11	155	145	130
14	388	199	1,150	441	1,820	513	182	303	7	155	145	130
15	370	199	1,820	405	1,150	550	182	370	7	155	145	130

Daily discharge, in second-feet, of Goose Creek near Leesburg, Va., for 1912—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	370	204	1,410	405	1,070	743	210	303	7	155	145	182
17	320	210	1,150	441	1,150	944	240	182	7	155	145	182
18	303	240	944	513	863	704	256	155	17	155	145	177
19	303	240	665	550	1,590	783	256	130	405	155	145	171
20	320	550	588	588	1,500	823	256	84	405	155	145	168
21	303	626	477	550	1,240	783	256	74	441	155	145	168
22	303	743	588	550	903	743	271	74	441	155	145	168
23	303	1,370	665	550	823	743	271	84	743	142	145	168
24	271	1,150	704	532	626	665	405	57	7,000	142	140	177
25	271	944	626	513	550	665	370	57	7,000	142	140	182
26	271	985	626	550	513	626	303	57	1,590	142	138	196
27	256	1,590	550	513	513	588	271	84	1,150	155	135	210
28	256	1,150	532	588	588	550	271	130	743	155	130	210
29	256	1,070	2,040	550	665	441	271	130	743	155	130	210
30	256	.....	1,370	550	626	459	336	130	743	155	130	3,160
31	256	.....	743	.....	626	.....	665	130	.....	155	.....	1,590

NOTE.—Daily discharge determined from a rating curve well defined between 50 and 1,400 second-feet. Discharge may be somewhat in error at times during January and February because of ice. Discharge Sept. 24 and 25 estimated.

Monthly discharge of Goose Creek near Leesburg, Va., for 1912.

[Drainage area, 338 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	944	256	465	1.38	1.59	D.
February	1,590	199	492	1.46	1.58	D.
March	2,040	477	849	2.51	2.89	B.
April	1,070	405	600	1.78	1.99	B.
May	1,820	513	859	2.54	2.93	B.
June	944	441	642	1.90	2.12	B.
July	665	84	292	.864	1.00	B.
August	743	57	331	.979	1.13	B.
September	[a] 7,000	7	748	2.21	2.47	D.
October	704	142	254	.751	.87	B.
November	155	130	144	.426	.48	C.
December	3,160	130	304	.899	1.04	B.
The year	7,000	7	498	1.47	20.09	

[a] Estimated.

NORTHEAST BRANCH OF ANACOSTIA RIVER AT HYATTSVILLE, MD.

Location.—Just above a highway bridge in eastern part of Hyattsville and about 2,800 feet upstream from the Washington-Baltimore turnpike bridge.

Records available.—July 1, 1911, to September 22, 1912.

Drainage area.—75 square miles.

Gage.—Vertical staff with zero at elevation 6.28 feet above United States Engineer Office mean low-water datum.

Channel.—Gravel; probably permanent.

Discharge measurements.—By wading, or from bridge below station.

Cooperation.—Station established, maintained, and records furnished by United States Engineer Office.

Daily gage height, in feet, and discharge, in second-feet, of Northeast Branch of Anacostia River at Hyattsville, Md., for 1911.

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1	0.80	6.8	0.73	4.3	1.58	124.1	0.89	11.0	1.00	22.0	1.27	62.5
2	.80	6.8	.71	3.7	1.38	81.9	.97	16.5	.97	18.5	1.21	52.4
3	.80	6.8	.72	4.0	1.25	59.1	.96	16.0	.96	17.5	1.16	44.6
4	.80	6.8	1.68	153.3	.96	17.5	.91	12.3	.97	18.5	1.14	41.6
5	.80	6.8	1.25	59.1	.95	16.6	.87	10.0	.96	17.5	1.12	38.5
6	.80	6.8	.97	18.5	.94	15.6	.88	10.5	1.03	25.9	1.11	37.0
7	.80	6.8	.85	9.3	.92	14.0	.90	12.0	1.83	175.0	1.10	35.5
8	.80	6.8	.80	6.8	.99	20.7	.92	13.0	1.28	64.3	1.10	35.5
9	.80	6.8	.79	6.4	.94	15.6	.89	11.0	1.15	43.1	1.10	35.5
10	.80	6.8	.78	6.0	.96	17.5	.88	10.5	1.11	37.0	1.10	35.5
11	.80	6.8	.76	5.2	1.04	27.4	.92	13.0	1.09	34.0	1.09	34.0
12	.72	4.0	.83	8.3	.96	17.5	.92	13.0	1.10	35.5	1.08	32.5
13	.76	5.2	.81	7.3	.90	12.2	.89	11.0	1.23	55.6	1.07	31.2
14	.74	4.6	.81	7.3	.86	9.8	.86	9.5	1.53	111.7	1.07	30.0
15	.85	9.3	.83	8.3	1.16	44.6	.86	9.5	1.65	143.0	1.38	81.9
16	.81	7.3	.89	11.6	1.14	41.6	.90	12.0	1.32	71.0	1.99	211.0
17	.87	10.4	.81	7.3	1.04	27.4	.90	12.0	1.23	55.6	1.27	62.5
18	.88	11.0	.83	8.3	.94	15.6	2.42	308.0	1.66	147.0	1.33	72.8
19	.80	6.8	.81	7.3	.92	14.0	1.37	72.0	1.51	107.4	1.23	55.6
20	.79	6.4	.76	5.2	.91	13.5	1.11	29.3	1.33	72.8	1.22	54.0
21	.78	6.0	.74	4.6	.89	11.6	1.05	23.0	1.21	52.4	1.19	49.2
22	.79	6.4	.74	4.6	.91	13.5	1.12	28.0	1.11	37.0	1.35	76.3
23	.75	5.0	.73	4.3	.90	12.2	1.53	111.7	1.07	31.2	2.53	336.0
24	.75	5.0	.72	4.0	.88	11.0	1.26	59.0	1.16	44.6	1.60	129.5
25	.70	3.5	.92	14.0	.89	11.6	1.11	30.5	1.54	114.6	1.57	121.5
26	.73	4.3	1.79	167.0	.87	10.4	1.07	25.0	1.33	72.8	1.46	97.3
27	.73	4.3	1.06	30.0	.85	9.3	1.04	23.0	1.23	55.6	2.33	287.0
28	.74	4.6	.93	14.8	.86	9.8	1.00	22.0	1.71	163.0	1.52	110.0
29	.73	4.3	1.02	24.5	.93	14.8	1.00	22.0	1.93	197.0	1.33	72.8
30	.71	3.7	1.33	72.8	.93	14.8	1.00	22.0	1.40	85.6	1.32	71.0
31	.71	3.7	2.81	404.0	.....	.....	1.00	22.0	.....	.....	2.83	414.0

