

Compilation of Records of Surface Waters of the United States through September 1950

Part 4. St. Lawrence River Basin

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 1307



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Prepared under the direction of J. V. B. WELLS, Chief, Surface Water Branch

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UNITED STATES DEPARTMENT OF THE INTERIOR

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PREFACE

This report contains summaries of streamflow records in the St. Lawrence River basin. It was prepared by the United States Geological Survey in the Water Resources Division, C. G. Paulsen, chief, under the general direction of J. V. B. Wells, chief, Surface Water Branch, and B. J. Peterson, chief, Annual Reports Section.

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COMPILATION OF RECORDS OF SURFACE WATERS OF THE ST. LAWRENCE RIVER BASIN, THROUGH 1950

PURPOSE AND SCOPE

This volume is one of a series of reports presenting monthly and yearly summaries of streamflow and reservoir data collected by the Geological Survey. Included with these data are some records furnished by other Federal, State, and private agencies.

The purpose of this series of reports is to make available in summarized form all the surface-water records collected up to September 30, 1950.

The first known streamflow records to be systematically collected in the United States are those for Eaton and Madison Brooks in Madison County, N. Y., by John B. Jervis during 1835. Stream gaging by the United States Geological Survey was begun in 1888. At that time the Congress authorized the Irrigation Survey to be conducted by the Geological Survey in connection with special studies relating to irrigation. The work consisted of the measurement of stage and discharge of a few streams in the West. Since that time the work has expanded so that measurements of stage and discharge of streams and of stage and contents of lakes and reservoirs have been made at more than 12,000 gaging stations in the 48 states and the territories of Hawaii and Alaska, of which about 6,400 were in operation on September 30, 1950. The details of the records collected at those stations are contained in annual reports, bulletins, and water-supply papers, which have been issued usually on an annual basis. Most of the records collected over the years are found only in numerous individual volumes, many of which are out of print and difficult to obtain.

The records have been collected mainly in cooperation with State, municipal, and Federal agencies and published in annual reports by the Geological Survey. This series of compilation reports has been prepared by the Geological Survey as a special project not included in the cooperative program.

The data presented in this series of reports consist of records of discharge of streams and contents of reservoirs summarized on a monthly and yearly basis. Results of miscellaneous discharge measurements and, in general, stage records have been excluded. Also included are bar charts showing the period of record covered by each gaging station and a map of the area showing the location of each station (pl. 1). The reports of this series are uniform in the type of data they contain and in the form of presentation.

In compiling the data for these summary reports, one important feature of the project was to review the analyses and computations originally made on the basis of all information now available. For some stations additional base data, obtained subsequently, allowed for reinterpretation and recomputation of more accurate records of discharge. All records were examined for major computation errors and tested wherever possible by comparison with records of discharge at other stations and weather data. Records that were found to be in need of substantial revision were recomputed or omitted if revision was not feasible. Estimates of discharge were made to fill short gaps to complete the continuity of the record, whenever practical.

Records furnished by other agencies are incorporated in these reports when they supplement records collected by the Geological Survey, and appeared consistent and reliable. Furnished records were reviewed in the same manner as Geological Survey records whenever base data were available and detailed study was feasible.

STREAM-GAGING PROGRAM

The Geological Survey began to collect records of streamflow in the area covered by this report (fig. 1) in 1898 when gaging stations were established on several rivers in Ohio. The first observation of discharge recorded in the area was made in 1830 by the U. S. Army on outlet of Hamilton Lake in Stuben County, Ohio (Captain Howard Stansbury, Report on Michigan and Wabash Canal, 1835). Other individuals, companies, state and federal organizations started to collect data usually at points where there were specific waterway, power, water-supply, or pollution problems.

The stream-gaging program in the St. Lawrence River basin has grown continuously since its inception. In 1900 the Geological Survey began a cooperative stream-gaging program with the State of New York. This was the forerunner of others which followed in Vermont, Wisconsin, Illinois, Ohio, Minnesota, Michigan, and Indiana. Participation by the States gave impetus to the expanding

program and provided the principal source of funds to sustain the work during the early years.

The Corps of Engineers, Department of the Army, as a result of congressional authorization to make a comprehensive report on the rivers in the United States, supported a considerable expansion of the stream-gaging work during 1928, and again in 1936 with the passage of the Flood Control Act. The initiation of these programs had a significant effect in advancing stream-gaging activities in the area.

Numerous municipal and private organizations have assisted the Geological Survey in the stream-gaging program, as have several bureaus of the Federal government. Details of the co-operation have been acknowledged in the annual water-supply papers.

DESCRIPTION OF DATA

The gaging-station records are arranged in downstream order. The order used in this report is the same as that adopted for use in the annual series of reports on surface-water supply beginning with the water year 1951. In this report, in a downstream direction along the main stem, all stations on a tributary entering above a main-stem station are listed before that station. If a tributary enters between two main-stem stations, it is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. To indicate the rank of any tributary on which a gaging station is situated and the stream to which it is immediately tributary, each indentation in the listing of gaging stations in the bar chart (see p. 14) represents one rank. This downstream order and system of indentation show which gaging stations are on tributaries between any two stations on a main stem and the rank of the tributary on which each gaging station is situated.

The order of listing used in the annual reports through the water year 1950 was different. In those reports all stations on the main stem are listed first in order, proceeding from the headwaters toward the mouth, then all stations on the uppermost tributary from its source to mouth, followed by all stations from source to mouth on the tributaries to the tributary.

The data presented for most of the gaging stations comprise a description of the station, tables of monthly discharge and runoff, and a yearly summary table. The station description gives the location of the gaging station, drainage area, supplemental records available (for some stations), types and datums of gages, average discharge, extremes of discharge, and general remarks concerning

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the data. When records were furnished by another agency the fact is so stated.

The location of the gaging stations and the drainage area are obtained from the best available maps. When more than one site was used and the difference in drainage areas is significant, the area for the latest site is shown first followed by the areas for other sites in chronological order. In some instances drainage-area figures have not been obtained because of the lack of suitable maps or because the boundaries cannot be defined or the effective drainage area determined.

For some stations a paragraph headed "Supplemental records available" gives reference to records other than those given in the present report. Such records may consist of gage-height records for periods other than those for which discharge records are presented, records concerning quality of the water, or the results of periodic discharge measurements.

The gage described first is the present gage or the one used most recently. Information is then given in chronological order for all gages used earlier, giving changes in location, type of gage, or datum. The location or datum of all earlier gages is given with reference to the present or most recently used gage. The datum of the gage is the elevation of the zero of the gage above mean sea level. Where information as to datum is not available, the altitude of the gage is given. This may be determined from topographic maps, river-profile surveys, barometric levels, or where nothing better is available, by estimates based on average fall between a known elevation and the gage or on other known factors. The degree of accuracy of an altitude determination is indicated by the source of the information and to some extent by the refinement to which the figure is given.

The average discharge for a station is the average of all complete water years and is published only if there are five or more complete water years of record. The years used to determine the average are not necessarily consecutive. The average discharge is not published for some stations because of extensive changes in diversion or storage, or other water development, that have occurred upstream.

In general, the momentary maximum and minimum discharges and stages for the entire period of record are published in the "Extremes" paragraph. These are qualified if necessary according to the type of gage used and the completeness of the record. Maximum and minimum discharges at nonrecording gaging stations are qualified as "observed" unless determined from a graph drawn

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through actual gage heights which approximates the actual hydrograph.

Under "Remarks" information is given on factors which affect the basin yield and runoff characteristics. These include upstream regulation, diversion, and utilization—a history of changes in these items is given when known. Also, references are made to the records of storage or diversion upstream, if published. When discharge records are furnished by another agency, credit is given under "Cooperation".

The streamflow data summarized in this paper are generally contained in two monthly tables and one yearly table. The first monthly table is a tabulation of monthly and yearly mean discharge in cubic feet per second. These figures represent discharge passing the station; they are unadjusted for storage or diversion upstream. Each monthly figure is the mean flow for the entire month; generally no record for part of a month is tabulated. Likewise, each yearly figure is the mean flow for a full year, and no figure is shown for a partial year. Usually the months are arranged on a water-year basis. Exceptions to this rule are made in connection with seasonal records wherein the months are grouped to give a complete season for each calendar year.

The second monthly table is a tabulation of monthly and yearly runoff, in inches. For streams that are subject to considerable regulation, the second table contains the adjusted runoff in inches. The table of runoff in inches is omitted if the data do not represent natural yield without a gross error, whether adjusted or unadjusted.

The third table contains a yearly summary of the streamflow data. The column headed "W. S. P. no." lists the number of the water-supply paper or other publication in which the figures of daily and monthly discharge are published; for early years for which daily discharges were not published, that column lists the report that contains daily gage heights, rating tables, and monthly discharge. If a part of the record has been revised and published, then reference is made to both the original report and the one containing the revised record; if the daily discharge record for the entire year has been republished to include revisions, then only the later report is listed. For some stations the third table is omitted; however, the report containing records for any particular year can generally be found by reference to the tables given on p. 10,

In the third table the momentary maximum discharge for each water year and the date of its occurrence is given whenever obtainable. This is maximum discharge for the water year unless otherwise qualified. For nonrecording gage records, momentary max-

imums were often obtained from graphs drawn through the gage readings. If a graph was not feasible, then the discharge was computed from the maximum gage height observed, provided it was believed to be of significant value. The momentary maximum discharge is given for some years for which the record, as shown in the first two tables, is incomplete. The maximum discharge when so given is believed to be representative of the absolute maximum of the water year and is not qualified in any way. Occasionally maximum daily discharges are tabulated, but only when it was not practicable to give momentary maximums and when figures may have general statistical value.

The minimum daily discharge for each water year is listed if known.

Other data listed in this table are the annual mean discharge and runoff for both the water year and the calendar year. The annual mean discharge listed for the water year is the same as that given in the yearly column in the first table.

Most canal and diversion records are given in a single table. There are some records for large canals, however, that are published in the same detail as those for streams. Records of reservoirs also are given in a single table which shows the contents at the end of each month.

Figures of discharge that have been revised as the result of the review made in connection with this compilation are so noted; however, revisions that have been previously published are not indicated as revisions in this report. Revised daily discharges made in connection with this compilation will be published in a later annual water-supply paper. If only annual maximum discharges are revised and no revision of daily discharge is made for a station, revised annual maximums are given only in this report and will not be republished in a later annual report. Revisions of figures of runoff in inches resulting solely from a revision of the drainage area are not noted as such. Figures that represent corrections of typographical or computational errors where no figures of daily discharge have been revised or changed are indicated as "corrected" in this report. Estimates of discharge made to complete months or years for this report are noted as estimates and as "not previously published."

For a few stations, after reviewing the past records, it was found that part of the previously published records was grossly in error, yet the base data were such that the record could not be improved or revised. For such stations a note listing the periods of record which have been discredited and not republished is given

with the records published herein. Stations for which the entire period of record previously published has been discredited are omitted from this report. The following table lists the stations so omitted.

Stations omitted from this report for which the entire record should not be used

| Station | Period of record |
|---|------------------|
| Chittenango Creek at Bridgeport, N. Y..... | 1898-1901 |
| Cuyahoga River at Kent, Ohio..... | 1927-32 |
| East Branch Fish Creek at Point Rock, N. Y..... | 1898-99 |
| Grand River near Marne, Mich..... | 1931 |
| Huron River at French Landing, Mich..... | 1904-5 |
| Kalamazoo River near Albion, Mich..... | 1930-35 |
| Raisin River near Adrian, Mich..... | 1930-38 |

In addition to the above, records for some other stations in the area, previously published by the Geological Survey in the annual series of reports, are omitted from this compilation. In general, the records of such stations either are too fragmentary to allow computation of monthly mean discharge or are records that did not measure streamflow, total diversion, or return flow and were considered not important enough to warrant publication in this report. These stations are listed in the following table:

Previously published records which are not compiled in this report

| Station | Period of record |
|--|----------------------|
| Ausable River near Keeseville, N. Y..... | 1904-8 |
| Niagara River at Buffalo, N. Y..... | ^a 1905-50 |
| Raquette River at South Colton, N. Y..... | 1904 |
| Reed's Springs near Albion, Mich..... | 1904-6 |
| Saginaw River at Saginaw, Mich..... | 1904 |
| Skaneateles Lake Outlet at Jordan, N. Y..... | 1890-92 |

^aAt the time of publication of this report, the records since 1860 for Niagara River at Buffalo, N. Y., were in the process of being reviewed and revised by a coordinating committee composed of representatives of Canada and the United States. Final official records were not available in time for inclusion in this report.

PUBLICATIONS

To facilitate publication of streamflow records, the area of the United States is divided into 14 parts whose boundaries coincide with certain natural drainage lines. Formerly, the annual series of water-supply papers on the surface-water supply of the United States was published in 14 volumes, 1 for each of the 14 parts. Beginning with the reports for 1951, the records are published in 18 volumes, including 2 volumes each for parts 1, 2, 3, and 6. This system is used in publishing the present series of compilation reports with the exception of part 11 which is published in 2 volumes for the compilation report series only. The boundaries of the various parts are indicated in the following list and on figure 1.

- Part 1. North Atlantic slope basins, in two volumes:
 A, North Atlantic slope basins, Maine to Connecticut.
 B, North Atlantic slope basins, New York to York River.
2. South Atlantic slope and eastern Gulf of Mexico basins, in two volumes:
 A, South Atlantic slope basins, James River to Savannah River.
 B, South Atlantic slope and eastern Gulf of Mexico basins, Ogeechee River to Pearl River.
3. Ohio River basin, in two volumes:
 A, Ohio River basin except Cumberland and Tennessee River basins.
 B, Cumberland and Tennessee River basins.
4. St. Lawrence River basin.
5. Hudson Bay and upper Mississippi River basins.
6. Missouri River basin, in two volumes:
 A, Missouri River basin above Sioux City, Iowa.
 B, Missouri River basin below Sioux City, Iowa.
7. Lower Mississippi River basin.
8. Western Gulf of Mexico basins.
9. Colorado River basin.
10. The Great Basin.
11. Pacific slope basins in California.
 A, Coastal basins (excluding Central Valley).
 B, Central Valley.
12. Pacific slope basins in Washington and upper Columbia River basin.
13. Snake River basin.
14. Pacific slope basins in Oregon and lower Columbia River basin.

Early records of the flow of streams in the United States are published in the reports listed below. In many of these reports records for years earlier than those indicated have been included for some streams.

Streamflow data for the years 1884-1901, in reports of the Geological Survey

(A = Annual Report; B = Bulletin; W = Water Supply Paper)

| Report | Character of data | Year |
|------------------|--|-------------------------|
| 10th A, pt. 2... | Descriptive information only. | |
| 11th A, pt. 2... | Monthly discharge and descriptive information..... | 1884 to September 1890. |
| 12th A, pt. 2... |do..... | 1884 to June 30, 1891. |
| 13th A, pt. 3... |do..... | 1884-92. |
| 14th A, pt. 2... | Monthly discharge..... | 1888-93. |
| B 131..... | Descriptions, measurements, gage heights, and ratings.... | 1893-94. |
| 16th A, pt. 2... | Descriptive information only. | |
| B 140..... | Descriptions, measurements, gage heights, ratings and monthly discharge. | 1895. |

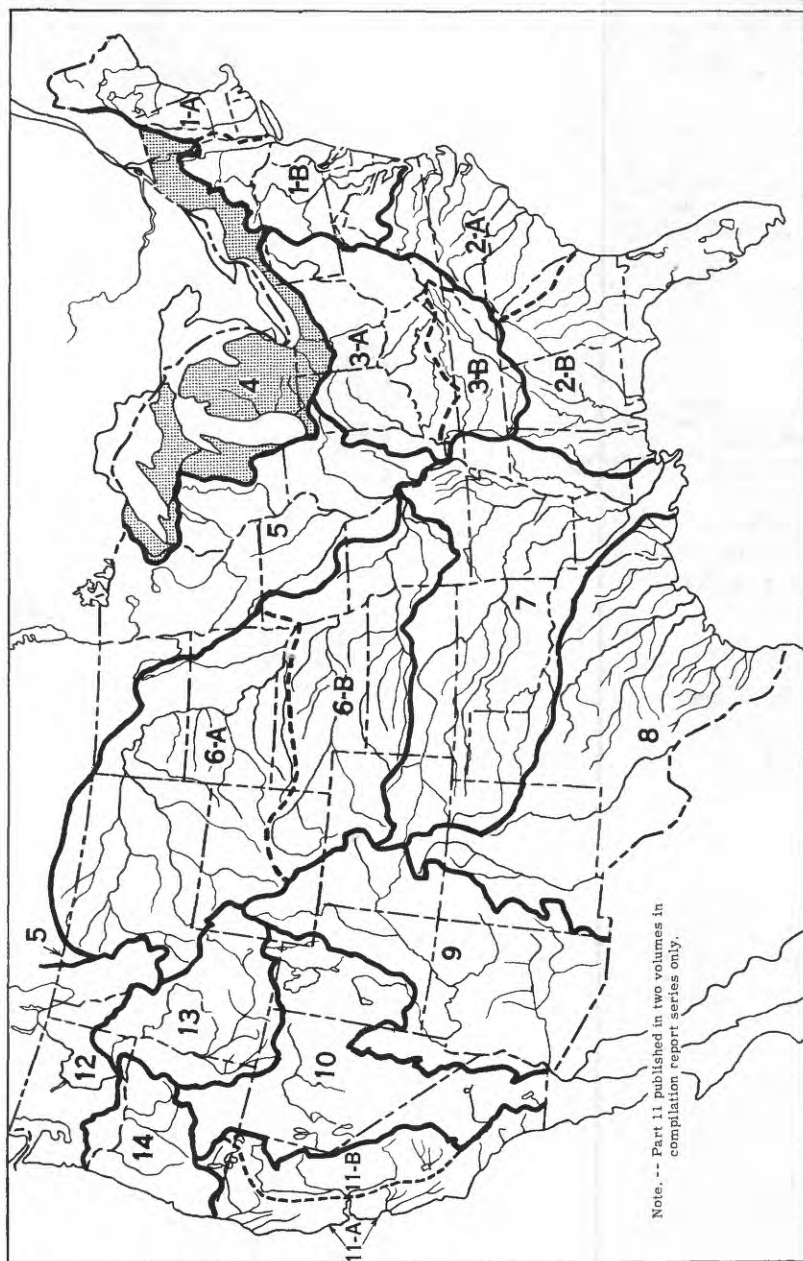


Figure 1. —Map of the United States showing areas covered by the annual reports on surface-water supply and by the present series of compilation reports. The area covered by this report is shaded.

Streamflow data for the years 1884-1901, in reports of the Geological Survey—Continued

| Report | Character of data | Year |
|------------------|---|----------|
| N 11..... | Gage heights..... | 1896. |
| 18th A, pt. 4... | Descriptions, measurements, ratings, and monthly discharge. | 1895-96. |
| W 15..... | Descriptions, measurements, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries above Kansas River. | 1897. |
| W 16..... | Descriptions, measurements and gage heights of streams west of the Mississippi River, except Missouri River and tributaries above Kansas River. | 1897. |
| 19th A, pt. 4.. | Descriptions, measurements, ratings, and monthly discharge. | 1897. |
| W 27..... | Measurements, ratings, and gage heights of streams east of the Mississippi River, and Missouri River and tributaries. | 1898. |
| W 28..... | Measurements, ratings, and gage heights of streams west of the Mississippi River, except Missouri River and tributaries. | 1898. |
| 20th A, pt. 4.. | Monthly discharge..... | 1898. |
| W 35 to 39..... | Descriptions, measurements, gage heights, and ratings... | 1899. |
| 21st A, pt. 4... | Monthly discharge..... | 1899. |
| W 47 to 52..... | Descriptions, measurements, gage heights, and ratings... | 1900. |
| 22d A, pt. 4.... | Monthly discharge..... | 1900. |
| W 65, 66..... | Descriptions, measurements, gage heights, and ratings... | 1901. |
| W 75..... | Monthly discharge..... | 1901. |

Reports on surface-water supply containing records from 1899 to 1950 for drainage basins in this report are listed below. The data for any particular gaging station will, in general, be found in the reports covering the years during which the station was maintained.

Numbers of water-supply papers containing streamflow records in St. Lawrence River basin 1899-1950

| Year | WSP No. | Year | WSP No. | Year | WSP No. | Year | WSP No. | Year | WSP No. |
|--------|---------|---------|---------|------|---------|------|---------|------|---------|
| 1899 | 36 | 1910 | 284 | 1921 | 524 | 1931 | 714 | 1941 | 924 |
| 1900 | 49 | 1911 | 304 | 1922 | 544 | 1932 | 729 | 1942 | 954 |
| 1901 | 65, 75 | 1912 | 324 | 1923 | 564 | 1933 | 744 | 1943 | 974 |
| 1902 | a82, 83 | 1913 | 354 | 1924 | 584 | 1934 | 759 | 1944 | 1004 |
| 1903 | 97 | 1914 | 384 | 1925 | 604 | 1935 | 784 | 1945 | 1034 |
| 1904 | 129 | 1915 | 404 | 1926 | 624 | 1936 | 804 | 1946 | 1054 |
| 1905 | 170 | 1916 | 434 | 1927 | 644 | 1937 | 824 | 1947 | 1084 |
| 1906 | 206 | 1917 | 454 | 1928 | 664 | 1938 | 854 | 1948 | 1114 |
| 1907-8 | 244 | 1918 | 474 | 1929 | 684 | 1939 | 874 | 1949 | 1144 |
| 1909 | 264 | 1919-20 | 504 | 1930 | 699 | 1940 | 894 | 1950 | 1174 |

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

The records at most of the stations discussed in these reports extend over many years. Miscellaneous measurements at many points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report.

Reports also have been published that are compilation of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which may have been revised), as well as some records not contained in the present series of reports. The only such reports for any part of the area covered by this report are as follows:

*Water-Supply
Paper*

Title

- 156..... Water powers of northern Wisconsin, 1895-1905.
424..... Surface waters of Vermont, 1875-1916.

Records of discharge have been published also in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports for the area covered by this report.

State reports containing compilations of records of discharge in St. Lawrence River basin

| State | Period | Report | Issued by |
|--------------|-----------|--|---|
| Indiana..... | 1923-27 | Pub. 72, Surface water supply of Indiana.. | Department of Conservation. |
| Do..... | 1901-50 | Bull. 6, Compilation of monthly and annual stream-flow records of Indiana. | Do. |
| Do..... | 1927-30 | Pub. 112, Surface water supply of Indiana. | Do. |
| Minnesota.. | 1909-12 | Water-resources investigation of Minnesota. | State Drainage Commission. |
| Do..... | 1883-1949 | Surface water supplies of the Mesabi Iron Range. | Department of Conservation. |
| Ohio..... | 1898-1921 | Bull. 73, Ohio streamflow, Part 1..... | Engineering, Experiment Station, Ohio State University. |
| Do..... | 1898-1944 | Bull. 127, Ohio streamflow, Part 2..... | Do. |
| Do..... | 1902-39 | Bull. 200, Compilation of streamflow | Department of Agriculture. |
| Do..... | 1898-1939 | Bull. 111, Ohio stream-drainage areas and flow-duration tables. | Engineering Experiment Station, Ohio State University. |
| Wisconsin.. | 1888-1914 | 1st report of Railroad Commission of Wisconsin to Legislature on water powers. | Railroad Commission of Wisconsin. |
| Do..... | 1914-23 | 2nd report of Railroad Commission of Wisconsin to Legislature on water powers. | Do. |

Note. —In addition to the records contained in the reports listed above, annual or biennial reports in which are contained records of discharge are issued by the State of New York, Board of Water Supply, City of New York, and the city of Rochester.

Detailed information on the stage and discharge of many streams during major floods has been included in special reports on these floods published by the Geological Survey or other agencies. Such reports for the area covered by this report are as follows:

| <i>Report</i> | <i>Issued by</i> |
|--|----------------------------|
| WSP 147: Destructive floods in the United States in 1904..... | U. S. Geological Survey. |
| WSP 162: Destructive floods in the United States in 1905..... | Do. |
| WSP 636-C: The New England flood of November 1927..... | Do. |
| WSP 771: Floods in the United States, magnitude and frequency. | Do. |
| WSP 773-E: The New York State flood of July 1935..... | Do. |
| WSP 798: The floods of March 1936, part 1, New England rivers. | Do. |
| WSP 799: The floods of March 1936, part 2, Hudson River to Susquehannah River region. | Do. |
| WSP 847: Maximum discharges at stream-measurement stations through September 1938. | Do. |
| WSP 867: Hurricane floods of September 1938. | Do. |
| WSP1137-G: Floods of 1950 in the Upper Mississippi River and Lake Superior basins in Minnesota. | |
| Bull. 7: Floods in Ohio, magnitude and frequency. | Ohio Water Resources Board |
| Bull. 14: Local floods in Ohio during 1947. | Do. |

HYDROLOGIC CONDITIONS

Streamflow, a residual of precipitation after other demands have been met, varies considerably from year to year. The mean annual discharge for three streams of long-term record are shown in figure 2. These streams have runoff characteristics that are generally representative of others in their particular locale.

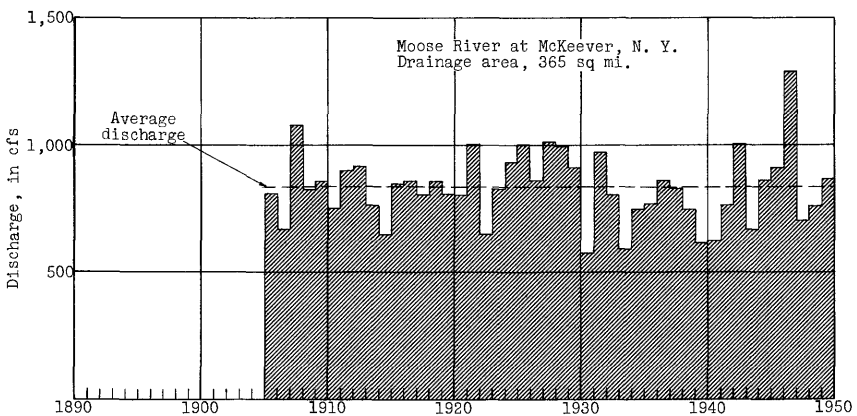
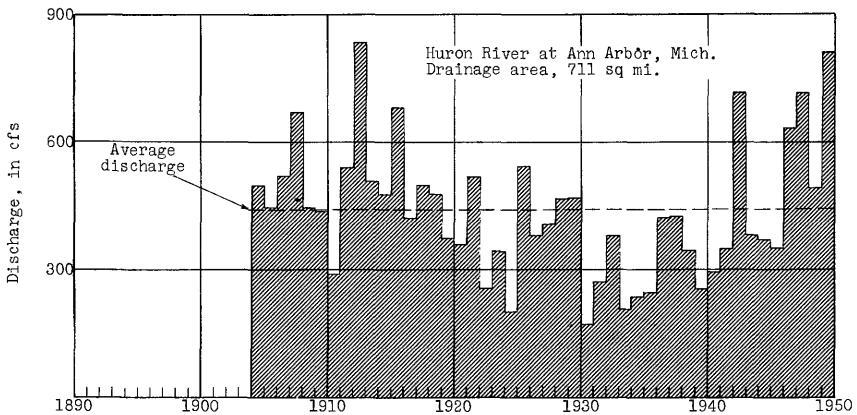
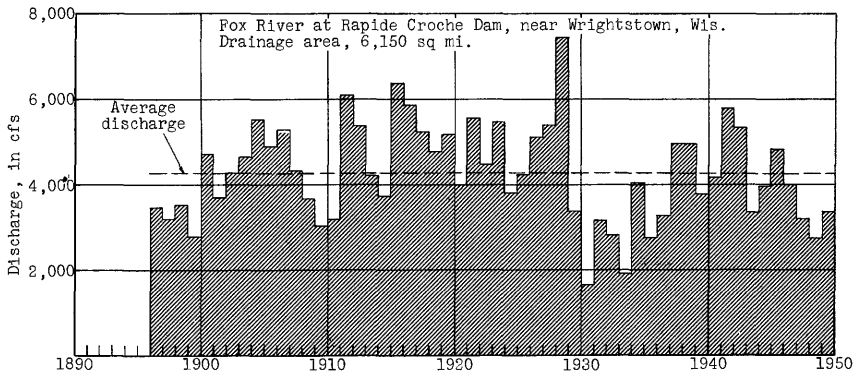



Figure 2.--Yearly discharge at three representative long-term gaging stations in St. Lawrence River basin.

BAR CHART

The following bar chart shows the period of record of discharge of streams and contents of reservoirs for all stations compiled in this report through September 30, 1950. Periods of record of stage only are not included. The stations are listed in downstream order (see p. 3) and are numbered consecutively. The number is used to identify the station on the map (pl. 1) showing location of gaging stations.

Bar chart of gaging-station records

Legend:  Streamflow Reservoir contents

| Period of record | | | | | | Gaging station | Map no. | Page no. |
|------------------|------|------|------|------|------|--|---------|----------|
| 1900 | 1910 | 1920 | 1930 | 1940 | 1950 | | | |
| | | | | | | <u>Streams tributary to Lake Superior</u> | | |
| | | | | | | ..Pigeon River above mouth of Arrow River, Minn..... | 1 | 21 |
| | | | | | | ..Pigeon River at Middle Falls, below International Bridge, Minn..... | 2 | 21 |
| | | | | | | ..Poplar River at Lutsen, Minn..... | 3 | 23 |
| | | | | | | ..Cross River at Schreder, Minn..... | 4 | 25 |
| | | | | | | ..Baptism River near Beaver Bay, Minn..... | 5 | 25 |
| | | | | | | ..Beaver Bay River at Beaver Bay, Minn..... | 6 | 26 |
| | | | | | | ..St. Louis River: | | |
| | | | | | | ...Partridge River near Aurora, Minn..... | 7 | 27 |
| | | | | | | ...St. Louis River near Aurora, Minn..... | 8 | 28 |
| | | | | | | ...Embarrass River at Embarrass, Minn..... | 9 | 29 |
| | | | | | | ...Whiteface River below Meadowlands, Minn..... | 10 | 29 |
| | | | | | | ...Cloquet River at Independence, Minn..... | 11 | 30 |
| | | | | | | ...St. Louis River near Thomson, Minn..... | 12 | 31 |
| | | | | | | ...Amnicon River near Amnicon Falls, Wis..... | 13 | 33 |
| | | | | | | ..Bois Brule River at Brule, Wis..... | 14 | 34 |
| | | | | | | ..Bois Brule River near Brule, Wis..... | 15 | 35 |
| | | | | | | ..Bad River at Mellen, Wis..... | 16 | 35 |
| | | | | | | ..Bad River near Odanah, Wis..... | 17 | 36 |
| | | | | | | ...White River near Ashland, Wis..... | 18 | 37 |
| | | | | | | ..Montreal River at Ironwood, Mich..... | 19 | 37 |
| | | | | | | ..Montreal River near Kimball, Wis..... | 20 | 38 |
| | | | | | | ...West Branch Montreal River at Gile, Wis..... | 21 | 39 |
| | | | | | | ...West Branch Montreal River near Kimball, Wis..... | 22 | 40 |
| | | | | | | ..Montreal River near Saxon, Wis..... | 23 | 40 |
| | | | | | | ..Black River at Ramsay, Mich..... | 24 | 41 |
| | | | | | | ..Presque Isle River at Marenisco, Mich..... | 25 | 41 |
| | | | | | | ..Presque Isle River near Tula, Mich..... | 26 | 42 |
| | | | | | | ..Middle Branch Ontonagon River near Paulding, Mich..... | 27 | 43 |
| | | | | | | Bond Falls Reservoir: | | |
| | | | | | | ...Bond Falls Canal near Paulding, Mich..... | 28 | 43 |
| | | | | | | ..Bond Falls Reservoir near Paulding, Mich..... | 29 | 44 |
| | | | | | | ..Middle Branch Ontonagon River near Trout Creek, Mich..... | 30 | 44 |
| | | | | | | ...East Branch Ontonagon River near Mass, Mich..... | 31 | 45 |
| | | | | | | ..Middle Branch Ontonagon River near Rockland, Mich..... | 32 | 46 |
| | | | | | | ...West Branch Ontonagon River near Bergland, Mich..... | 33 | 46 |
| | | | | | | South Branch Ontonagon River: | | |
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STREAMS TRIBUTARY TO LAKE SUPERIOR

1. Pigeon River above mouth of Arrow River, Minn.

Location--Lat 48°01'08", long. 89°43'38", in lot 5 in N $\frac{1}{2}$ sec. 19, T. 64 N., R. 6 E., 1,500 ft upstream from Arrow River, 2 $\frac{1}{2}$ miles upstream from International Bridge, and 11.7 miles upstream from mouth.

Drainage area--256 sq mi (revised).

Gage--Water-stage recorder. Altitude of gage is 935 ft (from International Boundary Commission map).

Extremes--1924-27: Maximum discharge, 1,060 cfs Apr. 20, 1927 (gage height, 5.44 ft).

Remarks--Spring flows are subject to regulation by headwater dams during logging operations.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | *89.2 | - |
| 1925 | *258 | *157 | - | - | - | - | - | 169 | 260 | 106 | 75.0 | 85.7 | - |
| 1926 | 87.2 | 153 | - | - | - | - | - | 309 | 178 | 118 | 47.3 | 140 | - |
| 1927 | 213 | - | - | - | - | - | - | 575 | 267 | 237 | 117 | 72.8 | - |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | *0.39 | - |
| 1925 | *1.16 | *0.68 | - | - | - | - | - | 0.76 | 1.13 | 0.48 | 0.34 | .37 | - |
| 1926 | .39 | .67 | - | - | - | - | - | 1.39 | .78 | .53 | .21 | .61 | - |
| 1927 | .96 | - | - | - | - | - | - | 2.59 | 1.16 | 1.07 | .53 | .32 | - |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 624,1337 | - | - | - | - | - | - | - | - |
| 1925 | 624,1337 | 934 | May 2, 1925 | - | - | - | - | - | - |
| 1926 | 624 | 970 | Apr. 25, 1926 | - | - | - | - | - | - |
| 1927 | 644 | 1,060 | Apr. 20, 1927 | - | - | - | - | - | - |

2. Pigeon River at Middle Falls, below International Bridge, Minn.^{1/}

(International gaging station)

Location--Lat 48°00'44", long. 89°36'58", in NE $\frac{1}{4}$ sec. 24, T. 64 N., R. 6 E., on right bank 400 ft upstream from Middle Falls, 3 $\frac{1}{2}$ miles upstream from mouth, and 5 $\frac{1}{2}$ miles downstream from International Bridge.

Drainage area--600 sq mi. Prior to Oct. 1, 1940, 584 sq mi (revised).

Gage--Water-stage recorder. Datum of gage is 789.58 ft above mean sea level, datum of 1929. Prior to Sept. 2, 1936, staff gage, and Sept. 2, 1936, to Sept. 30, 1940, wire-weight gage, at International Bridge 5 $\frac{1}{2}$ miles upstream at datum 100.24 ft higher.

Average discharge--27 years (1923-50), 503 cfs.

Extremes--1923-50: Maximum discharge, 11,000 cfs May 5, 1934 (gage height, 7.6 ft, site and datum then in use), from rating curve extended above 7,000 cfs; minimum, 27 cfs Nov. 4, 1945 (gage height, -0.08 ft).

Remarks--Prior to 1940, some regulation for short periods during log-driving operations.

Cooperation--Records for 1921-23, not previously published by Geological Survey, furnished by Water Resources Division, Department of Resources and Development, Canada. Records for winter periods 1923-26, not previously published by Geological Survey, furnished by Corps of Engineers. Records for 1928-33 computed by Corps of Engineers and reviewed by Geological Survey.

^{1/} Published as "at International Bridge" prior to October 1940.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly mean discharge, in cubic feet per second, of Pigeon River at Middle Falls, below International Bridge, Minn.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|------|-------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | 604 | 350 | 191 | 131 | - |
| 1922 | 84 | - | - | - | - | - | - | 1,980 | 551 | 237 | 182 | 536 | - |
| 1923 | 107 | 150 | - | - | - | - | - | 1,560 | - | 183 | 127 | 106 | - |
| 1924 | *85.9 | *96.3 | *79.7 | *61.0 | *75.2 | *66.6 | *909 | 1,470 | 558 | 199 | 114 | 227 | *329 |
| 1925 | 686 | *303 | *154 | *84.5 | *56.1 | *285 | *925 | 904 | 761 | 221 | 153 | 169 | *393 |
| 1926 | *145 | *244 | *114 | *67.4 | *33.6 | *127 | *952 | 696 | 775 | 475 | 192 | 634 | *371 |
| 1927 | 950 | 324 | 182 | 139 | 105 | 257 | 2,220 | 2,220 | 1,020 | 907 | 371 | 236 | 746 |
| 1928 | 228 | 176 | 134 | 95.2 | 66.2 | 89.8 | 2,140 | 1,350 | 1,130 | 803 | 547 | 549 | 589 |
| 1929 | 505 | 460 | 244 | 111 | 84.3 | 153 | 957 | 700 | 423 | 128 | 71.5 | 77.2 | 325 |
| 1930 | 110 | 313 | 113 | 112 | 96.8 | 81.3 | a646 | a1,290 | a649 | 422 | 176 | 148 | 347 |
| 1931 | 330 | 1,160 | 453 | 191 | 137 | 112 | a450 | *a894 | 614 | 342 | 75.1 | 122 | 407 |
| 1932 | 335 | 649 | 198 | 133 | 116 | 133 | 1,370 | 1,440 | 703 | 329 | 207 | 114 | 476 |
| 1933 | 93.8 | 702 | 375 | 205 | 185 | 154 | 1,440 | 1,260 | 726 | 255 | 117 | 235 | *477 |
| 1934 | 409 | 368 | 201 | 158 | 151 | 140 | 634 | 2,913 | 1,275 | 302 | 129 | 202 | 578 |
| 1935 | 525 | 496 | 280 | 227 | 215 | 302 | 1,942 | 1,364 | 1,268 | 598 | 200 | 164 | 614 |
| 1936 | 143 | 232 | 140 | 108 | 79.1 | 90.2 | 1,009 | 2,836 | 553 | 235 | 84.8 | 85.4 | 468 |
| 1937 | 68.2 | 82.7 | 81.8 | 105 | 88.6 | 96.1 | 2,047 | 1,605 | 1,340 | 313 | 120 | 143 | 507 |
| 1938 | 197 | 219 | 105 | 82.7 | 100 | 504 | 1,767 | 1,659 | 749 | 331 | 292 | 151 | 514 |
| 1939 | 117 | 243 | 100 | 151 | 119 | 131 | 1,076 | 1,984 | 1,140 | 373 | 194 | 155 | 483 |
| 1940 | 170 | 103 | 86.1 | 56.8 | 62.4 | 66.8 | 435 | 1,434 | 1,204 | 358 | 159 | 76.5 | 351 |
| 1941 | 50.1 | 190 | 84.5 | 73.1 | 58.8 | 60.0 | 2,049 | 1,016 | 695 | 581 | 116 | 630 | 466 |
| 1942 | 720 | 251 | 169 | 117 | 90.7 | 141 | 1,525 | 2,111 | 719 | 239 | 89.5 | 101 | 525 |
| 1943 | 289 | 270 | 138 | 105 | 99.6 | 111 | 1,208 | 2,073 | 1,808 | 545 | 216 | 217 | 591 |
| 1944 | 255 | 261 | 137 | 120 | 100 | 88.9 | 745 | 2,321 | 2,036 | 735 | 425 | 646 | 656 |
| 1945 | 291 | 340 | 158 | 80.0 | 78.0 | 1,169 | 1,974 | 1,545 | 484 | 268 | 306 | 95.8 | 551 |
| 1946 | 80.6 | 85.2 | 82.8 | 69.4 | 71.4 | 633 | 941 | 794 | *644 | 329 | 72.6 | 536 | 358 |
| 1947 | 896 | 435 | 222 | 147 | 105 | 101 | 361 | *2,931 | *2,801 | 803 | 330 | 152 | *784 |
| 1948 | 108 | 279 | 124 | 99.4 | 96.2 | 91.6 | 2,485 | 2,162 | 507 | 214 | 190 | 136 | 840 |
| 1949 | 83.9 | 108 | 81.3 | 90.2 | 87.1 | 88.7 | 1,380 | 965 | 323 | 404 | 183 | 110 | 326 |
| 1950 | 534 | 214 | 113 | 112 | 126 | 143 | 382 | 4,016 | 1,504 | 974 | 1,029 | 407 | 804 |

* Revised.

† Corrected.

* Not previously published; estimated by Corps of Engineers on basis of partial record, climatological data, and comparison with nearby streams.

a Discharge corrected for change in storage due to regulation during log-driving operations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | 1.15 | 0.69 | 0.38 | 0.25 | - |
| 1922 | 0.17 | - | - | - | - | - | - | 3.91 | 1.05 | .47 | .36 | 1.02 | - |
| 1923 | .21 | 0.29 | - | - | - | - | - | 3.08 | - | .36 | .25 | .20 | - |
| 1924 | *1.7 | *.18 | *0.16 | *0.12 | *0.14 | *0.13 | *1.74 | 2.91 | 1.07 | .39 | .23 | .43 | *7.67 |
| 1925 | 1.36 | *.58 | *.30 | *.17 | *.10 | *.56 | *1.77 | 1.78 | 1.45 | .44 | .30 | .32 | *9.13 |
| 1926 | *.29 | *.47 | *.23 | *.13 | *.06 | *.25 | *1.82 | 1.37 | 1.48 | .94 | .38 | 1.21 | *8.63 |
| 1927 | 1.84 | .62 | .36 | .28 | .19 | .51 | 4.25 | 4.38 | 1.94 | 1.79 | .73 | .45 | 17.34 |
| 1928 | .45 | .34 | .26 | .17 | .12 | .18 | 4.08 | 2.26 | 2.16 | 1.59 | 1.08 | 1.05 | 13.74 |
| 1929 | 1.00 | .88 | .48 | .22 | .15 | .30 | 1.79 | 1.38 | .81 | .25 | .14 | .15 | 7.55 |
| 1930 | .22 | .60 | .22 | .22 | .17 | .16 | a1.23 | a2.54 | a1.24 | .83 | .35 | .28 | 8.06 |
| 1931 | .65 | 2.22 | .89 | .38 | .24 | .22 | a.86 | a1.76 | 1.17 | .68 | .15 | .23 | 9.45 |
| 1932 | .66 | 1.24 | .39 | .26 | .21 | .26 | 2.62 | 2.84 | 1.34 | .65 | .41 | .22 | 11.10 |
| 1933 | .19 | 1.34 | .74 | .40 | .29 | .30 | 2.76 | 2.49 | 1.39 | .50 | .23 | .45 | 11.08 |
| 1934 | .81 | .74 | .40 | .31 | .27 | .28 | 1.21 | 5.75 | 2.44 | .60 | .26 | .39 | 13.46 |
| 1935 | 1.04 | .95 | .55 | .45 | .38 | .60 | 3.71 | 2.69 | 2.42 | .77 | .39 | .31 | 14.26 |
| 1936 | .28 | .44 | .28 | .21 | .15 | .18 | 1.93 | 5.60 | 1.06 | .46 | .17 | .16 | 10.92 |
| 1937 | .13 | .16 | .16 | .21 | .16 | .19 | 3.91 | 3.17 | 2.56 | .62 | .24 | .27 | 11.78 |
| 1938 | .39 | .42 | .21 | .16 | .18 | 1.00 | 3.38 | 3.27 | 1.43 | .65 | .58 | .29 | 11.96 |
| 1939 | .23 | .46 | .20 | .30 | .21 | .26 | 2.06 | 3.92 | 2.18 | .74 | .38 | .30 | 11.24 |
| 1940 | .34 | .20 | .17 | .11 | .12 | .13 | .83 | 2.83 | 2.30 | .71 | .31 | .15 | 8.20 |
| 1941 | .10 | .35 | .16 | .14 | .10 | .12 | 3.81 | 1.95 | 1.29 | 1.12 | .22 | 1.17 | 10.53 |
| 1942 | 1.38 | .47 | .32 | .22 | .16 | .27 | 2.84 | 4.06 | 1.34 | .46 | .17 | .19 | 11.98 |
| 1943 | .55 | .50 | .27 | .20 | .17 | .21 | 2.25 | 3.98 | 3.36 | 1.05 | .42 | .40 | 13.36 |
| 1944 | .49 | .48 | .26 | .23 | .18 | .17 | 1.39 | 4.46 | 3.79 | 1.41 | .82 | 1.20 | 14.88 |
| 1945 | .56 | .63 | .30 | .15 | .14 | 2.25 | 3.67 | 2.58 | .90 | .51 | .59 | .18 | 12.46 |
| 1946 | .12 | .16 | .12 | .13 | .12 | 1.21 | 1.75 | 1.53 | 1.20 | .63 | .14 | 1.00 | 8.11 |
| 1947 | 1.72 | .81 | .45 | .28 | .18 | .19 | *7.1 | *5.75 | *5.21 | 1.54 | .63 | .28 | *17.73 |
| 1948 | .21 | .52 | .24 | .19 | .17 | .18 | 4.62 | 4.15 | .94 | .41 | .37 | .25 | 12.25 |
| 1949 | .16 | .20 | .16 | .17 | .15 | .17 | 2.57 | 1.85 | .80 | .78 | .35 | .20 | 7.36 |
| 1950 | 1.03 | .40 | .22 | .21 | .22 | .28 | .71 | 7.72 | 2.80 | 1.67 | 1.98 | .76 | 18.20 |

* Revised.

* Not previously published; see footnote to preceding table.

a Corrected for change in storage due to regulation during log-driving operations.

Yearly discharge, in cubic feet per second, of Pigeon River at Middle Falls,
below International Bridge, Minn.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1921 | {a} | - | - | - | - | - | - | - | - |
| 1922 | {a} | - | - | - | - | - | - | - | - |
| 1923 | {a} | - | - | - | - | - | - | - | - |
| 1924 | 604 | *3,470 | May 19, 1924 | 35 | *329 | *0.563 | *7.67 | *403 | *9.40 |
| 1925 | 604,1337 | *5,320 | Apr. 24, 1925 | *40 | *593 | *.673 | *9.13 | *538 | *7.88 |
| 1926 | 624 | *3,620 | Apr. 21, 1926* | 30 | *371 | *.635 | *8.63 | *450 | *10.46 |
| 1927 | 744 | *7,370 | Apr. 19, 1927* | 80 | 746 | 1.28 | 17.34 | 670 | 15.57 |
| 1928 | 744 | *6,200 | Apr. 4, 1928 | - | 589 | 1.01 | 13.74 | 645 | 15.05 |
| 1929 | 744 | - | - | - | 325 | .557 | 7.55 | 268 | 6.23 |
| 1930 | 744 | *3,860 | May 21, 1930† | 40 | 347 | .594 | 8.06 | 464 | 10.78 |
| 1931 | 744 | *7,600 | Nov. 21, 1930 | 40 | 407 | .697 | 9.45 | 344 | 7.98 |
| 1932 | 744 | *3,300 | Apr. 22, 1932* | 78 | 476 | .815 | 11.10 | 475 | 11.08 |
| 1933 | 744 | 4,350 | Apr. 19, 1933 | 62 | *477 | .817 | 11.08 | 463 | 10.76 |
| 1934 | 759 | 11,000 | May 5, 1934 | 96 | 578 | .990 | 13.46 | 604 | 14.05 |
| 1935 | 784 | 5,340 | Apr. 28, 1935 | 131 | 614 | 1.05 | 14.26 | 548 | 12.72 |
| 1936 | 804 | 7,390 | May 7, 1936 | 75 | 468 | .801 | 10.92 | 445 | 10.37 |
| 1937 | 824 | 5,750 | Apr. 26, 1937 | 63 | 507 | .868 | 11.78 | 531 | 12.35 |
| 1938 | 854 | *4,790 | Apr. 29, 1938 | 80 | 514 | .880 | 11.96 | 509 | 11.83 |
| 1939 | 874 | 4,600 | May 1, 1939 | 80 | 485 | .827 | 11.24 | 475 | 11.06 |
| 1940 | 894 | 3,630 | May 20, 1940 | 50 | 351 | .601 | 8.20 | 348 | 8.10 |
| 1941 | 924 | *5,840 | Apr. 14, 1941 | 44 | 466 | .777 | 10.53 | 535 | 12.09 |
| 1942 | 954 | 4,140 | Apr. 16, 1942 | 60 | 525 | .875 | 11.88 | 487 | *11.03 |
| 1943 | 974 | 3,620 | Apr. 24, 1943 | 80 | 591 | .985 | 13.36 | 587 | 13.27 |
| 1944 | 1004 | 4,540 | June 5, 1944 | 80 | 656 | 1.09 | 14.88 | 667 | 15.14 |
| 1945 | 1034 | *6,340 | Mar. 28, 1945 | 55 | 551 | .918 | 12.46 | 502 | 11.37 |
| 1946 | 1054 | *3,320 | Mar. 29, 1946* | 37 | 358 | .597 | 8.11 | 472 | 10.67 |
| 1947 | 1084,1337 | *6,500 | June 12, 1947* | 75 | *784 | *1.31 | *17.73 | *696 | *15.74 |
| 1948 | 1114 | *10,000 | Apr. 27, 1948 | 70 | 540 | .900 | 12.25 | 520 | 11.80 |
| 1949 | 1144 | 3,320 | Apr. 14, 1949 | 69 | 326 | .543 | 7.36 | 375 | 8.49 |
| 1950 | 1174 | *7,380 | May 11, 1950 | 90 | 804 | 1.34 | 18.20 | - | - |

* Revised.

† Corrected.

* Not previously published.

a From reports of Dominion Water and Power Bureau.

3. Poplar River at Lutsen, Minn. 1/

Location.--Lat 47°38', long. 90°42', in sec. 33, T. 60 N., R. 3 W., on right bank 350 ft upstream from concrete bridge on U. S. Highway 61 at Lutsen and 1,650 ft upstream from mouth.

Drainage area.--114 sq mi.

Supplemental records available.--May 1911 to September 1912, gage heights and discharge measurements only.

Gage.--Water-stage recorder and concrete control. Datum of gage is 697.89 ft above mean sea level. May 6 to Nov. 4, 1911, staff gage at site 1,250 ft downstream and Aug. 22, 1912, to Sept. 30, 1917, at site 900 ft downstream at different datum. July 17, 1928, to Mar. 30, 1937, chain gage at site 150 ft downstream at datum 6.90 ft lower.

Average discharge.--24 years (1912-17, 1928-47), 106 cfs.

Extremes.--1912-1917, 1928-47: Maximum discharge, 1,390 cfs Apr. 25, 1916 (gage height, 4.7 ft, site and datum then in use); minimum, 2.3 cfs Dec. 3, 1939 (gage height, 1.73 ft).

Remarks.--Prior to 1915, some regulation by dams about 2½ miles upstream.

Cooperation.--Records for 1928-33 furnished by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1913 | *52.7 | *22.9 | *18 | 10.0 | 9.0 | 8.0 | 144 | 156 | 147 | 97.4 | 41.2 | 35.5 | *60.2 |
| 1914 | 147 | 63.3 | 51.5 | 26.1 | 21.2 | 20.9 | 115 | 329 | 198 | 104 | 230 | 217 | 127 |
| 1915 | 103 | 72.1 | 36.4 | 21.5 | 21.2 | 20.5 | 56.6 | 145 | 248 | *134 | 36.4 | 43.1 | 78.2 |
| 1916 | 90.5 | 145 | 68.2 | 45.7 | 33.8 | 27.4 | 466 | 493 | 183 | 71.3 | 57.3 | 119 | 150 |
| 1917 | 49.8 | 56.8 | 30.5 | 22.3 | 20.0 | 19.6 | 84.0 | 265 | 307 | 151 | 75.7 | 45.3 | 94.2 |
| 1928 | - | - | - | - | - | - | - | - | - | - | 102 | *243 | - |
| 1929 | 131 | 104 | 66.7 | 39.2 | 25.4 | *36 | *158 | *105 | *83 | *14 | *13 | *23 | *67 |
| 1930 | *20 | *79 | *38 | *42 | *51 | 25.7 | 149 | *309 | 136 | 124 | 31.5 | 53.3 | *86.5 |

* Revised.

* Not previously published; estimated on basis of records for Pigeon River at International Bridge.

1/ Published as "at mouth" prior to 1912.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly mean discharge, in cubic feet per second, of Poplar River at Lutsen, Minn.--Con.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | 100 | *239 | 130 | 68.3 | 52.0 | 45.0 | 84.1 | 94.4 | 134 | 39.3 | 12.9 | 36.8 | *86.1 |
| 1932 | 70.5 | *144 | 89.9 | 64.8 | 48.9 | 46.3 | 211 | *365 | 117 | 81.9 | 49.6 | 42.5 | *112 |
| 1933 | 83.2 | *258 | *152 | *88 | *66 | *36 | *270 | *218 | *143 | *43 | *14 | 78.1 | *121 |
| 1934 | 78.2 | 96.3 | 79.5 | 59.0 | 43.0 | 39.1 | *128 | *523 | 103 | 44.9 | 19.7 | 44.8 | *106 |
| 1935 | 112 | 128 | 101 | 56.2 | 49.8 | 55.8 | *327 | *343 | 174 | 103 | 46.8 | 47.1 | *129 |
| 1936 | 46.6 | 59.1 | 54.5 | 40.9 | 20.6 | 36.8 | 141 | 445 | 110 | 28.8 | 13.9 | 16.9 | 84.8 |
| 1937 | 14.7 | 20.6 | 28.1 | 56.4 | 22.9 | 20.7 | 274 | 506 | 200 | 50.8 | 42.4 | 59.5 | 108 |
| 1938 | 57.3 | 54.5 | 29.3 | 31.1 | 31.0 | 94.9 | 367 | 339 | 262 | 58.4 | 76.8 | 37.4 | 112 |
| 1939 | 19.3 | 54.8 | 40.1 | 43.4 | 41.0 | 47.4 | 233 | 599 | 282 | 206 | 107 | 59.5 | 145 |
| 1940 | 56.9 | 35.1 | 22.7 | 10.0 | 10.8 | 12.4 | 69.7 | 231 | 254 | 86.3 | 53.0 | 35.1 | 73.1 |
| 1941 | 24.6 | 142 | 59.2 | 46.1 | 33.1 | 29.4 | 325 | 187 | 131 | 44.2 | 23.9 | 111 | 96.2 |
| 1942 | 108 | 63.8 | 36.8 | 24.7 | 30.9 | 31.7 | 244 | 399 | 144 | 35.5 | 28.3 | 33.8 | 98.6 |
| 1943 | 35.7 | 50.6 | 30.1 | 28.3 | 28.2 | 23.2 | 176 | 406 | 490 | 129 | 53.5 | 90.0 | 129 |
| 1944 | 94.5 | 97.2 | 38.3 | 28.1 | 24.6 | 26.5 | 124 | 349 | 425 | 158 | 77.7 | 69.9 | 126 |
| 1945 | 44.0 | 83.0 | 56.2 | 40.1 | 34.0 | 246 | 493 | 181 | 111 | 72.6 | 66.7 | 69.5 | 125 |
| 1946 | 39.0 | 59.0 | 43.6 | 38.4 | 34.1 | 126 | 282 | 188 | 118 | 44.1 | 35.7 | 149 | 96.3 |
| 1947 | 213 | 143 | 78.6 | 57.2 | 48.3 | 40.4 | 91.4 | 542 | 342 | 111 | 45.6 | 23.8 | 145 |

* Revised.

† Not previously published; estimated on basis of records for Pigeon River at International Bridge.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1913 | *0.33 | *0.22 | *0.18 | 0.10 | 0.08 | 0.08 | 1.41 | 1.56 | 1.43 | 0.99 | 0.42 | 0.35 | *7.16 |
| 1914 | 1.46 | .62 | .52 | .27 | .19 | .21 | 1.13 | 3.32 | 1.94 | 1.05 | 2.32 | 2.12 | 15.16 |
| 1915 | 1.04 | .71 | .37 | .22 | .19 | .21 | .55 | 1.46 | 2.43 | 1.35 | .37 | .42 | 9.32 |
| 1916 | .92 | 1.42 | .69 | .46 | .32 | .28 | 4.56 | 4.99 | 1.79 | .72 | .58 | 1.16 | 17.89 |
| 1917 | .50 | .56 | .31 | .23 | .18 | .20 | .82 | 2.68 | 3.00 | 1.53 | .77 | .44 | 11.22 |
| 1928 | - | - | - | - | - | - | - | - | - | - | 1.04 | *2.38 | - |
| 1929 | 1.32 | 1.02 | .67 | .40 | .23 | .36 | *1.55 | *1.06 | *.81 | *.14 | *.13 | *.23 | *7.92 |
| 1930 | *.20 | *.77 | *.36 | *.42 | *.28 | .26 | 1.46 | *3.13 | 1.33 | 1.26 | .32 | .52 | *10.33 |
| 1931 | 1.02 | *2.34 | 1.31 | .69 | .47 | .46 | .82 | .95 | 1.31 | .40 | .13 | .36 | *10.26 |
| 1932 | .71 | *1.41 | .91 | .66 | .46 | .47 | 2.07 | *5.69 | 1.15 | .93 | .50 | .42 | *13.38 |
| 1933 | .84 | *2.52 | *1.53 | *.89 | *.60 | *.36 | *2.64 | *2.20 | *1.40 | *.43 | *.14 | .76 | *14.31 |
| 1934 | .79 | .94 | .80 | .80 | .39 | .40 | *1.25 | *5.29 | 1.01 | .45 | .20 | .44 | *12.56 |
| 1935 | 1.13 | 1.25 | 1.02 | .57 | .45 | .56 | *3.20 | *3.47 | 1.70 | 1.05 | .47 | .46 | *15.33 |
| 1936 | .47 | .58 | .55 | .41 | .19 | .37 | 1.38 | 4.50 | 1.07 | .29 | .14 | .17 | 10.12 |
| 1937 | .15 | .20 | .28 | .57 | .21 | .21 | 2.68 | 5.11 | 1.96 | .51 | .43 | .57 | 12.88 |
| 1938 | .58 | .53 | .30 | .31 | .28 | .96 | 3.59 | 3.43 | 1.58 | .59 | .78 | .37 | 13.30 |
| 1939 | .20 | .53 | .41 | .44 | .37 | .48 | 2.28 | 6.05 | 2.76 | 2.08 | 1.09 | .58 | 17.27 |
| 1940 | .58 | .34 | .23 | .10 | .10 | .12 | .68 | 2.33 | 2.49 | .87 | .54 | .34 | 8.72 |
| 1941 | .25 | 1.39 | .60 | .49 | .30 | .30 | 3.18 | 1.89 | 1.29 | .45 | .24 | 1.08 | 11.46 |
| 1942 | 1.09 | .82 | .37 | .25 | .28 | .32 | 2.39 | 4.03 | 1.41 | .36 | .29 | .33 | 11.73 |
| 1943 | .36 | .50 | .30 | .29 | .26 | .23 | 1.74 | 4.11 | 4.80 | 1.30 | .54 | .88 | 15.31 |
| 1944 | .96 | .95 | .39 | .28 | .23 | .27 | 1.22 | 3.53 | 4.16 | 1.59 | .79 | .68 | 15.05 |
| 1945 | .44 | .81 | .57 | .41 | .31 | 2.49 | 4.82 | 1.83 | 1.09 | .73 | .67 | .67 | 14.84 |
| 1946 | .39 | .58 | .44 | .39 | .31 | 1.28 | 2.76 | 1.91 | 1.15 | .45 | .36 | 1.46 | 11.48 |
| 1947 | 2.16 | 1.40 | .80 | .58 | .44 | .41 | .89 | 5.48 | 3.35 | 1.12 | .46 | .23 | 17.32 |

* Revised.

† Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|-------|-----------------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff inches | Mean | Runoff inches |
| | | Discharge | Date | | | | | | |
| 1913 | 354 | *462 | Apr. 25, 1913* | - | *60.2 | *0.528 | *7.16 | 76.0 | 9.05 |
| 1914 | 384 | *773 | Aug. 11, 1914 | 20 | 127 | 1.11 | 15.16 | 123 | 14.66 |
| 1915 | 404 | 412 | June 13, 1915 | 19 | 78.2 | .686 | 9.32 | 85.9 | 10.23 |
| 1916 | 434 | 1,390 | Apr. 25, 1916 | 25 | 150 | 1.32 | 17.89 | 136 | 16.23 |
| 1917 | 454 | 756 | June 19, 1917 | 19 | 94.2 | .826 | 11.22 | - | - |
| 1928 | 759,1337 | - | - | - | - | - | - | - | - |
| 1929 | 784 | - | - | - | *67 | *.598 | *7.92 | *53 | *6.26 |
| 1930 | 759,1337 | *850 | May 9, 1930 | - | *86.5 | *.759 | *10.33 | *114 | *13.65 |
| 1931 | 759,1337 | *760 | Nov. 21, 1930 | 7 | *86.1 | *.755 | *10.26 | *72.4 | *8.62 |
| 1932 | 759,1337 | *521 | May 10, 1932 | 30 | *112 | *.982 | *13.38 | *128 | *15.24 |
| 1933 | 759,1337 | - | - | - | *121 | *1.06 | *14.31 | *101 | *11.95 |
| 1934 | 759,1337 | *914 | May 7, 1934* | 8.3 | *106 | *.930 | *12.56 | *113 | *13.43 |
| 1935 | 784,1337 | *854 | Apr. 30, 1935 | 25 | *129 | *1.13 | *15.33 | *114 | *13.53 |
| 1936 | 804 | *842 | May 7, 1936* | 7 | 84.8 | .744 | 10.12 | 76.7 | 9.15 |
| 1937 | 824 | 1,250 | May 1, 1937 | 10 | 108 | .947 | 12.88 | 115 | 13.66 |
| 1938 | 854, 894 | 908 | Apr. 29, 1938 | 19 | 112 | .982 | 13.50 | †109 | 13.03 |
| 1939 | 874, 894 | 1,100 | May 1, 1939 | 16 | 145 | 1.27 | 17.27 | 145 | 17.28 |
| 1940 | 894 | 481 | Apr. 30, 1940 | 7.5 | 73.1 | .641 | 8.72 | 82.2 | 9.81 |
| 1941 | 924 | 850 | Apr. 14, 1941 | 11 | 96.2 | .844 | 11.46 | 94.9 | 11.30 |
| 1942 | 954 | 835 | May 15, 1942 | 13 | 98.6 | .865 | 11.73 | 90.8 | 10.81 |
| 1943 | 974 | 1,150 | June 3, 1943 | - | 129 | 1.13 | 15.31 | 138 | 16.45 |
| 1944 | 1004 | 1,060 | June 5, 1944 | 21 | 126 | 1.11 | 15.05 | 122 | 14.57 |
| 1945 | 1034 | 1,220 | Mar. 28, 1945 | 24 | 125 | 1.10 | 14.84 | 121 | 14.43 |
| 1946 | 1054 | 505 | (a) | 15 | 96.3 | .845 | 11.48 | 121 | 14.43 |
| 1947 | 1084 | - | - | 19 | 145 | 1.27 | 17.32 | - | - |

* Revised.

† Corrected.

* Not previously published.

a Occurred during period Mar. 26 to Apr. 1.

4. Cross River at Schroeder, Minn.

Location.--Lat 47°32'40", long. 90°54'10" in S $\frac{1}{2}$ sec. 36, T. 59 N., R. 5 W., at Schroeder, 360 ft upstream from highway bridge and half a mile above the mouth.

Drainage area.--91 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 730 ft (river-profile survey).

Extremes.--June 1931 to January 1932: Maximum discharge observed, 337 cfs Nov. 21, 1931 (gage height, 3.68 ft); minimum observed, 3 cfs Aug. 20, 21, Sept. 9-12, 1931 (gage height, 1.42 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|-----|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | - | - | 35.8 | 7.71 | 20.1 | - |
| 1932 | 41.3 | 103 | 73.7 | *35.5 | - | - | - | - | - | - | - | - | - |

* Not previously published; partly estimated on basis of records for Poplar River at Lutsen and Pigeon River at International Bridge.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|-----|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | - | - | 0.45 | 0.10 | 0.25 | - |
| 1932 | 0.52 | 1.26 | 0.93 | *0.45 | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

5. Baptism River near Beaver Bay, Minn.

Location.--Lat 47°20', long. 91°12', in sec. 15, T. 56 N., R. 7 W., on right bank 260 ft upstream from bridge on U. S. Highway 61 and 6 miles northeast of village of Beaver Bay.

Drainage area.--140 sq mi.

Gage.--Water-stage recorder. Datum of gage is 609.97 ft above mean sea level (Corps of Engineers benchmark). Prior to Oct. 5, 1934, staff gage at same site and datum.

Average discharge.--23 years (1927-50), 161 cfs.

Extremes.--1927-50: Maximum discharge, 9,350 cfs Aug. 9, 1939 (gage height, 8.11 ft), from rating curve extended above 4,000 cfs; minimum daily, 0.4 cfs (corrected) Jan. 5, 6, 1940.

Cooperation.--Records for periods July 1928 to January 1929, March 1930 to September 1933, computed by Corps of Engineers and reviewed by Geological Survey.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|--------|-------|------|-------|-------|-------|----------|
| 1928 | *26.6 | *41.5 | *14.9 | *11.3 | *19.7 | *47.2 | *209 | *314 | *185 | *148 | 237 | 378 | *136 |
| 1929 | 251 | 128 | 35.1 | 21.0 | *25.7 | *97.5 | *463 | *192 | *121 | *55.6 | *64.0 | *60.3 | *126 |
| 1930 | *65.7 | *113 | *32.8 | *20.0 | *15.8 | 22.6 | 450 | 507 | 288 | 273 | 16.0 | 62.1 | *156 |
| 1931 | 113 | 315 | 67.7 | 25.3 | 17.5 | 21.3 | 164 | 296 | 247 | 21.8 | 9.58 | 44.9 | 112 |
| 1932 | 116 | 342 | 94.7 | 43.6 | 27.8 | 44.9 | 512 | 368 | 67.3 | 53.4 | 96.7 | 64.7 | 152 |
| 1933 | 80.9 | 504 | 66.0 | 25.8 | 15.5 | 28.0 | 462 | 317 | 118 | 24.1 | 6.1 | 63.7 | 142 |
| 1934 | 88.4 | 90.7 | 41.4 | 33.8 | 21.9 | 30.2 | 367 | 358 | 52.8 | 7.5 | 2.7 | 23.7 | 93.3 |
| 1935 | 114 | 135 | 57.7 | 30.9 | 31.5 | 79.2 | *772 | 332 | 236 | 251 | 129 | 94.4 | *189 |
| 1936 | 125 | 129 | 60.8 | 31.2 | 11.5 | 25.9 | 620 | 696 | 84.1 | 18.8 | 8.58 | 13.7 | 152 |
| 1937 | 9.42 | 16.7 | 27.1 | 46.0 | 14.9 | 23.6 | 693 | 718 | 222 | 26.0 | 11.2 | 65.5 | 156 |
| 1938 | 75.9 | 88.7 | 18.9 | 17.5 | 16.4 | 363 | 628 | 456 | 359 | 65.9 | 20.2 | 17.6 | 177 |
| 1939 | 16.2 | 48.8 | 23.6 | 23.4 | 23.6 | 55.5 | 678 | 623 | 225 | 180 | 538 | 57.0 | 209 |
| 1940 | 83.5 | 36.4 | 24.0 | 2.00 | 3.94 | 5.73 | 205 | 595 | 364 | 84.0 | 29.9 | 50.0 | 124 |
| 1941 | 46.7 | 284 | 55.1 | 37.3 | 25.2 | 21.1 | 1,050 | 561 | 244 | 29.6 | 45.5 | 424 | 200 |
| 1942 | 181 | 84.6 | 43.0 | 14.6 | 18.5 | 19.3 | 498 | 510 | 152 | 41.8 | 27.4 | 42.4 | 136 |
| 1943 | 45.9 | 76.7 | 21.4 | 14.4 | 13.1 | 14.0 | 642 | 531 | 615 | 66.8 | 45.5 | 82.1 | 180 |
| 1944 | 119 | 120 | 39.9 | 16.6 | 12.1 | 14.8 | 412 | 694 | 475 | 143 | 63.5 | 63.0 | 181 |
| 1945 | 29.5 | 144 | 45.2 | 23.8 | 21.2 | 602 | 479 | 152 | 180 | 48.4 | 66.2 | 117 | 159 |
| 1946 | 50.2 | 73.2 | 20.4 | 22.0 | 13.9 | 232 | 490 | 255 | 158 | 32.9 | 106 | 146 | 133 |
| 1947 | 319 | 198 | 74.2 | 33.9 | 23.0 | 26.5 | 278 | 836 | 500 | 63.4 | 62.3 | 286 | 205 |
| 1948 | *109 | *143 | *44.1 | *29.4 | *16.3 | *50.8 | *1,253 | *810 | *101 | *56.5 | *60.5 | *42.9 | *226 |
| 1949 | *16.2 | *11.8 | *8.53 | *8.69 | *6.53 | *52.4 | *341 | *274 | *205 | 249 | 47.7 | 24.4 | *104 |
| 1950 | 268 | 95.2 | 49.5 | 39.2 | 27.5 | 25.4 | 311 | 1,801 | 203 | 105 | 100 | 44.1 | 259 |

* Revised.

* Not previously published; estimated on basis of records for Kawishiwi River near Winton.

STREAMS TRIBUTARY TO LAKE SUPERIOR

| Water year | Monthly and yearly runoff, in inches, of Baptism River near Beaver Bay, Minn. | | | | | | | | | | | |
|------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1928 | *0.22 | *0.33 | *0.12 | *0.09 | *0.15 | *0.39 | *1.66 | *2.58 | *1.47 | *1.22 | 1.95 | 3.02 |
| 1929 | 2.07 | 1.02 | .29 | .17 | *.19 | *.80 | *3.69 | *1.58 | *.96 | *.46 | *.53 | *.48 |
| 1930 | *.54 | *.90 | *.27 | *.16 | *.12 | .19 | 3.59 | 4.17 | 2.50 | 2.25 | .13 | .49 |
| 1931 | .93 | 2.51 | .56 | .21 | .13 | .18 | 1.31 | 2.44 | 1.97 | .18 | .08 | .36 |
| 1932 | .96 | 2.72 | .78 | .36 | .21 | .37 | 4.08 | 3.03 | .54 | .44 | .80 | .52 |
| 1933 | .67 | 4.02 | .54 | .21 | .12 | .23 | 3.68 | 2.61 | .97 | .20 | .05 | .51 |
| 1934 | .73 | .72 | .34 | .28 | .16 | .25 | 2.92 | 2.95 | .42 | .06 | .02 | .19 |
| 1935 | .94 | 1.08 | .47 | .25 | .23 | .65 | *6.15 | 2.73 | 1.88 | 2.07 | 1.06 | .75 |
| 1936 | 1.03 | 1.02 | .50 | .28 | .09 | .21 | 4.94 | 5.73 | .67 | .15 | .07 | .11 |
| 1937 | .08 | .13 | .22 | .38 | .11 | .19 | 5.53 | 5.92 | 1.77 | .21 | .09 | .52 |
| 1938 | .63 | .71 | .16 | .14 | .12 | 2.99 | 5.01 | 3.75 | 2.86 | .54 | .17 | .14 |
| 1939 | .13 | .39 | .19 | .19 | .18 | .46 | 5.40 | 5.13 | 1.80 | 1.48 | 4.58 | .45 |
| 1940 | .69 | .29 | .20 | .02 | .03 | .05 | 1.63 | 4.90 | 2.90 | .69 | .25 | .40 |
| 1941 | .58 | 2.27 | .45 | .31 | .19 | .17 | 8.36 | 1.32 | 1.95 | .24 | .37 | 3.37 |
| 1942 | 1.49 | .67 | .35 | .12 | .14 | .16 | 3.97 | 4.20 | 1.21 | .34 | .25 | .34 |
| 1943 | .58 | .61 | .18 | .12 | .13 | .12 | 5.12 | 4.37 | 4.90 | .55 | .37 | .85 |
| 1944 | .98 | .96 | .33 | .14 | .09 | .12 | 3.28 | 5.71 | 3.78 | 1.17 | .52 | .50 |
| 1945 | .24 | 1.15 | .37 | .20 | .16 | 4.96 | 3.82 | 1.25 | 1.44 | .40 | .55 | .93 |
| 1946 | .41 | .58 | .17 | .18 | .10 | 1.91 | 3.90 | 2.10 | 1.26 | .27 | .87 | 1.16 |
| 1947 | 2.63 | 1.58 | .61 | .28 | .17 | .22 | 2.21 | 6.88 | 3.99 | .52 | .51 | .23 |
| 1948 | *.90 | *1.14 | *.36 | *.24 | *.12 | *.42 | *9.99 | *6.68 | *.80 | *.47 | *.50 | *.34 |
| 1949 | *.13 | *.09 | *.07 | *.07 | *.05 | *.43 | *2.72 | *2.26 | *1.63 | 2.05 | .39 | .19 |
| 1950 | 2.21 | .76 | .41 | .32 | .20 | .21 | 2.48 | 14.83 | 1.62 | .87 | .83 | .55 |

* Revised.

† Not previously published; estimated on basis of records for Kawishiwi River near Winton.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 759 | - | - | - | *136 | *0.971 | *13.20 | *164 | *15.91 |
| 1929 | 759 | - | - | - | *128 | *.900 | *12.24 | *109 | *10.57 |
| 1930 | 759 | *1,480 | May 8, 1930† | - | *156 | *1.11 | *15.11 | *179 | *17.40 |
| 1931 | 759 | *1,480 | Nov. 21, 1930† | 4 | 112 | .800 | 10.86 | 117 | 11.32 |
| 1932 | 759 | *1,560 | Aug. 30, 1932† | 7 | 152 | 1.09 | 14.81 | 160 | 15.58 |
| 1933 | 759 | *3,500 | Nov. 10, 1932 | 3 | 142 | 1.01 | 13.78 | 107 | 10.34 |
| 1934 | 759 | *1,200 | May 1, 1934* | 2 | 93.3 | .866 | 9.04 | 101 | 9.74 |
| 1935 | 784,1337 | *1,540 | Apr. 14, 1935 | 26 | *189 | *1.35 | *18.26 | *189 | *18.32 |
| 1936 | 804 | 3,120 | May 1, 1936 | 2.0 | 152 | 1.09 | 14.78 | 130 | 12.66 |
| 1937 | 824 | 3,790 | May 1, 1937 | 4.1 | 156 | 1.11 | 15.15 | 167 | 16.22 |
| 1938 | 854 | 3,360 | Mar. 30, 1938 | 9.4 | 177 | 1.26 | 17.22 | 170 | 16.43 |
| 1939 | 894 | 9,350 | Aug. 9, 1939 | 11 | 209 | 1.49 | 20.38 | 213 | 20.85 |
| 1940 | 894 | 1,570 | May 19, 1940 | 7.4 | 124 | .886 | 12.05 | 144 | 13.97 |
| 1941 | 924 | 9,080 | Apr. 13, 1941 | 6.9 | 200 | 1.43 | 19.38 | 194 | 18.79 |
| 1942 | 954 | 2,320 | Apr. 16, 1942 | 2.2 | 136 | .971 | 13.22 | 122 | 11.88 |
| 1943 | 974 | 2,940 | June 3, 1943 | 9.6 | 180 | 1.29 | 17.47 | 191 | 18.57 |
| 1944 | 1004,1034 | 3,130 | May 4, 1944 | 9.3 | 181 | 1.29 | 17.58 | 176 | 17.07 |
| 1945 | 1034 | 5,180 | Mar. 26, 1945 | 9.6 | 159 | 1.14 | 15.47 | 153 | 14.87 |
| 1946 | 1054 | 1,240 | May 24, 1946 | 7.1 | 133 | .950 | 12.91 | 171 | 16.57 |
| 1947 | 1084 | 3,960 | May 3, 1947 | 8.0 | 205 | 1.46 | 19.83 | *179 | *17.41 |
| 1948 | - | - | - | - | *226 | *1.61 | *21.96 | *205 | *19.85 |
| 1949 | 1144 | - | - | - | *104 | *.743 | *10.08 | *135 | *13.17 |
| 1950 | 1174 | 6,060 | May 14, 1950 | 12 | 259 | 1.85 | 25.09 | - | - |

* Revised.

† Corrected.

* Not previously published.

6. Beaver Bay River at Beaver Bay, Minn.

Location.--Lat 47°15'37", long. 91°17'45", in SW $\frac{1}{4}$ sec. 12, T. 55 N., R. 8 W., at village of Beaver Bay, 50 ft downstream from bridge on U. S. Highway 61 and 800 ft above mouth.

Drainage area.--126 sq mi (revised).

Gage.--Staff gage. Datum of gage is 602.38 ft above mean sea level, by water-surface transfer. Prior to Apr. 22, 1912, staff gage, Apr. 22, 1912, to Sept. 30, 1914, and July 13, 1928, to December 1930, chain gage at same site and datum.

Extremes.--1911-14, 1929-31: Maximum discharge observed, 2,020 cfs Apr. 17, 18, 1913 (gage height, 7.0 ft), from rating curve extended above 260 cfs; minimum, estimated as less than 1 cfs in February 1913.

Remarks.--No regulation or diversion.

Cooperation.--Records for 1928-31, not previously published by Geological Survey, furnished by Corps of Engineers.

Monthly and yearly mean discharge, in cubic feet per second, of Beaver Bay River at Beaver Bay, Minn.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1911 | - | - | - | - | - | - | - | - | - | - | 129 | 218 | - |
| 1912 | 111 | 71.6 | 37.6 | 20 | 10 | 7 | 527 | 458 | 149 | 16.2 | 26.3 | 67.0 | 125 |
| 1913 | 37.9 | 21.6 | 10 | 3 | 1 | 2 | 680 | 289 | 242 | 123 | 38.3 | 66.7 | 124 |
| 1914 | 336 | 65.7 | 57.8 | 10 | 4 | 9.58 | 552 | 518 | 271 | 79.2 | 58.9 | 183 | 179 |
| 1928 | - | - | - | - | - | - | - | - | - | - | 195 | 387 | - |
| 1929 | 189 | 91 | 50 | 27 | - | - | - | - | - | - | - | - | - |
| 1930 | - | - | - | - | - | 25 | 368 | 346 | 201 | 144 | 8 | 20 | - |
| 1931 | 66 | 234 | 34 | 16 | 14 | 16 | 131 | 296 | 236 | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1911 | - | - | - | - | - | - | - | - | - | - | 1.18 | 1.93 | - |
| 1912 | 1.02 | 0.63 | 0.34 | 0.18 | 0.09 | 0.06 | 4.67 | 4.20 | 1.32 | 0.15 | .24 | .59 | 13.49 |
| 1913 | .35 | .19 | .09 | .03 | .008 | .02 | 5.84 | 2.64 | 2.14 | 1.12 | .55 | .59 | 15.37 |
| 1914 | 3.08 | .58 | .53 | .09 | .03 | .09 | 4.89 | 4.74 | 2.40 | .72 | .54 | 1.62 | 19.31 |
| 1928 | - | - | - | - | - | - | - | - | - | - | 1.79 | 3.42 | - |
| 1929 | 1.73 | .81 | .46 | .25 | - | - | - | - | - | - | - | - | - |
| 1930 | - | - | - | - | - | .23 | 3.26 | 3.17 | 1.78 | 1.31 | .07 | .18 | - |
| 1931 | .60 | 2.08 | .31 | .15 | .12 | .15 | 1.16 | 2.71 | 2.09 | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 324 | - | - | - | 3 | 125 | 0.992 | 13.49 | 112 |
| 1913 | 354 | - | - | - | - | 124 | .984 | 13.37 | 157 |
| 1914 | 384 | - | - | - | - | 179 | 1.42 | 19.31 | - |

7. Partridge River near Aurora, Minn.

Location (revised).--Lat 47°31'00", long. 92°11'25", in NE¼NW¼ sec. 13, T. 58 N., R. 15 W., on right bank at downstream side of highway bridge, 0.2 mile downstream from Second Creek, 2.5 miles southeast of Aurora, and 2½ miles upstream from mouth.

Drainage area.--156 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,402.30 ft above mean sea level, datum of 1929. Prior to Aug. 26, 1944, staff gage at same site and datum.

Average discharge.--8 years (1942-50), 152 cfs.

Extremes.--1942-50: Maximum discharge, 3,230 cfs May 10, 1950 (gage height, 7.86 ft); minimum, 3.1 cfs Sept. 22, 23, 1948 (gage height, 0.77 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | 18.2 | 15.0 | - |
| 1943 | 47.1 | 76.0 | 20.9 | 9.58 | 9.56 | 9.45 | 270 | 400 | 395 | 131 | 145 | 126 | 137 |
| 1944 | 74.7 | 69.4 | 32.5 | 13.7 | 8.40 | 6.50 | 233 | 550 | 904 | 349 | 106 | 102 | 204 |
| 1945 | 47.5 | 72.5 | 42.6 | 14.6 | 13.3 | 358 | 511 | 133 | 155 | 83.8 | 38.7 | 109 | 132 |
| 1946 | 70.4 | 49.4 | 29.1 | 14.4 | 11.5 | 211 | 448 | 199 | 262 | 88.2 | 58.4 | 56.1 | 125 |
| 1947 | 411 | 168 | 47.5 | 17.9 | 15.4 | 14.3 | 243 | 633 | 343 | 48.4 | 15.5 | 90.1 | 171 |
| 1948 | 43.8 | 47.4 | 29.7 | 16.1 | 9.45 | 16.9 | 897 | 250 | 64.4 | 42.1 | 27.8 | 4.70 | 120 |
| 1949 | 5.78 | 9.07 | 8.74 | 7.23 | 5.85 | 7.20 | 237 | 173 | 161 | 286 | 95.8 | 23.7 | 85.2 |
| 1950 | 400 | 130 | 51.6 | 24.0 | 20.2 | 17.0 | 168 | 1,513 | 281 | 148 | 56.3 | 26.8 | 239 |

* Not previously published; partly estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|-------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | 10.13 | 0.11 | - |
| 1943 | 0.35 | 0.54 | 0.15 | 0.07 | 0.06 | 0.07 | 1.93 | 2.96 | 2.82 | 0.97 | 1.07 | .90 | 11.89 |
| 1944 | .55 | .50 | .24 | .10 | .06 | .05 | 1.66 | 4.07 | 6.47 | 2.58 | .79 | .73 | 17.80 |
| 1945 | .35 | .52 | .32 | .11 | .09 | 2.65 | 3.66 | .98 | 1.11 | .62 | .29 | .78 | 11.48 |
| 1946 | .52 | .35 | .22 | .11 | .08 | 1.56 | 3.20 | 1.47 | 1.88 | .65 | .43 | .40 | 10.87 |
| 1947 | 3.03 | 1.20 | .35 | .13 | .10 | .11 | 1.74 | 4.68 | 2.45 | .36 | .11 | .64 | 14.90 |
| 1948 | .32 | .34 | .22 | .12 | .07 | .12 | 6.41 | 1.85 | .46 | .31 | .21 | .03 | 10.46 |
| 1949 | .04 | .06 | .06 | .05 | .04 | .05 | 1.70 | 1.27 | 1.15 | 2.11 | .69 | .17 | 7.39 |
| 1950 | 2.95 | .93 | .38 | .18 | .13 | .13 | 1.20 | 11.18 | 2.01 | 1.09 | .42 | .19 | 20.79 |

* Not previously published; partly estimated on basis of records for nearby streams.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Yearly discharge, in cubic feet per second, of Partridge River near Aurora, Minn.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - |
| 1943 | 974 | 680 | June 16-18, 1943* | 8.4 | 137 | .878 | 11.89 | 140 |
| 1944 | 1004 | 2,930 | June 6, 1944 | 6.5 | 204 | 1.31 | 17.80 | 203 |
| 1945 | 1034 | 1,560 | Mar. 29, 1945 | 11 | 132 | .848 | 11.48 | 131 |
| 1946 | 1054 | 764 | Mar. 29, 1946 | 9.5 | 125 | .801 | 10.87 | 165 |
| 1947 | 1084 | 1,980 | May 4, 1947 | 8.4 | 171 | 1.10 | 14.90 | 129 |
| 1948 | 1114 | 2,660 | Apr. 22, 1948 | 3.2 | 120 | .769 | 10.46 | 112 |
| 1949 | 1144 | 950 | July 8, 9, 1949 | 3.3 | 85.2 | .546 | 7.39 | 132 |
| 1950 | 1174 | 3,230 | May 10, 1950 | 13 | 239 | 1.53 | 20.79 | - |

* Revised.

8. St. Louis River near Aurora, Minn.

Location.--Lat 47°29'30", long. 92°14'20", in SW $\frac{1}{4}$ sec. 22, T. 58 N., R. 15 W., on left bank at upstream side of highway bridge, three-quarters of a mile downstream from Partridge River and $1\frac{1}{2}$ miles south of Aurora.

Drainage area.--312 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,371.24 ft above mean sea level, datum of 1929. Prior to Aug. 26, 1944, chain gage at same site and datum.

Average discharge.--8 years (1942-50), 278 cfs.

Extremes.--1942-50: Maximum discharge, 5,380 cfs May 14, 1950 (gage height, 8.37 ft); minimum, 4.0 cfs Oct. 2, 3, 1948 (gage height, 0.30 ft).

Remarks.--Flow affected by natural storage in lakes above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|--------|-------|------|-------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1943 | 81.3 | 143 | 75.3 | 34.1 | 25.4 | 26.5 | 419 | 695 | 714 | 292 | *55.5 | 43.8 | - |
| 1944 | 146 | 155 | 93.9 | 50.8 | 22.8 | 13.9 | 328 | 985 | 1,541 | 623 | 223 | 220 | 255 |
| 1945 | 118 | 140 | 98.9 | 58.5 | 33.8 | 567 | 965 | 329 | 517 | 161 | 76.4 | 186 | 254 |
| 1946 | 148 | 86.6 | 68.4 | 46.5 | 25.6 | 300 | 750 | 372 | 462 | 164 | 94.8 | 111 | 219 |
| 1947 | 687 | 374 | 126 | 53.5 | 33.6 | 30.7 | 398 | 1,019 | 599 | 141 | 46.3 | 117 | 304 |
| 1948 | 75.6 | 78.0 | 68.2 | 45.9 | 24.0 | 44.8 | 1,504 | 618 | 137 | 110 | 56.5 | 12.4 | 230 |
| 1949 | 8.82 | 20.5 | 20.7 | 23.1 | 16.5 | 17.0 | 372 | 350 | 333 | 480 | 167 | 49.5 | 156 |
| 1950 | 601 | 294 | 96.3 | 42.6 | 36.4 | 27.8 | *277 | *2,829 | 625 | 293 | 92.2 | 47.4 | *443 |

* Revised.

* Not previously published; partly estimated on basis of records for Baptism River near Beaver Bay.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|--------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1943 | 0.30 | 0.51 | 0.28 | 0.13 | 0.08 | 0.10 | 1.50 | 2.57 | 2.55 | 1.08 | 1.06 | .94 | 11.10 |
| 1944 | .54 | .55 | .35 | .19 | .08 | .05 | 1.17 | 3.64 | 5.51 | 2.30 | .82 | .79 | 15.99 |
| 1945 | .43 | .50 | .37 | .22 | .11 | 2.10 | 3.45 | 1.22 | 1.13 | .60 | .28 | .66 | 11.07 |
| 1946 | .55 | .31 | .25 | .17 | .09 | 1.11 | 2.68 | 1.38 | 1.65 | .60 | .35 | .40 | 9.54 |
| 1947 | 2.54 | 1.34 | .47 | .20 | .11 | .11 | 1.42 | 3.77 | 2.14 | .52 | .17 | .42 | 13.21 |
| 1948 | .28 | .28 | .25 | .17 | .08 | .17 | 5.38 | 2.28 | .49 | .41 | .21 | .04 | 10.04 |
| 1949 | .03 | .07 | .08 | .09 | .05 | .06 | 1.33 | 1.29 | 1.19 | 1.77 | .62 | .18 | 6.76 |
| 1950 | 2.22 | 1.05 | .36 | .16 | .12 | .10 | *.99 | *10.45 | 2.23 | 1.08 | .34 | .17 | *19.27 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - |
| 1943 | 974 | 1,090 | June 15-17, 1943 | 24 | 255 | 0.817 | 11.10 | 263 |
| 1944 | 1004 | 3,960 | June 6, 1944 | 7.5 | 367 | 1.18 | 15.99 | 363 |
| 1945 | 1034 | 2,030 | Mar. 28, 1945 | 24 | 254 | .814 | 11.07 | 250 |
| 1946 | 1054 | 1,040 | Apr. 25, 1946 | 19 | 219 | .702 | 9.54 | 293 |
| 1947 | 1084 | 2,510 | May 4, 1947 | 20 | 304 | .974 | 15.21 | 222 |
| 1948 | 1114 | 3,760 | Apr. 21, 1948 | 5.5 | 230 | .737 | 10.04 | 216 |
| 1949 | 1144 | 1,240 | July 7, 8, 1949 | 4.4 | 156 | .500 | 6.76 | 235 |
| 1950 | 1174, 1337 | 5,380 | May 14, 1950 | 20 | *443 | *1.42 | *19.27 | - |

* Revised.

9. Embarrass River at Embarrass, Minn.

Location.--Lat 47°39'24", long. 92°11'51", in NW $\frac{1}{4}$ sec. 25, T. 60 N., R. 15 W., on left bank at Embarrass, 30 ft upstream from highway bridge and 100 ft upstream from railway bridge.

Drainage area.--93.8 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,410.36 ft above mean sea level, datum of 1929. Prior to Aug. 28, 1944, chain gage at same site and datum.

Average discharge.--8 years (1942-50), 82.5 cfs.

Extremes.--1942-50: Maximum discharge, 1,740 cfs May 8, 9, 1950; maximum gage height, 10.92 ft May 9, 1950; minimum daily discharge, 1.9 cfs Mar. 15-22, 1949.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | - | - | - | - | 12.0 | 15.9 | - |
| 1943 | 23.8 | 32.6 | 5.31 | 4.83 | 5.22 | 5.92 | 150 | 205 | 252 | 52.7 | 36.5 | 55.4 | 69.0 |
| 1944 | 29.7 | 28.9 | 17.2 | 5.69 | 2.89 | 2.97 | 103 | 274 | 433 | 238 | 60.7 | 43.2 | 103 |
| 1945 | 24.3 | 50.3 | 20.8 | 8.86 | 6.51 | 199 | 285 | 83.0 | 104 | 41.5 | 21.9 | 51.5 | 74.8 |
| 1946 | 33.1 | 20.8 | 12.3 | 7.73 | 6.34 | 125 | 207 | 94.1 | 148 | 47.1 | 27.2 | 48.2 | 64.7 |
| 1947 | 235 | 93.2 | 23.1 | 8.87 | 6.79 | 7.42 | 196 | 313 | 133 | 25.1 | 9.27 | 229 | 107 |
| 1948 | 60.4 | 46.2 | 29.6 | 17.0 | 9.10 | 14.5 | 542 | 149 | 28.9 | 14.5 | 18.1 | 5.08 | 77.4 |
| 1949 | 4.21 | 7.61 | 4.48 | 3.39 | 2.63 | 2.70 | 162 | 81.4 | 73.9 | 105 | 76.5 | 14.9 | 45.1 |
| 1950 | 144 | 60.4 | 23.2 | 7.03 | 6.43 | 6.19 | 142 | 782 | 118 | 69.1 | 35.4 | 18.2 | 119 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | - | - | - | - | 0.15 | 0.19 | - |
| 1943 | 0.29 | 0.39 | 0.07 | 0.06 | 0.06 | 0.07 | 1.78 | 2.52 | 2.99 | 0.65 | .45 | .66 | 9.95 |
| 1944 | .37 | .34 | .21 | .07 | .03 | .04 | 1.22 | 3.37 | 5.15 | 2.92 | .75 | .51 | 14.98 |
| 1945 | .30 | .60 | .26 | .11 | .07 | 2.45 | 3.39 | 1.02 | 1.24 | .51 | .27 | .61 | 10.83 |
| 1946 | .41 | .25 | .15 | .09 | .07 | 1.53 | 2.47 | 1.16 | 1.76 | .58 | .33 | .57 | 9.37 |
| 1947 | 2.89 | 1.11 | .28 | .11 | .08 | .09 | 2.53 | 3.85 | 1.58 | .31 | .11 | 2.72 | 15.46 |
| 1948 | .74 | .55 | .36 | .21 | .10 | .18 | 6.44 | 1.83 | .34 | .18 | .22 | .06 | 11.21 |
| 1949 | .05 | .09 | .06 | .04 | .03 | .03 | 1.93 | 1.00 | .88 | 1.30 | .94 | .18 | 6.53 |
| 1950 | 1.77 | .72 | .29 | .09 | .07 | .08 | 1.68 | 9.61 | 1.40 | .85 | .43 | .22 | 17.21 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - | |
| 1943 | 974 | 423 | June 17, 1943 | 3.6 | 69.0 | 0.736 | 9.99 | 70.2 | 10.16 | |
| 1944 | 1004 | 1,160 | June 6, 1944 | 2.0 | 103 | 1.10 | 14.98 | 105 | 15.22 | |
| 1945 | 1034 | 774 | Mar. 28, 1945 | 5.5 | 74.8 | .797 | 10.83 | 72.4 | 10.48 | |
| 1946 | 1054 | 300 | Mar. 29, June 18 | - | 64.7 | .690 | 9.37 | 88.8 | 12.84 | |
| 1947 | 1084 | *1,120 | May 3, 1947 | 4.0 | 107 | 1.14 | 15.46 | 88.7 | 12.83 | |
| 1948 | 1114 | 1,490 | Apr. 21, 1948 | 2.6 | 77.4 | .825 | 11.21 | 67.3 | 9.76 | |
| 1949 | 1144 | 297 | Apr. 15, 1949 | 1.9 | 45.1 | .481 | 6.53 | 62.9 | 9.11 | |
| 1950 | 1174 | 1,740 | May 8, 9, 1950 | 4.8 | 119 | *1.27 | 17.21 | - | - | |

* Revised.

† Corrected.

10. Whiteface River below Meadowslands, Minn.^{1/}

Location.--Lat 47°03', long. 92°43', in NW $\frac{1}{4}$ sec. 26, T. 53 N., R. 19 W., $\frac{1}{4}$ miles south of Meadowslands, $\frac{1}{2}$ miles downstream from unnamed tributary entering from the right, $\frac{1}{2}$ miles downstream from Duluth, Missabe, and Iron Range Railway bridge, and 4 miles downstream from Little Whiteface River.

Drainage area.--453 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 1,246.6 ft above mean sea level, datum of 1929.

Prior to Apr. 28, 1912, staff gage at site $2\frac{1}{2}$ miles upstream at different datum.

Apr. 28, 1912, to Nov. 7, 1914, chain gage at site 300 ft upstream at different datum.

Average discharge.--8 years (1909-17), 327 cfs.

Extremes.--1909-17: Maximum discharge, 5,960 cfs (revised) Apr. 21, 1916 (gage height, 12.10 ft, from graph based on gage readings), from rating curve extended above 3,200 cfs on basis of logarithmic plotting; minimum not determined.

Remarks.--Flow affected by regulation from logging dams above station.

^{1/} Published as "at Meadowslands" prior to 1912.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly mean discharge, in cubic feet per second, of Whiteface River below Meadowlands, Minn.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|--------|-------|----------|
| 1909 | - | - | - | - | - | - | - | - | *311 | 688 | *1,220 | 409 | - |
| 1910 | 439 | 365 | *396 | *129 | *102 | *256 | 395 | 431 | *245 | *72.3 | *96.6 | *107 | *254 |
| 1911 | 311 | *45.9 | *42.3 | *39.8 | *47.0 | *128 | *590 | 767 | 621 | 197 | 696 | 716 | *351 |
| 1912 | 311 | *140 | *85.2 | *82.8 | *50.1 | *85.0 | *229 | 855 | 592 | *72.2 | *43.2 | *79.2 | *216 |
| 1913 | *87.1 | *42.0 | *50.0 | *49.4 | *56.6 | *52.2 | *401 | 695 | 312 | 735 | 176 | 404 | *303 |
| 1914 | 720 | 252 | 204 | *74.4 | *78.9 | *87.8 | *401 | 1,120 | 1,040 | 763 | 228 | 441 | *451 |
| 1915 | 193 | 142 | *85.2 | *78.3 | *80.1 | *79.5 | *173 | *850 | *1,340 | *508 | *99.7 | *85.0 | *309 |
| 1916 | 572 | 501 | *128 | *131 | *114 | *113 | *2,650 | 1,240 | 875 | 560 | 81.4 | 198 | *597 |
| 1917 | 120 | *146 | *123 | *99.8 | *84.0 | *82.4 | *243 | 156 | 155 | 184 | 153 | 70.3 | *135 |

* Revised.

† Corrected.

‡ Not previously published; estimated or partly estimated on basis of records for St. Louis River near Thomson.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1909 | - | - | - | - | - | - | - | - | *0.77 | 1.75 | 3.11 | 1.01 | - |
| 1910 | 1.12 | 0.90 | *1.01 | *0.33 | *0.23 | *0.65 | 0.97 | 1.10 | *.60 | *.18 | *.25 | *.26 | *7.60 |
| 1911 | .79 | *.11 | *.11 | *.10 | *.11 | *.33 | *1.45 | 1.95 | 1.53 | .50 | 1.77 | 1.76 | *10.51 |
| 1912 | .79 | *.34 | *.22 | *.16 | *.12 | *.16 | *.56 | 2.20 | 1.43 | *.18 | *.11 | *.20 | *6.47 |
| 1913 | *.17 | *.10 | *.13 | *.15 | *.15 | *.13 | *.99 | 1.77 | 2.25 | 1.87 | .45 | .99 | *9.11 |
| 1914 | 1.83 | .82 | .52 | *.19 | .18 | *.22 | *.99 | 2.85 | 2.56 | 1.94 | .58 | 1.09 | *13.57 |
| 1915 | .49 | .35 | *.22 | *.20 | *.18 | *.20 | *.45 | *2.16 | *3.31 | *1.29 | *.25 | *.21 | *9.29 |
| 1916 | 1.46 | 1.23 | *.33 | *.33 | *.27 | *.29 | *6.52 | 3.15 | 2.15 | 1.42 | .21 | .49 | *17.85 |
| 1917 | .30 | *.36 | *.31 | *.25 | *.19 | *.21 | *.60 | .40 | .38 | .47 | .39 | .17 | *4.03 |

* Revised.

‡ Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1909 | 284 | *3,480 | Aug. 11, 1909 | - | - | - | - | - | - |
| 1910 | 284,1337 | *1,420 | May 24, 1910 | - | *254 | *0.561 | *7.60 | *187 | *5.58 |
| 1911 | 304 | *2,420 | May 17, 20, 1911 | - | *351 | *.775 | *10.51 | *362 | *10.85 |
| 1912 | 324,1337 | *1,530 | May 28, 1912 | - | *216 | *.477 | *6.47 | *184 | *5.52 |
| 1913 | 354 | *2,320 | June 10, 1913 | - | *303 | *.669 | *9.11 | *388 | *11.68 |
| 1914 | 384 | *2,560 | May 5, 1914* | - | *451 | *.996 | *13.57 | *388 | *11.66 |
| 1915 | 404,1337 | *2,530 | June 17, 1915 | - | *309 | *.682 | *9.29 | *375 | *11.25 |
| 1916 | 434, 454 | *5,960 | Apr. 21, 1916 | - | *597 | *1.32 | *17.85 | *529 | *15.80 |
| 1917 | 454 | *735 | Apr. 30, 1917* | - | *135 | *.298 | *4.03 | - | - |

* Revised.

‡ Not previously published.

11. Cloquet River at Independence, Minn.

Location (revised).--Lat 46°57'19", long. 92°27'42", in SW 1/4 sec. 26, T. 52 N., R. 17 W., on left bank 1,000 ft downstream from bridge on U. S. Highway 53 at Independence and 0.6 mile downstream from Hellwig Creek.

Drainage area.--750 sq mi, approximately (revised).

Gage.--Chain gage. Altitude of gage is 1,280 ft (from topographic map). Prior to Nov. 10, 1915, staff gage at same site and datum.

Average discharge.--8 years (1909-17), 558 cfs.

Extremes.--1909-17: Maximum discharge, 5,460 cfs (revised) Apr. 30, 1916 (gage height, 9.4 ft, from graph based on gage readings); minimum not determined.

Remarks.--Regulation at times by logging dams above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|----------|
| 1909 | - | - | - | 160 | 195 | 275 | - | - | - | 1,370 | 1,940 | 819 | - |
| 1910 | 1,540 | 875 | 840 | 220 | 300 | 370 | 1,420 | 679 | 435 | 295 | 516 | 570 | 672 |
| 1911 | 392 | 100 | 80.0 | 90.0 | 100 | 130 | 800 | *946 | *687 | 326 | 406 | 958 | *418 |
| 1912 | 613 | 250 | 50 | 150 | 140 | 190 | 318 | 1,320 | 939 | 823 | 216 | 222 | 437 |
| 1913 | 487 | 140 | 130 | 156 | 205 | 119 | 398 | 1,060 | 1,210 | 944 | 468 | 469 | 484 |
| 1914 | 1,080 | 370 | 348 | 85 | 220 | *250 | *262 | 1,910 | 1,760 | 1,060 | 468 | 842 | *724 |
| 1915 | 377 | 355 | *160 | *146 | *150 | *148 | 80.1 | 425 | 901 | 1,100 | 802 | 256 | *408 |
| 1916 | 447 | 160 | 143 | 377 | 404 | 381 | 1,310 | 2,430 | 1,400 | 1,470 | 978 | 682 | 850 |
| 1917 | 1,040 | 681 | 781 | 600 | 500 | 480 | 154 | 134 | 244 | 118 | 637 | 273 | 471 |

* Revised.

‡ Not previously published; estimated on basis of records for St. Louis River at Thomson.

Monthly and yearly runoff, in inches, of Cloquet River at Independence, Minn.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|-------|------|------|-------|----------|
| 1909 | - | - | - | 0.25 | 0.27 | 0.42 | - | - | - | 2.11 | 2.98 | 1.22 | - |
| 1910 | 2.36 | 1.30 | 1.29 | .34 | .42 | .57 | 2.11 | 1.04 | 0.65 | .45 | .79 | .85 | 12.17 |
| 1911 | .60 | .15 | .12 | .14 | .14 | .20 | 1.19 | *1.45 | *1.02 | .50 | .62 | 1.42 | *7.55 |
| 1912 | .94 | .37 | .08 | .23 | .20 | .29 | .47 | 2.03 | 1.40 | 1.27 | .33 | .33 | 7.94 |
| 1913 | .75 | .21 | .20 | .24 | .28 | .18 | .59 | 1.63 | 1.80 | 1.45 | .72 | .70 | 8.75 |
| 1914 | 1.65 | .55 | .54 | .13 | .31 | *.38 | *.39 | 2.94 | 2.62 | 1.62 | .72 | 1.25 | *13.10 |
| 1915 | .58 | .53 | *.25 | *.22 | *.21 | *.23 | .12 | .65 | 1.34 | 1.69 | 1.23 | .58 | *7.43 |
| 1916 | .69 | .24 | .22 | .58 | .58 | .59 | 1.94 | 3.73 | 2.08 | 2.26 | 1.50 | 1.01 | 15.42 |
| 1917 | 1.59 | 1.01 | 1.20 | .92 | .69 | .74 | .23 | .21 | .36 | .18 | .98 | .41 | 8.52 |

* Revised.

* Not previously published; estimated on basis of records for St. Louis River at Thomson.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1909 | 284 | - | - | - | - | - | - | - | - |
| 1910 | 284 | \$4,070 | Oct. 28, 1909* | - | 672 | 0.896 | 12.17 | *447 | 8.09 |
| 1911 | 304,1337 | \$3,830 | Apr. 24, 1911* | - | *418 | *.557 | *7.55 | *447 | *8.07 |
| 1912 | 324 | \$3,910 | July 16, 1912* | - | 437 | .583 | 7.94 | 425 | 7.71 |
| 1913 | 354 | \$3,430 | Oct. 20, 1912* | - | 484 | .645 | 8.75 | 571 | 10.33 |
| 1914 | 384 | *4,600 | June 2, 1914 | - | *724 | *.965 | *13.10 | *646 | *11.72 |
| 1915 | 404 | *4,680 | July 14, 1915* | - | *408 | *.544 | *7.43 | *396 | *7.22 |
| 1916 | 434 | *5,460 | Apr. 30, 1916 | 10 | 850 | 1.13 | 15.42 | 997 | 18.07 |
| 1917 | 454 | *3,980 | Oct. 19, 1916 | 80 | 471 | .628 | 8.52 | - | - |

* Revised.

† Corrected.

* Not previously published.

12. St. Louis River near Thomson, Minn.

Location.--Lat 46°39'18", long. 92°20'00" in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 11, T. 48 N., R. 16 W., at Thomson hydroelectric plant of Minnesota Power and Light Co., 2 $\frac{1}{2}$ miles upstream from Fond du Lac Dam and 3 miles east of Thomson.

Drainage area.--3,570 sq mi (revised).

Gage.--Powerplant record. Oct. 5, 1909, to Sept. 5, 1914, chain gage 50 ft downstream from powerplant. Altitude of gage is 680 ft (from topographic map).

Average discharge.--42 years (1908-50), 2,133 cfs, unadjusted.

Extremes.--1908-50: Maximum daily discharge, 37,900 cfs May 9, 1950; minimum daily, 109 cfs Feb. 7, 1924.

Remarks.--Flow regulated by the following system reservoirs: Island Lake, storage started in 1909; Rice Lake, storage started in 1909; Fish Lake, storage started in 1911; Boulder Lake, storage started in 1920; Whiteface Reservoir, storage started in 1923; combined capacity 332,160 acre-feet. Runoff adjusted for change in contents in above reservoirs.

Cooperation.--Records, except those for Oct. 5, 1909, to Sept. 5, 1914, and storage data used to adjust runoff were furnished by Minnesota Power and Light Co.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|--------|--------|----------|
| 1908 | - | - | - | 320 | 373 | 381 | 5,984 | 11,870 | 16,480 | 3,599 | 1,732 | 656 | - |
| 1909 | 815 | 603 | 504 | 537 | 587 | 659 | 1,349 | 6,780 | 3,205 | 3,237 | 7,178 | 2,432 | 2,343 |
| 1910 | 3,000 | 2,750 | 2,640 | 862 | 683 | 1,570 | 2,920 | 1,920 | 978 | 549 | 1,090 | 923 | 1,660 |
| 1911 | 1,360 | 499 | 282 | 285 | 313 | 856 | *3,760 | *4,070 | 2,770 | 1,070 | *3,510 | *4,100 | *1,910 |
| 1912 | 1,910 | 839 | 568 | *419 | 334 | 433 | 2,570 | 8,240 | 4,130 | 1,400 | 687 | 1,230 | *1,900 |
| 1913 | 1,280 | 644 | 410 | 329 | 377 | 348 | 4,110 | 6,000 | 4,890 | 5,340 | 1,690 | 1,970 | 2,280 |
| 1914 | 3,940 | 1,750 | 1,040 | 496 | 526 | 585 | 2,220 | 7,550 | 5,450 | 5,610 | 2,640 | 2,960 | 2,960 |
| 1915 | 1,309 | 864 | 568 | 522 | 534 | 530 | 1,115 | 3,418 | 5,814 | 3,113 | 1,109 | 602 | 1,628 |
| 1916 | 2,475 | 2,505 | 854 | 874 | 762 | 756 | 12,740 | 12,780 | 4,852 | 3,321 | 1,233 | 1,733 | 3,737 |
| 1917 | 1,365 | 1,354 | 818 | 665 | 557 | 549 | 2,387 | 1,706 | 1,160 | 1,119 | 1,509 | 832 | 1,155 |
| 1918 | 957 | 931 | 891 | 692 | 736 | 934 | 945 | 2,655 | 3,313 | 339 | 775 | 692 | 1,186 |
| 1919 | 655 | 766 | 611 | 483 | 442 | 1,168 | 6,392 | 3,148 | 3,171 | 1,015 | 860 | 923 | 1,633 |
| 1920 | 1,043 | 1,875 | 1,037 | 944 | 991 | 4,145 | 6,021 | 3,898 | 9,406 | 3,833 | 1,147 | 1,021 | 2,940 |
| 1921 | 1,088 | 1,030 | 1,015 | 936 | 762 | 1,089 | 5,573 | 2,570 | 6,977 | 1,095 | 882 | 872 | 1,983 |
| 1922 | 920 | 851 | 867 | 710 | 490 | 685 | 6,730 | 3,824 | 1,067 | 1,026 | 814 | 671 | 1,555 |
| 1923 | 593 | 803 | 546 | 484 | 392 | 481 | 4,490 | 3,099 | 1,286 | 1,106 | 1,069 | 728 | 1,259 |
| 1924 | 601 | 619 | 392 | 320 | 245 | 301 | 851 | 1,782 | 1,699 | 1,717 | 1,275 | 1,523 | 945 |
| 1925 | 1,926 | 1,006 | 1,050 | 915 | 753 | 775 | 1,074 | 917 | 1,511 | 775 | 654 | 1,272 | 1,051 |
| 1926 | 1,925 | 873 | 697 | 811 | 880 | 1,295 | 2,013 | 1,545 | 2,014 | 1,568 | 940 | 1,757 | 1,361 |
| 1927 | 2,272 | 1,209 | 904 | 869 | 921 | 2,053 | 11,800 | 4,776 | 2,614 | 2,223 | 884 | 870 | 2,622 |
| 1928 | 898 | 1,154 | 1,088 | 1,060 | 938 | 1,433 | 4,766 | 4,723 | 3,611 | 3,142 | 3,648 | 7,594 | 2,833 |
| 1929 | 6,270 | 2,113 | 1,225 | 1,129 | 1,075 | 2,110 | 4,020 | 2,592 | 3,250 | 1,118 | 928 | 958 | 2,238 |
| 1930 | 817 | 920 | 1,041 | 1,008 | 890 | 785 | 1,358 | 6,634 | 2,557 | 2,521 | 1,084 | 930 | 1,712 |

* Revised.

Note.--Discharge for periods Jan. 1, 1908, to Oct. 4, 1909, and Sept. 6, 1914, to Sept. 30, 1950, not previously published.

Monthly and yearly mean discharge, in cubic feet per second (observed), of St. Louis River near Thomson, Minn.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|----------|
| 1931 | 1,233 | 1,680 | 1,489 | 1,202 | 1,112 | 1,104 | 1,102 | 1,737 | 5,910 | 1,156 | 1,417 | 1,141 | 1,687 |
| 1932 | 693 | 1,284 | 1,138 | 857 | 905 | 884 | 3,984 | 6,005 | 1,300 | 857 | 984 | 1,224 | 1,678 |
| 1933 | 1,012 | 2,192 | 917 | 925 | 960 | 812 | 2,107 | 4,086 | 2,043 | 809 | 1,013 | 1,002 | 1,490 |
| 1934 | 988 | 1,061 | 922 | 813 | 575 | 777 | 4,529 | 2,497 | 1,058 | 1,013 | 557 | 402 | 1,266 |
| 1935 | 407 | 473 | 615 | 496 | 885 | 1,660 | 5,291 | 4,896 | 1,847 | 1,628 | 2,099 | 1,416 | 1,812 |
| 1936 | 1,380 | 1,529 | 1,040 | 1,158 | 1,272 | 1,129 | 7,532 | 8,699 | 1,954 | 1,476 | 1,126 | 869 | 2,430 |
| 1937 | 958 | 651 | 498 | 472 | 602 | 843 | 6,174 | 4,369 | 2,944 | 1,245 | 1,310 | 1,781 | 1,802 |
| 1938 | 1,365 | 1,091 | 756 | 375 | 527 | 1,496 | 4,834 | 14,350 | 4,988 | 1,222 | 1,057 | 948 | 2,763 |
| 1939 | 1,079 | 1,060 | 906 | 923 | 796 | 784 | 6,739 | 3,446 | 3,218 | 1,484 | 1,782 | 1,383 | 1,963 |
| 1940 | 1,330 | 1,166 | 689 | 770 | 668 | 551 | 3,290 | 6,560 | 2,635 | 1,242 | 1,045 | 962 | 1,745 |
| 1941 | 744 | 1,456 | 1,060 | 948 | 1,362 | 815 | 12,210 | 2,328 | 2,778 | 1,279 | 1,313 | 4,780 | 2,570 |
| 1942 | 3,868 | 1,640 | 1,287 | 833 | 711 | 882 | 2,723 | 10,040 | 4,102 | 1,552 | 1,301 | 1,175 | 2,535 |
| 1943 | 1,053 | 1,231 | 1,191 | 994 | 853 | 871 | 4,465 | 4,877 | 7,696 | 2,517 | 4,570 | 1,927 | 2,706 |
| 1944 | 1,532 | 1,557 | 1,279 | 1,385 | 1,420 | 1,370 | 4,066 | 8,376 | 12,910 | 5,362 | 2,253 | 1,774 | 3,603 |
| 1945 | 1,568 | 1,489 | 1,372 | 1,438 | 1,417 | 6,026 | 7,253 | 2,411 | 3,270 | 1,810 | 1,853 | 2,567 | 2,706 |
| 1946 | 1,681 | 1,701 | 1,410 | 1,535 | 1,407 | 3,809 | 6,039 | 3,249 | 6,541 | 2,781 | 1,623 | 1,225 | 2,749 |
| 1947 | 4,873 | 3,235 | 1,574 | 1,769 | 1,741 | 1,309 | 6,816 | 5,165 | 5,426 | 1,364 | 1,095 | 1,875 | 3,016 |
| 1948 | 1,093 | 1,068 | 848 | 1,072 | 1,298 | 1,602 | 15,230 | 4,089 | 1,556 | 1,438 | 1,287 | 1,193 | 2,632 |
| 1949 | 1,020 | 830 | 609 | 475 | 481 | 701 | 3,686 | 2,543 | 1,980 | 4,424 | 1,474 | 876 | 1,553 |
| 1950 | 3,213 | 1,808 | 1,584 | 1,263 | 1,214 | 1,165 | 5,934 | 22,210 | 3,729 | 2,608 | 1,482 | 1,183 | 3,980 |

Note.--Records not previously published.

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | 0.10 | 0.11 | 0.12 | 1.27 | 3.85 | 5.16 | 1.10 | 0.56 | 0.21 | - |
| 1909 | 0.29 | 0.22 | 0.18 | .16 | .13 | .12 | 1.42 | 2.22 | 1.01 | 1.07 | 2.33 | .77 | 8.92 |
| 1910 | .98 | .87 | .85 | .26 | .17 | .49 | .90 | .62 | .30 | .17 | .35 | .29 | 6.25 |
| 1911 | .44 | .15 | .10 | .07 | .10 | .25 | 1.20 | 1.31 | .87 | .35 | 1.12 | 1.30 | 7.26 |
| 1912 | .65 | .27 | .11 | .09 | .08 | .12 | .81 | 2.71 | 1.30 | .45 | .25 | .39 | 7.27 |
| 1913 | .42 | .21 | .11 | .07 | .07 | .09 | 1.37 | 1.99 | 1.55 | 1.76 | .54 | .65 | 8.83 |
| 1914 | 1.34 | .57 | .33 | .14 | .10 | .13 | .75 | 2.51 | 2.39 | 1.75 | .52 | .84 | 11.37 |
| 1915 | .43 | .27 | .14 | .11 | .11 | .16 | .46 | 1.40 | 1.92 | .90 | .25 | .17 | 6.32 |
| 1916 | .92 | .95 | .24 | .20 | .14 | .18 | 4.37 | 4.05 | 1.60 | .97 | .36 | .62 | 14.60 |
| 1917 | .31 | .30 | .14 | .07 | .04 | .09 | .95 | .76 | .44 | .43 | .39 | .25 | 4.17 |
| 1918 | .37 | .33 | .12 | .09 | .07 | .23 | .27 | 1.18 | 1.11 | .17 | .11 | .10 | 4.15 |
| 1919 | .16 | .30 | .08 | .13 | .09 | .28 | 2.35 | 1.99 | 1.23 | .33 | .28 | .19 | 6.68 |
| 1920 | .30 | .66 | .28 | .17 | .13 | 1.39 | 2.19 | 1.58 | 3.02 | 1.19 | .28 | .19 | 11.38 |
| 1921 | .32 | .24 | .16 | .13 | .09 | .26 | 2.26 | .99 | 2.39 | .35 | .20 | .13 | 7.52 |
| 1922 | .16 | .11 | .11 | .09 | .09 | .14 | 2.69 | 1.44 | .26 | .14 | .09 | .12 | 5.44 |
| 1923 | .09 | .31 | .12 | .10 | .07 | .10 | 1.73 | 1.20 | .41 | .35 | .13 | .15 | 4.76 |
| 1924 | .09 | .14 | .09 | .04 | .06 | .08 | .42 | .80 | .66 | .43 | .53 | .63 | 3.97 |
| 1925 | .76 | .25 | .12 | .06 | .07 | .24 | .49 | .37 | .64 | .23 | .15 | .53 | 3.91 |
| 1926 | .71 | .28 | .08 | .08 | .08 | .37 | .92 | .57 | .79 | .58 | .17 | .69 | 5.32 |
| 1927 | .89 | .42 | .23 | .14 | .15 | .67 | 4.38 | 1.67 | .93 | .73 | .22 | .13 | 10.56 |
| 1928 | .20 | .14 | .12 | .13 | .14 | .40 | 1.92 | 1.95 | 1.30 | 1.11 | 1.22 | 2.47 | 11.10 |
| 1929 | 2.13 | .65 | .30 | .15 | .13 | .70 | 1.62 | .94 | 1.02 | .25 | .05 | .26 | 8.20 |
| 1930 | .23 | .17 | .13 | .11 | .17 | .22 | .62 | 2.58 | 1.03 | .81 | .13 | .28 | 6.48 |
| 1931 | .35 | .53 | .27 | .09 | .13 | .18 | .44 | .77 | 2.30 | .22 | .31 | .15 | 5.74 |
| 1932 | .18 | .56 | .36 | .18 | .15 | .18 | 1.71 | 2.39 | .40 | .17 | .21 | .35 | 6.84 |
| 1933 | .16 | .88 | .17 | .13 | .08 | .13 | .94 | 1.60 | .73 | .14 | .08 | .12 | 5.14 |
| 1934 | .25 | .37 | .18 | .12 | .09 | .15 | 1.98 | 1.08 | .27 | .09 | .04 | .09 | 4.71 |
| 1935 | .17 | .18 | .13 | .09 | .07 | .58 | 2.25 | 1.91 | .73 | .65 | .68 | .40 | 7.84 |
| 1936 | .42 | .54 | .23 | .15 | .11 | .16 | 3.00 | 3.24 | .44 | .05 | .09 | .10 | 8.53 |
| 1937 | .08 | .12 | .12 | .12 | .10 | .12 | 2.64 | 2.01 | .93 | .09 | .14 | .51 | 6.98 |
| 1938 | .23 | .22 | .12 | .10 | .07 | .62 | 2.11 | 5.22 | 1.62 | .19 | .08 | .10 | 10.68 |
| 1939 | .08 | .21 | .14 | .13 | .11 | .24 | 2.76 | 1.50 | 1.24 | .31 | .70 | .17 | 7.59 |
| 1940 | .20 | .17 | .12 | .07 | .07 | .07 | 1.25 | 2.66 | 1.02 | .29 | .26 | .21 | 6.39 |
| 1941 | .25 | .61 | .30 | .21 | .14 | .16 | 4.70 | .90 | .97 | .11 | .20 | 1.87 | 10.42 |
| 1942 | 1.30 | .38 | .20 | .10 | .11 | .26 | 1.13 | 3.76 | 1.30 | .37 | .22 | .27 | 9.40 |
| 1943 | .27 | .37 | .19 | .15 | .11 | .16 | 1.92 | 2.04 | 2.83 | .84 | 1.44 | .50 | 10.62 |
| 1944 | .38 | .45 | .19 | .04 | .10 | .12 | 1.80 | 3.52 | 4.28 | 1.71 | .68 | .55 | 13.82 |
| 1945 | .32 | .39 | .20 | .10 | .13 | 2.39 | 2.82 | .82 | 1.11 | .49 | .49 | .80 | 10.06 |
| 1946 | .46 | .39 | .14 | .18 | .12 | 1.56 | 2.36 | 1.35 | 2.32 | .78 | .13 | .36 | 10.15 |
| 1947 | 1.99 | 1.14 | .34 | .15 | .10 | .19 | 2.63 | 2.21 | 1.92 | .23 | .24 | .51 | 11.65 |
| 1948 | .29 | .34 | .24 | .18 | .09 | .31 | 5.84 | 1.33 | .37 | .21 | .17 | .07 | 9.44 |
| 1949 | .10 | .18 | .12 | .11 | .08 | .13 | 1.63 | 1.06 | .77 | 1.66 | .45 | .12 | 6.38 |
| 1950 | 1.26 | .56 | .23 | .15 | .10 | .12 | 2.23 | 8.26 | 1.19 | .69 | .17 | .16 | 15.12 |

Note.--Adjusted runoff not previously published.

