

DEPARTMENT OF THE INTERIOR

FRANKLIN K. LANE, Secretary

UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, Director

WATER-SUPPLY PAPER 351

SURFACE WATER SUPPLY OF THE
UNITED STATES

1913

PART I. NORTH ATLANTIC COAST BASINS

NATHAN C. GROVER, Chief Hydraulic Engineer

C. C. COVERT and G. C. STEVENS, District Engineers

Prepared in cooperation with the States of Maine,
Vermont, Massachusetts, and New York



WASHINGTON

GOVERNMENT PRINTING OFFICE

1915

DEPARTMENT OF THE INTERIOR

FRANKLIN K. LANE, Secretary

UNITED STATES GEOLOGICAL SURVEY

GEORGE OTIS SMITH, Director

Water-Supply Paper 351

SURFACE WATER SUPPLY OF THE
UNITED STATES
1913

PART I. NORTH ATLANTIC COAST BASINS

NATHAN C. GROVER, Chief Hydraulic Engineer

C. C. COVERT and G. C. STEVENS, District Engineers

Prepared in cooperation with the States of Maine,
Vermont, Massachusetts, and New York



WASHINGTON

GOVERNMENT PRINTING OFFICE

1915

Water Resources Branch
Geological Survey,
Box 3106, Capitol Station
Oklahoma City, Okla.

CONTENTS.

	Page.
Authorization and scope of work.....	7
Publications.....	8
Definition of terms.....	11
Convenient equivalents.....	12
Explanation of data.....	14
Accuracy of field data and computed results.....	16
Cooperation.....	17
Division of work.....	18
Gaging-station records.....	18
St. John River basin.....	18
St. John River at Fort Kent, Maine.....	18
St. John River at Van Buren, Maine.....	20
Machias River basin.....	22
Machias River at Whitneyville, Maine.....	22
Union River basin.....	24
Union River at Amherst, Maine.....	24
Green Lake Stream at Lakewood, Maine.....	26
Branch Lake near Ellsworth, Maine.....	28
Branch Lake Stream near Ellsworth, Maine.....	29
Penobscot River basin.....	31
West Branch of Penobscot River at Millinocket, Maine.....	31
Penobscot River at West Enfield, Maine.....	32
East Branch of Penobscot River at Grindstone, Maine.....	35
Mattawamkeag River at Mattawamkeag, Maine.....	36
Piscataquis River near Foxcroft, Maine.....	39
Kenduskeag Stream near Bangor, Maine.....	41
Kennebec River basin.....	43
Moosehead Lake at east outlet, Maine.....	43
Kennebec River at The Forks, Maine.....	44
Kennebec River at Waterville, Maine.....	47
Dead River at The Forks, Maine.....	48
Sandy River near Farmington, Maine.....	50
Sebasticook River at Pittsfield, Maine.....	52
Cobbosseecontee Stream at Gardiner, Maine.....	54
Androscoggin River basin.....	56
Androscoggin River at Errol dam, N. H.....	56
Androscoggin River at Rumford Falls, Maine.....	57
Presumpscot River basin.....	59
Presumpscot River at outlet of Sebago Lake, Maine.....	59
Saco River basin.....	60
Saco River at West Buxton, Maine.....	60
Merrimac River basin.....	62
Pemigewasset River at Plymouth, N. H.....	62
Merrimac River at Franklin Junction, N. H.....	63
Merrimac River at Garvins Falls, N. H.....	65

Gaging-station records—Continued.

Merrimac River basin—Continued.	Page.
Merrimac River at Lawrence, Mass.....	66
Souhegan River at Merrimac, N. H.....	69
South Branch of Nashua River at Clinton, Mass.....	70
Sudbury River at Framingham and Lake Cochituate at Cochituate, Mass.....	71
Blackstone River basin.....	73
Branch River at Branch Village, R. I.....	73
Connecticut River basin.....	74
Connecticut River at Orford, N. H.....	74
Connecticut River at Sunderland, Mass.....	76
Passumpsic River near St. Johnsbury, Vt.....	78
White River near Sharon, Vt.....	80
Millers River at Wendell, Mass.....	81
Deerfield River at Hoosac Tunnel, Mass.....	82
Deerfield River at Charlemont, Mass.....	86
Deerfield River at Shelburne Falls, Mass.....	87
Ware River at Gibbs Crossing, Mass.....	89
Swift River at West Ware, Mass.....	90
Quaboag River at West Brimfield, Mass.....	92
Westfield River at Knightville, Mass.....	93
Middle Branch of Westfield River at Goss Heights, Mass.....	95
Westfield Little River near Westfield, Mass.....	98
Borden Brook near Westfield, Mass.....	100
West Branch of Farmington River near New Boston, Mass.....	102
Housatonic River basin.....	104
Housatonic River near Great Barrington, Mass.....	104
Housatonic River at Gaylordsville, Conn.....	106
Pomperaug River at Bennetts Bridge, Conn.....	107
Hudson River basin.....	108
Comparative discharge of streams.....	108
Hudson River at North Creek, N. Y.....	109
Hudson River at Thurman, N. Y.....	111
Hudson River at Spier Falls, N. Y.....	113
Hudson River at Mechanicsville, N. Y.....	115
Cedar River near Indian Lake, N. Y.....	116
Indian Lake reservoir at Indian Lake, N. Y.....	118
Indian River near Indian Lake, N. Y.....	119
Schroon River at Riverbank, N. Y.....	121
Sacandaga River near Hope, N. Y.....	124
Sacandaga River at Hadley, N. Y.....	125
West Branch of Sacandaga River at Blackbridge, near Wells, N. Y.....	127
Hoosic River near Eagle Bridge, N. Y.....	130
Mohawk River at Tribes Hill, N. Y.....	131
Mohawk River at Vischer Ferry, N. Y.....	132
West Canada Creek at Wilmurt, N. Y.....	134
West Canada Creek at Poland, N. Y.....	135
West Canada Creek at Kast Bridge, N. Y.....	136
Schoharie Creek at Prattsville, N. Y.....	137
Alplaus Kill near Charlton, N. Y.....	138
Kinderhook Creek at Rossman, N. Y.....	139
Esopus Creek near Olivebridge, N. Y.....	141
Esopus Creek at Mount Marion, N. Y.....	143
Rondout Creek at Rosendale, N. Y.....	144

Gaging-station records—Continued.

	Page.
Delaware River basin.....	146
East Branch of Delaware River at Fish Eddy, N. Y.....	146
Delaware River at Port Jervis, N. Y.....	148
Delaware River at Riegelsville, N. J.....	150
West Branch of Delaware River at Hale Eddy, N. Y.....	152
Beaver Kill at Cooks Falls, N. Y.....	154
Mongaup River at Rio, N. Y.....	154
Neversink River at Godeffroy, N. Y.....	155
Lehigh River at South Bethlehem, Pa.....	157
Susquehanna River Basin.....	158
Susquehanna River at Conklin, N. Y.....	158
Susquehanna River at Wilkes-Barre, Pa.....	161
Susquehanna River at Danville, Pa.....	163
Susquehanna River at Harrisburg, Pa.....	165
Chenango River near Chenango Forks, N. Y.....	167
Chemung River at Chemung, N. Y.....	169
Chemung Branch of Susquehanna River at Williamsport, Pa.....	171
Juniata River at Newport, Pa.....	173
Patuxent River basin.....	175
Patuxent River near Burtonsville, Md.....	175
Potomac River basin.....	176
Potomac River at Point of Rocks, Md.....	176
Monocacy River near Frederick, Md.....	178
Occoquan Creek near Occoquan, Va.....	181
Rappahannock River basin.....	183
Rappahannock River near Fredericksburg, Va.....	183
Miscellaneous measurements.....	185
Index.....	187

ILLUSTRATIONS.

	Page.
PLATE I. A, Price current meter; B, Typical gaging stations.....	14
II. Automatic gages: A, Stevens; B, Gurley; C, Friez.....	15

SURFACE WATER SUPPLY OF THE NORTH ATLANTIC COAST BASINS FOR 1913.

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 1913. Six of these reports contain data for the year ending September 30, and the other six for the calendar year, as indicated in the table on page 8.

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 years ending June 30, 1895-1914.

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 1914, inclusive.....	150, 000

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected, and of the second kind on page 17.

Measurements of stream flow have been made at about 3,000 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. In July, 1913, about 1,380 gaging stations were being maintained by the Survey and the cooperating organizations, and many miscellaneous discharge measurements were made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in the regular water-supply papers from time to time.

PUBLICATIONS.

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

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

Papers on surface water supply of the United States, 1913.

Part.	No.	Title.	Year used.
I	351	North Atlantic basins	Calendar year.
II	352	South Atlantic and eastern Gulf of Mexico basins	Do.
III	353	Ohio River basin	Year ending Sept. 30.
IV	354	St. Lawrence River basin	Calendar year.
V	355	Upper Mississippi River and Hudson Bay basins	Year ending Sept. 30.
VI	356	Missouri River basin	Calendar year.
VII	357	Lower Mississippi River basin	Do.
VIII	358	Western Gulf of Mexico basins	Year ending Sept. 30.
IX	359	Colorado River basin	Calendar year.
X	360	Great Basin	Year ending Sept. 30.
XI	361	Pacific basins in California	Do.
XII	362	North Pacific basins	Do.

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.

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

Report.	Character of data.	Year.
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.....	1895.
B 140.....	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).....	1896.
WS 11.....	Gage heights (also gage heights for earlier years).....	1895 and 1896.
18th A, pt. 4.....	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).....	1897.
WS 15.....	Descriptions, measurements, and gage heights, for eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.....	1897.
WS 16.....	Descriptions, measurements, and gage heights, for 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, for eastern United States, eastern Mississippi River, and Missouri River.....	1898.
WS 28.....	Measurements, ratings, and gage heights, for 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 66, 66.....	Descriptions, measurements, gage heights, and ratings.....	1901.
WS 75.....	Monthly discharge.....	1901.
WS 82 to 85.....	Complete data.....	1902.
WS 97 to 100.....	do.....	1903.
WS 124 to 135.....	do.....	1904.
WS 165 to 178.....	do.....	1905.
WS 201 to 214.....	do.....	1906.
WS 241 to 252.....	do.....	1907-8.
WS 261 to 272.....	do.....	1909.
WS 281 to 292.....	do.....	1910.
WS 301 to 312.....	do.....	1911.
WS 321 to 332.....	do.....	1912.
WS 351 to 362.....	do.....	1913.

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

The table on page 10 gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1913. The data for any particular station will be found in the reports covering the years during which the station was maintained. For example, data from 1902 to 1913 for any station in the area covered by Part III are published in Water-Supply Papers 83, 98, 128, 169, 205, 243, 263, 283, 303, 323, and 353, which contain records for the Ohio River basin for those years. 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, 1899-1913.

	1899 ^a	1900 ^b	1901	1902	1903	1904	1905	1906	1907-8	1909	1910	1911	1912	1913
North Atlantic coast.....	35	47, c 48	65, 75	82	97	$\left\{ \begin{array}{l} d \ 124, e \ 125 \\ f \ 167 \end{array} \right\}$	$\left\{ \begin{array}{l} d \ 165, e \ 166 \\ f \ 167 \end{array} \right\}$	$\left\{ \begin{array}{l} d \ 201, e \ 202 \\ f \ 203 \end{array} \right\}$	241	261	281	301	321	351
South Atlantic coast and eastern Gulf of Mexico.....	$\varnothing$ 35 36	48	65, 75	$\varnothing$ 82, 83	$\varnothing$ 97, 98	$\varnothing$ 126, 127	$\varnothing$ 167, 168	$\varnothing$ 203, 204	242	262	282	302	322	352
Ohio River basin.....	36	48, h 49	65, 75	83	98	128	169	205	243	263	283	303	323	353
St. Lawrence River and Great Lakes.....	36	49	65, 75	$\varnothing$ 82, 83	97	129	170	206	244	264	284	304	324	354
Hudson Bay and Upper Mis- sissippi River.....	36	49	$\varnothing$ 65, 66, 75	$\varnothing$ 83, 85	$\varnothing$ 98, 99, $\pm$ 160	$\varnothing$ 128, 130	171	207	245	265	285	305	325	355
Missouri River.....	$\varnothing$ 36, 37	49, m 50	66, 75	84	99	130, n 131	172	208	246	266	286	306	326	356
Lower Mississippi River.....	37	50	$\varnothing$ 65, 66, 75	$\varnothing$ 83, 84	$\varnothing$ 98, 99	$\varnothing$ 128, 131	$\varnothing$ 169, 173	$\varnothing$ 205, 209	247	267	287	307	327	357
Western Gulf of Mexico.....	37	50	66, 75	84	99	132	174	210	248	268	288	308	328	358
Colorado River.....	$\varnothing$ 37, 38	50	66, 75	85	100	133	175, p 177	211	249	269	289	309	329	359
Great Basin.....	38, q 39	51	66, 75	85	100	133, r 134	176, r 177	212, r 213	250, r 251	270, r 271	290, r 291	310	330	360
California.....	38, s 39	51	66, 75	85	100	134	177	213	251	271	291	311	331	361
North Pacific coast.....	38	51	66, 75	85	100	135	$\varnothing$ 177, 178	214	252	272	292	312	$\varnothing$ 332	$\varnothing$ 362

^a Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 39.

^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.

^c Wisselickon and Schuykill rivers to James River.

^d New England and rivers only.

^e Hudson River to Delaware River, inclusive.

^f Susquehanna River to York River, inclusive.

^g James River only.

^h Scioto River.

ⁱ Lake Ontario and tributaries to St. Lawrence River proper.

^j Tributaries of Mississippi from east.

^k Hudson Bay only.

^l Gallatin River.

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

ⁿ Platte and Kansas rivers.

^o Green and Gunnison rivers and Grand River above junction with Gunnison.

^p Below junction with Gila.

^q Mohave River only.

^r Great Basin in California, excepting Truckee and Carson drainage basins.

^s Kings and Kern rivers only.

^t Rogue, Umpqua, and Siletz rivers only.

^u In the three parts: A, Pacific basins in Washington and Upper Columbia River; P, Snake River; Q, Lower Columbia River and Rogue, Umpqua, and Siletz rivers.

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

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

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

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

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

Albany, N. Y., room 18, Federal Building.

Atlanta, Ga., Post Office Building.

Madison, Wis., Capitol Building.

St. Paul, Minn., Old Capitol Building.

Helena, Mont., Montana National Bank Building.

Denver, Colo., 302 Chamber of Commerce Building.

Phoenix, Ariz., Fleming Building.

Austin, Tex., Old Post Office Building.

Salt Lake City, Utah, Federal Building.

Boise, Idaho, 615 Idaho Building.

Tacoma, Wash., Federal Building.

Portland, Oreg., 416 Couch Building.

San Francisco, Cal., 328 Customhouse.

Los Angeles, Cal., Federal 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 (depth in inches), acre-feet, and millions of cubic feet. The units used in this series of reports are second-foot, second-feet per square mile, run-off in inches, acre-foot, and millions of cubic feet. They may be defined as follows:

“Second-foot” is an abbreviation for “cubic foot per second” and is a unit for the rate of discharge of water flowing in a stream. A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average

velocity 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 tables of convenient equivalents (pp. 12-14).

"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.

"Millions of cubic feet" is used to express quantities of water stored in reservoirs, most frequently in studies of flood control.

The following terms used in these reports are not in common use, and may be defined as follows:

"Discharge relation," is an abbreviation for the term "relation of gage height to discharge."

"Control," "controlling section," and "point of control" are terms used to designate the section or sections of the stream below the gage which determines the discharge relation at the gage. It should be noted that the control may not be the same section at all stages.

The "point of zero flow" for a given gaging station is that point on the gage—the gage height—to which the surface of the river would fall if there were no flow.

CONVENIENT EQUIVALENTS.

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

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

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

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

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

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

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

Table for converting discharge in second-feet into run-off in millions of cubic feet.

Discharge in second- feet.	Run-off in millions of cubic feet.				
	1 day.	28 days.	29 days.	30 days.	31 days.
1.....	0.0864	2.419	2.506	2.592	2.678
2.....	.1728	4.838	5.012	5.184	5.356
3.....	.2592	7.257	7.518	7.776	8.034
4.....	.3456	9.676	10.024	10.368	10.712
5.....	.4320	12.095	12.530	12.960	13.390
6.....	.5184	14.514	15.036	15.552	16.068
7.....	.6048	16.933	17.542	18.144	18.746
8.....	.6912	19.352	20.048	20.736	21.424
9.....	.7776	21.771	22.554	23.328	24.102

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

1 second-foot equals 40 California miner's inches (law of Mar. 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 (365 days) covers 1 square mile 1.131 feet, or 13.572 inches deep.

1 second-foot for one year (365 days) equals 31,536,000 cubic feet.

1 second-foot for one-year (365 days) equals 724 acre-feet.

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

1 second-foot for one day equals 86,400 cubic feet.

1,000,000,000 (1 United States billion) cubic feet equals 11,570 second-feet for one day.

1,000,000,000 cubic feet equals 414 second-feet for one 28-day month.

1,000,000,000 cubic feet equals 399 second-feet for one 29-day month.

1,000,000,000 cubic feet equals 386 second-feet for one 30-day month.

1,000,000,000 cubic feet equals 373 second-feet for one 31-day month.

100 California miner's inches equals 18.7 United States gallons per second.

100 California miner's inches for one day equals 4.96 acre-feet.

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

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

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

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

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

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

- 1,000,000 United States gallons equals 3.07 acre-feet.
- 1,000,000 cubic feet equals 22.95 acre-feet.
- 1 acre-foot equals 325,850 gallons.
- 1 inch deep on 1 square mile equals 2,323,200 cubic feet.
- 1 inch deep on 1 square mile equals 0.0737 second-foot per year.
- 1 foot equals 0.3048 meter.
- 1 mile equals 1.60935 kilometers.
- 1 mile equals to 5,280 feet.
- 1 acre equals 0.4047 hectare.
- 1 acre equals 43,560 square feet.
- 1 acre equals 209 feet square, nearly.
- 1 square mile equals 2.59 square kilometers.
- 1 cubic foot equals 0.0283 cubic meter.
- 1 cubic foot of water weighs 62.5 pounds.
- 1 cubic meter per minute equals 0.5886 second-foot.
- 1 horsepower equals 550 foot-pounds per second.
- 1 horsepower equals 76.0 kilogram-meters per second.
- 1 horsepower equals 746 watts.
- 1 horsepower equals 1 second-foot falling 8.80 feet.
- 1½ horsepower equal about 1 kilowatt.

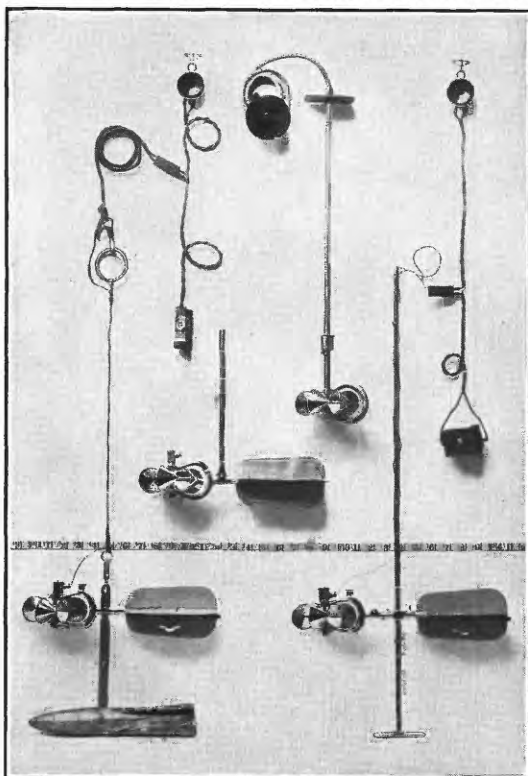
To calculate water power quickly: $\frac{\text{Sec.-ft.} \times \text{fall in feet}}{11} = \text{net horsepower on water wheel realizing 80 per cent of theoretical power.}$

EXPLANATION OF DATA.

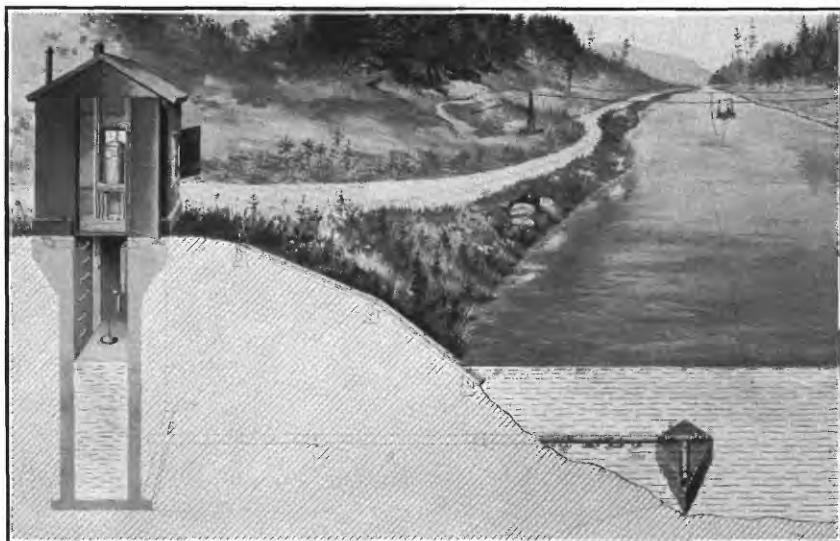
For each regular gaging station the following data, so far as available, are given: Description of the station, list of discharge measurements, table of daily gage heights, table of daily discharge, table of yearly and monthly discharge and run-off. For stations located at weirs or dams the gage-height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

In addition to statements regarding the location and equipment of gaging 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.

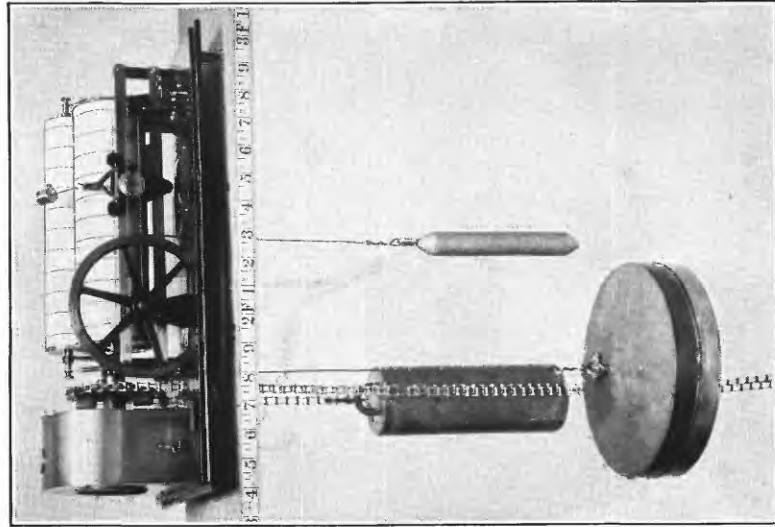
The table of daily gage heights shows the daily fluctuations of the surface of the river as found from the mean of the gage readings taken each day, usually in the morning and in the evening, though at many stations only one reading is made each day. At a comparatively few stations automatic gages are used, some of which give a continuous record of the river stage in the form of a hydrograph and others a record printed at regular intervals, from which the mean daily gage height can be computed. 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



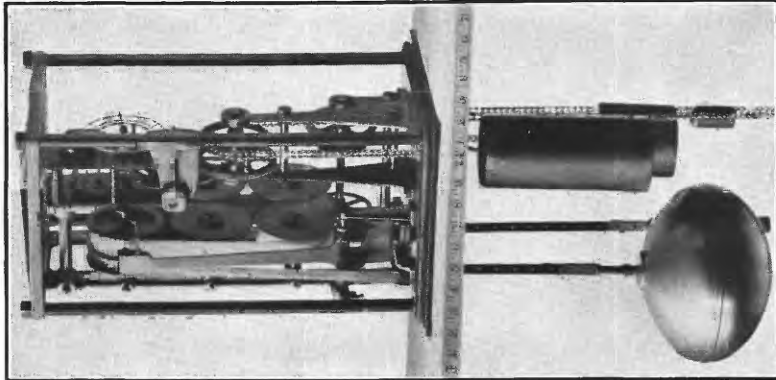
A. PRICE CURRENT METERS.



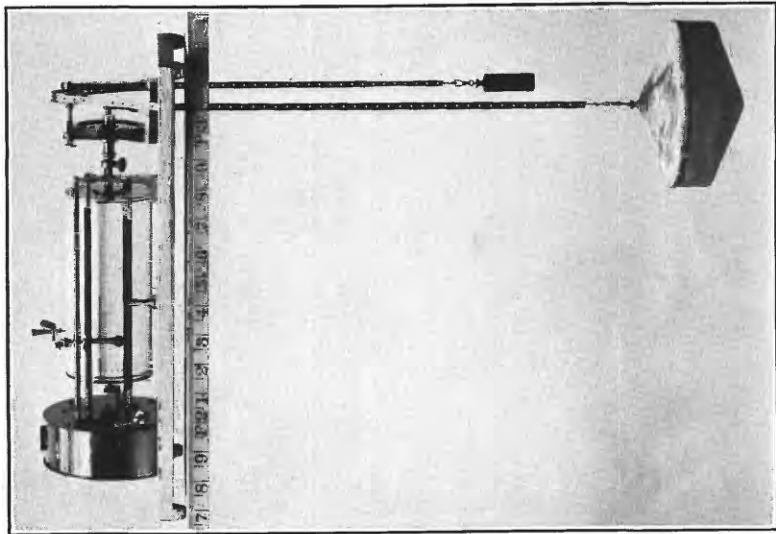
B. TYPICAL GAGING STATIONS.



A. STEVENS.



B. GURLEY.
AUTOMATIC GAGES.



C. FRIEZ.

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, in general somewhat below the lowest known flow, so that negative readings shall not occur.

In the tables of daily gage height the use of zeros in the hundredths place indicates the limits of accuracy to which the gage was read and to which the mean daily gage height was computed. If a gage is read to tenths or half-tenths once a day or to tenths twice a day, no zeros appear in the hundredths place for any stage. If the gage is read to half tenths twice a day or to quarter tenths or hundredths, regardless of the number of readings a day, the gage heights are published to hundredths, and zeros appear in the hundredths place, below a certain limiting stage. This limiting stage is so selected that the average error in the mean daily discharge, resulting from not using the mean daily gage height to hundredths above that stage, shall not be greater than 2 per cent. For automatic gages the allowable average error of the daily discharge has been taken as 1 per cent. The selection of the percentage is arbitrary, but it should be noted that the maximum error will in all cases be twice the average error. In like manner half tenths are used from the hundredths limit to another higher limit, above which only tenths are used. It is the aim to have the gage-height observations at each gaging station recorded to the degree of refinement required by the above method of use, but in practice it is found necessary, in order to avoid confusion in the gage observer's record, to have the observations for all stages recorded to the degree of refinement required for low stages, which usually necessitates readings to hundredths of a foot.

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

The base data presented in this report, unless otherwise stated in the descriptions of stations, have been collected by the methods commonly used at current-meter gaging stations and described in standard textbooks. (See Pls. I and II.)

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

The table of daily discharge determined from the gage height and rating tables gives the discharge in second-feet corresponding to the mean of the gage readings observed each day.

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

ACCURACY OF FIELD DATA AND COMPUTED RESULTS.

The accuracy of stream-flow data depends (1) on the permanence of the relation between discharge and stage, and (2) on the accuracy of observation of stage, measurements of discharge, and interpretation of data.

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

The accuracy column in the monthly discharge table does not apply to the maximum or minimum nor to any individual day, but to the monthly mean. It is based on the accuracy of the rating, the probable reliability of the observer, the number of gage readings per day, the range of the fluctuation in stage, 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. On this account the computations of "second-feet per square mile" and "run-off (depth in inches)" have not been made for stations draining areas having an annual rainfall of less than 20

inches, nor for those stations draining areas of over 20 inches of rainfall for which it is believed that the computations would be uncertain and misleading because of the presence of large noncontributing districts in the measured drainage area, of omitting estimates of water diverted for irrigation or other use, or of artificial control or unusual natural control of the flow of the river above the gaging station. All values of "second-feet per square mile" and "run-off (depth in inches)" previously published by the Survey should be used with extreme caution, and such values in this report should be used with care because of possible inherent sources of error not known to the Survey.

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.

The hydrometric work in Maine was carried on 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 was 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 was carried on in cooperation with the State Conservation Commission and also with the State engineer and surveyor.

Financial assistance has been rendered by the Connecticut River Transmission Co., the Turners Falls Co., the Holyoke Water Power Co., the Adirondack Electric Power Corporation, the International Paper Co., the Union Bag & Paper Co., the Finch, Pruyn Paper Co., the Spottsylvania Power Co., the Potomac Electric Power Co., and other power companies in connection with records on streams which they are utilizing.

DIVISION OF WORK.

The field data for stations in Maine were collected by Cyrus C. Babb, chief engineer, Maine State Water Storage Commission, and G. C. Danforth, assistant engineer, who also prepared the ratings and made the computations and special studies for those stations.

The field data for New York and New England, outside of Maine, were collected under the direction of C. C. Covert, district engineer, by C. H. Pierce, O. W. Hartwell, C. S. De Golyer, G. H. Canfield, G. J. Lyon, J. G. Mathers, Frank Weber, W. S. Easterly, and R. S. Barnes. The ratings and studies of completed data were made by O. W. Hartwell and C. H. Pierce. The computations and ice estimates were made by O. W. Hartwell and C. H. Pierce, assisted by C. S. De Golyer, Frank Weber, W. S. Easterly, H. W. Fear, W. A. James, and M. J. Maguire.

The field data for the Middle Atlantic States were collected under the direction of G. C. Stevens by J. G. Mathers, H. D. Padgett, M. I. Walters, and C. L. Batchelder. The ratings and studies of completed data were made by G. C. Stevens. The computations and ice estimates were made under the direction of G. C. Stevens by J. G. Mathers, H. D. Padgett, M. I. Walters, and C. L. Batchelder.

The complete manuscript was prepared for publication by E. S. Fuller and edited by Mrs. B. D. Wood.

GAGING-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, 1913. 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.

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

Discharge measurements.—Made from footbridge. No measurements since 1911.

Winter flow.—Affected by ice.

Regulation.—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.

Accuracy.—Discharge relation occasionally affected by backwater caused by logs jamming on the bridge piers and, during the winter, by ice.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

Daily gage height, in feet, of St. John River at Fort Kent, Maine, for 1913.

[A. V. Currie, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.2			9.95	18.4	9.4	4.5	4.3	3.5	3.65	6.4	5.3
2	5.25			10.1	16.4	9.1	5.3	4.3	3.4	3.45	5.7	5.3
3	5.3			10.55	13.45	9.15	5.55	4.4	3.3	3.4	5.25	5.4
4	5.2	6.6	5.7	10.35	11.95	9.45	5.75	4.3	3.2	3.55	5.1	5.45
5				9.8	11.3	8.65	5.8	4.25	3.15	3.6	5.0	5.5
6				9.55	11.15	8.05	5.7	4.2	3.1	3.55	4.95	5.6
7				9.25	11.05	7.9	5.55	4.0	3.1	3.5	4.9	5.6
8				8.55	10.65	7.85	4.7	3.9	3.0	3.5	4.7	5.5
9				8.1	9.85	7.7	4.3	3.8	2.9	3.4	4.7	5.5
10				7.85	8.9	7.5	4.3	3.8	2.85	3.4	4.6	5.4
11		6.4	5.7	7.65	8.4	6.85	4.55	3.8	2.75	3.4	4.55	5.3
12				7.45	7.95	6.4	5.25	3.7	2.55	3.4	4.5	5.15
13	6.0			7.25	7.5	6.05	5.75	3.6	2.55	3.4	4.65	4.95
14				7.3	7.1	5.85	5.8	3.6	2.75	3.5	4.65	4.75
15				7.55	6.85	5.7	5.75	3.5	2.9	3.65	4.6	4.6
16				7.85	6.6	5.65	5.55	3.5	3.0	3.75	4.6	4.5
17				8.65	6.35	5.6	5.7	3.5	3.0	3.9	4.55	4.45
18		6.0	6.6	9.5	6.25	5.6	6.15	3.4	3.0	4.1	4.5	4.3
19				10.5	6.2	5.75	6.45	3.35	3.0	4.45	4.4	4.15
20	8.1			11.1	6.35	5.85	6.9	3.25	3.1	4.55	4.5	4.1
21				11.25	6.5	5.5	6.7	3.2	3.1	6.1	5.15	4.1
22				11.0	6.5	5.15	6.1	3.1	3.15	7.2	5.65	4.1
23				10.6	7.2	5.05	5.7	3.1	3.4	7.45	5.9	4.0
24				12.35	7.75	4.95	5.35	3.1	3.65	6.85	6.4	.....
25		5.8	11.6	15.1	7.8	4.8	5.3	3.1	4.3	6.4	6.6	.....
26				16.7	7.8	4.65	5.1	3.1	4.95	6.05	6.55	.....
27	7.0			17.8	7.8	4.5	4.85	3.15	4.8	6.05	6.35	.....
28				18.8	7.8	4.45	4.8	3.2	4.4	6.25	5.9	.....
29				19.25	8.05	4.35	4.65	3.25	3.95	6.45	5.55	4.1
30				19.4	9.1	4.3	4.55	3.4	3.8	6.6	5.4	.....
31				.....	9.9	.....	4.45	3.5	.....	6.65	.....	.....

NOTE.—Discharge relation Jan. 5 to Mar. 31 seriously affected by ice.

Daily discharge, in second-feet, of St. John River at Fort Kent, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5,470			24,700	75,000	22,000	3,610	3,140	1,660	1,890	9,400	5,770
2	5,620			25,400	61,700	20,700	5,770	3,140	1,520	1,590	7,010	5,770
3	5,770			27,600	43,400	20,900	6,540	3,370	1,390	1,520	5,620	6,070
4	5,470			26,600	34,900	22,300	7,170	3,140	1,270	1,740	5,180	6,220
5				23,900	31,500	18,600	7,330	3,030	1,220	1,810	4,900	6,380
6				22,800	30,700	16,000	7,010	2,920	1,160	1,740	4,760	6,690
7				21,400	30,200	15,400	6,540	2,510	1,160	1,660	4,630	6,690
8				18,200	28,100	15,200	4,110	2,320	1,060	1,660	4,110	6,380
9				16,200	24,200	14,500	3,140	2,140	960	1,520	4,110	6,380
10				15,200	19,800	13,700	3,140	2,140	915	1,520	3,860	6,070
11				14,300	17,500	11,100	3,740	2,140	825	1,520	3,740	5,770
12				13,500	15,600	9,400	5,620	1,970	660	1,520	3,610	5,320
13				12,700	13,700	8,170	7,170	1,810	660	1,520	3,980	4,760
14				12,900	12,100	7,500	7,330	1,810	825	1,660	3,980	4,240
15				13,900	11,100	7,010	7,170	1,660	960	1,890	3,860	3,860
16				15,200	10,100	6,850	6,540	1,660	1,060	2,060	3,860	3,610
17				18,600	9,220	6,690	7,010	1,660	1,060	2,320	3,740	3,490
18				22,500	8,860	6,690	6,520	1,520	1,060	2,710	3,610	3,140
19				27,400	8,690	7,170	9,580	1,460	1,060	3,490	3,370	2,820
20				30,400	9,220	7,500	11,300	1,330	1,160	3,740	3,610	2,710
21				31,200	9,770	6,380	10,500	1,270	1,160	8,340	5,320	2,710
22				29,900	9,770	5,320	8,340	1,160	1,220	12,500	6,850	2,710
23				27,900	12,500	5,040	7,010	1,160	1,520	13,500	7,660	2,510
24				37,100	14,700	4,760	5,920	1,160	1,890	11,100	9,400	2,510
25				53,400	15,000	4,370	5,770	1,160	3,140	9,400	10,100	2,510
26				63,600	15,000	3,980	5,180	1,160	4,760	8,170	9,960	2,510
27				71,000	15,000	3,610	4,500	1,220	4,370	8,170	9,220	2,510
28				77,700	15,000	3,490	4,370	1,270	3,370	8,860	7,660	2,510
29				80,800	16,000	3,260	3,980	1,330	2,420	9,580	6,540	2,710
30				81,900	20,700	3,140	3,740	1,520	2,140	10,100	6,070	2,710
31				.....	24,400	.....	3,490	1,660	.....	10,300	.....	2,710

NOTE.—Discharge determined from a fairly well defined rating curve. Mean discharge for January, February, and March estimated by comparison with records at Van Buren and subject to some uncertainty.

Monthly discharge of St. John River at Fort Kent, Maine, for 1913.

[Drainage area, 4,880 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....			5,100	1.04	1.20
February.....			2,900	.59	.61
March.....			6,400	1.31	1.51
April.....	81,900	12,700	31,900	6.54	7.30
May.....	75,000	8,690	21,400	4.38	5.05
June.....	22,300	3,140	10,000	2.05	2.29
July.....	11,300	3,140	6,170	1.26	1.45
August.....	3,370	1,160	1,900	.39	.45
September.....	4,760	660	1,590	.32	.36
October.....	13,500	1,520	4,810	.98	1.13
November.....	10,100	3,370	5,660	1.16	1.29
December.....	6,690	2,510	4,220	.86	.99
The year.....	81,900	660	8,500	1.74	23.63

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—8,270 square miles.

Gage.—Gage read since May 6, 1912, 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 Hammond's mill, about 700 feet below the International Bridge, but as published they are reduced to the bridge datum.

Discharge measurements.—Made from the International Bridge.

Winter flow.—Affected by ice.

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

Accuracy.—Results good. Winter estimates fair.

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

The discharge measurements for 1913 furnished by H. S. Ferguson, consulting engineer, New York, N. Y.

Discharge measurements of St. John River at Van Buren, Maine, during 1913.

[Made by engineers in the employ of H. S. Ferguson, consulting engineer.]

Date.	Gage height.	Dis-charge.	Date.	Gage height.	Dis-charge.	Date.	Gage height.	Dis-charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 23.....	14.50	43,100	May 27.....	10.20	26,300	June 27.....	4.90	8,900
25.....	15.80	50,100	31.....	13.15	38,600	30.....	4.50	8,400
26.....	18.75	70,600	June 3.....	12.50	34,700	July 8.....	4.00	7,000
28.....	26.00	113,000	7.....	11.70	31,500	Aug. 2.....	3.80	6,200
29.....	26.90	120,000	10.....	9.35	22,700	5.....	3.60	5,900
May 1.....	23.45	94,000	11.....	8.85	20,900	8.....	3.00	4,800
2.....	20.85	79,100	12.....	8.35	19,000	18.....	2.10	3,500
3.....	18.90	70,000	14.....	7.70	17,200	Sept 17.....	1.60	2,100
5.....	17.55	61,400	16.....	7.00	14,300	24.....	3.00	4,700
8.....	16.00	53,100	20.....	7.00	14,700	30.....	2.55	3,900
10.....	14.10	43,000	21.....	6.60	13,300	Oct. 2.....	2.10	3,000
12.....	12.35	35,000	21.....	6.60	13,800			
13.....	11.45	30,100	23.....	5.80	10,900			
16.....	9.80	24,500	25.....	5.40	10,200			

Daily gage height, in feet, of St. John River at Van Buren, Maine, for 1913.

[W. H. Scott, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6.0	6.25	4.1	16.9	23.7	13.0	4.5	4.1	2.15	2.35	6.40	6.00
2.....	6.0	6.05	4.1	16.7	21.2	21.45	4.75	3.75	2.3	2.18	6.00	5.80
3.....	5.9	5.75	4.1	17.05	19.15	12.5	4.55	3.55	2.15	2.10	5.50	5.20
4.....	6.15	5.45	4.1	17.3	18.1	12.85	5.65	3.5	2.0	2.20	5.15	4.50
5.....	6.35	5.3	4.1	17.45	17.55	12.7	5.6	3.5	1.95	2.10	4.95	4.00
6.....	6.0	5.15	4.1	16.85	17.2	12.25	5.1	3.45	1.85	1.95	4.75	4.50
7.....	6.0	5.0	4.1	16.2	16.9	11.6	4.5	3.25	1.7	2.20	4.58	6.10
8.....	5.9	4.9	4.1	.....	16.05	10.8	4.15	3.05	1.55	2.30	4.50	6.00
9.....	6.0	4.8	4.1	.....	15.0	10.0	3.85	2.85	1.7	2.15	4.50	6.00
10.....	6.0	4.7	4.1	.....	14.0	9.3	3.55	2.7	1.58	2.00	4.48	6.00
11.....	6.1	4.55	4.1	.....	13.2	8.75	3.7	2.75	1.45	2.02	4.68	6.00
12.....	6.0	4.4	4.1	13.4	12.35	8.25	4.35	2.9	1.40	1.98	4.62	6.00
13.....	5.95	4.3	4.1	13.1	11.6	7.9	4.85	2.8	1.40	1.90	4.70	6.00
14.....	5.65	4.2	4.1	13.15	10.8	7.6	5.7	2.7	1.35	2.00	4.68	.....
15.....	5.5	4.1	4.15	13.6	10.15	7.2	5.7	2.6	1.35	2.05	4.50	.....
16.....	5.5	4.1	4.5	14.6	9.7	7.0	5.65	2.45	1.68	2.10	4.35	.....
17.....	5.5	4.1	5.55	16.0	9.25	6.75	5.2	2.25	1.60	2.15	4.15	.....
18.....	5.6	4.1	5.35	15.6	8.9	6.9	5.0	2.1	1.60	2.38	3.95	.....
19.....	5.6	4.1	5.6	13.0	8.75	7.0	5.15	2.05	1.60	2.68	3.88	.....
20.....	5.6	4.1	6.1	13.9	9.05	6.9	7.1	1.95	1.58	3.12	4.10	.....
21.....	5.6	4.1	7.05	14.95	9.5	6.3	7.4	1.9	1.48	4.10	4.40	.....
22.....	5.65	4.1	10.2	15.0	9.3	6.0	6.6	1.9	1.40	5.60	4.40	.....
23.....	5.9	4.1	11.65	14.55	9.3	5.9	5.9	1.8	1.90	7.45	4.80	.....
24.....	6.05	4.1	11.65	14.45	9.8	5.7	5.3	1.8	3.02	7.42	5.70	.....
25.....	6.45	4.1	13.0	15.85	10.45	5.35	4.95	1.85	3.15	6.70	5.80	.....
26.....	6.7	4.1	13.85	19.3	10.3	5.05	4.7	2.05	3.38	6.40	5.82	.....
27.....	6.7	4.1	14.4	23.5	10.3	4.75	4.35	2.2	3.85	6.35	5.68	.....
28.....	6.7	4.1	15.2	26.3	10.3	4.6	4.1	2.25	3.25	6.85	5.75	.....
29.....	6.7	.....	15.2	26.8	10.15	4.5	4.25	2.4	2.88	7.05	5.92	4.30
30.....	6.55	.....	15.25	25.95	11.7	4.5	4.55	2.3	2.65	6.95	6.00	4.30
31.....	6.4	.....	15.65	.....	13.2	.....	4.5	2.25	.....	6.75	.....	4.25

NOTE.—Discharge relation Jan. 1 to Apr. 18 and Dec. 6 to Dec. 31 seriously affected by ice.

Daily discharge, in second-feet, of St. John River at Van Buren, Maine, for Dec. 1, 1912, to Dec. 31, 1913.

Day.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	15,500	6,440	7,250	2,520	34,200	102,000	36,900	8,110	7,220	3,100	3,490	13,000	7,540
2.....	15,500	6,440	6,700	2,520	34,200	85,100	34,400	8,700	6,450	3,390	3,160	11,900	7,540
3.....	16,100	6,440	6,190	2,520	34,200	71,900	34,700	8,220	6,010	3,100	3,010	10,600	7,540
4.....	13,200	6,700	5,720	2,520	35,000	65,200	36,200	11,000	5,900	2,820	3,200	9,680	7,250
5.....	17,800	8,790	5,290	2,410	35,000	61,800	35,500	10,800	5,900	2,730	3,010	9,180	6,970
6.....	22,200	7,540	4,890	2,300	32,700	59,600	33,600	9,550	5,790	2,550	2,730	8,700	4,330
7.....	24,300	7,250	4,700	2,300	31,200	57,800	30,900	8,110	5,360	2,280	3,200	8,290	3,900
8.....	22,800	7,250	4,510	2,300	28,900	52,800	27,700	7,330	4,940	2,030	3,390	8,110	3,820
9.....	19,400	6,970	4,330	2,300	26,100	46,900	24,800	6,670	4,520	2,280	3,100	8,110	3,350
10.....	16,700	6,970	3,990	2,190	24,700	41,700	22,400	6,010	4,210	2,080	2,820	8,060	3,350
11.....	18,300	6,970	3,660	2,190	24,000	37,800	20,400	6,340	4,320	1,870	2,860	8,530	4,510
12.....	19,400	6,970	3,500	2,080	23,300	34,000	18,700	7,770	4,630	1,790	2,780	8,390	5,090
13.....	17,900	6,700	3,350	2,300	21,900	30,900	17,600	8,940	4,420	1,790	2,640	8,580	5,290
14.....	13,200	6,700	3,200	2,520	22,600	27,700	16,600	11,100	4,210	1,720	2,820	8,530	5,500
15.....	10,800	6,700	3,050	2,910	23,300	25,300	15,400	11,000	4,000	1,720	2,920	8,110	5,720
16.....	12,300	6,440	2,910	3,050	24,700	33,800	14,800	11,000	3,690	2,250	3,010	7,770	5,290
17.....	13,400	5,950	2,910	3,050	28,200	22,200	14,000	9,800	3,300	2,110	3,100	7,330	4,700
18.....	12,200	5,950	2,770	4,160	35,000	21,000	14,500	9,300	3,010	2,110	3,550	6,890	4,700
19.....	11,400	5,950	2,770	4,890	36,900	20,400	14,800	9,680	2,920	2,110	4,170	6,740	4,890
20.....	12,100	5,950	2,640	5,290	41,200	21,500	14,500	15,100	2,730	2,080	5,090	7,220	4,510
21.....	11,600	5,950	2,640	7,540	46,600	23,000	12,700	16,000	2,640	1,920	7,220	7,880	4,160
22.....	10,000	5,950	2,640	14,200	46,900	22,400	11,900	13,600	2,640	1,790	10,800	7,880	4,330
23.....	9,200	5,950	2,520	16,800	44,500	22,400	11,600	11,600	2,640	2,640	16,200	8,820	4,330
24.....	9,500	6,700	2,520	18,000	44,000	24,100	11,100	10,100	2,460	4,880	16,100	11,100	4,160
25.....	9,200	7,250	2,520	22,600	51,600	26,400	10,200	9,180	2,550	5,160	13,900	11,400	3,990
26.....	9,300	8,150	2,640	24,700	72,800	25,900	9,420	8,580	2,920	5,640	13,000	11,400	3,990
27.....	8,800	8,150	2,520	26,100	100,000	25,900	8,700	7,770	3,200	6,670	12,900	11,000	3,990
28.....	8,300	8,470	2,520	27,500	120,000	25,900	8,340	7,220	3,300	5,360	14,400	7,840	3,500
29.....	7,700	8,150	.....	28,200	123,000	25,300	8,110	7,550	3,390	4,590	15,000	5,500	3,500
30.....	6,700	7,840	.....	30,400	117,000	31,300	8,110	8,220	3,590	4,100	14,600	7,540	3,500
31.....	6,700	7,540	.....	31,900	.....	37,800	.....	8,110	3,300	.....	14,000	.....	3,500

NOTE.—Discharge determined from a well defined rating curve. Discharge Jan. 1 to Apr. 18, and Dec. 6 to Dec. 31 estimated from gage heights at Grand Falls, N. B., furnished by H. S. Ferguson, consulting engineer, where the winter flow is not affected by ice. Grand Falls is about 14 miles below Van Buren. Discharge estimates for December, 1912, supersede those published in Water Supply Paper 321, page 20. New estimate made from a frozen season rating curve based on the record for January, 1913.

Monthly discharge of St. John River at Van Buren, Maine, for December, 1912, to December, 1913.

[Drainage area, 8,270 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1912.					
December	24,300	6,700	13,600	1.64	1.89
1913.					
January	8,790	5,950	6,940	.839	.97
February	7,250	2,520	3,740	.452	.47
March	31,900	2,080	9,810	1.19	1.37
April	123,000	21,900	45,500	5.50	6.14
May	102,000	20,400	38,700	4.68	5.40
June	36,900	8,110	19,300	2.33	2.60
July	16,000	6,010	9,440	1.14	1.31
August	7,220	2,460	4,060	.491	.57
September	6,670	1,720	2,960	.358	.40
October	16,200	2,640	6,840	.827	.95
November	13,000	5,500	8,800	1.06	1.18
December	7,540	3,350	4,800	.580	.67
The year	123,000	1,720	13,400	1.62	22.03

NOTE.—Figures for December, 1912, supersede those published in Water Supply Paper 321, page 20.

MACHIAS RIVER BASIN.

MACHIAS RIVER AT WHITNEYVILLE, MAINE.

Location.—At a 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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—465 square miles.

Gage.—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 of a mile farther upstream. The datum of the present chain gage is the same as that of the staff gage on the highway bridge.

Channel and control.—Practically permanent.

Discharge measurements.—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.—Little affected by ice.

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

Regulation.—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.—The operations of the gates of the storage dam render results somewhat uncertain.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 8, 1913: Gage height, 6.77 feet; discharge, 2,490 second-feet.

Daily gage height, in feet, of Machias River at Whitneyville, Maine, for 1913.

[I. S. Albee, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	7.0	4.5	4.4	6.5	5.2	8.2	3.5	3.6	3.6	3.5	4.8	4.3
2.....	7.3	5.5	4.5	6.4	5.3	7.8	3.45	3.6	3.5	3.4	4.5	4.3
3.....	7.5	5.2	4.6	6.5	5.5	7.5	3.4	3.55	3.4	3.35	4.4	4.35
4.....	8.0	4.8	4.7	6.8	5.8	7.1	3.3	3.5	3.3	3.6	4.3	4.4
5.....	8.6	4.6	4.7	7.0	6.0	6.8	3.3	3.5	3.3	3.8	4.3	4.5
6.....	6.8	4.7	4.6	7.1	6.3	6.2	3.3	3.4	3.3	3.9	4.4	4.5
7.....	7.0	4.8	4.5	7.2	6.7	5.6	3.3	3.4	3.4	3.9	4.35	4.6
8.....	6.9	4.9	4.4	7.3	6.8	5.1	3.3	3.4	3.5	3.8	4.4	6.5
9.....	6.8	4.8	4.4	6.3	6.9	4.9	3.3	3.4	3.6	3.7	4.7	7.0
10.....	6.3	4.7	4.4	6.0	7.0	4.8	3.3	3.4	3.6	3.7	5.0	6.1
11.....	5.8	4.7	4.4	5.5	7.1	4.7	3.3	3.4	3.6	3.7	5.0	5.7
12.....	5.6	4.7	4.4	5.6	6.9	4.6	3.35	3.4	3.6	3.7	5.1	5.2
13.....	5.4	4.8	4.4	6.0	6.7	4.4	3.4	3.4	3.6	4.7	5.1	4.8
14.....	5.2	4.8	4.5	7.2	6.4	4.2	3.5	3.3	3.6	5.3	5.0	4.7
15.....	5.1	4.6	6.3	7.0	6.2	4.0	3.5	3.3	3.6	6.5	4.9	4.6
16.....	5.0	4.5	8.8	6.7	6.0	4.0	3.5	3.3	3.6	6.1	4.8	4.4
17.....	4.9	4.4	9.0	6.1	5.9	4.0	3.5	3.3	3.6	5.5	4.7	4.2
18.....	4.9	4.4	8.0	5.5	5.8	4.0	3.5	3.3	3.6	5.3	4.6	4.1
19.....	5.5	4.4	6.7	5.9	5.6	3.95	3.5	3.3	3.6	5.2	4.5	4.0
20.....	5.8	4.3	7.8	6.4	5.7	3.9	3.6	3.3	3.6	5.1	4.4	4.0
21.....	6.0	4.3	9.0	6.2	5.8	3.9	3.6	3.3	3.6	5.1	4.6	4.0
22.....	5.9	4.3	8.2	6.0	5.9	3.9	3.7	3.4	3.7	5.15	4.9	4.0
23.....	5.8	4.3	7.1	5.9	6.0	3.8	3.8	3.5	3.9	5.2	4.8	4.0
24.....	5.7	4.3	6.9	6.1	6.2	3.7	3.9	3.6	4.0	5.3	4.7	4.0
25.....	5.5	4.3	7.9	6.8	6.4	3.7	4.0	3.6	4.2	5.4	4.6	4.0
26.....	5.3	4.3	9.0	6.7	6.5	3.7	4.0	3.7	4.3	5.5	4.5	4.0
27.....	5.2	4.4	8.4	6.6	6.6	3.6	4.0	3.7	4.4	6.0	4.4	4.0
28.....	5.0	4.4	10.2	6.4	6.6	3.6	3.9	3.7	4.0	6.8	4.3	3.9
29.....	4.8	.....	9.0	6.0	7.0	3.5	3.8	3.65	3.8	6.4	4.3	3.8
30.....	4.6	.....	8.0	5.6	8.0	3.5	3.7	3.6	3.6	6.0	4.3	3.8
31.....	4.5	.....	6.9	.....	8.6	.....	3.6	3.6	.....	5.4	.....	3.8

Daily discharge, in second-feet, of Machias River at Whitneyville, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,650	755	698	2,200	1,210	3,780	260	300	300	260	937	642
2.....	2,920	1,420	755	2,120	1,280	3,380	242	300	260	224	755	642
3.....	3,100	1,210	814	2,200	1,420	3,100	224	280	224	208	698	670
4.....	3,580	937	875	2,470	1,640	2,740	191	260	191	300	642	698
5.....	4,180	814	875	2,650	1,800	2,470	191	260	191	387	642	755
6.....	2,470	875	814	2,740	2,040	1,960	191	224	191	433	698	755
7.....	2,650	937	755	2,830	2,380	1,490	191	224	224	433	670	814
8.....	2,560	1,000	698	2,920	2,476	1,140	191	224	260	387	698	2,200
9.....	2,470	937	698	2,040	2,560	1,000	191	224	300	343	875	2,650
10.....	2,040	875	698	1,800	2,650	937	191	224	300	343	1,070	1,880
11.....	1,640	875	698	1,420	2,740	875	191	224	300	343	1,070	1,560
12.....	1,490	875	698	1,490	2,560	814	208	224	300	343	1,140	1,210
13.....	1,350	937	698	1,800	2,380	698	224	224	300	875	1,140	937
14.....	1,210	937	755	2,830	2,120	587	260	191	300	1,280	1,070	875
15.....	1,140	814	1,960	2,650	1,960	482	260	191	300	2,200	1,000	814
16.....	1,070	755	4,380	2,380	1,800	482	260	191	300	1,880	937	698
17.....	1,000	698	4,580	1,880	1,720	482	260	191	300	1,420	875	587
18.....	1,000	698	3,580	1,420	1,640	482	260	191	300	1,280	814	534
19.....	1,420	698	2,380	1,720	1,490	458	260	191	300	1,210	755	482
20.....	1,640	642	3,380	2,120	1,560	433	300	191	300	1,140	698	482
21.....	1,800	642	4,580	1,960	1,640	433	300	191	300	1,140	814	482
22.....	1,720	642	3,780	1,800	1,720	433	343	224	343	1,180	1,000	482
23.....	1,640	642	2,740	1,720	1,800	387	387	260	433	1,210	937	482
24.....	1,560	642	2,560	1,880	1,960	343	433	300	482	1,280	875	482
25.....	1,420	642	3,480	2,470	2,120	343	482	300	587	1,350	814	482
26.....	1,280	642	4,580	2,380	2,200	343	482	343	642	1,420	755	482
27.....	1,210	698	3,980	2,290	2,290	300	482	343	698	1,800	698	482
28.....	1,070	698	5,900	2,120	2,290	300	433	343	482	2,470	642	433
29.....	937	.....	4,580	1,800	2,650	260	387	322	387	2,120	642	387
30.....	814	.....	3,580	1,490	3,580	260	343	300	300	1,800	642	387
31.....	755	.....	2,560	.....	4,180	.....	300	300	.....	1,350	.....	387

NOTE.—Discharge determined from a rating curve well defined between 200 and 4,000 second-feet.

Monthly discharge of Machias River at Whitneyville, Maine, for 1913.

[Drainage area, 465 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	4,180	755	1,800	3.87	4.46
February.....	1,420	642	819	1.76	1.83
March.....	5,900	698	2,360	5.08	5.86
April.....	2,920	1,420	2,120	4.56	5.09
May.....	4,180	1,210	2,120	4.56	5.26
June.....	3,780	260	1,040	2.24	2.50
July.....	482	191	288	.619	.71
August.....	343	191	250	.538	.62
September.....	698	191	336	.723	.81
October.....	2,470	208	1,040	2.24	2.58
November.....	1,140	642	833	1.79	2.00
December.....	2,650	387	802	1.72	1.98
The year.....	5,900	191	1,150	2.47	33.70

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—140 square miles.

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

Channel and control.—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.

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

Accuracy.—Discharge relation affected by ice and to a certain extent, but for short periods, by backwater from log jams. No corrections have been made for possible backwater from log jams.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 30, 1913: Gage height, 9.91 feet; discharge, 1,050 second-feet.

Daily gage height, in feet, of Union River at Amherst, Maine, for 1913.

[Lewis Watts, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	9.18	7.92	.....	11.34	8.00	9.06	6.04	5.80	5.29	6.44	9.26	6.92
2.....	8.82	8.02	8.90	10.82	7.84	8.96	5.96	5.77	5.27	6.43	8.96	6.95
3.....	7.78	8.47	.....	10.50	7.71	8.78	5.88	5.72	5.24	6.97	8.63	6.82
4.....	10.94	8.52	.....	10.10	7.62	8.61	5.82	5.72	5.45	6.92	8.39	6.81
5.....	9.20	8.60	8.70	10.40	7.50	8.43	5.80	5.69	5.36	7.23	8.20	6.80
6.....	9.04	9.20	.....	10.30	7.41	8.18	5.92	5.64	5.32	7.11	7.97	6.92
7.....	8.96	.....	.....	10.00	7.36	7.98	5.88	5.60	5.32	7.17	7.77	7.30
8.....	8.74	.....	.....	9.90	7.28	7.78	5.84	5.45	5.35	7.16	7.60	8.19
9.....	8.60	9.18	8.60	9.15	7.18	7.72	5.80	5.29	5.55	7.05	7.55	7.78
10.....	9.28	.....	.....	8.74	7.21	7.42	6.10	5.20	5.42	6.93	7.90	8.00
11.....	9.58	.....	.....	8.52	7.18	7.29	6.24	5.18	5.42	6.86	7.90	7.61
12.....	9.84	9.15	.....	8.79	7.10	7.08	6.10	5.18	5.42	6.99	7.78	8.50
13.....	8.70	.....	8.55	8.81	7.05	6.92	6.10	5.18	5.52	7.67	7.60	7.78
14.....	9.70	.....	.....	9.34	7.04	6.76	6.10	5.18	6.17	7.67	7.52	7.08
15.....	9.78	.....	9.65	9.30	6.98	6.69	6.10	5.18	5.64	7.13	7.50	7.10
16.....	.....	.....	10.90	9.28	6.95	6.62	6.08	5.18	5.61	8.20	7.39	7.72
17.....	.....	8.85	.....	9.24	6.82	6.64	6.06	5.17	5.61	8.09	7.29	7.56
18.....	.....	.....	.....	9.08	6.77	6.52	6.04	5.15	5.68	8.07	7.21	6.92
19.....	9.80	8.80	10.10	9.02	6.68	6.42	6.02	5.12	5.68	7.91	7.10	6.95
20.....	9.90	.....	10.06	9.16	6.30	6.38	6.00	5.10	5.65	7.84	7.57	7.26
21.....	10.09	.....	12.38	8.92	6.28	6.34	6.04	5.10	5.65	9.98	7.65	7.15
22.....	9.51	.....	12.24	8.82	6.32	6.28	6.03	5.10	5.84	6.99	7.70	6.92
23.....	.....	8.78	11.12	8.66	6.84	6.20	6.01	5.20	7.88	9.02	7.65	6.99
24.....	9.00	.....	11.12	8.56	7.24	6.18	6.00	5.17	6.99	8.86	7.61	7.55
25.....	8.89	.....	11.42	8.46	7.26	6.15	6.00	5.14	6.80	8.86	7.45	7.90
26.....	8.73	8.60	12.25	8.39	7.43	6.09	5.97	5.12	6.86	9.73	7.34	6.98
27.....	8.05	.....	11.66	7.97	7.97	6.04	5.94	5.20	6.88	10.54	7.21	7.28
28.....	8.10	.....	12.48	8.27	8.11	6.00	5.92	5.19	6.79	10.17	7.19	7.68
29.....	8.19	.....	11.63	8.23	8.13	5.92	5.90	5.15	6.68	9.92	7.16	7.76
30.....	8.20	.....	11.12	8.15	9.68	5.90	5.87	5.48	6.56	9.72	7.00	7.89
31.....	7.90	.....	10.78	.....	9.52	.....	5.81	5.37	.....	9.47	.....	7.69

NOTE.—Discharge relation affected by ice Jan. 10-23 and Feb. 6 to Mar. 20.

Daily discharge, in second-feet, of Union River at Amherst, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	792	465	270	1,580	484	753	103	72	34	164	814	245
2.....	688	489	280	1,370	450	724	90	68	31	164	724	254
3.....	433	597	300	1,250	415	682	83	63	31	254	643	226
4.....	1,420	610	320	1,110	392	630	72	63	44	245	580	226
5.....	798	630	330	1,220	369	592	72	63	37	314	532	226
6.....	750	500	300	1,180	347	532	83	59	34	284	472	245
7.....	727	470	280	1,070	336	484	83	55	34	294	426	325
8.....	666	460	270	1,040	325	438	78	44	37	294	392	532
9.....	630	420	270	783	304	415	72	34	51	274	330	438
10.....	600	400	270	669	304	347	110	28	40	254	461	484
11.....	580	390	270	605	304	325	132	28	40	236	461	392
12.....	570	380	270	682	284	284	110	28	40	264	438	605
13.....	540	380	270	682	274	245	110	28	47	380	392	438
14.....	520	370	330	846	274	217	110	28	118	404	369	284
15.....	500	330	948	830	264	208	110	28	59	294	369	284
16.....	480	280	1,400	830	254	190	110	28	55	532	347	415
17.....	470	270	2,000	814	226	199	103	26	55	508	325	380
18.....	470	270	1,560	768	217	173	103	26	63	496	304	245
19.....	490	270	1,110	738	208	156	96	23	59	461	284	254
20.....	540	270	1,100	783	140	156	96	23	59	450	380	314
21.....	630	270	1,990	710	325	148	103	23	59	1,070	404	294
22.....	780	270	1,940	682	325	140	103	23	78	846	415	245
23.....	750	270	1,490	643	236	125	96	28	461	738	404	264
24.....	738	270	1,490	618	314	125	96	26	264	696	392	380
25.....	707	270	1,610	592	314	118	96	26	226	696	353	461
26.....	664	270	1,940	580	358	110	90	23	236	984	336	264
27.....	496	270	1,700	556	472	103	90	28	245	1,270	304	325
28.....	508	270	2,030	544	508	96	83	28	226	1,130	304	415
29.....	530	.....	1,690	544	520	83	83	26	208	1,040	294	426
30.....	532	.....	1,490	520	966	83	78	47	182	966	264	461
31.....	461	.....	1,360	.....	896	.....	72	37	.....	879	.....	415

NOTE.—Discharge determined from a rating curve well defined between 15 and 700 second-feet, but very poorly defined above 700 second-feet. Discharge Jan. 10-23 and Feb. 6 to Mar. 20 estimated by hydrograph comparison with records on Machias River at Whitneyville and subject to some uncertainty.

Monthly discharge of Union River at Amherst, Maine, for 1913.

[Drainage area, 140 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	1,420	433	628	4.49	5.18
February.....	.....	.....	359	2.56	2.66
March.....	2,030	200	996	7.11	8.20
April.....	1,580	520	828	5.91	6.59
May.....	906	140	368	2.63	3.03
June.....	753	83	296	2.11	2.35
July.....	132	72	94	.67	.77
August.....	72	23	37	.26	.30
September.....	461	31	105	.75	.84
October.....	1,270	164	544	3.88	4.47
November.....	814	264	419	2.99	3.34
December.....	605	226	347	2.48	2.86
The year.....	2,030	23	420	3.00	40.59

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, 1913. 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 and control.—Practically permanent; banks not subject to overflow.

Discharge measurements.—Made from lower side of bridge.

Winter flow.—Not seriously affected by ice.

Regulation.—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.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 27, 1913: Gage height, 3.05 feet; discharge, 92.8 second-feet.

Monthly discharge of Green Lake Stream at Lakewood, Maine, for 1913.

[Drainage area, 47 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	194	77	158	3.36	3.87
February.....	177	177	177	3.77	3.93
March.....	570	177	276	5.88	6.78
April.....	570	211	381	8.11	9.05
May.....	211	96	142	3.02	3.48
June.....	96	62	92	1.96	2.19
July.....	62	49	57	1.21	1.40
August.....	211	49	143	3.04	3.50
September.....	96	38	83	1.76	1.96
October.....	62	62	62	1.32	1.52
November.....	77	62	74	1.57	1.75
December.....	96	77	90	1.91	2.20
The year.....	570	38	144	3.08	41.63

BRANCH LAKE NEAR ELLSWORTH, MAINE.

Location.—At the Branch Pond Lumber Co.'s mill, at the lower end of Branch Lake, 5 miles from Ellsworth.

Records available.—June 29, 1909, to December 31, 1913.

Area of lake surface.—4.33 square miles.

Gage.—Vertical staff nailed to corner of mill near the intake to the wheels.

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 surveys.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.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

Daily gage height, in feet, of Branch Lake near Ellsworth, Maine, for 1913.

[L. H. Cushman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....			7.25			7.05					4.95	
2.....		8.4										
3.....							5.7	4.8				
4.....					7.5							
5.....	8.4									3.15		
6.....				8.75						3.1		
7.....									3.45			5.05
8.....						7.05						
9.....		8.1	7.0								4.8	
10.....								4.5				5.55
11.....					7.35							
12.....	8.5								3.3	3.15		
13.....				8.0			5.65					
14.....								4.35	3.3			5.6
15.....						7.15						
16.....	8.5	7.7	7.25						3.1		5.1	
17.....				7.8				4.1				
18.....					6.95							
19.....	8.7									3.5		
20.....				7.85			5.3	3.85				
21.....	8.7								2.8			5.5
22.....						6.35						
23.....		7.45	8.4								5.2	
24.....				7.7	6.9			3.7				
25.....												
26.....	8.65									4.3		
27.....				7.6			5.5					
28.....									3.15			5.55
29.....						5.9						
30.....			9.1								5.1	
31.....								3.6				

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

Daily gage height, in feet, of Green Lake Stream at Lakewood, Maine, for 1913.

[M. A. Garland, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.9	3.3	3.3	4.2	3.4	3.0	2.8	2.7	3.0	2.8	2.8	2.9
2.....	3.0	3.3	3.3	4.2	3.4	3.0	2.8	2.7	3.0	2.8	2.8	2.9
3.....	3.0	3.3	3.3	4.2	3.4	3.0	2.8	2.7	3.0	2.8	2.8	2.9
4.....	3.0	3.3	3.3	4.2	3.4	3.0	2.8	2.7	3.0	2.8	2.8	2.9
5.....	3.05	3.3	3.3	4.2	3.4	3.0	2.8	2.7	3.0	2.8	2.8	2.9
6.....	3.1	3.3	3.3	4.2	3.35	3.0	2.8	2.7	3.0	2.8	2.85	2.9
7.....	3.1	3.3	3.3	4.2	3.3	3.0	2.8	2.7	3.0	2.8	2.9	2.9
8.....	3.15	3.3	3.3	4.2	3.25	3.0	2.8	2.7	3.0	2.8	2.9	2.9
9.....	3.2	3.3	3.3	4.1	3.2	3.0	2.8	2.7	3.0	2.8	2.9	2.9
10.....	3.2	3.3	3.3	4.1	3.2	3.0	2.8	2.7	3.0	2.8	2.9	2.95
11.....	3.2	3.3	3.3	4.0	3.2	3.0	2.8	2.7	3.0	2.8	2.9	3.0
12.....	3.25	3.3	3.3	3.9	3.2	3.0	2.8	2.7	3.0	2.8	2.9	3.0
13.....	3.3	3.3	3.3	3.8	3.2	3.0	2.8	2.7	3.0	2.8	2.9	3.0
14.....	3.3	3.3	3.3	3.7	3.2	3.0	2.8	3.4	3.0	2.8	2.9	3.0
15.....	3.3	3.3	3.3	3.7	3.2	3.0	2.8	3.4	3.0	2.8	2.9	3.0
16.....	3.3	3.3	3.3	3.7	3.2	3.0	2.8	3.4	2.6	2.8	2.9	3.0
17.....	3.3	3.3	3.3	3.7	3.2	3.0	2.8	3.4	2.6	2.8	2.9	3.0
18.....	3.3	3.3	3.3	3.7	3.2	3.0	2.8	3.4	2.6	2.8	2.9	3.0
19.....	3.3	3.3	3.3	3.65	3.2	3.0	2.8	3.4	2.6	2.8	2.9	3.0
20.....	3.3	3.3	3.3	3.6	3.15	3.0	2.75	3.4	3.0	2.8	2.9	3.0
21.....	3.3	3.3	3.3	3.6	3.1	3.0	2.75	3.4	3.0	2.8	2.9	3.0
22.....	3.35	3.3	3.3	3.55	3.05	3.0	2.7	3.4	3.0	2.8	2.9	3.0
23.....	3.35	3.3	3.6	3.5	3.0	3.0	2.7	3.4	3.0	2.8	2.9	3.0
24.....	3.35	3.3	3.8	3.45	3.0	3.0	2.7	3.4	3.0	2.8	2.9	3.0
25.....	3.35	3.3	4.2	3.4	3.0	3.0	2.7	3.4	3.0	2.8	2.9	3.0
26.....	3.35	3.3	4.2	3.4	3.0	2.95	2.7	3.4	2.8	2.8	2.9	3.0
27.....	3.3	3.3	4.2	3.4	3.0	2.9	2.7	3.4	2.8	2.8	2.9	3.0
28.....	3.3	3.3	4.2	3.4	3.0	2.85	2.7	3.4	2.8	2.8	2.9	3.0
29.....	3.3	.....	4.2	3.4	3.0	2.8	2.7	3.4	2.8	2.8	2.9	3.0
30.....	3.3	.....	4.2	3.4	3.0	2.8	2.7	3.4	2.8	2.8	2.9	3.0
31.....	3.3	.....	4.2	.....	3.0	.....	2.7	3.4	.....	2.8	.....	3.0

Daily discharge, in second-feet, of Green Lake Stream at Lakewood, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	77	177	177	570	211	96	62	49	96	62	62	77
2.....	96	177	177	570	211	96	62	49	96	62	62	77
3.....	96	177	177	570	211	96	62	49	96	62	62	77
4.....	96	177	177	570	211	96	62	49	96	62	62	77
5.....	108	177	177	570	211	96	62	49	96	62	62	77
6.....	119	177	177	570	194	96	62	49	96	62	70	77
7.....	119	177	177	570	177	96	62	49	96	62	77	77
8.....	132	177	177	570	162	96	62	49	96	62	77	77
9.....	146	177	177	520	146	96	62	49	96	62	77	77
10.....	146	177	177	520	146	96	62	49	96	62	77	86
11.....	146	177	177	471	146	96	62	49	96	62	77	96
12.....	162	177	177	423	146	96	62	49	96	62	77	96
13.....	177	177	177	376	146	96	62	49	96	62	77	96
14.....	177	177	177	331	146	96	62	211	96	62	77	96
15.....	177	177	177	331	146	96	62	211	96	62	77	96
16.....	177	177	177	331	146	96	62	211	38	62	77	96
17.....	177	177	177	331	146	96	62	211	38	62	77	96
18.....	177	177	177	331	146	96	62	211	38	62	77	96
19.....	177	177	177	310	146	96	62	211	38	62	77	96
20.....	177	177	177	288	132	96	56	211	96	62	77	96
21.....	177	177	177	288	119	96	56	211	96	62	77	96
22.....	194	177	177	268	108	96	49	211	96	62	77	96
23.....	194	177	288	248	96	96	49	211	96	62	77	96
24.....	194	177	376	230	96	96	49	211	96	62	77	96
25.....	194	177	570	211	96	96	49	211	96	62	77	96
26.....	194	177	570	211	96	86	49	211	62	62	77	96
27.....	177	177	570	211	96	77	49	211	62	62	77	96
28.....	177	177	570	211	96	70	49	211	62	62	77	96
29.....	177	.....	570	211	96	62	49	211	62	62	77	96
30.....	177	.....	570	211	96	62	49	211	62	62	77	96
31.....	177	.....	570	.....	96	.....	49	211	.....	62	.....	96

NOTE.—Discharge determined from a rating curve fairly well defined above 20 second-feet.

Daily discharge, in second-feet, of Branch Lake Stream at Ellsworth, Maine, for 1912-13.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
1.....	35	30	48	51	56	85	34	32	30	35	37	35
2.....	35	30	42	50	56	88	37	33	30	35	33	35
3.....	35	30	35	48	50	88	41	34	30	35	30	35
4.....	35	30	35	47	45	88	45	35	30	35	30	35
5.....	35	30	34	46	40	88	48	36	30	35	31	35
6.....	35	30	34	44	40	88	52	37	30	35	32	35
7.....	35	30	33	44	40	88	76	38	30	35	33	35
8.....	35	30	33	43	39	88	76	38	30	34	34	35
9.....	35	30	32	42	38	88	64	39	33	33	35	35
10.....	35	30	32	42	37	80	52	40	36	32	35	35
11.....	35	30	33	42	36	72	46	40	40	31	50	35
12.....	35	30	34	41	35	65	41	40	43	30	62	35
13.....	35	29	34	40	60	58	36	41	46	30	75	35
14.....	35	28	34	40	67	52	30	42	60	34	88	35
15.....	30	28	35	38	74	46	30	43	74	38	88	35
16.....	37	27	44	35	81	40	30	44	71	43	64	34
17.....	44	26	54	35	88	40	30	44	68	47	40	33
18.....	42	26	56	33	88	38	30	44	65	52	40	32
19.....	40	26	58	34	88	36	30	44	63	56	40	32
20.....	37	27	60	34	88	35	30	44	54	60	40	31
21.....	35	28	62	35	88	34	30	44	44	49	40	30
22.....	35	28	65	35	88	32	30	44	35	50	40	30
23.....	35	29	64	36	88	30	30	44	36	52	40	30
24.....	35	30	62	38	84	30	30	44	37	53	40	30
25.....	34	30	60	40	80	30	30	44	38	54	40	30
26.....	32	36	58	41	76	30	30	44	39	55	39	30
27.....	31	42	57	43	76	30	30	42	40	56	38	30
28.....	30	48	56	44	77	30	30	41	38	52	38	30
29.....	30	54	54	48	78	30	30	40	35	48	37	30
30.....	30	.....	53	52	78	30	31	40	35	44	36	30
31.....	30	.....	52	.....	82	.....	32	35	.....	40	.....	30
1913.												
1.....	30	94	88	132	67	76	63	44	30	30	41	44
2.....	32	101	88	136	68	76	56	44	30	30	42	44
3.....	34	100	87	140	69	76	49	44	30	30	44	44
4.....	36	99	86	144	70	76	48	44	30	30	44	44
5.....	38	98	85	148	70	76	47	44	30	30	44	44
6.....	39	97	85	152	70	76	46	44	30	30	44	44
7.....	41	96	84	150	70	76	45	44	30	30	44	44
8.....	42	95	83	149	70	76	44	44	31	30	44	44
9.....	44	94	82	148	70	76	44	44	32	30	44	44
10.....	45	92	83	147	70	76	44	44	33	30	44	44
11.....	47	90	84	146	70	76	44	65	35	30	44	44
12.....	48	88	85	145	70	76	44	86	45	30	44	44
13.....	49	87	85	144	70	76	44	107	55	30	44	44
14.....	50	85	86	138	70	76	44	129	65	30	44	44
15.....	50	83	87	133	70	76	44	124	73	31	44	44
16.....	51	82	88	127	70	76	44	119	82	32	44	44
17.....	51	83	90	122	70	76	44	114	79	33	44	44
18.....	50	84	92	115	70	76	44	88	75	34	44	44
19.....	50	85	94	108	70	76	44	62	72	35	44	44
20.....	63	85	95	101	71	76	44	35	68	35	44	44
21.....	76	86	97	98	72	76	44	34	65	35	44	44
22.....	70	87	99	94	73	76	44	33	60	35	44	44
23.....	65	88	101	91	74	76	44	32	55	35	44	44
24.....	59	88	105	87	75	76	44	30	50	35	44	44
25.....	54	88	109	82	76	76	44	30	45	35	44	44
26.....	48	88	113	74	76	76	44	30	40	35	44	44
27.....	56	88	117	65	76	76	44	30	35	36	44	44
28.....	63	88	120	65	76	76	44	30	30	37	44	44
29.....	71	.....	124	65	76	76	44	30	30	38	44	44
30.....	78	.....	128	66	76	70	44	30	30	39	44	44
31.....	86	.....	128	.....	76	.....	44	30	.....	40	.....	44

NOTE.—Discharge determined from a rating curve well defined between 10 and 160 second-feet. Discharge interpolated for days when no gage height was reported.

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, 1913. 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.

Channel and control.—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.—Not seriously affected by ice.

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

Accuracy.—Results fair.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

Discharge measurements of Branch Lake Stream near Ellsworth, Maine, during 1913.

[Made by G. C. Danforth.]

Date.	Gage height.	Discharge.	Date.	Gage height.	Discharge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
May 27.....	4.60	77.0	May 27.....	5.10	143
27.....	4.98	122			

Daily gage height, in feet, of Branch Lake Stream near Ellsworth, Maine, for 1913.

[L. H. Cushman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....						4.60						
2.....		4.80	4.70									
3.....					4.55		4.35	4.30			4.30	
4.....										4.15		
5.....	4.25											
6.....				5.15								
7.....									4.15			4.30
8.....						4.60					4.30	
9.....		4.75	4.65									
10.....								4.30				4.30
11.....					4.55				4.18			
12.....	4.35									4.15		
13.....				5.10								
14.....								5.00	4.50			4.30
15.....						4.60						
16.....	4.38	4.65	4.70						4.65		4.30	
17.....				4.95				4.90				
18.....					4.55							
19.....	4.37									4.20		
20.....				4.80			4.30	4.20				
21.....	4.60								4.48			4.30
22.....						4.60						
23.....		4.70	4.80								4.30	
24.....								4.15				
25.....				4.65	4.60							
26.....	4.35									4.20		
27.....				4.50			4.30					
28.....									4.15			4.30
29.....						4.60						
30.....			5.00								4.30	
31.....								4.15				

Monthly discharge of Branch Lake Stream near Ellsworth, Maine, for 1912-13.

[Drainage area, 31 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1912.					
January.....	44	30	34.7	1.12	1.29
February.....	54	26	31.1	1.00	1.08
March.....	65	32	46.5	1.50	1.73
April.....	52	33	41.4	1.34	1.50
May.....	88	35	65.8	2.12	2.44
June.....	88	30	55.2	1.78	1.99
July.....	76	30	38.4	1.24	1.43
August.....	44	32	40.3	1.30	1.50
September.....	74	30	42.3	1.36	1.52
October.....	60	30	42.5	1.37	1.58
November.....	88	30	43.5	1.40	1.56
December.....	35	30	32.8	1.06	1.22
The year.....	88	26	42.9	1.38	18.84
1913.					
January.....	86	30	52	1.68	1.94
February.....	101	82	90	2.90	3.02
March.....	128	82	96	3.10	3.57
April.....	152	65	117	3.77	4.21
May.....	76	67	72	2.32	2.68
June.....	76	70	76	2.45	2.73
July.....	63	44	45	1.45	1.67
August.....	129	30	55	1.77	2.04
September.....	82	30	46	1.48	1.65
October.....	40	30	33	1.06	1.22
November.....	44	41	44	1.42	1.58
December.....	44	44	44	1.42	1.64
The year.....	152	30	64	2.06	27.95

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, 1913. 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 tailraces at the mill.

Channel and control.—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. 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 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.

Regulation.—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 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. Results corrected for storage.

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

Monthly discharge of West Branch of Penobscot River at Millinocket, Maine, for 1911-1913.

[Drainage area, 1,880 square miles.]

Month.	Discharge in second-feet.			Run-off (depth in inches on drainage area).
	As ob- served.	As cor- rected for storage.	Per square mile.	
1911.				
January.....	2,190	380	0.202	0.23
February.....	1,430	430	.229	.24
March.....	687	450	.239	.28
April.....	1,100	2,100	1.12	1.25
May.....	2,390	9,150	4.87	5.62
June.....	2,340	2,480	1.32	1.47
July.....	2,220	950	.505	.58
August.....	2,320	1,040	.553	.64
September.....	2,210	1,290	.686	.77
October.....	2,220	1,650	.878	1.01
November.....	2,160	1,520	.808	.90
December.....	2,010	3,480	1.85	2.13
The year.....	1,940	2,090	1.11	15.14
1912.				
January.....	2,060	1,970	1.05	1.21
February.....	2,040	874	.465	.50
March.....	2,030	1,100	.585	.67
April.....	2,300	8,020	4.27	4.76
May.....	6,630	10,800	5.74	6.62
June.....	7,510	7,260	3.86	4.31
July.....	3,400	1,700	.904	1.04
August.....	2,390	3,340	1.78	2.05
September.....	2,210	1,690	.899	1.00
October.....	2,240	2,930	1.56	1.80
November.....	6,340	5,660	3.01	3.36
December.....	3,270	2,400	1.28	1.48
The year.....	3,520	3,980	2.12	28.80
1913.				
January.....	2,170	1,970	1.05	1.21
February.....	2,170	1,050	.559	.58
March.....	2,360	2,590	1.38	1.59
April.....	6,120	9,580	5.10	5.69
May.....	6,820	6,980	3.71	4.28
June.....	3,800	3,590	1.91	2.13
July.....	2,560	1,900	1.01	1.13
August.....	2,220	1,030	.548	.63
September.....	2,300	1,130	.601	.67
October.....	2,320	2,620	1.39	1.60
November.....	2,340	3,020	1.61	1.80
December.....	2,330	1,930	1.03	1.19
The year.....	3,130	3,120	1.66	22.50

NOTE.—Similar data for the years 1901 to 1910 are published in Water-Supply Paper 279, pages 191-193.

PENOBSCOT RIVER AT WEST ENFIELD, MAINE.

Location.—At the steel highway bridge, 1,000 feet below Piscataquis River and a mile below West Enfield.

Records available.—January 1, 1902, to December 31, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—6,600 square miles.

Gages.—Standard chain gage and water-stage recorder.

Channel and control.—Practically permanent; channel at gage broken by four bridge piers.

Winter flow.—Affected by ice.

Regulation.—Flow of the river since about 1900 largely regulated by storage, principally in the lakes tributary to the West Branch. About a mile above the station is the dam of the International Paper Co., and the Piscataquis is dammed near its mouth. 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.—Results good except estimates of winter flow prior to 1913.

Cooperation.—Discharge measurements made by the students of the University of Maine under the direction of Prof. H. S. Boardman. Results furnished by the Maine State Water Storage Commission.

Discharge measurements of Penobscot River at West Enfield, Maine, during 1913.

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

Date.	Gage. height.	Dis- charge.	Date.	Gage. height.	Dis- charge.	Date.	Gage. height.	Dis- charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
Sept. 25.....	4.90	11,100	Oct. 2.....	2.77	4,810	Oct. 8.....	3.22	5,690
25.....	4.90	10,400	2.....	2.77	4,820	28.....	10.02	36,100
27.....	3.79	7,380	8.....	3.22	5,830	31.....	8.43	27,300
27.....	3.79	7,240						

Daily gage height, in feet, of Penobscot River at West Enfield, Maine, for 1913.

[T. W. Clark, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.35	5.6	5.75	11.05	11.85	8.6	3.25	3.2	2.8	2.9	7.8	3.75
2.....	4.5	6.05	5.75	11.45	11.15	8.6	3.35	3.1	2.9	2.85	7.2	3.9
3.....	4.7	6.15	5.2	10.3	10.65	8.3	3.3	3.05	2.85	3.1	6.9	3.9
4.....	5.85	6.4	5.55	9.85	10.05	8.0	3.15	3.2	2.85	3.45	6.5	3.9
5.....	6.65	6.2	5.8	9.0	9.1	7.6	3.05	3.35	2.8	3.65	6.1	3.9
6.....	6.2	6.05	5.7	8.7	8.25	6.8	2.95	3.3	2.55	3.4	5.75	3.75
7.....	6.2	5.9	5.7	8.25	7.45	6.7	2.95	3.2	2.35	3.45	5.55	3.55
8.....	6.2	5.8	5.6	7.7	7.55	6.3	3.05	3.05	2.3	3.15	5.3	4.35
9.....	6.25	5.8	5.5	7.4	7.85	6.0	3.05	2.95	2.25	3.05	5.15	5.75
10.....	6.15	5.3	5.15	6.8	7.85	6.0	3.15	2.85	2.35	3.05	5.4	5.4
11.....	6.05	5.45	5.5	7.75	7.65	6.0	3.4	2.45	2.35	3.0	6.75	5.25
12.....	6.05	5.8	5.7	8.05	7.3	5.4	3.95	2.9	2.35	2.9	6.3	4.6
13.....	6.35	5.75	5.6	8.65	6.95	5.2	3.7	2.9	2.35	3.05	5.8	4.55
14.....	6.65	5.7	5.6	8.85	6.75	4.8	3.55	2.85	2.3	3.25	5.45	4.7
15.....	6.75	5.75	5.9	9.35	6.75	4.4	3.65	2.75	2.05	3.55	5.25	4.1
16.....	6.6	5.65	6.5	9.9	6.8	4.4	3.75	2.65	2.15	3.9	5.05	3.65
17.....	6.35	5.75	7.3	10.05	6.65	4.75	3.7	2.55	2.35	4.3	4.9	3.75
18.....	6.05	5.8	7.6	10.1	6.4	5.1	4.1	2.25	2.35	4.4	4.9	4.1
19.....	6.25	6.1	7.35	10.35	5.4	5.2	4.85	2.35	2.4	4.3	4.65	3.95
20.....	6.2	6.1	7.45	11.25	5.3	5.0	5.05	2.4	2.3	4.4	4.95	3.7
21.....	6.9	5.85	8.55	10.75	4.9	4.75	4.85	2.4	2.25	7.1	5.55	3.8
22.....	7.45	5.85	11.25	10.2	5.0	4.5	4.65	2.35	2.1	9.5	5.4	3.7
23.....	7.45	5.9	13.2	10.0	5.55	4.1	4.5	2.45	2.8	8.0	5.05	3.7
24.....	7.2	5.4	13.25	10.7	5.85	4.3	4.4	2.35	5.35	7.05	4.95	3.55
25.....	6.8	5.8	12.7	11.0	6.2	4.1	4.3	2.2	4.85	6.7	4.95	3.5
26.....	6.5	5.9	13.45	11.25	6.2	3.8	4.25	2.5	4.2	7.15	4.65	3.4
27.....	5.95	5.8	13.1	11.4	6.75	3.3	4.15	2.6	3.75	9.0	4.45	3.55
28.....	6.2	5.8	12.55	11.5	6.35	3.35	3.6	2.7	3.4	9.9	4.2	.....
29.....	6.05	.....	12.55	11.7	6.6	3.2	3.2	2.75	3.15	9.5	3.9	.....
30.....	5.8	.....	11.8	12.05	7.6	2.95	3.3	2.75	3.1	9.05	3.8	.....
31.....	5.55	.....	10.9	.....	8.9	.....	3.3	2.65	.....	8.5	.....	.....

NOTE.—Discharge relation Jan. 14 to Mar. 30 affected by ice.