Daily gage height, in feet, of Northeast Branch of Anacostia River at Hyattsville, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1.99	1.60	1.12	1.68	1.27	1.36	1.37	1.25	1.05
2	1.45	1.34	.97	1.65	1.24	1.30	1.31	1.21	1.00
3	1.38	1.31	.92	2.17	1.24	1.46	1.29	1.20	1.22
4	1.34	1.22	.87	1.71	1.20	1.40	1.26	1.20	1.11
5	1.32	1.41	.87	1.58	1.20	1.36	1.23	1.15	1.09
6	1.70	1.30	.90	1.51	1.30	1.55	1.19	1.15	1.03
7	1.37	1.34	1.00	1.49	7.30	1.57	1.19	1.15	.99
8	1.50	1.20	1.26	1.75	3.44	1.38	1.17	1.14	1.33
9	1.34	1.30	1.21	1.51	1.93	1.35	1.14	1.13	1.10
10	1.38	1.32	1.08	1.42	1.82	1.31	1.05	1.25	1.00
11	1.27	1.26	.95	1.37	1.80	1.30	1.27	1.22	.94
12	1.30	1.22	1.75	1.34	2.16	1.30	1.24	1.15	.92
13	1.47	1.12	5.00	1.55	2.30	1.30	1.20	1.12	.91
14	1.60	1.17	2.08	1.47	1.91	1.28	1.15	1.15	1.00
15	1.37	1.13	4.30	1.41	1.89	1.28	2.12	1.13	1.01
16	1.44	.99	5.10	1.50	3.21	2.05	1.48	1.09	1.77
17	1.33	1.06	1.60	1.58	2.70	2.20	1.40	1.08	1.19
18	1.40	1.30	1.73	2.25	2.05	1.55	1.32	1.01	1.13
19	2.80	4.00	1.62	2.10	1.79	1.35	1.73	1.14	1.70
20	4.24	2.50	1.57	1.60	1.67	1.40	1.39	1.45	1.42
21	3.68	3.00	1.52	1.42	1.60	1.15	1.31	1.25	1.18
22	2.65	2.75	1.42	1.44	1.55	1.10	1.73	1.15	1.01
23	1.99	2.02	1.39	1.50	1.53	1.10	1.35	1.13	.....
24	1.51	1.50	3.07	1.37	1.53	1.28	1.54	1.08	.....
25	1.28	1.53	2.35	1.32	1.49	1.33	1.87	1.02	.....
26	1.25	2.17	1.70	1.30	1.44	1.30	1.47	1.01	.....
27	1.43	4.43	1.56	1.30	1.41	4.90	1.32	1.04	.....
28	1.51	2.18	1.47	1.33	1.41	1.65	1.25	.99	.....
29	1.65	1.70	4.95	1.28	1.46	1.43	1.28	1.12	.....
30	2.59	.....	3.30	1.31	1.45	1.21	1.43	1.08	.....
31	1.80	.....	2.02	.....	1.46	.....	1.25	1.03	.....

Daily discharge, in second-feet, of Northeast Branch of Anacostia River at Hyattsville, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	211.0	129.6	32.3	133.2	55.2	70.3	44.5	28.0	8.0
2	95.5	74.6	14.5	126.1	50.1	60.0	36.0	23.0	4.8
3	81.9	69.2	10.6	241.0	50.1	89.0	33.0	21.5	24.0
4	74.6	54.0	7.5	138.9	44.0	77.4	29.0	21.5	12.0
5	71.0	87.6	7.5	111.5	44.0	70.3	25.0	16.0	10.5
6	160.0	67.5	9.5	98.3	60.0	105.9	20.5	16.0	6.5
7	80.0	74.6	17.3	94.7	1,758.0	109.6	20.5	16.0	4.0
8	106.0	50.8	53.6	148.8	515.3	74.0	18.0	15.0	38.5
9	74.6	67.5	45.6	98.3	188.6	68.6	15.0	14.0	11.0
10	81.9	71.0	26.9	81.0	164.8	61.7	8.0	28.0	4.8
11	62.5	61.0	12.6	72.1	160.0	60.0	30.5	24.0	3.0
12	67.5	54.0	149.0	67.0	238.2	60.0	26.3	16.3	2.2
13	99.0	38.5	964.0	105.7	268.0	60.0	21.5	13.0	2.0
14	129.5	46.1	220.0	90.9	184.2	56.9	16.0	16.0	4.8
15	80.0	39.9	765.0	79.2	180.0	56.9	195.0	14.0	5.5
16	93.5	20.7	992.0	96.5	482.4	214.0	63.0	10.5	117.0
17	72.8	30.0	115.6	111.5	361.0	220.0	49.5	10.0	20.5
18	85.8	67.5	144.0	258.0	214.0	75.2	37.0	5.5	14.0
19	400.0	717.0	120.5	225.0	157.9	42.0	110.0	15.0	104.5
20	786.0	328.0	104.1	116.5	130.9	49.5	48.0	58.0	53.0
21	630.0	432.0	102.0	81.0	116.5	16.0	36.0	28.0	19.5
22	365.0	373.0	81.0	85.0	105.8	11.0	110.0	16.0	5.5
23	211.0	207.0	75.7	96.5	102.0	11.0	42.0	14.0	.....
24	107.3	96.5	448.0	72.1	102.0	31.5	74.0	10.0	.....
25	64.1	102.0	280.0	63.4	94.7	38.5	138.0	6.0	.....
26	59.1	240.0	138.0	60.0	85.0	34.5	61.5	5.5	.....
27	91.6	800.0	107.7	60.0	79.2	886.0	37.0	7.0	.....
28	107.3	243.0	92.8	65.2	79.2	94.0	28.0	4.0	.....
29	144.0	137.7	948.0	56.9	89.0	54.5	31.5	13.0	.....
30	350.0	.....	504.0	61.7	87.0	23.0	58.0	10.0	.....
31	193.0	.....	208.0	.....	89.0	.....	28.0	6.5	.....

Monthly discharge of Northeast Branch of Anacostia River at Hyattsville, Md., for 1911–12.

[Drainage area, 75 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1911.					
July	11.0	3.5	6.15	0.08	0.09
August	404.0	3.7	35.23	.47	.54
September	124.1	9.3	21.17	.32	.36
October	308.0	9.5	32.27	.43	.50
November	197.0	17.5	70.89	.95	1.05
December	414.0	30.0	91.89	1.23	1.41
1912.					
January	786	59.1	169	2.25	2.59
February	800	20.7	165	2.20	2.37
March	992	7.5	219	2.92	3.37
April	258	56.9	107	1.43	1.60
May	1,758	44.0	204	2.72	3.14
June	886	11.0	96.0	1.28	1.43
July	195	8.0	48.1	.641	.74
August	58.0	4.0	16.2	.216	.25
September 1–22	117	2.0	21.6	.288	.24

NORTHWEST BRANCH OF ANACOSTIA RIVER AT BLADENSBURG, MD.

Location.—About 300 feet above the Washington & Maryland Railway Co.'s bridge and about half a mile northwest of Bladensburg.

Records available.—July 1, 1911, to September 22, 1912.

Drainage area.—52 square miles.

Gage.—Vertical staff on left bank. Gage zero is 4.59 feet above United States Engineer Office mean low-water datum.

Channel.—Sandy and probably shifting.

Discharge measurements.—Made by wading or from a gaging bridge.

Cooperation.—Station established, maintained, and records furnished by the United States Engineer Office.

Daily gage height in feet and discharge, in second-feet of Northwest Branch of Anacostia River at Bladensburg, Md., for 1911.