Yearly discharge, in cubic feet per second, of St. Louis River near Thomson, Minn.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | | | | Calendar year | | |
|------|---------------|----------------------------|------------------|-------------|--------|-------|-----------------|------------------|--------|----------|-------|------------------|---|---|
| | | Observed | | | | | Adjusted | | | Observed | | Adjusted | | |
| | | Maximum day | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | | Mean | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | | | | |
| 1908 | - | - | - | - | - | - | - | - | - | 3,421 | 3,453 | 13.17 | - | - |
| 1909 | - | 17,200 | Aug. 15, 1909 | 376 | 2,343 | 2,345 | 0.657 | 8.92 | 2,890 | 2,876 | 10.93 | - | - | - |
| 1910 | 284 | 4,790 | Apr. 22, 1910 | 308 | 1,680 | 1,640 | .459 | 6.25 | 1,140 | 1,118 | 4.24 | - | - | - |
| 1911 | 304,1337 | *9,250 | May 18, 1911 | 192 | *1,910 | 1,918 | .537 | 7.26 | *2,010 | 2,023 | 7.66 | - | - | - |
| 1912 | 324,1337 | 13,200 | May 7, 1912 | 171 | *1,900 | 1,905 | .534 | 7.27 | *1,820 | 1,814 | 6.92 | - | - | - |
| 1913 | 354 | 10,200 | May 23, 1913 | 218 | 2,290 | 2,322 | .650 | 8.83 | 2,660 | 2,718 | 10.33 | - | - | - |
| 1914 | 384 | 14,000 | June 9, 10, 1914 | 424 | 2,960 | 2,991 | .858 | 11.37 | 2,625 | 2,625 | 9.97 | - | - | - |
| 1915 | - | 9,660 | June 17, 1915 | 363 | 1,629 | 1,662 | .466 | 6.32 | 1,887 | 1,996 | 7.59 | - | - | - |
| 1916 | - | 26,700 | Apr. 25, 1916 | 516 | 3,737 | 3,828 | 1.07 | 14.60 | 3,530 | 3,471 | 13.24 | - | - | - |
| 1917 | - | 4,390 | Apr. 22, 1917 | 422 | 1,155 | 1,095 | .307 | 4.17 | 1,090 | 1,115 | 4.24 | - | - | - |
| 1918 | - | 7,360 | June 1, 1918 | 516 | 1,188 | 1,087 | .304 | 4.15 | 1,140 | 1,050 | 4.02 | - | - | - |
| 1919 | - | 9,970 | Apr. 15, 1919 | 362 | 1,633 | 1,756 | .492 | 6.68 | 1,793 | 1,899 | 7.23 | - | - | - |
| 1920 | - | 20,600 | June 29, 1920 | 677 | 2,940 | 2,985 | .836 | 11.38 | 2,872 | 2,853 | 10.86 | - | - | - |
| 1921 | - | 22,600 | June 8, 1921 | 358 | 1,983 | 1,983 | .555 | 7.52 | 1,942 | 1,890 | 7.18 | - | - | - |
| 1922 | - | 14,800 | Apr. 12, 1922 | 271 | 1,555 | 1,433 | .401 | 5.44 | 1,496 | 1,471 | 5.58 | - | - | - |
| 1923 | - | 10,900 | Apr. 27, 1923 | 255 | 1,259 | 1,250 | .350 | 4.76 | 1,231 | 1,196 | 4.56 | - | - | - |
| 1924 | - | 3,460 | Sept. 30, 1924 | 109 | 945 | 1,046 | .293 | 3.97 | 1,145 | 1,261 | 4.78 | - | - | - |
| 1925 | - | 23,090 | June 7, 1925 | 443 | 1,051 | 1,028 | .288 | 3.91 | 1,010 | 1,010 | 3.85 | - | - | - |
| 1926 | - | 4,690 | June 24, 1926 | 451 | 1,361 | 1,397 | .391 | 5.32 | 1,435 | 1,521 | 5.79 | - | - | - |
| 1927 | - | 20,300 | Apr. 24, 1927 | 610 | 2,622 | 2,778 | .778 | 10.56 | 2,516 | 2,494 | 9.48 | - | - | - |
| 1928 | - | 13,900 | May 4, 1928 | 693 | 2,833 | 2,920 | .818 | 11.10 | 3,378 | 3,606 | 13.72 | - | - | - |
| 1929 | - | 11,100 | Oct. 17, 1929 | 754 | 2,238 | 2,157 | .604 | 8.20 | 1,661 | 1,486 | 5.65 | - | - | - |
| 1930 | - | 16,200 | May 14, 1930 | 469 | 1,712 | 1,705 | .478 | 6.48 | 1,848 | 1,869 | 7.10 | - | - | - |
| 1931 | - | 12,900 | June 14, 1931 | 590 | 1,687 | 1,513 | .424 | 5.74 | 1,578 | 1,500 | 5.69 | - | - | - |
| 1932 | - | 12,400 | May 9, 1932 | 373 | 1,678 | 1,799 | .504 | 6.84 | 1,760 | 1,828 | 6.95 | - | - | - |
| 1933 | - | 7,020 | Nov. 11, 1932 | 533 | 1,490 | 1,348 | .378 | 5.14 | 1,396 | 1,238 | 4.73 | - | - | - |
| 1934 | - | 10,700 | Apr. 12, 1934 | 203 | 1,266 | 1,239 | .347 | 4.71 | 1,143 | 1,159 | 4.39 | - | - | - |
| 1935 | - | 11,200 | Apr. 30, 1935 | 184 | 1,812 | 2,061 | .577 | 7.84 | 2,018 | 2,244 | 8.55 | - | - | - |
| 1936 | - | 21,700 | Apr. 18, 1936 | 470 | 2,430 | 2,237 | .627 | 8.53 | 2,276 | 2,012 | 7.66 | - | - | - |
| 1937 | - | 15,400 | Apr. 21, 1937 | 315 | 1,802 | 1,843 | .516 | 6.98 | 1,895 | 1,907 | 7.23 | - | - | - |
| 1938 | - | 26,000 | May 7, 1938 | 214 | 2,763 | 2,805 | .786 | 10.68 | 2,748 | 2,769 | 10.54 | - | - | - |
| 1939 | - | 11,000 | Apr. 21, 1939 | 344 | 1,963 | 1,995 | .559 | 7.59 | 1,975 | 2,009 | 7.65 | - | - | - |
| 1940 | - | 9,770 | May 3, 1940 | 393 | 1,745 | 1,674 | .469 | 6.39 | 1,751 | 1,851 | 7.06 | - | - | - |
| 1941 | - | 22,300 | Apr. 15, 1941 | 414 | 2,570 | 2,742 | .768 | 10.42 | 2,870 | 2,933 | 11.14 | - | - | - |
| 1942 | - | 18,900 | May 15, 1942 | 476 | 2,535 | 2,473 | .693 | 9.40 | 2,254 | 2,196 | 8.35 | - | - | - |
| 1943 | - | 14,500 | June 15, 1943 | 678 | 2,708 | 2,792 | .782 | 10.62 | 2,781 | 2,845 | 10.81 | - | - | - |
| 1944 | - | 25,500 | June 5, 1944 | 945 | 3,603 | 3,626 | 1.02 | 13.82 | 3,608 | 3,594 | 13.71 | - | - | - |
| 1945 | - | 14,200 | Mar. 25, 1945 | 986 | 2,706 | 2,640 | .739 | 10.06 | 2,737 | 2,661 | 10.14 | - | - | - |
| 1946 | - | 23,200 | June 25, 1946 | 884 | 2,749 | 2,665 | .746 | 10.15 | 3,160 | 3,321 | 12.63 | - | - | - |
| 1947 | - | 12,900 | June 12, 1947 | 829 | 3,016 | 3,062 | .858 | 11.65 | 2,455 | 2,376 | 9.05 | - | - | - |
| 1948 | - | 26,400 | Apr. 21, 1948 | 565 | 2,632 | 2,477 | .632 | 9.44 | 2,547 | 2,355 | 8.37 | - | - | - |
| 1949 | - | 14,300 | July 8, 1949 | 135 | 1,559 | 1,673 | .469 | 6.38 | 1,948 | 2,108 | 8.03 | - | - | - |
| 1950 | - | 37,900 | May 9, 1950 | 468 | 3,980 | 3,966 | 1.11 | 15.12 | - | - | - | - | - | - |

* Revised.

a Maximum independent daily discharge; maximum daily discharge during year, 3,230 cfs Oct. 1, 1924, stage falling.

Note.--Discharge for periods Jan. 1, 1908, to Oct. 4, 1909, Sept. 6, 1914, to Sept. 30, 1950, and all adjusted data not previously published.

13. Amnicon River near Amnicon Falls, Wis.

Location.--Lat 46°36'15", long. 91°53'20", in sec. 29, T. 48 N., R. 12 W., at highway bridge about 500 ft above Northern Pacific Railway bridge, three-quarters of a mile east of Amnicon Falls and 7 miles above mouth.

Drainage area.--113 sq mi.

Gage.--Chain gage. Altitude of gage is 840 ft (from Corps of Engineers river-profile map).

Extremes.--1914-16: Maximum discharge, 1,730 cfs (revised) Apr. 21, 1916 (gage height, 5.1 ft, from graph based on gage readings), from rating curve extended above 595 cfs; minimum observed, about 1 cfs Sept. 7, 1915 (gage height, 0.3 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|------|-----|------|-------|------|-------|----------|
| 1914 | - | - | - | - | - | - | 226 | 239 | 231 | 183 | 110 | 81 | - |
| 1915 | 40.0 | 27.9 | 17.9 | 11.2 | 6.29 | 40.1 | 317 | 303 | 277 | 55.5 | 7.03 | 6.70 | 92.4 |
| 1916 | 195 | 198 | *155 | *35.6 | *23.7 | *78.8 | 773 | 274 | 161 | *90.6 | *50 | *10 | *178 |

* Not previously published; estimated on basis of weather records and records for Bad River near Odanah.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly runoff, in inches, of Amnicon River near Amnicon Falls, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1914 | - | - | - | - | - | - | 2.23 | 2.44 | 2.28 | 1.87 | 1.12 | 0.80 | - |
| 1915 | 0.41 | 0.28 | 0.18 | 0.11 | 0.06 | 0.41 | 3.13 | 3.09 | 2.74 | .55 | .07 | .07 | 11.10 |
| 1916 | 1.99 | 1.95 | *1.58 | *.36 | *.23 | *.80 | 7.63 | 2.80 | 1.59 | *.92 | *.51 | *1.09 | *21.45 |

* Not previously published; estimated on basis of weather records and records for Bad River near Odanah.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 384 | *616 | Apr. 29, 1914 | - | - | - | - | - | - |
| 1915 | 404 | *750 | May 16, 1915 | 1 | 92.4 | 0.818 | 11.10 | 131 | 15.75 |
| 1916 | 434 | *1,730 | Apr. 21, 1916 | - | *178 | *1.58 | *21.45 | - | - |

* Revised.

* Not previously published.

14. Bois Brule River at Brule, Wis.

Location.--Lat 46°32'15", long. 91°35'45", in NW 1/4 sec. 23, T. 47 N., R. 10 W., on right bank, 1.4 miles southwest of Brule post office, 1.4 miles downstream from Nebagamon Creek, and 1.7 miles upstream from Little Brule River.

Drainage area.--113 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 948.49 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1942-50), 160 cfs.

Extremes.--1942-50: Maximum discharge, 1,520 cfs (revised) June 5, 1944 (gage height, 5.2 ft, from graph based on gage readings), from rating curve extended above 650 cfs; minimum discharge observed, 67 cfs Mar. 13, 1943.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1943 | *153 | *138 | *114 | *112 | 114 | 105 | 222 | 196 | 229 | 128 | 130 | 113 | *146 |
| 1944 | 114 | 151 | 119 | 116 | 128 | 127 | 258 | 339 | *416 | 172 | 137 | 146 | *185 |
| 1945 | 157 | 154 | 145 | 118 | 138 | 265 | 307 | 170 | 282 | 192 | 157 | 169 | 188 |
| 1946 | 143 | 147 | 129 | 130 | 141 | 200 | 233 | 153 | 178 | 145 | 124 | 127 | 154 |
| 1947 | 150 | 171 | 146 | 143 | 136 | 126 | 273 | 212 | 156 | 123 | 116 | 118 | 156 |
| 1948 | 118 | 127 | 113 | 104 | 104 | 133 | 277 | 157 | 122 | 119 | 114 | 108 | 133 |
| 1949 | 110 | 119 | 124 | 124 | 118 | 130 | 206 | 266 | 150 | 166 | 131 | 108 | 146 |
| 1950 | 140 | 130 | 128 | 112 | 129 | 123 | 299 | 495 | 156 | 137 | 116 | 112 | 173 |

* Revised.

* Not previously published; estimated on basis of records for Namekegon River near Trego.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|-------|------|------|-------|----------|
| 1943 | *1.56 | *1.36 | *1.16 | *1.14 | 1.05 | 1.07 | 2.19 | 2.00 | 2.26 | 1.30 | 1.33 | 1.11 | *17.53 |
| 1944 | 1.16 | 1.50 | 1.21 | 1.19 | 1.22 | 1.30 | 2.54 | 3.46 | *4.11 | 1.75 | 1.39 | 1.44 | *22.27 |
| 1945 | 1.60 | 1.52 | 1.48 | 1.20 | 1.28 | 2.71 | 3.04 | 1.73 | 2.79 | 1.96 | 1.61 | 1.67 | 22.59 |
| 1946 | 1.45 | 1.45 | 1.32 | 1.33 | 1.30 | 2.04 | 2.30 | 1.56 | 1.76 | 1.48 | 1.26 | 1.26 | 18.51 |
| 1947 | 1.53 | 1.69 | 1.49 | 1.46 | 1.25 | 1.29 | 2.69 | 2.16 | 1.54 | 1.26 | 1.18 | 1.17 | 18.71 |
| 1948 | 1.21 | 1.26 | 1.16 | 1.06 | .99 | 1.35 | 2.74 | 1.60 | 1.21 | 1.22 | 1.16 | 1.07 | 16.03 |
| 1949 | 1.15 | 1.17 | 1.27 | 1.27 | 1.09 | 1.33 | 2.03 | 2.72 | 1.48 | 1.68 | 1.34 | 1.07 | 17.59 |
| 1950 | 1.43 | 1.28 | 1.31 | 1.15 | 1.18 | 1.26 | 2.95 | 5.05 | 1.54 | 1.40 | 1.18 | 1.11 | 20.85 |

* Revised.

* Not previously published; estimated on basis of records for Namekegon River near Trego.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | *450 | June 14, 1943 | 74 | *146 | *1.29 | *17.53 | *144 | *17.32 |
| 1944 | 1054, 1337 | *1,520 | June 5, 1944 | 100 | *185 | *1.64 | *22.27 | *191 | *23.00 |
| 1945 | 1054 | *501 | Mar. 27, 1945 | 105 | 188 | 1.66 | 22.59 | 185 | 22.21 |
| 1946 | 1054 | *415 | Mar. 21, 1946 | 115 | 154 | 1.36 | 18.51 | 158 | 19.00 |
| 1947 | 1084 | *387 | Apr. 23, 1947 | 110 | 156 | 1.38 | 18.71 | 147 | 17.63 |
| 1948 | 1114 | *565 | Apr. 11, 1948 | 94 | 133 | 1.18 | 16.03 | 132 | 15.97 |
| 1949 | 1144 | *870 | May 6, 1949 | 88 | 146 | 1.29 | 17.59 | 150 | 18.04 |
| 1950 | 1174 | *1,270 | May 6, 1950 | 96 | 173 | 1.53 | 20.85 | - | - |

* Revised.

* Not previously published.

15. Bois Brule River near Brule, Wis. 1/

Location.--Lat 46°36'50", long. 91°35'00", in NE $\frac{1}{4}$ sec. 26, T. 48 N., R. 10 W., at former site of Brule Outing Club, about $4\frac{1}{2}$ miles downstream from Brule and 10 miles above mouth.

Drainage area.--153 sq mi (revised), approximately.

Gage.--Staff gage.

Extremes.--1914-17: Maximum discharge, 1,490 cfs Apr. 21, 1916 (gage height, 6.2 ft); minimum, 115 cfs Mar. 20, 1914 (gage height, 2.75 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1914 | - | - | - | *160 | *155 | 182 | 325 | 330 | 285 | 233 | 192 | 193 | - |
| 1915 | 174 | 170 | 163 | 147 | 151 | 173 | 303 | 380 | 581 | 189 | 146 | 172 | 212 |
| 1916 | 265 | 275 | 196 | 153 | 164 | 182 | *688 | 371 | 326 | 222 | 169 | 193 | 266 |
| 1917 | 183 | 183 | 169 | 157 | 135 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for Wolf River at Keshena.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|------|-------|------|------|------|------|-------|----------|
| 1914 | - | - | - | *1.21 | *1.05 | 1.37 | 2.37 | 2.49 | 2.08 | 1.75 | 1.45 | 1.40 | - |
| 1915 | 1.31 | 1.24 | 1.23 | 1.11 | 1.03 | 1.30 | 2.21 | 2.86 | 2.77 | 1.43 | 1.10 | 1.25 | 18.84 |
| 1916 | 2.00 | 2.00 | 1.48 | 1.15 | 1.15 | 1.37 | *5.02 | 2.79 | 2.37 | 1.67 | 1.28 | 1.41 | *23.69 |
| 1917 | 1.38 | 1.33 | 1.27 | 1.18 | .92 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 404 | *750 | June 28, 1914 | - | - | - | - | *214 | *18.95 |
| 1915 | 404 | *1,110 | May 16, 1915 | - | 212 | 1.39 | 18.84 | 232 | 20.54 |
| 1916 | 434,1337 | 1,490 | Apr. 21, 1916 | 125 | 266 | 1.74 | *23.69 | *250 | *22.19 |
| 1917 | 454 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

16. Bad River at Mellen, Wis.

Location.--Lat 46°19'30", long. 90°39'35", in sec. 6, T. 44 N., R. 2 W., on upstream side of bridge on U. S. Highway 13 in Mellen, 0.4 mile upstream from Devils Creek and 3.1 miles downstream from Rocky Run.

Drainage area.--101 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 1,217.49 ft above mean sea level, datum of 1929.

Extremes.--1948-50: Maximum discharge, 4,340 cfs July 4, 1949 (gage height, 14.0 ft); minimum observed, 3.8 cfs Aug. 25-27, 1948 (gage height, 1.98 ft).

Flood of June 24, 1946, reached a stage of 18.60 ft, from floodmarks, from information by local resident (discharge not determined).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 16.9 | 10.7 | 6.35 | 7.99 | - |
| 1949 | 8.83 | 15.1 | 21.3 | 15.6 | 13.8 | 32.4 | 168 | 128 | 65.4 | 568 | 26.0 | 41.0 | 92.8 |
| 1950 | 49.9 | 51.0 | 50.0 | 21.0 | 21.8 | 27.8 | 426 | 573 | 93.1 | 69.7 | 21.5 | 10.3 | 118 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.19 | 0.12 | 0.07 | 0.09 | - |
| 1949 | 0.10 | 0.17 | 0.24 | 0.18 | 0.14 | 0.37 | 1.85 | 1.46 | .72 | 6.48 | .30 | .45 | 12.46 |
| 1950 | .57 | .56 | .57 | .24 | .22 | .32 | 4.71 | 6.54 | 1.03 | .80 | .25 | .11 | 15.92 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | - | - | - | - | - | - | - | - |
| 1949 | 1144 | 4,340 | July 4, 1949 | 6.4 | 92.8 | 0.919 | 12.46 | 102 | 13.65 |
| 1950 | 1174 | 2,540 | May 6, 1950 | 8.2 | 118 | 1.17 | 15.92 | - | - |

1/ Previously published as Brule River near Brule.

17. Bad River near Odanah, Wis.

Location.--Lat 46°29'15", long. 90°41'45", in SE $\frac{1}{4}$ sec. 2, T. 46 N., R. 3 W., at Elm Hoist Bridge, 5.0 miles downstream from Potato River and 8.5 miles south of Odanah.

Drainage area.--611 sq mi (revised), approximately. Prior to Nov. 11, 1922, 618 sq mi (revised), approximately.

Gage.--Water-stage recorder. Altitude of gage is 680 ft (from river-profile map). Prior to Nov. 11, 1922, water-stage recorder at site 2 miles downstream at different datum.

Average discharge.--10 years (1914-22, 1948-50), 554 cfs.

Extremes.--1914-22, 1948-50: Maximum discharge, 16,500 cfs July 4, 1949 (gage height, 17.3 ft. from floodmark); minimum, 50 cfs Nov. 29, 1948 (gage height, 2.02 ft.).

Flood of June 24, 1946, reached a stage of at least 22.2 ft (top of bridge which was submerged), from information by Indian Service.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|-------|------|-------|----------|
| 1914 | - | - | - | - | - | - | - | - | - | - | #492 | 570 | - |
| 1915 | 312 | 267 | 181 | 115 | 156 | 272 | 1,580 | 1,520 | 1,040 | 443 | 319 | 281 | 539 |
| 1916 | 723 | 604 | 341 | 230 | 220 | 250 | 4,160 | 1,010 | 955 | 408 | 208 | 500 | 796 |
| 1917 | 298 | 263 | 157 | 95 | 90 | 109 | 1,150 | 1,090 | 1,110 | 497 | 242 | 229 | 444 |
| 1918 | 646 | 418 | 182 | 110 | 100 | 668 | 930 | 1,510 | 1,140 | 148 | 171 | 183 | 519 |
| 1919 | 200 | 597 | 183 | 140 | 120 | 1,150 | 2,030 | 483 | 1,020 | 583 | 358 | 151 | 585 |
| 1920 | 269 | 855 | 214 | 170 | 160 | 1,960 | 1,520 | 653 | 1,030 | 592 | 186 | 151 | 646 |
| 1921 | 273 | 383 | 282 | 134 | 145 | 1,030 | 1,920 | 830 | 359 | 727 | 164 | 225 | 524 |
| 1922 | 196 | 185 | 197 | 105 | 183 | 375 | 2,050 | 853 | 329 | *200 | 148 | 227 | *420 |
| 1923 | 126 | #204 | #168 | - | - | - | - | - | - | - | - | - | - |
| 1948 | - | - | - | - | - | - | - | - | 121 | 83.5 | 68.2 | 75.8 | - |
| 1949 | 67.1 | 95.2 | 113 | 96.9 | 86.8 | 199 | 993 | 899 | 284 | 2,511 | 165 | 183 | 460 |
| 1950 | 260 | 320 | 254 | 122 | 132 | 141 | 2,249 | 2,752 | 381 | 343 | 141 | 103 | 602 |

* Revised.

Not previously published; partly estimated on basis of weather records and records for Namekagon River near Trego.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1914 | - | - | - | - | - | - | - | - | - | - | #0.92 | 1.03 | - |
| 1915 | 0.58 | 0.48 | 0.54 | 0.21 | 0.23 | 0.51 | 2.84 | 2.84 | 1.87 | 0.83 | .60 | .51 | 11.84 |
| 1916 | 1.35 | 1.09 | .64 | .43 | .38 | .47 | 7.51 | 1.88 | 1.72 | .76 | .39 | .90 | 17.52 |
| 1917 | .56 | .47 | .29 | .18 | .15 | .20 | 2.07 | 2.02 | 2.00 | .93 | .45 | .41 | 9.73 |
| 1918 | 1.21 | .75 | .34 | .21 | .17 | 1.25 | 1.68 | 2.81 | 2.06 | .28 | .32 | .33 | 11.41 |
| 1919 | .37 | 1.08 | .34 | .26 | .20 | 2.15 | 3.67 | .90 | 1.84 | 1.09 | .67 | .27 | 12.84 |
| 1920 | .50 | 1.54 | .40 | .32 | .28 | 3.65 | 2.74 | 1.22 | 1.86 | 1.10 | .35 | .27 | 14.23 |
| 1921 | .51 | .69 | .53 | .25 | .24 | 1.93 | 3.47 | 1.18 | .65 | 1.36 | .31 | .41 | 11.53 |
| 1922 | .37 | .33 | .37 | .20 | .31 | .70 | 3.70 | 1.59 | .59 | *.37 | .28 | .41 | *9.22 |
| 1923 | .23 | +.37 | +.31 | - | - | - | - | - | - | - | - | - | - |
| 1948 | - | - | - | - | - | - | - | - | .22 | .16 | .13 | .14 | - |
| 1949 | .13 | .17 | .21 | .18 | .15 | .38 | 1.81 | 1.70 | .52 | 4.36 | .31 | .30 | 10.22 |
| 1950 | .49 | .58 | .48 | .23 | .22 | .27 | 4.11 | 5.19 | .70 | .65 | .27 | .19 | 13.38 |

* Revised.

Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1914 | 404 | - | - | - | - | - | - | - | - | - |
| 1915 | 404 | 3,900 | May 16, 1915 | - | 539 | 0.872 | 11.84 | 615 | 13.52 | - |
| 1916 | 434 | 12,200 | Apr. 22, 1916 | - | 796 | 1.29 | 17.52 | 716 | 15.76 | - |
| 1917 | 454 | 4,060 | Apr. 21, 1917 | - | 444 | .718 | 9.73 | 488 | 10.71 | - |
| 1918 | 474 | 8,590 | June 1, 1918 | - | 519 | .840 | 11.41 | 495 | 10.90 | - |
| 1919 | 504 | 6,680 | Apr. 10, 1919 | - | 585 | .947 | 12.84 | 614 | 13.49 | - |
| 1920 | 504 | 8,230 | Mar. 24, 1920 | 112 | 646 | 1.05 | 14.23 | 614 | 13.52 | - |
| 1921 | 524 | 8,010 | Apr. 28, 1921 | 104 | 524 | .848 | 11.53 | 494 | 10.87 | - |
| 1922 | 544, 1537 | - | - | - | *420 | *.678 | *9.22 | *413 | *9.06 | - |
| 1948 | 1114 | - | - | - | - | - | - | - | - | - |
| 1949 | 1144 | 16,500 | July 4, 1949 | 52 | 460 | .753 | 10.22 | 507 | 11.26 | - |
| 1950 | 1174 | 11,700 | May 6, 1950 | 86 | 602 | .985 | 13.38 | - | - | - |

* Revised.

Not previously published.

18. White River near Ashland, Wis.

Location--Lat 46°29'50", long. 90°54'15", in sec. 6, T. 46 N., R. 4 W., at powerplant of Lake Superior District Power Co., 0.3 mile downstream from bridge on State highway over dam and 4.5 miles south of Ashland city limits.

Drainage area--269 sq mi (revised), approximately.

Gage--Chain gage. Datum of gage is 660.15 ft above mean sea level, datum of 1929 (Lake Superior District Power Co. benchmark).

Extremes--1948-50: Maximum discharge, 3,720 cfs May 5, 1949 (gage height, 5.53 ft); minimum, 3.1 cfs Apr. 28-30, 1949 (gage height, 0.09 ft).

Remarks--Diurnal fluctuation caused by powerplant at gage, but only moderate regulation as service pond is small.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 140 | 156 | 147 | 146 | - |
| 1949 | 152 | 172 | 164 | 174 | 177 | 262 | 393 | 391 | 231 | 469 | 207 | 159 | 247 |
| 1950 | 177 | 183 | 167 | 148 | 178 | 185 | 952 | 867 | 217 | 190 | 168 | 153 | 299 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.58 | 0.67 | 0.63 | 0.61 | - |
| 1949 | 0.65 | 0.71 | 0.70 | 0.75 | 0.69 | 1.12 | 1.63 | 1.68 | 0.96 | 2.01 | 0.89 | 0.66 | 12.45 |
| 1950 | 0.76 | 0.76 | 0.72 | 0.64 | 0.69 | 0.79 | 3.95 | 3.72 | 0.90 | 0.81 | 0.72 | 0.64 | 15.10 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1948 | 1114 | - | - | - | - | - | - | - | - | - | - |
| 1949 | 1144 | 3,720 | May 5, 1949 | 88 | 247 | 0.92 | 12.45 | 250 | 12.63 | - | - |
| 1950 | 1174 | 3,480 | Apr. 17, 1950 | 95 | 299 | 1.11 | 15.10 | - | - | - | - |

19. Montreal River at Ironwood, Mich.

Location--Lat 46°27'00", long. 90°10'40", in sec. 24, T. 46 N., R. 2 E., at downstream side of highway bridge on State line between Hurley, Wis. and Ironwood, Mich., 8 miles upstream from West Branch Montreal River.

Drainage area--66 sq mi, approximately.

Gage--Chain gage. Datum of gage is 1,464.13 ft above mean sea level, datum of 1929.

Average discharge--5 years (1918-21, 1924-25, 1949-50), 58.4 cfs.

Extremes--1918-22, 1924-25, 1949-50: Maximum discharge, 1,490 cfs (revised) May 6, 1950 (gage height, 4.7 ft, from graph based on gage readings), from rating curve extended above 710 cfs; minimum discharge observed, 0.1 cfs (revised) Sept. 26, 1925 (gage height, 0.56 ft).

Remarks--Diurnal fluctuation caused by dam upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|----------|
| 1918 | - | - | - | - | - | - | - | *190 | *97.5 | 13.9 | 11.3 | 19.6 | - |
| 1919 | 20.6 | 52.2 | 27.0 | 11.1 | 7.75 | 92.2 | 212 | *53.4 | 105 | 84.2 | 31.6 | 7.92 | *58.8 |
| 1920 | 36.6 | 122 | 22.7 | 16.0 | 9.07 | 145 | 157 | 69.1 | 118 | 134 | 13.6 | 9.56 | 71.1 |
| 1921 | 18.2 | 17.5 | 36.3 | 16.5 | 14.5 | 119 | 289 | 57.8 | 30.0 | 24.0 | 15.5 | 20.4 | 54.9 |
| 1922 | 18.1 | 12.7 | 12.3 | *11.8 | *11.6 | *61.7 | 449 | 125 | - | - | - | - | - |
| 1924 | - | - | - | - | - | - | - | - | - | - | 55.1 | 20.5 | - |
| 1925 | 27.3 | 35 | 21.3 | *9.04 | *10 | *53 | 106 | 25.7 | 24.7 | *5.28 | *3.85 | *4.85 | *25.9 |
| 1926 | 21.9 | 23.9 | - | - | - | - | - | - | - | - | - | - | - |
| 1950 | 49.7 | 55.6 | 11.9 | 11.4 | 9.41 | 19.5 | 259 | 417 | 63.2 | 53.0 | 11.1 | 7.04 | 81.1 |

* Revised.

* Not previously published; estimated on basis of weather records and records for West Branch Montreal River at Gile, Wis.

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly runoff, in inches, of Montreal River at Ironwood, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1918 | - | - | - | - | - | - | - | *3.32 | *1.65 | 0.24 | 0.20 | 0.33 | - |
| 1919 | 0.36 | 0.88 | 0.47 | 0.19 | 0.12 | 1.61 | 3.58 | *.93 | 1.78 | 1.47 | .55 | .13 | *12.07 |
| 1920 | .64 | 2.06 | .40 | .28 | .15 | 2.54 | 2.66 | 1.21 | 1.99 | 2.34 | .24 | .16 | 14.67 |
| 1921 | .32 | .30 | .63 | .29 | .23 | 2.09 | 4.89 | 1.01 | .51 | .42 | .27 | .35 | 11.31 |
| 1922 | .32 | .21 | .21 | *.21 | *.18 | *1.08 | 7.59 | 2.19 | - | - | - | - | - |
| 1924 | - | - | - | - | - | - | - | - | - | - | .96 | .35 | - |
| 1925 | .48 | .59 | .37 | *.16 | *.16 | *.66 | *1.79 | .45 | .42 | *.09 | *.07 | *.08 | *5.32 |
| 1926 | .38 | .40 | - | - | - | - | - | - | - | - | - | - | - |
| 1950 | .87 | .94 | .21 | .20 | .15 | .34 | 4.37 | 7.29 | 1.07 | .93 | .19 | .12 | 16.68 |

* Revised.

* Not previously published; estimated on basis of weather records and records for West Branch Montreal River at Gile, Wis.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1918 | 474,1337 | *610 | June 2, 1918 | - | - | - | - | - | - |
| 1919 | 504,1337 | *610 | Apr. 12, 1919 | 2.8 | *58.8 | *0.891 | *12.07 | *65.5 | *13.46 |
| 1920 | 504 | *960 | June 30, 1920 | 4.7 | 71.1 | 1.08 | 14.67 | 62.1 | 12.82 |
| 1921 | 524 | *960 | Apr. 5, 1921 | 2.3 | 54.9 | .832 | 11.31 | 52.5 | 10.80 |
| 1922 | 544 | *910 | Apr. 10, 1922 | - | - | - | - | - | - |
| 1925 | 1337 | *255 | Apr. 23, 1925 | *.2 | *25.9 | *.392 | *5.32 | - | - |
| 1950 | 1174 | *1,490 | May 6, 1950 | .9 | 81.1 | 1.23 | 16.68 | - | - |

* Revised.

* Not previously published.

20. Montreal River near Kimball, Wis.

Location.--Lat 46°30'20", long. 90°16'20", in sec. 32, T. 47 N., R. 2 E. Wisconsin meridian, 300 ft above mouth of West Branch Montreal River, 2.5 miles northeast of Kimball, and 7 miles northwest of Hurley.

Drainage area.--109 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,120 ft (from river-profile map).

Extremes.--1924-25: Maximum discharge, 328 cfs Apr. 2, 1925 (gage height, 3.8 ft, from graph based on gage readings); minimum observed, 3.2 cfs (revised) Aug. 8-19, 1925 (gage height, 1.16 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|------|------|------|------|-------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | 35.7 | 86.4 | 38.1 | - |
| 1925 | 68.0 | 66.9 | *58.5 | *18.3 | *16.0 | *61.2 | *187 | 37.9 | 30.6 | 10.8 | *4.75 | 13.9 | *46.1 |
| 1926 | 46.4 | 94.0 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for Montreal River at Ironwood, Mich.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | 0.38 | 0.91 | 0.39 | - |
| 1925 | 0.72 | 0.68 | *0.41 | *0.19 | *0.15 | *0.65 | *1.92 | 0.40 | 0.31 | .11 | *.05 | .14 | *5.73 |
| 1926 | .49 | .96 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 604 | - | - | - | - | - | - | - | - |
| 1925 | 604,1337 | 328 | Apr. 2, 1925 | - | *3.2 | *46.1 | *0.423 | *5.73 | - |
| 1926 | 604 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

21. West Branch Montreal River at Gile, Wis.

Location.--Lat 46°25'35", long. 90°13'35", in sec. 34, T. 46 N., R. 2 E., immediately below outlet structure of Gile Reservoir at Gile and 4 miles upstream from mouth.

Drainage area.--78 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 1,468.0 ft above mean sea level, by Lake Superior Power Co. levels. Prior to Nov. 30, 1925, inclined staff gage at site 1,600 ft downstream at different datum.

Average discharge.--12 years (1918-25, 1942-47), 79.5 cfs.

Extremes.--1918-25, 1942-47: Maximum discharge, 1,550 cfs (revised) Apr. 21, 1923 (gage height, 7.3 ft, from graph based on gage readings), from rating curve extended above 710 cfs; minimum daily, 1.2 cfs Mar. 31, 1945, reservoir gates closed.

Remarks.--Flow completely regulated by Gile Reservoir since 1941.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1918 | - | - | - | - | - | - | - | *197 | *127 | 8.0 | 7.6 | *21.7 | - |
| 1919 | 25.9 | 89.4 | 44.5 | 22.1 | 13.0 | 95.0 | 281 | 95.0 | 117 | 90.6 | 39.0 | 8.95 | 76.8 |
| 1920 | 34.4 | 116 | 28.2 | 12.6 | 10 | 211 | 199 | 116 | 100 | 136 | 18.4 | 9.83 | 82.7 |
| 1921 | *19.8 | 33.7 | 46.1 | 26.4 | 16.8 | 91.8 | 328 | 87.9 | 50.2 | 104 | 11.9 | 10.0 | *68.9 |
| 1922 | 17.9 | 12.2 | 14.4 | 11.6 | 12.5 | 65.5 | 426 | 171 | 58.2 | 19.9 | 10.2 | 17.3 | 69.6 |
| 1923 | 30.6 | 32.1 | 20.6 | 7.92 | 7.20 | 7.08 | 237 | 134 | 105 | 114 | 20.6 | 16.4 | 59.2 |
| 1924 | 21.0 | 23.5 | 12.3 | 6.24 | 4.94 | 6.26 | 297 | 267 | 49.8 | 26.6 | 79.5 | 27.8 | 67.6 |
| 1925 | 44.8 | 46.1 | 25.4 | 12.2 | 9 | 52.5 | 153 | 33.6 | 19.7 | 4.39 | 1.96 | 4.32 | 33.9 |
| 1926 | 34.4 | 31.1 | - | - | - | - | - | - | - | - | - | - | - |
| 1943 | 69.6 | 73.1 | 61.6 | 65.7 | 98.8 | 157 | 194 | 143 | 159 | 142 | 167 | 190 | 127 |
| 1944 | 108 | 12.6 | 27.7 | 30.8 | 29.7 | 37.1 | 19.8 | 186 | 245 | 79.3 | 97.7 | 97.5 | 81.1 |
| 1945 | 81.9 | 101 | 126 | 111 | 81.8 | 20.0 | 46.6 | 82.6 | 234 | 135 | 152 | 109 | 107 |
| 1946 | 91.2 | 56.5 | 80.5 | 58.4 | 109 | 51.3 | 31.8 | 96.9 | 108 | 132 | 156 | 89.1 | 88.4 |
| 1947 | 16.9 | 35.6 | 105 | 124 | 114 | 96.8 | 9.61 | 59.0 | 117 | 148 | 163 | 116 | 91.3 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|------|------|-------|-------|------|------|-------|----------|
| 1918 | - | - | - | - | - | - | - | *2.91 | *1.81 | 0.12 | 0.11 | *0.31 | - |
| 1919 | 0.38 | 1.28 | 0.66 | 0.33 | 0.17 | 1.40 | 4.02 | 1.40 | 1.67 | 1.34 | .58 | .13 | 13.36 |
| 1920 | .51 | 1.66 | .42 | .19 | .14 | 3.12 | 2.85 | 1.71 | 1.42 | 2.00 | .27 | .14 | 14.45 |
| 1921 | *.29 | .48 | .68 | .39 | .22 | 1.36 | 4.69 | 1.30 | .72 | 1.54 | .18 | .14 | *11.99 |
| 1922 | .26 | .18 | .21 | .17 | .17 | .97 | 6.10 | 2.53 | .83 | .29 | .15 | .25 | 12.11 |
| 1923 | .16 | .46 | .30 | .12 | .10 | 1.0 | 3.39 | 1.98 | 1.47 | 1.68 | .30 | .23 | 10.29 |
| 1924 | .31 | .34 | .18 | .09 | .07 | .09 | 4.25 | 3.79 | .71 | .39 | 1.18 | .40 | 11.80 |
| 1925 | .66 | .66 | .38 | .18 | .12 | .78 | 2.19 | .50 | .28 | .06 | .03 | .06 | 5.90 |
| 1926 | .51 | .45 | - | - | - | - | - | - | - | - | - | - | - |
| 1943 | 1.03 | 1.05 | .91 | .97 | 1.32 | 2.32 | 2.78 | 2.11 | 2.28 | 2.10 | 2.47 | 2.72 | 22.06 |
| 1944 | 1.59 | .18 | .41 | .46 | .41 | .55 | .28 | 2.74 | 3.51 | 1.18 | 1.44 | 1.40 | 14.15 |
| 1945 | 1.21 | *1.45 | 1.87 | 1.64 | 1.09 | .30 | .67 | 1.22 | 3.35 | 1.99 | 2.25 | 1.56 | *18.60 |
| 1946 | 1.35 | .81 | 1.19 | .86 | 1.46 | .76 | .46 | 1.43 | 1.54 | 1.95 | 2.31 | 1.27 | 15.39 |
| 1947 | .25 | .51 | 1.56 | 1.83 | 1.52 | 1.28 | .14 | .87 | 1.67 | 2.19 | 2.41 | 1.66 | 15.89 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1918 | 474,1337 | *490 | May 28, 1918* | - | - | - | - | - | - |
| 1919 | 504 | *780 | Apr. 12, 1919 | 4 | 76.8 | 0.985 | 13.36 | 78.3 | 13.63 |
| 1920 | 504 | *850 | Mar. 27, 1920 | 4 | 82.7 | 1.06 | 14.43 | *76.2 | *13.29 |
| 1921 | 524,1337 | 900 | Apr. 5-7, 1921 | 2.4 | *68.9 | *.883 | *11.99 | 64.3 | 11.19 |
| 1922 | 544 | *1,270 | Apr. 10, 1922 | 4.0 | 69.6 | .892 | 12.11 | 71.1 | 12.38 |
| 1923 | 584 | *1,550 | Apr. 21, 1923 | 5.4 | 59.2 | .759 | 10.29 | 58.7 | 10.20 |
| 1924 | 584 | *990 | Apr. 18, 1924 | 4.4 | 67.6 | .867 | 11.80 | 72.6 | 12.67 |
| 1925 | 504 | *270 | Mar. 27, 1925 | 1.6 | 33.9 | .435 | 5.90 | - | - |
| 1943 | 974 | 1,030 | Apr. 22, 1943 | 10 | 127 | 1.63 | 22.06 | 122 | 21.25 |
| 1944 | 1004 | 1,220 | June 6, 1944 | 8.0 | 81.1 | 1.04 | 14.15 | 94.4 | *16.50 |
| 1945 | 1034,1337 | 1,000 | June 14, 1945 | 1.2 | 107 | 1.37 | *18.60 | 100 | 17.42 |
| 1946 | 1054 | 975 | June 28, 1946 | 9.0 | 88.4 | 1.13 | 15.39 | 82.4 | 14.36 |
| 1947 | 1084 | 553 | June 14, 15, 1947 | 5.3 | 91.3 | 1.17 | 15.89 | - | - |

* Revised.

STREAMS TRIBUTARY TO LAKE SUPERIOR

22. West Branch Montreal River near Kimball, Wis.

Location.--Lat 46°32'30", long. 90°16'30", in sec. 32, T. 47 N., R. 2 E., 1,000 ft above mouth, 2 miles northeast of Kimball, and 7 miles northwest of Hurley.

Drainage area.--96 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,120 ft (from river-profile map).

Extremes.--1924-25: Maximum discharge observed, 344 cfs (revised) Apr. 1, 1925 (gage height, 2.00 ft); minimum discharge observed, 1.6 cfs Aug. 17-20, 1925 (gage height, 0.16 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | 26.9 | 102 | 34.1 | - |
| 1925 | 54.8 | 66.6 | *25.7 | *14.5 | *11.0 | *59.7 | *177 | 34.6 | 21.2 | 6.22 | 2.08 | 7.92 | *40.1 |
| 1926 | 42.3 | 55.6 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of gage heights, weather records, and records for station at Gile.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | 0.32 | 1.22 | 0.40 | - |
| 1925 | 0.66 | 0.77 | *0.31 | *0.17 | *0.12 | *0.72 | *2.06 | 0.42 | 0.25 | .07 | .03 | .09 | *5.67 |
| 1926 | .51 | .65 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|--------------|-------------|-------|-----------------|------------------|---------------|------------------|---|
| | | Maximum observed | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1924 | 604 | - | - | - | - | - | - | - | - | - |
| 1925 | 604 | *344 | Apr. 1, 1925 | 1.6 | *40.1 | *0.418 | *5.67 | - | - | - |
| 1926 | 604 | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

23. Montreal River near Saxon, Wis.

Location.--Lat 46°32'45", long. 90°24'05", in NW¹ sec. 23, T. 48 N., R. 49 W., on right bank 2 miles upstream from mouth and 3.5 miles north of Saxon.

Drainage area.--281 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 760 ft (from power-company data).

Average discharge.--12 years (1938-50), 320 cfs.

Extremes.--1938-50: Maximum discharge, 5,700 cfs July 18, 1942 (gage height, 6.93 ft); minimum, 2 cfs Sept. 21, Oct. 8, 1939.

Remarks.--Diurnal fluctuation caused by Saxon Falls powerplant 1.5 miles upstream. Flow regulated by Gile Reservoir on West Branch Montreal River (capacity, 1.29 billion cu ft) since Apr. 1, 1941.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1939 | 147 | 687 | 114 | 146 | 77.9 | 394 | 1,795 | 871 | 1,172 | 159 | 55.8 | 33.6 | 469 |
| 1940 | 50.5 | 74.8 | 92.3 | 520 | 47.2 | 55.4 | 1,201 | 1,124 | 389 | 207 | 232 | 123 | 304 |
| 1941 | 59.0 | 308 | 214 | 206 | 156 | 98.5 | 1,024 | 127 | 129 | 101 | 246 | 894 | 295 |
| 1942 | 495 | 476 | 285 | 162 | 139 | 325 | 1,148 | 765 | 352 | 817 | 239 | 424 | 470 |
| 1943 | 337 | 445 | 200 | 158 | 176 | 274 | 1,303 | 523 | 396 | 211 | 214 | 206 | 370 |
| 1944 | 184 | 175 | 83.7 | 111 | 117 | 121 | 1,007 | 603 | 680 | 166 | 172 | 191 | 300 |
| 1945 | 230 | 213 | 187 | 165 | 122 | 888 | 784 | 316 | 821 | 284 | 198 | 167 | 365 |
| 1946 | 170 | 179 | 162 | 206 | 215 | 777 | 304 | 200 | 709 | 293 | 188 | 159 | 297 |
| 1947 | 189 | 286 | 203 | 202 | 170 | 159 | 1,154 | 533 | 414 | 204 | 198 | 148 | 321 |
| 1948 | 104 | 63.0 | 51.4 | 31.0 | 37.7 | 366 | 779 | 151 | 118 | 122 | 105 | 74.6 | 167 |
| 1949 | 38.2 | 34.2 | 38.1 | 27.8 | 21.0 | 130 | 440 | 380 | 216 | 553 | 174 | 181 | 187 |
| 1950 | 139 | 135 | 158 | 166 | 164 | 133 | 934 | 1,084 | 201 | 190 | 164 | 139 | 301 |

Monthly and yearly runoff, in inches, of Montreal River near Saxon, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1939 | 0.60 | 2.72 | 0.47 | 0.60 | 0.29 | 1.61 | 7.13 | 3.57 | 4.65 | 0.65 | 0.23 | 0.13 | 22.65 |
| 1940 | .21 | .30 | .38 | .21 | .18 | .23 | 4.76 | 4.61 | 1.54 | .85 | .95 | .49 | 14.71 |
| 1941 | .24 | 1.23 | .88 | .85 | .58 | .40 | 4.06 | .52 | .51 | .41 | 1.01 | 3.55 | 14.24 |
| 1942 | 2.03 | 1.89 | 1.16 | .67 | .52 | 1.34 | 4.56 | 3.14 | 1.40 | 3.36 | .98 | 1.68 | 22.73 |
| 1943 | 1.38 | 1.76 | .82 | .65 | .65 | 1.12 | 5.18 | 2.14 | 1.57 | .87 | .88 | .82 | 17.84 |
| 1944 | .76 | .70 | .34 | .46 | .45 | .50 | 3.99 | 2.48 | 2.70 | .68 | .71 | .76 | 14.53 |
| 1945 | .94 | .85 | .77 | .68 | .45 | 3.64 | 3.11 | 1.29 | 3.26 | 1.16 | .81 | .66 | 17.62 |
| 1946 | .70 | .71 | .67 | .85 | .80 | 3.19 | 1.20 | .82 | 2.81 | 1.20 | .77 | .63 | 14.35 |
| 1947 | .78 | 1.14 | .83 | .83 | .63 | .65 | 4.59 | 2.19 | 1.64 | .84 | .81 | .59 | 15.52 |
| 1948 | .39 | .25 | .21 | .13 | .14 | 1.50 | 3.09 | .62 | .47 | .50 | .43 | .30 | 8.03 |
| 1949 | .16 | .14 | .16 | .11 | .08 | .53 | 1.75 | 1.56 | .86 | 2.27 | .71 | .72 | 9.05 |
| 1950 | .57 | .54 | .65 | .68 | .61 | .55 | 3.70 | 4.45 | .80 | .78 | .67 | .55 | 14.55 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 894, 924 | 4,200 | Apr. 26, 1939 | 18 | 469 | 1.67 | 22.65 | 409 | 19.75 |
| 1940 | 894, 924 | 4,650 | May 20, 1940 | 22 | 304 | 1.08 | 14.71 | 334 | 16.17 |
| 1941 | 924 | 4,650 | Aug. 31, 1941 | 40 | 295 | 1.05 | 14.24 | 352 | 16.97 |
| 1942 | 954 | 5,700 | July 18, 1942 | 74 | 470 | 1.67 | 22.73 | 447 | 21.61 |
| 1943 | 974 | 3,680 | Oct. 3, 1942 | 150 | 370 | 1.32 | 17.84 | 324 | 15.68 |
| 1944 | 1004 | 3,750 | June 5, 1944 | 40 | 300 | 1.07 | 14.53 | 315 | 15.29 |
| 1945 | 1034 | 2,800 | Mar. 18, 1945 | 86 | 365 | 1.30 | 17.62 | 355 | 17.14 |
| 1946 | 1054 | 5,250 | June 25, 1946 | 76 | 297 | 1.06 | 14.35 | 311 | 15.02 |
| 1947 | 1084 | 2,140 | Apr. 23, 1947 | 40 | 321 | 1.14 | 15.52 | 282 | 13.62 |
| 1948 | 1114 | *2,300 | Mar. 26, 1948 | 12 | 167 | .594 | 8.03 | 157 | 7.64 |
| 1949 | 1144 | 3,460 | July 6, 1949 | 7.2 | 187 | .665 | 9.05 | 214 | 10.35 |
| 1950 | 1174 | 3,460 | May 6, 1950 | 26 | 301 | 1.07 | 14.55 | - | - |

* Revised.

24. Black River at Ramsay, Mich.

Location.--Lat 46°28', long. 90°00', in sec. 13, T. 47 N., R. 46 W., at upstream side of highway bridge 100 ft downstream from C. & N. W. R. R. bridge in Ramsay.

Drainage area.--82 sq mi, approximately.

Gage.--Chain gage. Altitude of gage is 1,330 ft (from county map).

Extremes.--1924-25: Maximum discharge, 415 cfs (revised) Apr. 17, 1924 (gage height, 8.5 ft, from graph based on gage readings); minimum observed, 4 cfs Aug. 19, 1925 (gage height, 3.64 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | 179 | 162 | 57.2 | 18.2 | 59.8 | 22.0 | - |
| 1925 | 22.3 | 38.1 | 24.9 | 16.1 | 16.6 | 56.4 | 188 | 37.8 | 30.1 | 8.0 | 7.8 | 16.2 | 38.4 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | 2.43 | 2.28 | 0.78 | 0.26 | 0.84 | 0.30 | - |
| 1925 | 0.31 | 0.52 | 0.35 | 0.23 | 0.21 | 0.79 | 2.56 | .53 | .41 | .11 | .11 | .22 | 6.34 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 584 | *415 | Apr. 17, 1924* | - | - | - | - | - | - |
| 1925 | 604 | 278 | Apr. 11, 1925 | 4 | 38.4 | 0.468 | 6.34 | - | - |

* Revised.

25. Presque Isle River at Marenisco, Mich.

Location.--Lat 46°22', long. 89°41', in NW¼ sec. 21, T. 46 N., R. 43 W., on left bank a quarter of a mile upstream from highway bridge in Marenisco and 2¼ miles downstream from confluence of East and West Branches of Presque Isle River.

Drainage area.--175 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,489.30 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to May 27, 1949, wire-weight gage at site a quarter of a mile downstream at different datum.

Average discharge.--5 years (1945-50), 146 cfs.

Extremes.--1945-50: Maximum discharge, 1,860 cfs June 26, 1946 (gage height, 9.4 ft from floodmark, site and datum then in use); minimum observed, 13 cfs Sept. 30, 1948 (gage height, 2.25 ft, site and datum then in use).

STREAMS TRIBUTARY TO LAKE SUPERIOR

Monthly and yearly mean discharge, in cubic feet per second,
of Presque Isle River at Arenisco, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | 389 | 515 | 305 | 394 | 230 | 91.9 | 130 | - |
| 1946 | 110 | 141 | 95.8 | 118 | 100 | 310 | 242 | 108 | 373 | 189 | 80.5 | 95.3 | 164 |
| 1947 | 226 | 259 | 127 | 76.8 | 70.0 | 82.9 | 635 | 448 | 349 | 84.8 | 49.4 | 45.0 | 204 |
| 1948 | 35.5 | 69.8 | 55.4 | 48.2 | 45.9 | 61.3 | 345 | 125 | 55.7 | 38.8 | 22.7 | 25.2 | 77.0 |
| 1949 | 20.7 | 49.4 | 47.4 | 41.2 | 47.5 | 56.7 | 253 | 332 | 114 | 198 | 52.4 | 82.5 | 108 |
| 1950 | 78.5 | 113 | 78.5 | 58.5 | 60.5 | 65.4 | 401 | 778 | 236 | 171 | 63.8 | 27.7 | 178 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | 2.56 | 3.28 | 2.01 | 2.51 | 1.51 | 0.61 | 0.83 | - |
| 1946 | 0.73 | 0.90 | 0.63 | 0.78 | 0.60 | 2.04 | 1.54 | .71 | 2.37 | 1.25 | .53 | .61 | 12.69 |
| 1947 | 1.49 | 1.65 | .84 | .51 | .42 | .55 | 4.05 | 2.85 | 2.23 | .56 | .35 | .29 | 15.87 |
| 1948 | .23 | .44 | .35 | .32 | .28 | .40 | 2.20 | .82 | .55 | .26 | .15 | .16 | 5.97 |
| 1949 | .14 | .31 | .31 | .27 | .28 | .37 | .51 | 2.19 | .75 | 1.30 | .34 | .53 | 8.38 |
| 1950 | .52 | .72 | .52 | .39 | .36 | .43 | 2.56 | 5.12 | 1.50 | 1.13 | .42 | .18 | 13.85 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | 1,140 | Mar. 27, 1945 | - | - | - | - | - | - |
| 1946 | 1054 | 1,860 | June 26, 1946 | 50 | 164 | 0.937 | 12.69 | 186 | 14.41 |
| 1947 | 1084 | 1,050 | Apr. 13, 1947 | 31 | 204 | 1.17 | 15.87 | 166 | 12.92 |
| 1948 | 1114 | 518 | Apr. 12, 1948 | 14 | 77.0 | .440 | 5.97 | 75.4 | 5.70 |
| 1949 | 1144 | 1,350 | May 7, 1949 | 14 | 103 | .617 | 8.38 | 121 | 9.38 |
| 1950 | 1174 | 1,750 | May 7, 1950 | 21 | 178 | 1.02 | 13.85 | - | - |

26. Presque Isle River near Tula, Mich.

Location.--Lat 46°33', long. 89°46', in sec. 23, T. 48 N., R. 44 W., on downstream hand-rail of bridge on State Highway 28, 2 miles east of Tula, 5 miles downstream from Little Presque Isle River, and 7 miles southwest of Merriweather.

Drainage area.--260 sq mi.

Gage.--Wire-weight gage. Datum of gage is 1,299.66 ft above mean sea level (corrected), datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--5 years (1945-50), 224 cfs.

Extremes.--1945-50: Maximum discharge, 3,260 cfs May 7, 1950; maximum gage height, 12.45 ft June 25, 1946, from graph based on gage readings; minimum discharge, 22 cfs Oct. 5, 6, 1948 (gage height, 4.22 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | 829 | 794 | 450 | 609 | 272 | 97.8 | *139 | - |
| 1946 | 130 | 189 | 122 | 149 | 119 | 573 | 343 | 147 | 620 | 280 | 90.4 | 122 | 240 |
| 1947 | 283 | 398 | 148 | 87.5 | 87.8 | 95.3 | 1,094 | 736 | 566 | 120 | 61.0 | 47.5 | 310 |
| 1948 | 45.7 | 80.2 | 63.0 | 58.5 | 58.7 | 80.8 | 683 | 183 | 73.9 | 57.0 | 29.3 | 30.7 | 120 |
| 1949 | 28.4 | 82.5 | 58.1 | 48.5 | 55.2 | 68.2 | 490 | 544 | 162 | 333 | 71.9 | 110 | 170 |
| 1950 | 119 | 176 | 121 | 75.9 | 71.1 | 85.6 | 706 | 1,287 | 320 | 249 | 90.4 | 35.4 | 279 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | 3.68 | 3.41 | 1.99 | 2.61 | 1.21 | 0.43 | *0.60 | - |
| 1946 | 0.58 | 0.81 | 0.54 | 0.66 | 0.47 | 2.54 | 1.47 | .65 | 2.66 | 1.24 | .40 | .52 | 12.54 |
| 1947 | 1.25 | 1.71 | .65 | .59 | .35 | .42 | 4.69 | 3.26 | 2.43 | .53 | .27 | .20 | 16.15 |
| 1948 | .20 | .34 | .28 | .26 | .24 | .36 | 2.93 | .81 | .32 | .25 | .13 | .13 | 6.25 |
| 1949 | .13 | .27 | .25 | .21 | .22 | .30 | 2.10 | 2.41 | .70 | 1.48 | .32 | .47 | 8.86 |
| 1950 | .53 | .76 | .54 | .34 | .28 | .37 | 3.03 | 5.71 | 1.37 | 1.10 | .40 | .15 | 14.58 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034, 1387 | 2,530 | Mar. 26, 1945 | - | - | - | - | - | - |
| 1946 | 1054 | 3,170 | June 25, 1946 | 59 | 240 | 0.923 | 12.54 | 273 | 14.22 |
| 1947 | 1084 | 1,940 | Apr. 25, 1947 | 30 | 310 | 1.19 | 16.15 | 256 | 13.36 |
| 1948 | 1114 | 1,050 | Apr. 12, 1948 | 25 | 120 | .462 | 6.25 | 116 | 6.08 |
| 1949 | 1144 | 2,600 | May 7, 1949 | 22 | 170 | .654 | 8.86 | 192 | 10.04 |
| 1950 | 1174 | 3,260 | May 7, 1950 | 28 | 279 | 1.07 | 14.58 | - | - |

27. Middle Branch Ontonagon River near Paulding, Mich.

Location.--Lat 46°21'30", long. 89°04'40" in sec. 29, T. 46 N., R. 38 W., on right bank 25 ft downstream from highway bridge, $\frac{3}{4}$ miles upstream from Bond Falls Reservoir, and $\frac{5}{8}$ miles southeast of Paulding.

Drainage area.--About 175 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,485.66 ft above mean sea level (corrected) datum of 1929 (levels by Michigan Department of Conservation). Prior to Sept. 28, 1942, reference point at downstream side of bridge at same datum.

Average discharge.--8 years (1942-50), 168 cfs.

Extremes.--1942-50: Maximum discharge, 1,400 cfs May 7, 1950; maximum gage height, 9.15 ft June 6, 1944; minimum discharge, 27 cfs Nov. 22, 1946 (result of freezeup).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | *139 | *271 | - |
| 1943 | 254 | 239 | 149 | 132 | 128 | 159 | 489 | 392 | 422 | 138 | 118 | 110 | 226 |
| 1944 | 121 | 156 | 112 | 123 | 114 | 130 | 234 | 347 | 438 | 130 | 90.0 | 123 | 176 |
| 1945 | 151 | 124 | 104 | 87.5 | 103 | 289 | 364 | 333 | 270 | 202 | 126 | 179 | 193 |
| 1946 | 159 | 195 | 125 | 144 | 122 | 264 | 215 | 143 | 319 | 212 | 111 | 119 | 177 |
| 1947 | 138 | 169 | 128 | 109 | 109 | 119 | 376 | 353 | 300 | 120 | 91.7 | 97.6 | 176 |
| 1948 | 93.0 | 109 | 98.8 | 95.6 | 98.7 | 109 | 238 | 127 | 89.4 | 81.1 | 77.7 | 76.4 | 107 |
| 1949 | 76.5 | 92.2 | 88.5 | 82.6 | 81.4 | 91.8 | 175 | 196 | 124 | 142 | 89.0 | 80.9 | 110 |
| 1950 | 91.1 | 106 | 95.4 | 92.4 | 84.7 | 98.9 | 279 | 546 | 194 | 124 | 114 | 83.4 | 159 |

* Not previously published; partly estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | *0.91 | *1.73 | - |
| 1943 | 1.67 | 1.53 | 0.98 | 0.87 | 0.76 | 0.92 | 3.12 | 2.58 | 2.69 | 0.91 | .78 | .70 | 17.51 |
| 1944 | .79 | .99 | .74 | .81 | .70 | .86 | 1.49 | 2.28 | 2.79 | .86 | .59 | .79 | 13.69 |
| 1945 | .86 | .79 | .68 | .58 | .61 | 1.90 | 2.32 | 2.19 | 1.72 | 1.33 | .83 | 1.14 | 14.95 |
| 1946 | 1.05 | 1.24 | .82 | .95 | .72 | 1.74 | 1.37 | .94 | 2.03 | 1.40 | .73 | .76 | 13.75 |
| 1947 | .91 | 1.08 | .85 | .72 | .65 | .78 | 2.40 | 2.33 | 1.91 | .79 | .80 | .62 | 13.64 |
| 1948 | .61 | .69 | .65 | .63 | .55 | .72 | 1.52 | .84 | .57 | .53 | .51 | .49 | 8.31 |
| 1949 | .50 | .59 | .58 | .54 | .48 | .60 | 1.11 | 1.28 | .79 | .94 | .59 | .52 | 8.53 |
| 1950 | .60 | .68 | .63 | .61 | .50 | .65 | 1.78 | 3.59 | 1.23 | .82 | .75 | .53 | 12.37 |

* Not previously published; partly estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - | - | - |
| 1943 | 974 | 1,040 | Apr. 26, 1943 | 92 | 226 | 1.29 | 17.51 | 204 | 15.85 | |
| 1944 | 1004 | 1,320 | June 6, 1944 | 82 | 176 | 1.01 | 13.69 | 174 | 13.50 | |
| 1945 | 1034 | 872 | May 23, 1945 | 85 | 193 | 1.10 | 14.95 | 203 | 15.73 | |
| 1946 | 1054 | 1,160 | June 25, 1946 | 92 | 177 | 1.01 | 13.75 | 174 | 13.48 | |
| 1947 | 1084 | 728 | Apr. 24, 1947 | 77 | 176 | 1.01 | 13.64 | 164 | 12.75 | |
| 1948 | 1114 | 343 | Apr. 28, 1948 | 68 | 107 | .611 | 8.31 | 103 | 8.03 | |
| 1949 | 1144 | 596 | May 6, 1949 | 65 | 110 | .629 | 8.53 | 113 | 8.77 | |
| 1950 | 1174 | 1,400 | May 7, 1950 | 73 | 159 | .909 | 12.37 | - | - | |

28. Bond Falls Canal near Paulding, Mich.

Location.--Lat 46°24'10", long. 89°09'00" in sec. 11, T. 46 N., R. 39 W., on right bank 40 ft upstream from intake to pipeline No. 2, 1.4 miles southeast of Paulding, and 1.5 miles downstream from Bond Falls Reservoir on Middle Branch Ontonagon River.

Gage.--Staff gage and concrete control. Datum of gage is 1444.59 ft above mean sea level (corrected), datum of 1929.

Average discharge.--8 years (1942-50), 113 cfs.

Extremes.--1942-50: Maximum discharge, 362 cfs Aug. 27, 1947 (gage height, 3.13 ft, from graph based on gage readings); minimum, 2.5 cfs Nov. 3, 4, 11, 12, 1943; minimum gage height, -1.25 ft May 29, 1943 (two drain holes in weir open and canal gate closed).

Remarks.--Canal diverts water from Bond Falls Reservoir to South Branch Ontonagon River; water is used for power production at Victoria Dam near Rockland.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | *124 | 125 | 69.4 | - |
| 1943 | 75.5 | 36.3 | 107 | 82.4 | 230 | 13 | 5.39 | 4.63 | 5.37 | 87.4 | 272 | 232 | 110 |
| 1944 | 120 | 6.24 | 49.5 | 102 | 186 | 141 | 53.2 | 26.3 | 139 | 179 | 294 | 275 | 129 |
| 1945 | 79.3 | 138 | 157 | 184 | 140 | 38.3 | 45.5 | 140 | 66.5 | 58.5 | 218 | 118 | 115 |
| 1946 | 110 | 181 | 162 | 144 | 208 | 104 | 11.2 | 63.2 | 89.8 | 123 | 174 | 206 | 131 |
| 1947 | 138 | 15.7 | 127 | 197 | 186 | 104 | 14.8 | 34.6 | 61.7 | 194 | 320 | 254 | 138 |
| 1948 | 131 | 57.8 | 10.2 | 65.5 | 152 | 125 | 5.22 | 35.0 | 249 | 175 | 66.5 | 42.7 | 91.0 |
| 1949 | 52.5 | 12.5 | 13.4 | 57.5 | 136 | 123 | 5.45 | 7.64 | 54.8 | 14.5 | 39.6 | 164 | 56.0 |
| 1950 | 139 | 98.2 | 129 | 184 | 157 | 134 | 7.31 | 64.0 | 152 | 95.5 | 162 | 257 | 131 |

* Not previously published.

| Yearly discharge, in cubic feet per second, of Bond Falls Canal near Paulding, Mich. | | | | | | | | |
|--|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - |
| 1943 | 974 | 282 | Aug. 21-23, 1943 | 2.8 | 110 | - | - | 107 |
| 1944 | 1004 | 360 | Aug. 16, Sept. 7 | 2.5 | 129 | - | - | 146 |
| 1945 | 1034 | 352 | May 22-25, 1945 | 3.2 | 115 | - | - | 122 |
| 1946 | 1054 | 262 | Jan. 18, 1946 | 9.7 | 131 | - | - | 117 |
| 1947 | 1084 | 362 | Aug. 27, 1947 | 7.0 | 138 | - | - | 129 |
| 1948 | 1114 | 304 | (a) | 4.8 | 91.0 | - | - | 82.5 |
| 1949 | 1144 | 255 | Sept. 22-24, 1949 | 5.1 | 56.0 | - | - | 80.2 |
| 1950 | 1174 | 300 | Sept. 10-14, 1950 | 7.0 | 131 | - | - | - |

a June 18, 19, July 7, 8, 1948.

29. Bond Falls Reservoir near Paulding, Mich.

Location.--Lat 46°24'29", long. 89°07'42", in SW $\frac{1}{4}$ sec. 1, T. 46 N., R. 39 W., at Bond Falls Dam on Middle Branch Ontonagon River and $2\frac{1}{2}$ miles east of Paulding.

Drainage area.--About 210 sq mi.

Gage.--Staff gage. Datum of gage is 1335.59 ft above mean sea level, datum of 1929.

Remarks.--Reservoir used for storage of water for power production at Victoria Power Plant, has usable capacity of 1,730,000,000 cu ft between gage heights 121 and 141 ft.

Cooperation.--Gage-height record furnished by Upper Peninsula Power Co.

| Month-end contents, in millions of cubic feet | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | Sept. |
| 1942 | - | - | - | - | - | - | - | - | 1,780 | 1,750 |
| 1943 | 1,780 | 1,820 | 1,780 | 1,740 | 1,340 | 954 | 1,760 | 1,790 | 1,780 | 750 |
| 1944 | 717 | 1,090 | 1,210 | 1,190 | 971 | 841 | 1,380 | 1,780 | 1,860 | 609 |
| 1945 | 742 | 692 | 518 | 279 | 166 | 910 | 1,760 | 1,880 | 1,830 | 1,640 |
| 1946 | 1,720 | 1,700 | 1,580 | 1,540 | 1,300 | 1,620 | 1,670 | 1,800 | 1,810 | 1,140 |
| 1947 | 1,090 | 1,450 | 1,410 | 1,120 | 867 | 816 | 1,740 | 1,810 | 1,840 | 287 |
| 1948 | 144 | 302 | 510 | 518 | 302 | 271 | 893 | 1,050 | 535 | 137 |
| 1949 | 131 | 357 | 551 | 593 | 412 | 326 | 775 | 1,260 | 1,350 | 1,310 |
| 1950 | 1,090 | 1,090 | 937 | 651 | 389 | 218 | 928 | 1,800 | 1,820 | 1,030 |

Note.--Figures in above table not previously published.

30. Middle Branch Ontonagon River near Trout Creek, Mich.

Location.--Lat 46°28'45", long. 89°05'25", in sec. 8, T. 47 N., R. 38 W., on right bank an eighth of a mile upstream from State Highway 28, $3\frac{1}{2}$ miles west of village of Trout Creek, and $6\frac{1}{2}$ miles downstream from Bond Falls Reservoir.

Drainage area.--About 225 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,132.03 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Nov. 4, 1942, staff gage at same site and datum.

Average discharge.--8 years (1942-50), 87.6 cfs.

Extremes.--1942-50: Maximum discharge, 1,170 cfs June 7, 1944 (gage height, 4.53 ft); minimum, 14 cfs sometime during period Jan. 23 to Feb. 13, 1947 (gage height, 1.14 ft, from recorded range in stage), caused by ice jams upstream.

Remarks.--Flow regulated by Bond Falls Reservoir (see above). Diversion to South Branch Ontonagon River by Bond Falls Canal (see p. 43).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1942 | - | - | - | - | - | - | - | - | - | 190 | 71.4 | - |
| 1943 | 221 | 239 | 102 | 84.7 | 76.8 | 118 | 297 | 422 | 461 | 121 | 58.9 | 187 |
| 1944 | 43.5 | 44.9 | 43.8 | 43.4 | 42.4 | 44.9 | 56.6 | 222 | 330 | 55.8 | 42.6 | 84.4 |
| 1945 | 43.5 | 43.0 | 41.5 | 41.4 | 40.5 | 52.0 | 52.9 | 202 | 246 | 159 | 48.8 | 85.0 |
| 1946 | 45.9 | 46.8 | 45.6 | 46.5 | 44.2 | 89.8 | 209 | 56.7 | 303 | 124 | 50.1 | 92.2 |
| 1947 | 45.9 | 47.5 | 44.0 | 42.9 | 41.6 | 40.0 | 91.4 | 324 | 254 | 71.2 | 56.8 | 92.7 |
| 1948 | 47.4 | 49.0 | 49.1 | 48.6 | 47.0 | 48.3 | 53.6 | 46.6 | 56.5 | 56.0 | 54.9 | 50.3 |
| 1949 | 44.1 | 33.1 | 32.0 | 31.7 | 31.0 | 32.4 | 36.5 | 38.8 | 57.5 | 66.5 | 56.6 | 42.4 |
| 1950 | 47.6 | 49.1 | 48.0 | 46.5 | 44.1 | 45.3 | 64.9 | 229 | 65.9 | 59.3 | 57.5 | 67.2 |

Yearly discharge, in cubic feet per second, of Middle Branch Ontonagon River near Trout Creek, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|------------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 1,010 | June 17, 1943 | 43 | 187 | - | - | 151 | - |
| 1944 | 1004 | 1,170 | June 7, 1944 | 38 | 84.4 | - | - | 84.1 | - |
| 1945 | 1034 | 760 | June 1, 1945 | 39 | 85.0 | - | - | 85.9 | - |
| 1946 | 1054 | 1,060 | June 26, 1946 | 43 | 92.2 | - | - | 92.1 | - |
| 1947 | 1084 | 815 | June 9, 1947 | 39 | 92.7 | - | - | 93.4 | - |
| 1948 | 1114 | 75 | Apr. 4, 1948 | 46 | 50.3 | - | - | 47.3 | - |
| 1949 | 1144 | 144 | July 6, 1949 | 30 | 42.4 | - | - | 45.4 | - |
| 1950 | 1174 | 740 | May 13, 14, 1950 | 43 | 67.2 | - | - | - | - |

31. East Branch Ontonagon River near Mass, Mich.

Location.--Lat 46°41'20", long. 89°04'20", on line between secs. 32 and 33, T. 50 N., R. 38 W., on right bank 700 ft downstream from highway bridge, 1,000 ft downstream from Adventure Creek, 5 miles south of Mass, and 6½ miles upstream from mouth.

Drainage area.--265 sq mi.

Gage.--Water-stage recorder. Datum of gage is 873.55 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Oct. 1, 1949, wire-weight gage at bridge 700 ft upstream at same datum.

Average discharge.--8 years (1942-50), 249 cfs.

Extremes.--1942-50: Maximum discharge, 4,160 cfs July 4, 1949 (gage height, 11.52 ft, from floodmark, site then in use); minimum, 60 cfs Aug. 25, 1948 (gage height, 3.55 ft, from graph based on gage readings, site then in use).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | \$228 | 346 | 472 | - |
| 1943 | 391 | 377 | 218 | 181 | 163 | 190 | 969 | 563 | 379 | 184 | 148 | 149 | 326 |
| 1944 | 155 | 230 | 150 | 173 | 153 | 171 | 607 | 404 | 521 | 159 | 117 | 181 | 251 |
| 1945 | 186 | 175 | 152 | 137 | 148 | 682 | 453 | 370 | 413 | 256 | 152 | 170 | 275 |
| 1946 | 183 | 212 | 167 | 187 | 146 | 447 | 290 | 218 | 451 | 214 | 166 | 167 | 237 |
| 1947 | 181 | 216 | 159 | 147 | 139 | 153 | 847 | 413 | 334 | 170 | 128 | 148 | 252 |
| 1948 | 134 | 149 | 148 | 150 | 115 | 214 | 632 | 176 | 118 | 107 | 84.5 | 77.5 | 173 |
| 1949 | 93.5 | 129 | 119 | 115 | 104 | 160 | 418 | 361 | 186 | 544 | 146 | 127 | 209 |
| 1950 | 162 | 215 | 168 | 143 | 111 | 139 | 624 | 807 | 323 | 207 | 196 | 137 | 270 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|--------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | \$0.99 | 1.50 | 1.99 | - |
| 1943 | 1.70 | 1.59 | 0.95 | 0.79 | 0.64 | 0.83 | 4.08 | 2.45 | 1.59 | .80 | .65 | .63 | 16.70 |
| 1944 | .68 | .97 | .65 | .75 | .62 | .74 | 2.56 | 1.76 | 2.19 | .69 | .51 | .76 | 12.88 |
| 1945 | .81 | .74 | .66 | .60 | .57 | 2.97 | 1.91 | 1.61 | 1.74 | 1.12 | .66 | .72 | 14.11 |
| 1946 | .79 | .89 | .73 | .82 | .57 | 1.94 | 1.22 | .95 | 1.90 | .93 | .72 | .70 | 12.16 |
| 1947 | .79 | .91 | .69 | .64 | .54 | .66 | 3.56 | 1.80 | 1.41 | .74 | .56 | .62 | 12.92 |
| 1948 | .58 | .63 | .64 | .56 | .47 | .93 | 2.66 | .77 | .50 | .47 | .37 | .33 | 8.91 |
| 1949 | .41 | .54 | .52 | .50 | .41 | .69 | 1.76 | 1.57 | .78 | 2.36 | .65 | .53 | 10.70 |
| 1950 | .71 | .91 | .73 | .62 | .43 | .61 | 2.63 | 3.51 | 1.36 | .90 | .85 | .57 | 13.83 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | - | | - | - | - | - | - | - |
| 1943 | 974 | 2,610 | May 6, 1943 | 132 | 326 | 1.23 | 16.70 | .288 | 14.76 |
| 1944 | 1004 | 3,330 | June 5, 1944 | 102 | 251 | 1.947 | 12.88 | .249 | 12.79 |
| 1945 | 1034 | 1,780 | Mar. 26, 1945 | 117 | 275 | 1.04 | 14.11 | .279 | 14.31 |
| 1946 | 1054 | 3,060 | June 25, 1946 | 119 | 237 | .894 | 12.16 | .237 | 12.14 |
| 1947 | 1084 | 2,230 | Apr. 23, 1947 | 98 | 252 | .951 | 12.92 | .242 | 12.38 |
| 1948 | 1114 | 1,340 | Apr. 28, 1948 | 60 | 173 | .653 | 8.91 | .166 | 8.53 |
| 1949 | 1144 | 4,160 | July 4, 1949 | 75 | 209 | .789 | 10.70 | .226 | 11.58 |
| 1950 | 1174 | 3,430 | May 6, 1950 | 104 | 270 | 1.02 | 13.83 | - | - |

STREAMS TRIBUTARY TO LAKE SUPERIOR

32. Middle Branch Ontonagon River near Rockland, Mich.

Location.--Lat 46°42'05", long. 89°09'40", in sec. 27, T. 50 N., R. 39 W., on downstream side of bridge on U. S. Highway 45, 300 ft downstream from East Branch and 2½ miles southeast of Rockland.

Drainage area.--670 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 661.1 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1942-50), 525 cfs.

Extremes.--1942-50: Maximum discharge, 27,000 cfs Aug. 22, 1942 (gage height, 21.2 ft, from floodmarks), from rating curve extended above 7,500 cfs, on basis of slope-area determination of peak flow; minimum observed, 157 cfs Dec. 1, 1948.

Remarks.--Flow regulated by Bond Falls Reservoir (see p. 44). Diversion to South Branch Ontonagon River by Bond Falls Canal (see p. 43).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1942 | - | - | - | - | - | - | - | - | - | 1,025 | 1,224 | - |
| 1943 | 907 | 834 | 442 | 345 | 325 | 449 | 2,318 | 1,470 | 1,105 | 383 | 255 | 243 |
| 1944 | 262 | 391 | 262 | 328 | 241 | 303 | 1,536 | 934 | 1,396 | 267 | 212 | 281 |
| 1945 | 311 | 304 | 263 | 248 | 251 | 1,257 | 1,103 | 990 | 1,066 | 543 | 255 | 283 |
| 1946 | 286 | 351 | 260 | 378 | 284 | 1,020 | 797 | 417 | 1,266 | 411 | 288 | 284 |
| 1947 | 345 | 460 | 297 | 255 | 247 | 282 | 2,148 | 1,003 | 874 | 300 | 231 | 247 |
| 1948 | 243 | 261 | 243 | 229 | 221 | 404 | 1,313 | 296 | 220 | 213 | 193 | 175 |
| 1949 | 191 | 214 | 218 | 205 | 187 | 285 | 726 | 775 | 390 | 1,181 | 292 | 239 |
| 1950 | 270 | 373 | 307 | 246 | 224 | 302 | 1,461 | 1,631 | 559 | 349 | 362 | 233 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | 27,000 | Aug. 22, 1942 | - | - | - | - | - | - |
| 1943 | 974 | 7,580 | May 6, 1943 | 223 | 756 | - | - | 649 | - |
| 1944 | 1004 | 6,780 | June 5, 1944 | 183 | 537 | - | - | 534 | - |
| 1945 | 1054 | 7,920 | May 22, 1945 | 220 | 574 | - | - | 576 | - |
| 1946 | 1054 | 11,500 | June 24, 1946 | 192 | 504 | - | - | 521 | - |
| 1947 | 1084 | 5,850 | Apr. 6, 1947 | 198 | 556 | - | - | 526 | - |
| 1948 | 1114 | 3,050 | Apr. 28, 1948 | 160 | 333 | - | - | 323 | - |
| 1949 | 1144 | 11,000 | July 6, 1949 | 168 | 410 | - | - | 438 | - |
| 1950 | 1174 | 6,920 | May 6, 1950 | 202 | 527 | - | - | - | - |

33. West Branch Ontonagon River near Bergland, Mich.

Location.--Lat 46°35'30", long. 89°32'20", in sec. 3, T. 48 N., R. 42 W., on right bank a quarter of a mile downstream from dam at outlet of Gogebic Lake and 1¼ miles east of Bergland.

Drainage area.--160 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 1,290.81 ft above mean sea level, datum of 1929. Prior to Nov. 5, 1942, staff gage a quarter of a mile upstream at different datum.

Average discharge.--8 years (1942-50), 157 cfs.

Extremes.--1942-50: Maximum discharge, 1,220 cfs May 11-13, 1950; maximum gage height, 5.59 ft May 11, 12, 1950; minimum daily discharge, 6 cfs Apr. 27 to May 3, 1949.

Remarks.--Flow regulated by Gogebic Lake.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1942 | - | - | - | - | - | - | - | - | - | - | *345 | 261 |
| 1943 | 234 | 253 | 164 | 123 | 79.5 | 78.2 | 742 | 546 | 374 | 154 | 133 | 134 |
| 1944 | 101 | 37.4 | 65.2 | 38.7 | 71.7 | 111 | 203 | 516 | 413 | 196 | 155 | 89.5 |
| 1945 | 78.8 | 78.6 | 103 | 102 | 99.0 | 180 | 505 | 249 | 462 | 170 | 119 | 90.2 |
| 1946 | 68.0 | 58.2 | 64.1 | 67.1 | 69.8 | 214 | 266 | 100 | 273 | 291 | 97.2 | 71.7 |
| 1947 | 62.2 | 58.9 | 120 | 116 | 100 | 105 | 477 | 546 | 316 | 160 | 124 | 56.8 |
| 1948 | 27.5 | 21.0 | 22.3 | 57.0 | 85.2 | 73.9 | 43.6 | 182 | 153 | 77.8 | 57.7 | 42.3 |
| 1949 | 15.3 | 14.3 | 18.5 | 23.3 | 35.8 | 55.8 | 10.7 | 216 | 164 | 241 | 195 | 85.9 |
| 1950 | 37.3 | 27.9 | 117 | 140 | 141 | 116 | 123 | 826 | 136 | 142 | 142 | 104 |

* Not previously published; estimated on basis of powerplant records.

STREAMS TRIBUTARY TO LAKE SUPERIOR

47

Yearly discharge, in cubic feet per second, of West Branch Ontonagon River near Bergland, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 1,100 | May 6, 1943 | 36 | 251 | 1.57 | 21.32 | 214 | 118.14 |
| 1944 | 1004 | 940 | May 3, 1944 | 28 | 165 | 1.03 | 14.05 | 170 | 114.45 |
| 1945 | 1034 | 840 | Mar. 28, 1945 | 41 | 186 | 1.16 | 15.78 | 180 | 115.28 |
| 1946 | 1054 | 1,080 | June 27, 1946 | 47 | 137 | 1.856 | 11.62 | 141 | 111.99 |
| 1947 | 1084 | 1,040 | May 1, 1947 | 36 | 187 | 1.17 | 15.88 | 173 | 114.66 |
| 1948 | 1114 | 365 | May 20, 1948 | 20 | 70.1 | 1.438 | 45.96 | 68.2 | 45.80 |
| 1949 | 1144 | 700 | July 7, 1949 | 6 | 90.2 | 1.564 | 47.66 | 102 | 45.82 |
| 1950 | 1174 | 1,220 | May 11-13, 1950 | 13 | 172 | 1.08 | 14.60 | - | - |

* Not previously published.

34. Cisco Branch Ontonagon River at Cisco Lake Outlet, Mich.

Location.--Lat 46°15', long. 89°27', in sec. 32, T. 45 N., R. 41 W., on right bank 80 ft downstream from Cisco Lake Dam, 2½ miles upstream from Langford Lake Outlet, 4½ miles upstream from U. S. Highway 2, and 13 miles southwest of Watersmeet.

Drainage area.--50 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 1,676.69 ft above mean sea level (corrected), datum of 1929.

Average discharge.--6 years (1944-50), 41.4 cfs.

Extremes.--1944-50: Maximum discharge, 229 cfs June 25, 26, 1946 (gage height, 1.88 ft); minimum daily, 0.2 cfs May 29 to June 17, 1948.

Remarks.--Flow regulated by Cisco Lake.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. |
| 1945 | 25.4 | 14.5 | 71.4 | 53.6 | 81.0 | 49.2 | 39.1 | 54.4 | 89.3 | 68.0 | 23.1 |
| 1946 | 33.7 | 72.6 | 40.5 | 37.8 | 39.1 | 51.8 | 45.2 | 22.6 | 97.5 | 85.9 | 25.3 |
| 1947 | 45.0 | 63.5 | 58.5 | 51.9 | 42.8 | 40.6 | 82.1 | 105 | 95.7 | 20.2 | 6.78 |
| 1948 | 46.8 | 60.9 | 82.8 | 59.8 | 58.8 | 40.7 | 2.02 | .465 | .267 | .526 | .574 |
| 1949 | 29.5 | 37.5 | 36.8 | 28.5 | 27.2 | 27.5 | 17.0 | 9.70 | 22.4 | 38.6 | 11.1 |
| 1950 | 53.5 | 42.6 | 40.9 | 46.0 | 20.6 | 30.8 | 47.7 | 90.6 | 50.5 | 38.4 | 25.8 |
| | | | | | | | | | | | 10.3 |
| | | | | | | | | | | | 44.7 |
| | | | | | | | | | | | 50.9 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | 174 | July 6, 1945 | 5.7 | 50.9 | 1.02 | 13.83 | 53.8 | 114.61 |
| 1946 | 1054 | 229 | June 25, 26, 1946 | 5.3 | 49.5 | 1.970 | 13.16 | 50.0 | 113.59 |
| 1947 | 1084 | 169 | June 11-13, 1947 | 1.6 | 52.0 | 1.04 | 14.13 | 54.2 | 114.72 |
| 1948 | 1114 | 115 | Nov. 27, 1947 | .2 | 30.1 | 1.602 | 48.20 | 22.8 | 46.21 |
| 1949 | 1144 | 198 | July 6, 7, 1949 | .8 | 25.2 | 1.504 | 46.85 | 28.0 | 47.61 |
| 1950 | 1174 | 158 | May 12-14, 1950 | 5.7 | 41.7 | 1.834 | 11.31 | - | - |

* Not previously published.

35. Cisco Branch Ontonagon River near Watersmeet, Mich.

Location.--Lat 46°18'00", long. 89°24'55", in sec. 15, T. 45 N., R. 41 W., at downstream side of bridge on U. S. Highway 2, 5 miles downstream from Cisco Lake and 11½ miles northwest of Watersmeet.

Drainage area.--57 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 1,629.4 ft above mean sea level, datum of 1929.

Extremes.--1942-44: Maximum discharge, 420 cfs July 19, 1942 (gage height, 4.70 ft, from graph based on gage readings); maximum gage height observed, 5.57 ft Mar. 25, 1943 (ice jam); minimum discharge, 4.1 cfs June 11, 1943 (gage height, 1.92 ft).

Remarks.--Flow regulated by Cisco Lake.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. |
| 1942 | - | - | - | - | - | - | - | - | 141 | 35.9 | 98.7 |
| 1943 | 67.5 | 81.5 | 65.4 | 62.7 | 50.6 | 59.0 | 115 | 131 | 175 | 47.7 | 26.0 |
| 1944 | 47.1 | 43.0 | 107 | 55.5 | 56.2 | 59.3 | 43.0 | 126 | 154 | 24.4 | 7.22 |
| | | | | | | | | | | | 29.3 |

* Not previously published; estimated on basis of weather records and records for nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|--------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 377 | May 8, 1943 | 4.1 | 75.7 | 1.33 | 18.03 | 74.3 | 117.68 |
| 1944 | 1004 | 288 | May 14, 1944 | 4.7 | 59.2 | 1.04 | 14.14 | - | - |

* Not previously published.

36. South Branch Ontonagon River at Ewen, Mich.

Location.--Lat 46°32'05", long. 89°16'30", in sec. 26, T. 48 N., R. 40 W., on left bank on piers of old State Highway M28 bridge in Ewen.

Drainage area.--About 320 sq mi.

Gage.--Staff gage. Datum of gage is 1,113.04 ft above mean sea level, datum of 1929. Aug. 9, 1942, to Jan. 15, 1943, chain gage, and prior to Aug. 9, 1942, reference mark at same site and datum.

Average discharge.--8 years (1942-50), 442 cfs.

Extremes.--1939-50: Maximum discharge, 6,640 cfs June 25, 1946; maximum gage height, 18.86 ft June 25, 1946.

1942-50: Minimum discharge observed, 76 cfs Sept. 23, 1948, June 7, Aug. 9, 22, 1949 (gage height, 0.88 ft).

Remarks.--Some diversion from Middle Branch Ontonagon River by Bond Falls Canal (see p.43). Some regulation at medium and low flows by Cisco Lake.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-------|-------|------|------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. |
| 1942 | - | - | - | - | - | - | - | 859 | 578 | 702 | 610 |
| 1943 | 501 | 528 | 366 | 284 | 389 | 399 | 1,596 | 837 | 803 | 253 | 369 |
| 1944 | 304 | 295 | 250 | 299 | 348 | 292 | 1,166 | 891 | 1,033 | 318 | 327 |
| 1945 | 281 | 311 | 328 | 299 | 301 | 1,051 | 863 | 765 | 726 | 423 | 319 |
| 1946 | 318 | 482 | 345 | 343 | 354 | 884 | 443 | 262 | 1,014 | 421 | 279 |
| 1947 | 378 | 428 | 327 | 345 | 321 | 273 | 1,497 | 764 | 727 | 293 | 368 |
| 1948 | 245 | 204 | 202 | 199 | 269 | 333 | 749 | 196 | 304 | 242 | 116 |
| 1949 | 135 | 142 | 151 | 153 | 231 | 265 | 583 | 607 | 335 | 437 | 152 |
| 1950 | 306 | 330 | 285 | 308 | 268 | 266 | 1,243 | 1,316 | 513 | 309 | 322 |
| | | | | | | | | | | 320 | 483 |

| Yearly discharge, in cubic feet per second | | | | | | | | |
|--|------------|----------------------------|---------------------------|-------------|------|-----------------|------------------|--------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
| | | Discharge | Momentary maximum Date | Minimum day | Mean | Per square mile | Runoff in inches | Mean Runoff in inches |
| 1939 | - | *3,980 | June 12, 1939* | - | - | - | - | - |
| 1940 | - | *4,520 | May 21, 1940* | - | - | - | - | - |
| 1941 | - | *2,730 | Sept. 16, 1941* | - | - | - | - | - |
| 1942 | 974 | *4,840 | Aug. 23, 1942 | - | - | - | - | - |
| 1943 | 974 | 2,770 | Apr. 25, 1943 | 114 | 553 | - | - | 507 |
| 1944 | 1004 | 3,580 | June 6, 1944 | 93 | 490 | - | - | 496 |
| 1945 | 1054 | 3,460 | May 23, 1945 | 149 | 498 | - | - | 517 |
| 1946 | 1054 | 6,640 | June 25, 1946 | 130 | 457 | - | - | 456 |
| 1947 | 1084 | 2,930 | Apr. 24, 1947 | 117 | 503 | - | - | 463 |
| 1948 | 1114 | 1,320 | Apr. 6, 1948 | 77 | 263 | - | - | 244 |
| 1949 | 1144 | 3,860 | May 7, 1949 | 77 | 285 | - | - | 327 |
| 1950 | 1174 | 4,670 | May 7, 1950 | 170 | 483 | - | - | - |

* Revised.

* Not previously published.

37. Ontonagon River near Rockland, Mich.

Location.--Lat 46°43'15", long. 89°12'25", in sec. 20, T. 50 N., R. 39 W., on downstream side of left pier of bridge on highway between Rockland and Victoria, $1\frac{1}{2}$ miles southwest of Rockland and 2.4 miles downstream from confluence of Middle and West Branches.

Drainage area.--1,290 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 638.87 ft above mean sea level (unadjusted), datum of 1929. Prior to Nov. 23, 1943, wire-weight, chain, and staff gages on downstream side of bridge at same site and datum.

Average discharge.--8 years (1942-50), 1,320 cfs.

Extremes.--1942-50: Maximum discharge, 42,000 cfs Aug. 22, 1942 (gage height, 28.6 ft, from floodmark), from rating curve extended above 12,500 cfs on basis of slope-area determination of peak flow; minimum daily, 260 cfs Sept. 6, 1948.

Remarks.--Flow regulated by Victoria Powerplant on West Branch 5 miles above station, by Bond Falls Reservoir (see p. 44), and by Gogebic and Cisco Lakes.

| Monthly and yearly mean discharge, in cubic feet per second, of Ontonagon River near Rockland, Mich. | | | | | | | | | | | | | |
|--|-------|-------|--------|------|------|-------|-------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | - | - | 1,780 | 1,790 | 2,563 | 2,679 | - |
| 1943 | 2,025 | 1,876 | *1,185 | 847 | 841 | 1,000 | 5,749 | 3,275 | 2,482 | 875 | 797 | 787 | *1,809 |
| 1944 | 651 | 796 | 610 | 770 | 723 | 744 | 3,973 | 2,800 | 3,080 | 858 | 745 | 803 | 1,374 |
| 1945 | 813 | 830 | 758 | 691 | 671 | 3,801 | 3,040 | 2,233 | 2,510 | 1,334 | 698 | 730 | 1,513 |
| 1946 | 699 | 971 | *687 | *971 | 860 | 2,849 | 1,856 | 888 | 2,797 | 1,246 | 717 | 710 | *1,271 |
| 1947 | 902 | 1,164 | *875 | *823 | *791 | 775 | 5,245 | 2,616 | 2,120 | 800 | 752 | 683 | *1,458 |
| 1948 | 522 | 513 | 495 | 519 | 621 | 913 | 2,986 | 767 | 712 | 548 | 404 | 325 | 774 |
| 1949 | 333 | 400 | 410 | 396 | 505 | 775 | 1,998 | 2,012 | 1,055 | 2,152 | 679 | 607 | 946 |
| 1950 | 687 | 892 | 810 | 735 | 684 | 780 | 3,914 | 4,621 | 1,373 | 888 | 877 | 664 | 1,413 |

* Revised.

† Not previously published; estimated on basis of powerplant records.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | 42,000 | Aug 22, 1942 | - | - | - | - | - | - |
| 1943 | 974, 1387 | 12,600 | May 6, 1943 | 600 | *1,809 | *1.40 | *19.04 | 1,555 | *16.36 |
| 1944 | 1004 | 12,600 | June 5, 1944 | 472 | 1,374 | *1.07 | *14.50 | 1,403 | *14.81 |
| 1945 | 1034 | 12,800 | May 22, 1945 | 456 | 1,513 | *1.17 | *15.92 | *1,509 | *15.88 |
| 1946 | 1054, 1387 | 17,600 | June 24, 1946 | 490 | *1,271 | *.985 | *13.37 | *1,320 | *13.89 |
| 1947 | 1084, 1387 | 9,900 | Apr. 23, 1947 | 524 | *1,458 | *1.13 | *15.35 | *1,340 | *14.10 |
| 1948 | 1114 | 6,600 | Apr. 11, 1948 | 260 | 774 | *.600 | *8.17 | 742 | *7.83 |
| 1949 | 1144 | 17,900 | July 6, 1949 | 280 | 946 | *.733 | *9.96 | 1,051 | *11.06 |
| 1950 | 1174 | 14,700 | May 6, 1950 | 551 | 1,413 | *1.10 | *14.87 | - | - |

* Revised.

† Not previously published.

38. Sturgeon River near Sidnaw, Mich.

Location.--Lat 46°35', long. 88°35', in sec. 5, T. 48 N., R. 34 W., on right bank 40 ft downstream from highway bridge, 2 miles downstream from Rock River, 3½ miles northwest of Covington, 4 miles upstream from Perch River, and 9 miles northeast of Sidnaw.

Drainage area.--155 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,214.40 ft above mean sea level, datum of 1929. October 1912 to September 1915, staff gage at site 200 ft upstream at different datum. Apr. 2, 1943, to Oct. 1, 1946, chain and staff gages, at old timber bridge 20 ft upstream at present datum.

Average discharge.--10 years (1912-15, 1943-50), 194 cfs.

Extremes.--1912-15, 1943-50: Maximum discharge, 3,280 cfs May 7, 1943 (gage height, 10.15 ft); maximum gage height, 10.18 ft June 6, 1944; minimum discharge, 4.6 cfs Oct. 8, 1948 (gage height, 3.47 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|-------|-------|-------|-------|-------|------|------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1913 | 109 | 93.8 | 150 | 70 | 45 | 89 | 1,100 | 343 | 248 | 165 | 31.3 | 125 | 214 |
| 1914 | 290 | 287 | 140 | a68.5 | a53.4 | a59 | 883 | 543 | 88.4 | 106 | 48.7 | 134 | †225 |
| 1915 | 70.2 | 147 | 156 | a79.5 | a62.0 | a59.6 | 598 | 595 | 311 | 154 | 88.7 | 132 | 205 |
| 1943 | - | - | - | - | - | - | *885 | 794 | 419 | 92.0 | 22.6 | 18.4 | - |
| 1944 | 25.3 | 96.2 | 35.8 | 40.4 | 40.5 | 42.0 | 549 | 476 | 579 | 121 | 64.9 | 129 | 182 |
| 1945 | 222 | 137 | 79.6 | 54.8 | 54.0 | 677 | 524 | 414 | 309 | 295 | 35.8 | 170 | 249 |
| 1946 | *117 | *145 | 76.4 | *77.6 | *63.2 | *429 | *266 | 160 | *261 | *139 | *38.2 | 46.2 | *152 |
| 1947 | 50.2 | 114 | 103 | 49.2 | 48.1 | 51.0 | 699 | 891 | 320 | 82.5 | 21.7 | 68.4 | 209 |
| 1948 | 43.1 | 59.2 | 41.0 | 39.1 | 22.9 | 99.4 | 680 | 186 | 36.4 | 27.0 | 13.1 | 8.57 | 104 |
| 1949 | 12.3 | 44.3 | 49.3 | 35.4 | 32.5 | 52.4 | 581 | 461 | 102 | 274 | 101 | 104 | 155 |
| 1950 | 165 | 263 | 132 | 86.8 | 54.8 | 69.1 | 464 | 1,093 | 254 | 136 | 103 | 54.4 | 241 |

† Corrected.

* Not previously published; estimated on basis of records for nearby stations.

a Records obtained about a mile downstream from regular station; drainage area, 165 sq mi.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|-------|------|------|------|-------|-------|------|-------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1913 | 0.81 | 0.68 | 1.12 | 0.52 | 0.30 | 0.66 | 7.92 | 2.55 | 1.78 | 1.22 | 0.23 | 0.90 | 18.69 |
| 1914 | 2.16 | 2.06 | 1.04 | a.48 | a.34 | a.41 | 6.36 | 4.04 | .64 | .79 | .36 | .97 | 19.65 |
| 1915 | .52 | 1.06 | 1.16 | a.56 | a.39 | a.42 | 4.31 | 4.43 | 2.24 | 1.15 | .66 | .95 | 17.85 |
| 1943 | - | - | - | - | - | - | *6.37 | 5.91 | 3.01 | .68 | .17 | .13 | - |
| 1944 | .19 | .69 | .27 | .30 | .28 | .31 | 3.95 | 3.54 | 4.17 | .90 | .48 | .93 | 16.01 |
| 1945 | 1.65 | .99 | .59 | .41 | .36 | 5.04 | 3.77 | 3.08 | 2.23 | 2.19 | .27 | 1.22 | 21.80 |
| 1946 | *.87 | *1.04 | .57 | *.58 | *.42 | *3.19 | *1.92 | 1.19 | *1.88 | *1.04 | *.28 | .33 | *13.31 |
| 1947 | .37 | .82 | .77 | .37 | .32 | .38 | 5.03 | 6.63 | 2.30 | .61 | .16 | .49 | 18.25 |
| 1948 | .32 | .43 | .30 | .29 | .16 | .74 | 4.89 | 1.38 | .26 | .20 | .10 | .06 | 9.13 |
| 1949 | .09 | .32 | .37 | .26 | .22 | .39 | 4.18 | 3.43 | .74 | 2.04 | .75 | .75 | 13.54 |
| 1950 | 1.23 | 1.89 | .98 | .65 | .37 | .51 | 3.34 | 8.13 | 1.82 | 1.01 | .77 | .39 | 21.09 |

* Not previously published; estimated on basis of records for nearby stations.

a Records obtained about a mile downstream from regular station; drainage area, 165 sq mi.

STREAMS TRIBUTARY TO LAKE SUPERIOR

| Yearly discharge, in cubic feet per second, of Sturgeon River near Sidnaw, Mich. | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1913 | 404 | - | - | - | 214 | 1.38 | 18.69 | 244 | 21.34 |
| 1914 | 404 | - | - | - | †225 | †1.45 | 19.65 | 196 | 17.13 |
| 1915 | 404 | - | - | - | 206 | †1.32 | 17.85 | - | - |
| 1943 | 974 | 3,280 | May 7, 1943 | - | - | - | - | - | - |
| 1944 | 1004 | 3,160 | June 6, 1944 | 14 | 182 | 1.17 | 16.01 | 206 | 18.09 |
| 1945 | 1034 | 2,190 | Mar. 27, 1945 | 22 | 249 | 1.61 | 21.80 | †240 | †21.05 |
| 1946 | 1054 | 1,040 | Mar. 23, 1946 | 22 | †152 | †.981 | †13.31 | †146 | †12.79 |
| 1947 | 1084 | 2,430 | May 1, 1947 | 12 | 209 | 1.35 | 18.25 | 199 | 17.34 |
| 1948 | 1114 | 975 | Apr. 28, 1948 | 6.0 | 104 | .671 | 9.13 | 101 | 8.86 |
| 1949 | 1144 | 2,430 | May 7, 1949 | 4.8 | 155 | 1.00 | 13.54 | 193 | 16.86 |
| 1950 | 1174 | 2,520 | May 10, 1950 | 17 | 241 | 1.55 | 21.09 | - | - |

† Corrected.

‡ Not previously published.

39. Perch River near Sidnaw, Mich.

Location.--Lat 46°31', long. 88°40', in NE $\frac{1}{4}$ sec. 34, T. 48 N., R. 35 W., 800 ft downstream from culvert on Duluth, South Shore & Atlantic Railway and 2 $\frac{1}{2}$ miles east of Sidnaw.

Drainage area.--60 sq mi.

Gage.--Staff gage. Altitude of gage is 1,340 ft (from topographic map).

Extremes.--1912-15: Maximum daily discharge, 500 cfs Apr. 24, 25, 1913, and Apr. 29, 1914; minimum not determined.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1913 | 40.7 | 33.8 | 37.2 | 22.0 | 19.0 | 22.0 | 241 | 143 | 130 | 100 | 40.1 | 50.5 | 73.3 |
| 1914 | 92.3 | 95.7 | 51.9 | 38.8 | 22.5 | 24.6 | 157 | 188 | 53.3 | 61.4 | 48.5 | 76.2 | 76.1 |
| 1915 | 36.0 | 50.7 | 39.0 | 30.0 | 28.7 | 25.8 | 139 | 163 | 135 | 74.7 | 63.3 | 64.3 | 70.8 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1913 | 0.78 | 0.63 | 0.71 | 0.42 | 0.33 | 0.42 | 4.48 | 2.74 | 2.42 | 1.92 | 0.77 | 0.94 | 16.56 |
| 1914 | 1.78 | 1.78 | 1.00 | .75 | .39 | .47 | 2.92 | 3.61 | .99 | 1.18 | .93 | 1.42 | 17.22 |
| 1915 | .69 | .94 | .75 | .58 | .50 | .50 | 2.59 | 3.14 | 2.48 | 1.43 | 1.22 | 1.20 | 16.02 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1913 | 404 | - | - | - | 73.3 | 1.22 | 16.56 | 84.0 | 19.00 |
| 1914 | 404 | - | - | - | 76.1 | 1.27 | 17.22 | 66.5 | 15.04 |
| 1915 | 404 | - | - | - | 70.8 | 1.18 | 16.02 | - | - |

40. Sturgeon River near Alston, Mich.

Location.--Lat 46°44', long. 88°40', in SE $\frac{1}{4}$ sec. 15, T. 50 N., R. 34 W., on right bank in powerhouse of Upper Peninsula Power Co. at Prickett Dam, 3 miles upstream from Clear Creek and 5 miles southeast of Alston.

Drainage area.--346 sq mi.

Gage.--Water-stage recorder. Datum of gage is 670.3 ft above mean tide at New York City (levels by Corps of Engineers). Prior to Jan. 5, 1948, headwater and tailwater gages.

Average discharge.--16 years (1932-40, 1942-50), 408 cfs.

Extremes.--1932-40, 1942-50: Maximum discharge, 4,730 cfs May 6, 1950 (gage height, 50.83 ft), but may have been greater on May 3, 1934, and/or May 7, 1943; minimum, 7.9 cfs Oct. 24, 1948 (powerplant leakage).

Remarks.--Flow regulated by powerplant at station. Discharge computed from flow through turbines and taintor gates prior to Jan. 5, 1948. For period prior to 1943 zero flow was shown for days when plant was not in operation, but recent discharge measurements of plant leakage range from 8.5 to 14.3 cfs.

Cooperation.--Records prior to 1942 computed by Corps of Engineers from powerplant records furnished by Baraga Light and Power Co. (calendar years computed by the Geological Survey). From Oct. 1, 1942, to Jan. 4, 1948, discharge computed by Geological Survey from powerplant records furnished by Houghton County Electric Light Co. and Upper Peninsula Power Co.

STREAMS TRIBUTARY TO LAKE SUPERIOR

51

Monthly and yearly mean discharge, in cubic feet per second, of Sturgeon River near Alston, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1932 | - | - | - | - | 245 | 230 | 1,019 | 605 | 207 | 258 | 367 | 348 | - |
| 1933 | 191 | 388 | 216 | 199 | 172 | 171 | 1,289 | 934 | 279 | 187 | 168 | 212 | 367 |
| 1934 | 201 | 279 | 271 | 188 | 196 | 177 | 690 | 1,337 | 350 | 186 | 165 | 502 | 379 |
| 1935 | 391 | 633 | 414 | 303 | 279 | 500 | 1,031 | 492 | 464 | 401 | 221 | 166 | 441 |
| 1936 | 284 | 266 | 259 | 248 | 181 | 299 | 962 | 1,249 | 353 | 143 | 151 | 304 | 392 |
| 1937 | 157 | 254 | 265 | 326 | 228 | 277 | 1,191 | 976 | 287 | 316 | 201 | 167 | 387 |
| 1938 | 491 | 389 | 208 | 166 | 179 | 822 | 1,324 | 764 | 703 | 265 | 309 | 253 | 469 |
| 1939 | 225 | 467 | 281 | 361 | 200 | 353 | 1,429 | 1,079 | 768 | 474 | 284 | 503 | 516 |
| 1940 | 191 | 189 | 255 | 151 | 275 | 164 | 834 | 1,708 | 583 | 262 | 158 | 180 | 413 |
| 1941 | 189 | 385 | 224 | 188 | 182 | 227 | 1,161 | 423 | 326 | - | - | - | - |
| 1943 | 611 | 559 | 342 | 263 | 240 | 310 | 1,536 | 1,295 | 780 | 312 | 148 | 137 | 545 |
| 1944 | 129 | 240 | 145 | 173 | 173 | 208 | 855 | 801 | 973 | 285 | 209 | 232 | 367 |
| 1945 | 581 | 275 | 197 | 173 | 169 | 1,139 | 862 | 773 | 554 | 501 | 158 | 278 | 457 |
| 1946 | 288 | 364 | 225 | 256 | 206 | 712 | 526 | 330 | 511 | 376 | 157 | 190 | 346 |
| 1947 | 188 | 278 | 247 | 175 | 175 | 234 | 1,010 | 1,132 | 609 | 265 | 132 | 201 | 387 |
| 1948 | 184 | 158 | 170 | 155 | 134 | 250 | 1,056 | 377 | 151 | 125 | 110 | 109 | 247 |
| 1949 | 99.4 | 120 | 179 | 133 | 140 | 176 | 856 | 779 | 263 | 567 | 284 | 256 | 322 |
| 1950 | 316 | 474 | 281 | 222 | 183 | 233 | 863 | 1,726 | 502 | 331 | 273 | 173 | 467 |

Note.--Records prior to Sept. 30, 1947, not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1932 | - | - | - | - | 0.76 | 0.77 | 3.29 | 2.02 | 0.86 | 1.22 | 1.12 | - | - |
| 1933 | 0.64 | 1.26 | 0.72 | 0.66 | .52 | .57 | 4.16 | 3.11 | .90 | .62 | .56 | .68 | 14.40 |
| 1934 | .67 | .90 | .90 | .63 | .59 | .59 | 2.23 | 4.46 | 1.13 | .62 | .55 | 1.62 | 14.89 |
| 1935 | 1.30 | 2.04 | 1.38 | 1.01 | .84 | 1.67 | 3.32 | 1.64 | 1.50 | 1.54 | .74 | .54 | 17.32 |
| 1936 | .95 | .86 | .86 | .83 | .56 | 1.00 | 3.10 | 4.16 | 1.14 | .48 | .50 | .98 | 15.42 |
| 1937 | .52 | .82 | .88 | 1.09 | .69 | .92 | 3.84 | 3.25 | .93 | 1.05 | .67 | .54 | 15.20 |
| 1938 | 1.63 | 1.25 | .69 | .55 | .54 | 2.74 | 4.27 | 2.55 | 2.27 | .88 | 1.03 | .82 | 19.22 |
| 1939 | .75 | 1.51 | .94 | 1.20 | .69 | 1.18 | 4.61 | 3.60 | 2.48 | 1.58 | .85 | .98 | 20.28 |
| 1940 | .64 | .61 | .85 | .50 | .86 | .55 | 2.69 | 5.69 | 1.88 | .87 | .53 | .58 | 16.25 |
| 1941 | .63 | 1.24 | .75 | .63 | .55 | .76 | 3.74 | 1.41 | 1.05 | - | - | - | - |
| 1943 | 2.04 | 1.80 | 1.14 | .88 | .72 | 1.03 | 4.95 | 4.32 | 2.51 | 1.04 | .49 | .44 | 21.36 |
| 1944 | .43 | .77 | .48 | .58 | .54 | .69 | 2.76 | 2.67 | 3.14 | .95 | .70 | .75 | 14.46 |
| 1945 | 1.27 | .89 | .66 | .58 | .51 | 3.80 | 2.78 | 2.58 | 1.79 | 1.67 | .53 | .89 | 17.95 |
| 1946 | .96 | 1.17 | .75 | .85 | .62 | 2.37 | 1.70 | 1.10 | 1.65 | 1.25 | .52 | .61 | 13.55 |
| 1947 | .63 | .90 | .82 | .58 | .53 | .78 | 3.26 | 3.77 | 1.96 | .88 | .44 | .65 | 15.20 |
| 1948 | .61 | .51 | .57 | .51 | .42 | .83 | 3.40 | 1.26 | .49 | .42 | .37 | .35 | 9.74 |
| 1949 | .33 | .39 | .60 | .44 | .42 | .59 | 2.76 | 2.60 | .85 | 1.89 | .95 | .83 | 12.65 |
| 1950 | 1.05 | 1.53 | .94 | .74 | .55 | .77 | 2.78 | 5.75 | 1.62 | 1.10 | .91 | .56 | 18.30 |

Note.--Records prior to Sept. 30, 1947, not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1932 | - | 1,858 | Apr. 21, 1932 | a0 | - | - | - | - | - |
| 1933 | - | 3,200 | Apr. 21, 1933 | 108 | 367 | 1.06 | 14.40 | 363 | 14.25 |
| 1934 | - | 4,270 | May 3, 1934 | 77 | 379 | 1.09 | 14.89 | 437 | 17.14 |
| 1935 | - | 1,599 | Apr. 15, 1935 | a0 | 441 | 1.27 | 17.32 | 389 | 15.27 |
| 1936 | - | 2,778 | May 2, 1936 | a0 | 392 | 1.13 | 15.42 | 381 | 14.97 |
| 1937 | - | 2,790 | Apr. 26, 1937 | a0 | 387 | 1.12 | 15.20 | 422 | 16.55 |
| 1938 | - | 3,141 | Apr. 1, 1938 | 28 | 489 | 1.41 | 19.22 | 480 | 18.85 |
| 1939 | - | 4,121 | Apr. 26, 1939 | 73 | 516 | 1.49 | 20.28 | 488 | 19.18 |
| 1940 | - | 3,764 | May 20, 1940 | 72 | 413 | 1.19 | 16.25 | 426 | 16.77 |
| 1941 | - | 3,436 | Apr. 14, 1941 | - | - | - | - | - | - |
| 1943 | - | 4,280 | May 7, 1943 | 115 | 545 | 1.58 | 21.36 | 461 | 18.06 |
| 1944 | - | 3,830 | June 6, 1944 | 12 | 367 | 1.06 | 14.46 | 396 | 15.60 |
| 1945 | - | 3,630 | Mar. 26, 1945 | 12 | 457 | 1.32 | 17.95 | 459 | 18.01 |
| 1946 | - | 1,640 | Mar. 22, 1946 | 12 | 346 | 1.00 | 13.55 | 332 | 13.02 |
| 1947 | - | 2,760 | Apr. 30, 1947 | 12 | 387 | 1.12 | 15.20 | 371 | 14.54 |
| 1948 | 1114 | 2,810 | Apr. 28, 1948 | 9.1 | 247 | .714 | 9.74 | 238 | 9.37 |
| 1949 | 1144 | 3,470 | May 6, 1949 | 7.9 | 322 | .931 | 12.65 | 378 | 14.85 |
| 1950 | 1174 | 4,730 | May 6, 1950 | 46 | 467 | 1.35 | 18.30 | - | - |

a Powerplant shut down; not corrected for leakage shown by subsequent discharge measurements.

Note.--Prior to 1948 maximums listed are maximum daily. Records prior to 1948 not previously published.

41. Sturgeon River near Baraga, Mich.

Location.--Lat 46°47', long. 88°37', in sec. 28, T. 51 N., R. 34 W., on downstream side of bridge on State Highway 35, 6 miles west of Baraga and 6 miles downstream from Prickett Powerplant.

Drainage area.--374 sq mi (revised).

Gage.--Wire-weight gage. Datum of gage is 660.00 ft above mean tide at New York City (Corps of Engineers benchmark).

Average discharge.--9 years (1927-31, 1942-47), 458 cfs.

Extremes.--1927-31, 1942-47: Maximum discharge, 4,830 cfs May 7, 1943 (gage height, 14.87 ft, from graph based on gage readings), but may have been greater during May 1928; minimum daily, 22 cfs Aug. 3, 1947.

Remarks.--Flow regulated since December 1931 by Prickett Powerplant.

Cooperation.--Records for 1927-31 contained in Corps of Engineers unpublished report on Sturgeon River, Mich., and Tributaries, dated September 1943. Those prior to August 1928 furnished by Milwaukee Electric Railway and Light Co. Those for period Aug. 1, 1928, to Sept. 30, 1931, computed by Corps of Engineers. Calendar year figures computed by U. S. Geological Survey.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1927 | - | - | - | - | - | - | - | - | - | 656 | 212 | 149 | - |
| 1928 | 259 | 474 | 234 | 246 | 202 | 359 | 1,365 | 1,580 | 627 | 328 | 385 | 623 | 556 |
| 1929 | 965 | 479 | 331 | 200 | 215 | 437 | 1,165 | 633 | 383 | 700 | 207 | 206 | 495 |
| 1930 | 380 | 659 | 339 | 201 | 331 | 382 | 1,121 | 842 | 697 | 316 | 142 | 151 | 463 |
| 1931 | 207 | 239 | 161 | 118 | 143 | 179 | 752 | 382 | 303 | 257 | 165 | 185 | 257 |
| 1943 | 678 | 633 | 390 | 293 | 262 | 338 | 1,580 | 1,469 | 840 | 343 | 162 | 150 | 595 |
| 1944 | 151 | 259 | 169 | 196 | 199 | 228 | 916 | 940 | 1,101 | 315 | 245 | 245 | 413 |
| 1945 | 425 | 309 | 226 | 200 | 201 | 1,190 | 979 | 891 | 659 | 593 | 184 | 302 | 515 |
| 1946 | 329 | 401 | 251 | 282 | 230 | 781 | 615 | 359 | 568 | 458 | 177 | 212 | 389 |
| 1947 | 211 | 312 | 279 | 195 | 198 | 257 | 1,126 | 1,325 | 689 | 309 | 158 | 240 | 442 |

Note.--Records for 1927-31 not previously published.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1927 | - | - | - | - | - | - | - | - | - | 2.02 | 0.65 | 0.44 | - |
| 1928 | 0.80 | 1.41 | 0.72 | 0.76 | 0.58 | 1.11 | 4.07 | 4.87 | 1.87 | 1.01 | 1.19 | 1.86 | 20.25 |
| 1929 | 2.98 | 1.43 | 1.02 | .62 | .60 | 1.35 | 3.48 | 1.95 | 1.14 | 2.16 | .64 | .61 | 17.98 |
| 1930 | 1.17 | 1.97 | 1.05 | .62 | .92 | 1.18 | 3.35 | 2.60 | 2.08 | .97 | .44 | .45 | 16.80 |
| 1931 | .64 | .71 | .50 | .36 | .40 | .55 | 2.24 | 1.18 | .90 | .79 | .51 | .55 | 9.33 |
| 1943 | 2.09 | 1.89 | 1.20 | .90 | .73 | 1.04 | 4.71 | 4.53 | 2.51 | 1.06 | .50 | .45 | 21.61 |
| 1944 | .47 | .77 | .52 | .61 | .58 | .70 | 2.73 | 2.90 | 3.29 | .97 | .76 | .73 | 15.03 |
| 1945 | 1.31 | .92 | .70 | .62 | .56 | 3.67 | 2.92 | 2.75 | 1.97 | 1.83 | .57 | .90 | 18.72 |
| 1946 | 1.01 | 1.20 | .77 | .87 | .64 | 2.41 | 1.83 | 1.11 | 1.69 | 1.41 | .55 | .63 | 14.12 |
| 1947 | .65 | .93 | .86 | .60 | .55 | .79 | 3.36 | 4.09 | 2.06 | .95 | .49 | .72 | 16.05 |

Note.--Monthly runoff not previously published.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1927 | - | - | - | - | - | - | - | - | - |
| 1928 | - | a4,690 | May 5, 1928 | 130 | 556 | 1.49 | 20.25 | 625 | 22.75 |
| 1929 | - | a2,607 | Apr. 8, 1929 | 139 | 495 | 1.32 | 17.98 | 461 | 16.74 |
| 1930 | - | a2,040 | June 14, 1930 | 128 | 463 | 1.24 | 16.80 | 398 | 14.46 |
| 1931 | - | a1,260 | Apr. 14, 1931 | 92 | 257 | .69 | 9.33 | - | - |
| 1943 | 974 | 4,830 | May 7, 1943 | 113 | 595 | 1.59 | 21.61 | 501 | 18.19 |
| 1944 | 1004 | b4,320 | June 7, 1944 | 50 | 413 | 1.10 | 15.03 | 445 | 16.20 |
| 1945 | 1034 | 3,280 | May 22, 1945 | 44 | 515 | 1.38 | 18.72 | 517 | 18.77 |
| 1946 | 1054 | 1,830 | Mar. 22, 1946 | 52 | 389 | 1.04 | 14.12 | 374 | 13.58 |
| 1947 | 1084 | 3,150 | May 1, 1947 | 22 | 442 | 1.18 | 16.05 | - | - |

a Maximum daily.

b Maximum observed.

Note.--Records for 1927-31 not previously published.

42. Otter River near Elo, Mich.

Location.--Lat 46°52', long. 88°37', in sec. 34, T. 52 N., R. 34 W., on downstream side of highway bridge, 1½ miles southeast of old Elo school and 3 miles upstream from Otter Lake.

Drainage area.--175 sq mi.

Gage.--Wire-weight gage. Datum of gage is 617.88 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--8 years (1942-50), 212 cfs.

Extremes.--1942-50: Maximum discharge, 4,340 cfs May 10, 1950 (gage height, 13.30 ft, from floodmark); maximum gage height, 13.30 ft Apr. 24, 1944, May 10, 1950; minimum discharge, 68 cfs Nov. 18, 1947 (discharge measurement), but may have been less at other times during period of ice effect.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1943 | #298 | #279 | 167 | 134 | 137 | 144 | 1,095 | 582 | 273 | 101 | 90.8 | 92.7 | #282 |
| 1944 | 94.7 | 131 | 108 | 123 | 107 | 115 | 784 | 331 | 307 | 118 | 99.9 | 102 | 201 |
| 1945 | 111 | 129 | 120 | 107 | 108 | 808 | 544 | 279 | 288 | 152 | 90.2 | 110 | 238 |
| 1946 | 103 | 143 | 113 | 134 | 115 | 526 | 301 | 227 | 130 | 93.1 | 81.0 | 90.7 | 172 |
| 1947 | 107 | 126 | 114 | 86.3 | 89.2 | 123 | 913 | 501 | 253 | 110 | 90.0 | 99.3 | 217 |
| 1948 | 82.9 | 96.7 | 96.9 | 90.8 | 88.7 | 159 | 776 | 144 | 89.6 | 84.0 | 76.9 | 75.5 | 154 |
| 1949 | 83.1 | 99.8 | 102 | 86.2 | 90.8 | 113 | 584 | 263 | 100 | 278 | 109 | 103 | 168 |
| 1950 | 113 | 175 | 146 | 127 | 106 | 112 | 662 | 1,129 | 227 | 135 | 161 | 93.9 | 267 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | #1.97 | #1.78 | 1.10 | 0.88 | 0.81 | 0.95 | 6.98 | 3.83 | 1.74 | 0.67 | 0.60 | 0.59 | #21.90 |
| 1944 | .62 | .83 | .71 | .81 | .66 | .76 | 5.00 | 2.18 | 1.96 | .78 | .66 | .65 | 15.62 |
| 1945 | .73 | .82 | .79 | .71 | .64 | 5.31 | 3.47 | 1.84 | 1.83 | 1.00 | .59 | .70 | 18.43 |
| 1946 | .68 | .91 | .74 | .88 | .68 | 3.46 | 1.92 | 1.50 | .83 | .61 | .53 | .58 | 13.32 |
| 1947 | .71 | .80 | .75 | .57 | .53 | .81 | 5.82 | 3.30 | 1.61 | .73 | .59 | .63 | 16.85 |
| 1948 | .55 | .62 | .64 | .60 | .55 | 1.05 | 4.95 | .95 | .57 | .55 | .51 | .48 | 12.02 |
| 1949 | .55 | .64 | .67 | .57 | .54 | .75 | 3.72 | 1.73 | .64 | 1.83 | .72 | .86 | 13.02 |
| 1950 | .74 | 1.12 | .96 | .84 | .63 | .74 | 4.22 | 7.44 | 1.45 | .89 | 1.06 | .60 | 20.69 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 3,490 | Apr. 24, 1943 | #81 | #282 | #1.61 | #21.90 | 248 | 19.21 |
| 1944 | 1004 | 4,300 | Apr. 24, 1944 | 77 | 201 | 1.15 | 15.62 | 203 | 15.80 |
| 1945 | 1034 | 2,840 | Mar. 27, 1945 | 79 | 238 | 1.36 | 18.43 | 238 | 18.42 |
| 1946 | 1054 | 1,340 | Mar. 22, 1946 | 72 | 172 | .963 | 13.32 | 171 | 13.25 |
| 1947 | 1084 | 2,710 | Apr. 30, 1947 | 80 | 217 | 1.24 | 16.85 | 211 | 16.40 |
| 1948 | 1114 | 2,030 | Apr. 20, 1948 | 71 | 154 | .880 | 12.02 | 155 | 12.07 |
| 1949 | 1144 | 1,870 | May 6, 1949 | 74 | 168 | .960 | 13.02 | 180 | 13.98 |
| 1950 | 1174 | 4,340 | May 10, 1950 | 82 | 267 | 1.53 | 20.69 | - | - |

* Not previously published.

43. Sturgeon River near Arnheim, Mich.

Location.--Lat 46°56', long. 88°33', in SE¼ sec. 1, T. 52 N., R. 34 W., on right bank a quarter of a mile downstream from Otter Lake, 3 miles northwest of Arnheim, and 8½ miles northeast of Pelkie.

Drainage area.--680 sq mi.

Gage.--Staff gage. Datum of gage is 605.98 ft above mean tide at New York City (Corps of Engineers benchmark).

Average discharge.--8 years (1942-50), 785 cfs.

Extremes.--1942-50: Maximum discharge, 11,800 cfs (revised) May 10, 1950 (gage height, 14.30 ft, from graph based on gage readings); minimum, 200 cfs Sept. 14, 1948 (gage height, 1.15 ft).

STREAMS TRIBUTARY TO LAKE SUPERIOR

| Monthly and yearly mean discharge, in cubic feet per second, of Sturgeon River near Arnheim, Mich. | | | | | | | | | | | | | |
|--|--------|--------|------|------|------|-------|-------|--------|-------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1943 | *1,263 | *1,141 | 649 | 512 | 477 | 607 | 3,253 | 2,471 | 1,254 | 551 | 307 | 297 | *1,065 |
| 1944 | 303 | 444 | 344 | 382 | 378 | 384 | 2,014 | 1,616 | 1,544 | 538 | 423 | 384 | 727 |
| 1945 | 633 | 542 | 410 | 352 | 356 | 2,289 | 2,100 | 1,305 | 1,267 | 921 | 337 | 468 | 918 |
| 1946 | 483 | 629 | 399 | 505 | 430 | 1,610 | 1,182 | 698 | 744 | 641 | 291 | 317 | 661 |
| 1947 | 348 | 484 | 525 | 371 | 343 | 421 | 2,532 | 2,311 | 1,133 | 473 | 293 | 354 | 799 |
| 1948 | 335 | 326 | 330 | 304 | 286 | 465 | 2,272 | 859 | 328 | 284 | 257 | 234 | 520 |
| 1949 | 241 | 289 | 325 | 283 | 288 | 352 | 1,885 | 1,302 | 455 | 1,185 | 521 | 423 | 631 |
| 1950 | 498 | 773 | 607 | 455 | 369 | 426 | 2,166 | *3,674 | 954 | 594 | 568 | 359 | *957 |

* Revised.

* Not previously published; estimated on basis of records for station near Alston.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|-------|------|------|------|------|------|-------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1943 | *2.14 | *1.87 | 1.10 | 0.87 | 0.73 | 1.03 | 5.34 | 4.19 | 2.06 | 0.95 | 0.52 | 0.49 | *21.27 |
| 1944 | .51 | .73 | .58 | .65 | .60 | .65 | 3.31 | 2.74 | 2.53 | .91 | .72 | .63 | 14.56 |
| 1945 | 1.07 | .89 | .89 | .60 | .55 | 3.88 | 3.45 | 2.21 | 2.08 | 1.56 | .57 | .77 | 18.32 |
| 1946 | .82 | 1.03 | .66 | .86 | .66 | 2.73 | 1.94 | 1.18 | 1.22 | 1.09 | .49 | .52 | 13.20 |
| 1947 | .59 | .79 | .89 | .63 | .53 | .71 | 4.15 | 3.92 | 1.86 | .80 | .50 | .68 | 15.95 |
| 1948 | .57 | .54 | .56 | .52 | .45 | .79 | 3.73 | 1.42 | .54 | .48 | .44 | .38 | 10.42 |
| 1949 | .41 | .47 | .55 | .48 | .44 | .60 | 3.09 | 2.21 | .75 | 2.01 | .88 | .69 | 12.58 |
| 1950 | .85 | 1.27 | 1.03 | .77 | .56 | .72 | 3.55 | *6.23 | 1.57 | 1.01 | .96 | .59 | *19.11 |

* Revised.

* Not previously published; estimated on basis of records for station near Alston.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | *8,240 | Apr. 2, 1943* | 280 | *1,065 | *1.57 | *21.27 | 901 | 17.98 |
| 1944 | 1004 | *7,850 | Apr. 25, 1944 | 280 | 727 | 1.07 | 14.56 | 769 | 15.39 |
| 1945 | 1034 | *6,820 | Mar. 29, 1945* | 285 | 918 | 1.35 | 18.32 | 910 | 18.18 |
| 1946 | 1054 | 4,070 | Mar. 22, 1946 | 263 | 661 | .972 | 13.20 | 650 | 12.96 |
| 1947 | 1084 | 5,100 | May 1, 1947 | 254 | 799 | 1.18 | 15.95 | 768 | 15.35 |
| 1948 | 1114 | 3,510 | Apr. 21, 1948 | 204 | 520 | .765 | 10.42 | 509 | 10.18 |
| 1949 | 1144 | 4,000 | May 8, 1949 | 208 | 631 | .928 | 12.58 | 716 | 14.30 |
| 1950 | 1174, 1337 | *11,900 | May 10, 1950 | 300 | *957 | *1.41 | *19.11 | - | - |

* Revised.