Daily discharge, in second-feet, of Penobscot River at West Enfield, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	9,120	7,440	5,190	40,200	45,100	26,000	6,020	5,890	4,960	5,190	22,000	7,300
2.....	9,420	8,540	5,190	42,600	40,800	26,000	6,260	5,650	5,190	5,080	19,300	7,710
3.....	10,000	8,540	4,060	35,600	37,800	24,400	6,140	5,540	5,080	5,650	18,000	7,710
4.....	13,700	9,120	4,960	33,000	34,200	23,000	5,770	5,890	5,080	6,520	16,400	7,710
5.....	16,800	8,540	5,650	28,200	28,700	21,100	5,540	6,260	4,960	7,040	14,800	7,710
6.....	15,200	10,300	5,650	26,500	24,200	17,600	5,300	6,140	4,390	6,390	13,500	7,300
7.....	15,200	6,910	5,650	24,200	20,400	17,200	5,300	5,890	3,950	6,520	12,800	6,780
8.....	15,200	6,650	5,420	21,500	20,800	15,600	5,540	5,540	3,840	5,770	12,000	8,980
9.....	15,200	6,390	5,420	20,200	22,200	14,400	5,540	5,300	3,740	5,540	11,500	13,500
10.....	15,200	4,960	4,730	17,600	22,200	14,400	5,770	5,080	3,950	5,540	12,300	12,300
11.....	14,800	4,960	5,420	21,800	21,300	14,400	6,390	4,170	3,950	5,420	17,400	11,800
12.....	14,800	5,650	5,650	23,200	19,700	12,300	7,840	5,190	3,950	5,190	15,600	9,720
13.....	16,000	5,420	5,190	26,300	18,200	11,600	7,170	5,190	3,950	5,540	13,700	9,570
14.....	16,000	4,960	4,960	27,400	17,400	10,300	6,780	5,080	3,840	6,020	12,500	10,000
15.....	15,600	4,960	5,420	30,100	17,400	9,120	7,040	4,840	3,330	6,780	11,800	8,260
16.....	13,700	4,500	6,650	33,300	17,600	9,120	7,300	4,620	3,530	7,710	11,100	7,040
17.....	12,300	4,500	8,540	34,200	17,000	10,200	7,170	4,390	3,950	8,530	10,700	7,300
18.....	10,300	4,500	10,700	34,400	16,000	11,300	8,260	3,740	3,950	9,120	10,700	8,260
19.....	10,000	5,190	11,600	36,000	12,300	11,600	10,500	3,950	4,060	8,530	9,880	7,840
20.....	9,120	4,960	13,700	41,400	12,000	11,000	11,100	4,060	3,840	9,120	10,800	7,170
21.....	10,700	4,730	19,300	38,400	10,700	10,200	10,500	4,060	3,740	18,800	12,800	7,440
22.....	12,600	4,730	35,000	35,000	11,000	9,420	9,880	3,950	3,430	31,000	12,300	7,170
23.....	12,600	4,960	48,600	33,800	12,800	8,260	9,420	4,170	4,960	23,000	11,100	7,170
24.....	12,600	3,840	50,500	38,000	13,900	8,830	9,120	3,950	12,100	18,600	10,800	6,780
25.....	10,700	4,730	47,300	39,800	15,200	8,260	8,830	3,630	10,500	17,200	10,800	6,650
26.....	10,000	5,190	52,400	41,400	15,200	7,440	8,680	4,280	8,540	19,100	9,880	6,390
27.....	8,260	4,960	50,500	42,300	17,400	6,140	8,400	4,500	7,300	28,200	9,270	6,780
28.....	9,120	4,960	48,000	43,000	15,800	6,260	6,910	4,730	6,390	33,300	8,540	6,500
29.....	8,830	.....	48,600	44,200	16,800	5,890	5,890	4,840	5,770	31,000	7,710	6,500
30.....	8,260	.....	44,200	46,400	21,100	5,300	6,140	4,840	5,650	28,500	7,440	6,500
31.....	7,440	.....	39,200	.....	27,600	.....	6,140	4,620	.....	25,500	.....	6,500

NOTE.—Discharge determined from a well-defined rating curve. Discharge Jan. 14 to Mar. 30 estimated by comparison with records at Sunkhaze and at Millinocket.

Monthly discharge of Penobscot River at West Enfield, Maine, for 1913.

[Drainage area, 6,600 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	16,800	7,440	12,200	1.85	2.13
February.....	10,300	3,840	5,900	.894	.93
March.....	52,400	4,060	19,800	3.00	3.46
April.....	46,400	17,600	33,300	5.05	5.63
May.....	45,100	10,700	20,700	3.14	3.62
June.....	26,000	5,300	12,900	1.95	2.18
July.....	11,100	5,300	7,310	1.11	1.28
August.....	6,260	3,630	4,840	.733	.85
September.....	12,100	3,330	5,060	.767	.86
October.....	33,300	5,080	13,100	1.98	2.28
November.....	22,000	7,440	12,600	1.91	2.13
December.....	13,500	6,390	8,010	1.21	1.40
The year.....	52,400	3,330	13,000	1.97	26.75

EAST BRANCH OF PENOBSCOT RIVER AT GRINDSTONE, MAINE.

Location.—At 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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,100 square miles.

Gage.—Chain.

Channel and control.—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.

Regulation.—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.—Discharge relation 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 probably fair for moderate and high stages, but uncertain for low water.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 6, 1913: Gage height, 6.30 feet; discharge, 2,050 second-feet.

Daily gage height, in feet, of East Branch of Penobscot River at Grindstone, Maine, for 1913.

[G. H. Goddard, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	5.90				8.40	9.30	5.10	5.60	4.60	4.70	6.88	5.52
2.			5.00	9.95	8.35	9.00	5.10	5.70	4.52	4.60	6.70	5.38
3.				10.40	8.00	8.30	5.10	5.68	4.55	5.28	6.50	5.30
4.				9.85	7.30	7.98	5.10	5.72	4.70	5.25	6.45	5.20
5.	6.20		5.00	9.55	6.35	7.60	5.10	5.45	4.62	4.98	6.40	5.12
6.				8.75	6.30	7.50	5.00	5.30	4.50	4.90	6.28	5.10
7.				7.60	6.82	7.50	4.85	5.28	4.38	4.82	6.60	5.10
8.				7.15	7.30	7.35	4.80	5.20	4.28	4.80	7.00	5.75
9.		5.40	4.90	7.10	7.10	7.15	4.78	5.10	4.25	4.80	6.75	5.60
10.				7.10	7.05	7.05	4.75	5.28	4.20	4.80	6.60	5.80
11.				7.00	7.25	7.00	5.50	5.38	4.15	4.75	6.50	5.92
12.		5.30		7.00	7.20	7.08	6.00	5.30	4.15	4.72	6.30	5.90
13.			5.00	6.90	7.30	7.20	5.80	5.12	4.15	4.75	6.22	5.90
14.				6.90	7.40	7.20	5.45	5.10	4.10	4.80	6.20	5.82
15.	5.90			7.18	7.32	7.20	5.30	5.00	4.10	5.10	6.08	5.78
16.		5.10		7.55	7.30	7.12	5.30	4.92	4.08	5.95	6.00	5.70
17.			7.90	7.62	7.20	7.10	5.65	4.88	4.02	6.10	5.92	5.68
18.				7.80	7.05	7.00	6.30	4.82	4.00	6.00	5.88	5.55
19.		5.05		8.10	6.20	7.00	6.42	4.80	4.10	6.05	5.80	5.48
20.			7.50	8.50	5.70	6.95	6.22	4.75	4.25	6.25	5.90	.....
21.				8.75	5.70	6.90	6.35	4.70	4.22	9.10	6.10	.....
22.		5.00		8.80	6.45	6.85	6.75	4.62	4.20	8.65	6.10	5.90
23.			9.80	8.70	7.15	6.88	6.80	4.60	6.35	7.75	5.98	.....
24.				8.95	7.42	6.52	6.70	4.72	6.40	7.25	5.80	.....
25.				9.38	7.40	6.50	6.72	4.75	5.60	7.10	5.80	.....
26.	6.00	5.00		9.20	7.35	6.50	6.80	4.65	5.25	7.40	5.78	5.60
27.			9.70	8.85	7.20	6.15	6.00	4.60	5.12	8.30	5.72	.....
28.				8.65	7.25	5.70	6.40	4.68	4.98	8.00	5.68	.....
29.	6.40			8.60	7.40	5.45	6.35	4.70	4.80	7.65	5.66	.....
30.			8.40	8.50	8.60	5.15	6.25	4.65	4.80	7.35	5.60	5.50
31.					9.18	.....	5.70	4.62	.....	7.00	.....	.....

NOTE.—Discharge relation probably affected by ice January to March, inclusive, and Dec. 20-31.

Daily discharge, in second-feet, of East Branch of Penobscot River at Grindstone, Maine, for 1913.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	8,700	6,210	8,290	680	1,130	405	455	3,140	1,020
2.....	9,880	6,100	7,580	680	1,250	360	405	2,790	920
3.....	11,000	5,330	5,990	680	1,250	382	830	2,450	830
4.....	9,620	3,890	5,330	680	1,250	455	790	2,360	750
5.....	8,890	2,200	4,490	680	970	405	620	2,280	680
6.....	7,000	2,120	4,290	620	830	360	560	2,120	680
7.....	4,490	2,960	4,290	532	830	315	505	2,620	680
8.....	3,600	3,890	3,990	505	750	275	505	3,320	1,320
9.....	3,510	3,510	3,600	505	680	258	505	2,880	1,130
10.....	3,510	3,420	3,420	480	830	240	505	2,620	1,380
11.....	3,320	3,800	3,320	1,020	920	225	480	2,450	1,520
12.....	3,320	3,700	3,510	1,660	830	225	455	2,120	1,520
13.....	3,140	3,890	3,700	1,380	680	225	480	1,960	1,520
14.....	3,140	4,090	3,700	970	680	210	505	1,960	1,380
15.....	3,700	3,890	3,700	830	620	210	680	1,810	1,380
16.....	4,390	3,890	3,510	830	560	210	1,590	1,660	1,250
17.....	4,490	3,700	3,510	1,190	560	185	1,810	1,520	1,250
18.....	4,910	3,420	3,320	2,120	505	185	1,660	1,520	1,080
19.....	5,550	1,960	3,320	2,280	505	210	1,740	1,890	1,020
20.....	6,430	1,250	3,230	1,960	480	258	2,040	1,520	.....
21.....	7,000	1,250	3,140	2,200	455	240	7,810	1,810	.....
22.....	7,120	2,360	3,050	2,880	405	240	6,780	1,810	.....
23.....	6,890	3,600	2,790	2,960	405	2,200	4,800	1,660	.....
24.....	7,460	4,090	2,450	2,790	455	2,280	3,800	1,380	.....
25.....	8,530	4,090	2,450	2,790	480	1,130	3,510	1,380	.....
26.....	8,050	3,990	2,450	2,960	430	790	4,090	1,380	.....
27.....	7,240	3,700	1,880	2,620	405	680	5,990	1,250	.....
28.....	6,780	3,800	1,250	2,280	455	620	5,330	1,250	.....
29.....	6,660	4,090	970	2,200	455	505	4,600	1,190	.....
30.....	6,430	6,660	715	2,040	430	505	3,990	1,130	.....
31.....	.....	8,050	.....	1,250	405	.....	3,320	.....	.....

NOTE.—Discharge determined from a rating curve fairly well defined between 400 and 10,000 second-feet. Mean discharge Dec. 20-31 estimated at 800 second-feet. Data insufficient for estimates of flow January to March.

Monthly discharge of East Branch of Penobscot River at Grindstone, Maine, for 1913.

[Drainage area, 1,100 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
April.....	11,000	3,140	6,160	5.60	6.25
May.....	8,050	1,250	3,840	3.49	4.02
June.....	8,290	715	3,570	3.24	3.62
July.....	2,960	480	1,520	1.38	1.59
August.....	1,250	405	674	.613	.71
September.....	2,280	185	493	.448	.50
October.....	6,780	405	2,300	2.09	2.41
November.....	3,320	1,130	1,960	1.78	1.99
December.....	1,520	.....	997	.906	1.04

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—1,500 square miles.

Gage.—Chain.

Channel and control.—Practically permanent; channel at gage section 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.

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

Accuracy.—Discharge relation at times affected by backwater from log jams that form in the log-driving season and during the winter months by ice.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

Discharge measurements of Mattawamkeag River at Mattawamkeag, Maine, during 1913.

[Made by G. C. Danforth.]

Date.	Gage height.	Discharge.
May 7.....	<i>Fect.</i> 6.95	<i>Sec.-ft.</i> 5,180
28.....	6.38	3,800

Daily gage height, in feet, of Mattawamkeag River at Mattawamkeag, Maine, for 1913.

[W. T. Mincher, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....				12.0	11.15	8.2	4.2	4.4	3.45	4.4	9.3	6.5
2.....		10.1	9.7	12.0	10.25	8.15	4.3	4.3	3.75	4.4	9.15	6.45
3.....				12.0	8.55	7.85	4.25	4.2	3.85	4.3	8.9	6.4
4.....				12.0	8.15	7.55	4.1	4.45	3.80	4.2	8.8	6.4
5.....				12.1	7.85	7.25	4.1	4.7	3.80	4.35	8.55	6.4
6.....				11.85	7.3	7.0	4.1	4.85	3.7	4.4	8.25	6.4
7.....				10.55	7.0	6.8	4.05	4.9	3.6	4.5	8.05	6.4
8.....				10.35	6.9	6.7	3.85	4.8	3.5	4.5	7.85	6.4
9.....		9.5	9.9	10.05	6.7	6.5	3.7	4.8	3.35	4.5	7.45	6.35
10.....				9.75	6.85	6.5	3.75	4.7	3.3	4.5	7.25	6.85
11.....				9.7	6.9	6.25	3.8	4.55	3.3	4.4	7.6	7.55
12.....				9.8	6.8	5.7	3.7	4.35	3.2	4.35	7.6	7.3
13.....				9.95	6.7	4.6	3.9	4.15	3.1	4.6	7.35	7.15
14.....				10.3	6.6	4.55	4.35	4.0	3.2	4.7	7.15	7.0
15.....				10.65	6.5	4.25	4.3	3.9	3.3	4.9	7.2	7.0
16.....		9.5	9.8	10.7	6.4	4.35	4.2	3.8	3.4	5.25	7.2	6.9
17.....				10.8	6.3	5.15	4.2	3.8	3.4	5.45	7.3	6.8
18.....				10.7	6.2	5.4	4.35	3.8	3.4	5.5	7.2	6.65
19.....				10.8	5.95	5.4	4.65	3.7	3.5	5.6	7.2	6.4
20.....				10.8	5.65	5.4	4.7	3.6	3.5	5.8	7.2	6.3
21.....				10.8	5.7	5.3	4.7	3.6	3.5	5.8	7.2	6.0
22.....				11.05	5.7	5.15	4.7	3.5	3.75	.....	7.1	5.8
23.....		9.4	15.1	11.25	5.85	4.85	4.7	3.55	4.5	.....	7.0	6.2
24.....				11.65	5.85	4.7	4.7	3.7	4.95	.....	6.9	6.2
25.....				11.85	5.7	4.6	4.7	3.55	5.1	.....	6.9	6.2
26.....	10.0		11.9	11.6	5.85	4.5	4.7	3.2	5.1	.....	6.9	6.2
27.....			12.0	11.9	6.2	4.5	4.7	3.1	5.1	.....	6.9	6.2
28.....			12.1	12.25	6.3	4.5	4.7	3.15	4.85	.....	6.9	6.2
29.....			11.95	12.6	6.9	4.35	4.6	3.35	4.65	.....	6.8	.....
30.....			11.9	11.95	7.5	4.2	4.5	3.55	4.5	9.4	6.7	.....
31.....			11.9	.....	8.0	.....	4.5	3.45	.....	9.35	.....	.....

NOTE.—Discharge relation Jan. 1 to Mar. 22 seriously affected by ice.

Daily discharge, in second-feet, of Mattawamkeag River at Mattawamkeag, Maine, for 1913.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		19,000	16,200	7,860	818	1,000	354	1,000	10,800	4,090
3.....		19,000	13,400	7,730	906	906	498	1,000	10,400	4,000
2.....		19,000	8,770	6,980	862	818	558	906	9,690	3,900
4.....		19,000	7,730	6,250	736	1,050	525	818	9,420	3,900
5.....		19,300	6,980	5,600	736	1,320	525	953	8,770	3,900
6.....		18,500	5,700	5,080	736	1,500	470	1,000	7,990	3,900
7.....		14,400	5,080	4,680	698	1,560	420	1,100	7,480	3,900
8.....		13,800	4,880	4,480	558	1,440	375	1,100	6,980	3,900
9.....		12,900	4,480	4,090	470	1,440	314	1,100	6,030	3,800
10.....		12,000	4,780	4,090	498	1,320	295	1,100	5,600	4,780
11.....		11,900	4,880	3,620	525	1,160	295	1,000	6,360	6,250
12.....		12,200	4,680	2,660	470	953	258	953	6,360	5,700
13.....		12,600	4,480	1,210	580	777	223	1,210	5,810	5,380
14.....		13,600	4,280	1,160	953	660	258	1,320	5,380	5,080
15.....		14,700	4,090	862	906	590	295	1,560	5,490	5,080
16.....		14,800	3,900	953	818	525	334	2,020	5,490	4,880
17.....	3,300	15,100	3,710	1,880	818	525	334	2,290	5,700	4,680
18.....	5,000	14,800	3,520	2,220	953	525	334	2,360	5,490	4,380
19.....	7,000	15,100	3,070	2,220	1,260	470	375	2,500	5,490	3,900
20.....	9,000	15,100	2,580	2,220	1,320	420	375	2,820	5,490	3,710
21.....	11,000	15,100	2,660	2,080	1,320	420	375	2,820	5,490	3,160
22.....	13,000	15,900	2,660	1,880	1,320	375	498	3,840	5,280	2,820
23.....	18,000	16,600	2,900	1,500	1,320	398	1,100	4,860	5,080	3,520
24.....	17,800	17,200	2,900	1,320	1,320	470	1,620	5,880	4,880	3,520
25.....	18,500	17,700	2,660	1,210	1,320	398	1,820	6,900	4,880	3,520
26.....	18,700	17,700	2,900	1,100	1,320	258	1,820	7,920	4,880	3,520
27.....	19,000	18,700	3,520	1,100	1,320	223	1,820	8,940	4,880	3,520
28.....	19,300	19,800	3,710	1,100	1,320	240	1,500	9,960	4,880	3,520
29.....	18,800	21,000	4,880	953	1,210	314	1,260	11,000	4,680	3,520
30.....	18,700	18,800	6,140	818	1,100	398	1,100	11,000	4,480	3,520
31.....	18,700		7,350		1,100	354		10,900		3,520

NOTE.—Discharge determined from a well-defined rating curve. Winter discharge estimated by comparison with adjacent streams, as follows: January, mean discharge, 3,450 second-feet; February, 960 second-feet; Mar. 1-16, 950 second-feet. Discharge Mar. 17-22, estimated; Oct. 22-29, interpolated.

Monthly discharge of Mattawamkeag River at Mattawamkeag, Maine, for 1913.

[Drainage area, 1,500 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mle.	
January.....			3,450	2.30	2.65
February.....			960	.640	.67
March.....			7,450	4.97	5.73
April.....	21,000	11,900	16,200	10.8	12.05
May.....	16,200	2,580	7,860	3.43	3.95
June.....	818		2,960	1.97	2.20
July.....	1,320	470	955	.636	.73
August.....	1,560	223	736	.490	.56
September.....	1,820	223	678	.452	.50
October.....	11,000	818	3,620	2.41	2.78
November.....	10,800	4,480	6,320	4.21	4.70
December.....	6,250	2,820	4,090	2.73	3.15
The year.....	21,000	223	4,380	2.92	39.67

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—286 square miles.

Gage.—Staff attached to left abutment of bridge.

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

Accuracy.—Discharge relation at low stages considerably affected by the irregular use of water at the mills; during some winters it is also affected by ice; little if any affected by backwater from log jams, as little log driving is now done on the river.

Coopération.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 26, 1913: Gage height, 3.20 feet; discharge, 504 second-feet.

Daily gage height, in feet, of Piscataquis River near Foxcroft, Maine, for 1913:

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

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.6	2.65	2.25	8.7	4.35	3.15	1.95	1.95	2.1	2.3	3.65	2.8
2.....	2.9	2.65	2.25	6.1	4.15	3.2	1.95	1.95	2.1	2.35	3.5	2.75
3.....	2.9	2.65	2.2	4.95	4.15	3.2	1.95	1.95	2.1	2.6	3.45	2.75
4.....	3.15	2.9	2.3	4.5	4.45	3.2	1.95	2.05	2.1	2.7	3.45	2.9
5.....	3.15	3.1	2.4	4.35	4.05	2.9	1.95	2.25	2.2	2.7	3.35	2.9
6.....	3.15	3.1	2.4	4.2	4.05	2.8	1.9	2.25	2.35	2.7	3.25	2.8
7.....	3.15	3.25	2.6	4.1	3.7	2.7	2.1	2.05	2.25	2.7	3.2	2.5
8.....	3.15	3.0	2.7	3.95	3.1	2.0	2.25	1.9	2.2	2.55	3.25	4.15
9.....	3.35	2.9	2.55	3.95	3.1	2.25	2.25	1.9	2.2	2.55	4.0	3.85
10.....	3.35	3.15	2.55	3.95	3.1	2.25	2.3	1.9	2.15	2.45	6.15	3.75
11.....	3.6	3.25	2.55	3.8	3.1	2.35	2.45	2.0	2.15	2.25	5.3	3.6
12.....	3.6	3.4	2.45	4.5	3.0	2.45	2.45	2.3	2.15	2.05	4.8	3.4
13.....	3.6	3.2	2.45	4.5	2.75	2.45	2.65	2.25	2.1	2.2	4.4	3.2
14.....	3.65	3.1	2.55	4.8	2.65	2.45	2.65	2.2	2.2	2.25	4.25	3.15
15.....	3.6	2.8	3.1	5.35	2.6	2.45	2.65	2.15	2.2	2.25	4.0	3.15
16.....	3.25	2.7	3.5	5.6	2.6	2.45	2.65	2.15	2.0	2.8	3.8	3.05
17.....	4.25	3.25	3.9	5.4	2.4	2.45	2.7	2.35	1.85	2.95	8.75	3.15
18.....	3.2	3.25	3.8	5.4	2.4	2.45	2.7	2.35	1.85	2.95	3.7	3.2
19.....	3.4	2.95	3.7	5.55	2.5	2.5	2.75	2.35	1.85	2.95	3.65	3.3
20.....	3.9	2.65	3.6	5.95	2.5	2.4	2.8	2.35	1.85	4.5	3.9	3.3
21.....	3.8	2.45	4.4	4.7	2.35	2.25	2.65	2.2	1.85	8.25	3.95	2.95
22.....	3.65	2.55	8.2	4.3	2.9	2.1	2.65	2.2	2.2	6.35	3.9	2.8
23.....	3.6	3.0	7.5	5.25	3.25	2.1	2.65	2.05	4.25	4.3	3.7	2.25
24.....	3.2	3.05	5.75	5.5	3.4	2.05	2.6	2.05	3.9	3.85	3.65	2.15
25.....	3.0	3.05	6.7	5.5	3.2	2.0	2.6	2.25	3.55	5.8	3.65	2.4
26.....	2.95	2.9	8.15	5.65	3.15	1.95	2.55	2.65	3.05	5.8	3.3	2.55
27.....	2.95	2.8	7.9	4.9	2.95	1.95	2.5	2.8	2.35	5.8	3.1	2.55
28.....	3.15	2.55	5.5	4.65	3.0	1.85	2.35	2.7	2.35	5.10	3.0	3.1
29.....	3.4	.....	4.8	4.35	3.15	1.85	2.2	2.45	2.2	4.95	3.0	3.15
30.....	3.1	.....	4.4	4.35	3.15	1.85	2.0	2.2	2.2	4.65	2.9	3.15
31.....	2.9	.....	4.8	.....	3.15	.....	1.95	2.1	.....	4.1	.....	3.2

Daily discharge, in second-feet, of Piscataquis River near Foxcroft, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sépt.	Oct.	Nov.	Dec.
1.....	220	244	111	9,240	1,560	536	58	58	81	123	898	374
2.....	374	244	111	4,150	1,350	569	58	58	81	136	782	292
3.....	374	244	100	2,280	1,350	569	58	58	81	220	746	292
4.....	536	374	123	1,720	1,670	569	58	72	81	267	746	374
5.....	536	502	148	1,560	1,260	374	58	112	100	267	674	374
6.....	536	502	148	1,400	1,260	318	51	112	136	267	604	318
7.....	536	604	220	1,300	938	267	81	72	112	267	569	180
8.....	536	437	267	1,160	502	64	112	51	100	200	604	1,350
9.....	674	374	200	1,160	502	112	112	51	100	200	1,210	1,070
10.....	674	536	200	1,160	502	112	123	51	90	164	4,240	980
11.....	858	604	200	1,020	502	136	164	64	90	112	2,780	858
12.....	858	709	164	1,720	437	164	164	123	90	72	2,080	709
13.....	858	569	164	1,720	292	164	244	112	81	100	1,620	569
14.....	898	502	200	2,080	244	164	244	100	100	112	1,460	536
15.....	858	318	502	2,860	220	164	244	90	100	112	1,210	536
16.....	604	267	782	3,260	220	164	244	90	64	318	1,020	470
17.....	604	604	1,110	2,940	148	164	267	136	46	406	980	536
18.....	569	604	1,020	2,940	148	164	267	136	46	406	938	569
19.....	709	406	938	3,180	180	180	292	136	46	406	898	638
20.....	1,110	244	858	3,880	180	148	318	136	46	1,720	1,110	638
21.....	1,020	164	1,620	1,960	136	112	244	100	46	8,320	1,160	406
22.....	898	200	8,220	1,510	374	81	244	100	100	4,610	1,110	318
23.....	858	437	6,820	2,710	604	81	244	72	1,460	1,510	938	112
24.....	569	470	3,520	3,100	709	72	220	72	1,110	1,070	898	90
25.....	437	470	5,270	3,100	569	64	220	112	820	3,610	898	148
26.....	406	374	8,120	3,350	536	58	200	244	470	3,610	638	200
27.....	406	318	7,610	2,220	406	58	180	318	136	3,610	502	200
28.....	536	200	3,100	1,900	437	46	136	267	136	2,560	437	502
29.....	709	.....	2,080	1,560	536	46	100	164	100	2,280	437	536
30.....	502	.....	1,620	1,560	536	46	64	100	100	1,780	374	536
31.....	374	.....	2,080	.....	536	.....	58	81	.....	1,300	.....	569

NOTE.—Discharge determined from a rating curve well defined between 20 and 4,000 second-feet.

Monthly discharge of Piscataquis River near Foxcroft, Maine, for 1913.

[Drainage area, 286 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	1,110	220	633	2.21	2.55
February.....	709	164	411	1.44	1.50
March.....	8,220	100	1,860	6.50	7.49
April.....	9,240	1,020	2,460	8.60	9.60
May.....	1,670	136	608	2.12	2.44
June.....	569	46	192	.672	.75
July.....	318	51	165	.578	.67
August.....	318	51	111	.389	.45
September.....	1,460	46	205	.718	.80
October.....	8,320	72	1,290	4.51	5.20
November.....	4,240	374	1,080	3.78	4.22
December.....	1,350	90	493	1.72	1.98
The year.....	9,240	46	792	2.77	37.65

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—191 square miles.

Gage.—Chain.

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

Discharge measurements.—Made from 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 part 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.—More measurements are needed at high stages.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

May 5, 1913: Gage height, 2.80 feet; discharge, 224 second-feet.

Daily gage height, in feet, of Kenduskeag Stream near Bangor, Maine, for 1913.

[Fred Cort, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5.05	4.2	.....	6.15	4.2	4.1	2.2	1.75	1.7	1.85	3.8	3.6
2.....	5.5	4.35	2.7	6.6	3.65	4.1	2.1	1.95	1.8	1.85	3.5	3.65
3.....	6.2	4.5	.....	6.6	3.5	3.75	2.0	2.1	1.8	1.9	3.45	3.55
4.....	6.55	4.5	.....	6.1	3.4	3.4	1.95	2.05	1.75	2.0	3.6	3.4
5.....	6.35	3.95	.....	5.9	2.95	3.05	2.0	1.95	1.8	2.05	3.7	3.25
6.....	5.55	3.8	.....	5.6	2.85	2.7	1.9	1.85	1.75	2.1	3.75	3.45
7.....	4.95	3.55	.....	5.6	2.85	2.6	1.75	1.9	1.7	2.2	3.65	3.5
8.....	4.85	3.4	.....	5.35	2.8	2.4	1.65	1.85	1.8	2.25	3.45	3.6
9.....	4.75	3.25	2.8	4.9	2.7	2.7	1.95	1.9	1.7	2.35	3.3	3.65
10.....	4.65	.....	.....	4.75	2.75	2.75	2.05	1.8	1.7	2.35	3.3	3.45
11.....	4.7	.....	.....	4.55	2.65	2.65	2.0	1.85	1.6	2.2	3.45	3.35
12.....	4.7	.....	.....	5.05	2.8	2.55	1.9	1.85	1.6	2.2	3.5	3.55
13.....	4.75	.....	.....	5.45	2.7	2.45	1.85	1.8	1.65	2.45	3.6	3.7
14.....	4.75	.....	.....	5.7	2.55	2.4	1.95	1.8	1.65	2.65	3.45	3.6
15.....	4.8	.....	.....	5.6	2.5	2.3	1.9	1.7	1.75	2.8	3.5	3.7
16.....	4.9	.....	7.7	5.6	2.55	2.2	1.9	1.7	1.8	2.9	3.6	3.75
17.....	4.95	.....	8.1	5.55	2.35	2.1	1.9	1.6	1.75	2.8	3.55	3.8
18.....	5.15	2.8	7.8	5.6	2.35	2.05	1.95	1.7	1.75	2.7	3.6	3.75
19.....	5.45	.....	7.3	5.55	2.3	2.25	2.15	1.7	1.85	2.65	3.7	3.7
20.....	5.55	.....	7.95	5.5	2.35	2.3	2.2	1.7	1.85	2.7	3.7	3.55
21.....	5.45	.....	8.05	5.5	2.25	2.3	2.25	1.6	1.8	3.05	3.8	3.45
22.....	5.35	.....	7.95	5.3	2.3	2.2	2.1	1.6	1.85	3.8	3.65	3.3
23.....	5.35	2.8	7.8	5.15	2.9	2.05	2.15	1.7	1.85	4.2	3.6	3.2
24.....	5.15	.....	7.9	5.0	3.3	1.95	2.2	1.6	1.9	4.7	3.45	3.2
25.....	5.0	.....	7.75	4.85	3.65	2.1	2.05	1.55	1.9	5.05	3.55	3.2
26.....	4.75	.....	7.85	4.9	3.7	2.25	1.9	1.65	1.95	5.25	3.5	3.15
27.....	4.65	.....	7.5	5.0	3.55	2.3	1.85	1.7	2.0	5.75	3.4	3.05
28.....	4.15	.....	6.8	4.8	3.3	2.35	1.85	1.8	1.9	5.6	3.4	2.9
29.....	4.2	.....	6.3	4.65	3.15	2.25	1.8	1.65	1.85	5.1	3.45	2.85
30.....	4.25	.....	5.9	4.55	3.7	2.2	1.7	1.7	1.7	4.55	3.55	2.85
31.....	4.25	.....	5.6	.....	4.2	.....	1.75	1.7	.....	4.15	.....	2.8

Daily discharge, in second-feet, of Kenduskeag Stream near Bangor, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,150	700	200	1,900	700	655	102	40	34	51	538	465
2.....	1,440	770	199	2,260	483	655	86	64	45	51	431	483
3.....	1,940	845	200	2,260	431	520	71	86	45	57	414	448
4.....	2,220	845	200	1,860	398	398	64	78	40	71	465	398
5.....	2,060	596	200	1,720	262	290	71	64	45	78	501	350
6.....	1,470	538	200	1,500	236	199	57	51	40	86	520	414
7.....	1,090	448	200	1,500	236	177	40	57	34	102	483	431
8.....	1,030	398	200	1,340	223	137	30	51	45	110	414	465
9.....	978	350	223	1,060	199	199	64	57	34	128	366	483
10.....	922	335	220	978	211	211	78	45	34	128	366	414
11.....	950	320	220	870	188	188	71	51	25	102	414	382
12.....	950	305	250	1,150	223	166	57	51	25	102	431	448
13.....	978	290	250	1,400	199	146	51	45	30	146	465	501
14.....	978	275	300	1,580	166	137	64	45	30	188	414	465
15.....	1,000	260	300	1,500	156	119	57	34	40	223	431	501
16.....	1,060	245	3,230	1,500	166	102	57	34	45	249	465	520
17.....	1,090	230	3,590	1,470	128	86	57	25	40	223	448	538
18.....	1,210	223	3,320	1,500	128	78	64	34	40	199	465	520
19.....	1,400	200	2,870	1,470	119	110	94	34	51	188	501	501
20.....	1,470	200	3,460	1,440	128	119	102	34	51	199	501	448
21.....	1,400	200	3,540	1,440	110	119	110	25	45	290	538	414
22.....	1,340	200	3,460	1,300	119	102	86	25	51	538	483	366
23.....	1,340	223	3,320	1,210	249	78	94	34	51	700	465	335
24.....	1,210	200	3,410	1,120	366	64	102	25	57	950	414	335
25.....	1,120	200	3,280	1,030	483	86	78	22	57	1,150	448	335
26.....	978	200	3,360	1,060	501	110	57	30	64	1,270	431	320
27.....	922	200	3,050	1,120	448	119	51	34	71	1,610	398	290
28.....	678	200	2,430	1,000	366	128	51	45	57	1,500	398	249
29.....	700	.....	2,020	922	320	110	45	30	51	1,180	414	236
30.....	722	.....	1,720	870	501	102	34	34	34	870	448	236
31.....	722	.....	1,500	.....	700	.....	40	34	.....	678	.....	223

NOTE.—Discharge determined from a rating curve well defined between 10 and 3,000 second-feet. Discharge interpolated for days when no gage height was reported.

Monthly discharge of Kenduskeag Stream near Bangor, Maine, for 1913.

[Drainage area, 191 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	2,220	678	1,180	6.18	7.12
February.....	845	200	357	1.87	1.95
March.....	3,590	199	1,640	8.59	9.00
April.....	2,260	870	1,380	7.22	8.06
May.....	700	110	295	1.54	1.78
June.....	655	64	190	.995	1.11
July.....	110	30	67	.351	.40
August.....	86	22	42	.220	.25
September.....	71	25	44	.230	.26
October.....	1,610	51	432	2.26	2.61
November.....	538	366	449	2.35	2.62
December.....	538	223	404	2.12	2.44
The year.....	3,590	22	542	2.84	38.50

KENNEBEC RIVER BASIN.

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, 1913.

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 therefore gage heights in this report are published as read, that is, to the original datum 1,011.30 feet above mean sea level.

Regulation.—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-gage 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 one-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 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.								15.65	13.85	12.8		15.05
2.	16.75			16.6	17.5	17.5						
3.	16.8	16.35	15.5				17.1		13.75	12.65	13.9	15.0
4.				16.90		17.5		15.6				
5.		16.3	15.45		17.5		17.05		13.65		14.0	15.05
6.	16.8					17.5		15.4		12.5		
7.		16.2	15.4	17.1			16.9				14.0	
8.					17.5				13.45	12.6		15.15
9.				17.0	17.5	17.5	16.8					
10.	16.65	16.2	15.1						13.4	12.65	14.2	15.3
11.				17.05		17.5	16.75	15.2				
12.		16.1	15.05		17.45				13.2		14.3	15.35
13.	16.6					17.3		15.1		12.6		
14.		15.95	15.05	17.1	17.4		16.7					
15.	16.5											15.4
16.			14.9	17.15	17.3	17.3	16.5			12.65		
17.	16.55	15.95					16.4		13.1	12.6	14.5	
18.				17.15		17.3		14.7				
19.		15.9	14.85		17.3				12.9		14.55	15.35
20.	16.5					17.25		14.5		12.7		
21.			14.85	17.35	17.2		16.3				14.7	
22.	16.45	15.8						14.2	12.8	12.9		15.3
23.				17.3	17.2	17.2	16.15				14.8	
24.	16.5	15.75	15.2						13.0	13.1		15.45
25.				17.4		17.1	16.1	14.1				
26.		15.65	15.45		17.2				13.0		14.95	15.45
27.	16.5					17.05		14.05		13.35		
28.		15.6	15.7		17.2		15.9				14.9	
29.	16.5			17.5				14.0	12.9	13.55		15.4
30.				17.5	17.5	17.0	15.8					
31.			16.15							13.85		15.4

Monthly discharge of the Kennebec River at The Forks, Maine, for 1902 to 1913—Contd.

Mean discharge in second-feet.				Run-off (depth in inches on drain- age area).	Mean discharge in second-feet.				Run-off (depth in inches on drain- age area).
Month.	As ob- served.	As cor- rected for stor- age.	Per square mile.		Month.	As ob- served.	As cor- rected for stor- age.	Per square mile.	
1906.					1910.				
January.....	1,570	1,570	1.00	1.15	January.....	2,000	1,330	0.847	0.98
February.....	1,100	1,290	.822	.86	February.....	1,750	1,550	.987	1.03
March.....	1,130	1,130	.720	.83	March.....	1,510	1,810	1.15	1.33
April.....	8,400	5,180	3.30	3.68	April.....	4,070	8,380	5.34	5.96
May.....	7,440	12,900	8.23	9.49	May.....	5,980	6,220	3.96	4.56
June.....	5,720	5,090	3.24	3.62	June.....	4,760	4,690	2.99	3.34
July.....	4,300	1,900	1.21	1.40	July.....	3,210	1,330	.847	.98
August.....	2,740	610	.389	.45	August.....	2,440	880	.560	.65
September.....	1,610	280	.178	.20	September.....	1,400	300	.191	.21
October.....	1,270	2,090	1.33	1.53	October.....	1,590	110	.070	.08
November.....	633	1,240	.790	.88	November.....	1,200	470	.299	.33
December.....	1,260	1,320	.841	.97	December.....	1,250	500	.318	.37
The year.....	3,100	2,880	1.84	25.06	The year.....	2,610	2,300	1.46	19.82
1907.					1911.				
January.....	920	690	0.439	0.51	January.....	1,280	535	.341	.39
February.....	1,260	470	.299	.31	February.....	900	410	.261	.27
March.....	1,620	565	.360	.42	March.....	760	580	.369	.43
April.....	1,570	4,730	3.01	3.36	April.....	905	2,530	1.61	1.80
May.....	8,440	12,300	7.81	9.00	May.....	2,600	5,460	3.48	4.01
June.....	5,070	4,950	3.15	3.51	June.....	3,030	2,290	1.46	1.63
July.....	3,920	3,690	2.35	2.71	July.....	2,330	960	.611	.70
August.....	3,670	2,590	1.65	1.90	August.....	2,290	942	.600	.69
September.....	1,940	1,210	.771	.86	September.....	1,720	925	.589	.66
October.....	1,190	2,390	1.52	1.75	October.....	980	1,150	.732	.84
November.....	5,950	6,580	4.19	4.68	November.....	487	975	.621	.69
December.....	2,720	2,950	1.88	2.17	December.....	923	2,810	1.79	2.06
The year.....	3,190	3,590	2.29	31.18	The year.....	1,520	1,630	1.04	14.17
1908.					1912.				
January.....	2,450	1,960	1.25	1.44	January.....	750	1,110	.707	.82
February.....	2,030	1,130	.720	.78	February.....	1,400	645	.411	.44
March.....	3,090	1,180	.752	.87	March.....	1,200	1,070	.681	.79
April.....	3,030	4,880	3.11	3.47	April.....	2,460	6,910	4.40	4.91
May.....	10,500	12,200	7.76	8.95	May.....	8,520	9,250	5.89	6.79
June.....	6,860	5,750	3.66	4.08	June.....	4,990	4,620	2.94	3.28
July.....	2,960	580	.369	.43	July.....	2,760	850	.541	.62
August.....	2,830	1,160	.739	.85	August.....	2,130	1,770	1.13	1.30
September.....	1,550	—140	— .089	— .10	September.....	1,610	1,240	.790	.88
October.....	906	—78	— .050	— .06	October.....	1,430	1,660	1.06	1.22
November.....	581	155	.099	.11	November.....	1,520	3,530	2.25	2.51
December.....	451	155	.099	.11	December.....	1,830	1,540	.981	1.13
The year.....	3,100	2,410	1.54	20.93	The year.....	2,560	2,850	1.81	24.69
1909.					1913.				
January.....	476	535	0.341	0.39	January.....	2,210	1,850	1.18	1.36
February.....	900	770	.490	.51	February.....	2,440	1,240	.790	.82
March.....	900	1,480	.943	1.09	March.....	2,560	3,220	2.05	2.36
April.....	2,710	7,830	4.99	5.57	April.....	7,250	8,930	5.69	6.35
May.....	8,020	11,000	7.02	8.09	May.....	4,170	4,180	2.66	3.07
June.....	3,950	2,780	1.77	1.98	June.....	3,480	2,870	1.83	2.04
July.....	3,230	1,680	1.07	1.23	July.....	3,320	1,740	1.11	1.28
August.....	2,560	440	.280	.32	August.....	2,590	455	.290	.33
September.....	1,800	1,620	1.03	1.15	September.....	1,590	300	.191	.21
October.....	1,260	2,200	1.40	1.61	October.....	1,090	2,260	1.44	1.66
November.....	1,380	1,510	.962	1.07	November.....	853	2,260	1.44	1.61
December.....	881	940	.599	.69	December.....	1,310	1,790	1.14	1.31
The year.....	2,350	2,730	1.74	23.70	The year.....	2,740	2,590	1.65	22.40

NOTE.—Mean discharge as corrected for storage determined by adding to or subtracting from the observed discharge the amount of water stored in or released from Moosehead Lake during each month. Negative values in October, 1905, and September and October, 1908, probably due to inaccuracy in the determination of observed discharge and of amount of water released from Moosehead Lake.

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 $3\frac{1}{2}$ miles above the mouth of Messalonskee Stream.

Records available.—March 22, 1892, to December 31, 1913. 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.—Discharge computed from the flow over the dam, through the logway, and through 18 wheels of the mill. When flow 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.

Regulation.—Numerous power plants and much storage above the station.

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

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

Daily discharge, in second-feet, of Kennebec River at Waterville, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4,800	4,390	3,220	31,500	23,600	14,400	3,920	4,170	3,760	2,070	10,400	4,340
2.....	5,000	3,610	985	33,100	23,900	14,000	4,080	4,240	2,820	2,340	8,570	4,420
3.....	4,750	4,540	3,790	27,600	16,100	12,400	3,900	2,030	2,680	3,020	8,670	4,400
4.....	6,530	4,470	2,990	23,600	15,300	14,400	3,420	4,090	2,850	9,700	7,090	4,060
5.....	4,750	4,560	3,060	19,600	16,200	11,100	4,380	4,190	2,990	7,190	7,510	4,380
6.....	6,410	4,480	3,080	22,300	14,900	11,200	3,080	3,670	2,390	4,980	7,200	4,340
7.....	5,870	4,310	3,140	24,200	14,000	10,200	4,250	3,460	554	4,610	7,010	2,000
8.....	5,240	6,560	3,180	21,500	14,300	7,840	3,840	3,800	2,470	3,970	4,260	4,550
9.....	6,700	1,500	1,910	20,200	9,460	6,950	3,920	3,450	2,940	3,180	2,680	9,260
10.....	4,880	3,730	3,600	18,700	12,600	7,930	4,130	855	2,770	2,880	6,200	8,570
11.....	4,180	3,400	3,930	10,400	9,790	7,210	4,430	4,050	2,390	2,290	23,900	6,030
12.....	1,980	3,250	3,180	9,700	3,560	6,220	6,510	4,130	2,590	615	16,400	7,660
13.....	4,690	3,370	3,640	15,100	8,580	5,820	6,140	3,060	2,330	3,360	11,900	4,820
14.....	4,630	3,400	3,620	16,100	8,020	5,200	5,660	2,920	958	4,520	10,500	1,860
15.....	3,820	3,430	4,310	19,200	7,280	2,570	5,760	3,020	3,630	3,960	7,590	4,610
16.....	3,890	1,090	5,540	23,200	6,950	5,660	5,400	3,810	2,850	3,980	6,550	4,140
17.....	4,160	3,820	8,980	24,800	6,930	4,720	5,590	1,790	2,630	4,360	7,010	3,700
18.....	4,490	3,460	6,910	28,200	5,210	4,740	4,730	4,670	2,330	4,340	6,270	3,510
19.....	2,530	3,480	6,720	24,800	3,780	4,710	5,240	4,420	2,340	3,010	5,520	3,360
20.....	5,710	3,540	9,000	25,200	6,300	5,090	5,040	4,100	2,180	4,880	6,190	3,360
21.....	7,260	3,520	11,800	23,100	6,100	4,430	5,820	3,140	733	16,400	7,110	604
22.....	6,820	3,560	22,600	23,700	6,830	4,030	4,990	3,480	2,800	26,400	8,750	3,900
23.....	6,910	933	26,400	21,000	6,860	4,940	4,450	4,020	3,130	17,200	7,490	3,430
24.....	6,290	3,540	20,700	23,600	10,200	3,790	4,110	1,200	12,100	12,800	7,140	3,560
25.....	5,200	3,350	43,400	25,900	12,600	3,840	4,650	3,190	5,460	10,300	6,270	565
26.....	3,980	3,270	39,300	30,100	11,000	4,090	3,930	2,640	4,720	10,000	5,890	4,330
27.....	4,490	3,220	34,500	31,900	8,500	4,060	4,430	2,280	3,540	21,300	4,710	3,400
28.....	4,210	3,240	34,400	30,600	8,520	3,640	4,180	3,160	951	25,100	5,390	1,960
29.....	4,310	.....	36,300	29,800	9,190	2,950	4,150	3,430	2,070	15,500	3,960	3,090
30.....	4,000	.....	25,900	29,700	17,500	4,260	4,450	3,040	2,180	14,700	2,100	2,960
31.....	3,880	.....	25,300	.....	15,200	.....	4,500	2,260	.....	11,400	.....	2,670

Monthly discharge of Kennebec River at Waterville, Maine, for 1913.

[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.....	7,260	1,980	4,910	1.15	1.33
February.....	6,560	963	3,540	.829	.86
March.....	43,400	985	13,100	3.07	3.54
April.....	33,100	9,700	23,600	5.53	6.17
May.....	23,900	3,560	10,900	2.55	2.94
June.....	14,400	2,570	6,750	1.58	1.76
July.....	6,510	3,080	4,620	1.08	1.24
August.....	4,670	855	3,280	.768	.89
September.....	12,100	554	2,940	.688	.77
October.....	26,400	615	8,400	1.97	2.27
November.....	23,900	2,100	7,670	1.80	2.01
December.....	9,260	565	4,000	.936	1.08
The year.....	43,400	554	7,820	1.83	24.90

DEAD RIVER AT THE FORKS, MAINE.

Location.—One-eighth mile above farmhouse of Jeremiah Durgin, $1\frac{1}{2}$ miles west of The Forks.

Records available.—September 29, 1901, to August 15, 1907; March 16, 1910, to December 31, 1913. Data also in annual reports 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.

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

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

Winter flow.—Affected by ice.

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

Accuracy.—Results fair.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

Discharge measurements of Dead River at The Forks, Maine, during 1913.

Date.	Made by—	Gage height.	Dis- charge.	Date.	Made by—	Gage height.	Dis- charge.
Apr. 8 29	C. C. Babb..... G. C. Danforth.....	Feet. 2.43 4.78	Sec.-ft. 1,820 8,280	July 8	G. C. Danforth.....	Feet. 1.05	Sec.-ft. 378

Daily gage height, in feet, of Dead River at The Forks, Maine, for 1913.

[Mrs. Eva M. Forsythe, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	1.48			3.95	3.50	3.80	1.10	1.00	.90	2.25	2.25	1.68
2.	1.42	1.60	1.80	3.85	3.00	3.50	1.10	.98	.90	.72	2.08	1.55
3.	1.40			3.78	3.40	3.05	1.10	.95	.90	1.15	1.90	1.50
4.	1.35			3.45	2.60	2.60	1.10	.92	.85	2.05	1.82	1.50
5.	1.32			3.12	5.60	2.28	1.10	.90	.85	1.88	1.80	1.50
6.	1.30			2.80	2.25	2.15	1.10	.90	.85	1.60	1.72	1.50
7.	1.30			2.58	3.15	1.95	1.10	.90	.80	1.22	1.68	1.50
8.	1.30			2.45	4.25	1.82	1.10	.90	.80	.98	1.62	1.42
9.	1.30	1.30	1.75	2.32	3.10	1.70	1.10	.90	.80	.90	1.60	1.28
10.	1.20			2.32	1.90	1.62	1.25	.88	.90	.78	3.15	1.18
11.	1.10			2.12	1.80	1.58	1.40	.82	.80	.85	3.80	1.12
12.	1.00			1.95	1.85	1.50	1.35	.80	.75	1.15	3.35	1.10
13.	1.00			2.20	1.70	1.42	1.28	.88	.75	1.38	2.60	1.18
14.	1.15			2.65	1.70	1.38	1.22	.90	.70	1.48	2.32	1.40
15.	1.15			2.90	1.65	1.30	1.20	.90	.70	1.60	2.22	1.40
16.	1.35	2.20	3.00	3.25	1.62	1.30	1.18	.90	.70	1.68	2.12	1.30
17.	1.15			3.55	1.60	1.28	1.10	.90	.70	1.95	2.00	1.30
18.	1.20			3.55	1.60	1.25	1.10	.90	.70	1.85	1.78	1.30
19.				3.45	1.60	1.20	1.10	.90	.70	1.80	1.70	1.30
20.				3.40	1.60	1.20	1.10	.90	.70	1.88	1.85	1.30
21.				3.40	1.60	1.20	1.15	.90	.70	3.32	2.35	1.30
22.				3.85	3.25	1.60	1.20	.90	.75	3.45	2.32	1.25
23.		2.45		3.78	3.90	1.70	1.20	1.18	.90	1.15	2.68	2.40
24.				3.85	4.10	1.80	1.20	1.10	.90	1.70	2.22	2.05
25.				3.62	4.25	1.80	1.20	1.10	.90	1.70	1.98	1.82
26.	2.50			4.10	4.30	2.25	1.20	1.05	.90	1.55	2.18	1.70
27.				4.68	4.25	3.15	1.15	1.00	.90	1.35	3.25	1.65
28.				4.90	4.80	4.00	1.12	1.00	.90	1.12	3.40	1.52
29.				4.80	4.90	3.92	1.10	1.00	.90	.98	3.10	1.50
30.				4.80	3.95	3.85	1.10	1.00	.90	.88	2.70	1.58
31.				4.75	3.80		1.00	.90	.90	2.45		1.55

NOTE.—Discharge relation Jan. 19 to Mar. 21 seriously affected by ice.

Daily discharge, in second-feet, of Dead River at The Forks, Maine, for 1913.

Day.	Jan.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	940		5,980	4,710	5,530	510	415	325	240	2,120	1,240
2.	865		5,680	3,550	4,710	510	415	325	160	1,830	1,030
3.	840		5,530	4,460	3,660	510	370	325	560	1,540	965
4.	780		4,580	2,750	2,750	510	325	282	1,780	1,420	965
5.	744		3,770	12,100	2,200	510	325	282	1,540	1,390	965
6.	720		3,140	2,120	1,940	510	325	282	1,100	1,270	965
7.	720		2,750	3,880	1,620	510	325	240	610	1,210	965
8.	720		2,470	6,960	1,390	510	325	240	415	1,130	840
9.	720		2,200	3,770	1,240	510	325	240	325	1,100	720
10.	610		2,200	1,540	1,100	665	325	325	240	3,880	610
11.	510		1,860	1,390	1,100	840	240	240	282	5,530	510
12.	415		1,620	1,460	965	780	240	200	560	4,340	510
13.	415		2,030	1,240	840	720	325	200	840	2,750	610
14.	560		2,840	1,240	840	610	325	160	965	2,240	840
15.	560		3,340	1,170	720	610	325	160	1,100	2,060	840
16.	780		4,100	1,100	720	610	325	160	1,240	1,890	720
17.	560		4,840	1,100	720	510	325	160	1,620	1,700	720
18.	610		4,840	1,100	665	510	325	160	1,460	1,360	720
19.			4,580	1,100	610	510	325	160	1,390	1,240	720
20.			4,460	1,100	610	510	325	160	1,540	1,460	720
21.			4,460	1,100	610	560	325	160	4,220	2,290	720
22.		5,680	4,100	1,100	610	610	325	200	4,580	2,240	665
23.		5,470	5,830	1,240	610	610	325	560	2,940	2,380	610
24.		5,680	6,460	1,390	610	510	325	1,240	2,030	1,780	610
25.		5,020	6,960	1,390	610	510	325	1,240	1,700	1,420	610
26.		6,460	7,130	2,120	610	462	325	1,030	2,030	1,240	610
27.		8,500	6,960	3,880	560	415	325	780	4,100	1,170	560
28.		9,320	8,940	6,140	510	415	325	510	4,460	992	560
29.		8,940	9,320	5,830	510	415	325	415	3,770	965	610
30.		8,940	5,980	5,680	510	415	325	325	2,940	1,070	780
31.		8,760		5,530		415	325		2,470		1,030

NOTE.—Discharge determined from a rating curve fairly well defined below 13,000 second-feet. Mean discharge during the frozen season estimated from climatologic data and by comparison with records on adjacent streams as follows: Jan. 19 to 31, 600 second-feet, Feb. 1 to Mar. 21, 500 second-feet.

Monthly discharge of Dead River at The Forks, Maine, for 1913.

[Drainage area, 878 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....			641	0.73	0.84
February.....			500	.57	.59
March.....			2,690	3.06	3.53
April.....	9,320	1,620	4,630	5.27	5.88
May.....	12,100	1,100	3,010	3.43	3.95
June.....	5,530	510	1,320	1.50	1.67
July.....	840	415	542	.62	.72
August.....	415	240	327	.37	.43
September.....	1,240	160	370	.42	.47
October.....	4,580	160	1,720	1.96	2.26
November.....	5,530	965	1,900	2.16	2.41
December.....	1,240	510	759	.86	.99
The year.....	12,100	160	1,530	1.74	23.74

SANDY RIVER NEAR FARMINGTON, MAINE.**Location.**—At Fairbanks highway bridge, 3 miles above Farmington.**Records available.**—July 11, 1910, to December 31, 1913. Data also in annual reports Maine State Water Storage Commission.**Drainage area.**—270 square miles.**Gage.**—Chain.**Channel and control.**—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.**Regulation.**—No storage basins above the station; the water-power dam at Phillips may slightly affect the flow at the station.**Cooperation.**—Results furnished by the Maine State Water Storage Commission.*Discharge measurements of Sandy River near Farmington, Maine, during 1913.*

[Made by G. C. Danforth.]

Date.	Gage height.	Dis- charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
May 22.....	3.30	288
Aug. 27.....	2.20	35.5

Daily gage height, in feet, of Sandy River near Farmington, Maine, for 1913.

[L. A. Daggett, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		4.5	4.0	7.75	4.7	.....	2.5	2.5	2.2	2.5	4.2	3.3
2.....				5.5	4.4	4.2	2.5	2.4	2.2	2.7	4.0	3.3
3.....				4.9	4.4	3.7	2.5	2.3	2.2	6.25	3.7	3.3
4.....	5.7			4.6	4.4	3.5	2.5	2.4	2.2	6.0	3.8	3.4
5.....				4.8	4.1	3.4	2.4	2.4	2.2	4.7	3.7	3.4
6.....				4.3	4.1	3.5	2.5	2.5	2.2	3.9	3.6	3.2
7.....				4.6	4.0	3.4	2.5	2.4	2.1	3.8	3.6	3.2
8.....			3.9	4.2	3.8	3.3	2.5	2.3	2.1	3.1	3.5	4.5
9.....				4.0	3.6	3.2	2.4	2.3	2.1	3.0	3.5	4.5
10.....		3.8		3.9	3.6	3.2	2.5	2.4	2.1	2.9	9.3	3.9
11.....	4.5			4.5	3.5	3.1	4.4	2.4	2.1	2.9	6.0	3.7
12.....				4.5	3.4	3.0	3.3	2.3	2.1	2.9	5.7	3.9
13.....				5.2	3.4	3.0	3.0	2.3	2.1	3.4	4.4	4.4
14.....			4.4	5.4	3.3	2.9	2.7	2.4	2.2	3.5	4.2	4.0
15.....		4.0		6.0	3.2	2.9	2.5	2.3	2.3	3.3	4.0	3.8
16.....				6.2	3.2	2.9	2.5	2.3	2.2	3.8	3.8	3.7
17.....				6.0	3.3	3.0	2.5	2.2	2.1	3.6	3.7	3.5
18.....	4.5			5.7	3.2	3.0	2.6	2.2	2.2	3.4	3.7	3.4
19.....				5.8	3.4	2.9	2.8	2.2	2.2	3.4	3.6	3.2
20.....				6.0	3.3	2.8	2.7	2.1	2.1	4.4	5.1	3.2
21.....				5.0	3.4	2.9	2.6	2.05	2.1	9.05	5.5	3.1
22.....		4.1	9.1	4.9	3.3	2.9	2.6	2.1	4.6	5.2	5.5	3.9
23.....				5.5	4.5	2.8	2.5	2.3	6.25	4.4	4.9	3.6
24.....				6.1	4.9	2.7	2.5	2.2	4.0	4.0	4.6	3.9
25.....	4.8			6.6	5.4	2.6	2.5	2.3	3.3	4.2	3.6	4.0
26.....				6.7	5.0	2.6	2.5	2.1	3.0	5.8	3.5	3.9
27.....				6.6	4.4	2.6	2.5	2.2	2.8	8.3	3.4	4.1
28.....				5.7	3.9	2.6	2.4	2.2	2.7	5.5	3.2	4.0
29.....				5.5	6.5	2.6	2.5	2.3	2.6	4.9	3.3	4.0
30.....				5.2	5.4	2.5	2.5	2.3	2.5	4.6	3.4	3.9
31.....				.....	5.0	.....	2.5	2.3	.....	4.6	.....	4.0

NOTE.—Discharge relation Jan. 1 to Mar. 21 seriously affected by ice.

Daily discharge, in second-feet, of Sandy River near Farmington, Maine, for 1913.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		4,250	993	940	83	83	38	83	667	283
2.....		1,640	787	667	83	67	38	121	562	283
3.....		1,140	787	431	83	52	38	2,420	431	283
4.....		923	787	353	83	67	38	2,140	473	317
5.....		1,060	613	317	67	67	38	993	431	317
6.....		725	613	353	83	83	38	517	391	251
7.....		923	562	317	83	67	25	473	391	251
8.....		667	473	283	83	52	25	221	353	853
9.....		562	391	251	67	52	25	193	353	853
10.....		517	391	251	83	67	25	167	6,500	517
11.....		853	353	221	787	67	25	167	2,140	431
12.....		853	317	193	283	52	25	167	1,830	517
13.....		1,380	317	193	193	52	25	317	787	787
14.....		1,540	283	167	121	67	38	353	667	562
15.....		2,140	251	167	83	52	52	283	562	473
16.....		2,360	251	167	83	52	38	473	473	431
17.....		2,140	283	193	83	38	25	391	431	353
18.....		1,830	251	193	101	38	38	317	431	317
19.....		1,930	317	167	143	38	38	317	391	251
20.....		2,140	283	143	121	25	25	787	1,300	251
21.....		1,220	317	167	101	19	25	6,120	1,640	221
22.....		1,140	283	167	101	25	923	1,380	1,640	517
23.....	6,000	1,640	853	143	83	52	2,420	787	1,140	391
24.....	5,800	2,250	1,140	121	83	38	562	562	923	517
25.....	5,600	2,800	1,540	101	83	52	283	667	391	562
26.....	5,400	2,920	1,220	101	83	25	193	1,930	353	517
27.....	5,200	2,800	787	101	83	38	143	5,020	317	613
28.....	5,000	1,830	517	101	67	38	121	1,640	251	562
29.....	4,000	1,640	2,690	101	83	52	101	1,140	283	562
30.....	4,600	1,380	1,540	83	83	52	83	923	317	517
31.....	4,400	1,220	.....	.....	83	52	.....	923	.....	562

NOTE.—Discharge determined from a rating curve well defined between 50 and 2,000 second-feet but poorly defined above 2,000 second-feet. Discharge during frozen season estimated from climatologic data and by comparison with records on adjacent streams as follows: Jan. 1 to 31, mean discharge 350 second-feet; Feb. 1 to 28, 150 second-feet; Mar. 1 to 21, 200 second-feet.

Monthly discharge of Sandy River near Farmington, Maine, for 1913.

[Drainage area, 270 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....			350	1.30	1.50
February.....			150	.555	.58
March.....			1,820	6.74	7.77
April.....	4,250	517	1,640	6.07	6.77
May.....	2,690	251	691	2.56	2.95
June.....	940	83	238	.881	.98
July.....	787	67	120	.444	.51
August.....	83	19	51	.189	.22
September.....	2,420	25	184	.681	.76
October.....	6,120	83	1,030	3.81	4.39
November.....	6,500	251	894	3.31	3.69
December.....	853	221	456	1.69	1.95
The year.....	6,500	19	635	2.35	32.07

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, 1913. Data also in annual reports Maine State Water Storage Commission.

Drainage area.—320 square miles.

Gage.—Chain.

Channel and control.—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.

Regulation.—About 800 feet upstream from the station 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.

Cooperation.—Results furnished by the Maine State Water Storage Commission.

The following discharge measurement was made by G. C. Danforth:

April 18, 1913: Gage height, 5.20 feet; discharge, 2,010 second-feet.

Daily gage height, in feet, of Sebasticook River at Pittsfield, Maine, for 1913.

[C. D. Morrill, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.4	3.7	3.2	6.1	4.0	3.7	2.75	2.8	2.85	2.6	3.7	3.5
2.....	3.35	3.5	3.1	5.95	3.65	3.7	2.7	2.7	2.7	3.05	3.7	3.4
3.....	3.4	3.6	3.4	5.7	3.15	3.7	2.65	2.5	2.65	3.15	3.75	3.3
4.....	3.6	3.55	3.4	5.9	2.95	3.6	2.5	2.7	2.75	3.15	3.75	3.2
5.....	3.5	3.55	3.45	5.6	2.7	3.55	2.5	2.85	2.55	2.95	3.7	3.2
6.....	3.7	3.65	3.5	5.45	2.7	3.55	2.4	2.7	2.85	2.85	3.55	3.2
7.....	3.7	3.6	3.4	5.35	2.9	3.5	2.75	2.85	2.7	2.85	3.55	3.1
8.....	3.6	3.0	3.2	5.2	3.0	3.2	2.75	2.9	2.9	2.9	3.45	3.6
9.....	3.7	2.4	3.0	4.95	3.25	3.25	2.75	2.75	2.85	3.0	3.45	3.7
10.....	3.6	2.8	3.35	4.9	3.2	3.3	2.85	2.5	2.5	3.0	3.45	3.9
11.....	3.3	3.0	3.35	4.95	3.1	3.25	2.95	2.75	2.45	2.95	3.5	3.9
12.....	3.6	3.2	3.2	4.9	3.2	3.2	2.9	2.85	2.55	2.9	3.75	3.9
13.....	3.55	3.25	3.3	5.0	3.2	3.15	2.5	2.75	2.6	2.95	3.9	3.9
14.....	3.55	3.25	3.4	5.3	3.15	2.9	2.8	2.7	2.4	2.65	3.85	3.8
15.....	3.5	3.1	3.35	5.2	3.15	2.7	2.9	2.7	2.7	2.9	3.8	3.8
16.....	3.55	3.0	3.4	5.1	3.15	3.25	2.75	2.65	2.7	2.95	3.65	3.6
17.....	3.7	3.4	3.6	5.2	3.0	3.3	2.75	2.4	2.7	2.95	3.7	3.7
18.....	3.6	3.45	3.7	5.1	2.9	3.5	2.9	2.75	2.45	3.0	3.65	3.6
19.....	3.5	3.45	3.75	5.1	3.1	3.0	2.95	2.7	2.75	2.5	3.7	3.2
20.....	3.9	3.3	3.9	5.0	3.05	3.05	2.75	2.7	2.9	2.8	3.7	3.2
21.....	4.0	3.4	4.2	5.1	3.1	2.95	3.05	2.75	2.5	3.1	3.7	3.2
22.....	4.0	3.4	4.95	5.0	3.05	2.5	3.0	2.6	2.9	3.1	3.65	3.0
23.....	4.1	3.25	5.2	5.0	3.2	3.15	2.95	2.6	3.05	3.2	3.6	3.4
24.....	4.05	3.1	5.25	4.85	2.95	3.2	2.9	2.5	2.95	3.15	3.6	3.4
25.....	3.9	3.1	5.45	4.7	2.95	3.2	2.9	2.75	2.9	3.1	3.65	3.0
26.....	3.8	3.1	6.0	4.6	3.25	3.1	2.8	2.75	2.7	3.1	3.55	3.3
27.....	4.1	3.25	6.1	4.5	3.15	2.85	2.5	2.55	3.0	3.25	3.5	3.0
28.....	3.9	3.4	5.95	4.45	3.05	2.75	2.8	2.7	2.75	3.35	3.4	3.0
29.....	3.8	.....	5.9	4.35	3.35	2.75	2.7	2.55	3.05	3.55	3.4	3.2
30.....	3.8	.....	5.8	4.05	3.75	2.7	2.7	2.4	2.9	3.7	3.45	3.1
31.....	3.8	.....	5.7	.....	3.95	.....	2.9	2.4	.....	3.8	.....	3.2

Daily discharge, in second-feet, of Sebasticook River at Pittsfield, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	395	540	310	3,260	745	540	142	158	176	97	540	438
2.....	374	438	270	3,060	512	540	125	125	125	250	540	395
3.....	395	485	395	2,720	290	540	111	71	111	290	570	352
4.....	485	462	395	2,990	212	495	71	125	142	290	570	310
5.....	438	462	416	2,590	125	462	71	176	84	212	540	310
6.....	540	512	438	2,400	125	462	50	125	176	176	462	310
7.....	540	485	395	2,260	193	438	142	176	125	176	462	270
8.....	485	230	310	2,080	230	310	142	193	193	193	416	485
9.....	540	50	230	1,770	331	331	142	142	176	230	416	540
10.....	485	158	374	1,710	310	352	176	71	71	230	416	668
11.....	352	230	374	1,770	270	331	212	142	60	212	438	668
12.....	485	310	310	1,710	310	310	193	176	84	193	570	668
13.....	462	331	352	1,830	310	290	71	142	97	212	668	668
14.....	462	331	395	2,200	290	193	158	125	50	111	634	600
15.....	438	270	374	2,080	290	125	193	125	125	193	600	600
16.....	462	230	395	1,960	290	331	142	111	125	212	512	485
17.....	540	395	485	2,080	230	352	142	50	125	212	540	540
18.....	485	416	540	1,960	193	438	193	142	60	230	512	485
19.....	438	416	570	1,960	270	230	212	125	142	71	540	310
20.....	668	352	668	1,830	250	250	142	125	193	158	540	310
21.....	745	395	938	1,960	270	212	250	142	71	270	540	310
22.....	745	395	1,770	1,830	250	71	230	97	193	270	512	230
23.....	838	331	2,080	1,830	310	290	212	97	250	310	485	395
24.....	792	270	2,140	1,650	212	310	193	71	212	290	485	395
25.....	668	270	2,400	1,470	212	310	193	142	193	270	512	230
26.....	600	270	3,130	1,360	331	270	158	142	125	270	462	352
27.....	838	331	3,260	1,250	290	176	71	84	230	331	438	230
28.....	668	395	3,060	1,200	250	142	158	125	142	374	395	230
29.....	600	.....	2,990	1,090	374	142	125	84	250	462	395	310
30.....	600	.....	2,860	792	570	125	125	50	193	540	416	270
31.....	600	.....	2,720	.....	706	.....	193	50	.....	600	.....	310

NOTE.—Discharge determined from a rating curve fairly well fined above 70 second-feet.

Monthly discharge of Sebasticook River at Pittsfield, Maine, for 1913.

[Drainage area, 320 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	838	352	554	1.73	1.99
February.....	540	50	348	1.09	1.14
March.....	3,260	230	1,140	3.56	4.10
April.....	3,260	792	1,960	6.12	6.83
May.....	745	125	308	.962	1.11
June.....	540	71	312	.975	1.09
July.....	250	50	153	.478	.55
August.....	193	50	120	.375	.43
September.....	250	50	143	.447	.50
October.....	600	71	256	.800	.92
November.....	668	395	504	1.58	1.76
December.....	668	230	409	1.28	1.48
The year.....	3,260	50	517	1.62	21.90

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, 1913.**Drainage area.**—220 square miles.**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.**Regulation.**—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.**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 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	260	280	280	812	250	a 220	250	250	200	180	250	270
2.....	260	a 0	a 0	870	250	842	250	250	200	180	a 0	270
3.....	260	280	280	895	250	830	250	a 250	200	180	250	270
4.....	260	280	280	900	a 120	610	125	250	200	180	250	270
5.....	a 0	280	280	1,070	250	360	170	250	200	a 0	250	270
6.....	260	280	280	a 1,600	250	300	a 0	250	200	180	250	270
7.....	260	280	280	1,660	250	300	250	250	a 0	190	250	a 0
8.....	260	280	280	1,620	250	a 0	250	250	200	200	250	270
9.....	260	a 0	a 0	1,550	250	265	250	250	190	200	a 0	270
10.....	260	280	280	1,460	250	250	250	a 0	180	200	250	270
11.....	260	280	280	1,200	a 0	250	250	250	180	200	250	270
12.....	a 0	280	280	850	250	250	250	250	180	a 0	250	270
13.....	260	280	280	a 810	250	250	a 0	250	180	200	250	270
14.....	260	280	280	1,040	250	250	250	250	a 0	200	250	a 0
15.....	260	280	280	1,030	250	a 0	250	250	180	200	250	270
16.....	260	a 0	a 0	950	250	250	250	250	180	225	a 0	270
17.....	260	280	280	740	250	250	250	a 0	180	250	250	270
18.....	260	280	280	510	a 0	250	250	250	180	250	250	270
19.....	a 0	280	280	300	250	250	250	250	180	a 0	250	270
20.....	260	280	280	a 150	250	250	a 0	250	180	250	250	270
21.....	260	280	340	280	250	250	250	250	a 0	250	250	a 90
22.....	270	280	610	280	250	a 0	250	250	180	250	250	270
23.....	280	a 0	a 800	280	250	250	250	250	180	250	a 0	270
24.....	280	280	820	265	250	250	250	a 0	180	250	270	270
25.....	280	280	780	250	a 0	250	250	250	180	250	270	130
26.....	a 0	280	780	250	250	250	250	250	180	a 0	270	270
27.....	280	280	770	a 0	250	250	a 0	250	180	250	130	270
28.....	280	280	770	250	250	250	250	250	a 0	250	270	a 0
29.....	280	-----	790	250	250	a 0	250	250	180	250	270	270
30.....	280	-----	a 750	250	190	250	250	250	180	250	a 0	270
31.....	280	-----	780	-----	250	-----	250	a 0	-----	250	-----	270

a Sunday.

Monthly discharge of Cobbosseecontee Stream at Gardiner, Maine, for 1913.

[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.....	280	0	232	1.05	1.21
February.....	280	0	240	1.09	1.14
March.....	820	0	413	1.88	2.17
April.....	1,660	0	747	3.40	3.79
May.....	250	0	220	1.00	1.15
June.....	842	0	274	1.24	1.38
July.....	250	0	211	.959	1.11
August.....	250	0	218	.991	1.14
September.....	200	0	161	.732	.82
October.....	250	0	192	.873	1.01
November.....	270	0	208	.945	1.05
December.....	270	0	234	1.06	1.22
The year.....	1,660	0	279	1.26	17.19

ANDROSCOGGIN RIVER BASIN.

ANDROSCOGGIN RIVER AT ERROL DAM, N. H.

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

Records available.—January 1, 1905, to December 31, 1913. 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.¹

Winter flow.—Little affected by ice.

Regulation.—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 nearly 20 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 stream one of the feeders of Umbagog Lake.

Accuracy.—Results 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 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,000	2,190	2,140	5,550	6,700	5,030	1,970	2,070	1,820	1,660	811	1,430
2.....	2,010	2,360	2,160	5,600	6,700	4,800	1,930	2,040	1,820	1,560	807	1,330
3.....	2,080	1,920	2,160	5,530	6,280	4,800	1,890	2,030	1,820	996	1,190	1,500
4.....	2,060	1,740	2,160	5,370	5,200	4,750	1,950	2,120	1,800	1,380	1,440	1,580
5.....	2,040	2,060	2,160	5,410	5,200	4,200	2,060	2,030	1,820	1,670	1,430	1,630
6.....	2,010	2,060	2,160	5,370	4,570	3,470	2,040	1,960	1,920	1,680	1,400	1,710
7.....	2,040	1,920	2,170	5,150	3,800	2,970	2,000	2,060	1,980	1,610	1,350	1,710
8.....	2,010	1,940	2,200	4,820	3,330	2,790	2,100	2,150	1,980	1,560	1,320	1,680
9.....	2,020	2,180	2,310	4,660	2,880	2,560	2,140	2,170	1,780	1,530	1,060	1,500
10.....	1,500	1,770	2,220	4,360	2,220	2,420	1,920	2,160	1,550	1,540	574	1,830
11.....	1,840	1,810	2,180	4,170	2,420	2,410	1,830	2,210	1,730	1,540	584	2,180
12.....	2,060	2,180	2,210	3,850	2,270	2,390	1,860	2,190	1,840	1,310	688	2,080
13.....	1,480	2,140	2,250	3,610	2,220	2,220	1,900	2,170	1,770	1,510	1,210	1,920
14.....	1,560	2,180	2,120	3,540	2,100	1,980	1,920	2,260	1,760	1,730	1,180	1,840
15.....	1,650	2,140	2,050	3,500	1,800	1,980	1,870	2,290	1,790	1,720	1,170	1,870
16.....	1,300	2,190	2,150	3,540	1,760	1,930	1,820	2,240	1,720	1,700	1,370	1,860
17.....	1,380	2,120	2,210	3,630	1,620	1,890	1,870	2,190	1,820	1,600	1,470	1,960
18.....	1,400	2,080	2,190	3,700	1,740	1,860	1,900	2,140	1,800	1,570	1,430	2,040
19.....	2,290	2,060	2,170	3,760	1,680	1,840	1,880	2,030	1,820	1,590	1,380	1,960
20.....	2,470	2,050	2,170	3,860	1,660	1,820	1,890	1,970	1,800	1,510	1,370	1,930
21.....	2,470	2,050	2,300	3,880	1,710	1,840	1,900	2,050	1,720	1,190	921	1,890
22.....	2,480	2,050	2,570	3,930	1,720	2,030	1,920	2,030	1,410	1,110	398	1,760
23.....	2,490	2,060	2,720	3,980	1,960	2,050	1,900	2,060	660	1,160	994	1,810
24.....	2,520	2,050	2,940	4,150	2,080	2,030	2,010	1,980	875	1,030	1,310	1,820
25.....	2,380	2,050	3,220	4,620	2,110	2,000	1,960	1,940	1,750	691	1,500	1,800
26.....	2,440	2,060	3,800	5,950	2,210	1,980	2,050	1,860	1,650	696	1,640	1,760
27.....	2,240	1,960	4,200	6,530	2,260	1,940	2,050	1,800	1,610	635	1,620	1,800
28.....	2,300	2,100	4,750	6,670	2,290	1,930	1,980	1,800	1,650	604	1,590	1,860
29.....	2,280	.....	5,300	6,700	2,990	1,940	1,980	1,800	1,690	608	1,530	1,800
30.....	2,270	.....	5,490	6,700	4,410	1,980	1,960	1,780	1,690	653	1,480	1,810
31.....	2,260	.....	5,550	.....	5,030	.....	2,010	1,760	.....	811	.....	1,800

¹ U. S. Geol. Survey Water-Supply Paper 321, p. 61, 1914.

Monthly discharge of Androscoggin River at Errol dam, N. H., for 1913.

[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.....	2,520	1,300	2,040	1.86	2.14
February.....	2,360	1,740	2,050	1.87	1.95
March.....	5,550	2,050	2,790	2.55	2.94
April.....	6,700	3,500	4,740	4.33	4.83
May.....	6,700	1,620	3,060	2.79	3.22
June.....	5,030	1,820	2,590	2.37	2.64
July.....	2,140	1,820	1,950	1.78	2.05
August.....	2,290	1,760	2,040	1.86	2.14
September.....	1,980	660	1,690	1.54	1.72
October.....	1,730	604	1,300	1.19	1.37
November.....	1,640	398	1,210	1.11	1.24
December.....	2,180	1,430	1,790	1.63	1.88
The year.....	6,700	398	2,270	2.07	28.12

ANDROSCOGGIN RIVER AT RUMFORD FALLS, MAINE.

Location.—At the dam of the Rumford Falls Power Co., at Rumford Falls.**Records available.**—May 18, 1892, to December 31, 1913. 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.**Regulation.**—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 excellent.**Cooperation.**—Records are obtained and computations made by Mr. Charles A. Mixer, engineer Rumford Falls Power Co., who furnishes the data.

Daily discharge, in second-feet, of Androscoggin River at Rumford Falls, Maine, for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,990	3,450	2,350	14,700	9,140	7,710	2,380	2,120	1,260	1,850	3,240	2,570
2.....	2,820	3,000	2,050	10,800	8,430	7,470	2,370	1,960	1,950	2,520	2,820	2,550
3.....	3,030	3,120	2,390	8,560	8,370	7,130	2,370	1,890	1,950	7,180	2,880	2,560
4.....	3,690	3,030	2,510	7,630	7,780	6,460	1,610	2,120	1,740	3,880	2,770	2,620
5.....	3,200	2,740	2,450	8,310	7,300	6,510	1,510	2,350	1,590	2,790	2,770	2,790
6.....	3,000	2,610	2,410	8,720	7,040	5,530	1,610	2,240	1,710	2,580	2,710	2,670
7.....	3,000	2,550	2,400	7,750	6,360	4,600	2,420	2,220	1,380	2,350	2,660	2,210
8.....	2,890	2,480	2,420	7,080	5,530	4,160	2,370	2,010	1,750	2,280	2,590	3,320
9.....	2,520	2,380	1,990	6,650	4,790	4,020	2,130	1,800	1,930	2,210	6,930	2,810
10.....	2,520	2,460	2,210	6,120	4,250	3,740	2,600	1,600	1,860	2,110	22,000	2,430
11.....	2,790	2,490	2,580	6,250	3,510	3,620	3,480	2,280	1,830	2,020	9,450	2,970
12.....	2,560	2,220	2,580	6,690	3,300	3,340	2,680	2,090	1,720	2,160	5,160	2,500
13.....	2,840	2,410	2,630	7,150	3,340	3,300	1,880	2,140	1,680	2,760	4,030	2,980
14.....	2,770	2,470	2,750	7,780	3,120	3,210	2,490	2,050	1,650	2,450	3,590	3,020
15.....	2,740	2,480	4,590	9,080	2,970	2,310	2,500	2,060	1,710	2,530	3,240	2,960
16.....	2,780	2,520	7,250	9,300	3,040	2,080	2,140	2,090	1,910	2,750	2,720	2,680
17.....	2,760	2,530	5,920	9,200	3,150	2,600	2,160	1,540	1,730	2,910	2,870	2,770
18.....	2,850	2,520	4,120	7,910	2,320	2,700	2,300	2,220	1,720	2,780	2,990	2,940
19.....	3,390	2,460	4,240	8,010	2,500	2,720	2,160	2,280	1,690	2,410	2,950	2,240
20.....	3,710	2,440	5,210	8,480	3,110	2,690	1,850	2,070	1,710	6,500	3,820	2,230
21.....	3,650	2,460	9,180	6,850	3,000	2,590	2,160	2,050	1,540	13,800	3,750	2,460
22.....	4,030	2,500	15,900	6,360	3,060	1,800	2,320	1,920	3,560	5,870	3,170	2,570
23.....	3,880	2,300	10,500	6,400	4,250	2,370	2,190	1,900	8,490	4,020	2,770	2,360
24.....	3,660	2,430	8,400	7,980	6,830	2,400	2,090	1,560	3,490	3,040	2,580	1,880
25.....	3,520	2,360	13,500	9,310	7,450	2,470	2,080	1,960	2,670	3,370	2,770	2,010
26.....	3,090	2,280	19,100	10,700	6,620	2,540	2,230	2,080	2,180	3,680	2,770	2,250
27.....	3,230	2,360	13,800	10,400	5,420	2,510	1,940	1,900	2,070	6,400	2,760	2,340
28.....	3,120	2,360	16,900	10,000	4,690	2,660	2,250	1,960	1,570	4,730	2,520	2,060
29.....	2,900	.....	12,200	10,300	8,090	1,890	2,360	1,950	1,880	3,860	2,590	2,050
30.....	2,750	.....	9,350	9,910	9,080	2,450	2,280	1,960	1,880	3,560	2,400	2,280
31.....	2,740	.....	11,600	.....	8,410	.....	2,270	1,480	.....	3,420	.....	2,330

Monthly discharge of Androscoggin River at Rumford Falls, Maine, for 1913.

[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.....	4,030	2,520	3,080	1.47	1.70
February.....	3,450	2,220	2,550	1.22	1.27
March.....	19,100	1,990	6,630	3.17	3.66
April.....	14,700	6,120	8,480	4.06	4.53
May.....	9,140	2,320	5,360	2.56	2.95
June.....	7,710	1,800	3,650	1.75	1.95
July.....	3,480	1,510	2,230	1.07	1.23
August.....	2,350	1,480	2,000	.957	1.10
September.....	8,490	1,260	2,130	1.02	1.14
October.....	13,800	1,850	3,700	1.77	2.04
November.....	22,000	2,400	4,010	1.92	2.14
December.....	3,320	1,880	2,530	1.21	1.40
The year.....	22,000	1,260	3,860	1.85	25.11

PRESUMPSCOT RIVER BASIN.

PRESUMPSCOT RIVER AT OUTLET OF SEBAGO LAKE, MAINE.

Location.—At 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, 1913. 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 determined from records of the opening of the gates in the dam. Since March, 1904, flow from the lake has been recorded by three Allen meters, one on each of three pairs of 30-inch Hercules wheels; wheels and recording meters checked by current-meter measurements, brake tests of wheels, and electrical readings of the generator output.

Winter flow.—Not affected by ice.

Regulation.—Sebago Lake, with an area of 46 square miles, is under complete control for storage.

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 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	683	630	792	695	667	a235	660	663	658	665	682	668
2.....	735	a410	a230	743	667	672	660	650	653	655	a395	670
3.....	563	803	802	562	667	668	665	a280	672	665	842	667
4.....	517	802	803	662	a223	668	257	672	670	662	820	663
5.....	a332	800	802	558	665	665	523	667	668	a163	752	675
6.....	670	823	800	a210	667	673	a227	672	662	665	838	567
7.....	680	823	800	620	670	670	672	673	a265	665	750	a212
8.....	745	803	800	637	663	a262	662	662	633	665	667	538
9.....	767	a283	a247	600	667	675	658	663	600	665	a217	638
10.....	800	792	800	667	660	667	670	a208	602	665	603	672
11.....	787	800	805	672	a223	670	665	620	647	663	735	667
12.....	a240	805	810	595	662	668	653	660	673	a210	755	672
13.....	808	807	763	a165	663	668	a295	662	668	663	670	625
14.....	808	805	538	557	665	672	668	660	a245	662	670	a235
15.....	813	792	385	547	668	a332	667	660	673	663	663	667
16.....	808	a367	a80	643	667	668	667	653	677	662	a223	675
17.....	682	803	588	663	650	628	672	a618	668	665	667	673
18.....	542	802	662	663	a238	633	660	667	675	672	672	667
19.....	a233	803	667	643	668	667	665	672	675	a222	610	677
20.....	650	803	598	a383	668	665	a220	665	675	675	815	668
21.....	667	800	523	667	663	660	668	655	a332	548	667	a202
22.....	667	742	410	667	665	a228	665	670	680	623	597	678
23.....	632	a238	a188	660	670	645	662	657	670	670	a240	673
24.....	532	800	553	657	618	672	667	a383	668	675	672	665
25.....	528	805	555	668	a217	665	663	667	677	577	675	600
26.....	a243	800	375	668	608	662	650	657	670	a310	672	343
27.....	672	803	393	a240	668	668	a228	667	672	417	602	470
28.....	742	800	467	665	668	665	665	665	a258	427	667	a235
29.....	803	.....	555	657	548	a235	655	667	670	673	567	670
30.....	807	.....	a337	657	420	663	667	662	665	675	a113	672
31.....	807	.....	595	.....	615	.....	665	a408	.....	672	.....	672

a Sunday.

Monthly discharge of Presumpscot River at outlet of Sebago Lake, Maine, for 1913.

[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.....	813	233	644	1.48	1.71
February.....	823	238	727	1.67	1.74
March.....	810	80	572	1.31	1.51
April.....	743	165	590	1.35	1.51
May.....	670	217	592	1.36	1.57
June.....	673	228	596	1.37	1.53
July.....	672	220	592	1.36	1.57
August.....	673	208	616	1.41	1.63
September.....	680	245	611	1.40	1.56
October.....	675	163	586	1.34	1.54
November.....	842	113	617	1.42	1.58
December.....	678	202	583	1.34	1.54
The year.....	842	80	610	1.40	18.99

SACO RIVER BASIN.**SACO RIVER AT WEST BUXTON, MAINE.****Location.**—At hydroelectric plant of the Portland Electric Co., at West Buxton.**Records available.**—October 19, 1907, to December 31, 1913. 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 and control.**—Crest of the concrete dam, about 300 feet long.**Discharge.**—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.**—Not affected by ice.**Regulation.**—There are dams on numerous although comparatively small lakes in the basin above the station. 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 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 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,610	2,590	1,600	14,000	5,410	4,710	1,360	984	401	1,810	5,240	2,980
2.....	2,710	1,970	1,400	12,900	5,370	4,760	1,320	962	669	1,680	4,720	2,740
3.....	2,760	2,590	1,860	12,200	5,110	4,330	1,020	871	703	1,930	4,860	2,690
4.....	2,380	2,340	1,640	11,700	4,560	4,130	928	849	739	2,410	4,500	2,530
5.....	3,090	2,170	1,520	11,700	4,820	3,780	795	770	662	2,630	4,150	2,630
6.....	3,510	2,320	1,660	11,100	4,440	3,620	859	962	466	3,340	3,910	2,480
7.....	3,180	2,290	1,670	10,600	4,200	3,300	1,130	1,040	418	3,370	3,660	2,150
8.....	3,010	2,160	1,400	9,780	4,040	2,630	1,360	907	595	3,170	3,760	3,550
9.....	2,790	1,810	1,190	9,090	3,870	2,980	1,170	873	595	2,880	3,110	3,450
10.....	2,650	2,490	1,380	12,500	3,700	2,730	1,110	867	576	2,770	4,920	3,280
11.....	2,580	2,510	1,590	7,600	3,200	2,620	1,010	854	563	2,460	5,010	3,110
12.....	2,220	2,300	1,440	7,440	3,430	2,420	869	839	533	2,000	6,130	3,100
13.....	2,650	2,310	1,720	7,030	3,050	2,430	845	765	385	2,560	6,710	2,640
14.....	2,450	1,630	2,270	7,540	2,600	2,230	1,040	763	291	2,430	6,800	2,130
15.....	2,360	1,640	4,310	7,320	2,970	1,720	1,240	594	483	2,070	6,670	2,630
16.....	2,400	1,120	2,650	7,250	2,950	2,210	1,230	442	548	2,090	6,070	2,310
17.....	2,450	2,000	6,690	7,140	2,720	2,030	1,060	588	533	2,290	6,010	2,510
18.....	2,840	1,680	5,830	6,030	2,350	1,820	1,090	311	545	2,170	5,530	2,710
19.....	2,850	1,570	5,430	6,020	2,870	1,630	905	640	490	1,960	5,030	2,890
20.....	3,200	1,620	6,180	6,580	2,610	1,910	843	514	412	2,750	4,810	2,680
21.....	3,180	1,610	7,720	6,650	2,550	1,300	825	655	373	2,760	4,540	2,230
22.....	3,290	1,650	9,740	6,340	2,480	1,360	828	624	759	3,340	4,320	2,670
23.....	3,210	1,620	8,760	6,690	2,380	1,780	854	461	1,040	4,620	3,520	2,380
24.....	3,230	1,900	11,700	5,690	2,630	1,910	906	294	1,160	4,810	4,380	1,870
25.....	3,240	1,780	12,400	5,810	3,240	1,390	971	526	2,650	4,480	3,860	1,590
26.....	2,760	1,740	13,500	5,200	4,260	1,510	969	514	2,560	4,840	3,660	2,290
27.....	3,220	1,940	14,000	4,870	4,180	1,340	885	574	2,420	5,880	3,410	1,840
28.....	2,890	1,650	15,500	5,300	3,970	1,250	1,040	527	1,900	5,910	3,420	1,590
29.....	2,760	.....	15,800	6,020	4,600	1,150	868	574	2,560	5,660	3,140	1,820
30.....	2,630	.....	15,700	5,630	5,330	1,360	763	593	1,910	5,640	2,430	1,610
31.....	2,540	.....	14,500	.....	5,230	.....	876	403	.....	5,620	.....	1,560

Monthly discharge of Saco River at West Buxton, Maine, for 1913.