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1	0.60	4.8	0.52	3.4	2.95	273.0	0.76	8.3	0.90	13.2	1.28	36.3
2	.60	4.8	.49	3.0	3.94	473.0	.78	8.8	.86	11.6	1.11	23.9
3	.60	4.8	.55	3.9	1.93	104.0	.77	8.5	.81	9.8	1.02	19.0
4	.60	4.8	1.87	96.3	1.72	78.0	.81	9.8	.85	11.2	.99	17.4
5	.60	4.8	1.20	30.2	1.24	33.2	.80	9.5	.94	15.0	.97	16.4
6	.60	4.8	.91	13.6	.99	17.4	.75	8.0	1.98	110.8	.95	15.4
7	.60	4.8	.71	7.0	.98	16.9	.72	7.3	1.52	56.9	.90	13.2
8	.60	4.8	.65	5.8	.93	14.5	.69	6.6	1.25	34.0	.92	14.1
9	.60	4.8	.60	4.8	.83	10.5	.68	6.4	1.15	27.6	.95	15.4
10	.60	4.8	.59	4.6	.80	9.5	.66	6.0	1.12	24.6	.89	12.8
11	.60	4.8	.58	4.4	.82	10.2	.75	8.0	1.05	20.6	.97	16.4
12	.60	4.8	.59	4.6	.75	8.0	.81	9.8	1.18	28.7	1.05	20.4
13	.59	4.6	.60	4.8	.68	6.4	.79	9.1	1.23	34.0	1.00	18.0
14	.59	4.6	.65	5.8	.65	5.8	.75	8.0	1.65	70.0	1.02	19.0
15	.68	6.4	.71	7.0	1.13	25.3	.79	9.1	1.75	81.5	1.35	42.0
16	.72	7.3	.68	6.4	.99	17.4	.78	8.8	1.61	65.4	1.61	65.4
17	.75	8.0	.64	5.6	.95	15.4	.78	8.8	1.35	42.0	1.61	65.4
18	.60	4.8	.59	4.6	.90	13.2	2.65	218.0	1.20	30.2	1.39	45.4
19	.61	5.0	.59	4.6	.86	11.6	1.25	34.0	1.20	30.2	1.35	42.0
20	.59	4.6	.58	4.4	.81	9.8	1.10	23.3	1.22	31.8	1.13	25.3
21	.97	16.4	.57	4.2	.83	10.5	1.25	34.0	1.08	22.2	1.12	24.6
22	.84	10.8	.55	3.9	.82	10.2	1.31	38.7	1.01	18.5	1.16	27.3
23	.58	4.4	.55	3.9	.80	9.5	1.69	74.5	1.00	18.0	3.15	312.0
24	.58	4.4	.55	3.9	.78	8.8	1.21	31.0	1.25	34.0	1.95	106.5
25	.54	3.8	1.65	70.0	.80	9.5	1.10	23.3	1.35	42.0	1.74	80.4
26	.52	3.4	1.35	42.0	.80	9.5	1.04	20.1	1.24	33.2	1.45	50.6
27	.53	3.6	.96	15.9	.78	8.8	1.02	19.0	1.25	34.0	2.20	142.4
28	.51	3.3	.91	13.6	.76	8.3	1.01	18.5	1.98	110.8	1.55	59.8
29	.50	3.2	1.27	35.6	.79	9.1	.96	15.9	1.71	76.1	1.39	45.4
30	.51	3.3	1.43	48.9	.74	7.8	.94	15.0	1.31	38.7	1.35	42.0
31	.51	3.3	3.91	468.0	.....	.....	.92	14.1	.....	.....	3.52	387.0

Daily gage height, in feet, of Northwest Branch of Anacostia River at Bladensburg, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	2.55	1.75	1.65	1.90	1.50	1.47	1.22	1.05	0.92
2	1.72	1.53	1.48	1.78	1.47	1.42	1.18	1.02	.90
3	1.55	1.65	1.40	2.95	1.40	1.38	1.16	1.00	.98
4	1.41	1.63	1.28	1.82	1.37	1.35	1.15	.98	.92
5	1.35	1.65	1.00	1.65	1.35	1.24	1.05	.96	.94
6	1.68	1.75	.94	1.63	1.45	1.25	1.03	.96	.90
7	1.35	1.65	1.75	1.62	[a]6.00	1.46	1.00	.94	.88
8	1.45	1.48	1.80	2.05	3.30	1.35	.98	.94	1.28
9	1.32	1.45	1.89	1.78	2.30	1.14	.95	.96	.98
10	1.39	1.05	1.61	1.65	1.85	1.10	.90	1.15	.92
11	1.35	1.17	1.48	1.59	1.72	1.09	1.15	1.05	.84
12	1.38	1.28	1.76	1.54	2.35	1.07	1.00	1.00	.82
13	1.41	1.31	4.40	1.72	3.00	1.05	.98	1.00	.80
14	1.65	1.28	2.10	1.64	2.32	1.20	.96	.97	.80
15	1.55	1.20	1.55	1.62	1.71	1.38	2.00	.95	.78
16	1.28	1.05	5.05	1.80	3.60	1.20	1.80	.95	2.40
17	1.04	1.08	2.10	1.85	2.40	2.20	1.70	.95	1.30
18	.93	2.45	1.95	1.96	2.05	1.60	1.52	.94	1.10
19	1.55	1.80	1.80	2.05	1.60	1.44	1.40	.90	1.45
20	4.53	1.55	1.55	1.75	1.50	1.44	1.30	1.36	1.20
21	2.71	3.15	1.38	1.61	1.45	1.33	1.05	1.00	1.00
22	1.65	3.65	1.35	1.64	1.40	1.28	1.75	.95	.95
23	1.55	2.80	1.27	1.70	1.40	1.30	1.30	.90	.....
24	1.45	1.95	3.28	1.57	1.42	1.38	1.08	.90	.....
25	1.30	1.65	2.26	1.50	1.38	1.80	1.75	.86	.....
26	1.25	1.78	1.83	1.46	1.31	2.43	1.45	.85	.....
27	1.42	5.48	1.68	1.50	1.27	3.50	1.15	.90	.....
28	1.51	2.00	1.65	1.49	1.24	1.66	1.00	.86	.....
29	1.65	1.72	4.40	1.46	1.30	1.49	1.05	1.05	.....
30	2.85	.....	3.84	1.57	1.65	1.49	1.37	.95	.....
31	2.05	.....	2.10	.....	1.52	.....	1.05	.92	.....

[a] Backwater.

Daily discharge, in second-feet, of Northwest Branch of Anacostia River at Bladensburg, Md., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	200.0	81.5	57.5	83.0	44.0	41.5	36.0	24.3	17.0
2	78.0	58.0	42.4	70.4	41.5	37.5	33.0	22.4	16.2
3	60.0	70.0	36.0	220.0	36.0	34.3	31.4	21.2	20.0
4	47.1	68.0	27.0	74.5	33.5	32.0	30.7	20.0	17.0
5	42.0	70.0	11.5	57.7	32.0	24.4	24.3	19.0	18.0
6	73.5	81.5	9.0	55.8	40.0	25.0	23.0	19.0	16.2
7	42.0	70.0	67.5	54.8	366.0	40.7	21.2	18.0	15.4
8	50.7	53.4	72.3	99.8	272.0	32.0	20.0	18.0	40.5
9	39.5	50.7	82.0	70.4	130.3	18.4	18.5	19.0	20.0
10	45.4	20.6	54.0	57.7	77.6	16.2	16.2	30.7	17.0
11	42.0	28.0	42.5	52.1	64.5	15.6	30.7	24.3	13.6
12	44.5	36.3	68.5	47.7	136.8	14.8	21.2	21.2	12.9
13	47.1	38.7	444.0	64.5	227.0	13.7	20.0	21.2	12.3
14	70.0	36.3	105.6	56.8	133.0	22.0	19.0	19.5	12.3
15	60.0	30.2	48.5	54.8	63.5	34.3	120.0	18.5	11.8
16	36.3	20.6	548.0	72.3	318.0	22.0	94.5	18.5	182.0
17	20.1	22.2	105.6	77.6	143.5	149.7	82.6	18.5	42.2
18	14.5	182.0	88.5	89.6	99.8	71.1	63.0	18.0	27.2
19	60.0	87.5	72.3	99.8	53.0	55.0	51.0	16.2	56.0
20	597.0	60.0	48.5	65.3	44.0	55.0	42.2	47.5	34.5
21	228.0	249.0	34.3	53.9	40.0	44.7	24.3	21.2	21.2
22	70.0	325.0	32.0	56.8	36.0	40.5	88.5	18.5	18.5
23	60.0	198.0	26.5	62.5	36.0	42.2	42.2	16.2	.....
24	50.7	88.5	267.0	50.5	37.5	49.5	26.0	16.2	.....
25	37.9	57.5	125.2	44.0	34.3	94.6	88.5	14.6	.....
26	33.9	70.4	75.5	40.7	29.5	187.0	56.0	14.0	.....
27	48.0	617.0	60.6	44.0	26.5	310.0	30.7	16.2	.....
28	56.1	94.0	57.8	43.2	24.3	78.0	21.2	14.6	.....
29	70.0	64.5	444.0	40.7	28.5	60.0	24.3	24.3	.....
30	255.0	.....	356.0	50.5	57.5	60.0	48.5	18.5	.....
31	120.5	.....	105.6	.....	45.9	.....	24.3	17.0	.....