* Not previously published.

44. Dead River near Negaunee, Mich.

Location.--Lat 46°34', long. 87°34', in NW $\frac{1}{4}$ sec. 16, T. 48 N., R. 26 W., 4 $\frac{1}{2}$ miles north-east of Negaunee.

Drainage area.--138 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,200 ft (Hoist Powerplant data, 1945).

Extremes.--July 1902 to May 1903: Maximum daily discharge, 806 cfs May 7, 1903, from rating curve extended above 300 cfs; minimum daily, 39 cfs Jan. 12, 1903.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1902 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1903 | 149 | 172 | 110 | 85 | 86 | *179 | 454 | *447 | - | *153 | 112 | 121 | - |

* Not previously published; estimated on basis of records for station at Forestville and Carp River near Marquette.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1902 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1903 | 1.25 | 1.39 | 0.92 | 0.71 | 0.65 | 1.50 | 3.67 | 3.74 | - | - | - | 0.98 | - |

Note.--Runoff not previously published.

45. Dead River at Forestville, Mich.

Location.--Lat 46°34'25", long. 87°28'10", in NE $\frac{1}{4}$ sec. 7, T. 48 N., R. 25 W., at Forestville, 4 miles northwest of Marquette.

Drainage area.--158 sq mi (revised), approximately.

Gage.--Staff gage and timber weir. Altitude of gage is 770 ft (from topographic map).

Extremes.--1898-1902: Maximum discharge observed, 2,340 cfs Apr. 23, 1900; minimum daily discharge, 30 cfs Feb. 14, 1899.

Cooperation.--Records furnished by J. M. Longyear, Marquette, Mich.

Monthly and yearly mean discharge, in cubic feet per second, of Dead River at Forestville, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1899 | *127 | 267 | 107 | 78 | 56 | 57 | 1,009 | 502 | 363 | 179 | 160 | 314 | *268 |
| 1900 | 394 | 216 | 201 | 171 | 142 | 123 | 854 | 319 | 196 | 172 | 156 | 385 | 277 |
| 1901 | 195 | 208 | 154 | 154 | 112 | 120 | 760 | 525 | 206 | 228 | 112 | 136 | 243 |
| 1902 | 178 | 213 | 132 | 118 | 106 | 362 | 736 | 517 | 255 | 152 | - | - | - |

* Not previously published; estimated on basis of weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1899 | *0.93 | 1.89 | 0.78 | 0.57 | 0.37 | 0.42 | 7.12 | 3.66 | 2.56 | 1.31 | 1.17 | 2.22 | *23.00 |
| 1900 | 2.87 | 1.53 | 1.47 | 1.25 | .97 | .90 | 6.03 | 2.33 | 1.38 | 1.26 | 1.14 | 2.72 | 23.85 |
| 1901 | 1.42 | 1.47 | 1.12 | 1.12 | .74 | .88 | 5.37 | 3.83 | 1.45 | 1.66 | .82 | .96 | 20.84 |
| 1902 | 1.30 | 1.50 | .96 | .86 | .70 | 2.64 | 5.20 | 3.77 | 1.80 | 1.11 | - | - | - |

* Not previously published; estimated on basis of weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|--|
| | | Maximum observed | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1899 | 97 | 2,320 | Apr. 28, 1899 | 30 | *268 | *1.70 | *23.00 | 294 | 25.27 | | |
| 1900 | 97 | 2,340 | Apr. 23, 1900 | +86 | 277 | 1.75 | 23.85 | 255 | 23.85 | | |
| 1901 | 97 | 2,210 | Apr. 18, 1901 | +61 | 243 | 1.54 | 20.84 | 240 | 20.59 | | |
| 1902 | 97 | 2,210 | Apr. 30, 1902 | - | - | - | - | - | - | | |

† Corrected.

* Not previously published.

46. Carp River near Marquette, Mich.

Location--Lat 46°31'05", long. 87°23'05", in NW $\frac{1}{4}$ sec. 36, T. 48 N., R. 25 W., 500 ft upstream from mouth and $1\frac{1}{2}$ miles south of Marquette.Drainage area--86 sq mi, approximately.Gage--Staff gage and weir. Altitude of gage is 610 ft (from topographic map).Extremes--1902-3: Maximum daily discharge, 219 cfs Mar. 20-23, Apr. 12, May 4-6, 12, 13, 30, 31, 1903; minimum not determined.Cooperation--Records furnished by Cleveland-Cliffs Iron Co.Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | *73 | 39 | 45 | - |
| 1903 | 51 | 105 | *43 | *40 | *40 | *112 | 152 | 175 | 95 | 91 | 100 | 115 | *93 |
| 1904 | *88 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for stations on Dead River at Forestville and near Negaunee.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|------|------|------|-------|------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | *0.98 | 0.53 | 0.59 | - |
| 1903 | 0.69 | 1.37 | *0.58 | *0.54 | *0.48 | *1.50 | 1.96 | 2.34 | 1.23 | 1.22 | 1.34 | 1.48 | *14.73 |
| 1904 | *1.18 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1902 | 83 | - | - | - | - | - | - | - | - | - | - |
| 1903 | 83, 97 | - | - | - | *93 | *1.08 | *14.73 | - | - | - | - |
| 1904 | 97 | - | - | - | - | - | - | - | - | - | - |

* Not previously published.

47. Tahquamenon River at Newberry, Mich.

Location--Lat 46°22', long. 85°31', at highway bridge between secs. 23 and 24, T. 46 N., R. 10 W., three-quarters of a mile north of Newberry.Drainage area--200 sq mi, approximately.Gage--Staff gage. Altitude of gage is 710 ft (from county map).Extremes--1934-36: Maximum discharge, 654 cfs Apr. 17, 1936 (gage height, 12.35 ft); minimum, 74 cfs July 20, 1936 (gage height, 8.01 ft).

Monthly and yearly mean discharge, in cubic feet per second, of Tahquamenon River at Newberry, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | - | - | #103 | 213 | - |
| 1935 | 166 | 377 | 291 | 165 | 139 | 289 | 472 | 199 | 314 | 124 | 115 | 149 | 233 |
| 1936 | 223 | 243 | 217 | 123 | 102 | 216 | 488 | 394 | 134 | 91.8 | 113 | 220 | 214 |

* Not previously published; estimated on basis of records for Sturgeon River near Alston.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | - | - | #0.59 | 1.18 | - |
| 1935 | 0.96 | 2.10 | 1.68 | 0.95 | 0.72 | 1.66 | 2.63 | 1.15 | 1.75 | 0.71 | .66 | .83 | 15.80 |
| 1936 | 1.29 | 1.36 | 1.24 | .71 | .55 | 1.24 | 2.72 | 2.27 | .75 | .53 | .65 | 1.23 | 14.54 |

* Not previously published; estimated on basis of records for Sturgeon River near Alston.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1934 | 759 | - | - | - | - | - | - | - | - | - | - |
| 1935 | 784 | 590 | Mar. 27-30, 1935 | 90 | 233 | 1.16 | 15.80 | 221 | 14.95 | - | - |
| 1936 | 804 | 654 | Apr. 17, 1936 | 74 | 214 | 1.07 | 14.54 | - | - | - | - |

STREAMS TRIBUTARY TO LAKE MICHIGAN

48. South Manistique Lake Outlet at Curtis, Mich.

Location.--Lat 46°12'20", long. 85°44'10", in sec. 18, T. 44 N., R. 11 W., 1,000 ft downstream from South Manistique Lake, a quarter of a mile east of Curtis, and three-quarters of a mile upstream from Black Creek.

Drainage area.--44 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 690 ft (from survey level line in vicinity).

Extremes.--1942-44: Maximum discharge, 180 cfs June 21-24, 1943 (corrected); maximum gage height, 3.86 ft June 21-23, 1943, from graph based on gage readings; minimum discharge, practically no flow July 14, 1942 (gage height, 0.40 ft).

Remarks.--Flow regulated by South Manistique Lake.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | 24.3 | 0.36 | 2.18 | 18.2 | - |
| 1943 | 36.2 | 41.0 | 42.1 | 37.6 | 34.3 | 30.4 | 67.2 | 119 | 138 | 93.0 | 22.7 | 28.5 | 57.6 |
| 1944 | 19.2 | 34.2 | 35.6 | 26.6 | 22.3 | 21.6 | 34.0 | 75.4 | 19.5 | 1.39 | 1.24 | 21.6 | 26.1 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - | - | - |
| 1943 | 974 | 180 | June 21-24, 1943† | 11 | 57.6 | 1.31 | 17.75 | 55.0 | 16.97 | - | - |
| 1944 | 1004 | 88 | May 15, 1944 | 0.6 | 26.1 | .59 | 8.06 | - | - | - | - |

† Corrected.

49. North Manistique Lake Outlet at Helmer, Mich.

Location.--Lat 46°16'30", long. 85°42'40", in sec. 20, T. 45 N., R. 11 W., at bridge on State Highway 98, a quarter of a mile downstream from Helmer Creek, half a mile upstream from Manistique Lake, and half a mile northeast of Helmer.

Drainage area.--15 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 694 ft (from survey level line in vicinity).

Extremes.--1942-44: Maximum discharge, 100 cfs June 21, 1943 (gage height, 2.88 ft, from graph based on gage readings); minimum, 1.8 cfs Sept. 2, 3, 12, 1942 (gage height, 0.64 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | - | 6.91 | - |
| 1943 | 12.5 | 18.3 | 13.8 | 7.68 | 10.5 | 18.4 | 39.5 | 31.5 | 40.1 | 18.2 | 7.16 | 8.90 | 18.9 |
| 1944 | 9.97 | 16.9 | 17.3 | 14.8 | 13.9 | 15.5 | 30.0 | 25.1 | 16.8 | 10.4 | 7.71 | 7.25 | 15.5 |

Monthly and yearly runoff, in inches, of North Manistique Lake Outlet at Helmer, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | - | - | 0.51 | - |
| 1943 | 0.96 | 1.36 | 1.06 | 0.59 | 0.73 | 1.41 | 2.94 | 2.42 | 2.98 | 1.40 | 0.55 | .66 | 17.06 |
| 1944 | .77 | 1.26 | 1.33 | 1.14 | 1.00 | 1.19 | 2.23 | 1.93 | 1.25 | .80 | .59 | .54 | 14.03 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 100 | June 21, 1943 | 4 | 18.9 | 1.26 | 17.06 | 18.8 | 17.04 |
| 1944 | 1004 | 50 | Apr. 25, 26, 1944 | 2.9 | 15.5 | 1.03 | 14.03 | - | - |

50. Manistique River near Germfask, Mich.

Location.--Lat 46°15'25", long. 85°52'20", in sec. 36, T. 45 N., R. 13 W., on right bank at bridge on State Highway 98, half a mile upstream from Fox River, 2 miles downstream from Manistique Lake, and 2½ miles east of Germfask.

Drainage area.--120 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 682 ft (estimated from level of Manistique Lake). Auxiliary staff gage on Manistique Lake at outlet from South Manistique Lake prior to Apr. 15, 1943, water-stage recorder at same site and datum thereafter. Datum of auxiliary gage is 683.08 ft above mean sea level (levels by Michigan Department of Conservation).

Average discharge.--8 years (1942-50), 112 cfs.

Extremes.--1942-50: Maximum discharge, 446 cfs June 29, 1943 (gage height, 4.76 ft, from graph based on gage readings); maximum gage height, 5.70 ft June 22, 25, 1943 (from graph based on gage readings); maximum reverse flow, 299 cfs Mar. 28, 1945; minimum gage height, 0.16 ft Sept. 1, 1942 (from graph based on gage readings).

Remarks.--After July 2, 1948, Manistique Lake regulated by flashboards in timber dam half a mile below gage. Backwater from Fox River most of time; discharge computed using fall as determined by auxiliary gage as a factor. Occasionally during high stages of Fox River the flow at this station is reversed.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|-------|------|-------|----------|
| 1942 | - | - | - | - | - | - | \$121 | 170 | 130 | 83.4 | 42.5 | 48.2 | - |
| 1943 | 83.2 | 101 | 108 | 111 | 110 | 106 | 62.3 | 254 | 263 | 291 | 189 | 141 | 152 |
| 1944 | 112 | 110 | 134 | 123 | 108 | 101 | 21.5 | 174 | 168 | 115 | 72.2 | 64.0 | 109 |
| 1945 | 79.9 | 86.0 | 102 | 111 | 103 | -15.7 | 181 | 231 | 230 | 166 | 84.4 | 63.8 | 118 |
| 1946 | 90.5 | 111 | 143 | 143 | 153 | 83.7 | 183 | 163 | 149 | 107 | 61.9 | 57.1 | 120 |
| 1947 | 60.1 | 88.5 | 106 | 115 | 125 | 101 | 40.7 | 197 | 220 | 171 | 96.2 | 64.6 | 116 |
| 1948 | 64.5 | 68.9 | 71.8 | 70.0 | 73.2 | 83.8 | 71.0 | 174 | 102 | 3.5 | 0 | 0 | 65.2 |
| 1949 | 5.1 | 80.8 | 99.5 | 87.4 | 93.5 | 94.5 | 42.3 | 4.0 | 41.9 | 68.1 | 43.8 | 99.9 | 61.3 |
| 1950 | 157 | 149 | 146 | 143 | 136 | 124 | 60.8 | 232 | 327 | \$200 | \$50 | \$80 | \$150 |

* Not previously published; estimated on basis of records for station at Germfask.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|--------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | \$1.12 | 1.63 | 1.21 | 0.80 | 0.41 | 0.45 | - |
| 1943 | 0.80 | 0.94 | 1.04 | 1.07 | 0.96 | 1.01 | .58 | 2.44 | 2.45 | 2.80 | 1.82 | 1.31 | 17.22 |
| 1944 | 1.07 | 1.05 | 1.28 | 1.18 | .97 | .97 | .20 | 1.68 | 1.56 | 1.10 | .69 | .60 | 12.33 |
| 1945 | .77 | .90 | .98 | 1.06 | .89 | -.15 | 1.68 | 2.22 | 2.14 | 1.59 | .81 | .59 | 13.38 |
| 1946 | .87 | 1.03 | 1.37 | 1.37 | 1.32 | .80 | 1.70 | 1.56 | 1.39 | 1.02 | .59 | .53 | 13.55 |
| 1947 | .58 | .82 | 1.02 | 1.11 | 1.09 | .97 | .38 | 1.89 | 2.04 | 1.65 | .92 | .60 | 13.07 |
| 1948 | .62 | .64 | .69 | .67 | .66 | .81 | .66 | 1.67 | .95 | - | - | - | - |

* Not previously published; estimated on basis of records for station at Germfask.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|-------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 974 | 190 | Apr. 28, 1942 | - | - | - | - | - | - |
| 1943 | 974 | 446 | June 29, 1943 | -150 | 152 | 1.27 | 17.22 | 157 | 17.82 |
| 1944 | 1004 | 219 | May 20, 1944 | -131 | 109 | .908 | 12.33 | 101 | 11.50 |
| 1945 | 1034 | 267 | Mar. 8, 1945 | -279 | 118 | .983 | 13.58 | 125 | 14.10 |
| 1946 | 1054 | 194 | Apr. 3, 1946 | -102 | 120 | 1.00 | 13.55 | 113 | 12.70 |
| 1947 | 1084 | 242 | June 1, 2, 1947 | -105 | 116 | .967 | 13.07 | 111 | 12.60 |
| 1948 | 1114 | 216 | May 7, 1948 | -93 | 65.2 | - | - | - | - |
| 1949 | 1144 | 189 | July 3, 4, 1949 | -16 | 61.3 | - | - | - | - |
| 1950 | 1174 | 427 | May 25, 1950 | - | \$150 | - | - | - | - |

* Not previously published.

STREAMS TRIBUTARY TO LAKE MICHIGAN

51. Fox River at Seney, Mich.

Location.--Lat 46°20'35", long. 85°57'05", in sec. 32, T. 46 N., R. 13 W., at Duluth,

South Shore & Atlantic Railroad bridge in Seney, 8 miles upstream from East Branch.

Drainage area.--107 sq mi.

Gage.--Staff gage. Datum of gage is 727.16 ft above mean sea level (levels by Michigan State Highway Department).

Extremes.--1942-44: Maximum discharge, 740 cfs June 23, 1943 (gage height, 4.70 ft, from graph based on gage readings); minimum daily, 75 cfs Jan. 21, 1943.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | 144 | 122 | 114 | 136 | - |
| 1943 | 162 | 185 | 168 | 106 | 137 | 129 | 278 | 264 | 357 | 204 | 169 | 160 | 193 |
| 1944 | 165 | 176 | 159 | 156 | 134 | 128 | 256 | 214 | 178 | 148 | 156 | 148 | 161 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | 1.51 | 1.31 | 1.23 | 1.42 | - |
| 1943 | 1.74 | 1.93 | 1.81 | 1.15 | 1.33 | 1.39 | 2.90 | 2.84 | 3.73 | 2.20 | 1.82 | 1.67 | 24.51 |
| 1944 | 1.78 | 1.84 | 1.50 | 1.47 | 1.35 | 1.38 | 2.46 | 2.31 | 1.85 | 1.59 | 1.46 | 1.54 | 20.53 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 740 | June 23, 1943 | 75 | 193 | 1.80 | 24.51 | 190 | 24.15 |
| 1944 | 1004 | 456 | Apr. 25, 1944 | 121 | 161 | 1.50 | 20.53 | - | - |

52. East Branch Fox River near Germfask, Mich.

Location.--Lat 46°16'30", long. 85°50'50", in sec. 19, T. 45 N., R. 12 W., at highway

bridge 1½ miles upstream from mouth and 4 miles east of Germfask.

Drainage area.--104 sq mi.

Gage.--Chain gage. Altitude of gage is 690 ft (from survey level line in vicinity).

Extremes.--1942-44: Maximum discharge, 797 cfs Apr. 24, 1943 (gage height, 11.34 ft, from graph based on gage readings); minimum, 68 cfs Aug. 27, 1944.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | 102 | 80.3 | 77.5 | 108 | - |
| 1943 | 150 | 186 | 130 | 89.2 | 82.5 | 88.1 | 379 | 262 | 336 | 134 | 101 | 107 | 170 |
| 1944 | 150 | 189 | 105 | 98.9 | 106 | 111 | 335 | 225 | 118 | 88.8 | 78.3 | 144 | 145 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | 1.09 | 0.89 | 0.86 | 1.16 | - |
| 1943 | 1.66 | 2.00 | 1.44 | 0.99 | 0.83 | 0.98 | 4.07 | 2.91 | 3.60 | 1.48 | 1.13 | 1.15 | 22.24 |
| 1944 | 1.66 | 2.02 | 1.16 | 1.10 | 1.09 | 1.23 | 3.59 | 2.50 | 1.27 | .98 | .87 | 1.54 | 19.01 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | 70 | - | - | - | - | - |
| 1943 | 974 | 797 | Apr. 24, 1943 | 75 | 170 | 1.63 | 22.24 | 168 | 21.98 |
| 1944 | 1004 | 657 | Apr. 26, 1944 | 68 | 145 | 1.39 | 19.01 | - | - |

53. Holland Creek near Seney, Mich.

Location.--Lat 46°20'45", long. 86°03'00", in NW¼ sec. 34, T. 46 N., R. 14 W., 4½ miles west of Seney.

Drainage area.--13 sq mi (watershed indeterminate because of swamps).

Gage.--Staff gage. Altitude of gage is 750 ft (from survey level line in vicinity).

Extremes.--1938-42: Maximum discharge, 572 cfs Apr. 24, 1939 (gage height, 4.25 ft, from graph based on gage readings); minimum observed, 0.8 cfs Aug. 24, 1939.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | - | 11.4 | 5.28 | 2.44 | 2.15 | 4.97 | - |
| 1939 | 6.96 | 10.7 | 11.1 | 19.3 | 10.2 | 7.75 | 118. | 34.1 | 28.8 | 7.92 | 2.31 | 2.75 | 21.5 |
| 1940 | 4.49 | 7.72 | 6.62 | 3.61 | 3.11 | 3.65 | 75.9 | 53.4 | 30.0 | 6.99 | 3.17 | 2.78 | 16.7 |
| 1941 | 3.11 | 12.0 | 15.2 | 12.6 | 6.82 | 6.67 | 55.2 | 11.2 | 6.08 | 3.35 | 3.32 | 19.9 | 12.9 |
| 1942 | 53.2 | 48.8 | 35.0 | 16.5 | 10.5 | 25.0 | 72.8 | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second, of Holland Creek near Seney, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 572 | Apr. 24, 1939 | 0.8 | 21.5 | - | - | 20.7 | - |
| 1940 | 894 | 280 | Apr. 25, 1940 | 1.8 | 16.7 | - | - | 17.7 | - |
| 1941 | 924 | 128 | Apr. 10, 1941 | 1.5 | 12.9 | - | - | 21.7 | - |
| 1942 | 954 | 246 | Apr. 2, 1942 | - | - | - | - | - | - |

54. Manistique River at Germfask, Mich.

Location.--Lat 46°14'00", long. 85°55'40", in SE $\frac{1}{4}$ sec. 4, T. 44 N., R. 13 W., on left bank 600 ft upstream from bridge on State Highway M-77, 1 mile south of Germfask, $\frac{1}{2}$ miles upstream from Grays Creek, and at mile 62.5.

Drainage area.--341 sq mi.

Gage.--Water-stage recorder. Datum of gage is 662.40 ft above mean sea level (levels by Michigan Department of Conservation). Prior to Dec. 29, 1938, staff gage at site 600 ft downstream at different datum.

Average discharge.--12 years (1938-50), 443 cfs.

Extremes.--1938-50: Maximum discharge, 2,130 cfs Apr. 1, 1938 (gage height, 8.50 ft, from graph based on gage readings, site and datum then in use); minimum, 144 cfs Oct. 3, 1948 (gage height, 0.95 ft).

Remarks.--Some regulation during low flow caused by Manistique Lake since July 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 1,075 | 705 | 501 | 345 | 224 | 328 | - |
| 1939 | 419 | 392 | 402 | 497 | 373 | 402 | 874 | 791 | 674 | 425 | 316 | 326 | 491 |
| 1940 | 397 | 402 | 364 | 285 | 310 | 337 | 692 | 809 | 647 | 415 | 297 | 285 | 437 |
| 1941 | 321 | 461 | 450 | 389 | 355 | 351 | 701 | 470 | 282 | 245 | 231 | 443 | 391 |
| 1942 | 593 | 630 | 568 | 466 | 372 | 465 | 831 | 563 | 410 | 299 | 238 | 295 | 478 |
| 1943 | 412 | 508 | 431 | 317 | 340 | 368 | 878 | 808 | 983 | 625 | 468 | 417 | 546 |
| 1944 | 443 | 526 | 407 | 410 | 364 | 347 | 671 | 670 | 463 | 337 | 276 | 350 | 459 |
| 1945 | 360 | 429 | 337 | 328 | 314 | 746 | 814 | 580 | 536 | 404 | 271 | 294 | 451 |
| 1946 | 367 | 575 | 397 | 486 | 376 | 715 | 572 | 488 | 407 | 298 | 259 | 277 | 435 |
| 1947 | 297 | 413 | 479 | 391 | 345 | 368 | 849 | 611 | 594 | 377 | 255 | 258 | 453 |
| 1948 | 256 | 288 | 284 | 268 | 258 | 340 | 750 | 432 | 282 | 183 | 179 | 164 | 307 |
| 1949 | 190 | 458 | 412 | 312 | 346 | 375 | 661 | 331 | 388 | 400 | 313 | 357 | 378 |
| 1950 | 443 | 519 | 465 | 410 | 360 | 384 | 807 | 1,019 | 624 | 472 | 278 | 278 | 506 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 3.51 | 2.39 | 1.64 | 1.16 | 0.76 | 1.07 | - |
| 1939 | 1.42 | 1.28 | 1.36 | 1.68 | 1.14 | 1.36 | 2.86 | 2.68 | 2.21 | 1.44 | 1.07 | 1.07 | 19.57 |
| 1940 | 1.34 | 1.32 | 1.23 | .96 | .98 | 1.14 | 2.26 | 2.73 | 2.12 | 1.41 | 1.00 | .95 | 17.42 |
| 1941 | 1.08 | 1.51 | 1.52 | 1.32 | 1.08 | 1.19 | 2.29 | 1.59 | .92 | .83 | .78 | 1.45 | 15.56 |
| 1942 | 2.01 | 2.08 | 1.92 | 1.57 | 1.14 | 1.57 | 2.72 | 1.90 | 1.34 | 1.01 | .81 | .96 | 19.01 |
| 1943 | 1.39 | 1.66 | 1.46 | 1.07 | 1.04 | 1.24 | 2.87 | 2.73 | 3.22 | 2.11 | 1.58 | 1.56 | 21.73 |
| 1944 | 1.50 | 1.72 | 1.38 | 1.39 | 1.15 | 1.17 | 2.20 | 2.27 | 1.52 | 1.14 | .93 | 1.15 | 17.52 |
| 1945 | 1.22 | 1.40 | 1.14 | 1.11 | .96 | 2.52 | 2.67 | 1.96 | 1.75 | 1.37 | .92 | .96 | 17.98 |
| 1946 | 1.24 | 1.88 | 1.34 | 1.64 | 1.15 | 2.42 | 1.87 | 1.65 | 1.33 | 1.01 | .88 | .91 | 17.32 |
| 1947 | 1.00 | 1.35 | 1.62 | 1.32 | 1.05 | 1.24 | 2.78 | 2.74 | 1.94 | 1.28 | .86 | .84 | 18.02 |
| 1948 | .86 | .94 | .96 | .91 | .82 | 1.15 | 2.45 | 1.46 | .92 | .62 | .61 | .54 | 12.24 |
| 1949 | .64 | 1.50 | 1.39 | 1.06 | 1.06 | 1.27 | 2.16 | 1.12 | 1.27 | 1.55 | 1.06 | 1.17 | 15.05 |
| 1950 | 1.50 | 1.70 | 1.57 | 1.39 | 1.10 | 1.30 | 2.64 | 3.45 | 2.04 | 1.60 | .94 | .91 | 20.14 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | 2,130 | Apr. 1, 1938 | - | - | - | - | - | - |
| 1939 | 874 | 1,910 | Apr. 26, 1939 | 277 | 491 | 1.44 | 19.57 | 487 | 19.40 |
| 1940 | 894 | 1,200 | Apr. 25, 1940 | 250 | 437 | 1.28 | 17.42 | 442 | 17.64 |
| 1941 | 924 | 868 | Apr. 15-19, 1941* | 200 | 391 | 1.15 | 15.56 | 438 | 17.44 |
| 1942 | 954 | 1,110 | Apr. 6, 1942 | 211 | 478 | 1.40 | 19.01 | 441 | 17.53 |
| 1943 | 974 | 1,480 | June 25, 1943 | 250 | 546 | 1.60 | 21.73 | 548 | 21.82 |
| 1944 | 1004 | 1,000 | Apr. 26, 27, 1944* | 221 | 438 | 1.28 | 17.52 | 418 | 16.68 |
| 1945 | 1034 | 1,370 | Mar. 28, 1945 | 244 | 451 | 1.32 | 17.98 | 469 | 16.68 |
| 1946 | 1054 | 1,060 | Mar. 19, 20, 1946 | 216 | 435 | 1.28 | 17.32 | 423 | 16.83 |
| 1947 | 1084 | 1,370 | Apr. 12, 1947 | 209 | 453 | 1.33 | 19.02 | 423 | 16.81 |
| 1948 | 1114 | 916 | Apr. 12, 13, 1948 | 148 | 307 | .900 | 12.24 | 326 | 13.01 |
| 1949 | 1144 | 916 | (a) | 145 | 378 | 1.11 | 15.05 | 409 | 16.29 |
| 1950 | 1174 | 1,510 | Apr. 26, 1950 | 185 | 506 | 1.48 | 20.14 | - | - |

* Revised.

a Apr. 8, June 28, 1949

55. Goose Pen Outlet at Germfask, Mich.

Location.--Lat 46°14'00", long. 85°56'15", in S $\frac{1}{2}$ sec. 4, T. 44 N., R. 13 W., in south-west limits of Germfask.

Gage.--Staff gage. Altitude of gage is 675 ft (estimated from river-profile map of Manistique River).

Extremes.--1939-41: Maximum discharge observed, 21 cfs Sept. 19, 20, 1939 (gage height, 0.94 ft); no flow Sept. 24, 26, Dec. 4-6, 1939, Jan. 13, 1940, to Sept. 30, 1941.

Remarks.--Water diverted to Goose Pen Pond from Grays Creek about 1 mile upstream from mouth. Goose Pen Outlet discharges the overflow from Goose Pen Pond directly to Manistique River.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1939 | - | - | - | - | - | - | - | - | - | - | 4.08 | 7.74 | - |
| 1940 | 6.1 | 6.0 | 3.9 | 0.39 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.37 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874 | 21 | Sept. 19, 20, 1939 | 0 | - | - | - | - | - |
| 1940 | 894 | 18.5 | Oct. 11, 1939 | 0 | 1.37 | - | - | - | - |
| 1941 | 924 | - | - | - | - | - | - | - | - |

Note.--No flow during 1941.

56. Grays Creek near Germfask, Mich.

Location.--Lat 46°13'45", long. 86°57'20" in NE $\frac{1}{4}$ sec. 8, T. 44 N., R. 13 W., half a mile upstream from mouth, 1 mile downstream from "A" pool, and 1 mile southwest of Germfask.

Drainage area.--36 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 675 ft (estimated from river-profile map of Manistique River). Prior to Apr. 16, 1938, reference point at same site and datum.

Extremes.--1938-40: Maximum discharge, 721 cfs (revised) Apr. 26, 1939 (gage height, 9.07 ft, from graph based on gage readings); minimum observed, 0.69 cfs Sept. 21, 1939 (discharge measurement).

Remarks.--Flow modified by storage in and occasional gate changes at outlet of "A" pool. June 15, 1939, to Jan. 13, 1940, flow diverted from Grays Creek to Goose Pen Pond about 1 mile upstream.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1938 | - | - | - | - | - | - | 119 | 25.9 | 12.5 | 5.42 | 4.78 | 5.65 | - |
| 1939 | 10.9 | 25.4 | 26.5 | 49.5 | 36.3 | 29.4 | 277 | 17.8 | 10.3 | 9.00 | 2.58 | 1.68 | 41.0 |
| 1940 | 2.7 | 3.9 | 19.6 | 12.5 | 8.7 | 12.5 | 111 | 54.7 | 39.6 | 12.5 | 6.7 | 5.0 | 24.1 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | - | - | - | - | - | - | - | - |
| 1939 | 874 | *721 | Apr. 26, 1939 | 0.7 | 41.0 | - | - | 38.0 | - |
| 1940 | 894 | 229 | Apr. 24, 26, 1940 | 1 | 24.1 | - | - | - | - |

* Revised.

57. Pine Creek near Germfask, Mich.

Location.--Lat 46°13'45", long. 86°58'25", in NE $\frac{1}{4}$ sec. 7, T. 44 N., R. 13 W., about three-quarters of a mile upstream from mouth and 2 $\frac{1}{2}$ miles southwest of Germfask.

Drainage area.--11 sq mi, approximately.

Gage.--Chain gage. Altitude of gage is 670 ft (estimated from river-profile map of Manistique River).

Extremes.--1938-40: Maximum discharge observed, 665 cfs Apr. 1, 1938 (gage height, 12.88 ft); minimum observed, 2 cfs Aug. 18, 1939 (corrected) (gage height, 2.52 ft).

Remarks.--Natural flow affected by operation of refuge pools above station.

Monthly and yearly mean discharge, in cubic feet per second, of Pine Creek near Germfask, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 122 | 25.5 | 8.5 | 5.8 | 3.3 | 3.9 | - |
| 1939 | 5.9 | 7.8 | 15.4 | 26.3 | 13.9 | 11.8 | 141 | 46.0 | 46.5 | 14.9 | 4.0 | 7.7 | 28.3 |
| 1940 | 14.2 | 20.3 | 20.6 | 9.1 | 13.7 | 13.0 | 124 | 73.5 | 53.7 | 22.4 | 19.8 | 18.2 | 33.6 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 537 | Apr. 26, 1939 | 2 | 28.3 | - | - | 30.5 | - |
| 1940 | 894 | 409 | Apr. 23, 1940 | 8 | 33.6 | - | - | - | - |

58. Sand Creek near Germfask, Mich.

Location.--Lat 46°13'55", long. 86°50'40", in NE¼ sec. 7, T. 44 N., R. 13 W., half a mile upstream from mouth and 3 miles southwest of Germfask.

Drainage area.--6 sq mi (watershed indeterminate because of swamps).

Gage.--Chain gage. Altitude of gage is 670 ft (estimated from river-profile map of Manistique River).

Extremes.--1938-40: Maximum observed, 319 cfs Apr. 1, 1938 (gage height, 10.58 ft); no flow July 31, 1938 (corrected), many times in August 1938, May 14, 1940.

Remarks.--Natural flow affected by operation of refuge pools above station after Aug. 2, 1939.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 36.7 | 6.9 | 2.3 | 1.0 | 0.6 | 1.7 | - |
| 1939 | 2.1 | 4.4 | 10.3 | 18.0 | 7.4 | 7.1 | 75.1 | 34.7 | 17.5 | 8.2 | 1.2 | 1.0 | 15.6 |
| 1940 | 8.3 | 10.7 | 8.2 | 3.2 | 2.0 | 3.0 | 49.7 | 22.9 | 23.8 | 8.4 | 4.6 | 3.0 | 12.3 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|------------------|
| | | Maximum observed | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | - | - | 0 | - | - | - | - | - |
| 1939 | 874 | 231 | Apr. 21, 1939 | 1 | 15.6 | - | - | 16.4 | - |
| 1940 | 894 | 137 | Apr. 17, 20, 1940 | 0 | 12.3 | - | - | - | - |

59. Driggs River near Seney, Mich.

Location.--Lat 46°20'45", long. 86°07'30", in N½ sec. 36, T. 46 N., R. 15 W., 2 miles upstream from Walsh Creek and 8½ miles west of Seney.

Drainage area.--70 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 760 ft (from survey level line in vicinity).

Extremes.--1938-42: Maximum discharge, 531 cfs (revised) Apr. 26, 27, 1939 (gage height, 11.2 ft, from graph based on gage readings); minimum observed, 28 cfs Mar. 29, 1941 (gage height, 6.98 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 170 | 103 | 74.5 | 56.7 | 50.2 | 50.8 | - |
| 1939 | 48.4 | 55.0 | 56.4 | 67.2 | 57.7 | 58.4 | 141 | 176 | 130 | 71.5 | 52.6 | 49.6 | 80.4 |
| 1940 | 54.8 | 53.6 | 46.4 | 44.2 | 45.0 | 39.0 | 93.7 | 143 | 91.5 | 66.2 | 48.1 | 47.0 | 64.4 |
| 1941 | 47.8 | 63.8 | 58.2 | 48.6 | 45.9 | 39.3 | 108 | 66.1 | 57.9 | 54.1 | 47.9 | 77.6 | 59.5 |
| 1942 | 94.2 | 103 | 89.0 | 80.9 | 65.7 | 65.1 | 134 | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 2.71 | 1.70 | 1.18 | 0.93 | 0.83 | 0.81 | - |
| 1939 | 0.80 | 0.88 | 0.93 | 1.11 | 0.86 | 0.96 | 2.24 | 2.89 | 2.08 | 1.18 | .87 | .79 | 15.59 |
| 1940 | .90 | .85 | .76 | .73 | .69 | .64 | 1.50 | 2.35 | 1.46 | 1.09 | .79 | .75 | 12.51 |
| 1941 | .79 | 1.02 | .96 | .80 | .68 | .65 | 1.72 | 1.09 | .92 | .89 | .79 | 1.24 | 11.55 |
| 1942 | 1.55 | 1.84 | 1.47 | 1.33 | .98 | 1.07 | 2.13 | - | - | - | - | - | - |

STREAMS TRIBUTARY TO LAKE MICHIGAN

Yearly discharge, in cubic feet per second, of Driggs River near Seney, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | *419 | Mar. 31, 1938 | - | - | - | - | - | - |
| 1939 | 874 | *531 | Apr. 26, 27, 1939* | 35 | 80.4 | 1.15 | 15.59 | 80.0 | 15.49 |
| 1940 | 894 | 239 | May 2, 1940 | 30 | 64.4 | .920 | 12.51 | 65.6 | 12.77 |
| 1941 | 924 | 221 | Apr. 15, 1941 | 28 | 59.5 | .850 | 11.55 | 69.3 | 13.44 |
| 1942 | 954 | 199 | Apr. 5, 1942 | - | - | - | - | - | - |

* Revised.

60. Walsh Creek near Seney, Mich.

Location.--Lat 46°20'45", long. 86°10'40", in NW $\frac{1}{4}$ sec. 34, T. 46 N., R. 15 W., 3 $\frac{1}{2}$ miles upstream from mouth and 11 miles west of Seney.

Drainage area.--12 sq mi (watershed indeterminate because of swamps).

Gage.--Staff gage. Altitude of gage is 775 ft (from survey level line in vicinity). Prior to Apr. 15, 1938, reference point at same site and datum.

Extremes.--1938-42: Maximum discharge, 618 cfs (revised) Apr. 25, 1939 (gage height, 7.5 ft, from graph based on gage readings); minimum observed, 0.7 cfs Sept. 3, 1939 (gage height, 0.38 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 62.2 | 15.8 | 8.59 | 3.99 | 2.88 | 4.47 | - |
| 1939 | 7.05 | 11.9 | 13.3 | 19.1 | 8.78 | 10.2 | 118 | 37.0 | 29.1 | 6.73 | 1.92 | 2.65 | 22.0 |
| 1940 | 7.01 | 9.23 | 7.93 | 5.41 | 5.61 | 5.68 | 79.7 | 50.1 | 23.8 | 8.28 | 3.80 | 3.27 | 17.4 |
| 1941 | 4.85 | 26.0 | 15.2 | 11.7 | 8.45 | 7.20 | 58.7 | 9.90 | 5.88 | 3.26 | 2.38 | 14.0 | 13.9 |
| 1942 | 43.0 | 37.9 | 27.4 | 12.8 | 9.06 | 15.3 | 68.6 | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | *558 | Mar. 31, 1938 | - | - | - | - | - | - |
| 1939 | 874 | *618 | Apr. 25, 1939 | 0.7 | 22.0 | - | - | 21.4 | - |
| 1940 | 894 | *327 | Apr. 23, 24, 1940* | 2.2 | 17.4 | - | - | 19.2 | - |
| 1941 | 924 | *174 | Apr. 10, 1941 | 1.2 | 13.9 | - | - | 19.1 | - |
| 1942 | 954 | 246 | Apr. 5, 1942 | - | - | - | - | - | - |

* Revised.

61. Driggs River near Germfask, Mich.

Location.--Lat 46°12'00", long. 86°00'00", in N $\frac{1}{2}$ sec. 24, T. 44 N., R. 14 W., three-quarters of a mile upstream from mouth and 5 miles southwest of Germfask.

Drainage area.--114 sq mi.

Gage.--Chain gage. Altitude of gage is 660 ft (estimated from river-profile map of Manistique River).

Extremes.--1938-41: Maximum discharge, 1,040 cfs Apr. 27, 1939 (gage height, 9.88 ft); minimum observed, 7.2 cfs Aug. 20, 1941 (gage height, 2.44 ft).

Remarks.--Some diversion from river about 10 miles upstream to refuge pools. Runoff adjusted for diversions. Records of diversion not available for 1941.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 299 | 143 | 99.3 | 73.5 | 61.4 | 62.7 | - |
| 1939 | 68.1 | 76.9 | 89.5 | 115 | 70.4 | 56.3 | 318 | 238 | 179 | 92.9 | 53.9 | 60.0 | 118 |
| 1940 | 68.7 | 70.5 | 66.0 | 56.1 | 59.4 | 57.3 | 220 | 231 | 150 | 83.0 | 45.2 | 42.4 | 95.7 |
| 1941 | 56.5 | 94.5 | 93.7 | 91.7 | 73.1 | 71.7 | 183 | 91.6 | 62.6 | 27.4 | 11.2 | 70.7 | 77.0 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 2.92 | 1.44 | 0.97 | 0.74 | 0.62 | 0.61 | - |
| 1939 | 0.69 | 0.75 | 0.91 | 1.16 | 0.84 | 0.57 | 3.11 | 2.41 | 1.75 | .94 | *.65 | .59 | 14.17 |
| 1940 | .70 | .69 | .67 | .57 | .56 | .58 | 2.15 | 2.34 | 1.47 | .92 | .63 | .57 | 11.65 |
| 1941 | - | - | - | - | - | - | - | - | - | - | - | - | - |

* Adjusted for diversion; not previously published.

Yearly discharge, in cubic feet per second, of Driggs River near Germfask, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|------|----------|-----------------|------------------|---------------|----------|------------------|
| | | Observed | | | | Adjusted | | | Observed | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1938 | 854 | - | - | - | - | - | - | - | - | - | - |
| 1939 | 874 | 1,040 | Apr. 27, 1939 | 34 | 118 | *119 | *1.04 | *14.17 | 116 | *117 | *13.88 |
| 1940 | 894 | 484 | Apr. 21,22,1940 | 39 | 95.7 | 99.2 | .870 | 11.85 | 99.0 | - | - |
| 1941 | 924 | 271 | Apr. 15,16,1941 | 7.2 | 77.0 | - | - | - | - | - | - |

* Not previously published.

62. Marsh Creek near Shingleton, Mich.

Location.--Lat 46°20'45", long. 86°14'20", in NW $\frac{1}{4}$ sec. 31, T. 46 N., R. 15 W., 11 miles east of Shingleton.

Drainage area.--20 sq mi (watershed indeterminate because of swamps).

Gage.--Staff gage. Altitude of gage is 790 ft (from survey level line in vicinity).

Prior to Apr. 15, 1938, reference points at same site and datum.

Extremes.--1938-42: Maximum discharge, 268 cfs Mar. 31, 1938 (gage height, 4.20 ft); no flow at times during 1938-41.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | - | 48.9 | 11.5 | 3.53 | 1.16 | 0.13 | 0.43 |
| 1939 | 2.00 | 5.89 | 7.52 | 9.9 | 4.3 | 3.6 | 70.3 | 31.4 | 18.8 | 2.71 | .07 | .07 | 13.0 |
| 1940 | .74 | 3.37 | 2.30 | 1.5 | 2.0 | 2.1 | 49.8 | 39.9 | 8.20 | 1.66 | .76 | .23 | 9.36 |
| 1941 | 1.57 | 16.3 | 7.84 | 6.76 | 3.68 | 3.68 | 48.5 | 3.99 | 1.50 | .08 | .05 | 6.43 | 8.30 |
| 1942 | 29.9 | 26.5 | 14.5 | 6.25 | 3.29 | 5.24 | 47.2 | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | 268 | Mar. 31, 1938 | 0 | - | - | - | - | - |
| 1939 | 874 | 240 | Apr. 24, 1939 | 0 | 13.0 | - | - | 12.2 | - |
| 1940 | 894 | *152 | Apr. 20, 1940* | 0 | 9.36 | - | - | 11.0 | - |
| 1941 | 924 | 122 | Apr. 15, 1941 | 0 | 8.30 | - | - | 12.1 | - |
| 1942 | 954 | 135 | Apr. 3, 1942 | - | - | - | - | - | - |

* Revised.

63. Marsh Creek near Germfask, Mich.

Location.--Lat 46°10'00", long. 86°00'50", in E $\frac{1}{2}$ sec. 35, T. 44 N., R. 14 W., 1 mile upstream from mouth and 7 miles southwest of Germfask.

Drainage area.--15 sq mi, not including area from which flow is diverted to Duck Creek (watershed indeterminate because of swamps).

Gage.--Water-stage recorder. Altitude of gage is 650 ft (estimated from river-profile map of Manistique River). Prior to Feb. 23, 1939, staff gage at same site and datum.

Extremes.--1938-41: Maximum discharge, 319 cfs Apr. 27, 1939 (gage height, 8.39 ft); minimum, 0.2 cfs Aug. 15, 1939 (gage height, 0.80 ft).

Remarks.--Flow originating upstream from line between R. 14 W. and R. 15 W. is diverted from Marsh Creek basin through drainage canal into Duck Creek and is not included in these records.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | *36.9 | 11.1 | 4.80 | 1.45 | 1.29 | 3.27 | - |
| 1939 | 4.14 | 7.99 | 9.07 | 20.6 | 8.82 | 11.6 | 137 | 21.7 | 17.4 | 2.53 | 1.05 | 1.61 | 20.2 |
| 1940 | 3.10 | 5.07 | 5.76 | 3.0 | 3.0 | 3.9 | 61.8 | 26.2 | 13.7 | 5.24 | 2.62 | 2.04 | 11.4 |
| 1941 | 3.37 | 16.2 | 14.5 | 11.1 | 5.69 | 4.45 | 37.9 | 8.94 | 3.25 | 1.98 | 1.87 | *8.12 | *9.74 |

* Revised.

* Not previously published; partly estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 319 | Apr. 27, 1939 | 0.2 | 20.2 | - | - | 19.6 | - |
| 1940 | 894 | 203 | Apr. 20, 1940 | 1.5 | 11.4 | - | - | 13.1 | - |
| 1941 | 924 | 78 | Apr. 7, 1941 | 1.1 | *9.74 | - | - | - | - |

* Revised.

64. Duck Creek near Blaney, Mich.

Location.--Lat 46°06'40", long. 86°04'35", in NE $\frac{1}{4}$ sec. 20, T. 43 N., R. 14 W., on right bank 3 miles upstream from mouth and 7 miles west of Blaney.

Drainage area.--92 sq mi, approximately, including area from which flow is diverted to Duck Creek from Walsh and Marsh Creeks (watershed indeterminate because of swamps).

Gage.--Water-stage recorder. Datum of gage is 630.83 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to May 9, 1939, staff gage at site $2\frac{1}{2}$ miles downstream at different datum.

Average discharge.--12 years (1938-50), 94.9 cfs.

Extremes.--1938-50: Maximum discharge, 1,740 cfs Apr. 26, 1939 (gage height, 11.70 ft, from graph based on gage readings, site and datum then in use); minimum, 4.0 cfs Sept. 7, 1947 (gage height, 1.45 ft).

Remarks.--Records include flow from Walsh and Marsh Creeks which originates upstream from line between R. 14 W. and R. 15 W. and is diverted to Duck Creek through drainage canal about 3 miles upstream from station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 368 | 118 | 50.4 | 22.5 | 16.2 | 33.4 | - |
| 1939 | 39.2 | 81.1 | 91.2 | 128 | 66.7 | 52.2 | 611 | 224 | 159 | 48.5 | 16.3 | 22.2 | 128 |
| 1940 | 35.6 | 46.4 | 41.7 | 24.4 | 28.8 | 34.3 | 444 | 314 | 135 | 53.1 | 24.7 | 14.9 | 99.4 |
| 1941 | 26.4 | 107 | 103 | 74.6 | 46.0 | 41.1 | 320 | 78.4 | 33.1 | 17.0 | 15.2 | 57.5 | 76.3 |
| 1942 | 224 | 246 | 123 | 79.0 | 55.4 | 108 | 444 | 88.2 | 51.9 | 27.5 | 14.2 | 22.7 | 123 |
| 1943 | 50.7 | 152 | 46.7 | 46.6 | 43.0 | 53.5 | 544 | 209 | 388 | 86.5 | 16.3 | 14.5 | 137 |
| 1944 | 23.9 | 76.9 | 35.9 | 31.1 | 31.7 | 38.6 | 332 | 198 | 43.4 | 18.4 | 12.7 | 18.0 | 71.3 |
| 1945 | 36.0 | 66.8 | 59.9 | 35.8 | 35.0 | 322 | 307 | 107 | 97.2 | 27.8 | 10.4 | 16.7 | 93.6 |
| 1946 | 28.9 | 163 | 70.7 | 110 | 66.6 | 384 | 149 | 57.4 | 51.1 | 22.5 | 24.9 | 16.9 | 95.7 |
| 1947 | 25.0 | 63.1 | 64.2 | 32.2 | 27.4 | 33.3 | 474 | 276 | 108 | 21.0 | 7.25 | 9.10 | 94.9 |
| 1948 | 10.3 | 14.9 | 11.3 | 10.7 | 9.83 | 23.9 | 280 | 87.9 | 19.6 | 10.6 | 12.0 | 9.17 | 41.4 |
| 1949 | 9.77 | 71.7 | 76.5 | 36.6 | 36.5 | 62.1 | 316 | 104 | 73.8 | 88.6 | 48.8 | 20.4 | 78.6 |
| 1950 | 27.9 | 86.6 | 90.2 | 62.0 | 37.6 | 41.5 | 346 | 402 | 47.5 | 30.2 | 13.4 | 7.68 | 99.6 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | 1,500 | Mar. 31 or Apr. 1 | - | - | - | - | - | - |
| 1939 | 874 | 1,740 | Apr. 26, 1939 | - | - | - | - | 120 | - |
| 1940 | 894 | 1,420 | Apr. 23, 1940 | 11 | 128 | 99.4 | - | 109 | - |
| 1941 | 924 | 528 | Apr. 12, 1941 | 6.2 | 76.3 | - | - | 106 | - |
| 1942 | 954 | 1,190 | Apr. 5, 1942 | 8.4 | 123 | - | - | 94.5 | - |
| 1943 | 974 | 798 | Apr. 14, 1943 | 12 | 137 | - | - | 127 | - |
| 1944 | 1004 | 586 | Apr. 25, 1944 | 8.0 | 71.3 | - | - | 73.7 | - |
| 1945 | 1034 | 1,130 | Mar. 23, 1945 | 7.2 | 93.6 | - | - | 102 | - |
| 1946 | 1054 | 826 | Mar. 18, 1946 | 10 | 95.7 | - | - | 86.6 | - |
| 1947 | 1084 | 1,030 | Apr. 12, 1947 | 4.2 | 94.9 | - | - | 85.2 | - |
| 1948 | 1114 | 454 | Apr. 13, 1948 | 6.2 | 41.4 | - | - | 51.6 | - |
| 1949 | 1144 | 614 | Apr. 6, 1949 | 6.0 | 78.6 | - | - | 82.6 | - |
| 1950 | 1174 | 1,100 | Apr. 25, 1950 | 6.3 | 99.6 | - | - | - | - |

* Not previously published.

65. Manistique River near Blaney, Mich.

Location.--Lat 46°05'05", long. 86°03'35", in SE $\frac{1}{4}$ sec. 28, T. 43 N., R. 14 W., on left bank 40 ft downstream from logging bridge, half a mile downstream from Duck Creek, 7 miles southwest of Blaney, and at mile 34.5.

Drainage area.--704 sq mi.

Gage.--Water-stage recorder. Datum of gage is 612.55 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to July 24, 1939, chain gage on downstream side of bridge 40 ft upstream at same datum.

Average discharge.--12 years (1938-50), 823 cfs.

Extremes.--1938-50: Maximum discharge, 9,300 cfs Apr. 1, 1938 (gage height, 19.42 ft, from graph based on gage readings), from rating curve extended above 6,100 cfs by logarithmic plotting; minimum, 218 cfs Sept. 28 to Oct. 5, 1948.

Remarks.--Slight regulation during summer low flow by Manistique Lake since July 1948.

Monthly and yearly mean discharge, in cubic feet per second, of Manistique River near Blaney, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|--------|-------|-------|-------|-------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 2,540 | 1,056 | 753 | 513 | 384 | 505 | - |
| 1939 | 586 | 691 | 688 | 823 | 573 | 558 | 2,719 | 1,634 | 1,228 | 651 | 445 | 466 | 919 |
| 1940 | 560 | 602 | 569 | 438 | 449 | 496 | 2,053 | 1,968 | 1,173 | 669 | 453 | 402 | 819 |
| 1941 | 490 | 847 | 780 | 729 | 553 | 565 | 1,644 | 799 | 458 | 323 | 277 | 681 | 677 |
| 1942 | 1,378 | 1,460 | 1,063 | 861 | 676 | 917 | 2,278 | 934 | 638 | 394 | 276 | 396 | 958 |
| 1943 | 703 | 1,034 | 766 | 529 | 548 | 609 | 2,783 | 1,784 | 2,386 | 1,001 | 586 | 536 | 1,104 |
| 1944 | 644 | 893 | 622 | 592 | 564 | 555 | 1,624 | 1,341 | 677 | 465 | 383 | 486 | 736 |
| 1945 | 590 | 725 | 605 | 523 | 494 | *1,979 | 1,837 | 1,048 | 970 | 600 | 372 | 421 | *848 |
| 1946 | 557 | 1,178 | 614 | 942 | 745 | 1,985 | 1,115 | 819 | 747 | 444 | 405 | 413 | 831 |
| 1947 | 446 | 790 | 889 | 574 | 485 | 557 | 2,604 | 1,753 | 1,045 | 526 | 334 | 337 | 861 |
| 1948 | 356 | 393 | 400 | 369 | 364 | 540 | 1,798 | 768 | 404 | 269 | 251 | 242 | 510 |
| 1949 | 269 | 790 | 799 | 521 | 549 | 653 | 1,692 | 763 | 701 | 736 | 527 | 538 | 709 |
| 1950 | 656 | 907 | 777 | 644 | 544 | 564 | 2,107 | 2,513 | 907 | 690 | 423 | 388 | 928 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 4.03 | 1.73 | 1.19 | 0.84 | 0.63 | 0.80 | - |
| 1939 | 0.96 | 1.10 | 1.13 | 1.35 | 0.85 | 0.88 | 4.31 | 2.68 | 1.94 | 1.07 | .73 | .74 | 17.74 |
| 1940 | .92 | .95 | .93 | .72 | .69 | .81 | 3.26 | 3.23 | 1.86 | 1.10 | .74 | .64 | 15.85 |
| 1941 | .80 | 1.34 | 1.28 | 1.20 | .82 | .93 | 2.61 | 1.30 | .73 | .53 | .45 | 1.08 | 13.07 |
| 1942 | 2.26 | 2.31 | 1.74 | 1.39 | 1.00 | 1.50 | 3.61 | 1.53 | 1.01 | .65 | .45 | .63 | 18.08 |
| 1943 | 1.15 | 1.64 | 1.25 | .87 | .81 | 1.00 | 4.41 | 2.92 | 3.78 | 1.64 | .96 | .85 | 21.28 |
| 1944 | 1.05 | 1.42 | 1.02 | .97 | .86 | .91 | 2.57 | 2.20 | 1.07 | .76 | .63 | .77 | 14.23 |
| 1945 | .97 | 1.15 | .99 | .86 | .73 | *3.24 | 2.91 | 1.72 | 1.54 | .98 | .61 | .67 | *16.37 |
| 1946 | .91 | 1.87 | 1.01 | 1.54 | 1.12 | 3.25 | 1.77 | 1.34 | 1.18 | .73 | .66 | .66 | 16.02 |
| 1947 | .73 | 1.25 | 1.46 | .94 | .72 | .91 | 4.13 | 2.87 | 1.66 | .86 | .55 | .73 | 16.61 |
| 1948 | .55 | .62 | .66 | .60 | .56 | .88 | 2.85 | 1.26 | .64 | .44 | .41 | .38 | 9.85 |
| 1949 | .44 | 1.25 | 1.31 | .85 | .81 | 1.07 | 2.68 | 1.25 | 1.11 | 1.20 | .86 | .82 | 13.65 |
| 1950 | 1.07 | 1.44 | 1.27 | 1.05 | .80 | .92 | 3.34 | 4.12 | 1.44 | 1.13 | .69 | .62 | 17.89 |

* Revised

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854, 874 | 9,300 | Apr. 1, 1938 | - | - | - | - | - | - |
| 1939 | 874 | 6,850 | Apr. 27, 1939 | 395 | 919 | 1.31 | 17.74 | 890 | 17.35 |
| 1940 | 894 | 4,160 | Apr. 24, 1940 | 376 | 819 | 1.16 | 15.85 | 851 | 16.47 |
| 1941 | 924 | 2,210 | Apr. 11, 1941 | 234 | 677 | .962 | 13.07 | 827 | 15.96 |
| 1942 | 954 | 4,160 | Apr. 6, 1942 | 242 | 958 | 1.33 | 18.08 | 820 | 15.81 |
| 1943 | 974 | 3,910 | Apr. 13, June 23* | 440 | 1,104 | 1.57 | 21.28 | 1,075 | 20.73 |
| 1944 | 1004 | 2,570 | Apr. 27, 28, 1944* | 300 | 736 | 1.05 | 14.23 | 716 | 13.85 |
| 1945 | 1034, 1387 | *4,720 | Mar. 23, 1945* | 350 | *848 | *1.20 | *16.37 | *884 | *17.05 |
| 1946 | 1054 | 3,650 | Mar. 20, 1946 | 288 | 831 | 1.18 | 16.02 | 813 | 15.67 |
| 1947 | 1084 | 4,260 | Apr. 13, 1947 | 281 | 1,221 | 1.22 | 16.61 | 778 | 15.07 |
| 1948 | 1114 | 2,470 | Apr. 13, 1948 | 218 | 581 | .724 | 9.85 | 570 | 11.02 |
| 1949 | 1144 | 2,700 | Apr. 6, 7, 1949 | 218 | 709 | 1.01 | 13.65 | 749 | 14.43 |
| 1950 | 1174 | 5,690 | Apr. 26, 27, 1950 | 307 | 928 | 1.32 | 17.89 | - | - |

* Revised.

66. Creighton River near Shingleton, Mich.

Location.--Lat 46°20'45", long. 86°16'35", in NW¼ sec. 35, T. 46 N., R. 16 W., 8 miles upstream from mouth and 9½ miles east of Shingleton.

Drainage area.--35 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 795 ft (from survey level line in vicinity).

Extremes.--1938-42: Maximum discharge, 552 cfs Apr. 26, 1939 (gage height, 6.10 ft); minimum observed, 4 cfs Aug. 30, 1938 (gage height, 2.22 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 216 | 63.1 | 34.1 | 13.1 | 6.81 | 14.8 | - |
| 1939 | 23.9 | 38.5 | 34.4 | 44.1 | 26.9 | 24.1 | 178 | 195 | 93.7 | 25.5 | 9.2 | 12.2 | 58.8 |
| 1940 | 23.3 | 32.7 | 25.0 | 15.3 | 15.9 | 18.2 | 125 | 199 | 57.8 | 29.3 | 14.3 | 14.3 | 47.6 |
| 1941 | 26.8 | 69.9 | 39.3 | 28.9 | 22.0 | 19.4 | 161 | 40.6 | 27.8 | 22.1 | 11.9 | 63.2 | 44.2 |
| 1942 | 108 | 98.8 | 57.8 | 35.7 | 26.9 | 35.8 | 157 | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 6.88 | 2.08 | 1.09 | 0.43 | 0.22 | 0.47 | - |
| 1939 | 0.79 | 1.23 | 1.13 | 1.45 | 0.80 | 0.79 | 5.68 | 6.42 | 2.99 | .84 | .30 | .39 | 22.81 |
| 1940 | .77 | 1.04 | .82 | .50 | .49 | .60 | 3.98 | 6.56 | 1.84 | .96 | .47 | .46 | 18.49 |
| 1941 | .88 | 2.23 | 1.29 | .95 | .66 | .64 | 5.14 | 1.34 | .89 | .73 | .39 | 2.02 | 17.16 |
| 1942 | 3.56 | 3.15 | 1.90 | 1.18 | .80 | 1.18 | 5.01 | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second, of Creighton River near Shingleton, Mich. | | | | | | | | | |
|---|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | 498 | Mar. 31, 1938 | - | - | - | - | - | - |
| 1939 | 874 | 552 | Apr. 26, 1939 | 5 | 58.8 | 1.68 | 22.81 | 57.5 | 22.29 |
| 1940 | 894 | 452 | May 2, 1940 | 10 | 47.6 | 1.56 | 18.49 | 52.1 | 20.26 |
| 1941 | 924 | 378 | Apr. 15, 1941 | 6.1 | 44.2 | 1.26 | 17.16 | 55.1 | 21.37 |
| 1942 | 954 | 310 | Apr. 18, 1942 | - | - | - | - | - | - |

67. West Branch Manistique River near Manistique, Mich.

Location.--Lat 46°05'20", long. 86°09'40", in SE $\frac{1}{4}$ sec. 27, T. 43 N., R. 15 W., on left bank 300 ft downstream from Stutts Creek and 10 miles northeast of Manistique.

Drainage area.--322 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 628 ft (from river-profile map). Prior to Apr. 14, 1939, chain gage at site 300 ft upstream at different datum.

Average discharge.--12 years (1938-50), 412 cfs.

Extremes.--1938-50: Maximum discharge, 5,300 cfs Apr. 29, 1939 (gage height, 12.9 ft); minimum, 71 cfs Oct. 3, 1948.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1938 | - | - | - | - | - | - | 1,743 | 527 | 322 | 180 | 127 | 163 | - |
| 1939 | 205 | 315 | 360 | 390 | 250 | 204 | 1,579 | 1,253 | 765 | 274 | 151 | 167 | 493 |
| 1940 | 203 | 282 | 233 | 168 | 170 | 192 | 1,142 | 1,447 | 568 | 321 | 178 | 167 | 423 |
| 1941 | 206 | 460 | 384 | 310 | 227 | 233 | 1,024 | 415 | 269 | 193 | 130 | 290 | 343 |
| 1942 | 849 | 716 | 517 | 569 | 270 | 365 | 1,230 | 453 | 308 | 177 | 124 | 174 | 446 |
| 1943 | 394 | 614 | 356 | 247 | 233 | 242 | 1,484 | 1,072 | 1,595 | 392 | 194 | 165 | 579 |
| 1944 | 243 | 423 | 242 | 201 | 202 | 251 | 939 | 763 | 396 | 192 | 154 | 204 | 350 |
| 1945 | 269 | 319 | 267 | 190 | 182 | 950 | 1,154 | 563 | 514 | 279 | 141 | 156 | 418 |
| 1946 | 251 | 734 | 294 | 413 | 314 | 1,039 | 717 | 399 | 349 | 183 | 157 | 158 | 417 |
| 1947 | 181 | 332 | 336 | 222 | 194 | 204 | 1,219 | 1,169 | 455 | 203 | 122 | 124 | 397 |
| 1948 | 123 | 171 | 159 | 144 | 125 | 170 | 957 | 459 | 191 | 139 | 124 | 93.0 | 237 |
| 1949 | 107 | 399 | 390 | 204 | 223 | 259 | 941 | 572 | 480 | 441 | 269 | 215 | 375 |
| 1950 | 261 | 421 | 393 | 315 | 241 | 273 | 956 | 1,908 | 411 | 239 | 165 | 123 | 471 |

* Not previously published; estimated on basis of records for Manistique River near Manistique.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1938 | - | - | - | - | - | - | 8.04 | 1.89 | 1.12 | 0.64 | 0.45 | 0.56 | - |
| 1939 | 0.73 | 1.09 | 1.29 | 1.40 | 0.81 | 0.75 | 5.47 | 4.48 | 2.66 | .99 | .54 | .59 | 20.76 |
| 1940 | .73 | .98 | .83 | .60 | .57 | .69 | 3.96 | 5.19 | 1.96 | 1.15 | .64 | .59 | 17.87 |
| 1941 | .74 | 1.60 | 1.57 | 1.11 | .73 | .83 | 3.55 | 1.49 | .93 | .65 | .47 | 1.01 | 14.48 |
| 1942 | 2.32 | 2.48 | 1.85 | 1.32 | .87 | 1.31 | 4.26 | 1.62 | 1.07 | .63 | .44 | .60 | 18.77 |
| 1943 | 1.38 | 2.13 | 1.28 | .88 | .75 | .87 | 5.14 | 3.84 | 5.49 | 1.37 | .69 | .57 | 24.39 |
| 1944 | .87 | 1.48 | .87 | .72 | .68 | .90 | 3.25 | 2.73 | 1.34 | .69 | .55 | .71 | 14.79 |
| 1945 | .96 | 1.10 | 1.03 | .68 | .59 | 3.40 | 4.00 | 2.02 | 1.78 | 1.00 | .50 | .55 | 17.61 |
| 1946 | .90 | 2.54 | 1.05 | 1.48 | 1.01 | 3.72 | 2.49 | 1.43 | 1.21 | .66 | .56 | .55 | 17.60 |
| 1947 | .65 | 1.15 | 1.20 | .79 | .63 | .73 | 4.22 | 4.18 | 1.58 | .73 | .44 | .43 | 16.73 |
| 1948 | .44 | .59 | .57 | .52 | .42 | .61 | 3.32 | 1.64 | .66 | .50 | .45 | .32 | 10.04 |
| 1949 | .38 | 1.38 | 1.40 | .73 | .72 | .93 | 3.26 | 2.05 | 1.66 | 1.58 | .96 | .75 | 15.80 |
| 1950 | 1.01 | 1.46 | 1.41 | 1.13 | .78 | .98 | 3.31 | 6.47 | 1.43 | .85 | .59 | .43 | 19.85 |

* Not previously published; estimated on basis of records for Manistique River near Manistique.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 874 | 4,300 | Apr. 2, 1938* | - | - | - | - | - | - |
| 1939 | 874 | 5,300 | Apr. 29, 1939 | 123 | 493 | 1.53 | 20.76 | 479 | 20.19 |
| 1940 | 894 | 2,900 | Apr. 27, May 3 | 142 | 423 | 1.31 | 17.87 | 450 | 19.04 |
| 1941 | 924 | 1,850 | Apr. 18, 1941 | 109 | 343 | 1.07 | 14.48 | 413 | 17.42 |
| 1942 | 954 | 1,930 | Apr. 7, 1942 | 103 | 446 | 1.39 | 18.77 | 401 | 16.91 |
| 1943 | 974 | 3,670 | June 23, 1943 | 146 | 579 | 1.80 | 24.39 | 541 | 22.82 |
| 1944 | 1004 | 2,330 | Apr. 27, 1944 | 113 | 350 | 1.09 | 14.79 | 347 | 14.66 |
| 1945 | 1054 | 2,600 | Mar. 29, 1945 | 116 | 418 | 1.30 | 17.61 | 451 | 19.01 |
| 1946 | 1054 | 2,080 | Mar. 21, 1946 | 126 | 417 | 1.30 | 17.60 | 382 | 16.11 |
| 1947 | 1084 | 2,240 | May 5, 1947 | 98 | 397 | 1.23 | 16.73 | 363 | 15.33 |
| 1948 | 1114 | 1,320 | Apr. 15, 1948 | 76 | 237 | .756 | 10.04 | 274 | 11.60 |
| 1949 | 1144 | 1,400 | Apr. 9, 1949 | 72 | 375 | 1.16 | 15.80 | 392 | 16.52 |
| 1950 | 1174 | 3,940 | May 8, 1950 | 114 | 471 | 1.46 | 19.85 | - | - |

* Not previously published.

68. Manistique River near Manistique, Mich.

Location.--Lat 46°01'50", long. 86°09'40", in SE $\frac{1}{4}$ sec. 15, T. 42 N., R. 15 W., on left bank 1 mile downstream from West Branch, 6 miles northeast of Manistique, and at mile 19.5.

Drainage area.--1,100 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 608 ft (from river-profile map). Prior to July 15, 1939, chain gage at site 1,600 ft upstream at different datum.

Average discharge.--12 years (1938-50), 1,339 cfs (revised).

Extremes.--1938-50: Maximum discharge, 13,600 cfs (revised) Apr. 27, 1939 (gage height, 12.59 ft, present site and datum); minimum, 288 cfs Oct. 4, 1948.

Remarks.--Slight regulation during summer low flow by Manistique Lake since July 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|------|-------|----------|
| 1938 | - | - | - | - | - | - | *5,119 | 1,773 | 1,111 | 690 | 489 | 673 | - |
| 1939 | 797 | 1,033 | 1,173 | 1,335 | 893 | 811 | *4,937 | *3,365 | 2,132 | 982 | 624 | 656 | *1,560 |
| 1940 | 833 | 967 | 882 | 686 | 654 | 704 | 3,342 | 3,651 | 1,800 | 1,099 | 675 | 604 | 1,324 |
| 1941 | 756 | 1,422 | 1,251 | 1,172 | 859 | 822 | 2,960 | 1,319 | 781 | 538 | 434 | 1,011 | 1,106 |
| 1942 | 2,196 | 2,417 | 1,668 | 1,209 | 896 | 1,337 | 3,794 | 1,460 | 998 | 607 | 428 | 604 | 1,467 |
| 1943 | 1,110 | 1,742 | 1,198 | 890 | 900 | 893 | 4,568 | 3,053 | *4,531 | 1,535 | 797 | 731 | *1,925 |
| 1944 | 935 | 1,461 | 926 | 799 | 801 | 872 | 2,690 | 2,378 | 1,190 | 730 | 589 | 749 | 1,175 |
| 1945 | 943 | 1,145 | 961 | 755 | 718 | *3,187 | 3,403 | 1,714 | 1,642 | 937 | 555 | 634 | 1,383 |
| 1946 | 867 | 2,080 | 974 | 1,474 | 1,155 | 3,358 | 1,962 | 1,508 | 1,285 | 740 | 657 | 640 | 1,376 |
| 1947 | 690 | 1,262 | 1,367 | 767 | 693 | 831 | 4,250 | 3,122 | 1,851 | 809 | 515 | 513 | 1,372 |
| 1948 | 510 | 616 | 590 | 542 | 512 | 771 | 3,000 | 1,317 | 654 | 434 | 400 | 350 | 806 |
| 1949 | 368 | 1,277 | 1,219 | 764 | 789 | 967 | 2,887 | 1,385 | 1,223 | 1,220 | 848 | 800 | 1,146 |
| 1950 | 992 | 1,397 | 1,222 | 1,006 | 837 | 920 | 3,587 | 4,794 | 1,382 | 995 | 608 | 512 | 1,524 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | *5.19 | 1.86 | 1.13 | 0.72 | 0.51 | 0.68 | - |
| 1939 | 0.84 | 1.05 | 1.23 | 1.40 | 0.85 | 0.85 | *5.01 | *3.53 | 2.16 | 1.03 | .85 | .66 | *19.26 |
| 1940 | .87 | .98 | .92 | .72 | .84 | .74 | 3.39 | 3.83 | 1.83 | 1.15 | .71 | .61 | 16.39 |
| 1941 | .77 | 1.44 | 1.31 | 1.23 | .81 | .86 | 3.00 | 1.38 | .79 | .56 | .45 | 1.03 | 13.63 |
| 1942 | 2.50 | 2.45 | 1.75 | 1.27 | .85 | 1.40 | 3.85 | 1.53 | 1.01 | .84 | .45 | .61 | 18.11 |
| 1943 | 1.16 | 1.77 | 1.25 | .93 | .85 | .94 | 4.63 | 3.20 | *4.60 | 1.61 | .83 | .74 | *22.51 |
| 1944 | .98 | 1.48 | .97 | .84 | .79 | .91 | 2.73 | 2.49 | 1.21 | .77 | .62 | .78 | 14.55 |
| 1945 | .99 | 1.16 | 1.01 | .79 | .68 | 3.32 | 3.45 | 1.80 | 1.67 | .98 | .58 | .64 | 17.07 |
| 1946 | .91 | 2.11 | 1.02 | 1.54 | 1.09 | 3.52 | 1.99 | 1.37 | 1.30 | .78 | .69 | .65 | 16.97 |
| 1947 | .72 | 1.28 | 1.43 | .80 | .66 | .87 | 4.31 | 3.27 | 1.67 | .85 | .54 | .52 | 16.92 |
| 1948 | .53 | .82 | .62 | .57 | .50 | .81 | 3.04 | 1.38 | .66 | .45 | .42 | .36 | 9.96 |
| 1949 | .40 | 1.29 | 1.28 | .80 | .75 | 1.01 | 2.93 | 1.45 | 1.24 | 1.28 | .89 | .61 | 14.13 |
| 1950 | 1.04 | 1.42 | 1.28 | 1.05 | .79 | .98 | 3.64 | 5.02 | 1.40 | 1.04 | .64 | .52 | 18.80 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|--------------------|-------------|--------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1938 | 854,1387 | *13,200 | Apr. 1, 2, 1938* | - | - | - | - | - | - | - | - |
| 1939 | 874,1387 | *13,600 | Apr. 27, 1939 | 530 | *1,560 | *1.42 | *19.26 | 1,533 | 18.91 | | |
| 1940 | 894 | *7,540 | Apr. 26, 1940 | 547 | 1,324 | 1.20 | 16.39 | 1,585 | 17.14 | | |
| 1941 | 924 | 4,210 | Apr. 17, 18, 1941* | 371 | 1,106 | 1.01 | 13.63 | 1,547 | 16.61 | | |
| 1942 | 954 | *7,000 | Apr. 7, 1942 | 363 | 1,467 | 1.33 | 18.11 | 1,280 | 15.79 | | |
| 1943 | 974,1387 | *8,740 | June 23, 1943 | 688 | *1,825 | *1.66 | *22.51 | *1,764 | *21.76 | | |
| 1944 | 1004 | 5,000 | Apr. 28, 1944 | 463 | 1,175 | 1.07 | 14.55 | 1,153 | 14.28 | | |
| 1945 | 1034,1387 | *9,050 | Mar. 24, 1945* | 500 | 1,383 | 1.26 | 17.07 | *1,455 | 17.95 | | |
| 1946 | 1054 | 5,900 | Mar. 20, 21, 1946 | 520 | 1,376 | 1.25 | 16.97 | 1,327 | 16.36 | | |
| 1947 | 1084 | 6,530 | Apr. 15-15, 1947 | 410 | 1,372 | 1.25 | 16.92 | 1,238 | 15.26 | | |
| 1948 | 1114 | 3,930 | Apr. 14, 15, 1948 | 297 | 806 | .733 | 9.96 | 903 | 11.16 | | |
| 1949 | 1144 | 4,210 | Apr. 6-8, 1949 | 290 | 1,146 | 1.04 | 14.13 | 1,207 | 14.90 | | |
| 1950 | 1174 | 9,360 | Apr. 27, 1950 | 425 | 1,524 | 1.39 | 18.80 | - | - | | |

* Revised.

69. Indian River near Manistique, Mich.

Location.--Lat 45°59'30", long. 86°17'15", in NE $\frac{1}{4}$ sec. 34, T. 42 N., R. 16 W., on shore of Indian Lake, just upstream from highway bridge over outlet of Indian Lake, and 2 miles northwest of Manistique.

Drainage area.--302 sq mi.

Gage.--Water-stage recorder. Datum of gage is 608.66 ft above mean sea level (levels by Michigan Department of Conservation). Prior to July 9, 1942, chain gage on highway bridge 30 ft downstream at same datum. Since Jan. 18, 1944, auxiliary staff gage $1\frac{1}{2}$ miles downstream at same datum.

Average discharge.--12 years (1938-50), 372 cfs.

Extremes.--1938-50: Maximum discharge, 1,550 cfs June 24, 1943 (gage height, 7.79 ft), from rating curve extended above 660 cfs on basis of computation of peak flow over dam; minimum daily, about 20 cfs Nov. 23, 1946 (caused by ice jams at outlet of Indian Lake).

Remarks.--Indian Lake regulated by needles in gate section of rock-filled timber dam $1\frac{1}{2}$ miles below gage.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1938 | - | - | - | - | - | - | 718 | 507 | 381 | 234 | 246 | 256 | - |
| 1939 | 364 | 366 | 373 | 355 | 339 | 302 | 553 | 726 | 594 | 414 | 190 | 297 | 406 |
| 1940 | 329 | 431 | 400 | 332 | 310 | 307 | 459 | 686 | 530 | 448 | 329 | 322 | 407 |
| 1941 | 308 | 473 | 481 | 426 | 364 | 328 | 449 | 427 | 348 | 224 | 262 | 362 | 371 |
| 1942 | 463 | 537 | 463 | 437 | 364 | 353 | 574 | 461 | 320 | 184 | 192 | 256 | 383 |
| 1943 | 410 | 438 | 424 | 365 | 341 | 342 | 600 | 668 | 917 | 830 | 430 | 354 | 511 |
| 1944 | 538 | 452 | 391 | 322 | 316 | 313 | 373 | 524 | 345 | 324 | 239 | 243 | 348 |
| 1945 | 345 | 363 | 339 | 275 | 262 | 399 | 675 | 533 | 469 | 276 | 242 | 250 | 370 |
| 1946 | 288 | 500 | 461 | 411 | 382 | 468 | 449 | 286 | 340 | 332 | 275 | 262 | 371 |
| 1947 | 269 | 378 | 383 | 331 | 289 | 277 | 529 | 642 | 463 | 276 | 209 | 202 | 354 |
| 1948 | 245 | 300 | 269 | 244 | 225 | 244 | 418 | 385 | 210 | 181 | 182 | 179 | 257 |
| 1949 | 184 | 349 | 371 | 297 | 266 | 251 | 413 | 355 | 203 | 392 | 320 | 236 | 303 |
| 1950 | 523 | 320 | 330 | 519 | 308 | 284 | 497 | 801 | 482 | 341 | 283 | 232 | 377 |

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | 767 | Apr. 3-7, 1938 | - | - | - | - | - | - |
| 1939 | 874 | 1,000 | Apr. 30, 1939 | 106 | 406 | 1.34 | 18.29 | 411 | 18.49 |
| 1940 | 894 | 721 | May 6, 7, 25-28 | 292 | 407 | 1.35 | 18.37 | 416 | 18.76 |
| 1941 | 924 | 576 | Nov. 19-30, 1940 | 146 | 371 | 1.23 | 16.69 | 388 | 17.44 |
| 1942 | 954 | 618 | Apr. 12-21, 1942 | 144 | 383 | 1.27 | 17.23 | 368 | 16.52 |
| 1943 | 974 | 1,550 | June 24, 1943 | 323 | 511 | 1.69 | 22.96 | 503 | 22.60 |
| 1944 | 1004 | 596 | May 4, 1944 | 210 | 348 | 1.15 | 15.70 | 337 | 15.20 |
| 1945 | 1034 | 826 | Apr. 4, 1945 | 228 | 370 | 1.23 | 16.62 | 387 | 17.37 |
| 1946 | 1054 | 659 | Apr. 2, 1946 | 239 | 371 | 1.23 | 16.66 | 352 | 15.84 |
| 1947 | 1084 | 759 | May 7, 1947 | 20 | 354 | 1.17 | 15.91 | 336 | 15.09 |
| 1948 | 1114 | 507 | Apr. 30, 1948 | 156 | 257 | .85 | 11.57 | 264 | 11.91 |
| 1949 | 1144 | 595 | July 5, 1949 | 114 | 303 | 1.00 | 13.64 | 309 | 13.90 |
| 1950 | 1174 | 985 | May 10, 1950 | 206 | 377 | 1.25 | 16.95 | - | - |

70. Escanaba River near Escanaba, Mich. 1/

Location.--Lat 45°50'25", long. 87°05'20", on line between secs. 24 and 25, T. 40 N., R. 23 W., $5\frac{1}{2}$ miles upstream from mouth and $6\frac{1}{2}$ miles north of Escanaba.

Drainage area.--900 sq mi (revised), approximately.

Gage.--Chain gage. Altitude of gage is 680 ft (estimated from old river survey).

Average discharge.--9 years (1903-12), 1,017 cfs.

Extremes.--1903-12: Maximum discharge observed, 9,720 cfs (revised) Apr. 21, 1906 (gage height, 6.9 ft); minimum observed, 90 cfs July 5, 1910 (gage height, 1.5 ft), but may have been less during extended periods of no gage-height record during winter seasons.

1/ Published as "at Cornell" since October 1950.

Monthly and yearly mean discharge, in cubic feet per second, of Escanaba River near Escanaba, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|--------|--------|-------|------|-------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | - | - | - | 1,647 | - |
| 1904 | 1,625 | #954 | #700 | - | - | - | #2,023 | #3,626 | 1,521 | 669 | 454 | 741 | #1,230 |
| 1905 | 1,145 | 657 | #664 | - | - | - | 2,468 | 2,322 | 1,512 | 669 | 565 | 708 | #1,080 |
| 1906 | 623 | 699 | 891 | #800 | #780 | #750 | #4,210 | 1,870 | 1,750 | 879 | 411 | 714 | #1,190 |
| 1907 | 485 | 1,000 | #945 | - | - | - | 2,420 | 4,390 | 1,160 | 531 | 413 | 779 | #1,210 |
| 1908 | 829 | 544 | #424 | #300 | #270 | #250 | #3,630 | 2,420 | 1,100 | 617 | 406 | 220 | #916 |
| 1909 | 294 | 243 | #350 | #200 | #190 | #250 | - | - | 839 | 494 | 349 | 274 | #580 |
| 1910 | 310 | 894 | 773 | 300 | 250 | 900 | 2,150 | 1,290 | 546 | 226 | 367 | 382 | 707 |
| 1911 | 536 | 552 | 275 | 275 | 300 | 500 | 2,600 | 1,730 | 821 | 727 | 2,010 | 713 | 924 |
| 1912 | 1,470 | 1,150 | 1,000 | 900 | 850 | 830 | 3,850 | 2,450 | 1,060 | 412 | 900 | 1,030 | 1,320 |
| 1913 | 987 | 727 | 650 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for Menominee River at Iron Mountain and weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | - | - | - | 2.04 | - |
| 1904 | 2.08 | #1.18 | #0.90 | - | - | - | #2.51 | #4.64 | 1.89 | 0.86 | 0.58 | .92 | #18.60 |
| 1905 | 1.47 | .81 | .85 | - | - | - | 3.06 | 2.97 | 1.87 | .86 | .72 | .88 | #16.29 |
| 1906 | .80 | .87 | 1.14 | #1.02 | #0.90 | #0.96 | #5.22 | 2.40 | 2.17 | 1.13 | .53 | .89 | #18.03 |
| 1907 | .62 | 1.24 | #1.21 | - | - | - | 3.00 | 5.62 | 1.43 | .68 | .53 | .97 | #18.25 |
| 1908 | 1.06 | .67 | .54 | #.38 | #.32 | #.32 | #4.50 | 3.10 | 1.36 | .79 | .52 | .27 | #13.83 |
| 1909 | .38 | .30 | .45 | #.26 | #.22 | #.32 | - | - | 1.04 | .63 | .45 | .34 | #8.75 |
| 1910 | .40 | 1.11 | .99 | .38 | .29 | 1.27 | 2.67 | 1.65 | .68 | .29 | .47 | .47 | 10.67 |
| 1911 | .69 | .68 | .35 | .35 | .35 | .64 | 3.22 | 2.22 | 1.02 | .93 | 2.58 | .91 | 13.94 |
| 1912 | 1.69 | 1.42 | 1.28 | 1.15 | 1.02 | 1.08 | 4.77 | 3.14 | 1.51 | .53 | 1.15 | 1.28 | 20.00 |
| 1913 | 1.26 | .90 | .83 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|------|-----------------|------------------|---------------|------------------|--------|
| | | Maximum observed | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| 1903 | 129 | - | - | - | - | - | - | - | - |
| 1904 | 129,1387 | - | - | - | #1,230 | #1.37 | #18.60 | #1.160 | #17.54 |
| 1905 | 170 | - | - | - | #1,080 | #1.20 | #16.29 | #1,060 | #15.99 |
| 1906 | 206 | 9,720 | Apr. 21, 1906 | - | #1,190 | #1.32 | #18.03 | #1,210 | #18.29 |
| 1907 | 244 | 8,580 | May 16, 1907 | - | #1,210 | #1.34 | #18.25 | #1,180 | #17.50 |
| 1908 | 244 | 7,180 | Apr. 29, 30, 1908 | - | #916 | #1.02 | #15.63 | #940 | #12.69 |
| 1909 | 284 | - | - | - | #580 | #.844 | #8.75 | #667 | #10.06 |
| 1910 | 284 | - | - | - | 707 | .786 | 10.67 | 658 | 9.89 |
| 1911 | 304 | 8,870 | Apr. 16, 1911 | - | 924 | 1.03 | 13.94 | 1,110 | 16.81 |
| 1912 | 324 | 5,610 | Apr. 9, 1912 | - | 1,320 | 1.47 | 20.00 | 1,220 | 18.40 |
| 1913 | 324 | - | - | - | - | - | - | - | - |

* Not previously published.

71. Iron River near Iron River, Mich.

Location.--Lat 46°04'55", long. 88°38'25", in E $\frac{1}{2}$ sec. 35, T. 43 N., R. 35 W., 1 mile south of Iron River.

Drainage area.--65 sq mi (revised), approximately.

Gage.--Staff gage. Altitude of gage is 1,465 ft (from topographic map).

Extremes.--1900-3: Maximum discharge, 740 cfs Sept. 16, 1903 (gage height, 89.35 ft), from logarithmic extension of rating curve above 420 cfs; minimum observed, 26 cfs Sept. 19, 1902 (gage height, 85.50 ft), probably affected by regulation at dam in Iron River.

Remarks.--Records include a small quantity of water pumped from mines. Flow occasionally affected by irregular drafts from pool of lumbermen's dam 1 mile upstream in Iron River.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1901 | - | #78 | 69 | 64 | 62 | 67 | 169 | 94 | 73 | #124 | - | - | - |
| 1902 | - | - | - | - | - | 77 | 93 | 100 | 81 | 60 | 59 | 70 | - |
| 1903 | 63 | 81 | 82 | 68 | 60 | 87 | 119 | 233 | 85 | 113 | 129 | 197 | 110 |
| 1904 | 105 | 75 | 76 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|------|------|------|------|-------|------|-------|----------|
| 1901 | - | #1.33 | 1.22 | 1.13 | 0.99 | 1.19 | 2.90 | 1.67 | 1.25 | #2.19 | - | - | - |
| 1902 | - | - | - | - | - | 1.36 | 1.60 | 1.78 | 1.40 | 1.06 | 1.05 | 1.20 | - |
| 1903 | 1.12 | 1.40 | 1.45 | 1.21 | .96 | 1.54 | 2.04 | 4.13 | 1.46 | 2.01 | 2.28 | 3.58 | 22.98 |
| 1904 | 1.87 | 1.28 | 1.35 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of weather records.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Yearly discharge, in cubic feet per second, of Iron River near Iron River, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 87 | a598 | Apr. 17, 1901 | - | - | - | - | - | - |
| 1902 | 87 | b255 | Apr. 27, Sept. 16 | 26 | - | - | - | - | - |
| 1903 | 87 | *740 | Sept. 16, 1903 | 56 | 110 | 1.69 | 22.98 | 112 | 23.51 |

* Not previously published.

a Maximum observed.

b Maximum daily.

72. Iron River at Caspian, Mich.

Location.--Lat 46°03'31", long. 88°37'38", on line between SE $\frac{1}{4}$ and SW $\frac{1}{4}$ sec. 1, T. 42 N., R. 35 W., on downstream side of highway bridge in Caspian, $\frac{5}{8}$ miles upstream from mouth.

Drainage area.--84 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 1,438.78 ft above mean sea level, datum of 1929.

Extremes.--1948-50: Maximum discharge, 680 cfs May 6, 1950 (gage height, 8.02 ft); minimum observed, 32 cfs June 12, 1949 (gage height, 3.47 ft).

Remarks.--Flow regulated by ground water pumped from mines.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | 94.7 | 63.4 | 52.6 | 52.1 | 50.3 | 48.2 | - |
| 1949 | 46.6 | 50.5 | 50.9 | 51.0 | 52.0 | 54.9 | 75.9 | 77.5 | 53.1 | 71.6 | 51.4 | 57.0 | 57.7 |
| 1950 | 52.8 | 52.7 | 50.7 | 50.0 | 48.1 | 53.3 | 192 | 215 | 82.3 | 68.0 | 67.2 | 53.5 | 82.3 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 153 | Apr. 25, 1948 | - | - | - | - | - | - |
| 1949 | 1144 | 245 | May 7, 1949 | 38 | 57.7 | - | - | 58.4 | - |
| 1950 | 1174 | 680 | May 6, 1950 | 42 | 82.3 | - | - | - | - |

73. Brule River near Florence, Wis.

Location.--Lat 45°57'30", long. 88°15'55", in SE $\frac{1}{4}$ sec. 11, T. 41 N., R. 32 W., Michigan meridian, on left bank 40 ft upstream from highway bridge, 1 mile upstream from Paint River $\frac{3}{4}$ miles north of Florence, and 8 miles upstream from confluence with Michigamme River.

Drainage area.--380 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,210 ft (from topographic map). Prior to Aug. 29, 1944, wire-weight or chain gages at bridge 40 ft downstream at same datum.

Average discharge.--7 years (1914-15, 1944-50), 314 cfs.

Extremes.--1914-15, 1944-50: Maximum discharge, 2,480 cfs June 26, 1946 (gage height, 4.93 ft); maximum gage height, 7.25 ft Mar. 20, 1945 (ice jam); minimum discharge, 155 cfs Aug. 16, 22, 1949.

Remarks.--Flow not adjusted for ground water pumped from mines at Iron River. Occasional regulation in spring seasons 1914-15 due to log driving.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1914 | - | - | - | - | 206 | 287 | 656 | *728 | *523 | 535 | 372 | 358 | - |
| 1915 | 310 | 320 | 279 | 211 | 230 | *306 | *520 | *594 | 461 | 427 | 356 | 375 | *366 |
| 1916 | 524 | 600 | 347 | *281 | *257 | - | - | - | - | - | - | - | - |
| 1944 | - | - | - | - | - | - | - | - | - | 246 | 214 | 274 | - |
| 1945 | 247 | 271 | 205 | 204 | 214 | 499 | 650 | 536 | 498 | 350 | 269 | 314 | 355 |
| 1946 | 329 | 444 | 277 | 311 | 270 | 495 | 374 | 327 | 586 | 340 | 250 | 264 | 355 |
| 1947 | 273 | 313 | 256 | 221 | 198 | 233 | 700 | 523 | 382 | 252 | 208 | 235 | 316 |
| 1948 | 230 | 258 | 233 | 217 | 200 | 282 | 423 | 270 | 212 | 196 | 186 | 182 | 241 |
| 1949 | 179 | 242 | 215 | 189 | 204 | 200 | 326 | 323 | 211 | 282 | 188 | 228 | 232 |
| 1950 | 245 | 239 | 205 | 217 | 198 | 207 | 699 | 871 | 377 | 276 | 257 | 221 | 335 |

* Revised.

Monthly and yearly runoff, in inches, of Brule River near Florence, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1914 | - | - | - | - | 0.56 | 0.87 | 1.93 | *2.21 | *1.53 | 1.62 | 1.13 | 1.05 | - |
| 1915 | 0.94 | 0.94 | 0.85 | 0.64 | .63 | *.93 | *1.53 | *1.80 | 1.35 | 1.29 | 1.08 | 1.10 | *13.08 |
| 1916 | 1.59 | 1.76 | 1.05 | *.85 | *.73 | - | - | - | - | - | - | - | - |
| 1944 | - | - | - | - | - | - | - | - | - | .75 | .65 | .81 | - |
| 1945 | .75 | .80 | .62 | .62 | .59 | 1.51 | 1.91 | 1.63 | 1.46 | 1.06 | .82 | .92 | 12.69 |
| 1946 | 1.00 | 1.30 | .84 | .94 | .74 | 1.50 | 1.10 | .99 | 1.72 | 1.03 | .76 | .77 | 12.69 |
| 1947 | .83 | .92 | .78 | .67 | .54 | .71 | 2.06 | 1.59 | 1.12 | .76 | .63 | .69 | 11.30 |
| 1948 | .70 | .76 | .71 | .66 | .57 | .86 | 1.24 | .82 | .62 | .60 | .57 | .54 | 8.65 |
| 1949 | .54 | .71 | .65 | .57 | .56 | .61 | .96 | .96 | .62 | .85 | .57 | .67 | 8.29 |
| 1950 | .74 | .70 | .62 | .66 | .54 | .63 | 2.05 | 2.64 | 1.11 | .84 | .78 | .65 | 11.96 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|--------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1914 | 384,1387 | *a2,050 | May 1, 1914* | - | - | - | - | - | - | - |
| 1915 | 404,1387 | *a1,150 | May 9, 1915* | - | - | *366 | *0.963 | *13.08 | *421 | *15.03 |
| 1916 | 434,1387 | - | - | - | - | - | - | - | - | - |
| 1944 | 1004 | - | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 1,260 | Apr. 25, May 23 | 180 | 355 | .934 | 12.69 | 382 | 13.66 | |
| 1946 | 1054 | 2,480 | June 26, 1946 | 219 | 355 | .934 | 12.69 | 338 | 12.08 | |
| 1947 | 1084 | 1,270 | Apr. 25, 1947 | 180 | 332 | .832 | 11.30 | 306 | 10.94 | |
| 1948 | 1114 | 712 | Apr. 25, 1948 | 165 | 241 | .634 | 8.65 | 234 | 8.58 | |
| 1949 | 1144 | 611 | May 7, 1949 | 159 | 232 | .611 | 8.29 | 237 | 8.45 | |
| 1950 | 1174 | 2,290 | May 7, 1950 | 176 | 335 | .882 | 11.96 | - | - | |

* Revised.

a Maximum observed.

74. Paint River at Crystal Falls, Mich.

Location.--Lat 46°06'20", long. 88°20'05", in SE $\frac{1}{4}$ sec. 20, T. 43 N., R. 32 W., on right bank 150 ft downstream from municipal powerplant at Crystal Falls and 13 miles upstream from mouth.

Drainage area.--616 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,306.1 ft above mean sea level (Wisconsin-Michigan Power Co. benchmark).

Average discharge.--6 years (1944-50), 506 cfs.

Extremes.--1944-50: Maximum discharge, 7,400 cfs May 7, 1950 (gage height, 8.10 ft); minimum, 7.7 cfs Sept. 17, 1950 (gage height, 0.89 ft); minimum daily, 81 cfs Nov. 1, 1947.

Remarks.--Diurnal fluctuation caused by powerplant immediately above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | - | 283 | - |
| 1945 | 382 | 397 | 275 | 240 | 238 | 1,184 | 1,384 | 1,103 | 899 | 602 | 299 | 405 | 619 |
| 1946 | 450 | 613 | 321 | 390 | 332 | 963 | 770 | 455 | 915 | 588 | 282 | 298 | 530 |
| 1947 | 328 | 455 | 324 | 289 | 262 | 268 | 1,553 | 1,257 | 695 | 357 | 217 | 275 | 521 |
| 1948 | 261 | 297 | 260 | 228 | 208 | 345 | 1,234 | 525 | 224 | 195 | 200 | 163 | 344 |
| 1949 | 172 | 280 | 262 | 216 | 206 | 228 | 819 | 788 | 339 | 734 | 503 | 362 | 393 |
| 1950 | 386 | 507 | 329 | 280 | 253 | 292 | 1,391 | 2,339 | 654 | 445 | 371 | 257 | 628 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | - | 0.53 | - |
| 1945 | 0.71 | 0.72 | 0.51 | 0.45 | 0.40 | 2.22 | 2.51 | 2.06 | 1.63 | 1.13 | 0.56 | .73 | 13.63 |
| 1946 | .84 | 1.11 | .60 | .73 | .56 | 1.80 | 1.40 | .85 | 1.68 | 1.06 | .53 | .54 | 11.68 |
| 1947 | .61 | .82 | .60 | .54 | .44 | .50 | 2.81 | 2.35 | 1.26 | .63 | .41 | .50 | 11.48 |
| 1948 | .49 | .54 | .49 | .43 | .36 | .64 | 2.23 | .98 | .40 | .36 | .37 | .30 | 7.59 |
| 1949 | .32 | .51 | .49 | .40 | .35 | .43 | 1.48 | 1.47 | .61 | 1.37 | .57 | .66 | 8.66 |
| 1950 | .72 | .92 | .62 | .52 | .43 | .55 | 2.52 | 4.38 | 1.19 | .83 | .69 | .47 | 13.84 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1944 | 1004 | - | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 4,160 | Mar. 29, 1945 | 219 | 619 | 1.00 | 13.63 | 646 | 14.24 | |
| 1946 | 1054 | 4,050 | Mar. 21, 1946 | 225 | 530 | .860 | 11.68 | 507 | 11.17 | |
| 1947 | 1084 | 4,160 | Sept. 16, 1947 | 149 | 521 | .846 | 11.48 | 497 | 10.96 | |
| 1948 | 1114 | 2,610 | Oct. 8, 1947 | 81 | 344 | .558 | 7.59 | 335 | 7.39 | |
| 1949 | 1144 | 4,400 | July 7, 1949 | 93 | 393 | .638 | 8.66 | 456 | 9.60 | |
| 1950 | 1174 | 7,400 | May 7, 1950 | 158 | 628 | 1.02 | 13.84 | - | - | |

75. Michigamme River near Crystal Falls, Mich.

Location--Lat 46°06'50", long. 88°12'55", in NW $\frac{1}{4}$ sec. 20, T. 43 N., R. 31 W., on right bank 400 ft upstream from highway bridge, 4 $\frac{1}{2}$ miles downstream from Michigamme Reservoir, 6 miles east of Crystal Falls, and 16 miles upstream from confluence with Brule River.

Drainage area--670 sq mi.

Gage--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

Average discharge--6 years (1944-50), 638 cfs.

Extremes--1944-50: Maximum discharge, 5,590 cfs May 13, 1950 (gage height, 9.40 ft); minimum, 69 cfs Jan. 14, 1950 (gage height, 1.31 ft).

Remarks--Flow regulated by powerplants and by Michigamme Reservoir (capacity, 119,950 acre-ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|-------|------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | - | 431 | - |
| 1945 | 465 | 482 | 690 | 735 | 794 | 650 | 1,287 | 1,073 | 1,241 | 911 | 558 | 570 | 786 |
| 1946 | 643 | 370 | 662 | 744 | 957 | 606 | 604 | 534 | 724 | 758 | 848 | 568 | 667 |
| 1947 | 401 | 218 | 505 | 580 | 636 | 509 | 426 | 1,563 | 865 | 731 | 697 | 643 | 649 |
| 1948 | 512 | 302 | 439 | 628 | 350 | 397 | 434 | 566 | 499 | 437 | 588 | 348 | 460 |
| 1949 | 540 | 88.1 | 238 | 472 | 495 | 276 | 288 | 349 | 387 | 1,120 | 554 | 557 | 448 |
| 1950 | 448 | 377 | 772 | 935 | 876 | 596 | 1,073 | 1,970 | 868 | 693 | 651 | 575 | 820 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 2,930 | Apr. 11, 1945 | 97 | 786 | - | - | 790 | - |
| 1946 | 1054 | 1,440 | June 25, 1946 | 104 | 667 | - | - | 620 | - |
| 1947 | 1084 | 2,390 | May 19, 21, 1947 | 100 | 643 | - | - | 660 | - |
| 1948 | 1114 | 1,620 | May 1, 1948 | 124 | 460 | - | - | 427 | - |
| 1949 | 1144 | 3,020 | July 7, 1949 | 84 | 448 | - | - | 509 | - |
| 1950 | 1174 | 5,590 | May 13, 1950 | 84 | 820 | - | - | - | - |

76. Menominee River near Florence, Wis.

Location--Lat 45°57'04", long. 88°11'13", in NE $\frac{1}{4}$ sec. 16, T. 41 N., R. 31 W., on left bank half a mile downstream from confluence of Brule and Michigamme Rivers and 3 $\frac{1}{2}$ miles northeast of Florence.

Gage--Water-stage recorder. Altitude of gage is 1,140 ft (from topographic map).

Extremes--1950: Maximum discharge, 14,300 cfs May 8 or 9, 1950 (gage height, 11.52 ft, from floodmarks).

Remarks--Flow regulated by powerplants, and by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Pond (capacity, 33,000 acre-ft), and by other smaller reservoirs upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|--------|-------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | - | *1,487 | 1,505 | 1,160 | - |

* Not previously published; estimated on basis of powerplant records.

77. Menominee River at Twin Falls, near Iron Mountain, Mich.

Location.--Lat 45°52'20", long. 88°04'10", in sec. 12, T. 40 N., R. 31 W., at power-plant of Wisconsin-Michigan Power Co., 3½ miles north of city of Iron Mountain, and 4 miles upstream from Pine River.

Drainage area.--1,790 sq mi, approximately.

Gage.--Headwater and tailwater gages and generation data entered hourly in daily log sheet by company employees.

Average discharge.--36 years (1914-50) 1,769 cfs.

Extremes.--1914-50: Maximum daily discharge, 16,700 cfs Apr. 23, 24, 1916; minimum daily, 154 cfs Aug. 9, 1925.

Remarks.--Flow regulated by powerplants, and by Michigamme Reservoir (capacity, 119,950 acre-ft) since 1940 and Peavy Pond (capacity, 33,000 acre-ft) since 1943, and by smaller reservoirs upstream.

Cooperation.--Records of daily discharge furnished by Wisconsin-Michigan Power Co.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | The year |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1914 | - | - | - | 920 | 764 | 692 | 3,510 | 4,560 | 1,590 | 2,030 | 1,440 | 1,540 | - |
| 1915 | 1,000 | 1,070 | 1,050 | 944 | 958 | 968 | 2,880 | 3,410 | 2,550 | 2,190 | 1,510 | 1,880 | 1,700 |
| 1916 | 2,880 | 3,070 | 2,090 | 1,480 | 1,230 | 1,210 | 8,160 | 5,020 | 5,040 | 2,330 | 1,580 | 2,450 | 3,080 |
| 1917 | 2,700 | 3,070 | 1,540 | 1,090 | 929 | 1,050 | 4,090 | 4,500 | 3,320 | 1,730 | 1,320 | 1,210 | 2,220 |
| 1918 | 1,590 | 1,400 | 936 | 849 | 819 | 1,550 | 2,100 | 2,980 | 2,420 | 1,350 | 1,130 | 1,310 | 1,540 |
| 1919 | 1,560 | 1,970 | 1,530 | 1,190 | 1,000 | 1,630 | 4,350 | 2,720 | 1,850 | 1,140 | 750 | 825 | 1,710 |
| 1920 | 1,310 | 2,320 | 1,170 | 983 | 889 | 2,260 | 3,740 | 2,570 | 1,770 | 1,930 | 1,200 | 891 | 1,750 |
| 1921 | 808 | 909 | 1,190 | 981 | 862 | 1,640 | 5,490 | 2,840 | 1,350 | 984 | 888 | 1,210 | 1,590 |
| 1922 | 1,060 | 881 | 868 | 779 | 744 | 1,210 | 5,270 | 3,770 | 2,350 | 1,780 | 993 | 1,480 | 1,770 |
| 1923 | 944 | 1,180 | 962 | 852 | 790 | 854 | 3,040 | 2,680 | 1,880 | 1,440 | 819 | 1,010 | 1,370 |
| 1924 | 733 | 834 | 826 | 691 | 668 | 733 | 2,510 | 3,410 | 1,540 | 1,070 | 1,560 | 1,080 | 1,310 |
| 1925 | 1,020 | 833 | 765 | 698 | 692 | 866 | 1,810 | 1,160 | 1,250 | 721 | 545 | 718 | 922 |
| 1926 | 1,020 | 964 | 814 | 703 | 647 | 863 | 2,780 | 3,200 | 2,020 | 1,330 | 1,550 | 2,670 | 1,550 |
| 1927 | 2,150 | 2,380 | 1,641 | 1,250 | 1,131 | 1,000 | 3,900 | 4,271 | 2,240 | 2,800 | 1,250 | 993 | 2,240 |
| 1928 | 1,380 | 1,370 | 1,230 | 1,170 | 1,050 | 1,390 | 4,470 | 4,750 | 1,990 | 1,360 | 1,580 | 1,480 | 2,020 |
| 1929 | 3,400 | 2,010 | 1,400 | 1,190 | 1,100 | 1,760 | 5,230 | 3,020 | 2,040 | 2,470 | 1,100 | 1,140 | 2,160 |
| 1930 | 1,360 | 1,660 | 1,200 | 1,100 | 1,170 | 1,300 | 3,400 | 3,520 | 2,510 | 1,500 | 781 | 823 | 1,700 |
| 1931 | 977 | 992 | 870 | 817 | 847 | 912 | 1,680 | 1,480 | 1,400 | 1,000 | 737 | 976 | 1,060 |
| 1932 | 1,170 | 2,780 | 1,710 | 1,350 | 1,150 | 1,170 | 3,480 | 3,140 | 1,280 | 1,310 | 1,460 | 1,470 | 1,790 |
| 1933 | 784 | 1,380 | 963 | 815 | 819 | 882 | 4,480 | 4,250 | 1,730 | 781 | 842 | 778 | 1,530 |
| 1934 | 871 | 1,052 | 876 | 965 | 858 | 851 | 2,774 | 4,697 | 1,276 | 807 | 641 | 1,575 | 1,448 |
| 1935 | 1,470 | 2,494 | 1,603 | 1,190 | 1,109 | 2,093 | 4,275 | 2,656 | 2,034 | 1,365 | 1,131 | 991 | 1,667 |
| 1936 | 1,227 | 1,216 | 971 | 942 | 788 | 1,258 | 3,356 | 4,723 | 1,623 | 800 | 886 | 1,180 | 1,582 |
| 1937 | 958 | 1,003 | 1,007 | 1,140 | 972 | 1,022 | 4,037 | 3,733 | 1,304 | 952 | 796 | 949 | 1,490 |
| 1938 | 1,411 | 1,489 | 962 | 833 | 881 | 2,567 | 5,545 | 3,771 | 2,967 | 1,941 | 1,849 | 1,542 | 2,149 |
| 1939 | 1,573 | 2,415 | 1,432 | 1,589 | 1,242 | 1,781 | 6,166 | 4,594 | 3,882 | 2,169 | 1,415 | 1,320 | 2,465 |
| 1940 | 1,314 | 1,164 | 1,128 | 967 | 1,017 | 997 | 3,168 | 5,820 | 2,955 | 1,776 | 1,211 | 968 | 1,876 |
| 1941 | 880 | 1,669 | 1,205 | 1,084 | 1,018 | 977 | 2,553 | 1,649 | 1,323 | 1,087 | 1,040 | 1,816 | 1,366 |
| 1942 | 2,414 | 2,679 | 2,092 | 1,675 | 1,732 | 1,738 | 3,085 | 3,517 | 2,808 | 2,167 | 1,591 | 2,503 | 2,334 |
| 1943 | 2,807 | 2,066 | 1,682 | 1,922 | 2,205 | 2,047 | 4,037 | 4,688 | 4,598 | 2,040 | 1,803 | 1,512 | 2,616 |
| 1944 | 1,265 | 1,424 | 1,239 | 1,218 | 1,205 | 1,348 | 1,770 | 3,020 | 3,254 | 1,410 | 1,137 | 1,191 | 1,623 |
| 1945 | 1,277 | 1,498 | 1,553 | 1,350 | 1,434 | 2,852 | 3,529 | 2,886 | 2,894 | 1,951 | 1,238 | 1,558 | 1,977 |
| 1946 | 1,573 | 1,735 | 1,439 | 1,635 | 1,662 | 2,337 | 2,010 | 1,528 | 2,547 | 1,924 | 1,522 | 1,284 | 1,766 |
| 1947 | 1,138 | 1,287 | 1,250 | 1,271 | 1,282 | 1,358 | 2,768 | 3,486 | 2,138 | 1,521 | 1,203 | 1,247 | 1,663 |
| 1948 | 1,123 | 1,016 | 1,044 | 1,212 | 841 | 1,364 | 2,256 | 1,548 | 1,037 | 911 | 1,076 | 970 | 1,200 |
| 1949 | 726 | 770 | 834 | 966 | 1,126 | 1,186 | 1,353 | 1,689 | 1,165 | 2,357 | 1,273 | 1,298 | 1,232 |
| 1950 | 1,275 | 1,366 | 1,416 | 1,603 | 1,689 | 1,541 | 3,397 | 5,289 | 2,196 | 1,615 | 1,608 | 1,211 | 2,020 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | The year |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1914 | - | - | - | 0.59 | 0.44 | 0.45 | 2.19 | 2.94 | 0.99 | 1.30 | 0.93 | 0.96 | - |
| 1915 | 0.64 | 0.67 | 0.68 | .61 | .55 | .62 | 1.80 | 2.20 | 1.58 | 1.41 | .97 | 1.17 | 12.90 |
| 1916 | 1.86 | 1.92 | 1.35 | .95 | .74 | .78 | 5.09 | 3.23 | 3.15 | 1.50 | 1.02 | 1.77 | 23.36 |
| 1917 | 1.74 | 1.92 | .99 | .70 | .54 | .68 | 2.54 | 2.89 | 2.06 | 1.11 | .85 | .75 | 16.77 |
| 1918 | 1.02 | .87 | .60 | .55 | .48 | 1.00 | 1.30 | 1.21 | 1.51 | .87 | .73 | .82 | 11.86 |
| 1919 | 1.01 | 1.23 | .99 | .77 | .59 | 1.05 | 2.71 | 1.75 | 1.15 | .73 | .48 | .51 | 22.36 |
| 1920 | .84 | 1.44 | .75 | .63 | .54 | 1.45 | 2.33 | 1.66 | 1.10 | 1.24 | .77 | .56 | 13.31 |
| 1921 | .52 | .57 | .77 | .63 | .50 | 1.06 | 3.42 | 1.83 | .84 | .63 | .57 | .75 | 12.09 |
| 1922 | .68 | .55 | .56 | .50 | .43 | .78 | 3.28 | 2.43 | 1.47 | 1.15 | .84 | .92 | 13.39 |
| 1923 | .61 | .74 | .62 | .55 | .46 | .55 | 1.90 | 1.73 | 1.17 | .93 | .53 | .63 | 10.42 |
| 1924 | .47 | .52 | .53 | .44 | .40 | .47 | 1.56 | 2.20 | .96 | .69 | 1.01 | .67 | 9.92 |
| 1925 | .66 | .52 | .49 | .45 | .40 | .56 | 1.13 | .75 | .78 | .46 | .35 | .45 | 7.00 |
| 1926 | .66 | .60 | .52 | .45 | .38 | .56 | 1.74 | 2.06 | 1.26 | .86 | 1.00 | 1.66 | 11.75 |
| 1927 | 1.38 | 1.48 | 1.06 | .80 | .67 | 1.82 | 2.43 | 2.76 | 1.40 | 1.80 | .79 | .62 | 17.01 |
| 1928 | .89 | .85 | .79 | .75 | .63 | .90 | 2.79 | 3.07 | 1.24 | 1.02 | .88 | 1.55 | 15.36 |
| 1929 | 2.19 | 1.25 | .90 | .77 | .64 | 1.13 | 3.26 | 1.95 | 1.27 | 1.59 | .71 | .71 | 16.37 |
| 1930 | .88 | 1.03 | .77 | .71 | .68 | .84 | 2.12 | 2.27 | 1.56 | .97 | .50 | .51 | 12.84 |
| 1931 | .63 | .62 | .56 | .53 | .49 | .59 | 1.05 | .95 | .87 | .64 | .48 | .61 | 8.02 |
| 1932 | .75 | 1.73 | 1.10 | .87 | .69 | .75 | 2.16 | 2.02 | .80 | .84 | .94 | .92 | 13.57 |
| 1933 | .50 | .86 | .63 | .59 | .48 | .57 | 2.79 | 2.72 | 1.08 | .51 | .41 | .49 | 11.63 |
| 1934 | .56 | .66 | .63 | .62 | .50 | .55 | 1.73 | 3.02 | .80 | .52 | .41 | .98 | 10.98 |
| 1935 | .95 | 1.55 | 1.03 | .77 | .65 | 1.35 | 2.67 | 1.71 | 1.27 | .88 | .73 | .62 | 14.18 |
| 1936 | .79 | .76 | .62 | .61 | .47 | .81 | 2.09 | 3.04 | 1.01 | .52 | .57 | .74 | 12.03 |
| 1937 | .62 | .62 | .65 | .73 | .57 | .66 | 2.52 | 2.41 | .81 | .61 | .51 | .62 | 11.30 |
| 1938 | .91 | .93 | .62 | .54 | .51 | 1.65 | 2.46 | 2.43 | 1.85 | 1.24 | 1.19 | .96 | 16.29 |
| 1939 | 1.01 | 1.51 | .92 | 1.03 | .72 | 1.15 | 3.84 | 2.96 | 2.42 | 1.40 | .91 | .82 | 18.69 |

Yearly discharge, in cubic feet per second, of Menominee River
at Twin Falls, near Iron Mountain, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|-------|-----------------------|------------------------|-------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 504 | - | - | - | - | - | - | 1,685 | 12.78 |
| 1915 | 504 | 4,290 | May 11, 1915 | 532 | 1,700 | 0.950 | 12.90 | 2,114 | 16.04 |
| 1916 | 504 | 16,700 | Apr. 23, 24, 1916 | 707 | 3,080 | 1.72 | 23.36 | 3,007 | 22.88 |
| 1917 | 504 | 8,740 | Apr. 22, 1917 | 747 | 2,220 | 1.24 | 16.77 | 1,933 | 14.61 |
| 1918 | 504 | 5,230 | June 2, 1918 | 660 | 1,540 | .860 | 11.86 | 1,635 | 12.40 |
| 1919 | 504 | 7,080 | Apr. 13, 1919 | 274 | 1,710 | .955 | 12.96 | 1,686 | 12.76 |
| 1920 | 504 | 7,920 | Mar. 28, 1920 | 640 | 1,750 | .978 | 13.31 | 1,596 | 12.14 |
| 1921 | 524 | 13,100 | Apr. 29, 1921 | 617 | 1,590 | .868 | 12.09 | 1,586 | 12.02 |
| 1922 | 544 | 9,560 | Apr. 11, 1922 | 606 | 1,770 | .989 | 13.39 | 1,789 | 13.57 |
| 1923 | 564 | 10,000 | Apr. 23, 1923 | 618 | 1,370 | .785 | 10.42 | 1,313 | 9.97 |
| 1924 | 584 | 5,050 | May 17, 1924 | 471 | 1,310 | .732 | 9.92 | 1,326 | 10.07 |
| 1925 | 604 | 3,500 | Apr. 25, 1925 | 154 | 922 | .515 | 7.00 | 937 | 7.11 |
| 1926 | 624 | 7,280 | Apr. 23, 1926 | 546 | 1,550 | .866 | 11.75 | 1,832 | 13.89 |
| 1927 | 644 | 7,400 | Mar. 13, 1927 | 624 | 2,240 | 1.25 | 17.01 | 2,080 | 15.62 |
| 1928 | 664 | 10,600 | May 6, 1928 | 684 | 2,020 | 1.13 | 15.36 | 2,256 | 17.17 |
| 1929 | 684 | 13,500 | Apr. 9, 1929 | 802 | 2,160 | 1.21 | 16.37 | 1,941 | 14.71 |
| 1930 | 699 | 7,290 | May 8, 1930 | 604 | 1,700 | .950 | 12.84 | 1,579 | 11.97 |
| 1931 | 714 | 2,270 | Apr. 23, 25, 1931 | 514 | 1,060 | .592 | 8.02 | 1,291 | 9.79 |
| 1932 | 729 | 5,380 | Aug. 31, 1932 | 685 | 1,790 | 1.00 | 13.57 | 1,579 | 11.98 |
| 1933 | 744 | 11,200 | Apr. 21, 1933 | 508 | 1,530 | .855 | 11.63 | 1,514 | 11.49 |
| 1934 | 759 | 10,000 | May 3, 1934 | 442 | 1,448 | .809 | 10.98 | 1,670 | 12.68 |
| 1935 | 784 | 6,500 | Apr. 28, 1935 | 777 | 1,867 | 1.04 | 14.18 | 1,688 | 12.82 |
| 1936 | 804 | 7,770 | May 4, 1936 | 467 | 1,582 | .884 | 12.03 | 1,545 | 11.75 |
| 1937 | 824 | 8,530 | Apr. 27, 1937 | 446 | 1,490 | .832 | 11.30 | 1,565 | 11.87 |
| 1938 | 854 | 11,900 | Apr. 1, 1938 | 679 | 2,149 | 1.20 | 16.29 | 2,279 | 17.27 |
| 1939 | 874 | 10,600 | Apr. 28, 1939 | 714 | 2,465 | 1.38 | 18.69 | 2,314 | - |
| 1940 | 894 | 9,630 | May 2, 1940 | 743 | 1,876 | - | - | 1,887 | - |
| 1941 | 924 | 4,100 | Apr. 15, 1941 | 559 | 1,356 | - | - | 1,645 | - |
| 1942 | 954 | 5,460 | June 7, 1942 | 1,160 | 2,334 | - | - | 2,282 | - |
| 1943 | 974 | 10,100 | June 18, 1943 | 1,110 | 2,616 | - | - | 2,394 | - |
| 1944 | 1004 | 6,090 | June 7, 1944 | 785 | 1,623 | - | - | 1,631 | - |
| 1945 | 1034 | 6,540 | May 24, 1945 | 979 | 1,977 | - | - | 2,037 | - |
| 1946 | 1054 | 7,950 | June 28, 1946 | 993 | 1,766 | - | - | 1,676 | - |
| 1947 | 1084 | 5,320 | Apr. 25, 1947 | 958 | 1,653 | - | - | 1,622 | - |
| 1948 | 1114 | 4,590 | Apr. 29, 1948 | 505 | 1,200 | - | - | 1,129 | - |
| 1949 | 1144 | 6,630 | July 8, 1949 | 498 | 1,232 | - | - | 1,377 | - |
| 1950 | 1174 | 12,000 | May 8, 1950 | 970 | 2,020 | - | - | - | - |

78. Pine River near Florence, Wis.

Location.--Lat 45°50'20", long. 88°20'20", in sec. 23, T. 39 N., R. 17 E., at highway bridge 200 ft downstream from Popple River, 8 miles southwest of Florence and 12 miles above mouth.

Drainage area.--500 sq mi (revised), approximately.

Average discharge.--10 years (1913-23), 489 cfs.

Gage.--Chain gage. Altitude of gage is 1,200 ft (from dam elevation 4 miles downstream).

Extremes.--1914-23: Maximum discharge, 4,570 cfs Apr. 23, 1916 (gage height, 9.3 ft, from graph based on gage readings); minimum daily, 112 cfs Mar. 31, 1923, caused by powerplant regulation.

Remarks.--Powerplant 4 miles downstream was put in operation in February 1922.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1914 | +590 | +500 | +400 | +320 | 172 | 202 | +658 | +723 | 523 | 655 | 692 | 596 | +505 |
| 1915 | 333 | 363 | 283 | 196 | 200 | 275 | +810 | +797 | 540 | 395 | 429 | 356 | +415 |
| 1916 | 401 | 678 | 492 | 192 | 181 | 267 | 1,670 | 950 | 1,590 | 564 | 343 | 696 | 666 |
| 1917 | 604 | 666 | 304 | 184 | 162 | 292 | 943 | 1,180 | 1,210 | 447 | 308 | 350 | 557 |
| 1918 | 544 | 299 | 182 | 175 | 192 | 537 | 476 | 876 | 722 | 214 | 465 | 400 | 425 |
| 1919 | 430 | 733 | 418 | 215 | 170 | 421 | 1,090 | 725 | 640 | 359 | 178 | 193 | 465 |
| 1920 | 529 | 838 | 297 | 236 | 207 | 675 | 841 | 516 | 771 | 623 | 499 | 294 | 527 |
| 1921 | 301 | 500 | 323 | 219 | 196 | 570 | 1,350 | 851 | 339 | 269 | 367 | 395 | 474 |
| 1922 | 235 | 363 | 290 | 164 | 171 | 297 | 1,430 | 1,010 | 557 | 441 | 153 | 463 | 464 |
| 1923 | 191 | 251 | 215 | 200 | 174 | 171 | 794 | 871 | 970 | 435 | 216 | 253 | 395 |

* Not previously published; partly estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches, of Pine River near Florence, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|------|------|--------|--------|------|------|------|-------|----------|
| 1914 | \$1.36 | \$1.12 | \$0.92 | \$0.74 | 0.36 | 0.47 | \$1.47 | \$1.67 | 1.17 | 1.51 | 1.60 | 1.33 | \$13.72 |
| 1915 | .77 | .81 | .65 | .45 | .42 | .64 | \$1.81 | \$1.84 | 1.20 | .91 | .99 | .79 | \$11.28 |
| 1916 | .92 | 1.51 | 1.14 | .44 | .39 | .62 | 3.72 | 2.19 | 3.54 | 1.30 | .79 | 1.55 | 18.11 |
| 1917 | 1.39 | 1.53 | .70 | .42 | .34 | .67 | 2.10 | 2.73 | 2.70 | 1.03 | .71 | .78 | 15.10 |
| 1918 | 1.25 | .67 | .42 | .40 | .40 | 1.24 | 1.06 | 2.02 | 1.61 | .49 | 1.07 | .89 | 11.52 |
| 1919 | .99 | 1.64 | .96 | .50 | .35 | .97 | 2.44 | 1.67 | 1.43 | .83 | .41 | .43 | 12.62 |
| 1920 | 1.22 | 1.87 | .68 | .54 | .45 | 1.56 | 1.88 | 1.19 | 1.72 | 1.44 | 1.15 | .66 | 14.36 |
| 1921 | .69 | 1.11 | .75 | .51 | .41 | 1.31 | 3.01 | 1.96 | .76 | .62 | .85 | .88 | 12.86 |
| 1922 | .54 | .81 | .67 | .38 | .36 | .68 | 3.20 | 2.32 | 1.24 | 1.02 | .35 | 1.03 | 12.60 |
| 1923 | .44 | .56 | .50 | .46 | .36 | .40 | 1.77 | 2.01 | 2.17 | 1.00 | .50 | .56 | 10.73 |

* Not previously published; partly estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 404 | - | - | - | \$505 | \$1.01 | \$13.72 | \$462 | \$12.55 |
| 1915 | 404 | - | - | - | \$415 | \$1.830 | \$11.28 | \$465 | \$12.62 |
| 1916 | 434 | *4,570 | Apr. 23, 1916 | 118 | 666 | 1.33 | 18.11 | 668 | 18.16 |
| 1917 | 454 | *2,540 | June 8, 1917 | 135 | 557 | 1.11 | 15.10 | 509 | 13.82 |
| 1918 | 474 | *1,840 | May 31, 1918 | - | 425 | .850 | 11.52 | 471 | 12.77 |
| 1919 | 504 | 1,530 | Apr. 13, 1919 | 144 | 465 | .930 | 12.62 | 472 | 12.80 |
| 1920 | 504 | *2,690 | Mar. 28, 1920 | 180 | 527 | 1.05 | 14.36 | 482 | 13.14 |
| 1921 | 524 | *3,000 | Apr. 28, 1921 | 155 | 474 | .948 | 12.86 | 454 | 12.33 |
| 1922 | 544 | *2,840 | Apr. 9, 1922 | 118 | 464 | .928 | 12.60 | 445 | 12.08 |
| 1923 | 564 | a2,220 | Apr. 23, 1923 | 112 | 395 | .790 | 10.73 | - | - |

* Revised.

* Not previously published.

a Daily discharge.

79. Pine River at Pine River powerplant, near Florence, Wis.

Location.--Lat 45°49'40", long. 88°14'55", in sec. 28, T. 39 N., R. 18 E., at powerplant of Wisconsin-Michigan Power Co., 5 miles downstream from Popple River and 6½ miles south of Florence.

Drainage area.--528 sq mi (revised).

Average discharge.--27 years (1923-50), 419 cfs.

Extremes.--1923-50: Maximum daily discharge, 4,380 cfs Apr. 9, 1929; no flow at times in 1924, 1926, 1927, 1930, 1931, 1933, 1940.

Remarks.--Daily discharge determined from powerplant records. Flow regulated by powerplant at station, but pondage is small and monthly discharge is very nearly natural flow.