[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.....	3,510	2,220	2,830	1.83	2.11
February.....	2,590	1,120	1,960	1.26	1.31
March.....	15,800	1,190	6,220	4.01	4.62
April.....	14,000	4,870	8,140	5.25	5.86
May.....	5,410	2,350	3,710	2.39	2.76
June.....	4,760	1,150	2,410	1.55	1.73
July.....	1,360	763	999	.645	.74
August.....	1,040	294	682	.440	.51
September.....	2,650	291	931	.601	.67
October.....	5,910	1,680	3,300	2.13	2.46
November.....	6,800	2,430	4,610	2.97	3.31
December.....	3,550	1,560	2,470	1.59	1.83
The year.....	15,800	291	3,190	2.06	27.55

MERRIMAC RIVER BASIN.

PEMIGEWASSET RIVER AT PLYMOUTH, N. H.

Location.—In the town of Plymouth, about three-fourths of a mile below Bakers River.

Records available.—1886 to December 31, 1913.

Drainage area.—615 square miles.

Gages.—Staff gage since June 30, 1907; the low and medium stage sections about 40 feet above the bridge, the high-stage section bolted to the upstream side of the right abutment of the bridge. September 4, 1903, to June 30, 1907, chain gage on upstream side of highway bridge. The datum of the staff gage is 1.11 feet higher than that of the chain gage. All gage readings prior to 1910 refer to chain gage datum, later readings refer to staff gage datum. Gage read once daily.

Channel and control.—Two channels, the right rocky and practically permanent, the left fine gravel, shifting occasionally in high floods.

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.

Regulation.—Low water flow affected by the operation of dams at Livermore Falls and at Woodstock.

Winter flow.—Affected by ice.

Cooperation.—Established in 1903 in cooperation with the New Hampshire Forestry Commission. Gage heights since June 30, 1907, furnished by the Locks & Canals Co., of Lowell, Mass.

The following discharge measurement was made by engineers of the Locks & Canals Co.:

August 20, 1913: Gage height, 0.104 feet; discharge, 200 second-feet.

Daily gage height, in feet, of Pemigewasset River at Plymouth, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.3	3.1	1.9	9.3	2.7	.....	0.6	0.45	-0.36	0.35	1.8	2.2
2.....	2.6	.....	.....	4.8	2.5	2.5	.6	.4	.1	.....	.....	1.15
3.....	2.5	3.5	1.9	3.5	2.2	2.1	.6	.....	.1	3.1	1.4	1.15
4.....	5.6	3.3	1.9	3.2	.....	2.0	.55	.4	.1	2.1	1.35	1.35
5.....	.....	3.2	1.9	3.4	2.1	1.8	.5	.5	.1	.....	1.25	1.3
6.....	3.3	2.8	1.8	.....	2.0	1.55	.....	.4	.1	1.2	1.2	1.25
7.....	3.1	2.5	1.8	3.0	1.9	1.4	.6	.....	.....	1.1	1.1	.....
8.....	3.1	2.5	1.8	2.9	1.8	.....	.55	.35	-.36	.9	1.15	2.4
9.....	3.2	.....	.....	2.3	1.8	1.2	.5	.35	-.46	.6	.....	2.3
10.....	3.4	2.3	1.7	2.1	1.6	1.15	.45	.....	-.46	.6	9.8	2.1
11.....	3.2	2.2	1.7	2.2	.....	1.1	1.25	.35	-.38	.6	4.6	2.0
12.....	.....	2.1	2.2	2.9	1.4	1.0	1.05	.3	-.56	.....	3.0	1.6
13.....	3.5	2.1	2.5	.....	1.3	.95	.....	.25	-.61	1.5	2.3	1.6
14.....	3.3	2.1	2.4	3.8	1.25	.9	.75	.25	.....	1.35	2.1	.....
15.....	3.0	2.2	6.4	4.1	1.2	.....	.7	.1	.05	1.25	1.9	1.6
16.....	2.9	.....	14.5	4.2	1.1	.85	.6	.1	.15	1.1	.....	1.6
17.....	3.1	2.1	11.3	3.6	1.4	.9	.55	.....	-.61	1.1	1.5	1.4
18.....	3.5	2.0	8.0	3.1	.....	1.2	.5	.1	-.46	1.0	1.5	1.25
19.....	.....	2.0	7.3	3.0	1.55	1.15	.....	.1	-.21	.....	1.4	1.3
20.....	4.7	1.9	8.4	.....	1.4	1.1	.....	.1	-.64	.95	2.2	1.7
21.....	3.4	2.0	15.0	2.5	1.15	1.0	.45	-.21	.....	7.2	2.6	.....
22.....	5.3	2.3	13.8	2.2	1.2	.....	.45	-.31	.2	3.3	2.1	1.6
23.....	4.2	.....	5.7	2.1	2.8	.9	.4	-.31	5.2	2.1	.....	1.4
24.....	3.7	2.1	4.6	2.8	4.1	.85	.4	.....	2.1	1.6	1.7	2.2
25.....	5.8	2.1	5.2	3.1	.....	.85	.4	.1	1.2	1.7	1.6	2.1
26.....	.....	2.0	12.3	3.8	3.1	.75	.4	.2	.85	.....	1.4	2.2
27.....	3.2	2.0	6.5	.....	2.6	.65	.....	.15	.7	3.9	1.3	2.0
28.....	2.9	1.9	15.4	3.3	2.2	.6	.35	.2	.....	3.1	1.2	.....
29.....	2.5	.....	7.0	3.2	5.0	.6	.15	.55	.55	2.2	1.2	2.1
30.....	2.2	.....	.....	3.4	4.5	.5	.55	.1	.35	2.1	.....	2.2
31.....	2.5	.....	3.8	.....	3.6	.....	.5	.....	.....	2.2	.....	2.2

NOTE.—Discharge relation Jan. 9 to Mar. 22 probably affected by ice. Discharge relation Mar. 23 to Apr. 1 may also be somewhat affected by ice.

Daily discharge, in second-feet, of Pemigewasset River at Plymouth, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,780			13,100	2,120	2,530	425	352	105	409	1,260	1,620
2.....	2,020			4,760	1,920	1,920	425	330	216	330	1,100	765
3.....	1,920			3,020	1,620	1,530	425	330	216	2,560	945	765
4.....	6,000			2,660	1,580	1,440	400	330	216	1,530	908	908
5.....	4,390			2,900	1,530	1,260	375	375	216	1,160	835	870
6.....	2,780			2,670	1,440	1,060	400	330	216	800	800	835
7.....	2,560			2,440	1,350	945	425	330	160	730	730	1,320
8.....	2,560			2,340	1,260	872	400	309	105	600	765	1,820
9.....				1,720	1,260	800	375	309	87	502	2,000	1,720
10.....				1,530	1,100	765	352	309	87	425	14,200	1,530
11.....				1,620	1,020	730	835	309	101	425	4,470	1,440
12.....				2,340	945	665	698	288	71	722	2,440	1,100
13.....				2,800	870	632	604	269	64	1,020	1,720	1,100
14.....				3,380	835	600	510	269	132	968	1,530	1,100
15.....				3,780	800	585	480	216	201	835	1,350	1,100
16.....				3,920	730	570	425	216	233	730	1,180	1,100
17.....				3,140	945	600	400	216	64	730	1,020	945
18.....				2,560	1,000	800	375	216	87	665	1,020	835
19.....				2,440	1,060	765	375	216	135	648	945	870
20.....				2,180	945	730	364	216	60	632	1,620	1,180
21.....				1,920	765	665	352	135	155	8,830	2,020	1,140
22.....				1,620	800	632	352	114	250	2,780	1,530	1,100
23.....			6,160	1,530	2,230	600	330	114	5,360	1,530	1,360	945
24.....			4,470	2,230	3,780	570	330	165	1,530	1,100	1,180	1,620
25.....			5,360	2,560	3,170	570	330	216	800	1,180	1,100	1,530
26.....				3,380	2,560	510	330	250	570	2,350	945	1,620
27.....			7,530	3,080	2,020	452	320	233	480	3,520	870	1,440
28.....				2,780	1,620	425	309	250	440	2,560	800	1,480
29.....			8,450	2,660	5,060	400	425	233	400	1,620	800	1,530
30.....			6,420	2,900	4,330	375	400	216	409	1,530	1,210	1,620
31.....			3,380		3,140		375	160		1,620		1,620

NOTE.—Discharge determined from a rating curve well defined between 200 and 15,000 second-feet. Because of comparatively few discharge measurements in recent years the rating curve is somewhat uncertain. Discharge interpolated for days when no gage height was reported.

Monthly discharge of Pemigewasset River at Plymouth, N. H., for 1913.

[Drainage area, 615 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
April.....	13,100	1,530	3,010	4.89	5.46
May.....	5,060	730	1,740	2.83	3.26
June.....	2,530	375	833	1.35	1.51
July.....	835	320	417	.678	.78
August.....	375	114	252	.410	.47
September.....	5,360	60	439	.714	.80
October.....	8,830	330	1,450	2.36	2.72
November.....	14,200	730	1,760	2.86	3.19
December.....	1,820	765	1,240	2.02	2.33

MERRIMAC RIVER AT FRANKLIN JUNCTION, N. H.

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

Records available.—July 8, 1903, to December 31, 1913.

Drainage area.—1,460 square miles.

Gage.—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 and control.—Coarse gravel and boulders; practically permanent.

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

Winter flow.—Affected by ice.

Regulation.—Flow affected by storage in Winnepesaukee, Squam, and New Found lakes, and by the operation of mills above the station.

Accuracy.—Results fairly good for open-water periods.

Cooperation.—Data furnished by the Locks & Canals Co., of Lowell, Mass.

No discharge measurements made during 1913.

Daily discharge, in second-feet, of Merrimac River at Franklin Junction, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,362	3,490	1,582	14,220	4,360	.....	1,032	.....	.....	977	1,390	1,985
2	3,160	.....	.....	.....	4,045	5,270	900	.....	1,120	1,120	.....	2,125
3	3,200	3,160	1,615	6,605	3,787	4,540	925	.....	1,032	1,745	2,055	1,985
4	3,120	3,040	1,647	5,085	.....	4,180	.....	.....	1,032	1,712	1,915	1,950
5	.....	3,040	1,745	4,810	3,447	3,915	875	.....	977	.....	1,745	2,055
6	3,120	2,880	1,712	.....	3,320	3,702	.....	.....	950	1,392	1,615	1,985
7	3,447	2,492	1,582	4,180	3,280	3,617	1,712	.....	.....	1,120	1,582	.....
8	3,447	2,195	.....	4,090	3,040	.....	1,647	.....	977	1,090	1,615	3,745
9	3,405	.....	.....	3,915	2,960	3,532	1,360	.....	1,090	1,420	.....	4,002
10	2,570	1,810	.....	3,915	2,880	2,722	1,210	.....	977	1,452	10,440	1,745
11	2,342	1,777	.....	3,872	.....	2,417	1,330	1,330	950	1,390	6,800	1,452
12	.....	2,090	1,712	3,872	2,840	2,305	1,300	1,210	1,032	.....	6,125	2,417
13	2,305	1,985	1,452	.....	2,305	2,197	.....	1,180	977	1,360	3,745	2,380
14	2,267	1,845	2,535	3,872	2,125	1,950	.....	1,150	.....	1,420	3,405	.....
15	2,305	1,615	4,900	4,855	2,055	.....	1,422	1,060	875	1,452	2,920	2,270
16	2,267	.....	.....	4,765	1,985	1,915	1,300	900	1,062	1,680	.....	2,195
17	2,342	1,582	10,860	4,450	1,915	1,845	1,120	.....	1,090	1,647	2,800	2,305
18	3,490	1,615	5,180	4,090	.....	1,745	1,090	950	1,180	1,240	2,530	2,055
19	.....	1,680	4,540	3,872	1,812	1,712	1,060	1,032	1,120	.....	2,342	1,845
20	4,360	1,582	6,320	.....	1,950	1,712	.....	1,060	1,240	1,210	2,267	1,582
21	4,405	1,615	11,910	3,830	1,847	1,582	1,032	1,090	.....	8,800	2,342	.....
22	4,050	1,582	24,930	4,045	1,810	.....	977	1,060	1,420	5,040	2,230	1,360
23	4,270	.....	.....	3,872	4,180	1,240	850	1,060	6,220	2,920	.....	1,330
24	3,830	1,452	5,840	3,745	4,405	1,330	875	.....	3,790	2,642	2,055	1,210
25	3,447	1,420	7,900	3,617	.....	1,270	1,090	1,120	2,020	2,195	2,160	1,615
26	.....	1,452	23,355	3,702	5,132	1,360	1,300	1,180	1,582	.....	2,195	1,390
27	2,920	1,485	13,695	.....	4,360	1,360	.....	1,150	1,452	4,585	2,020	1,330
28	2,570	1,680	27,765	3,745	3,660	1,210	1,090	1,120	.....	4,315	1,985	.....
29	2,230	.....	10,105	4,450	5,005	.....	.....	1,240	1,120	3,957	1,950	2,455
30	2,195	.....	.....	4,855	8,800	1,090	.....	1,330	1,005	3,447	.....	2,125
31	2,492	.....	6,220	.....	6,320	.....	.....	.....	.....	2,960	.....	1,880

Monthly discharge of Merrimac River at Franklin Junction, N. H., for 1913.

[Drainage area, 1,460 square miles.]

Month.	Discharge in second-feet.		Run-off (depth in inches on drainage area).
	Mean.	Per square mile.	
January	3,071	2.10	2.42
February	2,023	1.39	1.45
March	7,787	5.33	6.14
April	4,653	3.19	3.56
May	3,468	2.38	2.74
June	2,389	1.64	1.83
July	1,168	.800	.92
August	1,123	.770	.89
September	1,452	.995	1.11
October	2,381	1.63	1.88
November	2,889	1.98	2.21
December	2,029	1.39	1.60
The year	2,890	1.98	26.75

MERRIMAC RIVER AT GARVINS FALLS, N. H.

Location.—At the dam of the Manchester Traction, Light & Power Co., 4 miles below Concord.

Records available.—1904 to 1913.

Drainage area.—2,340 square miles.

Winter flow.—Somewhat affected by ice.

Accuracy.—Results good.

Cooperation.—Data furnished by French & Hubbard, consulting engineers, Boston, Mass.

Daily discharge, in second-feet, of Merrimac River at Garvins Falls, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6,744	5,272	2,676	15,456	6,452	8,936	1,668	1,758	1,015	1,832	3,425	2,602
2.....	7,482	5,342	3,013	16,573	5,380	7,551	1,765	1,506	1,208	2,233	2,885	2,751
3.....	6,725	5,687	2,969	12,040	4,991	6,257	1,864	995	960	1,625	2,910	2,651
4.....	7,644	4,840	3,127	9,587	4,463	5,560	1,434	1,432	1,449	3,956	2,730	2,818
5.....	9,894	4,520	2,980	9,075	4,416	5,056	1,507	1,195	1,308	3,140	2,622	3,050
6.....	8,836	4,406	2,835	9,659	4,230	4,432	1,061	1,901	1,240	2,364	2,721	3,122
7.....	7,151	3,931	2,689	9,070	4,206	4,091	2,248	1,756	1,079	2,293	2,611	2,527
8.....	6,751	4,010	2,636	7,617	4,010	3,682	2,676	1,389	1,234	2,246	2,554	3,488
9.....	4,650	3,981	2,761	6,553	3,636	3,496	2,619	1,771	1,327	2,109	1,884	5,566
10.....	4,904	3,985	2,698	5,976	3,341	3,163	2,128	1,011	1,339	2,076	3,068	4,689
11.....	5,008	3,436	3,783	5,599	2,542	3,025	2,354	1,449	1,432	1,630	10,020	4,257
12.....	5,117	3,159	3,978	6,751	2,863	2,854	2,299	1,508	1,389	918	6,441	3,144
13.....	5,248	3,189	4,440	8,017	2,869	2,728	1,747	1,334	1,252	1,148	4,841	3,349
14.....	5,310	3,121	5,018	9,161	2,825	2,455	2,098	1,572	995	2,724	3,934	2,934
15.....	5,330	3,083	9,651	9,464	3,916	2,131	2,188	1,633	1,245	2,524	3,562	3,086
16.....	4,895	3,387	17,707	9,152	2,461	2,049	2,074	1,480	1,188	2,370	3,123	3,284
17.....	4,876	3,933	18,844	8,607	2,599	2,068	2,090	981	1,050	2,197	3,071	3,123
18.....	5,206	3,839	11,905	7,316	2,542	2,177	1,944	1,197	1,317	2,090	3,204	3,041
19.....	5,822	2,767	8,650	6,588	2,546	3,360	1,719	1,158	1,578	1,518	2,976	1,829
20.....	8,817	3,014	8,220	6,246	2,677	7,267	1,100	1,184	1,031	2,133	2,949	2,451
21.....	8,060	3,904	13,016	6,476	2,509	7,811	1,631	1,328	1,025	2,812	3,876	2,018
22.....	7,924	3,376	20,974	5,444	2,516	7,986	1,793	1,338	1,044	5,710	3,977	2,633
23.....	7,906	4,625	22,719	5,157	2,837	6,446	1,790	1,405	2,038	3,609	3,141	2,776
24.....	6,949	4,208	12,315	4,768	5,809	1,908	1,831	948	2,850	3,310	3,126	2,202
25.....	6,951	3,644	13,787	5,299	8,448	1,864	1,841	924	2,059	2,288	3,067	2,345
26.....	6,546	3,047	20,077	5,518	8,768	1,827	1,531	991	2,566	2,664	2,983	2,274
27.....	5,903	2,670	24,196	5,935	7,219	1,728	1,019	1,417	2,190	3,926	2,501	2,368
28.....	5,348	2,516	28,041	5,844	5,798	1,692	1,705	1,428	1,561	4,927	2,608	2,065
29.....	4,656	.....	27,721	5,912	6,655	1,556	1,484	1,273	2,071	3,886	2,687	2,410
30.....	4,691	.....	17,737	6,819	12,837	1,636	1,667	1,389	1,939	3,294	2,079	2,534
31.....	4,581	.....	13,403	.....	11,810	.....	1,964	1,055	.....	3,373	.....	2,410

NOTE.—Discharge determined from records of flow over the dam and through the wheels of the power plant. See Water-Supply Paper 321, page 75, for description of this plant.

Monthly discharge of Merrimac River at Garvins Falls, N. H., for 1913.

[Drainage area, 2,340 square miles.]

Month.	Drainage in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	9,894	4,581	6,320	2.70	3.11
February.....	5,687	2,516	3,818	1.63	1.70
March.....	28,041	2,636	10,792	4.61	5.32
April.....	16,573	4,768	7,856	3.36	3.75
May.....	12,837	2,461	4,780	2.04	2.35
June.....	8,936	1,556	3,893	1.66	1.85
July.....	2,676	1,019	1,833	.783	.90
August.....	1,901	924	1,345	.575	.66
September.....	2,850	960	1,464	.626	.70
October.....	5,710	918	2,675	1.14	1.31
November.....	10,020	1,884	3,385	1.45	1.62
December.....	5,566	1,829	2,896	1.24	1.43
The year.....	28,041	918	4,260	1.82	24.70

MERRIMAC RIVER AT LAWRENCE, MASS.**Location.**—At the dam of the Essex Water Power Co. in Lawrence.**Records available.**—January 1, 1890, to December 31, 1913.**Drainage area.**—4,663 square miles. Run-off from 211 square miles in Sudbury and Cochituate River basins diverted, leaving effective drainage area 4,452 square miles.**Diversions.**—Water is diverted from basins of Sudbury and Nashua rivers for use by the Metropolitan water district in Boston and vicinity, but during a part of the year water is wasted into the Merrimac at these diversion dams.**Accuracy.**—Results good.**Cooperation.**—Records furnished by R. A. Hale, principal assistant engineer of the Essex Water Power Co., and by the Metropolitan Water and Sewerage Board of Boston.

Average weekly discharge, in second-feet, of Merrimac River at Lawrence, Mass., for 1913.

Weeks arranged in calendar order.			Weeks arranged in order of dryness at Lawrence.			
Week ending Sunday—	Merrimac River at Lawrence (total drainage area, 4,663 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 of Merrimac River from 4,452 square miles.	
					For week.	Per square mile.
	<i>Sec.-ft.</i>		<i>Sec.-ft.</i>	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>
Jan. 5.....	8,937	Aug. 31	1,130	10	1,120	0.252
12.....	7,973	Sept. 21	1,228	11	1,217	.273
19.....	6,847	Sept. 14	1,442	5	1,437	.323
26.....	8,876	Aug. 3	1,462	10	1,452	.326
Feb. 2.....	6,199	Aug. 17	1,465	8	1,457	.327
9.....	5,077	Aug. 24	1,471	17	1,454	.327
16.....	3,521	July 27	1,514	8	1,506	.338
23.....	3,640	Aug. 10	1,559	8	1,551	.348
Mar. 2.....	5,597	Sept. 7	1,629	10	1,619	.364
9.....	5,211	July 6	1,704	6	1,698	.381
16.....	10,152	July 20	1,894	7	1,887	.424
23.....	21,190	July 13	2,029	8	2,021	.454
30.....	26,447	Oct. 5	2,120	18	2,102	.472
Apr. 6.....	16,370	Oct. 19	2,210	19	2,191	.492
13.....	10,772	Sept. 28	2,462	16	2,446	.549
20.....	12,499	Oct. 12	2,473	12	2,461	.553
27.....	8,032	June 29	2,488	12	2,476	.556
May 4.....	7,885	June 22	2,659	18	2,641	.593
11.....	5,305	June 15	3,436	34	3,402	.764
18.....	3,795	Nov. 9	3,487	32	3,455	.776
25.....	5,120	Feb. 16	3,521	43	3,478	.781
June 1.....	11,922	Nov. 30	3,524	57	3,467	.779
8.....	6,668	Feb. 23	3,640	68	3,572	.802
15.....	3,436	May 18	3,795	30	3,765	.846
22.....	2,659	Nov. 23	4,093	46	4,047	.909
29.....	2,488	Dec. 7	4,110	67	4,043	.908
July 6.....	1,704	Dec. 28	4,159	117	4,042	.908
13.....	2,029	Dec. 21	4,265	54	4,211	.946
20.....	1,894	Oct. 26	4,473	38	4,435	.996
27.....	1,514	Feb. 9	5,077	71	5,006	1.124
Aug. 3.....	1,462	May 25	5,120	90	5,030	1.130
10.....	1,559	Mar. 9	5,211	129	5,082	1.142
17.....	1,465	May 11	5,305	52	5,253	1.180
24.....	1,471	Mar. 2	5,597	130	5,467	1.228
31.....	1,130	Nov. 2	6,193	63	6,130	1.377
Sept. 7.....	1,629	Feb. 2	6,199	86	6,113	1.373
14.....	1,442	Dec. 14	6,420	72	6,348	1.426
21.....	1,228	Nov. 16	6,486	47	6,439	1.446
28.....	2,462	June 8	6,668	47	6,621	1.487
Oct. 5.....	2,120	Jan. 19	6,847	114	6,733	1.512
12.....	2,473	May 4	7,885	114	7,771	1.746
19.....	2,210	Jan. 12	7,973	110	7,863	1.766
26.....	4,473	Apr. 27	8,032	153	7,879	1.770
Nov. 2.....	6,193	Jan. 26	8,876	104	8,772	1.970
9.....	3,487	Jan. 5	8,937	104	8,833	1.984
16.....	6,486	Mar. 16	10,152	150	10,002	2.247
23.....	4,093	Apr. 13	10,772	216	10,556	2.371
30.....	3,524	June 1	11,922	128	11,794	2.649
Dec. 7.....	4,110	Apr. 20	12,499	344	12,155	2.730
14.....	6,420	Apr. 6	16,370	224	16,146	3.627
21.....	4,265	Mar. 23	21,190	149	21,041	4.726
28.....	4,159	Mar. 30	26,447	315	26,132	5.870
52 weeks total.....	291,620	.....	291,620	3,801	287,819	64.648
Weekly average.....	5,608	.....	5,608	73	5,535	1.243

NOTE.—Discharge determined from records of flow over the dam and through the wheels of the power plant. Estimates of amounts wasted from Sudbury and Nashua drainage basins based on data furnished by the Metropolitan Water and Sewerage Board of Boston.

Daily discharge, in second-feet, of Merrimac River at Lawrence, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	9,087	5,066	4,557	17,983	9,170	11,599	2,619	1,818	492	1,939	3,910	5,071
2.....	10,140	5,800	6,124	20,694	8,111	10,178	2,589	1,183	2,809	2,102	3,516	4,142
3.....	9,490	7,152	7,074	17,083	6,771	8,278	2,407	1,160	2,421	2,724	5,332	3,973
4.....	9,877	6,086	6,415	14,120	5,924	7,215	600	1,817	2,195	1,899	4,226	4,125
5.....	11,233	5,726	5,965	12,483	6,846	6,531	526	1,880	2,070	1,439	3,845	4,490
6.....	11,727	5,177	5,662	12,578	5,990	5,965	586	1,854	1,243	3,986	3,612	3,256
7.....	9,570	4,838	4,981	13,075	5,793	4,495	3,112	1,897	171	3,211	3,634	3,715
8.....	8,889	3,149	3,392	11,785	5,501	4,014	2,708	1,962	1,783	2,873	2,458	6,435
9.....	6,974	3,409	2,988	10,486	5,369	5,378	2,501	1,806	1,788	2,333	1,301	7,992
10.....	6,471	5,393	6,200	9,480	3,972	4,153	2,151	198	1,760	2,625	4,980	8,310
11.....	6,045	4,320	6,306	8,947	3,662	3,736	1,909	1,966	1,758	2,021	10,092	7,062
12.....	6,137	3,448	7,167	9,499	5,530	3,605	1,574	1,743	1,790	260	9,799	6,273
13.....	7,737	3,513	8,112	12,129	4,205	3,585	247	1,730	1,098	688	7,054	4,607
14.....	7,019	3,688	8,085	14,511	3,688	2,270	2,185	1,746	114	3,084	5,808	4,259
15.....	6,974	2,553	12,403	14,723	3,258	1,325	2,319	1,828	1,548	3,058	4,295	6,059
16.....	6,637	1,731	22,790	13,997	4,123	3,898	2,227	1,076	1,482	3,183	3,371	5,026
17.....	6,330	4,871	27,272	13,112	2,657	3,282	2,257	166	1,460	2,933	5,402	4,615
18.....	5,914	3,872	21,775	11,783	3,104	2,766	2,399	1,687	1,412	2,155	4,377	4,677
19.....	7,321	3,517	16,896	10,225	5,006	2,737	1,626	1,678	1,485	371	3,642	4,688
20.....	9,849	3,314	14,750	9,141	3,724	2,851	247	1,750	1,046	2,995	3,685	2,763
21.....	9,882	3,192	16,910	9,827	3,742	2,460	2,132	1,826	161	3,731	4,030	2,024
22.....	9,277	1,964	23,190	8,643	3,981	621	1,956	1,816	1,591	5,228	3,818	5,136
23.....	9,161	4,749	27,538	8,114	4,185	4,141	1,864	1,234	1,904	6,568	3,695	4,234
24.....	8,530	7,094	20,547	7,678	4,806	3,063	1,640	303	3,110	5,136	5,341	4,022
25.....	7,983	6,336	16,431	7,790	10,494	2,689	1,699	1,417	4,713	3,322	4,373	2,435
26.....	7,448	5,405	19,380	7,076	12,365	2,624	1,206	1,379	3,495	4,333	3,773	6,024
27.....	8,142	4,647	31,321	7,097	10,877	2,477	99	1,315	2,123	8,190	1,350	3,973
28.....	6,982	5,015	34,757	8,220	9,188	2,036	1,834	1,333	296	8,083	4,725	3,290
29.....	6,240	.....	37,040	8,021	9,527	384	1,632	1,452	2,432	7,599	2,818	5,510
30.....	5,716	.....	25,651	8,976	14,790	2,598	1,780	859	2,304	6,402	2,288	4,476
31.....	5,447	.....	19,650	.....	15,105	.....	1,828	158	.....	5,649	.....	4,112

Monthly discharge of Merrimac River at Lawrence, Mass., for 1913.

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.		Rainfall.
			Mean.	Per square mile.	Depth in inches on drainage area.	Per cent of rainfall.	
	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>	<i>Sec.-ft.</i>			<i>Inches.</i>
January.....	8,007	106	7,901	1.775	2.046	73.3	2.79
February.....	4,465	70	4,395	.987	1.028	40.3	2.55
March.....	15,204	190	15,014	3.372	3.888	73.2	5.31
April.....	11,309	223	11,086	2.490	2.778	86.8	3.20
May.....	6,496	76	6,420	1.442	1.663	43.2	3.85
June.....	4,032	28	4,004	.899	1.003	90.4	1.11
July.....	1,757	8	1,749	.393	.453	18.6	2.44
August.....	1,372	10	1,362	.306	.353	11.5	3.07
September.....	1,735	11	1,724	.387	.432	12.9	3.36
October.....	3,552	30	3,522	.791	.912	15.7	5.81
November.....	4,352	45	4,307	.967	1.079	46.5	2.32
December.....	4,735	79	4,656	1.046	1.206	42.0	2.87
The year...	5,585	73	5,512	1.238	16.84	46.2	38.68

SOUHEGAN RIVER AT MERRIMAC, N. H.

Location.—At the head of Atherton Falls, below Stony Branch, and about $1\frac{1}{2}$ miles above the junction of the Souhegan with Merrimac River.

Records available.—July 13, 1909, to December 31, 1913.

Drainage area.—168 square miles.

Gage.—Since October 15, 1913, a Gurley automatic water-stage register on the left bank about 350 feet above the falls, referred to a hook gage in the well; prior to April 11, 1911, a vertical staff on the left bank 40 feet above the falls; April 12, 1911, to October 14, 1913, a chain gage near the present location of the automatic gage and at the same datum.

Channel and control.—Control formed by the head of Atherton Falls; practically permanent.

Discharge measurements.—Made by wading below the falls at low stages and from cable at high stages.

Regulation.—Flow affected by the operation of mills at Milford, about 8 miles above.

Winter flow.—Not seriously affected by ice.

Floods.—The maximum discharge during 1913 occurred at about 9 a. m. March 28.

Discharge approximately 3,650 second-feet, or 21.7 second-feet per square mile.

Accuracy.—Results good.

Cooperation.—Automatic gage maintained and record of gage heights furnished by the W. H. McElwain Co.

The following discharge measurement was made by G. H. Canfield by wading half a mile below gage:

October 14, 1913: Gage height, 2.53 feet; discharge, 84 second-feet.

Daily gage height, in feet, of Souhegan River at Merrimac, N. H., for 1913.

[R. J. Sylvester, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.5	3.2	4.0	4.6	3.45	3.4	2.27	2.42	2.24	2.34	3.11	2.84
2.....	3.9	3.15	3.8	4.4	3.4	3.1	2.30	2.47	2.26	2.33	2.95	2.98
3.....	3.75	3.1	3.7	3.9	3.0	3.1	2.27	2.31	2.34	3.74	2.94	3.12
4.....	4.7	2.98	3.45	3.85	3.05	3.0	2.25	2.51	2.26	3.26	2.96	3.36
5.....	4.2	2.91	3.35	3.8	2.96	2.94	2.26	2.51	2.30	3.18	2.94	3.23
6.....	3.7	3.0	3.25	3.8	2.94	2.86	2.22	2.73	2.31	2.78	2.91	3.14
7.....	3.6	2.94	3.25	3.85	2.98	2.70	2.28	2.33	2.26	2.64	2.94	3.04
8.....	3.55	2.51	2.90	3.8	2.94	2.62	2.16	2.13	2.20	2.54	2.78	4.05
9.....	3.35	2.44	3.1	3.65	2.85	2.63	2.12	2.50	2.26	2.53	2.77	3.87
10.....	3.25	2.32	3.5	3.55	2.76	2.60	2.12	2.14	2.20	2.54	4.15	3.61
11.....	3.3	2.74	3.65	3.55	2.59	2.60	2.44	2.16	2.18	2.59	3.83	3.47
12.....	3.5	2.72	3.5	4.3	2.84	2.44	2.48	2.12	2.22	2.51	3.42	3.58
13.....	3.8	2.73	3.8	4.6	2.72	2.28	2.28	2.45	2.22	2.52	3.26	3.16
14.....	3.5	2.72	3.95	4.6	2.68	2.49	1.96	2.68	2.22	2.66	3.17	3.06
15.....	3.5	2.72	5.3	4.3	2.68	2.44	2.28	2.58	2.78	2.55	3.17	3.14
16.....	3.35	2.72	4.7	4.0	2.75	2.38	2.43	2.33	2.48	2.59	3.03	3.08
17.....	3.4	2.73	4.2	3.9	2.80	2.36	2.03	2.33	2.49	2.62	2.97	3.04
18.....	3.55	2.72	3.7	3.7	2.80	2.34	2.48	2.22	2.17	2.62	3.05	3.06
19.....	3.65	2.68	3.75	3.6	2.74	2.32	2.40	2.28	2.15	2.44	3.02	2.93
20.....	3.7	2.68	4.2	3.55	2.68	2.42	2.30	2.48	2.17	2.56	3.01	2.76
21.....	3.55	2.86	4.4	3.45	2.65	2.40	2.43	2.63	2.18	3.43	3.06	2.80
22.....	3.6	3.05	4.2	3.35	2.68	2.41	2.19	2.30	2.21	3.24	3.02	2.87
23.....	3.35	3.3	3.8	3.35	2.82	2.35	2.14	2.40	3.3	3.00	2.90	2.89
24.....	3.75	3.55	3.9	3.2	3.8	2.42	2.25	2.46	2.84	2.88	2.80	2.99
25.....	3.7	3.15	3.85	3.1	3.95	2.39	2.38	2.43	2.81	2.94	2.87	3.27
26.....	3.6	3.1	4.4	3.2	3.65	2.36	2.53	2.33	2.55	4.4	2.80	3.18
27.....	3.45	3.05	5.4	3.1	3.35	2.36	2.28	2.73	2.37	4.2	2.75	3.19
28.....	3.3	3.15	7.3	3.05	3.2	2.30	2.32	2.43	2.40	3.73	2.70	2.86
29.....	3.3	.....	5.3	3.55	4.4	2.32	2.45	2.63	2.20	3.48	2.80	2.86
30.....	3.3	.....	4.8	3.55	4.4	2.22	2.30	2.24	2.32	3.32	2.80	2.98
31.....	3.2	.....	4.3	.....	3.65	.....	2.51	2.23	.....	3.20	.....	.....

NOTE.—Gage heights from Jan. 1 to Oct. 14 are means of two readings a day. Beginning Oct. 15, gage heights are means of 24 hourly values, obtained by Gurley automatic water-stage register.

Daily discharge, in second-feet, of Souhegan River at Merrimac, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,030	311	710	1,100	424	400	45	68	42	55	264	169
2.....	653	290	599	960	400	269	49	77	44	54	207	218
3.....	572	269	546	653	355	269	45	50	55	567	204	268
4.....	1,170	223	424	626	250	230	43	85	44	337	211	380
5.....	830	198	378	599	216	208	44	85	49	303	204	315
6.....	546	230	333	599	208	181	39	140	50	155	193	276
7.....	496	208	333	626	223	131	47	54	44	115	169	239
8.....	472	85	194	599	208	110	33	31	37	92	149	750
9.....	378	72	269	421	278	113	30	83	44	90	146	642
10.....	333	52	447	472	149	105	30	32	37	92	810	505
11.....	335	143	521	472	103	105	72	33	35	103	618	435
12.....	447	137	447	895	174	72	79	30	39	85	410	490
13.....	599	140	599	1,100	137	47	47	74	39	87	330	284
14.....	447	137	682	1,100	126	81	19	126	39	121	288	246
15.....	447	137	1,630	895	126	72	47	101	155	90	288	276
16.....	378	137	1,170	710	146	61	70	54	79	98	235	253
17.....	400	140	830	653	161	58	23	54	81	105	214	239
18.....	472	137	546	546	161	55	79	39	34	105	242	246
19.....	421	126	572	496	143	52	64	47	32	68	232	200
20.....	546	126	830	472	126	68	49	79	34	92	228	143
21.....	472	181	960	424	118	64	70	113	35	415	246	155
22.....	496	250	830	378	126	66	36	49	38	320	232	179
23.....	378	355	599	378	168	56	32	64	355	225	190	186
24.....	572	472	653	311	599	68	43	75	174	183	155	221
25.....	546	290	626	269	682	62	61	70	164	204	179	335
26.....	496	269	960	311	521	58	90	54	94	960	155	292
27.....	424	250	1,710	269	378	58	47	140	60	840	140	296
28.....	355	290	3,450	250	311	49	52	70	64	565	125	176
29.....	355	.....	1,630	472	960	52	74	113	37	440	155	176
30.....	355	.....	1,240	472	960	39	49	42	52	360	155	218
31.....	311	.....	895	.....	421	.....	85	41	.....	300	.....	200

NOTE.—Discharge determined from a well-defined rating curve. Discharge Dec. 31 estimated.

Monthly discharge of Souhegan River at Merrimac, N. H., for 1913.

[Drainage area, 168 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area)	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	1,170	311	508	3.02	3.48	A.
February.....	472	52	202	1.20	1.25	A.
March.....	3,450	194	826	4.92	5.67	A.
April.....	1,100	250	584	3.46	3.86	A.
May.....	960	103	299	1.78	2.05	A.
June.....	400	39	109	.649	.72	A.
July.....	90	19	51.4	.306	.35	B.
August.....	140	30	70.1	.417	.48	B.
September.....	355	32	69.5	.414	.46	B.
October.....	960	54	246	1.46	1.68	A.
November.....	810	125	246	1.46	1.63	A.
December.....	750	143	291	1.73	1.99	A.
The year.....	3,450	19	293	1.74	23.62	

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

Location.—At Wachusett dam, above Clinton.

Records available.—July, 1896, to December, 1913.

Drainage area.—118.19 square miles.

Regulation.—Flow affected by storage in reservoirs and mill ponds and especially by storage in Wachusett reservoir. Results corrected for storage.

Cooperation.—Data furnished by the Metropolitan Water & Sewerage Board, Boston, Mass.

Yield and rainfall in South Branch of Nashua River basin (Wachusett drainage area) at Clinton, Mass., for 1912, and summary for 1897-1913.

[Drainage area, 118.19 square miles.]

Month.	Total yield in million gallons.	Average yield per square mile.		Rainfall in inches. ^a	Rainfall collected.	
		Million gallons per day.	Second- feet.		Inches. ^a	Per cent.
1913.						
January.....	5,180.7	1.414	2.188	3.38	2.522	74.7
February.....	2,869.4	.867	1.342	2.55	1.397	54.7
March.....	8,290.5	2.263	3.501	5.58	4.037	72.4
April.....	7,387.1	2.083	3.224	3.90	3.597	92.2
May.....	3,804.8	1.038	1.607	3.71	1.852	49.9
June.....	992.4	.280	.433	.90	.483	53.5
July.....	70.1	.019	.030	2.37	.034	1.4
August.....	218.8	.060	.092	3.05	.107	3.5
September.....	775.1	.219	.338	4.44	.377	8.5
October.....	2,484.2	.678	1.049	6.02	1.209	20.1
November.....	2,339.9	.660	1.021	2.59	1.139	43.9
December.....	3,499.8	.955	1.478	2.73	1.704	62.5
The year.....	37,912.8	.879	1.360	41.22	18.458	44.8
SUMMARY, 1897-1913.						
January.....	74,621.4	1.198	1.854	3.65	2.137	58.5
February.....	77,379.0	1.367	2.115	3.73	2.216	59.4
March.....	166,499.2	2.673	4.135	4.38	4.768	108.8
April.....	129,866.8	2.154	3.333	3.88	3.719	95.9
May.....	73,638.0	1.182	1.829	3.48	2.109	60.6
June.....	45,225.2	.750	1.161	3.64	1.295	35.5
July.....	23,409.6	.376	.581	3.92	.671	17.1
August.....	23,762.2	.382	.590	4.15	.681	16.4
September.....	21,651.7	.359	.556	3.81	.620	16.3
October.....	33,153.7	.352	.823	3.56	.949	26.7
November.....	48,206.5	.800	1.237	3.43	1.381	40.2
December.....	75,636.0	1.214	1.878	4.21	2.166	51.5
The year.....	793,049.3	1.081	1.672	45.84	22.712	49.5

^a For 1913, total for month; 1897-1913 average of totals for 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 & 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.—The greater part of the flow from these basins is controlled by storage reservoirs constructed by the city of Boston and the Metropolitan Water and Sewerage Board. 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 to 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 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.—In determining the run-off of the Sudbury and Cochituate drainage areas the water diverted for the municipal supply of Framingham, Natick, and Westboro, which discharge their sewerage outside the basins, is taken into consideration; the results, however, are probably less accurate since the sewerage diversion works were constructed. The public water and sewerage works were installed in these towns as follows:

Dates of installation of water and sewerage works in Framingham, Natick, and Westboro.

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

Water from the Wachusett drainage area also passes into the reservoirs in the Sudbury basin and must be measured to determine the yield of the Sudbury basin; the small errors unavoidable in the measurement of large quantities of water decrease the accuracy of the estimates of the Sudbury water supply during months of low yield for years subsequent to 1897.

Cooperation.—Data furnished by the Metropolitan Water & Sewerage Board, Boston, Mass.

Yield and rainfall in Sudbury River basin at Framingham, Mass., for 1913, and summary for 1875-1913.

(Drainage area, 75.2 square miles.)

Month.	Total yield, in million gallons.	Average yield per square mile.		Rainfall in inches. ^a	Rainfall collected.	
		Million gallons per day.	Second- feet.		Inches. ^a	Per cent.
1913.						
January.....	2,427.2	1.041	1.611	3.17	1.857	58.5
February.....	1,587.3	.754	1.166	2.82	1.215	43.1
March.....	4,871.4	2.090	3.233	5.75	3.727	64.8
April.....	5,034.5	2.232	3.453	4.25	3.852	90.6
May.....	2,021.4	.867	1.342	3.97	1.547	39.0
June.....	335.6	.149	.230	1.98	.257	13.0
July.....	-145.2	-.062	-.096	3.60	-.111	-3.1
August.....	-124.8	-.054	-.083	3.64	-.095	-2.6
September.....	198.5	.088	.136	3.77	.152	4.0
October.....	1,127.9	.484	.749	5.53	.863	15.6
November.....	1,082.7	.480	.743	2.65	.828	31.3
December.....	1,705.6	.732	1.132	3.18	1.305	41.1
The year.....	20,122.1	.733	1.134	44.31	15.397	34.8
SUMMARY, 1875-1913.						
January.....	108,373.6	1.192	1.844	4.08	2.126	52.1
February.....	140,447.0	1.696	2.624	4.13	2.756	66.7
March.....	252,764.6	2.780	4.300	4.46	4.959	111.2
April.....	176,123.0	2.002	3.097	3.54	3.456	97.7
May.....	96,615.3	1.062	1.644	3.33	1.895	57.0
June.....	42,986.1	.489	.756	3.03	.843	27.8
July.....	13,963.8	.154	.238	3.55	.274	7.7
August.....	20,599.6	.227	.351	3.85	.404	10.5
September.....	20,659.9	.235	.363	3.46	.405	11.7
October.....	39,849.4	.438	.678	3.92	.782	19.9
November.....	68,540.8	.779	1.205	3.82	1.345	35.2
December.....	90,457.4	.995	1.539	3.82	1.775	46.4
The year.....	1,071,380.5	1.000	1.548	44.99	21.020	46.7

^aFor 1913, total for month; 1875-1913, average of totals for calendar month.

Yield and rainfall in Lake Cochituate basin at Cochituate, Mass., and summary for 1863-1913.

[Drainage area 17.58 square miles.]

Month.	Total yield in million gallons.	Average yield per square mile.		Rainfall in inches. ^a	Rainfall collected.	
		Million gal- lons per day.	Second-feet.		Inches. ^a	Per cent.
1913.						
January.....	593. 4	1. 089	1. 685	2. 89	1. 94	67. 2
February.....	406. 6	. 826	1. 278	2. 80	1. 33	47. 5
March.....	1, 100. 9	2. 020	3. 126	5. 59	3. 60	64. 5
April.....	1, 055. 1	2. 001	3. 059	4. 05	3. 45	85. 3
May.....	503. 5	. 924	1. 429	3. 70	1. 65	44. 5
June.....	128. 1	. 243	. 376	. 86	. 42	48. 8
July.....	— 3. 8	— . 007	— . 011	3. 03	— . 01	— . 4
August.....	100. 0	. 183	. 284	4. 36	. 33	7. 5
September.....	167. 3	. 317	. 491	3. 67	. 55	14. 9
October.....	304. 1	. 558	. 863	5. 80	1. 00	17. 2
November.....	258. 2	. 490	. 757	2. 23	. 84	37. 9
December.....	468. 2	. 859	1. 329	3. 05	1. 53	50. 2
The year.....	5, 081. 6	. 792	1. 225	42. 03	16. 63	39. 6
1863-1913.						
January.....	30, 443. 7	1. 095	1. 694	3. 89	1. 96	50. 3
February.....	38, 353. 4	1. 515	2. 344	3. 92	2. 46	62. 8
March.....	59, 871. 3	2. 154	3. 332	4. 36	3. 84	88. 2
April.....	45, 067. 5	1. 676	2. 592	3. 61	2. 89	80. 1
May.....	26, 428. 5	. 951	1. 471	3. 61	1. 70	46. 9
June.....	12, 124. 1	. 451	. 697	2. 95	. 78	26. 3
July.....	7, 430. 0	. 267	. 414	3. 90	. 48	12. 2
August.....	10, 751. 6	. 387	. 598	4. 14	. 69	16. 6
September.....	11, 100. 9	. 413	. 639	3. 54	. 71	20. 1
October.....	14, 998. 8	. 540	. 835	4. 14	. 96	23. 3
November.....	20, 599. 2	. 766	1. 185	4. 00	1. 32	33. 1
December.....	25, 516. 6	. 918	1. 420	3. 58	1. 64	45. 8
The period.....	302, 685. 6	. 924	1. 430	45. 64	19. 43	42. 6

^a For 1913, total for month; 1863-1913, average of totals for calendar month.

BLACKSTONE RIVER BASIN.

BRANCH RIVER AT BRANCH VILLAGE, R. I.

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

Records available.—September 2, 1909, to July 28, 1913.

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 and control.—Section smooth and practically permanent.

Discharge measurements.—Made from the bridge above the dam, from a boat, or by wading.

Regulation.—Flow affected by the operation of the mill 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.—Affected by ice only in severe weather.

Cooperation.—Gage heights furnished by James Pitts & Sons, Branch Village, R. I.

Estimates of discharge withheld on account of diurnal fluctuation.

No discharge measurements made during 1913.

Daily gage height, in feet, of Branch River at Branch Village, R. I., for 1913.

Day.	Jan.		Feb.		Mar.		Apr.		May.		June.		July.	
	a.m.	p.m.	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.....	2.7	2.9	1.4	1.8	2.5	2.5	2.65	3.0	2.1	2.4	a1.55	a1.55	1.1	1.35
2.....	2.6	2.4	a1.3	a1.3	a2.35	a2.35	2.5	2.65	2.0	2.3	1.55	2.2	1.1	1.7
3.....	2.7	2.4	1.3	2.5	2.3	2.45	2.4	2.5	1.9	1.8	1.55	2.2	1.1	1.45
4.....	2.7	2.3	1.35	2.4	2.0	2.4	2.1	2.45	a1.75	a1.75	1.3	1.65	1.05	1.1
5.....	a2.0	a2.0	1.35	2.3	1.9	2.4	2.05	2.0	1.7	2.25	1.35	1.65	1.1	1.05
6.....	1.9	2.3	1.7	2.35	1.9	2.45	a2.05	a2.05	1.7	2.3	1.35	1.8	a.9	a.63
7.....	1.65	2.3	1.25	2.25	1.95	2.4	2.1	2.4	1.1	2.25	1.3	1.7	.65	1.5
8.....	1.9	2.6	1.2	1.6	1.8	1.7	2.05	2.4	1.1	2.15	a1.25	a1.25	.7	1.65
9.....	2.5	2.8	a1.3	a1.25	a1.8	a1.8	1.95	2.3	1.05	2.0	1.3	2.1	.6	1.45
10.....	2.4	2.5	1.25	2.4	1.8	2.35	1.95	2.4	1.2	1.6	1.25	2.1	.7	1.8
11.....	2.5	2.2	1.3	2.3	1.85	2.4	1.8	2.35	a1.05	a1.05	1.25	1.9	.75	1.6
12.....	a2.5	a2.5	1.0	2.1	2.0	2.4	2.4	2.7	1.1	2.2	1.2	1.25	1.65	1.65
13.....	2.4	2.6	.9	2.2	2.0	2.35	a4.3	a4.35	1.1	2.25	1.15	1.45	a.9	a.9
14.....	2.4	2.4	.95	2.1	1.9	2.55	4.4	3.85	.95	2.2	1.15	1.15	.65	1.6
15.....	2.2	2.4	.9	1.55	2.35	2.55	3.4	3.3	1.1	2.15	a1.15	a1.05	.65	1.5
16.....	1.5	2.4	a1.1	a1.1	a2.9	a2.9	3.0	3.7	1.1	1.9	1.15	2.0	.65	1.65
17.....	2.5	2.4	1.2	2.3	2.8	2.8	4.8	4.45	1.6	1.4	1.15	1.7	.65	1.8
18.....	2.5	2.4	1.2	2.25	2.4	2.6	3.7	3.4	a1.2	a1.2	1.1	1.6	1.65	1.6
19.....	a2.5	a2.5	1.0	2.1	2.2	2.45	3.1	3.0	1.25	2.0	1.1	1.8	.6	1.65
20.....	2.5	2.4	.85	2.1	2.1	2.6	a2.75	a2.75	1.3	2.15	1.15	1.8	(a)	(a)
21.....	2.6	2.4	1.0	2.15	2.6	3.0	2.7	2.8	1.2	2.2	1.15	1.15	.5	1.6
22.....	2.6	2.4	1.2	1.65	2.6	2.35	2.4	2.6	1.1	1.6	a1.0	a1.0	.65	1.8
23.....	2.6	2.4	a2.0	a2.1	a2.3	a2.3	2.25	2.5	1.4	2.0	1.0	1.7	.7	1.6
24.....	2.65	2.5	2.3	2.5	2.25	2.5	2.15	2.4	1.9	2.0	1.05	1.8	.65	1.4
25.....	2.45	2.1	2.0	2.4	1.9	2.45	2.0	2.4	a1.9	a1.9	1.1	1.8	.6	1.4
26.....	a2.0	a2.0	1.6	2.3	2.1	2.8	1.9	1.9	2.0	2.4	1.1	1.8	1.45	1.8
27.....	1.9	2.4	1.6	2.4	3.4	4.55	a1.8	a1.75	1.9	2.35	1.1	1.7	(a)	(a)
28.....	1.75	2.4	1.8	2.6	5.1	4.45	1.75	2.3	1.65	2.15	1.1	1.2	.....	1.75
29.....	1.75	2.3	.....	.....	3.7	3.4	1.4	2.15	1.4	2.2	a1.0	a1.0	.....	.....
30.....	2.6	2.35	.....	.....	a2.7	a2.65	1.0	2.1	1.45	1.5	1.05	1.4	.....	.....
31.....	1.4	2.3	.....	.....	2.6	2.85	.....	.....	1.5	1.5	.....	.....	.....	.....

a Sunday.

NOTE.—On week days gage was read at 6.30 a. m. and about 5 p. m. except Saturday, when the second reading was taken at 11.45 a. m. Sundays the gage was read at 7 a. m. and 5 p. m.

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, 1913.

Drainage area.—3,300 square miles.

Gage.—Chain attached to the upstream side of the bridge.

Channel and control.—Channel wide and deep with gravelly bottom; slightly shifting.

Discharge measurements.—Open-water measurements made from downstream side of the covered bridge by working through open space near the roof.

Regulation.—Flow slightly affected by the operation of power plants above the station.

Winter flow.—Seriously affected by ice, but ice conditions unusually stable.

Discharge measurements of Connecticut River at Orford, N. H., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Mar. 10	C. S. De Golyer.....	<i>Feet.</i> a 5.52	<i>Sec.-ft.</i> 1,420	Sept. 11	G. H. Canfield.....	<i>Feet.</i> 2.47	<i>Sec.-ft.</i> 604
Apr. 30	R. S. Barnes.....	11.65	10,900				

a Measurement made under complete ice cover 200 feet above gage.

Daily gage height, in feet, of Connecticut River at Orford, N. H., for 1913.

[F. H. Gardner, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	8.5	9.7	.....	19.3	10.4	12.9	4.8	5.4	3.8	4.1	8.4	5.6
2.....	8.4	9.6	.....	18.3	9.6	11.1	4.4	5.0	3.6	3.1	7.7	5.8
3.....	8.3	8.8	.....	16.0	9.3	9.8	4.4	4.8	3.2	3.4	6.8	5.9
4.....	10.5	8.5	.....	14.4	9.0	9.1	3.8	4.6	3.0	4.0	6.6	6.0
5.....	10.6	8.0	.....	16.2	8.6	8.6	3.6	4.6	3.2	4.3	6.1	6.2
6.....	9.6	7.5	.....	17.2	8.5	8.0	4.1	4.5	2.9	4.8	6.0	6.0
7.....	9.8	7.0	.....	16.2	8.5	7.6	4.0	4.4	2.8	4.8	5.8	6.0
8.....	9.8	6.9	.....	13.9	8.0	7.4	4.0	5.0	2.8	4.6	5.8	6.0
9.....	9.6	6.8	.....	12.3	7.6	7.6	4.0	4.6	3.0	4.2	5.9	6.9
10.....	8.8	6.4	.....	11.2	7.2	7.6	4.0	4.6	2.6	3.6	7.8	7.8
11.....	7.8	6.4	.....	10.8	6.9	7.2	4.0	3.8	2.45	3.8	9.1	9.0
12.....	8.3	6.1	.....	11.0	6.8	6.8	.....	3.9	2.7	4.2	8.6	8.9
13.....	8.8	6.2	.....	10.8	6.8	6.6	.....	3.8	2.5	4.7	7.6	8.8
14.....	8.6	6.2	.....	11.8	6.8	6.2	.....	3.8	2.5	5.0	7.2	8.6
15.....	8.8	6.1	.....	12.0	6.6	5.9	.....	3.9	2.3	5.0	6.5	8.2
16.....	8.6	6.2	20.4	12.4	6.6	5.9	.....	3.5	2.5	5.0	6.0	7.8
17.....	8.6	6.1	20.4	12.6	6.6	6.0	4.8	3.9	2.7	4.8	5.8	7.5
18.....	10.2	6.0	18.0	12.8	6.6	6.2	4.8	3.6	2.6	4.8	5.8	7.1
19.....	13.2	6.0	15.8	12.3	6.7	6.4	5.0	3.5	2.7	4.8	5.6	6.8
20.....	13.8	5.9	15.8	12.6	7.0	6.1	5.0	3.2	2.6	4.8	5.7	6.2
21.....	14.4	6.0	18.4	12.4	7.2	5.8	5.0	2.8	2.8	6.8	7.1	6.0
22.....	14.2	6.4	21.8	12.0	7.0	5.6	5.2	2.9	3.0	7.7	8.6	6.0
23.....	13.6	.....	21.5	11.7	7.8	5.2	5.0	2.8	4.4	7.4	8.2	5.8
24.....	13.4	.....	19.4	11.5	11.2	5.0	4.6	2.4	5.2	6.6	7.3	5.7
25.....	12.8	.....	19.9	11.2	12.8	4.7	4.3	2.8	5.4	6.0	6.9	5.6
26.....	10.9	.....	25.6	11.8	11.8	4.5	4.2	3.3	5.6	6.9	6.7	5.4
27.....	10.5	29.6	29.4	12.4	10.2	4.6	4.6	3.2	4.8	8.8	6.4	5.4
28.....	9.8	33.1	32.9	12.2	9.2	4.8	5.1	2.8	4.2	10.2	6.0	5.6
29.....	9.0	.....	30.2	11.6	11.4	5.8	7.5	3.2	4.1	9.6	5.8	5.4
30.....	8.2	.....	25.8	11.3	14.5	5.2	7.0	2.8	3.4	8.6	5.6	5.4
31.....	8.4	.....	21.4	.....	13.6	.....	6.3	3.4	.....	8.4	.....	5.4

NOTE.—Discharge relation affected by ice Feb. 23 to Mar. 15, and Dec. 21-31.

Daily discharge, in second-feet, of Connecticut River at Orford, N. H., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6,220	7,880	.....	25,200	8,880	12,800	2,110	2,650	1,360	1,500	6,100	2,850
2.....	6,100	7,740	.....	23,200	7,740	9,920	1,790	2,290	1,220	930	5,200	3,050
3.....	5,960	6,630	.....	18,500	7,320	8,020	1,790	2,110	980	1,100	4,050	3,160
4.....	9,030	6,220	.....	15,500	6,900	7,040	1,360	1,950	880	1,500	3,390	3,270
5.....	9,180	5,580	.....	18,900	6,360	6,360	1,220	1,950	980	1,710	3,380	3,490
6.....	7,740	4,960	.....	20,900	6,220	5,580	1,570	1,870	830	2,110	3,270	3,270
7.....	8,020	4,380	.....	18,900	6,220	5,080	1,500	1,790	780	2,110	3,050	3,270
8.....	8,020	4,160	.....	14,600	5,580	4,840	1,500	2,290	780	1,950	3,050	3,270
9.....	7,740	4,050	.....	11,800	5,080	5,080	1,500	1,950	880	1,640	3,160	4,160
10.....	6,630	3,710	1,420	10,100	4,610	5,080	1,500	1,950	685	1,220	5,330	5,330
11.....	5,330	3,710	.....	9,470	4,160	4,610	1,500	1,360	618	1,360	7,040	6,900
12.....	5,960	3,400	.....	9,770	4,050	4,050	.....	1,430	730	1,640	6,560	6,760
13.....	6,630	3,500	.....	9,470	4,050	3,990	.....	1,360	640	2,030	5,080	6,630
14.....	6,360	3,500	.....	11,000	4,050	3,490	.....	1,360	640	2,290	4,610	6,360
15.....	6,630	3,400	.....	11,300	3,930	3,160	.....	1,430	550	2,290	3,820	5,840
16.....	6,360	3,500	27,600	12,000	3,930	3,160	.....	1,160	640	2,290	3,270	5,330
17.....	6,360	3,400	27,600	12,300	3,930	3,270	2,116	1,430	730	2,110	3,050	4,960
18.....	8,600	3,290	22,500	12,600	3,930	3,490	2,110	1,220	685	2,110	3,050	4,500
19.....	13,300	3,290	18,200	11,800	4,040	3,710	2,190	1,160	730	2,110	2,850	4,050
20.....	14,400	3,190	18,200	12,300	4,380	3,380	2,290	980	685	2,110	2,950	3,490
21.....	15,500	3,290	23,400	12,000	4,610	3,050	2,290	780	780	4,050	4,500	3,160
22.....	15,200	3,710	30,600	11,300	4,380	2,850	2,470	830	880	5,200	6,360	2,950
23.....	14,000	.....	29,900	10,800	5,330	2,470	2,290	780	1,790	4,840	5,840	2,650
24.....	13,700	.....	25,400	10,500	10,100	2,290	1,950	595	2,470	3,930	4,720	2,470
25.....	12,600	.....	26,500	10,100	12,600	2,030	1,710	780	2,650	3,270	4,160	2,290
26.....	9,620	.....	38,900	11,000	11,000	1,870	1,640	1,040	2,850	4,160	4,040	2,030
27.....	9,030	.....	47,600	12,000	8,600	1,950	1,950	980	2,110	6,630	3,710	1,870
28.....	8,020	.....	56,000	11,600	7,180	2,110	2,380	780	1,640	8,600	3,270	1,950
29.....	6,900	.....	49,600	10,700	10,400	3,050	4,960	980	1,570	7,740	3,050	1,640
30.....	5,840	.....	39,400	10,200	15,700	2,470	4,380	780	1,100	6,360	2,850	1,570
31.....	6,100	.....	29,700	.....	14,000	.....	3,600	1,100	.....	6,100	.....	1,500

NOTE.—Discharge determined from a rating curve well defined below 30,000 second-feet. Mean discharge for frozen periods estimated by comparison with records on Connecticut River at Sunderland, Mass., as follows: Feb. 23-28, 4,500 second-feet; Mar. 1-9, 3,100 second-feet; Mar. 11-15, 9,200 second-feet. Mean discharge July 12-16, estimated 1,800 second-feet by interpolation. Daily discharge Dec. 21-31 estimated by hydrograph comparison with records at Sunderland.

Monthly discharge of Connecticut River at Orford, N. H., for 1913.

[Drainage area, 3,300 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	15,500	5,330	8,740	2.65	3.06	A.
February.....	7,880	3,190	4,410	1.34	1.40	C.
March.....			18,900	5.73	6.61	C.
April.....	25,200	9,470	13,300	4.03	4.50	A.
May.....	15,700	3,930	6,750	2.05	2.36	A.
June.....	12,800	1,870	4,340	1.32	1.47	A.
July.....	4,960	1,220	2,090	.633	.73	A.
August.....	2,650	595	1,390	.421	.49	B.
September.....	2,850	550	1,130	.342	.38	B.
October.....	8,600	930	3,130	.848	1.09	A.
November.....	7,040	2,850	4,170	1.26	1.41	A.
December.....	6,900	1,500	3,680	1.12	1.29	A.
The year.....		550	6,020	1.83	24.79	

CONNECTICUT RIVER AT SUNDERLAND, MASS.

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

Records available.—March 31, 1904, to December 31, 1913. From 1880 to 1899 records were obtained at Holyoke, Mass.

Drainage area.—7,700 square miles.

Gage.—Chain on highway bridge.

Channel and control.—Channel deep, with bottom of coarse gravel and alluvial deposits; no indications of any change in conditions at low stages. For high stages the control is evidently the crest of the dam at Holyoke.

Discharge measurements.—Made from highway bridge.

Regulation.—Flow affected by the operation of dams at Vernon, Vt., Turners Falls, Mass., and on Deerfield River, Millers River, and other tributaries.

Winter flow.—Occasionally affected by ice.

Floods.—The flood of March 26–31, 1913, reached its maximum stage during the night of March 28–29, as indicated by the records of the gage observer. Determinations made from high-water marks by engineers of the Geological Survey show the maximum gage height to have been 30.7 feet.

Accuracy.—Results good.

The following discharge measurement was made by C. H. Pierce:

August 10, 1913: Gage height, 2.54 feet; discharge, 2,940 second-feet.

Daily gage height, in feet, of Connecticut River at Sunderland, Mass., for 1913.

[V. Lawer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	9.4	7.6	10.1	19.1	9.4	11.7	3.5	4.2	1.6	2.8	5.5	3.7
2.	8.4	9.7	7.8	17.6	8.5	10.2	3.8	4.2	1.8	2.7	5.1	5.0
3.	8.5	7.2	6.2	15.4	8.1	9.4	4.0	3.1	2.0	2.6	5.0	5.0
4.	10.0	6.8	6.0	13.8	7.3	7.8	3.8	3.2	1.35	2.6	5.2	5.0
5.	10.5	7.4	6.0	13.4	7.2	6.9	2.6	4.2	1.05	2.1	5.0	4.4
6.	9.5	7.2	6.0	14.0	6.8	6.8	1.9	3.7	1.8	1.4	4.4	4.2
7.	8.8	7.4	6.3	13.7	6.6	6.2	2.1	3.0	1.7	3.4	4.2	3.8
8.	10.4	7.1	6.6	13.0	6.4	6.4	2.2	3.2	1.5	3.2	4.0	5.8
9.	10.2	10.3	5.7	11.8	5.9	4.8	2.6	3.1	2.0	3.4	3.1	7.3
10.	8.6	8.2	5.2	10.6	5.8	5.2	2.6	2.6	1.6	3.0	11.4	6.2
11.	7.8	8.3	8.5	10.0	5.4	5.4	2.6	2.1	1.7	2.8	8.4	5.4
12.	8.8	8.1	9.8	12.5	4.0	5.2	2.6	2.6	2.0	2.0	7.8	5.7
13.	8.0	8.0	8.4	9.7	5.0	5.2	2.4	2.6	1.8	1.9	7.0	5.3
14.	9.2	7.9	9.5	11.6	4.7	5.0	2.4	2.2	1.6	2.8	5.4	4.3
15.	8.4	7.3	16.0	11.6	5.2	3.8	2.8	3.0	1.6	3.2	5.8	4.3
16.	7.8	5.8	19.3	11.0	4.8	4.1	3.3	2.4	2.3	3.4	6.1	5.2
17.	8.0	5.4	17.0	10.6	4.4	5.1	3.4	2.0	2.0	3.0	4.1	5.3
18.	10.5	6.9	13.8	10.4	5.4	4.8	3.8	1.6	2.2	3.0	4.4	5.1
19.	12.9	7.0	11.8	10.1	4.7	4.0	3.2	2.4	1.8	2.0	4.8	5.0
20.	13.0	7.0	11.2	9.8	5.5	3.6	2.3	2.2	1.8	1.9	4.2	6.3
21.	12.0	6.8	13.6	10.0	5.0	3.6	2.2	1.8	1.7	3.3	4.6	5.0
22.	13.2	7.2	15.7	9.9	5.0	2.8	2.7	2.2	1.5	3.4	4.8	4.2
23.	11.8	7.2	17.2	9.5	5.3	3.0	2.4	2.4	3.4	5.1	5.6	4.2
24.	10.8	8.7	16.0	9.1	9.8	4.0	2.6	1.8	2.6	4.9	5.6	4.3
25.	11.0	8.4	15.6	8.6	11.4	3.8	3.0	1.5	4.3	5.4	5.7	3.2
26.	9.8	7.2	20.0	8.6	10.5	3.5	2.9	2.2	3.2	6.5	5.1	3.2
27.	8.8	6.3	26.0	10.3	10.2	3.4	2.3	2.0	2.0	7.8	4.6	4.4
28.	8.0	7.0	30.4	7.3	8.6	3.2	2.4	1.9	1.5	7.9	4.6	4.6
29.	7.4	.....	29.7	10.3	10.9	2.4	3.3	2.2	1.2	7.4	5.2	5.4
30.	6.8	.....	25.5	10.4	13.0	1.8	3.4	2.5	2.9	6.8	3.7	5.7
31.	6.5	.....	21.4	.....	12.3	.....	3.4	2.2	.....	6.2	.....	5.3

NOTE.—Daily gage height is the mean of two readings a day taken at about 7 a. m. and 6 p. m. Discharge relation Dec. 29-31 probably affected by ice.

Daily discharge, in second-feet, of Connecticut River at Sunderland, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	22,200	15,800	24,800	.....	22,200	31,100	4,590	6,050	1,740	3,330	9,240	4,990
2.	18,500	23,300	16,400	56,600	18,900	25,200	5,200	6,050	1,960	3,170	8,160	7,910
3.	18,900	14,400	11,200	46,800	17,500	22,200	5,620	3,850	2,200	3,020	7,910	7,910
4.	24,400	13,100	10,600	39,800	14,800	16,400	5,200	4,030	1,480	3,020	8,420	7,910
5.	26,400	15,100	10,600	38,100	14,400	13,500	3,020	6,050	1,180	2,320	7,910	6,490
6.	22,500	14,400	10,600	40,600	13,100	13,100	2,080	4,990	1,960	1,530	6,490	6,050
7.	19,900	15,100	11,600	39,400	12,500	11,200	2,320	3,670	1,850	4,400	6,050	5,200
8.	26,000	14,100	12,500	36,400	11,900	11,900	2,450	4,030	1,630	4,030	5,620	10,100
9.	25,200	25,600	9,760	31,500	10,400	7,420	3,020	3,850	2,200	4,400	3,850	15,000
10.	19,200	17,800	8,400	26,800	10,000	8,400	3,020	3,020	1,740	3,670	30,400	11,300
11.	16,400	18,200	18,900	24,400	8,920	8,920	3,020	2,320	1,850	3,330	18,800	8,960
12.	19,900	17,500	23,700	34,300	5,620	8,400	3,020	3,020	2,200	2,200	16,700	9,810
13.	17,100	17,100	18,500	23,300	7,900	8,400	2,720	3,020	1,960	2,080	14,000	8,690
14.	21,400	16,800	22,500	30,700	7,180	7,900	2,720	2,450	1,740	3,330	8,960	6,270
15.	18,500	14,800	49,400	30,700	8,400	5,200	3,330	3,670	1,740	4,030	10,100	6,270
16.	16,400	10,000	.....	28,300	7,420	5,830	4,210	2,720	2,580	4,400	11,000	8,420
17.	17,100	8,920	53,900	26,800	6,490	8,150	4,400	2,200	2,200	3,670	5,830	8,690
18.	26,400	13,500	39,800	26,000	8,920	7,420	5,200	1,740	2,450	3,670	6,490	8,160
19.	36,000	13,800	31,500	24,800	7,180	5,620	4,030	2,720	1,960	2,200	7,420	7,910
20.	36,400	13,800	29,100	23,700	9,190	4,790	2,580	2,450	1,960	2,080	6,050	11,700
21.	32,300	13,100	38,900	24,400	7,900	4,790	2,450	1,960	1,850	4,210	6,950	7,910
22.	37,200	14,400	48,100	24,100	7,900	3,330	3,170	2,450	1,630	4,400	7,420	6,050
23.	31,500	14,400	54,800	22,500	8,660	3,670	2,720	2,720	4,400	8,160	9,520	6,050
24.	27,600	19,600	49,400	21,000	23,700	5,620	3,020	1,960	3,020	7,660	9,520	6,270
25.	28,300	18,500	47,600	19,200	29,900	5,200	3,670	1,630	6,270	8,960	9,810	4,030
26.	23,700	14,400	.....	19,200	26,400	4,590	3,500	2,450	4,030	12,300	8,160	4,030
27.	19,900	11,600	.....	25,600	25,200	4,400	2,580	2,200	2,200	16,700	6,950	6,490
28.	17,100	13,800	.....	14,800	19,200	4,030	2,720	2,080	1,630	17,000	6,950	6,950
29.	15,100	.....	.....	25,600	28,000	2,720	4,210	2,450	1,830	15,300	8,420	.....
30.	13,100	.....	.....	26,000	36,400	1,960	4,400	2,870	3,500	13,300	4,990	.....
31.	12,200	.....	.....	.....	33,500	.....	4,400	2,450	.....	11,300	.....	.....

NOTE.—Discharge determined from two rating curves well defined below 60,000 second-feet. Above 60,000 second-feet the Holyoke dam introduces an unknown backwater effect and estimates of daily discharge are withheld. The mean monthly discharge for high-water months is determined from an approximate extension of the rating curve.

Monthly discharge of Connecticut River at Sunderland, Mass., for 1913.

[Drainage area, 7,700 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	37,200	12,200	22,800	2.96	3.41	A.
February.....	25,600	8,920	15,500	2.01	2.09	B.
March.....		8,400	38,700	5.03	5.80	B.
April.....		14,800	30,500	3.96	4.42	A.
May.....	36,400	5,620	15,100	1.96	2.26	A.
June.....	31,100	1,960	9,040	1.17	1.30	A.
July.....	5,620	2,080	3,500	.455	.52	A.
August.....	6,050	1,630	3,130	.406	.47	A.
September.....	6,270	1,180	2,280	.296	.33	A.
October.....	17,000	1,530	5,910	.768	.89	A.
November.....	30,400	3,850	9,270	1.20	1.34	A.
December.....	15,000	4,050	7,530	.978	1.13	A.
The year.....		1,180	13,600	1.77	23.96	

PASSUMPSIC RIVER NEAR ST. JOHNSBURY, VT.

Location.—At steel suspension bridge just below dam of Pierce's mills, about 5 miles above St. Johnsbury; 2 miles below Moose River, and 5 miles above Sleepers River.

Records available.—May 26, 1909, to December 31, 1913. 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 and control.—Channel composed of gravel and ledge rock; slightly shifting.

Discharge measurements.—Made from downstream side of bridge, or by wading 200 feet below the bridge.

Winter flow.—Affected by ice.

Regulation.—Flow slightly affected by operation of Pierce's mills, just above station, and by other mills farther upstream.

Floods.—The maximum gage height during the flood of March, 1913, was later determined by means of a level to have been about 14.8 feet; and the maximum discharge was approximately 9,300 second-feet, or 39 second-feet per square mile.

Accuracy.—Results good.

Discharge measurements of Passumpsic River near St. Johnsbury, Vt., during 1913.

Date.	Made by—	Gage height.	Dis- charge.	Date.	Made by—	Gage height.	Dis- charge.
Mar. 5	C. S. De Golyer.....	<i>Feet.</i> a 2.09	<i>Sec.-ft.</i> 147	Sept. 10	G. H. Canfield.....	<i>Feet.</i> 1.30	<i>Sec.-ft.</i> 88.2
31	R. S. Barnes.....	5.33	1,650	10	do.....	1.16	65.7
Apr. 24	do.....	2.90	570				

a Measured under ice cover 500 feet below gage.

Daily gage height, in feet, of Passumpsic River near St. Johnsbury, Vt., for 1913.

[Joseph Cox, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.6			6.8	2.3	2.45	1.55	1.30	1.41	1.85	1.75	
2				4.4	2.3	2.35	1.45	1.6	1.25	1.28	1.85	1.8
3	2.6			3.8	2.25	2.2	1.48	1.5	1.25	1.46	1.75	1.9
4	4.5			4.9	2.1	2.1	1.44	1.5	1.18	1.5	1.75	2.1
5	2.9			6.6	2.1	2.0	1.45	1.55	1.68	1.34	1.8	1.9
6	2.6			5.4	2.1	1.9	1.48	1.5	1.12	1.34	1.7	1.8
7	2.9			4.0	2.05	2.05	1.8	1.42	1.10	1.29	1.6	1.65
8	2.5			3.5	1.95	2.4	1.55	1.32	1.06	1.32	1.6	2.8
9				3.3	1.9	2.1	1.45	1.35	.88	1.30	1.6	2.0
10				3.2	1.9	1.9	1.6	1.32	1.06	1.30	1.9	2.1
11				3.3	1.9	1.8	2.1	1.42	1.19	1.36	1.9	2.0
12	3.5			3.4	1.85	1.7	1.65	1.34	1.09	1.48	1.75	2.0
13			2.6	3.5	1.8	1.7	1.65	1.34	1.02	1.8	1.6	1.8
14			6.1	3.4	1.9	1.7	1.6	1.35	1.04	1.6	1.7	1.8
15			8.5	3.8	1.8	1.65	1.55	1.36	1.28	1.55	1.6	1.75
16			10.4	3.8	1.8	1.7	1.55	1.29	1.20	1.48	1.5	1.7
17			6.5	3.6	2.15	2.45	1.42	1.28	1.25	1.42	1.5	1.8
18	3.8		5.2	3.2	1.9	2.0	1.41	1.30	1.21	1.34	1.55	1.75
19	5.7		5.4	3.8	2.2	1.8	1.9	1.20	1.18	1.38	1.6	1.7
20	4.0		6.8	3.6	2.1	1.7	1.65	1.22	1.10	1.74	3.2	1.6
21	5.3		9.8	3.1	1.9	1.7	1.5	1.22	1.04	3.5	2.5	1.6
22	4.2		11.8	3.0	2.3	1.6	1.44	1.15	1.26	2.2	2.05	1.6
23	3.3	2.45	5.0	2.9	3.5	1.55	1.36	1.22	2.3	1.8	1.9	1.75
24	3.2			3.0	3.4	1.5	1.44	1.20	1.6	1.7	1.9	1.6
25	3.0		12.0	3.0	2.6	1.5	1.7	1.28	1.38	1.9	1.9	1.65
26	2.7			3.0	2.3	1.45	1.55	1.24	1.30	2.8	1.8	1.7
27	2.7		12.0	2.9	2.1	2.6	1.36	1.30	1.28	2.9	1.65	
28			8.0	2.7	2.2	2.3	2.3	1.48	1.19	2.3	1.55	
29			4.6	2.6	5.0	1.75	2.5	1.38	1.25	2.15	1.7	
30			4.4	2.45	3.4	1.6	1.86	1.45	1.29	2.25	1.7	
31			5.2		2.7		1.69	1.25		2.2		

NOTE.—Discharge relation Jan. 1 to Mar. 28 and Dec. 27–31 affected by ice. Gage carried away by ice Mar. 22 and replaced at same datum Mar. 29. Gage heights for Mar. 22, 23, 25, 27, and 28 estimated by observer.

Daily discharge, in second-feet, of Passumpsic River near St. Johnsbury, Vt., for 1913.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,480	360	405	141	141	89	111	216	189
2	1,170	360	375	120	152	80	85	216	202
3	910	340	320	126	130	80	122	189	230
4	1,410	290	290	117	130	86	130	189	290
5	2,360	290	260	120	141	171	97	202	230
6	1,660	290	230	126	130	58	97	176	202
7	1,000	275	275	202	113	55	87	152	164
8	790	245	390	141	93	49	93	152	530
9	710	230	290	120	99	22	89	164	260
10	670	230	230	152	93	49	89	230	290
11	710	230	202	290	113	69	101	230	260
12	750	216	176	164	97	54	126	189	260
13	790	202	176	164	97	44	202	152	202
14	750	230	176	152	99	47	152	176	202
15	910	202	164	141	101	85	141	152	189
16	910	202	176	141	87	71	126	130	116
17	830	305	405	113	85	80	113	130	202
18	670	230	260	111	89	73	97	141	189
19	910	320	202	230	71	68	105	152	176
20	830	290	176	164	75	55	186	670	152
21	640	230	176	130	75	47	790	420	152
22	600	320	152	117	63	82	320	275	152
23	560	790	141	101	75	360	202	230	189
24	600	750	130	117	71	152	176	230	152
25	600	460	130	176	85	105	230	230	164
26	600	360	120	141	78	89	530	202	176
27	560	290	460	101	89	85	560	164	
28	500	320	360	360	126	69	360	141	
29	460	1,460	189	420	105	80	305	176	
30	405	750	152	219	120	87	340	176	
31		500		174	80		320		

NOTE.—Discharge determined from a fairly well defined rating curve. Estimates of discharge withheld during frozen period Jan. 1 to Mar. 28. Mean discharge Dec. 27–31 estimated 152 second-feet.

Monthly discharge of Passumpsic River near St. Johnsbury, Vt., for 1912-13.

[Drainage area, 237 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1912						
April.....	3,940	384	1,630	6.88	7.68	A.
May.....	2,500	384	793	3.35	3.86	A.
June.....	2,180	144	559	2.36	2.63	A.
July.....	203	72	113	.477	.55	B.
August.....	315	68	146	.616	.71	B.
September.....	949	122	300	1.27	1.42	A.
October.....	1,340	164	319	1.35	1.56	A.
November.....	1,820	226	449	1.89	2.11	A.
December.....	1,080	244	399	1.68	1.94	A.
1913						
April.....	2,480	405	892	3.76	4.20	A.
May.....	1,460	202	373	1.57	1.81	A.
June.....	460	120	240	1.01	1.13	A.
July.....	420	101	164	.692	.80	A.
August.....	152	63	100	.422	.49	B.
September.....	360	22	84.1	.355	.40	B.
October.....	560	85	209	.882	1.02	A.
November.....	670	130	208	.878	.98	A.
December.....	530	152	205	.865	1.00	A.

NOTE.—Table for 1912 supersedes that published in Water-Supply Paper 321, page 91, in which an incorrect value for drainage area was used.

WHITE RIVER NEAR SHARON, VT.

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

Records available.—May 13, 1909, to December 31, 1913.

Drainage area.—686 square miles.

Gage.—Inclined staff reading to 10 feet, attached to a large rock on the left bank; chain gage for use at high stages nailed to trees about 80 feet upstream from the staff gage. Chain gage washed out by flood March 27, 1913.

Channel and control.—Gravel and alluvial deposits; channel divided by an island above the gages.

Discharge measurements.—Made by wading; formerly made from two suspension footbridges which connected the island with the main banks, but which have been washed out by a flood.

Regulation.—Flow affected by operation of several power plants above the station and by storage above the dam of the Vermont Copper Co. A fairly good record is kept of this storage.

Floods.—The observer's records show that the flood of March 27, 1913, reached a gage height of 13.5 feet before the chain gage was washed out and that the maximum head on the dam reached 10.25 feet at 8 p. m. March 27.

Winter flow.—Affected by ice.

Estimates of discharge withheld for additional data.

Discharge measurements of White River near Sharon, Vt., during 1913.

[Made by G. H. Canfield.]

Date.	Gage height.	Dis- charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>
Sept. 12.....	2.92	151
13.....	1.90	4.0

Daily gage height, in feet, of White River near Sharon, Vt., for 1913.

[C. H. Tucker, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.	5.3	6.8			4.4			3.0				
2.				5.1					2.9	2.85	3.75	4.2
3.	5.2							3.0				
4.				4.9		4.4			2.9	3.1		4.2
5.								2.9				
6.				5.3	4.1		3.1		2.6		2.9	
7.						3.8				3.0		3.8
8.		4.9			4.0	3.8		2.9				
9.				5.0			3.0			3.0		
10.												4.3
11.			4.9	4.9	3.8							
12.	8.2						3.3			3.1		4.0
13.				5.0	4.0	3.6		2.9				
14.			12.8							2.9		
15.			7.9	5.0	4.0	3.4					4.1	3.9
16.			6.3	4.8				2.9				
17.			4.8		4.1	3.9			2.7			
18.	7.1			4.6			2.9	2.9		3.0	4.1	4.1
19.	7.0		4.6		4.1							
20.			6.8			3.4	2.9		2.9		4.2	4.0
21.	8.6			4.7				2.9		4.5		
22.	6.0		6.2		4.0	3.3	2.9					4.0
23.			5.0		5.5					3.0	4.1	
24.	5.75			4.8	6.3			2.9	3.25			3.9
25.			9.5			3.0	2.7				4.2	
26.			8.9					2.9	3.1	5.2		4.0
27.	5.2		13.5	4.6	4.4			2.9			4.2	
28.												3.8
29.				4.5		2.9						
30.									2.8		4.15	
31.								2.9				

MILLERS RIVER AT WENDELL, MASS.

Location.—At the hydroelectric plant of the Athol Gas & Electric Co., at Wendell.

Until May, 1913, at the railroad bridge just west of the Wendell railroad station.

Records available.—Daily discharge June 4, 1909, to December 31, 1909; discharge measurements in 1911 and 1913.**Drainage area.**—440 square miles.**Gage.**—Two gages—one in the pond above the hydroelectric plant and the other in the tailraces, same datum. Until May, 1913, a chain gage on the railroad bridge.**Discharge measurements.**—Made from the railroad bridge or by wading. Measurements for rating wheels are made from footbridge across tailrace.**Regulation.**—At ordinary stages the river is under complete control by the dam of the Athol Gas & Electric Co., which was put into operation in June, 1910.

Dams farther upstream, at Orange and Athol, also affect distribution of flow.

Winter flow.—Affected by ice.**Floods.**—Gage readings indicate that the flood of March 26–31 reached its maximum stage on the morning of March 28 with a discharge of about 4,500 second-feet, or 10.2 second-feet per square mile of drainage area.**Accuracy.**—Owing to the extent and rapidity of diurnal fluctuations incident to the operation of the power plant of the Athol Gas & Electric Co. it has been found impossible to base estimates of daily discharge on two gage readings a day. An attempt is now being made to utilize records of gate openings and ratings of discharge through the wheels at the power plant. Owing to the range and rapidity of changes in gate openings it is necessary to install recording instruments on the wheel governors. As soon as this installation is completed by the power company it is expected that accurate computations of daily discharge can be made. Automatic instruments have already been installed for securing continuous records of heights of water on the dam and in the tailrace.

Discharge measurements of Millers River at Wendell, Mass., during 1913.

[Made by C. H. Pierce.]

Date.	Gage height.		Dis-charge.	Wheel gate openings.
	Pond gage.	Tail race gage.		
	<i>Feet.</i>	<i>Feet.</i>	<i>Sec.-ft.</i>	
Aug. 28.....	99.25	-----	20.0	Gates all closed.
28.....	99.75	-----	25.5	Do.
Sept. 21.....	94.32	78.16	147	0.49 opening on two wheels.
22.....	95.68	77.89	259	0.49 opening on four wheels.
22.....	96.16	77.78	204	0.67 opening on two wheels.
22.....	96.08	78.03	275	0.91 opening on two wheels.
22.....	95.92	78.36	342	0.65 opening on four wheels.

NOTE.—Gates were opened and closed between the two measurements on August 28.

DEERFIELD RIVER AT HOOSAC TUNNEL, MASS.

Location.—At wooden highway bridge near Hoosac Tunnel railroad station, about $4\frac{1}{2}$ miles below Dunbar Brook, 4 miles above Pelham Brook, and 4 miles above Cold Brook.

Records available.—August 8, 1909, to November 30, 1913. A measurement was made at the bridge October 29, 1906.

Drainage area.—257 square miles.

Gage.—Chain gage fastened to downstream side of bridge.

Channel and control.—Coarse gravel and very rough; practically permanent.

Discharge measurements.—Made from upstream side of highway bridge or by wading.

Winter flow.—Affected by ice.

Regulation.—Flow seriously affected by the operation of numerous mills on the main river and its tributaries above the station, and by storage in a large reservoir at Somerset, Vt., put into use in 1913. The nearest mill is at Monroe Bridge, about 7 miles above the station.

Floods.—The highest gage height recorded by the observer during the high water of March 25–30, was 10.5 feet at 6 p. m. March 27. The corresponding discharge was approximately 16,600 second-feet, or 64.6 second-feet per square mile of drainage area.

Estimates of mean daily and monthly discharge withheld on account of large diurnal fluctuation.

Discharge measurements of Deerfield River at Hoosac Tunnel, Mass., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 15	De Golyer and Barnes	<i>a</i> 2.40	277	Sept. 25	R. S. Barnes.....	1.98	217
Mar. 14	C. S. De Golyer.....	<i>b</i> 4.72	2,750				

a Partial ice cover at gage.*b* Ice going out. Measuring conditions unfavorable.

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1913.