Monthly discharge of Northwest Branch of Anacostia River at Bladensburg, Md., for 1911–12.

[Drainage area, 52 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1911.					
July	16.4	3.2	5.25	0.10	0.12
August	468.0	3.0	30.15	.58	.67
September	473.0	5.8	41.50	.80	.89
October	218.0	6.0	23.23	.45	.51
November	110.8	9.8	39.22	.75	.84
December	387.0	12.8	58.76	1.13	1.30
1912.					
January	597.0	14.5	87.1	1.68	1.94
February	617.0	20.6	101	1.94	2.09
March	548.0	9.0	117	2.25	2.59
April	220.0	40.7	67.0	1.29	1.44
May	366.0	24.3	88.8	1.71	1.97
June	310.0	13.7	57.4	1.10	1.23
July	120.0	16.2	41.1	.790	.91
August	47.5	14.0	20.2	.388	.45
September 1–22	182.0	11.8	29.2	.562	.46

BEAVERDAM BRANCH OF ANACOSTIA RIVER AT KENILWORTH, D. C.

Location.—Just below stone culvert under Kenilworth Avenue and about 500 feet north of the District line at Kenilworth.

Records available.—July 1, 1911, to September 21, 1912.

Drainage area.—14 square miles.

Gage.—Vertical staff attached to a steel frame about 50 feet below culvert. Zero of gage is at elevation 3.68 feet above United States Engineer Department mean low water.

Channel.—Sand and gravel.

Discharge measurements.—Made by wading.

Cooperation.—Established, maintained, and records furnished by United States Engineer Office.

Daily gage height, in feet, and discharge, in second-feet, of Beaverdam Branch of Anacostia River at Kenilworth, D. C., for 1911.

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
1	0.90	1.8	0.90	1.8	0.93	2.5	0.93	2.5	0.99	4.0	1.19	12.1
2	.90	1.8	.93	2.5	.95	3.0	.95	3.0	1.01	4.8	1.14	9.7
3	.90	1.8	.94	2.7	.90	1.8	.95	3.0	1.02	5.3	1.12	8.7
4	.90	1.8	.99	4.0	.89	1.5	.95	3.0	1.02	5.3	1.10	8.0
5	.90	1.8	.99	4.0	.91	2.0	.97	3.5	1.02	5.3	1.10	8.0
6	.90	1.8	.98	3.8	.87	1.1	.99	4.0	1.03	5.5	1.09	7.6
7	.90	1.8	.96	3.3	.90	1.8	1.00	4.4	1.25	15.2	1.09	7.6
8	.90	1.8	.93	2.5	.87	1.1	.95	3.0	1.12	8.7	1.07	6.8
9	.90	1.8	.92	2.3	.91	2.0	.95	3.0	1.07	6.8	1.04	5.7
10	.90	1.8	.91	2.0	.90	1.8	.93	2.5	1.08	7.2	1.04	5.7
11	.90	1.8	.90	1.8	.93	2.5	.95	5.0	1.05	6.0	1.03	5.5
12	.90	1.8	.88	1.3	.93	2.5	.94	2.7	1.08	7.2	1.04	5.7
13	.90	1.8	.87	1.1	.89	1.5	.93	2.5	1.23	14.2	1.03	5.5
14	.90	1.8	.87	1.1	.88	1.3	.93	2.5	1.03	5.5	1.03	5.5
15	.90	1.8	.88	1.3	1.67	41.6	.94	2.7	1.54	32.5	1.48	28.7

Daily gage height, in feet, and discharge, in second-feet, of Beaverdam Branch of Anacostia River at Kenilworth, D. C., for 1911—Continued.

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
16	0.88	1.3	0.89	1.5	1.01	4.8	0.94	2.7	1.34	20.3	1.49	29.0
17	.94	2.7	.88	1.3	1.00	4.4	.95	3.0	1.13	9.2	1.49	29.0
18	.91	2.0	.91	2.0	.95	3.0	1.74	48.0	1.86	60.4	1.27	16.3
19	.87	1.1	.87	1.1	.95	3.0	1.20	12.7	1.35	20.8	1.19	12.1
20	.92	2.3	.90	1.8	.95	3.0	1.07	6.8	1.19	12.1	1.12	8.7
21	.94	2.7	.90	1.8	.93	2.5	1.14	9.7	1.13	9.2	1.13	9.2
22	.99	4.0	.90	1.8	.92	2.3	1.15	10.1	1.10	8.0	1.25	15.2
23	.94	2.7	.84	.5	.90	1.8	1.36	21.4	1.08	7.2	1.76	50.0
24	.90	1.8	.88	1.3	.93	2.5	1.14	9.7	1.53	31.8	1.48	28.7
25	.90	1.8	.88	1.3	.91	2.0	1.06	6.4	1.42	25.0	1.42	25.0
26	.90	1.8	.93	2.5	.92	2.3	1.05	6.0	1.22	13.7	1.48	28.7
27	.90	1.8	.93	2.5	.91	2.0	1.02	5.3	1.16	10.6	1.74	48.2
28	.89	1.5	.91	2.0	.93	2.5	1.01	4.8	1.46	27.4	1.38	22.8
29	.88	1.3	.89	1.5	.94	2.7	1.02	5.3	1.49	29.0	1.23	14.2
30	.88	1.3	1.05	6.0	.94	2.7	1.02	5.3	1.27	16.3	1.20	12.7
31	.88	1.3	1.07	6.8	.....	.....	1.01	4.8	.....	.....	2.12	95.0