Cooperation.--Records furnished by Wisconsin-Michigan Power Co.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1924 | 207 | 216 | 192 | 160 | 150 | 162 | 868 | 1,190 | 451 | 348 | 691 | 290 | 412 |
| 1925 | 231 | 258 | 185 | 147 | 160 | 212 | 454 | 309 | 605 | 171 | 253 | 381 | 280 |
| 1926 | 444 | 289 | 189 | 151 | 137 | 176 | 773 | 876 | 567 | 305 | 593 | 648 | 429 |
| 1927 | 572 | 552 | 395 | 303 | 256 | 695 | 829 | 832 | 515 | 667 | 223 | 191 | 504 |
| 1928 | 494 | 349 | 286 | 272 | 238 | 334 | 1,180 | 1,250 | 477 | 456 | 567 | 1,120 | 567 |
| 1929 | 1,020 | 547 | 385 | 282 | 260 | 502 | 1,721 | 856 | 682 | 608 | 247 | 254 | 638 |
| 1930 | 320 | 380 | 240 | 211 | 248 | 318 | 672 | 595 | 459 | 226 | 109 | 119 | 324 |
| 1931 | 213 | 201 | 147 | 135 | 138 | 156 | 325 | 276 | 343 | 119 | 198 | 275 | 210 |
| 1932 | 350 | 625 | 360 | 306 | 254 | 242 | 774 | 801 | 271 | 185 | 213 | 241 | 385 |
| 1933 | 163 | 308 | 179 | 156 | 144 | 161 | 918 | 1,070 | 504 | 153 | 80 | 148 | 330 |
| 1934 | 202 | 220 | 193 | 175 | 145 | 143 | 880 | 778 | 243 | 117 | 93.6 | 336 | 294 |
| 1935 | 405 | 605 | 377 | 245 | 231 | 568 | 978 | 631 | 788 | 462 | 377 | 262 | 494 |
| 1936 | 345 | 357 | 237 | 205 | 155 | 307 | 850 | 1,055 | 323 | 137 | 242 | 327 | 379 |
| 1937 | 370 | 259 | 218 | 220 | 188 | 214 | 1,035 | 906 | 305 | 140 | 102 | 174 | 344 |
| 1938 | 287 | 270 | 160 | 142 | 155 | 576 | 1,212 | 1,153 | 830 | 819 | 760 | 649 | 586 |
| 1939 | 534 | 664 | 377 | 473 | 336 | 490 | 1,477 | 927 | 1,424 | 512 | 366 | 269 | 654 |
| 1940 | 333 | 285 | 255 | 179 | 198 | 190 | 798 | 1,157 | 865 | 564 | 455 | 289 | 464 |
| 1941 | 285 | 533 | 314 | 279 | 239 | 207 | 990 | 416 | 243 | 169 | 229 | 1,079 | 414 |
| 1942 | 780 | 630 | 401 | 230 | 228 | 312 | 993 | 965 | 742 | 969 | 409 | 762 | 620 |
| 1943 | 627 | 583 | 365 | 334 | 306 | 334 | 1,252 | 746 | 1,220 | 477 | 384 | 289 | 576 |
| 1944 | 299 | 441 | 197 | 191 | 185 | 188 | 450 | 892 | 698 | 199 | 121 | 248 | 342 |
| 1945 | 241 | 308 | 164 | 124 | 132 | 697 | 884 | 642 | 707 | 342 | 204 | 339 | 399 |
| 1946 | 350 | 694 | 221 | 314 | 251 | 704 | 505 | 410 | 768 | 395 | 193 | 258 | 422 |
| 1947 | 281 | 461 | 214 | 175 | 166 | 175 | 921 | 836 | 495 | 328 | 192 | 194 | 359 |
| 1948 | 191 | 290 | 178 | 150 | 115 | 282 | 642 | 325 | 190 | 137 | 120 | 124 | 228 |
| 1949 | 100 | 314 | 198 | 127 | 123 | 158 | 510 | 440 | 252 | 515 | 146 | 295 | 265 |
| 1950 | 247 | 256 | 182 | 166 | 147 | 175 | 879 | 1,410 | 454 | 274 | 255 | 159 | 385 |

| Monthly and yearly runoff, in inches, of Pine River at Pine River powerplant, near Florence, Wis. | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1924 | 0.45 | 0.46 | 0.42 | 0.35 | 0.31 | 0.35 | 1.84 | 2.60 | 0.95 | 0.76 | 1.51 | 0.61 | 10.61 |
| 1925 | .50 | .55 | .40 | .32 | .32 | .46 | .96 | .67 | 1.28 | .57 | .55 | .81 | 7.19 |
| 1926 | .97 | .61 | .41 | .33 | .27 | .38 | 1.63 | 1.91 | 1.20 | .67 | 1.29 | 1.37 | 11.04 |
| 1927 | 1.25 | 1.17 | .86 | .66 | .51 | 1.52 | 1.75 | 1.82 | 1.09 | 1.46 | .49 | .40 | 12.98 |
| 1928 | 1.06 | .74 | .63 | .59 | .49 | .73 | 2.50 | 2.72 | 1.01 | 1.00 | .80 | 2.36 | 14.63 |
| 1929 | 2.22 | 1.16 | .84 | .62 | .53 | 1.10 | 3.67 | 2.43 | 1.44 | 1.32 | .54 | .54 | 16.41 |
| 1930 | .70 | .80 | .52 | .46 | .49 | .70 | 1.42 | 1.30 | .97 | .49 | .24 | .25 | 8.34 |
| 1931 | .46 | .42 | .32 | .29 | .27 | .34 | .69 | .60 | .72 | .26 | .43 | .58 | 5.38 |
| 1932 | .76 | 1.32 | .79 | .67 | .52 | .53 | 1.64 | 1.75 | .57 | .40 | .46 | .51 | 9.92 |
| 1933 | .36 | .65 | .39 | .34 | .28 | .35 | 1.94 | 2.33 | 1.07 | .29 | .18 | .31 | 8.49 |
| 1934 | .44 | .46 | .42 | .38 | .29 | .31 | 1.86 | 1.70 | .51 | .25 | .20 | .71 | 7.53 |
| 1935 | .89 | 1.28 | .82 | .53 | .46 | 1.24 | 2.07 | 1.38 | 1.66 | 1.01 | .82 | .55 | 12.71 |
| 1936 | .75 | .75 | .52 | .45 | .32 | .67 | 1.80 | 2.30 | .68 | .30 | .53 | .69 | 9.76 |
| 1937 | .81 | .55 | .48 | .48 | .37 | .47 | 2.19 | 1.98 | .64 | .51 | .22 | .37 | 8.87 |
| 1938 | .63 | .57 | .35 | .31 | .31 | 1.26 | 2.56 | 2.52 | 1.75 | 1.79 | 1.66 | 1.37 | 15.08 |
| 1939 | 1.17 | 1.40 | .82 | 1.03 | .66 | 1.07 | 3.12 | 2.02 | 3.01 | 1.12 | .80 | .57 | 16.79 |
| 1940 | .73 | .60 | .56 | .39 | .40 | .41 | 1.69 | 2.53 | 1.83 | 1.23 | .99 | .61 | 11.97 |
| 1941 | .62 | 1.13 | .69 | .61 | .47 | .45 | 2.09 | .91 | .51 | .57 | .50 | 2.28 | 10.63 |
| 1942 | 1.70 | 1.33 | .88 | .50 | .45 | .68 | 2.10 | 2.11 | 1.57 | 2.12 | .89 | 1.61 | 15.94 |
| 1943 | 1.37 | 1.23 | .80 | .73 | .60 | .73 | 2.65 | 1.63 | 2.58 | 1.04 | .84 | .61 | 14.81 |
| 1944 | .65 | .93 | .43 | .42 | .38 | .41 | .95 | 1.95 | 1.48 | .43 | .26 | .52 | 8.81 |
| 1945 | .53 | .65 | .36 | .27 | .26 | 1.52 | 1.87 | 1.40 | 1.49 | .75 | .45 | .72 | 10.27 |
| 1946 | .77 | 1.47 | .48 | .68 | .50 | 1.54 | 1.07 | .90 | 1.62 | .86 | .42 | .55 | 10.86 |
| 1947 | .61 | .97 | .47 | .38 | .33 | .33 | 1.95 | 1.83 | 1.05 | .72 | .42 | .39 | 9.50 |
| 1948 | .42 | .61 | .39 | .33 | .24 | .62 | 1.36 | .71 | .40 | .50 | .26 | .26 | 5.90 |
| 1949 | .22 | .66 | .43 | .28 | .24 | .35 | 1.08 | .96 | .53 | 1.12 | .32 | .62 | 6.81 |
| 1950 | .54 | .54 | .40 | .36 | .29 | .38 | 1.86 | 3.08 | .96 | .60 | .56 | .34 | 9.91 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | | |
|--|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|--|--|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | | | |
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | | |
| | | Discharge | Date | | | | | | | | | |
| 1924 | 584 | 1,870 | May 11, 1924 | 0 | 412 | 0.780 | 10.61 | 416 | 10.73 | | | |
| 1925 | 604 | 1,520 | June 5, 1925 | 49 | 280 | .530 | 7.19 | 501 | 7.73 | | | |
| 1926 | 624 | 1,840 | May 3, 1926 | 0 | 429 | .812 | 11.04 | 480 | 12.33 | | | |
| 1927 | 644 | 1,740 | Mar. 18, 1927 | 0 | 504 | .955 | 12.98 | 471 | 12.13 | | | |
| 1928 | 664 | 2,730 | May 5, 1928 | 87 | 567 | 1.07 | 14.63 | 637 | 16.42 | | | |
| 1929 | 684 | 4,380 | Apr. 9, 1929 | 59 | 638 | 1.21 | 16.41 | 552 | 14.21 | | | |
| 1930 | 699 | 1,220 | Apr. 19, 1930 | 0 | 324 | .614 | 8.34 | 293 | 7.52 | | | |
| 1931 | 714 | 819 | Sept. 28, 1931 | 0 | 210 | .398 | 5.38 | 275 | 7.05 | | | |
| 1932 | 729 | 1,380 | May 11, 1932 | 56 | 385 | .729 | 9.92 | 328 | 8.45 | | | |
| 1933 | 744 | 2,070 | May 19, 1933 | 0 | 330 | .625 | 8.49 | 327 | 8.41 | | | |
| 1934 | 759 | 1,600 | May 3, 1934 | 10 | 294 | .557 | 7.53 | 358 | 9.20 | | | |
| 1935 | 784 | 1,490 | June 2, 1935 | 84 | 494 | .936 | 12.71 | 457 | 11.74 | | | |
| 1936 | 804 | 1,960 | May 8, 1936 | 2 | 379 | .718 | 9.76 | 371 | 9.58 | | | |
| 1937 | 824 | 2,110 | Apr. 27, 1937 | 38 | 344 | .652 | 8.87 | 333 | 8.58 | | | |
| 1938 | 854 | 2,590 | Mar. 31, 1938 | 27 | 586 | 1.11 | 15.08 | 658 | 16.92 | | | |
| 1939 | 874 | 2,380 | Apr. 26, 1939 | 163 | 654 | 1.24 | 16.79 | 595 | 15.29 | | | |
| 1940 | 894 | 1,910 | May 22, 1940 | 0 | 464 | .879 | 11.97 | 486 | 12.52 | | | |
| 1941 | 924 | 2,160 | Sept. 1, 1941 | 50 | 414 | .784 | 10.63 | 471 | 12.10 | | | |
| 1942 | 954 | 3,230 | July 18, 1942 | 117 | 620 | 1.17 | 15.94 | 600 | 15.43 | | | |
| 1943 | 974 | 2,410 | June 18, 1943 | 140 | 576 | 1.09 | 14.81 | 522 | 13.42 | | | |
| 1944 | 1004 | 1,460 | May 15, 1944 | 28 | 342 | .648 | 8.81 | 323 | 8.54 | | | |
| 1945 | 1034 | 1,680 | Mar. 28, 1945 | 33 | 399 | .756 | 10.27 | 445 | 11.45 | | | |
| 1946 | 1054 | 1,830 | June 27, 1946 | 52 | 422 | .799 | 10.86 | 396 | 10.19 | | | |
| 1947 | 1084 | 1,440 | May 3, 1947 | 35 | 369 | .699 | 9.50 | 344 | 8.87 | | | |
| 1948 | 1114 | 866 | Apr. 28, 1948 | 13 | 228 | .432 | 5.90 | 224 | 5.79 | | | |
| 1949 | 1144 | 1,460 | July 7, 1949 | 45 | 265 | .502 | 6.81 | 271 | 6.98 | | | |
| 1950 | 1174 | 2,900 | May 9, 1950 | 41 | 385 | .729 | 9.91 | - | - | | | |

80. Menominee River near Iron Mountain, Mich.^{1/}

Location.--Lat 45°47'10", long. 88°05'00", in NE¹/₄ sec. 11, T. 38 N., R. 19 E., Wisconsin meridian, at Homestead highway bridge, 3¹/₂ miles south of Iron Mountain, and 5 miles downstream from Pine River.

Drainage area.--2,420 sq mi, approximately. Prior to 1902, 2,432 sq mi, approximately.

Gage.--Chain gage. Sept. 4, 1902, to Nov. 18, 1904, staff gage at same site and datum. Altitude of gage is 1,040 ft (from topographic map). Prior to September 1902, record furnished at site 6 miles downstream.

Extremes.--1898-99, 1902-14: Maximum discharge, 15,200 cfs Apr. 21, 1906 (gage height, 14.4 ft, from graph based on gage readings); maximum gage height, 14.8 ft May 17, 1907, from graph based on gage readings; minimum daily discharge, 498 cfs Aug. 2, 1898.

Remarks.--No large reservoirs above station, but occasionally extreme regulation occurred from operation of logging dams upstream.

^{1/} Published as "at Lower Quinnesec Falls" prior to 1902.

Monthly and yearly mean discharge, in cubic feet per second,
of Menominee River near Iron Mountain, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1898 | - | - | - | - | - | - | - | - | 2,459 | 1,439 | 2,282 | 2,566 | - |
| 1899 | 3,248 | - | - | - | - | - | - | - | 3,476 | 1,819 | - | - | - |
| 1903 | 1,596 | 2,829 | 1,909 | - | - | - | 5,175 | 7,496 | 3,417 | 3,553 | 4,049 | 5,091 | - |
| 1904 | 4,057 | 2,505 | 2,150 | - | - | - | 3,995 | 7,879 | 4,791 | 2,196 | 2,125 | 2,488 | - |
| 1905 | 3,650 | 2,293 | 1,858 | - | - | - | 5,282 | 6,810 | 5,011 | 3,850 | 2,130 | 3,284 | - |
| 1906 | 2,163 | 2,204 | 2,085 | - | - | - | 8,040 | 5,610 | 5,040 | 3,500 | 2,400 | 2,160 | - |
| 1907 | - | - | - | - | - | - | 5,780 | 9,750 | 3,980 | 2,360 | 1,480 | 2,290 | - |
| 1908 | 2,210 | 1,680 | 1,320 | 1,100 | 1,000 | 1,000 | 5,710 | 5,250 | 2,870 | 1,900 | 1,370 | 1,100 | 2,209 |
| 1909 | 1,690 | 1,350 | 1,530 | 900 | 800 | 1,100 | - | - | - | 2,740 | 1,920 | 1,580 | - |
| 1910 | 1,400 | 3,270 | 2,480 | 1,000 | 800 | 2,260 | 3,710 | 3,030 | 1,840 | 1,220 | 1,410 | 1,170 | 1,969 |
| 1911 | 1,420 | 1,080 | 850 | 850 | 1,000 | 1,500 | 3,870 | 4,940 | 2,180 | 1,690 | 3,570 | 1,870 | 2,076 |
| 1912 | 3,410 | 2,300 | 2,560 | - | - | - | 5,400 | 6,430 | 3,030 | 1,550 | 3,440 | 2,640 | - |
| 1913 | 2,140 | 1,550 | 1,870 | - | - | - | 6,430 | 5,070 | 3,610 | 2,420 | 1,670 | 2,220 | - |
| 1914 | 2,430 | 2,170 | 1,960 | 1,130 | 938 | 849 | 3,010 | 6,750 | 4,380 | 3,640 | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1898 | - | - | - | - | - | - | - | - | 1.13 | .68 | 1.08 | 1.17 | - |
| 1899 | 1.54 | - | - | - | - | - | - | - | 1.60 | .86 | - | - | - |
| 1903 | .76 | 1.30 | 0.91 | - | - | - | 2.39 | 3.57 | 1.58 | 1.69 | 1.93 | 2.35 | - |
| 1904 | 1.93 | 1.15 | 1.02 | - | - | - | 1.84 | 3.75 | 2.21 | 1.05 | 1.01 | 1.15 | - |
| 1905 | 1.74 | 1.08 | .88 | - | - | - | 2.43 | 3.24 | 2.31 | 1.83 | 1.01 | 1.51 | - |
| 1906 | 1.03 | 1.02 | .99 | - | - | - | 3.70 | 2.68 | 2.32 | 1.67 | 1.14 | 1.00 | - |
| 1907 | - | - | - | - | - | - | 2.67 | 4.65 | 1.83 | 1.12 | .71 | 1.06 | - |
| 1908 | 1.05 | .77 | .63 | 0.52 | 0.45 | 0.48 | 2.63 | 2.50 | 1.33 | .90 | .65 | .51 | 12.42 |
| 1909 | .80 | .62 | .73 | .43 | .34 | .52 | - | - | - | 1.30 | .91 | .73 | - |
| 1910 | .67 | 1.51 | 1.18 | .48 | .37 | 1.08 | 1.71 | 1.44 | .85 | .58 | .67 | .54 | 11.08 |
| 1911 | .68 | .50 | .40 | .40 | .43 | .71 | 1.78 | 2.35 | 1.01 | .80 | 1.71 | .86 | 11.63 |
| 1912 | 1.63 | 1.08 | 1.22 | - | - | - | 2.49 | 3.07 | 1.40 | .74 | 1.64 | 1.22 | - |
| 1913 | 1.02 | .71 | .89 | - | - | - | 2.97 | 2.42 | 1.66 | 1.15 | .80 | 1.02 | - |
| 1914 | 1.15 | 1.00 | .93 | .54 | .40 | .40 | 1.38 | 3.22 | 2.02 | 1.73 | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1898 | 83 | - | - | - | - | - | - | - | - |
| 1899 | 83 | - | - | - | - | - | - | - | - |
| 1902 | 129, 156 | - | - | - | - | - | - | - | - |
| 1903 | 129, 156 | *13,000 | May 29, 1903 | - | - | - | - | - | - |
| 1904 | 129, 156 | *12,200 | May 10, 1904 | - | - | - | - | - | - |
| 1905 | 156, 170 | *11,400 | June 19, 1905 | - | - | - | - | - | - |
| 1906 | 206 | *15,200 | Apr. 21, 1906 | - | - | - | - | - | - |
| 1907 | 244 | *15,100 | May 17, 1907 | - | - | - | - | - | - |
| 1908 | 244 | *12,800 | Apr. 28, 1908 | - | 2,209 | 0.913 | 12.42 | 2,160 | 12.12 |
| 1909 | 264 | *8,950 | July 25, 1909 | - | - | - | - | - | - |
| 1910 | 284 | *6,400 | May 22, 1910 | - | 1,969 | .814 | 11.08 | 1,652 | 9.30 |
| 1911 | 304 | *10,900 | May 23, 1911 | - | 2,076 | .858 | 11.63 | 2,490 | 13.96 |
| 1912 | 324 | *10,400 | May 7, 1912 | - | - | - | - | - | - |
| 1913 | 354 | *12,000 | Apr. 24, 1913 | - | - | - | - | 2,714 | 15.22 |
| 1914 | 384 | *11,800 | May 2, 1914 | - | - | - | - | - | - |

* Revised.

Note.--Records for periods January to March 1906, January to March 1912, and January to March 1913, published in Water-Supply Papers 206, 324, and 354, have been found to be in error. Those records are not published herein and should not be used.

81. Menominee River near Pembine, Wis.

Location--Lat 45°35'25", long. 87°46'35", in sec. 21, T. 37 N., R. 28 W., Michigan meridian, 700 ft upstream from Pemene Creek, 4 miles west of Nathan, Mich., 15 miles southeast of Pembine, and at mile 65.3.

Drainage area--3,240 sq mi, approximately.

Gage--Water-stage recorder. Altitude of gage is 745 ft (from river-profile map).

Extremes--1949-50: Maximum discharge, 20,500 cfs May 10 (gage height, 11.60 ft); minimum, 1,220 cfs Sept. 16 (gage height, 2.22 ft).

Remarks--Flow regulated by powerplants, by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Ford (capacity, 33,000 acre-ft), and by other reservoirs upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1950 | *1,844 | *1,936 | 1,879 | 2,003 | 2,013 | 2,094 | 6,492 | 9,039 | 3,503 | 2,345 | 2,308 | 1,706 | *3,102 |

* Not previously published; estimated on basis of generation at Chalk Hills powerplant.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|--------------|-------------|--------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1950 | 1174 | 20,500 | May 10, 1950 | *1,360 | *3,102 | - | - | - | - |

* Not previously published.

82. Pike River at Amberg, Wis.

Location--Lat 45°29'50", long. 87°59'40", in SW¹/₄ sec. 15, T. 35 N., R. 20 E., 500 ft upstream from Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, 0.2 mile south of Amberg, and 1.2 miles downstream from confluence of North and South Branches.

Drainage area--253 sq mi, approximately.

Gage--Water-stage recorder. Altitude of gage is 865 ft above mean sea level (from survey level line along railroad). Prior to May 23, 1931, chain gage at railroad bridge at datum 1 ft higher. May 23, 1931, to Aug. 4, 1934, chain gage at highway bridge three-quarters of a mile downstream at different datum. Aug. 5, 1934, to Oct. 6, 1946, staff gage in present well at present datum.

Average discharge--36 years (1914-50), 224 cfs.

Extremes--1915-50: Maximum discharge, 2,800 cfs (revised) Apr. 10, 1922 (gage height, 7.8 ft, site and datum then in use, from graph based on gage readings), from rating curve extended above 1,100 cfs; minimum observed, 26 cfs Dec. 27, 1925 (gage height, 1.30 ft, site and datum then in use).

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1914 | - | - | - | - | - | 165 | 358 | 351 | 298 | 525 | 565 | 321 | - |
| 1915 | 221 | 189 | 145 | 135 | 150 | 157 | 489 | 394 | 322 | 251 | 242 | 162 | 238 |
| 1916 | 206 | 351 | 279 | 178 | 159 | 181 | 714 | 416 | 699 | 355 | 246 | 362 | 344 |
| 1917 | 394 | 358 | 242 | 150 | 142 | 308 | 547 | 376 | 492 | 222 | 256 | 184 | 306 |
| 1918 | 205 | 191 | 95.5 | 114 | 115 | 305 | 515 | 485 | 501 | 164 | 263 | 230 | 232 |
| 1919 | 229 | 278 | 227 | 188 | 148 | 398 | 558 | 351 | 319 | 159 | 142 | 128 | 261 |
| 1920 | 201 | 422 | 194 | 163 | 165 | 449 | 420 | 275 | 374 | 222 | 192 | 181 | 272 |
| 1921 | 158 | 171 | 189 | 141 | 127 | 503 | 604 | 407 | 237 | 149 | 176 | 165 | 253 |
| 1922 | 158 | 161 | 156 | 92.4 | 94.9 | 201 | 1,020 | 422 | 311 | 268 | 162 | 226 | 272 |
| 1923 | 167 | 208 | 149 | 117 | 116 | 127 | 572 | 369 | 337 | 193 | 122 | 142 | 218 |
| 1924 | 134 | 134 | 131 | 101 | 117 | 118 | 517 | 532 | 288 | 221 | 284 | 168 | 229 |
| 1925 | 153 | 173 | 104 | 108 | 113 | 163 | 283 | 181 | 241 | 98.7 | 127 | 112 | 155 |
| 1926 | 162 | 126 | 119 | 101 | 85.0 | 166 | 473 | 300 | 241 | 118 | 271 | 253 | 203 |
| 1927 | 236 | 274 | 283 | 163 | 147 | 425 | 329 | 342 | 188 | 223 | 114 | 104 | 236 |
| 1928 | 194 | 160 | 183 | 147 | 96.1 | 179 | 617 | 341 | 230 | 175 | 169 | 366 | 238 |
| 1929 | 370 | 301 | 296 | 201 | 166 | 411 | 658 | 402 | 292 | 213 | 157 | *166 | *303 |
| 1930 | 154 | 192 | 135 | 154 | 171 | 237 | 325 | 279 | 197 | 132 | 86.7 | 97.8 | 178 |
| 1931 | *123 | *149 | 124 | 106 | 102 | 117 | 188 | 190 | *164 | 100 | 106 | *133 | *133 |
| 1932 | 158 | 263 | 192 | 134 | 154 | 210 | 534 | 335 | 155 | 114 | 101 | 100 | 209 |
| 1933 | 106 | 191 | 144 | 108 | 100 | 213 | 478 | 381 | 371 | 123 | 101 | 108 | 202 |
| 1934 | 135 | 150 | 145 | 109 | 92.2 | 104 | 531 | 229 | 120 | 93.8 | 80.3 | 128 | 159 |
| 1935 | 132 | 279 | 230 | 156 | 149 | 369 | 376 | 268 | *265 | 191 | *152 | *144 | *226 |
| 1936 | 149 | 195 | 141 | 133 | 112 | 242 | 394 | 332 | 145 | 101 | 121 | 131 | 183 |
| 1937 | 151 | 140 | 127 | 135 | 123 | 200 | 571 | 320 | 150 | 111 | 95.6 | 95.1 | 185 |
| 1938 | 136 | 146 | 113 | 108 | 120 | *361 | *505 | 453 | 286 | 267 | 160 | 207 | *239 |
| 1939 | 203 | 217 | 216 | 215 | 157 | 295 | 647 | 395 | 568 | 199 | 168 | 154 | 286 |
| 1940 | 160 | 162 | 155 | 123 | 125 | 136 | 395 | 399 | 339 | 199 | 219 | 149 | 213 |
| 1941 | 161 | 311 | 199 | 180 | 168 | 190 | 476 | 212 | 145 | 110 | 132 | 452 | 227 |
| 1942 | 454 | 379 | 260 | 205 | 194 | 307 | 519 | 394 | 322 | 252 | 157 | 262 | 309 |
| 1943 | 260 | 358 | 192 | 186 | 187 | 203 | 608 | 337 | 463 | 198 | 169 | 152 | 267 |
| 1944 | 176 | 234 | 124 | 125 | 123 | 128 | 254 | 349 | 266 | 114 | 94.5 | 120 | 176 |
| 1945 | 112 | 149 | 119 | 95.8 | 102 | 360 | 371 | 314 | 337 | 174 | 119 | 160 | 201 |
| 1946 | 133 | 306 | 148 | 184 | 137 | 366 | 227 | 218 | 271 | 169 | 127 | 124 | 201 |
| 1947 | 138 | 209 | 131 | 122 | 111 | 123 | 440 | 299 | 221 | 208 | 142 | 117 | 188 |
| 1948 | 119 | 180 | 127 | 109 | 78.1 | 220 | 273 | 190 | 111 | 90.2 | 91.8 | 89.1 | 140 |
| 1949 | 83.2 | 202 | 155 | 118 | 111 | 183 | 245 | 185 | 192 | 225 | 111 | 113 | 160 |
| 1950 | 140 | 174 | 136 | 127 | 110 | 153 | 610 | 504 | 245 | 163 | 123 | 114 | 217 |

* Revised.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1914 | - | - | - | - | - | 0.75 | 1.49 | 1.60 | 1.32 | 2.39 | 1.66 | 1.41 | - |
| 1915 | 1.01 | 0.83 | 0.66 | 0.62 | 0.62 | .72 | 2.16 | 1.80 | 1.42 | 1.14 | 1.10 | .71 | 12.79 |
| 1916 | .94 | 1.55 | 1.27 | .81 | .68 | .82 | 3.15 | 1.90 | 3.08 | 1.62 | 1.12 | 1.59 | 18.53 |
| 1917 | 1.80 | 1.58 | 1.10 | .68 | .58 | 1.40 | 2.41 | 1.71 | 2.17 | 1.01 | 1.17 | .81 | 16.42 |
| 1918 | .33 | .84 | .45 | .52 | .47 | 1.39 | 1.39 | 2.21 | 1.35 | .75 | 1.20 | 1.01 | 12.47 |
| 1919 | 1.04 | 1.23 | 1.04 | .86 | .71 | 1.81 | 2.46 | 1.60 | 1.41 | .72 | .65 | .57 | 14.00 |
| 1920 | .96 | 1.86 | .88 | .74 | .70 | 2.05 | 1.85 | 1.25 | 1.65 | 1.01 | .87 | .80 | 14.62 |
| 1921 | .71 | .75 | .86 | .64 | .52 | 2.29 | 2.67 | 1.86 | 1.05 | .68 | .80 | .73 | 13.56 |
| 1922 | .72 | .71 | .71 | .42 | .39 | .91 | 4.48 | 1.92 | 1.37 | 1.22 | .74 | 1.00 | 14.59 |
| 1923 | .76 | .92 | .68 | .54 | .48 | .58 | 2.52 | 1.68 | 1.49 | .88 | .56 | .83 | 11.72 |
| 1924 | .61 | .59 | .60 | .46 | .50 | .54 | 2.28 | 2.43 | 1.27 | 1.01 | 1.29 | .74 | 12.32 |
| 1925 | .70 | .76 | .47 | .49 | .47 | .74 | 1.25 | .82 | 1.06 | .45 | .58 | .50 | 8.29 |
| 1926 | .83 | .55 | .54 | .46 | .35 | .76 | 2.09 | 1.37 | 1.06 | .54 | 1.24 | 1.11 | 10.90 |
| 1927 | 1.07 | 1.21 | 1.29 | .74 | .60 | 1.94 | 1.45 | 1.56 | .83 | 1.02 | .52 | .46 | 12.69 |
| 1928 | .88 | .71 | .83 | .67 | .42 | .82 | 2.72 | 1.55 | 1.01 | .80 | .77 | 1.61 | 12.79 |
| 1929 | 1.68 | 1.33 | 1.35 | .91 | .68 | 1.87 | 2.90 | 1.83 | 1.29 | .97 | .71 | *.73 | *16.25 |
| 1930 | .70 | .85 | .62 | .61 | .70 | 1.08 | 1.43 | 1.27 | .87 | .60 | .40 | .43 | 9.56 |
| 1931 | *.56 | *.66 | .56 | .48 | .42 | .53 | .83 | .87 | *.72 | .46 | .48 | *.59 | *7.16 |
| 1932 | .72 | 1.16 | .88 | .88 | .66 | .96 | 2.35 | 1.53 | .69 | .52 | .46 | .44 | 11.24 |
| 1933 | .48 | .84 | .65 | .49 | .41 | .97 | 2.11 | 1.74 | 1.64 | .56 | .46 | .48 | 10.83 |
| 1934 | .62 | .66 | .66 | .50 | .38 | .47 | 2.34 | 1.05 | .53 | .43 | .37 | .56 | 8.57 |
| 1935 | .60 | 1.23 | 1.05 | .71 | .61 | 1.68 | 1.66 | 1.22 | *1.17 | .87 | *.69 | *.64 | *12.13 |

* Revised.

Monthly and yearly runoff, in inches, of Pike River at Amberg, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1936 | 0.68 | 0.86 | 0.64 | 0.60 | 0.48 | 1.10 | 1.74 | 1.51 | 0.64 | 0.46 | 0.55 | 0.58 | 9.84 |
| 1937 | .89 | .62 | .58 | .62 | .51 | .91 | 2.52 | 1.46 | .66 | .50 | .44 | .45 | 9.94 |
| 1938 | .62 | .65 | .51 | .49 | .50 | *1.64 | *2.23 | 2.06 | 1.26 | 1.21 | .73 | .91 | *12.81 |
| 1939 | .93 | .96 | .98 | .98 | .64 | 1.35 | 2.65 | 1.80 | 2.51 | .91 | .77 | .68 | 15.36 |
| 1940 | .73 | .71 | .70 | .56 | .53 | .62 | 1.74 | 1.82 | 1.50 | .91 | 1.00 | .66 | 11.48 |
| 1941 | .74 | 1.37 | .91 | .82 | .69 | .86 | 2.10 | .97 | .64 | .50 | .60 | 1.99 | 12.19 |
| 1942 | 2.07 | 1.67 | 1.19 | .93 | .80 | 1.40 | 2.29 | 1.79 | 1.42 | 1.15 | .72 | 1.16 | 16.59 |
| 1943 | 1.18 | 1.14 | .86 | .85 | .77 | .92 | 2.67 | 1.54 | 2.04 | .90 | .77 | .67 | 14.33 |
| 1944 | .80 | 1.03 | .57 | .57 | .53 | .59 | 1.12 | 1.59 | 1.17 | .52 | .43 | .85 | 9.45 |
| 1945 | .51 | .66 | .54 | .44 | .42 | 1.64 | 1.64 | 1.43 | 1.49 | .79 | .54 | .71 | 10.81 |
| 1946 | .61 | 1.35 | .68 | .84 | .56 | 1.67 | 1.00 | .99 | 1.20 | .77 | .58 | .55 | 10.80 |
| 1947 | .63 | .92 | .60 | .56 | .46 | .56 | 1.94 | 1.36 | .98 | .95 | .84 | .52 | 10.12 |
| 1948 | .54 | .79 | .58 | .50 | .33 | 1.00 | 1.20 | .87 | .49 | .41 | .42 | .39 | 7.52 |
| 1949 | .38 | .89 | .71 | .54 | .46 | .83 | 1.08 | .84 | .85 | 1.02 | .51 | .50 | 8.61 |
| 1950 | .64 | .77 | .62 | .58 | .45 | .70 | 2.69 | 2.30 | 1.08 | .74 | .56 | .50 | 11.63 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 384 | *1,220 | July 14, 1914 | - | - | - | - | - | - |
| 1915 | 404 | 778 | Apr. 11, 1915 | 109 | 238 | 0.941 | 12.79 | 262 | 14.05 |
| 1916 | 434 | *1,200 | June 3, 1916* | 128 | 344 | 1.36 | 18.53 | 358 | 19.25 |
| 1917 | 454 | *1,160 | June 8, 1917* | 120 | 306 | 1.21 | 16.42 | 264 | 14.14 |
| 1918 | 474 | *862 | May 28, 1918 | 70 | 232 | .917 | 12.47 | 253 | 13.58 |
| 1919 | 504 | *1,040 | Apr. 12, 1919 | 100 | 261 | 1.03 | 14.00 | 268 | 14.39 |
| 1920 | 504 | 1,450 | Mar. 27, 1920 | 118 | 272 | 1.08 | 14.62 | 248 | 13.24 |
| 1921 | 524 | *1,750 | Mar. 21, 1921 | 100 | 253 | 1.00 | 13.56 | 249 | 13.58 |
| 1922 | 544 | *2,800 | Apr. 10, 1922 | 65 | 272 | 1.08 | 14.59 | 276 | 14.81 |
| 1923 | 564 | *1,950 | Apr. 21, 1923 | 90 | 218 | .862 | 11.72 | 208 | 11.16 |
| 1924 | 584 | *1,250 | May 11, 1924 | 74 | 229 | .905 | 12.32 | 231 | 12.45 |
| 1925 | 604 | 582 | Apr. 24, 1925 | 60 | 155 | .613 | 8.29 | 154 | 8.28 |
| 1926 | 624 | *778 | Apr. 23, 1926* | 26 | 203 | .802 | 10.90 | 234 | 12.55 |
| 1927 | 699 | 1,040 | Mar. 18, 1927 | 84 | 236 | .933 | 12.69 | 215 | 11.54 |
| 1928 | 664 | *947 | Apr. 5, 1928 | 40 | 238 | .941 | 12.79 | 274 | 14.73 |
| 1929 | 684, 1337 | *1,250 | Apr. 8, 1929 | *128 | *303 | *1.20 | *16.25 | *262 | *14.06 |
| 1930 | 699 | *582 | Apr. 19, 1930 | 79 | 178 | .704 | 9.56 | *171 | *9.17 |
| 1931 | 714, 1337 | *376 | May 11, 1931* | *70 | *133 | *.526 | *7.16 | *151 | *8.10 |
| 1932 | 729 | *1,410 | Apr. 10, 1932 | 80 | 209 | .826 | 11.24 | 194 | 10.45 |
| 1933 | 744 | *1,480 | June 7, 1933 | 88 | 222 | .798 | 10.83 | 201 | 10.80 |
| 1934 | 759 | 1,160 | Apr. 10, 1934 | 70 | 159 | .628 | 8.57 | 177 | 9.51 |
| 1935 | 784, 1337 | *920 | Mar. 25, 1935 | *94 | *226 | *.893 | *12.13 | *213 | *11.43 |
| 1936 | 804 | *785 | Apr. 15, 1936 | 80 | 183 | .723 | 9.84 | 177 | 9.55 |
| 1937 | 824 | *970 | Apr. 26, 1937 | 80 | 185 | .731 | 9.94 | 183 | 9.83 |
| 1938 | 854, 1337 | *1,600 | Mar. 31, 1938* | 99 | *239 | *.945 | *12.81 | *259 | *13.90 |
| 1939 | 874 | *1,730 | June 13, 1939 | 131 | 266 | 1.13 | 15.36 | 273 | 14.83 |
| 1940 | 894 | *765 | May 21, 1940 | 115 | 213 | .842 | 11.48 | 229 | 12.36 |
| 1941 | 924 | *1,010 | Sept. 1, 1941 | 86 | 227 | .897 | 12.19 | 263 | 14.10 |
| 1942 | 954 | *875 | Apr. 6, 1942 | 132 | 309 | 1.22 | 16.59 | 277 | 14.86 |
| 1943 | 974 | *837 | Apr. 10, 1943 | 132 | 267 | 1.06 | 14.33 | 252 | 13.53 |
| 1944 | 1004 | *691 | Apr. 25, 1944* | 80 | 176 | .696 | 9.45 | 163 | 8.76 |
| 1945 | 1034 | *1,060 | Mar. 20, 1945 | 81 | 201 | .794 | 10.81 | 219 | 11.20 |
| 1946 | 1054 | *837 | Mar. 17, 1946 | 99 | 201 | .794 | 10.80 | 192 | 10.31 |
| 1947 | 1084 | 1,160 | Apr. 7, 1947 | 92 | 188 | .743 | 10.12 | 184 | 9.88 |
| 1948 | 1114 | 619 | Mar. 26, 1948 | 75 | 140 | .553 | 7.52 | 141 | 7.59 |
| 1949 | 1144 | 800 | July 5, 1949 | 73 | 160 | .632 | 8.61 | 161 | 8.66 |
| 1950 | 1174 | 1,450 | Apr. 19, 1950 | 93 | 217 | .858 | 11.63 | - | - |

* Revised.

83. Menominee River below Koss, Mich. 1/

Location.--Lat 45°21'50", long. 87°39'20", in sec. 9, T. 34 N., R. 27 W., Michigan meridian, at powerplant of Wisconsin Public Service Corp., 0.5 mile upstream from Little Cedar River, and 3.6 miles southeast from Koss.

Drainage area.--3,790 sq mi, approximately. Prior to 1913, 3,780 sq mi, approximately.

Gage.--Headwater and tailwater gages and generation data entered hourly in daily log sheet by company employees. Prior to June 1913, chain gage on railroad bridge 4 miles upstream.

Average discharge.--38 years (1908, 1913-50), 3,137 cfs.

Extremes.--1908, 1913-50: Maximum daily discharge, 23,200 cfs Apr. 23, 25, 1916; minimum daily, 162 cfs Sept. 15, 1931.

Remarks.--Daily discharge computed on basis of average daily load and load-discharge rating of combined hydroelectric units. Flow regulated by powerplants, by Michigamme Reservoir (capacity, 119,950 acre-ft) since 1940 and Peavy Pond (capacity, 33,000 acre-ft) since 1943, and by smaller reservoirs upstream.

Cooperation.--Records of daily discharge furnished by Wisconsin Public Service Corp. since July 1, 1913.

1/ Published as "at Koss" prior to 1913.

| Monthly and yearly mean discharge, in cubic feet per second, of Menominee River below Koss, Mich. | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1907 | - | - | - | - | - | - | - | - | - | 3,220 | 2,170 | 4,240 | - |
| 1908 | 2,860 | 2,430 | 2,350 | 1,980 | 1,800 | 1,800 | 7,050 | 7,920 | 5,040 | 3,740 | 2,100 | 1,440 | 3,377 |
| 1909 | 2,200 | 1,880 | 2,270 | 1,560 | 1,310 | 1,920 | - | - | - | - | - | - | - |
| 1913 | - | - | - | - | - | - | - | - | - | 3,530 | 2,280 | 2,800 | - |
| 1914 | 3,350 | 3,200 | 2,380 | 1,790 | 1,390 | 1,630 | 5,100 | 8,070 | 2,980 | 5,400 | 3,760 | 3,400 | 3,550 |
| 1915 | 2,410 | 2,410 | 1,980 | 1,580 | 1,700 | 1,950 | 6,000 | 6,530 | 4,610 | 3,980 | 3,080 | 2,500 | 3,230 |
| 1916 | 4,240 | 5,150 | 3,240 | 2,180 | 1,930 | 1,880 | 13,600 | 8,660 | 10,800 | 4,310 | 2,710 | 4,610 | 5,260 |
| 1917 | 4,920 | 5,800 | 3,010 | 2,050 | 1,810 | 2,160 | 8,040 | 7,950 | 7,190 | 3,290 | 2,940 | 2,890 | 4,320 |
| 1918 | 3,210 | 2,870 | 1,660 | 1,540 | 1,440 | 3,550 | 4,140 | 6,480 | 5,020 | 2,180 | 2,730 | 3,100 | 3,170 |
| 1919 | 3,510 | 4,590 | 2,650 | 2,650 | 2,040 | 4,320 | 9,340 | 5,590 | 3,940 | 2,340 | 1,590 | 1,580 | 3,760 |
| 1920 | 2,370 | 5,030 | 2,080 | 1,680 | 1,550 | 4,600 | 9,510 | 5,320 | 3,890 | 4,160 | 2,360 | 1,560 | 3,710 |
| 1921 | 1,650 | 1,900 | 2,350 | 1,860 | 1,480 | 3,950 | 9,650 | 6,990 | 2,900 | 1,690 | 1,650 | 2,090 | 3,180 |
| 1922 | 1,960 | 1,540 | 1,620 | 1,350 | 1,220 | 2,590 | 12,600 | 6,990 | 4,490 | 4,100 | 1,910 | 2,800 | 3,600 |
| 1923 | 1,700 | 2,190 | 1,680 | 1,530 | 1,350 | 1,520 | 6,930 | 5,920 | 4,520 | 2,920 | 1,510 | 1,980 | 2,800 |
| 1924 | 1,450 | 1,540 | 1,460 | 1,130 | 1,230 | 1,300 | 5,460 | 7,290 | 2,490 | 2,080 | 3,030 | 1,880 | 2,530 |
| 1925 | 1,840 | 1,620 | 1,540 | 1,210 | 1,210 | 1,510 | 2,970 | 2,230 | 2,370 | 1,250 | 1,090 | 1,480 | 1,670 |
| 1926 | 2,190 | 1,620 | 1,290 | 989 | 864 | 1,250 | 4,970 | 4,800 | 3,360 | 2,120 | 2,780 | 3,820 | 2,510 |
| 1927 | 3,650 | 3,420 | 2,650 | 2,230 | 1,960 | 5,430 | 5,610 | 5,970 | 3,340 | 3,940 | 1,830 | 1,460 | 3,450 |
| 1928 | 2,330 | 2,130 | 1,970 | 1,960 | 1,610 | 2,660 | 8,830 | 8,160 | 3,340 | 3,120 | 2,650 | 5,540 | 3,690 |
| 1929 | 6,180 | 3,950 | 2,840 | 2,160 | 2,240 | 3,670 | 9,700 | 4,940 | 3,540 | 3,490 | 1,800 | 1,740 | 3,860 |
| 1930 | 2,150 | 2,450 | 1,870 | 1,670 | 1,750 | 2,390 | 5,360 | 5,490 | 3,940 | 2,280 | 970 | 1,010 | 2,610 |
| 1931 | 1,470 | 1,490 | 1,170 | 1,110 | 1,130 | 1,400 | 2,830 | 2,620 | 2,420 | 1,490 | 1,080 | 1,500 | 1,640 |
| 1932 | 2,090 | 3,950 | 2,790 | 2,330 | 1,920 | 2,430 | 6,240 | 5,230 | 2,110 | 1,730 | 1,670 | 2,200 | 2,860 |
| 1933 | 1,170 | 2,500 | 1,570 | 1,410 | 1,210 | 4,400 | 7,290 | 6,850 | 3,330 | 1,180 | 765 | 1,010 | 2,470 |
| 1934 | 1,336 | 1,513 | 1,594 | 1,367 | 1,230 | 1,199 | 6,262 | 5,319 | 1,751 | 1,111 | 731 | 2,126 | 2,110 |
| 1935 | 2,457 | 3,981 | 2,930 | 1,882 | 1,782 | 4,287 | 7,215 | 4,638 | 3,831 | 2,432 | 1,838 | 1,593 | 3,241 |
| 1936 | 1,893 | 2,059 | 1,618 | 1,422 | 1,127 | 2,180 | 6,077 | 7,548 | 2,349 | 1,230 | 1,292 | 1,824 | 2,554 |
| 1937 | 1,738 | 1,657 | 1,445 | 1,808 | 1,616 | 1,994 | 7,027 | 6,051 | 2,097 | 1,274 | 1,153 | 1,210 | 2,423 |
| 1938 | 1,948 | 2,220 | 1,460 | 1,223 | 1,349 | 4,538 | 9,779 | 7,200 | 5,027 | 3,787 | 3,174 | 2,972 | 3,729 |
| 1939 | 2,833 | 4,029 | 2,468 | 2,693 | 2,111 | 3,033 | 12,373 | 7,780 | 6,701 | 3,292 | 2,144 | 1,911 | 4,294 |
| 1940 | 1,953 | 1,896 | 1,722 | 1,393 | 1,494 | 1,533 | 4,847 | 8,774 | 5,055 | 3,153 | 2,467 | 1,797 | 3,011 |
| 1941 | 1,693 | 3,326 | 2,263 | 2,083 | 1,838 | 1,756 | 5,587 | 2,891 | 2,208 | 1,661 | 1,628 | 5,350 | 2,682 |
| 1942 | 5,654 | 4,996 | 3,514 | 2,643 | 2,560 | 3,298 | 8,760 | 5,905 | 4,963 | 4,120 | 2,606 | 3,994 | 4,255 |
| 1943 | 4,535 | 3,843 | 2,726 | 2,817 | 3,004 | 2,844 | 9,015 | 7,189 | 8,666 | 3,546 | 2,810 | 2,727 | 4,435 |
| 1944 | 2,236 | 2,685 | 1,672 | 1,805 | 1,825 | 1,914 | 3,061 | 5,452 | 5,222 | 2,152 | 1,628 | 1,927 | 2,638 |
| 1945 | 2,053 | 2,263 | 1,918 | 1,734 | 1,841 | 4,761 | 6,722 | 4,896 | 5,127 | 2,785 | 1,809 | 2,998 | 3,204 |
| 1946 | 2,597 | 4,405 | 2,412 | 2,692 | 2,465 | 5,277 | 3,729 | 3,010 | 4,654 | 3,160 | 2,195 | 2,064 | 3,222 |
| 1947 | 1,998 | 2,707 | 2,004 | 1,907 | 1,872 | 2,120 | 5,557 | 5,775 | 3,636 | 2,546 | 1,958 | 1,861 | 2,830 |
| 1948 | 1,800 | 2,093 | 1,662 | 1,735 | 1,251 | 2,560 | 3,623 | 2,905 | 1,712 | 1,468 | 1,615 | 1,398 | 1,988 |
| 1949 | 1,231 | 1,980 | 1,737 | 1,620 | 1,691 | 2,028 | 3,095 | 2,990 | 2,187 | 3,611 | 1,824 | 2,020 | 2,170 |
| 1950 | 2,011 | 2,042 | 2,070 | 2,087 | 2,034 | 2,156 | 7,017 | 6,567 | 3,554 | 2,444 | 2,321 | 1,730 | 3,174 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1907 | - | - | - | - | - | - | - | - | - | 0.98 | 0.66 | 1.25 | - |
| 1908 | 0.87 | 0.72 | 0.72 | 0.60 | 0.51 | 0.55 | 2.09 | 2.42 | 1.48 | 1.14 | .64 | .43 | 12.17 |
| 1909 | .67 | .55 | .69 | .48 | .36 | .59 | - | - | - | - | - | - | - |
| 1913 | - | - | - | - | - | - | - | - | - | 1.07 | .69 | .82 | - |
| 1914 | 1.02 | .94 | .72 | .54 | .38 | .50 | 1.51 | 2.46 | .88 | 1.64 | 1.14 | 1.00 | 12.73 |
| 1915 | .73 | .71 | .60 | .48 | .47 | .59 | 1.76 | 1.98 | 1.36 | 1.18 | .94 | .76 | 11.56 |
| 1916 | 1.29 | 1.52 | .99 | .66 | .55 | .57 | 4.00 | 2.63 | 3.18 | 1.51 | .82 | 1.36 | 18.86 |
| 1917 | 1.50 | 1.65 | .92 | .62 | .50 | .66 | 2.36 | 2.42 | 2.12 | 1.00 | .89 | .65 | 15.49 |
| 1918 | .98 | .84 | .50 | .47 | .40 | .08 | 1.22 | 1.97 | 1.47 | .87 | .83 | .91 | 11.44 |
| 1919 | 1.07 | 1.35 | 1.09 | .81 | .56 | 1.31 | 2.74 | 1.70 | 1.16 | .71 | .48 | .47 | 13.45 |
| 1920 | .72 | 1.48 | .63 | .51 | .44 | 1.40 | 2.80 | 1.61 | 1.15 | 1.27 | .73 | .58 | 13.32 |
| 1921 | .50 | .56 | .71 | .57 | .41 | 1.20 | 2.84 | 2.12 | .85 | .51 | .50 | .61 | 11.38 |
| 1922 | .60 | .45 | .49 | .41 | .34 | .79 | 3.70 | 2.12 | 1.32 | 1.24 | .58 | .82 | 12.86 |
| 1923 | .52 | .64 | .51 | .47 | .37 | .46 | 2.04 | 1.78 | 1.33 | .89 | .46 | .55 | 10.02 |
| 1924 | .44 | .45 | .44 | .34 | .35 | .40 | 1.61 | 2.21 | .73 | .63 | .92 | .55 | 9.07 |
| 1925 | .56 | .48 | .41 | .37 | .33 | .46 | .87 | .68 | .70 | .58 | .33 | .44 | 6.01 |
| 1926 | .67 | .48 | .39 | .30 | .24 | .38 | 1.46 | 1.46 | .99 | .64 | .85 | 1.13 | 8.99 |
| 1927 | 1.11 | 1.01 | .80 | .68 | .54 | 1.65 | 1.65 | 1.79 | .98 | 1.16 | .56 | .43 | 12.36 |
| 1928 | .71 | .63 | .60 | .60 | .46 | .81 | 2.60 | 2.48 | .98 | .95 | .61 | 1.63 | 13.26 |
| 1929 | 1.88 | 1.16 | .86 | .66 | .62 | 1.12 | 2.86 | 1.50 | 1.04 | 1.06 | .55 | .51 | 13.82 |
| 1930 | .65 | .72 | .57 | .51 | .48 | .73 | 1.57 | 1.67 | 1.16 | .69 | .30 | .30 | 9.35 |
| 1931 | .45 | .44 | .36 | .34 | .31 | .43 | .83 | .80 | .71 | .45 | .33 | .44 | 5.89 |
| 1932 | .64 | 1.16 | .85 | .71 | .56 | .65 | 1.84 | 1.59 | .62 | .53 | .51 | .65 | 10.30 |
| 1933 | .36 | .74 | .48 | .43 | .33 | .43 | 2.14 | 2.09 | .98 | .36 | .23 | .30 | 8.87 |
| 1934 | .41 | .45 | .42 | .42 | .34 | .36 | 1.84 | 1.61 | .52 | .34 | .22 | .63 | 7.56 |
| 1935 | .75 | 1.17 | .89 | .57 | .49 | 1.30 | 2.12 | 1.41 | 1.13 | .74 | .56 | .47 | 11.60 |
| 1936 | .58 | .61 | .49 | .43 | .32 | .66 | 1.78 | 2.29 | .69 | .37 | .39 | .54 | 9.15 |
| 1937 | .53 | .49 | .44 | .55 | .44 | .61 | 2.68 | 1.84 | .62 | .39 | .35 | .38 | 9.69 |
| 1938 | .59 | .65 | .44 | .37 | .37 | 1.39 | 2.88 | 2.19 | 1.49 | 1.15 | .96 | .87 | 13.33 |
| 1939 | .86 | 1.18 | .75 | .88 | .58 | .92 | 3.64 | 2.36 | 1.98 | 1.00 | .65 | .56 | 15.36 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|-------|------------------|---------------|------------------|
| Year | W.S.F. no. | Water year ending Sept. 30 | | | | | | | | | | Calendar year | |
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | Mean | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | | | |
| 1907 | 244 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1908 | 244 | 14,600 | May 1, 1908 | - | - | 3,377 | 0.893 | 12.17 | 3,270 | 11.77 | - | - | - |
| 1909 | 264 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1913 | 384 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1914 | 384 | 20,800 | May 3, 1914 | 1,000 | 3,550 | .937 | 12.73 | 3,370 | 12.09 | - | - | - | - |
| 1915 | 404 | 8,650 | Apr. 13, 1915 | 1,170 | 3,230 | .852 | 11.56 | 3,720 | 13.32 | - | - | - | - |

Yearly discharge, in cubic feet per second, of Menominee River below Koss, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 434 | 23,200 | Apr. 23, 1916 | 1,390 | 5,260 | 1.39 | 18.88 | 5,340 | 19.15 |
| 1917 | 434 | 15,800 | Apr. 24, 1917 | 1,550 | 4,320 | 1.14 | 15.49 | 3,840 | 13.74 |
| 1918 | 474 | 15,000 | May 30, 1918 | 1,160 | 3,170 | .836 | 11.34 | 3,500 | 12.53 |
| 1919 | 504 | 14,100 | Apr. 14, 1919 | 1,170 | 3,760 | .992 | 13.45 | 3,570 | 12.77 |
| 1920 | 504 | 21,800 | Mar. 29, 1920 | 1,200 | 3,710 | .979 | 13.32 | 3,410 | 12.26 |
| 1921 | 524 | 20,300 | Apr. 30, 1921 | 960 | 3,180 | .839 | 11.38 | 3,120 | 11.15 |
| 1922 | 544 | 20,500 | Apr. 12, 1922 | 926 | 3,600 | .950 | 12.86 | 3,640 | 12.99 |
| 1923 | 564 | 18,700 | Apr. 23, 1923 | 938 | 2,800 | .739 | 10.02 | 2,700 | 9.68 |
| 1924 | 584 | 11,800 | May 11, 1924 | 764 | 2,530 | .668 | 9.07 | 2,560 | 9.19 |
| 1925 | 604 | 4,310 | Apr. 29, 1925 | 752 | 1,670 | .441 | 6.01 | 1,700 | 6.10 |
| 1926 | 624 | 10,900 | Apr. 27, 1926 | 706 | 2,510 | .662 | 8.99 | 2,900 | 10.37 |
| 1927 | 644 | 13,500 | Mar. 20, 1927 | 995 | 3,450 | .910 | 12.36 | 3,180 | 11.38 |
| 1928 | 664 | 16,900 | May 8, 1928 | 1,080 | 3,690 | .974 | 13.26 | 4,240 | 15.22 |
| 1929 | 684 | 19,700 | Apr. 11, 1929 | 775 | 3,860 | 1.02 | 13.82 | 3,310 | 11.86 |
| 1930 | 699 | 9,580 | Apr. 21, 1930 | 524 | 2,610 | .689 | 9.35 | 2,420 | 8.66 |
| 1931 | 714 | 4,060 | Apr. 25, 1931 | 162 | 1,640 | .433 | 5.89 | 2,030 | 7.29 |
| 1932 | 729 | 11,100 | Apr. 12, 1932 | 220 | 2,860 | .755 | 10.30 | 2,560 | 9.23 |
| 1933 | 744 | 14,700 | Apr. 23, 1933 | 289 | 2,470 | .652 | 8.87 | 2,390 | 8.57 |
| 1934 | 759 | 13,400 | Apr. 11, 1934 | 336 | 2,110 | .557 | 7.56 | 2,538 | 9.09 |
| 1935 | 784 | 13,600 | Mar. 28, 1935 | 720 | 3,241 | .855 | 11.60 | 2,923 | 10.47 |
| 1936 | 804 | 13,000 | May 9, 1936 | 575 | 2,554 | .674 | 9.15 | 2,493 | 8.93 |
| 1937 | 824 | 13,800 | Apr. 29, 1937 | 400 | 2,423 | .639 | 8.68 | 2,488 | 8.90 |
| 1938 | 854 | 20,700 | Apr. 2, 1938 | 795 | 3,729 | .984 | 13.33 | 4,039 | 14.44 |
| 1939 | 874 | 16,900 | May 30, 1939 | 1,010 | 4,294 | 1.13 | 15.36 | 3,980 | - |
| 1940 | 894 | 13,700 | May 24, 1940 | 949 | 3,011 | - | - | 3,152 | - |
| 1941 | 1034 | 9,180 | Sept. 2, 1941 | 960 | 2,682 | - | - | 3,262 | - |
| 1942 | 1064 | 10,800 | Apr. 19, 1942 | 1,820 | 4,255 | - | - | 3,998 | - |
| 1943 | 1054 | 18,900 | June 20, 1943 | 1,650 | 4,435 | - | - | 4,072 | - |
| 1944 | 1054 | 6,580 | May 16, 1944 | 882 | 2,638 | - | - | 2,594 | - |
| 1945 | 1054 | 10,800 | Mar. 23, 1945 | 1,200 | 3,204 | - | - | 3,466 | - |
| 1946 | 1054 | 10,900 | Mar. 19, 1946 | 1,460 | 3,222 | - | - | 2,997 | - |
| 1947 | 1084 | 8,870 | May 4, 1947 | 1,080 | 2,830 | - | - | 2,733 | - |
| 1948 | 1114 | 6,720 | Mar. 30, 1948 | 832 | 1,988 | - | - | 1,937 | - |
| 1949 | 1144 | 8,420 | July 10, 1949 | 840 | 2,170 | - | - | 2,270 | - |
| 1950 | 1174 | 16,900 | May 11, 1950 | 1,150 | 3,174 | - | - | - | - |

84. Menominee River near McAllister, Wis.

Location--Lat 45°19'20", long. 87°39'40", in sec. 17, T. 33 N., R. 23 E., on right bank 400 ft above highway bridge, 2½ miles downstream from Little Cedar River, 2.9 miles east of McAllister, 14.5 miles east of Wausaukee, and at mile 22.3.

Drainage area--4,020 sq mi, approximately.

Gage--Water-stage recorder. Altitude of gage is 630 ft (from river-profile map). Prior to May 15, 1945, wire-weight gage.

Average discharge--5 years (1945-50), 2,876 cfs.

Extremes--1945-50: Maximum discharge, 21,600 cfs May 11, 1950 (gage height, 16.70 ft); minimum observed, 538 cfs Oct. 6, 1946 (gage height, 7.29 ft).

Remarks--Flow regulated by powerplants, by Michigamme Reservoir (capacity, 119,950 acre-ft) and Peavy Pond (capacity, 33,000 acre-ft) above station, and by other reservoirs upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|----------|
| 1945 | - | - | - | - | - | - | 7,691 | 5,551 | 5,870 | 3,005 | 1,960 | 2,651 | - |
| 1946 | 2,777 | 5,057 | 2,650 | 2,873 | 2,640 | 5,648 | 4,108 | 3,198 | 5,133 | 3,453 | 2,259 | 2,072 | 3,489 |
| 1947 | 1,927 | 2,739 | 1,988 | 1,887 | 1,868 | 2,126 | 6,999 | 6,736 | 3,785 | 2,545 | 1,873 | 1,729 | 3,018 |
| 1948 | 1,700 | 2,009 | 1,673 | 1,735 | 1,245 | 2,740 | 4,673 | 3,415 | 1,733 | 1,478 | 1,599 | 1,402 | 2,118 |
| 1949 | 1,195 | 2,052 | 1,818 | 1,621 | 1,696 | 2,132 | 3,464 | 3,283 | 2,307 | 4,058 | 1,785 | 1,984 | 2,286 |
| 1950 | 2,015 | 2,116 | 2,115 | 2,095 | 2,025 | 2,152 | 7,962 | 10,461 | 3,975 | 2,513 | 2,391 | 1,745 | 3,470 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches |
| | | Discharge | Date | | | | |
| 1945 | 1034 | 11,700 | June 4, 1945 | - | - | - | - |
| 1946 | 1054 | 12,800 | June 28, 1946 | 1,440 | 3,489 | - | 3,171 |
| 1947 | 1084 | 11,400 | Apr. 7, 1947 | 1,220 | 3,018 | - | 2,912 |
| 1948 | 1114 | 9,240 | Apr. 29, 1948 | 918 | 2,118 | - | 2,091 |
| 1949 | 1144 | 10,800 | July 8, 1949 | 810 | 2,286 | - | 2,386 |
| 1950 | 1174 | 21,600 | May 11, 1950 | 1,240 | 3,470 | - | - |

85. Peshtigo River at High Falls, near Crivitz, Wis.

Location.--Lat 45°16'50", long. 88°12'00", in sec. 1, T. 32 N., R. 18 E., at High Falls powerhouse of Wisconsin Public Service Corp., one mile above Thunder River and 10 miles west of Crivitz.

Drainage area.--554 sq mi (revised), approximately.

Gage.--Headwater and tailwater gages and generation data entered hourly in daily log sheet by company employees. Altitude of tailwater gage is 810 ft (from river-profile map). Prior to Sept. 30, 1922, water-stage recorder at site half a mile downstream at different datum.

Average discharge.--38 years (1912-50), 481 cfs.

Extremes.--1912-50: Maximum daily discharge, 3,670 cfs Apr. 11, 1922; no flow on several days during 1925, 1928, 1929, 1932, 1933.

Remarks.--Flow regulated by storage in High Falls service pond, which has an area of 1,750 acres, and by Caldron Falls service pond, which has an area of 1,212 acres.

Cooperation.--Since 1923, records furnished by Wisconsin Public Service Corp.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|-------|-------|-------|------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1912 | - | - | - | - | - | - | - | - | - | - | \$830 | 790 | - |
| 1913 | 473 | 383 | 494 | 362 | 307 | 518 | 1,510 | 1,100 | 812 | 614 | 422 | 512 | 626 |
| 1914 | 555 | 492 | 374 | 342 | 337 | 338 | 604 | 910 | 712 | 828 | 772 | 659 | 578 |
| 1915 | 418 | 396 | 413 | 303 | 282 | 369 | 759 | 764 | 555 | 509 | 563 | 474 | 485 |
| 1916 | 372 | 487 | 420 | 271 | 213 | 462 | 1,360 | 1,270 | 1,640 | 794 | 545 | 680 | 708 |
| 1917 | 731 | 754 | 479 | 252 | 356 | 491 | 814 | 867 | 1,190 | 547 | 553 | 466 | 626 |
| 1918 | 359 | 402 | 356 | 265 | 253 | 461 | 632 | 925 | 903 | 427 | 499 | 550 | 503 |
| 1919 | 420 | 602 | 408 | 325 | 333 | 553 | 1,260 | 756 | 619 | 501 | 338 | 335 | 538 |
| 1920 | 340 | 764 | 339 | 325 | 272 | 611 | 913 | 672 | 753 | 479 | 436 | 421 | 526 |
| 1921 | 313 | 321 | 262 | 327 | 382 | 736 | 1,370 | 1,010 | 547 | 348 | 315 | 407 | 528 |
| 1922 | 315 | 251 | 260 | 250 | 297 | 605 | 1,930 | 963 | 533 | 524 | 325 | 500 | 562 |
| 1923 | 295 | 309 | 270 | 227 | 221 | 387 | 872 | 859 | 899 | 458 | 235 | 303 | 445 |
| 1924 | 262 | 233 | 207 | 208 | 186 | 363 | 1,140 | 1,410 | 578 | 388 | 645 | 350 | 498 |
| 1925 | 235 | 209 | 152 | 176 | 201 | 322 | 442 | 305 | 524 | 212 | 239 | 242 | 271 |
| 1926 | 350 | 216 | 180 | 138 | 158 | 511 | 629 | 892 | 662 | 293 | 550 | 593 | 432 |
| 1927 | 550 | 477 | 389 | 333 | 342 | 777 | 729 | 675 | 479 | 568 | 339 | 547 | 502 |
| 1928 | 482 | 368 | 369 | 324 | 329 | 574 | 1,330 | 949 | 579 | 563 | 564 | 1,020 | 620 |
| 1929 | 887 | 625 | 521 | 501 | 509 | 761 | 1,440 | 867 | 645 | 569 | 465 | 430 | 685 |
| 1930 | 380 | 537 | 466 | 394 | 476 | 638 | 722 | 659 | 624 | 384 | 370 | 299 | 495 |
| 1931 | 233 | 272 | 220 | 187 | 228 | 257 | 332 | 347 | 361 | 160 | 177 | 308 | 256 |
| 1932 | 274 | 502 | 399 | 323 | 266 | 370 | 777 | 699 | 355 | 118 | 167 | 248 | 374 |
| 1933 | 232 | 260 | 271 | 209 | 205 | 298 | 782 | 847 | 680 | 164 | 121 | 192 | 355 |
| 1934 | 97.1 | 240 | 231 | 167 | 292 | 318 | 654 | 578 | 275 | 138 | 102 | 213 | 275 |
| 1935 | 362 | 626 | 581 | 284 | 432 | 510 | 987 | 635 | 589 | 374 | 316 | 287 | 480 |
| 1936 | 288 | 369 | 294 | 243 | 221 | 474 | 776 | 863 | 332 | 136 | 240 | 306 | 379 |
| 1937 | 317 | 261 | 238 | 247 | 257 | 379 | 1,161 | 886 | 418 | 121 | 218 | 138 | 387 |
| 1938 | 325 | 289 | 176 | 186 | 245 | 724 | 1,211 | 1,189 | 755 | 605 | 399 | 603 | 560 |
| 1939 | 400 | 562 | 339 | 494 | 287 | 533 | 1,471 | 937 | 1,392 | 481 | 408 | 352 | 638 |
| 1940 | 314 | 326 | 294 | 241 | 173 | 356 | 726 | 1,063 | 1,023 | 478 | 446 | 323 | 481 |
| 1941 | 299 | 640 | 343 | 309 | 304 | 271 | 1,151 | 455 | 438 | 249 | 176 | 1,004 | 467 |
| 1942 | 913 | 744 | 436 | 275 | 287 | 465 | 1,219 | 1,113 | 946 | 584 | 356 | 732 | 680 |
| 1943 | 643 | 597 | 390 | 321 | 357 | 350 | 1,440 | 789 | 1,396 | 511 | 407 | 346 | 627 |
| 1944 | 341 | 514 | 231 | 232 | 226 | 262 | 500 | 1,075 | 787 | 167 | 159 | 256 | 396 |
| 1945 | 266 | 310 | 215 | 106 | 183 | 819 | 978 | 734 | 801 | 367 | 237 | 368 | 449 |
| 1946 | 316 | 863 | 277 | 400 | 302 | 897 | 491 | 438 | 952 | 430 | 168 | 255 | 482 |
| 1947 | 269 | 487 | 264 | 221 | 243 | 272 | 865 | 733 | 497 | 293 | 214 | 196 | 379 |
| 1948 | 158 | 289 | 225 | 162 | 157 | 440 | 640 | 400 | 141 | 212 | 201 | 104 | 261 |
| 1949 | 80.2 | 400 | 267 | 121 | 144 | 294 | 538 | 422 | 291 | 630 | 246 | 138 | 297 |
| 1950 | 276 | 279 | 231 | 187 | 191 | 332 | 1,068 | 1,333 | 424 | 298 | 207 | 195 | 420 |

* Not previously published; partly estimated.

Note.--Records for period 1941-50 not previously published.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|------|----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Maximum day | | Minimum day | Mean | Per square mie | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 404 | - | - | - | - | - | - | - | - |
| 1913 | 404 | 2,480 | Apr. 21, 1913 | 222 | 626 | - | - | 632 | - |
| 1914 | 404 | 2,070 | May 2, 1914 | 140 | 578 | - | - | 562 | - |
| 1915 | 404 | 1,310 | Apr. 12, 1915 | 98 | 485 | - | - | 489 | - |
| 1916 | 434 | 2,850 | June 5, 1916 | 72 | 708 | - | - | 765 | - |
| 1917 | 454 | 2,590 | June 9, 1917 | 104 | 626 | - | - | 555 | - |
| 1918 | 474 | 2,140 | May 31, 1918 | 110 | 503 | - | - | 530 | - |
| 1919 | 504 | 2,290 | Apr. 12, 1919 | 55 | 538 | - | - | 538 | - |
| 1920 | 504 | 1,830 | Apr. 3, 1920 | 51 | 526 | - | - | 481 | - |
| 1921 | 524 | 3,430 | Apr. 29, 1921 | 65 | 528 | - | - | 522 | - |
| 1922 | 544 | 3,670 | Apr. 11, 1922 | 56 | 562 | - | - | 566 | - |
| 1923 | 564 | 2,330 | Apr. 26, 1923 | 51 | 445 | - | - | 430 | - |
| 1924 | 584 | 2,430 | May 15, 1924 | 51 | 498 | - | - | 489 | - |
| 1925 | 604 | 1,200 | Apr. 28, May 6 | 0 | 271 | - | - | 284 | - |

Yearly discharge, in cubic feet per second, of Peshtigo River
at High Falls, near Crivitz, Wis.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | 1,980 | Apr. 27, 1926 | 50 | 432 | - | - | 489 | - |
| 1927 | 644 | 1,790 | Mar. 21, 1927 | 12 | 502 | - | - | 485 | - |
| 1928 | 664 | 2,510 | Sept. 15, 1928 | 0 | 620 | - | - | 689 | - |
| 1929 | 684 | 3,580 | Apr. 9, 1929 | 2 | 685 | - | - | 630 | - |
| 1930 | 699 | 1,440 | Aug. 20, 1930 | 0 | 495 | - | - | 440 | - |
| 1931 | 714 | 905 | Nov. 20, 1930 | 2 | 256 | - | - | 294 | - |
| 1932 | 729 | 1,270 | Apr. 12, 13, 1932 | 0 | 374 | - | - | 340 | - |
| 1933 | 744 | 1,470 | Apr. 21, 1933 | 0 | 355 | - | - | 338 | - |
| 1934 | 759 | 1,320 | Apr. 16, 1934 | 7 | 275 | - | - | 341 | - |
| 1935 | 784 | 1,410 | Apr. 1, 1935 | 7 | 480 | - | - | 446 | - |
| 1936 | 804 | 1,550 | May 9, 1936 | 7 | 379 | - | - | 368 | - |
| 1937 | 824 | 2,500 | Apr. 26, 1937 | 7 | 387 | - | - | 384 | - |
| 1938 | 854 | 3,430 | Mar. 31, 1938 | 7 | 560 | - | - | 602 | - |
| 1939 | 874 | 2,520 | May 29, 1939 | 7 | 638 | - | - | 607 | - |
| 1940 | 894 | 1,760 | June 11, 1940 | 7 | 491 | - | - | 509 | - |
| 1941 | - | 2,030 | Apr. 17, 1941 | 7 | 467 | - | - | 536 | - |
| 1942 | - | 2,060 | Apr. 6, 1942 | 7 | 680 | - | - | 640 | - |
| 1943 | - | 2,160 | June 20, 1943 | 7 | 627 | - | - | 582 | - |
| 1944 | - | 1,720 | May 16, 17, 1944 | 7 | 396 | - | - | 371 | - |
| 1945 | - | 2,190 | Mar. 24, 1945 | 7 | 449 | - | - | 504 | - |
| 1946 | - | 2,280 | Mar. 20, 1946 | 7 | 492 | - | - | 446 | - |
| 1947 | - | 1,690 | Apr. 12, 1947 | 7 | 379 | - | - | 350 | - |
| 1948 | - | 1,550 | Mar. 27, 1948 | 7 | 261 | - | - | 265 | - |
| 1949 | - | 1,820 | July 8, 9, 1949 | 7 | 297 | - | - | 302 | - |
| 1950 | - | 2,850 | May 8, 1950 | 7 | 420 | - | - | - | - |

Note.--Records for period 1941-50 not previously published.

86. Oconto River near Gillett, Wis.

Location.--Lat 44°52', long. 88°18', in sec. 34, T. 28 N., R. 18 E., on left bank just upstream from highway bridge, 2 miles upstream from Christy Brook, 2 miles south of Gillett, and at mile 29.

Drainage area.--678 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 735 ft (from river-profile map). Prior to March 1909, chain gage on bridge at datum 4.0 ft lower. Jan. 6, 1914, to Aug. 24, 1938, chain gage on bridge at present datum.

Average discharge.--39 years (1906-8, 1913-50), 589 cfs.

Extremes.--1906-8, 1913-50: Maximum discharge, 8,400 cfs Apr. 10, 1922 (gage height, 11.2 ft, from floodmarks), caused by failure of dam at Pulcifer, 4 miles above station; minimum, 93 cfs Nov. 26, 1941 (gage height, 0.13 ft), flow retarded by anchor ice above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|-------|-------|-------|-------|-------|------|-------|----------|
| 1906 | - | - | - | - | - | - | - | - | 817 | 504 | 501 | 570 | - |
| 1907 | 682 | 957 | 890 | 700 | 640 | 1,150 | 1,160 | 1,230 | 844 | 520 | 291 | 682 | 813 |
| 1908 | 474 | 476 | 331 | 317 | 337 | 486 | 1,050 | 1,450 | 575 | 733 | 261 | 285 | 568 |
| 1909 | 347 | 364 | 275 | 293 | 269 | 331 | - | - | - | - | - | - | - |
| 1914 | 809 | 860 | 454 | 423 | 327 | 440 | 848 | 1,140 | 813 | 936 | 623 | 627 | 877 |
| 1915 | 539 | 520 | 492 | 354 | 400 | 550 | 1,270 | 1,050 | 979 | 563 | 646 | 746 | 675 |
| 1916 | 518 | 823 | 563 | 358 | 320 | 515 | 1,970 | 1,290 | 1,740 | 716 | 527 | 688 | 834 |
| 1917 | 795 | 1,010 | 564 | 361 | 347 | 724 | 1,580 | 986 | 1,230 | 659 | 561 | 516 | 778 |
| 1918 | 490 | 527 | 301 | 311 | 266 | 800 | 873 | 1,579 | 942 | 504 | 480 | 498 | 632 |
| 1919 | 491 | 763 | 634 | 454 | 353 | 973 | 1,570 | 1,120 | 1,050 | 653 | 544 | 429 | 753 |
| 1920 | 546 | 1,190 | 497 | 449 | 475 | 1,120 | 1,320 | 724 | 685 | 476 | 367 | 405 | 687 |
| 1921 | 436 | 532 | 425 | 421 | 378 | 1,040 | 1,440 | 1,130 | 456 | 368 | 421 | 569 | 636 |
| 1922 | 471 | 420 | 445 | 347 | 349 | 986 | 3,435 | 1,110 | 869 | 1,020 | 506 | 572 | 878 |
| 1923 | 461 | 577 | 450 | 308 | 318 | 388 | 1,860 | 940 | 952 | 475 | 333 | 393 | 621 |
| 1924 | 379 | 361 | 389 | 289 | 304 | 337 | 1,870 | 1,820 | 624 | 499 | 536 | 409 | 635 |
| 1925 | 406 | 423 | 333 | 267 | 354 | 478 | 645 | 417 | 577 | 300 | 285 | 287 | 397 |
| 1926 | 401 | 352 | 441 | 206 | 234 | 298 | 1,278 | 754 | 666 | 358 | 518 | 720 | 519 |
| 1927 | 679 | 657 | 461 | 394 | 396 | 1,150 | 917 | 798 | 476 | 397 | 321 | 321 | 582 |
| 1928 | 499 | 508 | 242 | 221 | 346 | 1,230 | 1,400 | 813 | 415 | 425 | 719 | 1,350 | 679 |
| 1929 | 1,160 | 755 | 705 | 470 | 445 | 1,410 | 2,550 | 1,020 | 773 | 779 | 371 | 345 | 900 |
| 1930 | 395 | 482 | 405 | 351 | 413 | 606 | 711 | 563 | 482 | 305 | 219 | 202 | 427 |
| 1931 | 408 | 352 | 283 | 263 | 253 | 342 | 379 | 357 | 390 | 265 | 218 | 273 | 315 |
| 1932 | 329 | 467 | 621 | 444 | 454 | 464 | 1,210 | 641 | 346 | 254 | 227 | 235 | 473 |
| 1933 | 234 | 275 | 278 | 262 | 271 | 383 | 840 | 865 | 505 | 253 | 186 | 190 | 379 |
| 1934 | 227 | 259 | 237 | 239 | 210 | 240 | 1,092 | 438 | 252 | 263 | 158 | 257 | 322 |
| 1935 | 305 | 708 | 879 | 377 | 257 | 1,081 | 1,020 | 614 | 535 | 432 | 416 | 457 | 592 |
| 1936 | 376 | 425 | 362 | 330 | 236 | 705 | 962 | 1,020 | 414 | 273 | 344 | 412 | 489 |
| 1937 | 535 | 380 | 306 | 448 | 898 | 1,400 | 1,099 | 428 | 256 | 218 | 229 | 547 | 547 |
| 1938 | 308 | 372 | 282 | 253 | 326 | 969 | 1,506 | 1,136 | 609 | 514 | 363 | 705 | 612 |
| 1939 | 576 | 607 | 471 | 543 | 451 | 900 | 1,444 | 748 | 1,412 | 584 | 433 | 426 | 716 |
| 1940 | 471 | 452 | 434 | 326 | 330 | 349 | 804 | 815 | 924 | 444 | 471 | 383 | 517 |

* Not previously published; estimated on basis of weather records, Fox River at Berlin, and Wolf River at Keshena.

Monthly and yearly mean discharge, in cubic feet per second, of Oconto River
near Gillett, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1941 | 360 | 666 | 500 | 451 | 380 | 415 | 1,302 | 660 | 507 | 282 | 283 | 1,201 | 582 |
| 1942 | 1,216 | 1,080 | 735 | 568 | 506 | 952 | 1,409 | 1,059 | 956 | 541 | 415 | 680 | 844 |
| 1943 | 730 | 724 | 485 | 496 | 498 | 607 | 1,599 | 832 | 1,297 | 634 | 472 | 398 | 730 |
| 1944 | 477 | 539 | 364 | 340 | 361 | 417 | 631 | 816 | 768 | 316 | 258 | 310 | 466 |
| 1945 | 270 | 423 | 298 | 249 | 260 | 838 | 910 | 595 | 773 | 383 | 286 | 388 | 473 |
| 1946 | 367 | 930 | 408 | 538 | 365 | 1,253 | 619 | 504 | 604 | 490 | 268 | 298 | 555 |
| 1947 | 323 | 546 | 359 | 301 | 263 | 419 | 966 | 736 | 577 | 277 | 264 | 290 | 443 |
| 1948 | 517 | 456 | 349 | 282 | 204 | 676 | 734 | 528 | 265 | 279 | 245 | 215 | 376 |
| 1949 | 199 | 414 | 304 | 298 | 269 | 470 | 685 | 459 | 353 | 497 | 300 | 229 | 371 |
| 1950 | 284 | 323 | 292 | 281 | 240 | 416 | 1,421 | 978 | 464 | 413 | 362 | 308 | 482 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1906 | - | - | - | - | - | - | - | - | 1.35 | 0.86 | 0.85 | 0.94 | - |
| 1907 | 1.16 | 1.57 | *1.53 | *1.19 | *0.98 | *1.96 | 1.91 | 2.09 | 1.39 | .88 | .49 | 1.12 | *16.27 |
| 1908 | .81 | .78 | .56 | .54 | .54 | .83 | 1.73 | 2.47 | .95 | 1.25 | .44 | .47 | 11.37 |
| 1909 | .59 | .60 | .47 | .50 | .44 | .56 | - | - | - | - | - | - | - |
| 1914 | *1.38 | *1.09 | *.77 | *.72 | .50 | .75 | 1.40 | 1.94 | 1.34 | 1.59 | 1.06 | 1.03 | *13.57 |
| 1915 | .92 | .86 | .64 | .60 | .61 | .94 | 2.09 | 1.79 | 1.61 | .96 | 1.10 | 1.23 | 15.55 |
| 1916 | .88 | 1.35 | .96 | .61 | .51 | .88 | 3.25 | 2.19 | 2.87 | 1.22 | .90 | 1.13 | 16.75 |
| 1917 | 1.35 | 1.66 | .96 | .61 | .53 | 1.23 | 2.60 | 1.67 | 2.02 | 1.12 | .95 | .85 | 15.55 |
| 1918 | .83 | .87 | .51 | .53 | .41 | 1.36 | 1.44 | 2.68 | 1.55 | .86 | .82 | .82 | 12.68 |
| 1919 | .83 | 1.26 | 1.08 | .77 | .54 | 1.66 | 2.59 | 1.90 | 1.73 | 1.11 | .92 | .71 | 15.10 |
| 1920 | .93 | 1.95 | .84 | .76 | .76 | 1.90 | 2.18 | 1.23 | 1.13 | .81 | .62 | .67 | 13.78 |
| 1921 | .74 | .88 | .72 | .72 | .58 | 1.76 | 2.36 | 1.92 | .75 | .63 | .72 | .94 | 12.72 |
| 1922 | .80 | .69 | .76 | .59 | .54 | 1.67 | 5.66 | 1.89 | 1.43 | 1.73 | .86 | .94 | 17.56 |
| 1923 | .78 | .95 | .78 | .52 | .49 | .66 | 3.06 | 1.60 | 1.58 | .81 | .57 | .65 | 12.43 |
| 1924 | .64 | .59 | .66 | .49 | .48 | .57 | 2.74 | 3.09 | 1.03 | .85 | .91 | .67 | 12.72 |
| 1925 | .69 | .70 | .57 | .45 | .54 | .81 | 1.06 | .71 | .95 | .51 | .48 | .47 | 7.94 |
| 1926 | .68 | .58 | .75 | .35 | .36 | .51 | 2.10 | 1.28 | 1.10 | .61 | .88 | 1.18 | 10.38 |
| 1927 | 1.15 | 1.08 | .78 | .67 | .61 | 1.06 | 1.51 | 1.36 | .78 | .68 | .55 | .53 | 11.66 |
| 1928 | .85 | .84 | .41 | .39 | .55 | 2.09 | 2.30 | 1.38 | .58 | .72 | 2.22 | 15.84 | 12.26 |
| 1929 | 1.97 | 1.24 | 1.20 | .80 | .68 | 2.40 | 4.20 | 1.73 | 1.27 | 1.33 | .63 | .57 | 18.02 |
| 1930 | .67 | .79 | .69 | .60 | .63 | 1.03 | 1.17 | .96 | .79 | .52 | .37 | .33 | 8.55 |
| 1931 | .69 | .58 | .48 | .45 | .39 | .58 | .62 | .61 | .64 | .45 | .37 | .45 | 6.31 |
| 1932 | .56 | .77 | 1.06 | .76 | .72 | .79 | 1.99 | 1.09 | .57 | .43 | .39 | .39 | 9.52 |
| 1933 | .40 | .43 | .47 | .44 | .42 | .65 | 1.38 | 1.48 | .85 | .43 | .32 | .31 | 7.58 |
| 1934 | .39 | .43 | .40 | .41 | .32 | .42 | 1.80 | .74 | .42 | .45 | .27 | .42 | 5.46 |
| 1935 | .52 | 1.16 | 1.50 | .64 | .39 | 1.83 | 1.67 | 1.04 | .86 | .73 | .71 | .75 | 11.82 |
| 1936 | .64 | .70 | .62 | .56 | .38 | 1.20 | 1.58 | 1.73 | .68 | .46 | .58 | .68 | 9.81 |
| 1937 | .91 | .62 | .52 | .59 | .74 | 1.51 | 2.30 | 1.87 | .70 | .44 | .37 | .38 | 10.95 |
| 1938 | .52 | .61 | .48 | .43 | .50 | 1.65 | 2.48 | 1.94 | 1.00 | .87 | .62 | 1.16 | 12.26 |
| 1939 | .98 | 1.00 | .80 | .92 | .69 | 1.53 | 2.38 | 1.27 | 2.32 | .99 | .74 | .70 | 14.32 |
| 1940 | .80 | .74 | .74 | .55 | .53 | .59 | 1.33 | 1.38 | 1.52 | .76 | .80 | .63 | 10.37 |
| 1941 | .61 | 1.10 | .85 | .77 | .58 | .71 | 2.14 | 1.12 | .83 | .48 | .48 | 1.98 | 11.65 |
| 1942 | 2.06 | 1.77 | 1.24 | .97 | .78 | 1.61 | 2.32 | 1.80 | 1.57 | .92 | .71 | 1.12 | 16.87 |
| 1943 | 1.24 | 1.19 | .82 | .84 | .77 | 1.03 | 2.63 | 1.42 | 2.13 | 1.08 | .80 | .65 | 14.60 |
| 1944 | .81 | .89 | .62 | .58 | .57 | .71 | 1.04 | 1.38 | 1.26 | .54 | .44 | .51 | 9.35 |
| 1945 | .46 | .70 | .51 | .42 | .40 | 1.43 | 1.50 | 1.01 | 1.27 | .65 | .49 | .64 | 9.48 |
| 1946 | .62 | 1.53 | .69 | .92 | .56 | 2.13 | 1.02 | .86 | .99 | .83 | .46 | .49 | 11.10 |
| 1947 | .65 | .90 | .61 | .51 | .40 | .71 | 1.58 | 1.26 | .95 | .47 | .45 | .48 | 8.87 |
| 1948 | .54 | .75 | .59 | .43 | .32 | 1.15 | 1.20 | .90 | .44 | .44 | .42 | .35 | 7.53 |
| 1949 | .34 | .68 | .52 | .49 | .41 | .80 | 1.09 | .78 | .58 | .85 | .51 | .38 | 7.43 |
| 1950 | .48 | .53 | .50 | .48 | .37 | .71 | 2.34 | 1.66 | .76 | .70 | .62 | .51 | 9.66 |

* Not previously published; estimated on basis of weather records, Fox River at Berlin, and Wolf River at Keshena.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1906 | 206, 244 | - | - | - | - | - | - | - |
| 1907 | 244 | *2,570 | May 26, 1907 | 85 | *813 | *1.20 | *16.27 | *708 |
| 1908 | 244 | *2,700 | May 1, 1908 | 105 | 566 | .835 | 11.37 | 540 |
| 1909 | 264 | - | - | - | - | - | - | - |
| 1914 | 384 | *2,090 | May 1, 1914 | 250 | *677 | *.999 | *13.57 | *646 |
| 1915 | 404 | *1,790 | Apr. 14, June 21* | 340 | 675 | .996 | 13.55 | 704 |
| 1916 | 434 | *3,310 | Apr. 25, 1916 | 305 | 834 | 1.23 | 16.75 | 873 |
| 1917 | 454 | - | - | 305 | 778 | 1.15 | 15.55 | 690 |
| 1918 | 474 | *2,550 | May 30, 1918 | 230 | 632 | .832 | 12.68 | 680 |
| 1919 | 504 | *2,390 | Apr. 15, 1919* | 305 | 753 | 1.11 | 15.10 | 782 |
| 1920 | 504 | *3,310 | Mar. 28, 1920 | 305 | 687 | 1.01 | 13.78 | 617 |
| 1921 | 524 | *2,970 | Apr. 29, 1921* | 116 | 636 | .938 | 12.72 | 631 |
| 1922 | 544, 1207 | a8,400 | Apr. 10, 1922 | 290 | 878 | 1.29 | 17.56 | 881 |
| 1923 | 564 | *4,010 | Apr. 22, 1923* | 195 | 621 | .916 | 12.43 | 591 |
| 1924 | 584 | *3,440 | Apr. 19, 1924 | 235 | 635 | .937 | 12.72 | 638 |
| 1925 | 604 | *1,640 | June 24, 1925 | 222 | 397 | .586 | 7.94 | 400 |

* Revised.

* Not previously published.

a Caused by failure of dam at Pulcifer 4 miles upstream.

Yearly discharge, in cubic feet per second, of Oconto River near Gillett, Wis.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | *2,400 | Apr. 15, 1926 | 195 | 519 | .785 | 10.38 | 569 | 11.38 |
| 1927 | 644 | *2,400 | Mar. 16, 1927* | 246 | 582 | .858 | 11.66 | 536 | 10.75 |
| 1928 | 664 | *3,520 | Mar. 25, 1928* | 180 | 679 | 1.00 | 13.64 | 794 | 15.95 |
| 1929 | 684 | *4,490 | Apr. 9, 1929 | 262 | 900 | 1.33 | 18.02 | 787 | 15.76 |
| 1930 | 699 | *975 | Apr. 18, 1930* | 172 | 427 | .630 | 8.55 | 408 | 8.15 |
| 1931 | 714 | *761 | Oct. 9, 1930 | 190 | 315 | .465 | 6.31 | 347 | 6.95 |
| 1932 | 729 | *1,870 | Apr. 10, 1932 | 217 | 473 | .698 | 9.52 | 420 | 8.45 |
| 1933 | 744 | *1,600 | Apr. 1, 1933 | 161 | 379 | .559 | 7.58 | 373 | 7.48 |
| 1934 | 759 | - | - | 150 | 322 | .475 | 6.46 | 420 | 8.42 |
| 1935 | 784 | - | - | 226 | 592 | .873 | 11.82 | 531 | 10.60 |
| 1936 | 804 | - | - | 172 | 489 | .721 | 9.81 | 494 | * 9.90 |
| 1937 | 824 | *3,180 | Oct. 22, 1936 | 172 | 547 | .807 | 10.95 | 525 | 10.51 |
| 1938 | 854 | *3,090 | Apr. 2, 1938* | 220 | 612 | .903 | 12.26 | 670 | 13.43 |
| 1939 | 874 | - | - | 320 | 716 | 1.06 | 14.32 | 691 | 13.82 |
| 1940 | 894 | 1,540 | June 10, 1940 | 305 | 517 | .763 | 10.37 | 530 | 10.65 |
| 1941 | 924 | 1,900 | Apr. 18, 1941 | 226 | 582 | .858 | 11.65 | 709 | 14.16 |
| 1942 | 954 | 2,340 | Apr. 6, 1942 | 344 | 844 | 1.24 | 16.87 | 752 | 15.05 |
| 1943 | 974 | *4,020 | Apr. 1, 1943 | 364 | 730 | 1.08 | 14.60 | 683 | 13.67 |
| 1944 | 1004 | 1,200 | June 18, 1944 | 222 | 466 | .687 | 9.35 | 433 | 8.70 |
| 1945 | 1034 | - | - | 220 | 473 | .698 | 9.48 | 532 | 10.65 |
| 1946 | 1054 | 4,420 | Mar. 17, 1946 | 218 | 555 | .819 | 11.10 | 515 | 10.32 |
| 1947 | 1084 | 1,660 | Apr. 8, 1947 | 170 | 443 | .653 | 8.87 | 434 | 8.69 |
| 1948 | 1114 | 2,980 | Mar. 25, 1948 | 170 | 376 | .555 | 7.53 | 358 | 7.19 |
| 1949 | 1144 | 1,150 | Mar. 29, 1949 | 182 | 371 | .547 | 7.43 | 370 | 7.40 |
| 1950 | 1174 | 2,060 | Apr. 21, 1950 | 192 | 482 | .711 | 9.66 | - | - |

* Revised.

† Corrected.

87. Fox River at Berlin, Wis.

Location.--Lat 43°57'05", long. 88°57'30", in sec. 16, T. 17 N., R. 13 E., at Government lock and dam, 1.1 mile south of bridge in Berlin, $2\frac{1}{2}$ miles upstream from Barnes Creek, and at mile 33.0.

Drainage area.--1,430 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 744.52 ft above mean tide New York City (by Corps of Engineers).

Average discharge.--52 years (1898-1950), 1,109 cfs.

Extremes.--1898-1950: Maximum discharge observed, 6,900 cfs, Mar. 17, 18, 1946 (gage height, 15.5 ft); minimum observed, 248 cfs Sept. 16, 1948 (gage height, 6.1 ft).

Cooperation.--Records computed by Corps of Engineers and reviewed by Geological Survey 1898 to 1939.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|---------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|----------|
| 1898 | - | - | - | 481 | 553 | 1,860 | 1,370 | 925 | 642 | 642 | 736 | 650 | - |
| 1899 | 703 | 595 | 480 | 329 | 349 | 733 | 1,960 | 1,010 | 1,120 | 792 | 661 | 669 | 786 |
| 1900 | 716 | 630 | 533 | 339 | 375 | 856 | 1,780 | 806 | 505 | 570 | 664 | 693 | 707 |
| 1901 | 1,010 | 1,310 | 720 | 392 | 405 | 1,430 | 2,600 | 740 | 728 | 781 | 583 | 657 | 946 |
| 1902 | 811 | 705 | 521 | 344 | 336 | 1,140 | 687 | 1,440 | 1,070 | 711 | 890 | 778 | 787 |
| 1903 | 860 | 756 | 652 | 484 | 486 | 1,940 | 1,560 | 1,060 | 972 | 751 | 1,250 | 2,050 | 1,070 |
| 1904 | 1,540 | 934 | 591 | 376 | 424 | 2,090 | 3,280 | 1,910 | 994 | 723 | 772 | 833 | 1,200 |
| 1905 | 1,460 | 906 | 525 | 478 | 521 | 1,890 | 2,720 | 1,760 | 4,230 | 2,100 | 1,060 | 1,060 | †1,560 |
| 1906 | 1,040 | 1,140 | 850 | 704 | 925 | 2,800 | 3,350 | 1,340 | 1,200 | 1,300 | 984 | 923 | 1,580 |
| 1907 | 929 | 1,340 | 1,450 | 1,080 | 1,000 | 1,700 | 1,980 | 1,270 | 1,040 | 1,090 | 1,030 | 1,220 | 1,260 |
| 1908 | 1,040 | 873 | 790 | 486 | 736 | 2,690 | 1,970 | 2,140 | 1,160 | 818 | 596 | 568 | 1,160 |
| 1909 | 596 | 628 | 509 | 405 | 551 | 1,470 | 2,010 | 1,940 | 1,230 | 711 | 582 | 669 | 943 |
| 1910 | 642 | 726 | 555 | 535 | 619 | 1,810 | 1,320 | *1,239 | 634 | 470 | 485 | 691 | *812 |
| 1911 | 660 | 648 | 391 | 428 | 1,390 | 1,550 | 948 | 1,020 | 1,300 | 590 | 588 | 652 | 842 |
| 1912 | 1,560 | 1,510 | 1,340 | 720 | 696 | 1,390 | 2,500 | 1,500 | 1,620 | 998 | 1,290 | 2,540 | 1,450 |
| 1913 | 1,410 | 1,110 | 952 | 560 | 598 | 2,610 | 3,070 | 1,910 | 1,520 | 859 | 785 | 785 | 1,350 |
| 1914 | 1,060 | 1,060 | 716 | 483 | 455 | 925 | 1,020 | 1,130 | 1,670 | 844 | 651 | 960 | 915 |
| 1915 | 1,040 | 713 | 410 | 476 | 770 | 2,500 | 1,670 | 1,080 | 1,060 | 742 | 897 | 1,750 | 1,090 |
| 1916 | 1,480 | 1,550 | 1,230 | 708 | 1,080 | 2,240 | 3,230 | 2,020 | 2,160 | 841 | 847 | 866 | 1,520 |
| 1917 | 1,950 | 1,950 | 1,370 | 568 | 550 | 1,920 | 3,310 | 1,730 | 2,020 | 1,910 | 975 | 1,020 | 1,540 |
| 1918 | 974 | 1,320 | 805 | 591 | 771 | 3,470 | 2,190 | 2,410 | 1,750 | 815 | 707 | 640 | 1,370 |
| 1919 | 651 | 870 | 974 | 1,040 | 1,040 | 1,730 | 1,800 | 1,540 | 1,290 | 776 | 670 | 643 | 1,090 |
| 1920 | 933 | 1,220 | 883 | 590 | 636 | 2,360 | 2,910 | 1,330 | 1,150 | 1,180 | 701 | 865 | 1,230 |
| 1921 | 697 | 996 | 989 | 911 | 1,060 | 1,550 | 1,330 | 1,560 | 934 | 610 | 595 | 674 | 991 |
| 1922 | 741 | 822 | 1,030 | 586 | 652 | 3,900 | 3,890 | 1,700 | 1,750 | 1,140 | 853 | 977 | 1,510 |
| 1923 | 777 | 1,010 | 757 | 673 | 628 | 1,490 | 3,950 | 1,530 | 722 | 599 | 517 | 583 | †1,100 |
| 1924 | 596 | 633 | 608 | 506 | 474 | 854 | 3,150 | 2,070 | 1,160 | 982 | 2,460 | 1,650 | 1,260 |
| 1925 | 1,010 | 996 | 910 | 763 | 1,180 | 1,540 | 1,190 | 849 | 765 | 745 | 647 | 617 | 932 |
| 1926 | 770 | 818 | 812 | 654 | 727 | 1,330 | 2,400 | 1,360 | 1,330 | 628 | 704 | 943 | 1,040 |
| 1927 | 1,310 | 1,170 | 1,050 | 599 | 987 | 2,340 | 1,500 | 1,560 | 1,830 | 927 | 705 | 640 | 1,220 |
| 1928 | 1,300 | 1,310 | 919 | 873 | 1,240 | 2,900 | 2,990 | 1,160 | 727 | 819 | 813 | 1,200 | 1,340 |
| 1929 | 1,260 | 1,330 | 1,430 | 816 | 798 | 3,480 | 3,750 | 2,070 | 1,160 | 1,260 | 1,140 | 870 | 1,820 |
| 1930 | 857 | 924 | 536 | 548 | 990 | 2,030 | 1,620 | 1,110 | 1,280 | 815 | 688 | 675 | 1,010 |

* Revised.

† Corrected.

Monthly and yearly mean discharge, in cubic feet per second, of Fox River
at Berlin, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1931 | 767 | 661 | 515 | 569 | 706 | 771 | 948 | 729 | 649 | 549 | 519 | 691 | 672 |
| 1932 | 799 | 884 | 900 | 1,120 | 933 | 941 | 955 | 898 | 589 | 642 | 526 | 540 | 810 |
| 1933 | 575 | 580 | 475 | 552 | 519 | 739 | 1,940 | 1,870 | 771 | 675 | 583 | 596 | 824 |
| 1934 | 702 | 638 | 507 | 499 | 430 | 560 | 1,270 | 600 | 510 | 625 | 579 | 678 | 633 |
| 1935 | 654 | 877 | 1,034 | 551 | 614 | 2,395 | 2,044 | 1,457 | 1,131 | 913 | 1,266 | 763 | 1,147 |
| 1936 | 722 | 918 | 702 | 522 | 417 | 2,090 | 1,906 | 851 | 654 | 526 | 512 | 615 | 871 |
| 1937 | 687 | 710 | 448 | 550 | 572 | 2,453 | 1,844 | 1,538 | 812 | 615 | 588 | 598 | 953 |
| 1938 | 821 | 861 | 485 | 471 | 1,466 | 3,464 | 2,164 | 1,124 | 962 | 2,221 | 988 | 3,491 | 1,543 |
| 1939 | 2,697 | 1,632 | 1,286 | 1,631 | 1,011 | 1,946 | 2,588 | 1,134 | 732 | 538 | 621 | 627 | 1,373 |
| 1940 | 646 | 692 | 562 | 376 | 463 | 664 | 1,494 | 903 | 1,766 | 2,217 | 1,861 | 1,430 | 1,090 |
| 1941 | 904 | 1,325 | 1,380 | 1,431 | 958 | 1,150 | 3,001 | 1,285 | 922 | 598 | 510 | 702 | 1,177 |
| 1942 | 1,128 | 1,440 | 1,061 | 963 | 905 | 1,818 | 1,514 | 1,369 | 2,044 | 853 | 925 | 1,287 | 1,259 |
| 1943 | 1,050 | 1,252 | 898 | 814 | 787 | 1,665 | 3,114 | 1,277 | 2,065 | 729 | 584 | 550 | 1,229 |
| 1944 | 607 | 961 | 623 | 583 | 717 | 1,593 | 1,610 | 1,465 | 1,033 | 715 | 473 | 691 | 922 |
| 1945 | 646 | 938 | 749 | 518 | 578 | 1,887 | 1,962 | 1,200 | 2,006 | 727 | 707 | 908 | 1,069 |
| 1946 | 1,041 | 1,240 | 1,061 | 1,329 | 946 | 4,196 | 1,975 | 710 | 1,092 | 775 | 552 | 653 | 1,501 |
| 1947 | 715 | 1,005 | 769 | 709 | 665 | 1,378 | 2,633 | 1,589 | 1,774 | 1,198 | 700 | 628 | 1,147 |
| 1948 | 651 | 881 | 964 | 728 | 633 | 2,315 | 2,107 | 1,365 | 570 | 509 | 461 | 434 | 970 |
| 1949 | 499 | 744 | 631 | 596 | 581 | 1,739 | 1,800 | 688 | 519 | 599 | 491 | 446 | 778 |
| 1950 | 458 | 502 | 518 | 502 | 478 | 1,331 | 2,645 | 1,136 | 798 | 947 | 735 | 604 | 889 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1898 | - | - | - | 0.39 | 0.40 | 1.50 | 1.07 | 0.75 | 0.50 | 0.52 | 0.59 | 0.51 | - |
| 1899 | 0.57 | 0.46 | 0.43 | .27 | .25 | .59 | 1.53 | .81 | .87 | .64 | .53 | .53 | 7.44 |
| 1900 | .58 | .49 | .43 | .27 | .27 | .69 | 1.38 | .65 | .39 | .46 | .53 | .54 | 6.68 |
| 1901 | .81 | 1.02 | †.58 | .32 | .29 | 1.15 | 2.03 | .60 | .57 | .63 | .47 | .51 | 8.98 |
| 1902 | .65 | .55 | .42 | .28 | .24 | .92 | .52 | 1.16 | .83 | .57 | .72 | .61 | 7.47 |
| 1903 | .69 | .59 | .53 | .39 | .35 | 1.57 | 1.22 | .87 | .76 | .61 | 1.01 | 1.60 | 10.19 |
| 1904 | 1.24 | .73 | .47 | .30 | .32 | 1.68 | 2.54 | 1.54 | .78 | .58 | .62 | .65 | 11.45 |
| 1905 | 1.18 | .71 | .42 | .38 | .38 | 1.52 | 2.12 | 1.42 | 3.30 | 1.70 | .85 | .83 | 14.81 |
| 1906 | .84 | .89 | .68 | .57 | .67 | 2.26 | 2.61 | 1.08 | .94 | 1.05 | .79 | .72 | 13.10 |
| 1907 | .75 | 1.05 | 1.16 | .87 | .73 | 1.37 | 1.54 | 1.02 | .81 | .88 | .83 | .95 | 11.96 |
| 1908 | .84 | .68 | .64 | .59 | .58 | 2.37 | 1.54 | 1.73 | .30 | .66 | .48 | .44 | 11.03 |
| 1909 | .48 | .49 | .41 | .33 | .40 | 1.19 | 1.57 | 1.57 | .96 | .57 | .47 | .52 | 8.96 |
| 1910 | .52 | .57 | .45 | .43 | .45 | 1.46 | 1.03 | *1.00 | .49 | .38 | .39 | .54 | *7.71 |
| 1911 | .53 | .51 | .31 | .34 | 1.01 | 1.24 | .74 | .82 | 1.01 | .48 | .47 | .51 | 7.97 |
| 1912 | 1.26 | 1.02 | 1.06 | .58 | .53 | 1.12 | 1.95 | 1.21 | 1.26 | .80 | 1.04 | 1.99 | 13.84 |
| 1913 | 1.14 | .87 | .77 | .45 | .44 | 2.11 | 2.40 | 1.54 | 1.18 | .69 | .63 | .61 | 12.83 |
| 1914 | .85 | .83 | .58 | .39 | .33 | .75 | .80 | .91 | 1.30 | .68 | .52 | .75 | 8.69 |
| 1915 | .84 | .56 | .33 | .38 | .56 | 2.02 | 1.30 | .87 | .83 | .60 | .72 | 1.36 | 10.37 |
| 1916 | 1.19 | 1.20 | .99 | .57 | .81 | 1.81 | 2.52 | 1.63 | 1.68 | .68 | .68 | .68 | 14.44 |
| 1917 | .93 | 1.52 | 1.10 | .46 | .40 | 1.54 | 2.58 | 1.40 | 1.57 | 1.54 | .79 | .80 | 14.63 |
| 1918 | .79 | 1.03 | .65 | .48 | .56 | 2.80 | 1.71 | 1.95 | 1.36 | .66 | .57 | .50 | 13.06 |
| 1919 | .52 | .68 | .79 | .84 | .76 | 1.40 | 1.41 | 1.24 | 1.01 | .63 | .54 | .50 | 10.32 |
| 1920 | .75 | .95 | .71 | .48 | .48 | 1.90 | 2.27 | 1.07 | .89 | .95 | .56 | .68 | 11.69 |
| 1921 | .56 | .78 | .80 | .73 | .77 | 1.24 | 1.04 | 1.26 | .73 | .49 | .48 | .53 | 9.41 |
| 1922 | .60 | .64 | .88 | .47 | .47 | 3.15 | 3.02 | 1.37 | 1.36 | .92 | .69 | .76 | 14.33 |
| 1923 | .63 | .79 | .61 | .54 | .46 | 1.20 | 3.08 | 1.23 | .56 | .48 | .42 | .46 | 10.46 |
| 1924 | .48 | .49 | .49 | .41 | .36 | .69 | 2.46 | 1.67 | .90 | .79 | 1.98 | 1.28 | 12.00 |
| 1925 | .81 | .77 | .73 | .62 | .86 | 1.24 | .93 | .68 | .60 | .60 | .52 | .48 | 8.84 |
| 1926 | .62 | .64 | .65 | .53 | .53 | 1.07 | 1.87 | 1.10 | 1.04 | .51 | .57 | .74 | 9.87 |
| 1927 | 1.06 | .91 | .85 | .48 | .72 | 1.89 | 1.17 | 1.26 | 1.43 | .75 | .57 | .50 | 11.59 |
| 1928 | 1.05 | 1.02 | .74 | .54 | .94 | 2.34 | 2.33 | .94 | .57 | .66 | .66 | .94 | 12.73 |
| 1929 | 1.02 | 1.08 | 1.15 | .66 | .58 | 2.80 | 2.92 | 1.67 | .90 | 1.02 | .92 | .68 | 15.40 |
| 1930 | .69 | .72 | .48 | .44 | .72 | 1.64 | 1.26 | .89 | 1.00 | .66 | .55 | .53 | 9.58 |
| 1931 | .62 | .52 | .42 | .46 | .51 | .62 | .74 | .59 | .51 | .44 | .42 | .54 | 6.39 |
| 1932 | .64 | .69 | .73 | .90 | .70 | .76 | .75 | .72 | .46 | .52 | .42 | .42 | 7.71 |
| 1933 | .46 | .45 | .38 | .44 | .38 | .60 | 1.52 | 1.51 | .60 | .54 | .47 | .47 | 7.82 |
| 1934 | .57 | .50 | .41 | .40 | .31 | .45 | .99 | .48 | .40 | .50 | .47 | .53 | 6.01 |
| 1935 | .53 | .68 | .83 | .44 | .45 | 1.92 | 1.60 | 1.18 | .88 | .74 | 1.04 | .60 | 10.89 |
| 1936 | .58 | .72 | .57 | .42 | .31 | 1.68 | 1.48 | .69 | .51 | .42 | .41 | .48 | 8.27 |
| 1937 | .55 | .55 | .36 | .44 | .42 | 1.98 | 1.44 | 1.24 | .63 | .50 | .47 | .46 | 9.04 |
| 1938 | .66 | .67 | .39 | .38 | 1.08 | 2.79 | 1.68 | .91 | .77 | 1.79 | .80 | 2.72 | 14.64 |
| 1939 | 2.18 | 1.27 | 1.04 | 1.31 | .74 | 1.57 | 2.02 | .91 | .57 | .43 | .50 | .49 | 13.03 |
| 1940 | .52 | .54 | .45 | .30 | .35 | .53 | 1.16 | .73 | 1.37 | 1.79 | 1.50 | 1.12 | 10.36 |
| 1941 | .73 | 1.03 | 1.11 | 1.15 | .68 | .93 | 2.34 | 1.04 | .72 | .48 | .41 | .55 | 11.17 |
| 1942 | .91 | 1.13 | .86 | .78 | .66 | 1.46 | 1.03 | 1.10 | 1.60 | .69 | .75 | 1.00 | 11.97 |
| 1943 | .85 | .98 | .72 | .66 | .57 | 1.34 | 2.43 | 1.03 | 1.61 | .59 | .45 | .43 | 11.66 |
| 1944 | .49 | .75 | .50 | .47 | .54 | .28 | 1.26 | 1.18 | .81 | .58 | .58 | .54 | 8.73 |
| 1945 | .52 | .73 | .60 | .42 | .42 | 1.52 | 1.53 | .97 | 1.56 | .59 | .57 | .71 | 10.14 |
| 1946 | .84 | .97 | .86 | 1.07 | .69 | 3.38 | 1.54 | .57 | .85 | .62 | .44 | .51 | 12.34 |
| 1947 | .58 | .78 | .62 | .57 | .48 | 1.11 | 2.05 | 1.28 | 1.38 | .97 | .56 | .49 | 10.87 |
| 1948 | .52 | .69 | .78 | .59 | .48 | 1.87 | 1.64 | 1.10 | .45 | .41 | .37 | .34 | 9.24 |
| 1949 | .40 | .58 | .51 | .46 | .42 | 1.41 | 1.41 | .55 | .40 | .48 | .40 | .35 | 7.39 |
| 1950 | .37 | .39 | .42 | .40 | .35 | 1.07 | 2.06 | .92 | .62 | .76 | .59 | .47 | 8.42 |

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second, of Fox River at Berlin, Wis.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|-------------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1898 | 504 | 2,730 | Mar. 16, 1898 | - | - | - | - | 805 | 7.65 |
| 1899 | 504 | 2,800 | Apr. 9, 11, 1899 | 300 | 786 | 0.550 | 7.44 | 794 | 7.52 |
| 1900 | 504 | 2,830 | Apr. 2, 1900 | 250 | 707 | .494 | 6.68 | 803 | 7.59 |
| 1901 | 504 | 4,800 | Mar. 29, 1901 | 350 | 946 | .662 | 8.98 | 863 | 8.19 |
| 1902 | 504 | 2,450 | May 25, 1902 | 300 | 787 | .550 | 7.47 | 808 | 7.66 |
| 1903 | 504 | 2,670 | Mar. 24, 25, 1903 | 400 | 1,070 | .748 | 10.19 | 1,138 | 10.82 |
| 1904 | 504 | 5,400 | Mar. 27, 1904 | 300 | 1,200 | .839 | 11.45 | 1,191 | 11.32 |
| 1905 | 504 | 5,920 | June 10, 11, 1905 | 400 | †1,560 | 1.09 | 14.81 | 1,572 | 14.91 |
| 1906 | 504 | 4,450 | Mar. 30, 1906 | 500 | 1,380 | .925 | 13.10 | 1,438 | 13.65 |
| 1907 | 504 | 2,520 | Mar. 28-31, 1907 | 735 | 1,260 | .881 | 11.96 | 1,176 | 11.16 |
| 1908 | 504 | 4,020 | Mar. 14, 15, 1908 | 460 | 1,160 | .811 | 11.03 | 1,077 | 10.25 |
| 1909 | 504 | 2,910 | May 3-6, 1909 | 320 | 943 | .659 | 8.96 | 958 | 9.12 |
| 1910 | 504, 1337 | 3,080 | Mar. 17, 1910 | 420 | *812 | *.568 | *7.71 | *793 | *7.52 |
| 1911 | 504 | 2,600 | Feb. 26, 27, 1911 | 380 | 842 | .589 | 7.97 | 1,053 | 9.98 |
| 1912 | 504 | 4,100 | Mar. 31, Apr. 1 | 600 | 1,450 | 1.01 | 13.84 | 1,332 | 13.26 |
| 1913 | 504 | 4,340 | Mar. 31, 1913 | 450 | 1,350 | .944 | 12.93 | 1,297 | 12.31 |
| 1914 | 504 | 2,750 | June 11, 12, 1914 | 400 | 915 | .640 | 8.69 | 859 | 8.16 |
| 1915 | 504 | 3,000 | Mar. 18, 1915 | 350 | 1,090 | .762 | 10.37 | 1,268 | 12.02 |
| 1916 | 504 | 6,400 | Mar. 28, 30, 1916 | 550 | 1,520 | 1.06 | 14.44 | 1,535 | 14.61 |
| 1917 | 504 | 5,650 | Mar. 27, 1917 | 525 | 1,540 | 1.08 | 14.63 | 1,427 | 13.55 |
| 1918 | 504 | 6,050 | Mar. 21-23, 1918 | 480 | 1,370 | .958 | 13.06 | 1,324 | 12.58 |
| 1919 | 504 | 2,670 | Mar. 20, 21, 1919 | 560 | 1,090 | .762 | 10.32 | 1,130 | 10.74 |
| 1920 | 504 | 5,150 | Mar. 29, 1920 | 550 | 1,230 | .860 | 11.69 | 1,200 | 11.42 |
| 1921 | 524 | 2,450 | May 1, 2, 1921 | 535 | 991 | .693 | 9.41 | 990 | 9.39 |
| 1922 | 544 | 5,920 | Mar. 16, 1922 | 465 | 1,510 | 1.06 | 14.33 | 1,502 | 14.24 |
| 1923 | 564 | 6,050 | Apr. 12, 1923 | 465 | †1,100 | †.769 | 10.46 | 1,043 | 9.89 |
| 1924 | 584 | 4,020 | Apr. 9, 10, 1924 | 380 | 1,260 | .881 | 12.00 | 1,351 | 12.85 |
| 1925 | 604 | 2,520 | Mar. 25, 25, 1925 | 535 | 932 | .652 | 8.84 | 889 | 8.44 |
| 1926 | 624 | 3,440 | Apr. 1, 2, 1926 | 535 | 1,040 | .727 | 9.87 | 1,134 | 10.78 |
| 1927 | 644 | 3,170 | Mar. 12, 1927 | 510 | 1,220 | .853 | 11.59 | 1,218 | 11.58 |
| 1928 | 664 | 5,920 | Mar. 23, 24, 1928 | 535 | 1,340 | .937 | 12.73 | 1,382 | 13.07 |
| 1929 | 684 | 6,620 | Mar. 21, 23, 1929 | 645 | 1,620 | 1.13 | 15.40 | 1,480 | 14.14 |
| 1930 | 699 | 3,000 | Mar. 5, 1930 | 506 | 1,010 | .706 | 9.58 | 974 | 9.20 |
| 1931 | 714 | 1,140 | Apr. 5, 8, 1931 | 430 | 672 | .470 | 6.39 | 726 | 6.89 |
| 1932 | 729 | 1,910 | Jan. 23, 1932 | 490 | 810 | .566 | 7.71 | 730 | 6.94 |
| 1933 | 744 | 2,800 | Apr. 11, 1933 | 360 | 824 | .576 | 7.82 | 842 | 8.01 |
| 1934 | 759 | 1,910 | Apr. 6-8, 1934 | 360 | 633 | .443 | 6.01 | 694 | 6.57 |
| 1935 | 784 | 4,340 | Mar. 21, 22, 1935 | 485 | 1,147 | .802 | 10.89 | 1,128 | 10.72 |
| 1936 | 804 | 4,340 | Mar. 27, 1936 | 355 | 871 | .609 | 8.27 | 829 | 7.86 |
| 1937 | 824 | 3,260 | Mar. 20, 1937 | 310 | 953 | .666 | 9.04 | 980 | 9.30 |
| 1938 | 854 | 6,190 | Sept. 21-23, 1938 | 400 | 1,543 | 1.08 | 14.64 | 1,834 | 17.41 |
| 1939 | 874 | 4,910 | Mar. 26, 1939 | 490 | 1,375 | .980 | 13.03 | 1,060 | 10.05 |
| 1940 | 894 | 4,720 | June 28, 1940 | 347 | 1,090 | .762 | 10.36 | 1,233 | 11.72 |
| 1941 | 924 | 3,540 | Apr. 3-6, 1941 | 467 | 1,177 | .823 | 11.17 | 1,179 | 11.20 |
| 1942 | 954 | 2,740 | Mar. 20, 21, 1942 | 676 | 1,259 | .880 | 11.97 | 1,223 | 11.62 |
| 1943 | 974 | 5,080 | Mar. 31, Apr. 1 | 512 | 1,229 | .859 | 11.66 | 1,144 | 10.85 |
| 1944 | 1004 | 2,290 | Apr. 28, 29, 1944 | 447 | 922 | .645 | 8.78 | 954 | 8.89 |
| 1945 | 1034 | 3,460 | Mar. 18, 19, 1945 | 490 | 1,069 | .748 | 10.14 | 1,154 | 10.96 |
| 1946 | 1054 | 6,900 | Mar. 17, 18, 1946 | 489 | 1,301 | .910 | 12.34 | 1,228 | 11.65 |
| 1947 | 1084 | 3,160 | Apr. 12, 1947 | 489 | 1,147 | .802 | 10.87 | 1,148 | 10.88 |
| 1948 | 1114 | 4,540 | Mar. 22, 1948 | 248 | 970 | .678 | 9.24 | 917 | 8.74 |
| 1949 | 1144 | 2,600 | Apr. 4, 1949 | 407 | 778 | .544 | 7.39 | 745 | 7.08 |
| 1950 | 1174 | 4,630 | Mar. 28, 30, 1950 | 407 | 889 | .622 | 8.42 | - | - |

* Revised.

† Corrected.

88. Wolf River near White Lake, Wis.

Location--Lat 45°08', long. 88°41', in S $\frac{1}{2}$ sec. 25, T. 31 N., R. 14 E., 2 $\frac{1}{2}$ miles down-stream from White Lake Outlet and 4 miles southeast of the village of White Lake.

Drainage area--482 sq mi, approximately.

Gage--Staff gage. Altitude of gage is 1,130 ft (from river-profile map).

Extremes--1935-38: Maximum discharge, 1,530 cfs Mar. 30, 1938 (gage height, 3.9 ft); minimum observed, 165 cfs Aug. 13, 14, 1936 (gage height, 1.30 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1935 | - | - | - | - | - | - | - | - | - | *419 | 410 | 379 | - |
| 1936 | 406 | *450 | *291 | *265 | *203 | *374 | *751 | *826 | *378 | 246 | 238 | *377 | *401 |
| 1937 | 548 | *350 | *279 | *279 | *283 | *328 | *828 | *709 | *357 | 222 | 212 | 234 | *369 |
| 1938 | *500 | *346 | *244 | *235 | *272 | *617 | *833 | *952 | *626 | *441 | *404 | *512 | *483 |

* Revised.

* Not previously published; estimated on basis of discharge measurements, gage heights, weather records, and records for station at Keshena Falls.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Monthly and yearly runoff, in inches, of Wolf River near White Lake, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------|----------|
| 1935 | - | - | - | - | - | - | - | - | - | \$1.00 | 0.98 | 0.88 | - |
| 1936 | 0.97 | \$1.04 | \$0.70 | \$0.63 | \$0.45 | \$0.89 | \$1.74 | \$1.98 | \$0.87 | .59 | .57 | *.87 | \$11.30 |
| 1937 | .83 | .81 | \$.67 | \$.67 | \$.61 | \$.78 | *1.92 | *1.70 | *.83 | .53 | .51 | .54 | \$10.40 |
| 1938 | \$.72 | \$.80 | \$.58 | \$.56 | \$.59 | \$1.48 | \$1.93 | \$2.28 | \$1.45 | \$1.06 | \$.97 | \$1.19 | \$13.61 |

* Revised.

* Not previously published; estimated on basis of discharge measurements, gage heights, weather records, and records for station at Keshena Falls.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1935 | 824 | - | - | - | - | - | - | - | - |
| 1936 | 824,1337 | - | - | - | \$401 | \$0.832 | \$11.30 | \$386 | \$10.90 |
| 1937 | 824,1337 | *1,390 | May 2, 1937 | - | \$369 | *.766 | \$10.40 | \$362 | \$10.19 |
| 1938 | 1337 | \$1,530 | Mar. 30, 1938 | \$199 | \$483 | \$1.00 | \$13.61 | - | - |

* Revised.

* Not previously published.

89. Wolf River above West Branch Wolf River, Wis.

Location.--Lat 44°55', long. 88°39', in E $\frac{1}{2}$ sec. 3, T. 28 N., R. 15 E., on highway bridge, half a mile upstream from West Branch of Wolf River, 4 miles north of Keshena and at mile 140.1.

Drainage area.--633 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 856.57 ft above mean sea level (levels by Wisconsin Power and Light Co.).

Average discharge.--23 years (1927-50), 574 cfs.

Extremes.--1927-50: Maximum discharge, 2,640 cfs (revised) Apr. 8, 1929 (gage height, 6.2 ft, from graph based on gage readings); minimum observed, 199 cfs Feb. 20, 1936.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1928 | \$617 | \$532 | \$255 | \$301 | \$448 | \$936 | 1,400 | 1,100 | 644 | 552 | 529 | 1,000 | \$692 |
| 1929 | 1,120 | 801 | 589 | 518 | 468 | 923 | 1,580 | 1,010 | 823 | 736 | 467 | 450 | 792 |
| 1930 | 491 | 527 | 395 | 373 | 462 | 640 | 776 | 725 | 734 | 444 | 312 | 302 | 515 |
| 1931 | 418 | 401 | 346 | 341 | 343 | *399 | 498 | 380 | 820 | 390 | 330 | 403 | *422 |
| 1932 | 518 | 680 | 576 | 469 | 422 | 410 | 959 | 801 | 372 | 302 | 277 | 294 | 506 |
| 1933 | 305 | 402 | 324 | 321 | 299 | 342 | 922 | 873 | 533 | 268 | 235 | 259 | 423 |
| 1934 | 313 | 303 | 322 | 298 | 276 | 326 | 950 | 608 | 363 | 281 | 249 | 402 | 391 |
| 1935 | 513 | 747 | 500 | 396 | 384 | 739 | 1,020 | 618 | 649 | 505 | 469 | 440 | 582 |
| 1936 | 453 | 491 | 343 | 318 | 244 | 475 | 1,026 | 1,039 | 453 | 302 | 319 | 439 | 492 |
| 1937 | 406 | 376 | 396 | 364 | 369 | 419 | 1,194 | 1,035 | 495 | 322 | 294 | 316 | 498 |
| 1938 | 402 | 426 | 336 | 320 | 322 | 724 | 1,158 | 1,269 | 818 | 556 | 510 | 702 | 630 |
| 1939 | 523 | 621 | 437 | 452 | 461 | 645 | 1,230 | 937 | 1,307 | 592 | 441 | 432 | 673 |
| 1940 | 435 | 439 | 443 | 371 | 375 | 400 | 802 | 954 | 1,152 | 657 | 676 | 488 | 599 |
| 1941 | 462 | 691 | 604 | 515 | 474 | 436 | 1,285 | 674 | 519 | 355 | 422 | 1,248 | 639 |
| 1942 | 1,137 | 978 | 715 | 527 | 491 | 678 | 1,218 | 1,214 | 1,069 | 691 | 530 | 823 | 840 |
| 1943 | 868 | 749 | 545 | 556 | 515 | 577 | 1,368 | 858 | 1,435 | 810 | 658 | 560 | 791 |
| 1944 | 580 | 669 | 418 | 413 | 446 | 481 | 669 | 1,103 | 792 | 400 | 345 | 415 | 561 |
| 1945 | 383 | 540 | 362 | 313 | 330 | 876 | 1,065 | 770 | 832 | 538 | 442 | 535 | 582 |
| 1946 | 457 | 894 | 506 | 563 | 467 | 1,059 | 664 | 588 | 857 | 746 | 427 | 428 | 639 |
| 1947 | 448 | 632 | 458 | 372 | 346 | 411 | 953 | 852 | 661 | 420 | 365 | 366 | 524 |
| 1948 | 372 | 492 | 380 | 332 | 316 | 587 | 796 | 558 | 352 | 378 | 340 | 283 | 432 |
| 1949 | 276 | 457 | 382 | 321 | 305 | 459 | 642 | 571 | 371 | 740 | 365 | 403 | 442 |
| 1950 | 419 | 432 | 403 | 353 | 300 | 416 | 1,163 | 1,221 | 575 | 475 | 402 | 371 | 545 |

* Revised.