Day.	January.						February.					
	A. M.			P. M.			A. M.			P. M.		
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
1	8.00	3.6	1,270	4.30	3.5	1,180	8.00	4.1	1,770	4.30	3.9	1,560
2	8.00	3.3	1,020	4.30	3.25	980	8.00	3.45	1,140	4.30	3.05	820
3	8.00	3.0	780	4.30	3.2	940	8.00	3.3	1,020	4.30	3.25	980
4	8.00	3.3	1,020	4.30	3.25	980	8.00	3.8	1,460	4.30	3.5	1,180
5	8.00	3.5	1,180	4.30	3.4	1,100	8.00	3.65	1,320	4.30	3.42	1,120
6	8.00	3.4	1,100	4.30	3.3	1,020	8.00	3.5	1,180	4.30	3.4	1,100
7	8.00	3.5	1,180	4.30	4.9	2,750	8.00	3.5	1,180	4.30	3.0	780
8	8.00	4.5	2,230	4.30	4.35	2,050	8.00	3.45	1,140	4.30	3.5	1,180
9	8.00	4.1	1,770	4.30	3.65	1,320	8.00	3.3	1,020	4.30	2.78	620
10	8.00	3.5	1,180	4.30	3.35	1,060	8.00	2.35	374	4.30	2.5	450
11	8.00	3.3	1,020	4.30	3.4	1,100	8.00	2.25	330	4.30	2.2	308
12	8.00	4.0	1,660	4.30	3.82	1,480	8.00	2.3	351	4.30	2.3	351
13	8.00	3.75	1,410	4.30	3.7	1,360	8.00	2.02	241	4.30	2.0	234
14	8.00	3.35	1,060	4.30	3.2	940	8.00	2.7	430	2.68	-----	-----
15	8.00	3.18	924	4.30	3.25	980	8.00	2.6	430	2.4	-----	-----
16	8.00	3.0	780	4.30	3.15	900	8.00	2.15	430	2.2	-----	-----
17	8.00	3.85	1,510	4.30	4.9	2,750	8.00	2.1	430	2.25	-----	-----
18	8.00	5.75	4,040	4.30	5.45	3,560	8.00	2.08	430	2.2	-----	-----
19	8.00	5.2	3,190	4.30	4.95	2,820	8.00	2.0	430	2.15	-----	-----
20	8.00	4.25	1,940	4.30	4.15	1,820	8.00	2.15	430	2.1	-----	-----
21	8.00	5.0	2,890	4.30	4.5	2,230	8.00	2.05	430	2.2	-----	-----
22	8.00	4.1	1,770	4.30	4.0	1,660	8.00	2.0	430	2.1	-----	-----
23	8.00	3.5	1,180	4.30	4.0	1,660	8.00	3.6	430	3.0	-----	-----
24	8.00	4.1	1,770	4.30	3.65	1,320	8.00	2.85	430	2.5	-----	-----
25	8.00	3.3	1,020	4.30	3.28	1,000	8.00	2.45	430	2.3	-----	-----
26	8.00	3.2	940	4.30	3.05	820	7.30	1.95	430	1.88	-----	-----
27	8.00	3.1	860	4.30	3.0	780	7.30	2.2	430	2.15	-----	-----
28	8.00	2.85	668	4.30	2.6	506	7.30	2.3	430	2.9	-----	-----
29	8.00	2.4	398	4.30	2.25	330	-----	-----	-----	-----	-----	-----
30	8.00	2.45	324	4.30	2.32	360	-----	-----	-----	-----	-----	-----
31	8.00	2.4	398	4.30	2.2	308	-----	-----	-----	-----	-----	-----

Day.	March.						April.					
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
1	8.00	2.8	-----	4.30	2.78	-----	7.00	3.5	1,180	5.00	3.4	1,100
2	8.00	2.65	-----	4.30	2.6	-----	7.00	3.3	1,020	5.00	3.45	1,140
3	8.00	2.55	-----	4.30	2.5	-----	7.00	3.4	1,100	5.00	3.15	900
4	8.00	2.15	-----	4.30	2.3	-----	7.00	3.1	860	5.00	3.15	900
5	8.00	2.38	-----	4.30	2.2	-----	7.00	3.25	980	5.00	3.75	1,410
6	8.00	2.0	-----	4.30	2.1	-----	7.00	3.35	1,060	5.00	3.25	980
7	8.00	2.15	-----	4.30	2.0	-----	7.00	3.15	900	5.00	3.0	780
8	8.00	2.0	-----	4.30	1.95	-----	7.00	2.75	600	5.00	2.7	567
9	8.00	2.45	-----	4.30	3.88	1,540	7.00	2.7	567	5.00	2.3	351
10	8.00	3.6	1,270	5.00	3.45	1,140	7.00	2.1	269	5.00	2.2	308
11	8.00	2.95	742	4.30	2.8	633	7.00	2.5	450	5.00	4.3	1,990
12	8.00	2.6	506	4.30	3.0	780	7.00	5.1	3,040	5.00	4.85	2,680
13	7.30	2.95	742	5.00	2.7	567	7.00	3.35	1,060	5.00	3.25	980
14	7.30	2.85	668	5.00	6.8	6,150	7.00	4.35	2,050	5.00	3.75	1,410
15	7.00	5.95	4,400	5.00	5.1	3,040	7.00	3.1	860	5.00	3.6	1,270
16	7.00	5.65	3,880	5.00	4.6	2,350	7.00	3.45	1,140	5.00	3.25	980
17	7.00	3.7	1,360	5.00	3.5	1,180	7.00	3.3	1,020	5.00	3.0	780
18	7.00	3.8	1,460	5.00	3.2	940	7.00	2.9	704	5.00	2.85	668
19	7.00	3.0	780	5.00	3.1	860	7.00	2.7	567	5.00	2.65	536
20	7.00	3.0	780	5.00	5.8	4,130	7.00	2.75	600	5.00	2.65	536
21	7.00	4.9	2,750	5.00	5.8	4,130	7.00	2.68	555	5.00	2.65	536
22	7.00	5.05	2,960	5.00	4.9	2,750	7.00	2.55	478	5.00	2.5	450
23	7.00	4.85	2,680	5.00	4.0	1,660	7.00	2.52	461	5.00	2.48	440
24	7.00	3.7	1,360	5.00	5.95	4,400	7.00	2.55	478	5.00	2.5	450
25	7.00	5.1	3,040	5.00	4.9	2,750	7.00	2.4	398	5.00	2.45	424
26	7.00	6.1	4,690	5.00	8.25	9,660	7.00	2.45	424	5.00	2.35	374
27	7.00	7.1	6,830	6.00	10.5	16,600	7.00	2.5	450	5.00	2.6	506
28	7.00	7.1	6,830	5.00	6.1	4,690	7.00	2.5	450	5.00	2.45	424
29	7.00	4.7	2,480	5.00	4.6	2,350	7.00	4.0	1,660	5.00	3.95	1,610
30	7.00	3.7	1,360	5.00	3.4	1,100	7.00	3.3	1,020	5.00	3.05	820
31	7.00	3.7	1,360	5.00	3.6	1,270	-----	-----	-----	-----	-----	-----

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1913—Continued.

Day.	May.						June.					
	A. M.			P. M.			A. M.			P. M.		
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
1.....	7.00	2.65	536	5.00	2.5	450	7.00	3.3	1,020	5.00	3.3	1,020
2.....	7.00	2.4	398	5.00	2.32	360	7.00	3.1	860	5.00	3.0	780
3.....	7.00	2.5	450	5.00	2.48	440	7.00	3.1	860	5.00	2.9	704
4.....	7.00	2.35	374	5.00	2.4	398	7.00	2.5	450	5.00	2.4	398
5.....	7.00	2.25	330	5.30	2.35	374	7.00	2.3	351	5.00	2.1	269
6.....	7.00	2.2	308	5.00	2.12	277	7.00	2.15	288	5.00	1.9	202
7.....	7.00	2.15	288	5.00	2.1	269	7.00	1.45	94	5.00	1.4	84
8.....	7.00	2.3	351	5.00	2.28	342	7.00	2.3	351	5.00	2.25	330
9.....	7.00	2.25	330	5.00	1.8	173	7.00	2.1	269	5.00	2.45	424
10.....	7.00	2.15	288	5.00	1.7	147	7.00	2.0	234	5.00	1.7	147
11.....	7.00	2.2	308	5.00	2.35	374	7.00	2.0	234	5.00	1.55	114
12.....	7.00	2.7	567	5.00	2.3	351	7.00	1.8	173	5.00	1.75	160
13.....	7.00	2.9	704	5.00	2.0	234	7.00	1.6	124	5.00	1.6	124
14.....	7.00	1.9	202	5.00	2.25	330	7.00	1.5	103	5.00	1.48	99
15.....	7.00	1.9	202	5.00	2.0	234	7.00	1.4	84	5.00	1.35	76
16.....	7.00	2.3	351	5.00	2.75	600	7.00	1.4	84	5.00	1.3	67
17.....	7.00	2.2	308	5.00	2.35	374	7.00	1.5	103	5.00	1.6	124
18.....	7.00	2.1	269	5.00	2.0	234	7.00	1.5	103	5.00	1.3	67
19.....	7.00	2.0	234	5.00	2.1	269	7.00	1.1	39	5.00	1.55	114
20.....	7.00	2.3	351	5.00	2.05	254	7.00	1.0	28	5.00	1.5	103
21.....	7.00	2.1	269	5.00	2.6	506	7.00	2.0	234	5.00	2.05	252
22.....	7.00	2.6	506	5.00	2.4	398	7.00	1.95	218	5.00	1.8	173
23.....	7.00	3.0	780	5.00	4.0	1,660	7.00	1.6	124	5.00	1.9	202
24.....	7.00	4.7	2,480	5.00	4.3	1,990	7.00	1.6	124	5.00	1.6	124
25.....	7.00	3.7	1,360	5.00	3.6	1,270	7.00	1.55	114	5.00	1.5	103
26.....	7.00	3.65	1,320	5.00	3.4	1,100	7.00	1.15	46	5.00	1.35	76
27.....	7.00	2.65	536	5.00	2.7	567	7.00	1.4	84	5.00	1.35	76
28.....	7.00	2.72	580	5.00	3.1	860	7.00	1.9	202	5.00	1.2	52
29.....	7.00	5.3	3,340	5.00	4.2	1,880	7.00	1.25	60	5.00	1.65	136
30.....	7.00	4.0	1,660	5.00	3.75	1,410	7.00	1.4	84	5.00	1.65	136
31.....	7.00	3.5	1,180	5.00	3.45	1,140						

Day.	July.						August.					
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
1.....	7.00	1.65	136	5.00	1.25	60	7.00	2.4	398	5.00	2.45	424
2.....	7.00	1.6	124	5.00	1.0	28	7.00	2.38	389	5.00	2.4	398
3.....	7.00	1.25	60	5.00	1.1	39	7.00	2.2	308	5.00	2.6	506
4.....	7.00	1.15	46	5.00	1.0	28	7.00	2.45	424	5.00	2.4	398
5.....	7.00	1.05	34	5.00	1.0	28	7.00	2.0	234	5.00	2.7	567
6.....	7.00	1.2	52	5.00	1.15	46	7.00	2.65	536	5.00	2.8	633
7.....	7.00	1.1	39	5.00	1.0	28	7.00	2.7	567	5.00	2.7	567
8.....	7.00	2.1	269	5.00	1.5	103	7.00	2.2	308	5.00	2.1	269
9.....	7.00	1.65	136	5.00	1.5	103	7.00	1.85	188	5.00	2.0	234
10.....	7.00	1.5	103	5.00	1.6	124	7.00	2.7	567	5.00	2.7	567
11.....	7.00	1.5	103	5.00	1.35	76	7.00	2.85	668	5.00	2.9	704
12.....	7.00	1.8	173	5.00	2.0	234	7.00	2.85	668	5.00	3.0	780
13.....	7.00	1.2	52	5.00	2.0	234	7.00	2.95	742	5.00	2.7	567
14.....	7.00	2.0	234	5.00	2.4	398	7.00	2.3	351	5.00	2.35	374
15.....	7.00	2.6	506	5.00	2.4	398	7.00	2.7	567	5.00	2.35	374
16.....	7.00	2.0	234	5.00	1.1	39	7.00	2.0	234	5.00	1.35	76
17.....	7.00	1.2	52	5.00	1.4	84	7.00	1.3	67	5.00	1.28	64
18.....	7.00	1.2	52	5.00	1.3	67	7.00	1.35	76	5.00	2.4	398
19.....	7.00	1.45	94	5.00	1.3	67	7.00	1.65	136	5.00	1.35	76
20.....	7.00	1.2	52	5.00	1.2	52	7.00	2.3	351	5.00	2.1	269
21.....	7.00	2.4	398	5.00	2.0	234	7.00	2.1	269	5.00	1.3	67
22.....	7.00	2.8	633	5.00	2.65	536	7.00	1.3	67	5.00	1.1	39
23.....	7.00	2.2	308	5.00	1.55	114	7.00	1.3	67	5.00	1.1	39
24.....	7.00	1.8	173	5.00	1.8	173	7.00	1.2	52	5.00	1.0	28
25.....	7.00	1.75	160	5.00	1.8	173	7.00	1.3	67	5.00	1.25	60
26.....	7.00	2.1	269	5.00	2.0	234	7.00	1.3	67	5.00	1.7	147
27.....	7.00	1.72	152	5.00	1.75	160	7.00	1.55	114	5.00	1.05	34
28.....	7.00	2.0	234	5.00	2.15	288	7.00	1.0	28	5.00	1.2	52
29.....	7.00	2.4	398	5.00	2.1	269	7.00	1.25	60	5.00	1.3	67
30.....	7.00	2.8	633	5.00	2.5	450	7.00	1.05	34	5.00	1.0	28
31.....	7.00	2.4	398	5.00	2.45	424	7.00	1.0	28	5.00	1.2	52

Gage height, in feet, and discharge, in second-feet, of Deerfield River at Hoosac Tunnel, Mass., for 1913—Continued.

Day.	September.						October.					
	A. M.			P. M.			A. M.			P. M.		
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
1.....	7.00	1.2	52	5.00	1.15	46	7.00	2.15	288	5.00	1.9	202
2.....	7.00	1.42	88	5.00	1.65	136	7.00	2.0	234	5.00	1.7	147
3.....	7.00	1.6	124	5.00	1.3	67	7.00	1.95	218	5.00	2.2	308
4.....	7.00	1.05	34	5.00	1.1	39	7.00	1.75	160	5.00	1.8	173
5.....	7.00	1.0	28	5.00	1.1	39	7.00	1.7	147	5.00	1.58	120
6.....	7.00	1.6	124	5.00	1.3	67	7.00	1.45	94	5.00	1.5	103
7.....	7.00	1.35	76	5.00	1.05	34	7.00	1.5	103	5.00	1.25	60
8.....	7.00	1.28	64	5.00	1.55	114	7.00	1.35	76	5.00	1.5	103
9.....	7.00	1.3	67	5.00	1.3	67	7.00	1.18	49	5.00	1.5	103
10.....	7.00	1.45	94	5.00	1.65	136	7.00	1.55	114	5.00	1.6	124
11.....	7.00	1.45	94	5.00	1.5	103	7.00	1.6	124	5.00	1.5	103
12.....	7.00	1.2	52	5.00	1.1	39	7.00	1.3	67	5.00	1.35	76
13.....	7.00	1.05	34	5.00	1.0	28	7.00	2.18	300	5.00	2.1	269
14.....	7.00	1.0	28	5.00	1.05	34	7.00	2.0	234	5.00	1.65	136
15.....	7.00	1.15	46	5.00	1.1	39	7.00	1.55	114	5.00	1.5	103
16.....	7.00	1.05	34	5.00	1.0	28	7.00	1.58	120	5.00	1.5	103
17.....	7.00	1.1	39	5.00	1.3	67	7.00	1.68	142	5.00	1.55	114
18.....	7.00	1.1	39	5.00	1.05	34	7.00	1.45	94	5.00	1.4	84
19.....	7.00	1.7	147	5.00	1.55	114	7.00	1.3	67	5.00	1.3	67
20.....	7.00	1.3	67	5.00	1.1	39	7.00	1.8	173	5.00	3.8	1,460
21.....	7.00	1.0	28	5.00	2.0	234	7.00	3.6	1,270	5.00	3.1	860
22.....	7.00	2.15	288	5.00	4.1	1,770	7.00	2.5	450	5.00	2.5	450
23.....	7.00	3.7	1,360	5.00	3.0	780	7.00	2.1	269	5.00	2.0	234
24.....	7.00	3.0	780	5.00	2.2	308	7.00	1.5	103	5.00	1.7	147
25.....	7.00	2.15	288	5.00	1.75	160	7.00	1.7	147	5.00	1.9	202
26.....	7.00	2.0	234	5.00	1.7	147	7.00	4.0	1,660	5.00	5.3	3,340
27.....	7.00	1.55	114	5.00	1.6	124	7.00	4.9	2,750	5.00	3.5	1,180
28.....	7.00	1.48	99	5.00	1.3	67	7.00	3.2	940	5.00	3.0	780
29.....	7.00	1.25	60	5.00	1.2	52	7.00	2.95	742	5.00	3.2	940
30.....	7.00	1.15	46	5.00	1.18	49	7.00	3.5	1,180	5.00	3.0	780
31.....							7.00	2.3	351	5.00	2.25	330

Day.	November.						December.					
	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.	Time.	Gage height.	Dis-charge.
1.....	7.00	2.2	308	5.00	2.2	308	.....	.....	.....	.....	.....	.....
2.....	7.00	1.75	160	5.00	1.6	124	.....	.....	.....	.....	.....	.....
3.....	7.00	1.6	124	5.00	1.88	196	.....	.....	.....	.....	.....	.....
4.....	7.00	2.25	330	5.00	2.2	308	.....	.....	.....	.....	.....	.....
5.....	7.00	2.3	351	5.00	2.4	398	.....	.....	.....	.....	.....	.....
6.....	7.00	2.3	351	5.00	2.2	308	.....	.....	.....	.....	.....	.....
7.....	7.00	2.15	288	5.00	1.9	202	.....	.....	.....	.....	.....	.....
8.....	7.00	1.95	218	5.00	1.9	202	.....	.....	.....	.....	.....	.....
9.....	7.00	3.0	780	4.00	6.7	5,930	.....	.....	.....	.....	.....	.....
10.....	7.00	6.7	5,930	5.00	5.3	3,340	.....	.....	.....	.....	.....	.....
11.....	7.00	4.1	1,770	5.00	3.7	1,360	.....	.....	.....	.....	.....	.....
12.....	7.00	3.2	940	5.00	3.1	860	.....	.....	.....	.....	.....	.....
13.....	7.00	2.9	704	5.00	2.5	450	.....	.....	.....	.....	.....	.....
14.....	7.00	2.68	555	5.00	3.0	780	.....	.....	.....	.....	.....	.....
15.....	7.00	2.85	668	5.00	2.48	440	.....	.....	.....	.....	.....	.....
16.....	7.00	2.55	478	5.00	2.4	398	.....	.....	.....	.....	.....	.....
17.....	7.00	2.4	398	5.00	2.2	308	.....	.....	.....	.....	.....	.....
18.....	7.00	2.45	424	5.00	2.4	398	.....	.....	.....	.....	.....	.....
19.....	7.00	2.3	351	5.00	2.2	308	.....	.....	.....	.....	.....	.....
20.....	7.00	3.0	780	5.00	2.9	704	.....	.....	.....	.....	.....	.....
21.....	7.00	3.3	1,020	5.00	3.0	780	.....	.....	.....	.....	.....	.....
22.....	7.00	2.8	633	5.00	2.8	633	.....	.....	.....	.....	.....	.....
23.....	7.00	2.7	507	5.00	2.65	536	.....	.....	.....	.....	.....	.....
24.....	7.00	2.5	450	4.30	2.4	398	.....	.....	.....	.....	.....	.....
25.....	7.00	2.25	330	4.30	2.48	440	.....	.....	.....	.....	.....	.....
26.....	7.00	2.25	330	4.30	2.3	351	.....	.....	.....	.....	.....	.....
27.....	7.00	2.15	288	4.30	2.0	234	.....	.....	.....	.....	.....	.....
28.....	7.00	2.1	269	4.30	2.0	234	.....	.....	.....	.....	.....	.....
29.....	7.00	2.1	269	4.30	2.15	288	.....	.....	.....	.....	.....	.....
30.....	7.30	2.2	308	4.30	2.15	288	.....	.....	.....	.....	.....	.....
31.....							.....	.....	.....	.....	.....	.....

NOTE.—Discharge relation probably affected by ice Feb. 14 to Mar. 9.

DEERFIELD RIVER AT CHARLEMONT, MASS.

Location.—One mile below the village of Charlemont.

Records available.—June 19 to December 31, 1913.

Drainage area.—362 square miles.

Gage.—Automatic recording gage on left bank, referenced to a hook gage in the well.

Channel and control.—Channel covered with coarse gravel and boulders; fairly uniform section.

Discharge measurements.—Made from cable or by wading.

Regulation.—Flow regulated by a storage reservoir at Somerset, Vt., and affected by the operation of several mills above the station. Results corrected for storage at Somerset, from data furnished by the company operating the reservoir.

Winter flow.—Affected by ice.

Floods.—The high water of March 25–30, 1913, reached a maximum stage of 13.6 feet gage height, as determined by engineers of the Geological Survey from high-water marks. The corresponding discharge was approximately 29,000 second-feet, or 80 second-feet per square mile.

Accuracy.—Results good.

Discharge measurements of Deerfield River at Charlemont, Mass., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
June 20	R. S. Barnes	1.98	188	Aug. 14	C. H. Pierce	2.29	363
23	do.....	1.84	138	Oct. 28	C. S. De Golyer.....	3.58	1,480
26	do.....	1.74	105	28	do.....	3.39	1,230
26	do.....	1.60	77	29	do.....	2.98	827
Aug. 13	C. H. Pierce.....	2.37	414				

Daily gage height, in feet, of Deerfield River at Charlemont, Mass., for 1913.

[Arthur Rhodes and Albert Anthony, observers.]

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		1.74	2.20	1.49	1.79	2.40	2.40
2.....		1.64	2.10	1.62	2.17	2.27	2.42
3.....		1.48	1.86	1.71	2.08	2.34	2.54
4.....		1.62	1.74	1.49	2.06	2.22	2.86
5.....		1.50	2.06	1.63	1.95	2.36	2.69
6.....			2.42	1.76	1.78	2.25	2.66
7.....		1.52	2.62	1.80	1.77	2.18	2.98
8.....		2.18	2.36	1.54	1.59	2.20	4.65
9.....		1.68	1.96	1.71	1.77	8.0	3.48
10.....		1.88	2.19	1.47	1.88	6.35	3.08
11.....		1.88	2.76	1.67	1.78	3.6	2.92
12.....		1.75	2.66	1.57	1.80	3.38	2.67
13.....			2.45	1.46	2.06	3.04	2.68
14.....		2.18	2.26	1.46	2.11	2.89	2.66
15.....		2.23	2.01	1.43	1.95	2.91	2.70
16.....		2.10	1.77	1.48	1.82	2.78	2.54
17.....		1.53	1.51	1.52	1.84	2.65	2.55
18.....		1.60	1.83	1.50	1.80	2.59	2.52
19.....	1.60	1.61	2.16	1.72	1.78	2.57	2.37
20.....	1.97	1.59	1.86	1.63	2.18	3.36	2.22
21.....	2.10	2.06	1.70	1.54	3.35	3.35	2.33
22.....	2.08	2.02	1.49	2.78	2.58	2.91	2.41
23.....	1.86	1.96	1.55	3.65	2.30	2.72	2.37
24.....	1.81	1.96	1.62	2.53	2.15	2.63	2.29
25.....	1.82	2.04	1.43	2.11	2.96	2.56	2.34
26.....	1.68	2.02	1.48	1.93	4.9	2.47	2.32
27.....	1.74	1.91	1.71	1.81	4.9	2.40	2.22
28.....	1.82	2.00	1.46	1.67	3.5	2.34	2.26
29.....	1.64	2.38	1.58	1.66	2.92	2.30	3.6
30.....	1.72	2.29	1.73	1.62	2.70	2.35	3.9
31.....		2.27	1.50	.....	2.53	.....	3.75

NOTE.—Gage heights for periods June 19 to July 16, Aug. 5–13; Oct. 13–22, and Nov. 3–13 determined from two readings a day on staff gage. For all other periods gage heights computed from records obtained by a Gurley electric water-stage register. Discharge relation Dec. 29–31 affected by ice.

Daily discharge, in second-feet, of Deerfield River at Charlemont, Mass., for 1913.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		106	310	49	121	435	435
2.....		81	255	76	294	332	448
3.....		47	147	97	245	396	528
4.....		76	106	49	235	322	760
5.....		51	235	79	184	409	633
6.....		53	448	112	118	340	612
7.....		55	584	124	115	299	854
8.....		299	409	59	70	310	2,960
9.....		90	188	97	115	1,000	1,340
10.....		154	305	45	154	6,520	942
11.....		154	685	87	118	1,470	806
12.....		109	612	66	124	1,230	619
13.....		204	468	43	235	906	626
14.....		299	346	43	260	782	612
15.....		328	210	38	184	798	640
16.....		255	115	47	132	700	528
17.....		57	53	55	139	605	535
18.....		72	135	51	124	563	514
19.....	72	74	288	100	118	549	416
20.....	192	70	147	79	299	1,210	322
21.....	255	235	94	59	1,200	1,200	390
22.....	245	215	49	700	556	798	442
23.....	153	188	62	1,530	370	655	416
24.....	128	188	76	521	282	591	364
25.....	132	225	38	260	838	542	396
26.....	90	215	47	175	3,390	480	383
27.....	106	166	97	128	3,390	435	322
28.....	132	205	43	87	1,360	396	346
29.....	81	422	68	85	806	370	326
30.....	100	364	103	76	640	402	297
31.....		352	51		521		297

NOTE.—Discharge determined from a well-defined rating curve, based on high-water measurements made in March, 1914. Discharge interpolated for days when no gage height was reported, and estimated Dec. 29-31.

Monthly discharge of Deerfield River at Charlemont, Mass., for 1913.

[Drainage area, 362 square miles.]

	Discharge in second-feet.			Run-off (total in acre-feet).			Discharge without storage, second-feet.		Run-off (depth in inches on drainage area).	Accuracy.
	Maximum.	Minimum.	Mean.	Observed.	Stored at Somerset, Vt.	Without storage.	Mean.	Per square mile.		
June.....	^a 255	^a 81	^a 140	—	476	—	—	—	—	—
July.....	422	47	175	10,800	—4,490	6,310	103	0.285	0.33	A.
August.....	685	38	219	13,500	—8,610	4,890	79.5	.220	.25	A.
September.....	1,530	38	167	9,940	+ 309	10,250	172	1.475	.53	A.
October.....	3,390	70	540	23,200	+2,840	36,000	585	1.62	1.87	A.
November.....	11,000	299	1,170	69,600	+7,080	76,700	1,290	3.56	3.97	A.
December.....	2,960	^b 297	616	37,900	+2,560	40,500	659	1.82	2.10	A.

^a For June 19-30.

^b Estimated by means of back water curve.

NOTE.—The increase (+) or decrease (—) of water held in storage at Somerset, Vt., during the month has been computed by engineers of the Geological Survey from data of storage increase or decrease furnished by the company operating the reservoir.

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, 1913.

Drainage area.—501 square miles.

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 also measured twice a day. For description of dam and plant see Water-Supply Paper 321, page 99.

Accuracy.—Results good.

Cooperation.—Results furnished by H. K. Barrows, consulting engineer, Boston, Mass.

Daily discharge, in second-feet, of Deerfield River at Shelburne Falls, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,890	2,710	1,180	3,470	889	1,120	122	286	58	158	389	537
2.....	1,360	1,490	799	1,870	863	1,050	120	273	96	373	350	311
3.....	2,490	1,450	641	1,600	612	930	142	101	96	278	418	473
4.....	3,360	1,440	763	1,480	451	785	67	244	97	480	394	1,040
5.....	2,000	1,200	570	1,870	658	345	56	286	123	152	442	1,040
6.....	1,530	1,320	495	1,800	545	360	61	393	154	210	471	740
7.....	3,380	1,030	463	1,500	389	315	113	492	58	185	374	1,200
8.....	4,290	1,210	339	1,330	467	256	240	582	135	63	381	1,770
9.....	2,890	1,240	395	1,330	357	444	114	215	117	55	6,030	1,380
10.....	2,110	1,040	1,500	1,020	369	349	145	303	160	253	5,480	1,040
11.....	1,550	557	1,340	2,300	253	284	171	565	159	172	2,170	1,040
12.....	4,150	4,098	1,020	4,600	345	254	148	700	(110)	203	1,280	740
13.....	2,750	381	1,330	3,130	335	280	142	462	(150)	258	1,280	880
14.....	1,730	471	5,470	2,980	332	194	327	348	(100)	250	1,280	605
15.....	1,440	397	7,110	2,070	311	117	270	331	114	252	727	605
16.....	1,370	376	4,810	1,680	326	250	242	174	70	251	824	740
17.....	3,290	689	2,080	1,500	344	258	128	28	82	148	873	740
18.....	5,730	413	1,330	1,330	305	206	100	104	58	184	568	740
19.....	4,800	357	1,170	1,130	380	180	69	316	57	17	579	669
20.....	2,700	329	2,980	963	403	240	121	184	149	655	1,270	342
21.....	3,820	465	3,720	1,020	355	244	230	100	0	1,400	1,280	334
22.....	2,920	879	4,890	1,030	390	224	261	127	892	832	874	550
23.....	2,110	1,020	1,790	889	1,710	227	220	108	1,600	495	696	672
24.....	2,710	789	3,220	755	2,700	212	228	42	733	520	715	377
25.....	1,920	600	4,280	756	1,620	171	198	124	188	1,560	670	349
26.....	1,450	469	12,080	749	1,190	164	176	78	302	4,580	567	496
27.....	1,530	480	19,180	661	903	144	185	98	123	2,930	409	429
28.....	923	1,230	7,460	755	1,510	162	232	55	74	1,730	481	150
29.....	1,060	-----	3,480	1,870	3,570	112	294	165	181	1,050	536	387
30.....	1,073	-----	2,020	1,490	2,030	150	410	124	139	598	432	323
31.....	1,071	-----	2,740	-----	1,370	-----	277	157	-----	609	-----	346

Monthly discharge of Deerfield River at Shelburne Falls, Mass., for 1913.

[Drainage areas, 501 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	5,730	923	2,430	4.86	5.60
February.....	2,710	329	876	1.75	1.82
March.....	19,180	339	3,240	6.48	7.47
April.....	4,600	661	1,630	3.25	3.63
May.....	3,570	253	849	1.70	1.96
June.....	1,120	112	334	.67	.75
July.....	410	56	181	.36	.42
August.....	700	28	244	.49	.56
September.....	1,600	0	212	.42	.47
October.....	4,580	17	674	1.35	1.56
November.....	6,030	350	1,070	2.14	2.39
December.....	1,770	150	679	1.35	1.56
The year.....	19,180	0	1,040	2.08	23.19

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, with a drainage area of about 30 square miles, enters from the right at Ware. Beaver Brook, with a drainage area of about 29 square miles, enters from the right about $2\frac{1}{2}$ miles below the station.

Records available.—August 20, 1912, to December 31, 1913.

Drainage area.—201 square miles.

Gage.—Barrett & Lawrence automatic gage on the right bank just above the highway bridge, referenced to a hook gage in the well.

Channel and control.—Channel rough, but practically permanent. A large amount of aquatic vegetation in the channel during the summer months, but none at the control.

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. Measurements made at the electric railway bridge are corrected for angle of current.

Regulation.—Flow affected by the operation of mills, which at low stages cause a large variation in discharge during days when the mills are in operation, and a low discharge on Sundays and holidays.

Winter flow.—Somewhat affected by ice.

Floods.—The high water of March 26 to 31, 1913, reached a maximum stage of 5.54 feet gage height at 9.30 a. m. March 28, as determined from readings of hook gage made by engineers of the Geological Survey on that date. The corresponding discharge was 2,640 second-feet, or 13.1 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Ware River at Gibbs Crossing, Mass., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 4	R. S. Barnes.....	3.24	645	Mar. 29	O. W. Hartwell.....	4.31	1,670
9	C. S. De Golyer.....	3.00	485	Aug. 11	C. H. Pierce.....	2.19	136
Feb. 11	De Golyer and Barnes..	^a 3.15	409	12	do.....	1.49	15.3
Mar. 12	De Golyer and Mathers.	3.07	507	Sept. 7	do.....	1.49	24.9
28	O. W. Hartwell.....	5.51	2,600	7	do.....	1.49	22.3
28	do.....	5.48	2,430				

^a Anchor ice on control.

Daily discharge, in second-feet, of Ware River at Gibbs Crossing, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	690	300	672	1,340	380	325	97	81	68	70	182	.....
2.....	439	270	571	1,160	337	326	138	46	112	74	178	.....
3.....	406	295	460	935	292	278	116	24	125	62	173	.....
4.....	468	280	358	768	238	226	24	74	136	59	213	.....
5.....	373	.....	303	776	292	215	21	90	112	15	178	.....
6.....	346	.....	303	730	300	188	19	62	72	84	160	.....
7.....	292	.....	207	693	289	147	88	68	29	76	153	174
8.....	381	.....	218	629	226	129	96	88	114	76	84	539
9.....	471	.....	214	553	236	214	112	63	109	73	134	537
10.....	345	.....	360	503	162	200	86	19	89	46	310	350
11.....	300	.....	449	412	160	194	82	68	58	42	348	325
12.....	333	.....	518	1,400	219	119	52	79	42	36	283	283
13.....	489	.....	489	1,520	248	93	20	56	37	97	249	242
14.....	388	.....	568	.....	187	90	79	56	17	90	224	202
15.....	326	.....	1,260	.....	189	40	90	51	51	86	180	267
16.....	303	.....	1,300	.....	186	166	99	51	72	123	186	264
17.....	338	.....	1,050	.....	136	133	93	23	42	113	200	209
18.....	429	.....	785	.....	133	128	53	103	46	50	216	176
19.....	407	.....	642	.....	209	112	38	76	64	43	221	186
20.....	408	.....	615	605	239	115	20	46	58	145	194	134
21.....	375	.....	744	575	164	106	52	49	21	171	211	131
22.....	370	.....	752	498	171	34	67	48	99	156	140	177
23.....	326	.....	613	498	204	152	59	44	118	85	135	236
24.....	363	.....	619	461	636	144	71	17	121	88	197	192
25.....	358	.....	653	412	705	130	63	31	128	168	234	261
26.....	283	.....	954	372	569	103	56	42	110	749	200	383
27.....	328	170	1,700	320	404	96	15	46	74	676	88	315
28.....	275	310	2,370	386	365	76	54	42	23	571	181	226
29.....	273	.....	1,930	422	551	25	61	68	59	430	110	262
30.....	262	.....	1,540	446	613	106	77	128	41	323	190	299
31.....	238	.....	1,330	.....	468	.....	60	130	.....	267	.....	217

NOTE.—Discharge determined from a well-defined rating curve by averaging the discharge for six 4-hour periods each day. Discharge relation affected by ice Feb. 5-26. Mean discharge estimated as follows: For February, 193 second-feet, from discharge measurement of Feb. 11 and study of climatological data; Apr. 14-19, 1,170 second-feet, and Dec. 1-6, 163 second-feet, by comparison with records on adjacent streams.

Monthly discharge of Ware River at Gibbs Crossing, Mass., for 1913.

[Drainage area, 201 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	690	238	367	1.83	2.11	A.
February.....	.....	.....	193	.960	1.00	C.
March.....	2,370	207	792	3.94	4.54	A.
April.....	1,520	320	780	3.88	4.33	A.
May.....	705	133	307	1.53	1.76	A.
June.....	326	25	147	.781	.82	A.
July.....	138	15	66.4	.330	.38	A.
August.....	130	17	60.3	.300	.35	A.
September.....	136	17	74.9	.373	.42	A.
October.....	749	15	166	.826	.95	A.
November.....	348	84	192	1.955	1.07	A.
December.....	.....	.....	244	1.21	1.40	B.
The year.....	2,370	15	283	1.41	19.16	

SWIFT RIVER AT WEST WARE, MASS.

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

Records available.—July 15, 1910, to December 31, 1913.

Drainage area.—191 square miles.

Gage.—A Barrett-Lawrence automatic gage referred to a hook gage in the well.

Prior to August 25, 1912, a chain gage on a footbridge 400 feet below the dam.

Channel and control.—Gravel and alluvial deposits; some aquatic vegetation in channel during summer months.

Discharge measurements.—Made from a cable about 50 feet above the gage, or by wading.

Regulation.—Flow affected by operation of power plants at Enfield which at low stages cause a large variation in discharge during days when the mills are in operation, and a low discharge on Sundays and holidays.

Winter flow.—Seldom affected by ice.

Floods.—The high water of March 26 to 31, 1913, reached a maximum stage of 8.43 feet gage height about 10 a. m. March 29, as shown by the automatic gage records. The corresponding discharge was approximately 1,900 second-feet, or 10 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Swift River at West Ware, Mass., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 8	C. S. De Golyer.....	3.46	420	Mar. 12	C. S. De Golyer.....	3.66	465
8	do.....	3.44	394	27	O. W. Hartwell.....	5.53	987
Feb. 12	do.....	2.58	191	27	do.....	5.62	1,010
Mar. 12	J. G. Mathers.....	3.66	465	Aug. 11	C. H. Pierce.....	1.47	33.8

Daily discharge, in second-feet, of Swift River at West Ware, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	459	.....	477	990	389	512	86	.....	66	.....	176	156
2.....	440	278	503	913	357	406	84	.....	74	.....	150	164
3.....	417	256	484	799	330	342	81	.....	76	.....	127	168
4.....	435	268	435	698	305	291	.....	.....	63	.....	116	164
5.....	411	237	379	651	269	263	.....	.....	76	.....	109	154
6.....	359	239	321	642	267	228	60	.....	72	.....	102	144
7.....	323	229	300	607	295	197	80	.....	50	.....	100	150
8.....	373	214	301	572	252	182	74	49	84	.....	88	255
9.....	456	183	271	529	232	158	66	40	73	76	117	328
10.....	409	165	295	487	218	155	60	31	69	52	152	325
11.....	407	176	384	508	207	152	59	43	62	52	176	287
12.....	401	160	440	800	181	149	50	43	59	25	186	240
13.....	422	184	452	1,040	186	137	43	40	50	47	172	209
14.....	408	162	516	1,090	185	126	60	38	34	62	156	193
15.....	368	153	656	1,010	181	104	62	38	62	64	146	172
16.....	330	142	863	875	199	122	52	38	61	58	140	164
17.....	318	138	888	756	199	107	55	29	56	51	133	168
18.....	369	119	765	643	172	104	57	41	56	41	131	160
19.....	414	.....	634	572	160	97	47	42	54	23	136	152
20.....	422	143	554	520	161	107	35	49	49	82	134	131
21.....	417	150	579	475	159	102	55	42	34	119	138	129
22.....	395	190	634	454	172	82	59	40	61	114	136	133
23.....	371	284	626	425	.....	105	55	41	72	111	122	127
24.....	372	309	591	398	.....	103	.....	24	63	112	133	188
25.....	377	315	599	394	588	104	.....	46	53	193	117	260
26.....	346	273	700	361	580	97	.....	42	50	328	109	300
27.....	332	239	1,020	323	496	95	.....	32	51	431	93	292
28.....	311	.....	1,660	325	416	80	.....	37	28	436	97	235
29.....	279	.....	1,820	399	.....	65	.....	44	43	365	124	223
30.....	258	.....	1,470	396	.....	97	.....	79	.....	285	142	186
31.....	241	.....	1,150	.....	.....	.....	.....	51	.....	218	.....	174

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge for months when there were lapses in the automatic gage records, estimated by comparison with records on adjacent streams.

Monthly discharge of Swift River at West Ware, Mass., for 1913.

[Drainage area, 191 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	459	241	375	1.96	2.26	A.
February.....	358	119	213	1.12	1.17	A.
March.....	1,820	271	670	3.51	4.05	A.
April.....	1,090	323	622	3.26	3.64	A.
May.....	645	159	305	1.60	1.84	A.
June.....	512	65	162	.848	.95	A.
July.....			58.1	.304	.35	B.
August.....			42.3	.221	.25	B.
September.....	84	28	57.7	.302	.34	A.
October.....			125	.654	.75	B.
November.....	186	88	131	.686	.76	A.
December.....	328	127	198	1.04	1.20	A.
The year.....	1,820		247	1.29	17.56	

QUABOAG RIVER AT WEST BRIMFIELD, MASS.

Location.—At the two-span highway bridge near the West Brimfield station of the Boston & Albany Railroad.

Records available.—August 23, 1909, to December 31, 1913.

Drainage area.—150 square miles.

Gage.—Barrett & Lawrence automatic gage at downstream end of center pier of bridge, referred to a lock gage in the well. Prior to August 19, 1912, a vertical staff on the upstream side of the right abutment of the bridge at same datum as present gage.

Channel and control.—Stream bed covered with boulders, gravel, and alluvial deposits.

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

Regulation.—Flow affected by the operation of power plants at West Warren, 3 miles above the station, which at low stages causes a large variation in discharge during days when the mills are in operation, and a low discharge on Sundays and holidays.

Floods.—Owing to the large amount of storage above the station, the heavy precipitation of March, 1913, did not produce a flood stage. The maximum stage during the year occurred on April 16, with a discharge of about 1,200 second-feet, or 8 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Quaboag River at West Brimfield, Mass., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Jan. 9	C. S. De Golyer.....	<i>Feet.</i> 2.88	<i>Sec.-ft.</i> 327	Mar. 28	O. W. Hartwell.....	<i>Feet.</i> 3.73	<i>Sec.-ft.</i> 847
Feb. 13	R. S. Barnes.....	a 3.43	183	Aug. 9	C. H. Pierce.....	1.64	15.9

a Discharge relation affected by ice.

Daily discharge, in second-feet, of Quaboag River at West Brimfield, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	274	270	414	855	412	330	56	50	37	48	166	135
2.....	250	230	415	729	389	307	56	32	69	62	158	131
3.....	279	300	291	779	359	272	58	28	52	68	161	122
4.....	251	280	352	732	342	252	24	62	48	36	159	119
5.....	233	220	334	704	309	223	31	39	43	41	132	120
6.....	263	.....	311	664	290	196	37	41	40	72	130	120
7.....	226	.....	209	603	241	179	68	44	31	53	131	142
8.....	336	.....	275	558	226	180	59	34	68	50	116	210
9.....	250	.....	301	523	206	173	47	29	53	52	161	188
10.....	316	.....	288	501	174	152	59	26	43	51	260	223
11.....	291	.....	334	529	154	145	61	49	43	34	199	214
12.....	322	.....	347	737	158	131	39	40	41	49	177	179
13.....	299	.....	317	783	150	132	40	34	29	69	130	.....
14.....	354	.....	407	823	148	110	77	36	24	54	148	.....
15.....	337	.....	465	823	144	99	55	35	55	45	141	.....
16.....	279	.....	468	962	138	111	61	23	38	34	134	218
17.....	270	.....	431	1,010	146	91	57	17	39	40	144	202
18.....	281	.....	429	941	140	85	60	51	38	43	133	202
19.....	265	.....	414	856	143	80	41	52	45	33	131	171
20.....	281	.....	438	756	120	85	35	46	30	81	145	189
21.....	281	.....	451	741	116	77	71	44	33	74	146	170
22.....	271	.....	411	704	138	79	50	44	76	72	139	173
23.....	268	.....	419	651	199	105	61	46	64	66	135	170
24.....	285	.....	416	599	364	74	59	11	60	67	135	233
25.....	284	.....	413	544	333	64	56	49	59	150	114	227
26.....	251	.....	515	502	310	71	41	37	53	45	105	249
27.....	274	325	782	471	296	61	28	34	38	265	104	212
28.....	248	375	853	467	302	45	62	.....	48	234	90	241
29.....	234	.....	904	470	393	52	59	.....	71	219	124	285
30.....	249	.....	910	450	366	82	59	.....	50	215	135	290
31.....	241	.....	920	.....	347	.....	53	.....	.....	192	.....	266

NOTE.—Discharge determined from a well-defined rating curve by averaging the discharge for six 4-hour periods each day. Discharge relation affected by ice Feb. 6-26. Mean discharge for this period estimated 143 second-feet from discharge measurement of Feb. 13 and climatological data. Mean discharge Aug. 28-31 estimated 52 second-feet and Dec. 13-15, 173 second-feet, by comparison with records on adjacent streams.

Monthly discharge of Quaboag River at West Brimfield, Mass., for 1913.

[Drainage area, 150 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	354	226	276	1.84	2.12	A.
February.....	375	.....	179	1.19	1.24	C.
March.....	920	209	459	3.06	3.53	A.
April.....	1,010	450	682	4.55	5.08	A.
May.....	412	116	244	1.63	1.88	A.
June.....	330	45	135	1.00	1.00	A.
July.....	77	24	52.3	.349	.40	A.
August.....	.....	11	40.0	.267	.31	A.
September.....	76	24	47.3	.315	.35	A.
October.....	265	33	90.8	.605	.70	A.
November.....	260	90	143	.953	1.06	A.
December.....	.....	.....	191	1.27	1.46	A.
The year.....	1,010	11	211	1.41	19.13	

WESTFIELD RIVER AT KNIGHTVILLE, MASS.

Location.—At the single-span steel highway bridge known locally as the Pitcher Bridge, at Knightville, 1 mile north of the outlet of Norwich Lake and about 3 miles above the confluence with the middle branch of Westfield River.

Records available.—August 26, 1909, to December 31, 1913.

Drainage area.—162 square miles.

Gage.—Chain attached to downstream side of highway bridge.

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

Control.—Channel rough, covered with boulders and ledge rock; not likely to change.

Regulation.—Flow not seriously affected by regulation.

Winter flow.—Affected by ice.

Floods.—The high water of March 25-30, 1913, reached its maximum stage during the night of March 27 as indicated by the records of the gage observer. Determinations made from high-water marks by engineers of the Geological Survey show that the crest elevation was about 8.9 feet gage height, with a corresponding discharge of approximately 5,100 second-feet, or 31.5 second-feet per square mile of drainage area.

Accuracy.—Results fair.

Discharge measurements of Westfield River at Knightville, Mass., during 1913.

Date.	Made by—	Gage height.	Discharge.
Feb. 14	C. S. De Golyer	Feet. a 2.30	Sec.-ft. 137
Aug. 8	C. H. Pierce	.84	17.2

a Partial ice cover.

Daily gage height, in feet, of Westfield River at Knightville, Mass., for 1913.

[Clement Burr, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.1	3.2	3.1	3.6	2.2	1.92	0.96	0.88	0.86	1.02	1.84	2.2
2.....	3.6	2.1	2.7	3.0	2.0	1.90	.95	.82	.88	1.27	1.81	2.35
3.....	3.3	2.15	2.35	2.75	1.96	1.76	.90	.81	.84	1.52	1.75	2.4
4.....	3.7	2.15	2.15	2.7	1.94	1.76	.90	.84	.81	1.46	1.71	2.55
5.....	2.6	2.0	2.1	3.8	1.90	1.73	.92	.87	.92	1.36	1.68	2.45
6.....	2.3	1.95	2.0	3.2	1.86	1.54	.88	.84	1.32	1.22	1.68	2.25
7.....	2.9	1.89	1.98	2.85	1.84	1.57	.82	.78	1.22	1.10	1.66	3.4
8.....	4.2	1.95	1.88	2.6	1.74	1.53	.84	.67	1.10	1.11	1.68	3.2
9.....	3.3	1.99	2.5	2.55	1.70	1.45	.88	.70	.94	1.10	4.4	2.7
10.....	2.65	1.89	2.8	2.4	1.68	1.47	.89	.60	.87	1.12	4.6	2.4
11.....	2.75	1.83	2.5	2.6	1.62	1.48	.80	.68	.85	1.11	3.3	2.35
12.....	4.2	2.05	2.45	4.8	1.60	1.42	.79	.74	.80	1.40	2.7	2.25
13.....	3.0	2.1	2.7	4.0	1.57	1.40	.94	.84	.76	1.66	2.5	2.2
14.....	2.6	2.25	4.1	3.8	1.56	1.35	.94	.81	.76	1.48	2.45	2.3
15.....	2.5	2.05	4.9	3.4	1.57	1.26	.90	.92	.74	1.37	2.3	2.35
16.....	2.45	1.98	3.7	3.0	1.74	1.20	.89	.98	.74	1.23	2.3	2.2
17.....	3.4	1.96	2.9	2.8	1.90	1.20	.85	.86	.72	1.20	2.25	2.15
18.....	3.8	1.92	2.75	2.6	1.72	1.12	.83	.82	.78	1.11	2.2	2.1
19.....	3.4	2.15	2.55	2.6	1.66	1.12	.90	.78	.83	1.06	2.2	1.96
20.....	2.65	1.88	3.7	2.45	1.60	1.30	.86	.79	.85	1.40	2.8	1.90
21.....	3.4	-----	3.5	2.35	1.52	1.50	.89	.80	.96	2.2	2.5	2.0
22.....	2.75	-----	3.2	2.4	1.56	1.38	.87	.84	2.25	1.56	2.3	2.0
23.....	2.5	-----	2.9	2.35	2.1	1.30	.84	.84	2.3	1.38	2.2	1.99
24.....	2.75	-----	3.0	2.2	3.7	1.22	.83	.83	1.64	1.38	2.1	2.2
25.....	2.45	1.92	3.1	2.2	2.65	1.14	.83	.80	1.44	2.3	2.1	2.25
26.....	2.3	1.90	4.9	2.15	2.2	1.14	.80	.78	1.31	4.0	2.05	2.2
27.....	2.35	1.84	6.9	2.1	2.0	1.15	.90	.79	1.12	4.0	2.05	1.98
28.....	2.25	3.4	5.0	2.25	2.2	1.14	.97	.80	1.02	2.75	2.05	1.8
29.....	2.1	-----	3.9	2.75	3.6	1.08	1.21	.92	.98	2.4	2.35	1.85
30.....	2.25	-----	3.3	2.45	2.6	.96	1.16	1.16	.94	2.2	2.3	1.89
31.....	2.2	-----	4.2	-----	2.2	-----	1.04	1.06	-----	2.0	-----	1.92

NOTE.—Daily gage height is the mean of two readings made at about 7 a. m. and 5 p. m. Discharge relation affected by ice Feb. 8-27, and Dec. 29-31.

Daily discharge, in second-feet, of Westfield River at Knightville, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	735	795	735	1,050	280	186	25	19	17	30	164	280
2.....	1,050	245	510	675	210	180	24	14	19	56	156	342
3.....	855	262	342	538	198	143	20	14	16	94	141	365
4.....	1,120	262	262	510	192	143	20	16	14	84	131	435
5.....	460	210	245	1,180	180	136	22	18	22	68	125	388
6.....	320	195	210	795	169	97	19	16	63	50	125	300
7.....	620	177	204	592	164	103	14	12	50	37	121	920
8.....	1,440	.....	175	460	139	95	16	7	37	38	125	795
9.....	855	.....	410	435	129	82	19	8	23	37	1,570	510
10.....	485	.....	565	365	125	85	19	4	18	39	1,710	365
11.....	538	.....	410	460	112	87	13	7	16	38	855	342
12.....	1,440	.....	388	1,850	108	77	12	10	13	74	510	300
13.....	675	.....	510	1,310	103	74	23	16	11	121	410	280
14.....	460	.....	1,380	1,180	101	67	23	14	11	87	388	320
15.....	410	.....	1,920	920	103	55	20	22	10	70	320	342
16.....	388	.....	1,120	675	139	48	19	26	10	52	320	280
17.....	920	.....	620	565	180	48	16	17	9	48	300	262
18.....	1,180	.....	538	460	134	39	15	14	12	38	280	245
19.....	920	.....	435	460	121	39	20	12	15	33	280	198
20.....	485	.....	1,120	388	108	60	17	12	16	74	565	180
21.....	920	.....	985	342	94	90	19	13	25	280	410	210
22.....	538	.....	795	365	101	71	18	16	300	101	320	210
23.....	410	.....	620	342	245	60	16	16	320	71	280	207
24.....	538	.....	675	280	1,120	50	15	15	116	71	245	280
25.....	388	.....	735	280	485	41	15	13	80	320	245	300
26.....	320	.....	1,920	262	280	41	13	12	61	1,310	228	280
27.....	342	.....	3,440	245	210	42	20	12	39	1,310	228	204
28.....	300	920	1,990	300	280	41	26	13	30	538	228	153
29.....	245	.....	1,240	538	1,050	35	49	22	26	365	342	.....
30.....	300	.....	855	388	460	25	44	44	23	280	320	.....
31.....	280	.....	1,440	.....	280	.....	32	33	.....	210	.....	.....

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge Feb. 8-27, estimated 144 second-feet, Dec. 29-31, 155 second-feet, from discharge measurement and study of climatologic data.

Monthly discharge of Westfield River at Knightville, Mass., for 1913.

[Drainage area, 162 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	1,440	245	643	3.97	4.58	B.
February.....	920	.....	212	1.31	1.36	D.
March.....	3,440	175	864	5.33	6.14	C.
April.....	1,850	245	607	3.75	4.18	B.
May.....	1,120	94	245	1.51	1.74	B.
June.....	186	25	78.0	.482	.54	B.
July.....	49	12	20.7	.128	.15	C.
August.....	44	4	15.7	.097	.11	C.
September.....	320	9	47.4	.293	.33	B.
October.....	1,310	30	194	1.20	1.38	B.
November.....	1,710	121	331	2.35	2.62	B.
December.....	920	153	315	1.94	2.24	B.
The year.....	3,440	4	303	1.87	25.37	

MIDDLE BRANCH OF WESTFIELD RIVER AT GOSS HEIGHTS, MASS.

Location.—At a highway bridge in Goss Heights, about $1\frac{1}{2}$ 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, 1913.

Drainage area.—53 square miles.

Gages.—Barrett & Lawrence automatic gage on upstream side of bridge abutment on right bank, referred to a hook gage in the well. Prior to September 8, 1912, a chain gage on the upstream side of the bridge.

Channel and control.—Coarse gravel and boulders.

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

Winter flow.—Seriously affected by ice.

Regulation.—Flow somewhat affected by the operation of a small power plant about 2 miles above the station.

Floods.—The high water of March 25-30, 1913, reached a crest elevation of 5.38 feet gage height about 3 p. m. March 27 as recorded by the automatic gage. The corresponding discharge was approximately 2,600 second-feet, or 49 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Middle Branch of Westfield River at Goss Heights, Mass., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Jan. 7	C. S. De Golyer.....	1.88	208	Aug. 8	C. H. Pierce.....	0.92	3.4
Feb. 10	do.....	a 1.64	55.0	Sept. 6	do.....	1.09	12.4
14	R. S. Barnes.....	a 1.84	46.7	6	do.....	1.09	11.2
Mar. 26	O. W. Hartwell.....	3.64	1,140				

a Measurement made under complete ice cover 300 feet below the gage.

Daily gage height, in feet, of Middle Branch of Westfield River at Goss Heights, Mass., for 1913.

[Monroe Rising, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.02	1.70	5.48	2.29	1.41	1.49	1.05	1.03	1.03	1.04	1.36	1.76
2.....	1.84	1.46	4.86	1.95	1.35	1.45	1.05	1.01	1.02	1.25	1.32	1.77
3.....	2.32	1.50	4.51	1.86	1.30	1.40	1.06	.99	1.01	1.29	1.32	1.80
4.....	2.33	1.56	4.66	1.81	1.31	1.39	1.02	.97	1.00	1.20	1.29	1.83
5.....	1.90	1.52	4.31	2.19	1.29	1.36	1.03	.96	1.08	1.12	1.28	1.77
6.....	1.75	1.58	3.40	2.00	1.27	1.29	1.00	.94	1.08	1.13	1.26	1.72
7.....	1.82	1.61	3.31	1.85	1.25	1.29	1.00	.93	1.05	1.11	1.24	2.05
8.....	2.68	1.61	3.51	1.75	1.21	1.30	1.00	.92	1.03	1.10	1.31	2.31
9.....	2.12	1.57	4.10	1.69	1.18	1.24	.98	.92	1.00	1.07	3.42	1.97
10.....	1.83	1.56	4.88	1.62	1.25	1.20	.98	.91	.99	1.03	3.02	1.92
11.....	1.82	1.65	4.55	2.36	1.27	1.20	.97	.90	.98	1.07	2.29	1.89
12.....	2.41	1.72	3.07	3.28	1.25	1.19	.98	.89	.99	1.19	2.04	1.86
13.....	2.00	1.72	1.70	2.52	1.24	1.17	.96	.86	.97	1.30	1.93	1.81
14.....	1.77	1.77	2.56	2.41	1.24	1.16	.96	.....	.91	1.21	1.87	1.78
15.....	1.60	1.77	2.82	2.11	1.22	1.13	.95	.96	.92	1.16	1.86	1.74
16.....	1.66	1.77	2.42	2.46	1.29	1.13	.95	.93	.92	1.14	1.82	1.71
17.....	1.99	1.73	1.86	1.83	1.32	1.11	.95	.91	.93	1.12	1.81	1.68
18.....	2.16	1.68	1.69	1.77	1.31	1.10	.95	.93	.94	1.09	1.79	1.62
19.....	1.98	1.67	1.63	1.72	1.29	1.11	.94	.88	.94	1.07	1.78	1.59
20.....	1.73	1.70	1.95	1.67	1.23	1.15	.94	.88	.95	1.28	1.98	1.77
21.....	1.92	1.80	2.11	1.61	1.22	1.21	.93	.88	.99	1.48	1.94	1.84
22.....	1.70	2.45	1.85	1.59	1.25	1.17	.93	.88	1.48	1.31	1.85	1.65
23.....	1.68	2.53	1.68	1.57	1.47	1.13	.93	.90	1.41	1.24	1.78	1.48
24.....	1.70	2.05	1.92	1.55	2.18	1.09	.93	.91	1.23	1.18	1.70	1.57
25.....	1.61	1.89	1.94	1.51	2.24	1.08	.92	.92	1.15	1.72	1.68	1.58
26.....	1.52	1.80	2.83	1.49	1.53	1.08	.91	.88	1.10	3.08	1.69	1.55
27.....	1.50	1.75	4.08	1.49	1.45	1.08	.91	.90	1.05	2.57	1.65	1.60
28.....	1.45	5.75	2.94	1.50	1.60	1.09	.98	.89	1.05	1.83	1.60	1.80
29.....	1.46	.....	2.27	1.62	2.19	1.03	1.17	.98	1.05	1.62	1.69	1.91
30.....	1.47	.....	2.09	1.51	1.77	1.03	1.10	1.02	1.04	1.51	1.77	1.84
31.....	1.44	.....	2.15	.....	1.59	.....	1.08	1.03	.....	1.43	.....	1.75

NOTE.—Discharge relation Feb. 3 to Mar. 12 and Dec. 27-31 affected by ice.

Daily discharge, in second-feet, of Middle Branch of Westfield River at Goss Heights, Mass., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	228	130	.....	330	59	77	8.9	7.9	7.9	8.4	49	146
2.....	170	70	.....	204	47	67	8.9	6.9	7.4	30	41	149
3.....	343	.....	.....	176	38	57	9.4	6.0	6.9	36	41	158
4.....	348	.....	.....	161	39	55	7.4	5.2	6.4	23	36	167
5.....	188	.....	.....	290	36	49	7.9	4.8	11	14	35	149
6.....	143	.....	.....	221	33	36	6.4	4.0	11	15	32	135
7.....	164	.....	.....	173	30	36	6.4	3.6	8.9	13	29	238
8.....	519	.....	.....	143	24	38	6.4	3.2	7.9	12	39	339
9.....	263	.....	.....	127	20	29	5.6	3.2	6.4	10	984	211
10.....	167	.....	.....	109	30	23	5.6	2.9	6.0	7.9	723	194
11.....	164	.....	.....	361	33	23	5.2	2.6	5.6	10	330	185
12.....	384	.....	.....	892	30	21	5.6	2.3	6.0	21	235	176
13.....	221	.....	130	436	29	19	4.8	1.6	5.2	38	198	161
14.....	149	.....	456	384	29	18	4.8	3.2	2.9	24	179	152
15.....	127	.....	599	260	26	15	4.4	4.8	3.2	18	176	140
16.....	119	.....	388	406	36	15	4.4	3.6	3.2	16	164	132
17.....	218	.....	176	167	41	13	4.4	2.9	3.6	14	161	124
18.....	278	.....	127	149	39	12	4.4	3.6	4.0	12	155	109
19.....	214	.....	112	135	36	13	4.0	2.0	4.0	10	152	102
20.....	138	.....	204	122	27	17	4.0	2.0	4.4	35	214	149
21.....	194	.....	260	107	26	24	3.6	2.0	6.0	75	201	170
22.....	130	.....	173	102	30	19	3.6	2.0	75	39	173	117
23.....	124	.....	124	97	72	15	3.6	2.6	59	29	152	75
24.....	130	.....	194	92	286	12	3.6	2.9	27	20	130	97
25.....	107	.....	201	82	310	11	3.2	3.2	17	135	124	99
26.....	84	.....	605	77	87	11	2.9	2.0	12	762	127	92
27.....	80	.....	1,470	77	67	11	2.9	2.6	8.9	461	117	85
28.....	67	.....	672	80	104	12	5.6	2.3	8.9	167	104	75
29.....	70	.....	322	109	290	7.9	19	5.6	8.9	109	127	67
30.....	72	.....	252	82	149	7.9	12	7.4	8.4	82	149	61
31.....	65	.....	274	.....	102	.....	11	7.9	.....	63	.....	55

NOTE.—Discharge determined from a rating curve fairly well defined below 1,200 second-feet. Mean discharge for February estimated 72 second-feet; Mar. 1-12, estimated 120 second-feet from discharge measurements and climatologic data. Discharge Dec. 27-31 determined from a backwater hydrograph based on discharge measurements made in January, 1914.

Monthly discharge of Middle Branch of Westfield River at Goss Heights, Mass., for 1913.

[Drainage area 53 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	519	65	183	3.45	3.98	B.
February.....			72.0	1.36	1.42	C.
March.....	1,470		264	4.98	5.74	C.
April.....	892	77	205	3.87	4.32	A.
May.....	310	20	71.1	1.34	1.54	A.
June.....	77	7.9	25.5	.481	.54	B.
July.....	19	2.9	6.13	.116	.13	C.
August.....	7.9	1.6	3.77	.071	.08	C.
September.....	75	2.9	11.8	.223	.25	B.
October.....	762	7.9	74.5	1.41	1.63	B.
November.....	984	29	179	3.38	3.77	A.
December.....	339	55	139	2.62	3.02	A.
The year.....	1,470	1.6	103	1.94	26.42	

WESTFIELD LITTLE RIVER NEAR WESTFIELD,¹ MASS.

Location.—In the town of Russell at the diversion dam of the Springfield waterworks, 3 miles below the confluence of Pebble and Borden brooks, and about 3 miles west of Westfield.

Records available.—March 1, 1910, to December 31, 1913; July 13, 1905, to December 31, 1909, at a point below Borden Brook.

Drainage area.—48 square miles. (43 square miles at former location.)

Regulation.—Flow affected by storage in a reservoir on Borden Brook about 5 miles above the station. Results corrected for storage.

Diversions.—Water is diverted at the station for the municipal water supply of Springfield. The amount of this diversion is measured by a 54-inch Venturi meter with a continuous recording chart.

Computations of discharge.—Discharge determined from a continuous record of the head on the diversion dam which has a crest length of 155.4 feet above gage height 2.55 feet. Below this height all the water passes over a 12-foot sharp-crested weir without end contractions.

Cooperation.—Data collected and compiled under the direction of E. E. Lochridge, chief engineer, board of water commissioners, Springfield, Mass.

¹ Formerly described as near Blandford, Mass.

Daily discharge, in second-feet, of Westfield Little River near Westfield, Mass., for 1912-13.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
1.....	95.6	104.9	161.5	392.5	163.9	285.7	11.62	6.21	18.71	6.89	50.47	52.27
2.....	66.4	93.6	166.8	538.5	118.7	141.5	9.64	8.51	46.90	8.46	82.06	82.24
3.....	57.6	96.9	133.9	625.9	96.5	114.4	10.05	10.08	52.31	9.71	53.40	189.57
4.....	51.3	104.1	122.8	304.8	83.9	84.9	3.86	7.31	33.21	8.88	35.14	123.07
5.....	96.9	91.6	119.6	250.9	80.7	66.9	.....	8.68	22.51	3.12	33.36	84.06
6.....	51.8	109.7	121.4	377.4	187.3	60.5	.....	7.04	30.12	3.69	40.27	160.35
7.....	60.8	96.0	119.4	604.9	193.3	62.1	.....	5.50	19.73	7.05	192.66	154.57
8.....	51.5	96.0	121.8	489.3	151.7	54.9	.....	6.13	16.22	.....	363.63	110.50
9.....	70.0	100.6	155.9	277.9	159.0	43.1	3.27	8.12	18.01	1.41	187.52	70.06
10.....	73.0	91.2	154.1	211.4	155.4	35.0	3.04	6.12	9.05	3.00	133.33	71.52
11.....	49.8	93.2	136.2	214.7	129.7	29.9	3.41	19.73	9.78	3.02	75.55	56.16
12.....	45.8	77.9	139.5	182.2	110.1	27.1	2.90	7.96	7.64	.88	78.21	58.95
13.....	44.9	95.8	628.0	179.6	112.7	26.2	10.19	4.73	20.90	.82	71.89	39.79
14.....	49.5	68.6	396.7	140.0	103.6	25.1	7.46	3.88	6.26	.99	142.94	41.57
15.....	71.5	46.6	692.7	133.4	105.2	21.7	2.01	.....	.....	1.13	136.77	47.54
16.....	73.4	55.8	1,306.2	249.5	276.7	19.6	2.90	6.57	16.72	8.20	100.41	101.87
17.....	69.6	49.2	922.6	239.6	353.4	19.6	3.02	7.17	11.66	6.54	74.79	59.09
18.....	45.9	44.0	855.0	274.7	216.7	19.3	4.79	19.92	20.03	5.90	64.45	44.66
19.....	80.9	46.3	913.4	287.6	127.2	19.0	9.74	26.15	8.79	6.75	61.50	122.34
20.....	258.0	99.2	763.3	207.3	102.0	17.3	8.33	37.02	17.00	1.60	54.99	109.60
21.....	118.9	225.5	401.4	158.4	92.6	18.8	16.54	22.30	7.78	1.08	41.83	80.34
22.....	98.6	325.2	193.7	139.3	97.8	20.6	25.22	16.43	16.40	2.06	40.33	47.38
23.....	79.0	265.9	134.2	165.4	79.7	14.1	15.96	16.84	7.04	123.46	47.75	52.30
24.....	56.6	261.0	120.8	143.4	81.4	4.2	16.21	16.62	17.67	302.93	98.83	44.47
25.....	30.7	208.0	117.9	140.9	114.6	13.6	13.38	12.09	10.37	192.09	187.61	35.00
26.....	41.1	204.7	97.5	111.7	86.8	8.7	5.44	8.39	19.33	146.49	129.94	44.59
27.....	40.4	355.1	101.1	97.7	68.4	6.9	5.63	12.50	7.98	94.21	101.76	191.13
28.....	98.0	280.2	129.6	95.4	48.6	9.2	.....	8.55	19.13	72.42	66.17	183.05
29.....	96.5	215.7	556.7	94.5	53.9	13.0	.....	8.27	16.44	44.11	58.90	120.30
30.....	122.0	.....	554.9	168.1	462.6	11.1	.....	14.89	9.42	45.42	40.25	461.30
31.....	96.0	.....	387.5	.....	485.6	.....	.....	13.85	.....	40.84	.....	521.02
1913.												
1.....	316	90	155	175	95	65	3.2	2.3	0.5	9.7	50	110
2.....	170	58	118	141	65	47	3.7	7.9	2.5	65	51	96
3.....	265	44	80	115	63	49	4.0	15	3.7	31	45	102
4.....	315	49	65	110	55	39	2.7	.....	4.7	19	42	79
5.....	184	39	51	130	51	32	2.0	.....	17	15	31	73
6.....	139	36	43	119	49	29	.7	1.1	13	13	28	52
7.....	157	39	40	108	47	32	.....	2.4	.....	7.3	35	224
8.....	504	43	40	95	32	38	.....	2.1	.....	5.2	66	252
9.....	368	38	48	69	26	30	.....	5.4	.....	5.6	649	155
10.....	203	34	101	63	26	23	.....	.5	.....	6.9	485	95
11.....	164	31	112	225	24	21	.....	1.4	.....	19	226	97
12.....	243	33	154	469	25	19	.....	3.0	.....	35	149	76
13.....	192	27	111	306	24	18	1.4	1.2	.....	38	115	75
14.....	136	27	273	235	24	17	.....	1.4	.....	19	90	72
15.....	116	32	357	189	22	15	1.4	4.5	.....	18	94	54
16.....	102	32	314	166	25	17	1.5	2.3	.....	27	87	55
17.....	119	29	200	134	29	2.4	1.2	.3	.....	14	59	61
18.....	154	24	137	102	26	5.8	15	2.6	.1	14	81	57
19.....	136	23	121	94	29	6.3	.....	.8	14	7.0	95	42
20.....	112	23	187	78	23	22	.4	.6	14	40	144	33
21.....	142	51	224	66	29	19	1.8	.5	29	60	111	41
22.....	122	76	190	64	33	15	1.4	3.4	49	26	105	49
23.....	111	170	145	66	138	5.9	1.8	3.2	31	28	87	45
24.....	135	86	172	62	389	8.4	1.4	1.8	25	36	62	66
25.....	125	47	204	55	206	4.5	2.4	4.2	15	201	62	81
26.....	104	40	466	41	107	9.5	1.8	1.4	8.0	872	45	64
27.....	96	50	1,120	37	64	.....	2.3	1.6	2.4	801	51	63
28.....	76	120	524	156	217	20	12	1.0	1.9	314	50	35
29.....	47	.....	279	167	485	14	5.1	27	7.0	168	126	48
30.....	61	.....	226	120	241	.....	4.0	7.0	8.4	106	124	41
31.....	67	.....	208	.....	112	.....	3.4	4.1	.....	80	.....	49

NOTE.—Discharge determined by subtracting from the total flow at the diversion dam the amount of water apparently released from the Borden Brook reservoir or by adding the amount of water apparently stored in the reservoir as indicated by gage heights of the water surface in the reservoir. As no allowance has been made for evaporation and seepage from the reservoir the results show the natural flow at the diversion dam only approximately. For days when no discharge values are given the apparent storage release was equal to or greater than the total flow at the diversion dam.

Monthly discharge of Westfield Little River near Westfield, Mass., for 1912-13.

[Drainage area, 48.0 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1912.					
January.....	258.0	30.7	75.6	1.58	1.82
February.....	355.1	44.0	136.5	2.84	3.06
March.....	1,306.2	97.5	352.5	7.34	8.46
April.....	625.9	94.5	249.9	5.20	5.80
May.....	485.6	48.6	151.6	3.16	3.64
June.....	285.7	4.2	43.1	.898	1.00
July.....	25.22	.....	6.28	.131	.15
August.....	37.02	.....	11.53	.240	.28
September.....	52.31	.....	17.23	.359	.40
October.....	302.93	.....	37.10	.752	.87
November.....	363.63	33.36	94.89	1.98	2.21
December.....	521.02	35.00	114.86	2.39	2.76
The year.....	1,306.2	.....	107.8	2.25	30.45
1913.					
January.....	504	47	167	3.48	4.01
February.....	170	23	49.7	1.03	1.07
March.....	1,120	40	209	4.34	5.00
April.....	469	37	132	2.75	3.07
May.....	485	22	89.7	1.87	2.16
June.....	65	.....	20.8	.435	.49
July.....	15	.....	2.4	.050	.06
August.....	27	.....	3.5	.074	.09
September.....	49	.....	8.2	.170	.19
October.....	872	5.2	100	2.08	2.40
November.....	649	28	115	2.39	2.67
December.....	252	33	78.7	1.64	1.89
The year.....	1,120	.....	81.7	1.70	23.10

BORDEN BROOK NEAR WESTFIELD,¹ MASS.

Location.—At the outlet of Borden Brook reservoir in the town of Granville, 2 miles above the confluence of Borden and Pebble brooks, and about 8 miles west of Westfield.

Records available.—January 1, 1910, to December 31, 1913.

Drainage area.—8 square miles.

Regulation.—Flow affected by storage in Borden Brook reservoir. Results corrected for storage.

Computations of discharge.—Discharge determined from a continuous record of the head on a 5-foot sharp-crested weir without end contractions.

Cooperation.—Data collected and compiled under the direction of E. E. Lochridge, chief engineer, board of water commissioners, Springfield, Mass.

¹ Formerly described as near Blandford, Mass.

Daily discharge, in second-feet, of Borden Brook near Westfield, Mass., for 1912-13.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
1.	22	11	9.0	62	18	62	3.2	.....	10	6.7	20	11
2.	11	.....	8.6	97	18	14	.....	.....	11	6.7	11	22
3.	.....	4	6.8	105	13	7.8	.....	.....	11	8.2	9.3	11
4.	.....	4	11	5.0	73	3.6	.....	.....	.....	8.2	.....	11
5.	33	.....	4.6	54	13	1.3	.....	.....	.....	.....	.....	11
6.	22	11	3.9	51	13	4	.....	.....	9.3	.....	11	11
7.	22	.....	3.5	86	13	4	.....	.....	.....	7.0	90	11
8.	.....	.....	3.5	68	18	4	.....	.....	.....	.....	101	11
9.	11	11	3.9	60	23	3	.....	.....	.....	.....	40	.....
10.	11	.....	3.9	60	23	2	.....	.....	.....	.....	42	11
11.	.....	.....	2.8	14	18	1	.....	0.2	.....	.....	9.3	.....
12.	.....	.....	20	31	19	1	.....	.....	.....	.....	22	11
13.	.....	11	34	12	19	1	.....	.....	14	.....	20	11
14.	.....	.....	34	31	13	1	.....	.....	.....	.....	42	.....
15.	11	.....	101	46	14	.....	.....	.....	.....	.....	11	.....
16.	.....	11	120	49	48	.....	.....	.....	11	.....	11	.....
17.	.....	.....	68	29	59	.....	.....	.....	6.7	.....	11	.....
18.	.....	.....	58	34	30	.....	.....	.....	10	.....	11	.....
19.	4.4	11	58	62	8.0	.....	.....	.....	9	.....	11	11
20.	2.2	.....	58	54	3.6	.....	.....	.....	10	.....	9.3	11
21.	.....	45	43	24	3.9	.....	8	.....	9	.....	.....	11
22.	11	9.3	26	42	2.8	.....	.....	.....	10	.....	.....	.....
23.	11	.....	21	14	2.5	.....	.....	.....	.....	78	11	11
24.	.....	.....	17	14	5.4	.....	.....	.....	17	59	22	11
25.	.....	19	16	16	7.6	6.4	.....	.....	8.2	29	11	.....
26.	11	9.3	11	8.0	5.1	.....	6.7	9.1	18	39	11	11
27.	11	5.8	4.4	8.0	2.8	.....	.....	8.2	1.6	31	11	22
28.	11	11	24	14	1.3	.....	.....	6.7	10	31	11	22
29.	.....	9.5	44	14	21	.....	.....	10	10	9.3	11	11
30.	11	.....	64	17	69	.....	7.4	9.5	9	11	.....	57
31.	.....	.....	64	.....	77	.....	.....	10	.....	9.3	.....	46
1913.												
1.	58	11	18	25	16	11	.....	.....	.....	.....	.....	22
2.	35	10	19	11	2.4	3.1	.....	5.6	.....	.....	11	11
3.	28	.....	13	17	8.1	7.2	.....	.....	.....	.....	9.3	22
4.	28	5.6	10	28	6.2	4.6	.....	.....	.....	.....	9.3	11
5.	12	5.0	3.4	13	5.4	2.8	.....	.....	.....	.....	.....	11
6.	15	4.3	3.4	19	5.0	2.3	.....	1.4	.....	.....	.....	.....
7.	47	3.1	3.9	16	4.3	2.6	.....	.....	.....	.....	9.3	87
8.	25	2.8	3.5	14	.....	4.3	.....	.....	.....	.....	29	43
9.	33	2.2	14.6	3	.....	3.6	.....	2.9	.....	.....	161	32
10.	15	1.7	19	8.5	.....	.....	.....	.....	.....	.....	80	.....
11.	15	1.7	17	113	.....	.....	.....	.....	14	40	22	22
12.	15	.....	32	121	.....	.....	.....	1.4	3.9	5.8	20	22
13.	15	.....	30	81	.....	.....	15	.....	.....	9.3	20	11
14.	15	.....	47	45	.....	.....	.....	.....	.....	.....	9.3	11
15.	19	.....	98	31	.....	.....	.....	2.9	2.2	.....	20	.....
16.	19	.....	65	18	.....	.....	.....	.....	14	9.3	20	11
17.	22	.....	45	20	.....	.....	.....	.....	4.4	.....	11	.....
18.	36	.....	25	17	.....	.....	.....	1.4	.....	.....	20	9.3
19.	15	.....	26	14	.....	1.1	.....	.....	.....	8.2	20	9.3
20.	18	.....	46	11	.....	18	1	.....	.....	27	31	.....
21.	18	9.5	64	.....	10	.....	.....	.....	14	18	11	.....
22.	17	17	46	6.4	5.7	.....	.....	1.9	9.3	18	22	9.3
23.	29	13	24	6.7	90	.....	.....	.....	.....	27	20	9.3
24.	12	11	19	6.7	78	2.7	.....	.....	9.3	34	11	9.3
25.	19	.....	162	5.8	41	.....	.....	2.9	.....	92	11	19
26.	16	3.8	123	5.0	25	5.6	.....	.....	3.8	221	.....	9.3
27.	13	17	164	6.3	12	.....	.....	.....	.....	113	9.3	19
28.	11	13	110	35	103	.....	5.3	.....	.....	47	11	2.7
29.	.....	.....	64	25	62	.....	.....	22	.....	47	32	18
30.	5.2	.....	44	11	44	.....	.....	8.2	.....	27	31	9.5
31.	17	.....	48	.....	21	.....	1.4	4.5	.....	27	.....	9.5

NOTE.—Discharge determined by subtracting from the amount passing over the weir the amount of water apparently released from the reservoir or by adding the amount apparently stored in the reservoir, as indicated by gage heights of the water surface in the reservoir. As no allowance has been made for evaporation and seepage from the reservoir the results show the natural flow at the outlet of the reservoir only approximately. For days when no discharge values are given, the apparent storage release was equal to or greater than the amount passing over the weir.

Monthly discharge of Borden Brook near Westfield, Mass., for 1912-13.

[Drainage area, 8 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
1912.					
January	33	-----	6.98	0.872	1.01
February.....	45	-----	6.41	.801	.86
March.....	120	2.8	30.4	3.80	4.38
April.....	105	8.0	41.6	5.20	5.80
May.....	77	1.3	19.2	2.40	2.77
June.....	62	-----	3.24	.405	.45
July.....	7.4	-----	.584	.073	.08
August.....	10	-----	1.41	.176	.20
September.....	18	-----	5.68	.710	.79
October.....	78	-----	10.8	1.35	1.56
November.....	101	-----	18.6	2.32	2.59
December.....	57	-----	11.5	1.44	1.66
The year	120	-----	13.0	1.62	22.15
1913.					
January	58	-----	20.7	2.59	2.99
February.....	17	-----	4.70	.588	.61
March.....	164	-----	41.7	5.21	6.01
April.....	121	-----	24.4	3.05	3.40
May.....	103	-----	17.4	2.18	2.51
June.....	18	-----	2.29	.286	.32
July.....	15	-----	.703	.088	.10
August.....	22	-----	1.78	.222	.26
September.....	14	-----	2.03	.254	.28
October.....	221	-----	24.0	3.00	3.46
November.....	161	-----	22.2	2.78	3.10
December.....	87	-----	14.8	1.85	2.13
The year	221	-----	14.8	1.85	25.17

WEST BRANCH OF FARMINGTON RIVER NEAR NEW BOSTON, MASS.

Location.—At a highway bridge a quarter of a mile below Clam River, and about 1 mile south of New Boston.

Records available.—May 27 to December 31, 1913.

Drainage area.—92.7 square miles.

Gage.—Barrett & Lawrence automatic gage installed June 11, 1913, on left bank at downstream side of bridge, referred to a hook gage in the well.

Channel and control.—Rocky and filled with boulders.

Discharge measurements.—Made from cable 120 feet below gage, or by wading.

Regulation.—Flow affected by storage in Otis reservoir about 5 miles above New Boston, and by operation of a woodworking shop just above the station.

Winter flow.—Affected by ice.

Floods.—The high water of March, 1913, reached a maximum stage of about 6 feet gage height as determined from high-water marks by engineers of the Geological Survey.

Accuracy.—Results good for discharge below 200 second-feet. Above this limit results somewhat approximate.

Discharge measurements of West Branch of Farmington River near New Boston, Mass., during 1913.

[Made by R. S. Barnes.]

Date.	Gage height.	Dis- charge.	Date.	Gage height.	Dis- charge.
	<i>Feet.</i>	<i>Sec.-ft.</i>		<i>Feet.</i>	<i>Sec.-ft.</i>
June 9.....	3.11	64	Oct. 15.....	2.96	42.4
13.....	3.68	157	15.....	2.95	41.8
Oct. 9.....	2.30	6.6	15.....	2.98	43.9
9.....	2.70	29.6			

CONNECTICUT RIVER BASIN.

103

Daily gage height, in feet, of West Branch of Farmington River near New Boston, Mass., for 1913.

[Asa Sherwood, observer.]

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		3.64	3.38	3.49	3.33	2.75	3.58	3.75
2.....		3.54	3.05	3.48	2.65	2.98	3.48	3.66
3.....		3.43	2.55	3.48	2.43	2.95	3.40	3.63
4.....		3.32	3.26	3.45	2.45	2.85	3.35	.....
5.....		3.20	3.32	3.46	3.00	2.79	3.35	3.51
6.....		3.20	3.34	3.46	3.23	2.65	3.25	3.45
7.....		3.30	3.31	3.47	3.22	2.63	3.11	3.90
8.....		3.40	3.32	3.45	3.15	2.65	3.15	.....
9.....		3.11	3.54	3.48	3.08	2.60	5.02	.....
10.....		3.08	3.49	3.45	3.06	2.60	5.35	.....
11.....		3.06	3.56	3.43	3.03	2.60	4.60	3.70
12.....		3.68	3.54	3.39	3.04	3.15	4.15	3.65
13.....		3.63	3.54	3.37	3.01	3.18	3.85	3.55
14.....		3.00	3.53	3.39	2.99	2.95	3.78	3.49
15.....		3.18	3.53	3.44	2.85	2.88	3.70	3.47
16.....		3.47	3.52	3.54	2.75	2.83	3.65	3.40
17.....		3.43	3.54	3.56	2.78	2.75	3.60	3.38
18.....		3.45	3.52	3.55	2.75	2.80	3.65	3.30
19.....		3.45	3.54	3.55	2.75	2.95	3.77	3.33
20.....		3.45	3.53	3.47	2.65	3.13	4.30	3.28
21.....		3.35	3.50	3.46	2.80	3.32	4.05	3.27
22.....		2.80	3.49	3.48	3.64	3.03	3.90	3.25
23.....		3.00	3.48	3.34	3.28	2.93	3.75	3.18
24.....		3.39	3.50	2.48	2.85	2.85	3.58	3.35
25.....		3.38	3.49	2.85	2.65	3.84	3.61	.....
26.....		3.39	3.47	3.35	2.65	5.78	3.48	3.35
27.....	3.41	3.41	3.48	2.95	2.62	5.80	3.35	3.27
28.....	3.80	3.41	3.53	3.42	2.58	4.84	3.30	3.35
29.....	5.05	3.39	2.84	3.45	2.56	4.30	3.75	3.35
30.....	4.22	3.37	3.47	3.46	2.62	3.98	3.92	3.35
31.....	3.79	.....	3.49	3.43	.....	3.75	.....	3.32

Daily discharge, in second-feet, of West Branch of Farmington River near New Boston, Mass., for 1913.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		149	100	118	93	32	121	156
2.....		128	58	117	26	51	104	137
3.....		108	19	117	12	48	91	131
4.....		92	84	112	14	40	84	120
5.....		76	92	113	53	35	84	109
6.....		76	95	113	80	26	71	99
7.....		89	90	115	79	24	56	191
8.....		103	92	112	70	26	60	250
9.....		65	128	117	62	22	594	200
10.....		62	118	112	60	22	744	160
11.....		60	132	108	56	18	425	145
12.....		158	128	102	57	60	264	135
13.....		147	128	99	54	63	179	116
14.....		53	126	102	52	42	163	105
15.....		74	126	110	40	37	145	102
16.....		115	124	128	32	33	135	91
17.....		108	128	132	35	28	125	88
18.....		112	124	130	32	31	135	77
19.....		112	128	130	32	42	160	81
20.....		112	126	115	26	58	315	75
21.....		96	120	113	36	80	232	73
22.....		36	118	117	149	49	191	71
23.....		53	117	95	86	40	156	63
24.....		102	120	15	40	34	121	84
25.....		100	118	40	26	177	127	84
26.....		102	115	96	26	940	104	84
27.....	105	105	117	48	23	950	84	73
28.....	186	105	126	106	21	521	77	84
29.....	650	102	39	112	20	315	156	84
30.....	309	99	115	113	23	213	196	84
31.....	184	.....	118	108	.....	156	.....	80

NOTE.—Discharge determined from two rating curves, both well defined below 200 second-feet. Discharge Dec. 4, 8-10, and 25, estimated by comparison with records at adjacent stations.

Monthly discharge of West Branch of Farmington River near New Boston, Mass., for 1913.

[Drainage area, 92.7 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
May 27-31.....	650	105	287	3.10	0.58	C.
June.....	158	36	96.6	1.04	1.16	A.
July.....	132	19	109	1.18	1.36	A.
August.....	132	15	105	1.13	1.30	A.
September.....	149	12	47.2	.509	.57	A.
October.....	950	18	136	1.47	1.70	C.
November.....	744	56	183	1.97	2.20	C.
December.....	250	63	111	1.20	1.38	C.

HOUSATONIC RIVER BASIN.**HOUSATONIC RIVER NEAR GREAT BARRINGTON, MASS.**

Location.—At a highway bridge about a quarter of a mile northeast of the Van Deusenville station of the New York, New Haven & Hartford Railroad, Berkshire division, and 2 miles north of Great Barrington.

Records available.—May 17 to December 31, 1913.

Drainage area.—280 square miles.

Gage.—Inclined staff attached to concrete anchorages on the downstream side of the left abutment of the highway bridge; vertical high-water section attached to the bridge abutment.

Channel and control.—Sand, gravel, and alluvial deposits.

Discharge measurements.—Made from the upstream side of the highway bridge or by wading.

Regulation.—Flow not seriously affected by the dam of a paper mill about a mile above the station as the mill runs continually throughout the twenty-four hours.

Winter flow.—Affected by ice.

Floods.—The high water of March, 1913, reached a maximum stage of about 8 feet gage height as determined from high-water marks by engineers of the Geological Survey.

Accuracy.—Results fair.

Discharge measurements of Housatonic River near Great Barrington, Mass., during 1913.

Date.	Made by—	Gage height.	Dis- charge.	Date.	Made by—	Gage height.	Dis- charge.
May 21	C. H. Pierce.....	<i>Fect.</i> 2.19	<i>Sec.-ft.</i> 409	Oct. 18	R. S. Barnes.....	<i>Fect.</i> 1.48	<i>Sec.-ft.</i> 159
Aug. 7	do.....	1.47	160	19	do.....	.74	13.7

Daily gage height, in feet, of Housatonic River near Great Barrington, Mass., for 1913.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		1.50	1.90	1.50	0.60	1.40	1.80	1.80
2.....		2.2	1.75	1.20	1.06	1.40	1.15	2.1
3.....		2.0	1.75	1.05	1.10	1.34	1.80	2.4
4.....		2.2	1.45	1.35	1.12	1.24	1.65	2.0
5.....		2.1	1.10	1.50	1.18	1.04	1.50	2.05
6.....		1.75	1.10	1.48	1.29	1.60	1.75	2.1
7.....		2.1	1.75	1.28	.92	1.29	1.85	2.0
8.....		1.28	1.70	1.48	1.28	1.35	1.49	2.4
9.....		1.90	1.70	1.30	1.21	1.44	1.04	3.2
10.....		2.2	1.75	.75	1.25	1.60	3.0	2.6
11.....		2.1	1.70	.91	1.28	1.48	3.4	2.55
12.....		2.0	1.75	.81	1.28	.88	3.2	2.55
13.....		2.15	1.40	1.19	.80	1.24	2.65	2.5
14.....		1.90	1.70	1.06	.56	1.70	2.4	2.15
15.....		1.10	1.70	.86	1.21	1.40	2.3	2.1
16.....		1.80	1.70	.91	1.19	1.40	2.15	2.35
17.....	2.05	1.80	1.70	.84	1.18	1.20	1.80	2.3
18.....	1.60	2.05	1.65	1.44	1.18	1.18	2.2	2.1
19.....	2.0	2.1	1.65	.96	1.06	.80	2.2	2.1
20.....	2.15	2.05	1.35	1.31	1.04	.99	2.35	2.05
21.....	2.05	2.1	1.75	1.41	.88	1.70	2.35	1.80
22.....	2.1	2.0	1.70	1.16	1.04	1.45	2.25	2.0
23.....	2.1	1.70	1.75	1.30	1.30	1.39	2.1	2.15
24.....	3.2	2.4	1.70	.68	1.35	1.60	1.80	2.05
25.....	2.6	1.85	1.75	1.31	1.19	1.80	2.1	1.50
26.....	2.65	1.80	1.75	1.14	1.22	2.7	1.95	2.15
27.....	2.6	1.80	1.35	1.45	.91	3.9	2.1	2.35
28.....	2.45	1.75	1.70	1.31	.85	3.3	1.90	1.76
29.....	2.7	1.35	1.60	1.30	1.42	3.1	2.2	1.92
30.....	2.85	1.90	1.45	1.06	1.50	2.2	1.80	1.78
31.....	2.8		1.45	.64		2.1		1.85

NOTE.—Gage heights determined from two readings a day taken at about 7 a. m. and 5 p. m.

Daily discharge, in second-feet, of Housatonic River near Great Barrington, Mass., for 1913.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		165	290	165	3	140	255	255
2.....		420	240	92	63	140	82	370
3.....		330	240	62	71	125	255	520
4.....		420	152	128	75	101	210	330
5.....		370	71	165	88	60	165	350
6.....		240	71	160	113	195	240	370
7.....		370	240	110	38	113	272	330
8.....		110	225	160	110	128	162	520
9.....		290	225	115	94	150	60	1,060
10.....		420	240	16	104	195	910	640
11.....		370	225	37	110	160	1,220	610
12.....		330	240	22	110	32	1,060	610
13.....		395	140	90	21	101	670	580
14.....		290	225	63	2	225	520	395
15.....		71	225	29	94	140	470	370
16.....		255	225	37	90	140	395	495
17.....	350	255	225	27	88	92	255	470
18.....	195	350	210	150	68	88	420	370
19.....	330	370	210	45	63	21	420	370
20.....	395	350	128	118	60	50	495	350
21.....	350	370	240	142	32	225	495	255
22.....	370	330	225	84	60	152	445	330
23.....	370	225	240	115	115	138	370	395
24.....	1,060	520	225	8	128	195	255	350
25.....	640	272	240	118	90	255	370	165
26.....	670	255	240	79	97	700	310	395
27.....	640	255	128	152	37	1,620	370	495
28.....	550	240	225	118	28	1,140	290	243
29.....	700	128	195	115	145	980	420	298
30.....	805	290	152	63	165	420	255	249
31.....	770		152	5		370		272

NOTE.—Discharge determined from a rating curve well defined below 1,300 second-feet. High water measurements secured in March, 1914, were used in developing the rating curve.