Daily gage height, in feet, of Beaverdam Branch of Anacostia River at Kenilworth, D. C., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	1.52	1.60	1.21	1.47	1.21	1.02	1.05	0.89	0.73
2	1.31	1.29	1.18	1.48	1.20	1.01	1.03	.90	.74
3	1.28	1.45	1.12	1.60	1.19	1.03	1.01	.94	.80
4	1.25	1.20	1.05	1.44	1.15	1.03	1.00	.83	.80
5	1.25	1.20	1.05	1.39	1.13	1.00	1.00	.83	.80
6	1.25	1.10	1.09	1.36	1.19	1.80	1.00	.83	.75
7	1.25	1.05	1.30	1.37	[a] 2.30	1.17	1.00	.82	.75
8	1.25	1.05	1.20	1.53	1.88	1.04	1.00	.82	.80
9	1.25	1.05	1.34	1.39	1.53	1.03	.98	.82	.75
10	1.25	1.05	1.16	1.34	1.32	1.00	1.00	.83	.74
11	1.25	1.05	1.03	1.30	1.15	1.00	1.03	.82	.73
12	1.25	1.05	1.75	1.31	1.67	.99	1.01	.81	.71
13	1.25	1.05	2.48	1.30	1.53	.99	.96	.78	.70
14	1.30	1.06	1.72	1.31	1.39	.98	.95	.79	.71
15	1.30	1.06	3.96	1.30	1.30	1.02	1.52	.77	.73
16	1.30	1.09	2.23	1.28	1.95	1.03	1.08	.77	.73
17	1.30	1.12	1.85	1.30	1.73	1.20	1.00	.75	.73
18	1.30	2.11	1.77	1.49	1.35	1.12	3.42	.75	.84
19	2.02	1.76	1.62	1.42	1.24	1.08	1.60	.95	1.27
20	1.66	1.63	1.55	1.34	1.21	1.05	1.13	.92	.94
21	1.40	1.60	1.52	1.29	1.17	1.04	1.01	.82	.82
22	1.20	2.30	1.48	1.28	1.10	1.00	1.06	.75	.....
23	1.22	1.42	1.41	1.35	1.12	1.02	.97	.75	.....
24	1.23	1.21	2.40	1.24	1.11	1.01	.94	.73	.....
25	1.25	1.24	1.80	1.23	1.05	1.25	.95	.73	.....
26	1.12	1.49	1.55	1.20	1.05	1.50	1.00	.74	.....
27	1.20	2.50	1.47	1.20	1.05	1.47	.93	.75	.....
28	1.20	1.48	1.43	1.22	1.05	1.24	.90	.72	.....
29	1.35	1.26	2.54	1.21	1.12	1.13	.90	.80	.....
30	1.85	.....	1.88	1.22	1.07	1.09	.90	.76	.....
31	1.65	.....	1.56	.....	1.04	.....	.80	.75	.....

[a] Backwater.

Daily discharge, in second-feet, of Beaverdam Branch of Anacostia River at Kenilworth, D. C., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
1	31.2	36.3	8.3	21.7	8.2	1.2	5.2	1.6	0.8
2	18.7	17.5	6.9	22.2	7.8	1.0	4.5	1.7	.9
3	16.8	26.8	4.5	29.7	7.3	1.5	4.0	2.0	1.4
4	15.2	12.7	2.1	20.0	5.7	1.5	3.7	1.5	1.4
5	15.2	12.7	2.1	17.2	4.8	.6	3.7	1.5	1.4
6	15.2	8.0	3.4	15.7	7.3	45.5	3.7	1.5	1.0
7	15.2	6.0	12.7	16.2	76.0	6.5	3.7	1.5	1.0
8	15.2	6.0	7.8	25.1	53.0	1.8	3.7	1.5	1.4
9	15.2	6.0	14.6	17.2	25.1	1.5	3.0	1.5	1.0
10	15.2	6.0	6.0	14.7	13.6	.6	3.7	1.5	.9
11	15.2	6.0	1.5	12.6	5.7	.6	4.5	1.5	.8
12	15.2	6.0	39.0	13.1	34.7	.4	4.0	1.4	.6
13	15.2	6.0	87.6	12.6	25.1	.4	2.5	1.2	.5
14	18.1	6.4	37.1	13.1	17.2	.2	2.2	1.3	.6
15	18.1	6.4	187.0	12.6	12.6	1.2	29.7	1.1	.8
16	18.1	7.6	71.0	11.6	60.1	4.5	6.3	1.1	.8
17	18.1	8.7	45.8	12.6	39.5	11.5	3.7	1.0	.8
18	18.1	70.2	40.5	22.7	15.2	7.9	440.0	1.0	1.5
19	64.1	46.7	30.6	18.9	9.6	6.3	34.4	2.2	14.2
20	40.1	38.1	26.5	14.7	8.2	5.2	8.4	1.8	2.0
21	23.8	29.4	24.7	12.1	6.5	4.9	4.0	1.5	1.5
22	12.7	75.8	22.2	11.6	3.7	3.7	5.6	1.0	.....
23	13.7	19.0	18.5	15.2	4.5	4.2	2.6	1.0	.....
24	14.2	8.3	82.5	9.6	4.2	4.0	2.0	.8	.....
25	15.2	9.7	42.5	9.1	2.2	14.0	2.2	.8	.....
26	8.7	22.8	26.5	7.8	2.2	28.5	3.7	.9	.....
27	12.7	89.0	21.6	7.8	2.2	26.5	1.8	1.0	.....
28	12.2	22.3	19.5	8.7	2.2	13.4	1.3	.7	.....
29	20.8	10.7	94.7	8.2	4.6	8.4	1.3	1.4	.....
30	53.0	.....	47.9	8.7	2.7	6.6	1.3	1.0	.....
31	39.4	.....	27.0	.....	1.8	.....	.5	1.0	.....

Monthly discharge of Beaverdam Branch of Anacostia River at Kenilworth, D. C., for 1911–12.

[Drainage area, 14 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1911.					
July	4.0	1.1	1.88	0.13	0.15
August	6.8	.5	2.30	.16	.19
September	41.6	1.1	3.68	.26	.29
October	48.0	2.5	6.69	.48	.55
November	60.4	4.0	14.49	1.04	1.15
December	95.0	5.5	18.56	1.33	1.53
1912.					
January	64.1	8.7	20.7	1.48	1.71
February	89.0	6.0	21.6	1.54	1.66
March	187.0	1.5	34.3	2.45	2.82
April	29.7	7.8	14.8	1.06	1.18
May	76.0	1.8	15.3	1.09	1.26
June	45.5	.2	7.14	.510	.57
July	440.0	.5	19.4	1.39	1.60
August	2.2	.7	1.31	.094	.11
September 1–21	14.2	.5	1.68	.120	.09

RAPPAHANNOCK RIVER BASIN.

RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA.

Location.—About 3½ miles above Fredericksburg, and about 1½ miles above the dam of the Fredericksburg Power Co.

Records available.—September 19, 1907, to December 31, 1912.

Drainage area.—1,590 square miles.

Gage.—Original gage and station located at a pool a few hundred feet above a rocky control. This gage was destroyed February 14, 1908, and was replaced February 20, 1908, by a chain gage under the cable. Datum for both gages the same and unchanged.

Channel.—Probably permanent. Current sluggish at extreme low water.

Discharge measurements.—Made from car and cable.

Winter flow.—Not often affected by ice.

Accuracy.—Accurate discharge measurements at low stages are difficult. A good low-water rating curve has been developed.

Cooperation.—Established in cooperation with the Fredericksburg Power Co., by which the cable and equipment were furnished.

The following discharge measurement was made by J. G. Mathers:
May 13, 1912: Gage height, 4.97 feet; discharge, 26,700 second-feet.

Daily gage height, in feet, of Rappahannock River near Fredericksbury, Va., for 1912.