* Not previously published; estimated on basis of records for station at Keshena.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|------|------|------|------|------|-------|----------|
| 1928 | \$1.12 | \$0.94 | \$0.47 | \$0.55 | \$0.76 | \$1.71 | 2.47 | 2.01 | 1.14 | 1.01 | 0.96 | 1.76 | \$14.90 |
| 1929 | 2.04 | 1.42 | 1.07 | .94 | .77 | 1.70 | 2.79 | 1.84 | 1.45 | 1.34 | .85 | .79 | 17.00 |
| 1930 | .89 | .93 | .72 | .68 | .76 | 1.16 | 1.37 | 1.33 | 1.29 | .81 | .57 | .53 | 11.04 |
| 1931 | .76 | .71 | .63 | .62 | .56 | *.73 | .88 | .69 | 1.45 | .71 | .60 | .71 | *9.05 |
| 1932 | .94 | 1.19 | 1.05 | .85 | .72 | .75 | 1.70 | 1.46 | .66 | .55 | .50 | .52 | 10.89 |
| 1933 | .56 | .71 | .59 | .58 | .49 | .62 | 1.63 | 1.59 | .94 | .49 | .43 | .46 | 9.09 |
| 1934 | .57 | .53 | .59 | .54 | .45 | .59 | 1.67 | 1.11 | .64 | .51 | .45 | .71 | 8.36 |
| 1935 | .93 | 1.32 | .91 | .72 | .63 | 1.35 | 1.80 | 1.13 | 1.15 | .92 | .85 | .78 | 12.49 |
| 1936 | .83 | .87 | .62 | .58 | .42 | .86 | 1.81 | 1.89 | .80 | .55 | .58 | .77 | 10.58 |
| 1937 | .74 | .66 | .70 | .66 | .61 | .76 | 2.11 | 1.89 | .87 | .59 | .53 | .56 | 10.68 |
| 1938 | .73 | .75 | .61 | .58 | .53 | 1.31 | 2.04 | 2.31 | 1.44 | 1.01 | .93 | 1.24 | 13.48 |
| 1939 | .95 | 1.09 | .80 | .82 | .76 | 1.18 | 2.16 | 1.71 | 2.30 | 1.08 | .80 | .76 | 14.41 |
| 1940 | .79 | .77 | .81 | .68 | .64 | .73 | 1.42 | 1.74 | 2.03 | 1.20 | 1.23 | .86 | 12.90 |

* Revised.

* Not previously published; estimated on basis of records for station at Keshena.

Monthly and yearly runoff, in inches, of Wolf River above West Branch
Wolf River, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.84 | 1.22 | 1.10 | 0.94 | 0.78 | 0.79 | 2.26 | 1.22 | 0.91 | 0.65 | 0.77 | 2.20 | 13.68 |
| 1942 | 2.08 | 1.75 | 1.33 | .96 | .81 | 1.23 | 2.14 | 2.21 | 1.89 | 1.26 | .96 | 1.45 | 18.02 |
| 1943 | 1.58 | 1.32 | .99 | 1.01 | .85 | 1.05 | 2.41 | 1.57 | 2.53 | 1.48 | 1.20 | .99 | 16.98 |
| 1944 | 1.06 | 1.18 | .76 | .75 | .76 | .88 | 1.18 | 2.01 | 1.40 | .73 | .63 | .73 | 12.07 |
| 1945 | .70 | .95 | .66 | .57 | .54 | 1.59 | 1.87 | 1.41 | 1.46 | .98 | .80 | .94 | 12.47 |
| 1946 | .83 | 1.57 | .92 | 1.02 | .77 | 1.92 | 1.17 | 1.07 | 1.51 | 1.36 | .78 | .75 | 13.67 |
| 1947 | .82 | 1.11 | .83 | .68 | .57 | .75 | 1.68 | 1.56 | 1.16 | .77 | .67 | .64 | 11.24 |
| 1948 | .88 | .87 | .69 | .80 | .54 | 1.07 | 1.41 | 1.02 | .62 | .69 | .62 | .50 | 9.31 |
| 1949 | .50 | .81 | .70 | .58 | .50 | .84 | 1.13 | 1.04 | .65 | 1.35 | .67 | .71 | 9.48 |
| 1950 | .76 | .76 | .73 | .64 | .49 | .76 | 2.05 | 2.22 | 1.01 | .86 | .73 | .65 | 11.66 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1928 | 664 | 1,740 | Mar. 29, 1928 | - | #692 | #1.09 | #14.90 | #784 | #16.90 | |
| 1929 | 684 | *2,840 | Apr. 8, 1929 | 410 | 792 | 1.25 | 17.00 | 700 | 15.01 | |
| 1930 | 699 | *1,240 | Apr. 19, 1930 | 201 | 515 | .814 | 11.04 | 494 | 10.80 | |
| 1931 | 714, 1537 | 1,350 | June 14, 1931 | 259 | *422 | *.667 | *9.05 | *473 | *10.13 | |
| 1932 | 729 | 1,570 | Apr. 10, 1932 | 230 | 508 | .799 | 10.89 | 444 | 9.57 | |
| 1933 | 744 | 1,290 | May 2, 1933 | 201 | 423 | .668 | 9.09 | 416 | 8.92 | |
| 1934 | 759 | *1,680 | Apr. 10, 1934 | 228 | 391 | .618 | 8.36 | 459 | 9.83 | |
| 1935 | 784 | 1,960 | Mar. 25, 1935 | 348 | 582 | .919 | 12.49 | 542 | 11.65 | |
| 1936 | 804 | 1,620 | May 7, 1936 | 199 | 492 | .777 | 10.58 | 482 | 10.36 | |
| 1937 | 824 | 1,960 | May 1, 1937 | 270 | 498 | .787 | 10.68 | 498 | 10.67 | |
| 1938 | 854 | 2,260 | Mar. 31, 1938 | 290 | 630 | .995 | 13.48 | 665 | 14.23 | |
| 1939 | 874 | *2,140 | Mar. 31, 1939 | 333 | 673 | 1.06 | 14.41 | 651 | 13.94 | |
| 1940 | 894 | 1,540 | June 9, 1940 | 258 | 599 | .946 | 12.90 | 636 | 13.69 | |
| 1941 | 924 | *2,390 | Apr. 16, 1941 | 306 | 639 | 1.01 | 13.68 | 729 | 15.63 | |
| 1942 | 954 | 1,660 | Apr. 6, 1942 | 420 | 840 | 1.33 | 18.02 | 784 | 16.80 | |
| 1943 | 974 | 1,830 | June 19, 1943 | 396 | 791 | 1.25 | 16.98 | 749 | 16.09 | |
| 1944 | 1004 | *1,660 | May 13, 1944 | 270 | 561 | .886 | 12.07 | 529 | 11.58 | |
| 1945 | 1034 | *1,830 | Mar. 23, 1945 | 270 | 582 | .919 | 12.47 | 630 | 13.48 | |
| 1946 | 1054 | *2,330 | Mar. 19, 1946 | 333 | 639 | 1.01 | 13.67 | 612 | 13.11 | |
| 1947 | 1084 | *1,540 | Apr. 7, 1947 | 247 | 524 | .828 | 11.24 | 499 | 10.72 | |
| 1948 | 1114 | *1,480 | Mar. 27, 1948 | 237 | 432 | .682 | 9.31 | 421 | 9.08 | |
| 1949 | 1144 | *1,480 | July 5, 1949 | 247 | 442 | .698 | 9.48 | 454 | 9.72 | |
| 1950 | 1174 | *1,710 | Apr. 26, 1950 | 265 | 545 | .861 | 11.66 | - | - | |

* Revised.

* Not previously published.

90. West Branch Wolf River at Neopit, Wis.

Location.--Lat 44°59', long. 88°49', in sec. 20, T. 29 N., R. 14 E., at dam and powerplant at Neopit, 11 miles above mouth and 20 miles north of Shawano.

Drainage area.--108 sq mi, approximately.

Gage.--Vertical staff; head and tail-race gages and kilowatt-hour meters.

Average discharge.--5 years (1911-16), 130 cfs.

Extremes.--Maximum daily discharge, 999 cfs July 24, 1912; minimum daily, 17 cfs Aug. 30, 1914.

Remarks.--Diurnal fluctuation caused by powerplant.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1911 | - | - | - | #54 | 60.1 | 87.0 | 104 | 111 | 75.7 | 84.2 | 84.2 | 111 | - |
| 1912 | 189 | 162 | 158 | 120 | 133 | 111 | 180 | 178 | 135 | 188 | #175 | #217 | #162 |
| 1913 | #140 | 133 | 146 | 121 | 108 | 142 | 177 | 190 | 193 | 163 | 134 | 152 | #150 |
| 1914 | 146 | 132 | 104 | 94.3 | 85.2 | 97.8 | 149 | 139 | 149 | 112 | 96.3 | 92.2 | 116 |
| 1915 | 87.9 | 114 | 91.5 | 85.5 | 100 | 91.5 | 132 | 126 | 114 | 83.5 | 82.6 | 102 | 101 |
| 1916 | 87.2 | 89.5 | 73.9 | 79.7 | 80.6 | 95.1 | 186 | 176 | 206 | 139 | 121 | 132 | 122 |
| 1917 | 108 | 112 | 97.0 | 108 | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for Wolf River at Keshena and rainfall records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1911 | - | - | - | #0.58 | #0.58 | #0.93 | #1.08 | #1.19 | #0.76 | #0.90 | #0.90 | #1.14 | - |
| 1912 | #2.01 | #1.68 | #1.68 | 1.28 | 1.33 | 1.19 | 1.86 | 1.90 | 1.40 | 2.01 | 1.87 | #2.24 | #20.45 |
| 1913 | #1.49 | 1.37 | 1.56 | 1.29 | 1.04 | 1.51 | 1.83 | 2.03 | 2.00 | 1.74 | 1.43 | 1.57 | #18.86 |
| 1914 | 1.56 | 1.36 | 1.11 | 1.01 | .80 | 1.04 | 1.54 | 1.49 | 1.54 | 1.20 | 1.03 | .95 | 14.63 |
| 1915 | .94 | 1.18 | .98 | .91 | .96 | .98 | 1.36 | 1.35 | 1.18 | .89 | .88 | 1.05 | 12.66 |
| 1916 | .93 | .92 | .79 | .85 | .80 | 1.02 | 1.92 | 1.88 | 2.13 | 1.49 | 1.29 | 1.36 | 15.38 |
| 1917 | 1.15 | 1.16 | 1.04 | 1.15 | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

| Yearly discharge, in cubic feet per second, of West Branch Wolf River at Neopit, Wis. | | | | | | | | | |
|---|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1911 | 304 | - | - | - | - | - | - | *107 | *13.43 |
| 1912 | 324 | - | - | *61 | *162 | *1.50 | *20.45 | *155 | *19.50 |
| 1913 | 354 | - | - | 64 | *150 | *1.39 | *18.86 | 147 | 18.47 |
| 1914 | 384 | - | - | 17 | *116 | 1.07 | 14.63 | 109 | 13.70 |
| 1915 | 404 | - | - | 18 | 101 | .935 | 12.66 | 97.1 | 12.20 |
| 1916 | 434 | - | - | 46 | 122 | 1.13 | 15.38 | 128 | 16.09 |
| 1917 | 454 | - | - | - | - | - | - | - | - |

* Not previously published.

91. West Branch Wolf River near Keshena, Wis.

Location.--Lat 44°55', long. 88°40', in SW $\frac{1}{4}$ sec. 3, T. 28 N., R. 15 E., 1 mile above mouth and 4 miles north of Keshena.

Drainage area.--170 sq mi, approximately.

Gage.--Chain gage. Datum of gage is 858.37 ft above mean sea level (Wisconsin Power and Light Co. levels). Prior to Dec. 3, 1929, staff gage at same site and datum.

Extremes.--1928-31: Maximum discharge, 1,320 cfs (revised) Apr. 8, 1929 (gage height, 8.8 ft, from graph based on gage readings), from rating curve extended above 415 cfs; minimum discharge observed, 36 cfs Oct. 31, 1931 (gage height, 3.28 ft).

Remarks.--Some diurnal fluctuation caused by powerplant at Neopit 10 miles upstream.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1928 | - | - | - | - | - | - | 318 | 225 | 150 | 157 | 218 | 362 |
| 1929 | 316 | 223 | 208 | 165 | 140 | 219 | 490 | 239 | 274 | 213 | 155 | 149 |
| 1930 | 159 | 162 | 123 | 125 | 131 | 161 | 205 | 182 | 160 | 136 | 88.2 | 111 |
| 1931 | 138 | 131 | 110 | 102 | 107 | 127 | 135 | 122 | 148 | 114 | 93.0 | 112 |
| 1932 | 137 | - | - | - | - | - | - | - | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1928 | - | - | - | - | - | - | 2.09 | 1.52 | 0.98 | 1.07 | 1.48 | 2.38 |
| 1929 | 2.14 | 1.46 | 1.41 | 1.12 | 0.86 | 1.49 | 3.21 | 2.03 | 1.80 | 1.44 | 1.05 | .98 |
| 1930 | 1.08 | 1.06 | .83 | .85 | .80 | 1.09 | 1.35 | 1.23 | 1.05 | .92 | .60 | .73 |
| 1931 | .94 | .86 | .75 | .69 | .66 | .86 | .89 | .83 | .97 | .77 | .63 | .74 |
| 1932 | .93 | - | - | - | - | - | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 664 | 980 | Sept. 15, 1928 | - | - | - | - | - | - |
| 1929 | 684 | *1,320 | Apr. 8, 1929 | 103 | 238 | 1.40 | 18.99 | 212 | 16.95 |
| 1930 | 699 | *414 | Apr. 19, 1930 | 43 | 145 | .853 | 11.59 | 140 | 11.17 |
| 1931 | 714 | 249 | Mar. 28, June 26 | 61 | 120 | .706 | 9.59 | - | - |
| 1932 | 714 | - | - | - | - | - | - | - | - |

* Revised.

92. Wolf River at Keshena Falls, Wis. 1/

Location.--Lat 44°53', long. 88°39', in E $\frac{1}{2}$ sec. 22, T. 28 N., R. 15 E., on right bank 500 ft downstream from Keshena Falls, 1.7 miles upstream from Keshena, 3.1 miles downstream from West Branch Wolf River, and at mile 136.4.

Drainage area.--812 sq mi, approximately. Prior to Apr. 1, 1928, 826 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 820.00 ft above mean sea level (levels by Wisconsin Power and Light Co.). May 1907 to March 1909, staff gage and February 1911 to March 1928, chain gage, at bridge in Keshena 1.7 miles downstream at datum 4.03 ft lower.

Average discharge.--41 years (1907-8, 1910-50), 775 cfs.

Extremes.--1907-8, 1910-50: Maximum discharge observed, 4,390 cfs Apr. 10, 1922 (gage height, 7.30 ft), from rating curve extended above 2,100 cfs; maximum gage height, 13.83 ft Nov. 17, 1943 (backwater from ice); minimum discharge, 91 cfs Dec. 22, 1939 (gage height, 4.67 ft), result of ice storage.

Remarks.--Diurnal fluctuation caused by powerplant at Keshena Falls.

1/ Published as "at Keshena" prior to April 1928.

STREAMS TRIBUTARY TO LAKE MICHIGAN

91

Monthly and yearly mean discharge, in cubic feet per second, of Wolf River at Keshena Falls, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1907 | - | - | - | - | - | - | - | - | 798 | 811 | 694 | 988 | - |
| 1908 | 695 | 640 | 600 | 510 | 399 | 608 | 1,360 | 1,300 | 911 | 942 | 564 | 472 | 752 |
| 1909 | 612 | 578 | 450 | 420 | 448 | 431 | - | - | - | - | - | - | - |
| 1911 | \$640 | \$600 | \$470 | 350 | 400 | 500 | 749 | 806 | 786 | 510 | 536 | 677 | \$586 |
| 1912 | 1,470 | 1,520 | 1,000 | 620 | 380 | 443 | 1,540 | 1,380 | 897 | 1,020 | 1,280 | 1,590 | 1,080 |
| 1913 | 949 | 846 | 974 | 630 | 560 | 720 | 1,960 | 1,400 | 1,220 | 1,080 | 821 | 890 | 1,006 |
| 1914 | 967 | 777 | 558 | 500 | 450 | 519 | 975 | 1,140 | 862 | 964 | 748 | 1,070 | 794 |
| 1915 | 920 | 838 | 540 | 575 | 539 | 549 | 970 | 1,000 | 874 | 654 | 711 | 638 | 735 |
| 1916 | 627 | 753 | 619 | 478 | 498 | 570 | 1,920 | 1,440 | 1,800 | 932 | 727 | 925 | 939 |
| 1917 | 906 | 949 | 684 | 520 | 511 | 655 | 1,320 | 1,110 | 1,300 | 704 | 748 | 591 | 834 |
| 1918 | 690 | 635 | 442 | 378 | 360 | 812 | 807 | 1,320 | 1,130 | 697 | 863 | 749 | 750 |
| 1919 | 724 | 855 | 851 | 720 | 565 | 955 | 1,600 | 1,100 | 1,120 | 866 | 768 | 624 | 896 |
| 1920 | 787 | 1,170 | 602 | 563 | 518 | 973 | 1,451 | 959 | 1,130 | 765 | 605 | 625 | 845 |
| 1921 | 643 | 665 | 710 | 584 | 450 | 867 | 1,670 | 1,290 | 755 | 584 | 590 | *711 | *795 |
| 1922 | 608 | 547 | 555 | 477 | 442 | 656 | 2,530 | 1,440 | 1,000 | 1,010 | 716 | 824 | 901 |
| 1923 | 608 | 690 | 640 | 542 | 462 | 447 | 1,510 | 1,300 | 1,230 | 784 | 575 | 627 | 785 |
| 1924 | 571 | 550 | 580 | 470 | 488 | 524 | 1,690 | 2,000 | 979 | 745 | 928 | 669 | 850 |
| 1925 | 589 | 620 | 505 | 485 | 496 | 626 | 756 | 609 | 862 | 512 | 456 | 489 | 585 |
| 1926 | 501 | 453 | 339 | 323 | 370 | 418 | 942 | 996 | 993 | 590 | 933 | 963 | 652 |
| 1927 | 876 | 725 | 614 | 474 | 650 | 1,320 | 1,190 | 994 | 809 | 942 | 582 | 529 | 809 |
| 1928 | 831 | 692 | 335 | 399 | 584 | 1,180 | 1,760 | 1,340 | 769 | 707 | 773 | 1,400 | *897 |
| 1929 | 1,480 | 1,080 | 833 | 713 | 636 | 1,190 | 2,170 | 1,350 | 1,150 | 981 | 674 | 624 | 1,080 |
| 1930 | 662 | 712 | 533 | 513 | 610 | 824 | 1,010 | 934 | 918 | 588 | 406 | 426 | 678 |
| 1931 | 562 | 562 | 506 | 423 | 424 | 534 | 624 | 510 | 983 | 510 | 428 | 516 | 548 |
| 1932 | 694 | 827 | 763 | 596 | 548 | 512 | 1,220 | 978 | 512 | 435 | 365 | 392 | 653 |
| 1933 | 386 | 511 | 436 | 388 | *369 | *462 | 1,170 | 1,100 | 680 | 366 | 320 | 330 | *543 |
| 1934 | 402 | 473 | 409 | 406 | 381 | 410 | 1,217 | 757 | 497 | 407 | 294 | 482 | 510 |
| 1935 | 586 | 925 | 623 | 487 | 428 | 948 | 1,322 | 802 | 816 | 654 | 594 | 622 | 734 |
| 1936 | 572 | 661 | 453 | 414 | 315 | 592 | 1,199 | 1,306 | 595 | 420 | 453 | 610 | 633 |
| 1937 | 572 | 558 | 475 | 480 | 489 | 578 | 1,521 | 1,395 | 719 | 431 | 394 | 405 | 668 |
| 1938 | 514 | 555 | 413 | 410 | 468 | 975 | 1,448 | 1,573 | 1,023 | 722 | 650 | 937 | 806 |
| 1939 | 720 | 783 | 560 | 647 | 641 | 826 | 1,642 | 1,262 | 1,747 | 791 | 606 | 595 | 901 |
| 1940 | 596 | 586 | 605 | 490 | 507 | 533 | 1,057 | 1,161 | 1,448 | 828 | 897 | 664 | 781 |
| 1941 | 593 | 893 | 767 | 663 | 627 | 575 | 1,663 | 918 | 720 | 481 | 556 | 1,699 | 844 |
| 1942 | 1,573 | 1,540 | 1,000 | 707 | 689 | 900 | 1,559 | 1,519 | 1,373 | 895 | 688 | 1,056 | 1,109 |
| 1943 | 1,095 | 964 | 682 | 710 | 659 | 726 | 1,752 | 1,137 | 1,898 | 1,032 | 834 | 718 | 1,017 |
| 1944 | 757 | 885 | 555 | 550 | 606 | 672 | 935 | 1,386 | 1,075 | 519 | 449 | 559 | 745 |
| 1945 | 513 | 710 | 463 | 390 | 427 | 1,124 | 1,562 | 994 | 1,077 | 678 | 555 | 678 | 748 |
| 1946 | 590 | 1,153 | 587 | 684 | 576 | 1,278 | 836 | 758 | 1,058 | 911 | 527 | 550 | 793 |
| 1947 | 580 | 808 | 581 | 478 | 427 | 481 | 1,229 | 1,018 | 802 | 526 | 463 | 469 | 655 |
| 1948 | 485 | 638 | 471 | 391 | 362 | 710 | 1,051 | 730 | 467 | 483 | 459 | 364 | 551 |
| 1949 | 376 | 593 | 483 | 412 | 379 | 603 | 868 | 717 | 494 | 901 | 497 | 531 | 572 |
| 1950 | 528 | 527 | 517 | 441 | 365 | 527 | 1,470 | 1,549 | 721 | 618 | 544 | 488 | 692 |

* Revised.

* Not previously published; estimated on basis of rainfall and records for station at New London.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1907 | - | - | - | - | - | - | - | - | 1.08 | 1.13 | 0.97 | 1.33 | - |
| 1908 | 0.97 | 0.86 | 0.84 | 0.71 | 0.52 | 0.85 | 1.84 | 1.82 | 1.23 | 1.32 | .79 | .64 | 12.39 |
| 1909 | .85 | .78 | .63 | .59 | .56 | .60 | - | - | - | - | - | - | - |
| 1911 | *.89 | *.81 | *.66 | .49 | .50 | .70 | 1.01 | 1.13 | 1.06 | .71 | .75 | .91 | *9.62 |
| 1912 | 2.05 | 2.05 | 1.40 | .87 | .50 | .62 | 1.82 | 1.93 | 1.21 | 1.43 | 1.78 | 2.15 | 17.81 |
| 1913 | 1.33 | 1.14 | 1.36 | .88 | .71 | 1.00 | 2.65 | 1.96 | 1.65 | 1.51 | 1.15 | 1.20 | 16.54 |
| 1914 | 1.35 | 1.05 | .75 | .70 | .57 | .72 | 1.32 | 1.58 | 1.16 | 1.35 | 1.04 | 1.45 | 13.04 |
| 1915 | 1.28 | 1.13 | .75 | .80 | .68 | .76 | 1.31 | 1.40 | 1.18 | .91 | .99 | .86 | 12.05 |
| 1916 | .88 | 1.02 | .86 | .67 | .65 | .80 | 2.59 | 2.02 | 2.43 | 1.30 | 1.01 | 1.25 | 15.48 |
| 1917 | 1.26 | 1.28 | .85 | .73 | .64 | .91 | 1.73 | 1.55 | 1.76 | .98 | 1.04 | .80 | 13.69 |
| 1918 | .86 | .62 | .63 | .45 | .45 | 1.13 | 1.23 | 1.84 | 1.53 | .97 | 1.21 | 1.01 | 12.32 |
| 1919 | 1.01 | 1.16 | 1.16 | 1.01 | .71 | 1.35 | 2.15 | 1.54 | 1.52 | 1.21 | 1.07 | .84 | 14.73 |
| 1920 | 1.10 | 1.58 | .84 | .79 | .68 | 1.36 | 1.96 | 1.54 | 1.53 | 1.07 | .84 | .84 | 13.93 |
| 1921 | .90 | .90 | .99 | .82 | .57 | 1.21 | 2.26 | 1.81 | 1.02 | .81 | .82 | *.96 | *13.07 |
| 1922 | .85 | .74 | .77 | .67 | .56 | .92 | 3.41 | 2.01 | 1.36 | 1.41 | 1.00 | 1.11 | 14.81 |
| 1923 | .85 | .93 | .89 | .76 | .58 | .62 | 2.04 | 1.82 | 1.66 | 1.09 | .80 | .85 | 12.83 |
| 1924 | .80 | .74 | .61 | .66 | .64 | .73 | 2.29 | 2.79 | 1.32 | 1.04 | 1.30 | .90 | 14.02 |
| 1925 | .82 | .84 | .71 | .68 | .62 | .87 | 1.02 | .85 | 1.19 | .71 | .64 | .66 | 9.61 |
| 1926 | .70 | .81 | .47 | .45 | .47 | .58 | 1.27 | 1.39 | 1.34 | .82 | 1.30 | 1.30 | 10.70 |
| 1927 | 1.22 | .98 | .86 | .66 | .82 | 1.84 | 1.60 | 1.39 | 1.09 | 1.31 | .81 | .71 | 13.29 |
| 1928 | 1.16 | .94 | .47 | .56 | .76 | 1.65 | 2.42 | 1.90 | 1.06 | 1.00 | 1.10 | 1.92 | *14.94 |
| 1929 | 2.10 | 1.48 | 1.19 | 1.01 | .82 | 1.70 | 2.98 | 1.91 | 1.58 | 1.40 | .96 | .86 | 17.99 |
| 1930 | .94 | .98 | .76 | .73 | .78 | 1.16 | 1.38 | 1.33 | 1.26 | .83 | .58 | .59 | 11.32 |
| 1931 | .80 | .77 | .72 | .60 | .54 | .76 | .86 | .72 | 1.35 | .72 | .61 | .71 | 9.16 |
| 1932 | .99 | 1.14 | 1.08 | .85 | .73 | .73 | 1.67 | 1.38 | .70 | .62 | .52 | .54 | 10.95 |
| 1933 | .55 | .70 | .62 | .55 | *.47 | *.66 | 1.61 | 1.56 | .93 | .52 | .45 | .45 | *9.07 |
| 1934 | .57 | .65 | .58 | .58 | .49 | .58 | 1.67 | 1.07 | .68 | .58 | .42 | .66 | 8.53 |
| 1935 | .83 | 1.27 | .88 | .69 | .55 | 1.35 | 1.82 | 1.14 | 1.12 | .93 | .84 | .85 | 12.27 |
| 1936 | .81 | .91 | .64 | .59 | .42 | .84 | 1.65 | 1.86 | .82 | .60 | .64 | .84 | 10.62 |
| 1937 | .81 | .77 | .67 | .68 | .65 | .82 | 2.09 | 1.98 | .99 | .61 | .56 | .56 | 11.17 |
| 1938 | .73 | .76 | .59 | .58 | .60 | 1.38 | 1.99 | 2.24 | 1.41 | 1.02 | .89 | 1.28 | 13.47 |
| 1939 | 1.02 | 1.08 | .80 | .92 | .82 | 1.18 | 2.25 | 1.79 | 2.40 | 1.12 | .86 | .82 | 15.06 |
| 1940 | .85 | .81 | .86 | .70 | .67 | .76 | 1.45 | 1.65 | 1.99 | 1.18 | 1.27 | .91 | 13.10 |
| 1941 | .84 | 1.23 | 1.09 | .94 | .80 | .82 | 2.29 | 1.30 | .99 | .68 | .79 | 2.33 | 14.10 |
| 1942 | 2.24 | 1.84 | 1.42 | 1.00 | .88 | 1.28 | 2.14 | 1.61 | 1.89 | 1.27 | .98 | 1.45 | 18.55 |
| 1943 | 1.56 | 1.33 | .97 | 1.13 | .83 | 1.63 | 2.41 | 1.37 | 2.61 | 1.19 | .89 | .99 | 17.02 |
| 1944 | 1.07 | 1.22 | .79 | .78 | .80 | .95 | 1.28 | 1.97 | 1.47 | .74 | .64 | .77 | 12.48 |
| 1945 | .73 | .92 | .66 | .55 | .55 | 1.59 | 1.87 | 1.41 | 1.48 | .96 | .79 | .93 | 12.50 |

* Revised.

* Not previously published; estimated on basis of rainfall and records for station at New London.

Monthly and yearly runoff, in inches, of Wolf River at Keshena Falls, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 0.84 | 1.58 | 0.83 | 0.97 | 0.74 | 1.81 | 1.15 | 1.08 | 1.45 | 1.29 | 0.75 | 0.76 | 13.25 |
| 1947 | .82 | 1.11 | .83 | .68 | .55 | .68 | 1.68 | 1.44 | 1.10 | .75 | .66 | .64 | 10.94 |
| 1948 | .69 | .88 | .67 | .56 | .48 | 1.01 | 1.44 | 1.04 | .64 | .69 | .65 | .50 | 9.25 |
| 1949 | .53 | .81 | .69 | .58 | .49 | .86 | 1.19 | 1.02 | .68 | 1.28 | .71 | .73 | 9.57 |
| 1950 | .75 | .72 | .73 | .63 | .47 | .75 | 2.02 | 2.02 | .99 | .88 | .77 | .67 | 11.58 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|-------------|-------|-----------------|------------------|--------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| 1907 | 244 | - | - | - | - | - | - | - | - |
| 1908 | 244 | #3,520 | Apr. 28, 1908* | 275 | 752 | 0.910 | 12.39 | 726 | 11.98 |
| 1909 | 264 | - | - | - | - | - | - | - | - |
| 1911 | 304 | #1,720 | June 2, 1911 | - | #586 | #.709 | #9.62 | 777 | 12.76 |
| 1912 | 324 | #4,070 | Sept. 2, 1912 | - | 1,080 | 1.31 | 17.81 | 978 | 16.14 |
| 1913 | 354 | #2,400 | Apr. 6, 21, 1913 | - | 1,006 | 1.22 | 15.54 | 965 | 15.86 |
| 1914 | 384 | #2,060 | Apr. 30, 1914 | - | 794 | .961 | 13.04 | 795 | 13.06 |
| 1915 | 404 | #1,720 | June 19, 1915 | 428 | 735 | .890 | 12.05 | 709 | 11.65 |
| 1916 | 434 | 3,370 | Apr. 21, 1916* | 414 | 939 | 1.14 | 15.48 | 984 | 16.21 |
| 1917 | 454 | 2,260 | June 8, 9, 1917 | 470 | 834 | 1.01 | 13.69 | 769 | 12.64 |
| 1918 | 474 | *2,620 | May 28, 1918 | 315 | 750 | .908 | 12.32 | 804 | 13.21 |
| 1919 | 504 | *2,470 | Apr. 15, 1919 | 480 | 896 | 1.08 | 14.73 | 908 | 14.92 |
| 1920 | 504 | 2,550 | Apr. 2, 1920 | 510 | 845 | 1.02 | 13.93 | 801 | 13.20 |
| 1921 | 524, 1537 | 3,760 | Apr. 28-30, 1921 | 380 | *795 | *.963 | *13.07 | *769 | *12.64 |
| 1922 | 544 | 4,390 | Apr. 10, 1922 | 410 | 901 | 1.09 | 14.81 | 920 | 15.12 |
| 1923 | 564 | *3,260 | Apr. 21, 1923 | 365 | 785 | .950 | 12.89 | 765 | 12.57 |
| 1924 | 584 | 3,320 | May 15, 1924 | 415 | 850 | 1.03 | 14.02 | 851 | 14.04 |
| 1925 | 604 | 1,510 | June 14, 1925 | 415 | 585 | .708 | 9.61 | 550 | 9.02 |
| 1926 | 624 | *2,850 | Apr. 25, 1926 | 320 | 652 | .789 | 10.70 | 730 | 11.98 |
| 1927 | 644 | 2,210 | Mar. 18, 1927 | 440 | 809 | .879 | 13.29 | 779 | 12.80 |
| 1928 | 664 | *2,840 | Sept. 15, 1928* | 290 | #897 | #1.09 | #14.94 | #1,026 | #17.14 |
| 1929 | 684 | - | - | 544 | 1,080 | 1.33 | 17.99 | 950 | 15.90 |
| 1930 | 699 | - | - | 311 | 678 | .835 | 11.32 | 654 | 10.93 |
| 1931 | 714 | 1,530 | June 14-16, 1931 | 353 | 548 | .675 | 9.16 | 603 | 10.08 |
| 1932 | 729 | 2,110 | Apr. 9, 10, 1932 | 320 | 653 | .804 | 10.95 | 574 | 9.61 |
| 1933 | 744, 1537 | *1,710 | May 2, 1933 | 225 | *543 | *.669 | *9.07 | *539 | *9.00 |
| 1934 | 759 | 2,120 | Apr. 10, 1934* | 268 | 510 | .628 | 8.53 | 581 | 9.71 |
| 1935 | 784 | 2,160 | Mar. 28, 1935 | 401 | 734 | .904 | 12.27 | 697 | 11.65 |
| 1936 | 804 | 2,320 | May 8, 1936 | 194 | 633 | .780 | 10.62 | 626 | 10.51 |
| 1937 | 824 | 2,940 | May 2, 1937 | 350 | 668 | .823 | 11.17 | 658 | 11.00 |
| 1938 | 854 | 3,330 | Mar. 31, 1938 | 380 | 806 | .993 | 13.47 | 855 | 14.29 |
| 1939 | 874 | 2,640 | May 29, 1939 | 430 | 901 | 1.11 | 15.06 | 878 | 14.68 |
| 1940 | 894 | 2,250 | June 9, 1940 | 420 | 781 | .962 | 13.10 | 819 | 13.74 |
| 1941 | 924 | 3,400 | Sept. 1, 1941 | 403 | 844 | 1.04 | 14.10 | 983 | 16.44 |
| 1942 | 954 | 2,250 | (a) | 555 | 1,109 | 1.37 | 18.55 | 1,011 | 16.91 |
| 1943 | 974 | 2,920 | June 1, 1943 | 585 | 1,017 | 1.25 | 17.02 | 971 | 16.24 |
| 1944 | 1004 | 1,840 | May 14, 1944 | 370 | 745 | .917 | 12.48 | 702 | 11.77 |
| 1945 | 1034 | 2,420 | Mar. 24, 1945 | 290 | 748 | .921 | 12.50 | 801 | 13.38 |
| 1946 | 1054 | 2,420 | Mar. 18, 1946 | 437 | 793 | .977 | 13.25 | 763 | 12.76 |
| 1947 | 1084 | 2,200 | Apr. 6, 1947 | 305 | 655 | .807 | 10.94 | 624 | 10.42 |
| 1948 | 1114 | 1,990 | Mar. 27, 1948 | 285 | 551 | .679 | 9.25 | 539 | 9.04 |
| 1949 | 1144 | 1,990 | July 6, 1949 | 305 | 572 | .704 | 9.57 | 583 | 9.74 |
| 1950 | 1174 | 2,300 | May 6, 1950 | 310 | 693 | .853 | 11.58 | - | - |

* Revised.

* Corrected.

* Not previously published.

a Nov. 2, 1941, Apr. 6, 1942.

93. Embarrass River near Embarrass, Wis.

Location.--Lat 44°43', long. 88°44', in sec. 18, T. 26 N., R. 15 E., on left bank 10 ft downstream from bridge, three-quarters of a mile downstream from Mill Creek, and 4 miles northwest of Embarrass.

Drainage area.--395 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from survey level line in vicinity). Prior to Aug. 23, 1938, chain gage on downstream side of bridge at same datum.

Average discharge.--31 years (1919-50), 295 cfs.

Extremes.--1919-50: Maximum discharge, 6,920 cfs (revised) Apr. 10, 1922 (gage height, 11.6 ft, from graph based on gage readings), from rating curve extended above 2,800 cfs; minimum observed, 23 cfs Aug. 3, 6, 7, 1931.

Remarks.--Slight diurnal fluctuation caused by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second, of Embarrass River near Embarrass, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|------|-------|-----|-------|------|------|-------|----------|
| 1919 | - | - | - | - | - | - | - | - | 656 | 271 | 423 | 191 | - |
| 1920 | 272 | 652 | 204 | 161 | 168 | 756 | 681 | 584 | 355 | 188 | 123 | 159 | 340 |
| 1921 | 211 | 294 | 283 | 168 | 158 | 638 | 750 | 400 | 267 | 176 | 165 | 180 | 308 |
| 1922 | 164 | 160 | 165 | 107 | 127 | 284 | 1,890 | 523 | 513 | 536 | 235 | 296 | 416 |
| 1923 | 177 | 315 | 179 | 117 | 133 | 103 | 1,130 | 407 | 323 | 232 | 125 | 171 | 283 |
| 1924 | 153 | 139 | 145 | 113 | 114 | 174 | 1,230 | 870 | 369 | 288 | 439 | 242 | 356 |
| 1925 | 193 | 222 | 182 | 105 | 125 | 259 | 334 | 193 | 439 | 168 | 132 | 131 | 207 |
| 1926 | 250 | 187 | 115 | 77.3 | 66.4 | 267 | 725 | 441 | 496 | 141 | 399 | 328 | 291 |
| 1927 | 360 | 292 | 175 | 152 | 167 | 637 | 570 | 488 | 367 | 253 | 131 | 171 | 314 |
| 1928 | 422 | 315 | 268 | 232 | *175 | *749 | 786 | 409 | 284 | 259 | 579 | 846 | *444 |
| 1929 | 857 | 411 | 307 | 180 | 194 | 947 | 1,230 | 502 | 467 | 273 | 210 | 151 | 479 |
| 1930 | 165 | 239 | 124 | 109 | 248 | 309 | 428 | 325 | 312 | 135 | 74.2 | 81.0 | 211 |
| 1931 | 132 | 146 | 101 | 90.6 | 103 | 98.5 | 151 | 148 | 273 | 136 | 44.5 | 95.2 | 126 |
| 1932 | 118 | 254 | 185 | 187 | 146 | 292 | 614 | 329 | 112 | 75.5 | 58.1 | 64.7 | 205 |
| 1933 | 90.2 | 128 | *103 | *138 | *122 | *285 | 582 | 533 | 270 | 86.3 | 54.8 | 53.5 | *204 |
| 1934 | 90.9 | 89.5 | *87.3 | *83.8 | 157.9 | *110 | 625 | 158 | 184 | 115 | 56.0 | 175 | 143 |
| 1935 | 193 | 492 | 360 | 231 | 197 | 666 | 571 | 317 | 387 | 327 | 208 | 223 | 348 |
| 1936 | 160 | 217 | *157 | *114 | *78.4 | *477 | 613 | 530 | 155 | 81.4 | 109 | 202 | *241 |
| 1937 | 181 | 181 | 110 | *185 | 181 | *395 | 1,024 | 534 | 235 | 100 | 97.5 | 68.5 | *274 |
| 1938 | 132 | 160 | 85.2 | 70.4 | 114 | 795 | 621 | 578 | 254 | 274 | 152 | 886 | 343 |
| 1939 | 275 | 322 | 233 | 377 | 195 | 638 | 717 | 345 | 568 | 185 | 156 | 185 | 350 |
| 1940 | 187 | 150 | 165 | *74.3 | *100 | *147 | 486 | 397 | 791 | 191 | 195 | 221 | *258 |
| 1941 | 170 | 314 | 202 | 199 | 188 | 192 | 826 | 428 | 367 | 124 | 165 | 625 | 315 |
| 1942 | 793 | 527 | 366 | 216 | 195 | 515 | 638 | 630 | 751 | 253 | 165 | 454 | 459 |
| 1943 | 413 | 380 | 195 | 195 | 224 | 366 | 902 | 490 | 1,105 | 369 | 235 | 186 | 421 |
| 1944 | 230 | 322 | 139 | 131 | 153 | 203 | 458 | 498 | 596 | 151 | 132 | 258 | 272 |
| 1945 | 159 | 275 | 161 | 96.3 | 120 | 718 | 585 | 472 | 469 | 210 | 144 | 242 | 305 |
| 1946 | 183 | 640 | 183 | 349 | 168 | 902 | 328 | 333 | 404 | 231 | 117 | 152 | 333 |
| 1947 | 142 | 273 | 121 | 132 | 122 | 236 | 612 | 425 | 280 | 127 | 180 | 154 | 234 |
| 1948 | 160 | 227 | 144 | 113 | 88.5 | 491 | 453 | 254 | 138 | 147 | 119 | 101 | 203 |
| 1949 | 86.8 | 192 | 124 | 113 | 94.6 | 378 | 503 | 211 | 160 | 273 | 143 | 94.0 | 198 |
| 1950 | 111 | 132 | 133 | 133 | 107 | 361 | 848 | 462 | 215 | 198 | 114 | 122 | 245 |

* Revised.

* Not previously published; June 1-4 estimated on basis of weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1919 | - | - | - | - | - | - | - | - | 1.85 | 0.79 | 1.23 | 0.54 | - |
| 1920 | 0.79 | 1.85 | 0.59 | 0.47 | 0.46 | 2.20 | 1.92 | 1.12 | .95 | .55 | .36 | .45 | 11.71 |
| 1921 | .62 | .63 | .63 | .49 | .42 | 1.87 | 2.12 | 1.16 | .75 | .51 | .48 | .51 | 10.59 |
| 1922 | .48 | .45 | .48 | .31 | .34 | .83 | 5.33 | 1.52 | 1.45 | 1.57 | .69 | .84 | 14.29 |
| 1923 | .52 | .98 | .52 | .34 | .35 | .30 | 3.19 | 1.59 | .91 | .68 | .36 | .48 | 9.72 |
| 1924 | .45 | .39 | .42 | .33 | .31 | .51 | 3.47 | 2.54 | 1.04 | .84 | 1.28 | .68 | 12.26 |
| 1925 | .56 | .63 | .53 | .31 | .33 | .76 | .94 | .56 | 1.24 | .49 | .39 | .37 | 7.11 |
| 1926 | .73 | .53 | .34 | .23 | .17 | .78 | 2.05 | 1.29 | 1.41 | .41 | 1.16 | .93 | 10.03 |
| 1927 | 1.05 | .82 | .51 | .44 | .44 | 1.86 | 1.61 | 1.43 | 1.04 | .74 | .38 | .48 | 10.80 |
| 1928 | 1.23 | .89 | .78 | .68 | *.48 | *2.19 | 2.22 | 1.20 | .80 | .76 | 1.70 | 2.39 | *15.32 |
| 1929 | 2.50 | 1.16 | .90 | .53 | .51 | 2.77 | 3.47 | 1.46 | 1.32 | .80 | .61 | .43 | 16.46 |
| 1930 | .48 | .68 | .36 | .32 | .65 | .90 | 1.20 | .95 | .88 | .39 | .22 | .23 | 7.26 |
| 1931 | .39 | .41 | .30 | .26 | .27 | .29 | .43 | .43 | .77 | .40 | .13 | .27 | 4.35 |
| 1932 | .34 | .72 | .54 | .55 | .40 | .85 | 1.73 | .96 | .32 | .22 | .17 | .18 | 6.98 |
| 1933 | .26 | .36 | *.30 | *.40 | *.32 | *.83 | 1.64 | 1.56 | .76 | .25 | .16 | .17 | *5.01 |
| 1934 | .27 | .25 | *.20 | *.24 | .15 | *.32 | 1.76 | .46 | .46 | .34 | .16 | .50 | *11.98 |
| 1935 | .56 | 1.40 | 1.05 | .67 | .52 | 1.95 | 1.62 | .93 | 1.09 | .95 | .61 | .63 | 11.96 |
| 1936 | .47 | .61 | *.46 | *.33 | *.21 | *1.39 | 1.73 | 1.54 | .44 | .24 | .32 | .57 | *8.31 |
| 1937 | .53 | .51 | .32 | *.54 | .48 | *1.15 | 2.89 | 1.56 | .66 | .29 | .28 | .19 | *9.40 |
| 1938 | .39 | .42 | .25 | .21 | .30 | 2.32 | 1.75 | 1.68 | .72 | .80 | .44 | 2.50 | 11.78 |
| 1939 | .80 | .91 | .68 | 1.10 | .51 | 1.87 | 2.03 | 1.01 | 1.61 | .54 | .46 | .52 | 12.04 |
| 1940 | .55 | .42 | .48 | *.22 | *.27 | *.43 | 1.37 | 1.16 | 2.23 | .56 | .57 | .62 | *8.88 |
| 1941 | .50 | .89 | .59 | .58 | .50 | .56 | 2.33 | 1.24 | 1.04 | .36 | .48 | 1.76 | 10.83 |
| 1942 | 2.32 | 1.48 | 1.07 | .51 | 1.50 | 1.31 | 1.83 | 2.12 | .74 | .48 | 1.28 | 1.59 | 15.77 |
| 1943 | 1.21 | 1.07 | .67 | .57 | .59 | 1.07 | 2.54 | 1.43 | 3.12 | 1.08 | .69 | .53 | 14.47 |
| 1944 | .67 | .91 | .41 | .38 | .42 | .59 | 1.29 | 1.45 | 1.68 | .44 | .39 | .73 | 9.36 |
| 1945 | .46 | .78 | .47 | .28 | .32 | 2.10 | 1.65 | 1.37 | 1.33 | .61 | .42 | .68 | 10.47 |
| 1946 | .53 | 1.81 | .53 | 1.02 | .44 | 2.63 | .93 | .97 | 1.14 | .67 | .34 | .43 | 11.44 |
| 1947 | .41 | .77 | .35 | .39 | .32 | 1.69 | 1.73 | 1.24 | .79 | .37 | .53 | .44 | 9.05 |
| 1948 | .47 | .64 | .42 | .33 | .24 | 1.43 | 1.28 | .74 | .39 | .43 | .35 | .29 | 7.01 |
| 1949 | .25 | .54 | .36 | .33 | .25 | 1.10 | 1.42 | .82 | .45 | .80 | .42 | .27 | 6.81 |
| 1950 | .32 | .37 | .39 | .39 | .28 | 1.05 | 2.40 | 1.35 | .61 | .58 | .33 | .34 | 8.41 |

* Revised.

* Not previously published; June 1-4 estimated on basis of weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1919 | 504 | - | - | - | - | - | - | - | - |
| 1920 | 504 | *2,800 | Mar. 27, 1920 | 70 | 340 | 0.861 | 11.71 | 312 | 10.76 |
| 1921 | 524 | *3,600 | Mar. 21, 1921 | 100 | 308 | .780 | 10.59 | 283 | 9.72 |
| 1922 | 544 | *6,920 | Apr. 10, 1922 | 68 | 416 | 1.05 | 14.29 | 431 | 14.80 |
| 1923 | 564 | *3,970 | Apr. 22, 1923 | 39 | 283 | .716 | 9.72 | 264 | 9.06 |
| 1924 | 584 | *2,570 | Apr. 18, 1924 | 70 | 356 | .901 | 12.26 | 369 | 12.72 |
| 1925 | 604 | *1,290 | June 15, 1925 | 60 | 207 | .524 | 7.11 | 203 | 6.99 |

* Revised

Yearly discharge, in cubic feet per second, of Embarrass River near Embarrass, Wis.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|------------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | *1,650 | Aug. 23, 1926 | 30 | 291 | 0.737 | 10.03 | 314 | 10.81 |
| 1927 | 644 | 1,590 | Mar. 15, 1927 | 54 | 314 | *.795 | 10.80 | 329 | 11.32 |
| 1928 | 664,1337 | *2,930 | Sept. 15, 1928 | *115 | *.444 | *.112 | *15.32 | *492 | *16.98 |
| 1929 | 684 | *3,480 | Apr. 8, 1929 | 72 | 479 | 1.21 | 16.46 | 390 | 13.42 |
| 1930 | 699 | *890 | Apr. 18, 1930 | 55 | 211 | .534 | 7.26 | 199 | 6.84 |
| 1931 | 714 | 800 | June 24, 1931 | 24 | 126 | .319 | 4.35 | 141 | 4.85 |
| 1932 | 729 | 1,510 | Apr. 9, 1932 | 36 | 203 | .514 | 6.98 | *183 | *6.50 |
| 1933 | 744,1337 | *2,370 | Mar. 31, 1933 | 32 | *204 | *.516 | *7.01 | *198 | *6.81 |
| 1934 | 759,1337 | *2,310 | Apr. 5, 1934 | 30 | 149 | .377 | *5.11 | *216 | *7.40 |
| 1935 | 764 | 1,610 | Mar. 24, 1935 | 69 | 348 | .881 | 11.98 | *306 | *10.51 |
| 1936 | 804,1337 | 1,610 | Mar. 25, 1936 | 38 | *241 | *.610 | *8.31 | *236 | *8.13 |
| 1937 | 824,1337 | *1,740 | Apr. 25, 1937 | 33 | *274 | *.694 | *9.40 | *265 | *9.10 |
| 1938 | 854 | *3,130 | Mar. 22, 1938 | 62 | 343 | .868 | 11.78 | 382 | 13.11 |
| 1939 | 874 | 3,970 | Mar. 27, 1939 | 80 | 350 | .886 | 12.04 | 323 | 11.10 |
| 1940 | 894,1337 | 2,310 | June 9, 10, 1940 | 70 | *258 | *.653 | *8.68 | *273 | *9.41 |
| 1941 | 924 | 2,030 | May 31, 1941 | 90 | 315 | .797 | 10.83 | 400 | 13.72 |
| 1942 | 954 | 2,310 | June 1, 1942 | 122 | 459 | 1.16 | 15.77 | 400 | 13.75 |
| 1943 | 974 | 4,560 | June 1, 1943 | 154 | 421 | 1.07 | 14.47 | 396 | 13.61 |
| 1944 | 1004 | 2,460 | June 14, 1944 | 74 | 272 | .689 | 9.36 | 264 | 9.08 |
| 1945 | 1034 | 2,760 | Mar. 18, 1945 | 79 | 305 | .772 | 10.47 | 339 | 11.63 |
| 1946 | 1054 | 2,920 | Mar. 16, 1946 | 76 | 333 | .843 | 11.44 | 294 | 10.10 |
| 1947 | 1084 | 2,390 | Apr. 5, 1947 | 60 | 234 | .592 | 8.03 | 233 | 8.03 |
| 1948 | 1114 | 1,580 | Mar. 24, 1948 | 69 | 203 | .514 | 7.01 | 192 | 6.63 |
| 1949 | 1144 | 1,390 | Mar. 24, 1949 | 44 | 198 | .501 | 6.81 | 196 | 6.74 |
| 1950 | 1174 | 1,490 | Apr. 12, 1950 | 36 | 245 | .620 | 8.41 | - | - |

* Revised.

94. Wolf River at New London, Wis.

Location.--Lat 44°23', long. 88°44', in sec. 12, T. 22 N., R. 14 E., on right bank 15 ft downstream from Pearl Street Bridge in New London, 0.2 mile downstream from Embarrass River, and at mile 56.3

Drainage area.--2,240 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 749.37 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--54 years (1896-1950), 1,734 cfs.

Extremes.--1896-1950: Maximum daily discharge, 15,500 cfs Apr. 13, 1922 (gage height, 11.4 ft); minimum daily, 150 cfs Mar. 1, 1900.

Maximum stage known, 11.6 ft Apr. 16, 1888, from information by Corps of Engineers.

Remarks.--Diurnal fluctuation caused by operation of powerplants upstream is negligible.

Cooperation.--Records for 1896 to 1913, not previously published by Geological Survey, taken from House Document 276, 72d Congress, 1st session (computed by Corps of Engineers).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1896 | - | - | - | - | - | 486 | 1,397 | 2,791 | 1,497 | 838 | 860 | 765 | - |
| 1897 | 619 | 1,003 | 1,071 | 950 | 511 | 1,735 | 2,755 | 1,844 | 2,143 | 1,752 | 913 | 730 | 1,339 |
| 1898 | 678 | 749 | 859 | 453 | 557 | 1,668 | 2,273 | 1,761 | 1,158 | 808 | 893 | 629 | 1,043 |
| 1899 | 836 | 1,006 | 429 | 323 | 404 | 771 | 3,306 | 3,267 | 2,608 | 1,313 | 795 | 774 | 1,320 |
| 1900 | 735 | 816 | 555 | 347 | 388 | 867 | 2,044 | 1,213 | 825 | 1,816 | 1,187 | 1,172 | 1,033 |
| 1901 | 3,632 | 3,120 | 1,390 | 955 | 793 | 1,687 | 4,014 | 2,231 | 1,769 | 1,699 | 1,263 | 936 | 1,962 |
| 1902 | 1,797 | 1,177 | *789 | 598 | 655 | 2,055 | 1,330 | 2,837 | 2,037 | 1,104 | 934 | 808 | *1,349 |
| 1903 | 722 | 1,036 | 751 | 532 | 515 | 2,701 | 2,270 | 2,626 | 1,791 | 2,193 | 1,510 | 1,840 | 1,547 |
| 1904 | 1,655 | 1,052 | 760 | 541 | 455 | 1,373 | 3,140 | 3,513 | 3,286 | 1,479 | 1,100 | 1,255 | 1,635 |
| 1905 | 2,093 | 1,210 | 454 | 711 | 742 | 2,052 | 3,720 | 2,431 | 3,089 | 2,273 | 1,694 | 1,846 | 1,862 |
| 1906 | 1,442 | 1,392 | 1,289 | 870 | 1,392 | 2,537 | 6,104 | 2,707 | 2,306 | 1,835 | 1,341 | 1,411 | 2,049 |
| 1907 | 1,360 | 2,156 | 2,654 | 1,615 | 1,204 | 2,651 | 3,827 | 3,095 | 2,060 | 1,530 | 1,030 | 1,330 | 2,072 |
| 1908 | 1,014 | 818 | 715 | 573 | 764 | 2,586 | 2,861 | 3,088 | 1,558 | 1,812 | 737 | 548 | 1,410 |
| 1909 | 731 | 801 | 650 | 526 | 824 | 1,138 | 2,608 | 3,181 | 2,484 | 959 | 723 | 727 | 1,277 |
| 1910 | 665 | 1,014 | 1,282 | 723 | 546 | 1,732 | 1,992 | 1,931 | 858 | 427 | 568 | 919 | 1,057 |
| 1911 | 806 | 801 | 597 | 301 | 705 | 1,633 | 1,701 | 2,244 | 1,403 | 618 | 777 | 1,045 | 1,053 |
| 1912 | 3,537 | 2,472 | 3,258 | 1,815 | 1,410 | 1,710 | 3,703 | 3,150 | 2,190 | 2,469 | 4,485 | 3,831 | 2,841 |
| 1913 | 2,075 | 1,730 | 1,868 | 1,452 | 1,049 | 4,182 | 4,960 | 3,617 | 3,015 | 2,257 | 1,476 | 1,484 | 2,438 |
| 1914 | 1,950 | 1,760 | 1,500 | 950 | 800 | 1,260 | 2,330 | 2,960 | 4,010 | 2,140 | 1,230 | 1,820 | 1,900 |
| 1915 | 1,470 | 1,320 | 1,130 | 806 | 1,260 | 2,340 | 3,310 | 2,680 | 2,320 | 1,510 | 1,480 | 1,760 | 1,780 |
| 1916 | 1,510 | 2,200 | 1,640 | 1,080 | 927 | 1,190 | 5,880 | 3,890 | 5,490 | 1,910 | 1,150 | 1,490 | 2,360 |
| 1917 | 2,010 | 2,950 | 1,700 | 1,030 | 875 | 2,030 | 4,970 | 2,990 | 2,850 | 1,530 | 1,270 | 1,180 | 2,120 |
| 1918 | 1,150 | 1,290 | 799 | 764 | 729 | 3,230 | 2,480 | 4,260 | 3,120 | 1,210 | 1,270 | 1,140 | 1,790 |
| 1919 | 1,110 | 1,780 | 1,270 | 1,040 | 1,000 | 3,140 | 4,480 | 3,090 | 2,640 | 1,770 | 2,160 | 1,230 | 2,060 |
| 1920 | 1,440 | 2,940 | 1,380 | 933 | 848 | 3,680 | 4,790 | 2,490 | 2,460 | 1,800 | 1,020 | 1,070 | 2,070 |
| 1921 | 2,200 | 1,590 | 1,510 | 1,170 | 1,010 | 2,440 | 3,530 | 3,400 | 1,700 | 1,000 | 942 | 1,090 | 1,720 |
| 1922 | 1,060 | 979 | 1,340 | 863 | 799 | 1,960 | 9,170 | 3,160 | 3,010 | 2,590 | 1,510 | 1,570 | 2,330 |
| 1923 | 1,110 | 1,450 | 1,190 | 990 | 929 | 1,320 | 5,960 | 3,590 | 2,240 | 1,470 | 890 | 1,400 | 1,830 |
| 1924 | 937 | 898 | 922 | 859 | 773 | 1,090 | 5,080 | 5,310 | 2,410 | 1,560 | 2,860 | 2,000 | 2,060 |
| 1925 | 1,320 | 1,260 | 1,010 | 772 | 1,080 | 1,660 | 2,120 | 1,400 | 2,690 | 1,250 | 885 | 828 | 1,350 |
| 1926 | 1,190 | 1,020 | 796 | 601 | 622 | 1,350 | 3,730 | 3,210 | 3,140 | 1,200 | 1,670 | 2,580 | 1,760 |
| 1927 | 2,730 | 1,940 | 1,390 | 1,070 | 1,050 | 4,070 | 3,560 | 3,060 | 1,860 | 1,570 | 968 | 911 | 2,020 |
| 1928 | 1,850 | 1,650 | 1,280 | 1,150 | 1,150 | 3,340 | 4,960 | 2,860 | 1,430 | 1,410 | 1,820 | 3,330 | 2,180 |
| 1929 | 3,770 | 2,880 | 1,770 | 1,110 | 1,210 | 4,960 | 6,660 | 2,150 | 2,070 | 1,220 | 1,220 | 2,720 | 2,720 |
| 1930 | 1,100 | 1,320 | 995 | 932 | 1,110 | 1,980 | 2,130 | 1,860 | 1,590 | 983 | 604 | 575 | 1,260 |

† Corrected.

Monthly and yearly mean discharge, in cubic feet per second,
of Wolf River at New London, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1931 | 880 | 891 | 813 | 666 | 702 | 969 | 1,180 | 901 | 1,320 | *842 | *525 | *729 | *865 |
| 1932 | 1,050 | 1,490 | 1,550 | 1,580 | 1,090 | 1,570 | 3,580 | 2,260 | 929 | 673 | 552 | 533 | 1,390 |
| 1933 | 616 | 839 | 687 | 805 | 813 | 1,140 | 3,770 | 2,770 | 1,390 | 664 | 443 | 429 | 1,200 |
| 1934 | 556 | 617 | 555 | 707 | 546 | 949 | 3,475 | 1,196 | 861 | 839 | 505 | 822 | 967 |
| 1935 | 971 | 1,926 | 2,615 | 1,052 | 893 | 3,589 | 3,796 | 1,932 | 1,839 | 1,650 | 1,076 | 1,123 | 1,877 |
| 1936 | 998 | 1,192 | 1,087 | 764 | 525 | 2,661 | 3,794 | 2,746 | 1,128 | 669 | 629 | 1,144 | 1,446 |
| 1937 | 1,050 | 1,092 | 832 | 954 | 1,036 | 3,058 | 3,806 | 1,349 | 725 | 587 | 557 | 1,574 | |
| 1938 | 824 | 921 | 655 | 637 | 954 | 4,486 | 4,337 | 3,076 | 1,848 | 1,509 | 1,166 | 4,544 | 2,081 |
| 1939 | 1,953 | 1,662 | 1,462 | 1,749 | 1,288 | 2,947 | 4,988 | 2,313 | 3,174 | 1,535 | 1,018 | 1,157 | 2,102 |
| 1940 | 1,118 | 1,049 | 990 | 809 | 963 | 1,183 | 2,756 | 2,269 | 3,111 | 2,136 | 1,617 | 1,609 | 1,632 |
| 1941 | 1,144 | 2,207 | 1,691 | 1,505 | 1,095 | 1,240 | 5,814 | 2,273 | 2,527 | 898 | 846 | 2,896 | 2,004 |
| 1942 | 3,810 | 4,294 | 2,072 | 1,313 | 1,298 | 2,179 | 4,029 | 4,069 | 4,852 | 2,399 | 1,313 | 2,037 | 2,810 |
| 1943 | 2,546 | 2,350 | 1,350 | 1,365 | 1,220 | 1,844 | 5,998 | 2,709 | 4,795 | 2,754 | 1,498 | 1,194 | 2,467 |
| 1944 | 1,240 | 1,509 | 876 | 791 | 951 | 1,129 | 2,138 | 2,806 | 3,359 | 1,178 | 770 | 1,117 | 1,496 |
| 1945 | 927 | 1,352 | 871 | 727 | 716 | 3,398 | 3,927 | 2,126 | 3,525 | 1,227 | 885 | 1,206 | 1,741 |
| 1946 | 1,051 | 2,748 | 1,261 | 1,905 | 1,167 | 5,265 | 2,536 | 1,797 | 2,773 | 2,030 | 839 | 845 | 2,023 |
| 1947 | 861 | 1,601 | 926 | 866 | 790 | 1,555 | 3,951 | 2,617 | 2,220 | 954 | 880 | 886 | 1,508 |
| 1948 | 904 | 1,305 | 828 | 738 | 669 | 2,298 | 2,984 | 1,949 | 915 | 927 | 722 | 593 | 1,237 |
| 1949 | 533 | 1,005 | 844 | 787 | 735 | 1,678 | 5,058 | 1,494 | 797 | 1,188 | 846 | 676 | 1,137 |
| 1950 | 730 | 868 | 866 | 749 | 597 | 1,675 | 4,795 | 3,138 | 1,295 | 1,108 | 951 | 853 | 1,464 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1896 | - | - | - | - | - | 0.25 | 0.70 | 1.44 | 0.75 | 0.43 | 0.44 | 0.38 | - |
| 1897 | 0.32 | 0.50 | 0.55 | 0.49 | 0.24 | .89 | 1.37 | .95 | 1.07 | .90 | .47 | .36 | 8.11 |
| 1898 | .35 | .37 | .44 | .23 | .26 | .85 | 1.13 | .91 | .58 | .42 | .46 | .31 | 6.31 |
| 1899 | .43 | .50 | .22 | .17 | .19 | .40 | 1.65 | 1.68 | 1.30 | .68 | .41 | .39 | 8.02 |
| 1900 | .58 | .41 | .29 | .18 | .18 | .45 | 1.02 | .62 | .41 | .93 | .61 | .78 | 6.26 |
| 1901 | 1.87 | 1.55 | .71 | .49 | .37 | .87 | 2.00 | 1.15 | .88 | .87 | .65 | .47 | 11.88 |
| 1902 | .92 | .59 | †.41 | .31 | .30 | 1.06 | .66 | 1.46 | 1.01 | .57 | .48 | .40 | †8.17 |
| 1903 | .37 | .52 | .39 | .27 | .24 | 1.39 | 1.13 | 1.35 | .89 | 1.13 | .78 | .92 | 9.58 |
| 1904 | .85 | .52 | .39 | .28 | .22 | .71 | 1.56 | 1.81 | 1.64 | .76 | .57 | .63 | 9.94 |
| 1905 | 1.08 | .60 | .23 | .37 | .34 | 1.05 | 1.85 | 1.25 | 1.54 | 1.17 | .87 | .92 | 11.27 |
| 1906 | .74 | .69 | .66 | .45 | .65 | 1.30 | 3.04 | 1.39 | 1.15 | .94 | .69 | .70 | 12.40 |
| 1907 | .71 | 1.07 | 1.37 | .83 | .56 | 1.36 | 1.31 | 1.59 | 1.03 | .92 | .53 | .66 | 12.54 |
| 1908 | .52 | .41 | .37 | .30 | .37 | 1.33 | 1.33 | 1.59 | .78 | .93 | .38 | .27 | 8.58 |
| 1909 | .58 | .40 | .33 | .27 | .38 | .59 | 1.30 | 1.64 | 1.24 | .48 | .37 | .36 | 7.74 |
| 1910 | .34 | .51 | .66 | .37 | .25 | .89 | .99 | .99 | .43 | .22 | .29 | .46 | 6.40 |
| 1911 | .41 | .40 | .31 | .16 | .33 | .84 | .85 | 1.14 | .70 | .32 | .40 | .52 | 6.38 |
| 1912 | 1.82 | 1.23 | 1.68 | .93 | .68 | .88 | 1.84 | 1.62 | 1.09 | 1.27 | 2.31 | 1.90 | 17.25 |
| 1913 | 1.07 | .86 | .98 | .75 | .49 | 2.14 | 2.47 | 1.86 | 1.50 | 1.16 | .76 | .74 | 14.78 |
| 1914 | 1.00 | .88 | .77 | .49 | .37 | .65 | 1.16 | 1.52 | 2.00 | 1.10 | .86 | .81 | 11.51 |
| 1915 | .76 | .66 | .58 | .42 | .59 | 1.20 | 1.65 | 1.38 | 1.16 | .78 | .76 | .98 | 10.82 |
| 1916 | .78 | 1.10 | .84 | .56 | .45 | .61 | 2.92 | 2.01 | 2.73 | .98 | .59 | .74 | 14.31 |
| 1917 | 1.03 | 1.47 | .88 | .53 | .41 | 1.04 | 2.48 | 1.53 | 1.42 | .79 | .65 | .59 | 12.82 |
| 1918 | .59 | .64 | .41 | .39 | .34 | 1.66 | 1.24 | 2.19 | 1.55 | .62 | .65 | .57 | 10.85 |
| 1919 | .57 | .89 | .65 | .53 | .46 | 1.61 | 2.23 | 1.59 | 1.32 | .91 | 1.11 | .61 | 12.48 |
| 1920 | .74 | 1.46 | .71 | .48 | .41 | 1.89 | 2.39 | 1.28 | 1.23 | .93 | .52 | .53 | 12.57 |
| 1921 | .62 | .79 | .78 | .60 | .47 | 1.26 | 1.76 | 1.75 | .85 | .51 | .49 | .54 | 10.42 |
| 1922 | .55 | .49 | .69 | .44 | .37 | 1.01 | 4.56 | 1.63 | 1.50 | 1.34 | .78 | .78 | 14.14 |
| 1923 | .57 | .72 | .61 | .51 | .43 | .68 | 2.97 | 1.74 | 1.12 | .76 | .46 | .52 | 11.09 |
| 1924 | .48 | .45 | .48 | .44 | .37 | .56 | 2.53 | 2.73 | 1.20 | .80 | 1.46 | 1.00 | 12.50 |
| 1925 | .68 | .63 | .52 | .40 | .50 | .85 | 1.06 | .72 | 1.34 | .64 | .46 | .41 | 8.21 |
| 1926 | .61 | .51 | .41 | .31 | .29 | .70 | †1.86 | 1.64 | 1.56 | .62 | .86 | 1.28 | 10.65 |
| 1927 | 1.41 | .97 | .72 | .55 | .49 | 2.10 | 1.77 | 1.58 | .93 | .81 | .50 | .45 | 12.28 |
| 1928 | .95 | .82 | .66 | .59 | .55 | 1.72 | 2.47 | 1.48 | .71 | .73 | .94 | 1.66 | 13.28 |
| 1929 | 1.95 | 1.44 | .91 | .57 | .56 | 2.55 | 3.31 | 1.89 | 1.07 | 1.07 | .63 | .51 | 16.46 |
| 1930 | .57 | .66 | .51 | .48 | .52 | 1.02 | 1.06 | .96 | .79 | .51 | .31 | .29 | 7.68 |
| 1931 | .45 | .44 | .42 | .34 | .33 | .50 | .58 | .46 | .66 | *.43 | *.27 | *.36 | *5.24 |
| 1932 | .54 | .74 | .79 | .81 | .53 | .81 | 1.68 | 1.16 | .46 | .35 | .28 | .27 | 8.42 |
| 1933 | .32 | .42 | .35 | .41 | .38 | .59 | 1.87 | 1.45 | .69 | .34 | .23 | .21 | 7.24 |
| 1934 | .29 | .31 | .29 | .36 | .25 | .49 | 1.73 | .62 | .43 | .26 | .41 | .26 | 5.37 |
| 1935 | .50 | .96 | 1.55 | .54 | .42 | 1.84 | 1.89 | .99 | .92 | .85 | .55 | .56 | 11.37 |
| 1936 | .51 | .59 | .56 | .39 | .25 | 1.37 | 1.89 | 1.42 | .56 | .34 | .32 | .57 | 8.77 |
| 1937 | .54 | .54 | .43 | .49 | .48 | 1.58 | 1.90 | 1.96 | .67 | .37 | .51 | .28 | 9.55 |
| 1938 | .42 | .46 | .54 | .33 | .46 | 2.32 | 2.16 | 1.58 | .92 | .78 | .80 | 2.26 | 12.61 |
| 1939 | .99 | .83 | .75 | .90 | .60 | 1.52 | 2.48 | 1.19 | 1.59 | .78 | .52 | .58 | 12.74 |
| 1940 | .58 | .52 | .51 | .42 | .46 | .61 | 1.37 | 1.16 | 1.55 | 1.10 | .83 | .80 | 9.91 |
| 1941 | .59 | 1.10 | .87 | .77 | .51 | .64 | 2.90 | 1.16 | 1.26 | .46 | .44 | 1.44 | 12.14 |
| 1942 | 1.96 | 2.14 | 1.07 | .68 | .60 | 1.12 | 2.01 | 2.10 | 2.42 | 1.23 | .68 | 1.03 | 17.04 |
| 1943 | 1.31 | 1.17 | .70 | .70 | .57 | .95 | 2.99 | 1.40 | 2.39 | 1.42 | .77 | .59 | 14.96 |
| 1944 | .64 | .75 | .45 | .41 | .46 | .58 | 1.06 | 1.44 | 1.67 | .61 | .40 | .58 | 9.03 |
| 1945 | .48 | .67 | .45 | .37 | .33 | 1.75 | 1.95 | 1.09 | 1.75 | .63 | .46 | .60 | 10.53 |
| 1946 | .54 | 1.37 | .65 | .98 | .54 | 2.71 | 1.26 | .92 | 1.38 | 1.04 | .43 | .42 | 12.24 |
| 1947 | .44 | .80 | .48 | .45 | .37 | .80 | 1.96 | 1.35 | 1.11 | .49 | .45 | .44 | 9.14 |
| 1948 | .47 | .65 | .43 | .38 | .32 | 1.19 | 1.48 | 1.00 | .46 | .48 | .37 | .30 | 7.53 |
| 1949 | .27 | .50 | .43 | .40 | .34 | .86 | 1.53 | .77 | .40 | .61 | .44 | .34 | 6.89 |
| 1950 | .38 | .43 | .45 | .39 | .28 | .86 | 2.39 | 1.61 | .64 | .57 | .48 | .43 | 8.91 |

* Revised.

† Corrected..

Yearly discharge, in cubic feet per second, of Wolf River at New London, Wis.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|-------|-----------------|------------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | Runoff in inches |
| 1896 | (a) | 3,420 | May 7-9, 1896 | - | - | - | - | - |
| 1897 | (a) | 4,390 | Mar. 27, 1897 | 350 | 1,339 | 0.598 | 8.11 | 7.90 |
| 1898 | (a) | 2,865 | Apr. 1-4, 26-28 | 380 | 1,043 | .466 | 6.31 | 6.30 |
| 1899 | (a) | 5,430 | May 5-6, 1899 | 230 | 1,320 | .589 | 8.02 | 7.96 |
| 1900 | (a) | 2,750 | July 26,27,1900 | 150 | 1,033 | .461 | 6.26 | 9.31 |
| 1901 | (a) | 6,230 | Apr. 1, 1901 | 545 | 1,962 | .876 | 11.89 | 11.595 |
| 1902 | (a) | 3,050 | May 13,28, 1902 | 420 | 1,349 | 1.002 | 11.27 | 11.243 |
| 1903 | (a) | 5,100 | Mar.26,27, 1903 | 1455 | 1,547 | .691 | 9.38 | 1,631 |
| 1904 | (a) | 5,160 | June 1-4, 1904 | 455 | 1,635 | .730 | 9.94 | 1,655 |
| 1905 | (a) | 6,470 | Apr. 1, 1905 | 420 | 1,862 | .831 | 11.27 | 1,893 |
| 1906 | (a) | 7,250 | Apr. 1-6, 1906 | 650 | 2,049 | .915 | 12.40 | 2,224 |
| 1907 | (a) | 5,100 | Mar.30,31, 1907 | 800 | 2,072 | .925 | 12.54 | 1,765 |
| 1908 | (a) | 4,350 | Mar.18,19, 1908 | 450 | 1,410 | .629 | 8.59 | 1,379 |
| 1909 | (a) | 3,420 | May 16,17,22-24 | 420 | 1,277 | .570 | 7.74 | 1,343 |
| 1910 | (a) | 3,500 | May 1-4, 1910 | 300 | 1,057 | .472 | 6.40 | 994 |
| 1911 | (a) | 3,120 | May 25,26, 1911 | 250 | 1,053 | .470 | 6.38 | 1,653 |
| 1912 | (a) | 9,180 | July 29,30,1912 | 1,055 | 2,841 | 1.27 | 17.25 | 2,541 |
| 1913 | (a) | 8,170 | Mar. 13, 1913 | 1910 | 2,458 | 1.09 | 14.78 | 2,397 |
| 1914 | 384 | 8,490 | June 9,10, 1914 | - | 1,900 | .848 | 11.51 | 1,790 |
| 1915 | 404 | 4,260 | Mar. 27, 1915 | - | 1,780 | .795 | 10.82 | 1,900 |
| 1916 | 434 | 8,960 | (b) | 815 | 2,360 | 1.05 | 14.31 | 2,460 |
| 1917 | 454 | 8,060 | Apr. 1, 1917 | 840 | 2,120 | .946 | 12.82 | 1,850 |
| 1918 | 474 | 7,270 | May 30,31, 1918 | 700 | 1,790 | .799 | 10.85 | 1,870 |
| 1919 | 504 | 6,350 | Apr.14,15, 1919 | - | 2,060 | .920 | 12.48 | 2,200 |
| 1920 | 504 | 10,800 | Mar.28,29, 1920 | 780 | 2,070 | .924 | 12.57 | 1,950 |
| 1921 | 524 | 6,560 | May 3, 1921 | 780 | 1,720 | .768 | 10.42 | 1,640 |
| 1922 | 544 | 15,500 | Apr. 13, 1922 | 780 | 2,330 | 1.04 | 14.14 | 2,360 |
| 1923 | 564 | 10,100 | Apr. 24, 1923 | 780 | 1,830 | .817 | 11.09 | 1,750 |
| 1924 | 584 | 7,280 | May 16-18, 1924 | 720 | 2,060 | .920 | 12.50 | 2,130 |
| 1925 | 604 | 4,270 | June 19,20,1925 | 690 | 1,350 | .603 | 8.21 | 1,300 |
| 1926 | 624 | 4,470 | May 1-3, 1926 | 550 | 1,760 | .786 | 10.65 | 2,020 |
| 1927 | 644 | 6,340 | Mar.16-18, 1927 | 720 | 2,020 | .902 | 12.28 | 1,910 |
| 1928 | 664 | 7,810 | Mar.26-27, 1928 | 875 | 2,180 | .973 | 13.28 | 2,490 |
| 1929 | 684 | 11,300 | Mar.21,22, 1929 | 910 | 2,720 | 1.21 | 16.46 | 2,300 |
| 1930 | 699 | 2,900 | Mar.18,21, 1930 | 463 | 1,260 | .562 | 7.68 | 1,190 |
| 1931 | 714,1337 | 2,160 | June 25,26, 1931 | *218 | *865 | *.385 | *5.24 | *990 |
| 1932 | 729 | 4,280 | Apr. 16, 1932 | 306 | 1,390 | .621 | 8.42 | 1,220 |
| 1933 | 744 | 5,320 | Apr. 5, 6, 1933 | 281 | 1,200 | .536 | 7.24 | 1,160 |
| 1934 | 759 | 6,000 | Apr. 8, 9, 1934 | 348 | 967 | .432 | 5.87 | 1,285 |
| 1935 | 764 | 9,570 | Mar.25,26, 1935 | 672 | 1,877 | .838 | 11.37 | 1,700 |
| 1936 | 804 | 7,450 | Mar. 28, 1936 | 388 | 1,446 | .646 | 8.77 | 1,420 |
| 1937 | 824 | 6,580 | May 1-3, 1937 | 362 | 1,574 | .703 | 9.55 | 1,526 |
| 1938 | 854 | 11,500 | Mar.23-25, 1938 | 560 | 2,081 | .929 | 12.61 | 2,305 |
| 1939 | 874 | 11,100 | Mar.29,30, 1939 | 808 | 2,102 | .938 | 12.74 | 1,942 |
| 1940 | 894 | 4,880 | July 1, 2, 1940 | 640 | 1,632 | .729 | 9.91 | 1,789 |
| 1941 | 924 | 7,140 | Apr.6-8, 1941 | 664 | 2,004 | .895 | 12.14 | 2,434 |
| 1942 | 954 | 7,940 | June 5,7,1942 | 995 | 2,810 | 1.25 | 17.04 | 2,482 |
| 1943 | 974 | 11,700 | Apr. 2,3,1943 | 1,030 | 2,467 | 1.10 | 14.96 | 2,246 |
| 1944 | 1004 | 6,080 | June 22, 1944 | 590 | 1,486 | .663 | 9.03 | 1,446 |
| 1945 | 1034 | 7,600 | Mar. 23, 1945 | 680 | 1,741 | .777 | 10.53 | 1,899 |
| 1946 | 1054 | 10,300 | Mar. 18, 1946 | 612 | 2,023 | .903 | 12.24 | 1,884 |
| 1947 | 1084 | 5,970 | Apr.12,13, 1947 | 436 | 1,508 | .673 | 9.14 | 1,479 |
| 1948 | 1114 | 5,460 | Mar.23,24, 1948 | 436 | 1,237 | .552 | 7.53 | 1,182 |
| 1949 | 1144 | 4,020 | (c) | 427 | 1,137 | .508 | 6.89 | 1,145 |
| 1950 | 1174 | 7,000 | Mar. 31, 1950 | 460 | 1,469 | .656 | 8.91 | - |

* Revised.

† Corrected.

a From House Document No. 276, 72d Congress, 1st session, pages 44-64.

b Apr. 4, 1916, June 12, 15, 1916.

c Mar. 31, Apr. 1, 7-9, 1949.

95. Little Wolf River at Royalton, Wis.

Location.--Lat 44°24', long. 88°51', in sec. 1, T. 22 N., R. 13 E., on right bank 50 ft upstream from highway bridge in Royalton and 4 miles upstream from mouth.

Drainage area.--485 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 774.00 ft above mean sea level, datum of 1929. Prior to Aug. 20, 1915, chain gage at highway bridge at datum 0.75 ft lower. Aug. 20, 1915, to Apr. 23, 1934, staff gage on left bank at same datum.

Average discharge.--36 years (1914-50), 423 cfs.

Extremes.--1914-50: Maximum discharge, 6,950 cfs Mar. 30, 1943 (gage height, 8.00 ft), from rating curve extended above 3,500 cfs; maximum gage height, 11.95 ft Mar. 28, 1950 (backwater from ice); minimum discharge, 57 cfs Feb. 10, 1934.

Remarks.--Diurnal fluctuation caused by powerplant 6 miles above station.

Monthly and yearly mean discharge, in cubic feet per second, of Little Wolf River at Royalton, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|--------|-------|-------|-------|------|-------|-------|----------|
| 1914 | - | - | - | *213 | 170 | 315 | 862 | 809 | 1,260 | 434 | 254 | 352 | - |
| 1915 | 312 | 254 | 253 | 254 | 581 | 510 | 705 | 503 | 358 | 269 | 236 | 318 | 361 |
| 1916 | 252 | 449 | 357 | 268 | 289 | 658 | 1,400 | 635 | 1,270 | 321 | 259 | 473 | 550 |
| 1917 | 515 | 579 | 326 | 172 | 185 | 1,050 | 955 | 520 | 591 | 306 | 268 | 302 | 482 |
| 1918 | 304 | 330 | 186 | 172 | 172 | 815 | 623 | 1,410 | 531 | 306 | 330 | 243 | 455 |
| 1919 | 293 | 461 | 441 | 252 | 243 | 865 | 866 | 698 | 840 | 392 | 621 | 362 | 529 |
| 1920 | 432 | 785 | 302 | 273 | 241 | 1,170 | 854 | 593 | 581 | 424 | 273 | 293 | 519 |
| 1921 | 298 | 444 | 552 | 332 | 271 | 734 | 803 | 550 | 385 | 215 | 192 | 206 | 416 |
| 1922 | 210 | 212 | 278 | 145 | 197 | 544 | 2,230 | 609 | 856 | 539 | 425 | 380 | 551 |
| 1923 | 261 | 397 | 312 | 189 | 204 | 278 | 1,880 | 527 | 314 | 373 | 221 | 292 | 436 |
| 1924 | 236 | 232 | 234 | 196 | 152 | 170 | 1,710 | 910 | 588 | 401 | 1,010 | 536 | 530 |
| 1925 | 363 | 398 | 222 | 197 | 235 | 361 | 697 | 409 | 914 | 390 | 339 | 324 | 404 |
| 1926 | 417 | 375 | 242 | 155 | 157 | 308 | 1,010 | 645 | 936 | 245 | 540 | 771 | 483 |
| 1927 | 623 | 547 | 405 | 232 | 515 | 1,300 | 750 | 754 | 423 | 452 | 205 | 321 | 545 |
| 1928 | 510 | *458 | *321 | *315 | *519 | 1,450 | 1,090 | 604 | 365 | 368 | 595 | 856 | 608 |
| 1929 | 906 | 529 | 472 | *287 | *281 | *1,515 | 1,350 | *673 | 439 | 450 | 312 | 292 | *628 |
| 1930 | 311 | *280 | *188 | *193 | *411 | *497 | 635 | 515 | 411 | 244 | 160 | 157 | *333 |
| 1931 | 242 | *176 | *132 | 127 | 170 | *219 | 321 | 231 | 296 | 155 | 126 | 173 | *197 |
| 1932 | 283 | 348 | 351 | *347 | *276 | *404 | *673 | 472 | 185 | 179 | 123 | 111 | *313 |
| 1933 | 159 | *223 | *199 | *220 | *268 | *321 | 893 | 772 | 278 | 147 | 119 | 127 | *308 |
| 1934 | 155 | *150 | *126 | *146 | *94.8 | *132 | 757 | 211 | 220 | 202 | 141 | 253 | *215 |
| 1935 | 214 | 509 | *451 | *228 | *231 | *798 | 595 | 367 | 447 | 456 | 272 | 282 | *405 |
| 1936 | 252 | 294 | 209 | 183 | 136 | *818 | 538 | 360 | 174 | 111 | 145 | 181 | *284 |
| 1937 | 229 | *226 | *172 | *175 | *182 | *812 | 882 | 560 | 247 | 148 | 139 | 139 | *327 |
| 1938 | 223 | 265 | 168 | 154 | 189 | 935 | 672 | 563 | 291 | 514 | 381 | 1,510 | 489 |
| 1939 | 488 | 527 | 390 | 506 | 299 | 1,068 | 776 | 402 | 475 | 248 | 231 | 393 | 484 |
| 1940 | 295 | 246 | *246 | *129 | *173 | *285 | 665 | 482 | 774 | 534 | 334 | 279 | *353 |
| 1941 | 261 | 431 | 344 | 300 | 278 | 288 | 1,050 | 420 | 470 | 207 | 197 | 312 | 379 |
| 1942 | 590 | 518 | 417 | 298 | 276 | 711 | 585 | 835 | 1,143 | 536 | 314 | 585 | 568 |
| 1943 | 449 | 543 | 315 | 323 | 357 | 1,080 | 1,008 | 559 | 906 | 331 | 300 | 264 | 536 |
| 1944 | 278 | 383 | 196 | 219 | 276 | 352 | 593 | 569 | 977 | 257 | 215 | 329 | 386 |
| 1945 | 246 | 358 | 208 | 163 | 198 | 1,001 | 671 | 580 | 798 | 325 | 232 | 293 | 423 |
| 1946 | 258 | 675 | 291 | 462 | 267 | 1,376 | 443 | 449 | 563 | 364 | 208 | 281 | 471 |
| 1947 | 288 | 447 | 237 | 232 | 201 | 871 | 537 | 411 | 235 | 305 | 205 | 242 | 367 |
| 1948 | 237 | 316 | 216 | 157 | 141 | 879 | 555 | 361 | 221 | 215 | 157 | 157 | 302 |
| 1949 | 161 | 252 | 178 | 189 | 176 | 506 | 696 | 291 | 272 | 228 | 172 | 146 | 272 |
| 1950 | 147 | 158 | 151 | 142 | 164 | 888 | 910 | 416 | 219 | 267 | 191 | 185 | 320 |

* Revised.

* Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|------|-------|-------|-------|------|------|------|-------|----------|
| 1914 | - | - | - | *0.51 | 0.37 | 0.75 | 1.99 | 1.45 | 2.90 | 1.03 | 0.60 | 0.81 | - |
| 1915 | 0.74 | 0.58 | 0.60 | .60 | .82 | 1.21 | 1.62 | 1.20 | .78 | .84 | .56 | .73 | 10.08 |
| 1916 | .60 | 1.03 | .85 | .64 | .64 | 1.56 | 3.22 | 1.51 | 2.92 | .76 | .62 | 1.09 | 15.44 |
| 1917 | 1.22 | 1.33 | .77 | .41 | .40 | 2.49 | 2.20 | 1.23 | 1.36 | .73 | .64 | .70 | 13.48 |
| 1918 | .72 | .76 | .44 | .41 | .37 | 1.94 | 1.43 | 3.36 | 1.22 | .73 | .78 | .56 | 12.72 |
| 1919 | .70 | 1.06 | 1.05 | .60 | .52 | 2.05 | 2.00 | 1.66 | 1.93 | .93 | 1.48 | .83 | 14.81 |
| 1920 | 1.03 | 1.81 | .72 | .65 | .54 | 2.78 | 1.96 | 1.41 | 1.34 | 1.01 | .65 | .67 | 14.57 |
| 1921 | .71 | 1.02 | 1.31 | .79 | .58 | 1.74 | 1.85 | 1.30 | .89 | .51 | .46 | .47 | 11.63 |
| 1922 | .50 | .49 | .66 | .34 | .42 | 1.29 | 5.13 | 1.45 | 1.96 | 1.28 | 1.01 | .87 | 15.40 |
| 1923 | .62 | .91 | .74 | .45 | .44 | .66 | 4.33 | 1.26 | .72 | .89 | .53 | .67 | 12.22 |
| 1924 | .56 | .53 | .56 | .47 | .34 | .40 | 3.94 | 2.17 | 1.35 | .95 | 2.40 | 1.24 | 14.91 |
| 1925 | .86 | .92 | .53 | .47 | .50 | .86 | 1.61 | .97 | 2.10 | .93 | .81 | .75 | 11.31 |
| 1926 | .99 | .86 | .58 | .37 | .34 | .73 | 2.32 | 1.53 | 2.15 | .58 | 1.28 | 1.77 | 13.50 |
| 1927 | 1.48 | 1.28 | .96 | .55 | 1.10 | 3.09 | 1.80 | 1.79 | .97 | 1.03 | .49 | .74 | 15.26 |
| 1928 | 1.21 | *1.05 | *.76 | *.75 | *.71 | 3.45 | 2.49 | 1.44 | .84 | .92 | 1.42 | 1.96 | 17.00 |
| 1929 | 2.16 | 1.22 | 1.12 | *.68 | *.60 | *3.60 | 3.10 | *1.60 | 1.01 | 1.07 | .74 | .67 | *17.57 |
| 1930 | .74 | *.65 | *.45 | *.46 | *.88 | *1.18 | 1.46 | 1.22 | .94 | .58 | .38 | .36 | *9.30 |
| 1931 | .58 | *.40 | *.31 | .30 | .37 | *.52 | .74 | .55 | .68 | .37 | .30 | .40 | *5.52 |
| 1932 | .67 | .80 | .83 | *.83 | *.61 | *.96 | *1.55 | 1.12 | .43 | .43 | .29 | .26 | *8.77 |
| 1933 | .33 | *.51 | *.47 | *.52 | .58 | *.76 | 2.05 | 1.83 | .64 | .35 | .28 | .29 | *8.61 |
| 1934 | .37 | *.35 | *.35 | *.35 | *.20 | *.31 | 1.74 | .50 | .51 | .48 | .34 | .58 | *6.05 |
| 1935 | .51 | 1.17 | *1.07 | *.54 | *.50 | *1.90 | 1.37 | .87 | 1.03 | 1.09 | .65 | .65 | *11.35 |
| 1936 | .60 | .68 | .50 | .43 | .30 | *1.95 | 1.24 | .86 | .40 | .26 | .34 | .42 | *7.98 |
| 1937 | .54 | *.52 | *.41 | *.42 | *.39 | *1.93 | 2.03 | 1.33 | .57 | .35 | .33 | .32 | *9.14 |
| 1938 | .53 | .61 | .40 | .37 | .41 | 2.22 | 1.55 | 1.34 | .67 | 1.22 | .91 | 3.47 | 13.70 |
| 1939 | 1.16 | 1.22 | .93 | 1.20 | .64 | 2.54 | 1.78 | .96 | 1.09 | .59 | .55 | .90 | 13.56 |
| 1940 | .70 | .57 | *.59 | *.31 | *.39 | *.68 | 1.53 | 1.15 | 1.78 | .79 | .79 | .64 | *9.92 |
| 1941 | .62 | .99 | .82 | .71 | .60 | .68 | 2.41 | 1.00 | 1.08 | .49 | .47 | .72 | 10.59 |
| 1942 | 1.41 | 1.19 | .99 | .71 | .59 | 1.70 | 1.35 | 1.98 | 2.63 | 1.28 | .75 | 1.35 | 15.93 |
| 1943 | 1.07 | 1.25 | .75 | .77 | .77 | 2.57 | 2.32 | 1.33 | 2.09 | .79 | .71 | .61 | 15.03 |
| 1944 | .66 | .88 | .47 | .52 | .61 | .84 | 1.36 | 1.35 | 2.24 | .61 | .51 | .76 | 10.81 |
| 1945 | .58 | .82 | .49 | .39 | .42 | 2.38 | 1.54 | 1.58 | 1.84 | .77 | .55 | .67 | 11.83 |
| 1946 | .61 | 1.55 | .69 | 1.10 | .57 | 3.27 | 1.02 | 1.07 | 1.29 | .87 | .49 | .65 | 13.18 |
| 1947 | .64 | 1.03 | .56 | .55 | .43 | 1.01 | 2.01 | 1.28 | .94 | .56 | .73 | .58 | 10.30 |
| 1948 | .56 | .73 | .51 | .37 | .31 | 2.09 | 1.27 | .86 | .51 | .51 | .37 | .36 | 8.45 |
| 1949 | .38 | .58 | .42 | .45 | .38 | 1.20 | 1.61 | .69 | .63 | .54 | .41 | .34 | 7.63 |
| 1950 | .35 | .36 | .36 | .34 | .35 | 2.11 | 2.10 | .99 | .50 | .64 | .45 | .43 | 8.98 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Little Wolf River at Royalton, Wis.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 384 | *5,470 | June 7, 1914 | - | - | - | - | *440 | *12.33 |
| 1915 | 434 | *1,300 | Apr. 8, 1915 | - | 361 | 0.744 | 10.08 | 380 | 10.64 |
| 1916 | 434 | *6,000 | Mar. 30, 1916 | 130 | 550 | 1.13 | 15.44 | 580 | 16.28 |
| 1917 | 454 | 4,800 | Mar. 26, 1917 | 130 | 482 | .994 | 13.48 | 432 | 12.08 |
| 1918 | 474 | *2,980 | May 19, 1918 | 132 | 455 | .938 | 12.72 | 486 | 13.61 |
| 1919 | 504 | *3,100 | Mar. 16, 1919 | 150 | 529 | 1.09 | 14.81 | 556 | 15.56 |
| 1920 | 504 | 3,950 | Mar. 26, 1920 | 198 | 519 | 1.07 | 14.57 | 501 | 14.05 |
| 1921 | 524 | *2,180 | Apr. 28, 1921 | 166 | 416 | .858 | 11.63 | 366 | 10.24 |
| 1922 | 544 | *5,900 | Apr. 11, 1922* | 120 | 551 | 1.14 | 15.40 | 573 | 16.02 |
| 1923 | 564 | *3,820 | Apr. 15, 1923 | 160 | 436 | .899 | 12.22 | 414 | 11.60 |
| 1924 | 584 | *4,600 | Aug. 22, 1924 | 140 | 530 | 1.09 | 14.91 | 553 | 15.57 |
| 1925 | 604 | *2,180 | June 15, 1925* | 155 | 404 | .833 | 11.31 | 408 | 11.43 |
| 1926 | 624 | 1,670 | Apr. 11, 1926 | 120 | 483 | .996 | 13.50 | 528 | 14.77 |
| 1927 | 644 | *1,970 | Mar. 11, 1927 | 174 | 545 | 1.12 | 15.26 | *521 | *14.58 |
| 1928 | 664, 1337 | *4,000 | Mar. 24, 1928 | *180 | 606 | 1.25 | 17.00 | *658 | *18.48 |
| 1929 | 684, 1337 | *5,900 | Mar. 18, 1929 | *220 | *628 | *1.29 | *17.57 | *533 | *14.91 |
| 1930 | 699, 1337 | *1,600 | Feb. 23, 1930 | *120 | *333 | *.687 | *9.30 | *313 | *8.74 |
| 1931 | 714, 1337 | *670 | June 22, 1931* | 90 | *197 | *.406 | *5.52 | *233 | *6.54 |
| 1932 | 729, 1337 | *1,250 | Apr. 9, 1932 | 89 | *313 | *.645 | 8.77 | *278 | *7.78 |
| 1933 | 744, 1337 | *2,660 | Apr. 2, 1933 | *89 | *308 | *.635 | *8.61 | *297 | *8.32 |
| 1934 | 759, 1337 | 3,500 | Apr. 4, 1934 | *65 | *215 | *.443 | *6.03 | *277 | *7.76 |
| 1935 | 784, 1337 | *3,500 | Mar. 22, 1935 | 111 | *405 | *.835 | *11.35 | *370 | *10.38 |
| 1936 | 804, 1337 | 3,420 | Mar. 25, 1936 | 86 | *284 | *.586 | *7.98 | *274 | *7.67 |
| 1937 | 824, 1337 | *2,500 | Mar. 7, 1937 | 93 | *327 | *.674 | *9.14 | *329 | *9.21 |
| 1938 | 854 | 4,380 | Sept. 11, 1938 | 120 | 489 | 1.01 | 13.70 | 552 | 15.47 |
| 1939 | 874 | *6,500 | Mar. 25, 1939 | 170 | 484 | .998 | 13.56 | *433 | *12.11 |
| 1940 | 894, 1337 | 2,500 | June 26, 1940 | *90 | *353 | *.728 | *9.92 | *374 | *10.49 |
| 1941 | 924 | 2,390 | Apr. 3, 1941 | 138 | 379 | .781 | 10.59 | 420 | 11.75 |
| 1942 | 954 | 2,810 | June 1, 1942 | 210 | 568 | 1.17 | 15.93 | 550 | 15.41 |
| 1943 | 974 | 6,950 | Mar. 30, 1943 | 215 | 536 | 1.11 | 15.03 | 498 | 13.97 |
| 1944 | 1004 | 2,860 | June 20, 1944 | 120 | 386 | .796 | 10.81 | 382 | 10.69 |
| 1945 | 1034 | *5,080 | Mar. 17, 1945 | 125 | 423 | .872 | 11.83 | 458 | 12.79 |
| 1946 | 1054 | *5,900 | Mar. 15, 1946 | 150 | 471 | .971 | 13.18 | 449 | 12.56 |
| 1947 | 1084 | 2,860 | Apr. 7, 1947 | 130 | 367 | .757 | 10.30 | 352 | 9.87 |
| 1948 | 1114 | *5,000 | Mar. 21, 1948 | 108 | 302 | .623 | 8.45 | 287 | 8.03 |
| 1949 | 1144 | 1,480 | Mar. 22, 1949 | 90 | 272 | .561 | 7.63 | 261 | 7.32 |
| 1950 | 1174 | *6,800 | Mar. 28, 1950 | 105 | 320 | .660 | 8.98 | - | - |

* Revised.

* Not previously published.

96. Waupaca River near Waupaca, Wis. 1/

Location.--Lat 44°21', long. 88°59', near north line of sec. 1, T. 21 N., R. 12 E., on right bank 10 ft downstream from highway bridge, 1½ miles downstream from Crystal River, and 4 miles downstream from Waupaca.

Drainage area.--305 sq mi, approximately. Prior to Oct. 19, 1917, 308 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 780 ft (from survey level line along railroad). Prior to Oct. 19, 1917, chain gage at site 1 mile downstream at different datum. Oct. 19, 1917, to Nov. 23, 1938, chain gage on bridge at present site and datum.

Average discharge.--34 years (1916-50), 250 cfs.

Extremes.--1916-50: Maximum discharge, 2,520 cfs Mar. 20, 1948 (gage height, 6.90 ft); maximum gage height, 8.06 ft Mar. 28, 1950 (backwater from ice); minimum daily discharge, 50 cfs Jan. 22, 28, 1926.

Remarks.--Considerable diurnal fluctuation caused by powerplants upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 225 | 202 | 284 | - |
| 1917 | 283 | 282 | 196 | 169 | 162 | 410 | 440 | 287 | 313 | 228 | 205 | 210 | 266 |
| 1918 | 220 | 202 | 154 | 153 | 164 | 607 | 249 | 420 | 255 | 215 | 217 | 187 | 255 |
| 1919 | 194 | 220 | 224 | 187 | 187 | 492 | 332 | 324 | 380 | 223 | 259 | 208 | 270 |
| 1920 | 214 | 306 | 231 | 218 | 196 | 470 | 364 | 285 | 290 | 274 | 239 | 231 | 277 |
| 1921 | 214 | 262 | 207 | 219 | 268 | 318 | 338 | 281 | 213 | 153 | 162 | 187 | 235 |
| 1922 | 184 | 176 | 196 | 162 | 159 | 351 | 651 | 313 | 407 | 271 | 249 | 232 | 279 |
| 1923 | 209 | 237 | 205 | 155 | 149 | 252 | 648 | 257 | 219 | 239 | 185 | 199 | 246 |
| 1924 | 183 | 170 | 177 | 128 | 194 | 224 | 584 | 364 | 283 | 243 | 444 | 315 | 276 |
| 1925 | 251 | 269 | 219 | 178 | 216 | 233 | 284 | 214 | 307 | 294 | 235 | 233 | 252 |
| 1926 | 238 | 211 | 213 | 143 | 182 | 344 | 328 | 263 | 258 | 167 | 246 | 291 | 241 |
| 1927 | 279 | 282 | 254 | 224 | 289 | 343 | 281 | 293 | 246 | 214 | 208 | 220 | 261 |
| 1928 | 247 | 248 | 166 | 191 | 313 | 615 | 359 | 256 | 228 | 217 | 243 | 293 | 281 |
| 1929 | 288 | 258 | 240 | 209 | 244 | 541 | 435 | 330 | 276 | 293 | 234 | 236 | 299 |
| 1930 | 253 | 241 | 201 | 182 | .322 | *302 | 283 | 283 | 266 | 232 | 212 | 205 | *248 |

* Revised.

1/ Published as "near Weyauwega" June 28, 1926, to Oct. 18, 1917.

Monthly and yearly mean discharge, in cubic feet per second,
of Waupaca River near Waupaca, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1931 | 219 | 218 | 203 | 183 | 192 | 198 | 195 | 175 | 176 | 150 | 149 | 175 | 186 |
| 1932 | 204 | 217 | 226 | 251 | 229 | 264 | 244 | 248 | 188 | 169 | 160 | 145 | 212 |
| 1933 | 148 | 221 | 202 | 212 | 178 | 281 | 406 | 256 | 175 | 161 | 152 | 161 | 213 |
| 1934 | 184 | 186 | 175 | 182 | 169 | 239 | 425 | 175 | 199 | 182 | 161 | 206 | 207 |
| 1935 | 195 | 265 | 280 | 220 | 159 | 321 | 292 | 252 | 282 | 276 | 238 | 234 | 252 |
| 1936 | 227 | 245 | 205 | 149 | 135 | 451 | 284 | 233 | 186 | 149 | 175 | 172 | 216 |
| 1937 | 187 | 191 | 190 | 246 | 194 | 303 | 291 | 265 | 194 | 158 | 147 | 146 | 210 |
| 1938 | 208 | 218 | 177 | 182 | 212 | 425 | 284 | 265 | 228 | 289 | 295 | 524 | 276 |
| 1939 | 310 | 310 | 284 | 340 | 247 | 466 | 333 | 244 | 247 | 196 | 209 | 250 | 287 |
| 1940 | 238 | 212 | 205 | 197 | 216 | 266 | 293 | 226 | 456 | 276 | 311 | 243 | 261 |
| 1941 | 243 | 319 | 261 | 216 | 207 | 246 | 414 | 279 | 258 | 209 | 213 | 249 | 259 |
| 1942 | 289 | 281 | 251 | 214 | 193 | 314 | 270 | 342 | 404 | 319 | 273 | 325 | 290 |
| 1943 | 271 | 286 | 277 | 270 | 272 | 415 | 406 | 302 | 353 | 238 | 255 | 230 | 298 |
| 1944 | 220 | 261 | 176 | 199 | 234 | 261 | 295 | 250 | 303 | 207 | 197 | 239 | 238 |
| 1945 | 202 | 230 | 179 | 185 | 184 | 359 | 289 | 280 | 326 | 210 | 207 | 219 | 239 |
| 1946 | 199 | *314 | 223 | 314 | 237 | 583 | 244 | 251 | 284 | 236 | 212 | 234 | *278 |
| 1947 | 224 | 276 | 200 | 220 | 197 | 294 | 338 | 275 | 252 | 205 | 209 | 214 | 242 |
| 1948 | 219 | 233 | 211 | 191 | 199 | 495 | 262 | 221 | 185 | 176 | 155 | 158 | 225 |
| 1949 | 164 | 199 | 163 | 173 | 171 | 294 | 292 | 192 | 174 | 170 | 153 | 142 | 191 |
| 1950 | 155 | 164 | 183 | 172 | 173 | 523 | 361 | 214 | 182 | 198 | 184 | 178 | 225 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 0.84 | 0.76 | 1.03 | - |
| 1917 | 1.06 | 1.02 | 0.73 | 0.63 | 0.55 | 1.53 | 1.60 | 1.07 | 1.14 | .85 | .77 | .76 | 11.71 |
| 1918 | .83 | .74 | .58 | .58 | .56 | 2.29 | .91 | 1.59 | .93 | .81 | .82 | .68 | 11.32 |
| 1919 | .73 | .80 | .84 | .70 | .63 | 1.86 | 1.20 | 1.21 | 1.37 | .83 | .97 | .75 | 11.89 |
| 1920 | .81 | 1.12 | .87 | .82 | .69 | 1.78 | 1.33 | 1.08 | 1.06 | 1.04 | .90 | .84 | 12.34 |
| 1921 | .81 | .96 | .79 | .83 | .92 | 1.20 | 1.24 | 1.06 | .78 | .58 | .61 | .68 | 10.45 |
| 1922 | .70 | .64 | .74 | .61 | .54 | 1.33 | 2.38 | 1.19 | 1.48 | 1.02 | .94 | .85 | 12.42 |
| 1923 | .79 | .87 | .77 | .59 | .51 | .95 | 2.36 | .97 | .80 | .90 | .70 | .73 | 10.94 |
| 1924 | .69 | .62 | .67 | .48 | .69 | .85 | 2.13 | 1.37 | 1.04 | .92 | 1.68 | 1.15 | 12.29 |
| 1925 | .95 | .98 | .83 | .67 | .74 | 1.26 | 1.04 | .81 | 1.13 | 1.11 | .89 | .82 | 11.23 |
| 1926 | .90 | .77 | .80 | .54 | .62 | 1.30 | 1.20 | .99 | .94 | .63 | .93 | 1.06 | 10.68 |
| 1927 | 1.05 | 1.05 | .96 | .85 | .99 | 1.29 | 1.03 | 1.11 | .90 | .81 | .79 | .80 | 11.61 |
| 1928 | .93 | .91 | .83 | .72 | .11 | 2.33 | 1.32 | .97 | .83 | .92 | .92 | 1.07 | 12.55 |
| 1929 | 1.09 | .94 | .91 | .79 | .85 | 2.04 | 1.60 | 1.24 | 1.01 | 1.11 | .88 | .86 | 13.30 |
| 1930 | .96 | .88 | .76 | .69 | 1.10 | *1.14 | 1.04 | 1.07 | .97 | .88 | .80 | .75 | *11.04 |
| 1931 | .83 | .80 | .77 | .69 | .66 | .75 | .71 | .66 | .64 | .57 | .56 | .64 | 8.28 |
| 1932 | .77 | .79 | .85 | .95 | .81 | 1.00 | .89 | .94 | .69 | .64 | .61 | .53 | 9.47 |
| 1933 | .56 | .81 | .76 | .80 | .61 | 1.06 | 1.48 | .97 | .64 | .61 | .57 | .59 | 9.46 |
| 1934 | .70 | .68 | .66 | .69 | .58 | .90 | 1.55 | .66 | .73 | .69 | .61 | .75 | 9.20 |
| 1935 | .74 | .97 | 1.06 | .83 | .54 | 1.21 | 1.07 | .95 | 1.05 | 1.04 | .90 | .86 | 11.20 |
| 1936 | .86 | .90 | .77 | .56 | .48 | 1.63 | 1.04 | .88 | .68 | .56 | .66 | .63 | 9.65 |
| 1937 | .71 | .70 | .72 | .93 | .66 | 1.14 | 1.06 | 1.00 | .71 | .60 | .56 | .53 | 9.32 |
| 1938 | .79 | .80 | .67 | .69 | .72 | 1.59 | 1.04 | 1.00 | .83 | 1.09 | 1.11 | 1.92 | 12.25 |
| 1939 | 1.18 | 1.14 | 1.07 | 1.28 | .84 | 1.76 | 1.22 | .92 | .90 | .74 | .79 | .91 | 12.75 |
| 1940 | .90 | .78 | .77 | .74 | .76 | 1.01 | 1.07 | .85 | 1.67 | 1.04 | 1.18 | .89 | 11.66 |
| 1941 | .92 | 1.17 | .99 | .82 | .71 | .93 | 1.52 | 1.05 | .94 | .79 | .80 | .91 | 11.55 |
| 1942 | 1.09 | 1.03 | .95 | .81 | .66 | 1.19 | .99 | 1.29 | 1.47 | 1.21 | 1.03 | 1.19 | 12.91 |
| 1943 | 1.02 | 1.05 | 1.05 | 1.02 | .93 | 1.57 | 1.48 | 1.14 | 1.29 | .90 | .96 | .84 | 13.25 |
| 1944 | .83 | .96 | .67 | .75 | .83 | 1.06 | 1.08 | .95 | 1.11 | .78 | .74 | .87 | 10.63 |
| 1945 | .76 | .84 | .68 | .70 | .63 | 1.36 | 1.06 | 1.06 | 1.19 | .79 | .78 | .80 | 10.65 |
| 1946 | .75 | *1.15 | .84 | 1.19 | .81 | 2.20 | .89 | .95 | 1.04 | .89 | .80 | .86 | *12.37 |
| 1947 | .85 | 1.01 | .76 | .83 | .67 | 1.11 | 1.24 | 1.04 | .92 | .77 | .79 | .78 | 10.77 |
| 1948 | .83 | .85 | .80 | .72 | .70 | 1.83 | .96 | .84 | .68 | .67 | .59 | .58 | 10.05 |
| 1949 | .62 | .73 | .62 | .65 | .58 | 1.11 | 1.07 | .73 | .64 | .64 | .58 | .52 | 8.49 |
| 1950 | .59 | .60 | .69 | .65 | .59 | 1.97 | 1.32 | .81 | .67 | .75 | .70 | .65 | 8.99 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 434 | - | - | - | - | - | - | - | - |
| 1917 | 454 | *1,000 | Mar. 25, 1917 | 130 | 266 | 0.864 | 11.71 | 250 | 11.05 |
| 1918 | 504 | *1,400 | Mar. 19, 1918 | 105 | 255 | .836 | 11.32 | 260 | 11.54 |
| 1919 | 504,1084 | *1,900 | Mar. 17, 1919 | 135 | 270 | .885 | 11.89 | 279 | 12.32 |
| 1920 | 504 | *1,080 | Mar. 26, 1920 | 96 | 277 | .908 | 12.34 | 271 | 12.09 |
| 1921 | 524 | *900 | Apr. 27, 1921 | 120 | 235 | .770 | 10.45 | 224 | 9.98 |
| 1922 | 544,1084 | *1,440 | Apr. 17, 1922 | 100 | 279 | .915 | 12.42 | 287 | 12.77 |
| 1923 | 564,1084 | *1,800 | Apr. 13, 1923 | 115 | 246 | .807 | 10.94 | 236 | 10.49 |
| 1924 | 584,1084 | *1,440 | Aug. 22, 1924 | 110 | 276 | .905 | 12.29 | 293 | 13.07 |
| 1925 | 604 | *784 | July 9, 1925 | 120 | 252 | .826 | 11.23 | 246 | 10.94 |
| 1926 | 624 | 1,100 | Mar. 24, 1926 | 50 | 241 | .790 | 10.68 | 253 | 11.25 |
| 1927 | 644 | *521 | May 10, 1927 | 123 | 261 | .856 | 11.61 | 248 | 11.04 |
| 1928 | 664 | *1,490 | Mar. 23, 1928 | 140 | 261 | .921 | 12.56 | 292 | 13.03 |
| 1929 | 684 | - | - | 150 | 299 | .980 | 13.30 | 292 | 12.96 |
| 1930 | 699,1337 | *876 | Feb. 25, 1930 | 120 | *248 | *.813 | *11.04 | *243 | *10.84 |
| 1931 | 714 | *322 | Oct. 8, 1930 | 94 | 186 | .610 | 8.28 | 186 | 8.29 |
| 1932 | 729 | *488 | May 7, 1932 | 108 | 212 | .695 | 9.47 | 206 | 9.19 |
| 1933 | 744 | *1,490 | Apr. 2, 1933 | 94 | 213 | .698 | 9.46 | 211 | 9.37 |
| 1934 | 759 | *2,040 | Apr. 4, 1934 | 95 | 207 | .679 | 9.20 | 223 | 9.93 |
| 1935 | 784 | *710 | June 19, 1935 | 104 | 252 | .826 | 11.20 | 246 | 10.96 |

* Revised.

| Yearly discharge, in cubic feet per second, of Waupaca River near Waupaca, Wis.--Continued | | | | | | | | | |
|--|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | 980 | Mar. 25, 1936 | 80 | 216 | 0.708 | 9.65 | 207 | 9.25 |
| 1937 | 824 | *758 | Mar. 25, 1937 | 104 | 210 | .689 | 9.32 | 212 | 9.45 |
| 1938 | 854,1084 | *1,440 | Sept. 10, 1938 | 131 | 276 | .905 | 12.25 | 301 | 13.38 |
| 1939 | 874 | 1,860 | Mar. 23, 1939 | 166 | 287 | .941 | 12.75 | 266 | 11.81 |
| 1940 | 894,1084 | 1,900 | June 24, 1940 | 175 | 261 | .856 | 11.66 | 275 | 12.29 |
| 1941 | 924 | 665 | Apr. 3, 1941 | 135 | 259 | .849 | 11.55 | 259 | 11.54 |
| 1942 | 954 | 960 | June 7, 1942 | 150 | 290 | .851 | 12.91 | 291 | 12.96 |
| 1943 | 974 | 1,570 | Mar. 26, 1943 | 135 | 298 | .977 | 13.25 | 283 | 12.59 |
| 1944 | 1004 | 1,160 | Mar. 12, 1944 | 100 | 238 | .780 | 10.63 | 234 | 10.45 |
| 1945 | 1034 | 1,000 | Mar. 16, 1945 | 134 | 239 | .784 | 10.65 | *250 | *11.11 |
| 1946 | (a) | 1,360 | Mar. 14, 1946 | 177 | *278 | *.911 | *12.37 | 275 | 12.25 |
| 1947 | 1084 | 855 | Apr. 6, 1947 | 164 | 242 | .793 | 10.77 | 239 | 10.63 |
| 1948 | 1114 | 2,520 | Mar. 20, 1948 | 130 | 225 | .758 | 10.05 | 213 | 9.54 |
| 1949 | 1144 | 1,120 | Mar. 15, 1949 | 120 | 191 | .626 | 8.49 | 189 | 8.40 |
| 1950 | 1174 | *2,100 | Mar. 28, 1950 | 130 | 225 | .758 | 9.99 | - | - |

* Revised.

a In W.S.P. 1054, 1084, 1337.

97. West Branch Fond du Lac River at Fond du Lac, Wis.

Location.--Lat 43°45'45", long. 88°29'00", on line between secs. 17 and 20, T. 15 N., R. 17 E., on left bank 25 ft upstream from highway bridge, 0.7 mile west of Fond du Lac and 2.5 miles upstream from confluence with East Branch.

Drainage area.--88 sq mi, approximately.

Supplemental records available.--May 20 to July 31, 1903, gage heights and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 766.78 ft above mean sea level (Corps of Engineers benchmark).

Average discharge.--11 years (1939-50), 30.1 cfs.

Extremes.--1939-50: Maximum daily discharge, 1,390 cfs Mar. 27, 1943 (ice affected); no flow on many days in most years.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1939 | - | - | - | - | - | - | 141 | 20.0 | 4.26 | 0.38 | 0.02 | 0.33 | - |
| 1940 | 0.09 | 0 | 0 | 0 | 0.02 | 3.47 | 20.8 | 130 | 52.1 | 15.4 | 7.14 | 20 | 20 |
| 1941 | 3.50 | 11.8 | 19.0 | 26.1 | 9.0 | 129 | 121 | 12.4 | 6.55 | 19 | 0 | .04 | 29.3 |
| 1942 | 7.55 | 30.6 | 14.3 | 18.7 | 14.7 | 117 | 56.4 | 49.1 | 179 | 36.7 | 46.3 | .09 | 49.1 |
| 1943 | 35.6 | 34.4 | 29.4 | 12.1 | 48.5 | 349 | 147 | 26.9 | 58.3 | 11.8 | 1.10 | .09 | 63.0 |
| 1944 | .09 | .47 | .30 | .27 | 11.1 | 28.8 | 37.2 | 13.7 | 20.6 | 8.06 | .23 | .72 | 10.1 |
| 1945 | .61 | 11.2 | 2.86 | .12 | .19 | 156 | 42.4 | 33.2 | 138 | 14.1 | 4.06 | 10.5 | 34.5 |
| 1946 | 19.9 | 41.9 | 21.0 | 78.3 | 34.0 | 390 | 42.5 | 7.64 | 9.36 | 1.98 | .40 | .03 | 54.4 |
| 1947 | .04 | .80 | .65 | .22 | .24 | 33.7 | 142 | 28.3 | 62.4 | 9.14 | .96 | .12 | 23.1 |
| 1948 | .05 | .20 | .17 | .05 | 2.74 | 119 | 35.8 | 35.5 | .70 | .06 | .15 | .18 | 18.4 |
| 1949 | .14 | .10 | .07 | .38 | 1.25 | 67.3 | 72.7 | 2.83 | .03 | .07 | .53 | .10 | 12.2 |
| 1950 | .08 | .10 | .14 | 4.47 | 1.01 | 103 | 68 | 13.1 | .99 | 19.0 | 18.6 | 6.72 | 19.8 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|------|------|-------|--------|------|------|------|-------|-------|--------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1939 | - | - | - | - | - | - | 1.78 | 0.26 | 0.05 | 0.005 | 0.0003 | 0.004 | - |
| 1940 | 0.001 | 0 | 0 | 0 | 0.0002 | 0.04 | .26 | .16 | 1.65 | .68 | .20 | .09 | 3.08 |
| 1941 | .05 | .15 | .25 | .34 | .11 | 1.70 | 1.54 | .16 | .08 | .003 | 0 | .0005 | 4.38 |
| 1942 | .10 | .39 | .19 | .24 | .17 | 1.53 | .72 | .64 | 2.26 | .25 | .48 | .59 | 7.56 |
| 1943 | .47 | .44 | .39 | .16 | .57 | 4.58 | 1.86 | .35 | .74 | .15 | .01 | .001 | 9.72 |
| 1944 | .001 | .006 | .004 | .004 | .14 | .38 | .47 | .18 | .26 | .11 | .003 | .009 | 1.57 |
| 1945 | .008 | .14 | .04 | .002 | .002 | 2.04 | .54 | .43 | 1.75 | .18 | .05 | .13 | 5.31 |
| 1946 | .26 | .53 | .28 | 1.03 | .40 | 5.11 | .54 | .10 | .12 | .02 | .005 | .0004 | 8.40 |
| 1947 | .0005 | .01 | .009 | .003 | .003 | 1.44 | 1.80 | .37 | .79 | .12 | .01 | .002 | 3.56 |
| 1948 | .0007 | .003 | .002 | .0007 | .03 | 1.56 | .45 | .46 | .009 | .0008 | .002 | .002 | 2.52 |
| 1949 | .002 | .001 | .009 | .005 | .01 | .88 | .92 | .04 | .0004 | .0009 | .007 | .001 | 1.87 |
| 1950 | .001 | .001 | .002 | .06 | .01 | 1.35 | .86 | .17 | .01 | .25 | .24 | .08 | 3.03 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874 | 602 | Mar. 25, 1939 | 0 | - | - | - | - | - |
| 1940 | 894 | 1,000 | June 22, 1940 | 0 | 20 | 0.227 | 3.08 | 22.9 | 3.53 |
| 1941 | 924 | 1,000 | Mar. 27, 1941 | 0 | 28.3 | .322 | 4.38 | 29.8 | 4.61 |
| 1942 | 954 | 1,320 | May 31, 1942 | 0.1 | 49.1 | .558 | 7.56 | 53.1 | 8.18 |
| 1943 | 974 | 1,390 | Mar. 27, 1943 | 0 | 63.0 | .716 | 9.72 | 54.7 | 8.43 |
| 1944 | 1004 | 1,000 | June 23, 1944 | 0 | 10.1 | .115 | 1.57 | 11.2 | 1.74 |
| 1945 | 1034 | 686 | June 1, 1945 | 0 | 34.5 | .392 | 5.31 | 40.2 | 6.19 |
| 1946 | 1054 | 1,210 | Mar. 14, 1946 | 0 | 54.4 | .618 | 8.40 | 47.6 | 7.34 |
| 1947 | 1084 | 770 | June 13, 1947 | 0 | 23.1 | .262 | 3.56 | 23.1 | 3.54 |
| 1948 | 1114 | 457 | Mar. 21, 1948 | 0 | 16.4 | .186 | 2.52 | 16.4 | 2.52 |
| 1949 | 1144 | 501 | Mar. 27, 1949 | 0 | 12.2 | .139 | 1.87 | 12.2 | 1.87 |
| 1950 | 1174 | 642 | Mar. 27, 1950 | 0 | 19.8 | .225 | 3.03 | - | - |

a Maximum daily discharge.

98. East Branch Fond du Lac River at Fond du Lac, Wis.

Location--Lat 43°45'15", long. 88°27'10", in sec. 22, T. 15 N., R. 17 E., on left bank at highway bridge, 0.1 mile west of U. S. Highway 41, 0.5 mile south of Fond du Lac, and 2.5 miles upstream from confluence with West Branch.

Drainage area--75 sq mi, approximately.

Supplemental records available--May 20 to July 25, 1903, gage heights and discharge measurements only.

Gage--Water-stage recorder. Datum of gage is 762.82 ft above mean sea level (Corps of Engineers benchmark).

Average discharge--11 years (1939-50), 30.3 cfs.

Extremes--1939-50: Maximum discharge, 2,140 cfs June 23, 1940 (gage height, 5.87 ft); maximum gage height, 10.74 ft Mar. 16, 1943 (ice jam), from floodmarks; no flow Jan. 17-29, 1940, Jan. 3, Oct. 12, 1949, July 12, 1950.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | The year |
| 1939 | - | - | - | - | - | - | 103 | 15.8 | 13.8 | 4.37 | - |
| 1940 | 5.72 | 3.19 | 2.49 | 0.15 | 0.47 | 7.35 | 23.3 | 12.2 | 178 | 12.2 | 22.6 |
| 1941 | 5.63 | 11.0 | 18.1 | 22.0 | 8.93 | 1.77 | 98.6 | 11.7 | 6.35 | 2.87 | 30.8 |
| 1942 | 9.79 | 27.6 | 16.4 | 11.3 | 10.0 | 97.1 | 32.1 | 39.8 | 146 | 9.22 | 37.8 |
| 1943 | 17.2 | 35.7 | 19.7 | 18.8 | 55.6 | 243 | 55.5 | 29.7 | 61.0 | 14.7 | 47.3 |
| 1944 | 5.03 | 6.65 | 5.46 | 4.25 | 44.2 | 41.1 | 42.2 | 8.36 | 9.74 | 4.12 | 14.4 |
| 1945 | 1.75 | 8.53 | 2.68 | 2.00 | 2.33 | 156 | 28.2 | 31.2 | 102 | 5.74 | 29.8 |
| 1946 | 19.9 | 61.0 | 36.7 | 90.2 | 33.5 | 365 | 54.7 | 9.75 | 13.2 | 4.43 | 58.2 |
| 1947 | 2.55 | 3.01 | 2.02 | 5.29 | 5.90 | 38.2 | 147 | 23.5 | 90.7 | 7.92 | 27.5 |
| 1948 | 4.14 | 4.52 | 3.47 | 2.64 | 29.5 | 231 | 38.9 | 22.1 | 3.57 | 2.13 | 29.0 |
| 1949 | 1.81 | 3.97 | 2.82 | 5.15 | 8.04 | 83.3 | 45.7 | 55.6 | 2.33 | 3.93 | 14.1 |
| 1950 | 2.25 | 2.76 | 2.70 | 12.9 | 3.18 | 80.8 | 62.2 | 17.2 | 4.06 | 52.1 | 21.9 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | |
|--------------------------------------|------|------|------|-------|-------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | The year |
| 1939 | - | - | - | - | - | - | 1.53 | 0.24 | 0.21 | 0.07 | - |
| 1940 | 0.06 | 0.05 | 0.04 | 0.002 | 0.007 | 0.11 | .35 | .19 | 2.64 | .19 | 4.11 |
| 1941 | .09 | .16 | .28 | .54 | .12 | 2.72 | 1.46 | .18 | .09 | .04 | 5.57 |
| 1942 | .15 | .41 | .25 | .17 | .14 | 1.49 | .48 | .61 | 2.19 | .14 | 6.84 |
| 1943 | .26 | .55 | .30 | .29 | .77 | 3.73 | .83 | .46 | .91 | .23 | 9.57 |
| 1944 | .08 | .10 | .08 | .07 | .64 | .63 | .63 | .13 | .14 | .06 | 2.62 |
| 1945 | .03 | .13 | .04 | .03 | .03 | 2.40 | .42 | .48 | 1.52 | .09 | 5.41 |
| 1946 | .31 | .91 | .56 | 1.38 | .47 | 5.62 | .81 | .15 | .20 | .07 | 10.56 |
| 1947 | .04 | .04 | .03 | .08 | .08 | .59 | 2.19 | .36 | 1.35 | .12 | 5.02 |
| 1948 | .06 | .07 | .05 | .04 | .42 | 3.55 | .58 | .34 | .05 | .03 | 5.25 |
| 1949 | .03 | .06 | .04 | .08 | .11 | 1.28 | .68 | .09 | .03 | .06 | 2.55 |
| 1950 | .03 | .04 | .04 | .20 | .04 | 1.24 | .92 | .26 | .06 | .80 | 3.93 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|--------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W. S. P. no. | Water year ending Sept. 30 | | | | | | | Calendar year |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874 | 397 | Mar. 25, 1939 | - | - | - | - | - | - |
| 1940 | 894 | 2,140 | June 23, 1940 | 0 | 22.6 | 0.301 | 4.11 | 24.8 | 4.49 |
| 1941 | 924 | 1,090 | Mar. 23, 1941 | 1.7 | 30.8 | .411 | 5.57 | 32.4 | 5.85 |
| 1942 | 954 | 920 | May 31, 1942 | 1.0 | 37.8 | .504 | 6.84 | 39.4 | 7.12 |
| 1943 | 974 | - | - | 6.2 | 47.3 | .631 | 8.57 | 42.7 | 7.74 |
| 1944 | 1004 | - | - | .3 | 14.4 | .192 | 2.62 | 14.1 | 2.56 |
| 1945 | 1034 | - | - | 1.0 | 29.8 | .397 | 5.41 | 38.6 | 6.99 |
| 1946 | 1054 | 1,460 | Mar. 13, 1946 | .4 | 58.2 | .776 | 10.56 | 49.0 | 8.89 |
| 1947 | 1084 | 1,220 | June 13, 1947 | 1.2 | 27.8 | .371 | 5.02 | 28.1 | 5.09 |
| 1948 | 1114 | - | - | .6 | 29.0 | .387 | 5.25 | 28.7 | 5.20 |
| 1949 | 1144 | 403 | Mar. 27, 1949 | 0 | 14.1 | .188 | 2.55 | 14.0 | 2.53 |
| 1950 | 1174 | - | - | .2 | 21.9 | .292 | 3.93 | - | - |

99. Fox River at Rapide Croche Dam, near Wrightstown, Wis.

Location--Lat 44°19', long. 88°12', in sec. 4, T. 21 N., R. 19 E., at Rapide Croche Dam, 2 miles upstream from Wrightstown and 18 miles upstream from mouth.