Monthly discharge of Housatonic River near Great Barrington, Mass., for 1913.

[Drainage area, 280 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
May 17-31.....	1,060	195	546	1.95	1.09	B.
June.....	520	71	302	1.08	1.20	B.
July.....	290	71	204	.729	.84	B.
August.....	165	5	90.0	.321	.37	C.
September.....	165	2	79.4	.284	.32	C.
October.....	1,620	21	277	.989	1.14	B.
November.....	1,220	60	404	1.44	1.61	B.
December.....	1,060	165	413	1.48	1.71	B.

HOUSATONIC RIVER AT GAYLORDSVILLE, CONN.

Location.—At the covered wooden highway bridge at Gaylordsville, about 2 miles below Tenmile River.

Records available.—October 24, 1900, to December 31, 1913.

Drainage area.—1,020 square miles.

Gage.—Chain attached to the bridge.

Channel and control.—Large bowlders and rocks; channel probably somewhat shifting. At high stages the dam at Milford, Conn., 7 miles below the station, may cause backwater at the gage.

Discharge measurements.—Made from a cable $1\frac{1}{4}$ miles below the gage.

Regulation.—Flow affected by the operation of a power plant about a mile above the station.

Winter flow.—Affected by ice for short periods.

Floods.—The highest gage height observed during 1913 occurred at 5 p. m. March 27.

A study of the gage-height records indicates that the stage probably rose later in the evening to 10.5 or 11. The maximum discharge was probably between 16,000 and 17,000 second-feet. The flood of March, 1913, was not phenomenal at this station.

Cooperation.—Gage heights furnished by United States Weather Bureau and private parties.

Estimates of daily and monthly discharge withheld for additional data.

The following discharge measurement was made by C. S. De Golyer:

January 10, 1913: Gage height, 6.25 feet; discharge, 4,370 second-feet.

Gage height, in feet, of Housatonic River at Gaylordsville, Mass., for 1913.

[G. H. Munroe, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6.6	5.1	5.9	7.2	5.6	5.1	3.5	3.0	2.9	3.0	5.3	5.0
2.....	6.4	5.1	5.8	6.8	5.4	4.8	3.4	3.3	3.4	3.9	4.8	5.1
3.....	6.4	5.2	5.3	6.5	5.2	4.7	3.5	3.0	2.9	4.6	4.9	5.1
4.....	6.3	5.1	5.1	6.4	4.9	4.8	3.3	3.2	2.9	4.2	4.7	5.1
5.....	6.6	5.1	5.1	6.3	4.8	4.8	3.3	3.0	3.1	3.9	4.5	4.9
6.....	6.3	4.9	5.0	6.3	4.7	4.8	2.8	2.9	3.4	3.9	4.6	4.8
7.....	6.1	4.9	4.6	6.3	4.9	4.8	3.4	2.9	3.2	3.9	4.5	4.4
8.....	6.4	4.7	4.7	5.7	4.7	4.7	3.0	2.9	3.3	3.6	4.6	5.6
9.....	6.7	4.6	4.4	5.7	4.7	4.5	3.2	3.1	3.4	3.4	4.5	5.5
10.....	6.5	4.4	5.0	5.6	4.4	4.6	3.3	2.7	3.1	3.7	5.7	5.3
11.....	6.6	4.5	5.3	5.6	4.3	4.5	3.3	3.0	3.0	3.7	5.6	5.3
12.....	6.8	4.6	5.6	6.5	4.1	4.5	3.4	3.1	3.0	3.5	5.6	4.9
13.....	6.5	4.8	5.5	7.3	4.5	4.2	2.7	3.1	3.0	4.4	5.6	4.9
14.....	6.0	4.8	5.7	7.2	4.6	4.0	3.2	2.7	3.0	4.0	5.2	4.9
15.....	5.7	4.8	6.2	7.0	4.6	3.6	3.2	3.0	2.7	4.0	5.1	5.1
16.....	5.5	4.7	7.0	6.8	4.6	3.7	3.2	2.9	2.7	3.8	4.9	5.0
17.....	5.8	4.5	6.7	6.5	4.6	3.5	3.4	2.6	2.9	3.9	5.1	4.9
18.....	6.1	4.3	6.4	6.1	4.2	3.5	3.3	2.7	2.8	3.6	5.1	5.2
19.....	6.0	4.5	6.4	5.8	4.4	3.6	3.0	3.0	2.8	3.4	5.1	5.0
20.....	6.0	4.5	6.2	5.7	4.0	3.7	2.7	3.0	2.8	3.9	5.2	4.7
21.....	6.3	4.6	6.2	5.5	4.0	4.1	3.4	3.0	2.7	4.1	5.5	4.7
22.....	6.1	4.8	6.0	5.4	4.3	4.1	2.9	3.0	3.3	3.9	5.3	5.0
23.....	5.9	5.5	5.9	5.3	4.8	3.7	3.1	3.0	4.1	3.9	4.8	4.9
24.....	6.0	5.3	5.7	5.3	6.3	3.6	3.1	2.6	3.0	4.1	4.9	5.0
25.....	5.7	5.0	5.8	5.5	6.1	3.4	3.2	3.2	3.7	5.2	4.8	5.0
26.....	5.8	4.8	5.8	5.0	5.8	3.4	3.3	3.0	3.5	6.1	4.9	5.0
27.....	5.7	4.8	6.5	4.9	5.4	3.5	3.0	2.9	3.5	7.8	4.6	4.9
28.....	5.7	5.5	9.6	5.5	5.4	3.5	3.3	2.6	3.1	7.0	4.9	4.9
29.....	5.5	.....	9.5	5.7	5.8	2.8	3.3	2.9	3.2	6.2	4.6	4.8
30.....	5.6	.....	8.9	5.5	5.4	3.2	3.0	4.0	3.2	5.9	5.1	4.9
31.....	5.8	.....	7.9	.....	5.1	.....	3.0	3.2	.....	5.4	.....	4.9

NOTE.—Gage read once daily at about 8 a. m. Discharge relation probably not seriously affected by ice during 1913.

POMPERAUG RIVER AT BENNETTS BRIDGE, CONN.

Location.—Just above the New York & New England Railroad bridge, about 1,100 feet above the mouth, a quarter of a mile north of Bennetts Bridge, and a mile east of Sandy Hook railroad station.

Records available.—July 30 to December 31, 1913.

Drainage area.—89.3 square miles.

Gage.—Inclined staff on right bank.

Channel and control.—Channel composed of coarse gravel, bowlders, and alluvial deposits. Control formed by large rocks about 100 feet below gage.

Discharge measurements.—Made from a cable at the gage or by wading about 250 feet above the gage.

Regulation.—Flow slightly affected by the operation of power plants at South Britain, 2½ miles above the station.

Winter flow.—Affected by ice.

Accuracy.—Results good.

Discharge measurements of Pomperaug River at Bennetts Bridge, Conn., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
July 31	C. H. Pierce.....	1.10	15.6	Oct. 28	A. J. Ellis.....	3.78	472
Oct. 16	R. S. Barnes.....	1.59	39.7	29	do.....	3.46	382
17	do.....	1.58	39.2	29	do.....	3.44	380
17	do.....	1.57	38.6	29	do.....	3.44	381
27	A. J. Ellis.....	4.71	801	31	do.....	3.00	276
28	do.....	3.80	482	Nov. 3	do.....	2.66	237

Daily gage height, in feet, and discharge, in second-feet, of Pomperaug River at Bennetts Bridge, Conn., for 1913.

Day.	July.		August.		September.		October.		November.		December.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.....			1.12	17	1.31	24	1.31	24	2.9	250	2.55	180
2.....			1.15	18	1.26	22	2.6	190	2.8	230	2.48	166
3.....			1.12	17	1.22	21	2.16	109	2.7	210	2.44	158
4.....			1.10	16	1.20	20	1.80	58	2.65	200	2.38	146
5.....			1.09	16	1.22	21	1.64	43	2.6	190	2.36	143
6.....			1.08	15	1.21	20	1.56	38	2.5	170	2.32	136
7.....			1.16	18	1.22	21	1.50	34	2.46	162	2.41	152
8.....			1.19	20	1.55	37	1.51	35	2.41	152	2.32	310
9.....			1.14	18	1.49	34	1.49	34	3.35	355	2.7	210
10.....			1.12	17	1.34	26	1.46	32	3.7	460	2.55	180
11.....			1.15	18	1.24	21	1.45	32	3.1	290	2.55	180
12.....			1.16	18	1.22	21	2.05	92	2.9	250	2.46	162
13.....			1.12	17	1.25	22	2.05	92	2.8	230	2.40	150
14.....			1.15	18	1.20	20	1.76	54	2.8	230	2.42	154
15.....			1.18	19	1.20	20	1.64	43	2.75	220	2.42	154
16.....			1.19	20	1.19	20	1.60	40	2.7	210	2.32	136
17.....			1.15	18	1.29	24	1.51	35	2.95	260	2.32	136
18.....			1.19	20	1.26	22	1.49	34	2.85	240	2.29	130
19.....			1.28	23	1.26	22	1.49	34	2.7	210	2.19	113
20.....			1.28	23	1.36	27	1.70	48	2.9	250	2.10	99
21.....			1.22	21	1.40	29	2.20	115	2.75	220	2.18	112
22.....			1.18	19	1.78	56	1.85	64	2.65	200	2.5	170
23.....			1.24	22	1.99	83	1.64	42	2.6	190	2.44	158
24.....			1.18	19	1.59	39	1.68	46	2.5	170	3.6	430
25.....			1.19	20	1.46	32	4.6	760	2.48	166	2.8	230
26.....			1.16	18	1.39	28	6.0	1,520	2.44	158	3.1	290
27.....			1.14	18	1.38	28	5.2	1,040	2.39	148	2.7	210
28.....			1.18	19	1.29	24	3.9	520	2.35	141	2.42	154
29.....			1.18	19	1.28	23	3.45	385	2.75	220	2.36	143
30.....	1.10	16	1.58	39	1.28	23	3.20	310	2.65	200	2.30	132
31.....	1.10	16	1.42	30			3.0	270			2.29	130

NOTE.—Gage read twice daily at about 7 a. m. and 6 p. m. Discharge determined from a rating curve well defined below 2,600 second-feet.

Monthly discharge of Pomperaug River at Bennetts Bridge, Conn., for 1913.

[Drainage area, 89.3 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
August.....	39	15	19.7	0.221	0.25	A.
September.....	83	20	27.7	.310	.35	A.
October.....	1,520	24	199	2.23	2.57	A.
November.....	460	141	219	2.45	2.73	A.
December.....	430	99	173	1.94	2.24	A.

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, and is continued on page 131 of Water-Supply Paper 321 and in the following tables:

Comparison (by monthly means) of discharge in the Hudson River basin for 1913.

	Hudson, North Creek.	Schroon, River- bank.	North Creek+ River- bank.	Hudson, Thur- man.	Sacandaga.		Thur- man+ Hadley.	Hudson.	
					Hope.	Hadley.		Spier Falls.	Mechanic- ville+ Champlain Canal.
Drainage area (square miles)....	804	534	1,340	1,550	.....	1,060	2,610	2,800	4,500
January.....	2,370	1,080	3,450	3,790	2,260	4,260	8,050	8,570	12,700
February.....	1,020	592	1,612	1,770	592	1,130	2,900	2,910	5,220
March.....	5,340	2,450	7,790	8,570	4,350	7,770	16,340	21,000	25,300
April.....	3,810	2,480	6,290	7,390	2,080	4,270	11,660	12,900	16,300
May.....	1,540	931	2,471	3,220	1,340	2,200	5,420	5,290	7,210
June.....	874	795	1,669	2,000	603	1,220	3,220	3,260	4,230
July.....	621	181	802	1,040	138	228	1,268	1,080	1,970
August.....	508	101	609	666	74	137	803	813	1,260
September.....	444	71	516	622	96	182	804	776	1,380
October.....	720	172	892	1,230	581	959	2,189	1,950	2,910
November.....	1,640	360	2,000	2,440	1,480	2,570	5,010	5,080	6,470
December.....	642	432	1,074	1,440	737	1,360	2,800	2,900	4,840

• *Comparison (by monthly ratios) of discharge in the Hudson River basin for 1913.*

	Ratio of North Creek+ Riverbank to Thur- man.	Ratio of Thurman+ Hadley to Spier Falls.	Ratio of Thurman+ Hadley to Mechanic- ville.	Ratio of Spier Falls to Mechanic- ville.
Drainage area ratio	0.86	0.93	0.58	0.62
January.....	.91	.94	.63	.67
February.....	.91	1.00	.56	.56
March.....	.91	.78	.65	.83
April.....	.85	.90	.72	.79
May.....	.77	1.02	.75	.73
June.....	.83	.99	.76	.77
July.....	.77	1.17	.64	.55
August.....	.91	.99	.64	.65
September.....	.83	1.04	.58	.56
October.....	.73	1.12	.75	.67
November.....	.82	.99	.77	.79
December.....	.75	.97	.58	.60

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, 1913. Data also in annual reports of the State engineer and surveyor, and the State of New York Conservation Commission.

Drainage area.—804 square miles.

Gage.—Chain on highway bridge.

Channel and control.—Heavy gravel; practically permanent.

Discharge measurements.—Made from the two-span steel highway bridge.

Regulation.—Natural flow affected by the operation of storage in Indian Lake and other reservoirs in upper Hudson River basin in connection with log driving.

Winter flow.—Sometimes seriously affected by ice.

Floods.—The crest of the flood of March 25 to 30, 1913, reached a gage height of about 12 feet in the evening of March 27, as indicated by observations of the gage reader and later verified from high-water marks by engineers of the Geological Survey. The corresponding discharge was approximately 30,000 second-feet, or 37.3 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Hudson River at North Creek, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Mar. 3	Frank Weber.....	<i>Feet.</i> 3.01	<i>Sec.-ft.</i> 877	Sept. 22	C. S. De Golyer.....	<i>Feet.</i> 2.96	<i>Sec.-ft.</i> 761
Apr. 14	C. S. De Golyer.....	5.11	4,390	22	do.....	3.00	775
Sept. 19	do.....	2.73	535	Dec. 31	do.....	a 2.78	479

a Measurement made under partial ice cover with slush ice running.

Daily gage height, in feet, of Hudson River at North Creek, N. Y., for 1913.

[Gilbert Dean, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.85	3.7	3.0	7.0	3.35	4.3	2.95	3.2	2.55	2.5	3.5	2.8
2.....	2.8	3.5	3.05	6.1	4.3	4.0	2.8	3.05	2.55	2.65	3.5	2.75
3.....	2.95	3.4	3.0	5.6	3.25	3.8	2.55	2.8	2.55	2.9	3.05	2.8
4.....	3.5	3.35	3.0	5.9	4.2	3.65	2.65	2.65	2.55	3.0	2.7	2.85
5.....	3.75	3.2	3.05	7.4	3.1	3.45	2.65	2.75	2.55	2.95	2.6	2.9
6.....	3.8	3.1	3.0	6.7	3.7	3.3	2.8	2.75	2.55	2.9	2.55	2.8
7.....	3.95	3.0	3.15	5.8	3.0	3.2	2.6	2.75	2.5	2.8	2.55	2.8
8.....	4.1	3.0	3.3	5.2	4.4	3.15	2.6	2.7	2.5	2.75	2.46	2.8
9.....	4.2	3.0	3.3	4.9	3.55	3.1	2.6	2.7	2.5	2.7	3.4	3.05
10.....	4.1	2.9	3.4	4.0	3.2	3.1	2.85	2.7	2.5	2.7	6.0	3.3
11.....	3.85	3.15	3.1	4.7	3.0	3.0	2.95	2.7	2.6	2.7	5.6	3.1
12.....	3.8	3.3	2.85	4.3	2.9	2.75	2.95	2.7	2.75	2.7	5.3	2.95
13.....	3.85	3.3	2.7	4.8	2.9	2.8	2.9	2.65	2.65	2.7	4.3	3.0
14.....	3.9	3.3	3.4	4.6	3.2	2.7	2.9	2.65	2.5	2.7	3.9	2.9
15.....	3.75	3.3	4.7	4.4	3.0	2.65	2.9	2.65	2.7	2.65	3.7	2.9
16.....	3.6	3.4	5.3	4.8	3.1	2.65	2.9	2.6	2.65	2.6	3.5	2.9
17.....	3.55	3.3	4.8	4.7	3.1	2.6	2.9	2.65	2.75	2.6	3.3	2.8
18.....	3.95	3.25	4.6	5.0	3.1	2.8	2.85	2.6	2.7	2.6	3.15	2.8
19.....	4.8	3.2	4.5	4.3	3.05	2.9	2.85	2.6	2.75	2.55	3.0	2.65
20.....	4.9	3.2	4.6	3.8	3.05	2.9	2.85	2.6	2.75	2.75	3.3	2.65
21.....	5.2	3.15	5.3	4.0	3.0	2.9	2.8	2.6	2.75	3.25	4.2	2.9
22.....	5.2	3.2	6.2	3.85	3.65	2.85	2.8	2.6	2.95	3.45	4.1	3.15
23.....	5.0	3.25	5.8	3.5	4.0	2.8	2.8	2.6	3.05	3.4	3.8	3.15
24.....	4.7	3.25	5.6	3.9	3.7	2.8	2.8	2.6	2.8	3.25	3.55	2.95
25.....	4.6	3.3	7.4	3.55	3.75	2.75	2.8	2.6	2.75	3.0	3.4	2.65
26.....	4.5	3.2	9.6	4.1	3.7	2.75	2.8	2.55	2.5	3.05	3.45	2.6
27.....	4.3	3.05	10.8	3.75	3.4	2.7	2.75	2.6	2.36	3.45	3.15	2.55
28.....	4.1	3.05	10.4	3.85	3.65	2.7	2.8	2.55	2.19	3.35	3.05	2.38
29.....	3.9	.....	8.4	3.55	4.7	2.7	2.9	2.6	2.12	3.15	2.85	2.6
30.....	3.8	.....	7.3	4.6	4.9	2.85	2.95	2.55	2.24	3.1	2.95	2.75
31.....	3.5	.....	6.9	.....	4.7	.....	3.15	2.55	.....	3.05	.....	2.75

NOTE.—Discharge relation Feb. 11-28, and Dec. 29-31 affected by ice.

Daily discharge, in second-feet, of Hudson River at North Creek, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	745	1,770	890	9,200	1,180	2,720	732	1,000	418	385	1,390	600
2.....	700	1,480	940	6,690	2,720	2,180	600	832	418	485	1,390	560
3.....	840	1,350	890	5,440	1,060	1,840	418	600	418	685	832	600
4.....	1,480	1,280	890	6,180	2,540	1,600	485	485	418	780	520	642
5.....	1,840	1,100	940	10,400	885	1,320	485	560	418	732	450	685
6.....	1,920	990	890	8,330	1,680	1,120	600	560	418	685	418	600
7.....	2,160	890	1,040	5,930	780	1,000	450	560	385	600	418	600
8.....	2,400	890	1,220	5,520	2,910	942	450	520	385	560	361	780
9.....	2,570	890	1,220	3,880	1,460	885	450	520	385	520	1,250	832
10.....	2,400	790	1,350	2,180	1,000	885	642	520	385	520	6,430	1,120
11.....	2,000	1,000	990	3,480	780	780	732	520	450	520	5,440	885
12.....	1,920	1,000	745	2,720	685	560	732	520	560	520	4,740	732
13.....	2,000	1,000	610	3,680	685	600	685	485	485	520	2,720	780
14.....	2,080	990	1,350	3,290	1,000	520	685	485	385	520	2,010	685
15.....	1,840	970	3,480	2,910	780	485	685	485	520	485	1,680	685
16.....	1,620	950	4,740	3,680	885	485	685	450	485	450	1,390	685
17.....	1,550	940	3,680	3,480	885	450	685	485	560	450	1,120	600
18.....	2,160	900	3,290	4,090	885	600	642	450	520	450	942	600
19.....	3,680	880	3,100	2,720	832	685	642	450	560	418	780	485
20.....	3,880	880	3,290	1,840	832	685	642	450	560	560	1,120	485
21.....	4,520	880	4,740	2,180	780	685	600	450	560	1,060	2,540	685
22.....	4,520	890	6,950	1,920	1,600	642	600	450	732	1,320	2,360	942
23.....	4,090	980	5,930	1,390	2,180	600	600	450	832	1,250	1,840	942
24.....	3,480	1,140	5,440	2,010	1,680	600	600	450	600	1,060	1,460	732
25.....	3,290	970	10,400	1,460	1,760	560	600	450	560	780	1,250	485
26.....	3,100	900	18,200	2,360	1,680	560	600	418	385	832	1,320	450
27.....	2,740	900	23,900	1,760	1,250	520	560	450	303	1,320	942	418
28.....	2,400	890	21,900	1,920	1,600	520	600	418	221	1,180	832	314
29.....	2,080	.....	13,600	1,460	3,480	520	685	450	193	942	642	361
30.....	1,920	.....	10,100	3,290	3,880	642	732	418	243	885	732	457
31.....	1,480	.....	8,910	.....	3,480	.....	942	418	.....	832	.....	479

NOTE.—Discharge determined from a well-defined rating curve. Estimate Feb. 11-28 determined by comparison with records at Indian Lake and Spier Falls. Discharge Dec. 29-31 estimated on the basis of discharge measurement of Dec. 31.

Monthly discharge of Hudson River at North Creek, N. Y., for 1913.

[Drainage area, 804 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mle.		
January.....	4,520	700	2,370	2.95	3.40	A.
February.....	1,770	790	1,020	1.27	1.32	B.
March.....	23,900	610	5,340	6.64	7.66	A.
April.....	10,400	1,390	3,810	4.74	5.29	A.
May.....	3,880	685	1,540	1.92	2.21	A.
June.....	2,720	450	874	1.09	1.22	A.
July.....	942	418	621	.770	.89	B.
August.....	1,000	418	508	.632	.73	B.
September.....	832	193	444	.552	.62	B.
October.....	1,320	385	720	.896	1.03	A.
November.....	6,430	361	1,640	2.04	2.28	A.
December.....	1,120	314	642	.799	.92	B.
The year.....	23,900	193	1,630	2.03	27.57	

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 Schroon River, and about 13 miles above Sacandaga River, which enters from the right.

Records available.—September 1, 1907, to December 31, 1913; also in annual reports of the State engineer and surveyor, and the State of New York Conservation Commission.

Drainage area.—1,550 square miles.

Gage.—Chain gage on railroad bridge.

Channel and control.—Sand and gravel; liable to shift; occasionally accumulations of logs at the control and around the bridge piers.

Discharge measurements.—Made from the bridge.

Regulation.—Flow affected by storage at Indian Lake and by operation of mills on Schroon River.

Winter flow.—Station discontinued during the winter months because of ice. Winter flow estimated from the determinations of combined flow at Riverbank and North Creek plus an estimated inflow between the two stations.

Floods.—The flood of March 25 to 30, 1913, reached a maximum gage height of 12.5 feet as determined from high-water marks by engineers of the Geological Survey. The corresponding discharge was approximately 46,000 second-feet, or 29.7 second-feet per square mile of drainage area.

Accuracy.—Results fair.

Cooperation.—Gage heights, January, February, March, and December furnished by Albany office of United States Weather Bureau.

Discharge measurements of Hudson River at Thurman, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Apr. 11	C. S. De Golyer.....	4.90	5,970	Aug. 5	C. S. De Golyer.....	2.50	642
21	do.....	4.22	4,220	6	do.....	2.52	623
May 27	do.....	3.81	3,000	Oct. 3	G. H. Canfield.....	2.68	860

Daily gage height, in feet, of Hudson River at Thurman, N. Y., for 1913.

[S. H. Spencer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.1	3.8	6.4	-----	3.85	4.6	3.05	2.94	2.41	2.42	3.1	2.9
2.....	2.9	10.7	6.4	-----	4.8	4.4	3.0	2.88	2.38	2.58	3.3	3.1
3.....	3.3	10.9	6.7	-----	3.75	4.2	2.82	2.71	2.34	2.74	3.1	3.0
4.....	3.7	10.3	6.7	6.2	4.7	4.0	2.65	2.58	2.35	2.86	2.92	3.0
5.....	3.8	9.9	6.5	7.3	3.5	3.9	2.87	2.57	2.33	2.84	2.63	3.4
6.....	3.8	9.7	6.8	6.8	4.4	3.8	2.71	2.55	2.33	2.84	2.82	3.1
7.....	3.9	8.8	6.8	6.4	3.45	3.7	2.82	2.54	2.33	2.74	2.80	3.2
8.....	4.0	8.7	6.8	5.8	4.8	3.4	2.72	2.50	2.37	2.66	2.70	3.4
9.....	10.0	8.3	7.1	5.6	3.85	3.45	2.69	2.46	2.38	2.61	2.52	3.4
10.....	10.3	7.7	7.9	4.9	3.4	3.4	2.70	2.58	2.35	2.60	5.6	3.4
11.....	9.9	7.6	7.5	5.4	3.35	3.35	2.85	2.54	2.38	2.54	5.1	3.4
12.....	10.0	7.5	6.6	4.7	3.3	3.05	2.82	2.52	2.50	2.60	4.5	3.1
13.....	9.0	7.3	6.3	5.2	3.2	2.90	2.76	2.51	2.46	2.58	4.1	3.3
14.....	9.0	7.3	9.5	4.7	3.35	2.92	2.88	2.54	2.35	2.54	3.8	3.3
15.....	7.2	7.5	9.5	5.2	3.3	2.82	2.81	2.50	2.54	2.54	3.65	3.2
16.....	7.0	7.4	9.3	4.8	3.3	2.85	2.81	2.47	2.44	2.54	3.35	3.1
17.....	6.8	7.4	8.4	5.1	3.35	2.82	2.80	2.47	2.48	2.51	3.3	3.1
18.....	6.3	7.4	8.4	4.6	3.2	2.82	2.88	2.50	2.52	2.54	3.3	3.1
19.....	6.4	7.0	6.7	4.9	3.25	3.15	2.88	2.44	2.58	2.48	3.1	3.0
20.....	6.0	6.9	6.5	4.2	3.2	3.15	2.62	2.42	2.65	2.88	3.3	2.9
21.....	5.7	7.3	6.6	4.2	3.15	3.1	2.88	2.43	2.49	3.2	3.8	3.0
22.....	5.6	6.8	6.3	4.5	3.2	2.88	2.78	2.40	2.50	3.25	3.95	3.2
23.....	5.3	6.9	5.9	3.9	4.1	3.05	2.82	2.41	3.05	3.35	3.75	2.9
24.....	5.0	6.4	5.5	4.5	3.85	3.0	2.81	2.36	2.71	3.25	3.6	3.2
25.....	4.7	6.4	8.9	4.4	3.9	3.05	2.69	2.40	2.63	3.1	3.5	2.7
26.....	4.6	6.3	9.9	4.5	4.0	2.94	2.68	2.42	2.50	3.55	3.35	3.3
27.....	4.4	6.5	10.9	4.1	3.85	3.0	2.54	2.44	2.30	3.5	3.3	3.8
28.....	4.1	6.7	-----	5.6	3.85	2.90	2.85	2.41	2.28	3.45	3.2	4.0
29.....	4.2	-----	-----	3.95	4.9	2.63	2.78	2.44	2.18	3.4	3.15	4.2
30.....	4.8	-----	-----	4.4	5.0	2.94	2.73	2.40	2.12	3.25	3.0	4.3
31.....	5.4	-----	-----	-----	4.9	-----	2.88	2.34	-----	3.15	-----	4.5

NOTE.—Discharge relation Jan. 1 to Mar. 27 and Dec. 26-31 seriously affected by ice.

Daily discharge, in second-feet, of Hudson River at Thurman, N. Y., for 1913.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	16,000	3,200	5,290	1,460	1,270	551	562	1,550	1,200
2.....	12,600	5,870	4,710	1,370	1,170	520	746	1,940	1,550
3.....	10,600	2,960	4,140	1,070	914	480	956	1,550	1,370
4.....	10,600	5,580	3,590	835	746	490	1,140	1,230	1,370
5.....	14,900	2,370	3,330	1,150	734	470	1,100	809	1,370
6.....	12,900	4,710	3,080	914	710	470	1,100	1,070	1,370
7.....	11,400	2,260	2,840	1,070	698	470	956	1,040	1,550
8.....	9,140	5,870	2,150	928	650	510	848	900	1,740
9.....	8,440	3,200	2,260	887	606	520	783	674	2,150
10.....	6,170	2,150	2,150	900	746	490	770	8,440	2,150
11.....	7,760	2,040	2,040	1,120	698	520	698	6,780	2,150
12.....	5,580	1,940	1,460	1,070	674	650	770	5,000	1,550
13.....	7,100	1,740	1,200	984	662	606	746	3,860	1,940
14.....	5,580	2,040	1,230	1,170	698	490	698	3,080	1,940
15.....	7,100	1,940	1,070	1,060	650	698	698	2,720	1,740
16.....	5,870	1,940	1,120	1,060	617	584	698	2,040	1,550
17.....	6,780	2,040	1,070	1,040	617	628	662	1,940	1,550
18.....	5,290	1,740	1,070	1,170	650	674	698	1,940	1,550
19.....	6,170	1,840	1,640	1,170	584	746	628	1,550	1,370
20.....	4,140	1,740	1,640	796	562	835	1,170	1,940	1,200
21.....	4,140	1,640	1,550	1,170	573	639	1,740	3,080	1,370
22.....	5,000	1,740	1,170	1,010	540	1,300	1,840	3,460	1,740
23.....	3,330	3,860	1,460	1,070	551	1,460	2,040	2,960	1,200
24.....	5,000	3,200	1,370	1,060	500	914	1,840	2,600	1,740
25.....	4,710	3,330	1,460	887	540	809	1,550	2,370	900
26.....	5,000	3,590	1,270	874	562	650	2,480	2,040	970
27.....	3,860	3,200	1,370	698	584	440	2,370	1,940	910
28.....	8,440	3,200	1,200	1,120	551	422	2,260	1,740	770
29.....	3,460	6,170	809	1,010	584	335	2,150	1,640	830
30.....	4,710	6,470	1,270	942	540	290	1,840	1,370	930
31.....		6,170		1,170	480		1,640		930

NOTE.—Discharge determined from a fairly well defined rating curve. Daily discharge Apr. 1-3 and Dec. 29-31, and mean discharge for January, February, and March computed from the combined flow at North Creek and Riverbank plus an estimated inflow for drainage between these points and Thurman.

Monthly discharge of Hudson River at Thurman, N. Y., for 1913.

[Drainage area, 1,550 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....			3,790	2.45	2.83	B.
February.....			1,770	1.14	1.19	C.
March.....			8,570	5.53	6.38	B.
April.....	16,000	3,330	7,390	4.77	5.32	B.
May.....	6,470	1,640	3,220	2.08	2.40	A.
June.....	5,290	809	2,000	1.29	1.44	A.
July.....	1,460	698	1,040	.671	.77	A.
August.....	1,270	480	666	.430	.50	B.
September.....	1,460	290	622	.401	.45	B.
October.....	2,480	562	1,230	.794	.92	A.
November.....	8,440	674	2,440	1.57	1.75	A.
December.....			1,440	.929	1.07	B.
The year.....			2,850	1.84	25.02	

HUDSON RIVER AT SPIER FALLS, N. Y.

Location.—On the river road half a mile below the Spier Falls Dam, about 11½ miles below Sacandaga River. This station is most easily reached from Glens Falls, N. Y., a distance of 11 miles.

93670°—WSP 351—15—8

Records available.—October 7, 1912, to December 31, 1913.

Drainage area.—2,800 square miles.

Gage.—Gurley Simplex automatic gage referred to an inclined staff.

Channel and control.—Coarse gravel and boulders.

Discharge measurements.—Made from a cable about 1,000 feet below the gage.

Winter flow.—Occasionally affected by ice.

Regulation.—Flow affected by operation of the Spier Falls Dam, resulting in low Sunday discharges.

Floods.—The flood of March 25 to 30, 1913, reached a crest elevation of 18.59 feet gage height at 12.25 a. m. March 28 as shown by the automatic gage records. The corresponding discharge was 89,100 second-feet, or 31.8 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Hudson River at Spier Falls, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 5	J. G. Mathers.....	3.60	2,770	Aug. 12	G. J. Lyon.....	3.03	1,700
6	do.....	3.99	3,470	14	do.....	3.11	1,860
19	C. S. De Golyer.....	7.26	12,600	16	do.....	2.24	789
19	do.....	7.16	12,700	17	do.....	.84	198
21	do.....	8.01	16,000	17	do.....	1.58	413
22	do.....	9.38	22,300	17	do.....	.72	85.6
29	J. G. Mathers.....	16.46	69,000	17	do.....	.72	87.6
Apr. 9	C. S. De Golyer.....	8.16	16,400	18	do.....	2.74	1,390
June 28	do.....	3.18	2,120	31	do.....	.78	99.4
Aug. 2	O. W. Hartwell.....	3.65	3,020				

Daily discharge, in second-feet, of Hudson River at Spier Falls, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4,240	5,880	2,980	33,800	7,650	11,100	1,560	1,350	638	792	3,350	3,210
2.....	4,090	4,420	2,050	27,700	7,890	9,310	1,460	1,750	1,220	755	2,860	2,610
3.....	4,220	3,880	2,700	22,700	5,680	7,750	1,490	972	1,070	957	3,220	2,800
4.....	8,100	3,900	2,260	19,800	5,670	6,510	1,340	1,320	822	1,260	2,420	2,570
5.....	7,640	3,760	2,280	23,200	4,560	5,480	1,240	1,280	738	906	2,510	2,680
6.....	7,890	3,160	2,330	24,200	5,100	4,720	820	1,160	640	1,760	2,420	2,940
7.....	8,210	2,930	2,130	20,500	4,400	4,250	1,620	1,090	156	1,380	2,070	2,550
8.....	8,670	3,190	2,020	16,900	5,400	3,500	1,420	1,140	748	1,160	1,750	5,100
9.....	8,410	2,720	1,740	15,400	5,010	3,310	1,310	899	748	1,320	1,560	5,670
10.....	8,350	2,760	3,440	11,400	3,680	3,190	1,260	383	785	1,230	13,300	5,080
11.....	8,210	2,680	4,550	10,600	3,130	3,120	1,200	1,030	837	1,050	16,000	4,890
12.....	8,150	2,390	4,030	11,300	2,790	2,490	1,340	1,090	817	442	13,700	3,380
13.....	7,240	2,590	14,270	11,100	3,010	2,390	610	1,130	695	1,230	11,100	3,250
14.....	6,810	2,360	9,370	10,900	3,200	2,060	1,330	1,110	151	1,230	8,780	3,690
15.....	6,630	2,350	13,500	11,400	3,380	1,730	1,500	1,180	783	1,240	7,070	3,660
16.....	6,350	2,090	16,800	9,460	3,000	2,000	1,520	892	800	1,240	5,610	3,260
17.....	6,390	2,810	15,600	10,600	3,030	1,930	1,350	358	755	1,190	.....	3,160
18.....	8,010	2,680	14,200	9,100	2,880	2,050	1,600	899	775	1,240	.....	3,160
19.....	11,200	2,270	13,100	8,880	2,770	2,050	1,140	942	912	401	3,360	2,990
20.....	12,200	2,120	14,000	8,660	2,660	2,150	579	790	946	1,550	3,450	2,510
21.....	14,300	2,460	16,400	8,000	2,920	1,890	1,250	870	569	2,180	4,820	1,600
22.....	14,500	2,310	22,000	8,000	2,720	1,310	1,320	978	1,480	3,300	6,080	2,690
23.....	13,800	3,330	22,000	7,000	4,770	2,150	1,270	812	1,930	3,580	5,440	2,810
24.....	13,300	3,360	35,500	6,170	7,060	1,990	1,280	196	2,510	3,210	5,050	2,660
25.....	12,000	3,070	49,000	6,630	7,740	2,060	1,280	865	1,630	3,000	4,230	2,510
26.....	10,800	2,880	62,400	6,600	7,370	2,040	1,020	933	1,460	4,080	3,820	2,360
27.....	9,820	2,720	76,200	6,060	6,520	2,120	571	1,060	1,020	5,370	3,540	2,080
28.....	8,190	2,440	84,200	7,410	6,770	1,880	1,280	1,170	301	5,200	3,220	831
29.....	6,770	.....	67,000	7,100	11,700	1,250	1,590	1,100	1,160	4,580	3,040	1,860
30.....	5,960	.....	48,900	7,480	14,100	2,170	1,150	1,070	1,060	4,070	2,220	1,620
31.....	5,490	.....	36,600	.....	13,200	.....	1,130	425	.....	3,600	.....	2,650

NOTE.—Discharge determined from a well-defined rating curve by taking the average of 24 hourly discharges for each day.

Monthly discharge of Hudson River at Spier Falls, N. Y., for 1913.

[Drainage area, 2,800 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	14,500	4,090	8,580	3.06	3.53	A.
February.....	5,880	2,090	2,980	1.06	1.10	A.
March.....	84,200	2,020	21,100	7.54	8.69	A.
April.....	33,800	a 6,060	12,900	4.61	5.14	A.
May.....	14,100	2,660	5,480	1.96	2.26	A.
June.....	11,100	a 1,250	3,330	1.19	1.33	A.
July.....	1,620	a 571	1,250	.446	.51	A.
August.....	1,750	a 196	976	.349	.40	A.
September.....	2,510	a 151	939	.335	.37	A.
October.....	5,370	a 401	2,080	.743	.86	A.
November.....	16,000	a 1,560	5,150	1.84	2.05	A.
December.....	5,670	a 831	2,990	1.07	1.23	A.
The year.....	84,200	151	5,670	2.02	27.47	

a Sunday.

HUDSON RIVER AT MECHANICSVILLE, N. Y.

Location.—At the Duncan dam of the West Virginia Pulp & Paper Co., in the village of Mechanicsville, about 3,700 feet above the mouth of Anthony Kill (coming in from the right), $1\frac{1}{4}$ miles below the mouth of Hoosic River (coming in from the left), and about 19 miles above the mouth of Mohawk River, which enters from the right at Cohoes.

Records available.—1888 to 1913. Data also in annual reports of the State engineer and surveyor, and the State of New York Conservation Commission.

Drainage area.—4,500 square miles.

Gage.—Recording gage referred to a vertical staff showing depth of water over crest of dam.

Computation of discharge.—Discharge determined from a rating curve based on United States Geological Survey coefficients for dams of ogee section. Prior to the summer of 1910 discharge determined from two daily gage readings on the crest of the dam and continuous record of the run of the wheels in the adjoining paper mill.

Diversions.—Water diverted above this station for the Champlain Canal. No correction made for this diversion.

Regulation.—Flow affected by operation of dams above the station, often resulting in low Sunday discharges.

Floods.—The river was at flood stage from March 25 to April 3, 1913, reaching its crest height at 6 a. m March 28 with a maximum discharge of approximately 118,000 second-feet, or 26.2 second-feet per square mile of drainage area. The mean discharge for the day of March 28 was 113,500 second-feet, or 25.2 second-feet per square mile.

Accuracy.—Results good.

Cooperation.—Records 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 Mechanicsville, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	10,481	6,098	7,027	39,274	10,072	9,885	2,999	1,332	536	1,143	5,005	5,607
2.....	6,687	8,382	4,487	32,861	7,921	9,974	2,111	1,347	1,906	1,511	2,470	4,101
3.....	12,154	6,868	6,653	22,765	8,745	7,722	1,821	803	948	1,259	5,138	4,254
4.....	15,178	6,233	6,712	23,679	7,384	7,100	6,221	1,462	981	998	4,487	3,968
5.....	11,968	6,356	4,722	23,437	9,330	5,871	586	1,800	949	750	3,224	4,564
6.....	14,259	6,321	4,090	25,833	5,654	4,289	516	1,316	1,184	1,442	3,559	4,668
7.....	14,197	5,414	5,078	24,789	12,144	4,695	2,826	1,543	1,850	1,438	3,693	1,479
8.....	16,567	4,404	2,992	21,300	4,980	1,427	1,821	1,420	1,257	1,820	3,279	8,240
9.....	15,269	6,740	2,954	17,082	7,105	4,868	1,842	1,191	1,267	1,174	1,433	7,194
10.....	14,012	4,782	7,642	15,781	5,906	4,138	2,091	478	1,970	1,192	10,169	7,534
11.....	13,453	5,131	8,211	13,761	3,938	4,021	1,737	1,239	725	1,043	19,215	7,200
12.....	13,669	4,782	9,026	9,692	7,312	3,226	1,706	1,006	969	980	16,085	6,431
13.....	11,574	3,508	7,963	16,064	4,081	3,894	1,000	995	894	1,689	13,419	4,655
14.....	10,308	3,493	9,796	19,871	3,895	2,613	1,588	1,012	502	1,257	11,964	4,706
15.....	10,399	3,815	24,859	14,542	4,097	.....	1,833	1,016	1,247	1,271	9,445	7,358
16.....	10,038	5,336	22,755	14,508	3,848	3,450	1,699	1,081	735	1,296	3,106	5,544
17.....	10,330	4,165	22,916	12,694	3,700	2,548	2,445	574	735	1,315	7,871	4,778
18.....	13,039	4,670	18,007	12,946	4,990	8,654	1,158	1,369	725	1,283	6,617	5,517
19.....	12,786	4,525	17,041	16,176	3,185	2,542	1,667	1,096	912	560	5,847	5,614
20.....	14,303	4,407	17,415	13,022	3,862	2,844	924	1,018	170	1,647	4,896	4,429
21.....	16,775	4,381	20,934	14,806	3,862	3,165	1,640	801	1,323	1,469	5,768	4,261
22.....	17,221	4,478	23,240	13,301	3,877	861	1,514	1,284	1,145	2,140	1,195	5,143
23.....	14,857	833	27,300	15,097	9,660	3,571	1,484	1,060	1,265	4,447	4,434	3,862
24.....	15,511	7,675	25,059	8,788	9,314	2,448	1,808	213	2,736	3,756	7,470	4,805
25.....	14,473	6,051	23,404	8,869	9,756	2,478	1,772	1,146	2,316	3,783	6,034	4,152
26.....	11,327	5,459	46,591	7,868	9,351	2,138	2,193	995	1,632	4,309	5,404	3,960
27.....	13,317	5,778	77,862	5,357	4,318	2,353	414	1,027	992	10,553	5,263	4,460
28.....	12,351	6,126	113,510	6,912	12,421	3,063	2,285	1,007	1,653	9,203	5,147	2,005
29.....	10,294	.....	112,918	10,075	12,956	1,532	1,191	964	945	7,024	3,241	3,025
30.....	8,407	.....	60,269	7,428	12,796	1,666	1,250	960	.....	6,738	3,463	4,349
31.....	9,208	.....	42,484	.....	.....	.....	1,115	686	.....	5,753	.....	2,364

Monthly discharge of Hudson River at Mechanicsville, N. Y., for 1913.

[Drainage area, 4,500 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	17,200	6,690	12,700	2.82	3.25
February.....	8,380	α 833	5,220	1.16	1.21
March.....	114,000	α 2,950	25,300	5.62	6.48
April.....	39,300	α 5,360	16,300	3.62	4.04
May.....	13,000	3,180	7,020	1.56	1.80
June.....	9,970	α 861	4,040	.898	1.00
July.....	6,220	α 414	1,780	.396	.46
August.....	1,800	α 213	1,070	.238	.27
September.....	2,740	170	1,190	.264	.29
October.....	10,600	α 560	2,720	.604	.70
November.....	19,200	1,200	6,280	1.40	1.55
December.....	8,240	α 1,480	4,840	1.08	1.24
The year.....	114,000	170	7,420	1.65	22.29

α Sunday.

CEDAR RIVER NEAR INDIAN LAKE, N. Y.

Location.—At the steel highway bridge on the road leading to Blue Mountain Lake about 2 miles west of Indian Lake village, 8 miles by river above Rock River, 10 miles by river below Wakely dam, and about 12 miles by river above the mouth.

Records available.—July 15, 1911, to December 31, 1913. Data published also in the annual reports of the State of New York Conservation Commission.

Drainage area.—85 square miles.

Gage.—Chain on highway bridge read once daily.

Channel.—Coarse gravel and small boulders; practically permanent.

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

Regulation.—Flow affected by storage in Cedar Lake and Cedar River Flow. Storage in Cedar River Flow used principally during the logging season.

Winter flow.—Seriously affected by ice.

Floods.—The high water of March 25 to 30, 1913, reached a stage of 13 feet, as indicated by shore drift, but this maximum height was probably due, in part, to backwater from ice jams. A recorded gage height of 9.8 feet on March 28 probably indicates very nearly the maximum unobstructed stage of the river, the discharge at this stage being 2,490 second-feet, or 29.3 second-feet per square mile of drainage area.

Accuracy.—Results good for open-water season.

Discharge measurements of Cedar River near Indian Lake, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 22	R. S. Barnes.....	5.93	120	Apr. 16	C. S. DeGolyer.....	4.00	241
Apr. 16	C. S. De Golyer.....	7.95	1,640	July 7	do.....	2.61	35.5
16	do.....	6.41	902	Sept. 10	do.....	2.50	20.4
16	do.....	4.39	334	17	do.....	2.50	18.9

a Measurement made under complete ice cover.

Daily gage height, in feet, of Cedar River near Indian Lake, N. Y., for 1913.

[Chauncy Hill, observer.]

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		5.1	3.25	4.1	2.5	2.6	2.6	2.6	6.9	3.5
2.....		4.0	3.1	4.0	2.5	2.6	2.55	2.7	5.3	3.3
3.....		3.9	3.05	3.7	2.5	2.65	2.6	3.4	3.8	3.6
4.....		5.0	3.0	3.7	2.4	2.75	2.7	3.2	3.35	3.5
5.....		9.7	3.0	3.2	2.4	2.7	2.5	2.8	3.4	3.4
6.....		4.7	2.95	3.25	2.4	2.7	2.45	2.75	3.3	3.4
7.....		4.0	2.9	3.3	2.6	2.65	2.4	2.7	3.3	3.4
8.....		9.8	2.9	3.1	2.65	2.6	2.5	2.7	3.4	3.6
9.....		4.7	3.0	3.65	2.7	2.6	2.5	2.75	5.7	5.6
10.....		3.3	3.1	3.6	3.1	2.6	2.5	2.8	8.7	5.6
11.....		3.65	2.9	3.45	2.9	2.6	2.5	2.6	8.5	6.1
12.....		3.8	3.0	3.3	2.7	2.6	2.5	2.8	8.0	6.5
13.....		3.85	4.6	2.95	2.75	2.6	2.55	2.85	7.0	6.4
14.....		9.6	3.2	2.9	2.7	2.6	2.6	2.8	4.0	6.3
15.....		3.9	4.0	2.8	2.7	2.6	2.55	2.8	3.9	5.5
16.....		8.2	3.3	2.75	2.6	2.5	2.5	2.7	3.7	5.5
17.....		3.35	3.35	2.8	2.65	2.45	2.55	2.7	3.5	5.4
18.....		3.3	3.15	2.75	2.6	2.4	2.6	2.75	3.45	5.4
19.....		3.4	3.2	2.8	2.7	2.6	2.6	2.7	3.5	5.0
20.....		3.45	3.2	3.0	2.6	2.6	2.55	3.6	5.3	5.1
21.....		3.2	3.0	2.9	2.7	2.6	2.6	5.9	4.8	.....
22.....		3.2	9.6	2.85	2.6	2.6	3.95	4.5	4.3	.....
23.....		3.15	4.5	2.75	2.6	2.7	3.8	4.0	4.4	.....
24.....		3.1	4.4	2.7	2.7	2.65	3.7	3.95	4.5	.....
25.....		3.5	6.0	2.55	2.75	2.6	3.6	4.0	5.5	.....
26.....	11.3	3.35	4.0	2.5	2.7	2.6	3.6	4.2	3.6	.....
27.....	10.8	3.2	3.15	2.6	2.65	2.6	2.7	4.2	3.4	.....
28.....	9.8	3.25	4.0	2.55	2.7	2.6	2.7	4.4	3.35	.....
29.....	4.4	3.7	5.6	2.4	2.9	2.7	2.65	4.0	3.4	.....
30.....	4.05	3.35	5.3	2.5	2.7	2.6	2.6	4.3	3.3	.....
31.....	4.2	.....	4.9	.....	2.65	2.6	.....	4.4	.....	.....

NOTE.—Discharge relation affected by ice Jan. 1 to Mar. 27, and Dec. 9-31.

Daily discharge, in second-feet, of Cedar River near Indian Lake, N. Y., for 1913.

Day.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		532	100	266	29	35	26	26	1,170	128
2.....		243	80	243	29	35	23	33	570	98
3.....		221	74	179	29	38	26	112	184	146
4.....		502	69	179	23	46	33	84	105	128
5.....		2,450	69	93	23	42	20	41	112	112
6.....		417	64	100	23	42	18	37	98	112
7.....		243	59	107	35	38	15	33	98	112
8.....		2,490	59	80	38	35	20	33	112	146
9.....		417	69	169	42	35	20	37	702	
10.....		107	80	159	80	35	20	41	1,970	
11.....		169	59	132	59	35	20	26	1,870	
12.....		200	69	107	42	35	20	41	1,640	
13.....		210	390	64	46	35	23	46	1,210	
14.....		2,400	93	59	42	35	26	41	226	
15.....		221	243	50	42	35	23	41	204	
16.....		1,760	107	46	35	29	20	33	164	
17.....		115	115	50	38	26	23	33	128	
18.....		107	86	46	35	23	26	37	120	
19.....		123	93	50	42	26	26	33	128	
20.....		132	93	69	35	26	23	146	570	
21.....		93	69	59	42	26	26	774	422	
22.....		93	2,400	54	35	26	215	344	296	
23.....		86	364	46	35	33	184	226	320	
24.....		80	338	42	42	30	164	215	344	
25.....		140	842	32	46	26	146	226	634	
26.....		115	243	29	42	26	146	272	146	
27.....		93	86	35	38	26	33	272	112	
28.....	2,490	100	243	32	42	26	33	320	105	
29.....	338	179	606	23	59	33	30	226	112	
30.....	254	115	595	29	42	26	26	296	98	
31.....	289		473		38	26		320		

NOTE.—Discharge determined from a fairly well defined rating curve. No estimates of discharge during frozen season.

Monthly discharge of Cedar River near Indian Lake, N. Y., for 1913.

[Drainage area, 85 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
April.....	2,490	80	472	5.55	6.19	A.
May.....	2,400	59	272	3.20	3.69	A.
June.....	266	23	87.6	1.03	1.15	A.
July.....	80	23	39.6	.466	.54	B.
August.....	46	23	31.9	.375	.43	B.
September.....	215	15	48.5	.571	.64	B.
October.....	774	26	143	1.68	1.94	B.
November.....	1,970	98	466	5.48	6.10	B.

INDIAN LAKE RESERVOIR AT INDIAN LAKE, N. Y.

Location.—At the dam at the outlet of Indian Lake, about $7\frac{1}{2}$ miles above the mouth of Indian River and about $23\frac{1}{2}$ miles above the village of North Creek.

Records available.—July 22, 1900, to December 31, 1913. Data also published in annual reports of the State engineer and surveyor, State Water Supply Commission, and State of New York 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.—Chain on the crest of the dam; prior to November 17, 1911, a vertical staff. Datum unchanged.

Regulation.—Indian Lake reservoir provides for a total storage of about 4,700,000,000 cubic feet.

Maximum and minimum gage heights.—Maximum gage height at Indian Lake reservoir was recorded March 28, 1913, when a stage of 38.8 feet was reached. A minimum gage height of 2 feet was recorded March 9 to 18, 1907, and January 3 to 17, 1910.

Daily gage height, in feet, of Indian Lake reservoir at Indian Lake, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	28.3	34.4	31.5	36.65	34.45	34.85	31.45	24.1	17.4	12.45	12.5	18.2
2.....	28.4	34.4	31.3	36.5	34.4	34.8	31.3	23.8	17.2	12.25	12.55	18.25
3.....	28.6	34.45	31.15	36.15	34.35	34.7	31.15	23.55	17.0	12.1	12.65	18.3
4.....	28.65	34.45	31.0	36.1	34.3	34.6	30.95	23.35	16.8	12.0	12.7	18.4
5.....	29.15	34.4	30.85	36.2	34.2	34.5	30.7	23.15	16.6	11.9	12.8	18.5
6.....	29.4	34.4	30.65	36.4	34.2	34.4	30.6	22.95	16.4	11.7	12.9	18.6
7.....	29.7	34.35	30.3	36.2	34.1	34.3	30.35	22.75	16.2	11.55	12.95	18.7
8.....	30.15	34.35	30.1	36.0	33.95	34.25	30.15	22.5	16.0	11.35	13.0	19.0
9.....	30.4	34.35	29.85	35.7	34.0	34.2	30.0	22.3	15.8	11.2	13.55	19.2
10.....	30.75	34.35	29.6	35.5	33.95	34.15	29.75	22.1	15.5	11.0	14.6	19.3
11.....	31.0	34.2	29.5	35.45	33.85	34.1	29.55	21.85	15.2	10.8	15.15	19.4
12.....	31.15	34.0	29.6	35.45	33.8	34.05	29.3	21.6	14.9	10.6	15.6	19.5
13.....	31.4	33.8	29.65	35.35	33.8	33.95	29.1	21.35	14.75	10.45	15.7	19.7
14.....	31.65	33.6	29.9	35.3	33.8	33.9	28.85	21.2	14.4	10.3	15.8	19.8
15.....	31.85	33.4	30.4	35.25	33.75	33.9	28.55	21.0	14.1	10.1	15.9	19.9
16.....	32.05	33.25	31.15	35.15	33.75	33.85	28.35	20.7	13.9	9.95	16.05	20.0
17.....	32.15	33.1	31.65	35.05	33.75	33.75	28.1	20.5	13.7	9.75	16.2	20.05
18.....	32.5	32.95	32.0	34.95	33.75	33.55	27.9	20.3	13.25	9.55	16.3	20.1
19.....	33.1	32.8	32.3	34.9	33.75	33.4	27.65	20.05	12.9	9.45	16.4	20.15
20.....	33.5	32.6	32.7	34.85	33.75	33.3	27.4	19.85	12.7	9.6	16.7	20.2
21.....	34.2	32.4	33.3	34.8	33.7	33.2	27.1	19.65	12.6	10.0	17.0	20.05
22.....	34.65	32.3	34.2	34.75	33.7	33.0	26.8	19.45	12.5	10.25	17.2	19.85
23.....	35.0	32.2	34.65	34.65	33.8	32.9	26.6	19.1	12.65	10.6	17.4	19.65
24.....	35.1	32.05	34.9	34.5	34.0	32.7	26.4	18.85	12.7	10.65	17.6	19.75
25.....	34.9	31.9	35.9	34.6	34.0	32.5	26.2	18.6	12.75	10.9	17.7	19.8
26.....	34.85	31.75	37.4	34.55	34.0	32.35	25.95	18.4	12.8	11.2	17.75	19.95
27.....	34.7	31.65	38.65	34.55	34.0	32.25	25.75	18.2	12.8	11.5	17.8	20.05
28.....	34.55	31.6	38.8	34.5	34.35	32.1	25.55	18.0	12.8	11.75	17.9	20.1
29.....	34.4	.....	38.0	34.45	34.75	31.9	25.35	17.8	12.75	12.15	18.0	20.15
30.....	34.35	.....	37.1	34.45	34.95	31.65	24.95	.....	12.55	12.3	18.1	20.2
31.....	34.4	.....	36.8	.....	34.9	.....	24.55	17.6	.....	12.4	.....	20.25

Gate openings, in feet, of Indian Lake reservoir at Indian Lake, N. Y., for 1913.

Date.	Sluice gate A open.	Sluice gate B open.	Date.	Sluice gate A open.	Sluice gate B open.
Jan. 27-29.....		2.5	July 1-8.....	.....	2.5
Feb. 10-11.....		2.5	July 9-Sept. 21.....	.....	5.0
Feb. 12-Mar. 9.....		5.0	July 29-Aug. 1.....	5.0	.....
Mar. 6-10.....	2.5	.....	Sept. 10-21.....	2.5	.....
Mar. 25-31.....		4.0	Sept. 29-Oct. 19.....	.....	5.0
June 17-28.....		2.5	Dec. 21-23.....	.....	5.0
June 29-30.....		5.0			

INDIAN RIVER NEAR INDIAN LAKE, N. Y.

Location.—About three-quarters of a mile below the dam at the outlet of Indian Lake, 1 mile above Big Brook and 8 miles above the mouth.

Records available.—July 1, 1912, to December 31, 1913; also miscellaneous measurements in 1911.

Drainage area.—132 square miles.

Gage.—Vertical staff.

Channel and control.—Rough and rocky.

Regulation.—Flow controlled by storage in Indian Lake.

Discharge measurements.—Made from a cable about 75 feet below the gage or by wading at the head of the rapids about 150 feet below the gage.

Winter flow.—Gage heights not seriously affected by ice.

Floods.—The river reached a gage height of 7.8 feet on March 28, with a corresponding discharge of 3,460 second-feet, or 23.7 second-feet per square mile of drainage area. By comparison with the run-off of other headwater drainage areas, uncontrolled by storage, this discharge shows the effect of Indian Lake storage in keeping down the flood peak and distributing the run-off over a longer period of time. The mean discharge for a period of 3 days (Mar. 26–29) was 21.2 second-feet per square mile, or 89.5 per cent of the maximum discharge.

Accuracy.—Results good.

Discharge measurements of Indian River near Indian Lake, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 28	Frank Weber.....	0.52	16.0	July 3	C. S. De Golyer.....	1.75	201
Mar. 1	do.....	2.58	467	3	do.....	2.32	350
1	do.....	2.18	327	3	do.....	2.71	485
Apr. 18	C. S. De Golyer.....	2.98	631	4	do.....	2.38	376
18	do.....	2.98	617	5	do.....	4.00	1,030
July 1	do.....	3.01	606	5	do.....	3.82	948
1	do.....	2.42	387	5	do.....	3.22	685
1	do.....	2.88	538	7	do.....	2.37	375
2	do.....	.86	47.7	Sept. 11	do.....	2.90	549
2	do.....	1.83	217	12	do.....	1.84	223
3	do.....	2.58	447				

Daily gage height, in feet, of Indian River near Indian Lake, N. Y., for 1913.

[Lester Severie, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	0.4	1.75	2.6	5.2	2.45	2.6	2.8	3.3	2.45	2.3	0.1	0.1
2.....	.4	1.8	2.6	4.9	2.4	2.6	1.8	2.6	2.45	2.3	.1	.1
3.....	.45	1.85	2.6	4.7	2.3	2.5	2.3	2.6	2.4	2.3	.1	.1
4.....	.45	1.85	2.6	4.2	2.2	2.4	2.4	2.6	2.4	2.3	.1	.1
5.....	.45	1.8	2.6	4.4	2.1	2.3	2.8	2.6	2.4	2.25	.1	.1
6.....	.45	1.8	2.9	4.4	2.0	2.2	2.4	2.6	2.4	2.25	.1	.15
7.....	.5	1.75	3.4	4.2	1.95	2.1	2.35	2.6	2.4	2.25	.1	.15
8.....	.5	1.7	3.2	4.0	1.9	2.0	2.3	2.6	2.4	2.25	.1	.2
9.....	.5	1.65	3.2	3.8	1.8	1.9	2.6	2.6	2.4	2.2	.1	.2
10.....	.5	1.65	2.7	3.6	1.75	1.85	3.0	2.6	2.6	2.2	.1	.2
11.....	.5	2.7	1.63	3.5	1.6	1.8	2.9	2.6	2.9	2.15	.1	.15
12.....	.6	3.0	.35	3.4	1.5	1.75	2.9	2.6	2.7	2.15	.1	.15
13.....	.6	2.9	.35	3.4	1.45	1.7	2.9	2.6	2.3	2.15	.15	.15
14.....	.6	2.8	.35	3.4	1.4	1.7	2.8	2.6	2.9	2.1	.15	.1
15.....	.65	2.8	.35	3.4	1.4	1.7	2.8	2.6	2.45	2.1	.15	.1
16.....	.65	2.7	.45	3.2	1.4	1.65	2.8	2.6	2.9	2.05	.15	.1
17.....	.65	2.7	.45	3.0	1.45	2.1	2.8	2.6	2.7	2.05	.15	.1
18.....	.67	2.7	.45	2.9	1.5	2.6	2.8	2.6	2.9	2.0	.15	.1
19.....	.7	2.7	.5	2.8	1.5	2.6	2.8	2.6	2.8	2.0	.15	.1
20.....	.9	2.7	.5	2.8	1.5	2.6	2.8	2.6	2.8	.05	.15	.1
21.....	1.55	2.6	.5	2.8	1.5	2.5	2.8	2.6	2.8	.05	.15	2.6
22.....	2.0	2.7	1.4	2.7	1.5	2.5	2.8	2.5	2.25	.05	.15	2.6
23.....	2.5	2.7	1.9	2.6	1.5	2.45	2.8	2.5	.05	.05	.15	2.6
24.....	3.0	2.6	2.2	2.6	1.8	2.4	2.8	2.5	.05	.05	.15	.1
25.....	3.4	2.6	3.2	2.5	1.8	2.35	2.8	2.5	.05	.05	.1	.1
26.....	3.3	2.6	5.8	2.5	1.8	2.3	2.8	2.5	.05	.05	.1	.1
27.....	3.2	2.6	7.1	2.5	1.8	2.3	2.8	2.5	.05	.1	.1	.1
28.....	3.1	1.95	7.8	2.5	2.1	2.3	2.8	2.5	.05	.1	.1	.1
29.....	3.0	.....	7.1	2.5	2.6	2.7	2.9	2.45	1.27	.1	.1	.1
30.....	2.05	.....	6.4	2.45	2.6	3.0	3.6	2.45	2.3	.1	.1	.05
31.....	1.7	.....	6.2	.....	2.7	.....	3.6	2.45	.....	.1	.....	.05

NOTE.—Gage heights observed at about 4 p. m. Gages at Indian Lake were changed Dec. 20 and 23 after the gage was read. Gage height for July 2 is weighted mean of several readings. Gages at Indian Lake were changed during the day while discharge measurements were being made.

Daily discharge, in second-feet, of Indian River near Indian Lake, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	9	200	453	1,650	402	453	526	725	402	353	1.0	1.0
2.....	9	212	453	1,480	385	453	212	453	402	353	1.0	1.0
3.....	12	224	453	1,380	353	418	353	453	385	353	1.0	1.0
4.....	12	224	453	1,120	322	385	385	453	385	353	1.0	1.0
5.....	12	212	453	1,220	292	353	526	453	385	338	1.0	1.0
6.....	12	212	564	1,220	264	322	385	453	385	338	1.0	1.5
7.....	15	200	767	1,120	250	292	369	453	385	338	1.0	1.5
8.....	15	189	684	1,080	237	264	353	453	385	338	1.0	2.0
9.....	15	178	684	941	212	237	453	453	385	322	1.0	2.0
10.....	15	178	489	853	200	224	603	453	453	322	1.0	2.0
11.....	15	489	174	810	168	212	564	453	564	307	1.0	1.5
12.....	22	603	7	767	148	200	564	453	489	307	1.0	1.5
13.....	22	564	7	767	138	189	564	453	353	307	1.5	1.5
14.....	22	526	7	767	129	189	526	453	564	292	1.5	1.0
15.....	26	526	7	767	129	189	526	453	402	292	1.5	1.0
16.....	26	489	12	684	129	178	526	453	564	278	1.5	1.0
17.....	26	489	12	603	138	292	526	453	489	278	1.5	1.0
18.....	28	489	12	564	148	453	526	453	564	264	1.5	1.0
19.....	31	489	15	526	148	453	526	453	526	264	1.5	1.0
20.....	53	489	15	526	148	453	526	453	526	.5	1.5	1.14
21.....	158	453	15	526	148	418	526	453	526	.5	1.5	453
22.....	264	489	129	489	148	418	526	418	338	.5	1.5	453
23.....	418	489	237	453	148	402	526	418	.5	.5	1.5	340
24.....	603	453	322	453	212	385	526	418	.5	.5	1.5	1.0
25.....	767	453	684	418	212	369	526	418	.5	.5	1.0	1.0
26.....	725	453	2,010	418	212	353	526	418	.5	.5	1.0	1.0
27.....	684	453	2,910	418	212	353	526	418	.5	1.0	1.0	1.0
28.....	643	250	3,460	418	292	353	526	418	.5	1.0	1.0	1.0
29.....	603	.....	2,910	418	453	489	564	402	106	1.0	1.0	1.0
30.....	278	.....	2,420	402	453	603	853	402	353	1.0	1.0	.5
31.....	189	.....	2,280	.....	489	.....	853	402	.....	1.0	.....	.5

NOTE.—Discharge determined from a rating curve well defined between 15 and 1,300 second-feet. Discharge for Dec. 20 and 23 is weighted mean of discharge before and after change of gates at Indian Lake.

Monthly discharge of Indian River near Indian Lake, N. Y., for 1913.

Month.	Discharge in second-feet.			Accuracy.	Month.	Discharge in second-feet.			Accuracy.
	Maximum.	Minimum.	Mean.			Maximum.	Minimum.	Mean.	
January.....	767	9	185	A.	August.....	725	402	449	A.
February.....	603	178	381	A.	September.....	564	.5	344	A.
March.....	3,460	7	745	A.	October.....	353	.5	194	A.
April.....	1,650	402	774	A.	November.....	1.5	1.0	1.20	A.
May.....	489	129	236	A.	December.....	453	.5	44.9	A.
June.....	603	178	345	A.					
July.....	853	212	517	A.	The year....	3,460	.5	351	

SCHROON RIVER AT RIVERBANK, N. Y.

Location.—At the highway bridge at Riverbank, a mile below Tumblehead Falls, $3\frac{1}{2}$ miles below the outlet of Brant Lake, 9 miles below Schroon Lake, and about 9 miles north of Warrensburg.

Records available.—September 2, 1907, to December 31, 1913. Data also published in annual reports of New York State Water Supply Commission, State engineer and surveyor, and the State Conservation Commission.

Drainage area.—534 square miles.

Gage.—Chain on the highway bridge.

Channel and control.—Gravel, smooth, and practically permanent.

Discharge measurements.—Made from the bridge.

Regulation.—Flow affected by storage in Schroon and Brant lakes.

Winter flow.—Somewhat affected by ice; not seriously affected during 1913.

Floods.—The flood of March 25 to 30, 1913, reached a stage of 10.7 feet at 5 p. m.

March 28, as recorded by the observer. Corresponding discharge was approximately 13,500 second-feet, or 25.3 second-feet per square mile of drainage area.

This peak was probably somewhat reduced by storage in Schroon and Brant lakes.

The mean discharge for March 27 to 29 was approximately 21 second-feet per square mile.

Accuracy.—Results good.

Discharge measurements of Schroon River at Riverbank, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Fect.</i>	<i>Sec.-ft.</i>			<i>Fect.</i>	<i>Sec.-ft.</i>
Feb. 11	Frank Weber	3.36	568	Apr. 21	C. S. DeGolyer	3.66	1,340
Mar. 4	R. S. Barnes	2.20	362	May 28	do	3.40	993
20	C. S. DeGolyer	4.34	1,590	Aug. 5	do	1.40	121
Apr. 10	do	5.37	2,980	Oct. 2	G. H. Canfield	1.36	114
10	do	5.36	2,930	2	do	1.36	113

^a Control under partial ice cover during measurement.

^b Logs lodged on control.

Daily gage height, in feet, of Schroon River at Riverbank, N. Y., for 1913.

[J. H. Roberts, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.8	3.4	2.25	7.1	3.8	4.1	2.45	1.28	1.22	1.22	1.8	2.4
2.....	2.8	3.4	2.2	6.7	3.8	4.1	2.35	1.32	1.20	1.36	1.8	2.4
3.....	2.8	3.3	2.25	6.3	3.8	4.0	2.25	1.30	1.22	1.34	1.8	2.3
4.....	3.0	3.1	2.25	6.0	3.5	3.9	2.3	1.35	1.20	1.30	1.85	2.3
5.....	3.0	3.0	2.4	6.2	3.5	3.9	2.1	1.45	1.18	1.30	1.9	2.3
6.....	3.1	3.0	2.4	6.6	3.4	3.8	2.05	1.40	1.15	1.35	1.85	2.3
7.....	3.1	2.95	2.4	6.6	3.6	3.4	2.1	1.45	1.20	1.35	1.85	2.25
8.....	3.2	2.95	2.45	6.1	3.2	3.1	1.8	1.38	1.15	1.34	1.85	2.3
9.....	3.4	2.9	2.3	5.7	3.1	3.4	1.32	1.35	1.15	1.39	1.9	2.35
10.....	3.4	2.95	2.45	5.4	3.1	3.3	1.42	1.30	1.15	1.38	2.0	2.4
11.....	3.1	3.3	2.35	4.9	2.95	2.4	1.40	1.32	1.10	1.30	2.05	2.55
12.....	3.2	3.0	2.6	4.6	2.9	2.45	1.38	1.38	1.12	1.30	2.15	2.45
13.....	3.2	3.2	2.55	4.5	2.9	2.4	1.42	1.40	1.15	1.40	2.15	2.5
14.....	3.2	2.8	3.2	4.5	2.8	2.4	1.40	1.35	1.10	1.42	2.15	2.5
15.....	3.0	2.9	3.2	4.4	2.9	2.3	1.45	1.30	1.12	1.45	1.8	2.5
16.....	2.95	2.65	3.1	4.2	2.6	2.35	1.45	1.30	1.10	1.45	2.15	2.45
17.....	3.0	2.55	3.6	4.2	2.6	2.95	1.40	1.30	1.18	1.40	2.2	2.45
18.....	3.1	2.45	3.8	4.0	2.55	2.7	1.45	1.28	1.10	1.45	2.2	2.45
19.....	3.4	2.5	4.0	4.0	2.6	3.2	1.40	1.25	1.12	1.45	2.2	2.4
20.....	3.5	2.3	4.2	3.7	2.65	2.9	1.30	1.32	1.15	1.65	2.3	2.3
21.....	3.7	2.25	4.6	3.6	2.5	2.7	1.40	1.30	1.10	1.7	2.4	2.3
22.....	3.8	2.35	5.3	3.7	2.5	2.1	1.38	1.32	1.25	1.6	2.45	2.35
23.....	3.9	2.35	5.3	3.6	2.65	2.65	1.38	1.30	1.15	1.6	2.5	2.3
24.....	3.9	2.3	5.2	3.6	3.1	3.1	1.40	1.25	1.10	1.6	2.5	2.25
25.....	3.9	2.25	6.0	3.6	3.2	3.0	1.42	1.28	1.18	1.7	2.55	2.3
26.....	3.8	2.15	7.7	3.7	3.4	3.0	1.45	1.22	1.18	1.75	2.5	2.35
27.....	3.8	2.2	9.2	3.7	3.5	3.0	1.30	1.25	1.10	1.8	2.5	2.3
28.....	3.6	2.2	10.6	3.7	4.2	3.0	1.20	1.20	1.10	2.15	2.5	2.5
29.....	3.5	-----	9.9	3.8	4.3	1.6	1.35	1.20	1.28	2.45	2.45	2.5
30.....	3.4	-----	8.7	3.8	4.2	2.4	1.35	1.25	1.25	2.4	2.4	2.55
31.....	3.3	-----	7.6	-----	4.2	-----	1.30	1.20	-----	2.1	-----	2.45

NOTE.—Discharge relation affected by ice and log jams during the greater part of February and March, and the last four days in December.

Daily discharge, in second-feet, of Schroon River at Riverbank, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	721	1,120	390	5,370	1,300	1,560	472	95	83	83	230	450
2.....	721	1,120	370	4,770	1,300	1,560	430	103	79	112	230	450
3.....	721	1,040	390	4,200	1,300	1,470	390	99	83	108	230	410
4.....	836	900	390	3,780	1,070	1,380	410	110	79	99	246	410
5.....	836	800	460	4,060	1,070	1,380	332	134	75	99	262	410
6.....	900	700	450	4,620	1,000	1,300	314	121	70	110	246	410
7.....	900	650	450	4,620	1,140	1,000	332	134	79	110	246	390
8.....	966	620	472	3,920	870	810	230	117	70	108	246	410
9.....	1,120	600	410	3,380	810	1,000	103	110	70	119	262	430
10.....	1,120	585	472	3,000	810	935	126	99	70	117	296	450
11.....	900	570	430	2,400	722	450	121	103	61	99	314	518
12.....	966	570	540	2,330	695	472	117	117	65	99	351	472
13.....	966	570	518	2,220	695	450	126	121	70	121	351	495
14.....	966	570	870	2,220	640	450	121	110	61	126	351	495
15.....	836	570	870	2,100	695	410	134	99	65	134	230	495
16.....	806	565	810	1,890	540	430	134	99	61	134	351	472
17.....	836	518	1,140	1,890	540	722	121	99	75	121	370	472
18.....	900	472	1,300	1,670	518	590	134	95	61	134	370	472
19.....	1,120	495	1,470	1,670	540	870	121	89	65	134	370	450
20.....	1,200	410	1,660	1,380	565	695	99	103	70	186	410	410
21.....	1,380	390	2,060	1,290	495	590	121	99	61	200	450	410
22.....	1,470	430	2,760	1,380	495	332	117	103	89	172	472	430
23.....	1,570	430	2,880	1,290	565	565	117	99	70	172	495	410
24.....	1,570	410	2,780	1,290	810	810	121	89	61	172	495	390
25.....	1,570	390	3,780	1,290	870	750	126	95	75	200	518	410
26.....	1,470	351	6,200	1,220	1,000	750	134	83	75	215	495	430
27.....	1,470	370	8,600	1,220	1,070	750	99	89	61	230	495	410
28.....	1,290	370	10,600	1,220	1,660	750	79	79	61	351	495	390
29.....	1,200	.....	9,600	1,300	1,750	172	110	79	95	472	472	390
30.....	1,120	.....	6,800	1,300	1,660	450	110	89	89	450	450	390
31.....	1,040	.....	6,100	.....	1,660	.....	99	79	.....	332	.....	370

NOTE.—Discharge determined as follows: Jan. 1 to Feb. 4, from a well-defined rating curve; Feb. 5-15, estimated from one discharge measurement and comparisons with Hudson River at North Creek and Indian River at Indian Lake; Feb. 16 to Dec. 27, from a fairly well defined rating curve; Dec. 28-31, estimated from a discharge measurement made Jan. 1, 1914.

Monthly discharge of Schroon River at Riverbank, N. Y., for 1913.

[Drainage area, 534 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	1,570	721	1,080	2.02	2.33	B.
February.....	1,120	351	592	1.11	1.16	B.
March.....	10,600	370	2,450	4.59	5.29	C.
April.....	5,370	1,220	2,480	4.64	5.18	A.
May.....	1,750	495	931	1.74	2.01	A.
June.....	1,560	172	795	1.49	1.66	A.
July.....	472	79	181	.339	.39	A.
August.....	134	79	101	.189	.22	B.
September.....	95	61	71.6	.134	.15	B.
October.....	472	83	172	.322	.37	A.
November.....	518	230	360	.674	.75	A.
December.....	518	370	432	.809	.93	A.
The year.....	10,600	61	804	1.51	20.44	

SACANDAGA RIVER NEAR HOPE, N. Y.

Location.—About $1\frac{1}{2}$ miles below the junction of the east and west branches, $3\frac{1}{2}$ miles above the post office at Hope, 4 miles below Wells, and 12 miles above Northville.

Records available.—September 15, 1911, to December 31, 1913.

Drainage area.—494 square miles.

Gage.—Staff in two sections, the lower section inclined, the upper, vertical.

Channel and control.—Rocky; practically permanent.

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

Winter flow.—Affected by ice.

Floods.—The flood of March 25 to 30, 1913, reached a stage of 10 feet at 5.30 p. m. March 27, as reported by the observer, with a corresponding discharge of approximately 24,800 second-feet, or 50 second-feet per square mile of drainage area. Later determinations indicate that the maximum stage reached by the flood was about 11.7 feet.

Accuracy.—Results good for open-water season.

Discharge measurements of Sacandaga River near Hope, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
May 19	C. S. De Golyer.....	<i>Feet.</i> 2.96	<i>Sec.-ft.</i> 736	May 21	C. S. De Golyer.....	<i>Feet.</i> 2.65	<i>Sec.-ft.</i> 554
21	do.....	3.75	1,630				

Daily gage height, in feet, of Sacandaga River near Hope, N. Y., for 1913.

[Edgar Coulombe, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.3	3.45	2.9	5.8	4.1	3.6	1.92	1.59	1.42	1.58	2.9	2.8
2.....	3.1	3.3	2.75	5.2	4.2	3.6	1.83	1.64	1.40	1.94	2.8	2.75
3.....	3.85	3.15	2.75	4.8	3.3	3.5	1.78	1.74	1.38	2.44	2.65	2.8
4.....	4.6	3.1	2.85	4.7	3.15	3.4	1.78	1.74	1.36	2.16	2.7	2.85
5.....	4.2	2.95	2.65	5.1	3.4	-----	1.76	1.67	1.36	2.00	2.7	2.85
6.....	4.0	2.85	-----	4.9	3.3	-----	1.73	1.64	1.36	1.84	2.65	2.8
7.....	4.2	2.8	-----	4.2	2.75	-----	1.71	1.60	1.36	1.86	2.55	3.05
8.....	4.6	2.75	-----	4.0	2.95	-----	1.68	1.52	1.41	1.79	2.5	4.2
9.....	4.7	2.65	-----	4.0	2.6	2.9	1.55	1.46	1.35	1.74	5.7	3.5
10.....	4.2	2.65	-----	3.8	2.4	2.85	1.87	1.48	1.27	1.70	6.2	3.5
11.....	4.1	2.6	3.1	4.0	2.9	2.7	1.88	1.49	1.27	1.68	4.8	3.45
12.....	4.2	2.55	2.95	4.2	3.25	2.65	1.87	1.48	1.26	1.75	4.4	3.1
13.....	4.1	2.55	2.9	4.0	3.15	2.6	1.92	1.45	1.26	1.76	4.0	3.15
14.....	3.9	2.75	4.9	3.7	3.05	2.23	1.84	1.43	1.24	1.74	3.8	3.1
15.....	3.75	2.7	5.4	3.6	2.9	2.16	1.78	1.42	1.24	1.68	3.6	3.05
16.....	3.6	2.6	5.6	3.4	-----	2.38	1.68	1.42	1.22	1.62	3.45	2.95
17.....	3.8	2.7	4.5	3.4	-----	2.24	1.68	1.53	1.40	1.72	3.3	2.85
18.....	4.7	2.7	4.2	3.3	-----	2.13	1.53	1.57	1.30	1.67	3.2	2.8
19.....	5.2	2.75	4.2	4.2	-----	2.08	1.67	1.48	1.30	1.64	3.1	2.55
20.....	4.8	2.65	4.9	3.8	2.55	2.26	1.67	1.46	1.18	2.75	3.8	2.7
21.....	5.6	2.65	6.2	3.8	2.5	2.25	1.67	1.39	1.32	4.0	3.8	2.6
22.....	5.0	2.85	6.2	3.5	2.7	2.12	1.62	1.38	2.8	3.3	3.6	2.55
23.....	4.3	3.3	5.2	3.35	4.0	2.48	1.62	1.39	2.39	3.0	3.5	2.65
24.....	4.6	3.25	5.1	3.8	4.4	2.43	1.65	-----	2.04	2.85	3.4	2.55
25.....	4.3	3.15	7.1	3.4	4.1	2.40	1.69	-----	1.90	3.6	3.3	2.5
26.....	4.0	3.0	8.2	3.2	3.7	2.18	1.64	1.42	1.74	4.0	3.15	2.5
27.....	3.9	2.9	9.8	3.05	3.5	2.5	1.62	1.52	1.66	3.9	3.0	2.5
28.....	3.65	2.9	7.8	3.6	4.8	2.38	1.74	1.48	1.62	3.6	2.9	-----
29.....	3.4	-----	6.6	4.0	5.3	2.07	1.82	1.46	1.72	3.4	2.9	2.3
30.....	3.45	-----	5.9	4.2	4.7	1.93	1.73	1.51	1.60	3.3	2.85	-----
31.....	3.3	-----	5.8	-----	-----	-----	1.65	1.46	-----	3.1	-----	2.75

NOTE.—Discharge relation Feb. 10 to Mar. 13 and Dec. 31 affected by ice.

Daily discharge, in second-feet, of Sacandaga River near Hope, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,090	1,240	.....	5,700	2,070	1,400	204	94	54	92	740	666
2.....	900	1,090	.....	4,230	2,230	1,400	171	109	50	212	666	632
3.....	1,720	945	.....	3,330	1,090	1,290	153	140	46	440	566	666
4.....	2,930	900	.....	3,130	945	1,190	153	140	43	303	598	703
5.....	2,230	780	.....	3,990	1,190	1,070	147	118	43	235	598	703
6.....	1,920	703	.....	3,540	1,090	980	137	109	43	174	566	666
7.....	2,230	666	.....	2,230	632	890	130	97	43	182	504	860
8.....	2,930	632	.....	1,920	780	810	121	76	52	157	474	2,230
9.....	3,130	566	.....	1,920	534	740	84	63	41	140	5,520	1,290
10.....	2,230	.....	.....	1,650	418	703	185	67	28	127	6,930	1,290
11.....	2,070	.....	.....	1,920	740	598	189	69	28	121	3,330	1,240
12.....	2,230	.....	.....	2,230	1,040	566	185	67	27	144	2,560	900
13.....	2,070	.....	.....	1,920	945	534	204	60	27	147	1,920	945
14.....	1,780	.....	3,540	1,520	860	335	174	56	25	140	1,650	900
15.....	1,580	.....	4,730	1,400	740	303	153	54	25	121	1,400	860
16.....	1,400	.....	5,250	1,190	610	408	121	54	22	103	1,240	780
17.....	1,650	.....	2,740	1,190	520	339	121	79	50	134	1,090	703
18.....	3,130	.....	2,230	1,090	500	290	79	89	32	89	990	666
19.....	4,230	.....	2,230	2,230	580	269	118	67	32	109	900	504
20.....	3,330	.....	3,540	1,650	504	349	118	63	18	632	1,650	598
21.....	5,250	.....	6,930	1,650	474	344	118	48	36	1,920	1,650	534
22.....	3,760	.....	6,930	1,290	598	286	103	46	666	1,090	1,400	504
23.....	2,390	.....	4,230	1,140	1,920	463	103	48	413	820	1,290	566
24.....	2,930	.....	3,990	1,650	2,560	435	112	50	252	703	1,190	504
25.....	2,390	.....	9,900	1,190	2,070	418	124	52	196	1,400	1,090	474
26.....	1,920	.....	14,500	990	1,520	312	109	54	140	1,920	945	474
27.....	1,780	.....	23,500	860	1,290	474	103	76	115	1,780	820	474
28.....	1,460	.....	12,700	1,400	3,330	408	140	67	103	1,400	740	420
29.....	1,190	.....	8,160	1,920	4,480	264	167	63	134	1,190	746	367
30.....	1,240	.....	6,070	2,230	3,130	208	137	74	97	1,090	703	367
31.....	1,090	.....	5,790	.....	2,100	.....	112	63	.....	900	.....	367

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge Feb. 10–28 estimated 477 second-feet; Mar. 1–13 estimated 600 second-feet, by comparison with Sacandaga River at Hadley, N. Y.

Monthly discharge of Sacandaga River near Hope, N. Y., for 1913.

[Drainage area, 494 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	5,250	900	2,260	4.57	5.27	A.
February.....	1,240	.....	592	1.20	1.25	C.
March.....	23,500	.....	4,350	8.81	10.16	C.
April.....	5,790	860	2,080	4.21	4.70	A.
May.....	4,480	418	1,340	2.71	3.12	A.
June.....	1,400	208	603	1.22	1.36	A.
July.....	204	79	138	.279	.32	A.
August.....	140	46	74.6	.151	.17	B.
September.....	666	18	96.0	.194	.22	A.
October.....	1,920	89	581	1.18	1.36	A.
November.....	6,930	474	1,480	3.00	3.35	A.
December.....	2,230	367	737	1.49	1.72	A.
The year.....	23,500	18	1,200	2.43	33.00	.....

SACANDAGA RIVER AT HADLEY, N. Y.

Location.—About half a mile west of the railroad station at Hadley, a mile above the mouth, and $4\frac{1}{2}$ miles below the site of the proposed storage dam at Conklingville.

Records available.—January 1, 1911, to December 31, 1913; September 13, 1907, to December 31, 1910, at upper bridge station; September 24, 1909, to midsummer, 1911, at the lower bridge station.

Drainage area.—1,060 square miles.

Gage.—Barrett & Lawrence automatic gage, referred to vertical staff gage.

Channel and control.—Rough but practically permanent. The channel at the cable has been cleared of bowlders so far as feasible.

Discharge measurements.—Made from a cable about 30 feet above the gage, or by wading about three-quarters of a mile above the gage.

Winter flow.—Seriously affected by ice.

Floods.—The floods of March 25 to 30, 1913, reached a stage of 12.36 feet between 11 and 12 a. m. March 28, as shown by the automatic gage, and later verified from high-water marks. The corresponding discharge was approximately 35,500 second-feet, or 33.5 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Sacandaga River at Hadley, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
Feb. 10	Frank Weber.....	<i>Feet.</i> a 3.94	<i>Sec.-ft.</i> 1,080	Apr. 12	C. S. De Golyer.....	<i>Feet.</i> 5.67	<i>Sec.-ft.</i> 3,930
19	do.....	a 4.12	677	Sept. 23	do.....	3.65	810
Mar. 4	do.....	a 3.97	965	Dec. 30	do.....	a 4.67	894
30	J. G. Mathers.....	9.83	18,600				

a Made under partial ice cover.

Daily gage height, in feet, of Sacandaga River at Hadley, N. Y., for 1913.

[J. A. Clark, jr., observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.7	4.8	4.0	8.2	5.0	6.2	3.0	2.78	2.54	2.69	4.3	4.05
2.....	4.7	4.6	4.0	7.8	4.9	5.8	2.91	2.72	2.49	2.73	4.1	4.0
3.....	4.8	4.4	4.1	7.4	4.8	5.4	2.87	2.65	2.46	2.97	3.9	4.0
4.....	5.5	4.35	3.95	7.0	4.7	5.1	2.83	2.63	2.38	3.4	3.85	4.1
5.....	4.7	4.3	3.9	6.8	4.35	4.8	2.79	2.63	2.37	3.3	3.8	4.15
6.....	5.8	4.1	3.85	6.7	4.6	4.5	2.76	2.61	2.37	3.15	3.8	4.15
7.....	5.9	4.0	3.75	6.5	4.45	4.3	2.73	2.60	2.37	3.05	3.75	4.2
8.....	6.0	3.9	3.7	6.3	4.15	4.05	2.70	2.59	2.37	2.95	3.7	5.1
9.....	6.1	3.95	3.7	6.0	4.2	4.0	2.68	2.56	2.36	2.88	4.5	5.4
10.....	6.1	3.9	4.1	5.7	3.95	3.95	2.66	2.53	2.36	2.83	6.5	5.2
11.....	6.0	3.95	4.45	5.5	3.85	3.85	2.61	2.48	2.36	2.80	7.0	5.0
12.....	6.0	4.2	4.6	5.7	3.7	3.75	2.78	2.46	2.34	2.76	7.0	4.5
13.....	5.8	4.4	4.8	5.8	4.15	3.65	2.83	2.43	2.31	2.75	6.6	4.45
14.....	5.7	4.4	5.7	5.8	4.2	3.6	2.82	2.42	2.29	2.76	6.2	4.5
15.....	5.6	4.3	6.2	5.6	4.15	3.45	2.81	2.41	2.28	2.76	5.8	4.4
16.....	5.4	4.2	6.8	5.5	4.05	3.3	2.78	2.40	2.25	2.72	5.4	4.25
17.....	5.4	4.2	7.1	5.3	3.95	3.4	2.73	2.40	2.26	2.72	5.0	4.2
18.....	5.7	4.15	7.1	5.1	3.9	3.35	2.68	2.39	2.27	2.71	4.7	4.15
19.....	6.2	4.1	6.8	5.1	3.7	3.25	2.66	2.39	2.28	2.72	4.5	3.95
20.....	6.5	4.0	6.8	5.3	3.9	3.2	2.63	2.44	2.31	2.92	4.6	3.65
21.....	6.8	3.9	6.8	5.3	3.9	3.35	2.62	2.44	2.38	4.15	5.1	3.75
22.....	6.9	4.15	7.3	5.2	3.9	3.35	2.61	2.41	2.56	4.35	5.2	3.8
23.....	6.9	4.5	7.7	5.0	4.4	3.3	2.60	2.37	2.45	4.5	5.0	3.65
24.....	6.7	4.8	7.5	4.9	5.4	3.3	2.60	2.34	2.55	4.15	4.8	3.5
25.....	6.5	4.8	7.6	4.8	5.6	3.35	2.59	2.33	3.2	4.25	4.7	3.65
26.....	6.3	4.5	9.5	4.8	5.6	3.3	2.60	2.33	3.05	5.0	4.5	3.6
27.....	6.0	4.2	11.4	4.6	5.3	3.25	2.61	2.42	2.96	5.5	4.35	3.7
28.....	5.8	4.1	12.2	4.4	5.5	3.3	2.62	2.44	2.85	5.4	4.2	4.25
29.....	5.4	.....	11.2	4.9	6.3	3.35	2.61	2.50	2.78	5.1	4.1	4.7
30.....	5.1	.....	10.0	5.1	6.7	3.2	2.76	2.53	2.71	4.8	4.1	4.7
31.....	4.9	.....	8.8	.....	6.6	.....	2.80	2.54	.....	4.6	.....	4.6

NOTE.—Discharge relation affected by ice Feb. 11 to Mar. 8, and Dec. 25-31.