[J. W. Franklin, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.7	2.4	3.0	3.5	1.95	2.0	1.65	2.6	1.02	2.15	1.44	1.45
2	2.35	2.2	2.8	3.2	1.9	1.9	1.65	2.1	.97	2.05	1.44	1.44
3	2.2	2.25	2.5	3.7	1.85	1.85	1.7	1.55	1.24	1.95	1.43	1.48
4	2.25	2.2	2.35	3.1	1.75	1.75	1.55	1.40	1.42	1.85	1.39	1.5
5	2.2	1.85	2.35	2.7	1.75	1 75	1.38	1.28	1.20	1.75	1.40	1.49
6	1.75	1.75	2.2	2.6	1.75	1.7	1.32	1.18	1.10	1.75	1.39	1.75
7	2.2	1.8	2.2	2.6	1.85	2.25	1.28	1.10	1.16	1.65	1.55	1.9
8	2.25	1.8	2.8	2.5	3.8	2.05	1.25	1.07	3.0	1.65	5.4	1.85
9	2.25	1.8	3.0	2.35	3.9	1.85	1.23	1.05	2.3	1.55	3.4	1.6
10	2.1	1.7	2.9	2.25	2.6	1.65	1.18	2.2	1.7	1.5	2.8	1.55
11	2.0	1.65	2.6	2.2	2.25	1.55	1.11	2.6	1.26	1.48	2.3	1.48
12	2.05	1.65	2.8	2.15	3.5	1.5	1.30	2.2	1.12	1.47	2.15	1.5
13	2.05	1.65	6.9	2.1	9.0	1.45	1.65	1.75	1.01	1.44	2.05	1.48
14	2.2	1.6	4.2	2.15	5.8	1.45	1.55	1.6	.95	1.44	2.0	1.40
15	2.2	1.6	6.1	2.2	3.6	1.49	4.5	1.7	.94	1.55	1.95	1.40
16	2.2	1.65	7.7	2.15	5.3	1.43	3.2	1.5	.93	1.55	1.85	1.43
17	2.2	1.7	5.5	2.35	6.4	1.65	1.7	1.38	.90	1.49	1.75	1.43
18	2.05	1.7	4.0	2.35	4.2	2.25	1.30	1.30	.90	1.41	1.7	1.45
19	2.25	1.95	3.3	2.3	3.6	1.85	3.2	1.25	1.26	1.33	1.65	1.65
20	2.8	2.1	3.0	2.2	3.2	1.75	2.15	1.28	1.38	1.41	1.65	2.0
21	2.5	2.25	2.9	2.15	2.9	1.7	1.85	1.30	1.49	1.40	1.65	1.75
22	2.4	5.5	2.8	2.1	2.7	1.6	1.7	1.25	1.5	1.41	1.65	1.55
23	2.4	3.6	2.6	2.15	2.6	1.65	1.55	1.19	1.7	1.43	1.6	1.5
24	2.3	2.7	2.8	2.1	2.4	1.5	1.34	1.10	6.2	2.45	1.55	1.46
25	2.4	2.6	3.4	1.95	2.4	1.55	1.55	1.05	9.8	2.0	1.55	1.42
26	2.25	2.8	3.0	1.9	2.25	2.0	1.9	1.00	5.7	1.7	1.55	1.43
27	2.0	6.8	2.7	1.9	2.15	2.25	1.75	1.08	3.4	1.6	1.5	1.75
28	2.05	4.1	2.6	1.9	2.1	2.8	1.40	1.04	3.1	1.49	1.55	2.8
29	2.1	3.2	6.9	1.95	2.05	2.4	1.30	1.09	2.8	1.44	1.47	2.35
30	2.25	.....	5.9	1.9	2.05	1.95	1.43	1.10	2.45	1.45	1.47	2.35
31	2.4	.....	4.3	.....	2.15	.....	1.48	1.07	.....	1.43	.....	5.5

NOTE.—River partly frozen over at the gage, but it is believed that the relation of gage height to discharge was not seriously affected by the ice.

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1912.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,400	1,920	2,920	3,920	1,280	1,350	918	2,240	342	1,560	687	698
2	1,840	1,620	2,570	3,290	1,220	1,220	918	1,480	311	1,420	687	687
3	1,620	1,700	2,080	4,370	1,160	1,160	975	805	502	1,280	676	729
4	1,700	1,620	1,840	3,100	1,040	1,040	805	645	666	1,160	636	750
5	1,620	1,160	1,840	2,400	1,040	1,040	626	534	470	1,040	645	740
6	1,040	1,040	1,620	2,240	1,040	975	569	455	395	1,040	636	1,040
7	1,620	1,100	1,620	2,240	1,160	1,700	534	395	440	918	805	1,220
8	1,700	1,100	2,570	2,080	4,610	1,420	510	375	2,920	918	9,390	1,160
9	1,700	1,100	2,920	1,840	4,850	1,160	494	362	1,770	805	3,700	860
10	1,480	975	2,740	1,700	2,240	918	456	1,620	975	750	2,570	805
11	1,350	918	2,240	1,620	1,700	805	402	2,240	518	729	1,770	729
12	1,420	918	2,570	1,560	3,920	750	550	1,620	410	718	1,560	750
13	1,420	918	15,400	1,480	25,700	698	918	1,040	336	687	1,420	729
14	1,620	860	5,630	1,560	10,900	698	805	860	300	687	1,350	645
15	1,620	860	12,000	1,620	4,140	740	6,480	975	294	805	1,280	645
16	1,620	918	19,100	1,560	9,030	676	3,290	750	288	805	1,160	676
17	1,620	975	9,760	1,840	13,300	918	975	626	270	740	1,040	676
18	1,420	975	5,100	1,840	5,630	1,700	550	550	270	656	975	698
19	1,700	1,280	3,490	1,770	4,140	1,160	3,290	510	518	578	918	918
20	2,570	1,480	2,920	1,620	3,290	1,040	1,560	534	626	656	918	1,350
21	2,080	1,700	2,740	1,560	2,740	975	1,160	550	740	645	918	1,040
22	1,920	9,760	2,570	1,480	2,400	860	975	510	750	656	918	805
23	1,920	4,140	2,240	1,560	2,240	918	805	462	975	676	860	750
24	1,770	2,400	2,570	1,480	1,920	750	588	395	12,400	2,000	805	708
25	1,920	2,240	3,700	1,280	1,920	805	805	362	29,800	1,350	805	666
26	1,700	2,570	2,920	1,220	1,700	1,350	1,220	329	10,500	975	805	676
27	1,350	15,000	2,400	1,220	1,560	1,700	1,040	382	3,700	860	750	1,040
28	1,420	5,360	2,240	1,220	1,480	2,570	645	355	3,100	740	805	2,570
29	1,480	3,290	15,400	1,280	1,420	1,920	550	388	2,570	687	718	1,840
30	1,700	.....	11,300	1,220	1,420	1,280	676	395	2,000	698	718	1,840
31	1,920	.....	5,910	.....	1,560	.....	729	375	.....	676	.....	9,760

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

Monthly discharge of Rappahannock River near Fredericksburg, Va., for 1912.

[Drainage area, 1,590 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January	2,570	1,040	1,690	1.06	1.22	B.
February	15,000	860	2,410	1.52	1.64	A.
March	19,100	1,620	5,000	3.14	3.62	A.
April	4,370	1,220	1,910	1.20	1.34	A.
May	25,700	1,040	3,930	2.47	2.85	A.
June	2,570	676	1,140	.717	.80	A.
July	6,480	402	1,120	.704	.81	A.
August	2,240	329	746	.469	.54	A.
September	29,800	270	2,640	1.66	1.85	A.
October	2,000	578	900	.566	.65	A.
November	9,390	636	1,360	.855	.95	A.
December	9,760	645	1,230	.774	.89	A.
The year	29,800	270	2,010	1.26	17.16	

MISCELLANEOUS MEASUREMENTS.

Miscellaneous measurements in north Atlantic coast drainage basins in 1912.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Discharge.
				Feet.	*Sec.-ft.*
Feb. 14[a]	Millers River	Connecticut River,	Wendell, Mass	2.69	4.38
Nov. 22	do	do	do	1.90	1.76
Mar. 11	Indian River	Hudson River	Highway bridge below dam near Indian Lake, N. Y.	[b] 8.27	522
12	Big Brook	Indian River	One mile above mouth, near Indian Lake, N. Y.		10.0
Oct. 18	Hudson River	Atlantic Ocean	Mechanicville, N. Y		[c] 3,700

[a] Complete ice cover below gage.