Drainage area--6,150 sq mi, approximately.

Gage--Recording headwater and tailwater gages and, since 1925, electric generation data taken each half hour are used to compute discharge records.

Average discharge--54 years (1896-1950), 4,241 cfs.

Extremes--1918-50: Maximum daily discharge, 21,300 cfs June 6, 1943, Mar. 27, 1946; minimum daily, 138 cfs Aug. 2, 1936.

Remarks--Flow regulated by storage in Lake Winnebago pool, area 263 sq mi at elevation of Menasha Dam crest.

Cooperation--Figures of daily discharge furnished by Corps of Engineers. Records reviewed by Geological Survey.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Monthly and yearly mean discharge, in cubic feet per second,
of Fox River at Rapide Croche Dam, near Wrightstown, Wis.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|---------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|-------|-------|--------|----------|
| 1896 | - | - | - | - | - | 1,990 | 1,610 | 3,800 | 4,350 | 3,490 | 2,180 | 990 | - |
| 1897 | 1,820 | 2,730 | 3,080 | 3,450 | 3,470 | 3,410 | 6,600 | 4,620 | 3,910 | 3,860 | 2,570 | 1,580 | 3,420 |
| 1898 | 2,150 | 2,420 | 2,990 | 3,330 | 3,090 | 3,650 | 4,470 | 5,170 | 3,880 | 2,290 | 2,550 | 1,830 | 3,150 |
| 1899 | 1,940 | 2,940 | 2,910 | 2,650 | 2,800 | 2,970 | 4,280 | 6,510 | 3,460 | 4,310 | 2,570 | 1,730 | 3,500 |
| 1900 | 1,880 | 2,850 | 2,760 | 2,910 | 2,980 | 3,270 | 4,060 | 3,660 | 1,640 | 1,730 | 2,550 | 2,740 | 2,750 |
| 1901 | 5,750 | 7,610 | 4,340 | 3,860 | 4,040 | 4,130 | 8,480 | 4,900 | 4,170 | 4,150 | 2,900 | 1,950 | 4,690 |
| 1902 | 3,250 | 3,910 | 3,470 | 2,990 | 2,870 | 3,450 | 2,920 | 5,350 | 6,450 | 3,990 | 3,250 | 2,000 | 3,660 |
| 1903 | 2,580 | 3,120 | 3,010 | 3,460 | 3,630 | 4,410 | 6,780 | 5,640 | 5,270 | 4,400 | 3,920 | 2,820 | 4,250 |
| 1904 | 5,150 | 4,230 | 3,430 | 3,620 | 3,670 | 3,890 | 6,830 | 8,700 | 6,820 | 3,470 | 3,170 | 2,480 | 4,620 |
| 1905 | 4,050 | 3,980 | 3,670 | 3,970 | 4,330 | 4,040 | 8,290 | 5,510 | 12,250 | 7,430 | 4,420 | 4,030 | 5,500 |
| 1906 | 3,470 | 3,650 | 3,510 | 3,800 | 3,960 | 4,610 | 12,800 | 7,920 | 4,550 | 4,400 | 3,090 | 2,810 | 4,880 |
| 1907 | 3,010 | 4,130 | 5,560 | 5,700 | 5,870 | 4,080 | 9,890 | 7,380 | 5,620 | 4,870 | 3,980 | 3,180 | 5,770 |
| 1908 | 3,570 | 2,670 | 3,020 | 3,270 | 3,440 | 5,160 | 8,120 | 9,800 | 5,080 | 3,500 | 2,350 | 1,480 | 4,290 |
| 1909 | 1,280 | 1,950 | 2,990 | 3,350 | 3,420 | 3,620 | 4,710 | 9,400 | 5,860 | 5,510 | 1,620 | 2,230 | 3,660 |
| 1910 | 1,950 | 2,230 | 3,610 | 3,790 | 3,780 | 3,820 | 3,930 | 4,730 | 3,570 | 1,420 | 1,130 | 2,170 | 3,010 |
| 1911 | 2,540 | 2,380 | 3,390 | 3,510 | 3,690 | 3,850 | 4,070 | 5,670 | 5,820 | 2,060 | 1,240 | 1,860 | 3,180 |
| 1912 | 8,060 | 5,920 | 7,730 | 4,830 | 4,790 | 4,250 | 4,840 | 6,980 | 6,140 | 3,140 | 1,650 | 3,600 | 6,080 |
| 1913 | 4,990 | 4,150 | 4,150 | 3,750 | 3,350 | 6,110 | 12,900 | 8,520 | 3,890 | 3,510 | 2,330 | 2,390 | 5,360 |
| 1914 | 3,610 | 3,820 | 4,130 | 3,870 | 4,140 | 3,560 | 2,920 | 4,530 | 11,040 | 4,490 | 1,990 | 2,310 | 4,200 |
| 1915 | 2,890 | 2,580 | 2,790 | 3,140 | 4,190 | 7,400 | 5,370 | 3,450 | 3,640 | 3,120 | 2,640 | 3,450 | 3,710 |
| 1916 | 5,050 | 4,870 | 5,320 | 4,740 | 5,170 | 5,430 | 12,140 | 12,000 | 10,530 | 4,970 | 3,240 | 2,900 | 16,356 |
| 1917 | 5,830 | 5,930 | 6,070 | 6,210 | 4,780 | 5,240 | 12,170 | 7,540 | 7,170 | 4,590 | 3,830 | 2,730 | 5,840 |
| 1918 | 2,720 | 3,530 | 4,130 | 4,700 | 4,740 | 5,120 | 8,410 | 10,400 | 10,600 | 4,010 | 2,500 | 1,950 | 5,220 |
| 1919 | 1,840 | 3,740 | 4,080 | 4,440 | 3,590 | 4,900 | 9,660 | 7,230 | 5,170 | 4,260 | 2,790 | 3,250 | 7,740 |
| 1920 | 3,250 | 4,760 | 4,960 | 4,860 | 4,720 | 6,440 | 13,000 | 6,320 | 4,520 | 4,370 | 2,610 | 2,350 | 5,170 |
| 1921 | 2,380 | 3,470 | 3,940 | 4,260 | 4,440 | 5,050 | 7,060 | 7,540 | 4,440 | 2,370 | 1,530 | 1,410 | 3,990 |
| 1922 | 1,490 | 2,950 | 3,370 | 3,580 | 3,640 | 6,280 | 16,400 | 11,900 | 6,880 | 4,260 | 3,620 | 2,920 | 5,550 |
| 1923 | 3,000 | 3,100 | 3,440 | 4,530 | 4,750 | 5,800 | 9,150 | 8,250 | 4,580 | 3,170 | 1,860 | 1,970 | 4,460 |
| 1924 | 2,290 | 2,470 | 3,250 | 3,790 | 4,090 | 4,270 | 7,810 | 12,100 | 5,450 | 4,470 | 2,620 | 5,640 | 5,450 |
| 1925 | 4,560 | 4,180 | 4,200 | 4,460 | 4,320 | 4,550 | 2,600 | 2,550 | 4,000 | 4,910 | 3,040 | 2,120 | 3,790 |
| 1926 | 2,830 | 3,460 | 3,750 | 3,770 | 3,740 | 3,470 | 5,130 | 6,610 | 6,910 | 4,310 | 2,890 | 3,940 | 4,230 |
| 1927 | 6,050 | 4,920 | 4,670 | 5,360 | 4,850 | 6,580 | 7,210 | 6,790 | 6,080 | 3,820 | 3,060 | 2,070 | 5,110 |
| 1928 | 4,020 | 4,810 | 4,610 | 4,550 | 5,330 | 7,880 | 13,200 | 5,690 | 4,250 | 3,320 | 2,630 | 4,610 | 5,390 |
| 1929 | 6,560 | 6,490 | 5,220 | 5,580 | 6,690 | 10,900 | 19,400 | 11,200 | 4,690 | 4,880 | 4,090 | 3,390 | 7,410 |
| 1930 | 2,540 | 3,180 | 3,490 | 4,120 | 4,490 | 5,120 | 4,200 | 4,340 | 3,990 | 2,780 | 1,260 | 1,060 | 3,370 |
| 1931 | 1,080 | 1,240 | 2,440 | 2,470 | 2,420 | 2,370 | 2,200 | 1,260 | 1,100 | 983 | 915 | 1,070 | 1,630 |
| 1932 | 1,870 | 2,510 | 3,200 | 4,250 | 5,850 | 5,310 | 3,570 | 4,210 | 3,450 | 1,890 | 916 | 799 | 3,140 |
| 1933 | 728 | 1,900 | 2,600 | 2,410 | 2,780 | 3,690 | 5,370 | 6,470 | 3,820 | 2,070 | 1,170 | 709 | 2,800 |
| 1934 | 879 | 1,598 | 2,261 | 2,313 | 2,192 | 2,079 | 3,350 | 2,982 | 1,449 | 1,600 | 935 | 1,189 | 1,900 |
| 1935 | 1,642 | 2,601 | 4,303 | 3,566 | 4,042 | 6,446 | 7,643 | 5,213 | 3,951 | 3,527 | 3,082 | 2,588 | 4,048 |
| 1936 | 2,464 | 2,497 | 2,548 | 3,073 | 3,520 | 4,222 | 4,406 | 4,191 | 3,228 | 1,314 | 761 | 842 | 2,751 |
| 1937 | 1,816 | 2,382 | 2,232 | 3,044 | 3,853 | 4,404 | 4,988 | 7,275 | 3,748 | 2,210 | 1,126 | 1,062 | 3,259 |
| 1938 | 1,060 | 2,160 | 2,915 | 3,139 | 5,506 | 7,833 | 8,252 | 5,208 | 3,950 | 4,450 | 4,113 | 11,020 | 4,945 |
| 1939 | 8,943 | 3,978 | 3,905 | 5,830 | 7,831 | 4,782 | 8,190 | 4,610 | 3,802 | 3,270 | 2,181 | 2,193 | 4,940 |
| 1940 | 2,342 | 2,522 | 2,957 | 2,911 | 3,003 | 3,335 | 2,479 | 2,893 | 6,674 | 6,159 | 5,071 | 4,807 | 3,763 |
| 1941 | 2,739 | 3,286 | 4,218 | 6,643 | 5,185 | 3,623 | 8,179 | 4,416 | 4,648 | 2,806 | 1,724 | 2,548 | 4,154 |
| 1942 | 5,028 | 7,650 | 4,822 | 4,836 | 4,198 | 4,633 | 5,137 | 8,302 | 13,150 | 4,225 | 3,690 | 3,450 | 5,772 |
| 1943 | 5,108 | 4,693 | 5,986 | 3,944 | 4,566 | 6,158 | 9,672 | 4,984 | 10,350 | 5,019 | 3,007 | 2,636 | 5,324 |
| 1944 | 1,921 | 2,660 | 3,163 | 2,891 | 3,554 | 4,456 | 3,268 | 4,679 | 6,018 | 3,526 | 2,000 | 1,772 | 3,323 |
| 1945 | 2,072 | 2,537 | 3,478 | 3,104 | 3,801 | 4,496 | 5,632 | 4,155 | 10,490 | 3,338 | 2,448 | 2,204 | 3,967 |
| 1946 | 3,074 | 3,328 | 4,891 | 6,077 | 5,232 | 10,790 | 7,550 | 2,971 | 4,648 | 4,225 | 2,536 | 2,159 | 4,790 |
| 1947 | 1,957 | 2,887 | 3,331 | 3,457 | 4,293 | 4,534 | 6,832 | 5,683 | 6,674 | 3,784 | 2,531 | 2,216 | 4,005 |
| 1948 | 1,943 | 2,781 | 3,274 | 3,526 | 3,121 | 5,420 | 5,589 | 5,258 | 2,164 | 1,913 | 1,671 | 1,469 | 3,180 |
| 1949 | 1,315 | 2,476 | 3,119 | 3,566 | 5,625 | 3,714 | 3,640 | 3,188 | 2,020 | 2,202 | 2,032 | 2,047 | 2,723 |
| 1950 | 1,595 | 2,091 | 2,508 | 3,296 | 3,061 | 3,332 | 7,940 | 5,570 | 3,175 | 2,778 | 2,607 | 2,146 | 3,339 |

† Corrected.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1896 | 454 | - | - | - | - | - | - | - | - |
| 1897 | 454 | - | - | - | 3,420 | - | - | 3,420 | - |
| 1898 | 454 | - | - | - | 3,150 | - | - | 3,170 | - |
| 1899 | 454 | - | - | - | 3,500 | - | - | 3,480 | - |
| 1900 | 454 | - | - | - | 2,750 | - | - | 3,600 | - |
| 1901 | 454 | - | - | - | 4,690 | - | - | 4,100 | - |
| 1902 | 454 | - | - | - | 3,660 | - | - | 3,500 | - |
| 1903 | 454 | - | - | - | 4,250 | - | - | 4,600 | - |
| 1904 | 454 | - | - | - | 4,620 | - | - | 4,530 | - |
| 1905 | 454 | - | - | - | 5,500 | - | - | 5,400 | - |
| 1906 | 454 | - | - | - | 4,880 | - | - | 5,050 | - |
| 1907 | 454 | - | - | - | 5,270 | - | - | 4,970 | - |
| 1908 | 454 | - | - | - | 4,290 | - | - | 4,040 | - |
| 1909 | 454 | - | - | - | 3,660 | - | - | 3,800 | - |
| 1910 | 454 | - | - | - | 3,010 | - | - | 3,050 | - |
| 1911 | 454 | - | - | - | 3,170 | - | - | 4,240 | - |
| 1912 | 454 | - | - | - | 6,080 | - | - | 5,430 | - |
| 1913 | 454 | - | - | - | 5,360 | - | - | 5,210 | - |
| 1914 | 454 | - | - | - | 4,200 | - | - | 3,920 | - |
| 1915 | 454 | - | - | - | 3,710 | - | - | 4,300 | - |

Yearly discharge, in cubic feet per second, of Fox River at Rapide Croche Dam,
near Wrightstown, Wis.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 454 | - | - | - | †6,356 | - | - | †6,403 | - |
| 1917 | 454 | - | - | - | 5,840 | - | - | 5,380 | - |
| 1918 | 474 | 16,300 | May 25, 1918 | 1,330 | 5,220 | - | - | 5,163 | - |
| 1919 | 504 | 13,100 | Apr. 18, 1919 | 1,250 | 4,740 | - | - | 5,019 | - |
| 1920 | 504 | 16,600 | Apr. 10, 1920 | 1,320 | 5,170 | - | - | 4,900 | - |
| 1921 | 524 | 14,200 | Apr. 28, 1921 | 742 | 3,990 | - | - | 3,800 | - |
| 1922 | 544 | 20,100 | Apr. 23, 1922 | 1,240 | 5,550 | - | - | 5,741 | - |
| 1923 | 564 | 13,700 | May 1-3, 1923 | 1,180 | 4,460 | - | - | 4,336 | - |
| 1924 | 584 | 15,500 | May 13, 1924 | 1,280 | 5,450 | - | - | 5,862 | - |
| 1925 | 604 | 8,340 | July 9, 1925 | 1,540 | 3,790 | - | - | 3,549 | - |
| 1926 | 624 | 9,060 | June 17, 1926 | 1,740 | 4,230 | - | - | 4,694 | - |
| 1927 | 644 | 13,300 | Mar. 30, 1927 | 1,520 | 5,110 | - | - | 4,937 | - |
| 1928 | 664 | 15,100 | Apr. 11, 1928 | 1,600 | 5,390 | - | - | 5,796 | - |
| 1929 | 684 | 20,600 | Apr. 4, 1929 | 2,590 | 7,410 | - | - | 6,647 | - |
| 1930 | 699 | 6,600 | Mar. 8, 1930 | 620 | 3,370 | - | - | 3,002 | - |
| 1931 | 714 | 3,100 | Dec. 2, 1930 | 530 | 1,630 | - | - | 1,862 | - |
| 1932 | 729 | 9,900 | Mar. 4, 1932 | 402 | 3,140 | - | - | 2,936 | - |
| 1933 | 744 | 8,900 | May 19, 1933 | 273 | 2,800 | - | - | 2,767 | - |
| 1934 | 759 | 6,850 | Apr. 3, 1934 | 282 | 1,900 | - | - | 2,221 | - |
| 1935 | 784 | 11,100 | Apr. 4, 1935 | 928 | 4,048 | - | - | 3,960 | - |
| 1936 | 804 | 6,290 | Apr. 4, 1936 | 138 | 2,751 | - | - | 2,660 | - |
| 1937 | 824 | 13,500 | May 4, 1937 | 583 | 3,259 | - | - | 3,235 | - |
| 1938 | 854 | 18,000 | Sept. 22, 1938 | 622 | 4,945 | - | - | 5,848 | - |
| 1939 | 874 | 18,200 | Oct. 1, 1938 | 1,240 | 4,940 | - | - | 4,180 | - |
| 1940 | 894 | 17,500 | June 26, 1940 | 1,470 | 3,763 | - | - | 3,966 | - |
| 1941 | 924 | 16,600 | Apr. 20, 1941 | 1,160 | 4,154 | - | - | 4,773 | - |
| 1942 | 954 | 19,800 | June 12, 1942 | 2,680 | 5,772 | - | - | 5,450 | - |
| 1943 | 974 | 21,300 | June 6, 1943 | 1,940 | 5,324 | - | - | 4,617 | - |
| 1944 | 1004 | 10,800 | June 23, 1944 | 1,180 | 3,323 | - | - | 3,353 | - |
| 1945 | 1034 | 15,800 | June 6, 1945 | 1,470 | 3,967 | - | - | 4,238 | - |
| 1946 | 1054 | 21,300 | Mar. 27, 1946 | 1,660 | 4,790 | - | - | 4,526 | - |
| 1947 | 11084 | 11,000 | June 16, 1947 | 1,250 | 4,005 | - | - | 3,981 | - |
| 1948 | 1114 | 10,300 | Apr. 3, 1948 | 970 | 3,180 | - | - | 3,088 | - |
| 1949 | 1144 | 6,360 | Apr. 26, 1949 | 830 | 2,723 | - | - | 2,664 | - |
| 1950 | 1174 | 10,900 | Apr. 18, 1950 | 1,110 | 3,339 | - | - | - | - |

† Corrected.

100. Sheboygan River near Sheboygan, Wis. 1/

Location.--Lat 43°45', long. 87°45', in sec. 28, T. 15 N., R. 23 E., near west edge of Sheboygan and 2½ miles above mouth.

Drainage area.--403 sq mi, approximately.

Gage.--Chain gage. Altitude of gage is 580 ft (from U.S.G.S. benchmark in vicinity).

Average discharge.--8 years (1916-24), 269 cfs.

Extremes.--1916-24: Maximum discharge, 7,140 cfs Mar. 26, 1920 (gage height, 9.40 ft); minimum observed, 1 cfs Aug. 27, 1922 (gage height, 1.48 ft).

Maximum for period of record was probably exceeded Aug. 6, 1924, discharge not determined.

Remarks.--Diurnal fluctuation caused by powerplants upstream.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-----|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1916 | - | - | - | - | - | - | - | - | - | 71.5 | 68.8 | - |
| 1917 | 123 | 348 | 251 | 75.5 | 55.0 | 698 | 550 | 354 | 601 | 177 | 99.1 | 286 |
| 1918 | 147 | 186 | 44.0 | 25 | 147 | 2,050 | 371 | 387 | 218 | 115 | 103 | †322 |
| 1919 | 42.4 | 46.9 | 78.3 | 82.9 | 105 | 527 | 543 | 488 | 101 | 47.0 | 45.6 | 181 |
| 1920 | 149 | 262 | 93.4 | 108 | 80.0 | 1,510 | 463 | 193 | 150 | 52.9 | 51.8 | 265 |
| 1921 | 57.9 | 146 | 150 | 120 | 128 | 398 | 959 | 247 | 70.4 | 40.2 | 39.0 | 201 |
| 1922 | 86.8 | 90.9 | 157 | 57.7 | 121 | 1,350 | 835 | 176 | 189 | 92.4 | 48.4 | 275 |
| 1923 | 60.7 | 69.7 | 33.9 | 33.7 | 47.5 | 610 | 1,450 | 116 | 52.3 | 36.9 | 39.4 | 215 |
| 1924 | 61.4 | 72.5 | 59.3 | 36.0 | 67.6 | 474 | 1,350 | 720 | 276 | †102 | †1432 | †403 |

† Corrected.

* Not previously published; estimated on basis of rainfall and records for Milwaukee River at Milwaukee.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1916 | - | - | - | - | - | - | - | - | - | 0.20 | 0.20 | - |
| 1917 | 0.35 | 0.96 | 0.72 | 0.22 | 0.14 | 1.99 | 1.52 | 1.01 | 1.66 | .51 | .28 | 9.60 |
| 1918 | .42 | .52 | .13 | .07 | .38 | 5.87 | 1.03 | 1.11 | .60 | .33 | .50 | 10.87 |
| 1919 | .12 | .13 | .22 | .24 | .27 | 1.51 | 1.51 | 1.40 | .28 | .13 | .13 | 6.08 |
| 1920 | .43 | .73 | .27 | .31 | .21 | 4.32 | 1.28 | .58 | .42 | .15 | .15 | 8.94 |
| 1921 | .17 | .40 | .43 | .34 | .33 | 1.14 | 2.66 | .71 | .20 | .12 | .11 | 6.78 |
| 1922 | .25 | .25 | .45 | .16 | .31 | 3.86 | 2.31 | .50 | .52 | .26 | .14 | 9.23 |
| 1923 | .17 | .19 | .11 | .10 | .12 | 1.74 | 4.02 | .33 | .14 | .11 | .11 | 7.26 |
| 1924 | .18 | .20 | .17 | .10 | .18 | 1.36 | 3.74 | 2.06 | .76 | †2.29 | †4.10 | †13.61 |

* Not previously published; see footnote to preceding table.

1/ Re-established as "at Sheboygan" November 14, 1950.

| Yearly discharge, in cubic feet per second, of Sheboygan River near Sheboygan, Wis. | | | | | | | | | |
|---|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 454 | - | - | - | - | - | - | - | - |
| 1917 | 454 | *2,080 | June 3, 1917* | 40 | 286 | 0.710 | 9.60 | 257 | 8.64 |
| 1918 | 504 | *6,540 | Mar. 20, 1918 | - | †322 | .799 | 10.87 | 305 | 10.27 |
| 1919 | 504 | *3,670 | Mar. 16, 1919 | - | 181 | .449 | 6.08 | 209 | 7.04 |
| 1920 | 504 | 7,140 | Mar. 26, 1920 | 14 | 265 | .658 | 8.94 | 252 | 8.51 |
| 1921 | 524 | *5,140 | Apr. 26, 1921 | 23 | 201 | .499 | 6.78 | 199 | 6.73 |
| 1922 | 544 | 3,500 | Mar. 7, 1922 | 1 | 275 | .682 | 9.23 | 261 | 8.75 |
| 1923 | 564 | *4,200 | Apr. 6, 1923* | 5 | 216 | .536 | 7.26 | 218 | 7.34 |
| 1924 | 584 | - | - | ‡8 | ‡403 | ‡1.00 | ‡13.61 | - | - |

* Revised.

† Corrected.

‡ Not previously published.

101. Cedar Creek near Cedarburg, Wis.

Location.--Lat 43°19'25", long. 87°58'50", on line between secs. 14 and 23, T. 10 N., R. 21 E., on upstream side of highway bridge, 2 miles north of Cedarburg and 6 miles upstream from mouth.

Drainage area.--113 sq mi, approximately.

Gage.--Chain gage. Altitude of gage is 790 ft (from topographic map).

Average discharge.--20 years (1930-50), 56.2 cfs.

Extremes.--1930-50: Maximum discharge, 3,230 cfs Mar. 27, 1950 (gage height, 11.10 ft); maximum gage height observed, 12.00 ft Feb. 7, 1938 (backwater from ice); minimum discharge observed, 0.2 cfs Aug. 9-12, 1936.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1930 | - | - | - | - | - | - | - | - | - | - | - | 8.05 | - |
| 1931 | 14.1 | 10.6 | 10.8 | 15.8 | 32.1 | 29.6 | 58.6 | 15.2 | 21.5 | 11.0 | 2.21 | 6.69 | 18.8 |
| 1932 | 28.1 | 127 | 106 | 170 | 94.1 | 59.1 | 53.4 | 29.8 | 8.87 | 6.85 | 2.87 | 2.48 | 57.2 |
| 1933 | 9.37 | 12.2 | 14.6 | 31.5 | 51.5 | 63.8 | 217 | 291 | 46.9 | 60.6 | 9.57 | 6.12 | 67.9 |
| 1934 | 7.42 | 8.45 | 7.62 | 11.3 | 5.57 | 28.5 | 67.4 | 15.5 | 3.34 | 2.23 | 1.45 | 3.72 | 13.5 |
| 1935 | 5.65 | 23.0 | 42.9 | 16.4 | 30.8 | 403 | 97.6 | 98.8 | 31.0 | 10.3 | 8.72 | 5.79 | 65.0 |
| 1936 | 7.13 | 14.6 | 5.67 | 6.90 | 6.71 | 228 | 46.3 | 20.8 | 11.2 | 1.40 | 2.46 | 18.0 | 31.0 |
| 1937 | 27.9 | 21.2 | 24.5 | 74.8 | 196 | 162 | 218 | 131 | 73.9 | 9.95 | 3.96 | 4.78 | 78.1 |
| 1938 | 7.1 | 6.7 | 6.3 | 25.0 | 234 | 191 | 69.9 | 33.2 | 45.1 | 91.0 | 21.3 | 446 | 96.4 |
| 1939 | 58.9 | 76.4 | 32.7 | 42.5 | 43.8 | 191 | 150 | 36.7 | 32.9 | 7.43 | 6.45 | 4.47 | 56.9 |
| 1940 | 11.6 | 13.0 | 11.3 | 3.7 | 5.4 | 19.9 | 127 | 108 | 364 | 37.2 | 28.5 | 20.7 | 62.0 |
| 1941 | 18.7 | 29.2 | 71.8 | 63.5 | 40.7 | 121 | 140 | 44.7 | 13.1 | 4.74 | 3.52 | 9.99 | 46.8 |
| 1942 | 47.3 | 65.0 | 44.0 | 42.3 | 44.2 | 148 | 53.8 | 75.2 | 169 | 16.8 | 22.0 | 36.0 | 62.0 |
| 1943 | 32.8 | 134 | 88.2 | 127 | 189 | 110 | 91.0 | 45.2 | 65.3 | 16.1 | 13.8 | 7.55 | 32.0 |
| 1944 | 8.03 | 20.0 | 11.1 | 9.91 | 44.7 | 111 | 118 | 43.2 | 45.3 | 13.4 | 4.75 | 8.19 | 36.3 |
| 1945 | 8.52 | 14.1 | 9.48 | 7.10 | 11.0 | 129 | 41.6 | 64.1 | 61.3 | 8.66 | 13.2 | 35.1 | 33.7 |
| 1946 | 49.3 | 64.6 | 48.9 | 150 | 38.8 | 522 | 60.6 | 24.7 | 17.8 | 8.33 | 2.71 | 5.73 | 83.6 |
| 1947 | 6.21 | 10.1 | 7.73 | 14.5 | 12.3 | 116 | 179 | 127 | 83.3 | 14.9 | 7.11 | 14.2 | 49.4 |
| 1948 | 11.6 | 47.6 | 27.9 | 19.8 | 70.9 | 383 | 117 | 75.9 | 13.0 | 8.37 | 5.82 | 5.18 | 65.5 |
| 1949 | 5.92 | 15.8 | 14.1 | 18.3 | 35.6 | 125 | 110 | 25.6 | 56.1 | 26.7 | 21.6 | 6.25 | 36.5 |
| 1950 | 7.20 | 8.01 | 8.33 | 38.4 | 14.1 | 373 | 137 | 69.0 | 18.1 | 97.6 | 21.6 | 22.7 | 70.2 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1930 | - | - | - | - | - | - | - | - | - | - | - | 0.08 | - |
| 1931 | 0.14 | 0.10 | 0.11 | 0.16 | 0.30 | 0.30 | 0.58 | 0.16 | 0.21 | 0.11 | 0.02 | .07 | 2.26 |
| 1932 | .29 | 1.25 | 1.08 | 1.73 | .90 | .60 | .53 | .30 | .09 | .07 | .03 | .02 | 6.89 |
| 1933 | .10 | .12 | .15 | .32 | .47 | .65 | 2.14 | 2.97 | .46 | .62 | .10 | .06 | 8.16 |
| 1934 | .08 | .08 | .08 | .12 | .05 | .29 | .66 | .16 | .03 | .02 | .02 | .04 | 1.63 |
| 1935 | .06 | .23 | .44 | .17 | .28 | 4.12 | .96 | 1.01 | .31 | .10 | .09 | .06 | 7.83 |
| 1936 | .07 | .14 | .06 | .07 | .06 | 2.33 | .46 | .21 | .11 | .01 | .03 | .18 | 3.73 |
| 1937 | .28 | .21 | .25 | .76 | 1.80 | 1.65 | 2.15 | 1.34 | .73 | .10 | .04 | .05 | 3.36 |
| 1938 | .07 | .07 | .06 | .25 | 2.16 | 1.85 | .69 | .34 | .45 | .83 | .22 | 4.41 | 11.60 |
| 1939 | .60 | .75 | .33 | .43 | .40 | 1.95 | 1.48 | .37 | .32 | .08 | .07 | .04 | 6.81 |
| 1940 | .12 | .13 | .12 | .04 | .05 | .20 | 1.25 | 1.10 | 3.59 | .38 | .29 | .20 | 7.47 |
| 1941 | .19 | .29 | .73 | .65 | .37 | 1.23 | 1.38 | .46 | .13 | .05 | .04 | .10 | 5.62 |
| 1942 | .48 | .64 | .45 | .43 | .41 | 1.51 | .53 | .77 | 1.67 | .17 | .22 | .36 | 7.64 |
| 1943 | .33 | 1.33 | .84 | 1.29 | 1.74 | 3.16 | .90 | .46 | .62 | .16 | .14 | .07 | 11.04 |
| 1944 | .08 | .20 | .11 | .10 | .43 | 1.13 | 1.16 | .44 | .46 | .14 | .06 | .08 | 4.38 |
| 1945 | .09 | .14 | .10 | .07 | .10 | 1.31 | .41 | .65 | .60 | .09 | .13 | .35 | 4.04 |
| 1946 | .50 | .64 | .50 | 1.53 | .56 | 5.33 | .60 | .25 | .18 | .09 | .03 | .06 | 10.07 |
| 1947 | .06 | .10 | .08 | .15 | .11 | 1.19 | 1.76 | 1.29 | .82 | .15 | .07 | .14 | 5.92 |
| 1948 | .12 | .47 | .28 | .20 | .68 | 3.91 | 1.16 | .77 | 1.13 | .09 | .04 | .05 | 7.90 |
| 1949 | .06 | .16 | .14 | .19 | .31 | 1.28 | 1.09 | .26 | .36 | .27 | .22 | .06 | 4.40 |
| 1950 | .07 | .08 | .09 | .39 | .13 | 3.80 | 1.55 | .70 | .18 | 1.00 | .22 | .22 | 8.43 |

Yearly discharge, in cubic feet per second, of Cedar Creek near Cedarburg, Wis.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | *177 | June 23, 1931 | 0.8 | 18.8 | 0.166 | 2.26 | 37.7 | 4.53 |
| 1932 | 729 | *450 | Nov. 25, 1931 | 1.3 | 57.2 | .506 | 6.89 | 38.5 | 4.64 |
| 1933 | 744 | *1,470 | Apr. 1, 1933 | 2.6 | 67.9 | .601 | 8.16 | 66.8 | 8.03 |
| 1934 | 759 | *352 | Apr. 4, 1934 | .3 | 13.5 | .119 | 1.63 | 17.6 | 2.12 |
| 1935 | 784 | - | - | 2.6 | 65.0 | .575 | 7.83 | 6.13 | 7.37 |
| 1936 | 804 | - | - | .2 | 31.0 | .274 | 3.73 | 34.9 | 4.20 |
| 1937 | 824 | *1,350 | Apr. 22, 1937 | 3.0 | 78.1 | .691 | 9.36 | 73.6 | 8.82 |
| 1938 | 854 | 1,520 | Sept. 19, 1938 | 2.0 | 96.4 | .853 | 11.60 | 109 | 13.08 |
| 1939 | 874 | *702 | Mar. 24, 1939 | 3.0 | 56.9 | .504 | 6.81 | 45.9 | 5.51 |
| 1940 | 894 | 3,180 | June 23, 1940 | 1 | 62.0 | .549 | 7.47 | 69.1 | 8.31 |
| 1941 | 924 | - | - | 2.1 | 46.8 | .414 | 5.62 | 49.8 | 5.98 |
| 1942 | 954 | 850 | June 13, 1942 | 9.6 | 63.6 | .563 | 7.64 | 71.3 | 8.57 |
| 1943 | 974 | - | - | 6.7 | 92.0 | .614 | 11.04 | 74.5 | 8.93 |
| 1944 | 1004 | - | - | 3.0 | 36.3 | .321 | 4.38 | 35.8 | 4.32 |
| 1945 | 1034 | *406 | Mar. 15, 1945 | 5.9 | 33.7 | .298 | 4.04 | 44.7 | 5.35 |
| 1946 | 1054 | 3,140 | Mar. 7, 1946 | 1.9 | 83.6 | .740 | 10.07 | 72.0 | 8.67 |
| 1947 | 1084 | - | - | 3.0 | 49.4 | .437 | 5.92 | 54.6 | 6.55 |
| 1948 | 1114 | *1,610 | Mar. 19, 1948 | 1.9 | 65.5 | .580 | 7.90 | 61.3 | 7.39 |
| 1949 | 1144 | *386 | Apr. 1, 1949 | 4.0 | 36.5 | .323 | 4.40 | 35.5 | 4.28 |
| 1950 | 1174 | 3,230 | Mar. 27, 1950 | 4.6 | 70.2 | .621 | 8.43 | - | - |

* Revised.

† Not previously published.

102. Milwaukee River at Milwaukee, Wis.^{1/}

Location.--Lat 43°06'00", long. 87°54'30", in NE¹/₄ sec. 5, T. 7 N., R. 22 E., on left bank near north limits of Milwaukee, 2,000 ft downstream from Port Washington Road Bridge, and 6 miles upstream from mouth.

Drainage area.--661 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 607.3 ft above mean sea level, adjustment of 1912. Prior to Apr. 6, 1929, staff or chain gage near present site at different datum. Apr. 6, 1929, to Jan. 8, 1934, chain gage at bridge half a mile upstream at different datum.

Average discharge.--36 years (1914-50), 385 cfs.

Extremes.--1914-50: Maximum discharge, 15,100 cfs Mar. 20, 1918, Aug. 6, 1924 (gage height, 9.00 ft, datum then in use, from floodmark for 1918, from graph based on gage readings for 1924); no flow Sept. 8, 1943.

Remarks.--Occasional regulation caused by dams upstream since 1935.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|--------|-------|-----|-------|------|------|-------|----------|
| 1914 | - | - | - | - | - | - | - | 466 | 644 | 172 | 807 | 389 | - |
| 1915 | 808 | 224 | 119 | 158 | 1,270 | 1,250 | 458 | 699 | 514 | 158 | 192 | 566 | 530 |
| 1916 | 247 | 474 | 383 | 864 | 645 | 1,030 | 946 | 764 | 871 | 120 | 261 | 136 | 561 |
| 1917 | 461 | 715 | 235 | 115 | 119 | 2,010 | 799 | 633 | 1,070 | 371 | 91.6 | 151 | 567 |
| 1918 | 448 | 403 | 154 | 65.0 | 239 | *3,201 | 661 | 678 | 209 | 97.4 | 80.3 | 82.6 | *531 |
| 1919 | 99.1 | 129 | 219 | 127 | 297 | 1,220 | 729 | 643 | 183 | 92.9 | 87.8 | 91.0 | 326 |
| 1920 | 209 | 312 | 116 | 144 | 157 | 1,930 | 669 | 305 | 686 | 132 | 119 | 106 | 408 |
| 1921 | 96.8 | 233 | 379 | 534 | 233 | 634 | 1,270 | 350 | 127 | 68.7 | 82.6 | 246 | 354 |
| 1922 | 254 | 355 | 634 | 154 | 835 | *1,516 | 1,070 | 277 | 278 | 154 | 100 | 214 | *484 |
| 1923 | 120 | 215 | 106 | 140 | 202 | 964 | 2,060 | 295 | 226 | 81.8 | 64.5 | 115 | 381 |
| 1924 | 201 | 156 | 200 | 92.7 | 208 | 1,020 | 1,280 | 873 | 299 | 170 | *936 | *339 | *652 |
| 1925 | 206 | 372 | 275 | 151 | 846 | 557 | 672 | 188 | 137 | 102 | 94.0 | 100 | 304 |
| 1926 | 142 | 197 | 258 | 275 | 467 | 1,070 | 819 | 506 | 386 | 102 | 84.4 | 172 | 372 |
| 1927 | 225 | 853 | 548 | 349 | 696 | 1,330 | 843 | 628 | 306 | 120 | 77.6 | 139 | 505 |
| 1928 | 764 | 869 | 642 | 243 | 354 | 1,180 | 1,340 | 479 | 576 | 319 | 240 | 125 | 578 |
| 1929 | 242 | 702 | 981 | 279 | 163 | 3,550 | 2,030 | 778 | 282 | 220 | 109 | 104 | 792 |
| 1930 | 162 | 204 | 239 | 107 | 947 | 503 | 637 | 513 | 139 | 83.3 | 67.2 | 49.1 | 299 |

* Revised.

^{1/} Published as "near Milwaukee" prior to 1936.

Monthly and yearly mean discharge, in cubic feet per second,
of Milwaukee River at Milwaukee, Wis.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1931 | 111 | 100 | 82.1 | 78.5 | 111 | 204 | 311 | 127 | 123 | 62.6 | 47.5 | 119 | 123 |
| 1932 | 226 | 738 | 554 | 647 | 392 | 334 | 310 | 215 | 79.9 | 51.5 | 36.0 | 27.4 | 298 |
| 1933 | 75.9 | 86.0 | 150 | 225 | 268 | 361 | 1,320 | 1,270 | 476 | 216 | 85.0 | 61.3 | 392 |
| 1934 | 78.9 | 80.5 | 92.5 | 150 | 50.0 | 205 | 801 | 112 | 56.3 | 35.4 | 19.4 | 49.3 | 126 |
| 1935 | 59.9 | 281 | 274 | 127 | 133 | 2,003 | 692 | 451 | 231 | 81.7 | 82.7 | 54.2 | 375 |
| 1936 | 74.6 | 121 | 124 | 81.5 | 75.8 | 1,172 | 413 | 242 | 77.1 | 25.0 | 37.3 | 141 | 216 |
| 1937 | 170 | 145 | 138 | 397 | 1,302 | 626 | 925 | 573 | 416 | 79.6 | 31.7 | 54.4 | 398 |
| 1938 | 76.6 | 77.7 | 84.2 | 135 | 2,200 | 1,385 | 381 | 152 | 112 | 499 | 187 | 2,304 | 616 |
| 1939 | 317 | 405 | 250 | 481 | 461 | 944 | 781 | 248 | 237 | 57.6 | 80.6 | 47.9 | 356 |
| 1940 | 86.2 | 91.4 | 75.2 | 46.2 | 60.7 | 181 | 732 | 383 | 200 | 174 | 212 | 151 | 281 |
| 1941 | 108 | 161 | 337 | 307 | 181 | 604 | 792 | 222 | 83.5 | 46.2 | 37.1 | 131 | 251 |
| 1942 | 304 | 377 | 245 | 250 | 265 | 780 | 313 | 357 | 648 | 105 | 219 | 247 | 343 |
| 1943 | 196 | 481 | 450 | 477 | 826 | 1,730 | 549 | 303 | 396 | 111 | 93 | 64 | 471 |
| 1944 | 85.2 | 155 | 88.6 | 84.4 | 294 | 714 | 618 | 248 | 203 | 83.1 | 53.9 | 90.4 | 225 |
| 1945 | 89.3 | 140 | 98.6 | 75.0 | 115 | 716 | 289 | 301 | 401 | 74.8 | 103 | 184 | 214 |
| 1946 | 228 | 292 | 241 | 711 | 195 | 2,076 | 286 | 156 | 132 | 89.6 | 38.5 | 47.4 | 378 |
| 1947 | 52.8 | 104 | 70.9 | 145 | 115 | 678 | 938 | 592 | 453 | 97.0 | 51.7 | 83.7 | 282 |
| 1948 | 114 | 197 | 177 | 115 | 328 | 1,696 | 583 | 463 | 102 | 66.2 | 46.5 | 34.1 | 328 |
| 1949 | 53.1 | 126 | 104 | 182 | 337 | 855 | 530 | 136 | 174 | 127 | 85.3 | 43.7 | 229 |
| 1950 | 56.6 | 62.4 | 68.6 | 217 | 111 | 1,335 | 757 | 389 | 135 | 434 | 104 | 107 | 317 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|-------|-------|----------|
| 1914 | - | - | - | - | - | - | - | 0.81 | 1.09 | 0.30 | 0.14 | 0.66 | - |
| 1915 | 1.41 | 0.38 | 0.21 | 0.28 | 2.00 | 2.18 | 0.77 | 1.22 | 1.87 | 1.28 | 0.33 | 0.96 | 10.89 |
| 1916 | .43 | .80 | .67 | 1.51 | 1.05 | 1.80 | 1.60 | 1.34 | 1.47 | .21 | .46 | .23 | 11.57 |
| 1917 | .80 | 1.20 | .41 | .20 | .19 | 3.50 | 1.35 | 1.10 | 1.81 | .65 | .16 | .25 | 11.62 |
| 1918 | .78 | .68 | .27 | .11 | .38 | *5.58 | 1.12 | 1.19 | .55 | .17 | .14 | .14 | *10.91 |
| 1919 | .17 | .22 | .38 | .22 | .47 | 2.13 | 1.23 | 1.12 | .31 | .16 | .15 | .15 | 6.71 |
| 1920 | .36 | .53 | .20 | .25 | .26 | 3.37 | 1.13 | .53 | 1.16 | .23 | .21 | .18 | 8.41 |
| 1921 | .17 | .39 | .68 | .93 | .37 | 1.11 | 2.14 | .61 | .21 | .12 | .14 | .42 | 7.27 |
| 1922 | .44 | .60 | 1.11 | .27 | 1.31 | *2.64 | 1.81 | .61 | .47 | .27 | .17 | .36 | *9.93 |
| 1923 | .21 | .36 | .18 | .24 | .22 | 1.68 | 3.48 | .38 | .14 | .11 | .19 | .780 | |
| 1924 | .35 | .26 | .35 | .16 | .34 | 1.78 | 2.16 | 1.52 | .50 | .30 | *5.12 | *5.7 | *13.41 |
| 1925 | .36 | .63 | .48 | .26 | 1.33 | .97 | 1.14 | .33 | .23 | .18 | .16 | .17 | 6.24 |
| 1926 | .25 | .33 | .45 | .48 | .74 | 1.87 | 1.38 | .88 | .65 | .18 | .15 | .29 | 7.65 |
| 1927 | .39 | 1.10 | .96 | .61 | 1.42 | 2.32 | 1.43 | 1.10 | .52 | .21 | .13 | .23 | 10.42 |
| 1928 | 1.34 | 1.13 | 1.12 | .42 | .58 | 2.06 | 2.26 | .84 | .97 | .56 | .42 | .21 | 11.91 |
| 1929 | .42 | 1.18 | 1.71 | .49 | .26 | 6.19 | 3.42 | 1.36 | .49 | .38 | .19 | .18 | 16.26 |
| 1930 | .28 | .34 | .42 | .19 | 1.49 | .88 | 1.08 | .89 | .23 | .15 | .12 | .08 | 6.15 |
| 1931 | .19 | .17 | .14 | .14 | .17 | .36 | .52 | .22 | .21 | .11 | .08 | .20 | 2.51 |
| 1932 | .39 | 1.25 | .93 | 1.13 | .64 | .58 | .52 | .37 | .14 | .09 | .06 | .05 | 6.15 |
| 1933 | .13 | .14 | .26 | .39 | .42 | .63 | 2.23 | 2.21 | .80 | .38 | .14 | .10 | 7.83 |
| 1934 | .13 | .14 | .16 | .23 | .08 | .36 | 1.01 | .19 | .09 | .06 | .03 | .08 | 2.56 |
| 1935 | .10 | .47 | .48 | .22 | .21 | 3.49 | 1.17 | .79 | .39 | .14 | .14 | .09 | 7.69 |
| 1936 | .13 | .20 | .22 | .14 | .12 | 2.04 | .70 | .42 | .13 | .04 | .06 | .24 | 4.44 |
| 1937 | .30 | .24 | .24 | .69 | 2.05 | 1.09 | 1.56 | 1.00 | .70 | .14 | .06 | .09 | 8.16 |
| 1938 | .13 | .13 | .11 | .24 | 3.47 | 2.42 | .61 | .27 | .19 | .87 | .33 | 3.89 | 12.66 |
| 1939 | .55 | .68 | .44 | .84 | .73 | 1.65 | 1.32 | .43 | .40 | .10 | .11 | .08 | 7.33 |
| 1940 | .13 | .15 | .13 | .08 | .10 | .32 | 1.24 | .67 | 2.03 | .30 | .37 | .25 | 5.79 |
| 1941 | .19 | .27 | .59 | .53 | .29 | 1.05 | 1.34 | .39 | .14 | .08 | .06 | .22 | 5.15 |
| 1942 | .53 | .64 | .43 | .44 | .42 | 1.36 | .53 | .82 | 1.09 | .18 | .38 | .42 | 7.04 |
| 1943 | .34 | .81 | .79 | .83 | 1.30 | 3.02 | .93 | .53 | .67 | .19 | .16 | .11 | 9.68 |
| 1944 | .15 | .26 | .15 | .15 | .48 | 1.24 | 1.04 | .43 | .34 | .15 | .09 | .15 | 4.63 |
| 1945 | .16 | .24 | .17 | .13 | .18 | 1.24 | .49 | .52 | .68 | .13 | .18 | .28 | 4.40 |
| 1946 | .40 | .49 | .42 | 1.24 | .31 | 3.62 | .48 | .27 | .22 | .16 | .07 | .08 | 7.76 |
| 1947 | .09 | .18 | .12 | .25 | .18 | 1.19 | 1.58 | 1.05 | .76 | .17 | .09 | .14 | 5.78 |
| 1948 | .20 | .35 | .31 | .20 | .53 | 2.96 | .98 | .81 | .17 | .12 | .08 | .06 | 6.75 |
| 1949 | .09 | .21 | .18 | .32 | .53 | 1.49 | .89 | .24 | .29 | .22 | .15 | .07 | 4.68 |
| 1950 | .10 | .10 | .12 | .38 | .17 | 2.33 | 1.28 | .68 | .23 | .76 | .18 | .18 | 6.51 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 384 | - | - | - | - | - | - | - | - |
| 1915 | 404 | *5,460 | Feb. 24, 1915 | - | 530 | 0.802 | 10.89 | 525 | 10.79 |
| 1916 | 434 | *4,410 | Mar. 29, 1916 | 37 | 561 | .849 | 11.57 | 586 | 12.08 |
| 1917 | 454 | *5,310 | Mar. 25, 1917 | 55 | 567 | .858 | 11.62 | 533 | 10.94 |
| 1918 | 474,1337 | 15,100 | Mar. 20, 1918 | 45 | *531 | *.803 | *10.91 | *484 | *9.95 |
| 1919 | 504 | *5,310 | Mar. 18, 1919 | - | 326 | .493 | 6.71 | 342 | 7.03 |
| 1920 | 504 | *7,050 | June 17, 1920 | 60 | 408 | .617 | 8.41 | 415 | 8.54 |
| 1921 | 524 | *4,470 | Apr. 23, 1921 | 29 | 354 | .536 | 7.27 | 399 | 8.20 |
| 1922 | 544,1337 | *4,310 | Feb. 24, 1922 | 47 | *484 | *.732 | *9.93 | *416 | *8.53 |
| 1923 | 564 | *7,060 | Mar. 7, 1923 | 38 | 381 | .576 | 7.80 | 391 | 8.01 |
| 1924 | 584,1337 | *15,100 | Aug. 6, 1924 | 65 | *652 | *.986 | *13.41 | *676 | *13.92 |
| 1925 | 604 | *3,350 | Feb. 11, 1925 | 66 | 304 | .460 | 6.24 | 283 | 5.80 |
| 1926 | 624 | *4,740 | Mar. 25, 1926 | 60 | 372 | .563 | 7.65 | 441 | 9.07 |
| 1927 | 644 | *3,940 | Mar. 15, 1927 | 39 | 505 | .784 | 10.42 | 551 | 11.56 |
| 1928 | 664 | *5,350 | Mar. 15, 1928* | 71 | 578 | .874 | 11.91 | 565 | 11.63 |
| 1929 | 684 | *11,000 | Mar. 15, 1929 | 25 | 792 | 1.20 | 16.26 | 681 | 13.99 |
| 1930 | 699 | *4,180 | Feb. 26, 1930 | 27 | 299 | .452 | 6.15 | 273 | 5.61 |

* Revised.

Yearly discharge, in cubic feet per second, of Milwaukee River at Milwaukee, Wis.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | *945 | Apr. 7, 1931 | 20 | 123 | 0.186 | 2.51 | 223 | 4.58 |
| 1932 | 729 | *2,200 | Nov. 24, 1931 | 11 | 299 | .452 | 6.15 | 200 | 4.11 |
| 1933 | 744 | *6,370 | Apr. 2, 1933 | 21 | 382 | .578 | 7.83 | 377 | 7.73 |
| 1934 | 759 | 2,260 | Apr. 4, 1934 | 9 | 126 | .191 | 2.56 | 156 | 3.18 |
| 1935 | 784 | 3,300 | Mar. 17, 1935 | 29 | 375 | .567 | 7.69 | 350 | 7.19 |
| 1936 | 804 | 2,990 | Mar. 24, 1936 | 6 | 216 | .327 | 4.44 | 228 | 4.67 |
| 1937 | 824 | 6,640 | Feb. 21, 1937 | 18 | 398 | .602 | 8.16 | 378 | 7.75 |
| 1938 | 854 | 7,360 | Feb. 12, 1938 | 22 | 618 | .932 | 12.66 | 679 | 13.96 |
| 1939 | 874 | 2,440 | Mar. 26, 1939 | 17 | 356 | .539 | 7.33 | 296 | 6.09 |
| 1940 | 924 | 6,570 | June 24, 1940 | 26 | 281 | .425 | 5.79 | 311 | 6.41 |
| 1941 | 924 | 2,500 | Mar. 27, 1941 | a4 | 251 | .380 | 5.15 | 278 | 5.70 |
| 1942 | 954 | 2,360 | Mar. 17, 1942 | 36 | 343 | .519 | 7.04 | 359 | 7.38 |
| 1943 | 974 | 5,860 | Mar. 16, 1943 | a0 | 471 | .713 | 9.68 | 404 | 8.30 |
| 1944 | 1004 | 2,030 | Feb. 27, 1944 | 14 | 225 | .340 | 4.63 | 225 | 4.64 |
| 1945 | 1034 | 1,840 | Mar. 16, 1945 | 6.2 | 214 | .324 | 4.40 | 251 | 5.14 |
| 1946 | 1054 | 6,330 | Mar. 15, 1946 | 21 | 378 | .572 | 7.76 | 333 | 6.84 |
| 1947 | 1084 | 2,500 | Mar. 25, 1947 | 30 | 282 | .427 | 5.78 | 304 | 6.24 |
| 1948 | 1114 | 8,060 | Mar. 19, 1948 | 26 | 328 | .496 | 6.75 | 311 | 6.39 |
| 1949 | 1144 | 1,620 | July 28, 1949 | 16 | 229 | .346 | 4.68 | 221 | 4.52 |
| 1950 | 1174 | 5,540 | Mar. 28, 1950 | 6.0 | 317 | .480 | 6.51 | - | - |

* Revised.

a Caused by closure of dam upstream.

103. Hart ditch at Munster, Ind.

Location--Lat 41°33'40", long. 87°28'50", in N $\frac{1}{2}$ sec. 20, T. 36 N., R. 9 W., on left bank at city limits of Munster, a quarter of a mile downstream from U. S. Highway 41 and 0.4 mile upstream from mouth.

Drainage area--69.2 sq mi (revised).

Gage--Water-stage recorder and concrete control. Datum of gage is 591.21 ft above mean sea level, datum of 1929.

Average discharge--8 years (1942-50), 65.5 cfs.

Extremes--1942-50: Maximum discharge, 2,490 cfs Apr. 6, 1947; maximum gage height, 7.23 ft Mar. 15, 1944; minimum discharge, 1.2 cfs July 29, 1946.

Remarks--Flow from this ditch discharges into Little Calumet River near Munster, practically all of this flow discharging into the Calumet Sag Channel or Grand Calumet River.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | 8.83 | 67.6 | 146 | 62.3 | 190 | 199 | 94.3 | 367 | 61.2 | 51.5 | 77.9 | 14.2 | 112 |
| 1944 | 11.6 | 27.6 | 10.8 | 10.3 | 45.9 | 306 | 208 | 67.9 | 26.9 | 7.69 | 5.07 | 5.42 | 61.1 |
| 1945 | 5.64 | 5.43 | 5.46 | 4.73 | 30.4 | 54.4 | 91.3 | 255 | 41.6 | 9.46 | 6.20 | 30.9 | 45.2 |
| 1946 | 34 | 27 | 28.4 | 128 | 44.8 | 143 | 19.2 | 30.1 | 82.5 | 9.27 | 17.5 | 5.55 | 47.7 |
| 1947 | 5.71 | 17.9 | 34.8 | 68.7 | 22.2 | 89.9 | 363 | 114 | 134 | 10.6 | 6.94 | 19.6 | 73.6 |
| 1948 | 9.08 | 23.5 | 48.2 | 17.6 | 91.7 | 183 | 49.3 | 219 | 11.3 | 7.49 | 5.86 | 5.18 | 56.1 |
| 1949 | 5.81 | 6.40 | 8.08 | 62.8 | 116 | 102 | 62.8 | 29.7 | 10.8 | 24.8 | 9.54 | 6.01 | 36.5 |
| 1950 | 8.66 | 6.33 | 119 | 164 | 110 | 252 | 279 | 33.0 | 99.3 | 24.5 | 5.69 | 5.65 | 92.0 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | 0.15 | 1.09 | 2.43 | 1.04 | 2.87 | 3.31 | 1.52 | 6.11 | 0.99 | 0.86 | 1.30 | 0.23 | 21.90 |
| 1944 | .19 | .44 | .18 | .17 | .72 | 5.10 | 3.36 | 1.13 | .43 | .13 | .08 | .09 | 12.02 |
| 1945 | .09 | .09 | .09 | .08 | .46 | .91 | 1.47 | 4.25 | .67 | .16 | .10 | .50 | 8.87 |
| 1946 | .57 | .43 | .47 | 2.14 | .67 | 2.39 | .31 | .50 | 1.33 | .15 | .29 | .09 | 9.34 |
| 1947 | .10 | .29 | .58 | 1.15 | .33 | 1.50 | 5.85 | 1.89 | 2.15 | .18 | .12 | .32 | 14.46 |
| 1948 | .15 | .36 | .80 | .29 | 1.43 | 3.05 | .80 | 3.65 | .19 | .12 | .10 | .08 | 11.03 |
| 1949 | .10 | .10 | .13 | 1.05 | 1.74 | 1.69 | 1.01 | .49 | .17 | .41 | .16 | .10 | 7.15 |
| 1950 | .14 | .10 | 1.38 | 2.73 | 1.63 | 4.20 | 4.50 | .55 | 1.60 | .41 | .09 | .09 | 18.04 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 2,280 | Mar. 16, 1943 | 7.8 | 112 | 1.62 | 21.90 | 97.1 | 19.04 |
| 1944 | 1004 | 2,420 | Mar. 15, 1944 | 3.4 | 61.1 | .883 | 12.02 | 58.4 | 11.48 |
| 1945 | 1034 | 1,270 | May 8, 1945 | 3.4 | 45.2 | .653 | 8.87 | 51.3 | 10.07 |
| 1946 | 1054 | 780 | Jan. 6, 1946 | 3.0 | 47.7 | .689 | 9.34 | 45.1 | 8.84 |
| 1947 | 1084 | 2,490 | Apr. 6, 1947 | 3.0 | 73.6 | 1.05 | 14.46 | 75.5 | 14.82 |
| 1948 | 1114 | 1,950 | May 11, 1948 | 3.2 | 56.1 | .811 | 11.03 | 51.0 | 10.03 |
| 1949 | 1144 | 850 | Feb. 13, 1949 | 4.5 | 36.5 | .527 | 7.15 | 46.2 | 9.04 |
| 1950 | 1174 | 1,570 | Dec. 22, 1949 | 3.3 | 92.0 | 1.33 | 18.04 | - | - |

104. Thorn Creek at Glenwood, Ill.

Location.--Lat 41°31'50", long. 87°36'20", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 9, T. 35 N., R. 14 E., 20 ft downstream from Baltimore & Ohio Chicago Terminal Railroad bridge, 0.7 mile north of Chicago Heights, 0.8 mile south of Glenwood, and 1 mile upstream from Deer Creek.

Drainage area.--25.4 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 610.97 ft above mean sea level, datum of 1929.

Extremes.--1949-50: Maximum discharge, 780 cfs Dec. 22, 1949 (gage height, 9.11 ft); minimum daily, 6.0 cfs July 4, Aug. 21, Sept. 5, 11, 25, 1949.

Remarks.--Figures of discharge include about 6 cfs pumped from ground-water sources for municipal supply of Chicago Heights and undetermined amount of ground-water pumpage for industrial use above station. Undetermined amount of pumpage diverted by commercial livestock feeding pens above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1950 | 11.0 | 9.31 | 45.9 | 58.3 | 33.2 | 73.0 | 92.2 | 18.7 | 28.8 | 19.6 | 12.6 | 13.1 | 34.6 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1949 | 1144 | - | - | - | - | - | - | - | - |
| 1950 | 1174 | 780 | Dec. 22, 1949 | 7.9 | 34.6 | - | - | - | - |

105. Deer Creek near Chicago Heights, Ill.

Location.--Lat 41°31'15", long. 87°35'25", 0.1 mile west of center of sec. 14, T. 35 N., R. 14 E., at downstream side of bridge on Joe Orr Road, and 1.5 miles northeast of Chicago Heights.

Drainage area.--24.4 sq mi.

Gage.--Water-stage recorder. Datum of gage is 615.95 ft above mean sea level, datum of 1929. Prior to Jan. 11, 1949, wire-weight gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 663 cfs May 10 or 11, 1948 (gage height, 11.52 ft, from floodmark); no flow Sept. 21 to Oct. 3, 1949.

Remarks.--Undetermined amount of flow diverted for irrigation.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 2.70 | 2.90 | 1.30 | 0.53 | - |
| 1949 | 2.17 | 2.16 | 2.56 | 20.9 | 38.2 | 25.1 | 14.8 | 12.3 | 3.08 | 3.39 | 2.16 | .297 | 10.4 |
| 1950 | .62 | 1.20 | 27.5 | 43.3 | 23.1 | 63.9 | 68.7 | 8.71 | 20.9 | 7.92 | 2.37 | 1.30 | 22.5 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.12 | 0.14 | 0.06 | 0.02 | - |
| 1949 | 0.10 | 0.10 | 0.12 | 0.99 | 1.63 | 1.19 | 0.68 | 0.58 | .14 | .16 | .10 | .01 | 5.80 |
| 1950 | .03 | .05 | 1.30 | 2.05 | .99 | 3.02 | 3.14 | .41 | .96 | .37 | .11 | .06 | 12.49 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 663 | May 10 or 11 | - | - | - | - | - | - |
| 1949 | 1144 | 376 | Feb. 13, 1949 | 0 | 10.4 | 0.426 | 5.80 | 12.3 | 6.86 |
| 1950 | 1174 | 438 | Dec. 22, 1949 | 0 | 22.5 | .922 | 12.49 | - | - |

106. Butterfield Creek at Flossmoor, Ill.

Location.--Lat 41°32'25", long. 87°38'55" in NE $\frac{1}{4}$ NW $\frac{1}{4}$ of sec. 8, T. 35 N., R. 14 E., at downstream side of Reigle Road Bridge at Homewood city limits, three-quarters of a mile east of Flossmoor.

Drainage area.--22.9 sq mi.

Gage.--Water-stage recorder. Datum of gage is 616.80 ft above mean sea level, datum of 1929. Prior to Sept. 9, 1948, wire-weight gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 970 cfs (revised) Mar. 19, May 10 or 11, 1948 (gage heights, 10.29 and 10.28 ft, from floodmarks); no flow at times in 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 2.56 | 1.11 | 0.32 | 0.28 | - |
| 1949 | 0.98 | 1.65 | 2.04 | 21.2 | 45.1 | 27.7 | 18.0 | 32.7 | 4.12 | 16.0 | 5.52 | .29 | 14.3 |
| 1950 | .45 | .47 | 37.7 | 65.1 | 33.4 | 72.7 | 92.8 | 13.7 | 22.5 | 12.9 | 1.34 | .97 | 29.5 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.12 | 0.06 | 0.02 | 0.01 | - |
| 1949 | 0.05 | 0.08 | 0.10 | 1.07 | 1.96 | 1.40 | 0.88 | 1.65 | .20 | .81 | .28 | .01 | 8.49 |
| 1950 | .02 | .02 | 1.90 | 3.28 | 1.52 | 3.66 | 4.52 | .69 | 1.10 | .65 | .07 | .05 | 17.48 |

Yearly discharge, in cubic feet per second

| Water year ending Sept. 30 | | | | | | | | | | Calendar year | |
|----------------------------|------------|-------------------|---------------|-------------|------|-----------------|------------------|------|------------------|---------------|--|
| Year | W.S.P. no. | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| | | | | | | | | | | | |
| 1948 | 1114, 1437 | *970 | (a) | - | - | - | - | - | - | | |
| 1949 | 1114 | 465 | Feb. 13, 1949 | 0.1 | 14.3 | 0.624 | 8.49 | 17.2 | 10.20 | | |
| 1950 | 1174 | 555 | Apr. 25, 1950 | .1 | 29.5 | 1.29 | 17.48 | - | - | | |

* Revised.
a Mar. 19, May 10 or 11, 1948.

107. Lansing ditch near Lansing, Ill.

Location.--Lat 41°31'40", long. 87°31'45", at north boundary of sec. 17, T. 35 N., R. 15 E., at upstream side of bridge on farm road, 0.5 mile east of Burnham Avenue, and 2 miles south of Lansing.

Drainage area.--8.3 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 607.16 ft above mean sea level, datum of 1929. Prior to Sept. 20, 1948, wire-weight gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 461 cfs May 10 or 11, 1948 (gage height, 9.24 ft, from floodmark); no flow at times.

Remarks.--Undetermined amount of flow diverted for irrigation above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 6.16 | 2.04 | 0.28 | 0.28 | - |
| 1949 | 0.37 | 1.38 | 2.91 | 9.33 | 18.1 | 13.8 | 10.9 | 6.23 | .96 | 3.98 | .75 | .52 | 5.69 |
| 1950 | .35 | .32 | 11.9 | 20.1 | 14.8 | 31.6 | 40.7 | 5.04 | 13.0 | 5.50 | .91 | .45 | 12.0 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.83 | 0.28 | 0.04 | 0.04 | - |
| 1949 | 0.05 | 0.19 | 0.40 | 1.30 | 2.27 | 1.92 | 1.46 | 0.87 | .13 | .55 | .10 | .07 | 9.31 |
| 1950 | .05 | .04 | 1.66 | 2.80 | 1.83 | 4.38 | 5.47 | .70 | 1.75 | .76 | .13 | .06 | 19.63 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 461 | May 10 or 11 | - | - | - | - | - | - |
| 1949 | 1144 | 371 | Feb. 13, 1949 | 0 | 5.69 | 0.686 | 9.31 | 6.37 | 10.42 |
| 1950 | 1174 | 301 | Apr. 25, 1950 | 0 | 12.0 | 1.45 | 19.63 | | |

STREAMS TRIBUTARY TO LAKE MICHIGAN

108. North Creek near Lansing, Ill.

Location.--Lat 41°32'45", long. 87°33'30", in SE $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 1, T. 35 N., R. 14 E., at downstream side of Torrence Avenue Bridge, 1.1 miles south of Lansing and 2.7 miles north of U. S. Highway 30.

Drainage area.--18.2 sq mi.

Gage.--Water-stage recorder. Datum of gage is 599.29 ft above mean sea level, datum of 1929. Prior to Dec. 16, 1948, wire-weight gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 730 cfs (revised) Mar. 20, 1948 (gage height, 8.51 ft, from floodmark); no flow at times.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.69 | 0.37 | 0.07 | 0.18 | - |
| 1949 | 0.74 | 2.76 | 6.03 | 20.9 | 38.3 | 27.6 | 19.3 | 19.3 | 1.55 | 3.46 | .93 | .75 | 11.7 |
| 1950 | .33 | .28 | 23.5 | 36.3 | 27.8 | 73.8 | 104 | 15.6 | 30.5 | 10.5 | 1.80 | 1.02 | 26.9 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.04 | 0.02 | 0.004 | 0.01 | - |
| 1949 | 0.05 | 0.17 | 0.38 | 1.33 | 2.19 | 1.75 | 1.18 | 1.22 | .09 | .22 | .06 | .05 | 8.69 |
| 1950 | .02 | .02 | 1.49 | 2.30 | 1.59 | 4.67 | 6.41 | .86 | 1.87 | .66 | .11 | .06 | 20.06 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | *730 | Mar. 20, 1948 | - | - | - | - | - | - |
| 1949 | 1144 | 531 | Feb. 13, 1949 | 0.1 | 11.7 | 0.643 | 8.69 | 12.9 | 9.62 |
| 1950 | 1174 | 575 | Apr. 25, 1950 | 0 | 26.9 | 1.48 | 20.06 | - | - |

* Revised.

109. Thorn Creek at Thornton, Ill.

Location.--Lat 41°34'05", long. 87°36'30", near center of N $\frac{1}{2}$ sec. 34, T. 36 N., R. 14 E., at downstream side of Ridge Road Bridge in Thornton, 1 mile downstream from North Creek.

Drainage area.--106 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 586.43 ft above mean sea level, datum of 1929. Prior to Dec. 18, 1948, wire-weight gage at same site and datum.

Extremes.--1948-50: Maximum discharge, 4,040 cfs Mar. 20, 1948 (gage height, 14.08 ft, from floodmark); minimum daily, 4.4 cfs Sept. 11, 1949.
Flood of Apr. 5, 1947, reached a stage of 14.34 ft, from floodmark (discharge, 4,200 cfs).

Remarks.--Some diurnal fluctuation caused by pumping operations above station. Figures of discharge include about 6 cfs pumped from ground-water sources for municipal supply of Chicago Heights and undetermined amount of ground-water pumpage for industrial use above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 24.9 | 27.6 | 14.9 | 11.7 | - |
| 1949 | 13.0 | 14.3 | 26.8 | 136 | 186 | 126 | 100 | 95.3 | 32.3 | 63.8 | 26.1 | 12.5 | 68.8 |
| 1950 | 14.4 | 15.0 | 150 | 250 | 151 | 301 | 362 | 59.0 | 119 | 57.0 | 18.1 | 18.2 | 126 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | 0.26 | 0.30 | 0.16 | 0.12 | - |
| 1949 | 0.14 | 0.15 | 0.29 | 1.48 | 1.83 | 1.37 | 1.05 | 1.04 | .34 | .69 | .28 | .13 | 8.79 |
| 1950 | .16 | .16 | 1.63 | 2.72 | 1.49 | 3.27 | 3.81 | .64 | 1.25 | .62 | .20 | .19 | 16.14 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 4,040 | Mar. 20, 1948 | - | - | - | - | - | - |
| 1949 | 1144 | 1,320 | Feb. 13, 1949 | 4.4 | 68.8 | 0.649 | 8.79 | 79.4 | 10.16 |
| 1950 | 1174 | 2,010 | (a) | 6.4 | 126 | 1.19 | 16.14 | - | - |

a Dec. 22, 1949, Apr. 25, 1950.

110. Little Calumet River at South Holland, Ill.

Location.--Lat 41°36'05", long. 87°34'38", in SW¹/₄SW¹/₄ sec. 13, T. 36 N., R. 14 E., at downstream side of bridge on U. S. Highway 6, 0.6 mile downstream from Thorn Creek, 1.6 miles east of South Holland, and 4.1 miles upstream from former gaging station at Harvey.

Gage.--Water-stage recorder. Datum of gage is 575.00 ft above mean sea level. Prior to Oct. 27, 1947, wire-weight gage at same site and datum. Auxiliary water-stage recorder at Dixmoor, 6.1 miles downstream. Prior to Nov. 17, 1947, auxiliary wire-weight gage at same site.

Extremes.--1947-50: Maximum discharge, 3,810 cfs May 11, 1948 (gage height, 17.33 ft); minimum daily, 10 cfs Nov. 7, 1949.
Flood of Apr. 6, 1947, reached a stage of 19.24 ft, from floodmark (discharge, 4,760 cfs).

Remarks.--Flow from about 330 sq mi of upper Little Calumet River basin above a point in Gary, Ind., is diverted to Lake Michigan by Burns ditch (see p. 113). Calumet Sag Channel, 8 miles below station, usually diverts the entire low flow to the Mississippi River basin.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1948 | 35.4 | 56.3 | 115 | 44.7 | 255 | 580 | 145 | 590 | 42.4 | 39.0 | 23.8 | 24.9 | 163 |
| 1949 | 22.3 | 25.5 | 32.5 | 193 | 334 | 259 | 196 | 146 | 35.4 | 76.7 | 29.2 | 17.8 | 111 |
| 1950 | 22.2 | 18.1 | 320 | 478 | 303 | 606 | 739 | 115 | 247 | 97.6 | 31.1 | 28.3 | 250 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 3,810 | May 11, 1948 | 16 | 163 | - | - | 152 | - |
| 1949 | 1144 | 1,580 | Feb. 14, 1949 | 13 | 111 | - | - | 135 | - |
| 1950 | 1174 | 3,300 | Apr. 26, 1950 | 10 | 250 | - | - | - | - |

111. Little Calumet River at Harvey, Ill.

Location.--Lat 41°37'35", long. 87°38'05", in W¹/₂NW¹/₄ sec. 9, T. 36 N., R. 14 E., at Illinois Central Railroad bridge, 800 ft north of 147th Street in Harvey, and 11 miles above mouth.

Drainage area.--570 sq mi, approximately.

Supplemental records available.--Gage-height records collected at same site since June 10, 1907, are contained in reports of Sanitary District of Chicago.

Gage.--Staff gage. Altitude of gage is 580 ft (from topographic map).

Average discharge.--17 years (1916-33), 261 cfs.

Extremes.--1916-33: Maximum discharge, 3,750 cfs Mar. 18, 1919 (gage height, 10.28 ft); minimum, 3.9 cfs July 24, 1932 (gage height, 2.71 ft).
Maximum stage known, 13.4 ft Mar. 6, 1908 (discharge unknown).

Remarks.--Since 1925, most of flow from upper 330 sq mi of drainage area is diverted to Lake Michigan above gage.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|------|------|------|------|-------|----------|
| 1917 | 130 | 143 | 202 | 242 | 139 | 483 | 516 | 234 | 313 | 174 | 61.9 | 69.0 | 226 |
| 1918 | 119 | 135 | 102 | 49.2 | 1,170 | 986 | 280 | 360 | 223 | 210 | 75.8 | 77.0 | *310 |
| 1919 | 105 | 190 | 456 | 437 | 294 | 1,490 | 722 | 980 | 306 | 80.1 | 64.9 | 58.7 | 434 |
| 1920 | 92.7 | 126 | 149 | 65.0 | 201 | 1,070 | 1,120 | 883 | 356 | 131 | 67.8 | 77.3 | 362 |
| 1921 | 86.5 | 115 | 176 | 299 | 307 | 551 | 568 | 327 | 97.4 | 56.5 | 79.3 | 84.1 | 227 |
| 1922 | 99.3 | 289 | 536 | 400 | 240 | 766 | 1,730 | 587 | 161 | 82.1 | 58.4 | 63.4 | 418 |
| 1923 | 91.8 | 116 | 123 | 110 | 170 | 726 | 356 | 459 | 338 | 80.1 | 24.9 | 505 | 277 |
| 1924 | 430 | 454 | 781 | 534 | 660 | 1,140 | 1,020 | 362 | 714 | 501 | 171 | 92.2 | 572 |
| 1925 | 80.5 | 88.0 | 110 | 95 | 365 | 454 | 251 | 151 | 85.3 | 88.6 | 68.9 | 76.2 | 158 |
| 1926 | 56.9 | 172 | 97.2 | 133 | 438 | 406 | 790 | 116 | 236 | 96.3 | 79.5 | 250 | 236 |
| 1927 | 207 | 345 | 368 | 85.5 | 511 | 436 | 785 | 616 | 368 | 47.5 | 30.1 | 32.7 | 300 |
| 1928 | 161 | 374 | 490 | 314 | 153 | 186 | 300 | 41.6 | 34.1 | 89.2 | 33.0 | 28.8 | 184 |
| 1929 | 37.3 | 198 | 284 | 309 | 287 | 685 | 629 | 177 | 157 | 116 | 31.8 | 36.2 | 245 |
| 1930 | 43.2 | 73.1 | 46.0 | 215 | 380 | 187 | 417 | 82.2 | 30.3 | 17.1 | 15.9 | 31.9 | 126 |
| 1931 | 26.0 | 34.3 | 32.8 | 25.2 | 27.3 | 96.7 | 105 | 230 | 114 | 25.7 | 41.8 | 37.0 | 66.6 |
| 1932 | 29.6 | 141 | 123 | 266 | 209 | 274 | 91.8 | 63.4 | 43.9 | 34.0 | 24.8 | 23.3 | 110 |
| 1933 | 25.0 | 38.4 | 172 | 196 | 296 | 282 | 574 | 426 | 30.4 | 69.5 | 24.1 | 34.5 | 180 |

* Only monthly figure revised; revised daily figures not available.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Monthly and yearly runoff, in inches, of Little Calumet River at Harvey, Ill.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1917 | 0.26 | 0.28 | 0.41 | 0.49 | 0.25 | 0.98 | 1.01 | 0.47 | 0.61 | 0.35 | 0.13 | 0.13 | 5.37 |
| 1918 | .24 | .26 | .21 | .10 | *2.14 | 1.89 | .55 | .73 | .44 | .42 | .15 | .15 | *7.38 |
| 1919 | .21 | .37 | .92 | .88 | .54 | 3.00 | 1.42 | 1.98 | .60 | .16 | .13 | .11 | 10.32 |
| 1920 | .19 | .25 | .30 | .13 | .38 | 2.17 | 2.19 | 1.79 | .70 | .26 | .14 | .15 | 8.65 |
| 1921 | .18 | .23 | .36 | .61 | .58 | 1.07 | 1.11 | .66 | .19 | .11 | .16 | .17 | 5.43 |
| 1922 | .20 | .57 | 1.08 | .81 | .44 | 1.54 | 3.39 | 1.19 | .31 | .17 | .12 | .12 | 9.94 |
| 1923 | .19 | .23 | .25 | .22 | .31 | 1.46 | .70 | .93 | .66 | .16 | .50 | .98 | 6.59 |
| 1924 | .87 | .89 | 1.58 | 1.08 | 1.25 | 2.31 | 2.00 | .73 | 1.40 | 1.01 | .35 | .18 | 13.65 |
| 1925 | .16 | .17 | .22 | .19 | .67 | .92 | .49 | .31 | .16 | .18 | .14 | .15 | 3.76 |

* Only monthly figure revised; revised daily figures not available.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1917 | 454 | *1,170 | Mar. 14, 1917 | 50 | 226 | 0.396 | 5.37 | 216 | 5.13 |
| 1918 | 474 | *2,750 | Feb. 15, 1918* | - | *310 | *.544 | *7.38 | *343 | *8.17 |
| 1919 | 504 | 3,750 | Mar. 18, 1919 | 49 | 434 | .761 | 10.32 | 402 | 9.56 |
| 1920 | 504 | *2,140 | Mar. 26, 1920 | 58 | 362 | .635 | 8.65 | 363 | 8.68 |
| 1921 | 524 | 905 | Apr. 23, 1921 | 40 | 227 | .398 | 5.43 | 273 | 6.51 |
| 1922 | 544 | *3,690 | Apr. 11, 1922* | 48 | 418 | .733 | 9.94 | 368 | 8.76 |
| 1923 | 564 | *1,900 | Sept. 3, 1923 | 51 | 277 | .486 | 6.59 | 390 | 9.26 |
| 1924 | 584 | *2,650 | Mar. 29, 1924* | 72 | 572 | 1.00 | 13.65 | 455 | 10.86 |
| 1925 | 604 | 763 | Mar. 20, 1925 | 37 | 158 | .277 | 3.76 | 162 | - |
| 1926 | 624 | *2,460 | Apr. 9, 1926* | 37 | 236 | - | - | 269 | - |
| 1927 | 644 | *3,310 | May 24, 1927 | 13 | 300 | - | - | 326 | - |
| 1928 | 664 | 1,860 | Nov. 29, 1927 | 12 | 184 | - | - | 142 | - |
| 1929 | 684 | *2,890 | Mar. 16, 1929 | 17 | 245 | - | - | 215 | - |
| 1930 | 699 | *1,500 | Apr. 1, 1930 | 9.5 | 126 | - | - | 120 | - |
| 1931 | 714 | 940 | May 20, 1931 | 15 | 66.6 | - | - | 83.3 | - |
| 1932 | 729 | 1,230 | Feb. 12, 1932 | 6.5 | 110 | - | - | 105 | - |
| 1933 | 744 | *2,610 | Apr. 1, 1933* | 11 | 180 | - | - | - | - |

* Revised.

112. Deep River at Lake George Outlet, at Hobart, Ind.

Location.--Lat 41°32'03", long. 87°15'22", in NW1/4 sec. 32, T. 36 N., R. 7 W., at northeast end of Lake George in Hobart, an eighth of a mile upstream from Duck Creek.

Drainage area.--125 sq mi (revised).

Gage.--Staff gage above concrete dam. Datum of gage is 600.00 ft above mean sea level, datum of 1929.

Extremes.--1947-50: Maximum discharge, 2,740 cfs May 11, 1948 (gage height, 5.86 ft); minimum, 4.2 cfs Sept. 14, 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | 561 | 331 | 205 | 17.5 | 11.7 | 26.6 | - |
| 1948 | 13.5 | 26.3 | 56.4 | 36 | 156 | 273 | 90.5 | 394 | 24.1 | 11.3 | 10.0 | 6.91 | 90.2 |
| 1949 | 7.4 | 17.7 | 21.6 | 104 | 196 | 142 | 113 | 76.5 | 36.6 | 29.6 | 13.5 | 12.5 | 83.3 |
| 1950 | 22.1 | 16.5 | 268 | 365 | 198 | 359 | 477 | 77.2 | 159 | 62.6 | 20.1 | 15.9 | 170 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | 5.01 | 3.06 | 1.83 | 0.16 | 0.11 | 0.24 | - |
| 1948 | 0.12 | 0.23 | 0.52 | 0.33 | 1.17 | 2.52 | .81 | 3.64 | .21 | .10 | .09 | .06 | 9.80 |
| 1949 | .07 | .16 | .20 | .96 | 1.64 | 1.31 | 1.00 | .71 | .35 | .27 | .12 | .11 | 6.98 |
| 1950 | .20 | .15 | 2.47 | 3.36 | 1.65 | 3.31 | 4.26 | .71 | 1.41 | .58 | .19 | .14 | 18.43 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | 2,410 | Apr. 6, 1947 | - | - | - | - | - | - |
| 1948 | 1114 | 2,740 | May 11, 1948 | 4.2 | 90.2 | 0.722 | 9.80 | 86.0 | 9.36 |
| 1949 | 1144 | 620 | Feb. 14, 1949 | 5.0 | 63.3 | .506 | 6.88 | 85.4 | 9.27 |
| 1950 | 1174 | 2,390 | Dec. 22, 1949 | 9.2 | 170 | 1.36 | 18.43 | - | - |

113. Burns ditch at Gary, Ind.

Location.--Lat 41°34'25", long. 87°17'15", in N $\frac{1}{2}$ sec. 13, T. 36 N., R. 8 W., at bridge on Central Avenue, 0.5 mile east of Gary and $1\frac{1}{4}$ miles downstream from Deep River.

Drainage area.--About 160 sq mi (revised).

Gage.--Wire-weight gage. Datum of gage is 577.04 ft above mean sea level, datum of 1929.

Average discharge.--7 years (1943-50), 139 cfs.

Extremes.--1943-50: Maximum discharge, 2,660 cfs May 11, 1948; maximum gage height, 16.44 ft Mar. 16, 1944, from graph based on gage readings; minimum discharge, 1.8 cfs Oct. 14, 1946.

Remarks.--Burns ditch is an artificial channel which reverses the direction of flow of part of Little Calumet River and flows into Lake Michigan at Wickliffe.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | 25.2 | 65.0 | 28.4 | 27.7 | 96.6 | 630 | 513 | 205 | 104 | 12.5 | 13.8 | 15.8 | 145 |
| 1945 | 17.6 | 20.8 | 23.2 | 21.2 | 80.2 | 112 | 229 | 546 | 118 | 43.5 | 32.2 | 43.0 | 108 |
| 1946 | 59.9 | 41.5 | 54.1 | 287 | 137 | 244 | 48.4 | 54.6 | 267 | 36.9 | 61.2 | 14.8 | 109 |
| 1947 | 12.1 | 41.6 | 81.7 | 123 | 85.6 | 164 | 782 | 418 | 311 | 29.9 | 27.6 | 39.7 | 176 |
| 1948 | 11.8 | 35.9 | 82.3 | 49.0 | 179 | 407 | 135 | 581 | 36.8 | 15.7 | 15.4 | 10.1 | 130 |
| 1949 | 15.4 | 23.2 | 30.1 | 145 | 262 | 185 | 152 | 111 | 50.6 | 45.2 | 15.3 | 18.3 | 86.6 |
| 1950 | 22.8 | 22.0 | 276 | 447 | 270 | 473 | 608 | 115 | 262 | 97.7 | 20.7 | 17.0 | 219 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | 0.18 | 0.45 | 0.20 | 0.20 | 0.65 | 4.54 | 3.58 | 1.48 | 0.72 | 0.09 | 0.10 | 0.11 | 12.30 |
| 1945 | .13 | .14 | .17 | .15 | .52 | .81 | 1.59 | 3.94 | .82 | .31 | .23 | .30 | 9.11 |
| 1946 | .43 | .29 | .39 | 2.07 | .89 | 1.76 | .34 | .39 | 1.86 | .27 | .44 | .10 | 9.23 |
| 1947 | .09 | .29 | .59 | .89 | .56 | 1.18 | 5.45 | 3.01 | 2.17 | .22 | .20 | .28 | 14.93 |
| 1948 | .08 | .25 | .59 | .35 | 1.21 | 2.93 | .94 | 4.19 | .26 | .11 | .11 | .07 | 11.09 |
| 1949 | .11 | .16 | .22 | 1.05 | 1.71 | 1.33 | 1.06 | .80 | .35 | .32 | .11 | .13 | 7.35 |
| 1950 | .16 | .15 | 1.99 | 3.22 | 1.76 | 3.41 | 4.24 | .83 | 1.83 | .70 | .15 | .12 | 18.56 |

Note.--Runoff prior to October 1946 not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004, 1034 | 2,000 | Mar. 15, 1944 | 4.5 | 145 | 0.906 | 12.30 | 140 | 11.91 |
| 1945 | 1034 | 1,110 | May 18, 1945 | 11 | 108 | .675 | 9.11 | 115 | 9.78 |
| 1946 | 1054 | 1,020 | June 13, 1946 | 5.8 | 109 | .681 | 9.23 | 107 | 9.09 |
| 1947 | 1084 | 2,340 | Apr. 6, 1947 | 2.6 | 176 | 1.10 | 14.93 | 175 | 14.88 |
| 1948 | 1114 | 2,660 | May 11, 1948 | 5.0 | 130 | .812 | 11.09 | 125 | 10.66 |
| 1949 | 1144 | 732 | Jan. 30, 1949 | 7.6 | 86.6 | .541 | 7.35 | 108 | 9.16 |
| 1950 | 1174 | 1,760 | Apr. 5, 1950 | 9.2 | 219 | 1.37 | 18.56 | - | - |

114. Little Calumet River at Porter, Ind.

Location.--Lat 41°37'18", long. 87°05'13", in NE $\frac{1}{4}$ sec. 34, T. 37 N., R. 6 W., at highway bridge, three-quarters of a mile northwest of Porter and 4.5 miles upstream from Salt Creek.

Drainage area.--62.9 sq mi (revised).

Gage.--Wire-weight gage. Datum of gage is 603.48 ft above mean sea level, datum of 1929.

Average discharge.--5 years (1945-50), 76.1 cfs.

Extremes.--1945-50: Maximum discharge, 2,440 cfs June 28, 1945 (gage height, 9.88 ft, from graph based on gage readings); minimum, 18 cfs Aug. 10, 11, 1946.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1945 | - | - | - | - | - | - | - | 184 | 150 | 86.2 | 85.3 | 47.7 | - |
| 1946 | 50.6 | 47.9 | 49.0 | 119 | 67.3 | 150 | 51.7 | 41.6 | 92.2 | 25.6 | *27.2 | *27.6 | *62.6 |
| 1947 | *29.2 | 41.3 | 55.4 | 68.3 | 37.5 | 76.6 | 292 | 130 | 119 | 35.0 | 30.2 | 38.7 | *79.1 |
| 1948 | 35.5 | 43.1 | 51.4 | 38.5 | 129 | 153 | 64.6 | 194 | 42.0 | 28.9 | 25.4 | 25.2 | 69.2 |
| 1949 | 28.5 | 38.0 | 41.3 | 73.4 | 121 | 78.8 | 83.3 | 99.2 | 38.1 | 50.0 | 25.9 | 29.9 | 58.6 |
| 1950 | 32.8 | 36.1 | 136 | 156 | 103 | 196 | 211 | 59.1 | 234 | 82.1 | 46.8 | 35.1 | 111 |

* Revised.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Monthly and yearly runoff, in inches, of Little Calumet River at Porter, Ind.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | 3.37 | 2.67 | 1.58 | 1.56 | 0.84 | - |
| 1946 | 0.93 | 0.85 | 0.90 | 2.18 | 1.11 | 2.75 | 0.92 | .76 | 1.63 | .47 | *.50 | *.49 | *13.49 |
| 1947 | *.54 | .73 | .98 | 1.25 | .62 | 1.40 | 5.19 | 2.38 | 2.10 | .64 | .55 | .69 | *17.07 |
| 1948 | .65 | .76 | .94 | .70 | 2.22 | 2.80 | 1.14 | 3.55 | .74 | .53 | .46 | .45 | 14.94 |
| 1949 | .52 | .67 | .76 | 1.35 | 2.00 | 1.44 | 1.48 | 1.82 | .68 | .92 | .48 | .53 | 12.65 |
| 1950 | .60 | .64 | 2.49 | 2.86 | 1.71 | 3.60 | 3.75 | 1.08 | 4.15 | 1.50 | .86 | .62 | 23.86 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1945 | 1054,1084 | 2,440 | June 28, 1945 | - | - | - | - | - | - | - | - |
| 1946 | 1054,1337 | 715 | June 13, 1946 | 19 | *62.6 | *0.995 | *13.49 | *60.6 | *13.06 | | |
| 1947 | 1084,1337 | 2,240 | Apr. 5, 1947 | *21 | *79.1 | 1.26 | *17.07 | 77.6 | 17.17 | | |
| 1948 | 1114 | 1,960 | May 11, 1948 | 20 | 69.2 | 1.10 | 14.94 | 67.3 | 14.54 | | |
| 1949 | 1144 | 690 | May 20, 1949 | 22 | 58.6 | .932 | 12.65 | 66.8 | 14.45 | | |
| 1950 | 1174 | 1,720 | Dec. 22, 1949 | 24 | 111 | 1.76 | 23.86 | - | - | | |

* Revised.

115. Salt Creek near McCool, Ind

Location.--Lat 41°35'48", long. 87°08'40", in SE¼ sec. 6, T. 36 N., R. 6 W., on downstream side of highway bridge, just downstream from New York Central Railroad bridge, 1¼ miles north of McCool and 1.5 miles upstream from Little Calumet River.

Drainage area.--78.7 sq mi (revised).

Gage.--Wire-weight gage. Datum of gage is 594.10 ft above mean sea level, datum of 1929 (levels by Indiana Flood Control and Water Resources Commission).

Average discharge.--5 years (1945-50), 74.0 cfs.

Extremes.--1945-50: Maximum discharge, 1,910 cfs (revised) May 11, 1948 (gage height, 12.3 ft); minimum daily, 20 cfs Feb. 28, 1947, Aug. 21-27, 1949.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | 175 | 93.0 | 44.9 | 54.5 | 43.2 | - |
| 1946 | 44.2 | 41.0 | 41.9 | 110 | 76.1 | 114 | 43.4 | 41.4 | 143 | 35.6 | 48.6 | 28.9 | 64.0 |
| 1947 | 30.5 | 46.3 | 59.6 | 74.8 | 36.9 | 84.1 | 247 | 126 | 114 | 34.5 | 34.1 | 43.2 | 77.6 |
| 1948 | 35.7 | 48.3 | 59.9 | 45.2 | 152 | 138 | 60.4 | 194 | 35.8 | 28.4 | 24.3 | 24.8 | 70.4 |
| 1949 | 28.5 | 35.5 | 41.3 | 77.4 | 123 | 77.3 | 66.4 | 58.3 | 30.7 | 48.2 | 23.0 | 28.7 | 52.8 |
| 1950 | 34.3 | 35.5 | 140 | 170 | 107 | 202 | 211 | 58.7 | 160 | 70.5 | 35.5 | 34.9 | 105 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | 2.56 | 1.32 | 0.66 | 0.80 | 0.61 | - |
| 1946 | 0.65 | 0.58 | 0.61 | 1.61 | 1.01 | 1.67 | 0.62 | .61 | 2.03 | .52 | .71 | .41 | 11.03 |
| 1947 | .45 | .66 | .87 | 1.10 | .49 | 1.23 | 3.50 | 1.85 | 1.62 | .51 | .50 | .61 | 13.39 |
| 1948 | .52 | .69 | .88 | .66 | 2.08 | 2.02 | .86 | 2.83 | .51 | .42 | .36 | .35 | 12.18 |
| 1949 | .42 | .50 | .60 | 1.13 | 1.63 | 1.13 | .94 | .85 | .44 | .71 | .34 | .41 | 9.10 |
| 1950 | .50 | .50 | 2.05 | 2.49 | 1.42 | 2.96 | 3.00 | .86 | 2.27 | 1.05 | .52 | .49 | 18.09 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1945 | 1054 | 990 | June 29, 1945 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | *1,280 | June 13, 1946 | 23 | 64.0 | 0.813 | 11.03 | 64.8 | 11.17 | | |
| 1947 | 1084 | *1,580 | Apr. 5, 1947 | 20 | 77.6 | .986 | 13.39 | 78.2 | 13.50 | | |
| 1948 | 1114 | *1,910 | May 11, 1948 | 22 | 70.4 | .895 | 12.18 | 67.2 | 11.61 | | |
| 1949 | 1144 | 525 | Feb. 14, 1949 | 20 | 52.8 | .671 | 9.10 | 61.7 | 10.63 | | |
| 1950 | 1174 | *1,700 | Dec. 22, 1949 | 26 | 105 | 1.33 | 18.09 | - | - | | |

* Revised.

116. Little Calumet River near McCool, Ind.

Location.--Lat 41°36'40", long. 87°09'15", in SE $\frac{1}{4}$ sec. 31, T. 37 N., R. 6 W., on highway bridge a quarter of a mile downstream from Salt Creek, 1 mile upstream from Burns ditch, 2 $\frac{1}{2}$ miles north of McCool, and 4 miles west of Porter.

Drainage area.--149 sq mi (revised).

Gage.--Wire-weight gage. Altitude of gage is 565 ft (from topographic map).

Extremes.--1943-45: Maximum discharge, 3,400 cfs Mar. 15, 1944 (gage height, 15.57 ft, from graph based on gage readings); minimum discharge not determined.

Remarks.--Except during high water, stage affected by backwater from Lake Michigan.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1944 | 70 | 110 | 65 | 55 | 100 | 455 | 380 | 200 | 90 | 52 | 42 | 45 | 139 |
| 1945 | 55 | 60 | 70 | 60 | 90 | 200 | 250 | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | 0.54 | 0.82 | 0.50 | 0.43 | 0.72 | 3.52 | 2.85 | 1.55 | 0.67 | 0.40 | 0.32 | 0.34 | 12.66 |
| 1945 | .43 | .45 | .54 | .45 | .63 | 1.55 | 1.87 | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004 | 3,400 | Mar. 15, 1944 | - | 139 | 0.933 | 12.66 | 134 | 12.22 |
| 1945 | 1034 | - | - | - | - | - | - | - | - |

117. Galien River near New Troy, Mich.

Location.--Lat 41°51'23", long. 86°32'48", in SW $\frac{1}{4}$ sec. 17, T. 7 S., R. 19 W., on downstream side of highway bridge, 1 mile upstream from East Branch, and 1.4 miles south of New Troy.

Drainage area.--47 sq mi, approximately.

Gage.--Wire-weight gage. Altitude of gage is 630 ft (from topographic map).

Extremes.--1945-47: Maximum discharge, 427 cfs Jan. 5, 1946 (gage height, 10.04 ft); minimum, 10 cfs Aug. 28, 1946 (gage height, 3.54 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|------|-------|------|------|------|------|--------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | \$22.3 | 20.9 | 34.3 | - |
| 1946 | 38.9 | 38.2 | 38.5 | 66.5 | 47.1 | 107 | 32.0 | 29.8 | 39.5 | 16.3 | 12.5 | 12.3 | 41.6 |
| 1947 | 14.8 | *21.4 | *28.4 | 35.5 | *28.8 | - | - | - | - | - | - | - | - |

* Revised.

‡ Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|--------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | \$0.55 | 0.51 | 0.81 | - |
| 1946 | 0.96 | 0.91 | 0.94 | 2.12 | 1.04 | 2.62 | 0.76 | 0.73 | 0.94 | .40 | .31 | .29 | 12.02 |
| 1947 | .36 | *.51 | *.70 | .87 | *.64 | - | - | - | - | - | - | - | - |

* Revised.

‡ Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | 427 | Jan. 5, 1946 | 11 | 41.6 | 0.885 | 12.02 | *37.3 | *10.78 |
| 1947 | 1084, 1387 | - | - | - | - | - | - | - | - |

* Revised.

118. East Branch Galien River near New Troy, Mich.

Location.--Lat 41°53'08", long. 86°30'50", in SE $\frac{1}{4}$ sec. 4, T. 7 S., R. 19 W., on right downstream wingwall of highway bridge, 2 miles northeast of New Troy and 2.6 miles upstream from mouth.

Drainage area.--19.2 sq mi.

Gage.--Staff gage. Altitude of gage is 640 ft (from topographic map).

Extremes.--1945-47: Maximum discharge, 250 cfs Apr. 6, 1947 (gage height, 6.05 ft, from floodmarks), by slope-area method; minimum, 1.4 cfs Sept. 19, 22, Oct. 6, 7, 1946; minimum gage height, 0.93 ft Sept. 14-19, 1946.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|-------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | #5.21 | 4.17 | 7.14 | - |
| 1946 | 9.25 | 9.74 | 12.1 | 23.5 | 15.9 | 28.1 | 8.01 | 6.47 | 8.51 | 3.12 | 2.00 | 1.80 | 10.7 |
| 1947 | 1.90 | 2.82 | 6.71 | 10.4 | #10.0 | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|-------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | #0.31 | 0.25 | 0.42 | - |
| 1946 | 0.56 | 0.57 | 0.73 | 1.41 | 0.86 | 1.69 | 0.47 | 0.39 | 0.49 | .19 | .12 | .10 | 7.58 |
| 1947 | .11 | .16 | .40 | .82 | #.54 | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|--------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | 94 | Jan. 5, 1946 | 1.4 | 10.7 | 0.557 | 7.58 | 9.06 | 6.39 |
| 1947 | 1084 | #250 | Apr. 6, 1947 | - | - | - | - | - | - |

* Not previously published.

119. East Branch Coldwater River at Coldwater, Mich.

Location.--Lat 41°56'25", long. 85°01'00", in NW $\frac{1}{4}$ sec. 21, T. 6 S., R. 6 W., on downstream side of right abutment of Jay Street Bridge at Coldwater, 1 mile upstream from mouth.

Drainage area.--About 60 sq mi.

Gage.--Staff gage. Datum of gage is 930.72 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Oct. 1, 1947, at site 400 ft downstream at same datum.

Average discharge.--13 years (1937-50), 48.9 cfs.

Extremes.--1937-50: Maximum discharge, 735 cfs Apr. 24, 1950 (gage height, 6.60 ft); minimum, 0.1 cfs Dec. 13, 15-18, 1946.

Remarks.--Drainage area indeterminate due to infrequent contribution to or from Coldwater Lake. Regulation caused by dam at outlet of Marble Lake. Runoff in inches and second-feet per square mile as previously published are believed not to represent natural yield and are omitted.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1938 | #14 | #16 | #17 | 20.3 | 96.9 | 122 | 138 | 78.1 | 81.5 | 45.2 | 33.4 | 16.4 | #56.2 |
| 1939 | 6.58 | 4.48 | 10.0 | 16.0 | 73.6 | 172 | 174 | 71.7 | 25.7 | 22.7 | 14.2 | 4.48 | 49.4 |
| 1940 | 1.49 | 2.11 | 3.42 | 3.29 | 3.77 | 29.8 | 51.4 | 31.0 | 49.1 | 27.8 | 12.7 | 11.6 | 18.9 |
| 1941 | 9.00 | 15.1 | 41.3 | 55.5 | 37.5 | 37.5 | 49.7 | 44.3 | 11.5 | 8.30 | 1.73 | 1.30 | 26.0 |
| 1942 | 1.07 | 11.7 | 18.8 | 21.8 | 43.6 | 152 | 125 | 36.7 | 20.8 | 9.88 | 25.5 | 11.4 | 39.6 |
| 1943 | 11.2 | 38.6 | 53.0 | 98.2 | 105 | 128 | 96.8 | 289 | 132 | 58.4 | 42.0 | 28.8 | 90.1 |
| 1944 | 16.2 | 26.4 | 17.8 | 11.1 | 28.7 | 92.9 | 122 | 125 | 49.9 | 17.4 | 5.38 | 2.26 | 42.9 |
| 1945 | 1.42 | 2.10 | 2.26 | 1.46 | 7.19 | 47.0 | 101 | 105 | 49.5 | 22.1 | 15.3 | 2.97 | 29.8 |
| 1946 | 14.9 | 9.96 | 9.72 | 35.9 | 35.6 | 77.6 | 29.0 | 17.3 | 11.3 | 4.07 | .513 | .587 | 20.5 |
| 1947 | †.918 | †.570 | †.310 | 2.87 | 10.4 | 46.3 | 246 | 210 | 149 | 37.9 | 22.7 | 13.0 | 61.6 |
| 1948 | 7.21 | 8.93 | 30.3 | 22.7 | 48.1 | 153 | 131 | 99.9 | 29.3 | 19.1 | 5.63 | 1.06 | 46.3 |
| 1949 | †.887 | 1.35 | 5.39 | 51.2 | 108 | 81.1 | 79.5 | 38.9 | 45.0 | 41.3 | 13.0 | 10.5 | 39.2 |
| 1950 | 32.6 | 29.0 | 56.2 | 173 | 178 | 231 | 357 | 168 | 60.0 | 47.2 | 32.5 | 24.5 | 115 |

† Corrected.

* Not previously published; estimated on basis of records for stations on nearby streams.

| Yearly discharge, in cubic feet per second, of East Branch Coldwater River at Coldwater, Mich. | | | | | | | | | |
|--|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1938 | 854 | *229 | May 20, 1938 | - | #56.2 | - | - | 54.0 | - |
| 1939 | 874 | *410 | Feb. 20, 1939* | 1.7 | 49.4 | - | - | 48.2 | - |
| 1940 | 894 | 79 | June 25, 1940 | 1.0 | 18.9 | - | - | 23.9 | - |
| 1941 | 924 | a89 | Jan. 4, 1941 | 1.2 | 26.0 | - | - | 23.2 | - |
| 1942 | 954 | 264 | Mar. 17, 1942 | .7 | 39.8 | - | - | 45.8 | - |
| 1943 | 974 | 490 | May 25, 1943 | 8.5 | 30.1 | - | - | 86.5 | - |
| 1944 | 1004 | 178 | (a) | 1.3 | 42.9 | - | - | 38.3 | - |
| 1945 | 1034 | *195 | May 18, 1945 | .9 | 29.8 | - | - | 32.2 | - |
| 1946 | 1054 | 109 | Mar. 9, 1946 | .3 | 20.5 | - | - | 17.8 | - |
| 1947 | 1084 | 680 | Apr. 5, 1947 | .1 | 61.6 | - | - | 65.4 | - |
| 1948 | 1114 | 388 | Mar. 20, 1948 | .8 | 46.3 | - | - | 43.1 | - |
| 1949 | 1144 | b269 | Feb. 16, 1949 | .4 | 59.2 | - | - | 48.5 | - |
| 1950 | 1174 | 735 | Apr. 24, 1950 | 16 | 115 | - | - | - | - |

* Revised.

* Not previously published.

a Mar. 16, 1944, Apr. 24, 1944.

b Observed.

120. Pawn River at Orland, Ind.

Location.--Lat 41°44'30", long. 85°10'15", in N $\frac{1}{2}$ sec. 20, T. 38 N., R. 12 E., at bridge on State Highway 327, 1,300 ft upstream from concrete dam at Pawn River State Fish Hatchery and 0.7 mile north of Orland.

Drainage area.--81.4 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 945 ft (from topographic map).

Extremes.--1943-47: Maximum daily discharge, 205 cfs Mar. 23, 24, 1944; maximum gage height, 2.30 ft Mar. 17, 1944, from graph based on gage readings; minimum daily discharge, 2.5 cfs Nov. 7, 8, 1946.

Remarks.--Discharge includes diversion for fish hatchery at station. Occasional regulation by Nevada Mills above station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1943 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1944 | 51.6 | 55.2 | 47.9 | 42.7 | 50.9 | 129 | 141 | 128 | 76.3 | 19.6 | 8.16 | 63.5 |
| 1945 | 10.0 | 19.1 | 28.1 | 44.4 | 49.0 | 57.4 | 105 | 74.6 | 57.4 | 19.8 | 17.8 | 41.3 |
| 1946 | 56.7 | 44.6 | 32.9 | 48.2 | 59.1 | 84.8 | 50.3 | 25.7 | 21.8 | 26.3 | 7.14 | 38.5 |
| 1947 | 6.14 | 13.4 | 28.3 | 41.5 | 57.0 | - | - | - | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1943 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1944 | 0.73 | 0.76 | 0.68 | 0.60 | 0.67 | 1.83 | 1.94 | 1.82 | 1.04 | 0.28 | 0.12 | 10.61 |
| 1945 | .14 | .26 | .40 | .63 | .63 | .81 | 1.44 | 1.06 | .79 | .28 | .25 | 6.89 |
| 1946 | .80 | .61 | .47 | .68 | .76 | 1.20 | .69 | .36 | .30 | .37 | .10 | 6.42 |
| 1947 | .09 | .18 | .40 | .59 | .73 | - | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004 | - | - | - | 6.5 | 0.780 | 10.61 | 55.3 | 9.24 |
| 1945 | 1034 | - | - | - | 7.4 | 41.3 | 6.89 | 47.8 | 7.97 |
| 1946 | 1054 | - | - | - | 4.0 | 38.5 | 6.42 | 31.3 | 5.21 |
| 1947 | 1084 | - | - | - | - | .473 | - | - | - |

121. St. Joseph River at Mottville, Mich.

Location.--Lat 41°48', long. 85°45', in NE $\frac{1}{4}$ sec. 6, T. 8 S., R. 12 W., at hydroelectric plant of Michigan Gas and Electric Co. at Mottville, 5 miles downstream from Pawn River.

Drainage area.--1,860 sq mi, approximately.

Gage.--Float gage. Datum of gage is 759.5 ft above mean sea level (levels by Michigan Gas and Electric Co.).

Average discharge.--27 years (1923-50), 1,522 cfs.

Extremes.--1923-50: Maximum discharge, 10,700 cfs Apr. 27, 1950 (gage height, 6.56 ft); minimum daily, 44 cfs Oct. 17, 1937.

Remarks.--Flow regulated by powerplant at station and many others upstream.

Monthly and yearly mean discharge, in cubic feet per second, of St. Joseph River at Mottville, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|-------|--------|-------|-------|--------|--------|-------|-------|-------|----------|
| 1924 | *780 | *800 | *1,340 | 1,320 | 1,110 | 2,290 | 2,500 | 1,600 | 1,500 | 1,210 | 973 | 932 | *1,360 |
| 1925 | 866 | 691 | 947 | 812 | 1,240 | 2,030 | 1,210 | 917 | 535 | 567 | 769 | 733 | 942 |
| 1926 | 1,270 | 1,930 | 1,400 | 1,420 | 1,730 | 2,990 | 3,460 | 1,490 | 1,820 | 881 | 960 | 1,430 | 1,730 |
| 1927 | 1,810 | 1,580 | 1,450 | 989 | 2,210 | 1,720 | 2,090 | 1,720 | 1,360 | 730 | 650 | 659 | 1,410 |
| 1928 | 1,140 | 1,250 | 4,070 | 2,900 | 2,790 | 2,190 | 2,310 | 1,480 | 1,380 | 1,230 | 990 | 931 | 1,890 |
| 1929 | 863 | 1,080 | 1,260 | 1,370 | 1,040 | 3,250 | 4,100 | 3,730 | 1,350 | 988 | 489 | 481 | 1,670 |
| 1930 | *801 | *1,140 | *1,090 | 2,580 | *2,660 | 2,320 | 1,750 | 1,420 | 891 | 596 | *487 | *486 | *1,340 |
| 1931 | 544 | 579 | 814 | 779 | 831 | 915 | 904 | 786 | 951 | 716 | 466 | 492 | 731 |
| 1932 | 562 | 850 | 1,060 | 1,890 | 2,150 | 1,710 | 2,080 | 1,430 | *878 | 788 | 616 | 845 | *1,240 |
| 1933 | 888 | 1,230 | 1,730 | 2,150 | 1,700 | 2,040 | 3,060 | 2,750 | 1,200 | 1,090 | 782 | 756 | 1,610 |
| 1934 | 1,200 | 1,100 | 1,043 | 1,146 | 970 | 1,128 | 2,806 | 1,263 | 798 | 515 | 465 | 568 | 1,082 |
| 1935 | 509 | 580 | 612 | 875 | 834 | 1,773 | 1,182 | 1,590 | 1,340 | 705 | 936 | 769 | 977 |
| 1936 | 616 | 1,087 | 936 | 938 | 1,133 | 2,884 | 1,651 | 1,303 | 671 | 462 | 376 | 641 | 1,058 |
| 1937 | 837 | 1,210 | 947 | 2,080 | 1,806 | 1,699 | 2,521 | 2,127 | 2,626 | 2,953 | 1,388 | 964 | 1,762 |
| 1938 | 900 | 955 | 988 | 936 | 2,670 | 2,548 | 2,688 | 2,178 | 3,046 | 1,682 | 1,026 | *986 | *1,707 |
| 1939 | 727 | 665 | 783 | 924 | 2,218 | 3,703 | 3,458 | 1,897 | 1,408 | 1,032 | 1,413 | 987 | 1,595 |
| 1940 | *811 | *902 | *971 | *861 | *951 | 1,513 | 1,858 | *1,510 | *1,896 | 1,125 | *916 | 1,489 | *1,232 |
| 1941 | 875 | 957 | 1,560 | 1,744 | 1,302 | 1,687 | 1,904 | 1,209 | 919 | 555 | *404 | *415 | *1,127 |
| 1942 | *1,191 | 1,956 | 1,624 | 1,465 | 1,949 | 3,728 | 3,167 | 1,722 | 1,601 | 966 | 2,053 | 1,138 | *1,879 |
| 1943 | 1,270 | 1,788 | 1,779 | 2,699 | 2,885 | 3,288 | 2,202 | 5,009 | 3,525 | 2,527 | 1,477 | 1,704 | 2,512 |
| 1944 | 1,347 | 1,698 | 1,502 | 1,078 | 1,544 | 3,162 | 3,591 | 2,554 | 1,636 | 845 | 609 | 675 | 1,668 |
| 1945 | 755 | 934 | 853 | 769 | 971 | 1,534 | 1,982 | 2,637 | 1,867 | 1,020 | 884 | *826 | *1,257 |
| 1946 | 1,445 | 1,154 | 1,120 | 1,798 | 1,436 | 2,554 | 1,345 | 965 | 725 | 569 | 394 | 391 | 1,158 |
| 1947 | 534 | 820 | 892 | 1,000 | 1,076 | 1,717 | 5,531 | 4,336 | 4,105 | 1,749 | 1,012 | 1,440 | 2,015 |
| 1948 | 1,092 | 1,201 | 1,452 | 1,216 | 1,512 | 4,071 | 3,076 | 3,037 | 1,692 | 1,376 | 710 | 644 | 1,759 |
| 1949 | 723 | 1,007 | 1,102 | 2,039 | 3,085 | 2,147 | 2,450 | 1,530 | 1,509 | 1,171 | 799 | 917 | 1,528 |
| 1950 | 1,153 | 1,004 | 1,926 | 3,640 | 3,102 | 4,694 | 7,646 | 3,785 | 2,899 | 1,850 | 1,226 | 1,417 | 2,856 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|------|------|------|-------|------|------|-------|----------|
| 1924 | 0.48 | 0.48 | 0.83 | 0.82 | 0.64 | 1.42 | 1.50 | 0.99 | 0.90 | 0.75 | 0.60 | 0.56 | 9.97 |
| 1925 | .54 | .41 | .59 | .50 | .69 | 1.26 | .72 | .57 | .32 | .35 | .48 | .44 | 6.87 |
| 1926 | .79 | 1.16 | .87 | .88 | .97 | 1.85 | 2.08 | .92 | 1.09 | .55 | .60 | .86 | 12.62 |
| 1927 | 1.12 | .95 | .90 | .61 | 1.24 | 1.07 | 1.25 | 1.07 | .81 | .45 | .40 | .40 | 10.27 |
| 1928 | .70 | .75 | 2.52 | 1.80 | 1.62 | 1.36 | 1.38 | .92 | .83 | .76 | .61 | .56 | 13.81 |
| 1929 | .53 | .65 | .78 | .85 | .58 | 2.01 | 2.46 | 2.31 | .81 | .61 | .30 | .29 | 12.18 |
| 1930 | *.50 | *.69 | *.68 | *1.60 | *1.49 | 1.44 | 1.05 | .88 | .53 | .37 | *.30 | *.29 | *9.82 |
| 1931 | .34 | .35 | .50 | .48 | .47 | .57 | .54 | .49 | .57 | .44 | .29 | .30 | 5.34 |
| 1932 | .35 | .51 | .66 | 1.17 | 1.25 | 1.06 | 1.25 | .89 | *.58 | *.49 | .38 | .51 | *9.10 |
| 1933 | .55 | .74 | 1.07 | 1.33 | .95 | 1.27 | 1.84 | 1.70 | .72 | .69 | .48 | .45 | 11.78 |
| 1934 | .74 | .66 | .65 | .71 | .54 | .70 | 1.68 | .78 | .48 | .32 | .29 | .34 | 7.89 |
| 1935 | .32 | .35 | .38 | .54 | .47 | 1.10 | .71 | .99 | .80 | .44 | .58 | .46 | 7.14 |
| 1936 | .38 | .65 | .58 | .58 | .66 | 1.79 | .99 | .81 | .40 | .28 | .23 | .38 | 7.74 |
| 1937 | .52 | .73 | .59 | 1.29 | 1.01 | 1.05 | 1.31 | 1.32 | 1.59 | 1.83 | .86 | .58 | 12.87 |
| 1938 | .56 | .57 | .61 | .58 | 1.49 | 1.58 | 1.61 | 1.35 | 1.83 | 1.04 | .64 | *.59 | *12.45 |
| 1939 | .45 | .40 | .49 | .57 | 1.24 | 2.29 | 2.06 | 1.18 | .84 | .64 | .88 | .60 | 11.64 |
| 1940 | *.50 | *.54 | *.60 | *.53 | *.55 | .94 | 1.11 | *.94 | *1.14 | .70 | *.57 | .89 | *9.01 |
| 1941 | .54 | .57 | .97 | 1.08 | .73 | 1.05 | 1.14 | .75 | .55 | .34 | *.25 | *.25 | *8.22 |
| 1942 | *.74 | 1.17 | 1.01 | .91 | 1.09 | 2.31 | 1.90 | 1.07 | .96 | .60 | 1.27 | .68 | *13.71 |
| 1943 | .78 | 1.07 | 1.10 | 1.67 | 1.62 | 2.04 | 1.32 | 1.10 | 2.11 | 1.57 | .92 | 1.02 | 19.33 |
| 1944 | 83 | 1.02 | .81 | .67 | .90 | 1.96 | 2.15 | 1.59 | .98 | .52 | .39 | .40 | 12.20 |
| 1945 | .49 | .56 | .53 | .48 | .54 | .95 | 1.19 | 1.63 | 1.12 | .63 | .55 | *.50 | *9.17 |
| 1946 | .89 | .69 | .69 | 1.11 | .80 | 1.58 | .81 | .60 | .44 | .35 | .24 | .23 | 8.43 |
| 1947 | .33 | .49 | .55 | .62 | .60 | 1.06 | 3.32 | 2.69 | 2.46 | 1.08 | .63 | .86 | 14.69 |
| 1948 | .68 | .72 | .90 | .75 | .88 | 2.52 | 1.85 | 1.88 | 1.02 | .85 | .44 | .39 | 12.88 |
| 1949 | .45 | .60 | .68 | 1.27 | 1.73 | 1.33 | 1.47 | .95 | .90 | .73 | .50 | .55 | 11.16 |
| 1950 | .71 | .60 | 1.20 | 2.26 | 1.74 | 2.90 | 4.59 | 2.34 | 1.74 | 1.15 | .76 | .85 | 20.84 |

* Revised.

Note.--Runoff prior to 1948 not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------------|-------------|--------|-----------------|------------------|-------|------------------|
| | | Discharge | Momentary maximum Date | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| 1924 | 584 | 4,960 | Mar. 30, 31, Apr. 2 | | | *1,360 | 0.731 | 9.97 | 1,330 |
| 1925 | 604 | 4,170 | Mar. 23, 1925 | 198 | 942 | | .506 | 6.87 | 1,120 |
| 1926 | 624 | a8,250 | Apr. 20, 1926 | 420 | 1,730 | | .930 | 12.62 | 1,750 |
| 1927 | 644 | 5,040 | Apr. 23, 1927 | 324 | 1,410 | | .758 | 10.27 | 1,550 |
| 1928 | 664 | 6,890 | (b) | 512 | 1,890 | | 1.02 | 13.81 | 1,610 |
| 1929 | 684 | 6,310 | May 5, 1929 | 78 | 1,670 | | .898 | 12.18 | *1,660 |
| 1930 | 714, 1387 | *6,020 | Feb. 24, 1930* | *281 | *1,340 | | *.720 | *9.82 | *1,250 |
| 1931 | 714 | 2,420 | June 8, 1931 | 255 | 731 | | .393 | 5.34 | 775 |
| 1932 | 729, 1387 | 4,250 | Mar. 31, 1932 | 293 | *1,240 | | *.667 | *9.10 | *1,360 |
| 1933 | 744 | 4,700 | Dec. 27, 1932 | 355 | 1,610 | | .866 | 11.78 | 1,572 |
| 1934 | 759 | 4,400 | Apr. 9, 1934 | 349 | 1,082 | | .582 | 7.89 | 944 |
| 1935 | 784 | 3,950 | May 30, 1935 | 355 | 977 | | .525 | 7.14 | 1,055 |

* Revised.

* Not previously published.

a Caused by unusual regulation for very short period; a peak of 6,880 cfs on Apr. 11, 1926, more nearly represents the natural maximum.

b Dec. 14-16, 1927.

Note.--Runoff in inches and per square mile not previously published.

Yearly discharge, in cubic feet per second, of St. Joseph River at Mottville, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|--------|-----------------------|------------------------|--------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | 4,550 | Mar. 9, 1936 | 271 | 1,058 | 0.569 | 7.74 | 1,088 | 7.97 |
| 1937 | 824 | 7,300 | June 28, 1937 | 235 | 1,762 | .947 | 12.87 | 1,750 | 12.77 |
| 1938 | 854,1387 | 5,180 | May 31, 1938 | 44 | *1,707 | *.918 | *12.45 | *1,651 | *12.05 |
| 1939 | 874 | 5,180 | Mar. 17, 1939 | 223 | 1,595 | .858 | 11.64 | *1,638 | *11.94 |
| 1940 | 894,1387 | *3,220 | Sept. 3, 1940* | 151 | *1,232 | *.662 | *9.01 | *1,292 | *9.45 |
| 1941 | 924,1387 | 2,960 | Apr. 24, 1941 | *140 | *1,127 | *.606 | *8.22 | *1,241 | *9.06 |
| 1942 | 954,1387 | 5,480 | Mar. 18-20, 1942 | *410 | *1,879 | *1.01 | *13.71 | 1,885 | 13.75 |
| 1943 | 874 | 7,490 | May 24, 30, 1943* | 836 | 2,512 | 1.35 | 18.33 | 2,471 | 18.03 |
| 1944 | 1004 | 5,180 | Mar. 20, 1944 | 247 | 1,668 | .897 | 12.20 | 1,521 | 11.12 |
| 1945 | 1034,1387 | 4,780 | May 21, 1945 | *333 | *1,257 | *.676 | *9.17 | *1,353 | *9.86 |
| 1946 | 1054 | 3,480 | Mar. 9, 1946 | 98 | 1,158 | .623 | 8.43 | 1,034 | 7.53 |
| 1947 | 1084 | 8,480 | Apr. 8, 9, 1947 | 107 | 2,015 | 1.08 | 14.69 | 2,141 | 15.62 |
| 1948 | 1114 | 8,050 | Mar. 24, 1948 | 327 | 1,759 | .946 | 12.88 | 1,682 | 12.31 |
| 1949 | 1144 | 4,300 | Feb. 16-18, 1949 | 112 | 1,528 | .822 | 11.16 | 1,634 | 11.94 |
| 1950 | 1174 | 10,700 | Apr. 27, 1950 | 625 | 2,856 | 1.54 | 20.84 | - | - |

* Revised.

a Maximum daily.

Note.--Runoff in inches and per square mile prior to 1948 not previously published.

122. Pigeon Creek at Hogback Lake Outlet, near Angola, Ind. 1/

Location.--Lat 41°37'30", long. 85°05'46", in NE $\frac{1}{4}$ sec. 36, T. 37 N., R. 12 E., at farm bridge 800 ft north of lake outlet, 2 miles southeast of Flint, and 5.1 miles west of Angola.

Drainage area.--102 sq mi (revised). Prior to Oct. 1, 1947, 105 sq mi (revised).

Gage.--Staff gage. Datum of gage is 940.00 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1947, wire-weight gage at site $\frac{1}{2}$ miles downstream at different datum.

Average discharge.--5 years (1945-50), 85 cfs.

Extremes.--1945-50: Maximum discharge, 744 cfs Apr. 8, 1950 (gage height, 14.95 ft); minimum, 11 cfs Oct. 14-16, 1946, Sept. 16-20, 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 49.5 | 27.7 | 30.3 | 98.4 | 103 | 129 | 48.1 | 32.2 | 38.0 | 27.2 | 14.7 | 14.0 | 50.8 |
| 1947 | 14.1 | 18.1 | 22.3 | 43.2 | 68.0 | 78.5 | 300 | 169 | 136 | 33.5 | 20.5 | 50.4 | 79.1 |
| 1948 | 28.9 | 47.5 | 89.3 | 75.2 | 106 | 220 | 153 | 153 | 48.2 | 29.1 | 19.6 | 13.3 | 82.0 |
| 1949 | 15.8 | 22.5 | 24.2 | 132 | 197 | 105 | 77.9 | 51.7 | 58.6 | 36.5 | 20.8 | 14.6 | 62.1 |
| 1950 | 22.7 | 19.4 | 63.5 | 266 | 206 | 285 | 491 | 172 | 92.5 | 82.1 | 41.0 | 84.0 | 151 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 0.54 | 0.29 | 0.33 | 1.08 | 1.02 | 1.41 | 0.51 | 0.35 | 0.40 | 0.30 | 0.16 | 0.15 | 6.54 |
| 1947 | .15 | .19 | .24 | .47 | .67 | .86 | 3.19 | 1.85 | 1.45 | .37 | .23 | .54 | 10.21 |
| 1948 | .33 | .52 | 1.01 | .85 | 1.12 | 2.49 | 1.67 | 1.73 | .53 | .33 | .22 | .15 | 10.95 |
| 1949 | .18 | .25 | .27 | 1.49 | 2.01 | 1.18 | .85 | .58 | .64 | .41 | .23 | .16 | 8.25 |
| 1950 | .26 | .21 | .72 | 3.01 | 2.10 | 3.22 | 5.37 | 1.94 | 1.01 | .93 | .46 | .92 | 20.15 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | 220 | Feb. 19, 1946 | 13 | 50.8 | 0.484 | 6.54 | 46.3 | 5.96 |
| 1947 | 1084 | 458 | Apr. 24, 1947 | 11 | 79.1 | .753 | 10.21 | 88.4 | 11.49 |
| 1948 | 1144 | 355 | Mar. 2, 1948 | 11 | 82.0 | .804 | 10.95 | 73.3 | 9.79 |
| 1949 | 1144 | 366 | Feb. 19, 1949 | 12 | 62.1 | .609 | 8.25 | 65.8 | 8.74 |
| 1950 | 1174 | 744 | Apr. 8, 1950 | 12 | 151 | 1.48 | 20.15 | - | - |

123. Christiana Creek at Elkhart, Ind.

Location.--Lat 41°41'45", long. 85°58'35", in NE $\frac{1}{4}$ sec. 5, T. 37 N., R. 5 E., on right bank at Elkhart Water Works pumping plant, three-eighths of a mile upstream from mouth.

Drainage area.--119 sq mi (revised).

Gage.--Staff gage. Datum of gage is 730.00 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1948, wire-weight gage at site 700 ft downstream at same datum.

Extremes.--1946-50: Maximum discharge, 452 cfs Apr. 8, 1947 (gage height, 2.19 ft, site then in use); minimum, 37 cfs (revised) Aug. 26, 1949.

Remarks.--Water is diverted down an old millrace about a quarter of a mile upstream, entering into St. Joseph River about 1 mile downstream. Diurnal fluctuation caused by small powerplant about 6 miles above station.

1/ Published as "near Flint" prior to October 1947.