Daily discharge, in second-feet, of Sacandaga River at Hadley, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,050	2,210	1,000	11,300	2,540	5,080	366	254	153	214	1,500	1,220
2.....	2,050	1,900	980	9,840	2,370	4,130	317	227	135	232	1,270	1,160
3.....	2,210	1,630	970	8,500	2,210	3,270	297	197	124	350	1,060	1,160
4.....	3,470	1,570	960	7,280	2,050	2,710	278	189	98	622	1,010	1,270
5.....	2,050	1,500	900	6,690	1,570	2,210	258	189	95	552	956	1,330
6.....	4,130	1,270	870	6,400	1,900	1,760	245	180	95	455	956	1,330
7.....	4,130	1,270	870	6,400	1,900	1,760	245	180	95	455	956	1,330
8.....	4,360	1,160	860	5,850	1,700	1,500	232	176	95	395	910	1,380
9.....	4,600	1,060	850	5,330	1,330	1,220	218	172	95	339	864	2,710
10.....	4,840	1,110	864	4,600	1,380	1,160	210	161	92	302	1,760	3,270
11.....	4,840	1,080	1,270	3,900	1,110	1,110	201	149	92	278	5,850	2,890
12.....	4,600	960	1,700	3,470	1,010	1,010	180	131	92	263	7,280	2,540
13.....	4,600	880	1,900	3,900	864	910	254	124	86	245	7,280	1,760
14.....	4,130	800	2,210	4,130	1,330	821	278	114	77	240	6,120	1,700
15.....	3,900	740	3,900	4,130	1,380	778	273	111	72	245	5,080	1,760
16.....	3,680	700	5,080	3,680	1,330	660	268	107	69	245	4,130	1,630
17.....	3,270	660	6,690	3,470	1,220	552	254	104	61	227	3,270	1,440
18.....	3,270	650	7,580	3,080	1,110	622	232	104	64	227	2,540	1,380
19.....	3,900	660	7,580	2,710	1,060	587	210	101	67	222	2,050	1,330
20.....	5,080	680	6,690	2,710	864	519	201	101	69	227	1,760	1,110
21.....	5,850	750	6,690	3,080	1,060	486	189	118	77	323	1,900	821
22.....	6,690	860	6,690	3,080	1,060	587	184	118	98	1,330	2,710	910
23.....	6,980	1,100	8,180	2,890	1,060	587	180	107	161	1,570	2,890	956
24.....	6,980	1,350	9,500	2,540	1,630	552	176	95	660	1,760	2,540	821
25.....	6,400	1,500	8,820	2,370	3,270	552	176	86	738	1,330	2,210	698
26.....	5,850	1,350	9,160	2,210	3,680	587	172	83	486	1,440	2,050	660
27.....	5,330	1,240	17,000	2,210	3,680	552	176	83	395	2,540	1,760	660
28.....	4,600	1,120	28,300	1,900	3,080	519	180	111	344	3,470	1,570	738
29.....	4,130	1,050	33,500	1,630	3,470	552	184	118	288	3,270	1,380	821
30.....	3,270	26,900	2,370	5,330	587	180	138	254	2,710	1,270	864	864
31.....	2,710	19,500	2,710	6,400	486	245	149	222	2,210	1,270	864	864
31.....	2,370	13,700	.....	6,120	.....	263	153	.....	1,900	.....	864	864

NOTE.—Discharge determined from a well-defined rating curve. Discharge Feb. 11 to Mar. 8 and Dec. 25-31 determined from discharge measurements and comparisons with records at stations on Hudson River.

Monthly discharge of Sacandaga River at Hadley, N. Y., for 1913.

[Drainage area, 1,060 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	6,980	2,050	4,260	4.02	4.64	A.
February.....	2,210	650	1,130	1.07	1.11	B.
March.....	33,500	850	7,770	7.33	8.45	A.
April.....	11,300	1,630	4,270	4.03	4.50	A.
May.....	6,400	864	2,200	2.08	2.40	A.
June.....	5,080	486	1,220	1.15	1.28	A.
July.....	366	172	228	.215	.25	A.
August.....	254	83	137	.129	.15	B.
September.....	738	62	182	.172	.19	A.
October.....	3,470	214	959	.905	1.04	A.
November.....	7,280	864	2,570	2.42	2.70	A.
December.....	3,270	660	1,360	1.28	1.48	B.
The year.....	33,500	62	2,200	2.08	28.19	

WEST BRANCH OF SACANDAGA RIVER AT BLACKBRIDGE, NEAR WELLS, N. Y.

Location.—At the highway bridge known as Blackbridge, 2 miles above the junction of the east and west branches of Sacandaga River and about 3 miles west of Wells. Replaces station formerly located at Whitehouse.

Records available.—March 14, 1911, to December 31, 1913.

Drainage area.—211 square miles.

Gage.—Chain on upstream side of highway bridge.

Channel.—Rocky; practically permanent.

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

Regulation.—Flow slightly affected by storage dams used for logging in the spring.

Winter flow.—Not seriously affected by ice.

Floods.—The flood of March 25 to 30, 1913, reached a stage of 11.5 feet at 4 p. m.

March 27, as recorded by the observer, with a corresponding discharge of approximately 29,000 second-feet, or 137 second-feet per square mile of drainage area.

Later determinations of the elevations of high-water marks indicate that the crest of the flood reached a considerably higher stage than that noted by the observer.

Accuracy.—Results good.

Discharge measurements of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.
May 20	C. S. De Golyer	<i>Feet.</i> 3.96	<i>Sec.-ft.</i> 265
20	do.	3.96	266

Daily gage height, in feet, of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1913.

[Cornelius De Groff, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.5	8.4	4.2	7.0	4.3	4.9	3.05	2.80	2.58	2.72	4.3	3.9
2.....	4.4	4.4	4.1	6.2	4.55	4.8	3.05	3.20	2.50	3.41	4.1	3.9
3.....	4.8	4.35	3.9	6.1	4.8	4.7	3.10	3.10	2.50	3.8	4.0	3.85
4.....	5.6	4.3	3.8	5.9	4.15	4.6	2.88	3.25	2.50	3.65	4.5	3.8
5.....	5.35	4.2	3.75	6.3	4.75	4.55	2.80	2.88	2.44	3.40	4.1	3.85
6.....	5.3	4.15	3.8	6.0	4.85	4.35	2.88	2.78	2.44	3.26	3.95	3.8
7.....	5.6	4.1	4.1	5.25	3.9	4.35	2.80	2.76	2.42	3.18	3.9	3.7
8.....	6.0	3.9	4.6	5.45	4.6	4.0	2.78	2.72	2.40	3.10	3.8	5.15
9.....	5.8	3.8	4.2	5.3	3.65	4.2	2.61	2.70	2.42	3.05	6.2	4.75
10.....	5.7	3.7	4.0	5.15	3.65	4.1	3.12	2.62	2.41	2.95	6.4	4.65
11.....	5.5	3.6	3.9	5.35	3.41	4.2	3.22	2.64	2.35	2.81	5.9	4.5
12.....	5.7	3.48	3.85	5.4	4.2	4.15	3.12	2.66	2.35	2.90	5.6	4.35
13.....	5.5	3.5	3.8	5.15	4.7	3.95	3.18	2.70	2.32	3.00	5.15	4.3
14.....	5.4	3.65	5.15	4.7	4.6	3.55	3.25	2.62	2.32	2.90	5.1	4.2
15.....	5.2	3.75	5.3	4.6	4.45	3.10	2.84	2.60	2.32	2.68	5.4	4.1
16.....	5.1	3.75	6.2	4.4	4.1	3.45	2.82	2.55	2.32	2.66	4.65	4.35
17.....	5.2	3.75	5.5	4.2	4.2	3.25	2.68	2.51	2.30	2.80	4.5	4.0
18.....	6.2	3.9	5.45	4.15	3.46	3.08	2.72	2.61	2.38	2.84	4.45	3.9
19.....	6.4	3.4	5.3	4.55	4.35	2.98	2.71	2.58	2.40	2.82	4.3	3.7
20.....	6.2	3.6	5.8	4.7	3.9	3.48	2.78	2.48	2.35	4.2	5.2	3.7
21.....	7.2	3.7	6.2	4.35	3.8	3.20	2.74	2.40	2.31	5.15	5.3	3.7
22.....	5.9	3.7	7.0	4.3	3.9	3.35	2.71	2.40	4.25	4.9	5.0	3.6
23.....	5.8	4.2	6.4	4.2	5.35	4.05	2.62	2.52	3.55	4.4	5.35	3.7
24.....	5.7	4.3	6.3	4.1	5.5	3.9	2.82	2.54	3.5	4.3	4.75	3.65
25.....	6.4	4.3	9.0	4.2	5.5	3.9	2.92	2.50	3.20	5.3	4.6	3.55
26.....	5.45	4.5	9.6	4.15	5.2	3.9	2.80	2.42	3.10	5.45	4.6	3.55
27.....	5.35	4.55	11.0	4.1	4.7	4.2	2.81	2.62	3.10	5.25	4.3	3.42
28.....	5.45	4.55	8.4	4.0	6.0	4.25	2.80	2.61	2.82	4.65	4.2	3.5
29.....	5.4	-----	7.7	4.45	6.0	3.35	3.10	2.75	2.75	4.9	4.3	3.40
30.....	4.75	-----	7.3	4.4	5.7	4.05	2.94	2.71	2.72	4.6	4.2	3.5
31.....	4.6	-----	7.4	-----	5.5	-----	2.88	2.58	-----	4.5	-----	3.8

NOTE.—Discharge relation affected by ice Feb. 13 to Mar. 10, and Dec. 31. Gage height of Feb. 1 probably in error.

Daily discharge, in second-feet, of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	517	490	.....	3,540	414	770	65	36	17	28	414	251
2.....	464	464	.....	2,120	545	700	65	86	12	122	326	251
3.....	700	439	.....	1,980	700	634	72	72	12	218	287	234
4.....	1,380	414	.....	1,720	347	573	44	94	12	176	517	218
5.....	1,140	368	.....	2,270	667	545	36	44	9	120	326	234
6.....	1,090	347	.....	1,850	735	439	44	34	9	96	269	218
7.....	1,380	326	.....	1,050	251	439	36	32	8	83	251	189
8.....	1,850	251	.....	1,230	573	287	34	28	7	72	218	968
9.....	1,600	218	.....	1,090	176	368	19	26	8	65	2,120	667
10.....	1,490	189	.....	968	176	326	75	20	8	52	2,430	604
11.....	1,280	163	251	1,140	122	368	89	21	5	47	1,720	517
12.....	1,490	136	234	1,180	368	347	75	23	5	46	1,380	439
13.....	1,280	.....	218	968	634	269	83	26	4	58	968	414
14.....	1,180	.....	968	634	573	152	94	20	4	46	926	368
15.....	1,010	.....	1,090	573	490	72	40	18	4	24	1,180	326
16.....	926	.....	2,120	464	326	130	38	15	4	23	604	439
17.....	1,010	.....	1,280	368	368	94	24	13	3	36	517	287
18.....	2,120	.....	1,230	347	132	69	28	19	6	40	490	251
19.....	2,430	.....	1,090	545	439	56	27	17	7	38	414	189
20.....	2,120	.....	1,600	634	251	136	34	11	5	368	1,010	189
21.....	3,990	.....	2,120	439	218	86	30	7	3	968	1,090	189
22.....	1,720	.....	3,540	414	251	111	27	7	391	770	846	163
23.....	1,600	.....	2,430	368	1,140	306	20	13	152	464	1,140	189
24.....	1,490	.....	2,270	326	1,280	251	38	14	140	414	667	176
25.....	2,430	.....	10,200	368	1,280	251	48	12	86	1,090	573	152
26.....	1,230	.....	13,500	347	1,010	251	46	8	72	1,230	490	152
27.....	1,140	.....	24,000	326	634	368	37	20	72	1,050	414	124
28.....	1,230	.....	7,600	287	1,850	391	36	19	38	604	368	140
29.....	1,180	.....	5,290	490	1,850	111	72	31	31	770	414	120
30.....	667	.....	4,230	464	1,490	306	51	27	28	573	368	140
31.....	573	.....	4,480	.....	1,280	.....	44	17	.....	517	.....	140

NOTE.—Discharge determined from a well-defined rating curve. Figures for Feb. 1 and Dec. 31 estimated. Mean discharge Feb. 13-28, estimated 187 second-feet, and Mar. 1-10, 228 second-feet, by comparison with records on Sacandaga River at Hope and at Hadley.

Monthly discharge of West Branch of Sacandaga River at Blackbridge, near Wells, N. Y., for 1913.

[Drainage area, 211 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	3,990	464	1,410	6.68	7.70	A.
February.....	.....	.....	243	1.15	1.20	C.
March.....	24,000	.....	2,970	14.1	16.26	C.
April.....	3,540	287	950	4.50	5.02	A.
May.....	1,850	122	664	3.15	3.63	A.
June.....	770	56	307	1.45	1.62	A.
July.....	94	19	47.5	.225	.26	A.
August.....	94	7	26.8	.127	.15	B.
September.....	391	3	38.7	.183	.20	A.
October.....	1,230	23	329	1.56	1.80	A.
November.....	2,430	218	758	3.59	4.00	A.
December.....	968	120	288	1.36	1.57	A.
The year.....	24,000	3	674	3.19	43.41	

HOOSIC RIVER NEAR EAGLE BRIDGE, N. Y.

Location.—Half a mile below Walloomsac River and $1\frac{1}{2}$ miles above Owlkill Creek and Eagle Bridge.

Records available.—August 13, 1910, to December 31, 1913; September 25, 1903, to December 31, 1908, at Buskirk, 4 miles below the present station.

Drainage area.—512 square miles.

Gage.—Chain on left bank.

Channel and control.—Gravel; somewhat shifting.

Discharge measurements.—Made from a cable a mile below the gage, or by wading.

Regulation.—Flow affected by storage on Walloomsac River and at Hoosic Falls about 2 miles above the gage.

Accuracy.—Results good. Low stage discharges may be slightly in error because of regulation.

Discharge measurements of Hoosic River near Eagle Bridge, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.
Mar. 15	C. S. De Golyer	<i>Fect.</i>	<i>Sec.-ft.</i>
Sept. 24	R. S. Barnes	12.46	5,070
		7.52	321

Daily gage height, in feet, of Hoosic River near Eagle Bridge, N. Y., for 1913.

[Mrs. Vashli Russell, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	9.7	9.9	9.6	11.6	8.4	8.6	7.40	7.18	6.68	6.88	8.1	8.3
2.....	9.4	8.6	9.0	10.5	8.15	8.6	7.20	6.95	6.53	6.90	7.65	8.05
3.....	9.8	8.7	8.6	10.1	8.1	8.3	7.08	6.68	6.58	7.00	7.85	8.0
4.....	10.9	8.7	8.6	9.8	8.1	8.25	6.92	7.13	7.01	7.00	7.9	7.8
5.....	9.6	8.35	8.4	10.0	8.0	8.05	7.00	6.91	7.03	6.82	7.6	8.1
6.....	9.6	8.25	8.3	9.7	8.1	7.85	.....	7.08	7.01	7.18	7.6	8.0
7.....	10.8	8.15	7.85	9.6	8.0	7.8	.....	6.95	6.78	6.98	7.5	8.0
8.....	12.2	8.15	8.0	9.4	7.8	7.8	.....	6.95	7.13	6.85	7.4	9.9
9.....	10.8	7.95	8.0	9.1	7.75	7.8	.....	6.71	7.43	6.92	7.3	9.1
10.....	10.1	8.0	9.4	9.0	7.7	7.8	7.48	6.68	7.28	6.92	11.1	8.8
11.....	9.8	7.9	9.6	9.8	7.55	7.8	7.35	6.91	6.98	6.88	9.3	8.8
12.....	10.4	8.1	9.1	11.3	7.9	7.7	7.08	6.85	6.78	6.52	8.7	8.6
13.....	9.9	7.8	9.1	10.5	7.7	7.6	7.35	6.83	6.85	7.38	8.4	8.5
14.....	9.4	7.8	11.2	10.5	7.6	7.17	7.43	6.91	6.38	7.7	8.3	8.7
15.....	9.2	7.9	12.3	10.0	7.5	7.25	7.35	7.21	6.65	6.98	8.4	8.6
16.....	9.2	7.9	11.6	9.7	7.75	7.5	7.01	6.78	6.95	7.05	8.15	8.45
17.....	9.8	8.0	10.2	9.5	7.7	7.5	6.98	7.75	6.83	6.90	8.25	8.4
18.....	11.4	7.8	9.5	9.3	7.65	7.35	6.91	6.73	6.91	6.85	8.0	8.4
19.....	11.3	7.85	9.4	9.2	7.8	7.40	7.05	6.91	6.93	6.55	8.0	8.3
20.....	10.2	7.8	9.8	9.0	7.7	7.7	6.83	6.83	6.83	7.15	8.7	8.15
21.....	11.0	7.95	10.5	8.9	7.7	7.7	7.03	6.88	6.58	8.1	8.8	8.0
22.....	10.2	8.5	11.0	8.7	7.8	7.38	7.08	6.78	6.93	7.8	8.5	8.3
23.....	9.8	9.8	9.8	8.7	8.8	7.6	7.03	6.75	7.95	7.8	8.2	8.0
24.....	10.2	8.55	10.0	8.5	9.8	7.32	7.01	6.75	7.75	7.55	8.4	8.1
25.....	9.7	8.15	10.2	8.4	9.1	7.28	7.05	6.83	7.42	7.8	8.2	8.0
26.....	9.4	7.9	12.6	8.4	8.6	7.28	6.98	6.88	7.28	8.9	8.2	8.2
27.....	9.5	8.0	14.8	8.25	8.35	7.30	6.71	7.05	6.85	10.5	7.8	7.8
28.....	9.2	10.8	13.7	8.4	8.5	7.17	6.98	6.85	6.68	9.1	8.4	7.7
29.....	8.9	.....	12.0	8.8	10.4	6.95	7.5	6.78	6.85	8.6	8.1	8.2
30.....	8.9	.....	11.0	8.6	9.4	7.05	7.35	6.81	7.12	8.3	8.05	8.05
31.....	8.8	.....	10.8	.....	9.0	.....	7.43	6.91	.....	8.05	.....	8.0

Daily discharge, in second-feet, of Hoosic River near Eagle Bridge, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,820	2,000	1,730	3,840	810	950	270	189	72	112	620	745
2.....	1,560	950	1,240	2,570	650	950	195	128	50	116	378	590
3.....	1,910	1,020	950	2,180	620	745	160	72	57	140	478	560
4.....	2,990	1,020	950	2,000	620	712	121	174	142	140	505	450
5.....	1,730	778	810	2,090	560	590	140	118	148	98	355	620
6.....	1,730	712	745	1,820	620	478	165	160	142	189	355	560
7.....	2,880	650	478	1,730	560	450	180	128	90	135	310	560
8.....	4,720	650	560	1,560	450	450	195	128	174	105	270	2,000
9.....	2,880	532	560	1,320	425	450	230	77	282	121	230	1,320
10.....	2,180	560	1,560	1,240	400	450	302	72	223	121	3,220	1,090
11.....	1,910	505	1,730	1,910	332	478	250	118	135	112	1,480	1,090
12.....	2,470	620	1,320	3,460	505	400	160	105	90	48	1,020	950
13.....	2,000	450	1,320	2,570	400	355	250	101	105	262	810	880
14.....	1,560	450	3,340	2,570	355	186	282	118	30	400	745	1,020
15.....	1,400	505	4,880	2,090	310	212	250	198	68	135	810	950
16.....	1,400	505	3,840	1,820	425	310	142	90	128	152	650	845
17.....	1,910	560	2,280	1,640	400	310	135	84	101	116	712	810
18.....	3,580	450	1,640	1,480	378	250	118	81	118	105	560	810
19.....	3,460	478	1,560	1,400	450	270	152	118	123	52	560	745
20.....	2,280	450	1,910	1,240	400	400	101	101	101	180	1,020	650
21.....	3,100	532	2,570	1,160	400	400	148	112	57	620	1,090	560
22.....	2,280	880	3,100	1,020	450	262	160	90	123	450	880	745
23.....	1,910	1,910	1,910	1,020	1,090	355	148	84	532	450	680	560
24.....	2,280	915	2,090	880	1,910	238	142	84	425	332	810	620
25.....	1,820	650	2,280	810	1,320	223	152	101	278	450	680	560
26.....	1,560	505	5,370	810	950	223	135	112	223	1,160	680	680
27.....	1,640	560	10,000	710	810	230	77	152	105	2,570	450	450
28.....	1,400	2,880	7,200	810	880	186	135	105	72	1,320	810	400
29.....	1,160	4,410	1,090	2,470	128	310	90	72	2	950	620	680
30.....	1,160	3,100	950	1,560	152	250	96	171	745	590	590	590
31.....	1,090	2,880	1,240	282	118	282	118	590	590	590	590	560

NOTE.—Discharge determined from a rating curve well defined between 200 and 6,000 second-feet and fairly well defined below 200 second-feet.

Monthly discharge of Hoosic River near Eagle Bridge, N. Y., for 1913.

[Drainage area, 512 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	4,720	1,090	2,120	4.14	4.77	A.
February.....	2,880	450	810	1.58	1.64	A.
March.....	10,000	478	2,530	4.94	5.70	B.
April.....	3,840	710	1,660	3.24	3.62	A.
May.....	2,470	810	734	1.43	1.65	A.
June.....	950	128	393	.767	.86	B.
July.....	282	77	185	.361	.42	B.
August.....	198	72	113	.221	.25	B.
September.....	532	30	148	.289	.32	B.
October.....	2,570	48	402	.785	.90	B.
November.....	1,480	230	746	1.46	1.63	A.
December.....	2,000	400	763	1.49	1.72	A.
The year.....	10,000	30	886	1.73	23.48	

MOHAWK RIVER AT TRIBES HILL, N. Y.

Location.—At the suspension bridge between the towns of Fort Hunter and Tribes Hill.

Records available.—January 1 to December 31, 1912, and discharge measurements in 1913. Data for April 3, 1904, to December 31, 1913, published in annual reports of the New York State engineer and surveyor.

Drainage area.—3,113 square miles.

Gage.—Chain on bridge.

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

Cooperation.—Results prior to 1913 furnished by the New York State engineer and surveyor. Station flooded out during June, 1913, by the closing of one of the movable dams of the Barge canal, a short distance below the station.

Discharge measurements of Mohawk River at Tribes Hill, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 24	C. S. De Golyer.....	7.70	12,800	May 3	R. S. Barnes.....	5.72	4,240
24	do.....	7.62	12,300	10	do.....	5.00	2,340
28	C. C. Covert.....	15.04	75,900	June 12	C. C. Covert.....	4.48	1,400
Apr. 24	C. S. De Golyer.....	5.93	4,590	19	O. W. Hartwell.....	4.40	1,030

MOHAWK RIVER AT VISCHER FERRY, N. Y.

Location.—At Vischer Ferry, just below Stony Creek, about a mile below the Vischer Ferry dam of the Barge canal, and about 10 miles above the mouth.

Records available.—June 24 to December 31, 1913.

Drainage area.—3,420 square miles.

Gage.—An inclined staff at the foot of an old bridge abutment, about 100 feet above the ferry; a portable automatic gage used July 15 to 28 and August 7 to September 17, 1913.

Channel and control.—Coarse gravel; practically permanent.

Discharge measurements.—Made by wading at the control.

Diversions.—Water is diverted into Erie canal at Vischer Ferry dam and carried around the gage. Miscellaneous measurements of this diversion have been made and are given below, but no allowance for this diversion has been made in computing the flow at Vischer Ferry.

Regulation.—Flow affected by operation of dams upstream.

Accuracy.—Results good.

Discharge measurements of Mohawk River at Vischer Ferry, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
July 2	G. J. Lyon.....	3.15	1,570	Sept. 11	Lyon and Barnes.....	2.85	590
16	Lyon and Easterly.....	2.98	954	Nov. 5	De Golyer and Barnes.	3.40	2,070
Aug. 7	Lyon and Barnes.....	2.86	668	7	do.....	3.51	2,250
Sept. 5	De Golyer and Barnes.	2.64	315	18	Canfield and Barnes....	4.20	4,420

Discharge measurements of Erie Canal at Vischer Ferry, N. Y., for 1913.

Date.	Made by—	Gage height. ^a	Dis-charge.	Date.	Made by—	Gage height. ^a	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
July 8	W. S. Easterly.....	2.35	415	Oct. 15	C. S. De Golyer.....	1.42	290
15	do.....	2.10	384	Nov. 5	R. S. Barnes.....	3.27	300
Sept. 11	R. S. Barnes.....	1.76	385	7	do.....	3.58	270
Oct. 15	C. S. De Golyer.....	1.46	366	18	do.....	1.29	354

^a Distance to water surface from a reference point on bridge.

Daily gage height, in feet, of Mohawk River at Vischer Ferry, N. Y., for 1913.

[Wm. Woodin, observer.]

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		3.18	2.83	2.79	3.02	3.5	3.75
2		3.12	2.90	2.74	2.98	3.55	4.3
3		3.10	2.84	2.77	3.00	3.40	4.4
4		2.98	2.89	2.75	3.10	3.44	4.2
5		2.98	2.94	2.65	3.46	3.36	3.85
6		3.02	2.90	2.75	3.35	3.28	3.65
7		2.92	2.84	2.74	3.22	3.5	5.0
8		2.96	2.81	2.76	3.22	3.24	4.9
9		2.97	2.80	2.70	2.89	3.5	5.8
10		3.00	2.95	2.75	3.05	12.2	4.5
11		2.91	2.87	2.82	2.95	10.0	4.5
12		2.87	2.84	2.80	2.89	7.0	4.1
13		2.86	2.82	2.78	2.98	5.6	4.2
14		2.78	2.81	2.74	2.99	5.0	4.2
15		2.88	2.83	2.73	2.91	5.1	4.8
16		3.00	2.86	2.96	2.92	4.8	4.4
17		2.96	2.84	2.83	2.97	4.4	4.5
18		2.91	2.85		2.96	4.1	3.95
19		2.90	2.72		2.94	4.1	3.9
20			2.79	2.75	2.98	4.5	3.55
21		2.88	2.83	2.69	3.13	6.1	3.5
22		2.88	2.80	2.85	5.5	5.7	3.55
23		2.88	2.87	2.74	4.8	5.1	3.48
24	3.05	2.91	2.77	3.35	4.4	4.4	3.42
25	2.88	2.90	2.79	3.19	3.9	4.1	3.6
26	3.25	2.89	2.81	2.92	4.0	4.4	3.45
27	3.00	2.88	2.83	2.91	4.8	4.0	3.75
28	2.90		2.81	3.12	5.1	3.9	
29	3.30	2.82	2.87	2.68	4.3	3.8	
30	3.28	2.84	2.84	2.63	4.2	3.6	
31		2.84	2.81		4.1		

Daily discharge, in second-feet, of Mohawk River at Vischer Ferry, N. Y., for 1913.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		1,370	611	540	986	2,230	2,980
2		1,220	740	462	900	2,380	4,760
3		1,170	630	509	940	1,950	5,110
4		900	722	478	1,170	2,060	4,420
5		900	820	331	2,120	1,840	3,280
6		986	740	478	1,820	1,630	2,670
7		780	630	462	1,470	2,230	7,380
8		860	574	494	1,470	1,520	6,980
9		880	556	400	722	2,230	10,700
10		940	840	478	1,060		5,470
11		760	685	593	840		5,470
12		685	630	556	722		4,090
13		666	593	525	900	9,840	4,420
14		525	574	462	920	7,380	4,420
15		703	611	447	760	7,780	6,590
16		940	666	860	780	6,590	5,110
17		860	630	611	880	5,110	5,470
18		760	648	560	860	4,090	3,600
19		740	431	520	820	4,090	3,440
20		722	540	478	900	5,470	2,380
21		703	611	386	1,240	12,000	2,230
22		703	556	648	9,420	10,300	2,380
23		703	685	462	6,590	7,780	2,170
24	1,060	760	509	1,820	5,110	5,110	2,010
25	703	740	540	1,400	3,440	4,090	2,520
26	1,550	722	574	780	3,760	5,120	2,090
27	940	703	611	760	6,590	3,760	1,410
28	740	648	574	1,220	7,780	3,440	1,260
29	1,680	593	685	372	4,760	3,130	1,810
30	1,630	630	630	303	4,420	2,520	1,900
31		630	574		4,090		2,140

NOTE.—Discharge determined from a rating curve well defined below 6,000 second-feet. Discharge estimated for days when no gage height was reported. Mean discharge Nov. 10-12 estimated 52,200 second-feet from an extension of the rating curve.

Monthly discharge of Mohawk River at Vischer Ferry, N. Y., for 1913.

Month.	Discharge in second-feet.			Accuracy.
	Maximum.	Minimum.	Mean.	
June 24-30.....			1,190	A.
July.....	1,370	525	803	A.
August.....	820	431	626	A.
September.....	1,820	303	613	B.
October.....	9,420	722	2,520	B.
November.....		1,520	9,410	C.
December.....	10,700	1,260	3,890	B.

WEST CANADA CREEK AT WILMURT, N. Y.

Location.—At the highway bridge in the town of Wilmurt.

Records available.—January 1, 1912, to December 31, 1913. Data for June 28, 1909, to December 31, 1913, published in annual reports of the New York State engineer and surveyor.

Drainage area.—198 square miles.

Gage.—Vertical staff on the downstream side of the center pier of the highway bridge.

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

Cooperation.—Results furnished by the New York State engineer and surveyor.

Daily discharge, in second-feet, of West Canada Creek at Wilmurt, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,150	958	676	.....	.....	1,050	138	72	72	98	570	476
2.....	820	1,000	676	3,520	.....	1,200	118	58	58	325	508	540
3.....	1,200	1,000	676	1,740	.....	868	98	58	50	570	443	600
4.....	1,404	916	744	1,870	.....	710	98	72	58	476	508	600
5.....	1,510	820	744	.....	.....	638	72	72	58	325	710	676
6.....	1,685	820	744	.....	.....	540	72	72	58	215	570	868
7.....	3,200	744	744	.....	.....	476	72	58	58	190	476	1,000
8.....	.....	676	1,300	.....	.....	443	72	58	58	190	410	1,870
9.....	.....	676	1,404	3,120	.....	410	72	58	58	190	.....	1,457
10.....	2,490	676	1,404	2,635	.....	356	72	58	58	164	.....	1,250
11.....	1,740	676	1,510	2,490	.....	356	267	58	50	138	3,040	1,000
12.....	1,510	676	2,870	2,060	.....	267	164	58	50	138	1,740	868
13.....	2,270	638	.....	1,805	.....	190	164	58	50	138	1,404	744
14.....	1,740	676	.....	1,570	.....	356	118	50	50	118	1,457	744
15.....	1,870	744	.....	1,352	.....	356	98	50	50	98	1,250	600
16.....	1,935	744	.....	1,250	.....	325	72	50	50	98	1,050	600
17.....	2,790	744	.....	1,150	.....	267	72	50	50	98	868	600
18.....	.....	744	.....	958	.....	215	72	50	50	98	710	540
19.....	.....	676	.....	1,352	.....	190	72	50	50	98	710	540
20.....	.....	676	.....	1,300	.....	325	72	50	58	744	.....	476
21.....	.....	676	.....	1,100	.....	215	72	50	58	3,280	2,270	476
22.....	.....	676	.....	958	.....	190	72	85	1,000	1,740	1,740	476
23.....	.....	676	.....	820	.....	190	72	215	443	1,100	1,352	476
24.....	3,360	676	.....	782	1,935	190	190	138	267	916	1,200	476
25.....	1,805	676	.....	1,250	1,300	138	138	72	190	1,570	1,100	508
26.....	1,300	676	.....	1,050	958	164	98	58	118	1,685	782	570
27.....	1,100	676	.....	868	820	164	98	72	98	1,740	638	508
28.....	916	676	.....	958	3,440	138	98	72	98	1,352	540	383
29.....	868	.....	.....	1,150	.....	190	98	72	98	1,050	570	267
30.....	820	.....	.....	1,250	2,060	164	85	72	98	868	508	164
31.....	744	.....	.....	1,404	.....	.....	72	72	.....	710	.....	98

NOTE.—Discharge beyond the limits of the rating curve for days when no discharge is given.

Monthly discharge of West Canada Creek at Wilmurt, N. Y., for 1913.

[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.....		820	1,662	8.39	9.67
February.....	1,000	676	739	3.73	3.88
March.....		676			
April.....		782	1,534	7.75	8.65
May.....		820			
June.....	1,200	138	376	1.90	2.12
July.....	267	72	102	.515	.594
August.....	215	50	69	.348	.401
September.....	1,000	50	119	.601	.671
October.....	3,280	98	662	3.34	3.85
November.....		410	1,005	5.08	5.67
December.....	1,870	98	660	3.33	3.84

WEST CANADA CREEK AT POLAND, N. Y.

Location.—At the highway bridge below the village of Poland.**Records available.**—January 1 to December 31, 1913. Data for July 3, 1908, to December 31, 1913, published in annual reports of the New York State engineer and surveyor.**Drainage area.**—470 square miles.**Gage.**—Standard chain on the downstream side of the bridge.**Discharge measurements.**—Made from the bridge.**Cooperation.**—Results furnished by the New York State engineer and surveyor.*Daily discharge, in second-feet, of West Canada Creek at Poland, N. Y., for 1913.*

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,660	1,032	684	3,650	950	1,343	332	380	263	240	848	916
2.....	1,155	991	620	3,150	1,032	1,390	263	286	120	286	748	1,032
3.....	2,134	991	652	2,428	916	1,114	332	309	220	916	780	882
4.....	3,806	916	620	2,584	780	916	263	380	220	712	780	916
5.....	3,320	652	564	5,705	684	780	286	355	220	480	882	950
6.....	2,904	684	564	4,312	620	684	263	286	220	355	780	916
7.....	3,887	592	592	2,822	1,249	620	355	240	200	355	652	1,343
8.....	6,532	652	536	1,920	592	620	309	263	240	309	620	3,968
9.....	5,810	684	536	1,660	536	564	332	309	200	355	3,806	2,350
10.....	3,887	712	684	1,343	430	508	592	180	200	309	8,500	1,855
11.....	2,904	712	848	2,662	455	508	455	309	200	286	4,975	1,343
12.....	3,575	712	1,032	3,490	455	480	455	286	200	240	2,986	1,032
13.....	3,068	652	1,390	2,584	405	430	430	220	180	355	2,062	1,073
14.....	2,506	620	4,138	1,855	380	332	405	220	140	380	1,855	1,032
15.....	2,062	652	6,440	1,920	380	332	332	220	180	332	1,725	991
16.....	1,660	620	8,500	1,660	405	405	286	160	200	309	1,552	814
17.....	4,138	652	7,708	1,444	380	455	332	220	200	309	1,202	950
18.....	6,935	652	2,904	1,114	455	405	309	220	200	286	1,032	780
19.....	8,625	620	2,350	1,606	536	380	286	220	240	240	950	652
20.....	5,400	592	3,320	1,660	455	380	263	200	200	405	3,806	652
21.....	8,000	684	5,190	1,249	455	455	309	200	160	4,138	4,312	780
22.....	6,118	848	9,418	1,114	536	430	355	240	508	2,740	2,822	654
23.....	3,806	1,286	5,910	1,114	2,428	455	332	332	882	1,552	1,855	712
24.....	4,225	1,202	3,968	1,032	2,904	332	380	332	480	1,296	1,498	536
25.....	3,068	1,343	11,075	1,444	1,855	332	430	309	430	1,790	1,498	620
26.....	2,134	991	17,020	1,155	1,249	405	309	309	332	2,062	1,155	620
27.....	2,206	748	17,270	1,155	1,343	508	240	220	332	2,134	950	620
28.....	1,390	684	14,480	991	2,584	592	405	263	200	1,725	848	536
29.....	916		7,250	1,114	6,625	380	380	355	309	1,202	814	536
30.....	1,032		4,138	1,202	3,150	309	405	332	240	991	882	652
31.....	1,032		3,320		1,855		380	286		882		592

Monthly discharge of West Canada Creek at Poland, N. Y., for 1913.

[Drainage area, 470 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	8,625	916	3,545	7.54	8.69
February.....	1,343	592	792	1.68	1.75
March.....	17,270	536	4,638	9.86	11.37
April.....	3,650	991	2,038	4.34	4.84
May.....	2,904	380	1,196	2.54	2.93
June.....	1,343	309	562	1.19	1.33
July.....	592	240	348	.740	.853
August.....	380	160	272	.579	.668
September.....	882	120	264	.562	.627
October.....	4,138	240	902	1.92	2.21
November.....	8,500	620	1,906	4.06	4.53
December.....	3,968	536	1,015	2.16	2.49
The year.....	17,270	120	1,460	3.11	42.288

WEST CANADA CREEK AT KAST BRIDGE, N. Y.

Location.—At the highway bridge about 3 miles above Herkimer, and about 4 miles above the mouth.

Records available.—May 15, 1905, to December 31, 1910; January 1, 1912, to December 31, 1913. Data for May 15, 1905, to December 31, 1913, published in the annual reports of the New York State engineer and surveyor.

Drainage area.—570 square miles.

Gage.—Horton tape gage on bridge near east abutment.

Channel.—Small bowlders and coarse gravel; practically permanent.

Discharge measurements.—Made from the bridge.

Cooperation.—Results furnished by the New York State engineer and surveyor.

Daily discharge, in second-feet, of West Canada Creek at Kast Bridge, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,050	1,385	797	6,160	1,070	1,980	285	366	252	230	942	968
2.....	1,560	1,070	708	4,242	1,120	1,560	304	290	138	351	730	1,222
3.....	2,326	1,095	628	3,029	968	1,248	309	257	165	866	767	993
4.....	4,676	1,070	760	2,970	811	968	267	276	230	737	767	968
5.....	3,648	774	636	6,160	730	797	197	323	143	511	891	1,140
6.....	5,516	745	606	5,280	701	708	370	267	170	442	723	993
7.....	5,748	636	533	3,501	577	737	197	197	204	446	752	1,455
8.....	7,609	708	621	2,326	687	643	361	248	138	262	701	4,304
9.....	6,706	658	584	1,700	621	548	219	299	173	356	4,180	2,832
10.....	4,180	737	1,172	1,490	475	504	366	223	194	309	9,066	2,280
11.....	3,265	730	1,248	3,808	456	475	489	182	162	309	6,100	1,490
12.....	4,676	752	1,700	4,552	461	456	456	238	100	465	3,560	1,197
13.....	3,442	723	1,980	3,324	418	342	409	267	136	418	2,418	1,248
14.....	2,786	680	7,147	2,188	446	380	380	208	136	394	2,096	1,197
15.....	2,142	701	7,276	2,418	351	257	257	167	104	338	2,096	1,248
16.....	1,875	723	8,998	1,910	456	370	252	200	182	267	1,805	968
17.....	7,476	665	5,922	1,805	437	428	215	130	170	295	1,350	1,044
18.....	8,015	621	3,324	1,248	451	380	276	165	138	267	1,172	1,070
19.....	8,575	606	2,786	2,050	591	304	248	194	230	328	1,070	694
20.....	6,160	658	2,786	1,910	504	370	230	176	230	614	4,304	591
21.....	8,365	767	5,922	1,490	451	497	290	170	295	4,676	5,160	694
22.....	7,094	801	9,354	1,274	606	446	248	154	636	3,206	3,147	752
23.....	4,552	1,980	6,220	1,350	2,418	418	271	280	993	1,700	2,096	651
24.....	4,800	1,350	6,280	1,248	3,206	314	342	351	606	1,140	1,770	636
25.....	3,684	1,140	14,377	1,350	2,464	323	428	295	409	1,840	1,630	730
26.....	2,556	942	20,500	1,274	1,324	295	356	219	342	2,418	1,274	752
27.....	2,740	789	20,500	1,420	1,630	446	295	276	356	2,326	1,095	409
28.....	1,735	847	18,355	1,120	2,464	570	304	257	252	1,770	942	446
29.....	1,172	.....	8,295	1,274	6,706	465	323	394	165	1,248	942	606
30.....	1,140	.....	4,920	2,924	3,684	314	361	267	262	1,120	968	591
31.....	1,197	.....	6,520	.....	2,188	.....	361	238	.....	968	.....	680

Monthly discharge of West Canada Creek at Kast Bridge, N. Y., for 1913.

[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.....	8,575	1,140	4,242	7.38	8.51
February.....	1,980	606	874	1.52	1.58
March.....	20,500	533	5,498	9.56	11.02
April.....	6,160	1,120	2,560	4.45	4.96
May.....	6,706	351	1,273	2.22	2.56
June.....	1,980	257	585	1.02	1.14
July.....	489	197	310	.539	.622
August.....	394	130	244	.424	.489
September.....	993	100	252	.438	.489
October.....	4,676	230	988	1.72	1.98
November.....	9,068	701	2,150	3.74	4.17
December.....	4,304	409	1,124	1.95	2.25
The year.....	20,500	100	1,680	2.92	39.770

SCHOHARIE CREEK AT PRATTSVILLE, N. Y.

Location.—At the highway bridge at Prattsville.**Records available.**—November 7, 1902, to December 31, 1913.**Drainage area.**—236 square miles (revised).**Gage.**—Chain gage on upstream side of highway bridge. An auxiliary vertical staff gage about 500 feet below the bridge used during the winter.**Discharge measurements.**—Made from the bridge or by wading.**Winter flow.**—Not seriously affected by ice.**Regulation.**—Flow not seriously affected by storage.**Floods.**—The maximum rate of flow occurred at 4.45 p. m., March 27, 1913. Discharge 16,500 second-feet or 70 second-feet per square mile.**Cooperation.**—Results furnished by Board of Water Supply of the city of New York.*Daily discharge, in second-feet, of Schoharie Creek at Prattsville, N. Y., for 1913.*

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	774	385	662	1,360	782	391	55	9	25	71	421	546
2.....	567	361	481	906	616	361	51	9	22	385	361	511
3.....	1,880	361	463	830	490	301	47	5	19	421	313	483
4.....	1,976	349	361	702	409	483	37	17	19	289	295	457
5.....	1,230	331	313	933	361	349	39	15	17	207	237	445
6.....	1,070	325	277	694	331	252	43	15	15	167	237	421
7.....	1,170	307	252	623	325	227	47	136	15	143	227	497
8.....	4,618	331	421	553	277	191	45	55	31	127	195	862
9.....	1,868	289	494	497	212	171	39	39	19	130	10,916	750
10.....	1,290	207	331	433	203	151	43	35	13	118	5,050	609
11.....	1,230	183	630	718	191	133	37	35	11	112	2,298	497
12.....	1,592	159	397	1,050	171	127	35	23	9	159	1,568	464
13.....	822	133	313	822	163	118	37	19	11	247	1,230	464
14.....	662	121	1,748	846	151	97	47	31	9	175	1,070	457
15.....	630	100	1,580	686	143	103	35	19	11	159	915	445
16.....	581	163	1,310	595	151	73	29	19	15	151	862	385
17.....	1,090	143	814	525	133	73	27	19	7	136	806	391
18.....	1,090	127	623	457	143	88	29	118	11	115	774	397
19.....	990	112	581	427	127	53	31	47	11	112	846	391
20.....	766	112	766	415	112	59	29	35	9	1,544	1,050	433
21.....	1,200	183	1,230	361	112	63	23	39	11	1,628	806	307
22.....	702	337	1,230	301	118	53	25	35	990	838	718	313
23.....	638	445	766	289	203	53	25	39	464	574	670	325
24.....	870	183	1,140	277	970	49	25	37	242	470	623	337
25.....	638	242	1,010	252	525	43	25	35	163	870	595	325
26.....	567	127	5,350	212	385	151	19	23	124	1,868	588	373
27.....	581	163	11,056	191	331	73	19	19	112	1,592	511	511
28.....	470	457	3,726	1,496	497	69	23	19	85	1,030	470	525
29.....	409	.....	2,102	1,748	1,010	82	19	43	82	774	694	313
30.....	415	.....	1,520	1,060	638	53	17	39	71	616	646	203
31.....	391	.....	1,520	.....	483	.....	11	29	.....	504	.....	183

Monthly discharge of Schoharie Creek at Prattsville, N. Y., for 1913.

[Drainage area, 236 square miles.]

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in million gallons.
January.....	4,618	391	1,057	4.48	5.165	21,183
February.....	457	100	241	1.02	1.064	4,351
March.....	11,056	252	1,402	5.94	6.851	28,092
April.....	1,748	191	675	2.86	3.192	13,094
May.....	1,010	112	347	1.47	1.698	6,953
June.....	483	43	150	.64	.709	2,904
July.....	55	11	33	.14	.163	654
August.....	136	5	34	.14	.169	684
September.....	990	7	88	.37	.416	1,707
October.....	1,868	71	507	2.15	2.478	10,168
November.....	10,916	195	1,200	5.08	5.671	23,263
December.....	862	183	439	1.86	2.143	8,802
The year.....	11,056	5	514	2.18	29.719	121,855

ALPLAUS KILL NEAR CHARLTON, N. Y.

Location.—At the highway bridge about half a mile southwest of Charlton.**Records available.**—August 12 to December 31, 1913.**Drainage area.**—24.9 square miles.**Gage.**—Automatic gage referred to a vertical staff on the upstream corner of the left abutment of the bridge.**Channel and control.**—A low weir 43 feet long has been constructed between the abutments of the bridge. The average height of its crest is 2.6 feet above the bed of the stream. The crest of the weir is formed by a steel plate having a rectangular notch 36 inches long and 9 inches deep and a V notch in the center of the rectangular notch.**Discharge measurements.**—Made from the bridge or by wading. The V notch has been rated by a number of volumetric measurements.**Accuracy.**—Results good.*Discharge measurements of Alplaus Kill near Charlton, N. Y., during 1913.*

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Oct. 18	Covert and Hartwell...	10.444	0.174	Oct. 18	Covert and Hartwell...	10.305	0.0695
18	do.....	10.440	.174	18	do.....	10.307	.0707
18	do.....	10.403	.141	18	do.....	10.287	.0590
18	do.....	10.402	.139	18	do.....	10.272	.0511
18	do.....	10.367	.112	18	do.....	10.276	.0520
18	do.....	10.368	.115				
18	do.....	10.342	.0923	Dec. 16	C. S. De Golyer.....	11.44	18.9
18	do.....	10.343	.0937	31	R. S. Barnes.....	11.42	18.7
18	do.....	10.336	.0885	31	do.....	11.42	18.8

NOTE.—Measurements of Oct. 18 are volumetric.

Daily gage height, in feet, and discharge, in second-feet, of Alplaus Kill near Charlton, N. Y., for 1913.

[Edwin Litts, observer.]

Day.	August.		September.		October.		November.		December.	
	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.	Gage height.	Dis-charge.
1.....			10.29	0.060	10.48	0.327	10.82	2.75	11.50	27.3
2.....			10.22	.029	10.59	.916	10.62	1.12	11.53	30.8
3.....			10.15	.011	10.76	2.21	10.61	1.05	11.46	22.9
4.....			10.08	.002	10.60	.980	10.95	4.04	11.41	18.0
5.....			10.03	.000	10.51	.460	10.66	1.40	11.36	14.0
6.....			9.98	.000	10.50	.413	10.92	3.74	11.31	10.7
7.....			9.92	.000	10.52	.510	10.72	1.88	11.44	20.9
8.....			9.86	.000	10.49	.369	10.80	2.57	11.64	45.2
9.....			9.78	.000	10.54	.616	11.62	42.4	11.41	18.0
10.....			9.71	.000	10.60	.980	11.78	66.4	11.41	18.0
11.....			9.65	.000	10.47	.288	11.50	27.3	-----	-----
12.....		0.000	9.59	.000	10.41	.149	11.42	18.9	-----	-----
13.....	9.36	.000	9.53	.000	10.46	.251	11.36	14.0	-----	-----
14.....	10.32	.078	9.47	.000	10.48	.327	11.40	17.1	-----	-----
15.....	10.07	.002	9.41	.000	10.51	.460	11.39	16.3	-----	-----
16.....	9.69	.000	9.36	.000	10.56	.730	11.37	14.7	11.42	18.9
17.....	9.33	.000	9.32	.000	10.48	.327	11.32	11.3	11.41	18.0
18.....	9.12	.000	9.32	.000	10.38	.122	11.24	7.41	11.38	15.5
19.....		.000	9.30	.000	10.37	.114	11.22	7.15	11.17	6.55
20.....		.000	9.27	.000	-----	-----	11.71	55.5	11.05	5.13
21.....	8.69	.000	9.24	.000	-----	-----	11.52	29.6	11.03	4.91
22.....	8.66	.000	10.45	.217	-----	-----	11.45	21.9	11.16	6.43
23.....	8.90	.000	10.72	1.88	10.96	4.14	11.42	18.9	10.89	3.44
24.....	8.79	.000	10.63	1.19	10.70	1.71	11.38	15.5	11.00	4.58
25.....	8.80	.000	10.57	.790	10.84	2.94	11.36	14.0	11.06	5.24
26.....	8.75	.600	10.49	.369	11.32	11.3	11.26	8.0	11.15	6.31
27.....	9.14	.000	10.52	.510	11.45	21.9	11.27	8.5	10.91	3.64
28.....	9.30	.000	10.50	.413	11.29	9.5	11.10	5.72	11.16	6.43
29.....	9.48	.000	10.48	.327	11.16	6.43	11.06	5.24	11.28	9.00
30.....	10.26	.045	10.49	.369	11.16	6.43	11.31	10.7	11.34	12.6
31.....	10.40	.140	-----	-----	10.95	4.04	-----	-----	11.18	6.67

NOTE.—Discharge determined from a well-defined rating curve. Estimates do not include leakage, which was less than 0.01 second-foot. Mean discharge Oct. 20-22 estimated 0.11 second-feet; Dec. 11-15, estimated 18 second-feet.

Monthly discharge of Alplaus Kill near Charlton, N. Y., for 1913.

[Drainage area, 24.9 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
August 12-31.....	0.140	0.000	0.0132	0.0005	0.00	B.
September.....	1.88	.000	.206	.008	.01	A.
October.....	21.9	-----	2.56	.103	.11	A.
November.....	66.4	1.05	15.2	.613	.68	A.
December.....	45.2	3.44	14.5	.582	.67	A.

KINDERHOOK CREEK AT ROSSMAN, N. Y.

Location.—At the highway bridge at Rossman, a mile above Claversack Creek and 9 miles by road above Hudson.

Records available.—March 17, 1906, to December 31, 1913.

Drainage area.—331 square miles.

Gage.—Tape gage on highway bridge.

Channel and control.—Rock and gravel.

Discharge measurements.—Made from highway bridge.

Regulation.—Low-water flow, practically controlled by storage in several small lakes and by the operation of power plants and paper mills above the station.

Winter flow.—Seriously affected by ice.

Special studies.—A portable automatic gage was set up near the regular gage and records were obtained August 3 to 12, and November 30 to December 5, 1912, and May 31 to June 10, 1913. A study of the records from this gage indicates that two gage readings a day give fairly good results for discharges over 100 second-feet.

Floods.—The high water of March 25 to 30, 1913, reached a stage of 33.4 feet March 28, as recorded by the gage observer. The corresponding discharge was 8,780 second-feet, or 26.5 second-feet per square mile.

Accuracy.—Results over 100 second-feet fair.

Daily gage height, in feet, of Kinderhook Creek at Rossman, N. Y., for 1913.

[Lester Allen, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	28.35	28.0	28.3	29.6	27.16	27.29	26.14	26.58	26.10	26.14	27.02	27.30
2.....	28.35	27.6	28.05	28.9	27.06	27.20	26.52	26.08	25.98	26.32	26.92	27.32
3.....	28.6	27.65	27.7	28.45	26.94	27.12	26.49	26.28	25.93	26.26	26.82	27.23
4.....	29.1	27.5	27.55	28.25	26.84	27.04	26.20	26.18	26.13	26.02	26.70	27.27
5.....	28.6	27.5	27.5	28.4	26.90	26.92	26.36	26.19	26.47	26.10	26.70	27.26
6.....	28.8	27.6	27.45	28.35	27.02	26.84	26.20	26.40	26.43	26.52	26.85	27.25
7.....	28.5	27.48	27.32	28.2	27.01	26.73	26.06	26.12	26.20	26.20	26.62	27.08
8.....	28.9	27.5	27.24	28.0	27.06	26.65	26.60	26.26	26.18	26.48	26.71	27.32
9.....	28.8	.....	27.42	27.9	26.94	26.84	26.31	26.04	26.26	26.10	26.48	27.27
10.....	28.7	.....	27.8	27.75	26.84	26.64	26.34	26.18	26.24	26.23	26.94	27.26
11.....	28.6	.....	28.0	28.0	26.89	26.70	26.22	26.14	26.12	26.01	27.48	27.23
12.....	28.6	.....	28.05	28.8	26.77	26.68	26.21	26.48	26.00	26.32	27.38	27.06
13.....	28.9	.....	27.95	28.9	26.72	26.58	26.18	26.34	26.12	26.08	27.20	27.20
14.....	28.8	.....	28.5	28.9	26.73	26.56	26.12	26.48	26.01	26.25	27.11	27.31
15.....	28.7	.....	29.5	28.5	26.57	26.55	26.12	26.64	26.25	26.44	27.38	27.49
16.....	28.7	.....	29.3	28.3	26.72	26.50	26.28	26.58	26.19	26.80	27.15	27.55
17.....	28.7	.....	28.8	28.15	26.70	26.65	26.14	26.21	26.12	26.58	27.16	27.28
18.....	28.6	.....	28.3	27.95	26.81	26.58	26.12	26.21	26.18	26.44	27.28	27.26
19.....	28.6	.....	28.25	27.8	26.44	26.53	26.23	26.22	26.20	26.10	27.18	27.18
20.....	28.3	.....	28.15	27.7	26.92	26.62	26.18	26.27	26.06	26.51	27.28	27.05
21.....	28.7	.....	28.7	27.65	26.75	26.53	26.24	26.43	26.02	26.54	27.55	27.20
22.....	28.45	.....	28.9	27.55	26.66	26.53	26.16	26.18	26.20	26.62	27.36	27.21
23.....	28.2	.....	28.4	27.49	26.95	26.74	26.20	26.04	26.40	26.68	27.25	27.05
24.....	28.15	.....	28.35	27.42	27.7	26.65	26.31	26.24	26.62	26.52	27.27	27.19
25.....	28.1	.....	28.3	27.40	27.6	26.64	26.59	25.97	26.50	26.66	27.29	27.22
26.....	27.9	.....	29.7	27.27	27.40	26.61	26.45	26.10	26.47	26.82	27.27	27.22
27.....	27.8	.....	30.8	27.38	27.32	26.54	26.22	26.12	26.46	28.00	27.22	27.31
28.....	27.7	29.1	32.7	27.22	27.12	26.51	26.12	26.17	26.03	27.65	27.28	27.30
29.....	27.6	.....	30.5	27.28	27.6	26.36	26.28	26.19	26.55	27.47	27.23	27.08
30.....	27.6	.....	29.6	27.24	27.65	26.48	26.08	26.28	26.24	27.32	27.30	27.05
31.....	27.5	.....	29.4	.....	27.48	.....	26.26	26.12	.....	27.22	.....	27.02

NOTE.—Observations suspended Feb. 9-27 on account of ice.

Daily discharge, in second-feet, of Kinderhook Creek at Rossman, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,120	826	1,070	2,460	292	354	.....	.....	.....	.....	233	359
2.....	1,120	534	866	1,640	249	310	.....	.....	.....	.....	195	370
3.....	1,340	568	602	1,210	202	274	.....	.....	.....	.....	160	325
4.....	1,800	470	502	1,030	167	241	.....	.....	.....	.....	122	344
5.....	1,340	470	470	1,160	187	195	.....	.....	.....	.....	122	339
6.....	1,540	534	441	1,120	233	167	.....	.....	.....	.....	170	334
7.....	1,250	458	370	988	229	131	.....	.....	.....	.....	100	257
8.....	1,640	470	330	826	249	108	.....	.....	.....	.....	125	370
9.....	1,540	.....	424	748	202	167	.....	.....	.....	.....	.....	344
10.....	1,440	.....	673	638	167	105	.....	.....	.....	.....	202	339
11.....	1,340	.....	826	826	184	122	.....	.....	.....	.....	458	325
12.....	1,340	.....	866	1,540	144	116	.....	.....	.....	.....	401	249
13.....	1,640	.....	787	1,640	128	.....	.....	.....	.....	.....	310	310
14.....	1,540	.....	1,250	1,640	131	.....	.....	.....	.....	.....	270	264
15.....	1,440	.....	2,340	1,250	.....	.....	.....	.....	.....	.....	401	464
16.....	1,440	.....	2,090	1,070	128	.....	.....	.....	.....	153	288	502
17.....	1,440	.....	1,540	947	122	108	.....	.....	.....	.....	280	349
18.....	1,340	.....	1,070	787	156	.....	.....	.....	.....	.....	349	339
19.....	1,340	.....	1,030	673	.....	.....	.....	.....	.....	.....	301	301
20.....	1,070	.....	947	602	195	100	.....	.....	.....	.....	349	245
21.....	1,440	.....	1,440	568	138	.....	.....	.....	.....	.....	502	310
22.....	1,210	.....	1,640	502	111	.....	.....	.....	.....	100	391	315
23.....	988	.....	1,160	464	206	134	.....	.....	.....	116	334	245
24.....	947	.....	1,120	424	602	108	.....	.....	.....	.....	344	306
25.....	906	.....	1,070	412	534	105	.....	.....	.....	111	354	320
26.....	748	.....	2,590	344	412	.....	.....	.....	.....	160	344	320
27.....	673	.....	4,200	401	370	.....	.....	.....	.....	826	320	364
28.....	602	1,800	7,480	320	274	.....	.....	.....	.....	568	349	359
29.....	534	.....	3,730	349	534	.....	.....	.....	.....	453	325	257
30.....	534	.....	2,460	340	568	.....	.....	.....	.....	370	359	245
31.....	470	.....	2,210	.....	458	.....	.....	.....	.....	320	.....	233

NOTE.—Discharge determined from a poorly defined rating curve. On account of diurnal fluctuation, estimates of daily discharge are withheld for all days below 100 second-feet. Mean discharge for February determined by comparison with records of Hoosic River near Eagle Bridge, N. Y. Mean discharge for May, June, and November estimated by applying the rating curve to the mean of two daily readings.

Monthly discharge of Kinderhook Creek at Rossman, N. Y., for 1913.

[Drainage area, 331 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	1,860	470	1,200	3.62	4.17	B.
February.....	.....	.....	463	1.40	1.46	C.
March.....	7,480	330	1,540	4.65	5.36	B.
April.....	2,460	320	897	2.71	3.02	B.
May.....	602	58	249	.752	.67	C.
June.....	354	.....	128	.387	.43	D.
November.....	502	.....	284	.858	.96	C.
December.....	502	233	326	.985	1.14	C.

ESOPUS CREEK NEAR OLIVEBRIDGE, N. Y.

Location.—At a weir about 1 mile below the Olivebridge post office.

Records available.—October 17, 1906, to December 31, 1913.

Drainage area.—239 square miles.

Gage.—Friez automatic gage, 53 feet upstream from the weir.

Winter flow.—Not affected by ice.

Regulation.—Flow affected by storage in Ashokan reservoir.

Floods.—Maximum flow for 1913 occurred on November 9 at 8 p. m. and lasted for about 15 minutes. The peak discharge was 26,600 second-feet, or 111 second-feet per square mile.

Cooperation.—Data furnished by Board of Water Supply of the City of New York.

Daily discharge, in second-feet, of Esopus Creek near Olivebridge, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,000	590	483	1,400	956	600	84	33	33	103	759	510
2.....	874	428	410	1,081	816	532	78	40	33	543	563	453
3.....	1,825	420	350	967	712	475	72	29	29	583	520	421
4.....	2,230	428	382	874	640	512	67	26	26	354	484	391
5.....	1,495	353	382	922	580	428	57	29	33	283	562	521
6.....	1,204	353	400	798	525	366	57	36	29	219	214	558
7.....	1,141	287	256	712	467	340	44	139	29	226	182	759
8.....	3,460	271	278	630	410	319	40	89	29	237	202	1,432
9.....	2,700	265	356	580	375	286	36	62	26	300	6,562	1,012
10.....	1,900	194	326	532	333	264	36	62	23	340	12,210	904
11.....	1,551	182	358	712	312	242	33	57	20	340	3,571	820
12.....	1,414	169	358	1,011	294	222	36	48	23	363	2,861	621
13.....	1,093	144	312	922	271	215	53	44	22	461	1,277	641
14.....	910	162	1,970	922	264	194	40	40	26	367	1,764	539
15.....	808	182	1,855	808	264	175	36	36	19	367	905	569
16.....	743	188	1,593	743	271	162	33	36	23	367	1,046	459
17.....	886	175	1,153	680	264	144	33	36	22	344	949	372
18.....	934	139	910	620	242	144	36	67	23	344	702	411
19.....	922	144	830	590	235	133	33	40	21	344	814	355
20.....	816	175	1,523	525	215	139	29	33	29	838	556	362
21.....	945	201	1,722	483	201	144	33	29	36	2,120	568	315
22.....	830	312	1,495	456	194	127	29	26	798	1,367	615	293
23.....	808	502	1,141	420	301	116	29	36	560	1,069	521	301
24.....	898	256	1,269	392	600	105	36	33	251	858	636	390
25.....	798	208	1,141	382	392	105	33	29	183	1,163	527	340
26.....	725	175	3,710	358	340	94	26	29	120	1,392	536	400
27.....	693	242	9,580	340	340	89	23	29	144	1,750	456	291
28.....	620	600	5,300	1,347	785	84	29	26	96	1,438	422	270
29.....	542	.....	2,720	1,664	1,141	89	44	44	60	1,655	483	248
30.....	525	.....	1,870	1,165	862	78	36	53	84	812	591	240
31.....	502	.....	1,621	.....	712	.....	29	40	.....	785	.....	250

NOTE.—Olivebridge dam closed Sept. 9 at 6 p. m. Discharge Sept. 10 to Dec. 31 determined from curves of capacity of Ashokan reservoir and from other sources.

Monthly discharge of Esopus Creek near Olivebridge, N. Y., for 1913.

[Drainage area, 239 square miles.]

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in million gallons.
January.....	3,460	502	1,155	4.83	5.569	23,130
February.....	600	139	277	1.16	1.202	5,004
March.....	9,580	256	1,485	6.21	7.161	29,760
April.....	1,664	340	768	3.21	3.583	14,888
May.....	1,141	194	462	1.93	2.229	9,251
June.....	600	78	231	.97	1.077	4,476
July.....	84	23	41	.17	.203	824
August.....	139	26	44	.18	.215	876
September.....	798	19	95	.40	.445	1,843
October.....	2,120	103	701	2.93	3.383	14,048
November.....	12,210	162	1,401	5.86	6.538	27,164
December.....	1,432	240	498	2.08	2.405	9,985
The year.....	12,210	19	596	2.49	34.010	141,249

ESOPUS CREEK AT MOUNT MARION, N. Y.

Location.—At the highway bridge at Pleasant Valley, on the Saugerties road, a mile east of the Mount Marion station on the West Shore Railroad.

Records available.—April 4, 1907, to December 31, 1913.

Drainage area.—368 square miles.¹

Gage.—Chain on downstream side of bridge.

Channel and control.—Rough and irregular ledge rock; practically permanent.

Discharge measurements.—Made from the bridge or by wading about three-quarters of a mile above the bridge.

Winter flow.—Seriously affected by ice.

Regulation.—Flow not seriously affected by the operation of power plants. Water is stored in Ashokan reservoir above the station.

Accuracy.—Results good.

Cooperation.—Results furnished by the Board of Water Supply of the City of New York.

Daily discharge, in second-feet, of Esopus Creek at Mount Marion, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,887	1,000	1,105	2,700	1,635	1,000	146	80	94	50	1,510	979
2.....	1,510	675	950	1,995	1,350	888	138	80	87	195	1,280	948
3.....	2,103	550	750	1,883	1,175	792	138	80	87	375	1,105	900
4.....	3,982	725	700	1,725	1,021	715	130	80	80	255	965	852
5.....	2,500	585	675	1,680	912	635	122	74	80	206	870	810
6.....	1,995	565	675	1,430	840	575	115	74	80	177	765	765
7.....	1,743	467	615	1,301	765	525	108	247	80	159	600	912
8.....	5,380	435	535	1,189	715	485	108	222	80	138	255	1,707
9.....	4,932	455	550	1,049	635	443	108	182	74	255	1,977	1,486
10.....	3,060	392	600	965	575	403	108	141	68	273	5,700	1,374
11.....	2,460	312	635	1,035	535	375	101	119	63	303	5,790	1,315
12.....	2,200	338	685	2,160	485	355	101	108	58	427	5,028	1,091
13.....	1,770	302	650	1,995	455	325	108	101	58	467	4,600	1,091
14.....	1,470	273	3,125	1,797	455	303	101	94	48	403	4,150	1,091
15.....	1,406	286	4,330	1,550	395	288	101	94	38	375	3,478	1,021
16.....	1,161	410	3,800	1,350	395	265	101	87	25	335	3,086	930
17.....	1,259	320	2,530	1,175	387	247	94	80	20	318	2,530	900
18.....	1,510	246	1,905	1,091	355	229	94	80	20	312	1,995	870
19.....	1,550	211	1,470	1,000	325	222	94	80	20	303	1,815	780
20.....	1,280	259	2,085	912	303	215	87	74	36	715	1,550	725
21.....	1,280	302	3,800	828	288	247	87	74	53	1,210	1,374	700
22.....	1,210	399	3,190	780	303	222	87	74	94	1,035	1,231	675
23.....	1,105	1,210	2,300	735	403	206	87	87	130	965	1,140	625
24.....	1,407	685	2,360	685	1,280	187	94	80	111	828	1,049	828
25.....	1,245	625	2,130	650	1,021	173	94	74	91	2,067	979	840
26.....	1,091	535	5,970	615	675	191	87	74	87	2,700	912	852
27.....	1,021	625	13,200	575	625	182	80	68	87	2,480	852	715
28.....	888	1,119	13,070	1,510	1,210	173	74	63	78	2,604	810	525
29.....	810	.....	5,700	3,000	2,480	164	87	78	68	2,380	912	525
30.....	765	.....	3,478	2,040	1,653	155	80	101	58	1,950	1,035	500
31.....	780	.....	2,880	.....	1,245	.....	80	94	.....	1,680	.....	500

¹ Total drainage area above Mount Marion, 418 square miles. Diverted from Saw Kill for Kingston water supply, 33 square miles. Diverted from Platte Kill for Saugerties water supply, 17 square miles. Net drainage area above Mount Marion, 368 square miles. This net drainage area supersedes the figures formerly published.

Monthly discharge of Esopus Creek at Mount Marion, N. Y., for 1913.

[Drainage area, 368 square miles.]

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in million gallons.
January.....	5,380	765	1,833	4.98	5.744	36,727
February.....	1,210	211	511	1.39	1.445	9,244
March.....	13,200	535	2,787	7.57	8.736	55,839
April.....	3,000	575	1,378	3.74	4.181	26,722
May.....	2,480	288	803	2.18	2.515	16,087
June.....	1,000	155	373	1.01	1.130	7,226
July.....	146	74	101	.27	.320	2,029
August.....	247	63	98	.27	.304	1,971
September.....	130	20	68	.18	.209	1,327
October.....	2,700	50	837	2.27	2.626	16,765
November.....	5,790	255	1,978	5.38	6.000	38,354
December.....	1,707	500	898	2.44	2.813	17,987
The year.....	13,200	20	972	2.64	36.023	230,278

RONDOUT CREEK AT ROSENDALE, N. Y.

Location.—At the highway bridge at Rosendale..**Records available.**—July 6, 1901, to November 6, 1903; January 1, 1906, to December 31, 1913.**Drainage area.**—380 square miles.**Gage.**—Chain gage on downstream side of bridge.**Discharge measurements.**—Made from the bridge or by wading about 1,000 feet below the bridge.**Winter flow.**—Seriously affected by ice. Discharge determined by current-meter measurements.**Diversions.**—Part of the water of the creek is diverted at a dam below High Falls through the Delaware & Hudson Canal and is returned to the creek below the gaging station. A record of this diversion is kept and the results for Rondout Creek are corrected.**Regulation.**—Flow somewhat affected by storage at Honk Falls, Napanoch, and High Falls.**Cooperation.**—Results furnished by the Board of Water Supply of the City of New York.

Daily discharge, in second-feet, of Rondout Creek at Rosendale, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,560	1,002	1,560	1,904	1,579	728	155	65	71	470	690	770
2.....	1,200	922	987	1,390	1,140	599	149	233	87	2,152	610	650
3.....	2,180	850	874	1,230	905	533	138	93	125	998	554	570
4.....	2,670	770	770	1,200	826	493	131	78	146	717	530	586
5.....	1,630	714	610	1,370	762	379	123	146	147	556	474	530
6.....	1,390	578	634	1,090	706	351	107	80	214	371	426	490
7.....	1,350	898	410	986	619	352	101	579	156	488	426	530
8.....	7,634	1,090	546	938	570	437	125	298	109	301	394	1,744
9.....	5,300	746	474	730	521	359	112	181	109	314	9,470	1,155
10.....	2,240	730	530	722	474	334	94	130	113	293	9,164	961
11.....	2,108	610	730	986	440	311	85	32	97	270	3,380	885
12.....	2,168	657	802	3,908	377	292	80	74	68	721	2,216	722
13.....	1,904	621	666	2,300	351	261	81	106	63	631	1,670	650
14.....	1,230	441	6,500	2,180	369	238	111	100	72	510	1,330	634
15.....	1,130	549	3,684	1,510	381	266	94	113	59	359	1,100	610
16.....	1,230	441	2,908	1,220	365	255	98	94	75	310	986	570
17.....	1,530	405	1,880	1,090	333	251	91	32	92	456	1,042	530
18.....	1,400	279	1,380	998	301	235	70	66	94	424	1,170	490
19.....	1,290	306	1,130	826	291	193	85	102	119	465	1,200	450
20.....	1,070	306	2,024	707	276	203	79	114	96	1,793	930	410
21.....	1,230	441	2,670	619	264	340	73	84	94	1,630	810	352
22.....	1,150	441	2,336	651	318	249	69	99	882	1,130	746	340
23.....	970	1,660	1,630	590	631	203	72	35	687	794	714	370
24.....	1,220	1,071	1,690	589	1,522	177	138	61	402	730	714	586
25.....	1,130	643	1,450	590	1,031	166	99	51	244	3,160	666	666
26.....	1,013	571	2,168	505	646	166	93	67	202	3,332	634	826
27.....	938	585	9,812	469	778	166	81	84	164	2,480	514	682
28.....	850	1,600	8,606	2,465	890	165	35	69	162	1,760	522	666
29.....	698	.....	3,684	3,868	1,316	160	217	92	161	1,230	890	746
30.....	714	.....	2,408	2,468	1,227	155	127	205	181	954	930	730
31.....	690	.....	1,430	.....	936	.....	86	165	.....	826	.....	730

NOTE.—Estimates Apr. 19 to Oct. 18 include amount in Delaware & Hudson Canal. No flow in the canal during balance of year.

Monthly discharge of Rondout Creek at Rosendale, N. Y., for 1913.

[Drainage area, 386 square miles.]

Month.	Discharge in second-feet.				Run-off.	
	Maximum.	Minimum.	Mean.	Per square mile.	Depth in inches on drainage area.	Total in million gallons.
January.....	7,634	690	1,704	4.41	5.083	34,134
February.....	1,660	279	712	1.84	1.916	12,879
March.....	9,812	410	2,160	5.60	6.449	43,285
April.....	3,908	469	1,333	3.45	3.851	25,849
May.....	1,579	264	682	1.77	2.039	13,667
June.....	728	155	301	.78	.872	5,828
July.....	217	69	105	.27	.313	2,100
August.....	579	51	125	.32	.375	2,507
September.....	882	59	176	.46	.507	3,420
October.....	3,332	270	988	2.56	2.949	19,794
November.....	9,470	394	1,497	3.88	4.324	29,018
December.....	1,744	340	666	1.73	1.988	13,336
The year.....	9,812	51	871	2.26	30.666	205,817

DELAWARE RIVER BASIN.

EAST BRANCH OF DELAWARE RIVER AT FISH EDDY, N. Y.

Location.—At the highway bridge near New York, Ontario & Western Railway station at Fish Eddy, $5\frac{1}{2}$ miles above the confluence of the east and west branches of Delaware River.

Records available.—November 19, 1912, to December 31, 1913. Records were obtained at Hancock, about 4 miles below, from October 14, 1902, to December 31, 1912.

Drainage area.—790 square miles.

Gage.—Vertical staff in two sections.

Channel.—Coarse gravel; practically permanent.

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

Winter flow.—Somewhat affected by ice.

Floods.—The high water of March 25-30, 1913, reached a stage of 17.4 feet on the afternoon of March 27, as determined from gage height observations and high-water marks. The corresponding discharge was approximately 33,500 second-feet, or 38.5 second-feet per square mile of drainage area.

Accuracy.—Results fair.

Discharge measurements of East Branch of Delaware River at Fish Eddy, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 10	Frank Weber.....	4.46	1,680	May 9	C. S. De Golyer.....	3.34	816
12	do.....	4.30	1,770	July 31	G. H. Canfield.....	1.78	127
13	do.....	4.21	1,630	Sept. 16	R. S. Barnes.....	1.57	78.6
19	do.....	5.31	2,620	16	do.....	1.53	73.0
27	do.....	12.73	19,400	Oct. 28	do.....	4.37	1,820
31	do.....	7.27	5,930				

Daily gage height, in feet, of East Branch of Delaware River at Fish Eddy, N. Y., for 1913.

[J. J. Fininegan, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5.1	5.1	.....	6.8	4.4	4.6	.....	2.2	1.92	2.4	3.5	4.4
2.....	4.7	.....	.....	5.8	4.3	4.4	.....	2.1	1.84	2.85	3.45	4.4
3.....	6.0	.....	.....	5.6	4.1	4.0	.....	2.0	1.79	2.85	3.45	4.5
4.....	8.8	.....	4.6	5.3	3.8	6.4	.....	1.88	1.74	2.55	3.4	4.4
5.....	7.0	.....	4.4	5.9	3.8	5.2	.....	1.82	1.71	2.5	3.4	4.3
6.....	6.3	.....	4.2	5.4	3.7	4.6	.....	1.78	1.77	2.4	3.35	4.3
7.....	7.1	.....	.....	5.1	3.5	4.8	.....	2.15	1.81	2.35	3.35	4.6
8.....	12.5	.....	.....	4.8	3.45	4.4	.....	2.1	1.84	2.35	3.4	4.5
9.....	9.9	.....	.....	4.7	3.35	3.8	.....	1.98	1.80	2.3	3.8	4.8
10.....	7.7	.....	4.4	4.4	3.25	3.6	.....	.....	1.78	2.25	10.1	5.0
11.....	7.0	.....	4.2	4.6	3.15	3.5	.....	.....	1.74	2.2	7.4	.....
12.....	7.4	.....	4.4	6.7	3.15	3.4	.....	.....	1.73	2.15	6.8	.....
13.....	6.7	.....	4.1	5.7	3.05	3.3	.....	.....	1.70	2.15	6.2	.....
14.....	5.9	.....	7.3	5.6	3.0	3.05	.....	.....	1.69	2.05	5.5	.....
15.....	5.6	.....	7.9	5.3	2.95	2.95	.....	.....	1.68	2.15	5.0	.....
16.....	5.4	.....	7.3	5.0	2.9	2.85	.....	.....	1.67	2.3	4.9	.....
17.....	6.1	.....	6.3	4.8	2.85	2.8	.....	.....	1.66	2.35	4.8	.....
18.....	6.7	.....	5.5	4.6	2.8	2.75	.....	.....	1.66	2.3	4.8	.....
19.....	6.8	.....	.....	4.4	2.8	2.65	.....	.....	1.69	2.3	4.7	.....
20.....	6.5	.....	.....	4.2	2.85	2.8	.....	.....	1.74	3.6	4.7	.....
21.....	6.8	.....	6.3	4.1	3.05	2.6	.....	.....	1.81	4.7	4.6	.....
22.....	6.2	.....	6.5	3.9	3.1	2.6	.....	2.65	.....	4.6	4.6	.....
23.....	5.7	.....	5.8	3.8	3.4	2.55	.....	2.4	.....	4.3	4.6	.....
24.....	6.0	.....	6.1	3.8	3.7	2.5	.....	2.0	.....	.....	4.8	.....
25.....	5.6	.....	6.3	3.7	3.7	2.45	.....	1.94	.....	.....	5.0	.....
26.....	5.2	.....	8.9	3.6	3.6	2.4	1.81	1.88	3.0	.....	4.8	.....
27.....	5.0	.....	14.9	3.5	3.5	2.35	1.79	1.85	2.6	5.1	4.6	.....
28.....	4.7	.....	12.7	4.4	5.8	2.3	2.05	1.81	2.45	4.3	4.5	.....
29.....	4.5	.....	8.9	5.2	5.9	2.3	2.2	2.3	2.35	3.8	4.4	.....
30.....	4.4	.....	7.4	4.7	5.6	2.25	1.95	2.35	2.35	3.6	4.4	.....
31.....	4.2	.....	6.8	.....	5.1	.....	1.75	2.05	.....	3.6	.....	.....

NOTE.—Gage-height observations suspended Feb. 2 to Mar. 3 on account of ice.

Daily discharge, in second-feet, of East Branch of Delaware River at Fish Eddy, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2,740	2,740	3,500	5,010	1,850	2,080	.....	256	167	330	950	1,850
2.....	2,200	.....	3,000	3,820	1,740	1,850	.....	222	145	530	910	1,850
3.....	4,169	.....	2,600	3,500	1,520	1,420	.....	190	132	530	910	1,960
4.....	9,250	.....	2,080	2,040	1,220	4,300	.....	150	120	391	870	1,850
5.....	5,390	.....	1,850	3,990	1,220	2,890	.....	139	112	370	870	1,740
6.....	4,130	.....	1,630	3,190	1,130	2,080	.....	129	127	330	835	1,740
7.....	5,580	.....	1,450	2,740	950	2,330	.....	239	137	311	835	2,080
8.....	18,800	.....	1,300	2,330	910	1,850	.....	222	145	311	870	1,960
9.....	12,000	.....	1,550	2,200	835	1,220	.....	184	134	292	10,200	2,330
10.....	6,810	.....	1,850	1,850	765	1,040	.....	160	129	274	13,400	2,600
11.....	5,390	.....	1,630	2,080	700	950	.....	150	120	256	6,950	.....
12.....	6,180	.....	1,850	4,830	700	870	.....	140	117	239	5,650	.....
13.....	4,830	.....	1,520	3,660	640	800	.....	130	110	239	4,500	.....
14.....	3,990	.....	5,980	3,500	610	640	.....	125	108	206	3,340	.....
15.....	3,500	.....	7,230	2,040	583	583	.....	120	106	239	2,600	.....
16.....	3,190	.....	5,980	2,600	556	530	.....	115	103	292	2,470	.....
17.....	3,810	.....	4,130	2,330	530	504	.....	115	101	311	2,330	.....
18.....	4,830	.....	3,340	2,080	504	480	.....	110	101	292	2,330	.....
19.....	5,010	.....	3,040	1,850	504	434	.....	105	108	292	2,200	.....
20.....	4,470	.....	3,820	1,630	530	504	.....	100	120	1,040	2,200	.....
21.....	5,010	.....	4,130	1,520	640	412	.....	100	137	2,200	2,080	.....
22.....	3,970	.....	4,470	1,320	670	412	.....	434	1,630	2,080	2,080	.....
23.....	3,660	.....	3,820	1,220	870	391	.....	330	1,630	1,740	2,080	.....
24.....	3,650	.....	3,810	1,220	1,130	370	.....	190	1,470	1,220	2,330	.....
25.....	3,500	.....	4,130	1,130	1,130	350	.....	173	1,040	1,130	2,600	.....
26.....	2,890	.....	9,490	1,040	1,040	330	137	156	610	1,320	2,330	.....
27.....	2,600	.....	25,600	950	950	311	132	148	412	2,740	2,080	.....
28.....	2,200	.....	19,400	870	3,820	292	206	137	350	1,740	1,960	.....
29.....	1,960	.....	9,490	2,890	3,990	292	256	292	311	1,220	1,850	.....
30.....	1,850	.....	6,180	2,200	3,500	274	176	311	311	1,040	1,850	.....
31.....	1,630	.....	5,010	.....	2,740	.....	122	206	.....	1,040	.....	.....

NOTE.—Discharge determined from a fairly well defined rating curve. Daily discharge Aug. 10-21 and mean discharge for February, July, and December estimated by comparison with records at Hancock and Port Jervis.

Monthly discharge of East Branch of Delaware River at Fish Eddy, N. Y., for 1913.

[Drainage area, 790 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	18,800	1,630	4,810	6.09	7.02	B.
February.....	.....	.....	870	1.10	1.14	C.
March.....	25,600	1,300	5,000	6.33	7.30	C.
April.....	5,010	870	2,390	3.03	3.38	B.
May.....	3,990	504	1,240	1.57	1.81	B.
June.....	4,300	274	1,030	1.30	1.45	B.
July.....	.....	122	186	.235	.27	B.
August.....	434	.....	180	.228	.26	B.
September.....	1,630	101	345	.437	.49	B.
October.....	2,740	206	792	1.00	1.15	C.
November.....	13,400	835	2,880	3.65	4.07	D.
December.....	.....	.....	1,730	2.19	2.52	D.
The year.....	25,600	.....	1,800	2.28	30.86	

DELAWARE RIVER AT PORT JERVIS, N. Y.

Location.—At the toll bridge at Port Jervis, 1 mile above Neversink River and 6 miles below Mongaup River.

Records available.—October 12, 1904, to December 31, 1913. Data also published in the annual reports of the New York State engineer and surveyor.

Drainage area.—3,250 square miles.

Gage.—Chain on downstream side of bridge.

Channel and control.—Gravel; somewhat shifting.

Discharge measurements.—Made from highway bridge, or by wading.

Winter flow.—Somewhat affected by ice.

Floods.—A gage height of 15 feet was recorded by the observer on March 28, 1913.

Later investigations indicate that the crest of the flood reached a stage of 15.5 feet, with a corresponding discharge of 88,400 second-feet, or 27.2 second-feet per square mile.

Accuracy.—Results good.

Cooperation.—Gage heights furnished by the United States Weather Bureau.

Discharge measurements of Delaware River at Port Jervis, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
Mar. 8	Frank Weber.....	<i>Feet.</i> 3.05	<i>Sec.-ft.</i> 2,910	May 13	C. S. De Golyer.....	<i>Feet.</i> 2.65	<i>Sec.-ft.</i> 2,420
29	do.....	9.09	33,000	Aug. 9	G. H. Canfield.....	1.41	640

Daily gage height, in feet, of Delaware River at Port Jervis, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5.5	4.0	7.0	6.6	4.7	4.4	1.5	1.3	1.2	1.4	2.6	3.3
2.....	4.8	4.1	5.3	6.2	4.4	4.0	1.6	1.3	1.2	1.8	2.3	3.2
3.....	4.6	4.2	4.4	5.4	4.1	3.6	1.3	1.3	1.2	2.2	2.1	3.1
4.....	8.0	3.8	4.2	5.4	4.0	3.4	1.4	1.2	1.1	1.6	2.1	3.1
5.....	7.1	3.4	4.0	5.5	3.7	4.2	1.5	1.1	1.1	1.4	2.1	3.1
6.....	6.0	3.4	3.8	5.3	3.7	3.9	1.7	1.1	1.1	1.6	2.1	3.0
7.....	5.6	3.2	3.4	4.9	3.4	3.2	1.5	1.7	1.1	1.6	2.1	3.0
8.....	5.6	3.0	3.1	4.6	3.3	3.5	1.5	1.2	1.1	1.6	2.1	3.9
9.....	11.0	3.0	2.7	4.4	3.3	3.2	1.4	1.4	1.1	1.6	2.8	3.9
10.....	7.8	2.8	3.3	4.1	3.2	2.9	1.4	1.2	1.1	1.6	9.7	3.7
11.....	6.8	2.9	4.0	4.1	2.8	2.7	1.4	1.5	1.1	1.5	7.3	3.7
12.....	6.7	3.0	4.5	6.2	2.7	2.6	1.4	1.3	1.1	1.6	6.1	3.4
13.....	7.4	2.7	4.4	5.2	2.6	2.6	1.4	1.2	1.1	1.8	5.3	3.4
14.....	7.0	2.7	4.3	5.9	2.6	2.5	1.4	1.2	1.1	1.7	4.7	3.3
15.....	5.6	2.7	8.0	5.6	2.4	2.3	1.5	1.2	1.1	1.5	4.6	3.4
16.....	5.3	2.9	7.3	5.2	2.4	2.3	1.4	1.2	1.1	1.5	4.3	3.3
17.....	5.0	2.9	6.5	4.9	2.4	2.2	1.4	1.2	1.0	1.5	4.1	3.3
18.....	5.9	2.8	5.7	4.5	2.4	2.3	1.4	1.2	1.0	1.5	3.8	3.2
19.....	6.3	2.8	5.1	4.4	2.4	2.2	1.3	1.4	1.0	1.5	4.2	3.2
20.....	6.1	2.7	4.9	4.2	2.4	2.2	1.3	1.3	1.0	1.6	4.0	3.1
21.....	5.5	2.7	5.9	3.9	2.3	2.2	1.2	1.2	1.0	2.5	3.9	3.1
22.....	6.2	2.7	5.6	3.7	2.5	2.2	1.2	1.1	1.6	4.0	3.8	2.9
23.....	5.4	3.2	5.7	3.5	2.5	2.2	1.2	1.2	2.5	3.4	3.5	2.9
24.....	5.2	3.9	5.2	3.4	3.8	2.2	1.3	1.2	2.7	3.4	3.4	3.1
25.....	5.4	4.0	5.6	3.0	4.0	2.0	1.3	1.1	2.5	3.6	3.2	3.3
26.....	5.0	3.4	5.7	3.0	3.8	1.9	1.3	1.1	1.9	3.6	3.1	3.3
27.....	4.7	3.0	9.3	3.0	3.4	1.8	1.3	1.0	1.7	4.0	3.1	3.1
28.....	4.5	3.4	15.0	3.5	3.3	1.8	1.2	1.1	1.6	3.4	3.1	3.2
29.....	4.4	.....	10.0	5.5	4.3	1.7	1.4	1.1	1.5	3.3	3.3	3.2
30.....	4.0	.....	7.9	5.3	5.8	1.6	1.4	1.4	1.4	3.0	3.4	2.8
31.....	4.0	.....	6.9	.....	4.7	.....	1.4	1.3	.....	2.8	.....	2.7

NOTE.—Gage read daily at about 8 a. m. Discharge relation Feb. 16-19 possibly affected by ice.