[b] Distance reference point to water surface. Reference point is cross on top of lower chord eyebar, second panel from right end of bridge, and 2 feet from right end of bar. Gage at Indian Lake dam read 14.45 feet. Discharge from Big Brook was 10 second-feet; discharge from other sources, including leakage through dam, was 5 second-feet. Therefore discharge through gates at dam was 507 second-feet. Gate A was open 5 feet and gate B 3 feet.

[c] Made in the tail race of the Adirondack Electric Power Corporation near Mechanicville and includes only the flow through the wheels of that plant.

SUMMARY OF DISCHARGE PER SQUARE MILE.

The following summary of discharge per square mile is given to allow ready comparison of relative rates of run-off from different areas in the north Atlantic coast drainage basins. It shows in a general way the seasonal distribution of run-off and the effect of snow, ground, surface, and artificial storage; but the most important fact worth noting is the almost entire lack of uniformity or agreement between any two streams. This indicates that the discharge of each stream is a law unto itself, and that all projects dependent upon stream flow, if they are to be developed along the safest and most economical lines, must be based on records of stream flow collected with great care over a long series of years as near the location of the project under consideration as possible.

Summary of discharge, in second-feet per square mile, for stations in north Atlantic coast drainage basins for 1912.

Station.	Drainage area.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
	Sq.mi.													
St. John River at Fort Kent, Me	4,880	0.29	0.18	0.33	3.38	8.18	4.71	0.46	1.96	0.65	1.55	3.03	1.13	2.15
St. John River at Van Buren, Me	8,270	....	....	....	....	....	5.39	.93	1.89	.80	1.44	3.08	2.20	....
Machias River at Whitneyville, Me	465	1.58	1.65	3.85	4.17	3.74	3.96	.69	.87	.70	2.22	3.35	2.43	2.43
Union River at Amherst, Me	140	2.86	1.57	4.64	6.19	3.41	3.20	.46	.56	.49	1.43	3.82	3.33	2.66
Green Lake Stream at Lakewood, Me	47	.43	.64	2.55	5.60	3.47	3.40	1.38	1.30	2.49	1.69	.49	1.07	2.04
West Branch of Penobscot River at Millinocket, Me	1,880	1.10	1.09	1.08	1.22	3.53	4.00	1.81	1.27	1.18	1.19	3.37	1.74	1.88
Penobscot River at West Enfield, Me	6,600	1.27	1.03	1.82	4.98	4.02	3.80	1.16	1.70	1.01	1.94	3.86	1.71	2.35
East Branch of Penobscot River at Grindstone, Me	1,100	.68	.44	.91	4.64	4.67	4.88	1.60	1.87	1.04	2.30	3.90	1.60	2.37
Mattawamkeag River at Mattawamkeag, Me	1,500	1.41	.93	1.53	5.52	4.07	4.69	.50	2.20	.79	1.89	4.87	1.76	2.51
Piscataquis River at Foxcroft, Me	286	1.57	1.12	2.27	9.16	6.40	2.79	.43	1.28	.48	3.36	4.34	1.75	2.91
Kenduskeag Stream near Bangor, Me	191	1.31	.78	2.09	6.60	2.33	2.58	.32	.55	.47	2.69	4.47	3.01	2.27
Moose River at Rockwood, Me	680	.83	.52	.61	3.12	5.74	4.26	1.02	.89	....	....	....	....	....
Kennebec River at The Forks, Me	1,570	.48	.89	.76	1.57	5.43	3.18	1.76	1.36	1.03	.91	.97	1.17	1.63
Kennebec River at Waterville, Me	4,270	.71	.70	1.11	5.04	4.78	2.86	.89	1.07	.83	1.34	1.72	1.11	1.85
Dead River at The Forks, Me	878	.54	.31	.74	4.97	6.67	2.32	.40	1.46	.92	1.40	1.79	1.30	1.90
Sandy River near Farmington, Me	270	.63	.48	1.11	7.00	4.93	1.60	.22	.67	.39	2.30	2.54	3.36	2.10
Sebasticook River at Pittsfield, Me	320	1.35	.97	2.22	7.75	2.26	2.53	.63	.81	.77	1.03	3.25	1.49	2.08
Cobbosseecontee Stream at Gardiner, Me	220	.72	.88	1.73	3.46	1.41	2.13	.97	1.02	.84	.79	.96	.96	1.32
Androscoggin River at Errol Dam, N. H	1,095	1.51	1.63	1.43	1.47	1.99	3.03	1.53	1.31	1.37	1.29	1.32	1.32	1.60

Summary of discharge, in second-feet per square mile, for stations in north Atlantic coast drainage basins for 1912—Continued.