Monthly and yearly mean discharge, in cubic feet per second, of Christiana Creek at Elkhart, Ind.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|-------|-------|----------|
| 1947 | - | - | - | - | 76.4 | 81.2 | 109 | 229 | 223 | 199 | 123 | 79.1 | 139 |
| 1948 | 75.9 | 96.7 | 117 | 97.1 | 88.9 | 172 | 129 | 127 | 68.4 | 79.2 | 59.0 | 53.6 | 97.2 |
| 1949 | 62.8 | 84.2 | 93.4 | 136 | 172 | 132 | 120 | 107 | 114 | 72.9 | *53.2 | *61.9 | *100 |
| 1950 | 82.5 | 69.2 | 133 | 182 | 157 | 224 | 232 | 216 | 218 | 157 | 92.1 | 106 | 161 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | 452 | Apr. 8, 1947 | - | - | - | - | 135 | - |
| 1948 | 1114 | 325 | Mar. 22, 1948 | 45 | 97.2 | - | - | 93.1 | - |
| 1949 | 1144, 1337 | 240 | Feb. 17, 1949 | *40 | *100 | - | - | 104 | - |
| 1950 | 1174 | 424 | Apr. 27, 1950 | 54 | 161 | - | - | - | - |

* Revised.

124. Elkhart River at Goshen, Ind.

Location.--Lat 41°35', long. 85°50', near line between secs. 8 and 9, T. 36 N., R. 6 E., on right bank 20 ft downstream from River Avenue Bridge at Goshen and half a mile upstream from Rock Run.

Drainage area.--580 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 769.43 ft above mean sea level, datum of 1929. Prior to Nov. 20, 1931, chain gage at same site and datum.

Average discharge.--19 years (1931-50), 486 cfs.

Extremes.--1931-50: Maximum discharge, 5,440 cfs Apr. 4, 1950 (gage height, 10.15 ft); minimum, 28 cfs Sept. 5, 6, 1941; minimum daily, 35 cfs Sept. 26, 1941.

Remarks.--Flow regulated by three powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | 193 | 157 | 115 | 114 | 191 | - |
| 1932 | 218 | 373 | 467 | 782 | 828 | 571 | 579 | 382 | 258 | 560 | 235 | 360 | 466 |
| 1933 | 309 | 423 | 765 | 737 | 555 | 1,010 | 1,330 | 1,110 | 350 | 267 | 221 | 208 | 607 |
| 1934 | 313 | 513 | 279 | 310 | 207 | 340 | 645 | 233 | 101 | 94 | 101 | 103 | 253 |
| 1935 | 90.9 | 124 | 146 | 326 | 339 | 643 | 454 | 687 | 346 | 200 | 272 | 144 | 315 |
| 1936 | 158 | 418 | 347 | 345 | 570 | 1,087 | 575 | 541 | 143 | 97.4 | 96.8 | 116 | 374 |
| 1937 | 187 | 529 | 322 | 948 | 727 | 603 | 900 | 682 | 448 | 305 | 291 | 193 | 509 |
| 1938 | 153 | 159 | 205 | 328 | 791 | 873 | 1,076 | 517 | 462 | 401 | 254 | 185 | 447 |
| 1939 | 170 | 222 | 297 | 319 | 879 | 1,331 | 1,158 | 473 | 386 | 311 | 536 | 218 | 522 |
| 1940 | 185 | 211 | 215 | 214 | 237 | 611 | 585 | 783 | 615 | 243 | 151 | 131 | 347 |
| 1941 | 163 | 168 | 245 | 252 | 261 | 348 | 371 | 246 | 178 | 108 | 73.0 | 58.5 | 206 |
| 1942 | 132 | 265 | 242 | 230 | 690 | 1,257 | 839 | 325 | 242 | 188 | 377 | 268 | 419 |
| 1943 | 256 | 567 | 637 | 823 | 939 | 1,051 | 666 | 2,354 | 968 | 647 | 414 | 454 | 815 |
| 1944 | 318 | 439 | 256 | 212 | 389 | 1,238 | 1,693 | 1,092 | 503 | 216 | 168 | 163 | 557 |
| 1945 | 172 | 190 | 182 | 168 | 369 | 699 | 941 | 930 | 485 | 236 | 343 | 344 | 421 |
| 1946 | 857 | 339 | 279 | 673 | 708 | 845 | 363 | 256 | 590 | 265 | 141 | 117 | 452 |
| 1947 | 139 | 229 | 238 | 426 | 499 | 537 | 1,398 | 920 | 817 | 305 | 198 | 458 | 512 |
| 1948 | 265 | 309 | 484 | 564 | 711 | 1,201 | 858 | 983 | 475 | 298 | 196 | 143 | 541 |
| 1949 | 137 | 198 | 262 | 919 | 1,168 | 689 | 509 | 445 | 523 | 376 | 228 | 178 | 465 |
| 1950 | 353 | 239 | 617 | 1,816 | 1,561 | 1,936 | 2,424 | 776 | 572 | 718 | 485 | 556 | 1,005 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | 0.38 | 0.30 | 0.23 | 0.23 | 0.37 | - |
| 1932 | 0.43 | 0.72 | 0.93 | 1.55 | 1.54 | 1.13 | 1.11 | .76 | .50 | 1.11 | .47 | .69 | 10.94 |
| 1933 | .61 | .81 | 1.52 | 1.46 | 1.00 | 2.01 | 2.56 | 2.21 | .67 | .53 | .44 | .40 | 14.22 |
| 1934 | .62 | .60 | .55 | .62 | .37 | .88 | 1.24 | .46 | .19 | .19 | .20 | .20 | 5.92 |
| 1935 | .18 | .24 | .29 | .65 | .61 | 1.28 | .87 | 1.37 | .66 | .40 | .54 | .28 | 7.37 |
| 1936 | .31 | .80 | .69 | .68 | 1.06 | 2.16 | 1.10 | 1.07 | .28 | .19 | .19 | .22 | 8.75 |
| 1937 | .37 | 1.02 | .64 | 1.88 | 1.30 | 1.20 | 1.73 | 1.36 | .86 | .61 | .58 | .37 | 11.92 |
| 1938 | .30 | .31 | .41 | .65 | 1.42 | 1.74 | 2.07 | 1.03 | .89 | .80 | .50 | .36 | 10.48 |
| 1939 | .34 | .43 | .59 | .63 | 1.58 | 2.64 | 2.23 | .94 | .74 | .62 | 1.06 | .42 | 12.22 |
| 1940 | .37 | .41 | .43 | .42 | .44 | 1.21 | 1.12 | 1.56 | 1.18 | .48 | .26 | .25 | 8.13 |
| 1941 | .32 | .32 | .49 | .50 | .47 | .69 | .71 | .49 | .34 | .21 | .14 | .11 | 4.79 |
| 1942 | .26 | .51 | .48 | .46 | 1.24 | 2.50 | 1.61 | .65 | .46 | .37 | .75 | .51 | 9.80 |
| 1943 | .51 | 1.09 | 1.26 | 1.64 | 1.68 | 2.09 | 1.28 | 4.68 | 1.66 | 1.29 | .82 | .87 | 19.07 |
| 1944 | .63 | .84 | .51 | .42 | .72 | 2.46 | 3.26 | 2.17 | .97 | .43 | .33 | .31 | 13.05 |
| 1945 | .34 | .36 | .36 | .33 | .66 | 1.39 | 1.81 | 1.85 | .93 | .47 | .68 | .66 | 9.84 |
| 1946 | 1.70 | .65 | .55 | 1.34 | 1.27 | 1.68 | .70 | .51 | 1.14 | .53 | .28 | .22 | 10.57 |
| 1947 | .28 | .44 | .47 | .85 | .90 | 1.07 | 2.69 | 1.83 | 1.57 | .61 | .39 | .98 | 11.98 |
| 1948 | .53 | .59 | .96 | 1.12 | 1.32 | 2.39 | 1.65 | 1.95 | .91 | .59 | .39 | .27 | 12.67 |
| 1949 | .27 | .38 | .52 | 1.83 | 2.10 | 1.37 | .98 | .88 | 1.01 | .75 | .45 | .45 | 10.88 |
| 1950 | .70 | .46 | 1.23 | 3.71 | 2.80 | 3.85 | 4.66 | 1.54 | 1.10 | 1.43 | .96 | 1.07 | 23.51 |

Yearly discharge, in cubic feet per second, of Elkhart River at Goshen, Ind.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1932 | 729 | 2,660 | Feb. 12, 1932 | 78 | 466 | 0.803 | 10.94 | 504 | 11.80 |
| 1933 | 744 | 3,060 | Apr. 18, 1933 | 140 | 607 | 1.05 | 14.22 | 558 | 13.05 |
| 1934 | 759 | 1,220 | Apr. 2, 1934 | 74 | 253 | .436 | 5.92 | 207 | 4.86 |
| 1935 | 784 | 1,310 | May 14, 1935 | 79 | 315 | .543 | 7.37 | 361 | 8.46 |
| 1936 | 804 | 2,820 | Feb. 25, 1936 | 71 | 374 | .645 | 8.75 | 383 | 8.98 |
| 1937 | 824 | 1,580 | Jan. 15, 1937 | 140 | 509 | .878 | 11.92 | 466 | 10.91 |
| 1938 | 854 | 2,380 | Apr. 10, 1938 | 104 | 447 | .771 | 10.48 | 462 | 10.82 |
| 1939 | 874 | *3,940 | Mar. 13, 1939 | 130 | 522 | .900 | 12.22 | 516 | 12.07 |
| 1940 | 894 | 2,770 | May 2, 1940 | 58 | 347 | .598 | 8.13 | 344 | 8.05 |
| 1941 | 924 | 701 | Apr. 3, 1941 | 35 | 206 | .355 | 4.79 | 211 | 4.91 |
| 1942 | 954 | 2,820 | Mar. 17, 1942 | 50 | 419 | .722 | 9.80 | 488 | 11.41 |
| 1943 | 974 | 5,090 | May 25, 1943 | 196 | 815 | 1.40 | 19.07 | 778 | 18.19 |
| 1944 | 1004 | 3,450 | Mar. 16, 1944 | 129 | 557 | .960 | 13.05 | 518 | 12.13 |
| 1945 | 1034 | 2,300 | May 18, 1945 | 127 | 421 | .726 | 9.84 | 500 | 11.68 |
| 1946 | 1054 | 3,360 | Oct. 2, 1945 | 76 | 452 | .779 | 10.57 | 378 | 8.86 |
| 1947 | 1084 | 3,360 | Apr. 21, 1947 | 77 | 512 | .883 | 11.98 | 550 | 12.87 |
| 1948 | 1114 | 2,590 | Feb. 29, 1948 | 61 | 541 | .933 | 12.67 | 502 | 11.76 |
| 1949 | 1144 | 2,510 | Feb. 15, 1949 | 61 | 465 | .802 | 10.88 | 517 | 12.10 |
| 1950 | 1174 | 5,440 | Apr. 4, 1950 | 140 | 1,005 | 1.73 | 23.51 | - | - |

* Revised.

Note.--Records for period 1924-27 have not been included herein because sufficient base data were not available for evaluation.

125. St. Joseph River at Elkhart, Ind.

Location.--Lat 41°41'30", long. 85°58'25", in NE¼ sec. 5, T. 37 N., R. 5 E., on left bank 100 ft downstream from mouth of Elkhart River, 200 ft upstream from Main Street Bridge, and 1,900 ft downstream from Christiansa Creek.

Drainage area.--3,339 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 700.00 ft above mean sea level, datum of 1929.

Extremes.--1947-50: Maximum discharge, 18,400 cfs Apr. 5, 1950 (gage height, 27.82 ft); minimum, 335 cfs Oct. 11, 1948; minimum daily, 870 cfs Oct. 10, 1948.

Remarks.--Flow regulated by Elkhart Hydroelectric Plant, 2,400 ft upstream, and by hydroelectric plant on Elkhart River at Goshen.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | - | - | - | 2,710 | - |
| 1948 | 1,901 | 2,188 | 2,856 | 2,561 | 3,160 | 7,062 | 4,930 | 5,410 | 2,880 | 2,204 | 1,682 | 1,360 | 3,187 |
| 1949 | 1,174 | 1,538 | 1,717 | 3,695 | 5,355 | 3,665 | 3,940 | 2,537 | 2,605 | 2,061 | 1,327 | 1,468 | 2,570 |
| 1950 | 2,325 | 1,776 | 3,456 | 7,315 | 8,461 | 8,846 | 12,690 | 6,209 | 4,922 | 3,921 | 2,631 | 2,770 | 5,264 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | - | - | - | 0.91 | - |
| 1948 | 0.66 | 0.73 | 0.99 | 0.88 | 1.02 | 2.44 | 1.65 | 1.87 | 0.96 | 0.76 | 0.58 | .45 | 12.99 |
| 1949 | .40 | .51 | .59 | 1.28 | 1.67 | 1.27 | 1.32 | .88 | .87 | .71 | .46 | .49 | 10.45 |
| 1950 | .80 | .59 | 1.19 | 2.53 | 2.02 | 3.05 | 4.24 | 2.14 | 1.64 | 1.35 | .91 | .93 | 21.39 |

Yearly discharge, in cubic feet per second

| Average discharges, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 12,800 | Mar. 22, 1948 | 960 | 3,187 | 0.954 | 12.99 | 2,975 | 12.11 |
| 1949 | 1144 | 9,200 | Feb. 17, 1949 | 870 | 2,570 | .770 | 10.45 | 2,835 | 11.53 |
| 1950 | 1174 | 18,400 | Apr. 5, 1950 | 1,470 | 5,264 | 1.58 | 21.39 | | |

126. St. Joseph River at Niles, Mich.

Location.--Lat 41°49'45", long. 86°15'35", in SW¹ sec. 26, T. 7 S., R. 17 W., on right bank 100 ft upstream from Main Street Bridge at Niles, 0.6 mile downstream from powerplant of French Paper Co., 1 mile upstream from Dowagiac River, and at mile 44.

Drainage area.--3,620 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 635.02 ft above mean sea level, datum of 1929. Oct. 1, 1930, to Feb. 11, 1931, tape gage on Main Street Bridge and Feb. 12 to June 30, 1931, staff gage, 50 ft upstream from present site, gage heights referred to mean sea level. Since Oct. 1, 1943, auxiliary gage is headwater gage at Buchanan hydroelectric plant, 8 miles downstream.

Average discharge.--20 years (1930-50), 3,054 cfs.

Extremes.--1930-50: Maximum discharge, 20,200 cfs Apr. 5, 1950 (gage height, 13.10 ft); minimum daily, 420 cfs (revised) Aug. 30, 1931.

Remarks.--Flow regulated by powerplants above station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | *1,342 | *1,343 | *1,745 | *1,483 | 1,630 | 2,020 | 2,160 | 1,580 | 1,600 | 1,250 | 961 | *1,176 | *1,523 |
| 1932 | 1,250 | 1,900 | 2,150 | 3,590 | 3,920 | 3,060 | 3,340 | 2,350 | 1,920 | 1,790 | 1,480 | 1,600 | 2,360 |
| 1933 | *1,744 | 2,190 | 3,690 | 4,130 | 3,150 | 4,820 | 6,920 | 6,040 | *2,145 | *1,987 | *1,513 | *1,550 | *3,500 |
| 1934 | 2,319 | 2,232 | 1,929 | 2,136 | 1,809 | 2,075 | 4,772 | 1,819 | 1,254 | 1,033 | 959 | *1,048 | *1,946 |
| 1935 | 1,062 | 1,291 | 1,246 | *1,914 | *1,931 | 3,780 | 2,426 | 3,871 | 3,036 | 1,742 | 2,039 | 1,594 | *2,164 |
| 1936 | 1,433 | 2,328 | 2,225 | 2,299 | 2,853 | 5,817 | 3,316 | *3,155 | *1,494 | *1,077 | *982 | 1,475 | *2,371 |
| 1937 | 1,899 | 2,848 | 2,129 | 4,950 | 3,804 | 3,432 | 5,283 | 4,361 | 4,412 | 4,728 | 2,483 | 1,924 | 3,518 |
| 1938 | 2,025 | 2,013 | 2,042 | 2,193 | *4,855 | *4,809 | *5,432 | 4,166 | *5,131 | *3,472 | 2,294 | 1,977 | *3,352 |
| 1939 | 1,619 | 1,629 | 1,894 | 2,517 | 4,814 | 7,097 | 6,317 | 3,217 | 2,806 | 2,175 | 3,001 | 1,758 | 3,207 |
| 1940 | 1,585 | *1,828 | *1,872 | *1,895 | 1,987 | 3,105 | *3,490 | 3,479 | *3,720 | *2,201 | 1,706 | 2,129 | *2,415 |
| 1941 | 1,631 | 1,698 | 2,403 | 2,710 | 2,320 | 2,871 | 3,353 | 2,262 | 1,700 | 1,186 | 828 | *885 | *1,985 |
| 1942 | *2,189 | 3,491 | 2,639 | *2,440 | 4,022 | 6,818 | 5,384 | 3,011 | 2,632 | 1,947 | 3,461 | 2,513 | *3,356 |
| 1943 | 1,970 | 3,179 | 3,335 | *4,501 | 6,036 | 6,348 | *4,481 | 10,760 | 6,731 | 4,693 | 3,154 | *3,692 | *4,901 |
| 1944 | 2,817 | 3,312 | 2,258 | 1,886 | 2,727 | 6,278 | 7,542 | 5,430 | 3,091 | 1,792 | 1,484 | 1,446 | 3,336 |
| 1945 | 1,521 | 1,670 | 1,656 | 1,624 | 2,353 | 3,633 | 4,813 | 5,705 | 3,593 | 1,868 | 2,046 | 2,045 | 2,710 |
| 1946 | 3,166 | 2,255 | 2,467 | 3,855 | 3,257 | 5,186 | 2,734 | 2,267 | 2,253 | 1,446 | 1,042 | 1,064 | 2,583 |
| 1947 | 1,118 | 1,697 | 1,768 | 2,203 | 2,601 | 3,442 | 10,030 | 7,605 | 7,023 | 2,969 | 1,884 | 3,120 | 3,780 |
| 1948 | 2,034 | 2,312 | 3,149 | 2,841 | 3,612 | 7,533 | 5,979 | 6,015 | 5,090 | 2,148 | 1,560 | 1,433 | 3,478 |
| 1949 | 1,531 | 1,880 | 2,068 | 4,353 | 6,281 | 4,584 | 4,518 | 3,044 | 3,078 | 2,334 | 1,788 | 1,699 | 3,074 |
| 1950 | 2,499 | 2,017 | 3,943 | 7,882 | 6,877 | 9,477 | 13,590 | 6,842 | 5,422 | 4,142 | 2,795 | 3,284 | 5,718 |

* Revised.

* Not previously published; estimated on basis of unpublished powerplant records.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | *0.43 | *0.41 | *0.56 | *0.47 | 0.47 | 0.64 | 0.67 | 0.50 | 0.49 | 0.40 | 0.31 | *0.36 | *5.71 |
| 1932 | .40 | .58 | .69 | 1.14 | 1.17 | .97 | 1.03 | .75 | .59 | .57 | .47 | .49 | 8.85 |
| 1933 | *.56 | .68 | 1.18 | 1.31 | .91 | 1.48 | 2.10 | 1.92 | *.66 | *.63 | *.48 | *.48 | *12.39 |
| 1934 | .74 | .69 | .61 | .68 | .52 | .66 | 1.47 | .58 | .39 | .33 | .31 | *.32 | *7.30 |
| 1935 | .34 | .40 | .40 | *.61 | *.56 | 1.20 | .75 | 1.23 | .94 | .55 | .65 | .49 | *8.12 |
| 1936 | .46 | .72 | .71 | .73 | .85 | 1.85 | 1.02 | *1.00 | *.46 | *.34 | *.31 | .45 | *8.90 |
| 1937 | .61 | .88 | .68 | 1.58 | 1.09 | 1.09 | 1.63 | 1.38 | 1.36 | 1.51 | .79 | .59 | 13.19 |
| 1938 | .64 | .62 | .65 | .70 | *1.40 | *1.53 | *1.67 | 1.33 | *1.58 | *1.11 | .73 | .61 | *12.57 |
| 1939 | .52 | .50 | .60 | .74 | 1.58 | 2.26 | 1.95 | 1.02 | .86 | .69 | .96 | .54 | 12.02 |
| 1940 | .50 | *.56 | *.60 | *.60 | .59 | .99 | *1.08 | 1.11 | *1.15 | *.70 | .54 | .66 | *9.08 |
| 1941 | .52 | .52 | .77 | .86 | .67 | .91 | 1.03 | .72 | .52 | .38 | .26 | *.27 | *7.43 |
| 1942 | *.70 | 1.08 | .84 | *.78 | 1.16 | 2.17 | 1.66 | .96 | .81 | .62 | 1.10 | .71 | 12.59 |
| 1943 | .63 | .98 | 1.06 | 1.43 | 1.74 | 2.02 | *1.38 | 3.43 | 2.07 | 1.49 | 1.00 | *1.14 | *16.37 |
| 1944 | .90 | 1.02 | .72 | .80 | .81 | 1.99 | 2.32 | 1.73 | .95 | .57 | .47 | .45 | 12.53 |
| 1945 | .48 | .51 | .53 | .52 | .68 | 1.15 | 1.48 | 1.82 | 1.11 | .59 | .65 | .63 | 10.15 |
| 1946 | 1.01 | .70 | .79 | 1.22 | .94 | 1.65 | .84 | .72 | .69 | .46 | .33 | .33 | 9.68 |
| 1947 | .36 | .52 | .56 | .70 | .75 | 1.10 | 3.09 | 2.42 | 2.16 | .95 | .60 | .96 | 14.17 |
| 1948 | .65 | .71 | 1.00 | 1.90 | 1.08 | 2.40 | 1.84 | 1.91 | .95 | .68 | .50 | .44 | 13.06 |
| 1949 | .49 | .58 | .66 | 1.38 | 1.81 | 1.46 | 1.40 | .97 | .95 | .74 | .57 | .52 | 11.53 |
| 1950 | .80 | .62 | 1.26 | 2.51 | 1.98 | 3.02 | 4.18 | 2.18 | 1.67 | 1.31 | .89 | 1.01 | 21.43 |

* Revised.

* Not previously published; estimated on basis of unpublished powerplant records.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|--|--|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | | |
| | | Discharge | Date | | | | | | | | | |
| 1931 | 714,1387 | a3,220 | Mar. 30, 1931 | 420 | *1,523 | *0.421 | *5.71 | *1,596 | *5.98 | | | |
| 1932 | 729 | 6,830 | Feb. 15, 1932 | - | 2,360 | *.652 | *8.85 | *2,552 | *9.60 | | | |
| 1933 | 744,1387 | 10,000 | Apr. 18, 1933 | *1,000 | *3,300 | *.912 | *12.39 | *3,203 | *12.01 | | | |
| 1934 | 759,1387 | 8,430 | Apr. 5, 1934 | 466 | *1,946 | *.538 | *7.30 | *1,704 | *6.40 | | | |
| 1935 | 784,1387 | 7,120 | May 31, 1935 | 763 | *2,164 | *.598 | *8.12 | *2,364 | *8.87 | | | |
| 1936 | 804,1387 | 9,600 | Mar. 23, 1936 | *650 | *2,371 | *.655 | *8.90 | *2,718 | *9.18 | | | |
| 1937 | 824 | 11,500 | June 29, 1937 | 1,510 | 3,618 | .972 | 13.19 | 3,452 | 12.93 | | | |
| 1938 | 854 | 9,440 | May 31, 1938 | *1,450 | *3,352 | *.926 | *12.57 | *3,273 | *12.28 | | | |
| 1939 | 874 | 15,300 | Mar. 15, 1939 | 1,060 | 3,207 | .886 | 12.02 | *3,218 | *12.06 | | | |
| 1940 | 894,1387 | 8,680 | May 2, 1940 | *950 | *2,415 | *.667 | *9.08 | *2,453 | *9.23 | | | |

* Revised.

* Not previously published.

a Maximum observed.

Yearly discharge, in cubic feet per second, of St. Joseph River at Niles, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1941 | 924,1387 | 5,610 | (a) | 433 | *1,985 | *0.548 | *7.43 | *2,200 | *8.24 |
| 1942 | 954,1387 | 12,700 | Mar. 18, 1942 | *850 | *3,356 | .927 | 12.59 | *5,371 | *12.54 |
| 1943 | 974,1387 | 17,500 | May 28, 1943 | 1,440 | *4,901 | *1.35 | *18.37 | *4,893 | *18.34 |
| 1944 | 1004 | 12,100 | Mar. 16, 1944 | 1,010 | 3,356 | .922 | 12.53 | 3,041 | 11.41 |
| 1945 | 1034 | *10,100 | May 18, 1945 | 1,030 | 2,710 | .749 | 10.15 | 2,966 | 11.13 |
| 1946 | 1054 | *7,080 | Mar. 8, 1946* | 636 | 2,583 | .714 | 9.68 | 2,303 | 8.62 |
| 1947 | 1084 | 13,600 | Apr. 21, 1947 | 708 | 3,780 | 1.04 | 14.17 | 4,026 | 15.09 |
| 1948 | 1114 | 13,600 | Mar. 22, 1948 | 900 | 3,478 | .961 | 13.06 | 3,308 | 12.43 |
| 1949 | 1144 | *10,300 | Feb. 16, 1949 | 1,100 | 3,074 | .849 | 11.53 | 3,326 | 12.48 |
| 1950 | 1174 | 20,200 | Apr. 5, 1950 | 1,260 | 5,718 | 1.58 | 21.43 | - | - |

* Revised.

a About Apr. 25, 1941, occurred during period of no gage-height record Apr. 21 to May 2; discharge determined from recorded range in stage.

127. St. Joseph River at Berrien Springs, Mich.1/

Location--Lat 41°56'40", long. 86°19'45", in S $\frac{1}{2}$ sec. 18, T. 6 S., R. 17 W., in Berrien Springs at powerplant of Indiana and Michigan Electric Co., 10.6 miles downstream from Buchanan Dam, and at mile 24.6. Prior to January 1909, at Buchanan powerplant 10.6 miles upstream.

Drainage area--4,081 sq mi. Prior to January 1909, 4,040 sq mi (revised), approximately.

Average discharge--26 years (1901-2, 1903-6, 1909-31), 3,269 cfs.

Extremes--1901-6, 1909-31: Maximum daily discharge, 18,600 cfs Mar. 27, 1904; minimum daily not determined.

Remarks--Daily discharge determined by computation of flow over dam and through turbines. Flow regulated by many powerplants upstream.

Cooperation--Records furnished by Indiana and Michigan Electric Co., 1901-32.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|--------|-------|----------|
| 1901 | - | - | - | - | - | - | 5,074 | 2,980 | 2,057 | 1,750 | 1,507 | 1,774 | - |
| 1902 | 2,804 | 2,785 | 3,220 | 2,721 | 2,446 | 5,197 | 3,560 | 3,863 | 3,629 | 4,347 | 2,377 | 2,268 | 3,277 |
| 1903 | 3,291 | 3,124 | 3,974 | 4,450 | 5,973 | 8,084 | 6,333 | - | - | - | - | - | - |
| 1904 | *2,500 | *1,626 | *2,591 | 5,853 | *5,794 | 12,070 | 8,801 | 3,744 | 2,669 | *2,613 | *2,000 | 1,292 | *4,296 |
| 1905 | 1,870 | 1,844 | 1,594 | *2,000 | *1,700 | 4,784 | 4,688 | 6,080 | 3,534 | 2,994 | 2,075 | 2,308 | *2,965 |
| 1906 | 2,223 | 2,617 | 3,038 | 4,400 | 3,700 | 4,390 | 4,550 | 3,060 | 3,460 | 1,780 | 2,030 | 1,500 | 3,057 |
| 1907 | 1,470 | 2,370 | 4,170 | - | - | - | - | - | - | - | - | - | - |
| 1909 | - | - | - | 3,290 | 3,977 | 5,116 | 3,839 | 5,355 | 5,247 | 2,422 | 2,255 | 2,251 | - |
| 1910 | 1,734 | 3,085 | 3,190 | 2,718 | 3,234 | 7,814 | 2,982 | 3,619 | 2,052 | 1,559 | 1,394 | 1,720 | 2,928 |
| 1911 | 1,655 | 1,740 | 1,553 | 2,556 | 2,871 | 3,100 | 3,366 | 2,171 | 2,140 | 1,637 | 1,410 | 1,405 | 2,127 |
| 1912 | 2,352 | 2,770 | 3,366 | 1,742 | 1,586 | 4,823 | 8,190 | 6,114 | 2,673 | 2,061 | 3,129 | 2,240 | 3,425 |
| 1913 | 1,921 | 3,162 | 2,501 | 4,471 | 3,266 | 5,225 | 5,537 | 2,900 | 2,001 | 1,454 | 1,323 | 1,293 | 2,917 |
| 1914 | 1,578 | 1,645 | 1,917 | 1,931 | 2,811 | 4,553 | 6,245 | 6,615 | 3,767 | 2,637 | 2,087 | 2,448 | 3,186 |
| 1915 | 2,202 | 1,940 | 2,347 | 2,740 | 5,720 | 3,855 | 2,973 | 2,545 | 2,535 | 2,418 | 2,655 | 2,543 | 2,853 |
| 1916 | 2,450 | 2,040 | 2,385 | 5,598 | 5,329 | 4,839 | 5,657 | 5,638 | 4,632 | 3,020 | 1,870 | 1,822 | 3,767 |
| 1917 | 3,625 | 2,516 | 2,709 | 3,111 | 2,723 | 4,806 | 7,290 | 4,161 | 3,704 | 3,454 | 1,981 | 2,377 | 3,540 |
| 1918 | 2,787 | 3,170 | 2,384 | 1,708 | 5,042 | 8,375 | 3,871 | 3,564 | 2,714 | 1,868 | 1,531 | 1,695 | 3,215 |
| 1919 | 1,755 | 2,848 | 4,384 | 3,737 | 4,869 | 6,000 | 6,223 | 8,721 | 5,428 | 1,767 | 1,410 | 1,562 | 3,888 |
| 1920 | 2,450 | 2,408 | 2,612 | 1,725 | 3,435 | 5,145 | 6,122 | 4,859 | 2,578 | 1,788 | 1,352 | 1,584 | 3,001 |
| 1921 | 1,344 | 1,708 | 2,403 | 2,782 | 3,422 | 4,062 | 5,429 | 3,433 | 2,114 | 1,639 | 1,659 | 1,877 | 2,648 |
| 1922 | 2,053 | 3,664 | 5,030 | 3,327 | 3,361 | 5,605 | 10,083 | 6,175 | 3,619 | 2,292 | 1,753 | 1,719 | 4,074 |
| 1923 | 1,921 | 2,149 | 1,893 | 2,038 | 2,127 | 6,345 | 3,215 | 2,743 | 1,846 | 1,616 | 1,427 | 1,794 | 2,431 |
| 1924 | 1,962 | 2,040 | 3,889 | 3,127 | 3,245 | 5,959 | 5,910 | 3,942 | 4,262 | 3,287 | 2,149 | 2,046 | 3,485 |
| 1925 | 2,015 | 1,832 | 2,392 | 1,943 | 3,271 | 5,063 | 3,001 | 2,187 | 1,486 | 1,668 | 1,639 | 1,668 | 2,343 |
| 1926 | 2,511 | 3,861 | 2,861 | 3,096 | 4,201 | 6,374 | 7,657 | 3,584 | 3,900 | 2,245 | 2,060 | 3,033 | 3,769 |
| 1927 | 3,983 | 3,654 | 3,454 | 2,794 | 5,483 | 4,634 | 5,837 | 4,545 | 3,661 | 1,921 | 1,740 | 1,976 | 3,590 |
| 1928 | 3,235 | 3,890 | 10,024 | 6,433 | 6,417 | 4,867 | 4,950 | 3,202 | 2,958 | 2,412 | 2,081 | 2,118 | 4,581 |
| 1929 | 2,083 | 2,730 | 3,390 | 4,310 | 3,669 | 7,849 | 9,462 | 9,418 | 3,450 | 2,537 | 1,820 | 1,724 | 4,376 |
| 1930 | 2,419 | 3,420 | 4,391 | 5,416 | 6,485 | 5,859 | 4,893 | 3,617 | 2,357 | 1,630 | 1,884 | 1,499 | 3,639 |
| 1931 | 1,637 | 1,659 | 2,090 | 1,826 | 2,043 | 2,024 | 2,438 | 1,966 | 2,093 | 1,368 | 1,194 | 1,462 | 1,814 |
| 1932 | 1,751 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for Kalamazoo River near Allegan and Grand River at Grand Rapids.

1/ Published as "at Buchanan" 1901-2 and "near Buchanan" 1903-7.

Monthly and yearly runoff, in inches, of St. Joseph River at Berrien Springs, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1901 | - | - | - | - | - | - | 1.40 | 0.85 | 0.57 | 0.50 | 0.43 | 0.49 | - |
| 1902 | 0.80 | 0.77 | 0.92 | 0.78 | 0.63 | 1.48 | .98 | 1.10 | 1.00 | 1.24 | .68 | .63 | 11.01 |
| 1903 | .94 | .86 | 1.13 | 1.27 | 1.54 | 2.31 | 1.91 | - | - | - | - | - | - |
| 1904 | †.71 | †.45 | †.74 | 1.67 | †1.55 | 3.44 | 2.43 | 1.07 | .74 | †.75 | †.57 | .36 | †14.48 |
| 1905 | .53 | .51 | .45 | †.57 | †.44 | 1.37 | 1.29 | 1.74 | .98 | .85 | .59 | .64 | †9.96 |
| 1906 | .63 | .72 | .87 | 1.26 | .95 | 1.25 | 1.26 | .87 | .96 | .51 | .58 | .41 | 10.27 |
| 1907 | .42 | .65 | 1.19 | - | - | - | - | - | - | - | - | - | - |
| 1909 | - | - | - | .93 | 1.01 | 1.44 | 1.05 | 1.51 | 1.44 | .68 | .64 | .62 | - |
| 1910 | .49 | .84 | .90 | .77 | .82 | 2.20 | .82 | 1.02 | .56 | .44 | .39 | .47 | 9.72 |
| 1911 | .47 | .79 | .44 | .72 | .73 | .88 | .92 | .61 | .58 | .46 | .40 | .38 | 7.38 |
| 1912 | .66 | .76 | .95 | .49 | .42 | 1.36 | 2.24 | 1.72 | .73 | .58 | .88 | .61 | 11.40 |
| 1913 | .54 | .86 | .71 | 1.27 | .83 | 1.48 | 1.52 | .82 | .55 | .41 | .37 | .35 | 9.71 |
| 1914 | .45 | .45 | .54 | .54 | .72 | 1.29 | 1.73 | 1.87 | 1.03 | .74 | .59 | .67 | 10.52 |
| 1915 | .62 | .53 | .66 | .77 | 1.46 | 1.09 | .81 | .72 | .63 | .68 | .75 | .70 | 9.48 |
| 1916 | .69 | .56 | .67 | 1.61 | 1.41 | 1.37 | 1.55 | 1.59 | 1.27 | .85 | .53 | .50 | 12.60 |
| 1917 | 1.02 | .69 | .77 | .88 | .69 | 1.36 | 2.00 | 1.18 | 1.01 | .98 | .56 | .65 | 11.79 |
| 1918 | .79 | .87 | .67 | .48 | 1.29 | 2.36 | 1.06 | 1.01 | .74 | .53 | .43 | .46 | 10.69 |
| 1919 | .50 | .78 | 1.23 | 1.06 | 1.24 | 1.69 | 1.70 | 2.47 | .94 | .47 | .40 | .43 | 12.81 |
| 1920 | .69 | .66 | .74 | .49 | .91 | 1.45 | 1.67 | 1.37 | .71 | .51 | .38 | .43 | 10.01 |
| 1921 | .38 | .47 | .68 | .79 | .87 | 1.15 | 1.48 | .97 | .58 | .46 | .47 | .51 | 8.81 |
| 1922 | .59 | 1.00 | 1.42 | .94 | .86 | 1.58 | 2.76 | 1.74 | 1.04 | .65 | .50 | .47 | 13.55 |
| 1923 | .54 | .59 | .53 | .58 | .54 | 1.79 | .88 | .77 | .50 | .46 | .40 | .49 | 8.07 |
| 1924 | .55 | .56 | 1.10 | .88 | .86 | 1.68 | 1.62 | 1.11 | 1.16 | .93 | .61 | .56 | 11.62 |
| 1925 | .57 | .50 | .68 | .55 | .83 | 1.42 | .82 | .62 | .41 | .47 | .46 | .46 | 7.79 |
| 1926 | .71 | 1.06 | .81 | .87 | 1.07 | 1.80 | 2.10 | 1.01 | 1.07 | .63 | .58 | .83 | 12.54 |
| 1927 | 1.10 | 1.00 | .98 | .79 | 1.59 | 1.31 | 1.54 | 1.28 | .97 | .54 | .49 | .54 | 11.93 |
| 1928 | .93 | 1.06 | 2.84 | 1.82 | 1.69 | 1.37 | 1.35 | .91 | .81 | .68 | .59 | .58 | 14.63 |
| 1929 | .59 | .75 | .96 | 1.22 | .94 | 2.21 | 2.59 | 2.66 | .94 | .72 | .51 | .47 | 14.56 |
| 1930 | .68 | .94 | 1.25 | 1.53 | 1.66 | 1.69 | 1.34 | 1.02 | .64 | .46 | .53 | .41 | 12.15 |
| 1931 | .46 | .45 | .59 | .52 | .52 | .57 | .67 | .56 | .57 | .39 | .34 | .40 | 6.04 |
| 1932 | .50 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 83 | - | - | - | - | - | - | - | - |
| 1902 | 83 | 6,545 | Mar. 13, 14, 1902 | 1,436 | 3,277 | 0.811 | 11.01 | 3,400 | 11.45 |
| 1903 | 129 | 11,470 | Mar. 9, 1903 | - | - | - | - | - | - |
| 1904 | 129 | 18,600 | Mar. 27, 1904 | - | †4,296 | †1.06 | †14.48 | †4,176 | †14.07 |
| 1905 | 170 | 10,260 | May 16, 1905 | - | †2,965 | †.734 | †9.96 | †3,181 | †10.69 |
| 1906 | 206 | 8,650 | Jan. 24, 1906 | 573 | 3,067 | .757 | 10.27 | 3,070 | 10.31 |
| 1907 | 206 | - | - | - | - | - | - | - | - |
| 1909 | (a) | 12,250 | - | 1,000 | - | - | - | 3,475 | 11.56 |
| 1910 | (a) | 17,500 | - | 850 | 2,928 | .717 | 9.72 | 2,671 | 9.19 |
| 1911 | (a) | 5,750 | - | 700 | 2,127 | .521 | 7.38 | 2,425 | 8.05 |
| 1912 | (a) | 12,225 | - | 700 | 3,425 | .839 | 11.40 | 3,347 | 11.14 |
| 1913 | (a) | 12,200 | - | 800 | 2,917 | .715 | 9.71 | 2,714 | 9.04 |
| 1914 | (a) | 13,420 | - | 1,275 | 3,186 | .781 | 10.62 | 3,299 | 10.99 |
| 1915 | (a) | 7,500 | - | 1,000 | 2,653 | .699 | 9.48 | 2,886 | 9.59 |
| 1916 | (a) | 14,750 | - | 850 | 3,767 | .923 | 12.60 | 3,933 | 13.16 |
| 1917 | (a) | 12,100 | - | 1,400 | 3,540 | .867 | 11.79 | 3,495 | 11.64 |
| 1918 | (a) | 13,500 | - | 750 | 3,215 | .788 | 10.69 | 3,271 | 10.87 |
| 1919 | (a) | 15,500 | - | 950 | 3,888 | .953 | 12.91 | 3,760 | 12.49 |
| 1920 | (a) | 13,900 | - | 700 | 3,001 | .735 | 10.01 | 2,832 | 9.45 |
| 1921 | (a) | 8,100 | - | 1,000 | 2,648 | .649 | 8.81 | 3,095 | 10.29 |
| 1922 | (a) | 13,200 | - | 1,000 | 4,074 | .998 | 13.55 | 3,669 | 12.20 |
| 1923 | (a) | 8,900 | - | 950 | 2,431 | .596 | 8.07 | 2,595 | 8.62 |
| 1924 | (a) | 12,800 | - | 1,000 | 3,485 | .854 | 11.62 | 3,338 | 11.16 |
| 1925 | (a) | 7,800 | - | 900 | 2,343 | .574 | 7.79 | 2,592 | 8.62 |
| 1926 | (a) | 11,900 | - | 1,300 | 3,769 | .924 | 12.54 | 3,918 | 13.04 |
| 1927 | (a) | 16,800 | - | 775 | 3,590 | .880 | 11.93 | 4,113 | 13.68 |
| 1928 | (a) | 9,250 | - | 1,300 | 4,381 | 1.07 | 14.63 | 3,626 | 12.10 |
| 1929 | (a) | 15,391 | - | 950 | 4,376 | 1.07 | 14.56 | 4,546 | 15.13 |
| 1930 | (a) | 11,612 | - | 1,125 | 3,639 | .892 | 12.15 | 3,233 | 10.78 |
| 1931 | (a) | 3,572 | - | 933 | 1,814 | .444 | 6.04 | - | - |
| 1932 | (a) | - | - | - | - | - | - | - | - |

* Not previously published.

a In House Document No. 94, 73d Congress, 1st session.

Note.--Maximum and minimum day are for calendar year during period 1909-32. Water year data since 1909 not previously published.

128. Kalamazoo River at Marshall, Mich.

Location.--Lat 42°15'55", long. 84°57'55", on line between secs. 25 and 26, T. 2 S., R. 6 W., on left bank at upstream side of bridge on U. S. Highway 27 at Marshall.

Drainage area.--449 sq mi.

Gage.--Water-stage recorder. Datum of gage is 877.09 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1948-50: Maximum discharge, 2,130 cfs Mar. 29, 1950 (gage height, 8.20 ft); minimum, 35 cfs Sept. 7, 1950; minimum daily, 119 cfs Aug. 5, 1949.

Remarks.--Diurnal fluctuation caused by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1949 | *200 | *289 | 273 | 425 | 627 | 400 | 517 | 318 | 338 | 209 | 184 | 222 | *331 |
| 1950 | 242 | 219 | 393 | 562 | 477 | 858 | 1,143 | 586 | 522 | 384 | 270 | 323 | 498 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | *0.51 | *0.72 | 0.70 | 1.09 | 1.46 | 1.03 | 1.28 | 0.82 | 0.84 | 0.54 | 0.47 | 0.55 | *10.01 |
| 1950 | .62 | .54 | 1.01 | 1.44 | 1.10 | 2.20 | 2.84 | 1.51 | 1.29 | .99 | .89 | .80 | 15.03 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | - | 1,960 | Mar. 22, 1948 | - | - | - | - | - | - |
| 1949 | 1144 | 1,600 | Feb. 16, 1949 | - | *331 | *0.737 | *10.01 | 339 | 10.25 |
| 1950 | 1174 | 2,130 | Mar. 29, 1950 | 137 | 498 | 1.11 | 15.03 | - | - |

* Not previously published.

129. Battle Creek at Charlotte, Mich.

Location.--Lat 42°32'20", long. 84°50'55", in SW $\frac{1}{4}$ sec. 24, T. 2 N., R. 5 W., on left bank at upstream side of highway bridge, 1 mile southwest of Charlotte.

Drainage area.--67 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 869.36 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1948-50: Maximum discharge, 722 cfs Mar. 20, 1948 (gage height, 7.64 ft); minimum observed, 6.5 cfs (revised) Aug. 26, 1949.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|-------|-------|----------|
| 1948 | - | - | - | - | *69.4 | 169 | 70.9 | 104 | 23.6 | 17.9 | 10.0 | 9.29 | - |
| 1949 | 8.80 | 11.5 | 14.9 | 40.1 | 103 | 41.5 | 66.3 | 32.0 | 31.1 | 16.1 | 10.4 | 9.32 | 31.5 |
| 1950 | 11.9 | 10.3 | 50.5 | 78.1 | 51.5 | 170 | 195 | 44.8 | 25.1 | 21.6 | *14.5 | *48.2 | *60.1 |

* Revised.

* Not previously published; estimated on basis of records for station at Battle Creek.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | *1.12 | 2.90 | 1.18 | 1.79 | 0.39 | 0.31 | 0.17 | 0.16 | - |
| 1949 | 0.15 | 0.19 | 0.26 | 0.69 | 1.60 | .71 | 1.10 | .55 | .52 | .28 | .18 | .16 | 6.39 |
| 1950 | .21 | .17 | .87 | 1.35 | .80 | 2.93 | 3.25 | .77 | .42 | .37 | *.25 | *.80 | *12.19 |

* Revised.

* Not previously published; estimated on basis of records for station at Battle Creek.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1114 | 722 | Mar. 20, 1948 | - | *6.6 | - | - | - | - |
| 1949 | 1144 | 376 | Feb. 13, 1949 | - | 6.8 | 0.470 | 6.39 | 34.7 | 7.04 |
| 1950 | 1174, 1337 | 518 | Mar. 28, 1950 | - | *7.7 | *60.1 | *12.19 | - | - |

* Revised.

* Not previously published.

130. Battle Creek at Bellevue, Mich.

Location.--Lat 42°26'35", long. 85°02'00", in W $\frac{1}{2}$ sec. 28, T. 1 N., R. 6 W., on right bank at downstream side of bridge on State Highway 78, 0.8 mile west of Bellevue.

Drainage area.--178 sq mi.

Gage.--Staff gage. Datum of gage is 838.51 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1948-50: Maximum discharge, 2,190 cfs Mar. 20, 1948 (gage height, 6.1 ft, from graph based on gage readings); minimum not determined.

Remarks.--Slight diurnal fluctuation caused by mill above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1948 | - | - | - | - | *249 | 599 | 240 | 361 | 58.6 | 42.2 | 22.4 | 24.0 | - |
| 1949 | 26.8 | 42.7 | 55.5 | 151 | 367 | 125 | 233 | 105 | 117 | 34.5 | 25.0 | 36.7 | 108 |
| 1950 | 41.5 | 35.5 | 205 | 318 | 170 | 576 | 639 | 163 | 96.5 | 75.7 | 37.5 | 192 | 213 |

* Not previously published; estimated on basis of records for stations at Charlotte and Battle Creek.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | *1.51 | 3.88 | 1.50 | 2.34 | 0.37 | 0.27 | 0.15 | 0.15 | - |
| 1949 | 0.17 | 0.27 | 0.36 | 0.98 | 2.14 | .81 | 1.46 | .68 | .73 | .22 | .16 | .23 | 8.21 |
| 1950 | .27 | .22 | 1.33 | 2.06 | 1.00 | 3.73 | 4.01 | 1.06 | .61 | .49 | .24 | 1.20 | 16.22 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1237 | 2,190 | Mar. 20, 1948 | - | - | - | - | - | - |
| 1949 | 1237 | 1,600 | Feb. 16, 1949 | 20 | 108 | 0.607 | 8.21 | 121 | 9.23 |
| 1950 | 1237 | 1,660 | Mar. 9, 1950 | 26 | 213 | 1.20 | 16.22 | - | - |

131. Battle Creek at Battle Creek, Mich.

Location.--Lat 42°19'55", long. 85°09'15", in sec. 5, T. 2 S., R. 7 W., on right abutment of dam 350 feet upstream from Emmett Street Bridge in city of Battle Creek and 3 miles upstream from mouth.

Drainage area.--241 sq mi.

Gage.--Staff gage. Datum of gage is 823.24 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--17 years (1930-31, 1934-50), 205 cfs.

Extremes.--1930-31, 1932-50: Maximum discharge, 3,640 cfs Apr. 7, 1947 (gage height, 4.48 ft, from floodmark); minimum, 22 cfs Aug. 14, 1934.

Remarks.--Prior to November 1943, flow occasionally affected by operation of gates of dam at station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|------|------|-------|------|------|-------|-------|-------|----------|
| 1931 | *56.1 | *62.5 | 89.3 | *87.8 | 83.8 | 87.6 | 93.7 | 69.6 | 143 | *60.0 | *50.0 | *55.0 | *78.0 |
| 1933 | 71.8 | 101 | 156 | 168 | 211 | 250 | 406 | 377 | 92.1 | 86.4 | - | - | - |
| 1934 | - | - | - | *151 | 91.5 | 137 | 458 | 110 | 50.9 | 41.5 | 30.5 | 42.4 | - |
| 1935 | 45.1 | 78.8 | 76.5 | 147 | 138 | 484 | 150 | 202 | 211 | 102 | 118 | 56.4 | 151 |
| 1936 | 59.1 | 145 | 112 | 104 | 128 | 410 | 176 | 159 | 66.7 | 34.3 | 27.8 | 101 | 127 |
| 1937 | 113 | 112 | 90.4 | 238 | 164 | 160 | 543 | 254 | 596 | 279 | 106 | 66.7 | 226 |
| 1938 | 78.9 | 92.9 | 100 | 134 | 530 | 327 | 242 | 194 | 242 | 78.0 | 94.2 | 69.0 | 179 |
| 1939 | 63.9 | 73.4 | 87.0 | 101 | 308 | 399 | 493 | 162 | 119 | 83.6 | 83.1 | 57.4 | 168 |
| 1940 | 65.2 | 74.9 | 77.8 | 71.2 | 74.8 | 188 | 240 | 127 | 159 | 68.1 | 132 | 226 | 125 |
| 1941 | 158 | 160 | 283 | 255 | 163 | 261 | 298 | 140 | 133 | 98.9 | 59.0 | 63.1 | 173 |
| 1942 | 227 | 395 | 220 | 171 | 198 | 824 | 306 | 237 | 368 | 196 | 205 | 123 | 290 |
| 1943 | 201 | 283 | 347 | 359 | 593 | 633 | 258 | 825 | 678 | 255 | 124 | 182 | 394 |
| 1944 | 123 | 196 | 122 | 109 | 305 | 563 | 463 | 222 | 140 | *72.6 | *60.9 | *66.0 | *204 |
| 1945 | 64.2 | 78.7 | 78.5 | 68.3 | 118 | 199 | 167 | 501 | 325 | 105 | 66.8 | 91.7 | 156 |
| 1946 | 144 | 138 | 125 | 278 | 123 | 640 | 138 | 143 | 157 | 60.1 | 41.4 | 42.6 | 170 |
| 1947 | 54.7 | 86.0 | 107 | 129 | 115 | 316 | 1,162 | 548 | 473 | 161 | 95.5 | 140 | 282 |
| 1948 | 89.0 | 126 | 168 | 101 | 263 | 936 | 457 | 619 | 133 | 96.3 | 56.6 | 56.8 | 259 |
| 1949 | 60.3 | 99.8 | 90.9 | 254 | 466 | 240 | 402 | 172 | 195 | 76.1 | 59.4 | 71.8 | 180 |
| 1950 | 97.2 | 85.2 | 313 | 458 | 289 | 770 | 904 | 298 | 196 | 162 | 88.0 | 276 | 328 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches, of Battle Creek at Battle Creek, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|------|------|------|------|------|-------|-------|-------|----------|
| 1931 | *0.27 | *0.29 | 0.43 | *0.42 | 0.36 | 0.42 | 0.43 | 0.33 | 0.66 | *0.29 | *0.24 | *0.25 | *4.39 |
| 1932 | .34 | .47 | .75 | .80 | .91 | 1.20 | 1.89 | 1.75 | .43 | .41 | - | - | - |
| 1934 | - | - | - | *.72 | .40 | .56 | 2.12 | .53 | .24 | .20 | .15 | .20 | - |
| 1935 | .22 | .36 | .37 | .70 | .60 | 2.32 | .69 | .97 | .98 | .49 | .56 | .26 | 8.52 |
| 1936 | .28 | .67 | .54 | .50 | .57 | 1.96 | .81 | .76 | .31 | .16 | .13 | .47 | 7.16 |
| 1937 | .54 | .52 | .45 | 1.14 | .71 | 1.77 | 2.51 | 1.21 | 2.76 | 1.34 | .51 | .31 | 12.75 |
| 1938 | .39 | .43 | .48 | .64 | 2.29 | 1.57 | 1.12 | .93 | 1.12 | .37 | .45 | .32 | 10.10 |
| 1939 | .31 | .34 | .42 | .48 | 1.33 | 1.91 | 2.29 | .77 | .55 | .40 | .40 | .27 | 8.46 |
| 1940 | .31 | .35 | .37 | .34 | .33 | .90 | 1.11 | .61 | .74 | .33 | .63 | 1.05 | 7.07 |
| 1941 | .75 | .74 | 1.36 | 1.22 | .71 | 1.25 | 1.38 | .67 | .62 | .47 | .28 | .29 | 9.74 |
| 1942 | 1.09 | 1.83 | 1.05 | .82 | .86 | 3.94 | 1.42 | 1.13 | 1.71 | .94 | .98 | .57 | 16.34 |
| 1943 | .96 | 1.31 | 1.66 | 1.72 | 2.56 | 3.03 | 1.19 | 3.95 | 3.14 | 1.22 | .59 | .84 | 22.17 |
| 1944 | .59 | .91 | .58 | .52 | 1.37 | 2.79 | 2.14 | 1.06 | .65 | .35 | *.29 | *.31 | *11.56 |
| 1945 | .31 | .36 | .38 | .33 | .51 | .95 | .77 | 2.40 | 1.51 | .50 | .32 | .42 | 8.76 |
| 1946 | .69 | .64 | .60 | 1.33 | .53 | 3.07 | .64 | .68 | .73 | .29 | .20 | .20 | 9.60 |
| 1947 | .26 | .40 | .51 | .62 | .50 | 1.51 | 5.38 | 2.62 | 2.19 | .77 | .46 | .65 | 15.87 |
| 1948 | .43 | .58 | .80 | .48 | 1.18 | 4.47 | 2.12 | 2.36 | .62 | .46 | .27 | .26 | 14.63 |
| 1949 | .29 | .46 | .43 | 1.21 | 2.01 | 1.15 | 1.86 | .82 | .90 | .56 | .28 | .33 | 10.10 |
| 1950 | .46 | .40 | 1.50 | 2.19 | 1.25 | 3.69 | 4.18 | 1.43 | .91 | .77 | .42 | 1.28 | 18.48 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|-------------|-------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714,1387 | 339 | June 7, 8, 1931 | - | *78.0 | *0.324 | *4.39 | - | - |
| 1933 | 744 | 695 | May 12, 1933 | - | - | - | - | - | - |
| 1934 | 759 | 1,300 | Apr. 6, 1934 | - | - | - | - | *107 | *6.07 |
| 1935 | 784 | 1,020 | Mar. 13, 1935 | 35 | 151 | .627 | 8.52 | 161 | 9.06 |
| 1936 | 804 | 890 | Feb. 29, 1936 | 24 | 127 | .527 | 7.16 | 127 | 7.16 |
| 1937 | 824 | 1,920 | June 29, 1937 | 57 | 226 | .938 | 12.75 | 223 | 12.55 |
| 1938 | 854 | 1,030 | Feb. 9, 1938 | 51 | 179 | .743 | 10.10 | 175 | 9.88 |
| 1939 | 874 | 1,230 | Feb. 22, 1939 | 40 | 168 | .697 | 9.46 | 167 | 9.42 |
| 1940 | 894 | 938 | Aug. 31, 1940 | 40 | 125 | .519 | 7.07 | 157 | 8.89 |
| 1941 | 924 | 688 | Mar. 7, 1941 | 38 | 173 | .718 | 9.74 | 193 | 10.86 |
| 1942 | 954 | 2,460 | Mar. 16, 1942 | 63 | 280 | 1.20 | 16.34 | 289 | 16.30 |
| 1943 | 974 | 2,580 | June 3, 1943 | 98 | 394 | 1.63 | 22.17 | 361 | 20.32 |
| 1944 | 1004,1387 | 1,470 | Feb. 28, 1944 | 48 | *204 | *.846 | *11.56 | *186 | *10.53 |
| 1945 | 1034 | 1,470 | May 18, 19, 1945 | 54 | 156 | .647 | 8.76 | 171 | 9.64 |
| 1946 | 1054 | 1,780 | Mar. 7, 1946 | 30 | 170 | .705 | 9.60 | 157 | 8.84 |
| 1947 | 1084 | 3,640 | Apr. 7, 1947 | 39 | 282 | 1.17 | 15.87 | 293 | 16.51 |
| 1948 | 1114 | 3,300 | Mar. 21, 1948 | 40 | 259 | 1.07 | 14.63 | 248 | 14.00 |
| 1949 | 1144 | 1,270 | Feb. 15, 1949 | 47 | 180 | .747 | 10.10 | 201 | 11.28 |
| 1950 | 1174 | 2,060 | Mar. 29, 1950 | 64 | 328 | 1.36 | 18.48 | - | - |

* Revised.

* Not previously published.

132. Kalamazoo River near Battle Creek, Mich.

Location.--Lat 42°20'45", long. 85°15'45", in NE 1/4 sec. 32, T. 1 S., R. 8 W., on left bank 0.4 mile upstream from Wabason Creek and 4.3 miles northwest of mouth of Battle Creek in city of Battle Creek.

Drainage area.--849 sq mi.

Gage.--Water-stage recorder. Datum of gage is 796.49 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1937, at datum 2.00 ft higher.

Average discharge.--13 years (1937-50), 708 cfs.

Extremes.--1937-50: Maximum discharge, 7,290 cfs Apr. 7, 1947 (gage height, 9.13 ft); minimum, 50 cfs Sept. 22, 1939; minimum daily, 143 cfs Aug. 21, 1941.

Remarks.--Diurnal fluctuation, below about 1,500 cfs, caused by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1937 | - | - | - | - | - | - | - | - | - | - | 491 | 375 | - |
| 1938 | 396 | *435 | *499 | *519 | 1,238 | 917 | 826 | 833 | 886 | 489 | 407 | 367 | *646 |
| 1939 | 313 | 321 | 371 | 413 | 921 | 1,074 | 1,206 | 499 | 481 | 355 | 357 | 264 | 545 |
| 1940 | 283 | 294 | 306 | 301 | 290 | 591 | 749 | 471 | 575 | 293 | 417 | 499 | 422 |
| 1941 | 432 | 445 | 722 | 708 | 494 | 687 | 795 | 423 | 433 | 347 | 243 | 241 | 498 |
| 1942 | 611 | 940 | 621 | 549 | 674 | 1,800 | 970 | 698 | 870 | 579 | 650 | 446 | 784 |
| 1943 | 630 | 853 | 875 | 983 | 1,235 | 1,449 | 836 | 1,998 | 1,703 | 1,000 | 604 | 813 | 1,081 |
| 1944 | 578 | 767 | 521 | 492 | 814 | 1,347 | 1,344 | 842 | 726 | 376 | 328 | 315 | 703 |
| 1945 | *327 | *373 | 380 | 332 | 467 | 700 | 667 | 1,289 | 846 | 441 | *349 | *393 | *547 |

* Revised.

* Not previously published; estimated on basis of records for station at Comstock.

Monthly and yearly mean discharge, in cubic feet per second,
of Kalamazoo River near Battle Creek, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1946 | *564 | *487 | 500 | 792 | 529 | 1,397 | 441 | 466 | 438 | 272 | 237 | *242 | *532 |
| 1947 | 224 | 332 | 391 | 499 | 421 | 854 | 2,834 | 1,676 | 1,481 | 710 | 543 | 395 | *897 |
| 1948 | 539 | 636 | *735 | *483 | 827 | 2,183 | 1,271 | 1,559 | 674 | 546 | 426 | 364 | *855 |
| 1949 | 323 | 461 | 430 | 786 | 1,450 | 830 | 1,154 | 653 | 594 | 383 | 305 | 388 | 638 |
| 1950 | 426 | 425 | 955 | 1,278 | 977 | 2,011 | 2,522 | 1,116 | 966 | 782 | 511 | 839 | 1,067 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| 1937 | - | - | - | - | - | - | - | - | - | - | 0.67 | 0.49 | - |
| 1938 | 0.54 | *0.57 | *0.68 | *0.70 | 1.52 | 1.25 | 1.09 | 1.13 | 1.16 | 0.66 | .55 | .48 | *10.33 |
| 1939 | .43 | .42 | .50 | .56 | 1.13 | 1.46 | 1.59 | .68 | .63 | .48 | .48 | .35 | 8.71 |
| 1940 | .38 | .39 | .42 | .41 | .37 | .80 | .98 | .64 | .76 | .40 | .57 | .66 | 6.78 |
| 1941 | .59 | .59 | .98 | .96 | .61 | .93 | 1.04 | .57 | .57 | .47 | .33 | .32 | 7.96 |
| 1942 | .83 | 1.24 | .84 | .75 | .83 | 2.44 | 1.27 | .95 | 1.14 | .79 | .88 | .59 | 12.55 |
| 1943 | .85 | 1.12 | 1.19 | 1.34 | 1.51 | 1.97 | 1.10 | 2.71 | 2.24 | 1.36 | .82 | 1.07 | 17.28 |
| 1944 | .79 | 1.01 | .71 | .67 | 1.03 | 1.83 | 1.76 | 1.14 | .95 | .51 | .44 | .41 | 11.25 |
| 1945 | *.44 | *.49 | .52 | .45 | .57 | .95 | .88 | 1.75 | 1.11 | .60 | *.47 | *.52 | *8.75 |
| 1946 | *.77 | *.64 | .68 | 1.08 | .65 | 1.90 | .58 | .63 | .58 | .37 | .32 | *.32 | *8.52 |
| 1947 | .30 | .44 | .53 | .68 | .52 | 1.16 | 3.73 | 2.27 | 1.94 | .96 | .74 | .91 | 14.18 |
| 1948 | .73 | .94 | *1.00 | *.66 | 1.05 | 2.96 | 1.67 | 2.12 | .89 | .74 | .58 | .48 | *13.72 |
| 1949 | .44 | .61 | .58 | 1.07 | 1.75 | 1.13 | 1.52 | .89 | .78 | .52 | .41 | .51 | 10.21 |
| 1950 | .58 | .56 | 1.29 | 1.74 | 1.20 | 2.73 | 3.31 | 1.51 | 1.27 | 1.06 | .69 | 1.10 | 17.04 |

* Revised.

* Not previously published; estimated on basis of records for station at Comstock.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1937 | 824 | - | - | - | - | - | - | - | - |
| 1938 | (a) | 2,450 | May 31, 1938 | *226 | *646 | *0.761 | *10.33 | *619 | *9.89 |
| 1939 | 924 | 2,720 | Feb. 23, 1939 | 146 | 545 | .642 | 8.71 | 542 | 8.67 |
| 1940 | 894 | 1,600 | Apr. 2, 1940 | 152 | 422 | .497 | 6.78 | 482 | 7.75 |
| 1941 | 924 | 1,520 | Apr. 22, 1941 | 143 | 498 | .587 | 7.96 | 545 | 8.71 |
| 1942 | 964 | 3,500 | Mar. 19, 1942 | 258 | 784 | .923 | 12.55 | 801 | 12.80 |
| 1943 | 974 | 4,020 | June 4, 1943 | 428 | 1,081 | 1.27 | 17.28 | 1,039 | 16.63 |
| 1944 | 1004 | 2,840 | Feb. 29, 1944 | 225 | 703 | .828 | 11.25 | *637 | *10.19 |
| 1945 | 1034, 1387 | 3,150 | May 18, 19, 1945* | *231 | *547 | *.644 | *8.75 | *587 | *9.39 |
| 1946 | 1054, 1387 | 2,940 | Mar. 7, 8, 1946* | *178 | *532 | *.627 | *8.52 | *481 | *7.70 |
| 1947 | 1084 | 7,290 | Apr. 7, 1947 | 176 | 887 | 1.04 | 14.18 | *968 | *15.48 |
| 1948 | 1114, 1387 | 5,650 | Mar. 21, 22, 1948 | 317 | *855 | *1.01 | *13.72 | *796 | *12.78 |
| 1949 | 1144 | 3,510 | Feb. 16, 1949 | 263 | 638 | .751 | 10.21 | 689 | 11.01 |
| 1950 | 1174 | 4,910 | Mar. 29, 1950 | 315 | 1,067 | 1.26 | 17.04 | - | - |

* Revised.

* Not previously published.

a In W.S.P. 854, 924, 1387.

133. Kalamazoo River at Comstock, Mich.

Location.--Lat 42°17'05", long. 85°30'50", in NE¼ sec. 19, T. 2 S., R. 10 W., on left bank at downstream side of bridge on River Street at Comstock, a quarter of a mile downstream from Comstock Creek.

Drainage area.--1,010 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 759.12 ft above mean sea level, datum of 1929. Prior to October 1936, staff gage and October 1936 to October 1945, wire-weight gage, at same site and datum.

Average discharge.--18 years (1932-50), 856 cfs.

Extremes.--1931, 1932-50: Maximum discharge, 6,910 cfs Apr. 8, 1947 (gage height, 7.94 ft); minimum observed, 185 cfs (revised) Aug. 7, 1934.

Remarks.--Flow regulated by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | 405 | 645 | - | - | - | - |
| 1933 | 528 | 726 | 937 | 995 | *965 | 963 | 1,323 | 1,269 | 580 | 774 | *425 | *385 | *822 |
| 1934 | *785 | *800 | *700 | *685 | 376 | 526 | 1,360 | 514 | 302 | 269 | 235 | 375 | *577 |
| 1935 | 299 | 380 | 412 | 666 | 661 | 1,304 | 635 | 816 | .741 | 361 | *593 | 376 | *604 |
| 1936 | 347 | 734 | 613 | 624 | 639 | 1,419 | 790 | 624 | 351 | 277 | 276 | 468 | 597 |
| 1937 | 529 | 584 | 500 | 937 | 819 | 708 | 1,400 | 947 | 1,450 | 1,085 | 719 | 494 | 846 |
| 1938 | 572 | 634 | 685 | 734 | 1,548 | 1,198 | 1,059 | 883 | 1,091 | 577 | 620 | 543 | 840 |
| 1939 | 397 | 420 | 497 | 495 | 1,073 | 1,317 | 1,444 | 770 | 612 | 504 | 510 | 360 | 697 |
| 1940 | 458 | 463 | 465 | 465 | 478 | 838 | 980 | 688 | 823 | 519 | 591 | 853 | 634 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly mean discharge, in cubic feet per second,
of Kalamazoo River at Comstock, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1941 | 669 | 699 | 940 | 1,001 | 788 | 974 | 1,077 | 633 | 648 | 491 | *310 | 312 | *712 |
| 1942 | 827 | 1,224 | 798 | 752 | 825 | 2,100 | 1,196 | 911 | 1,167 | 824 | 1,060 | 669 | 1,030 |
| 1943 | 912 | 1,033 | 1,023 | 1,326 | 1,568 | 1,826 | 1,072 | 2,484 | 2,044 | 1,448 | 800 | 1,113 | 1,387 |
| 1944 | 748 | 1,319 | 775 | 761 | 1,050 | 1,710 | 1,715 | 1,145 | 820 | 473 | 462 | 494 | 939 |
| 1945 | 519 | 541 | 534 | 492 | 696 | 861 | 914 | 1,583 | 1,187 | 601 | 466 | 564 | 746 |
| 1946 | 889 | 625 | 598 | 979 | 714 | 1,653 | 655 | 677 | 660 | 412 | 346 | 358 | 715 |
| 1947 | 477 | 478 | 593 | 698 | 619 | 1,049 | 2,958 | 1,781 | 1,620 | 857 | 682 | 949 | 1,081 |
| 1948 | 701 | 864 | 953 | 860 | 1,002 | 2,555 | 1,537 | 1,879 | 775 | 672 | 496 | 462 | 1,050 |
| 1949 | 527 | 708 | 716 | 1,093 | 1,692 | 1,023 | 1,446 | 816 | 764 | 493 | 465 | 503 | 846 |
| 1950 | 599 | 562 | 1,185 | 1,572 | 1,271 | 2,210 | 3,018 | 1,452 | 1,219 | 963 | 648 | 997 | 1,307 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1931 | - | - | - | - | - | - | - | 0.46 | 0.71 | - | - | - | - |
| 1933 | 0.60 | 0.80 | 1.07 | 1.14 | 1.00 | 1.10 | 1.46 | 1.45 | .64 | 0.88 | *0.49 | *0.43 | *11.06 |
| 1934 | *.09 | *.88 | *.80 | *.78 | .39 | .60 | 1.51 | .59 | .33 | .31 | .27 | .41 | *7.76 |
| 1935 | .34 | .42 | .47 | .76 | .68 | 1.49 | .70 | .93 | .82 | .41 | *.68 | .42 | *8.12 |
| 1936 | .40 | .81 | .70 | .71 | .68 | 1.61 | .87 | .71 | .39 | .32 | .31 | .52 | 8.03 |
| 1937 | .60 | .64 | .57 | 1.07 | .84 | .81 | 1.55 | 1.08 | 1.61 | 1.23 | .82 | .55 | 11.37 |
| 1938 | .65 | .70 | .78 | .84 | 1.59 | 1.37 | 1.17 | 1.01 | 1.20 | .66 | .71 | .60 | 11.28 |
| 1939 | .45 | .46 | .57 | .56 | 1.11 | 1.50 | 1.60 | .88 | .68 | .58 | .58 | .40 | 9.37 |
| 1940 | .52 | .51 | .53 | .53 | .51 | .96 | 1.08 | .78 | .91 | .59 | .67 | .94 | 8.53 |
| 1941 | .76 | .77 | 1.07 | 1.14 | .81 | 1.11 | 1.19 | .72 | .72 | .56 | *.35 | .35 | *9.55 |
| 1942 | .94 | 1.35 | .91 | .86 | .85 | 2.40 | 1.32 | 1.04 | 1.29 | .94 | 1.20 | .74 | 13.84 |
| 1943 | 1.04 | 1.14 | 1.17 | 1.51 | 1.62 | 2.08 | 1.18 | 2.84 | 2.26 | 1.65 | .91 | 1.23 | 18.63 |
| 1944 | .85 | 1.26 | .88 | .87 | 1.12 | 1.95 | 1.90 | 1.30 | .91 | .54 | .53 | .55 | 12.66 |
| 1945 | .59 | .60 | .61 | .56 | .72 | .98 | 1.01 | 1.81 | 1.32 | .69 | .53 | .62 | 10.04 |
| 1946 | 1.01 | .69 | .68 | 1.12 | .74 | 1.89 | .72 | .77 | .73 | .47 | .40 | .40 | 9.62 |
| 1947 | .54 | .53 | .68 | .79 | .64 | 1.20 | 3.27 | 2.03 | 1.78 | .98 | .78 | 1.05 | 14.27 |
| 1948 | .80 | .95 | 1.09 | .75 | 1.07 | 2.92 | 1.70 | 2.14 | .86 | .77 | .57 | .53 | 14.15 |
| 1949 | .60 | .78 | .82 | 1.24 | 1.75 | 1.16 | 1.60 | .93 | .84 | .56 | .53 | .56 | 11.37 |
| 1950 | .68 | .62 | 1.35 | 1.80 | 1.31 | 2.52 | 3.34 | 1.66 | 1.35 | 1.10 | .74 | 1.10 | 17.57 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|-------------------|-------------|-------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1931 | 714 | - | - | - | - | - | - | - | - | - | - |
| 1933 | (a) | 1,930 | May 9, 1933 | - | *822 | *0.814 | *11.06 | *829 | *11.15 | | |
| 1934 | 759, 824 | *2,830 | Apr. 7, 8, 1934 | 185 | *577 | *.571 | *7.76 | *480 | *6.45 | | |
| 1935 | (b) | 1,840 | Mar. 14, 15, 1935 | 199 | *604 | *.598 | *8.12 | *654 | *8.80 | | |
| 1936 | 804, 824 | *2,750 | Mar. 2, 1936 | 214 | 597 | .591 | 8.03 | 590 | 7.93 | | |
| 1937 | 824 | 3,720 | June 28, 1937 | 269 | 846 | .838 | 11.37 | 870 | 11.69 | | |
| 1938 | 854 | *2,500 | June 1, 2, 1938 | 363 | 840 | .832 | 11.28 | 791 | 10.63 | | |
| 1939 | 874 | 2,640 | Apr. 22, 23, 1939 | 274 | 697 | .690 | 9.37 | 703 | 9.45 | | |
| 1940 | 894 | *2,080 | Sept. 2, 1940 | 221 | 634 | .628 | 8.53 | 712 | 9.57 | | |
| 1941 | 924, 1387 | 1,590 | Apr. 23, 1941 | 202 | *712 | *.705 | *9.55 | *756 | *10.15 | | |
| 1942 | 954 | 3,960 | Mar. 19, 1942 | 313 | 1,030 | 1.02 | 13.84 | 1,041 | 13.99 | | |
| 1943 | 974 | 4,770 | June 5, 1943 | 563 | 1,387 | 1.37 | 18.63 | 1,360 | 18.27 | | |
| 1944 | 1004 | 3,400 | Feb. 29, 1944 | 335 | 939 | .930 | 12.66 | 850 | 11.47 | | |
| 1945 | 1034 | 3,580 | May 20, 1945 | 385 | 746 | .739 | 10.04 | 790 | 10.62 | | |
| 1946 | 1054 | 3,400 | Mar. 9, 1946 | 280 | 715 | .708 | 9.62 | 668 | 8.99 | | |
| 1947 | 1084 | 6,910 | Apr. 6, 1947 | 290 | 1,061 | 1.05 | 14.27 | 1,143 | 15.38 | | |
| 1948 | 1114 | 5,980 | Mar. 21, 22, 1948 | 380 | 1,050 | 1.04 | 14.15 | 1,002 | 13.51 | | |
| 1949 | 1144 | 3,640 | Feb. 18, 1949 | 360 | 846 | .838 | 11.37 | 880 | 11.82 | | |
| 1950 | 1174 | 5,260 | Mar. 30, 1950 | 446 | 1,307 | 1.29 | 17.57 | - | - | | |

* Revised.

* Not previously published.

a In W.S.P. 744, 824, 1387.

b In W.S.P. 784, 824, 1387.

134. Portage Creek at Kalamazoo, Mich.

Location.--Lat 42°16'30", long. 85°34'35", on line between secs. 22 and 27, T. 2 S., R. 11 W., on upstream side of Reed Street Bridge at Kalamazoo, 1½ miles upstream from mouth.

Drainage area.--48 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 761.50 ft above mean sea level, datum of 1929. Prior to Feb. 25, 1948, staff gage at same site and datum.

Extremes.--1947-50: Maximum discharge, 285 cfs Mar. 19, 1948 (gage height, 4.20 ft, from graph based on gage readings); minimum observed, 24 cfs Aug. 29, 1949.

Remarks.--Flow regulated by St. Regis Paper Co. dams above station.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Monthly and yearly mean discharge, in cubic feet per second,
of Portage Creek at Kalamazoo, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | \$55.0 | \$65.0 | \$60.2 | 59.0 | 67.0 | 79.5 | 68.7 | 77.7 | 59.3 | 56.9 | 50.3 | 47.8 | \$62.2 |
| 1949 | 48.6 | 57.5 | 65.5 | 63.5 | 64.6 | 64.2 | 66.4 | 55.6 | 54.2 | 38.3 | 35.2 | 43.6 | 54.7 |
| 1950 | 45.2 | 44.8 | 62.3 | 59.5 | 53.8 | 82.0 | 101 | 75.8 | 82.5 | 69.9 | 57.1 | 66.3 | 66.7 |

* Not previously published; estimated on basis of records for stations on nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | \$1.32 | \$1.51 | \$1.45 | 1.42 | 1.51 | 1.91 | 1.60 | 1.87 | 1.38 | 1.37 | 1.21 | 1.12 | \$17.67 |
| 1949 | 1.16 | 1.34 | 1.57 | 1.52 | 1.41 | 1.54 | 1.54 | 1.34 | 1.26 | .92 | .85 | 1.01 | 15.46 |
| 1950 | 1.09 | 1.04 | 1.50 | 1.43 | 1.17 | 1.97 | 2.34 | 1.82 | 1.92 | 1.68 | 1.37 | 1.54 | 18.87 |

* Not previously published; estimated on basis of records for stations on nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1948 | 1114 | 285 | Mar. 19, 1948 | - | \$62.2 | \$1.30 | \$17.67 | 61.5 | 17.46 | | |
| 1949 | 1144 | 221 | Mar. 31, 1949 | 26 | 54.7 | 1.14 | 15.46 | 53.1 | 15.02 | | |
| 1950 | 1174 | 248 | Apr. 25, 1950 | 36 | 66.7 | 1.39 | 18.87 | - | - | | |

* Not previously published.

135. Gun River at dam, near Shelbyville, Mich.

Location.--Lat 42°35'30", long. 85°32'30", in NW $\frac{1}{4}$ sec. 6, T. 2 N., R. 10 W., on right upstream side of dam at outlet of Gun Lake, 4 $\frac{1}{2}$ miles east of Shelbyville.

Drainage area.--About 30 sq mi.

Gage.--Staff gage. Datum of gage is 733.35 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1946-47: Maximum discharge, 192 cfs Apr. 7, 1947 (gage height, 12.02 ft, from graph based on gage readings); no flow for many periods.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|----------|
| 1946 | - | - | - | - | - | - | - | - | - | - | - | \$0 | - |
| 1947 | \$0 | \$8.48 | \$19.3 | \$26.3 | \$31.2 | \$37.8 | \$127 | \$51.9 | \$40.6 | \$15.0 | \$2.90 | \$8.05 | \$30.6 |

* Not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| 1946 | - | - | - | - | - | - | - | - | - | - | - | \$0 | - |
| 1947 | \$0 | \$0.32 | \$0.74 | \$1.01 | \$1.08 | \$1.45 | \$4.73 | \$1.99 | \$1.51 | \$0.58 | \$0.11 | \$0.30 | \$13.82 |

* Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|--------------|-------------|--------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1947 | - | 192 | Apr. 7, 1947 | \$0 | \$30.6 | \$1.02 | \$13.82 | - | - | | |

* Not previously published.

136. Gun River near Martin, Mich.

Location.--Lat 42°33'10", long. 85°33'50", in SE $\frac{1}{4}$ sec. 14, T. 2 N., R. 11 W., on upstream side of highway bridge, 3 $\frac{1}{2}$ miles downstream from Gun Lake Outlet, and 4 miles east of Martin.

Drainage area.--About 55 sq mi.

Gage.--Wire-weight gage. Datum of gage is 726.72 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1946-47: Maximum discharge, 432 cfs Apr. 5, 1947 (gage height, 13.0 ft from graph based on gage readings); minimum observed, 8.8 cfs Aug. 26, 1946.

Monthly and yearly mean discharge, in cubic feet per second, of Gun River near Martin, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|-------|-------|-------|--------|--------|--------|----------|
| 1946 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1947 | \$19.0 | \$36.9 | \$55.3 | \$65.6 | \$63.8 | \$97.7 | \$247 | \$127 | \$112 | \$36.8 | \$16.1 | \$25.4 | \$74.9 |

* Not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| 1946 | - | - | - | - | - | - | - | - | - | - | - | \$0.27 | - |
| 1947 | \$0.40 | \$0.75 | \$1.18 | \$1.38 | \$1.21 | \$2.05 | \$5.01 | \$2.66 | \$2.27 | \$0.77 | \$0.34 | \$1.52 | \$18.52 |

* Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1947 | - | \$432 | Apr. 5, 1947* | \$11 | \$74.9 | \$1.36 | \$18.52 | - | - | - |

* Not previously published.

137. Kalamazoo River near Allegan, Mich.

Location.--Lat 42°29'00", long. 85°47'50", in SW $\frac{1}{4}$ sec. 12, T. 1 N., R. 13 W., at Trow-bridge dam and powerplant, 4 miles southeast and 6 miles upstream from Allegan.

Drainage area.--1,470 sq mi, approximately.

Extremes.--1903-7: Maximum daily discharge, 10,260 cfs Mar. 28, 1904; minimum daily, about 5 cfs Nov. 8, 1903, estimated leakage through dam and powerplant.

Remarks.--Daily discharge determined by computation of flow over dam and through turbines. Flow regulated by powerplants at and above station. Records for Apr. 4, 1901, to Dec. 31, 1902, published in W.S.P. 83, show only the normal flow available for power, freshet discharge being omitted. These records are not published herein and should not be used.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1903 | - | - | - | 1,368 | 1,764 | 2,700 | 2,399 | 1,118 | 1,014 | 908 | 1,012 | 1,356 | - |
| 1904 | 1,188 | 1,008 | 1,071 | 1,215 | 1,443 | 5,057 | 3,062 | 1,513 | 1,079 | 973 | 811 | 894 | 1,611 |
| 1905 | 1,046 | 804 | 827 | 976 | 680 | 2,149 | 1,720 | 2,022 | 1,808 | 1,392 | 957 | 958 | 1,296 |
| 1906 | 924 | 1,093 | 1,130 | 1,810 | 1,310 | 1,740 | 1,730 | 1,330 | 1,550 | 844 | \$796 | 596 | 1,240 |
| 1907 | 677 | 1,100 | 1,270 | 1,820 | 1,320 | 1,760 | 1,630 | 1,530 | 1,110 | 994 | \$735 | 828 | 1,230 |
| 1908 | 1,030 | 1,020 | 1,340 | - | - | - | - | - | - | - | - | - | - |

* Not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1903 | - | - | - | 1.07 | 1.24 | 2.12 | 1.82 | 0.87 | 0.77 | 0.71 | 0.79 | 1.02 | - |
| 1904 | 0.93 | 0.75 | 0.83 | .952 | 1.06 | 3.97 | 2.32 | 1.19 | .819 | .762 | .635 | .678 | 14.90 |
| 1905 | .820 | .610 | .648 | .766 | .622 | 1.68 | 1.30 | 1.58 | 1.37 | 1.09 | .751 | .712 | 11.95 |
| 1906 | .724 | .829 | .885 | 1.42 | .93 | 1.36 | 1.32 | 1.04 | 1.17 | .66 | *.62 | .45 | \$11.41 |
| 1907 | .53 | .83 | 1.00 | 1.43 | .94 | 1.38 | 1.24 | 1.20 | .84 | .78 | *.58 | .63 | \$11.38 |
| 1908 | .81 | .77 | 1.05 | - | - | - | - | - | - | - | - | - | - |

* Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|-----------------|-------------|-------|-----------------|------------------|-------|------------------|---|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1903 | 97 | 4,378 | Mar. 11, 1903 | - | - | - | - | 1,409 | 12.95 | - |
| 1904 | 129 | 10,260 | Mar. 28, 1904 | 5 | 1,611 | 1.10 | 14.90 | 1,560 | 14.46 | - |
| 1905 | 170 | 5,219 | Mar. 24, 1905 | 99 | 1,296 | .882 | 11.95 | 1,332 | 12.31 | - |
| 1906 | 206 | 3,560 | Jan. 26, 1906 | 105 | 1,240 | .844 | \$11.41 | 1,230 | \$11.33 | - |
| 1907 | 244 | 3,520 | Jan. 20, Apr. 1 | 182 | 1,230 | .837 | \$11.38 | 1,260 | \$11.65 | - |

* Not previously published.

138. Kalamazoo River at Calkins Dam, near Allegan, Mich.]

Location.--Lat 42°34', long. 85°57', in sec. 15, T. 2 N., R. 14 W., at hydroelectric plant of city of Allegan, 1 mile upstream from Swan Creek and 8 miles northwest of Allegan.

Drainage area.--1,540 sq mi, approximately.

Gage.--Water-stage recorder in powerplant. Datum of gage is at mean sea level (levels by city of Allegan). Prior to September 1936, water-stage recorder at bridge 150 ft downstream at same datum.

Average discharge.--20 years (1929-36, 1937-50), 1,317 cfs.

Extremes.--1929-36, 1937-50: Maximum discharge, 17,500 cfs Apr. 11, 1947 (gage height, 606.76 ft), computed from powerplant records; maximum daily, 10,800 cfs Apr. 6, 1947; minimum daily, 73 cfs Aug. 31, 1941.

Remarks.--Flow regulated at low and medium stages by powerplants upstream and, since June 1936, at all stages by powerplant at station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|--------|--------|--------|--------|--------|---------|--------|-------|-------|--------|--------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1929 | - | - | - | - | - | - | \$2,900 | 2,940 | 1,310 | 993 | 755 | 546 | - |
| 1930 | *911 | *1,180 | *1,280 | *2,830 | *2,370 | *2,070 | *1,740 | *1,350 | 820 | 545 | 470 | 516 | *1,330 |
| 1931 | 672 | 713 | 980 | 788 | 890 | 960 | 890 | 730 | 1,040 | 520 | 416 | 473 | 755 |
| 1932 | 540 | 763 | 929 | 1,560 | 1,560 | 1,350 | 1,510 | 1,330 | 932 | 690 | 613 | 632 | 1,030 |
| 1933 | 900 | 1,220 | *1,460 | 1,560 | 1,440 | 1,570 | *2,040 | *2,040 | 931 | 952 | 724 | 681 | *1,290 |
| 1934 | 1,499 | 1,493 | 1,280 | *1,537 | *873 | 1,221 | 2,132 | 1,014 | 585 | 452 | 451 | 675 | *1,085 |
| 1935 | 661 | 876 | 878 | 1,157 | 1,108 | 2,058 | 1,122 | 1,349 | 1,467 | *900 | 1,101 | 884 | 1,131 |
| 1936 | 793 | 1,361 | 1,178 | 1,165 | 1,115 | 2,281 | 1,369 | 1,135 | 625 | 285 | 397 | 785 | 1,040 |
| 1938 | *857 | 882 | 907 | 984 | 2,364 | 1,862 | 1,592 | 1,307 | 1,563 | 954 | 1,038 | 814 | *1,252 |
| 1939 | 705 | 849 | 1,009 | 1,073 | *1,856 | 2,062 | *2,415 | 1,251 | 1,104 | 794 | 979 | 874 | *1,242 |
| 1940 | 771 | 924 | 906 | 911 | 860 | 1,291 | 1,395 | 1,158 | 1,264 | 820 | *1,224 | *1,460 | *1,081 |
| 1941 | 1,067 | 1,131 | 1,629 | 1,567 | 1,162 | 1,596 | 1,499 | 997 | 957 | 675 | 506 | 549 | 1,115 |
| 1942 | 1,198 | 1,987 | 1,223 | 1,582 | 1,446 | *3,358 | 1,896 | 1,498 | 1,670 | 1,070 | 1,824 | 1,058 | *1,634 |
| 1943 | 1,352 | 1,784 | 1,753 | 2,166 | 2,594 | 2,835 | 1,721 | 3,313 | 2,868 | 1,911 | 1,133 | 1,500 | 2,074 |
| 1944 | 1,117 | 1,579 | 1,106 | 989 | 1,505 | 2,677 | 2,553 | 1,791 | 1,545 | 868 | 721 | 803 | 1,419 |
| 1945 | 901 | 923 | 952 | 874 | 1,082 | 1,403 | 1,390 | 2,441 | 1,710 | 958 | 819 | 856 | 1,193 |
| 1946 | 1,285 | 1,177 | 1,130 | 1,817 | 1,240 | 2,805 | 1,162 | 1,175 | 1,043 | 704 | 514 | 583 | 1,222 |
| 1947 | 702 | 861 | 974 | 1,060 | 1,090 | 1,787 | 5,004 | 2,742 | 2,523 | 1,242 | 884 | 1,328 | 1,680 |
| 1948 | 1,000 | 1,231 | 1,453 | 1,026 | 1,548 | 3,741 | 2,373 | 2,954 | 1,238 | 1,138 | 738 | 837 | 1,609 |
| 1949 | 801 | *1,080 | 1,135 | 1,620 | 2,359 | 1,623 | 2,013 | 1,296 | 1,212 | 868 | 730 | 751 | 1,282 |
| 1950 | 950 | 906 | 1,727 | 2,335 | 1,888 | 2,916 | 4,041 | 2,115 | 1,811 | 1,446 | 1,133 | 1,312 | 1,880 |

* Revised.

† Corrected.

‡ Not previously published; estimated on basis of records for nearby stations.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1929 | - | - | - | - | - | - | \$2.10 | 2.20 | 0.95 | 0.74 | 0.56 | 0.40 | - |
| 1930 | *0.68 | *0.85 | *0.96 | \$2.12 | \$1.60 | \$1.55 | \$1.26 | \$1.01 | .59 | .41 | .35 | .37 | \$11.75 |
| 1931 | .50 | .52 | .73 | .59 | .60 | .72 | .64 | .55 | .75 | .39 | .31 | .34 | 6.64 |
| 1932 | .40 | .55 | .70 | 1.16 | 1.09 | 1.01 | 1.09 | 1.00 | .68 | .52 | .46 | .46 | 9.12 |
| 1933 | .67 | .86 | *1.09 | 1.16 | .97 | 1.18 | *1.48 | *1.53 | .68 | .71 | .54 | .49 | *11.38 |
| 1934 | 1.12 | 1.08 | .96 | \$1.00 | *.59 | .91 | 1.54 | .76 | .42 | .54 | .34 | .49 | \$9.55 |
| 1935 | .49 | .63 | .66 | .87 | .75 | 1.54 | .81 | 1.01 | 1.06 | .67 | .82 | .64 | 9.95 |
| 1936 | .59 | .99 | .88 | .87 | .78 | 1.71 | .99 | .85 | .45 | .21 | .30 | .57 | 9.19 |
| 1938 | *.64 | .64 | .68 | .74 | 1.60 | 1.39 | 1.15 | .98 | 1.13 | .71 | .78 | .59 | \$11.03 |
| 1939 | .53 | .61 | .76 | .80 | *1.25 | 1.54 | *1.75 | .94 | .80 | .59 | .73 | .63 | *10.93 |
| 1940 | .58 | .67 | .68 | .68 | .60 | .97 | 1.01 | .87 | .92 | .61 | *.92 | *1.06 | *9.56 |
| 1941 | .80 | .82 | 1.22 | 1.17 | .81 | 1.19 | 1.09 | .75 | .69 | .51 | .38 | .40 | 9.83 |
| 1942 | .90 | 1.43 | .92 | 1.03 | .98 | *2.51 | 1.37 | 1.12 | 1.21 | .80 | 1.37 | .77 | *14.41 |
| 1943 | 1.01 | 1.29 | 1.31 | 1.62 | 1.75 | 2.12 | 1.25 | 2.48 | 2.08 | 1.43 | .85 | 1.09 | 18.28 |
| 1944 | .84 | 1.15 | .83 | .74 | 1.05 | 2.01 | 1.85 | 1.34 | .97 | .65 | .54 | .58 | 12.55 |
| 1945 | .67 | .67 | .71 | .65 | .73 | 1.05 | 1.01 | 1.83 | 1.24 | .72 | .61 | .62 | 10.51 |
| 1946 | .96 | .85 | .85 | 1.36 | .84 | 2.10 | .84 | .88 | .76 | .53 | .39 | .42 | 10.78 |
| 1947 | .53 | .82 | .73 | .79 | .74 | 1.34 | 3.79 | 2.05 | 1.83 | .93 | .66 | .96 | 14.81 |
| 1948 | .75 | .89 | 1.09 | .77 | 1.09 | 2.80 | 1.72 | 2.21 | .90 | .85 | .55 | .61 | 14.23 |
| 1949 | .60 | .78 | .85 | 1.21 | .59 | 1.21 | 1.46 | .97 | .88 | .65 | .55 | .54 | 11.29 |
| 1950 | .71 | .66 | 1.29 | 1.75 | 1.28 | 2.18 | 2.92 | 1.58 | 1.32 | 1.08 | .85 | .95 | 16.57 |

* Revised.

‡ Not previously published; estimated on basis of records for nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|---------|-----------------|------------------|---------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1929 | 684 | - | - | - | - | - | - | - |
| 1930 | 699,1387 | - | May 4, 1929 | \$165 | \$1,330 | \$0.864 | \$11.75 | \$1,250 |
| 1931 | 714 | 2,140 | June 7, 1931 | 164 | 755 | .490 | 6.64 | 743 |
| 1932 | 729 | 2,650 | Apr. 1, 1932 | 273 | 1,030 | .659 | 9.12 | *1,140 |
| 1933 | 744,1387 | *2,800 | May 10, 1933 | 230 | *1,290 | *.838 | *11.38 | *1,351 |
| 1934 | 759 | *3,970 | Apr. 10, 1934 | \$304 | \$1,085 | *.705 | \$9.55 | \$928 |
| 1935 | 784 | *3,180 | Mar. 12, 1935 | 500 | 1,131 | .734 | 9.95 | 1,207 |

* Revised.

‡ Not previously published.

1/ Published as "near Allegan" prior to 1933 and as "at Calkins Bridge, near Allegan" 1933-38.

Yearly discharge, in cubic feet per second, of Kalamazoo River at Calkins Dam, near Allegan, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | *3,970 | Feb. 28, 1936 | 130 | 1,040 | 0.675 | 9.19 | - | - |
| 1938 | 854 | a3,000 | Feb. 6, 1938 | 470 | *1,252 | *.813 | *11.03 | 1,245 | 10.97 |
| 1939 | 874,1387 | *a4,250 | Apr. 23, 1939 | 491 | *1,242 | *.806 | *10.93 | *1,245 | *10.96 |
| 1940 | 894,1387 | *a5,000 | Aug. 27, 1940 | 467 | *1,081 | *.702 | *9.56 | *1,185 | *10.48 |
| 1941 | 954 | a2,900 | Mar. 9, 1941 | 73 | 1,115 | .724 | 9.83 | 1,160 | 10.24 |
| 1942 | 954,1387 | *a7,470 | Mar. 17, 1942 | 442 | *1,634 | *1.06 | *14.41 | *1,677 | *14.77 |
| 1943 | 974 | a7,020 | Mar. 16, 1943 | 858 | 2,074 | 1.35 | 18.28 | 1,993 | 17.49 |
| 1944 | 1004 | a3,800 | Mar. 1, 1944 | 498 | 1,419 | .921 | 12.55 | 1,334 | 11.78 |
| 1945 | 1034 | a4,010 | May 21, 1945 | 303 | 1,193 | .775 | 10.51 | 1,262 | 11.12 |
| 1946 | 1054 | a5,240 | Mar. 9, 1946 | 238 | 1,222 | .794 | 10.78 | 1,133 | 10.00 |
| 1947 | 1084 | a10,800 | Apr. 6, 1947 | 350 | 1,680 | 1.09 | 14.81 | 1,776 | 15.66 |
| 1948 | 1114 | a7,980 | Mar. 20, 1948 | 354 | 1,809 | 1.04 | 14.23 | 1,553 | 13.73 |
| 1949 | 1144 | a4,230 | Feb. 19, 1949 | 296 | 1,282 | .832 | 11.29 | 1,331 | 11.72 |
| 1950 | 1174 | a6,220 | Apr. 1, 1950 | 606 | 1,880 | 1.22 | 16.57 | - | - |

* Revised.

* Not previously published.

a Maximum daily discharge.

139. Grand River at Jackson, Mich.

Location.--Lat 42°17'05", long. 84°24'30", in sec. 22, T. 2 S., R. 1 W., on left bank at sewage treatment plant, 1 mile north of Jackson and 2½ miles upstream from Portage River.

Drainage area.--174 sq mi.

Gage.--Water-stage recorder. Datum of gage is 900.00 ft above mean sea level (Fargo Engineering Co. benchmark). Prior to Sept. 24, 1935, staff gage at same site and datum.

Average discharge.--15 years (1935-50), 122 cfs.

Extremes.--1935-50: Maximum discharge, 1,070 cfs June 25, 1937 (gage height, 13.50 ft); minimum, 9.2 cfs Aug. 22, 1936.

Remarks.--Slight regulation by mills above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|-------|------|------|------|------|-------|----------|
| 1935 | - | - | - | - | - | - | *64.3 | 111 | 84.8 | 33.3 | 52.7 | 29.8 | - |
| 1936 | 26.4 | 105 | 70.6 | 53.0 | *59.3 | 240 | 145 | 54.7 | 34.3 | 19.5 | 15.1 | 25.4 | *70.7 |
| 1937 | 52.4 | 70.7 | 46.6 | 89.4 | 93.7 | 79.3 | 215 | 170 | 303 | 204 | 79.1 | 61.7 | 122 |
| 1938 | 50.9 | 61.7 | 83.4 | 107 | 274 | 219 | 188 | 155 | 167 | 76.9 | 86.1 | 51.4 | 126 |
| 1939 | 43.7 | 42.3 | 58.5 | 92.6 | 192 | 250 | 302 | 102 | 88.5 | 47.0 | 37.5 | 32.7 | 107 |
| 1940 | 33.8 | 37.0 | 37.3 | 38.9 | 67.8 | 119 | 200 | 78.4 | 217 | 60.0 | 52.4 | 51.2 | 82.4 |
| 1941 | 46.8 | 73.4 | 119 | 151 | 56.4 | 106 | 152 | 67.0 | 95.8 | 34.1 | 20.8 | 27.5 | 79.2 |
| 1942 | 42.6 | 106 | 80.9 | 63.6 | 128 | 290 | 200 | 89.7 | 120 | 47.1 | 67.2 | 44.1 | 106 |
| 1943 | 92.9 | 133 | 130 | 209 | 215 | 249 | 157 | 484 | 433 | 161 | 74.6 | 95.9 | 203 |
| 1944 | 74.4 | 149 | 76.1 | 67.5 | 139 | 230 | 271 | 187 | 165 | 82.6 | 49.0 | 47.3 | 128 |
| 1945 | 43.8 | 51.0 | 50.8 | 72.5 | 92.8 | 155 | 196 | 315 | 187 | 119 | 63.8 | 66.6 | 118 |
| 1946 | 120 | 63.9 | 94.4 | 138 | 107 | 217 | 72.2 | 88.3 | 49.4 | 32.8 | 26.7 | 27.4 | 86.6 |
| 1947 | 33.5 | 43.9 | 47.4 | 93.8 | 71.9 | 139 | 497 | 369 | 266 | 88.4 | 58.7 | 77.6 | 149 |
| 1948 | 60.1 | 97.7 | 130 | 88.2 | 122 | 368 | 241 | 287 | 99.6 | 80.7 | 56.1 | 42.7 | 138 |
| 1949 | 42.2 | 109 | 96.3 | 186 | 261 | 170 | 270 | 90.9 | 112 | 58.5 | 41.5 | 44.1 | 122 |
| 1950 | 51.5 | 50.9 | 160 | 246 | 256 | 383 | 589 | 235 | 145 | 97.8 | 50.6 | 83.0 | 195 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|-------|------|------|------|------|-------|----------|
| 1935 | - | - | - | - | - | - | *0.41 | 0.74 | 0.54 | 0.22 | 0.35 | 0.19 | - |
| 1936 | 0.18 | 0.67 | 0.47 | 0.35 | *0.37 | 1.59 | .93 | .36 | .22 | .13 | .10 | .16 | *5.53 |
| 1937 | .35 | .45 | .31 | .59 | .56 | .53 | 1.38 | 1.13 | 1.94 | 1.35 | .52 | .40 | 9.51 |
| 1938 | .34 | .40 | .55 | .71 | 1.64 | 1.45 | 1.20 | 1.03 | 1.07 | .51 | .57 | .33 | 9.80 |
| 1939 | .29 | .27 | .39 | .61 | 1.15 | 1.65 | 1.94 | .68 | .57 | .31 | .25 | .21 | 8.32 |
| 1940 | .22 | .24 | .25 | .26 | .42 | .79 | 1.28 | .52 | 1.39 | .40 | .35 | .33 | 6.45 |
| 1941 | .31 | .47 | .79 | 1.00 | .34 | .70 | .98 | .44 | .61 | .23 | .14 | .18 | 6.19 |
| 1942 | .28 | .68 | .54 | .42 | .77 | 1.92 | 1.28 | .59 | .77 | .31 | .44 | .28 | 8.28 |
| 1943 | .62 | .85 | .86 | 1.38 | 1.29 | 1.65 | 1.01 | 3.20 | 2.78 | 1.07 | .49 | .61 | 15.81 |
| 1944 | .49 | .94 | .50 | .45 | .86 | 1.52 | 1.74 | 1.23 | 1.06 | .55 | .33 | .30 | 9.97 |
| 1945 | .29 | .33 | .34 | .48 | .56 | 1.03 | 1.28 | 2.09 | 1.19 | .79 | .42 | .43 | 9.21 |
| 1946 | .80 | .41 | .63 | .91 | .64 | 1.44 | .46 | .58 | .32 | .22 | .18 | .18 | 6.77 |
| 1947 | .22 | .28 | .31 | .62 | .43 | .92 | 3.19 | 2.44 | 1.71 | .59 | .39 | .50 | 11.60 |
| 1948 | .40 | .63 | .86 | .45 | .76 | 2.43 | 1.55 | 1.90 | .64 | .53 | .37 | .27 | 10.79 |
| 1949 | .28 | .70 | .64 | 1.23 | 1.56 | 1.13 | 1.73 | .60 | .72 | .39 | .28 | .28 | 9.54 |
| 1950 | .34 | .33 | 1.06 | 1.63 | 1.53 | 2.54 | 3.78 | 1.56 | .93 | .65 | .34 | .53 | 15.22 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

STREAMS TRIBUTARY TO LAKE MICHIGAN

| Yearly discharge, in cubic feet per second, of Grand River at Jackson, Mich. | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|-------|-----------------------|------------------------|-------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1935 | 784 | - | - | - | - | - | - | - | - |
| 1936 | 804,1387 | 497 | Mar. 4, 1936 | 12 | *70.7 | *0.406 | *5.53 | *68.0 | *5.32 |
| 1937 | 824 | 1,070 | June 25, 1937 | 22 | 122 | .701 | 9.51 | 124 | 9.69 |
| 1938 | 854 | 513 | June 7, 1938 | 39 | 126 | .724 | 9.80 | 121 | 9.46 |
| 1939 | 874 | 646 | Apr. 17, 1939 | 26 | 107 | .615 | 8.32 | 104 | 8.08 |
| 1940 | 894 | 600 | Mar. 31, 1940† | 28 | 82.4 | .474 | 6.45 | 93.3 | 7.31 |
| 1941 | 924 | 442 | May 31, 1941 | 14 | 79.2 | .455 | 6.19 | 78.3 | 6.12 |
| 1942 | 954 | 830 | Aug. 27, 1942 | 25 | 106 | .609 | 8.28 | 117 | 9.11 |
| 1943 | 974 | 995 | June 3, 1943 | 41 | 203 | 1.17 | 15.81 | 198 | 15.41 |
| 1944 | 1004 | 736 | June 23, 1944 | 37 | 128 | .736 | 9.97 | 115 | 9.00 |
| 1945 | 1034 | 645 | May 17, 1945 | 29 | 118 | .678 | 9.21 | 129 | 10.09 |
| 1946 | 1054 | 396 | Mar. 6, 1946 | 20 | 86.6 | .498 | 6.77 | 73.7 | 5.74 |
| 1947 | 1084 | 796 | Apr. 5, 1947 | 20 | 149 | .856 | 11.60 | 167 | 12.68 |
| 1948 | 1114 | 652 | Mar. 24, 1948 | 22 | 138 | .793 | 10.79 | 135 | 10.52 |
| 1949 | 1144 | 537 | Feb. 15, 1949 | 33 | 122 | .701 | 9.54 | 124 | 9.65 |
| 1950 | 1174 | *858 | Apr. 4, 1950 | 31 | 195 | 1.12 | 15.22 | - | - |

* Revised.

† Corrected.

* Not previously published.

140. Portage River below Little Portage Lake, near Munith, Mich.

Location.--Lat 42°20'55", long. 84°13'45", in NW¼ sec. 32, T. 1 S., R. 2 E., at highway bridge on Portage Lake Road, 0.3 mile downstream from Little Portage Lake and 3½ miles southeast of Munith.

Drainage area.--55 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 900.00 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Nov. 9, 1945, staff gage at same site and datum.

Average discharge.--6 years (1944-50), 43.0 cfs.

Extremes.--1944-50: Maximum discharge, 800 cfs Apr. 6, 7, 1947 (gage height, 13.0 ft, from graph based on gage readings); no flow at times in 1946 and 1949.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1944 | - | - | - | - | - | - | *100 | 77.1 | 69.9 | 16.3 | 3.09 | 3.51 |
| 1945 | 5.67 | 13.1 | 11.9 | 8.26 | 20.2 | 68.6 | 66.9 | 125 | 75.8 | 17.3 | 8.84 | 36.2 |
| 1946 | 43.9 | 24.5 | 16.3 | 44.3 | 25.6 | 95.3 | 18.1 | 20.5 | 31.6 | 14.4 | .129 | 4.83 |
| 1947 | 5.83 | 9.94 | 17.3 | 17.5 | 17.6 | 44.5 | 273 | 107 | 69.6 | 17.8 | 7.55 | 27.4 |
| 1948 | 19.9 | 42.6 | 47.5 | 16.6 | 39.3 | 163 | 83.7 | 92.0 | 34.1 | 12.4 | 4.92 | 4.51 |
| 1949 | 5.42 | 32.1 | 26.0 | 56.3 | 87.6 | 65.6 | 104 | 23.8 | 24.2 | 4.23 | 2.60 | 6.22 |
| 1950 | 12.9 | 12.3 | 50.3 | 90.3 | 65.8 | 147 | 193 | 54.4 | 46.1 | 19.2 | 6.29 | 43.6 |

* Not previously published; estimated on basis of records for nearby stations.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|-------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1944 | - | - | - | - | - | - | *2.03 | 1.61 | 1.42 | 0.34 | 0.06 | 0.07 |
| 1945 | 0.12 | 0.27 | 0.25 | 0.17 | 0.38 | 1.44 | 1.36 | 2.62 | 1.54 | .36 | .19 | .25 |
| 1946 | .92 | .50 | .34 | .93 | .48 | 1.99 | .37 | .43 | .64 | .30 | .003 | .01 |
| 1947 | .08 | .20 | .36 | .37 | .33 | .93 | 5.53 | 2.25 | 1.42 | .37 | .16 | .56 |
| 1948 | .42 | .86 | 1.00 | .35 | .77 | 3.41 | 1.70 | 1.92 | .29 | .26 | .10 | .09 |
| 1949 | .11 | .65 | .55 | 1.18 | 1.66 | 1.37 | 2.11 | .50 | .49 | .09 | .05 | .13 |
| 1950 | .27 | .25 | 1.05 | 1.89 | 1.25 | 3.08 | 3.92 | 1.14 | .94 | .40 | .13 | .88 |

* Not previously published; estimated on basis of records for nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 364 | May 19, 1945 | 3.6 | 36.2 | 0.658 | 8.95 | 40.7 | 10.07 |
| 1946 | 1054 | *290 | Mar. 8, 1946 | 0 | 28.1 | .511 | 6.91 | 23.5 | 5.79 |
| 1947 | 1084 | 800 | Apr. 6, 7, 1947 | .2 | 50.9 | .925 | 12.56 | 57.5 | 14.20 |
| 1948 | 1114 | 390 | Mar. 22, 1948 | 2.4 | 45.1 | .820 | 11.17 | 41.2 | 10.20 |
| 1949 | 1144 | 242 | Apr. 3, 1949 | .2 | 36.1 | .856 | 8.89 | 37.1 | 9.15 |
| 1950 | 1174 | - | - | 3.7 | 61.6 | 1.12 | 15.20 | - | - |

* Revised.

141. Orchard Creek at Munith, Mich.

Location.--Lat 42°23'35", long. 84°15'50", on line between secs. 12 and 13, T. 1 S., R. 1 E., on left upstream side of bridge on State Highway 106, half a mile west of Munith, and 3 miles upstream from mouth.

Drainage area.--49 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 900.00 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--6 years (1944-50), 40.3 cfs.

Extremes.--1944-50: Maximum discharge, 1,470 cfs Apr. 5, 1947 (gage height, 14.88 ft, from graph based on gage readings); minimum observed, 1.6 cfs Sept. 5-7, 22, 23, 1946.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|-------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1944 | - | - | - | - | - | 61.4 | 88.3 | 72.0 | 43.7 | 8.50 | 4.25 | 3.91 |
| 1945 | 4.42 | 5.89 | 5.44 | 5.18 | 12.0 | 37.3 | 49.9 | 116 | 70.4 | 11.8 | 7.18 | 13.1 |
| 1946 | 35.4 | 20.8 | 13.7 | 39.3 | 22.5 | 89.0 | 19.1 | 23.6 | *26.3 | 8.02 | 3.05 | 1.90 |
| 1947 | 4.03 | 8.13 | 16.4 | 16.0 | 16.6 | 59.1 | 248 | 113 | 101 | 13.8 | 12.2 | 16.3 |
| 1948 | 12.4 | 28.0 | 40.1 | 18.5 | 67.8 | *168 | 72.7 | 123 | 18.1 | 13.2 | 6.45 | 3.91 |
| 1949 | 3.72 | 8.37 | 11.6 | 46.5 | 95.4 | 49.9 | 71.9 | 18.9 | 23.8 | 7.79 | 5.89 | 9.02 |
| 1950 | 11.0 | 9.75 | 53.0 | 90.1 | 58.0 | 172 | 202 | 39.2 | 40.6 | 13.8 | 7.49 | 16.2 |

* Revised.

† Not previously published; estimated on basis of records for nearby streams.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|-------|------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1944 | - | - | - | - | - | 1.44 | 2.01 | 1.70 | 1.00 | 0.20 | 0.10 | 0.09 |
| 1945 | 0.10 | 0.13 | 0.13 | 0.12 | 0.26 | .88 | 1.14 | 2.73 | 1.61 | .28 | .17 | .30 |
| 1946 | .83 | .47 | .32 | .92 | .48 | 2.10 | .44 | .56 | *.60 | .19 | .07 | .04 |
| 1947 | .09 | .19 | .39 | .38 | 1.35 | 1.40 | 5.84 | 2.66 | 2.30 | .33 | .29 | .37 |
| 1948 | .29 | .64 | .94 | .44 | 1.49 | *5.96 | 1.65 | 2.89 | .41 | .31 | .15 | .09 |
| 1949 | .09 | .19 | .27 | 1.14 | 2.03 | 1.18 | 1.64 | .44 | .54 | .18 | .14 | .21 |
| 1950 | .26 | .22 | 1.24 | 2.12 | 1.23 | 4.05 | 4.60 | .92 | .92 | .33 | .18 | .37 |

* Revised.

† Not previously published; estimated on basis of records for nearby streams.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 551 | May 18, 1945 | 4 | 28.3 | 0.578 | 7.85 | 32.9 | 9.11 |
| 1946 | 1054, 1387 | *281 | Mar. 5, 1946 | 1.6 | *25.3 | *.516 | *7.02 | *21.8 | *6.07 |
| 1947 | 1084 | 1,470 | Apr. 5, 1947 | 1.7 | 51.9 | 1.06 | 14.39 | 56.3 | 15.59 |
| 1948 | 1114, 1387 | 725 | May 10, 1948 | 3.2 | *47.8 | *.976 | *13.26 | *43.0 | *11.94 |
| 1949 | 1144 | 536 | Feb. 15, 1949 | 3.5 | 29.0 | .592 | 8.05 | 33.3 | 9.22 |
| 1950 | 1174 | 597 | Apr. 4, 1950 | 5.2 | 59.3 | 1.21 | 16.44 | - | - |

* Revised.

142. Portage River near Munith, Mich.

Location.--Lat 42°21'00", long. 84°15'45", on line between secs. 25 and 36, T. 1 S., R. 1 E., on highway bridge half a mile downstream from Orchard Creek and 2 3/4 miles south of Munith.

Drainage area.--118 sq mi.

Gage.--Wire-weight gage. Datum of gage is 900.00 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Apr. 9, 1945, chain gage at same site and datum.

Extremes.--1944-46: Maximum discharge, 625 cfs May 19, 1945 (gage height, 9.84 ft); minimum daily, 6.0 cfs Aug. 15, 1944.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-------|-------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1944 | - | - | - | - | - | 153 | 207 | 154 | 117 | 31.9 | 8.99 | 8.60 |
| 1945 | 11.1 | 25.1 | 27.4 | 21.1 | 39.1 | 133 | 131 | 247 | 144 | 31.6 | 16.3 | 25.1 |
| 1946 | 91.1 | 53.4 | 35.3 | 100 | 57.2 | 227 | 50.7 | *53.8 | *73.3 | - | - | - |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1944 | - | - | - | - | - | 1.50 | 1.95 | 1.51 | 1.11 | 0.31 | 0.09 | 0.08 |
| 1945 | 0.11 | 0.24 | 0.27 | 0.21 | 0.34 | 1.30 | 1.24 | 2.41 | 1.36 | .31 | .16 | .24 |
| 1946 | .89 | .51 | .34 | .96 | .50 | 2.21 | .48 | *.53 | *.69 | - | - | - |

* Revised.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Yearly discharge, in cubic feet per second, of Portage River near Munith, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | 350 | Apr. 16, 1944 | - | - | - | - | - | - |
| 1945 | 1034 | 625 | May 19, 1945 | 9.5 | 71.1 | 0.603 | 8.19 | 80.9 | 9.31 |
| 1946 | 1084, 1387 | a430 | Mar. 7, 1946 | - | - | - | - | - | - |

a Maximum observed.

143. Cedar River at East Lansing, Mich. 1/

Location.--Lat 42°43'40", long. 84°28'40", in SW 1/4 sec. 18, T. 4 N., R. 1 W., in abutment of Farm Lane Bridge on Michigan State University campus in East Lansing, 3 miles upstream from Sycamore Creek and 4 miles upstream from mouth.

Drainage area.--355 sq mi. August 1902 to December 1903, 358 sq mi.

Supplemental records available.--Gage-height records collected in this vicinity 1911-19, and for flood seasons only 1920-28, are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder and concrete control. Datum of gage is 824.39 ft above mean sea level, datum of 1929. August 1902 to December 1903 chain gage at site three-quarters of a mile downstream at different datum. March 1931 to November 1940 water-stage recorder at site 250 ft upstream at present datum.

Average discharge.--20 years (1902-3, 1931-50), 205 cfs.

Extremes.--1902-3, 1931-50: Maximum discharge, 5,920 cfs Apr. 7, 1947 (gage height, 11.58 ft); minimum, 3 cfs July 31, 1931.

Remarks.--Occasional regulation at low flow by mill at Williamston 16 miles above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | - | 144 | - |
| 1903 | 285 | *222 | 322 | 337 | 571 | 959 | 860 | 143 | - | 132 | 172 | 423 | 380 |
| 1904 | 173 | 152 | 103 | - | - | - | - | - | 154 | - | - | - | - |
| 1931 | - | - | - | - | - | 84.1 | 62.3 | 52.9 | 66.2 | 40.5 | 14.4 | 28.7 | - |
| 1932 | 28.5 | 66.1 | 73.2 | 215 | 222 | 225 | 290 | 330 | 143 | 34.2 | 39.9 | 183 | 156 |
| 1933 | 128 | 199 | 263 | 294 | 183 | 321 | 669 | 354 | 61.6 | 31.0 | 30.2 | 25.8 | 213 |
| 1934 | *61.6 | 81.8 | 115 | 121 | 45.3 | 58.6 | 465 | 85.4 | *20.4 | *5.70 | *9.24 | *25.5 | *88.9 |
| 1935 | *14.8 | *21.8 | 22.6 | *117 | *39.1 | 655 | *113 | *190 | *127 | *68.7 | *29.8 | *31.1 | *126 |
| 1936 | 24.5 | 65.4 | 65.2 | 51.9 | 160 | 478 | 212 | 104 | 35.6 | 16.7 | 10.8 | 25.4 | 104 |
| 1937 | 49.8 | 55.0 | 40.0 | 137 | *155 | *97.9 | 811 | 376 | *485 | 134 | *77.0 | *38.2 | *203 |
| 1938 | *55.4 | *44.0 | *43.3 | *99.3 | *102.4 | *474 | *238 | 215 | 103 | *29.1 | *39.9 | *31.8 | *194 |
| 1939 | 25.2 | 25.2 | 28.6 | 39.3 | 237 | 339 | 536 | 100 | 88.2 | 24.3 | 14.4 | 14.6 | 121 |
| 1940 | 24.5 | 32.6 | 27.0 | 29.0 | 28.6 | 251 | 266 | 94.5 | 247 | 54.4 | 90.9 | 93.7 | 103 |
| 1941 | 114 | 114 | 352 | 298 | 148 | 278 | 334 | 100 | 63.3 | 23.3 | 17.3 | 16.0 | 155 |
| 1942 | 39.1 | 114 | 96.0 | 84.3 | 180 | 912 | 253 | 99.3 | 228 | 56.6 | 54.6 | 34.2 | 179 |
| 1943 | 63.9 | 202 | 368 | 297 | 683 | 666 | 260 | 1,008 | 449 | 100 | 58.2 | 58.5 | 350 |
| 1944 | 59.0 | 131 | 70.4 | 58.0 | 312 | 425 | 467 | 325 | 141 | 38.3 | 20.5 | 24.3 | 172 |
| 1945 | 31.6 | 32.9 | 35.0 | 31.9 | 69.0 | 208 | 244 | 772 | 289 | 84.8 | 48.5 | 118 | 164 |
| 1946 | 345 | 153 | 118 | 343 | 133 | 762 | 120 | 143 | 102 | 32.5 | 22.0 | 18.4 | 192 |
| 1947 | 29.9 | 48.6 | 48.1 | 123 | 89.1 | 386 | 1,494 | 620 | 412 | 95.9 | 66.8 | 189 | 299 |
| 1948 | 201 | 226 | 303 | 127 | 477 | 1,162 | 546 | 959 | 176 | 91.1 | 45.5 | 31.0 | 363 |
| 1949 | 36.7 | 69.0 | 65.3 | 256 | 665 | 246 | 442 | 150 | 146 | 92.9 | 42.6 | 37.1 | 184 |
| 1950 | 64.1 | 58.0 | 329 | 628 | 396 | 1,030 | 1,039 | 252 | 196 | 72.7 | 66.5 | 144 | 358 |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|------|------|-------|------|------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | - | 0.45 | - |
| 1903 | 0.92 | 0.69 | 1.04 | 1.08 | 1.65 | 3.09 | 2.68 | 0.46 | 0.48 | 0.43 | 0.55 | 1.32 | 14.39 |
| 1904 | .55 | .47 | .33 | - | - | - | - | - | - | - | - | - | - |
| 1931 | - | - | - | - | - | .27 | .20 | .17 | .21 | .13 | .05 | .09 | - |
| 1932 | .09 | .21 | .24 | .70 | .67 | .73 | .91 | 1.07 | .45 | .11 | .13 | .57 | 5.88 |
| 1933 | .42 | .63 | .85 | .95 | .54 | 1.04 | 2.10 | 1.15 | .19 | .10 | .10 | .08 | 8.15 |
| 1934 | *.20 | .25 | .37 | .39 | .13 | .19 | 1.46 | .21 | *.06 | *.02 | *.08 | *.08 | *3.40 |
| 1935 | *.05 | *.07 | .07 | *.38 | *.29 | 2.13 | *.36 | *.82 | *.43 | *.22 | *.10 | *.10 | *4.82 |
| 1936 | .08 | .21 | .21 | .17 | .49 | 1.56 | .67 | .34 | .11 | .05 | .03 | .08 | 4.00 |
| 1937 | .16 | .17 | .13 | .44 | *.46 | *.32 | 2.54 | 1.22 | *1.53 | .43 | *.25 | *.12 | *7.77 |
| 1938 | *.18 | *.14 | *.14 | *.32 | *3.00 | *1.54 | *.75 | .70 | .32 | *.09 | *.13 | *.10 | *7.41 |
| 1939 | .08 | .08 | .09 | .13 | .70 | 1.10 | 1.68 | .33 | .28 | .08 | .08 | .05 | 4.65 |
| 1940 | .08 | .10 | .09 | .09 | .09 | .82 | .84 | .31 | .78 | .18 | .30 | .29 | 3.97 |
| 1941 | .37 | .36 | 1.14 | .97 | .43 | .90 | 1.05 | .33 | .20 | .08 | .06 | .05 | 5.94 |
| 1942 | .13 | .36 | .31 | .27 | .53 | 2.96 | .80 | .32 | .72 | .18 | .18 | .11 | 6.87 |
| 1943 | .21 | .63 | 1.20 | .96 | 2.00 | 2.17 | .82 | 3.27 | 1.41 | .33 | .19 | .18 | 13.37 |
| 1944 | .19 | .41 | .23 | .19 | .95 | 1.38 | 1.47 | 1.05 | .44 | .12 | .07 | .08 | 6.58 |
| 1945 | .10 | .10 | .11 | .10 | .20 | .68 | .77 | 2.50 | .91 | .28 | .16 | .37 | 6.28 |
| 1946 | 1.12 | .48 | .38 | 1.11 | .39 | 2.48 | .38 | .46 | .32 | .11 | .07 | .06 | 7.36 |
| 1947 | .10 | .15 | .16 | .40 | .26 | 1.26 | 4.70 | 2.02 | 1.29 | .31 | .22 | .59 | 11.46 |
| 1948 | .65 | .71 | .98 | .41 | 1.44 | 3.77 | 1.72 | 3.11 | .55 | .30 | .15 | .10 | 13.89 |
| 1949 | .12 | .22 | .21 | .83 | 1.95 | .80 | 1.40 | .49 | .46 | .30 | .14 | .12 | 7.04 |
| 1950 | .21 | .18 | 1.07 | 2.04 | 1.17 | 3.34 | 3.27 | .82 | .62 | .24 | .22 | .45 | 13.63 |

* Not previously published; estimated on basis of records for nearby streams.

1/ Published as Red Cedar River at Agricultural College, 1902-3.

Yearly discharge, in cubic feet per second, of Cedar River at East Lansing, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1902 | 97 | - | - | - | - | - | - | - | - |
| 1903 | 97 | - | - | 43 | 380 | 1.07 | 14.39 | 348 | 13.09 |
| 1931 | 714 | 222 | June 30, 1931 | - | - | - | - | - | - |
| 1932 | 729 | 1,610 | Sept. 5, 1932 | 16 | 156 | .439 | 5.88 | 192 | 7.24 |
| 1933 | 744 | 2,310 | Apr. 2, 1933 | 6.1 | 213 | .600 | 8.15 | 186 | 7.08 |
| 1934 | 754 | 1,340 | Apr. 4, 1934 | - | #88.9 | \$.250 | \$.340 | 119 | 2.76 |
| 1935 | 784 | 1,800 | Mar. 5, 1935 | - | #126 | \$.355 | \$.482 | 133 | 5.13 |
| 1936 | 804 | *1,020 | Feb. 27, 1936 | 5.5 | 104 | .293 | 4.00 | 103 | 3.95 |
| 1937 | 824 | 2,330 | Apr. 18, 1937 | - | #203 | \$.572 | \$.777 | #203 | 7.77 |
| 1938 | 854 | 4,020 | Feb. 14, 1938 | - | #194 | \$.546 | \$.741 | #189 | 7.20 |
| 1939 | 874 | 1,760 | Apr. 19, 1939 | 9.9 | 121 | .341 | 4.65 | 122 | 4.67 |
| 1940 | 894 | 1,970 | Mar. 30, 1940 | 11 | 103 | .290 | 3.97 | 145 | 5.57 |
| 1941 | 924 | 1,020 | Jan. 3, 1941 | 9.9 | 155 | .437 | 5.94 | 127 | 4.87 |
| 1942 | 954 | 2,680 | Mar. 18, 1942 | 18 | 179 | .504 | 6.87 | 212 | 8.11 |
| 1943 | 974 | 2,490 | (a) | 25 | 350 | .986 | 13.37 | 318 | 12.16 |
| 1944 | 1004 | 2,320 | Feb. 27, 1944 | 15 | 172 | .485 | 6.58 | 158 | 6.06 |
| 1945 | 1034 | 2,930 | May 19, 1945 | 16 | 164 | .462 | 6.28 | 208 | 7.95 |
| 1946 | 1064 | 2,320 | Mar. 4, 1946 | 8.6 | 192 | .541 | 7.36 | 151 | 5.79 |
| 1947 | 1084 | 5,920 | Apr. 7, 1947 | 12 | 299 | .842 | 11.46 | 350 | 13.39 |
| 1948 | 1114 | 4,960 | Mar. 20, 1948 | 11 | 363 | 1.02 | 13.89 | 316 | 12.10 |
| 1949 | 1144 | 2,580 | Feb. 16, 1949 | 11 | 184 | .518 | 7.04 | 207 | 7.95 |
| 1950 | 1174 | 3,170 | Mar. 29, 1950 | 36 | 356 | 1.00 | 13.63 | - | - |

* Revised.

† Not previously published.

a Dec. 29, 1942, Mar. 17, 1943.

144. Grand River at Lansing, Mich.^{1/}

Location.--Lat 42°45'05" N., long. 84°33'20" W., in NW¹/₄, sec. 9, T. 4 N., R. 2 W., on right bank 30 ft upstream from North Grand River Avenue Bridge in Lansing and 2 miles downstream from Cedar River.