Daily discharge, in second-feet, of Delaware River at Port Jervis, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	12,100	5,800	20,500	18,000	8,520	7,350	685	525	455	600	2,230	3,830
2.....	8,930	6,160	11,100	15,700	7,350	5,930	780	525	455	990	1,690	3,570
3.....	8,100	6,530	7,300	11,600	6,270	4,670	525	525	455	1,530	1,380	3,320
4.....	27,500	5,100	6,530	11,600	5,930	4,100	600	455	390	780	1,380	3,320
5.....	21,200	3,860	5,800	12,100	4,970	6,620	685	390	390	600	1,380	3,320
6.....	14,600	3,860	5,100	11,100	4,970	5,600	880	390	390	780	1,380	3,080
7.....	12,500	3,320	3,860	9,350	4,100	3,570	685	880	390	780	1,380	3,080
8.....	12,500	2,860	3,080	8,120	3,830	4,380	685	455	390	780	1,380	5,600
9.....	50,900	2,860	2,260	7,350	3,830	3,570	600	600	390	780	2,640	5,600
10.....	26,000	2,450	3,580	6,270	3,570	2,860	600	455	390	780	40,400	4,970
11.....	19,200	2,650	5,800	6,270	2,640	2,430	600	685	390	685	22,500	4,970
12.....	18,600	2,860	7,700	15,700	2,430	2,230	600	525	390	780	15,100	4,100
13.....	23,200	2,260	7,300	10,700	2,230	2,230	600	455	390	990	11,100	4,100
14.....	20,500	2,260	6,910	14,100	2,230	2,040	600	455	390	880	8,520	3,830
15.....	12,500	2,260	27,500	12,500	1,860	1,690	685	455	390	685	8,120	4,100
16.....	11,100	2,260	22,500	10,700	1,860	1,690	600	455	390	685	6,980	3,830
17.....	9,780	2,260	17,400	9,350	1,860	1,530	600	455	330	685	6,270	3,830
18.....	14,100	2,260	13,000	7,730	1,860	1,690	600	455	330	685	5,280	3,570
19.....	16,200	2,260	10,200	7,350	1,860	1,530	525	600	330	685	5,620	3,570
20.....	15,100	2,260	9,350	6,620	1,860	1,530	525	525	330	780	6,930	3,320
21.....	12,100	2,260	14,100	5,600	1,690	1,530	455	455	330	2,040	5,600	3,320
22.....	15,700	2,260	12,500	4,970	2,040	1,530	455	390	780	5,930	5,280	2,860
23.....	11,600	3,320	13,000	4,380	2,040	1,530	455	455	2,040	4,100	4,380	2,860
24.....	10,700	5,440	10,700	4,100	5,280	1,530	525	455	2,430	4,100	4,100	3,320
25.....	11,600	5,800	12,500	3,080	5,930	1,240	525	390	2,040	4,670	3,570	3,830
26.....	9,780	3,860	13,000	3,080	5,280	1,110	525	390	1,110	4,670	3,320	3,830
27.....	8,510	2,860	37,300	3,080	4,100	990	525	330	880	5,930	3,320	3,830
28.....	7,700	3,860	84,000	4,380	3,830	990	455	390	780	4,100	3,320	3,570
29.....	7,300	.....	42,800	12,100	6,980	880	600	390	685	3,830	3,830	3,570
30.....	5,800	.....	26,800	11,100	13,500	780	600	600	600	3,080	4,100	2,640
31.....	5,800	.....	19,800	.....	8,520	.....	600	525	.....	2,640	.....	2,430

NOTE.—Discharge determined from two well-defined rating curves. Discharge Feb. 16-19 interpolated.

Monthly discharge of Delaware River at Port Jervis, N. Y., for 1913.

[Drainage area, 3,250 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	50,900	5,800	14,900	4.58	5.28	B.
February.....	6,530	2,260	3,430	1.06	1.10	B.
March.....	84,000	2,260	15,600	4.80	5.53	C.
April.....	18,000	3,080	8,940	2.75	3.07	B.
May.....	13,500	1,690	4,300	1.32	1.52	B.
June.....	7,350	780	2,640	.812	.91	B.
July.....	880	455	593	.182	.21	B.
August.....	880	330	485	.149	.17	B.
September.....	2,430	330	648	.199	.22	B.
October.....	5,930	600	1,970	.606	.70	B.
November.....	40,400	1,380	6,420	1.98	2.21	B.
December.....	5,600	2,430	3,690	1.14	1.31	B.
The year.....	84,000	330	5,320	1.64	22.23	

DELAWARE RIVER AT RIEGELSVILLE, N. J.

Location.—At the toll suspension bridge between Riegelsville, N. J., and Riegelsville, Pa., 600 feet above Musconetcong River, and 9 miles below Lehigh River.

Records available.—July 3, 1906, to December 31, 1913.

Drainage area.—6,430 square miles.

Gage.—Chain on bridge.

Channel and control.—Large boulders; practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Not seriously affected by ice.

Diversions.—250 to 300 second-feet diverted from Lehigh River near its mouth each year from about the last of March to the middle of December by the Delaware division of the Pennsylvania canal. Results at Riegelsville corrected for diversion. (See footnote to monthly discharge table.)

Accuracy.—Results good.

Cooperation.—Results of some of the discharge measurements furnished by engineers of the Water Supply Commission of Pennsylvania.

Discharge measurements of Delaware River at Riegelsville, N. J., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Feb. 20	Reckord and Batley....	3.73	5,820	Sept. 10	Batchelder and Walters	2.21	^a 1,570
July 25	R. A. Boehringer.....	2.61	2,380				

^a Does not include 224 second-feet measured in canal.

Daily gage height, in feet, of Delaware River at Riegelsville, N. J., for 1913.

[John H. Deemer, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	8.0	5.6	6.0	10.5	8.8	5.8	2.65	2.3	2.35	2.6	4.3	4.9
2.....	7.7	5.5	7.9	9.8	7.9	5.3	2.65	4.3	2.25	4.1	4.1	4.9
3.....	7.7	5.2	6.1	8.6	7.2	5.0	2.55	3.1	2.15	3.9	4.0	4.6
4.....	10.5	5.0	5.6	8.1	6.6	4.7	2.5	2.85	2.1	3.7	3.8	4.5
5.....	11.8	4.4	5.4	7.8	6.1	4.5	2.45	2.55	2.35	3.4	3.7	4.4
6.....	9.8	4.5	5.2	7.7	5.9	5.2	2.5	2.4	2.15	3.2	3.6	4.3
7.....	8.8	4.0	4.8	7.4	5.6	4.6	2.6	2.85	2.1	3.0	3.5	4.4
8.....	9.4	3.8	4.1	6.8	5.2	4.3	2.55	2.65	2.8	2.95	3.4	5.2
9.....	16.0	4.0	4.2	6.4	5.0	4.3	2.45	2.55	2.3	2.9	4.6	6.0
10.....	12.7	4.2	4.3	6.1	4.7	4.2	3.3	2.5	2.2	2.85	11.2	5.9
11.....	10.5	4.0	5.2	6.0	4.6	3.9	2.65	2.4	2.1	2.8	12.8	5.4
12.....	9.8	4.0	5.6	9.0	4.5	3.7	2.45	2.35	2.15	3.1	9.5	5.1
13.....	10.4	3.7	5.6	10.3	4.4	3.6	2.5	2.25	2.15	3.3	7.9	4.9
14.....	9.4	3.6	7.1	9.6	4.2	3.5	2.8	2.25	2.0	3.1	6.9	4.8
15.....	7.9	3.8	12.1	9.2	4.1	3.4	2.55	2.2	2.05	3.0	6.5	4.8
16.....	7.6	3.9	12.4	9.1	4.0	3.4	2.5	2.2	2.05	2.9	6.3	4.7
17.....	7.5	4.0	10.9	8.2	4.0	3.2	2.4	2.25	1.9	2.8	6.4	4.6
18.....	7.8	3.8	9.3	7.6	3.9	3.1	2.45	2.35	2.0	2.8	6.0	4.5
19.....	8.6	3.8	8.2	7.1	3.9	3.0	2.45	2.25	2.0	2.65	5.8	4.3
20.....	8.5	3.8	8.3	6.7	3.8	3.0	2.35	2.2	2.1	3.1	5.7	4.2
21.....	7.9	3.9	9.3	6.2	3.7	3.3	2.25	2.25	2.2	4.0	5.6	4.0
22.....	7.8	4.0	9.3	5.9	3.7	3.3	2.25	2.15	3.8	4.6	5.5	4.1
23.....	7.7	4.9	8.8	5.7	3.8	3.2	2.2	2.25	3.6	5.0	5.4	4.2
24.....	7.3	4.5	8.0	5.6	5.4	3.1	2.1	2.25	3.7	4.4	5.1	5.3
25.....	7.3	4.5	7.9	5.4	6.0	3.0	2.6	2.2	3.6	5.2	4.9	5.2
26.....	7.1	4.6	8.3	5.2	5.7	2.9	2.5	2.2	3.2	6.4	4.8	6.4
27.....	6.7	4.4	13.3	5.2	5.1	3.0	2.3	2.15	2.9	6.7	4.6	6.2
28.....	6.5	6.2	24.4	10.3	5.0	3.1	2.4	2.05	2.6	6.1	4.6	5.5
29.....	6.1	.....	18.8	11.0	5.3	3.0	2.4	2.15	2.6	5.4	4.6	5.0
30.....	5.7	.....	13.8	10.2	6.8	2.95	2.4	2.1	2.5	4.9	4.7	4.6
31.....	5.6	.....	11.6	.....	6.4	.....	2.35	2.2	.....	4.6	.....	4.5

Daily discharge, in second-feet, of Delaware River at Riegelsville, N. J., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	21,600	11,600	13,100	35,100	25,600	12,400	2,700	2,010	2,100	2,600	7,190	9,160
2.....	20,200	11,200	21,100	31,000	21,100	10,500	2,700	7,190	1,920	6,560	6,560	9,160
3.....	20,200	10,200	13,500	24,500	18,000	9,500	2,500	3,750	1,740	5,950	6,250	8,160
4.....	35,100	9,500	11,600	22,100	15,400	8,490	2,400	3,140	1,660	5,360	5,650	7,830
5.....	43,100	7,510	10,900	20,700	13,500	7,830	2,300	2,500	2,100	4,530	5,360	7,510
6.....	31,000	7,830	10,200	20,200	12,700	10,200	2,400	2,200	1,740	4,000	5,080	7,190
7.....	25,600	6,250	8,320	18,800	11,600	8,160	2,600	3,140	1,660	3,500	4,800	7,510
8.....	28,800	5,650	6,560	16,300	10,200	7,190	2,500	2,700	3,030	3,380	4,530	10,200
9.....	72,600	6,250	6,870	14,600	9,500	7,190	2,300	2,500	2,010	3,260	8,160	13,100
10.....	49,100	6,870	7,190	13,500	8,490	6,870	4,260	2,400	1,830	3,140	39,300	12,700
11.....	35,100	6,250	10,200	13,100	8,160	5,950	2,700	2,200	1,660	3,030	49,700	10,900
12.....	31,000	6,250	11,600	26,600	7,830	5,360	2,300	2,100	1,740	3,750	29,300	9,840
13.....	34,500	5,360	11,600	33,900	7,510	5,080	2,400	1,920	1,740	4,260	21,100	9,160
14.....	28,800	5,080	17,500	29,900	6,870	4,800	3,030	1,920	1,500	3,750	16,700	8,820
15.....	21,100	5,650	45,100	27,700	6,560	4,530	2,500	1,830	1,580	3,500	15,000	8,820
16.....	19,700	5,950	47,000	27,100	6,250	4,530	2,400	1,830	1,580	3,260	14,200	8,490
17.....	19,300	6,250	37,500	22,600	6,250	4,000	2,200	1,920	1,830	3,030	14,600	8,160
18.....	20,700	5,650	28,200	19,700	5,950	3,750	2,300	2,100	1,500	3,030	13,100	7,830
19.....	24,500	5,650	22,600	17,500	5,950	3,500	2,300	1,920	1,500	2,700	12,400	7,190
20.....	24,000	5,650	23,000	15,800	5,650	3,500	2,100	1,830	1,660	3,750	12,000	6,870
21.....	21,100	5,950	28,200	13,900	5,360	4,260	1,920	1,920	1,830	6,250	11,600	6,250
22.....	20,700	6,250	28,200	12,700	5,360	4,260	1,920	1,740	5,650	8,160	11,200	6,560
23.....	20,200	9,160	25,600	12,000	5,650	4,000	1,830	1,920	5,080	9,500	10,900	6,870
24.....	18,400	7,830	21,600	11,600	10,900	3,750	1,660	1,920	5,360	7,510	9,840	10,500
25.....	18,400	7,830	21,100	10,900	13,100	3,500	2,600	1,830	5,080	10,200	9,160	10,200
26.....	17,500	8,160	23,000	10,200	12,000	3,260	2,400	1,830	4,000	14,600	8,820	14,600
27.....	15,800	7,510	53,200	10,200	9,840	3,500	2,010	1,740	3,260	15,800	8,160	13,900
28.....	15,000	13,900	139,000	33,900	9,500	3,750	2,200	1,580	2,600	13,500	8,160	11,200
29.....	13,500	.....	93,800	38,100	10,500	3,500	2,200	1,740	2,600	10,900	8,160	9,500
30.....	12,000	.....	56,700	33,300	16,300	3,380	2,200	1,660	2,400	9,160	8,490	8,160
31.....	11,600	.....	41,800	.....	14,600	.....	2,100	1,830	.....	8,160	.....	7,830

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

Monthly discharge of Delaware River at Riegelsville, N. J., for 1913.

[Drainage area, 6,430 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	72,600	11,600	25,500	3.97	4.58	A.
February.....	13,900	5,080	7,400	1.15	1.20	A.
March.....	139,000	6,560	28,900	4.49	5.18	A.
April.....	38,100	10,200	21,200	3.33	3.72	A.
May.....	25,600	5,360	10,500	1.68	1.94	A.
June.....	12,400	3,260	5,680	.922	1.03	A.
July.....	4,260	1,660	2,380	.409	.47	A.
August.....	7,190	1,580	2,280	.393	.45	A.
September.....	5,650	1,350	2,450	.420	.47	A.
October.....	15,800	2,600	6,130	.992	1.14	A.
November.....	49,700	4,530	12,800	2.04	2.28	A.
December.....	14,600	6,250	9,170	1.44	1.66	A.
The year.....	139,000	1,350	11,200	1.77	24.12	

NOTE.—In order to determine the discharge per square mile and the run-off depth in inches, 250 second-feet were added Apr. 15 to Dec. 15, 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 the highway bridge 400 feet west of Erie Railroad station in the village of Hale Eddy, 8 miles below the power dam of the Deposit Electric Co., and 8½ miles above the junction with East Branch of Delaware River.

Records available.—November 15, 1912, to December 31, 1913. Records were obtained at Hancock about 7 miles below from Oct. 15, 1902 to Dec. 31, 1912.

Drainage area.—611 square miles.

Gage.—Vertical staff in four sections.

Channel and control.—Coarse gravel and boulders. Control is about three-quarters of a mile below the gage and is practically permanent.

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

Winter flow.—Seriously affected by ice.

Floods.—The flood of March 25 to 30, 1913, reached a crest elevation of about 15.3 feet on the afternoon of March 27, as determined by observer's readings and high-water marks. The corresponding discharge was approximately 25,000 second-feet, or 41 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of West Branch of Delaware River at Hale Eddy, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Mar. 11	Frank Weber	<i>Feet.</i> 4.90	<i>Sec.-ft.</i> 2,040	Mar. 31	Frank Weber	<i>Feet.</i> 6.22	<i>Sec.-ft.</i> 3,130
12	do.	4.79	1,850	May 8	C. S. DeGolyer	2.28	272
27	do.	14.75	22,800	July 30	G. H. Canfield	1.32	56.3

Daily gage height, in feet, of West Branch of Delaware River at Hale Eddy, N. Y., for 1913.

[Wm. Seeley, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.5	4.5	5.6	6.4	2.75	3.8	1.7	1.30	1.20	1.45	2.15	3.3
2.....	4.1	3.6	4.8	5.2	2.45	3.6	1.7	1.30	1.25	1.5	2.2	3.2
3.....	5.5	3.3	4.0	5.1	2.5	3.4	1.5	1.30	1.20	1.5	2.05	3.1
4.....	7.3	3.2	4.1	4.7	2.35	4.0	1.5	1.40	1.25	1.5	2.0	3.0
5.....	5.8	3.0	4.2	5.2	2.25	3.3	1.45	1.40	1.20	1.5	2.0	3.1
6.....	5.4	2.65	4.2	4.8	2.3	3.1	1.45	1.35	1.20	1.5	1.95	2.95
7.....	6.6	2.6	3.1	4.7	2.15	2.9	1.5	1.30	1.25	1.48	2.0	3.2
8.....	10.6	2.65	2.8	4.4	2.1	2.75	1.5	1.30	1.15	1.48	1.95	4.3
9.....	8.6	2.95	3.4	4.2	2.2	2.6	1.48	1.30	1.15	1.40	4.6	4.2
10.....	6.6	2.75	4.2	4.0	2.3	2.6	1.48	1.40	1.15	1.42	7.6	3.5
11.....	6.4	3.4	4.8	4.4	2.05	2.45	1.48	1.35	1.25	1.38	5.6	3.6
12.....	7.5	2.7	4.4	5.2	2.45	2.3	1.42	1.30	1.15	1.30	4.8	3.4
13.....	6.2	.....	4.7	4.7	2.1	2.3	1.40	1.20	1.15	1.40	4.6	3.4
14.....	5.4	.....	5.6	4.6	2.05	2.15	1.5	1.20	1.15	1.40	4.6	3.5
15.....	5.2	.....	6.7	4.5	2.0	2.0	1.5	1.18	1.15	1.45	4.4	3.5
16.....	4.8	.....	6.6	4.2	2.05	2.15	1.5	1.15	1.10	1.45	4.0	3.4
17.....	5.8	.....	5.5	3.9	2.05	1.9	1.45	1.20	1.10	1.40	3.9	3.2
18.....	6.6	.....	4.8	3.8	1.95	2.4	1.5	1.15	1.10	1.35	3.9	3.2
19.....	6.7	.....	4.6	3.6	2.0	1.85	1.5	1.22	1.15	1.40	3.8	3.1
20.....	5.6	.....	4.9	3.4	1.95	1.9	1.40	1.30	1.20	2.5	4.0	2.6
21.....	6.4	.....	5.2	3.4	1.95	2.05	1.40	1.20	1.10	4.0	4.2	2.85
22.....	5.6	.....	5.4	3.2	1.95	2.0	1.35	1.20	2.1	3.8	3.9	2.75
23.....	5.2	.....	4.7	4.1	2.15	1.9	1.30	1.25	2.05	2.7	3.8	2.75
24.....	5.6	.....	5.2	3.5	3.2	1.9	1.35	1.20	2.0	2.5	3.7	3.4
25.....	5.2	.....	5.7	2.75	3.3	1.8	1.25	1.20	1.9	2.65	3.6	3.2
26.....	4.7	.....	7.9	2.75	2.95	1.75	1.30	1.15	1.65	2.6	3.6	3.2
27.....	4.6	.....	13.6	2.5	2.85	1.75	1.30	1.15	1.6	2.8	3.5	2.75
28.....	4.5	.....	11.9	2.15	3.0	1.7	1.30	1.20	1.5	2.7	3.4	2.4
29.....	3.9	.....	8.6	2.55	5.4	1.6	1.38	1.20	1.40	2.55	3.2	2.5
30.....	3.8	.....	7.0	3.0	4.6	1.7	1.48	1.20	1.40	2.4	3.6	2.6
31.....	3.8	.....	6.2	.....	4.2	.....	1.35	1.20	.....	2.3	.....	2.8

NOTE.—Gage height observations suspended Feb. 13–28 on account of ice.

Daily discharge, in second-feet, of West Branch of Delaware River at Hale Eddy, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,660	1,660	2,610	3,450	498	1,140	96	53	46	66	220	820
2.....	1,350	1,000	1,980	2,240	348	1,000	96	53	50	70	240	760
3.....	2,510	820	1,280	2,150	370	880	70	53	46	70	182	700
4.....	4,550	760	1,350	1,820	302	1,280	70	61	50	70	165	640
5.....	2,810	640	1,420	2,240	260	820	66	61	46	70	165	700
6.....	2,420	445	1,420	1,900	280	700	66	57	46	70	152	610
7.....	3,680	420	700	1,820	220	580	70	53	50	68	165	760
8.....	10,400	445	525	1,580	200	498	70	53	42	68	152	1,500
9.....	6,450	610	880	1,420	240	420	68	53	42	61	1,740	1,420
10.....	3,680	498	1,420	1,280	280	420	68	61	42	63	4,950	940
11.....	3,450	880	1,900	1,580	182	348	68	57	50	59	2,610	1,000
12.....	4,810	470	1,580	2,240	348	280	63	53	42	53	1,900	880
13.....	3,230		1,820	1,820	200	280	61	46	42	61	1,740	880
14.....	2,420		2,610	1,740	182	220	70	46	42	61	1,740	940
15.....	2,240		3,800	1,600	165	165	70	45	42	66	1,580	940
16.....	1,900		3,680	1,420	182	220	70	42	39	66	1,280	880
17.....	2,810		2,510	1,210	182	138	66	46	39	61	1,210	760
18.....	3,680		1,900	1,140	152	325	70	42	39	57	1,210	760
19.....	3,800		1,740	1,000	165	126	70	47	42	61	1,140	700
20.....	2,610		1,980	880	152	138	61	53	46	370	1,280	420
21.....	3,450		2,240	880	152	182	61	46	39	1,280	1,420	552
22.....	2,610		2,420	760	152	165	57	46	200	1,140	1,210	498
23.....	2,240		1,820	1,350	220	138	53	50	182	470	1,140	498
24.....	2,610		2,240	940	760	138	57	46	165	370	1,070	880
25.....	2,240		2,710	498	820	115	50	46	138	445	1,000	760
26.....	1,820		5,370	498	610	106	53	42	88	420	1,000	760
27.....	1,740		19,000	370	552	106	53	42	81	525	940	498
28.....	1,660		13,800	220	640	96	53	46	70	470	880	325
29.....	1,210		6,450	395	2,420	81	59	46	61	395	760	370
30.....	1,140		4,160	640	1,740	96	61	46	61	325	1,000	420
31.....	1,140		3,230		1,420		57	46		280		525

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge Feb. 13-28 estimated 534 second-feet by comparison with records at Port Jervis.

Monthly discharge of West Branch of Delaware River at Hale Eddy, N. Y., for 1913.

[Drainage area, 611 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	10,400	1,140	2,980	4.88	5.63	A.
February.....	1,660	-----	614	1.00	1.04	B.
March.....	19,000	525	3,240	5.30	6.11	A.
April.....	3,450	220	1,370	2.24	2.50	A.
May.....	2,420	152	464	.759	.88	A.
June.....	1,280	81	373	.611	.68	A.
July.....	96	50	65.3	.107	.12	B.
August.....	61	42	49.6	.081	.09	C.
September.....	200	39	65.6	.107	.12	B.
October.....	1,280	53	249	.408	.47	B.
November.....	4,950	152	1,140	1.87	2.09	A.
December.....	1,500	325	745	1.22	1.41	A.
The year.....	19,000	39	951	1.56	21.14	

BEAVER KILL AT COOKS FALLS, N. Y.

Location.—At the covered highway bridge in Cooks Falls.

Records available.—July 25 to December 31, 1913.

Drainage area.—Not measured.

Gage.—Vertical staff in two sections.

Channel and control.—Coarse gravel, bowlders, and solid ledge; practically permanent.

Discharge measurements.—Made from highway bridge, or by wading.

Winter flow.—Affected by ice.

Estimates of discharge withheld for additional data.

The following discharge measurement was made by G. H. Canfield:

August 9, 1913: Gage height, 1.12 feet; discharge, 78.7 second-feet.

Daily gage height, in feet, of Beaver Kill at Cooks Falls, N. Y., for 1913.

Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Day.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....		0.88	0.98	1.30	2.15	2.75	16.....		0.80	0.60	1.45	3.15	2.70
2.....		.90	1.02	2.32	1.95	2.62	17.....		.90	.62	1.45	3.05	2.75
3.....		.80	.92	2.15	2.10	2.55	18.....		.90	.75	1.75	3.05	2.75
4.....		.78	.82	1.82	2.10	2.48	19.....		.90	.85	1.85	3.25	2.52
5.....		.72	.92	1.58	2.00	2.40	20.....		.88	.85	4.25	3.45	1.95
6.....		.72	.88	1.50	2.00	2.30	21.....		.80	.92	6.15	3.15	2.25
7.....		1.95	.90	1.50	2.15	3.25	22.....		.80	4.85	3.90	2.98	2.25
8.....		1.30	.88	1.58	2.10	4.65	23.....		.98	2.55	2.75	2.95	2.30
9.....		1.08	.82	1.88	9.05	3.50	24.....		1.20	1.90	3.65	2.80	2.50
10.....		1.02	.80	1.68	7.10	3.12	25.....	1.15	1.05	1.58	5.70	2.65	2.52
11.....		.98	.72	1.65	5.05	2.95	26.....	1.05	.90	1.45	4.90	2.48	2.55
12.....		.92	.70	1.75	4.25	2.80	27.....	1.02	.85	1.30	4.10	2.35	2.05
13.....		.92	.65	1.80	3.98	2.70	28.....	1.00	1.18	1.28	3.60	2.30	1.95
14.....		.90	.60	1.55	3.70	2.80	29.....	1.00	1.15	1.18	3.15	2.85	1.75
15.....		.85	.60	1.45	3.50	2.80	30.....	.95	1.15	1.02	2.90	2.95	1.65
							31.....	.88	1.10	.....	2.50	.....	1.50

MONGAUP RIVER NEAR RIO, N. Y.

Location.—At the highway bridge on Partridge ranch, near Rio, 6 miles above Mongaup and about 7 miles above the mouth.

Records available.—August 8, 1909, to June 27, 1913; data also published in annual reports of the New York State engineer and surveyor.

Drainage area.—189 square miles.

Gage.—Chain on the downstream side of the bridge.

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

Winter flow.—Not seriously affected by ice.

Floods.—The high water of March 25 to 30, 1913, reached a stage of 7 feet in the evening of March 27, as determined by observer's readings and high-water marks. The corresponding discharge was approximately 6,500 second-feet, or 34.4 second-feet per square mile of drainage area.

Estimates of discharge withheld for additional data.

Discharge measurements of Mongaup River near Rio, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
May 14	C. S. De Golyer.....	<i>Feet.</i> 1.22	<i>Sec.-ft.</i> 146	Aug. 8	G. H. Canfield.....	<i>Feet.</i> 0.76	<i>Sec.-ft.</i> 52.5
14	do.....	1.21	145				

Daily gage height, in feet, of Mongaup River near Rio, N. Y., for 1913.

[Mrs. C. S. Rolles, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1.....	2.2	1.9	2.35	2.45	2.0	1.39	16.....	2.0	1.48	2.7	2.15	1.15	0.92
2.....	1.95	1.5	1.75	2.3	1.39	1.34	17.....	2.4	1.42	2.3	1.95	1.14	.92
3.....	2.5	1.45	1.75	2.2	1.75	1.28	18.....	2.35	1.5	2.0	1.85	1.11	.89
4.....	3.0	1.55	1.65	2.1	1.65	1.22	19.....	2.3	1.5	1.95	1.7	1.14	.88
5.....	2.4	1.5	1.6	2.3	1.6	1.18	20.....	2.15	1.32	2.4	1.8	1.09	.90
6.....	2.2	1.48	1.55	2.15	1.55	1.14	21.....	2.4	1.39	2.3	1.6	1.01	1.01
7.....	2.25	1.6	1.42	2.2	1.5	1.15	22.....	2.2	1.65	2.5	1.6	1.16	.95
8.....	4.0	1.6	1.5	1.9	1.5	1.48	23.....	2.0	2.15	2.2	1.5	1.49	.90
9.....	2.8	1.55	1.45	1.8	1.45	1.24	24.....	2.15	1.8	2.25	1.5	1.75	.86
10.....	2.7	1.6	1.42	1.7	1.38	1.16	25.....	2.0	1.6	2.15	1.7	1.85	.86
11.....	2.7	1.42	1.7	2.1	1.31	1.12	26.....	1.9	1.5	3.0	1.55	1.55	.81
12.....	2.9	1.5	1.8	3.2	1.26	1.05	27.....	1.9	1.55	5.2	1.48	1.48	.80
13.....	2.45	1.48	1.6	2.6	1.28	1.00	28.....	1.8	2.6	4.6	2.6	1.65	.....
14.....	2.1	1.48	2.8	2.7	1.22	1.04	29.....	1.55	.....	3.4	2.9	1.65	.....
15.....	2.05	1.5	3.0	2.4	1.16	.90	30.....	1.55	.....	3.0	2.4	1.7	.....
							31.....	1.7	.....	2.8	.....	1.5	.....

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 Brasher Kill, and 8 miles above the mouth.

Records available.—August 4 to October 9, 1903; August 21, 1909, to December 31, 1913; data also published in the annual reports of the New York State engineer and surveyor.

Drainage area.—314 square miles.

Gage.—Chain on the left-hand, downstream cable tower; prior to August 1, 1910, staff gages at about the same location.

Channel and control.—Sand and gravel; probably shifting.

Regulation.—Flow seriously affected by the operation of power plants above the station, especially by the operation of the plant at Roses Point, which supplies electric light and power to Port Jervis and Middletown.

Floods.—The flood of March 25 to 30, 1913, reached a stage of about 9.3 feet on March 27, as reported by the observer and later verified from high-water marks. The corresponding discharge was approximately 12,800 second-feet, or 41 second-feet per square mile of drainage area.

Estimates of discharge withheld for additional data.

Discharge measurements of Neversink River at Godeffroy, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
Mar. 7	Frank Weber.....	<i>Feet.</i> 3.37	<i>Sec.-ft.</i> 260	Aug. 7	G. H. Canfield.....	<i>Feet.</i> 2.78	<i>Sec.-ft.</i> 64.2
May 15	C. S. De Golyer.....	3.52	316	7	do.....	2.78	64.3
15	do.....	3.41	272				

Daily gage height, in feet, of Neversink River at Godeffroy, N. Y., for 1913.

[Frank Zock, observer.]

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.....	3.95	4.05	3.9	3.85	4.85	4.75	4.7	4.5	4.4	4.55	3.55	3.45
2.....	4.0	3.95	3.9	3.95	4.6	4.7	4.65	4.6	4.35	4.2	3.5	3.6
3.....	4.05	4.35	3.85	3.9	4.25	4.2	4.55	4.3	4.1	4.05	3.45	3.4
4.....	5.45	4.85			3.45		4.6	4.4	4.15	4.0	3.35	3.4
5.....	4.95	4.8					4.4	4.6	4.2	3.9	3.45	3.35
6.....	4.9	4.65					4.3	4.2	3.85	3.7	3.4	3.45
7.....	4.65	4.8				3.37	4.35	4.4	3.65	3.6	3.4	3.5
8.....	6.45	7.15				3.5	4.4	4.6	3.75	3.65	3.45	3.4
9.....	5.45	5.4			3.4	3.4	4.5	4.45	3.6	3.65	3.35	3.4
10.....	4.85	4.95			3.45	3.35	4.4	4.55	3.5	3.45	3.4	3.45
11.....	5.0	5.05			3.6	3.55	4.7	5.6	3.5	3.55	3.35	3.3
12.....	4.55	4.85			3.4	3.5	5.7	5.45	3.55	3.4	3.45	3.4
13.....	4.6	4.65			3.35	3.4	5.2	5.15	3.5	3.4	3.35	3.4
14.....	4.45	4.75			3.8	7.3	4.9	4.6	3.45	3.5	3.4	3.35
15.....	4.45	4.65			5.8	5.6	4.55	4.3	3.55	3.45	3.3	3.4
16.....	4.35	4.25	3.75	3.65	5.7	5.5	4.4	4.35	3.45	3.4	3.4	3.35
17.....	4.15	4.05	3.8	3.85	5.3	5.25	4.3	4.45	3.6	3.45	3.35	3.3
18.....	4.25	4.05	3.7	3.75	4.9	4.65	4.2	4.15	3.4	3.45	3.3	3.35
19.....	4.05	4.0	3.9	3.65	4.3	4.15	4.1	4.0	3.45	3.4	3.35	3.3
20.....	4.25	4.2	3.75	3.7	4.5	4.65	3.9	3.7	3.35	3.4	3.3	3.25
21.....	4.1	4.0	3.8	3.9	5.3	5.15	3.8	3.8	3.4	3.45	3.35	3.25
22.....	4.2	4.1	3.65	3.8	5.0	4.8	3.75	3.65	3.35	3.4	3.3	3.35
23.....	4.1	4.25	3.75	3.7	4.7	4.6	3.6	3.5	3.4	3.7	3.25	3.2
24.....	4.15	4.1	3.75	3.85	4.6	4.45	3.55	3.6	4.7	4.6	3.25	3.3
25.....	4.1	4.2	3.45	3.75	4.3	4.25	3.6	3.5	4.6	4.55	3.2	3.25
26.....	4.15	4.05	3.7	3.8	4.6	5.4	3.4	3.6	4.45	4.35	3.15	3.2
27.....	4.0	3.95	3.85	3.7	5.9	9.3	3.55	3.4	4.5	4.6	2.9	3.3
28.....	3.9	4.05	4.35	4.75	7.65	6.8	3.9	6.2	4.6	4.9	2.85	3.2
29.....	3.75	3.85			5.75	5.5	5.3	5.0	4.5	4.3	2.95	3.25
30.....	3.85	4.0			4.6	4.4	4.8	4.65	4.35	4.0	2.8	3.1
31.....	3.75	3.95			4.5	4.55			3.9	3.75		

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.....	2.9	3.2	2.9	3.25	2.7	3.15	2.95	3.0	3.95	3.85	4.0	4.15
2.....	2.85	3.15	3.2	3.45	2.85	3.05	3.95	4.5	3.65	3.55	4.0	4.0
3.....	2.9	3.2	3.2	3.2	2.75	2.95	4.25	3.5	3.45	3.5	4.15	4.0
4.....	2.85	3.15	2.95	3.25	2.8	3.15	3.35	3.2	3.5	3.45	4.1	4.15
5.....	2.9	3.2	2.8	3.3	2.9	2.95	3.0	3.15	3.45	3.35	4.0	4.0
6.....	2.8	3.15	2.85	3.25	2.85	3.15	3.15	3.2			3.95	3.7
7.....	3.0	3.25	2.9	2.75	2.75	3.05	3.25	3.1			3.6	3.6
8.....	2.95	3.2	2.8	3.15	2.8	3.1	3.15	3.05			3.9	3.8
9.....	2.85	3.15	2.85	3.0	2.85	3.15	3.0	3.1			3.95	4.15
10.....	2.9	3.2	2.8	3.15	2.7	3.05	3.15	3.2			4.0	4.0
11.....	2.95	3.15	2.75	2.9	2.8	2.9	3.3	3.3			3.75	3.55
12.....	2.9	3.25	2.8	2.85	2.75	3.1	3.15	3.35	4.65	4.5	3.5	3.5
13.....	2.85	3.15	2.75	2.75	2.7	3.1	3.3	3.25	4.45	4.3	3.5	3.55
14.....	2.95	3.2	2.8	2.8	2.85	2.85	3.2	3.4	4.25	4.35	3.5	3.65
15.....	2.8	3.15	2.75	3.1	2.7	3.05	3.25	3.35	4.0	4.05	3.65	3.45
16.....	2.95	3.1	2.8	3.15	2.75	2.95	3.4	3.3	4.0	4.1	3.4	3.4
17.....	3.1	2.95	2.75	3.05	2.8	2.95	3.3	3.15	4.0	4.15	3.5	3.5
18.....	2.95	3.15	2.8	3.15	2.95	2.75	3.2	3.25	4.15	4.0	3.5	3.45
19.....	2.95	3.25	2.7	3.15	2.85	2.7	3.15	3.0	4.0	3.95	3.3	3.25
20.....	2.9	3.15	2.8	3.05	2.95	2.85	3.6	4.0	4.0	4.0	3.2	3.1
21.....	2.8	3.15	2.7	2.9	2.7	2.95	5.0	4.6	4.05	4.15	3.1	3.0
22.....	2.8	3.1	2.75	3.15	3.85	4.6	4.6	4.6	3.95	3.9	3.1	3.15
23.....	2.85	3.15	2.8	3.0	3.6	3.55	5.15	4.5	3.8	3.7	3.3	3.3
24.....	2.85	3.2	2.75	3.15	3.5	3.45	4.95	5.25	3.65	3.5	3.4	3.25
25.....	2.9	3.15	2.8	3.0	3.25	3.2	5.15	5.1	3.5	3.4	3.4	3.45
26.....	2.85	3.15	2.7	3.05	3.15	3.1	5.0	4.95	3.5	3.5	3.6	3.65
27.....	2.9	3.2	2.8	2.9	3.25	3.05	4.65	4.35	3.7	3.6	3.8	3.8
28.....	2.85	3.15	2.85	2.85	2.95	3.15	4.25	4.15	3.6	3.5	3.8	3.85
29.....	2.8	3.2	2.8	3.15	2.9	2.95	4.1	4.05	4.0	3.9	3.9	3.8
30.....	2.85	3.1	2.75	3.05	2.8	2.75	4.0	4.1	4.15	3.95	3.8	3.9
31.....	2.9	3.15	2.7	3.15			4.0	4.05			3.8	3.85

NOTE.—Gage heights observed twice daily as follows: Jan. 1 to Feb. 16, 8 a. m. and 4 p. m.; Feb. 17 to Mar. 23, 7 a. m. and 5 p. m.; Mar. 24 to Oct. 1, 7 a. m. and 6 p. m.; Oct. 2 to Dec. 31, 8 a. m. and 5 p. m.

LEHIGH RIVER AT SOUTH BETHLEHEM, PA.

Location.—On the New Street Bridge connecting Bethlehem and South Bethlehem.

Records available.—September 22, 1902, to February 13, 1905; April 26, 1909, to December 31, 1913. 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 and control.—Sand, gravel, and boulders; practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Not seriously 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.—Results 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.

Discharge measurements of Lehigh River at South Bethlehem, Pa., during 1913.

Date.	Made by—	Gage height.	Discharge.
		<i>Fect.</i>	<i>Sec.-ft.</i>
July 24	R. A. Boehringer	2.34	994
Sept. 3	J. D. Reckord	1.66	353

Daily gage height, in feet, of Lehigh River at South Bethlehem, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.51	3.36	3.65	5.18	6.16	2.95	2.03	1.89	1.88	1.95	2.74	2.86
2.....	4.35	3.17	3.27	4.64	5.45	2.78	2.02	1.83	1.85	3.26	2.60	2.82
3.....	4.79	3.18	3.08	4.36	5.00	2.75	1.94	1.73	1.62	2.75	2.69	2.67
4.....	6.84	3.19	3.02	4.20	4.69	2.78	1.85	1.87	1.64	2.52	2.58	2.61
5.....	6.43	2.97	3.03	4.15	4.34	2.72	2.00	1.82	1.75	2.27	2.49	2.58
6.....	4.97	2.82	2.89	3.95	4.14	2.61	1.97	1.82	1.73	2.33	2.42	2.58
7.....	4.68	2.63	2.51	3.76	3.98	2.54	2.02	2.35	1.72	2.08	2.37	2.73
8.....	5.14	2.68	2.29	3.63	3.75	2.49	1.90	2.03	2.00	2.01	2.38	3.54
9.....	5.73	2.64	2.77	3.50	3.63	2.56	1.96	1.85	1.86	2.05	3.56	3.47
10.....	5.11	2.77	2.89	3.40	3.50	2.48	2.78	1.72	1.67	2.02	6.09	3.11
11.....	3.95	2.70	3.04	3.66	3.44	2.41	2.24	1.90	1.69	2.01	4.74	3.02
12.....	4.89	2.70	3.07	5.65	3.32	2.37	2.07	1.80	1.68	2.20	4.03	2.92
13.....	5.00	2.61	3.03	5.19	3.22	2.34	2.23	1.88	1.66	2.33	3.67	2.83
14.....	4.49	2.52	5.02	5.41	3.14	2.28	2.26	1.61	1.60	2.07	3.50	2.81
15.....	4.28	2.53	6.58	5.20	3.00	2.22	2.18	1.64	1.69	1.98	3.36	2.85
16.....	4.16	2.63	6.52	5.04	2.95	2.28	2.08	1.57	1.63	1.82	3.25	2.80
17.....	4.21	2.76	5.37	4.62	2.90	2.21	1.99	1.99	1.61	1.93	3.57	2.73
18.....	4.11	2.57	4.69	4.44	2.87	2.17	1.98	1.96	1.65	1.86	3.29	2.68
19.....	3.98	2.59	4.62	4.22	2.86	2.17	1.96	1.82	1.63	1.76	3.22	2.59
20.....	3.90	2.57	4.99	3.96	2.74	2.20	1.84	1.75	1.67	2.48	3.17	2.53
21.....	3.89	2.62	4.88	3.83	2.69	2.55	1.91	1.72	1.84	3.16	3.08	2.47
22.....	3.85	2.80	4.68	3.67	2.68	2.47	1.88	1.75	3.63	2.94	3.02	2.58
23.....	3.72	3.31	4.33	3.60	2.66	2.37	1.82	1.76	2.93	2.73	2.90	2.63
24.....	3.89	2.89	4.21	3.53	3.92	2.23	2.08	1.77	2.41	2.60	2.92	3.59
25.....	3.82	2.61	4.05	3.43	3.35	2.11	2.23	1.74	2.13	3.75	2.79	3.54
26.....	3.68	2.53	4.25	3.33	3.12	2.14	2.07	1.74	2.04	4.30	2.69	4.54
27.....	3.69	2.74	9.87	3.59	3.00	2.18	1.88	1.64	1.87	3.94	2.61	4.18
28.....	3.65	4.66	9.77	10.85	3.11	2.23	1.96	1.69	1.76	3.59	2.73	3.69
29.....	3.45	.....	7.40	8.90	3.27	2.09	1.90	1.79	1.75	3.27	2.76	3.43
30.....	3.37	.....	6.20	7.41	3.13	2.09	1.92	1.82	1.69	3.04	2.82	3.31
31.....	3.45	.....	5.65	.....	3.07	.....	1.82	1.83	.....	2.86	.....	3.21

Daily discharge, in second-feet, of Lehigh River at South Bethlehem, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4,520	2,360	2,840	6,080	8,540	1,780	728	602	593	655	1,500	1,660
2.....	4,180	2,060	2,210	4,810	6,760	1,550	719	550	568	2,240	1,320	1,600
3.....	5,150	2,070	1,920	4,200	5,640	1,510	646	469	385	1,510	1,430	1,410
4.....	10,300	2,080	1,840	3,870	4,920	1,550	568	584	400	1,240	1,300	1,340
5.....	9,240	1,770	1,850	3,770	4,150	1,470	700	542	485	965	1,200	1,300
6.....	5,570	1,560	1,660	3,380	3,750	1,340	673	542	469	1,030	1,130	1,300
7.....	4,900	1,320	1,180	3,030	3,430	1,260	719	1,050	461	776	1,070	1,480
8.....	5,980	1,380	940	2,800	3,010	1,200	610	728	700	710	1,080	2,690
9.....	7,460	1,330	1,490	2,580	2,800	1,280	664	568	576	748	2,730	2,580
10.....	5,900	1,490	1,660	2,420	2,580	1,190	1,550	461	422	719	8,400	2,010
11.....	3,360	1,400	1,870	2,850	2,480	1,120	935	610	438	710	5,080	1,880
12.....	5,380	1,400	1,910	7,260	2,290	1,070	766	525	430	895	3,580	1,740
13.....	5,640	1,290	1,850	6,100	2,130	1,040	925	593	415	1,030	2,910	1,570
14.....	4,480	1,190	5,690	6,660	2,010	975	955	378	370	766	2,620	1,540
15.....	4,030	1,200	9,630	6,130	1,810	915	875	400	438	682	2,400	1,600
16.....	3,790	1,320	9,470	5,740	1,740	975	776	349	392	542	2,220	1,530
17.....	3,890	1,480	6,560	4,760	1,720	905	691	691	378	637	2,740	1,440
18.....	3,690	1,250	4,920	4,370	1,670	865	682	664	408	576	2,290	1,380
19.....	3,430	1,270	4,760	3,910	1,660	865	664	542	392	493	2,180	1,270
20.....	3,280	1,250	6,620	3,390	1,500	895	559	485	422	1,190	2,100	1,200
21.....	3,260	1,300	5,350	3,150	1,430	1,270	619	461	559	2,080	1,970	1,140
22.....	3,190	1,530	4,900	2,870	1,420	1,180	593	485	2,850	1,770	1,880	1,260
23.....	2,960	2,280	4,130	2,750	1,400	1,070	542	493	1,760	1,480	1,720	1,320
24.....	3,260	1,660	3,890	2,630	3,360	925	776	501	1,120	1,320	1,740	2,730
25.....	3,140	1,290	3,570	2,470	2,380	805	925	477	825	3,060	1,560	2,650
26.....	2,890	1,200	3,970	2,310	2,020	835	766	477	738	4,120	1,430	4,590
27.....	2,900	1,450	19,100	2,730	1,860	875	593	400	584	3,400	1,340	3,830
28.....	2,840	4,630	18,800	22,200	2,010	925	664	438	493	2,780	1,480	2,900
29.....	2,500	.....	11,800	16,100	2,260	786	610	517	485	2,260	1,520	2,470
30.....	2,370	.....	8,640	11,800	2,040	786	628	542	438	1,910	1,600	2,280
31.....	2,500	.....	7,260	.....	1,950	.....	542	550	.....	1,660	.....	2,120

Monthly discharge of Lehigh River at South Bethlehem, Pa., for 1913.

[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.	
January.....	10,300	2,370	4,390	3.55	4.09
February.....	4,630	1,190	1,640	1.33	1.38
March.....	α 27,500	940	5,200	4.21	4.85
April.....	22,700	2,310	5,240	4.24	4.73
May.....	8,540	1,400	2,800	2.27	2.62
June.....	1,780	786	1,110	.899	1.00
July.....	1,550	542	731	.592	.68
August.....	1,050	349	538	.436	.50
September.....	2,850	370	633	.513	.57
October.....	4,120	493	1,420	1.15	1.33
November.....	8,400	1,070	2,180	1.77	1.98
December.....	4,590	1,140	1,930	1.56	1.80
The year.....	α 27,500	349	2,320	1.88	25.53

α Estimated.

SUSQUEHANNA RIVER BASIN.

SUSQUEHANNA RIVER AT CONKLIN, N. Y.

Location.—At the highway bridge just below Conklin, 5 miles below Big Snake Creek, and 8 miles above Chenango River.

Records available.—November 13, 1912, to December 31, 1913.

Drainage area.—2,350 square miles.

Gage.—Staff in two sections, the lower section inclined, the upper vertical.

Channel and control.—Coarse gravel and boulders.

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

Winter flow.—Somewhat affected by ice.

Floods.—The high water of March 25 to 30 reached a stage of 18.3 feet on the morning of March 28, as recorded by the observer. The corresponding discharge was approximately 52,000 second-feet, or 22.1 second-feet per square mile of drainage area. The flood peak was maintained for several hours, so that the mean discharge for the day of March 28 was 51,400 second-feet and for the 48 hours, from noon, March 27, to noon, March 29, approximately 49,000 second-feet, or 20.8 second-feet per square mile.

Accuracy.—Results good.

Discharge measurements of Susquehanna River at Conklin, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 14	Frank Weber.....	3.93	7,620	May 6	C. S. De Golyer.....	3.50	1,380
15	do.....	9.07	13,100	July 29	G. H. Canfield.....	2.00	302
28	do.....	18.20	51,400	Sept. 18	R. S. Barnes.....	1.55	147
31	do.....	9.10	13,100				

Daily gage height, in feet, of Susquehanna River at Conklin, N. Y., for 1913.

[Daniel Ames, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6.1	5.8	6.8	9.0	4.3	4.9	2.5	1.88	1.50	1.72	2.85	4.5
2.....	5.6	5.8	6.8	8.1	4.0	4.6	2.45	1.88	1.50	1.82	2.8	4.4
3.....	6.0	4.6	5.8	7.4	3.8	4.3	2.4	1.85	1.62	1.88	2.8	4.3
4.....	8.6	4.7	5.0	6.9	3.7	4.3	2.4	1.85	1.65	1.82	2.65	4.2
5.....	8.3	4.7	5.0	7.9	3.6	4.0	2.4	1.90	1.65	1.69	2.65	4.2
6.....	7.2	4.4	4.9	6.6	3.5	3.8	2.35	1.85	1.65	1.75	2.65	4.1
7.....	8.6	4.4	.....	6.3	3.5	3.7	2.4	1.82	1.56	1.85	2.6	4.1
8.....	13.0	4.4	.....	6.0	3.4	3.6	2.35	1.82	1.66	1.91	2.5	4.6
9.....	13.5	4.4	.....	5.7	3.35	3.6	2.3	1.82	1.65	1.86	3.0	4.0
10.....	9.8	.....	4.6	5.4	3.3	3.5	2.35	1.80	1.65	1.91	7.1	4.7
11.....	8.1	.....	6.0	5.3	3.25	3.5	2.35	1.82	1.61	1.86	7.6	4.5
12.....	9.2	.....	6.4	6.1	3.1	3.25	2.3	1.75	1.62	1.86	6.3	4.4
13.....	9.4	.....	6.1	6.4	2.95	3.15	2.15	1.75	1.60	1.85	5.4	4.3
14.....	7.5	.....	6.6	6.0	2.9	3.15	2.15	1.72	1.64	1.85	5.1	4.3
15.....	6.8	.....	8.8	5.7	2.9	3.0	2.2	1.75	1.42	1.82	5.3	4.3
16.....	6.5	.....	9.3	5.4	2.9	2.85	2.15	1.75	1.32	1.88	5.3	4.3
17.....	6.8	.....	8.3	5.2	2.9	2.65	2.05	1.72	1.55	1.89	5.1	4.2
18.....	8.6	.....	6.8	4.9	2.8	2.6	.....	1.62	1.52	1.88	5.0	4.1
19.....	9.6	.....	6.1	4.7	2.9	2.6	.....	1.70	1.58	1.92	4.8	4.0
20.....	9.0	.....	6.5	4.6	2.8	2.5	.....	1.65	1.55	2.2	4.7	3.9
21.....	8.5	.....	6.7	4.5	2.75	2.6	.....	1.65	1.62	4.2	5.4	3.7
22.....	8.5	.....	7.6	4.3	2.8	2.5	.....	1.75	2.6	4.2	5.3	3.7
23.....	7.0	5.2	7.1	4.2	3.0	2.7	.....	1.68	2.3	3.8	4.9	3.7
24.....	7.3	5.4	6.6	4.2	4.0	2.6	.....	1.72	2.2	3.5	4.7	4.3
25.....	7.5	5.0	7.2	4.0	4.8	2.65	.....	1.58	2.0	3.15	4.6	4.0
26.....	6.9	.....	10.6	4.0	4.4	2.6	.....	1.60	1.96	3.15	4.6	4.0
27.....	6.4	.....	15.7	3.9	4.0	2.5	.....	1.75	1.92	3.2	4.5	4.0
28.....	6.2	6.0	18.2	4.6	4.2	2.55	.....	1.68	1.90	3.15	4.4	3.6
29.....	5.7	.....	17.0	4.6	5.9	2.5	1.88	1.70	1.84	3.15	4.3	3.3
30.....	4.8	.....	12.4	4.4	6.7	2.55	1.82	1.55	1.72	3.05	4.4	3.7
31.....	5.3	.....	9.4	.....	5.7	.....	1.82	1.50	.....	2.95	.....	3.8

NOTE.—Discharge relation Feb. 7-28 affected by ice.

Daily discharge, in second-feet, of Susquehanna River at Conklin, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5,720	5,060	7,330	12,800	2,390	3,330	590	249	134	192	828	2,690
2.....	4,640	5,060	7,330	10,500	1,970	2,840	560	249	134	226	790	2,540
3.....	5,500	2,840	5,060	8,800	1,720	2,390	530	238	163	249	790	2,390
4.....	11,800	3,000	3,500	7,600	1,600	2,390	530	238	171	226	685	2,240
5.....	11,000	3,000	3,500	10,000	1,500	1,970	530	257	171	182	685	2,240
6.....	8,280	2,540	3,330	6,860	1,400	1,720	500	238	171	202	685	2,100
7.....	11,800	.....	3,160	6,170	1,400	1,060	530	226	148	238	652	2,100
8.....	26,400	.....	3,000	5,500	1,300	1,500	500	226	174	262	590	2,840
9.....	28,500	.....	2,840	4,840	1,260	1,500	471	226	171	241	948	1,970
10.....	15,200	.....	2,840	4,230	1,210	1,400	500	218	171	262	8,040	3,000
11.....	10,500	.....	5,500	4,040	1,170	1,400	500	226	160	241	9,240	2,690
12.....	13,400	.....	6,400	5,720	1,030	1,170	471	202	163	241	6,170	2,540
13.....	14,000	.....	5,720	6,400	907	1,080	385	202	157	238	4,230	2,390
14.....	9,000	.....	6,860	5,500	866	1,080	385	192	168	238	3,690	2,390
15.....	7,330	.....	12,300	4,840	866	948	413	202	120	226	4,040	2,390
16.....	6,630	.....	13,700	4,230	866	828	385	202	106	249	4,040	2,390
17.....	7,330	.....	11,000	3,860	866	685	330	192	146	253	3,690	2,240
18.....	11,800	.....	7,330	3,330	790	652	314	163	139	249	3,500	2,100
19.....	11,600	.....	5,720	3,000	866	652	294	185	152	266	3,160	1,970
20.....	12,800	.....	6,630	2,840	790	590	285	171	146	413	3,000	1,840
21.....	11,500	.....	7,100	2,690	754	652	275	171	163	2,240	4,230	1,600
22.....	11,500	.....	9,240	2,390	790	590	271	202	652	2,240	4,040	1,600
23.....	7,800	.....	8,040	2,240	948	718	266	179	471	1,720	3,330	1,600
24.....	8,520	.....	6,860	2,240	1,970	652	257	192	413	1,400	3,000	2,390
25.....	9,000	.....	8,280	1,970	3,160	685	249	152	303	1,080	2,840	1,970
26.....	7,560	.....	17,700	1,970	2,540	652	245	157	285	1,080	2,840	1,970
27.....	6,400	.....	38,200	1,840	1,970	590	245	202	266	1,120	2,690	1,970
28.....	5,940	.....	51,400	2,840	2,240	621	241	179	257	1,080	2,540	1,500
29.....	4,840	.....	45,000	2,840	5,280	590	249	185	234	1,080	2,390	1,210
30.....	3,160	.....	24,000	2,540	7,100	621	226	146	192	901	2,540	1,600
31.....	4,040	.....	14,000	.....	4,840	.....	226	134	.....	907	.....	1,720

NOTE.—Discharge determined from a well-defined rating curve. Discharge interpolated Mar. 7-9; estimated by comparison with records at Binghamton, July 18-23. Mean discharge for February estimated from comparative studies.

Monthly discharge of Susquehanna River at Conklin, N. Y., for 1913.

[Drainage area, 2,350 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	28,500	3,160	10,100	4.30	4.96	B.
February.....	.....	.....	2,790	1.20	1.25	D.
March.....	51,400	2,840	11,400	4.85	5.59	B.
April.....	12,800	1,840	4,820	2.05	2.29	A.
May.....	7,100	754	1,820	.774	.89	A.
June.....	3,330	590	1,200	.511	.57	A.
July.....	590	226	379	.161	.19	A.
August.....	249	134	200	.085	.10	B.
September.....	652	106	210	.089	.10	B.
October.....	2,240	182	640	.272	.31	A.
November.....	9,240	590	3,000	1.28	1.43	A.
December.....	3,000	1,210	2,130	.910	1.05	A.
The year.....	51,400	106	3,240	1.38	18.73	

SUSQUEHANNA RIVER AT WILKES-BARRE, PA.

Location.—At the Market Street Bridge in Wilkes-Barre.

Records available.—1888 to December 31, 1913.

Drainage area.—9,960 square miles (revised).

Gage.—Mott type, maintained by the United States Weather Bureau.

Discharge measurements.—Made from the bridge.

Winter flow.—Seriously affected by ice.

Accuracy.—Results fair.

Cooperation.—Results furnished by the Water Supply Commission of Pennsylvania.

Discharge measurements of Susquehanna River at Wilkes-Barre, Pa., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Mar. 19	Reckord and Knight...	<i>Feet.</i> 9.42	<i>Sec.-ft.</i> 28,000	Dec. 9	Boehringer and Brown.	<i>Feet.</i> 4.58	<i>Sec.-ft.</i> 6,710
Aug. 5	J. D. Reckord.....	2.13	1,020				

Daily gage height, in feet, of Susquehanna River at Wilkes-Barre, Pa., for 1913.

[Obediah Hemstreet and Robert Montanye, observers.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	6.13	6.53	7.83	13.33	10.13	7.64	3.04	2.24	2.01	2.33	4.01	4.68
2.....	7.13	6.63	8.63	11.73	8.13	6.54	2.94	2.54	1.99	2.42	3.85	4.70
3.....	7.23	6.13	8.33	10.73	7.03	5.74	2.74	2.24	2.00	2.39	3.69	4.76
4.....	12.73	6.13	7.13	9.63	6.23	5.24	2.84	2.24	1.99	2.39	3.49	4.66
5.....	15.93	5.53	6.43	9.33	5.63	5.04	2.74	2.16	2.03	2.31	3.36	4.50
6.....	12.53	6.03	5.93	8.63	5.23	4.74	2.64	2.16	1.97	2.33	3.30	4.36
7.....	11.03	8.43	5.43	8.43	5.03	4.44	2.64	2.14	1.99	2.33	3.17	4.38
8.....	12.93	7.53	5.03	8.03	4.73	4.24	2.54	2.19	2.02	2.29	3.10	4.31
9.....	17.93	7.33	4.53	7.53	4.53	4.14	2.54	2.24	1.99	2.27	3.22	4.60
10.....	18.43	7.23	4.63	7.13	4.33	3.94	2.64	2.22	1.93	2.24	6.95	4.96
11.....	14.03	6.43	5.03	6.73	4.13	3.84	2.74	2.16	1.93	2.22	10.89	5.23
12.....	12.03	5.93	7.53	7.23	4.03	3.74	2.64	2.18	1.90	2.33	9.90	4.81
13.....	13.63	5.43	8.43	7.93	3.93	3.64	2.64	2.14	1.93	2.22	8.37	4.66
14.....	13.43	5.13	8.53	8.33	3.73	3.54	2.54	2.12	1.93	2.29	7.07	4.36
15.....	10.93	4.93	11.03	7.93	3.63	3.44	2.54	2.11	1.91	2.25	6.69	4.46
16.....	9.43	5.23	14.03	7.33	3.53	3.34	2.54	2.12	1.90	2.21	6.95	4.56
17.....	8.93	5.23	13.73	6.93	3.53	3.24	2.44	2.11	1.90	2.23	7.10	4.66
18.....	9.53	4.53	11.33	6.43	3.53	3.14	2.44	2.07	1.93	2.31	6.87	4.53
19.....	12.93	4.33	9.23	6.13	3.33	3.04	2.44	2.05	1.93	2.29	6.55	4.46
20.....	13.63	3.83	8.03	5.73	3.43	2.94	2.44	2.03	1.90	2.47	6.18	4.26
21.....	12.23	3.93	8.13	5.43	3.33	3.14	2.44	2.02	1.91	3.80	5.95	4.20
22.....	11.83	4.13	9.23	5.23	3.33	3.24	2.34	2.04	2.71	4.25	5.85	4.06
23.....	11.03	4.53	9.63	5.13	3.43	3.04	2.40	2.06	2.93	4.60	6.19	3.98
24.....	10.23	4.83	9.03	4.93	4.03	2.94	2.54	2.02	2.63	4.71	5.85	4.16
25.....	9.73	4.93	8.73	4.83	4.93	2.84	2.44	2.01	2.52	4.37	5.45	4.86
26.....	9.73	5.83	11.13	4.83	5.73	2.74	2.44	2.01	2.71	4.23	5.25	5.51
27.....	9.03	4.83	26.02	4.73	5.53	3.04	2.44	2.02	2.62	4.15	5.10	5.50
28.....	8.43	4.93	28.00	7.23	5.63	3.04	2.44	2.00	2.51	6.87	4.95	5.06
29.....	7.93	.....	26.49	13.93	8.33	3.04	2.44	2.02	2.45	5.33	4.85	4.36
30.....	7.23	.....	21.23	13.93	10.93	3.14	2.34	2.02	2.36	4.69	4.71	3.96
31.....	6.63	.....	16.63	.....	9.13	.....	2.34	2.01	.....	4.40	.....	3.84

Daily discharge, in second-feet, of Susquehanna River at Wilkes-Barre, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	11,800	13,600	19,400	46,300	30,200	18,500	2,080	1,000	850	1,080	4,280	6,330
2.....	16,200	14,000	23,100	38,200	20,700	13,600	1,910	1,320	842	1,180	3,880	6,400
3.....	16,700	11,800	21,700	32,200	15,800	10,300	1,590	1,000	845	1,140	3,480	6,610
4.....	43,200	11,800	16,200	27,800	12,300	8,310	1,740	1,000	842	1,140	3,010	6,260
5.....	61,900	9,440	13,100	26,400	9,830	7,590	1,590	940	860	1,060	2,720	5,710
6.....	42,200	11,400	11,000	23,100	8,270	6,540	1,450	940	838	1,080	2,590	5,260
7.....	34,700	22,100	9,050	22,100	7,560	5,510	1,450	925	842	1,080	2,320	5,320
8.....	44,200	19,400	7,560	20,300	6,500	4,900	1,320	962	855	1,050	2,180	5,100
9.....	77,400	17,100	5,810	18,000	5,810	4,620	1,320	1,000	842	1,030	2,420	6,050
10.....	81,600	16,700	6,160	16,200	5,160	4,100	1,450	987	828	1,000	15,400	7,310
11.....	50,000	13,100	7,560	14,500	4,590	3,850	1,590	940	828	987	34,000	8,270
12.....	39,700	11,000	18,000	16,700	4,330	3,600	1,450	955	820	1,080	29,000	6,780
13.....	47,900	9,050	22,100	19,800	4,080	3,360	1,450	925	828	987	21,900	6,260
14.....	46,800	7,910	22,600	21,700	3,580	3,130	1,320	910	828	1,050	15,900	5,260
15.....	34,200	7,200	34,700	19,800	3,340	2,900	1,320	902	822	1,010	14,300	5,580
16.....	26,800	8,270	50,000	17,100	3,100	2,680	1,320	910	820	978	15,400	5,910
17.....	24,500	8,270	48,400	15,300	3,100	2,460	1,200	902	820	996	16,100	6,260
18.....	27,300	5,810	36,200	13,100	3,100	2,260	1,200	880	828	1,060	15,100	5,810
19.....	44,200	5,160	25,900	11,800	2,660	2,080	1,200	870	828	1,050	13,700	5,580
20.....	47,900	3,820	20,300	10,200	2,880	1,910	1,200	860	820	1,240	12,000	4,950
21.....	40,700	4,080	20,700	9,050	2,660	2,260	1,200	855	822	3,750	11,100	4,780
22.....	38,700	4,590	25,900	8,270	2,660	2,480	1,100	865	1,540	4,920	10,700	4,410
23.....	34,700	5,810	27,800	7,910	2,880	2,080	1,160	875	1,890	6,050	12,100	4,200
24.....	30,700	6,860	25,000	7,200	4,330	1,910	1,320	855	1,430	6,440	10,700	4,670
25.....	28,300	7,200	23,600	6,860	7,200	1,740	1,200	850	1,300	5,290	9,120	6,960
26.....	28,300	10,600	35,200	6,860	10,200	1,590	1,200	850	1,540	4,870	8,350	9,360
27.....	25,000	6,860	186,000	6,500	9,440	2,080	1,200	855	1,420	4,640	7,800	9,320
28.....	22,100	7,200	217,000	16,700	9,830	2,080	1,200	845	1,280	15,100	7,280	7,660
29.....	19,800	.....	194,000	49,400	21,700	2,080	1,200	855	1,210	8,660	6,920	5,260
30.....	16,700	.....	111,000	49,400	34,200	2,260	1,100	855	1,120	6,360	6,440	4,150
31.....	14,000	.....	67,100	.....	25,400	.....	1,100	850	.....	5,380	.....	3,850

Monthly discharge of Susquehanna River at Wilkes-Barre, Pa., for 1913.

[Drainage area, 9,960 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	81,600	11,800	36,100	3.62	4.17
February.....	22,100	3,820	10,000	1.00	1.04
March.....	225,000	5,810	43,600	4.38	5.05
April.....	49,400	6,500	20,000	2.01	2.24
May.....	34,200	2,660	9,270	.931	1.07
June.....	18,500	1,590	4,420	.444	.50
July.....	2,080	1,100	1,360	.137	.16
August.....	1,320	845	921	.092	.11
September.....	1,890	820	1,010	.101	.11
October.....	15,100	2,978	2,990	.300	.35
November.....	34,000	2,180	10,700	1.07	1.19
December.....	9,360	3,850	5,990	.601	.69
The year.....	225,000	820	12,200	1.22	16.68

SUSQUEHANNA RIVER AT DANVILLE, PA.

Location.—At the Mill Street Bridge in Danville, 52 miles below Wilkes-Barre, and a mile above the West Branch of the Susquehanna.

Records available.—March 25, 1899, to December 31, 1913.

Drainage area.—11,300 square miles.

Gage.—Chain attached to the bridge.

Channel and control.—Practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Considerably affected by ice.

Accuracy.—Results good.

Cooperation.—Complete data furnished by Water Supply Commission of Pennsylvania.

The following discharge measurement was made by J. D. Reckord:

August 4, 1913: Gage height, 2.10 feet; discharge, 1,590 second-feet.

Daily gage height, in feet, of Susquehanna River at Danville, Pa., for 1913.

[Edward F. Bell, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5.36	5.86	6.26	12.16	10.06	7.02	2.78	2.22	1.80	2.27	3.65	4.00
2.....	5.88	5.81	7.06	9.91	7.81	5.92	2.74	2.16	1.88	2.25	3.48	3.90
3.....	7.31	5.71	7.61	8.99	6.69	5.22	2.64	2.12	1.82	2.24	3.35	3.90
4.....	9.41	5.61	7.46	8.15	5.91	4.72	2.54	2.12	1.80	2.22	3.20	3.92
5.....	12.96	5.34	5.86	7.81	5.39	4.39	2.48	2.09	1.80	2.23	3.40	3.82
6.....	11.26	4.36	5.51	7.46	4.95	4.17	2.52	2.04	1.80	2.11	3.00	3.72
7.....	9.64	4.26	4.94	7.11	4.66	3.97	2.49	2.03	1.80	2.11	2.90	3.75
8.....	10.68	3.86	4.58	6.61	4.33	3.82	2.43	2.05	1.76	2.11	2.84	3.96
9.....	14.66	3.76	4.11	6.39	4.16	3.72	2.34	1.99	1.75	2.10	2.80	4.18
10.....	15.24	3.81	4.14	6.06	3.96	3.52	2.32	1.95	1.74	2.10	3.70	4.02
11.....	12.16	3.74	4.46	5.86	3.86	3.47	2.56	2.00	1.73	2.08	7.00	4.38
12.....	10.56	3.66	5.81	6.16	3.73	3.38	2.52	2.01	1.72	2.09	8.35	4.32
13.....	10.66	3.66	6.68	6.81	3.59	3.30	2.56	1.95	1.72	2.10	7.18	4.10
14.....	11.48	3.56	7.71	7.09	3.51	3.22	2.57	2.00	1.73	2.12	6.18	3.95
15.....	9.71	3.56	9.41	7.01	3.45	3.12	2.44	1.95	1.72	2.05	5.65	3.80
16.....	8.36	3.56	10.86	6.61	3.41	3.03	2.40	1.92	1.72	2.06	5.62	3.78
17.....	7.84	3.66	11.76	6.21	3.29	3.02	2.32	1.87	1.70	2.06	5.92	3.92
18.....	8.11	3.74	10.14	5.86	3.26	2.92	2.30	1.92	1.75	2.06	5.85	3.88
19.....	10.06	3.61	8.46	5.51	3.21	2.82	2.26	1.90	1.73	2.06	5.62	3.80
20.....	11.06	3.68	7.31	5.26	3.22	2.80	2.26	1.88	1.73	2.30	5.28	3.72
21.....	10.41	3.65	6.99	4.83	3.11	3.04	2.30	1.82	1.73	2.95	5.05	3.50
22.....	9.84	3.68	7.79	4.63	3.06	3.02	2.28	1.80	3.20	3.75	4.90	3.58
23.....	9.58	3.76	8.11	4.52	3.26	2.97	2.42	1.82	2.90	3.78	4.95	3.52
24.....	8.94	4.46	7.99	4.39	3.76	2.79	2.62	1.82	2.68	4.04	5.05	3.62
25.....	8.51	4.31	7.59	4.27	3.96	2.72	2.77	1.84	2.51	4.08	4.85	3.82
26.....	8.44	4.61	8.46	4.19	4.46	2.72	2.44	1.80	2.38	3.95	4.49	4.70
27.....	7.96	4.44	16.21	4.11	4.96	2.77	2.32	1.80	2.35	3.85	4.32	5.08
28.....	7.44	5.11	22.73	7.66	5.16	2.87	2.32	1.80	2.36	4.50	4.22	4.68
29.....	6.91	.....	21.91	11.81	6.19	2.72	2.32	1.80	2.32	5.25	4.12	4.35
30.....	6.46	.....	19.21	13.11	9.13	2.78	2.30	1.80	2.26	4.38	4.05	3.90
31.....	6.11	.....	15.01	.....	7.99	.....	2.24	1.80	.....	3.90	.....	3.68

Daily discharge, in second-feet, of Susquehanna River at Danville, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	14,600	17,200	19,400	65,900	46,400	23,800	3,400	1,880	1,070	1,990	6,600	8,100
2.....	17,400	17,000	24,100	45,100	28,800	17,600	3,270	1,750	1,210	1,940	5,920	7,660
3.....	25,600	16,400	27,500	37,400	21,900	13,900	2,960	1,660	1,100	1,920	5,410	7,660
4.....	40,900	15,900	26,600	31,100	17,500	11,400	2,670	1,660	1,070	1,880	4,840	7,750
5.....	74,000	14,500	17,200	28,800	14,800	9,870	2,510	1,600	1,070	1,900	5,600	7,300
6.....	57,200	9,740	15,400	26,600	12,600	8,860	2,620	1,500	1,070	1,640	4,120	6,880
7.....	42,800	9,280	12,500	24,400	11,100	7,970	2,530	1,480	1,070	1,640	3,780	7,010
8.....	51,900	7,480	10,800	21,400	9,600	7,300	2,380	1,520	1,010	1,640	3,590	7,920
9.....	92,500	7,050	8,600	20,100	8,820	6,880	2,160	1,400	995	1,620	3,460	8,910
10.....	99,200	7,260	8,730	18,300	7,920	6,080	2,110	1,330	980	1,620	6,800	8,190
11.....	65,900	6,970	10,200	17,200	7,480	5,880	2,730	1,420	965	1,580	23,700	9,830
12.....	50,800	6,640	17,000	18,900	6,930	5,520	2,620	1,440	950	1,600	32,500	9,550
13.....	51,700	6,640	21,800	22,600	6,360	5,220	2,730	1,330	950	1,620	24,800	8,550
14.....	59,300	6,240	28,200	24,200	6,040	4,920	2,760	1,420	965	1,660	19,000	7,880
15.....	43,400	6,240	40,900	23,800	5,800	4,550	2,400	1,330	950	1,520	16,100	7,220
16.....	32,600	6,240	53,500	21,400	5,640	4,230	2,300	1,280	950	1,540	16,000	7,140
17.....	29,000	6,640	62,000	19,100	5,180	4,190	2,110	1,190	920	1,540	17,600	7,750
18.....	30,800	6,970	47,100	17,200	5,070	3,850	2,060	1,280	995	1,540	17,200	7,570
19.....	46,400	6,440	33,300	15,400	4,880	3,520	1,970	1,240	965	1,540	16,000	7,220
20.....	55,400	6,720	25,600	14,100	4,920	3,460	1,970	1,210	965	2,060	14,200	6,880
21.....	49,500	6,600	23,600	12,000	4,520	4,260	2,060	1,100	965	3,950	13,000	6,000
22.....	44,500	6,720	28,700	11,000	4,340	4,190	2,010	1,070	4,840	7,010	12,300	6,320
23.....	42,300	7,050	30,800	10,500	5,070	4,020	2,350	1,100	3,780	7,140	12,600	6,080
24.....	37,000	10,200	30,000	9,870	7,050	3,430	2,900	1,100	3,080	8,280	13,000	6,480
25.....	33,700	9,510	27,400	9,320	7,920	3,200	3,360	1,140	2,590	8,460	12,100	7,300
26.....	33,200	10,900	33,300	8,960	10,200	3,200	2,400	1,070	2,250	7,880	10,300	11,300
27.....	22,800	10,100	111,000	8,600	12,600	3,360	2,110	1,070	2,180	7,440	9,550	13,200
28.....	23,400	13,400	226,000	27,900	13,600	3,680	2,110	1,070	2,200	10,400	9,090	11,200
29.....	23,200	.....	208,000	62,500	19,000	3,200	2,110	1,070	2,110	14,100	8,640	9,690
30.....	20,500	.....	154,000	75,600	38,600	3,400	2,060	1,070	1,970	9,830	8,320	7,660
31.....	18,600	.....	96,500	.....	30,000	.....	1,920	1,070	.....	7,660	.....	6,720

Monthly discharge of Susquehanna River at Danville, Pa., for 1913.

[Drainage area, 11,300 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	99,200	14,600	43,200	3.82	4.40
February.....	17,200	6,240	9,360	.828	.86
March.....	235,000	8,600	47,700	4.22	4.87
April.....	80,900	8,600	25,000	2.21	2.47
May.....	53,100	4,340	12,600	1.12	1.29
June.....	23,800	3,200	6,500	.575	.64
July.....	3,400	1,920	2,440	.216	.25
August.....	1,880	1,070	1,320	.117	.13
September.....	4,840	920	1,540	.136	.15
October.....	14,100	1,520	4,070	.360	.42
November.....	32,500	3,460	11,900	1.05	1.17
December.....	13,200	6,000	8,030	.711	.82
The year.....	235,000	920	14,500	1.28	17.47

SUSQUEHANNA RIVER AT HARRISBURG, PA.

Location.—At the Walnut Street Bridge at Harrisburg, $1\frac{1}{2}$ miles above Paxton Creek and 2 miles below Conodoginnet Creek.

Records available.—1890 to December 31, 1913.

Drainage area.—24,100 square miles (revised).

Gage.—Vertical staff in pump well at city waterworks; chain gage on Walnut Street Bridge.¹

Channel and control.—Practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Accuracy.—Results good.

Cooperation.—Results furnished by the Water Supply Commission of Pennsylvania.

The following discharge measurement was made by Langenheim and Reckord:

March 28, 1913: Gage height, 19.46 feet; discharge, 417,000 second-feet.

Daily gage height, in feet, of Susquehanna River at Harrisburg, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.55	4.16	3.72	8.87	8.97	6.67	1.71	1.40	0.40	1.18	3.40	2.80
2.....	3.94	4.09	4.07	7.47	6.97	5.49	1.69	1.31	.39	1.78	3.05	2.74
3.....	4.36	4.00	4.38	6.55	5.82	4.72	1.52	1.24	.39	1.67	2.72	2.69
4.....	6.75	3.79	4.47	5.96	5.15	4.20	1.41	1.12	.39	1.54	2.50	2.63
5.....	8.05	3.44	4.09	5.39	4.45	3.74	1.31	.99	.39	1.53	2.29	2.57
6.....	8.74	3.08	3.61	5.18	4.03	3.33	1.32	.96	.43	1.59	2.19	2.50
7.....	7.19	2.62	3.16	4.76	3.70	3.08	1.16	1.17	.40	1.48	2.05	2.53
8.....	6.86	2.36	2.92	4.52	3.42	2.90	1.30	1.15	.38	1.41	1.99	3.05
9.....	11.31	2.05	2.79	4.30	3.21	2.65	1.78	.96	.38	1.25	1.94	3.81
10.....	12.82	2.43	2.62	4.08	2.97	2.50	1.67	.95	.37	1.12	2.76	3.83
11.....	10.56	2.38	2.69	3.90	2.77	2.39	1.93	.90	.48	1.04	5.05	3.79
12.....	8.85	2.48	3.05	3.96	2.58	2.21	2.41	.76	.41	.99	7.18	3.65
13.....	8.60	2.32	3.70	4.24	2.48	2.12	2.86	.76	.36	.99	6.29	3.47
14.....	9.08	2.37	4.49	4.54	2.40	2.00	2.39	.77	.29	.97	5.43	3.28
15.....	8.18	2.30	6.16	4.80	2.33	1.92	2.29	.79	.27	.98	4.51	3.03
16.....	6.94	2.39	7.10	4.73	2.27	1.81	2.66	.80	.28	.99	4.71	2.87
17.....	6.17	2.48	8.12	4.52	2.20	1.77	2.36	.75	.23	1.00	4.60	2.79
18.....	5.95	2.43	7.43	4.29	2.19	1.64	2.00	.69	.31	.97	4.80	2.67
19.....	6.15	2.45	6.28	4.00	2.11	1.59	1.78	.59	.40	.99	4.77	2.64
20.....	7.69	2.56	5.43	3.74	2.01	1.58	1.60	.58	.36	1.18	4.46	2.53
21.....	7.70	2.39	4.94	3.50	1.99	1.57	1.47	.55	.45	1.86	4.17	2.46
22.....	7.18	2.37	4.60	3.29	1.97	1.61	1.35	.55	1.32	2.89	3.94	2.35
23.....	6.82	2.60	5.00	3.15	1.97	1.74	1.23	.60	1.57	3.53	3.68	2.28
24.....	6.54	2.69	5.03	3.03	2.20	1.71	1.25	.59	1.98	3.39	3.46	2.40
25.....	6.50	2.63	4.83	2.92	2.54	1.70	1.82	.52	1.66	3.43	3.37	2.79
26.....	6.56	2.58	5.35	2.82	3.20	1.66	2.06	.49	1.34	3.67	3.21	3.59
27.....	6.27	2.58	11.27	2.75	3.55	1.56	2.40	.47	1.14	5.06	3.00	4.07
28.....	5.77	2.93	19.21	3.64	4.72	1.62	2.09	.40	.99	5.83	2.87	4.03
29.....	5.33	.....	17.91	8.97	8.21	1.64	1.83	.54	.92	5.16	2.83	3.59
30.....	4.88	.....	14.70	10.44	8.70	1.64	1.60	.50	.93	4.64	2.81	3.00
31.....	4.50	.....	11.32	.....	7.93	.....	1.50	.46	.....	3.95	.....	2.81

¹ For full information regarding the two gages and changes in condition of flow, see U. S. Geol. Survey Water Supply Papers 109 and 167.

Daily discharge, in second-feet, of Susquehanna River at Harrisburg, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	30,200	38,900	32,600	123,000	125,000	80,500	11,300	8,900	3,590	7,510	28,200	21,000
2.....	35,800	37,900	37,600	95,500	86,000	59,800	11,100	8,300	3,550	11,800	23,600	20,400
3.....	41,900	36,600	42,200	78,300	65,500	47,500	9,760	7,870	3,550	10,900	20,200	19,900
4.....	81,900	33,600	43,600	67,900	54,200	39,500	8,970	7,150	3,550	9,920	18,100	19,300
5.....	107,000	28,700	37,900	58,200	43,300	32,900	8,300	6,420	3,550	9,840	16,200	18,800
6.....	120,000	23,900	31,000	54,700	37,000	27,200	8,360	6,260	3,710	10,300	15,300	18,100
7.....	90,200	19,200	24,900	48,100	32,300	23,900	7,390	7,450	3,590	9,470	14,100	18,400
8.....	84,000	16,800	22,200	44,400	28,400	22,000	8,230	7,330	3,520	8,970	13,600	23,600
9.....	175,000	14,100	20,900	41,000	25,600	19,500	11,800	6,260	3,520	7,930	13,200	33,900
10.....	212,000	17,500	19,200	37,800	22,700	18,100	10,900	6,200	3,480	7,150	20,600	34,200
11.....	158,000	17,000	19,900	35,200	20,700	17,100	13,100	5,930	3,910	6,700	52,600	33,600
12.....	123,000	17,900	23,600	36,000	18,800	15,500	17,300	5,210	3,630	6,420	90,000	31,600
13.....	118,000	16,500	32,300	40,100	17,900	14,700	21,600	5,210	3,440	6,420	73,700	29,100
14.....	127,000	16,900	43,900	44,700	17,200	13,700	17,100	5,260	3,190	6,310	58,800	26,500
15.....	109,000	16,300	71,400	48,800	16,600	13,000	16,200	5,360	3,120	6,370	44,300	23,300
16.....	85,500	17,100	88,500	47,700	16,000	12,100	19,600	5,410	3,150	6,420	47,400	21,700
17.....	71,600	17,900	108,000	44,400	15,400	11,800	16,800	5,160	2,990	6,480	45,600	20,900
18.....	67,700	17,500	94,800	40,800	15,300	10,700	13,700	4,860	3,260	6,310	48,800	19,700
19.....	71,200	17,600	73,500	36,600	14,600	10,300	11,800	4,390	3,590	6,420	48,300	19,400
20.....	99,800	18,700	58,800	32,900	13,800	10,200	10,400	4,350	3,440	7,510	48,500	18,400
21.....	100,000	17,100	50,900	29,500	13,600	10,100	9,400	4,220	3,790	12,500	39,100	17,700
22.....	90,000	16,900	45,600	26,700	13,400	10,500	8,560	4,220	3,360	21,900	35,800	16,700
23.....	83,200	19,000	51,800	24,800	13,400	11,500	7,810	4,440	12,600	29,900	32,000	16,100
24.....	78,100	19,900	52,300	23,300	15,400	11,300	7,930	4,390	13,500	28,000	29,000	17,200
25.....	77,400	19,300	49,200	22,200	18,500	11,200	12,200	4,080	10,900	28,600	27,700	20,900
26.....	78,500	18,800	57,500	21,200	25,400	10,900	14,200	3,950	8,500	31,900	25,600	30,800
27.....	73,300	18,800	174,000	20,500	30,200	10,100	17,200	3,870	7,270	52,800	23,000	37,600
28.....	64,600	22,300	396,000	31,500	47,500	10,500	14,500	3,590	6,420	65,600	21,700	37,000
29.....	57,200	.....	354,000	125,000	110,000	10,700	12,200	4,170	6,040	54,400	21,300	30,800
30.....	50,000	.....	261,000	155,000	120,000	10,700	10,400	4,000	6,090	46,300	21,100	23,000
31.....	44,100	.....	175,000	.....	104,000	.....	9,610	3,830	.....	35,900	.....	21,100

Monthly discharge of Susquehanna River at Harrisburg, Pa., for 1913.

[Drainage area, 24,100 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area.
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	212,000	30,200	90,500	3.75	4.32
February.....	38,900	14,100	21,200	.880	.92
March.....	407,000	19,200	83,700	3.47	4.00
April.....	155,000	20,500	51,200	2.12	2.37
May.....	125,000	13,400	38,600	1.60	1.84
June.....	80,500	10,100	20,200	.838	.94
July.....	21,600	7,390	12,200	.506	.58
August.....	8,900	3,590	5,420	.225	.26
September.....	13,500	2,990	5,090	.211	.24
October.....	65,600	6,310	18,300	.759	.88
November.....	90,000	13,200	33,700	1.40	1.56
December.....	37,600	16,100	23,900	.992	1.14
The year.....	407,000	2,990	33,800	1.40	19.05

CHENANGO RIVER NEAR CHENANGO FORKS, N. Y.

Location.—About $1\frac{1}{2}$ miles below Tioughnioga River, 2 miles by road below Chenango Forks post office and $11\frac{1}{2}$ miles above Binghamton and the mouth.

Records available.—November 11, 1912, to December 31, 1913.

Drainage area.—1,420 square miles.

Gage.—Inclined staff on left bank.

Channel and control.—Sand, gravel, and small cobblestones; practically permanent.

Discharge measurements.—Made from a cable near gage, or by wading.

Winter flow.—Somewhat affected by ice.

Diversions.—Water is diverted from 30 square miles at the head of Chenango River and from 18.2 square miles on Tioughnioga River and Erie Canal. These two areas have been subtracted from the total area of 1,468 square miles.

Floods.—The high water of March 25 to 30, 1913, reached a maximum stage of about 13.7 feet on the afternoon of March 27, as recorded by the observer and later verified from high-water marks. The corresponding discharge was 35,500 second-feet, or 25 second-feet per square mile of drainage area.

Accuracy.—Results good.

Discharge measurements of Chenango River near Chenango Forks, N. Y., during 1913.

Date.	Made by—	Gage height.	Discharge.	Date.	Made by—	Gage height.	Discharge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
Mar. 17	Frank Weber.....	6.00	5,890	Sept. 17	R. S. Barnes.....	2.29	139
May 5	C. S. DeGolyer.....	3.18	722	Oct. 29	do.....	3.12	670
Aug. 6	G. H. Canfield.....	2.35	141				

Daily gage height, in feet, of Chenango River near Chenango Forks, N. Y., for 1913.

[Erastus Ingraham, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.9	4.8	.....	6.4	3.45	4.8	2.68	2.42	2.30	2.40	3.1	4.0
2.....	4.4	4.35	.....	5.8	3.4	3.7	2.60	2.38	2.30	2.42	2.95	3.8
3.....	5.2	4.3	.....	5.3	3.2	3.55	2.68	2.35	2.30	2.42	2.94	3.6
4.....	8.4	4.2	.....	5.2	3.2	3.45	2.65	2.40	2.35	2.38	2.85	3.5
5.....	6.8	4.25	.....	5.2	3.2	3.4	2.65	2.40	2.35	2.40	2.92	3.5
6.....	6.8	3.9	.....	5.1	3.15	3.25	2.65	2.35	2.35	2.45	2.95	3.4
7.....	8.6	2.45	.....	4.8	3.1	3.25	2.65	2.32	2.30	2.42	2.88	3.4
8.....	10.1	3.45	.....	4.7	3.1	3.3	2.65	2.30	2.30	2.45	2.80	3.7
9.....	9.0	3.25	.....	4.6	3.05	3.2	2.65	2.32	2.30	2.48	2.92	4.2
10.....	6.9	3.25	5.6	4.4	3.0	3.3	2.65	2.35	2.22	2.32	4.05	3.7
11.....	6.3	3.1	7.3	4.6	3.0	3.3	2.60	2.30	2.20	2.38	5.1	3.65
12.....	8.3	.....	7.1	5.4	3.0	3.0	2.60	2.30	2.20	2.35	4.9	3.7
13.....	7.4	.....	5.7	5.1	3.0	2.90	2.68	2.35	2.20	2.48	5.6	3.4
14.....	6.2	.....	7.2	4.8	2.91	2.80	2.60	2.40	2.28	2.48	5.0	3.6
15.....	5.8	.....	7.9	4.6	2.75	2.86	2.62	2.28	2.20	2.40	4.2	3.9
16.....	5.6	.....	7.8	4.45	2.76	2.85	2.55	2.30	2.20	2.45	3.95	3.6
17.....	6.5	.....	6.2	4.3	2.90	2.81	2.50	2.30	2.22	2.34	4.1	3.6
18.....	8.0	.....	5.4	4.1	2.92	2.80	2.50	2.28	2.32	2.42	3.95	3.6
19.....	8.2	.....	5.3	4.0	2.94	2.80	2.48	2.25	2.40	2.48	3.8	3.45
20.....	7.0	.....	6.3	3.95	2.91	2.80	2.46	2.22	2.48	2.58	3.75	3.3
21.....	7.0	.....	6.0	3.8	2.92	2.82	2.52	2.20	2.58	3.5	3.9	3.2
22.....	6.3	.....	6.4	3.65	2.98	2.82	2.52	2.25	2.72	3.8	4.3	3.4
23.....	5.6	.....	5.4	3.6	3.35	2.80	2.51	2.35	2.68	3.8	4.05	3.55
24.....	6.0	.....	5.2	3.6	4.4	2.80	2.50	2.32	2.58	3.7	4.3	3.85
25.....	5.7	.....	6.9	3.6	3.9	2.75	2.52	2.35	2.50	3.5	4.2	3.9
26.....	5.2	.....	10.8	3.55	3.5	2.75	2.50	2.32	2.55	3.4	3.9	3.8
27.....	5.2	.....	13.4	3.4	3.55	2.80	2.42	2.35	2.50	3.3	3.8	3.5
28.....	4.8	.....	11.8	3.4	3.75	2.70	2.45	2.35	2.50	3.3	3.6	3.3
29.....	4.6	.....	9.0	3.4	4.8	2.80	2.45	2.35	2.50	3.2	3.7	3.4
30.....	4.2	.....	7.4	3.5	4.7	2.80	2.45	2.35	2.50	3.1	3.9	3.6
31.....	4.6	.....	6.6	.....	4.15	.....	2.48	2.35	.....	3.05	.....	3.7

NOTE.—Gage height observations Feb. 12 to Mar. 9 suspended on account of ice.