Station.	Drainage area.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Annual.
	Sq.mi.													
Androscoggin River at Rumford Falls, Me	2,090	1.11	1.10	1.23	3.71	2.62	2.14	.95	1.08	1.13	1.46	1.51	1.34	1.61
Presumpscot River at outlet Sebago Lake, Me	436	1.14	1.12	.82	.79	1.08	1.08	1.13	1.32	1.38	1.40	1.38	1.56	1.18
Saco River at West Buxton, Me	1,550	.89	.72	1.94	6.27	3.95	2.23	.79	.90	.72	1.00	1.90	1.18	1.87
Middle Branch of Pemigewasset River at North Woodstock, N. H	28.6	1.16	.70	....	10.2	10.2	3.64	.76	2.50	2.59	3.89	....	....	....
Pemigewasset River at Plymouth, N. H	615	1.74	.50	2.29	9.48	4.91	2.02	.52	1.34	1.04	2.70	3.20	2.26	2.67
Merrimac River at Franklin Junction, N. H	1,460	1.23	1.27	2.40	5.53	3.26	1.86	.78	1.40	1.21	2.12	2.51	1.78	2.11
Merrimac River at Garvins Falls, N. H	2,340	1.16	1.21	2.51	5.25	2.92	1.68	.62	.75	1.08	.98	.94	.79	1.66
Merrimac River at Lawrence, Mass	4,452	.80	.71	2.77	4.32	2.30	1.30	.41	.50	.48	.73	1.24	1.07	1.39
Souhegan River at Merrimac, N. H	168	....	....	5.77	5.39	2.73	.83	.28	.30	.28	.37	1.64	1.78	....
Connecticut River at Orford, N. H	3,300	.94	.43	1.16	6.61	3.27	2.90	.42	.67	1.24	1.18	1.71	1.65	1.84
Connecticut River at Sunderland, Mass	7,700	1.17	.65	1.43	6.90	3.19	2.45	.42	.54	.99	1.68	2.06	1.79	1.94
Passumpsic River near St. Johnsbury, Vt	390	....	....	....	4.18	2.03	1.43	.29	.37	.77	.82	1.15	1.02	....
Deerfield River at Shelburne Falls, Mass	501	.73	.62	3.68	8.00	3.55	1.88	.31	.49	.50	2.89	3.30	2.84	2.40
Ware River at Gibbs Crossing, Mass	201	....	....	....	....	....	....	....	....	.21	.24	.52	.84	....
Swift River at West Ware, Mass	191	....	....	....	....	....	....	....	....	....	.28	.56	.70	....
Quaboag River at West Brimfield, Mass	150	....	....	....	....	....	....	....	....	.29	.25	.47	.75	....
Westfield River at Knightville, Mass	162	....	....	....	6.30	2.60	1.09	.16	.26	.27	1.19	2.44	2.35	....
Middle Branch of Westfield River at Goss Heights, Mass	53	....	....	....	6.62	3.30	.85	....	....	.41	....	....	3.17	....
Hudson River at North Creek, N. Y	804	1.00	1.32	1.02	7.28	4.73	1.42	.85	1.13	1.11	1.58	2.28	1.52	2.10
Hudson River at Thurman, N. Y	1,550	1.10	.97	.84	6.37	4.11	1.44	.58	.75	.79	1.16	1.94	1.35	1.77
Hudson River at Corinth, N. Y	2,760	1.21	.92	1.76	8.48	4.31	1.26	.44	.51	.66	1.45	2.68	1.63	2.11
Hudson River at Spier Falls, N. Y	2,800	....	....	....	....	....	....	....	....	....	....	2.24	1.75	....
Hudson River at Mechanicville, N. Y	4,500	1.06	.76	2.22	6.13	2.87	1.23	.29	.28	.55	1.54	2.40	1.92	1.77
Cedar River near Indian Lake, N. Y	....	....	....	....	....	8.20	1.60	.60	.52	1.34	2.22	3.42	....	....
Indian River near Indian Lake, N. Y	....	....	....	....	....	....	....	3.74	4.97	2.31	.65	.01	.03	....
Schroon River at Riverbank, N. Y	534	1.35	.65	.68	7.19	3.99	1.66	.28	.36	.46	.73	2.15	1.50	1.74
Sacandaga River near Hope, N. Y	494	1.21	.61	1.82	10.1	4.43	.99	.22	.18	.52	1.51	2.87	2.47	2.25
Sacandaga River at Hadley, N. Y	1,060	1.01	.62	2.01	8.59	3.50	.92	.20	.18	.54	1.48	2.55	2.23	1.98
West Branch of Sacandaga River at Blackbridge near Wells, N. Y	211	1.18	.62	1.90	11.6	5.55	1.58	.19	.18	.75	1.94	3.62	3.17	2.68
Hoosic River near Eagle Bridge, N. Y	512	1.11	.90	2.95	5.41	2.75	1.88	.42	.34	.41	1.43	1.84	2.07	1.79
West Canada Creek at Wilmurt, N. Y	198	2.51	2.26	4.86	....	....	2.22	.37	1.24	4.76	7.01	....	....	....
West Canada Creek at Kast Bridge, N. Y	575	1.74	2.71	....	1.17	4.21	1.10	.52	.57	1.56	2.42	3.36	3.26	....
East Canada Creek at Dolgeville, N. Y	256	1.09	.86	1.98	11.5	3.25	.92	.40	.43	1.07	2.08	....	....	....
Schoharie Creek at Prattsville, N. Y	240	1.12	2.15	5.88	6.55	2.47	.57	.18	.39	.35	1.31	1.57	2.48	2.08
Kinderhook Creek at Rossman, N. Y	331	....	....	....	5.17	2.11	1.15	....	....	....	....	1.55	1.80	....
Esopus Creek near Olivebridge, N. Y	239	1.37	1.92	6.25	7.27	3.43	.79	.32	.97	.65	1.47	2.41	2.95	2.49
Esopus Creek at Mount Marion, N. Y	378	1.31	1.90	6.24	6.31	3.12	.81	.25	.68	.51	1.38	2.42	2.70	2.30
Rondout Creek at Rosendale, N. Y	380	2.68	2.93	6.03	4.87	2.81	.80	.22	.60	.36	1.04	1.67	2.28	2.19
East Branch of Delaware River at Hancock, N. Y	840	1.48	1.20	5.55	7.71	2.37	.62	.34	.85	.74	1.37	1.98	2.96	2.26
Delaware River at Port Jervis, N. Y	3,250	.91	1.42	4.03	5.60	2.15	.59	.21	.46	.68	1.24	1.49	2.03	1.74
Delaware River at Riegelsville, N. J	6,430	1.07	1.10	4.49	4.65	2.40	.80	.41	.60	.84	1.24	1.57	1.85	1.76
West Branch of Delaware River at Hancock, N. Y	660	.79	.80	5.45	6.50	1.36	.41	.09	.31	.62	1.10	1.68	2.03	1.76
Mongaup River at Rio, N. Y	189	....	....	1.56	4.52	2.56	1.09	.38	.77	.85	1.36	1.49	2.17	....
Lehigh River at South Bethlehem, Pa	1,235	1.29	1.55	4.37	3.55	2.31	.81	.46	.56	1.07	1.38	1.78	1.89	1.76
Tohickon Creek at Point Pleasant, Pa	102	1.92	3.65	6.92	1.70	1.16	.11	.06	.37	1.20	2.06	2.45	3.04	2.05
Neshaminy Creek below forks, Pa	139	1.58	3.43	5.46	1.78	.94	.19	.14	.64	.84	2.12	1.82	2.50	1.78
Schuylkill River near Philadelphia, Pa	1,920	.98	1.83	4.07	1.89	1.23	.33	.32	.65	.77	.78	1.01	1.34	1.27
Perkiomen Creek near Frederick, Pa	152	1.75	3.25	5.77	1.62	1.68	.46	.39	.77	1.78	1.26	1.62	2.38	1.89
Susquehanna River at Binghamton, N. Y	2,400	1.19	1.39	4.15	6.12	1.40	.49	.20	.29	.97	1.24	1.84	2.12	1.78
Susquehanna River at Wilkes-Barre, Pa	9,810	.69	.83	3.35	4.77	1.67	.37	.13	.19	1.31	.95	1.34	1.59	1.43
Susquehanna River at Danville, Pa	11,100	.70	.97	3.47	4.83	1.91	.46	.19	.28	1.39	1.05	1.46	1.77	1.54
Susquehanna River at Harrisburg, Pa	24,000	.87	1.07	3.70	4.25	2.52	.56	.39	.41	1.27	1.00	1.34	1.39	1.56
Chemung River near Chemung, N. Y	2,440	.29	.62	3.34	3.66	1.57	.29	.11	.12	.90	.53	.69	.86	1.08
West Branch of Susquehanna River at Williamsport, Pa	5,640	1.09	.93	4.86	4.43	3.07	.44	.19	.32	1.61	1.20	1.34	1.05	1.71
Juniata River at Newport, Pa	3,480	.81	1.25	3.88	2.66	3.05	.80	.85	.54	.92	.65	.88	.68	1.42
Patuxent River near Burtonsville, Md	127	1.81	3.01	3.18	1.27	1.40	....	....	....	....	....	....	....	....
Potomac River at Point of Rocks, Md	9,650	.98	1.70	2.97	1.54	2.05	.55	.89	.36	.66	.32	.34	.35	1.06
Monocacy River near Frederick, Md	660	1.53	3.38	6.17	2.29	1.40	.77	1.00	.87	2.35	.69	.68	1.61	1.89
Goose River near Leesburg, Va	338	1.38	1.46	2.51	1.78	2.54	1.90	.86	.98	2.21	.75	.43	.90	1.47
Northeast Branch of Anacostia River at Hyattsville, Md	75	2.25	2.20	2.92	1.43	2.72	1.28	.64	.22	....	....	....	....	....
Northwest Branch of Anacostia River at Bladensburg, Md	52	1.68	1.94	2.25	1.29	1.71	1.10	.79	.39	....	....	....	....	....
Beaverdam Branch of Anacostia River at Kenilworth, D. C	14	1.48	1.54	2.45	1.06	1.09	.51	1.39	.09	....	....	....	....	....
Rappahannock River at Fredericksburg, Va	1,590	1.06	1.52	3.14	1.20	2.47	.72	.70	.47	1.66	.57	.86	.77	1.26

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