Daily discharge, in second-feet, of Chenango River near Chenango Forks, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3,350	3,160	-----	6,830	1,020	3,160	335	188	132	178	660	1,780
2.....	2,440	2,360	-----	5,310	960	1,330	286	168	132	188	531	1,470
3.....	3,960	2,270	-----	4,170	750	1,140	335	155	132	188	523	1,200
4.....	12,700	2,100	-----	3,960	750	1,020	316	178	155	168	453	1,080
5.....	7,930	2,180	-----	3,960	750	960	316	178	155	178	507	1,080
6.....	7,930	1,620	-----	3,750	705	800	316	155	155	203	531	960
7.....	13,400	1,020	-----	3,160	660	800	316	141	132	188	476	960
8.....	19,400	1,020	-----	2,970	660	850	316	132	132	203	416	1,330
9.....	15,000	800	-----	2,790	616	750	316	141	132	219	507	2,100
10.....	8,210	800	-----	2,440	572	850	316	155	100	141	1,860	1,330
11.....	6,570	660	9,400	2,790	572	850	268	132	92	168	3,750	1,260
12.....	12,400	-----	8,800	4,390	572	572	286	132	92	155	3,350	1,330
13.....	9,700	-----	5,070	3,750	572	491	335	155	92	219	4,840	960
14.....	6,310	-----	9,100	3,160	499	416	286	178	124	219	3,550	1,200
15.....	5,310	-----	11,200	2,790	381	461	298	124	92	178	2,100	1,620
16.....	4,840	-----	10,900	2,520	388	453	257	132	92	203	1,700	1,200
17.....	7,100	-----	6,310	2,270	491	423	230	132	100	150	1,940	1,200
18.....	11,500	-----	4,390	1,940	507	416	230	124	141	188	1,700	1,200
19.....	12,100	-----	4,170	1,780	523	416	219	112	178	219	1,470	1,020
20.....	8,500	-----	6,570	1,700	499	416	208	100	219	274	1,400	850
21.....	8,500	-----	5,900	1,470	507	431	241	92	274	1,080	1,620	750
22.....	6,570	-----	6,830	1,260	555	431	241	112	361	1,470	2,270	960
23.....	4,840	-----	4,390	1,200	905	416	235	155	335	1,470	1,860	1,140
24.....	5,800	-----	3,960	1,200	2,440	416	230	141	274	1,330	2,270	1,540
25.....	5,070	-----	8,210	1,200	1,620	381	241	155	230	1,080	2,100	1,620
26.....	3,960	-----	22,200	1,140	1,080	381	230	141	257	960	1,620	1,470
27.....	3,960	-----	34,000	960	1,140	416	188	155	230	850	1,470	1,080
28.....	3,160	-----	26,200	960	1,400	348	203	155	230	850	1,200	850
29.....	2,790	-----	15,000	960	3,160	416	203	155	230	750	1,330	960
30.....	2,100	-----	9,700	1,080	2,970	416	203	155	230	660	1,620	1,200
31.....	2,790	-----	7,370	-----	2,020	-----	219	155	-----	616	-----	1,330

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge for February and March estimated from climatologic data and hydrograph comparisons.

Monthly discharge of Chenango River near Chenango Forks, N. Y., for 1913.

[Drainage area, 1,420 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	19,400	2,100	7,360	5.18	5.97	A.
February.....	3,160	-----	1,260	.887	.92	C.
March.....	34,000	-----	7,870	5.54	6.39	C.
April.....	6,830	960	2,600	1.83	2.04	A.
May.....	3,160	381	976	.687	.79	A.
June.....	3,160	348	688	.485	.54	A.
July.....	335	188	266	.187	.22	B.
August.....	188	92	145	.102	.12	B.
September.....	361	92	174	.123	.14	B.
October.....	1,470	141	482	.339	.39	B.
November.....	4,840	416	1,650	1.16	1.29	A.
December.....	2,100	750	1,230	.866	1.00	A.
The year.....	34,000	92	2,070	1.46	19.81	

CHEMUNG RIVER AT CHEMUNG, N. Y.

Location.—At the new highway bridge about midway between Chemung, N. Y., and Willawana, Pa., half a mile upstream from the State line and about 10 miles above the mouth.

Records available.—September 11, 1903, to December 31, 1913; data also published in the annual reports of the New York State engineer and surveyor.

Drainage area.—2,440 square miles.

Gage.—Tape gage on the new highway bridge.

Channel and control.—Sand and gravel; practically permanent.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by needle ice.

Floods.—The high water of March 25 to 30, 1913, reached a crest elevation of about 16.5 feet near midnight of March 26, as recorded by the observer and later determined from high-water marks. The corresponding discharge was approximately 52,500 second-feet, or 21.5 second-feet per square mile of drainage area.

Accuracy.—Results fair.

Discharge measurements of Chemung River at Chemung, N. Y., during 1913.

Date.	Made by—	Gage height.	Dis-charge.	Date.	Made by—	Gage height.	Dis-charge.
Mar. 18	Frank Weber.....	<i>Feet.</i> 4.31	<i>Sec.-ft.</i> 2,550	May 3	C. S. De Golyer.....	<i>Feet.</i> 5.34	<i>Sec.-ft.</i> 4,420
May 2	C. S. De Golyer.....	5.78	5,620	Aug. 1	G. H. Canfield.....	1.90	180

Daily gage height, in feet, of Chemung River at Chemung, N. Y., for 1913.

[D. L. Orcutt, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.9	4.2	4.6	6.4	7.0	4.3	2.55	1.91	1.70	1.76	3.5	3.2
2.....	3.8	3.8	4.8	5.6	6.0	3.9	2.41	1.88	1.73	1.85	3.3	3.1
3.....	4.6	3.2	3.8	5.2	5.3	3.7	2.30	1.82	1.78	2.35	3.15	3.1
4.....	11.1	3.5	3.4	5.6	4.8	3.5	2.26	1.85	1.75	2.25	3.05	3.05
5.....	6.9	3.4	3.3	5.4	4.4	3.3	2.44	1.83	1.72	2.14	2.9	2.9
6.....	5.9	3.2	3.2	5.3	4.2	3.15	2.42	1.86	1.72	2.08	2.85	2.9
7.....	7.3	3.3	3.0	5.0	4.0	3.05	2.36	1.82	1.70	2.00	2.75	2.85
8.....	9.0	.....	2.95	4.8	3.8	3.0	2.28	1.82	1.66	1.96	2.75	2.95
9.....	10.2	.....	3.0	4.6	3.6	3.05	2.23	2.05	1.69	1.94	3.4	3.2
10.....	6.6	.....	4.6	4.4	3.5	2.95	2.27	1.94	1.66	1.91	10.6	2.95
11.....	6.1	.....	4.8	4.4	3.4	2.85	2.28	1.89	1.66	1.86	6.7	2.5
12.....	7.1	.....	5.2	4.9	3.25	2.75	2.34	1.81	1.66	1.90	5.3	2.75
13.....	7.4	.....	4.2	4.6	3.2	2.7	2.26	1.86	1.64	1.88	4.8	2.8
14.....	5.7	.....	4.8	4.4	3.1	2.65	2.22	1.79	1.64	2.07	4.8	2.95
15.....	5.3	.....	6.9	4.3	3.05	2.55	2.19	1.78	1.60	2.07	5.2	2.9
16.....	5.0	.....	6.7	4.2	3.05	2.55	2.19	1.80	1.59	2.06	4.7	2.9
17.....	5.9	.....	5.2	4.0	2.95	2.45	2.16	1.80	1.60	1.92	4.7	2.85
18.....	8.1	.....	4.4	3.8	2.9	2.42	2.12	1.84	1.62	1.91	4.5	2.8
19.....	8.3	.....	4.1	3.6	2.9	2.38	2.10	1.76	1.69	1.89	4.2	2.75
20.....	6.6	.....	4.1	3.6	2.8	2.46	2.06	1.73	1.66	2.29	4.1	2.6
21.....	6.9	.....	4.4	3.45	2.75	2.46	2.06	1.71	1.70	3.7	4.0	2.7
22.....	6.4	.....	4.7	3.35	2.75	2.55	2.04	1.70	2.02	3.9	3.9	2.7
23.....	5.5	.....	4.4	3.3	2.9	2.65	2.02	1.75	2.40	3.25	3.7	2.65
24.....	5.9	.....	4.2	3.45	3.7	2.55	2.08	1.74	2.37	2.95	3.6	3.1
25.....	5.9	.....	6.9	3.6	4.2	2.46	2.15	1.68	2.14	2.85	3.45	3.8
26.....	5.2	.....	14.2	3.4	3.8	2.9	2.10	1.76	2.04	5.0	3.4	3.7
27.....	5.0	.....	16.2	3.3	3.8	3.2	2.06	1.74	1.96	7.4	3.25	3.1
28.....	4.8	.....	14.9	10.0	5.9	3.1	2.06	1.70	1.84	5.2	3.2	3.1
29.....	4.3	.....	9.2	13.9	8.0	2.85	2.02	1.74	1.86	4.4	3.15	3.15
30.....	4.1	.....	7.5	9.0	5.7	2.65	2.00	1.76	1.74	4.0	3.15	3.2
31.....	4.1	.....	6.6	.....	4.8	.....	1.95	1.76	.....	3.7	.....	3.25

NOTE.—Gage height observations suspended Feb. 8-28 on account of ice.

Daily discharge, in second-feet, of Chemung River at Chemung, N. Y., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	1,880	2,310	2,980	7,050	8,700	2,470	520	184	105	126	1,380	1,060
2.....	1,750	1,750	3,360	5,060	6,050	1,880	436	172	116	160	1,160	960
3.....	2,980	1,060	1,750	4,180	4,400	1,620	370	148	133	400	1,010	960
4.....	23,800	1,380	1,270	5,060	3,360	1,380	350	160	122	345	910	910
5.....	8,410	1,270	1,160	4,620	2,630	1,160	454	152	112	290	770	770
6.....	5,800	1,060	1,060	4,400	2,310	1,010	442	164	112	260	730	770
7.....	9,600	.....	860	3,760	2,020	910	406	148	105	220	655	730
8.....	15,200	.....	815	3,360	1,750	860	360	148	93	204	655	815
9.....	20,000	.....	860	2,980	1,500	910	335	245	102	196	1,270	1,060
10.....	7,570	.....	2,980	2,630	1,380	815	355	196	93	184	21,600	815
11.....	6,300	.....	3,360	2,630	1,270	730	310	176	93	164	7,840	490
12.....	9,000	.....	4,180	3,560	1,110	655	394	144	93	180	4,400	655
13.....	9,900	.....	2,310	2,980	1,060	620	350	164	87	172	3,360	690
14.....	5,300	.....	3,360	2,630	960	585	330	136	87	255	3,360	815
15.....	4,400	.....	8,410	2,470	910	520	315	133	75	255	4,180	770
16.....	3,760	.....	7,840	2,310	910	520	315	140	73	250	3,170	770
17.....	5,800	.....	4,180	2,020	815	460	300	140	75	188	3,170	730
18.....	12,100	.....	2,630	1,750	770	442	280	156	81	184	2,800	690
19.....	12,800	.....	2,160	1,500	770	418	270	126	102	176	2,310	655
20.....	7,570	.....	2,160	1,500	690	466	250	116	93	365	2,160	550
21.....	8,410	.....	2,630	1,320	655	466	250	108	105	1,620	2,020	620
22.....	7,050	.....	3,170	1,220	655	520	240	105	230	1,880	1,880	620
23.....	4,840	.....	2,630	1,160	770	585	230	122	430	1,110	1,620	585
24.....	5,800	.....	2,310	1,320	1,620	520	260	119	412	815	1,500	960
25.....	5,800	.....	8,410	1,560	2,310	466	295	99	290	730	1,320	1,750
26.....	4,180	.....	39,000	1,270	1,750	770	270	126	240	3,760	1,270	1,620
27.....	3,760	.....	49,000	1,160	1,750	1,060	250	119	204	9,900	1,110	960
28.....	3,360	.....	42,500	19,200	5,800	960	250	105	156	4,180	1,060	960
29.....	2,470	.....	16,000	37,500	11,800	730	230	119	164	2,630	1,010	1,010
30.....	2,160	.....	10,200	15,200	5,300	585	220	126	119	2,020	1,010	1,060
31.....	2,160	.....	7,570	.....	3,360	.....	200	126	.....	1,620	.....	1,110

NOTE.—Discharge determined from a well-defined rating curve. Mean discharge for February estimated from hydrograph comparisons.

Monthly discharge of Chemung River at Chemung, N. Y., for 1913.

[Drainage area, 2,440 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	23,800	1,750	7,220	2.96	3.41	B.
February.....	.....	.....	1,080	.443	.46	D.
March.....	49,000	815	7,780	3.19	3.68	B.
April.....	37,500	1,160	4,910	2.01	2.24	A.
May.....	11,800	655	2,550	1.05	1.21	A.
June.....	2,470	418	836	.343	.38	B.
July.....	520	200	317	.130	.15	B.
August.....	245	99	143	.058	.07	B.
September.....	430	73	143	.058	.06	B.
October.....	9,900	126	1,120	.459	.53	B.
November.....	21,600	655	2,690	1.10	1.23	A.
December.....	1,750	490	868	.356	.41	B.
The year.....	49,000	73	2,490	1.02	13.83	

WEST BRANCH OF SUSQUEHANNA RIVER AT WILLIAMSPORT, PA.

Location.—At the Market Street Bridge in Williamsport, 2 miles below Lycoming Creek and about 2 miles above Loyalsock Creek.

Records available.—March 1, 1895, to December 31, 1913.

Drainage area.—5,670 square miles.¹

Gage.—Chain, fastened to the bridge.

Channel and control.—Practically permanent.

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

Regulation.—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.—Results good.

Cooperation.—Results furnished by the Water Supply Commission of Pennsylvania.

Discharge measurements of West Branch of Susquehanna River at Williamsport, Pa., during 1913.

Date.	Made by—	Gage height.	Discharge.
Mar. 5	Boehrer and Batley	Feet.	Sec.-ft.
Sept. 12	R. H. Hosmer	3.31	7,910
		.15	618

Daily gage height, in feet, of West Branch of Susquehanna River at Williamsport, Pa., for 1913.

[J. R. Mundy, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	2.15	4.85	3.95	7.60	8.40	7.80	0.90	2.80	0.26	0.34	3.54	2.49
2.....	2.30	4.30	3.90	6.20	7.50	7.10	.90	2.40	.32	1.12	3.18	2.51
3.....	2.35	4.25	3.65	5.10	4.80	4.10	.80	1.80	.31	2.75	2.81	2.35
4.....	2.50	4.20	3.27	4.50	4.30	3.50	.80	1.50	.26	2.80	2.52	2.27
5.....	2.25	4.05	3.10	4.20	4.00	3.10	.80	1.30	.27	2.70	2.30	2.20
6.....	3.65	3.75	3.00	4.00	3.30	2.90	.90	1.20	.22	2.70	2.16	2.16
7.....	2.90	3.70	3.00	3.70	3.10	2.80	.90	1.20	.27	2.45	2.26	2.36
8.....	7.95	3.55	2.90	3.40	3.00	2.40	.80	1.10	.26	2.20	2.14	3.09
9.....	17.20	3.60	2.70	3.30	2.80	2.30	.80	1.00	.21	1.90	2.38	4.24
10.....	13.75	3.45	2.70	3.20	1.20	2.10	1.00	1.00	.19	1.08	8.32	4.01
11.....	10.55	3.45	2.80	3.10	1.20	2.00	1.20	1.00	.19	.61	9.82	3.98
12.....	8.40	3.40	3.10	3.10	.60	2.00	1.20	1.00	.16	.85	7.08	3.80
13.....	8.80	3.35	3.30	3.30	.50	1.90	1.50	.90	.16	.55	6.20	3.47
14.....	8.50	3.40	3.70	3.50	.50	1.90	1.70	.90	.18	.52	5.56	3.21
15.....	7.55	3.25	3.80	3.60	.40	1.80	1.80	.90	.16	.63	5.50	2.98
16.....	6.15	3.25	6.90	3.60	.70	1.70	1.70	.80	.15	.59	5.78	2.84
17.....	5.60	3.40	7.10	3.50	.80	1.70	1.70	.80	.16	.57	5.61	2.63
18.....	4.85	3.25	6.20	2.90	.70	1.70	2.00	.80	.11	.78	5.34	2.42
19.....	8.10	3.30	5.80	2.70	.70	1.50	2.00	1.10	.14	.82	4.90	2.32
20.....	8.05	3.25	5.30	2.70	.70	1.50	1.90	1.00	.18	1.23	4.44	2.20
21.....	8.75	3.25	5.10	2.60	.60	1.50	2.00	.90	.31	3.72	4.09	2.08
22.....	9.10	3.40	5.20	2.40	.80	1.50	1.80	.90	2.95	4.40	3.62	1.95
23.....	7.55	3.45	4.90	2.30	1.40	1.40	1.70	.70	2.35	3.33	3.83	1.86
24.....	7.30	3.40	4.80	2.10	2.20	1.20	2.10	.51	2.06	2.95	3.36	2.62
25.....	7.05	3.35	5.00	1.90	2.60	1.20	5.50	.48	.76	2.92	3.18	3.37
26.....	7.35	3.35	11.50	1.80	4.00	1.10	6.70	.57	.64	6.35	2.92	3.34
27.....	7.00	3.70	18.45	1.80	4.30	1.00	6.90	.52	.55	8.72	2.79	3.00
28.....	6.35	3.85	18.90	2.50	5.00	1.00	6.20	.51	.52	7.17	2.58	2.76
29.....	5.70	.....	15.10	11.40	12.40	1.00	5.00	.42	.41	5.72	2.47	2.68
30.....	5.35	.....	11.30	10.70	9.90	.90	3.90	.33	.32	4.63	2.42	2.56
31.....	5.00	.....	8.70	.....	8.30	.....	3.10	.30	.....	3.99	.....	2.40

¹ Revised value.

Daily discharge, in second-feet, of West Branch of Susquehanna River at Williamsport, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4,340	13,000	9,520	25,900	30,200	27,000	1,630	6,020	576	688	8,210	5,200
2.....	4,720	10,800	9,360	19,000	25,400	23,400	1,630	4,970	659	2,050	7,110	5,260
3.....	4,840	10,600	8,560	14,000	12,800	10,000	1,440	3,500	644	5,880	6,050	4,840
4.....	5,230	10,400	7,380	11,500	10,800	8,090	1,440	2,830	576	6,020	5,280	4,640
5.....	4,600	9,860	6,870	10,400	9,690	6,870	1,440	2,410	590	5,750	4,720	4,470
6.....	8,560	8,870	6,580	9,690	7,470	6,300	1,630	2,210	522	5,750	4,370	4,370
7.....	6,300	8,710	6,580	8,710	6,870	6,020	1,630	2,210	590	5,100	4,620	4,870
8.....	27,700	8,240	6,300	7,780	6,580	4,970	1,440	2,010	576	4,470	4,320	6,840
9.....	101,000	8,400	5,750	7,470	6,020	4,720	1,440	1,820	508	3,740	4,920	10,500
10.....	66,800	7,940	5,750	7,170	2,210	4,220	1,820	1,820	482	1,970	29,700	9,720
11.....	42,500	7,940	6,020	6,870	2,210	3,980	2,210	1,820	482	1,110	38,100	9,620
12.....	30,200	7,780	6,870	6,870	1,090	3,980	2,210	1,820	445	1,540	23,300	9,030
13.....	32,300	7,620	7,470	7,470	930	3,740	2,830	1,630	445	1,010	19,000	8,000
14.....	30,700	7,780	8,710	8,090	930	3,740	3,270	1,630	470	962	16,100	7,200
15.....	25,700	7,320	9,030	8,400	775	3,500	3,500	1,630	445	1,140	16,200	6,520
16.....	18,800	7,320	22,400	8,400	1,260	3,270	3,270	1,440	432	1,070	17,100	6,130
17.....	16,200	7,780	23,400	8,090	1,440	3,270	3,270	1,440	445	1,040	16,300	5,570
18.....	13,000	7,320	19,000	6,300	1,260	3,270	3,980	1,440	382	1,400	15,100	5,020
19.....	28,500	7,470	17,200	5,750	1,260	2,830	3,980	2,010	420	1,480	13,200	4,770
20.....	28,300	7,320	14,900	5,750	1,260	2,830	3,740	1,820	470	2,270	11,300	4,470
21.....	32,100	7,320	14,000	5,490	1,090	2,830	3,980	1,630	644	8,770	10,000	4,170
22.....	34,000	7,780	14,500	4,970	1,440	2,830	3,500	1,630	6,440	11,200	9,100	3,860
23.....	25,700	7,940	13,200	4,720	2,620	2,620	3,270	1,260	4,840	7,560	8,490	3,640
24.....	24,400	7,780	12,800	4,220	4,470	2,210	4,220	946	4,120	6,440	7,660	5,540
25.....	23,200	7,620	13,600	3,740	5,490	2,210	15,800	899	1,370	6,360	7,110	7,690
26.....	24,600	7,620	48,800	3,500	9,690	2,010	21,400	1,040	1,160	19,700	6,360	7,590
27.....	22,900	8,710	114,000	3,500	10,800	1,820	22,400	962	1,010	31,900	5,990	6,580
28.....	19,700	9,200	119,000	5,230	13,600	1,820	19,000	946	962	23,800	5,440	5,910
29.....	16,700	.....	79,400	48,000	55,400	1,820	13,600	806	790	16,800	5,150	5,700
30.....	15,100	.....	47,400	43,500	38,600	1,630	9,360	674	659	12,100	5,020	5,390
31.....	13,600	.....	31,800	.....	29,600	.....	6,870	630	.....	9,660	.....	4,970

Monthly discharge of West Branch of Susquehanna River at Williamsport, Pa., for 1913.

[Drainage area, 5,670 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	102,000	4,340	24,300	4.29	4.95
February.....	13,000	7,320	8,440	1.49	1.55
March.....	131,000	5,750	23,100	4.07	4.69
April.....	48,000	3,500	10,700	1.89	2.11
May.....	55,400	775	9,780	1.72	1.98
June.....	27,000	1,630	5,260	.928	1.04
July.....	22,400	1,440	5,520	.974	1.12
August.....	6,020	630	1,870	.330	.38
September.....	6,440	382	1,070	.189	.21
October.....	34,600	688	6,730	1.19	1.37
November.....	39,300	4,320	11,200	1.98	2.21
December.....	10,500	3,640	6,070	1.07	1.23
The year.....	131,000	382	9,530	1.68	22.84

JUNIATA RIVER AT NEWPORT, PA.

Location.—At the steel highway bridge about 800 feet east of the public square at Newport, a mile below Buffalo Creek, and about 12 miles above the mouth.

Records available.—March 21, 1899, to July 15, 1906; January 6, 1907, to December 31, 1913.

Drainage area.—3,380 square miles (revised).

Gage.—Chain, attached to the bridge.

Discharge measurements.—Made from the bridge.

Winter flow.—Affected by ice.

Channel and control.—Conditions of flow liable to change from year to year.

Accuracy.—Results good for high and medium stages; fair for low stages.

Cooperation.—Results furnished by the Water-Supply Commission of Pennsylvania.

The following discharge measurement was made by Boehringer and Reckord:
July 21, 1913: Gage height, 3.16 feet; discharge, 1,170 second-feet.

Daily gage height, in feet, of Juniata River at Newport, Pa., for 1913.

[A. R. Bortel, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4.75	4.55	4.26	6.16	5.07	6.82	3.48	3.10	2.90	3.45	4.35	4.20
2.....	4.60	4.65	4.51	5.61	4.82	5.97	3.28	2.98	2.92	3.52	4.06	4.04
3.....	5.25	4.60	4.26	5.31	4.62	5.37	3.38	2.98	2.82	4.10	4.16	4.32
4.....	5.95	4.40	4.16	5.16	4.42	4.92	3.28	2.98	2.88	3.86	3.85	4.18
5.....	5.75	4.35	4.06	4.96	4.29	4.67	3.23	3.02	2.90	4.08	3.72	3.92
6.....	5.30	4.15	4.06	4.76	4.22	4.47	3.08	2.99	2.90	3.72	3.68	3.85
7.....	5.10	3.85	3.94	4.56	4.12	4.29	3.08	3.30	2.90	3.60	3.65	4.15
8.....	5.95	3.70	3.78	4.41	4.02	4.07	3.53	3.05	2.92	3.41	4.52	5.38
9.....	9.75	3.63	3.76	4.26	3.97	4.09	3.53	3.15	3.05	3.29	3.84	5.60
10.....	8.40	3.80	3.81	4.18	3.92	3.96	3.50	3.10	3.32	3.24	7.05	5.26
11.....	6.90	4.15	3.96	4.16	3.79	3.82	3.43	3.02	3.10	3.16	8.88	4.81
12.....	6.90	4.15	4.01	4.31	3.77	3.71	3.56	3.02	2.98	3.16	6.38	4.64
13.....	7.80	3.95	4.11	4.56	3.77	3.65	3.40	3.00	2.90	3.24	5.38	4.41
14.....	7.15	3.70	4.76	4.61	3.75	3.57	3.40	3.00	2.90	3.21	5.40	4.32
15.....	6.30	3.80	5.86	4.66	3.67	3.57	3.26	3.00	2.90	3.35	4.70	4.18
16.....	5.75	3.65	6.36	4.81	3.67	3.49	3.33	3.00	2.80	3.31	4.52	4.35
17.....	5.65	3.75	5.81	5.01	3.77	3.45	3.26	2.90	2.85	3.22	4.56	4.00
18.....	5.95	3.75	5.36	5.04	3.77	3.45	3.18	2.80	2.90	3.46	5.12	4.20
19.....	5.60	3.75	4.96	4.86	3.62	3.49	3.06	3.00	2.90	3.12	5.21	3.84
20.....	5.70	3.70	4.76	4.66	3.59	3.37	3.08	2.90	2.95	3.90	4.88	3.80
21.....	5.45	3.70	4.66	4.51	3.57	3.47	3.14	2.90	3.25	4.58	4.65	3.75
22.....	5.25	3.75	4.66	4.36	3.55	3.45	3.06	3.02	4.14	5.20	4.42	3.78
23.....	5.05	4.05	4.56	4.20	3.62	3.52	3.10	3.00	3.52	4.66	4.25	3.72
24.....	5.05	4.25	4.41	4.11	4.02	3.37	3.25	2.90	3.51	4.16	4.12	4.25
25.....	5.30	3.90	4.26	4.04	4.62	3.37	3.25	2.92	3.24	4.58	4.25	4.85
26.....	5.15	3.80	4.56	4.01	4.87	3.49	3.22	2.89	3.11	5.92	4.12	5.09
27.....	5.00	3.70	10.15	4.01	4.72	3.62	3.25	2.72	3.60	9.31	3.86	5.26
28.....	4.90	4.00	12.51	5.36	10.77	3.87	3.12	2.94	3.01	7.45	3.84	4.92
29.....	4.75	-----	9.86	5.96	15.22	3.77	3.02	2.92	2.98	5.81	3.96	4.68
30.....	4.57	-----	8.36	5.46	10.32	3.52	3.01	2.88	3.14	5.02	4.05	4.55
31.....	4.53	-----	6.76	-----	7.77	-----	3.12	2.72	-----	4.58	-----	4.32

Daily discharge, in second-feet, of Juniata River at Newport, Pa., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	5,060	4,490	3,690	9,410	5,990	11,600	1,860	1,140	825	1,800	3,940	3,530
2.....	4,630	4,770	4,380	7,650	5,260	8,790	1,470	949	856	1,940	3,170	3,120
3.....	6,540	4,630	3,690	6,720	4,690	6,910	1,660	949	709	3,270	3,430	3,850
4.....	8,730	4,070	3,430	6,260	4,130	5,550	1,470	949	796	2,690	2,690	3,480
5.....	8,090	3,940	3,170	5,660	3,770	4,830	1,380	1,010	825	3,220	2,370	2,830
6.....	6,690	3,400	3,170	5,080	3,580	4,270	1,110	964	825	2,370	2,290	2,660
7.....	6,080	2,660	2,880	4,520	3,320	3,770	1,110	1,500	825	2,110	2,220	3,400
8.....	8,730	2,330	2,510	4,100	3,070	3,200	1,960	1,060	856	1,720	4,410	6,940
9.....	23,100	2,180	2,460	3,690	2,950	3,240	1,960	1,230	1,060	1,490	2,640	7,620
10.....	17,500	2,550	2,570	3,480	2,830	2,920	1,900	1,140	1,540	1,390	12,400	6,570
11.....	11,900	3,400	2,920	3,430	2,530	2,600	1,760	1,010	1,140	1,250	19,400	5,230
12.....	11,900	3,400	3,040	3,830	2,480	2,350	2,030	1,010	949	1,250	10,100	4,740
13.....	15,200	2,900	3,300	4,520	2,480	2,220	1,700	980	825	1,390	6,940	4,100
14.....	12,800	2,330	5,080	4,660	2,440	2,050	1,700	980	825	1,340	7,000	3,850
15.....	9,870	2,550	8,440	4,800	2,260	2,050	1,430	980	825	1,600	4,910	3,480
16.....	8,090	2,220	10,100	5,230	2,260	1,880	1,560	980	680	1,520	4,410	3,940
17.....	7,780	2,440	8,280	5,810	2,480	1,800	1,430	825	752	1,360	4,520	3,020
18.....	8,730	2,440	6,880	5,900	2,480	1,800	1,280	825	825	1,820	6,140	3,530
19.....	7,620	2,440	5,660	5,370	2,150	1,880	1,080	980	825	1,180	6,410	2,640
20.....	7,930	2,330	5,080	4,800	2,090	1,640	1,110	825	902	2,780	5,430	2,550
21.....	7,160	2,330	4,800	4,380	2,050	1,840	1,220	825	1,410	4,570	4,770	2,440
22.....	6,840	2,440	4,800	3,960	2,000	1,800	1,080	1,010	3,370	6,380	4,130	2,510
23.....	5,930	3,140	4,520	3,530	2,150	1,940	1,140	980	1,940	4,800	3,660	2,370
24.....	5,930	3,660	4,100	3,300	3,070	1,640	1,410	825	1,920	3,430	3,320	3,660
25.....	6,690	2,780	3,690	3,120	4,690	1,640	1,410	856	1,390	4,570	3,660	5,340
26.....	6,230	2,550	4,520	3,040	5,400	1,880	1,360	810	1,160	8,630	3,320	6,050
27.....	5,780	2,330	24,800	3,040	4,970	2,150	1,410	592	2,110	21,200	2,690	6,570
28.....	5,490	3,020	35,600	6,880	27,500	2,710	1,180	887	996	13,900	2,640	5,550
29.....	5,060	-----	23,600	8,760	50,000	2,480	1,010	856	949	8,280	2,920	4,850
30.....	4,550	-----	17,400	7,190	25,500	1,940	966	796	1,220	5,840	3,140	4,490
31.....	4,430	-----	11,400	-----	15,100	-----	1,180	592	-----	4,570	-----	3,850

Monthly discharge of Juniata River at Newport, Pa., for 1913.

[Drainage area, 3,380 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).
	Maximum.	Minimum.	Mean.	Per square mile.	
January.....	23,100	4,430	8,420	2.49	2.87
February.....	4,770	2,180	2,990	.885	.92
March.....	37,300	2,460	7,420	2.20	2.54
April.....	9,410	3,040	5,070	1.50	1.67
May.....	50,000	2,000	6,640	1.96	2.26
June.....	11,600	1,640	3,180	.941	1.05
July.....	2,030	966	1,430	.423	.49
August.....	1,500	592	946	.280	.32
September.....	3,370	680	1,140	.337	.38
October.....	21,200	1,180	3,990	1.18	1.36
November.....	21,600	2,220	4,970	1.47	1.64
December.....	7,620	2,370	4,150	1.23	1.42
The year.....	50,000	592	4,210	1.25	16.92

PATUXENT RIVER BASIN.

PATUXENT RIVER NEAR BURTONSVILLE, MD.

Location.—At the Columbia turnpike bridge, $1\frac{1}{2}$ miles northeast of Burtonsville and about 4 miles northwest of Laurel.

Records available.—July 21 to December 31, 1913; July 21, 1911, to June 15, 1912, records furnished by the United States Engineer Office.

Drainage area.—127 square miles.

Gage.—Vertical staff fastened to left side of bridge pier, read once daily.

Channel and control.—Banks overflow at stage of about 10 feet; control is a gravel bar about 300 feet below bridge; current is swift under bridge but sluggish below bridge to control; discharge measurements 1911 to 1914 indicate that control remained practically permanent.

Discharge measurements.—Made from bridge or by wading.

Winter flow.—Affected by ice.

Accuracy.—Results fair; stream fluctuates rapidly and one gage reading daily may not be an accurate index of the mean daily flow.

The following discharge measurement was made by G. C. Stevens:

July 21, 1913: Gage height, 0.50 foot; discharge, 43.5 second-feet.

Daily gage height, in feet, and discharge, in second-feet, of Patuxent River near Burtonsville, Md., for 1913.

[Columbus Brashears, observer.]

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.....			0.50	43	0.75	80	0.50	43	0.65	64	0.70	72
2.....			6.5	1,620	.70	72	.75	80	.60	57	.70	72
3.....			7.6	2,010	.65	64	1.25	158	.60	57	.70	72
4.....			.70	72	.65	64	.70	72	.60	57	.65	64
5.....			.65	64	.65	64	.65	64	.60	57	.65	64
6.....			.55	50	.60	57	.60	57	.60	57	.65	64
7.....			.50	43	.55	50	.55	50	.60	57	.65	64
8.....			.60	57	.55	50	.60	57	.60	57	.80	87
9.....			.60	57	.50	43	.55	50	.80	87	.75	80
10.....			.65	64	.50	43	.55	50	.88	99	.75	80
11.....				200	.50	43	.55	50	.75	80	.70	72
12.....			1.5	203	.45	36	.60	57	.65	64	.70	72
13.....			.95	110	.45	36	.60	57	.60	57	.65	64
14.....			.75	80	.45	36	.55	50	.60	57	.65	64
15.....			.70	72	.45	36	.55	50	.60	57	.65	64
16.....			.65	64	.45	36	.50	43	1.45	194	.60	57
17.....			.65	64	.50	43	.50	43	1.6	222	.60	57
18.....			.65	64	.55	50	.55	50		176	.60	57
19.....			.65	64	.55	50	.60	57		141	.60	57
20.....			.60	57	.55	50	.90	102		115	.60	57
21.....	0.50	43	.60	57	.55	50	.80	87	.75	80	.60	57
22.....	.48	40	.65	64	3.2	605	.65	64	.70	72	1.05	126
23.....	.48	40	1.7	242	.75	80	.60	57	.70	72	.85	94
24.....	.48	40	1.65	232	.60	57	.60	57	.65	64	.80	87
25.....	.50	43	.60	57	.55	50	1.60	222	.60	57	.85	94
26.....	.45	36	.55	50	.55	50	.55	50	.60	57	2.7	474
27.....	.45	36	.55	50	.50	43	.75	80	.60	57	1.1	134
28.....	.45	36	.55	50	.50	43	.70	72	.65	64	.90	102
29.....	.45	36	.50	43	.50	43	.70	72	.75	80	.85	94
30.....	.55	50	5.5	1,290	.50	43	.70	72	.70	72	.80	87
31.....	.50	43	1.55	212			.70	72			.80	87

NOTE.—No readings obtained Aug. 11 and Nov. 18-20. Discharge determined from a rating curve well defined between 10 and 1,000 second-feet. Discharge estimated Aug. 11 and interpolated Nov. 18-20.

Monthly discharge of Patuxent River near Burtonsville, Md., for 1913.

[Drainage area, 127 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
July 21-31.....	50	36	40.3	0.317	0.13	A.
August.....	2,010	43	239	1.88	2.17	B.
September.....	605	36	68.9	.543	.61	B.
October.....	222	43	69.2	.545	.63	B.
November.....	222	57	82.9	.653	.73	B.
December.....	474	57	89.5	.705	.81	B.

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 Catoctin Creek and about 6 miles above Monocacy River.

Records available.—February 17, 1895, to December 31, 1913.

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 and control.—Practically permanent. The control is 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. The discharge is not included in the following tables.

Accuracy.—Results excellent except at extreme low water, when measuring conditions are not good.

Discharge measurements of Potomac River at Point of Rocks, Md., during 1913.

Date.	Made by—	Gage height.	Dis- charge.
Aug. 13	Padgett and Batchelder.....	<i>Feet.</i> 1.34	<i>Sec.-ft.</i> 3,170
29	G. C. Stevens.....	.98	1,880

Daily gage height, in feet, of Potomac River at Point of Rocks, Md., for 1913.

[G. H. Hickman, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.8	2.8	1.45	5.2	2.5	9.4	2.8	1.55	0.85	1.15	2.5	2.2
2.....	4.4	2.7	1.4	4.6	2.3	6.0	2.5	1.65	.74	.....	2.1	1.95
3.....	6.4	2.8	1.5	4.1	2.2	5.1	1.8	1.85	.92	1.75	2.1	2.0
4.....	3.9	2.6	1.7	3.8	2.2	4.2	1.7	2.0	.79	1.45	1.95	2.0
5.....	3.9	2.6	1.65	3.8	2.2	5.6	1.75	1.85	.76	1.2	1.7	2.1
6.....	3.8	2.6	1.6	3.6	2.2	4.9	1.9	1.85	.78	1.4	1.6	2.0
7.....	3.6	2.5	1.55	3.0	2.1	4.0	2.0	1.8	.79	1.1	1.55	2.5
8.....	3.9	2.4	1.55	3.0	2.0	3.2	1.9	1.65	.74	1.05	1.45	3.2
9.....	5.7	2.5	1.55	2.8	2.0	3.3	1.95	1.6	.89	1.05	1.75	4.1
10.....	5.3	2.6	1.6	2.8	1.8	2.9	1.6	1.45	.74	1.1	8.9	3.8
11.....	4.4	2.4	1.55	2.8	1.85	3.1	1.5	1.35	.63	1.05	9.7	3.1
12.....	4.4	2.5	1.5	2.7	1.7	2.9	2.9	1.45	.66	.84	5.9	2.7
13.....	4.0	2.3	2.0	3.3	1.65	2.8	2.5	1.3	.73	1.95	4.4	2.6
14.....	3.9	2.3	3.1	5.0	1.6	2.6	2.3	1.2	.74	1.8	3.2	2.5
15.....	3.4	2.3	4.9	6.1	1.75	2.3	1.9	1.25	.48	1.6	3.3	2.4
16.....	3.0	2.2	6.4	6.8	1.6	2.0	1.7	1.25	.78	1.4	4.5	2.2
17.....	2.9	2.1	6.9	10.8	1.85	2.0	1.55	1.0	.64	1.35	6.2	2.2
18.....	2.8	2.0	5.2	8.1	2.0	2.7	1.9	1.4	.78	1.4	6.2	1.95
19.....	3.0	1.95	4.4	5.6	2.3	2.2	2.0	1.6	.74	.93	5.4	1.9
20.....	2.9	1.95	3.8	5.1	2.4	1.5	1.9	1.2	.89	1.25	5.6	1.8
21.....	2.6	1.9	3.3	4.5	2.3	1.25	1.8	1.15	.93	1.5	4.4	1.75
22.....	2.5	1.85	3.2	4.0	2.3	1.45	1.7	1.05	1.2	2.5	3.4	1.9
23.....	2.4	1.85	2.8	3.6	2.2	1.6	1.55	1.35	1.3	2.9	2.8	2.0
24.....	2.4	1.85	2.8	3.2	3.0	1.55	1.5	1.2	1.35	2.7	2.4	2.0
25.....	2.3	1.85	2.2	3.0	9.2	1.35	1.55	1.1	1.65	2.6	3.5	1.95
26.....	2.5	1.65	2.4	2.9	6.9	2.1	1.4	1.05	1.45	4.5	2.6	2.1
27.....	2.6	1.55	5.8	3.0	5.2	2.7	1.45	1.1	1.2	8.4	2.3	5.7
28.....	2.7	1.5	17.5	3.0	10.5	1.55	1.4	1.1	.98	5.9	2.2	4.9
29.....	2.8	.....	16.0	3.0	11.3	2.3	1.35	1.05	.98	4.4	2.1	4.4
30.....	2.6	.....	9.5	2.8	7.7	3.0	1.3	.88	.99	3.4	2.1	3.8
31.....	2.6	.....	6.3	.....	6.0	.....	1.35	.86	.....	2.8	.....	3.4

Daily discharge, in second-feet, of Potomac River at Point of Rocks, Md., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	13,000	8,180	3,240	21,100	6,920	50,800	8,180	3,540	1,610	2,380	6,920	5,750
2.....	16,300	7,750	3,090	17,400	6,130	26,100	6,920	3,860	1,340	3,270	5,380	4,840
3.....	28,800	8,180	3,390	14,600	5,750	20,400	4,330	4,500	1,790	4,160	5,380	5,020
4.....	13,500	7,330	4,010	13,000	5,750	15,200	4,010	5,020	1,460	3,240	4,840	5,020
5.....	13,500	7,330	3,860	13,000	5,750	23,600	4,170	4,500	1,390	2,520	4,010	5,380
6.....	13,000	7,330	3,700	12,000	5,750	19,200	4,670	4,500	1,440	3,090	3,700	5,020
7.....	12,000	6,920	3,540	9,070	5,380	14,100	5,020	4,330	1,460	2,250	3,540	6,920
8.....	13,500	6,520	3,540	9,070	5,020	10,000	4,670	3,860	1,340	2,120	3,240	10,000
9.....	24,200	6,920	3,540	8,180	5,020	10,500	4,840	3,700	1,710	2,120	4,170	14,600
10.....	21,700	7,330	3,700	8,180	4,330	8,620	3,700	3,240	1,340	2,250	46,800	13,000
11.....	16,300	6,520	3,540	8,180	4,500	9,530	3,390	2,940	1,080	2,120	53,200	9,530
12.....	16,300	6,920	3,390	7,750	4,010	8,620	8,620	3,240	1,150	1,580	25,500	7,750
13.....	14,100	6,130	5,020	10,500	3,860	8,180	6,920	2,800	1,310	4,840	16,300	7,330
14.....	13,500	6,130	9,530	19,800	3,700	7,330	6,130	2,520	1,340	4,330	10,000	6,920
15.....	11,000	6,130	19,200	26,800	4,170	6,130	4,670	2,660	748	3,700	10,500	6,520
16.....	9,070	5,750	28,800	31,500	3,700	5,020	4,010	2,660	1,440	3,090	16,800	5,750
17.....	8,620	5,380	32,100	62,200	4,500	5,020	3,540	1,990	1,100	2,940	27,500	5,750
18.....	8,180	5,020	21,100	40,700	5,020	7,750	4,670	3,090	1,440	3,090	27,500	4,840
19.....	9,070	4,840	16,300	23,600	6,130	5,750	5,020	3,700	1,340	1,810	22,300	4,670
20.....	8,620	4,840	13,000	20,400	6,520	3,390	4,670	2,520	1,710	2,660	23,600	4,330
21.....	7,330	4,670	10,500	16,800	6,130	2,660	4,330	2,380	1,810	3,390	16,300	4,170
22.....	6,920	4,500	10,000	14,100	6,130	3,240	4,010	2,120	2,520	6,920	11,000	4,670
23.....	6,520	4,500	8,180	12,000	5,750	3,700	3,540	2,940	2,800	8,620	8,180	5,020
24.....	6,520	4,500	8,180	10,000	9,070	3,540	3,390	2,520	2,940	7,750	6,520	5,020
25.....	6,130	4,500	5,750	9,070	49,200	2,940	3,540	2,250	3,860	7,330	11,500	4,840
26.....	6,920	3,860	6,520	8,620	32,100	5,380	3,090	2,120	3,240	16,800	7,330	5,380
27.....	7,330	3,540	24,800	9,070	21,100	7,750	3,240	2,250	2,520	43,000	6,130	24,200
28.....	7,750	3,390	118,000	9,070	59,800	3,540	3,090	2,250	1,940	25,500	5,750	19,200
29.....	8,180	.....	105,000	9,070	66,400	6,130	2,940	2,120	1,940	16,300	5,380	16,300
30.....	7,330	.....	51,600	8,180	37,800	9,070	2,800	1,680	1,960	11,000	5,380	13,000
31.....	7,330	.....	28,100	.....	26,100	.....	2,940	1,640	.....	8,180	.....	11,000

NOTE.—Discharge determined from a rating curve well defined except at extreme low stages.

Monthly discharge of Potomac River at Point of Rocks, Md., for 1913.

[Drainage area, 9,650 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	28,800	6,130	11,700	1.21	1.40	A.
February.....	8,180	3,390	5,890	.610	.64	A.
March.....	118,000	3,090	18,200	1.89	2.18	A.
April.....	62,200	7,750	16,100	1.67	1.86	A.
May.....	66,400	3,700	13,600	1.41	1.63	A.
June.....	50,800	2,660	10,400	1.08	1.20	A.
July.....	8,620	2,800	4,490	.465	.54	A.
August.....	5,020	1,640	3,010	.312	.36	A.
September.....	3,860	748	1,770	.183	.20	B.
October.....	43,000	1,580	6,850	.710	.82	A.
November.....	53,200	3,240	13,500	1.40	1.56	A.
December.....	24,200	4,170	8,120	.841	.97	A.
The year.....	118,000	748	9,490	.983	13.36	

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 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, 1913.

Drainage area.—660 square miles.

Gage.—Chain attached to downstream side of right span of the bridge.

Channel and control.—Banks lined with trees and brush and overflow at high stages.

Control composed of gravel and bowlders, shifting during extreme floods.

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

Winter flow.—Affected by ice only during severe winters.

Accuracy.—Results fair.

Discharge measurements Monocacy River near Frederick, Md., during 1913.

Date.	Made by—	Gage height.	Dis- charge.	Date.	Made by—	Gage height.	Dis- charge.
Aug. 14 28	Padgett and Batchelder G. C. Stevens.....	<i>Feet.</i> 3.99 3.67	<i>Sec.-ft.</i> 166 75.8	Aug. 28	G. C. Stevens.....	<i>Feet.</i> 3.67	<i>Sec.-ft.</i> 76.0

Daily gage height, in feet, of Monocacy River near Frederick, Md., for 1913.

[Eugene L. Derr, observer.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	8.9	6.5	5.9	7.2	.....	5.6	4.4	5.4	4.05	7.8	5.15	5.15
2.....	8.5	6.1	5.5	6.5	.....	5.4	4.4	7.8	4.05	8.7	4.95	5.05
3.....	10.5	5.8	5.4	6.9	.....	5.2	4.3	5.1	3.95	5.85	4.85	4.95
4.....	8.9	6.7	5.1	6.7	.....	5.1	4.3	4.8	3.85	5.35	4.85	4.95
5.....	8.1	6.6	5.1	6.5	5.3	5.0	4.3	4.4	3.85	4.85	4.75	4.85
6.....	7.9	5.7	5.0	6.4	5.1	4.9	4.6	4.2	3.85	4.55	4.75	4.85
7.....	7.3	5.6	4.9	6.2	5.1	4.9	4.5	4.0	3.85	4.35	4.65	8.0
8.....	8.7	5.6	4.7	5.9	5.1	4.8	4.4	4.0	3.85	4.35	4.65	7.8
9.....	7.5	5.5	4.7	5.7	5.0	4.8	4.3	4.0	3.75	4.25	5.15	6.2
10.....	6.5	5.4	4.7	5.6	4.9	4.7	4.3	4.0	3.75	4.25	5.75	5.95
11.....	6.4	5.4	6.7	5.6	4.9	4.7	4.3	5.0	3.75	4.55	5.25	5.75
12.....	8.1	5.3	5.9	10.0	4.9	4.7	4.3	4.9	3.75	4.95	5.15	5.55
13.....	7.2	4.6	5.6	9.9	4.9	4.6	4.3	4.8	3.75	4.75	5.05	5.35
14.....	6.1	4.5	16.0	9.7	4.9	4.5	4.3	4.2	3.75	4.35	4.95	5.25
15.....	5.9	5.3	11.2	10.5	4.9	4.5	4.3	4.15	3.75	4.25	4.95	5.15
16.....	6.4	5.2	12.5	9.2	4.9	4.5	4.3	4.15	3.75	4.15	6.8	5.05
17.....	8.2	5.2	8.6	8.5	5.0	4.5	4.2	4.05	3.75	4.15	8.0	4.95
18.....	7.1	5.1	7.1	7.1	5.3	4.4	4.2	4.05	3.75	4.15	5.95	4.85
19.....	6.9	5.2	6.7	6.9	5.1	4.4	4.2	4.05	3.85	4.15	5.85	4.85
20.....	6.4	5.2	6.5	6.4	4.9	4.4	4.2	5.05	4.05	4.45	5.65	4.75
21.....	6.2	5.3	6.4	6.3	4.9	4.4	4.1	4.35	5.6	4.85	5.35	4.75
22.....	6.2	5.7	6.2	5.9	4.9	5.5	4.1	4.25	10.6	4.95	5.25	4.75
23.....	6.1	6.3	5.9	5.8	5.9	4.6	4.0	4.25	5.75	4.85	5.15	6.4
24.....	6.1	5.8	5.8	5.8	6.9	4.6	4.0	4.15	4.55	4.75	4.95	10.8
25.....	6.0	5.4	5.8	5.8	6.5	4.6	3.9	4.15	5.35	13.6	4.85	10.2
26.....	6.0	5.2	6.9	5.8	5.5	4.7	3.9	4.15	4.15	12.2	4.75	13.6
27.....	6.0	5.2	18.5	5.8	7.5	4.6	3.8	4.05	4.05	9.2	4.75	8.8
28.....	6.4	5.7	18.7	7.2	7.4	4.5	3.9	4.05	4.05	8.2	4.75	8.0
29.....	6.3	.....	9.1	6.2	6.9	4.4	3.9	4.05	3.95	5.85	5.25	6.8
30.....	6.3	.....	8.5	6.1	6.4	4.4	3.9	4.15	3.95	5.55	5.15	5.95
31.....	6.2	.....	7.5	.....	6.2	.....	4.9	4.05	.....	5.25	.....	5.55

NOTE.—Gage out of repair May 1-4.

Daily discharge, in second-feet, of Monocacy River near Frederick, Md., for 1912-13.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1912.												
1.....	3,800	643	1,960	2,040	1,180	331	331	259	139	1,050	167	167
2.....	1,960	643	1,470	1,880	695	294	259	331	139	749	167	167
3.....	1,180	643	983	2,860	593	259	227	227	139	498	197	197
4.....	1,050	593	805	1,320	545	259	227	197	227	453	197	259
5.....	922	643	593	1,180	498	259	259	139	197	411	197	259
6.....	805	-----	695	1,110	498	259	227	167	167	370	197	498
7.....	-----	-----	805	983	1,110	259	227	139	167	331	197	1,390
8.....	-----	-----	1,110	2,580	983	259	197	139	197	294	1,960	411
9.....	-----	-----	1,250	1,470	1,320	259	167	259	167	294	1,050	370
10.....	-----	-----	1,180	1,180	1,110	227	139	259	139	259	453	331
11.....	-----	-----	1,050	1,050	695	197	167	3,420	139	259	453	259
12.....	-----	-----	863	749	863	197	259	2,860	113	259	370	197
13.....	-----	-----	7,780	749	1,180	197	498	1,470	68	259	294	139
14.....	-----	-----	8,100	1,470	695	197	370	331	68	227	259	139
15.....	-----	-----	11,900	922	695	197	259	227	68	227	227	197
16.....	-----	-----	14,000	1,620	695	370	227	227	68	197	227	197
17.....	-----	-----	4,000	1,540	1,960	331	227	197	68	197	227	197
18.....	-----	498	2,860	1,880	1,470	294	2,950	197	68	197	197	227
19.....	-----	453	2,580	1,620	695	294	2,040	197	113	197	197	545
20.....	-----	1,620	2,400	1,110	498	294	370	197	89	197	197	498
21.....	-----	1,960	3,040	983	545	259	370	294	89	197	197	453
22.....	-----	13,000	2,670	805	498	227	1,050	227	89	227	197	453
23.....	-----	3,330	1,960	749	453	227	643	197	126	259	197	453
24.....	-----	1,620	7,160	643	411	227	593	197	1,540	331	197	498
25.....	-----	1,180	6,240	593	411	453	863	197	17,400	331	197	593
26.....	-----	8,420	3,800	593	370	453	593	167	13,000	259	197	643
27.....	-----	9,780	2,760	863	294	2,130	411	139	2,310	227	197	1,050
28.....	-----	593	3,800	805	294	695	331	139	1,960	227	197	1,320
29.....	-----	593	3,240	12,500	749	294	453	259	139	1,470	227	167
30.....	-----	593	-----	5,140	1,470	370	370	331	139	1,180	197	4,850
31.....	-----	593	-----	2,860	-----	370	-----	294	139	-----	-----	9,360
1913.												
1.....	3,240	1,180	805	1,700	837	643	167	545	78	2,220	432	432
2.....	2,860	922	593	1,180	752	545	167	2,220	78	3,040	350	390
3.....	4,760	749	545	1,470	667	453	139	411	59	777	312	350
4.....	3,240	1,320	411	1,320	582	411	139	294	43	522	312	350
5.....	2,490	1,250	411	1,180	498	370	139	167	43	312	276	312
6.....	2,310	695	370	1,110	411	331	227	113	43	212	276	312
7.....	1,790	643	331	983	411	331	197	68	43	153	243	2,400
8.....	3,040	643	259	805	411	294	167	68	43	153	243	2,220
9.....	1,960	593	259	695	370	294	139	68	30	126	432	983
10.....	1,180	545	259	643	331	259	139	68	30	126	722	834
11.....	1,110	545	1,320	643	331	259	139	370	30	212	476	722
12.....	2,490	498	805	4,280	331	259	139	331	30	350	432	618
13.....	1,700	227	643	4,180	331	227	139	294	30	276	390	522
14.....	922	197	10,400	4,000	331	197	139	113	30	153	350	476
15.....	805	498	5,440	4,760	331	197	139	101	30	126	350	432
16.....	1,110	453	6,740	3,520	331	197	139	101	30	101	1,390	390
17.....	2,580	453	2,950	2,860	370	197	113	78	30	101	2,400	350
18.....	1,620	411	1,620	1,620	498	167	113	78	30	101	834	312
19.....	1,470	453	1,320	1,470	411	167	113	78	43	101	777	312
20.....	1,110	453	1,180	1,110	331	167	113	390	78	182	669	276
21.....	983	498	1,110	1,050	331	167	89	153	643	312	522	276
22.....	983	695	983	805	331	593	89	126	4,850	350	476	276
23.....	922	1,050	805	749	805	227	68	126	722	312	432	1,110
24.....	922	749	749	749	1,470	227	68	101	212	276	350	5,040
25.....	863	545	749	749	1,180	227	50	101	522	7,890	312	4,470
26.....	863	453	1,470	749	593	259	50	101	101	6,440	276	7,890
27.....	863	453	13,000	749	1,960	227	36	78	78	3,520	276	3,140
28.....	1,110	695	13,200	1,700	1,880	197	50	78	78	2,580	276	2,400
29.....	1,050	-----	3,420	983	1,470	167	50	78	59	777	476	1,390
30.....	1,050	-----	2,860	922	1,110	167	50	101	59	618	432	834
31.....	983	-----	1,960	-----	983	-----	331	78	-----	476	-----	618

NOTE.—Discharge determined from a rating curve fairly well defined for 1912; well defined between 50 and 140 second-feet and fairly well defined above 140 second-feet for 1913. Mean discharge Jan. 7-27, 1912, estimated at 600 second-feet; Feb. 6-17, 1912, at 450 second-feet. Discharge interpolated May 1-4, 1913. Discharges for 1912 supersede those published in Water-Supply Paper 321, pp. 222-223.

Monthly discharge of Monocacy River near Frederick, Md., for 1912-13.

[Drainage area, 660 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
1912.						
January.....	3,800	.....	796	1.21	1.40	D.
February.....	13,000	.....	1,980	3.00	3.24	D.
March.....	14,000	593	3,750	5.68	6.55	B.
April.....	2,860	593	1,250	1.89	2.11	B.
May.....	1,960	294	719	1.09	1.26	B.
June.....	2,130	197	358	.542	.60	B.
July.....	2,650	139	496	.750	.86	B.
August.....	3,420	139	433	.656	.76	B.
September.....	17,400	68	1,390	2.11	2.35	B.
October.....	1,050	167	309	.468	.54	B.
November.....	1,960	167	311	.471	.52	B.
December.....	9,360	139	877	1.33	1.53	B.
The year.....	17,400	68	1,050	1.59	21.72	
1913.						
January.....	4,760	805	1,690	2.56	2.95	B.
February.....	1,320	197	638	.967	1.01	C.
March.....	13,200	259	2,480	3.76	4.34	B..
April.....	4,760	643	1,620	2.45	2.73	B.
May.....	1,960	331	677	1.03	1.19	B.
June.....	643	167	281	.426	.48	B.
July.....	331	36	124	.188	.22	A.
August.....	2,220	68	228	.345	.40	B.
September.....	4,850	30	272	.412	.46	B.
October.....	7,890	101	1,060	1.61	1.86	B.
November.....	2,400	243	516	.782	.87	B.
December.....	7,890	276	1,300	1.97	2.27	B.
The year.....	13,200	30	913	1.38	18.60	

OCCOQUAN CREEK NEAR OCCOQUAN, VA.

Location.—At Frank Davis's farm, about half a mile above Beaverdam Creek, and about $4\frac{1}{2}$ miles upstream and northwest of Occoquan.

Records available.—February 14 to December 31, 1913.

Drainage area.—546 square miles.

Gage.—Friez automatic on left bank installed April 27, 1913, referred to an inclined staff on left bank about 150 feet upstream. Previous to this date a temporary vertical staff on opposite bank.

Channel and control.—Large rocks; practically permanent.

Discharge measurements.—Made from cable about 75 feet below the automatic gage, or by wading.

Winter flow.—Affected by ice.

Accuracy.—Results good.

Discharge measurements of Occoquan Creek near Occoquan, Va., during 1913.

Date.	Made by—	Gage height.	Dis- charge.	Date.	Made by—	Gage height.	Dis- charge.
		<i>Feet.</i>	<i>Sec.-ft.</i>			<i>Feet.</i>	<i>Sec.-ft.</i>
May 10	G. C. Stevens.....	2.62	117	July 7	M. I. Walters.....	2.14	64.4
27	Stevens and Walters...	4.06	517	14	Batchelder and Walters	1.96	38.6
June 3	G. C. Stevens.....	3.34	280	22	C. L. Batchelder.....	1.94	37.0
5	M. I. Walters.....	3.02	208	Aug. 27	J. G. Mathers.....	1.59	16.8
21	Mathers and Fadgett...	2.23	60.2				

Daily gage height, in feet, of Occoquan Creek near Occoquan, Va., for 1913.

[W. V. Davis and Sadie Bradley, observers.]

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.			3.17	4.0	3.07		2.24	1.96	1.63	6.0	2.28	2.52
2.			2.89	3.62	2.96		2.17	4.25	1.59	3.21	2.20	2.47
3.			2.75	3.44	2.91	3.35	2.16	2.81	1.55	3.04	2.15	2.43
4.			2.65	3.36			2.17	2.37	1.52	2.52	2.10	2.40
5.			2.59	3.33		3.02		2.09	1.50	2.22	2.05	2.33
6.			2.58	3.25				1.98	1.49	2.07	2.00	2.26
7.			2.53	3.07			2.13	1.91	1.49	1.92	2.00	2.27
8.			2.47	2.99			2.01	1.86	1.48	1.82	2.00	2.29
9.			2.41	2.91			1.96	1.85	1.48	1.80	2.10	2.35
10.			2.43	2.87	2.60		2.07	1.82	1.45	1.80	3.01	2.35
11.			2.65	2.85	2.55		2.05	1.92	1.44	1.79	2.88	2.24
12.			3.44	14.2	2.50	2.57	1.98	2.02	1.41	1.74	2.59	2.19
13.			3.03	16.6	2.49		1.99	2.10	1.39	1.83	2.43	2.15
14.		3.2	11.5	11.3	2.53		1.96	2.03	1.39	2.04	2.34	2.13
15.		2.92	10.2	6.8	2.59		1.93	1.99	1.39	1.93	2.23	2.11
16.		2.91	8.2	8.7	2.65	2.40	1.96	1.99	1.39	1.88	2.60	2.05
17.		2.88	5.45	9.2			1.95	1.95	1.39	1.83	5.1	2.07
18.		2.91	4.55	5.45		2.40	1.97	1.90	1.39	1.80	3.64	2.06
19.		2.87	4.15	4.9		2.31	2.00	1.89	1.41	1.82	3.15	2.07
20.		2.79	4.15	4.15		2.26	2.04	1.83	1.45	1.90	2.92	2.06
21.		2.81	5.1	3.87		2.23	2.07	1.78	1.72	2.58	2.74	2.07
22.		2.88	4.55	3.79		2.25	1.93	1.74	4.8	2.34	2.56	2.08
23.		2.88	3.88	3.69		2.29	1.91	1.74	2.94	2.13	2.49	2.08
24.		2.79	3.59	3.57		2.27	1.83	1.74	2.40	2.07	2.38	3.21
25.		2.69	3.51	3.45		2.45	1.90	1.73	2.09	3.79	2.29	3.92
26.		2.61	3.56	3.33		3.41	1.95	1.69	1.94	5.8	2.26	9.6
27.		2.63	10.0	3.27	4.1	3.11	1.87	1.60	1.82	3.71	2.21	6.0
28.		2.79	6.8	3.48		2.61	1.89	1.59	1.74	3.04	2.23	4.2
29.			4.9	3.37		2.45	2.01	1.58	1.71	2.73	2.31	3.69
30.			4.35	3.19		2.32	1.88	1.59	1.70	2.51	2.46	3.47
31.			4.45				1.85	1.68		2.38		3.22

NOTE.—Temporary staff gage used Feb. 14 to Apr. 26. Beginning Apr. 27 records are from automatic gage, except for May 27, June 3, 5, 12, 16, and 18, which were read on staff gages.

Daily discharge, in second-feet, of Occoquan Creek near Occoquan, Va., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.			241	500	216	360	65	38	19	1,460	70	103
2.			174	371	189	340	57	590	17	252	60	96
3.			144	317	178	290	56	156	15	208	55	90
4.			125	293	170	246	57	81	14	103	50	85
5.			114	284	161	203	56	49	13	62	46	76
6.			113	262	152	175	54	40	13	47	41	67
7.			105	216	143	225	53	35	13	35	41	68
8.			96	196	134	200	42	32	12	29	41	71
9.			86	178	125	175	38	31	12	28	50	78
10.			90	169	116	155	47	29	12	28	200	78
11.			125	165	108	135	46	35	11	27	172	65
12.			317	10,100	100	111	40	43	10	24	114	59
13.			206	13,600	98	104	40	50	9.7	30	90	55
14.		249	6,570	6,330	105	98	38	44	9.7	45	77	53
15.		180	5,080	2,080	114	91	36	40	9.7	36	64	51
16.		178	3,210	3,660	125	85	38	40	9.7	33	116	46
17.		172	1,200	4,110	115	85	38	38	9.7	30	965	47
18.		178	718	1,200	135	85	39	34	9.7	28	377	46
19.		169	552	895	115	73	41	33	10	29	236	47
20.		152	552	552	115	67	45	30	12	34	180	46
21.		156	1,000	454	100	64	47	27	23	113	142	47
22.		172	718	426	115	66	36	24	840	77	110	48
23.		172	458	392	6,000	71	35	24	185	53	98	48
24.		152	362	356	13,000	68	30	24	85	47	82	252
25.		132	338	320	6,000	92	34	24	49	422	71	467
26.		118	353	284	2,200	308	38	22	37	1,340	67	4,480
27.		121	4,880	267	535	226	32	17	29	398	61	1,460
28.		152	2,080	329	700	118	33	17	24	208	64	565
29.			895	296	790	92	42	16	23	140	73	392
30.			630	246	500	75	33	17	22	102	94	326
31.			672		430		31	21		82		254

NOTE.—Discharge determined from a well-defined rating curve. Discharge interpolated May 4-9, June 4, 13-15, and July 5-6. Discharge May 17-26, May 28 to June 2, and June 6-11, estimated from rainfall records.

Monthly discharge of Occoquan Creek near Occoquan, Va., for 1913.

[Drainage area, 546 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
February 14-28.....	249	118	164	0.300	0.17	A.
March.....	6,570	86	1,040	1.90	2.19	A.
April.....	13,600	165	1,630	2.99	3.34	B.
May.....	13,000	98	1,070	1.96	2.26	C.
June.....	360	64	149	.273	.30	B.
July.....	65	31	42.5	.078	.09	A.
August.....	590	16	54.9	.101	.12	A.
September.....	840	9.7	51.9	.095	.11	B.
October.....	1,460	24	179	.328	.38	A.
November.....	965	41	130	.238	.27	A.
December.....	4,480	46	312	.571	.66	A.

NOTE.—See footnotes to table of daily discharge.

RAPPAHANNOCK RIVER BASIN.

RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA.

Location.—About $3\frac{1}{2}$ miles above Fredericksburg, and about $1\frac{1}{2}$ miles above the dam of the Spottsylvania Power Co.

Records available.—September 19, 1907, to December 31, 1913.

Drainage area.—1,590 square miles.

Gage.—Vertical staff installed November 4, 1913, to replace chain gage destroyed October 31, 1913. Original gage was a vertical staff, which was destroyed February 14, 1908, and replaced February 20, 1908, by a chain gage under the cable. All three gages were referred to the same datum and the locations were practically the same.

Channel and control.—Practically permanent. Current sluggish at extreme low water.

Discharge measurements.—Made from cable at the gage. At extreme low water measurements can be made by wading or from a bridge over the power canal.

Winter flow.—Not often affected by ice.

Accuracy.—Results good.

Discharge measurements of Rappahannock River near Fredericksburg, Va., during 1913.

Date.	Made by—	Gage height.	Dis- charge.
Sept. 3	G. C. Stevens ^a	<i>Feet.</i> 0.64	<i>Sec.-ft.</i> 166
10	do.....	.56	132

^a Assisted by Cecil L. Reid, engineer for Spottsylvania Power Co.

^b Discharge is mean of four discharge measurements made on power canal just below dam. Entire flow of river was diverted into power canal.

Daily gage height, in feet, of Rappahannock River near Fredericksburg, Va., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	3.7	2.25	1.85	2.6	2.15	3.2	1.75	1.08	0.61	0.68	.....	1.5
2.....	2.9	2.15	1.75	2.4	2.1	2.8	1.6	1.20	.59	1.8	.....	1.47
3.....	3.1	2.05	1.65	2.3	2.05	2.5	3.4	1.02	.64	1.13	.....	1.44
4.....	4.0	3.0	1.6	2.25	2.0	4.5	2.1	.98	.61	.99	1.16	1.44
5.....	3.2	2.8	1.6	2.35	2.7	4.1	1.65	.99	.58	.93	1.15	1.40
6.....	2.7	2.5	1.6	2.2	2.1	3.0	1.6	.93	.58	.84	1.11	1.36
7.....	2.5	2.35	1.55	2.05	1.95	2.8	1.9	.92	.64	.78	1.04	1.39
8.....	2.5	2.15	1.48	2.0	1.9	2.7	1.65	.84	.64	.73	1.06	1.34
9.....	2.45	2.1	1.5	2.0	1.85	2.6	1.5	.88	.51	.70	1.16	1.42
10.....	2.3	2.05	1.55	1.95	1.9	2.4	1.55	.94	.57	.76	3.9	1.34
11.....	2.2	2.0	1.85	1.9	1.75	2.15	2.3	.91	.51	.81	2.5	1.31
12.....	2.15	2.0	2.15	7.3	1.65	2.05	2.25	.98	.48	1.01	2.05	1.26
13.....	2.15	1.95	2.15	9.8	1.75	2.0	1.8	1.12	.70	1.01	1.8	1.22
14.....	2.0	1.8	6.2	6.5	1.7	1.9	1.7	1.19	.58	.92	1.7	1.24
15.....	1.95	1.75	7.4	4.6	1.75	1.8	1.5	1.19	.60	.87	1.6	1.24
16.....	1.9	1.75	5.1	4.5	1.8	1.75	1.41	1.08	.62	.79	1.65	1.24
17.....	1.9	1.8	4.1	4.9	2.0	1.7	1.36	1.02	.58	.74	1.85	1.26
18.....	1.9	1.8	3.3	4.0	1.9	1.65	1.39	.94	.64	.76	1.9	1.24
19.....	1.9	1.75	3.0	3.5	1.85	1.6	1.46	.88	.66	.83	1.7	1.14
20.....	1.85	1.7	2.9	3.2	1.75	1.55	1.42	.90	.64	.88	1.55	1.20
21.....	1.8	1.75	2.8	2.9	1.75	1.55	1.34	1.19	.84	1.34	1.55	1.20
22.....	1.75	1.75	2.8	2.8	1.65	1.55	1.55	1.13	1.65	1.6	1.5	1.18
23.....	1.75	1.75	2.7	2.7	2.15	1.5	1.30	.97	1.7	1.27	1.44	1.18
24.....	1.9	1.7	2.4	2.6	9.3	1.7	1.21	.98	1.13	1.18	1.38	1.9
25.....	2.3	1.65	2.35	2.5	5.0	2.15	1.17	.88	.92	2.3	1.31	2.1
26.....	2.6	1.6	2.3	2.45	3.2	3.0	1.22	.84	.82	2.7	1.25	4.4
27.....	2.25	1.65	3.2	2.4	2.7	2.8	1.18	.80	.73	2.2	1.34	3.5
28.....	3.7	1.75	4.1	2.4	4.2	2.9	1.13	.73	.71	1.8	1.35	2.8
29.....	2.9	.....	3.5	2.4	3.8	2.15	1.08	.70	.70	1.55	1.5	2.2
30.....	2.5	.....	3.0	2.25	3.25	1.9	1.09	.70	.64	1.42	1.6	2.1
31.....	2.35	.....	2.8	.....	3.6	.....	1.11	.66	.....	1.20	.....	2.0

NOTE.—Gage was destroyed on Oct. 31 and replaced Nov. 4.

Daily discharge, in second-feet, of Rappahannock River near Fredericksburg, Va., for 1913.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1.....	4,370	1,700	1,160	2,240	1,560	3,290	1,040	382	148	172	462	750
2.....	2,740	1,560	1,040	1,920	1,480	2,570	860	470	141	1,100	455	718
3.....	3,100	1,420	918	1,770	1,420	2,080	3,700	342	158	418	448	687
4.....	5,100	2,920	860	1,700	1,350	6,480	1,480	317	148	323	440	687
5.....	3,290	2,570	860	1,840	2,400	5,360	918	323	138	288	432	645
6.....	2,400	2,080	860	1,620	1,480	2,920	860	288	138	240	402	607
7.....	2,080	1,840	805	1,420	1,280	2,570	1,220	282	158	212	355	636
8.....	2,080	1,560	729	1,350	1,220	2,400	918	240	158	191	369	588
9.....	2,000	1,480	750	1,350	1,160	2,240	750	260	118	179	440	666
10.....	1,770	1,420	805	1,280	1,220	1,920	805	294	135	204	4,850	588
11.....	1,620	1,350	1,160	1,220	1,040	1,560	1,770	276	118	225	2,080	560
12.....	1,560	1,350	1,560	17,200	918	1,420	1,700	317	110	336	1,420	518
13.....	1,560	1,280	1,560	29,800	1,040	1,350	1,100	410	179	336	1,100	486
14.....	1,350	1,100	12,400	13,700	975	1,220	975	462	138	282	975	502
15.....	1,280	1,040	17,700	6,770	1,040	1,100	750	462	144	255	860	502
16.....	1,220	1,040	8,340	6,480	1,100	1,040	656	382	151	216	918	502
17.....	1,220	1,100	5,360	7,690	1,350	975	607	342	138	195	1,460	518
18.....	1,220	1,100	3,490	5,100	1,220	918	636	294	158	204	1,220	502
19.....	1,220	1,040	2,920	3,920	1,160	860	708	260	165	235	975	425
20.....	1,160	975	2,740	3,290	1,040	805	666	270	158	260	805	470
21.....	1,100	1,040	2,570	2,740	1,040	805	588	462	240	588	805	470
22.....	1,040	1,040	2,570	2,570	918	805	805	418	918	860	750	455
23.....	1,040	1,040	2,400	2,400	1,560	750	550	311	975	526	687	455
24.....	1,220	975	1,920	2,240	27,200	975	478	317	418	455	626	1,220
25.....	1,770	918	1,840	2,080	8,010	1,560	448	260	282	1,770	560	1,480
26.....	2,240	860	1,770	2,000	3,290	2,920	486	240	230	2,400	510	6,190
27.....	1,700	918	3,290	1,920	2,400	2,570	455	220	191	1,620	588	3,920
28.....	4,370	1,040	5,360	1,920	5,630	2,740	418	191	183	1,100	598	2,570
29.....	2,740	.....	3,920	1,920	4,610	1,560	382	179	179	805	750	1,620
30.....	2,080	.....	2,920	1,700	3,390	1,220	388	179	158	666	860	1,480
31.....	1,840	.....	2,570	.....	4,140	.....	402	165	.....	470	.....	1,350

NOTE.—Discharge determined from a rating curve well defined above 500 second-feet and fairly well defined below.

Monthly discharge of Rappahannock River near Fredericksburg, Va., for 1913.

[Drainage area, 1,590 square miles.]

Month.	Discharge in second-feet.				Run-off (depth in inches on drainage area).	Accu- racy.
	Maximum.	Minimum.	Mean.	Per square mile.		
January.....	5,100	1,040	2,050	1.29	1.49	A.
February.....	2,920	860	1,350	.849	.88	A.
March.....	17,700	729	3,130	1.97	2.27	A.
April.....	29,800	1,220	4,440	2.79	3.11	A.
May.....	27,200	918	2,830	1.78	2.05	A.
June.....	6,480	750	1,970	1.24	1.38	A.
July.....	3,700	382	888	.558	.64	A.
August.....	470	165	310	.195	.22	B.
September.....	975	110	222	.140	.16	B.
October.....	2,400	172	553	.348	.40	A.
November.....	4,850	355	897	.564	.63	A.
December.....	6,190	425	1,060	.667	.77	A.
The year.....	29,800	110	1,640	1.03	14.00	

MISCELLANEOUS MEASUREMENTS.

Miscellaneous measurements in North Atlantic Coast basins in 1913.

Date.	Stream.	Tributary to—	Locality.	Gage height.	Dis- charge.
Sept. 3	French River.....	Quinebaug River.....	Perryville, Mass.....	<i>Feet.</i> 3.83	<i>Sec.-ft.</i> 100
3	do.....	do.....	do.....	3.73	59
June 28	Connecticut River.....	Atlantic Ocean.....	Bellows Falls, Vt.....	46.656	3,030
28	do.....	do.....	do.....	46.653	3,020
July 20 ^a	do.....	do.....	Vernon, Vt.....		330
Oct. 2	Chicopee River.....	Connecticut River.....	Red Bridge, Mass.....		b 383
2	do.....	do.....	do.....		c 285
3	do.....	do.....	do.....		d 227
3	do.....	do.....	do.....		e 248
3	do.....	do.....	do.....		f 336
3	do.....	do.....	do.....		g 408
4	do.....	do.....	do.....		h 206
4	do.....	do.....	do.....		i 156
4	do.....	do.....	do.....		j 74
5	do.....	do.....	do.....		k 28
Mar. 11	West Branch of Delaware River.....	Delaware River.....	Former station at Han- cock, N. Y.....	4.86	1,760
May 12	do.....	do.....	do.....	3.10	268
Mar. 10	East Branch of Delaware River.....	do.....	do.....	4.20	1,930
May 12	do.....	do.....	do.....	3.55	823
July 16	Goose Creek.....	Potomac River.....	Former station near Leesburg, Va.....	.68	40.5

^a Measurement made 1,500 feet below Vernon dam. All wheel gates closed at dam.^b Discharge through two 36-inch wheels at full gate opening under 49.2 feet head.^c Discharge through two 36-inch wheels at 0.605 gate opening under 49.9 feet head.^d Discharge through two 36-inch wheels at 0.43 gate opening under 50.3 feet head.^e Discharge through two 36-inch wheels at 0.70 gate opening under 50.6 feet head.^f Discharge through two 36-inch wheels at 0.85 gate opening under 50.7 feet head.^g Discharge through two 36-inch wheels at full gate opening under 50.6 feet head.^h Discharge through two 36-inch wheels at 0.58 gate opening under 51.1 feet head.ⁱ Discharge through two 36-inch wheels at 0.26 gate opening under 51.3 feet head.^j Discharge through two 15-inch wheels at 0.575 gate opening under 51.6 feet head.^k Leakage through wheels, headgates open and wheel gates closed.

INDEX.

A.	Page.
Accuracy of data and results, indication of.....	16-17
Acknowledgments for financial aid.....	17
Alplaus Kill near Charlton, N. Y.....	138-139
Amherst, Maine, Union River at.....	24-26
Androscoggin River at Errol Dam, N. H.....	56-57
at Rumford Falls, Maine.....	57-58
Androscoggin River basin, gaging records in.....	56-58
Authority for the work.....	7

B.	Page.
Bangor, Maine, Kenduskeag Stream near.....	41-42
Beaver Kill at Cooks Falls, N. Y.....	154
Bel lows Falls, Vt., Connecticut River at.....	185
Bennetts Bridge, Conn., Pomperaug River at.....	107-108
Blackbridge, near Wells, N. Y., West Branch of Sacandaga River at.....	127-129
Blackstone River basin, gaging records in.....	73-74
Borden Brook near Westfield, Mass.....	100-102
Branch Lake near Ellsworth, Maine.....	28
Branch Lake Stream near Ellsworth, Maine..	29-31
Branch River at Branch Village, R. I.....	73-74
Branch Village, R. I., Branch River at.....	73-74
Burtonsville, Md., Patuxent River near...	175-176

C.	Page.
Cedar River near Indian Lake, N. Y.....	116-118
Charlemont, Mass., Deerfield River at.....	86-87
Charlton, N. Y., Alplaus Kill near.....	138-139
Chemung, N. Y., Chemung River at.....	169-170
Chemung River at Chemung, N. Y.....	169-170
Chenango Forks, N. Y., Chenango River near.....	167-168
Chicopee River at Red Bridge, Mass.....	185
Clinton, Mass., South branch of Nashua River (Wachusett drainage area) at.....	70-71
Cobbosseecontee Stream at Gardiner, Maine..	54-55
Cochituate, Mass., Lake Cochituate at.....	71-73
Conklin, N. Y., Susquehanna River at.....	158-160
Connecticut River at Bel lows Falls, Vt.....	185
at Orford, N. H.....	74-76
at Sunderland, Mass.....	76-78
at Vernon, Vt.....	185
Connecticut River basin, gaging records in...	74-104
Cooks Falls, N. Y., Beaver Kill at.....	154
Cooperation, statement of.....	17

D.	Page.
Danville, Pa., Susquehanna River at.....	163-164
Data, explanation of.....	14-16
Dead River at The Forks, Maine.....	48-50
Deerfield River at Charlemont, Mass.....	86-87
at Hoosac Tunnel, Mass.....	82-85
at Shelburne Falls, Mass.....	87-88

Page.	Page.
Delaware River at Port Jervis, N. Y.....	148-149
at Riegelsville, N. J.....	150-151
East Branch of, at Fish Eddy, N. Y....	146-147
at Hancock, N. Y.....	185
West Branch of, at Hale Eddy, N. Y..	152-153
at Hancock, N. Y.....	185
Delaware River basin, gaging records in.....	146-158

E.	Page.
Eagle Bridge, N. Y., Hoosic River near.....	130-131
Ellsworth, Maine, Branch Lake near.....	28
Branch Lake Stream near.....	29-31
Equivalents, convenient, tables of.....	12-14
Errol Dam, N. H., Androscoggin River at...	56-57
Esopus Creek at Mount Marion, N. Y.....	143-144
near Olivebridge, N. Y.....	141-142

F.	Page.
Farmington, Maine, Sandy River near....	50-52
Farmington River, West Branch of, near New Boston, Mass.....	102-104
Fish Eddy, N. Y., East Branch of Delaware River, at.....	146-147
Fort Kent, Maine, St. John River at.....	18-20
Foxcroft, Maine, Piscataquis River near....	39-40
Framingham, Mass., Sudbury River at.....	71-73
Franklin Junction, N. H., Merrimac River at.	63-64
Frederick, Md., Monocacy River near.....	178-181
Fredericksburg, Va., Rappahannock River near.....	183-185
French River at Perryville, Mass.....	185

G.	Page.
Gardiner, Maine., Cobbosseecontee Stream at.	54-55
Garvins Falls, N. H., Merrimac River at....	65-66
Gaylordsville, Conn., Housatonic River at.	106-107
Gibbs Crossing, Mass., Ware River at.....	89-90
Godeffroy, N. Y., Neversink River at.....	155-156
Goose Creek, near Leesburg, Va.....	185
Goss Heights, Mass., Middle Branch of West- field River at.....	95-98
Great Barrington, Mass., Housatonic River near.....	104-106
Green Lake Stream at Lakewood, Maine....	26-28

H.	Page.
Hadley, N. Y., Sacandaga River at.....	125-127
Hale Eddy, N. Y., West Branch of Delaware River at.....	152-153
Hancock, N. Y., East Branch of Delaware River at.....	185
West Branch of Delaware River at.....	185
Harrisburg, Pa., Susquehanna River at....	165-166
Hoosac Tunnel, Mass., Deerfield River at....	82-85
Hoosic River near Eagle Bridge, N. Y.....	130-131
Hope, N. Y., Sacandaga River near.....	124-125

	Page.	O.	Page.
Housatonic River at Gaylordsville, Conn.	106-107	Occoquan Creek near Occoquan, Va.	181-183
near Great Barrington, Mass.	104-106	Olivebridge, N. Y., Esopus Creek near	141-142
Housatonic River basin, gaging records in.	104-108	Orford, N. H., Connecticut River at.	74-76
Hudson River at Mechanicsville, N. Y.	115-116		
at North Creek, N. Y.	109-111	P.	
at Spier Falls, N. Y.	113-115	Passumpsic River near St. Johnsbury, Vt.	78-80
at Thurman, N. Y.	111-113	Patuxent River basin, gaging records in.	175-176
Hudson River basin, comparative discharge		Patuxent River near Burtonsville, Md.	175-176
of streams in.	108-109	Pemigewasset River at Plymouth, N. H.	62-63
gaging records in.	108-145	Penobscot River at West Enfield, Maine.	32-34
I.		East Branch of, at Grindstone, Maine.	35-36
Indian Lake, N. Y., Cedar River near.	116-118	West Branch of, at Millinocket, Maine.	31-32
Indian Lake reservoir at.	118-119	Penobscot River basin, gaging records in.	31-42
Indian River near.	119-121	Perryville, Mass., French River at.	185
Indian Lake reservoir at Indian Lake, N. Y.	118-119	Piscataquis River near Foxcroft, Maine.	39-40
Indian River near Indian Lake, N. Y.	119-121	Pittsfield, Maine, Sebasticook River at.	52-54
		Plymouth, N. H., Pemigewasset River at.	62-63
J.		Point of Rocks, Md., Potomac River at.	176-178
Juniata River at Newport, Pa.	173-174	Poland, N. Y., West Canada Creek at.	135-136
K.		Pomperaug River at Bennetts Bridge, Conn.	107-108
Kenduskeag Stream near Bangor, Maine.	41-42	Port Jervis, N. Y., Delaware River at.	148-149
Kennebec River at The Forks, Maine.	44-46	Potomac River at Point of Rocks, Md.	176-178
at Waterville, Maine.	47-48	Potomac River basin, gaging records in.	176-183
Kennebec River basin, gaging records in.	43-55	Prattsville, N. Y., Schoharie Creek at.	137-138
Kinderhook Creek at Rossman, N. Y.	139-141	Presumpscot River at outlet of Sebago Lake,	
Knightville, Mass., Westfield River at.	93-95	Maine.	59-60
		Presumpscot River basin, gaging records	
L.		in.	59-60t
Lake Cochituate at Cochituate, Mass.	71-73	Publications, list of.	8-10
Lakewood, Maine., Green Lake Stream at.	26-28	methods of obtaining.	11
Lawrence, Mass., Merrimac River at.	66-68	Q.	
Leesburg, Va., Goose Creek near.	185	Quaboag River at West Brimfield, Mass.	92-93
Lehigh River at South Bethlehem, Pa.	157-158		
M.		R.	
Machias River at Whitneyville, Maine.	22-24	Rappahannock River near Fredericksburg,	
Machias River basin, gaging records in.	22-24	Va.	183-185
Mattawamkeag River at Mattawamkeag,		Rappahannock River basin, gaging records	
Maine.	36-38	in.	183-185
Mechanicsville, N. Y., Hudson River at.	115-116	Red Bridge, Mass., Chicopee River at.	185
Merrimac, N. H., Souhegan River at.	69-70	Riegelsville, N. J., Delaware River at.	150-151
Merrimac River at Franklin Junction, N. H.	63-64	Rio, N. Y., Mongaup River near.	154-155
at Garvins Falls, N. H.	65-66	Riverbank, N. Y., Schroon River at.	121-123
at Lawrence, Mass.	66-68	Rondout Creek at Rosendale, N. Y.	144-145
Merrimac River basin, gaging records in.	62-73	Rosendale, N. Y., Rondout Creek at.	144-145
Millers River at Wendell, Mass.	81-82	Rossman, N. Y., Kinderhook Creek at.	139-141
Millinocket, Maine, West Branch of Penob-		Rumford Falls, Maine, Androscoggin River	
scot River at.	31-32	at.	57-58
Miscellaneous measurements.	185	S.	
Mohawk River at Tribes Hill, N. Y.	131-132	Sacandaga River at Hadley, N. Y.	125-127
at Vischer Ferry, N. Y.	132-134	near Hope, N. Y.	124-125
Mongaup River near Rio, N. Y.	154-155	West Branch of, at Blackbridge, near	
Monocacy River near Frederick, Md.	178-181	Wells, N. Y.	127-129
Moosehead Lake at east outlet, Maine.	43	Saco River at West Buxton, Maine.	60-61
Mount Marion, N. Y., Esopus Creek at.	143-144	Saco River basin, gaging records in.	60-61
N.		St. John River at Fort Kent, Maine.	18-20
Nashua River, South Branch of (Wachusett		at Van Buren, Maine.	20-22
drainage area), at Clinton, Mass.	70-71	St. John River basin, gaging records in.	18-22
Neversink River at Godeffroy, N. Y.	155-156	St. Johnsbury, Vt., Passumpsic River near.	78-80
New Boston, Mass., West Branch of Farm-		Sandy River near Farmington, Maine.	50-52
ington River near.	102-104	Schoharie Creek at Prattsville, N. Y.	137-138
Newport, Pa., Juniata River at.	173-174	Schroon River at Riverbank, N. Y.	121-123
North Creek, N. Y., Hudson River at.	109-111	Sebago Lake, Maine, Presumpscot River at	
		outlet of.	59-60

	Page.
Sebasticoock River at Pittsfield, Maine.....	52-54
Sharon, Vt., White River near.....	80-81
Shelburne Falls, Mass., Deerfield River at....	87-88
Souhegan River at Merrimac, N. H.....	69-70
South Bethlehem, Pa., Lehigh River at....	157-158
Spier Falls, N. Y., Hudson River at.....	113-115
Sudbury River at Framingham, Mass.....	71-73
Sunderland, Mass., Connecticut River at	76-78
Susquehanna River at Conklyn, N. Y.....	158-160
at Danville, Pa.....	163-164
at Harrisburg, Pa.,	165-166
at Wilkes-Barre, Pa.....	161-162
West Branch of, at Williamsport, Pa..	171-172
Susquehanna River basin, gaging records in	158-174
Swift River at West Ware, Mass.....	90-92

T.

Terms, definitions of.....	11-12
The Forks, Maine, Dead River at.....	48-50
Kennebec River at.....	44-46
Thurman, N. Y., Hudson River at.....	111-113
Tribes Hill, N. Y., Mohawk River at.....	131-132

U.

Union River at Amherst, Maine.....	24-26
Union River basin, gaging records in.....	24-31

V.

	Page.
Van Buren, Maine, St. John River at.....	20-22
Vernon, Vt., Connecticut River at.....	185
Vischer Ferry, N. Y., Mohawk River at....	132-134

W.

Ware River at Gibbs Crossing, Mass.....	89-90
Waterville, Maine, Kennebec River at.....	47-48
Wendell, Mass., Millers River at.....	81-82
West Brimfield, Mass., Quaboag River at....	92-93
West Buxton, Maine, Saco River at.....	60-61
West Canada Creek at Kast Bridge, N. Y..	136-137
at Poland, N. Y.....	135-136
at Wilmurt, N. Y.....	134-135
West Enfield, Maine, Penobscot River at....	32-34
West Ware, Mass., Swift River at.....	90-92
Westfield, Mass., Borden Brook near.....	100-102
Westfield Little River near.....	98-100
Westfield Little River, near Westfield, Mass.	98-100
Westfield River at Keightsville, Mass.....	93-95
Middle Branch of, at Goss Heights, Mass.	95-98
White River near Sharon, Vt.....	80-81
Whitneyville, Maine, Machias River at.....	22-24
Wilkes-Barre, Pa., Susquehanna River at.	161-162
Williamsport, Pa., West Branch of Susque-	
hanna River at.....	171-172
Wilmurt, N. Y., West Canada Creek at....	134-135