Drainage area.--1,230 sq mi, approximately.

Supplemental records available.--Gage-height records collected in this vicinity 1907-10 (flood seasons only), 1911-19, 1920-28 (flood seasons only), and since 1931 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 805.53 ft above mean sea level (levels by Michigan Department of Conservation). Prior to August 1906, staff gage at same site at different datum. November 1934 to June 1949 at site 1 3/4 miles downstream at datum 2.42 ft lower.

Average discharge.--21 years (1901-6, 1934-50), 863 cfs.

Extremes.--1901-6, 1934-50: Maximum discharge, 24,500 cfs Mar. 26, 1904 (gage height, 18.60 ft, datum then in use, from graph based on gage readings); minimum, 6 cfs Aug. 26, 1941; minimum daily, 20 cfs Aug. 25, 1941.

Remarks.--Large diurnal fluctuation at medium and low flows caused by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|--------|--------|-------|-------|-------|------|-------|----------|
| 1901 | - | - | - | - | - | *3,076 | 1,305 | +597 | 417 | +953 | 715 | +539 | - |
| 1902 | 633 | 435 | 813 | 680 | 525 | 1,547 | 1,247 | 1,342 | 1,081 | 2,04 | 703 | 613 | 991 |
| 1903 | 1,034 | 810 | 764 | 1,025 | 1,674 | 5,310 | *2,895 | 640 | 560 | 646 | 969 | 1,278 | *1,296 |
| 1904 | 766 | 527 | 410 | 589 | 1,319 | *7,242 | *5,287 | 854 | 410 | 302 | 291 | 265 | *1,359 |
| 1905 | 391 | 297 | 325 | 343 | 355 | 1,493 | 1,240 | 1,342 | 2,601 | 738 | 631 | 732 | 869 |
| 1906 | 479 | 705 | 711 | 1,610 | 867 | 1,450 | 1,530 | 737 | 1,410 | 392 | *400 | *250 | *876 |
| 1935 | *104 | *148 | 162 | 320 | 232 | *1,766 | 488 | 745 | 702 | 187 | 154 | 131 | *431 |
| 1936 | 134 | 451 | 416 | 296 | 379 | 1,773 | 916 | 435 | 168 | 98.3 | 61.1 | 162 | 441 |
| 1937 | *282 | 342 | 216 | 529 | 525 | 460 | 2,286 | 1,392 | 2,103 | 1,185 | 371 | 226 | *325 |
| 1938 | 266 | 320 | 339 | 364 | 2,504 | 1,603 | 1,137 | 751 | 782 | 333 | *394 | *256 | *744 |
| 1939 | 142 | 149 | 154 | 273 | 1,021 | 1,565 | 2,203 | 548 | 443 | 199 | 147 | 96.6 | 573 |
| 1940 | 145 | 187 | 196 | *188 | *205 | *789 | 1,096 | 412 | 905 | 272 | 399 | *422 | *433 |
| 1941 | 389 | 435 | 1,065 | 1,099 | 535 | 925 | 1,268 | 447 | 499 | 191 | 98.0 | 110 | 589 |
| 1942 | 307 | 626 | 480 | 475 | 759 | *3,185 | 1,294 | 451 | 812 | 355 | 385 | 222 | *780 |
| 1943 | 410 | 819 | 1,076 | 1,315 | 2,119 | 2,323 | 1,045 | 3,530 | 2,676 | 840 | 581 | 432 | 1,410 |
| 1944 | 392 | 756 | 350 | 295 | 1,130 | 1,762 | 1,902 | 1,320 | 857 | 332 | 208 | 161 | 784 |
| 1945 | 173 | 228 | 208 | 226 | 383 | 935 | 1,073 | 2,619 | 1,446 | 457 | 245 | 365 | 698 |
| 1946 | 1,076 | 563 | 461 | 1,176 | 571 | 2,407 | 517 | 584 | 376 | 180 | 99.8 | 96.1 | 680 |
| 1947 | 154 | 249 | 294 | 567 | 393 | 1,306 | 5,113 | 2,446 | 1,844 | 453 | 234 | 569 | 1,137 |
| 1948 | 492 | 701 | 965 | 446 | 1,251 | 3,763 | 1,908 | 2,736 | 590 | 402 | 229 | 163 | 1,140 |
| 1949 | 175 | 372 | 384 | 1,028 | 2,168 | 1,032 | 1,798 | 656 | 696 | 351 | 189 | 229 | 743 |
| 1950 | 308 | 290 | 1,203 | 2,077 | 1,523 | 3,286 | 3,670 | 1,190 | 771 | 419 | 265 | 533 | 1,309 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of weather records and records for nearby stations.

^{1/} Published as "at North Lansing" 1901-6.

| Water year | Monthly and yearly runoff, in inches, of Grand River at Lansing, Mich. | | | | | | | | | | | | The year |
|------------|--|------|------|-------|------|-------|-------|-------|------|-------|------|-------|----------|
| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1901 | - | - | - | - | - | *2.88 | 1.18 | +0.56 | 0.38 | +0.89 | 0.67 | 0.49 | - |
| 1902 | +0.60 | 0.39 | 0.76 | +0.64 | 0.45 | 1.45 | +1.13 | 1.26 | .98 | +2.07 | .66 | .56 | +10.95 |
| 1903 | .97 | .73 | 1.72 | .95 | 1.41 | 3.10 | *2.63 | .60 | .52 | .61 | .91 | 1.16 | +14.32 |
| 1904 | .71 | .48 | .38 | .55 | 1.16 | *6.79 | *2.99 | .80 | .37 | .28 | .27 | .24 | +15.03 |
| 1905 | .37 | .27 | .30 | .32 | .30 | 1.40 | +1.12 | 1.26 | 2.54 | .69 | .59 | .66 | +9.82 |
| 1906 | .45 | .64 | .67 | 1.51 | .75 | 1.36 | 1.38 | .69 | 1.28 | .37 | *.37 | *.23 | +9.70 |
| 1935 | *.10 | *.13 | .15 | .30 | .20 | *1.66 | .44 | .70 | .64 | .18 | .14 | .12 | +4.76 |
| 1936 | .13 | .41 | .39 | .28 | .33 | 1.66 | .83 | .41 | .15 | .09 | .06 | .15 | 4.89 |
| 1937 | *.26 | .31 | .20 | .50 | .44 | .43 | 2.08 | 1.30 | 1.91 | 1.11 | .35 | .21 | +9.10 |
| 1938 | .25 | .29 | .32 | .34 | 2.12 | 1.50 | 1.03 | .74 | .71 | .31 | *.37 | *.23 | +8.21 |
| 1939 | .13 | .14 | .14 | .26 | .86 | 1.47 | 2.00 | .51 | .40 | .19 | .14 | .09 | 6.33 |
| 1940 | .14 | .17 | .18 | *.18 | *.18 | *.74 | .99 | .39 | .82 | .25 | .37 | *.38 | +4.79 |
| 1941 | .37 | .39 | 1.00 | 1.03 | .45 | .87 | 1.15 | .42 | .45 | .18 | .09 | .10 | 6.50 |
| 1942 | .29 | .57 | .45 | .44 | .64 | *2.99 | 1.17 | .42 | .74 | .33 | .36 | .20 | +8.60 |
| 1943 | .38 | .74 | 1.01 | 1.23 | 1.79 | 2.18 | .95 | 3.31 | 2.43 | .79 | .36 | .39 | 15.56 |
| 1944 | .37 | .69 | .33 | .26 | .99 | 1.65 | 1.73 | 1.23 | .78 | .29 | .19 | .15 | 8.68 |
| 1945 | .16 | .21 | .19 | .21 | .32 | .88 | .97 | 2.46 | 1.32 | .43 | .23 | .33 | 7.71 |
| 1946 | 1.01 | .51 | .43 | 1.10 | .48 | 2.26 | .47 | .55 | .34 | .17 | .09 | .09 | 7.50 |
| 1947 | .14 | .23 | .28 | .53 | .33 | 1.22 | 4.64 | 2.29 | 1.67 | .42 | .28 | .52 | 12.55 |
| 1948 | .46 | .64 | .90 | .42 | 1.10 | 3.53 | 1.73 | 2.56 | .54 | .38 | .21 | .15 | 12.62 |
| 1949 | .16 | .34 | .36 | .96 | 1.85 | .97 | 1.63 | .61 | .63 | .31 | .18 | .21 | 8.19 |
| 1950 | .29 | .26 | 1.13 | 1.95 | 1.29 | 3.08 | 3.51 | 1.11 | .70 | .39 | .25 | .48 | 14.44 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of weather records and records for nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1901 | 83,1387 | *8,650 | Mar. 20, 1901* | - | - | - | - | - | - | - |
| 1902 | 85 | *6,700 | July 5, 1902* | 150 | 991 | 0.806 | 10.95 | +1,052 | +11.61 | - |
| 1903 | 97,1387 | *8,490 | Apr. 15, 1903* | 248 | *1,296 | *1.05 | *14.32 | *1,220 | *13.48 | - |
| 1904 | 129,1387 | *24,500 | Mar. 26, 1904* | 122 | *1,359 | *1.10 | *15.03 | *1,301 | *14.39 | - |
| 1905 | 170 | *12,800 | June 7, 1905* | 164 | 891 | .724 | +9.82 | +965 | +10.64 | - |
| 1906 | 206 | *6,900 | June 10, 1906* | - | *878 | *.714 | *9.70 | - | - | - |
| 1935 | 784,1387 | *4,020 | Mar. 12, 1935 | *86 | *431 | *.350 | *4.76 | *480 | *5.31 | - |
| 1936 | 804 | 2,490 | Mar. 12, 1936 | 25 | 441 | .359 | 4.89 | *428 | *4.73 | - |
| 1937 | 824,1387 | 7,170 | June 27, 1937 | *66 | *825 | *.671 | *9.10 | 833 | 9.19 | - |
| 1938 | 854 | 7,050 | Feb. 14, 1938 | *127 | *744 | *.605 | *8.21 | *704 | *7.76 | - |
| 1939 | 874 | 5,450 | Apr. 19, 1939 | 56 | 573 | .466 | 6.33 | 580 | 6.41 | - |
| 1940 | 894 | 4,180 | Mar. 31, 1940 | *48 | *433 | *.352 | *4.79 | *548 | *6.06 | - |
| 1941 | 924 | 2,960 | Jan. 3, 1941 | 20 | 589 | .479 | 6.50 | 548 | 6.05 | - |
| 1942 | 954,1387 | 7,530 | Mar. 18, 1942 | 92 | *780 | *.634 | *8.60 | *855 | *9.42 | - |
| 1943 | 974 | 8,130 | June 3, 1943 | 160 | 1,410 | 1.15 | 15.56 | 1,342 | 14.82 | - |
| 1944 | 1004 | 6,220 | Feb. 27, 1944 | 76 | 784 | .637 | 8.68 | 710 | 7.85 | - |
| 1945 | 1034 | 7,410 | May 19, 1945 | 95 | 698 | .567 | 7.71 | 824 | 9.10 | - |
| 1946 | 1054 | 5,120 | Mar. 7, 1946 | 43 | 680 | .553 | 7.50 | 561 | 6.20 | - |
| 1947 | 1084 | 16,400 | Apr. 7, 1947 | 52 | 1,137 | .924 | 12.55 | 1,260 | 13.90 | - |
| 1948 | 1114 | 12,000 | Mar. 21, 1948 | 70 | 1,140 | .927 | 12.62 | 1,037 | 11.48 | - |
| 1949 | 1174 | 5,890 | Feb. 15, 1949 | 87 | 743 | .604 | 8.19 | 817 | 9.01 | - |
| 1950 | 1174 | 8,280 | Apr. 5, 1950 | 154 | 1,309 | 1.06 | 14.44 | - | - | - |

* Revised.

† Corrected.

* Not previously published.

145. Lookingglass River near Eagle, Mich.

Location.--Lat 42°49'45", long. 84°46'40", in sec. 10, T. 5 N., R. 4 W., on upstream side of highway bridge, 1½ miles northeast of Eagle and 10 miles upstream from mouth.

Drainage area.--281 sq mi.

Gage.--Wire-weight gage. Datum of gage is 747.09 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--6 years (1944-50), 209 cfs.

Extremes.--1944-50: Maximum discharge, 2,860 cfs Apr. 5, 1947 (gage height, 7.70 ft, from graph based on gage readings), from rating curve extended above 1,900 cfs by logarithmic plotting; minimum, 22 cfs (revised) Sept. 5, 6, 1946.

| Water year | Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | The year |
|------------|---|------|-------|------|------|-------|-------|-----|------|------|-------|-------|----------|
| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1944 | - | - | - | - | - | - | - | - | - | - | *29.4 | 34.6 | - |
| 1945 | 37.4 | 41.7 | 38.2 | 33.6 | 74.0 | 153 | 145 | 521 | 182 | 73.6 | 63.5 | 161 | 127 |
| 1946 | 308 | 180 | 98.9 | 292 | 133 | *738 | 117 | 102 | 126 | 38.4 | 30.5 | 26.1 | *184 |
| 1947 | 32.5 | 45.3 | *56.8 | *111 | 73.0 | *285 | 1,131 | 365 | 406 | 94.2 | 64.3 | 200 | *235 |
| 1948 | 120 | 175 | 256 | 112 | 343 | 1,054 | 405 | 641 | 123 | 84.8 | 45.3 | 33.7 | 284 |
| 1949 | 36.5 | 50.8 | 61.6 | 203 | 435 | 217 | 325 | 104 | 88.1 | 86.5 | 52.5 | 36.2 | 139 |
| 1950 | 40.6 | 47.0 | 191 | 441 | 296 | 639 | 854 | 268 | 299 | 84.5 | 66.4 | 203 | 285 |

* Revised.

* Not previously published.

Monthly and yearly runoff, in inches, of Lookingglass River near Eagle, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|-------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | +0.12 | 0.14 | - |
| 1945 | 0.15 | 0.17 | 0.16 | 0.14 | 0.27 | 0.63 | 0.58 | 2.13 | 0.72 | 0.30 | .26 | .64 | 6.15 |
| 1946 | 1.27 | .72 | .41 | 1.20 | .49 | *3.03 | .46 | .42 | .50 | .16 | .13 | .10 | *8.89 |
| 1947 | .13 | .18 | *.23 | *.46 | .27 | *1.05 | 4.48 | 1.50 | 1.81 | .39 | .26 | .79 | *11.35 |
| 1948 | .49 | .70 | 1.05 | .46 | 1.32 | 4.32 | 1.61 | 2.53 | .50 | .35 | .19 | .13 | 13.75 |
| 1949 | .15 | .20 | .25 | .83 | 1.61 | .89 | 1.29 | .43 | .35 | .36 | .22 | .14 | 6.72 |
| 1950 | .17 | .19 | .78 | 1.81 | 1.09 | 2.62 | 3.39 | 1.10 | 1.18 | .35 | .27 | .81 | 13.76 |

* Revised.

† Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 920 | May 22-24, 1945 | 30 | 127 | 0.452 | 6.15 | 167 | 8.07 |
| 1946 | 1054, 1387 | *1,700 | Mar. 6, 1946* | 22 | *184 | *.655 | *8.89 | *146 | *7.03 |
| 1947 | 1084, 1387 | 2,860 | Apr. 5, 1947 | *24 | *235 | .836 | *11.35 | *270 | *13.05 |
| 1948 | 1114 | 2,300 | Mar. 19, 1948 | 30 | 284 | 1.01 | 13.75 | 250 | 12.11 |
| 1949 | 1144 | 1,080 | Feb. 15, 1949 | 28 | 139 | .495 | 6.72 | 150 | 7.26 |
| 1950 | 1174 | 2,020 | Apr. 4, 1950 | 27 | 285 | 1.01 | 13.76 | - | - |

* Revised.

146. Maple River at Maple Rapids, Mich.

Location.--Lat 43°06'35", long. 84°41'35", in sec. 5, T. 8 N., R. 3 W., on upstream side of highway bridge at Maple Rapids, 300 ft downstream from Pine Creek and three-quarters of a mile upstream from Hayworth Creek.

Drainage area.--434 sq mi.

Gage.--Wire-weight gage. Datum of gage is 642.58 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--6 years (1944-50), 271 cfs.

Extremes.--1944-50: Maximum daily discharge, 6,500 cfs Mar. 20, 1948; maximum gage height, 11.22 ft Mar. 20, 1948, from floodmark (backwater from ice); minimum discharge observed, 8.2 cfs Aug. 11, 1944 (gage height, 1.61 ft).

Flood of March 1904 reached a stage of 13.8 ft, from information by local resident.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|-------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | +14.0 | 17.7 | - |
| 1945 | 23.4 | 23.6 | 24.5 | 21.6 | 29.3 | 187 | 139 | 644 | 424 | 95.1 | 48.5 | 119 | 149 |
| 1946 | 488 | 227 | 134 | 570 | 122 | 1,160 | 163 | 90.6 | 87.4 | 41.4 | 21.7 | 19.2 | 263 |
| 1947 | 16.0 | 33.5 | 58.1 | 180 | 131 | 504 | 1,582 | 565 | 628 | 76.4 | 33.5 | 118 | 326 |
| 1948 | 63.2 | 104 | 342 | 96.3 | 223 | 1,668 | 702 | 601 | 103 | 61.5 | 37.9 | 21.2 | 337 |
| 1949 | 18.6 | 36.5 | 42.3 | 170 | 577 | 287 | 382 | 111 | 72.0 | 111 | 29.9 | 20.8 | 152 |
| 1950 | 23.6 | 29.8 | 143 | 603 | 364 | 1,120 | 1,072 | 275 | 206 | 195 | 164 | 574 | 397 |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | +0.04 | 0.05 | - |
| 1945 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.50 | 0.36 | 1.71 | 1.09 | 0.25 | .13 | .31 | 4.66 |
| 1946 | 1.29 | .58 | .36 | 1.51 | .29 | 3.08 | .42 | .24 | .22 | .11 | .06 | .05 | 8.21 |
| 1947 | .04 | .09 | .15 | .48 | .31 | 1.34 | 4.07 | 1.50 | 1.62 | .20 | .09 | .30 | 10.19 |
| 1948 | .17 | .27 | .91 | .26 | .55 | 4.43 | 1.81 | 1.59 | .26 | .16 | .10 | .05 | 10.56 |
| 1949 | .05 | .09 | .11 | .45 | 1.38 | .76 | .98 | .30 | .19 | .30 | .08 | .05 | 4.74 |
| 1950 | .06 | .08 | .38 | 1.60 | .87 | 2.98 | 2.76 | .73 | .53 | .52 | .43 | 1.48 | 12.42 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 1,680 | May 19, 1945 | 17 | 149 | 0.343 | 4.66 | 214 | 6.71 |
| 1946 | 1054 | 3,280 | Mar. 8, 1946 | 16 | 263 | .606 | 8.21 | 201 | 6.26 |
| 1947 | 1084 | 4,810 | Apr. 6, 1947 | 12 | 326 | .751 | 10.19 | 360 | 11.26 |
| 1948 | 1114 | 86,500 | Mar. 20, 1948 | 16 | 337 | .776 | 10.56 | 302 | 9.46 |
| 1949 | 1144 | 1,430 | Feb. 19, 1949 | 15 | 152 | .350 | 4.74 | 160 | 5.01 |
| 1950 | 1174 | 3,000 | Apr. 4, 1950 | 17 | 397 | .915 | 12.42 | - | - |

a Maximum daily discharge.

STREAMS TRIBUTARY TO LAKE MICHIGAN

147. Fish Creek near Carson City, Mich.

Location.--Lat 43°10', long. 84°51', on line between secs. 14 and 23, T. 9 N., R. 5 W., at highway bridge 1 mile south of Carson City.

Drainage area.--145 sq mi.

Gage.--Chain gage on downstream side of bridge Feb. 27, 1936, to Oct. 9, 1936, and July 26, 1937, to Sept. 30, 1938. Altitude of gage is 740 ft (from survey level line in vicinity). Oct. 10, 1936, to July 25, 1937, water-stage recorder at same site and datum.

Extremes.--1936-38: Maximum discharge, 1,670 cfs Feb. 6, 1938 (gage height, 8.63 ft); minimum observed, 8.4 cfs Aug. 7, 8, 1936.

Remarks.--Flow slightly regulated by powerplants upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| 1936 | - | - | - | - | - | *279 | 148 | 79.6 | 46.6 | 30.3 | 32.4 | 53.2 | - |
| 1937 | 67.8 | 58.8 | 79.1 | 120 | 143 | 102 | 202 | 121 | 66.7 | 41.0 | 42.4 | 35.0 | 89.4 |
| 1938 | 42.4 | 49.5 | *53.7 | *69.3 | 420 | 209 | 144 | 92.6 | 81.2 | 44.9 | 67.2 | 42.0 | *107 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1936 | - | - | - | - | - | *2.21 | 1.14 | 0.63 | 0.36 | 0.24 | 0.26 | 0.41 | - |
| 1937 | 0.54 | 0.45 | 0.63 | 0.95 | 1.03 | .81 | 1.55 | .96 | .51 | .53 | .34 | .27 | 8.37 |
| 1938 | .34 | .38 | *.43 | *.55 | 3.02 | 1.66 | 1.11 | .74 | .62 | .36 | .53 | .32 | *10.06 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804,1387 | *560 | Mar. 11, 1936 | - | - | - | - | - | - |
| 1937 | 824 | 430 | Apr. 22, 1937 | 22 | 89.4 | 0.617 | 8.37 | *84.4 | *7.90 |
| 1938 | 854,1387 | 1,670 | Feb. 6, 1938 | 21 | *107 | *.738 | *10.06 | - | - |

* Revised.

148. Grand River at Ionia, Mich.

Location.--Lat 42°58'30", long. 85°02'48", in sec. 20, T. 7 N., R. 6 W., on upstream hand-rail of highway bridge at city limits of Ionia and one mile downstream from Prairie Creek.

Drainage area.--2,840 sq mi, approximately.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1907-28 are contained in reports of U. S. Weather Bureau.

Gage.--Chain gage. Altitude of gage is 620 ft (from river-profile map).

Remarks.--Flow regulated by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | *740 | 702 | 567 | 648 | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | *0.30 | 0.28 | 0.23 | 0.25 | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

149. Thornapple River near Hastings, Mich.

Location.--Lat 42°36'55", long. 85°14'15", in sec. 27, T. 3 N., R. 8 W., on downstream side of highway bridge, half a mile downstream from Cedar Creek, 2 miles downstream from Thornapple Lake, and 3½ miles southeast of Hastings.

Drainage area.--385 sq mi.

Gage.--Wire-weight gage. Datum of gage is 786.71 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--6 years (1944-50), 350 cfs.

Extremes.--1944-50: Maximum discharge, 6,810 cfs Apr. 7, 1947 (gage height, 10.2 ft, from graph based on gage readings); minimum, 43 cfs Aug. 26-28, 1946.

Monthly and yearly mean discharge, in cubic feet per second, of Thornapple River near Hastings, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|----------|
| 1945 | 93.3 | 112 | 113 | 110 | 160 | 299 | 288 | 797 | 293 | 106 | 111 | 218 | 226 |
| 1946 | 352 | 237 | 176 | 485 | 188 | 1,136 | 176 | 180 | 241 | 83.4 | 50.2 | 63.6 | 283 |
| 1947 | 83.5 | 130 | 152 | 232 | 200 | 593 | 1,914 | 733 | 689 | 190 | 121 | 192 | 434 |
| 1948 | 148 | 189 | 287 | 160 | 440 | 1,506 | 579 | 979 | 182 | 172 | 90.1 | 88.7 | 403 |
| 1949 | 95.2 | 130 | 149 | 386 | 756 | 294 | 481 | 209 | 193 | 116 | 108 | 110 | 248 |
| 1950 | 131 | 121 | 497 | 838 | 405 | 1,322 | 1,483 | 387 | 332 | 216 | 125 | 252 | 509 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | 0.28 | 0.32 | 0.34 | 0.33 | 0.43 | 0.90 | 0.83 | 2.39 | 0.85 | 0.32 | 0.33 | 0.63 | 7.95 |
| 1946 | 1.05 | .69 | .53 | 1.45 | .51 | 3.40 | .51 | .54 | .70 | .25 | .15 | .18 | 9.96 |
| 1947 | .25 | .38 | .46 | .70 | .54 | 1.78 | 5.54 | 2.19 | 2.00 | .57 | .36 | .56 | 15.33 |
| 1948 | .44 | .55 | .86 | .48 | 1.23 | 4.51 | 1.67 | 2.93 | .53 | .52 | .27 | .26 | 14.25 |
| 1949 | .28 | .38 | .45 | 1.15 | 2.04 | .88 | 1.40 | .63 | .56 | .35 | .32 | .32 | 8.76 |
| 1950 | .39 | .35 | 1.49 | 2.51 | 1.09 | 3.95 | 4.30 | 1.16 | .96 | .65 | .37 | .73 | 17.95 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------------|-------------|------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1945 | 1034 | 2,360 | May 18, 1945 | 69 | 226 | 0.587 | 7.95 | 263 | 9.28 | | |
| 1946 | 1054 | 3,290 | Mar. 7, 1946 | 43 | 283 | .735 | 9.96 | 249 | 8.78 | | |
| 1947 | 1084 | 6,810 | Apr. 7, 1947 | 63 | 434 | 1.13 | 15.33 | 456 | 16.09 | | |
| 1948 | 1114 | 4,890 | Mar. 21, 1948 | 74 | 403 | 1.05 | 14.25 | 382 | 13.51 | | |
| 1949 | 1144 | 2,300 | Feb. 15, 1949 | 82 | 248 | .644 | 8.76 | 280 | 9.88 | | |
| 1950 | 1174 | 3,140 | Mar. 29, Apr. 5, 27 | 92 | 509 | 1.32 | 17.95 | - | - | | |

150. Thornapple River near Caledonia, Mich.

Location.--Lat 42°48'40" long. 85°29'00", in NW¹ sec. 22, T. 5 N., R. 10 W., in tailrace of La Barge powerplant, 2.3 miles northeast of Caledonia, and 3.3 miles downstream from Coldwater River.

Drainage area.--773 sq mi.

Gage.--Staff gage. Datum of gage is at mean sea level, unadjusted.

Average discharge.--8 years (1930-38), 458 cfs.

Extremes.--1930-38: Maximum daily discharge, 4,220 cfs Feb. 14, 1938, from rating curve extended above 2,600 cfs; minimum, not determined.

Remarks.--Flow regulated by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|--------|--------|-------|-------|------|------|------|-------|----------|
| 1931 | *170 | *200 | 258 | 261 | 260 | 278 | 264 | *210 | 340 | *200 | 155 | 163 | *230 |
| 1932 | 196 | 302 | 402 | 839 | 814 | 591 | 659 | 685 | *380 | *200 | *170 | *220 | *453 |
| 1933 | *270 | 383 | 578 | 601 | 571 | 754 | 1,166 | 1,193 | *310 | *250 | *180 | *170 | *535 |
| 1934 | 527 | 429 | 515 | 477 | 364 | 551 | 961 | *290 | *150 | *110 | *120 | *150 | *387 |
| 1935 | *170 | *270 | *280 | *420 | *510 | 1,442 | 379 | 539 | 624 | 357 | 301 | *173 | *455 |
| 1936 | *210 | 457 | 399 | *340 | *500 | 1,429 | 599 | *438 | *207 | *124 | *100 | *496 | *442 |
| 1937 | *350 | *300 | *325 | 794 | 657 | 592 | 1,780 | 732 | 802 | 556 | *240 | *180 | *607 |
| 1938 | *230 | *260 | *300 | *380 | *2,150 | *1,000 | *770 | *450 | *500 | *240 | 256 | 209 | *551 |

* Revised.

* Not previously published; estimated on basis of partial-daily records of powerplant and by comparison with records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|-------|-------|-------|-------|------|-------|------|-------|----------|
| 1931 | *0.25 | *0.29 | 0.38 | 0.39 | 0.35 | 0.41 | 0.38 | *0.31 | 0.49 | *0.30 | 0.23 | 0.23 | *4.01 |
| 1932 | .29 | .44 | .60 | 1.26 | 1.13 | .88 | .95 | 1.02 | *.56 | *.30 | *.25 | *.31 | *7.99 |
| 1933 | *.41 | .55 | .86 | .90 | .77 | 1.12 | 1.68 | 1.78 | *.44 | *.37 | *.27 | *.25 | *9.40 |
| 1934 | .79 | .62 | .77 | .71 | .49 | .82 | 1.38 | *.43 | *.22 | *.16 | *.18 | *.22 | *6.79 |
| 1935 | *.26 | *.38 | *.42 | *.62 | *.68 | 2.16 | .55 | .80 | .90 | .53 | .45 | *.25 | *8.00 |
| 1936 | *.31 | .66 | .59 | *.51 | *.70 | 2.13 | .86 | *.65 | *.30 | *.19 | *.15 | *.72 | *7.77 |
| 1937 | *.52 | *.43 | *.48 | 1.19 | .89 | .88 | 2.57 | 1.09 | 1.16 | .83 | *.36 | *.26 | *10.66 |
| 1938 | *.34 | *.38 | *.45 | *.56 | *2.91 | *1.51 | *1.11 | *.67 | *.72 | *.36 | *.38 | *.30 | *9.69 |

* Revised.

† Corrected.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Thornapple River near Caledonia, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1931 | 714, 824 | 865 | June 7, 1931 | - | *230 | *0.298 | *4.01 | *252 |
| 1932 | 729, 824 | 1,840 | Mar. 30, 31, 1932 | - | *453 | *.586 | *7.99 | *482 |
| 1933 | 744, 824 | 1,750 | Apr. 6, May 21 | - | *535 | *.692 | *9.40 | *555 |
| 1934 | 759, 824 | 1,750 | Apr. 4, 5, 6, 1934 | - | *387 | *.501 | *6.79 | *323 |
| 1935 | 784, 824 | 2,580 | Mar. 6, 1935 | - | *455 | *.589 | *8.00 | *484 |
| 1936 | 804, 824 | 2,680 | Feb. 28, 1936 | - | *442 | *.572 | *7.77 | *449 |
| 1937 | 824 | 824 | Apr. 22, 1937 | - | *607 | *.785 | *10.66 | *591 |
| 1938 | 854 | *4,220 | Feb. 14, 1938 | - | *551 | *.713 | *9.69 | - |

* Revised.

* Not previously published.

Note.--Figures of daily discharge for Oct. 1 to Nov. 30, 1930, May 1-31, July 1-31, 1931, June 12 to Oct. 27, 1932, June 11-30, July 8 to Sept. 30, 1933, May 3 to Nov. 20, 1934, Dec. 5, 1934, to Jan. 7, 1935, Feb. 1-13, Sept. 1 to Oct. 31, 1935, Jan. 1-14, Jan. 22 to Feb. 23, May 16 to Sept. 11, Oct. 1 to Dec. 26, 1936, and Aug. 1 to Sept. 30, 1937, published in W.S.P. 714, 729, 744, 759, 784, 804, and 824, have been found in error on basis of restudy of original data; only monthly figures revised; revised daily figures not available.

151. Grand River at Grand Rapids, Mich.

Location--Lat 42°57'10", long. 85°41'15", in NE $\frac{1}{4}$ sec. 35, T. 7 N., R. 12 W., on left bank in municipal sewage pumping plant in Grand Rapids, three-quarters of a mile upstream from Plaster Creek.

Drainage area--4,900 sq mi, approximately.

Supplemental records available--January 1906 to August 1918 (gage heights only). Gage-height records collected in this vicinity since 1907 are contained in reports of U. S. Weather Bureau.

Gage--Water-stage recorder. Datum of gage is 588.69 ft above mean sea level, datum of 1929 (levels by city of Grand Rapids). March 1901 to December 1905 and January 1906 to August 1918, staff gage at Fulton Street Bridge 1 mile upstream at same datum.

Average discharge--24 years (1901-5, 1930-50), 3,524 cfs.

Extremes--1901-5, 1930-50: Maximum discharge, 54,000 cfs (revised) Mar. 28, 1904 (gage height, 19.5 ft, from graph based on gage readings, site then in use); minimum daily, 381 cfs Aug. 9, 17, 1936.

Maximum discharge since 1901, that of Mar. 28, 1904.

Remarks--Moderate diurnal fluctuation at low and medium flow caused by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|----------|
| 1901 | - | - | - | - | - | *10,970 | *5,760 | *2,765 | *2,103 | *3,790 | *1,708 | *1,727 | - |
| 1902 | *2,109 | *1,829 | *2,733 | *1,995 | *1,762 | *5,742 | *4,236 | *4,721 | *2,914 | *6,467 | *2,031 | *1,524 | *3,189 |
| 1903 | *3,300 | *3,861 | *3,999 | *5,234 | *9,342 | *11,050 | *8,776 | *2,851 | *2,267 | *1,968 | *2,171 | *4,339 | *4,895 |
| 1904 | *4,690 | *2,303 | *2,626 | *2,600 | *3,300 | *21,580 | *13,450 | *4,163 | *2,141 | *1,533 | *2,314 | *1,556 | *5,118 |
| 1905 | *2,511 | *1,641 | *1,752 | a2,100 | a2,200 | 8,706 | 5,819 | 5,996 | 15,670 | 3,707 | 3,204 | 2,892 | *4,684 |
| 1906 | 2,813 | 3,201 | 3,067 | - | - | - | - | - | - | - | - | - | - |
| 1931 | 945 | 1,000 | 1,140 | 1,170 | 1,690 | 1,860 | 1,760 | 1,460 | 1,570 | 982 | 667 | 964 | 1,260 |
| 1932 | 948 | 1,650 | 2,150 | 4,900 | 4,420 | 3,110 | 4,190 | 4,280 | 2,290 | 1,080 | 948 | 1,400 | 2,610 |
| 1933 | 1,670 | 2,540 | 3,450 | 3,810 | 3,690 | 4,630 | 8,140 | 6,920 | 1,910 | 1,420 | 1,090 | 1,060 | 3,360 |
| 1934 | 1,835 | 1,804 | 2,479 | 2,696 | 1,815 | 2,835 | 5,602 | 1,687 | 930 | 650 | 617 | 1,104 | 2,002 |
| 1935 | 1,066 | 1,680 | 1,769 | 2,508 | 2,650 | 10,150 | 2,694 | 2,939 | 3,442 | 2,455 | 1,719 | 1,097 | 2,855 |
| 1936 | 1,237 | 2,608 | 2,160 | 1,921 | 2,140 | 9,040 | 4,051 | 2,542 | 1,173 | 781 | 665 | 1,993 | 2,529 |
| 1937 | 2,138 | 1,778 | 1,848 | 3,869 | 3,634 | 3,243 | 8,623 | 5,460 | 4,407 | 3,238 | 1,381 | 1,060 | 3,382 |
| 1938 | 1,395 | 1,444 | 1,598 | 2,106 | 14,720 | 6,788 | 5,217 | 3,263 | 3,068 | 1,611 | 2,444 | 1,555 | 3,687 |
| 1939 | 1,216 | 1,396 | 1,588 | 1,918 | 4,800 | 6,497 | 7,915 | 2,648 | 2,717 | 1,234 | 1,644 | 1,239 | 2,881 |
| 1940 | 1,276 | 1,379 | 1,386 | *1,488 | *1,374 | 3,053 | 5,243 | 2,285 | 2,935 | 1,419 | 1,565 | 2,764 | *2,175 |
| 1941 | 1,788 | 2,133 | 4,501 | 5,526 | 3,210 | 5,934 | 4,596 | 2,307 | 1,671 | 1,018 | 958 | 1,067 | 2,886 |
| 1942 | 2,335 | 4,552 | 2,939 | 2,681 | 2,944 | 13,550 | 4,504 | 3,453 | 4,396 | 2,021 | 1,991 | 2,538 | 4,002 |
| 1943 | 2,482 | 4,774 | 4,685 | 7,935 | 10,130 | 13,800 | 4,918 | 10,390 | 9,842 | 3,176 | 1,824 | 2,069 | 6,314 |
| 1944 | 1,778 | 2,684 | 1,912 | 1,631 | 3,404 | 7,098 | 7,330 | 4,535 | 2,758 | 1,387 | 1,051 | 1,171 | 3,055 |
| 1945 | 1,270 | 1,307 | 1,345 | 1,335 | 1,801 | 3,390 | 3,165 | 7,840 | 4,773 | 1,784 | 1,426 | 2,115 | 2,634 |
| 1946 | 4,825 | 3,260 | 2,288 | 6,655 | 3,040 | 12,323 | 2,575 | 2,254 | 2,352 | 1,226 | 1,000 | 1,037 | 3,588 |
| 1947 | 992 | 1,531 | 1,602 | 2,508 | 2,444 | 5,444 | 17,900 | 8,557 | 7,298 | 1,944 | 1,286 | 2,995 | 4,528 |
| 1948 | 2,055 | 2,906 | 4,263 | 2,229 | 3,779 | 17,430 | 8,604 | 9,731 | 2,524 | 2,080 | 1,565 | 1,021 | 4,850 |
| 1949 | 1,226 | 1,731 | 1,747 | 3,547 | 7,989 | 4,260 | 5,517 | 2,217 | 1,885 | 1,236 | 1,260 | 2,872 | 2,872 |
| 1950 | 1,390 | 1,587 | 3,678 | 7,235 | 5,188 | 11,940 | 15,260 | 5,155 | 3,604 | 2,900 | 1,863 | 3,089 | 5,218 |

* Revised.

* Not previously published.

a Only monthly figures revised; revised daily figures not determined.

Monthly and yearly runoff, in inches, of Grand River at Grand Rapids, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|----------|
| 1901 | | | | | | \$2.58 | \$1.31 | \$0.65 | \$0.48 | \$0.89 | \$0.40 | \$0.39 | - |
| 1902 | *0.50 | *0.42 | *0.64 | *0.47 | *0.37 | *1.35 | *.96 | *1.11 | *.66 | *1.52 | *.48 | *.35 | *8.83 |
| 1903 | *.78 | *.88 | *.94 | *1.23 | *1.99 | \$2.60 | \$2.00 | *.67 | *.52 | *.46 | *.51 | *.99 | *13.57 |
| 1904 | *1.10 | *.52 | *.62 | *.61 | *.73 | \$5.08 | \$3.06 | *.98 | *.49 | *.36 | *.31 | *.35 | *14.21 |
| 1905 | *.59 | *.37 | *.41 | a.49 | a.47 | 2.05 | 1.33 | 1.41 | 3.57 | .87 | .75 | .66 | *12.97 |
| 1906 | .66 | .73 | .72 | - | - | - | - | - | - | - | - | - | - |
| 1931 | .22 | .23 | .27 | .28 | .36 | .44 | .40 | .34 | .36 | .23 | .16 | .22 | 3.51 |
| 1932 | .22 | .38 | .51 | 1.15 | .97 | .73 | .95 | 1.01 | .52 | .25 | .22 | .32 | 7.23 |
| 1933 | .39 | .58 | .81 | .90 | .78 | 1.09 | 1.85 | 1.63 | .44 | .32 | .25 | .24 | 9.28 |
| 1934 | .43 | .41 | .58 | .63 | .39 | .67 | 1.27 | .40 | .21 | .15 | .15 | .25 | 5.54 |
| 1935 | .25 | .38 | .42 | .59 | .56 | 2.39 | .61 | .69 | .78 | .58 | .40 | .25 | 7.90 |
| 1936 | .29 | .59 | .51 | .45 | .47 | 2.12 | .92 | .60 | .27 | .18 | .16 | .45 | 7.01 |
| 1937 | .50 | .40 | .43 | .91 | .77 | .78 | 1.96 | 1.28 | 1.00 | .76 | .33 | .24 | 9.34 |
| 1938 | .33 | .33 | .38 | .50 | 3.12 | 1.60 | 1.18 | .77 | .70 | .38 | .58 | .35 | 10.22 |
| 1939 | .29 | .32 | .37 | .45 | 1.02 | 1.53 | 1.81 | .62 | .62 | .29 | .39 | .28 | 7.99 |
| 1940 | .30 | .31 | .33 | *.35 | *.30 | .72 | 1.19 | .54 | .67 | .33 | .37 | .63 | *6.04 |
| 1941 | .42 | .49 | 1.06 | 1.50 | .68 | 1.40 | 1.05 | .54 | .38 | .24 | .23 | .24 | 8.03 |
| 1942 | .55 | 1.04 | .67 | .63 | .83 | 3.19 | 1.04 | .81 | 1.00 | .48 | .47 | .59 | 11.10 |
| 1943 | .58 | 1.09 | 1.10 | 1.87 | 2.16 | 3.25 | 1.12 | 2.44 | 2.24 | .75 | .43 | .47 | 17.50 |
| 1944 | .42 | .61 | .45 | .38 | .75 | 1.67 | 1.67 | 1.07 | .63 | .33 | .25 | .27 | 8.50 |
| 1945 | .30 | .30 | .32 | .31 | .38 | .80 | .72 | 1.84 | 1.09 | .42 | .34 | .48 | 7.30 |
| 1946 | 1.14 | .74 | .54 | 1.57 | .65 | 2.89 | .59 | .53 | .54 | .29 | .24 | .24 | 9.96 |
| 1947 | .25 | .35 | .38 | .59 | .52 | 1.28 | 4.07 | 2.02 | 1.66 | .46 | .30 | .68 | 12.54 |
| 1948 | .48 | .68 | 1.00 | .52 | .83 | 4.10 | 1.96 | 2.29 | .57 | .49 | .32 | .25 | 13.45 |
| 1949 | .29 | .39 | .41 | .83 | 1.68 | 1.00 | 1.26 | .57 | .50 | .44 | .29 | .23 | 7.95 |
| 1950 | .33 | .32 | .87 | 1.71 | 1.10 | 2.81 | 3.47 | 1.21 | .82 | .68 | .44 | .70 | 14.46 |

* Revised.

* Not previously published.

a Only monthly figures revised; revised daily figures not determined.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|--------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 83,1387 | \$30,000 | Mar. 28, 1901* | - | - | - | - | - | - |
| 1902 | 83,1387 | \$11,200 | July 9, 1902* | *840 | *3,189 | *0.651 | *8.83 | *3,565 | *9.87 |
| 1903 | 97,1387 | \$20,600 | Apr. 18, 1903* | *1,100 | *4,895 | *.399 | *15.57 | *4,768 | *13.21 |
| 1904 | 129,1387 | *\$4,000 | Mar. 28, 1904 | *990 | *5,118 | *1.04 | *14.21 | *4,805 | *13.34 |
| 1905 | 170,1387 | *\$0,200 | June 9, 1905* | *1,320 | *4,684 | *.956 | *12.97 | *4,949 | *13.71 |
| 1906 | 170 | - | - | - | - | - | - | - | - |
| 1931 | 729 | a3,200 | Mar. 31, 1931 | 624 | 1,260 | .257 | 3.51 | 1,404 | 3.90 |
| 1932 | 729 | 8,820 | Mar. 31, 1932 | 744 | 2,610 | .533 | 7.23 | 2,852 | 7.80 |
| 1933 | 744 | 11,500 | Apr. 11, 1933 | 813 | 3,360 | .686 | 9.28 | 3,229 | 8.92 |
| 1934 | 759 | 9,450 | Apr. 7, 1934 | 494 | 2,002 | .409 | 5.54 | 1,866 | 5.17 |
| 1935 | 784 | 19,200 | Mar. 7, 1935 | 758 | 2,855 | .583 | 7.90 | 2,979 | 8.24 |
| 1936 | 804 | 15,900 | Mar. 12, 1936 | 381 | 2,529 | .516 | 7.01 | 2,511 | 6.95 |
| 1937 | 824 | 16,400 | Apr. 25, 1937 | 860 | 3,382 | .690 | 9.34 | 3,270 | 9.05 |
| 1938 | 854 | 28,300 | Feb. 16, 1938 | 1,100 | 3,687 | .752 | 10.22 | 3,667 | 10.16 |
| 1939 | 874 | 16,200 | Apr. 25, 1939 | 870 | 2,881 | .588 | 7.99 | 2,867 | 7.95 |
| 1940 | 894,1387 | 11,600 | Apr. 2, 1940 | 814 | *2,175 | *.444 | *6.04 | *2,544 | *7.07 |
| 1941 | 924 | 9,920 | Jan. 5, 1941 | 752 | 2,896 | .591 | 8.03 | 3,000 | 8.32 |
| 1942 | 954 | 34,000 | Mar. 20, 1942 | 1,280 | 4,002 | .817 | 11.10 | 4,190 | 11.61 |
| 1943 | 974 | 29,200 | Mar. 19, 1943 | 1,380 | 6,314 | 1.29 | 17.50 | 5,846 | 16.21 |
| 1944 | 1004 | 14,200 | Mar. 1, 1944 | 857 | 3,055 | .623 | 8.50 | 2,851 | 7.94 |
| 1945 | 1034 | 16,100 | May 21, 1945 | 904 | 2,634 | .538 | 7.30 | 3,176 | 8.80 |
| 1946 | 1054 | 26,800 | Mar. 9, 1946 | 888 | 3,588 | .732 | 9.96 | 3,062 | 8.50 |
| 1947 | 1084 | 38,600 | Apr. 9, 1947 | 750 | 4,528 | .924 | 12.54 | 4,957 | 13.72 |
| 1948 | 1114 | 42,200 | Mar. 23, 1948 | 888 | 4,850 | .990 | 13.45 | 4,470 | 12.40 |
| 1949 | 1144 | 18,000 | Feb. 19, 1949 | 990 | 2,872 | .586 | 7.95 | 3,022 | 8.38 |
| 1950 | 1174 | 27,200 | Apr. 7, 1950 | 1,030 | 5,218 | 1.06 | 14.46 | - | - |

* Revised.

* Not previously published.

a Maximum daily.

152. Higgins Lake Outlet near Roscommon, Mich.

Location.--Lat 44°25'50", long. 84°40'10", in sec. 34, T. 24 N., R. 3 W., on upstream side of highway bridge, 3 miles southwest of Roscommon and 8 miles upstream from Backus Creek.

Drainage area.--58 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 1,150.88 ft above mean sea level (levels by Michigan Department of Conservation). Prior to Dec. 27, 1943 (revised), staff gage 500 ft upstream at same datum.

Average discharge.--7 years (1942-49), 44.2 cfs.

Extremes.--1942-50: Maximum discharge observed, 138 cfs (revised) June 28, 1943 (gage height, 3.15 ft); minimum, 2.8 cfs Nov. 21, Dec. 1, 4, 1949.

Remarks.--After October 1947, flow occasionally affected by changes made at remains of old dam at outlet of Higgins Lake.

Monthly and yearly mean discharge, in cubic feet per second,
of Higgins Lake Outlet near Roscommon, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|-------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | 47.6 | 39.8 | 40.7 | - |
| 1943 | 37.9 | 34.1 | 31.3 | 38.2 | 45.4 | 55.6 | 60.7 | 62.4 | *119 | *88.1 | 56.4 | 41.8 | *55.9 |
| 1944 | 33.9 | 38.8 | 37.5 | 37.4 | 40.7 | 44.3 | 50.6 | 66.2 | 73.2 | 57.4 | 41.5 | 33.3 | 46.2 |
| 1945 | 27.0 | 20.0 | 22.1 | 25.3 | 29.8 | 36.0 | 44.7 | 50.2 | 79.5 | 62.0 | 48.1 | 45.8 | 40.9 |
| 1946 | 43.6 | 43.5 | 40.5 | 46.1 | 54.9 | 61.8 | 56.3 | 49.7 | 50.8 | 54.5 | 36.9 | 27.8 | 47.1 |
| 1947 | 21.8 | 21.9 | 20.6 | 26.4 | 29.2 | 41.2 | 52.8 | 79.1 | 80.0 | 64.9 | 47.3 | 42.6 | 44.0 |
| 1948 | 38.0 | 33.8 | 33.8 | 33.3 | 34.0 | 46.1 | 60.1 | 63.5 | 53.6 | 63.6 | 43.6 | 29.4 | 44.5 |
| 1949 | 18.8 | 18.8 | 18.2 | 26.3 | 37.8 | 39.8 | 43.4 | 39.8 | 45.2 | 55.3 | 23.8 | 5.75 | 31.1 |
| 1950 | 5.92 | 5.34 | 7.33 | 15.0 | 25.8 | 42.4 | 76.4 | 60.4 | 50.5 | *40.4 | - | - | - |

* Revised.

‡ Not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|-------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | - | - | 0.95 | 0.79 | 0.78 | - |
| 1943 | 0.75 | 0.66 | 0.62 | 0.76 | 0.82 | 1.11 | 1.17 | 1.24 | *2.30 | *1.75 | 1.12 | .80 | *13.10 |
| 1944 | .67 | .75 | .75 | .74 | .78 | .88 | .97 | 1.31 | 1.41 | 1.14 | .83 | .64 | 1.85 |
| 1945 | .54 | .38 | .44 | .50 | .54 | .72 | .86 | 1.00 | 1.53 | 1.23 | .96 | .88 | 9.58 |
| 1946 | .87 | .84 | .80 | .92 | .99 | 1.23 | 1.08 | .99 | .98 | 1.08 | .73 | .53 | 11.04 |
| 1947 | .43 | .42 | .41 | .52 | .52 | .82 | 1.02 | 1.57 | 1.54 | 1.29 | .94 | .82 | 10.30 |
| 1948 | .76 | .65 | .67 | .66 | .63 | .92 | 1.16 | 1.26 | 1.03 | 1.27 | .87 | .57 | 10.45 |
| 1949 | .37 | .36 | .36 | .52 | .68 | .79 | .83 | .79 | .87 | 1.10 | .47 | .11 | 7.25 |
| 1950 | .12 | .10 | .15 | .30 | .46 | .84 | 1.47 | 1.20 | .97 | *.80 | - | - | - |

* Revised.

‡ Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974,1437 | - | June 28, 1943 | 30 | *55.9 | *0.964 | *13.10 | *56.5 | *13.24 |
| 1944 | 1004 | *a138 | June 19, 1944 | 31 | 46.2 | .797 | 10.85 | 42.8 | 10.04 |
| 1945 | 1034 | 89 | June 3,4,1945* | 10 | 40.9 | .705 | 9.58 | 45.8 | 10.73 |
| 1946 | 1054 | a73 | Apr. 2, 1946 | 26 | 47.1 | .812 | 11.04 | 41.8 | 9.79 |
| 1947 | 1084 | 89 | May 29, 1947 | 18 | 44.0 | .759 | 10.30 | 47.5 | 11.12 |
| 1948 | 1114 | 74 | June 29,30,1948 | 19 | 44.5 | .787 | 10.45 | 40.3 | 9.46 |
| 1949 | 1144 | 68 | June 29, 1949 | 5 | 31.1 | .536 | 7.25 | 27.9 | 6.53 |
| 1950 | 1174 | 84 | Apr. 5, 1950 | *3.1 | - | - | - | - | - |

* Revised.

‡ Not previously published.

a Maximum observed.

153. Muskegon River near Merritt, Mich.

Location.--Lat 44°20'10", long. 84°53'30", in NW $\frac{1}{4}$ sec. 2, T. 22 N., R. 5 W., on right bank 35 ft upstream from bridge on State Highway 55, half a mile upstream from West Branch, 2 $\frac{3}{4}$ miles east of Merritt and 5 miles west of Houghton Lake.

Drainage area.--309 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,117.82 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to July 13, 1949, wire-weight gage on downstream side of bridge at same datum.

Extremes.--1946-50: Maximum discharge, 904 cfs Apr. 17, 1947 (gage height, 7.61 ft); minimum, 36 cfs Sept. 26, 1949.

Remarks.--Occasional regulation by Reedsburg Dam 3 $\frac{1}{2}$ miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1947 | 60.4 | 137 | 128 | 143 | 144 | 159 | 551 | 621 | 346 | 175 | 99.1 | 108 | 223 |
| 1948 | 140 | 151 | 170 | 150 | 152 | 271 | 496 | 273 | 177 | 170 | 84.1 | 62.2 | 190 |
| 1949 | 51.6 | 107 | 111 | 144 | 145 | 203 | 342 | 162 | 138 | 127 | 57.8 | 46.8 | 136 |
| 1950 | 54.6 | 60.9 | 86.8 | 120 | 90.2 | 161 | 535 | 386 | 136 | 75.1 | 58.3 | 93.6 | 155 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | 0.22 | 0.49 | 0.48 | 0.53 | 0.49 | 0.59 | 1.99 | 2.32 | 1.25 | 0.65 | 0.37 | 0.39 | 9.77 |
| 1948 | .52 | .55 | .63 | .56 | .46 | 1.01 | 1.80 | 1.02 | .64 | .63 | .31 | .22 | 8.35 |
| 1949 | .19 | .39 | .41 | .54 | .49 | .78 | 1.24 | .60 | .50 | .47 | .22 | .17 | 5.98 |
| 1950 | .20 | .22 | .32 | .45 | .30 | .60 | 1.93 | 1.44 | .49 | .28 | .22 | .34 | 6.79 |

Yearly discharge, in cubic feet per second, of Muskegon River near Merritt, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | 904 | Apr. 17, 1947 | 44 | 223 | 0.722 | 9.77 | 234 | 10.28 |
| 1948 | 1114 | 704 | Mar. 30, 1948 | 58 | 190 | .615 | 8.35 | 174 | 7.64 |
| 1949 | 1144 | 584 | Apr. 12, 1949 | 40 | 136 | .440 | 5.98 | 130 | 5.73 |
| 1950 | 1174 | 744 | Apr. 28, 1950 | 38 | 155 | .502 | 6.79 | - | - |

154. Muskegon River at Evart, Mich.

Location.--Lat 43°54'10", long. 85°15'45", in SE $\frac{1}{4}$ sec. 34, T. 18 N., R. 8 W., near center of span on downstream side of bridge on U. S. Highway 10 at Evart and half a mile upstream from Twin Creek.

Drainage area.--1,450 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 977.72 ft above mean sea level, datum of 1929. Prior to Apr. 12, 1934, chain gage at same site and datum, and Apr. 12, 1934, to May 22, 1935, chain gage on upstream side of Pere Marquette Railroad bridge 100 ft downstream at same datum.

Average discharge.--18 years (1931, 1933-50), 903 cfs.

Extremes.--1931, 1933-50: Maximum discharge, 7,000 cfs June 3, 4, 1945 (gage height, 13.68 ft, from high-water mark); minimum observed, 164 cfs Dec. 20, 1947 (result of freezeup).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1931 | *485 | *505 | 500 | 439 | 505 | 625 | 1,010 | 1,100 | 567 | *430 | *330 | *510 | *584 |
| 1934 | *630 | *640 | *860 | *820 | *720 | 1,013 | 1,991 | 953 | 448 | 327 | 324 | 492 | *767 |
| 1935 | 535 | 944 | 963 | 702 | 714 | 2,180 | 1,589 | 938 | 631 | 425 | 431 | 398 | 856 |
| 1936 | 424 | 579 | 538 | 418 | 327 | 1,156 | 1,395 | 890 | 493 | 332 | 350 | 456 | 613 |
| 1937 | 817 | 732 | 868 | 1,285 | 1,141 | 825 | 1,723 | 1,347 | 713 | 495 | 483 | 482 | 907 |
| 1938 | 629 | 899 | 849 | 803 | 2,353 | 2,575 | 1,752 | 1,156 | 791 | 457 | 452 | 585 | 1,099 |
| 1939 | 538 | 641 | 589 | 644 | 691 | 1,251 | 1,762 | 991 | 900 | 547 | 563 | 567 | 806 |
| 1940 | 601 | 653 | 601 | 522 | 570 | 594 | 1,824 | 1,430 | 919 | 553 | 641 | 934 | 819 |
| 1941 | 915 | 1,251 | 1,307 | 1,192 | 998 | 1,140 | 2,535 | 1,094 | 555 | 346 | 316 | 363 | 997 |
| 1942 | 1,145 | 1,629 | 1,090 | 1,053 | 867 | 2,146 | 2,333 | 1,043 | 1,015 | 544 | 405 | 429 | 1,146 |
| 1943 | 594 | 877 | 822 | 879 | 1,037 | 2,272 | 2,498 | 1,714 | 2,300 | 924 | 640 | 518 | 1,263 |
| 1944 | 551 | 843 | 806 | 552 | 638 | 796 | 1,376 | 1,297 | 962 | 503 | 359 | 439 | 742 |
| 1945 | 543 | 582 | 554 | 491 | 507 | 1,488 | 934 | 1,251 | 2,945 | 868 | 572 | 833 | 964 |
| 1946 | 1,224 | 1,567 | 1,024 | 1,262 | 843 | 3,075 | 1,184 | 946 | 781 | 584 | 348 | 351 | 1,102 |
| 1947 | 389 | 629 | 577 | 631 | 642 | 805 | 3,278 | 2,709 | 1,250 | 693 | 458 | 494 | 1,044 |
| 1948 | 505 | 590 | 682 | 596 | 511 | 2,007 | 2,042 | 1,260 | 700 | 596 | 397 | 326 | 852 |
| 1949 | 374 | 582 | 542 | 680 | 746 | 1,412 | 1,546 | 745 | 836 | 623 | 405 | 407 | 740 |
| 1950 | 405 | 433 | 686 | 1,181 | 736 | 1,466 | 3,151 | 1,350 | 675 | 480 | 401 | 538 | 958 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|-------|-------|-------|----------|
| 1931 | *0.38 | *0.39 | 0.40 | 0.35 | 0.36 | 0.50 | 0.78 | 0.88 | 0.44 | *0.34 | *0.26 | *0.39 | *5.47 |
| 1934 | *.50 | *.49 | *.68 | *.65 | *.52 | .81 | 1.53 | .76 | .34 | .26 | .28 | .38 | *7.18 |
| 1935 | .43 | .73 | .77 | .56 | .51 | 1.73 | 1.07 | .75 | .49 | .34 | .34 | .31 | 8.03 |
| 1936 | .34 | .45 | .43 | .33 | .24 | .92 | 1.07 | .71 | .38 | .26 | .28 | .35 | 5.76 |
| 1937 | .65 | .56 | .69 | 1.02 | .82 | .66 | 1.33 | 1.07 | .55 | .39 | .58 | .37 | 8.49 |
| 1938 | .50 | .69 | .68 | .64 | 1.69 | 2.05 | 1.35 | .92 | .61 | .36 | .36 | .45 | 10.30 |
| 1939 | .43 | .49 | .47 | .51 | .50 | .99 | 1.36 | .79 | .69 | .43 | .45 | .44 | 7.55 |
| 1940 | .48 | .50 | .48 | .41 | .42 | .47 | 1.40 | 1.14 | .71 | .44 | .51 | .72 | 7.68 |
| 1941 | .73 | .98 | 1.04 | .95 | .72 | .91 | 1.95 | .86 | .41 | .28 | .25 | .28 | 9.34 |
| 1942 | .91 | 1.25 | .87 | .84 | .62 | 1.71 | 1.84 | .85 | .78 | .43 | .32 | .33 | 10.73 |
| 1943 | .47 | .75 | .65 | .70 | .74 | 1.81 | 1.92 | 1.36 | 1.77 | .73 | .51 | .40 | 11.81 |
| 1944 | .44 | .65 | .48 | .44 | .47 | .63 | 1.06 | 1.03 | .74 | .40 | .29 | .34 | 6.97 |
| 1945 | .43 | .45 | .44 | .39 | .36 | 1.19 | .72 | .99 | 2.26 | .69 | .45 | .64 | 9.01 |
| 1946 | .97 | 1.20 | .81 | 1.00 | .60 | 2.44 | .91 | .75 | .60 | .46 | .28 | .27 | 10.29 |
| 1947 | .51 | .48 | .46 | .50 | .46 | .64 | 2.52 | 2.16 | .96 | .55 | .35 | .58 | 9.77 |
| 1948 | .40 | .45 | .54 | .47 | .38 | 1.59 | 1.57 | 1.00 | .54 | .47 | .32 | .25 | 7.98 |
| 1949 | .30 | .45 | .43 | .54 | .54 | 1.12 | 1.19 | .59 | .64 | .50 | .32 | .31 | 6.93 |
| 1950 | .32 | .33 | .55 | .94 | .53 | 1.16 | 2.42 | 1.07 | .52 | .38 | .32 | .41 | 8.95 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

| Yearly discharge, in cubic feet per second, of Muskegon River at Evert, Mich. | | | | | | | | | |
|---|------------|----------------------------|-------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 1,680 | May 11, 1931 | - | \$584 | \$0.403 | \$5.47 | - | - |
| 1934 | 759,1437 | 3,010 | Apr. 6, 1934 | - | \$767 | \$529 | \$7.18 | \$793 | \$7.44 |
| 1935 | 784 | 3,910 | Mar. 24, 1935 | 347 | 856 | .590 | 8.03 | 780 | 7.32 |
| 1936 | 804 | 2,440 | Mar. 27, 1936 | 288 | 613 | .423 | 5.76 | 686 | 6.44 |
| 1937 | 824 | 3,050 | Apr. 28, 1937 | 374 | 907 | .625 | 8.49 | 903 | 8.46 |
| 1938 | 854 | 5,110 | Mar. 26, 1938 | 329 | 1,099 | .758 | 10.30 | 1,048 | 9.82 |
| 1939 | 874 | 3,570 | Mar. 29, 1939 | 412 | 806 | .556 | 7.55 | 814 | 7.62 |
| 1940 | 894 | 2,720 | Apr. 11, 1940 | 365 | 819 | .565 | 7.68 | 954 | 8.95 |
| 1941 | 924 | 3,750 | Apr. 10, 1941 | 252 | 997 | .688 | 9.34 | 1,029 | 9.64 |
| 1942 | 954 | 4,310 | Mar. 30, 1942 | 302 | 1,146 | .790 | 10.75 | 1,025 | 9.57 |
| 1943 | 974 | 6,140 | Mar. 31, 1943 | 389 | 1,263 | .871 | 11.61 | 1,230 | 11.51 |
| 1944 | 1004 | 1,940 | Apr. 10, 11, 1944 | 302 | 742 | .512 | 6.97 | 716 | 6.72 |
| 1945 | 1034 | 7,000 | June 3, 4, 1945 | 475 | 964 | .665 | 9.01 | 1,143 | 10.67 |
| 1946 | 1054 | 5,780 | Mar. 18, 1946 | 314 | 1,102 | .760 | 10.29 | 916 | 8.56 |
| 1947 | 1084 | *5,560 | Apr. 12, 1947 | 348 | 1,044 | .720 | 9.77 | 1,059 | 9.91 |
| 1948 | 1114 | 6,040 | Mar. 22, 1948 | 301 | 852 | .588 | 7.98 | 829 | 7.77 |
| 1949 | 1144 | 3,100 | Mar. 30, 1949 | 354 | 740 | .510 | 6.93 | 745 | 6.95 |
| 1950 | 1174 | 4,960 | Apr. 4, 5, 1950 | 281 | 958 | .661 | 8.95 | - | - |

* Revised.

* Not previously published.

155. Muskegon River at Newaygo, Mich. 1/

Location.--Lat 43°25', long. 85°48', in sec. 24, T. 12 N., R. 13 W., on left bank in tail-race of powerplant operated by Consumers Power Co. at Newaygo, 600 ft downstream from Penoyer Creek.

Drainage area.--2,350 sq mi, approximately. Prior to Oct. 1, 1930, 2,282 sq mi.

Gage.--Water-stage recorder. Datum of gage is 585.83 ft above mean sea level, datum of 1929. July 1908 to December 1919 headwater and tailwater gages at Croton Power Plant 13½ miles upstream. Oct. 1, 1930, to Jan. 30, 1939, staff gage at present site and datum.

Average discharge.--28 years (1909-14, 1916-19, 1930-50), 1,877 cfs.

Extremes.--1909-19, 1930-50: Maximum daily discharge, 14,950 cfs Mar. 25, 1913; minimum discharge, about 150 cfs June 4, 1941, July 7, 1950; minimum daily, 330 cfs Feb. 15, 1914.

Remarks.--Flow regulated by powerplants above station, the largest of which are Croton Dam, Hardy Dam (since 1931), and Rogers Dam. Prior to Oct. 1, 1930, daily discharge determined by computation of flow through turbines and sluice gates.

Cooperation.--Records furnished by Consumers Power Co. 1908-16 and by Fargo Engineering Co. 1917-19.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|---------|---------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1908 | - | - | - | - | - | - | - | - | - | 1,305 | 1,086 | 774 | - |
| 1909 | 819 | 979 | 1,089 | - | - | - | - | - | - | 1,194 | 965 | 860 | - |
| 1910 | 1,029 | 1,307 | 1,461 | 1,234 | 1,180 | 2,949 | 1,915 | 1,596 | 1,146 | 787 | 740 | 931 | 1,358 |
| 1911 | 976 | 1,198 | 1,102 | 1,113 | 1,728 | 2,163 | 3,627 | 2,585 | 2,159 | 968 | 845 | 988 | 1,618 |
| 1912 | 2,731 | 3,489 | 3,317 | 1,600 | 1,453 | 1,714 | 4,949 | 5,041 | 3,014 | 2,481 | 2,215 | 3,284 | 2,941 |
| 1913 | 2,536 | 3,432 | 3,055 | 2,584 | 1,867 | 5,956 | 5,450 | 2,791 | 1,824 | 1,488 | 1,787 | 1,573 | 2,851 |
| 1914 | 1,735 | 1,974 | 1,843 | 1,598 | 1,669 | 2,441 | 3,407 | 2,421 | 2,035 | 1,741 | 1,647 | 1,452 | 1,997 |
| 1915 | 1,614 | 1,661 | 1,540 | 1,469 | 2,552 | 3,135 | 3,492 | 2,156 | 1,863 | 1,722 | - | - | - |
| 1916 | - | - | - | 2,714 | 1,807 | \$3,060 | \$5,770 | 3,476 | 2,767 | 1,416 | 1,076 | 933 | - |
| 1917 | 1,228 | 1,658 | 1,551 | 1,378 | 1,162 | 3,072 | 3,900 | 3,536 | 3,729 | 2,772 | 1,441 | 1,181 | 2,222 |
| 1918 | 1,502 | 1,589 | 1,300 | 1,145 | 1,702 | \$5,570 | 3,585 | 3,533 | 2,035 | 1,376 | 1,105 | 1,261 | \$2,154 |
| 1919 | 1,443 | 2,008 | 2,605 | 2,195 | 1,723 | \$4,570 | 4,099 | 3,019 | 1,583 | 1,160 | 1,032 | 1,051 | \$2,212 |
| 1920 | 1,513 | 2,406 | 1,768 | - | - | - | - | - | - | - | - | - | - |
| 1931 | 1,080 | 1,040 | 1,090 | 794 | 653 | 595 | 613 | 1,650 | 1,120 | 815 | 679 | 950 | 925 |
| 1932 | 1,270 | 2,510 | 2,190 | 2,930 | 2,590 | 2,210 | 2,250 | 1,710 | 1,180 | 967 | 929 | 1,910 | 1,910 |
| 1933 | 1,270 | 1,590 | 1,460 | 1,610 | 1,670 | 2,260 | 3,984 | 3,325 | 1,390 | 1,050 | 802 | 937 | 1,777 |
| 1934 | 1,421 | 1,488 | 1,989 | 1,892 | 2,153 | 2,265 | 2,658 | 1,381 | 860 | 705 | 890 | 835 | 1,552 |
| 1935 | 1,119 | 1,717 | 1,872 | 1,606 | 2,147 | 4,077 | 2,517 | 1,211 | 1,121 | 940 | 899 | 1,019 | 1,684 |

* Not previously published.

1/ Published as "at Croton Power Plant, near Newaygo" 1908-19.

Monthly and yearly mean discharge, in cubic feet per second,
of Muskegon River at Newaygo, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1936 | 1,057 | 1,130 | 1,083 | 1,095 | 806 | 1,915 | 2,005 | 1,541 | 1,040 | 753 | 799 | 1,167 | 1,200 |
| 1937 | 1,521 | 1,429 | 1,719 | 2,595 | 2,715 | 2,161 | 2,377 | 2,372 | 1,365 | 1,012 | 992 | 1,105 | 1,758 |
| 1938 | 1,325 | 1,682 | 1,388 | 1,585 | 5,161 | 3,806 | 2,970 | 1,854 | 1,626 | 1,116 | 1,145 | 1,178 | 2,050 |
| 1939 | 1,225 | 1,274 | 1,210 | 1,598 | 2,041 | 2,061 | 2,579 | 1,623 | 1,742 | 1,226 | 1,156 | 1,160 | 1,553 |
| 1940 | 1,226 | 1,317 | 1,268 | 1,209 | 1,345 | 1,671 | 2,439 | 2,195 | 1,652 | 1,103 | 1,210 | 1,641 | 1,522 |
| 1941 | 1,587 | 2,018 | 2,269 | 2,156 | 2,029 | 2,235 | 3,279 | 1,911 | 1,131 | 912 | 861 | 975 | 1,777 |
| 1942 | 2,231 | 2,822 | 1,975 | 1,883 | 1,888 | 3,516 | 3,399 | 1,914 | 2,069 | 1,090 | 972 | 985 | 2,061 |
| 1943 | 1,293 | 2,086 | 1,679 | 2,112 | 2,520 | 3,595 | 4,153 | 3,032 | 3,880 | 1,727 | 1,441 | 1,174 | 2,385 |
| 1944 | 1,249 | 1,743 | 1,339 | 1,419 | 1,763 | 2,075 | 2,216 | 2,387 | 1,821 | 1,042 | 917 | 987 | 1,578 |
| 1945 | 1,119 | 1,224 | 899 | 1,056 | 1,296 | 2,351 | 1,490 | 1,946 | 4,432 | 1,465 | 1,233 | 1,789 | 1,691 |
| 1946 | 2,435 | 2,760 | 1,676 | 3,296 | 1,870 | 5,507 | 2,157 | 1,723 | 1,516 | 1,313 | 982 | 962 | 2,189 |
| 1947 | 938 | 1,482 | 1,400 | 1,813 | 1,850 | 2,003 | 4,875 | 4,147 | 2,393 | 1,591 | 1,221 | 1,542 | 2,084 |
| 1948 | 1,216 | 1,574 | 1,716 | 1,610 | 1,785 | 3,930 | 3,337 | 2,528 | 1,576 | 1,312 | 1,135 | 903 | 1,886 |
| 1949 | 882 | 1,321 | 1,203 | 1,630 | 2,065 | 2,781 | 2,447 | 1,491 | 1,781 | 1,248 | 1,055 | 1,047 | 1,575 |
| 1950 | 1,085 | 1,170 | 1,708 | 2,747 | 2,171 | 3,317 | 5,229 | 2,430 | 1,580 | 1,153 | 999 | 1,164 | 2,059 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | 0.66 | 0.55 | 0.38 | - |
| 1909 | 0.41 | 0.48 | 0.55 | - | - | - | - | - | - | .60 | .49 | .42 | - |
| 1910 | .52 | .64 | .74 | 0.62 | 0.54 | 1.49 | 0.94 | 0.81 | 0.56 | .40 | .37 | .46 | 8.09 |
| 1911 | .49 | .59 | .56 | .56 | .79 | 1.09 | 1.77 | 1.30 | 1.06 | .49 | .43 | .48 | 9.61 |
| 1912 | 1.38 | 1.71 | 1.67 | .81 | †.69 | .87 | 2.42 | 2.55 | 1.47 | 1.26 | 1.12 | 1.61 | 17.56 |
| 1913 | 1.28 | 1.69 | 1.55 | 1.30 | .85 | 3.01 | 2.67 | 1.41 | .89 | .75 | .90 | .67 | 16.97 |
| 1914 | .88 | .97 | .93 | .81 | .76 | 1.23 | 1.67 | 1.22 | 1.00 | .88 | .83 | .71 | 11.89 |
| 1915 | .82 | .81 | .78 | .74 | 1.17 | 1.58 | 1.71 | 1.09 | .91 | .87 | - | - | - |
| 1916 | - | - | - | 1.37 | †.85 | †1.55 | †2.82 | 1.75 | 1.35 | .71 | .54 | .46 | - |
| 1917 | .62 | .81 | .78 | .70 | .53 | 1.56 | 1.91 | 1.79 | 1.83 | 1.40 | .73 | .58 | 13.24 |
| 1918 | .76 | .78 | .66 | .58 | .78 | †2.81 | 1.80 | 1.79 | .99 | .70 | .56 | .62 | †12.83 |
| 1919 | .73 | .98 | 1.31 | 1.11 | .79 | †2.31 | 2.00 | 1.52 | .77 | .59 | .52 | .51 | †13.14 |
| 1920 | .76 | 1.17 | .89 | - | - | - | - | - | - | - | - | - | - |
| 1931 | .53 | .49 | .54 | .39 | a.29 | a.29 | a.29 | .81 | .53 | .40 | .33 | .45 | a5.34 |
| 1932 | .62 | 1.19 | 1.07 | 1.44 | 1.19 | 1.08 | 1.07 | 1.10 | .81 | .58 | .47 | .44 | 11.06 |
| 1933 | .62 | .76 | .72 | .79 | .74 | 1.11 | 1.90 | 1.63 | .66 | .52 | .39 | .45 | 10.29 |
| 1934 | .70 | .71 | .98 | .98 | .95 | 1.11 | 1.26 | .68 | .42 | .35 | .44 | .40 | 8.98 |
| 1935 | .55 | .82 | .92 | .79 | .95 | 1.99 | 1.19 | .59 | .53 | .46 | .44 | .48 | 9.71 |
| 1936 | .52 | .54 | .53 | .54 | .37 | .94 | .95 | .76 | .49 | .37 | .39 | .55 | 6.95 |
| 1937 | .75 | .68 | .84 | 1.13 | 1.21 | 1.06 | 1.13 | 1.16 | .65 | .50 | .49 | .52 | 10.17 |
| 1938 | .61 | .80 | .68 | .78 | 2.29 | 1.87 | 1.41 | .91 | .77 | .55 | .56 | .56 | 11.79 |
| 1939 | .60 | .60 | .59 | .69 | .90 | 1.01 | 1.23 | .80 | .83 | .60 | .57 | .55 | 8.97 |
| 1940 | .60 | .63 | .62 | .59 | .62 | .82 | 1.16 | 1.08 | .78 | .54 | .59 | .78 | 8.81 |
| 1941 | .78 | .96 | 1.11 | 1.06 | .90 | 1.10 | 1.56 | .94 | .54 | .45 | .42 | .46 | 10.28 |
| 1942 | 1.09 | 1.34 | .97 | .92 | .84 | 1.73 | 1.62 | .94 | .98 | .53 | .48 | .47 | 11.91 |
| 1943 | .63 | .99 | .82 | 1.04 | 1.11 | 1.76 | 1.98 | 1.49 | 1.84 | .65 | .71 | .56 | 13.78 |
| 1944 | .61 | .85 | .66 | .70 | .81 | 1.02 | 1.08 | 1.18 | .51 | .45 | .47 | .45 | 9.15 |
| 1945 | .55 | .58 | .44 | .52 | .57 | 1.15 | .71 | .95 | 2.11 | .73 | .61 | .85 | 9.77 |
| 1946 | 1.20 | 1.50 | .82 | 1.61 | .83 | 2.70 | 1.02 | .85 | .72 | .64 | .48 | .46 | 12.63 |
| 1947 | .46 | .70 | .69 | .89 | .81 | .98 | 2.31 | 2.03 | 1.14 | .78 | .60 | .64 | 12.03 |
| 1948 | .60 | .75 | .84 | .79 | .82 | 1.92 | 1.58 | 1.24 | .75 | .64 | .56 | .43 | 10.92 |
| 1949 | .43 | .63 | .59 | .80 | .92 | 1.36 | 1.16 | .73 | .85 | .61 | .52 | .50 | 9.10 |
| 1950 | .53 | .56 | .84 | 1.35 | .96 | 1.63 | 2.48 | 1.19 | .75 | .57 | .49 | .55 | 11.90 |

† Corrected.

* Not previously published.

a Unnaturally low due to filling of pond at Hardy Power Plant.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | (a) | - | - | - | - | - | - | - | - |
| 1909 | (a) | - | - | - | - | - | - | - | - |
| 1910 | (a) | b4,520 | Mar. 24, 1910 | 560 | 1,358 | 0.595 | 8.09 | 1,314 | 7.83 |
| 1911 | (a) | b5,900 | Apr. 14, 1911 | 530 | 1,616 | .708 | 9.61 | 2,140 | 12.73 |
| 1912 | (a) | b15,400 | May 22, 1912 | 820 | 2,941 | 1.29 | 17.53 | 2,909 | 17.29 |
| 1913 | (a) | b14,950 | Mar. 25, 1913 | 1,010 | 2,651 | 1.25 | 16.97 | 2,561 | 15.23 |
| 1914 | (a) | b5,250 | Mar. 30, 1914 | 330 | 1,997 | .875 | 11.89 | 1,956 | 11.52 |
| 1915 | (a) | b6,100 | Feb. 24, 1915 | - | - | - | - | - | - |
| 1916 | (a) | - | - | - | - | - | - | †2,285 | †13.59 |
| 1917 | (a) | b7,800 | Mar. 28, 1917 | 570 | 2,222 | .974 | 13.24 | 2,218 | 13.23 |
| 1918 | (a) | - | - | 560 | †2,154 | †.945 | †12.83 | †2,294 | †13.65 |
| 1919 | (a) | b9,880 | Mar. 22, 1919 | 680 | †2,212 | †.969 | †13.15 | †2,179 | †12.95 |
| 1931 | 714 | 2,830 | May 28, 1931 | 495 | 925 | .394 | 5.34 | 1,155 | 6.66 |
| 1932 | 729 | b5,800 | Nov. 23, 1931 | 615 | 1,910 | .813 | 11.06 | 1,775 | 10.28 |
| 1933 | 744, 974 | b6,610 | May 3, 1933 | 615 | 1,777 | .756 | 10.29 | 1,828 | 10.58 |
| 1934 | 759 | b3,840 | Dec. 5-7, 1933 | 390 | 1,552 | .660 | 8.98 | 1,534 | 8.88 |
| 1935 | 784, 974 | b5,590 | Mar. 28, 1935 | 555 | 1,684 | .717 | 9.71 | 1,564 | 9.01 |

* Not previously published.

a In House Document 143, 72d Congress, 1st session.

b Maximum daily.

STREAMS TRIBUTARY TO LAKE MICHIGAN

Yearly discharge, in cubic feet per second, of Muskegon River at Newaygo, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | a3,390 | Mar. 27, 1936 | 425 | 1,200 | 0.511 | 6.95 | 1,318 | 7.63 |
| 1937 | 824, 974 | a5,420 | (b) | 580 | 1,758 | .748 | 10.17 | 1,736 | 9.99 |
| 1938 | 854, 974 | a8,760 | Feb. 14, 1938 | 580 | 2,050 | .872 | 11.79 | 1,969 | 11.49 |
| 1939 | 874 | 4,210 | Apr. 27, 1939 | 480 | 1,553 | .661 | 8.97 | 1,561 | 9.03 |
| 1940 | 894 | 3,530 | Mar. 31, Apr. 1* | 578 | 1,522 | .648 | 8.81 | 1,694 | 9.81 |
| 1941 | 924 | 3,760 | Apr. 21, 1941 | 558 | 1,777 | .756 | 10.28 | 1,873 | 10.83 |
| 1942 | 954 | 5,780 | Mar. 31, 1942 | 798 | 2,061 | .877 | 11.91 | 1,895 | 10.95 |
| 1943 | 974 | 8,940 | Apr. 2, 1943 | 777 | 2,385 | 1.01 | 15.78 | 2,324 | 13.44 |
| 1944 | 1004 | 3,650 | Apr. 25, 1944 | 588 | 1,578 | .671 | 9.15 | 1,487 | 8.62 |
| 1945 | 1034 | 11,600 | June 2, 1945 | 462 | 1,691 | .720 | 9.77 | 1,995 | 11.52 |
| 1946 | 1054 | a9,400 | Mar. 18, 1946 | 732 | 2,189 | .931 | 12.63 | 1,934 | 11.16 |
| 1947 | 1084 | 6,390 | Apr. 12, 1947 | 639 | 2,084 | .887 | 12.03 | 2,142 | 12.37 |
| 1948 | 1114 | 8,070 | Mar. 21, 1948 | 575 | 1,886 | .803 | 10.92 | 1,794 | 10.38 |
| 1949 | 1144 | 5,670 | Apr. 5, 1949 | 588 | 1,575 | .670 | 9.10 | 1,622 | 9.38 |
| 1950 | 1174 | 9,850 | Apr. 4, 1950 | 540 | 2,059 | .876 | 11.90 | - | - |

* Revised.

a Maximum daily.

b Dec. 28, 30, 31, 1936

Note.--Records for June 1901 to December 1906, published in WSP 129, 170, and 206, are believed to be in error on basis of restudy of the original data and comparisons with records for nearby stations. Those records are not published herein and should not be used.

156. Pere Marquette River at Scottville, Mich. 1/

Location.--Lat 43°46'40", long. 86°16'45", in NW¼ sec. 19, T. 18 N., R. 16 W., on right bank 20 ft upstream from highway bridge at south edge of Scottville and 5 3/4 miles downstream from South Branch.

Drainage area.--709 sq mi. Prior to June 12, 1943, 702 sq mi.

Gage.--Water-stage recorder. Datum of gage is 606.30 ft above mean sea level, datum of 1929. Prior to June 12, 1943, wire-weight gage 4 3/4 miles upstream at different datum.

Average discharge.--11 years (1939-50), 623 cfs.

Extremes.--1939-50: Maximum discharge, 2,400 cfs June 4, 5, 1945 (gage height, 5.84 ft); minimum, 310 cfs Aug. 9, 10, 1941 (site and datum then in use)

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1939 | - | - | - | - | - | - | - | - | - | - | 547 | 518 | - |
| 1940 | 509 | 539 | 542 | 557 | 516 | 526 | 946 | 726 | 684 | 474 | 471 | 525 | 584 |
| 1941 | 479 | 662 | 825 | 806 | 657 | 776 | 1,052 | 774 | 512 | 399 | 354 | 476 | 647 |
| 1942 | 752 | 944 | 709 | 820 | 668 | 1,089 | 851 | 712 | 626 | 454 | 418 | 452 | 708 |
| 1943 | 478 | 703 | 682 | 652 | 654 | 1,010 | 902 | 814 | 926 | 610 | 487 | 452 | 697 |
| 1944 | 494 | 679 | 581 | 543 | 589 | 725 | 824 | 700 | 586 | 406 | 364 | 412 | 575 |
| 1945 | 421 | 439 | 449 | 427 | 469 | 720 | 550 | 621 | 1,026 | 503 | 433 | 571 | 552 |
| 1946 | 670 | 787 | 681 | 805 | 654 | 1,150 | 680 | 590 | 534 | 406 | 373 | 376 | 643 |
| 1947 | 405 | 508 | 504 | 551 | 558 | 633 | 1,324 | 1,046 | 783 | 528 | 414 | 456 | 642 |
| 1948 | 434 | 504 | 571 | 504 | 511 | 1,044 | 966 | 856 | 549 | 475 | 402 | 369 | 599 |
| 1949 | 410 | 518 | 498 | 563 | 646 | 784 | 797 | 550 | 575 | 464 | 415 | 425 | 553 |
| 1950 | 436 | 462 | 661 | 875 | *559 | 963 | 1,278 | 721 | 580 | 491 | 402 | 452 | *657 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1939 | - | - | - | - | - | - | - | - | - | - | 0.90 | 0.82 | - |
| 1940 | 0.84 | 0.86 | 0.89 | 0.91 | 0.79 | 0.86 | 1.50 | 1.19 | 1.09 | 0.78 | .77 | .83 | 11.31 |
| 1941 | .79 | 1.05 | 1.35 | 1.32 | .97 | 1.27 | 1.67 | 1.27 | .81 | .65 | .58 | .76 | 12.49 |
| 1942 | 1.25 | 1.50 | 1.16 | 1.35 | .99 | 1.79 | 1.35 | 1.16 | 1.00 | .75 | .69 | .72 | 13.69 |
| 1943 | .79 | 1.12 | 1.02 | 1.07 | 1.66 | 1.43 | 1.34 | 1.46 | .99 | .79 | .71 | .71 | 11.69 |
| 1944 | .80 | 1.07 | .94 | .88 | .90 | 1.18 | 1.29 | 1.14 | .92 | .66 | .59 | .65 | 11.02 |
| 1945 | .68 | .69 | .73 | .69 | .69 | 1.18 | .87 | 1.01 | 1.62 | .82 | .70 | .90 | 10.58 |
| 1946 | 1.09 | 1.24 | 1.11 | 1.31 | .96 | 1.87 | 1.07 | .96 | .84 | .66 | .61 | .59 | 12.31 |
| 1947 | .66 | .80 | .82 | .90 | .82 | 1.03 | 2.09 | 1.71 | 1.23 | .86 | .67 | .72 | 12.31 |
| 1948 | .71 | .79 | .93 | .82 | .78 | 1.70 | 1.52 | 1.40 | .86 | .77 | .65 | .68 | 11.51 |
| 1949 | .67 | .82 | .81 | .91 | .95 | 1.28 | 1.25 | 1.89 | .90 | .75 | .67 | .67 | 10.57 |
| 1950 | .71 | .73 | 1.07 | 1.42 | *.82 | 1.57 | 2.01 | 1.18 | .91 | .80 | .65 | .71 | *12.58 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | 1,140 | Apr. 5, 6, 1940 | 391 | 584 | 0.832 | 11.31 | 615 | 11.91 |
| 1941 | 924 | *1,260 | Apr. 21, 22, 1941 | 310 | 647 | .922 | 12.49 | 684 | 13.19 |
| 1942 | 954 | 1,900 | Mar. 19, 1942 | 359 | 708 | 1.01 | 13.69 | 683 | 12.83 |
| 1943 | 974 | *1,960 | Mar. 27, 1943 | 428 | 697 | .990 | 13.45 | 688 | 13.25 |
| 1944 | 1004 | 1,080 | Mar. 1, 1944 | 343 | 575 | .811 | 11.02 | 538 | 10.31 |
| 1945 | 1034 | 2,400 | June 4, 5, 1945 | 408 | 552 | .779 | 10.58 | 622 | 11.92 |

* Revised.

1/ Published as "at Custer" prior to October 1942.

Yearly discharge, in cubic feet per second, of Pere Marquette River at Scottville, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|------------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | 1,700 | Mar. 9, 10, 1946 | 351 | 643 | 0.907 | 12.31 | 582 | 11.15 |
| 1947 | 1084 | 2,050 | Apr. 8, 1947 | 370 | 642 | .906 | 12.31 | 650 | 12.46 |
| 1948 | 1114 | 2,300 | Mar. 22, 1948 | 355 | 599 | .845 | 11.51 | 592 | 11.58 |
| 1949 | 1144 | 1,150 | Mar. 30-Apr. 2* | 380 | 553 | .780 | 10.87 | 564 | 10.78 |
| 1950 | 1174, 1437 | 2,170 | Apr. 4, 1950 | 370 | *657 | *.927 | *12.58 | - | - |

* Revised.

157. Big Sable River near Freesoil, Mich.

Location.--Lat 44°07'15", long. 86°16'50", in NE $\frac{1}{4}$ sec. 24, T. 20 N., R. 17 W., on left bank 30 ft downstream from bridge on U. S. Highway 31, 2 $\frac{1}{4}$ miles northwest of Freesoil, and 6 miles upstream from Hamlin Lake.

Drainage area.--127 sq mi.

Gage.--Staff gage. Datum of gage is 615.32 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation)

Average discharge.--8 years (1942-50), 139 cfs.

Extremes.--1942-50: Maximum discharge, 495 cfs (revised) Mar. 8, 1946 (gage height, 3.20 ft, from graph based on gage readings); minimum, 81 cfs Aug. 14, 1944.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | *170 | 158 | 116 | 101 | 117 | - |
| 1943 | 122 | 158 | 148 | 139 | 140 | 224 | 218 | 172 | 169 | 118 | 105 | 102 | 151 |
| 1944 | 111 | 147 | 134 | 119 | 127 | 140 | 165 | 147 | 133 | 96.5 | 86.5 | 100 | 125 |
| 1945 | 103 | 106 | 114 | 102 | 106 | 166 | 137 | 147 | 185 | 112 | 101 | 152 | 128 |
| 1946 | 148 | 181 | 154 | 186 | 185 | 261 | 144 | 137 | 131 | 99.6 | 92.1 | 92.6 | 150 |
| 1947 | 97.2 | 122 | 117 | 137 | 149 | 152 | *315 | *244 | 133 | 105 | 122 | 122 | *186 |
| 1948 | 110 | 126 | 131 | 107 | 119 | 208 | 216 | 176 | 135 | 111 | 100 | 98.0 | 138 |
| 1949 | 107 | 125 | 125 | 131 | 136 | 154 | 175 | 136 | 120 | 110 | 100 | 101 | 127 |
| 1950 | 102 | 118 | 136 | 169 | 125 | 188 | 243 | 147 | 116 | 107 | 100 | 122 | 140 |

* Revised.

* Not previously published; estimated on basis of records for Manistee River near Sherman and Pere Marquette River at Custer.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | - | *1.54 | 1.38 | 1.05 | 0.92 | 1.03 | - |
| 1943 | 1.11 | 1.58 | 1.35 | 1.26 | 1.14 | 2.03 | 1.92 | 1.56 | 1.48 | 1.07 | .95 | .90 | 16.15 |
| 1944 | 1.01 | 1.29 | 1.22 | 1.08 | 1.08 | 1.27 | 1.45 | 1.34 | 1.17 | .88 | .79 | .88 | 13.46 |
| 1945 | .94 | .93 | 1.04 | .93 | .87 | 1.51 | 1.20 | 1.34 | 1.63 | 1.02 | .92 | 1.34 | 13.67 |
| 1946 | 1.35 | 1.60 | 1.40 | 1.78 | 1.35 | 2.38 | 1.26 | 1.24 | 1.15 | .90 | .84 | .81 | 16.06 |
| 1947 | .88 | 1.07 | 1.06 | 1.24 | 1.22 | 1.38 | *2.77 | *2.21 | 1.61 | 1.22 | .94 | 1.07 | *16.67 |
| 1948 | 1.00 | 1.11 | 1.19 | .97 | 1.01 | 1.89 | 1.90 | 1.60 | 1.18 | 1.01 | .91 | .86 | 14.63 |
| 1949 | .97 | 1.10 | 1.13 | 1.19 | 1.11 | 1.40 | 1.54 | 1.23 | 1.05 | 1.00 | .91 | .89 | 13.52 |
| 1950 | .93 | 1.04 | 1.23 | 1.53 | 1.02 | 1.71 | 2.13 | 1.34 | 1.02 | .97 | .91 | 1.07 | 14.90 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 419 | Mar. 26, 27, 1943 | 99 | 151 | 1.19 | 16.15 | 148 | 15.83 |
| 1944 | 1004 | 207 | Apr. 25, 1944 | 81 | 125 | .984 | 13.46 | 120 | 12.65 |
| 1945 | 1034 | 308 | June 5, 1945 | 94 | 128 | 1.01 | 13.67 | 141 | 15.11 |
| 1946 | 1054 | *495 | Mar. 8, 1946 | 89 | 150 | 1.18 | 16.06 | 138 | 14.72 |
| 1947 | 1064, 1437 | *479 | Apr. 7, 1947 | 93 | *156 | *1.23 | *16.67 | *159 | *16.96 |
| 1948 | 1114 | 381 | Mar. 22, 1948 | 90 | 136 | 1.07 | 14.63 | 136 | 14.53 |
| 1949 | 1144 | 323 | Mar. 31, 1949 | 94 | 127 | 1.00 | 15.52 | 127 | 13.52 |
| 1950 | 1174 | 342 | Apr. 5, 1950* | 95 | 140 | 1.10 | 14.90 | - | - |

* Revised.

158. Manistee River near Grayling, Mich.

Location.--Lat 44°41'35", long. 84°50'50", in NW¹/₄ sec. 31, T. 27 N., R. 4 W., on right bank 25 ft upstream from bridge on State Highway 72, 2½ miles downstream from Goose Creek, and 6½ miles northwest of Grayling.

Drainage area.--159 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,120.64 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--8 years (1942-50), 186 cfs.

Extremes.--1942-50: Maximum discharge, 354 cfs Apr. 12, 1947 (gage height, 1.73 ft); maximum gage height, 1.94 ft Feb. 6, 1947 (backwater from ice); minimum discharge, 122 cfs Feb. 14, 1943.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1943 | *165 | *180 | 181 | 179 | 172 | 178 | 230 | 192 | 228 | 195 | 181 | 178 | *188 |
| 1944 | 179 | 208 | 185 | 181 | 184 | 185 | 200 | 193 | 200 | 185 | 168 | 184 | 188 |
| 1945 | 184 | 184 | 181 | 181 | 175 | 216 | 203 | 197 | 195 | 175 | 176 | 215 | 190 |
| 1946 | 218 | 225 | 195 | 203 | 193 | 228 | 199 | 191 | 183 | 181 | 166 | 173 | 196 |
| 1947 | 171 | 176 | 177 | 171 | 181 | 177 | 255 | 251 | 209 | 185 | 173 | 183 | 193 |
| 1948 | 183 | 187 | 187 | 170 | 170 | 201 | 221 | 198 | 180 | 174 | 164 | 159 | 182 |
| 1949 | 166 | 175 | 185 | 174 | 176 | 186 | 203 | 174 | 175 | 167 | 164 | 154 | 173 |
| 1950 | 158 | 161 | 171 | 181 | 174 | 181 | 211 | 177 | 167 | 165 | 172 | 186 | 175 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | *1.19 | *1.26 | 1.31 | 1.30 | 1.12 | 1.29 | 1.62 | 1.40 | 1.60 | 1.42 | 1.31 | 1.25 | *16.07 |
| 1944 | 1.30 | 1.46 | 1.34 | 1.31 | 1.25 | 1.34 | 1.41 | 1.40 | 1.41 | 1.34 | 1.22 | 1.29 | 16.07 |
| 1945 | 1.34 | 1.29 | 1.31 | 1.31 | 1.14 | 1.57 | 1.43 | 1.43 | 1.37 | 1.27 | 1.28 | 1.51 | 16.25 |
| 1946 | 1.58 | 1.58 | 1.42 | 1.48 | 1.26 | 1.65 | 1.40 | 1.38 | 1.28 | 1.31 | 1.20 | 1.22 | 16.76 |
| 1947 | 1.24 | 1.24 | 1.28 | 1.24 | 1.19 | 1.28 | 1.86 | 1.82 | 1.46 | 1.34 | 1.26 | 1.28 | 16.49 |
| 1948 | 1.33 | 1.32 | 1.36 | 1.23 | 1.15 | 1.45 | 1.55 | 1.36 | 1.26 | 1.26 | 1.19 | 1.12 | 15.58 |
| 1949 | 1.20 | 1.23 | 1.20 | 1.26 | 1.16 | 1.35 | 1.43 | 1.26 | 1.23 | 1.21 | 1.19 | 1.08 | 14.80 |
| 1950 | 1.15 | 1.13 | 1.24 | 1.31 | 1.14 | 1.31 | 1.48 | 1.28 | 1.17 | 1.20 | 1.24 | 1.32 | 14.97 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 330 | June 2, 1943 | *138 | *188 | *1.18 | *16.07 | 192 | 16.41 |
| 1944 | 1004 | 298 | Nov. 8, 1943 | 164 | 188 | 1.13 | 16.07 | 186 | 15.91 |
| 1945 | 1034 | 333 | Sept. 25, 1945 | 163 | 190 | 1.19 | 16.25 | 198 | 16.89 |
| 1946 | 1054 | 292 | Mar. 15, 1946 | 162 | 196 | 1.23 | 16.76 | 187 | 15.94 |
| 1947 | 1084 | 354 | Apr. 12, 1947 | 142 | 193 | 1.21 | 16.49 | 196 | 16.74 |
| 1948 | 1114 | 284 | Mar. 22, 1948 | 150 | 182 | 1.14 | 15.58 | 178 | 15.20 |
| 1949 | 1144 | 264 | Mar. 28, 1949 | 149 | 173 | 1.09 | 14.80 | 172 | 14.69 |
| 1950 | 1174 | 248 | Apr. 19, 1950 | 151 | 175 | 1.10 | 14.97 | - | - |

* Not previously published.

159. Manistee River near Sherman, Mich.

Location.--Lat 44°26'30", long. 85°41'45", on line between sec. 36, T. 24 N., R. 12 W. and sec. 31, T. 24 N., R. 11 W., on downstream side of bridge on State Highway 37, 150 ft upstream from Wheeler Creek and three-quarters of a mile north of Sherman.

Drainage area.--900 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 804 ft (from river-profile map). Prior to Apr. 13, 1934, chain gages at various datums. Apr. 13, 1934, to May 22, 1935, staff gages at present datum.

Average discharge.--30 years (1903-15, 1930-31, 1933-50), 1,072 cfs.

Extremes.--1903-16, 1930-31, 1934-50: Maximum discharge, 3,570 cfs (revised) Mar. 25, 1913 (gage height, 7.1 ft, from graph based on gage readings, datum then in use); minimum observed, 540 cfs Feb. 21-23, 1936 (backwater from ice).

Monthly and yearly mean discharge, in cubic feet per second,
of Manistee River near Sherman, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|--------|--------|-------|-------|-------|-------|-------|---------|-------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | - | \$1,060 | 1,200 | 1,200 | - |
| 1904 | 1,150 | 1,100 | 1,210 | 1,100 | 1,000 | 1,100 | 2,100 | 1,740 | 1,240 | 1,050 | 999 | 942 | 1,230 |
| 1905 | 1,010 | 926 | 910 | 901 | 855 | 1,300 | 1,580 | 1,310 | 1,120 | 1,110 | 952 | 954 | 1,080 |
| 1906 | 963 | 1,060 | 1,000 | 1,200 | 1,030 | 1,110 | 1,840 | 1,320 | 1,060 | 1,050 | 920 | 878 | 1,120 |
| 1907 | 905 | 1,060 | 1,060 | 1,140 | 900 | 1,340 | 1,450 | 1,370 | 1,240 | 956 | 914 | 971 | 1,110 |
| 1908 | 1,030 | 1,030 | 1,000 | 943 | 870 | 1,230 | 1,690 | 1,390 | 1,080 | 1,030 | 892 | 843 | 1,100 |
| 1909 | 888 | 908 | 945 | 986 | 1,010 | 995 | 1,820 | 1,620 | 1,100 | 982 | 891 | 958 | 1,090 |
| 1910 | 898 | 973 | 993 | 992 | 901 | 1,330 | 1,200 | 1,030 | 946 | 880 | 895 | 952 | 1,000 |
| 1911 | 937 | 1,110 | 977 | *954 | 997 | 1,250 | 1,670 | 1,660 | 1,270 | 966 | 910 | 921 | *1,130 |
| 1912 | 1,280 | 1,330 | 1,420 | 1,150 | 1,050 | 1,040 | 1,600 | 1,560 | 1,270 | 1,060 | 1,080 | 1,300 | 1,260 |
| 1913 | 1,140 | 1,310 | 1,280 | 1,140 | 914 | 1,810 | 1,890 | 1,360 | 1,120 | 1,030 | 981 | 974 | 1,250 |
| 1914 | 1,140 | 1,230 | 1,110 | 1,050 | 1,050 | 1,220 | 1,590 | 1,240 | 1,100 | 1,000 | 1,040 | 958 | 1,140 |
| 1915 | 1,040 | 1,090 | 947 | 900 | 1,040 | 1,100 | 1,400 | 1,080 | 982 | 965 | 959 | 1,050 | 1,040 |
| 1916 | 1,050 | 1,090 | 1,010 | 1,220 | 1,100 | 1,180 | 2,200 | 1,500 | - | - | - | - | - |
| 1931 | *1,000 | *979 | 1,010 | 916 | 901 | 947 | 1,260 | 1,120 | 933 | *850 | *770 | *950 | *969 |
| 1934 | *850 | *900 | *1,100 | *1,048 | 906 | 1,063 | 1,763 | 1,045 | 953 | 862 | 832 | 984 | *1,025 |
| 1935 | 971 | 1,227 | 1,173 | 1,098 | 1,000 | 1,569 | 1,278 | 1,049 | 957 | 941 | 866 | 869 | 1,084 |
| 1936 | 872 | 909 | 905 | 754 | 604 | 1,177 | 1,223 | 1,133 | 834 | 740 | 749 | 826 | 895 |
| 1937 | 975 | 952 | 926 | *1,128 | 1,073 | 932 | 1,166 | 1,007 | 871 | 889 | 896 | 903 | *975 |
| 1938 | 938 | 1,009 | 995 | 1,142 | 1,458 | 1,660 | 1,228 | 1,144 | 945 | 847 | 879 | 960 | 1,098 |
| 1939 | 843 | 888 | 895 | 982 | 926 | 1,073 | 1,233 | 1,060 | 1,037 | 810 | 922 | 873 | 962 |
| 1940 | 844 | 919 | 894 | 918 | 885 | 808 | 1,356 | 1,241 | 1,038 | 845 | 882 | 942 | 964 |
| 1941 | 999 | 1,148 | 1,307 | 1,153 | 997 | 947 | 1,718 | 1,050 | 896 | 788 | 741 | 833 | 1,048 |
| 1942 | 1,207 | 1,343 | 1,109 | 1,041 | 970 | 1,300 | 1,516 | 1,125 | 1,171 | 963 | 930 | 983 | 1,138 |
| 1943 | 976 | 1,082 | 1,076 | 1,056 | 1,132 | 1,412 | 1,761 | 1,336 | 1,595 | 1,109 | 960 | 898 | 1,199 |
| 1944 | 935 | 1,275 | 995 | 989 | 1,045 | 1,044 | 1,311 | 1,201 | 1,256 | 953 | 849 | 906 | 1,062 |
| 1945 | 932 | 951 | 925 | 854 | 937 | 1,381 | 1,163 | 1,223 | 1,314 | 889 | 866 | 980 | 1,035 |
| 1946 | 1,153 | 1,356 | 1,019 | 1,192 | 1,095 | 1,656 | 1,106 | 1,052 | 965 | 955 | 811 | 846 | 1,101 |
| 1947 | 836 | 892 | 893 | 931 | 926 | 937 | 1,946 | 1,710 | 1,139 | 948 | 852 | 885 | 1,074 |
| 1948 | 859 | 879 | 932 | 889 | 910 | 1,253 | 1,461 | 1,147 | 960 | 975 | 840 | 781 | 991 |
| 1949 | 797 | 925 | 909 | 928 | 946 | 1,135 | 1,266 | 1,020 | 1,077 | 1,063 | 832 | 829 | 980 |
| 1950 | 834 | 859 | 991 | 1,020 | 1,000 | 1,179 | 1,856 | 1,099 | 918 | 876 | 909 | 963 | 1,017 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations and weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|------|-------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | - | *1.36 | 1.53 | 1.48 | - |
| 1904 | 1.48 | 1.36 | 1.54 | 1.41 | 1.20 | 1.41 | 2.60 | 2.22 | 1.54 | 1.35 | 1.28 | 1.17 | 18.56 |
| 1905 | 1.29 | 1.15 | 1.16 | 1.15 | .99 | 1.66 | 1.96 | 1.68 | 1.38 | 1.42 | 1.22 | 1.18 | 16.24 |
| 1906 | 1.23 | 1.32 | 1.28 | 1.53 | 1.19 | 1.42 | 2.28 | 1.70 | 1.32 | 1.35 | 1.18 | 1.09 | 16.89 |
| 1907 | 1.16 | 1.32 | 1.36 | 1.46 | 1.04 | 1.72 | 1.80 | 1.75 | 1.54 | 1.22 | 1.18 | 1.20 | 16.75 |
| 1908 | 1.31 | 1.27 | 1.28 | 1.21 | 1.16 | 1.58 | 2.10 | 1.78 | 1.34 | 1.31 | 1.14 | 1.05 | 16.53 |
| 1909 | 1.14 | 1.13 | 1.21 | 1.28 | 1.17 | 1.28 | 2.25 | 2.08 | 1.36 | 1.26 | 1.14 | 1.18 | 16.48 |
| 1910 | 1.15 | 1.20 | 1.27 | 1.27 | 1.04 | 1.71 | 1.48 | 1.31 | 1.17 | 1.13 | 1.15 | 1.18 | 15.06 |
| 1911 | 1.20 | 1.37 | 1.26 | *1.22 | 1.24 | 1.60 | 2.08 | 2.12 | 1.57 | 1.23 | 1.16 | 1.14 | *17.19 |
| 1912 | 1.64 | 1.65 | 1.62 | 1.48 | 1.26 | 1.34 | 1.99 | 1.99 | 1.57 | 1.36 | 1.38 | 1.61 | 19.09 |
| 1913 | 1.46 | 1.63 | 1.64 | 1.46 | 1.06 | 2.32 | 2.34 | 1.74 | 1.38 | 1.31 | 1.26 | 1.20 | 18.80 |
| 1914 | 1.46 | 1.53 | 1.42 | 1.35 | 1.22 | 1.57 | 1.98 | 1.59 | 1.36 | 1.28 | 1.34 | 1.18 | 17.28 |
| 1915 | 1.34 | 1.35 | 1.21 | 1.15 | 1.21 | 1.41 | 1.74 | 1.58 | 1.22 | 1.23 | 1.23 | 1.30 | 15.77 |
| 1916 | 1.35 | 1.35 | 1.29 | 1.57 | 1.32 | 1.51 | 2.72 | 1.92 | - | - | - | - | - |
| 1931 | *1.28 | *1.21 | 1.29 | 1.18 | 1.04 | 1.21 | 1.56 | 1.43 | 1.16 | *1.09 | *.99 | *1.18 | *14.62 |
| 1934 | *1.09 | *1.12 | *1.41 | *1.34 | 1.05 | 1.36 | 2.19 | 1.34 | 1.18 | 1.10 | 1.07 | 1.22 | *15.47 |
| 1935 | 1.25 | 1.52 | 1.50 | 1.41 | 1.16 | 2.01 | 1.58 | 1.35 | 1.18 | 1.21 | 1.11 | 1.08 | 16.36 |
| 1936 | 1.12 | 1.13 | 1.16 | .97 | .72 | 1.51 | 1.52 | 1.45 | 1.03 | .95 | .96 | 1.02 | 13.54 |
| 1937 | 1.24 | 1.18 | 1.19 | *1.44 | 1.24 | 1.20 | 1.45 | 1.29 | 1.08 | 1.14 | 1.15 | 1.12 | *14.72 |
| 1938 | 1.20 | 1.25 | 1.28 | 1.45 | 1.69 | 2.12 | 1.52 | 1.46 | 1.17 | 1.08 | 1.13 | 1.19 | 16.55 |
| 1939 | 1.08 | 1.10 | 1.15 | 1.26 | 1.07 | 1.37 | 1.53 | 1.36 | 1.28 | 1.04 | 1.18 | 1.08 | 14.50 |
| 1940 | 1.08 | 1.14 | 1.15 | 1.18 | 1.06 | 1.03 | 1.68 | 1.59 | 1.29 | 1.08 | 1.13 | 1.17 | 14.58 |
| 1941 | 1.28 | 1.42 | 1.67 | 1.48 | 1.15 | 1.21 | 2.13 | 1.35 | 1.11 | 1.01 | .95 | 1.03 | 15.79 |
| 1942 | 1.54 | 1.66 | 1.42 | 1.34 | 1.12 | 1.66 | 1.87 | 1.44 | 1.45 | 1.23 | 1.19 | 1.22 | 17.14 |
| 1943 | 1.24 | 1.34 | 1.38 | 1.35 | 1.31 | 1.81 | 2.19 | 1.71 | 1.98 | 1.42 | 1.23 | 1.11 | 16.07 |
| 1944 | 1.20 | 1.58 | 1.28 | 1.27 | 1.25 | 1.34 | 1.63 | 1.53 | 1.56 | 1.22 | 1.09 | 1.13 | 16.08 |
| 1945 | 1.20 | 1.18 | 1.19 | 1.09 | 1.06 | 1.76 | 1.44 | 1.57 | 1.63 | 1.14 | 1.11 | 1.22 | 15.61 |
| 1946 | 1.48 | 1.68 | 1.30 | 1.52 | 1.27 | 2.12 | 1.37 | 1.35 | 1.19 | 1.22 | 1.04 | 1.05 | 16.59 |
| 1947 | 1.07 | 1.11 | 1.14 | 1.19 | 1.07 | 1.20 | 2.41 | 2.19 | 1.42 | 1.21 | 1.09 | 1.10 | 16.20 |
| 1948 | 1.10 | 1.09 | 1.20 | 1.14 | 1.09 | 1.60 | 1.81 | 1.46 | 1.19 | 1.24 | 1.08 | .97 | 14.97 |
| 1949 | 1.02 | 1.15 | 1.16 | 1.19 | 1.09 | 1.45 | 1.57 | 1.30 | 1.34 | 1.36 | 1.10 | 1.03 | 14.76 |
| 1950 | 1.07 | 1.06 | 1.27 | 1.30 | 1.16 | 1.51 | 1.93 | 1.41 | 1.14 | 1.12 | 1.16 | 1.19 | 15.32 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations and weather records.

| Yearly discharge, in cubic feet per second, of Manistee River near Sherman, Mich. | | | | | | | | | |
|---|------------|----------------------------|--------------------|---------|--------|-----------------|------------------|--------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 244 | - | - | - | - | - | - | - | - |
| 1904 | 244 | \$2,820 | Apr. 10, 11, 1904* | 842 | 1,230 | 1.37 | 18.56 | 1,180 | 17.78 |
| 1905 | 244 | \$2,900 | Apr. 1, 1905* | - | 1,080 | 1.20 | 16.24 | 1,090 | 16.47 |
| 1906 | 244 | \$2,280 | Apr. 12, 1906* | - | 1,120 | 1.24 | 16.89 | 1,120 | 16.90 |
| 1907 | 244 | \$2,240 | Mar. 27, 1907* | - | 1,110 | 1.23 | 16.75 | 1,110 | 16.77 |
| 1908 | 244 | \$1,910 | Apr. 10-13, 1908* | - | 1,100 | 1.22 | 16.53 | 1,070 | 16.15 |
| 1909 | 264 | \$2,650 | Apr. 14, 1909* | - | 1,090 | 1.21 | 16.48 | 1,100 | 16.62 |
| 1910 | 284 | \$1,870 | Mar. 25, 26, 1910* | 804 | 1,000 | 1.11 | 15.06 | 1,010 | 15.27 |
| 1911 | 304, 1437 | \$2,520 | May 23-25, 1911* | 863 | *1,130 | *1.26 | *17.19 | *1,220 | *18.47 |
| 1912 | 324 | \$2,960 | May 29, 30, 1912* | 819 | 1,260 | 1.40 | 19.09 | 1,240 | 18.71 |
| 1913 | 354 | \$3,570 | Mar. 25, 1913 | 789 | 1,250 | 1.39 | 18.80 | 1,230 | 18.46 |
| 1914 | 384 | \$2,120 | Mar. 30, 1914 | *667 | 1,140 | 1.27 | 17.28 | 1,110 | 16.77 |
| 1915 | 404 | 1,860 | Apr. 12, 1915 | - | 1,040 | 1.16 | 15.77 | 1,050 | 15.86 |
| 1916 | 434 | 3,130 | Apr. 2, 1916 | - | - | - | - | - | - |
| 1931 | 714 | 1,590 | Apr. 10, 11, 1931 | - | *989 | *1.08 | *14.62 | - | - |
| 1934 | 759 | 2,550 | Apr. 11, 12, 1934* | - | *1,025 | *1.14 | *15.47 | *1,069 | *16.12 |
| 1935 | 784 | 2,290 | Mar. 24, 1935 | 776 | 1,084 | 1.20 | 16.36 | 1,027 | 15.50 |
| 1936 | 804 | *1,930 | Mar. 25, 1936* | 540 | 895 | .994 | 13.54 | 909 | 13.74 |
| 1937 | 824, 1437 | *1,850 | Dec. 28, 1936* | 650 | *976 | *1.08 | *14.72 | *983 | *14.84 |
| 1938 | 854 | 3,060 | Mar. 24, 1938 | 805 | 1,098 | 1.22 | 16.55 | 1,072 | 16.15 |
| 1939 | 874 | 1,830 | Mar. 26, 27, 1939* | 754 | 962 | 1.07 | 14.50 | 964 | 14.54 |
| 1940 | 894 | *1,600 | Apr. 9, 1940* | 741 | 964 | 1.07 | 14.58 | 1,031 | 15.58 |
| 1941 | 924 | 2,460 | Apr. 11, 1941 | 710 | 1,048 | 1.16 | 15.79 | 1,064 | 16.04 |
| 1942 | 954 | 2,190 | Apr. 7, 1942 | 840 | 1,138 | 1.26 | 17.14 | 1,094 | 16.48 |
| 1943 | 974 | 2,840 | Apr. 3, 1943 | 860 | 1,199 | 1.33 | 19.07 | 1,204 | 18.17 |
| 1944 | 1004 | 1,840 | Nov. 10, 1943 | 800 | 1,062 | 1.18 | 16.08 | 1,029 | 15.59 |
| 1945 | 1034 | 2,380 | June 3, 1945 | 800 | 1,035 | 1.15 | 15.61 | 1,095 | 16.50 |
| 1946 | 1054 | 2,340 | Mar. 17, 18, 1946 | 775 | 1,101 | 1.22 | 16.59 | 1,025 | 15.45 |
| 1947 | 1074 | 2,870 | Apr. 12, 1947 | 775 | 1,074 | 1.19 | 16.20 | 1,079 | 16.27 |
| 1948 | 1114 | 1,980 | Mar. 22-24, 1948 | 760 | 991 | 1.10 | 14.97 | 987 | 14.91 |
| 1949 | 1144 | 2,070 | Mar. 30, 1949 | 770 | 980 | 1.09 | 14.76 | 984 | 14.83 |
| 1950 | 1174 | 2,170 | Mar. 29, 1950 | 765 | 1,017 | 1.13 | 15.32 | - | - |

* Revised.

* Not previously published.

160. Little Manistee River near Stronach, Mich.

Location.--Lat 44°12'30", long. 86°14'40", in SE $\frac{1}{4}$ sec. 21, T. 21 N., R. 16 W., at highway bridge $\frac{1}{2}$ miles east of Stronach and 1 $\frac{3}{4}$ miles upstream from Manistee Lake.

Drainage area.--233 sq mi.

Gage.--Staff gage. Altitude of gage is 590 ft (from river-profile map).

Extremes.--November 1930-June 1931: Maximum discharge, 249 cfs Apr. 7-11, 1931 (gage height, 2.16 ft); minimum, 167 cfs occurring on many days from November 1930 to March 1931.

| Monthly and yearly discharge, in cubic feet per second | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|-----|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1931 | - | *189 | 191 | 176 | 177 | 188 | 216 | 202 | 186 | - | - | - |

* Not previously published; partly estimated on basis of records for stations on nearby streams.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|-------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1931 | - | *0.91 | 0.95 | 0.87 | 0.79 | 0.93 | 1.03 | 1.00 | 0.89 | - | - | - |

* Not previously published; partly estimated on basis of records for stations on nearby streams.

STREAMS TRIBUTARY TO LAKE HURON

161. Sturgeon River near Wolverine, Mich.

Location.--Lat 45°17'25", long. 84°36'15", in SW $\frac{1}{4}$ sec. 31, T. 34 N., R. 2 W., on left bank $\frac{1}{2}$ miles north of Wolverine, 2 miles downstream from West Branch, and 11 miles upstream from mouth.

Drainage area.--164 sq mi.

Gage.--Staff gage. Altitude of gage is 750 ft (by barometer). Prior to June 15, 1942, staff gage at site about a quarter of a mile upstream at different datum.

Average discharge.--8 years (1942-50), 199 cfs.

Extremes.--1942-50: Maximum discharge, 919 cfs Apr. 1, 1943 (gage height, 5.45 ft); minimum, 118 cfs Aug. 22, 24, 1944.

monthly and yearly mean discharge, in cubic feet per second,
of Sturgeon River near Wolverine, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *330 | 257 | 213 | 183 | 161 | 207 | - |
| 1943 | 191 | 206 | 189 | 206 | 211 | 259 | 348 | 241 | 233 | 162 | 158 | 169 | 214 |
| 1944 | 189 | 240 | 195 | 206 | 199 | 215 | 251 | 210 | 213 | 157 | 134 | 186 | 199 |
| 1945 | 187 | 179 | 176 | 159 | 173 | 503 | 254 | 242 | 210 | 176 | 154 | 232 | 204 |
| 1946 | 217 | 284 | 209 | 232 | 199 | 315 | 216 | 227 | 197 | 194 | 172 | 201 | 222 |
| 1947 | 176 | 182 | 176 | 179 | 170 | 179 | 338 | 307 | 211 | 178 | 155 | 193 | 204 |
| 1948 | 174 | 197 | 189 | 171 | 173 | 297 | 286 | 195 | 169 | 154 | 142 | 141 | 191 |
| 1949 | 154 | 195 | 157 | 175 | 179 | 222 | 208 | 175 | 198 | 146 | 142 | 151 | 175 |
| 1950 | 155 | 164 | 189 | 201 | 169 | 211 | 295 | 192 | 158 | 144 | 171 | 184 | 186 |

* Not previously published; estimated on basis of records for stations on nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *2.27 | 1.81 | 1.45 | 1.29 | 1.13 | 1.41 | - |
| 1943 | 1.34 | 1.41 | 1.33 | 1.45 | 1.34 | 1.82 | 2.36 | 1.70 | 1.58 | 1.14 | 1.11 | 1.15 | 17.73 |
| 1944 | 1.33 | 1.63 | 1.37 | 1.45 | 1.30 | 1.51 | 1.71 | 1.48 | 1.45 | 1.10 | .94 | 1.26 | 16.53 |
| 1945 | 1.31 | 1.22 | 1.23 | 1.12 | 1.09 | 2.13 | 1.73 | 1.71 | 1.43 | 1.23 | 1.08 | 1.57 | 16.85 |
| 1946 | 1.52 | 1.93 | 1.46 | 1.63 | 1.26 | 2.21 | 1.47 | 1.59 | 1.34 | 1.36 | 1.21 | 1.37 | 18.35 |
| 1947 | 1.23 | 1.24 | 1.23 | 1.26 | 1.08 | 1.26 | 2.30 | 2.16 | 1.44 | 1.26 | 1.09 | 1.32 | 16.87 |
| 1948 | 1.22 | 1.34 | 1.33 | 1.20 | 1.13 | 2.09 | 1.94 | 1.37 | 1.15 | 1.08 | 1.00 | .96 | 15.81 |
| 1949 | 1.08 | 1.33 | 1.10 | 1.23 | 1.14 | 1.56 | 1.42 | 1.23 | 1.35 | 1.05 | 1.00 | 1.03 | 14.50 |
| 1950 | 1.09 | 1.12 | 1.33 | 1.42 | 1.07 | 1.49 | 2.01 | 1.35 | 1.07 | 1.01 | 1.20 | 1.25 | 15.41 |

* Not previously published; estimated on basis of records for stations on nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 918 | Apr. 1, 1943 | 144 | 214 | 1.30 | 17.73 | 217 | 17.98 |
| 1944 | 1004 | *494 | Nov. 7, 1943 | 118 | 199 | 1.21 | 16.53 | 192 | 15.86 |
| 1945 | 1034 | 652 | Mar. 17, 1945 | 143 | 204 | 1.24 | 16.85 | 218 | 18.00 |
| 1946 | 1054 | 558 | (a) | 160 | 222 | 1.35 | 18.35 | 207 | 17.14 |
| 1947 | 1084 | 558 | Apr. 12, May 7 | 147 | 204 | 1.24 | 16.87 | 206 | 17.06 |
| 1948 | 1114 | *760 | Mar. 22, 1948 | 134 | 191 | 1.16 | 15.81 | 186 | 15.43 |
| 1949 | 1144 | b550 | Mar. 28, 1949 | 125 | 175 | 1.07 | 14.50 | 175 | 14.53 |
| 1950 | 1174 | 498 | Mar. 28, 1950 | 130 | 186 | 1.13 | 15.41 | - | - |

* Revised.

a Nov. 3, 1945, Mar. 7, 1946.

b Maximum daily discharge.

162. Indian River at Indian River, Mich.

Location.--Lat 45°24'35", long. 84°37'10", in SW $\frac{1}{4}$ sec. 24, T. 35 N., R. 3 W., on left bank at Indian River, an eighth of a mile downstream from Burt Lake and $3\frac{1}{2}$ miles upstream from Mullett Lake.

Drainage area.--583 sq mi.

Gage.--Water-stage recorder. Datum of gage is 590.21 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Nov. 12, 1942, staff gage at site 100 ft downstream at same datum.

Average discharge.--8 years (1942-50), 554 cfs.

Extremes.--1942-50: Maximum discharge, 1,080 cfs Apr. 25, 1943 (gage height, 5.65 ft); minimum daily, 281 cfs Aug. 30, Sept. 2, 3, 1949; minimum gage height, 3.45 ft Oct. 9, 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *871 | 766 | 705 | 533 | 420 | 395 | - |
| 1943 | 473 | 531 | 579 | 633 | 599 | 590 | 943 | 858 | 863 | 726 | 536 | 457 | 649 |
| 1944 | 418 | 535 | 589 | 604 | 592 | 575 | 619 | 625 | 536 | 478 | 423 | 418 | 534 |
| 1945 | 485 | 478 | 487 | 557 | 586 | 615 | 739 | 648 | 642 | 494 | 384 | 447 | 546 |
| 1946 | 535 | 661 | 612 | 688 | 691 | 751 | 755 | 640 | 621 | 569 | 445 | 463 | 619 |
| 1947 | 478 | 467 | *445 | 499 | 600 | 516 | 677 | 842 | 802 | 615 | 444 | 335 | *563 |
| 1948 | 450 | 487 | 455 | 488 | 490 | 550 | 823 | 805 | 548 | 443 | 403 | 364 | 525 |
| 1949 | 338 | 443 | 505 | 517 | 562 | 597 | 638 | 597 | 481 | 422 | 306 | 319 | 476 |
| 1950 | 381 | 411 | 421 | 506 | 567 | 565 | 747 | 806 | 585 | 395 | 405 | 431 | 518 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches, of Indian River at Indian River, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *1.67 | 1.51 | 1.35 | 1.05 | 0.83 | 0.76 | - |
| 1943 | 0.94 | 1.02 | 1.14 | 1.26 | 1.07 | 1.16 | 1.81 | 1.70 | 1.65 | 1.44 | 1.06 | .87 | 15.12 |
| 1944 | .83 | 1.02 | 1.16 | 1.20 | 1.10 | 1.14 | 1.18 | 1.23 | 1.03 | .95 | .84 | .80 | 12.48 |
| 1945 | .96 | .91 | .96 | 1.10 | 1.05 | 1.21 | 1.42 | 1.28 | 1.23 | .98 | .76 | .86 | 12.72 |
| 1946 | 1.06 | *1.26 | 1.21 | 1.36 | 1.24 | 1.49 | 1.45 | 1.27 | 1.19 | 1.13 | .88 | .89 | 14.43 |
| 1947 | .95 | .89 | *.88 | .99 | 1.07 | 1.02 | 1.29 | 1.68 | 1.54 | 1.21 | .88 | .73 | *13.11 |
| 1948 | .89 | .93 | .90 | .96 | .91 | 1.09 | 1.57 | 1.59 | 1.05 | .88 | .80 | .70 | 12.27 |
| 1949 | .67 | .85 | 1.00 | 1.02 | 1.00 | 1.18 | 1.22 | 1.18 | .92 | .83 | .61 | .61 | 11.09 |
| 1950 | .75 | .79 | .83 | 1.00 | 1.01 | 1.12 | 1.43 | 1.59 | 1.12 | .78 | .80 | .82 | 12.04 |

* Revised.

† Corrected.

‡ Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | 920 | Apr. 17-19, 1942* | - | - | - | - | - | - |
| 1943 | 974 | 1,080 | Apr. 25, 1943 | 425 | 649 | 1.11 | 15.12 | 645 | 15.03 |
| 1944 | 1004 | 690 | May 14, 1944 | 385 | 534 | .916 | 12.48 | 527 | 12.30 |
| 1945 | 1034 | 774 | Apr. 17, 18, 1945* | 360 | 546 | .937 | 12.72 | 576 | 13.42 |
| 1946 | 1054 | 927 | Apr. 2, 1946 | 417 | 619 | 1.06 | 14.43 | *584 | *13.62 |
| 1947 | 1084, 1437 | 911 | May 7, 1947 | *352 | *563 | *.966 | *13.11 | 564 | 13.11 |
| 1948 | 1114 | 913 | May 7, 1948 | 330 | 525 | .901 | 12.27 | 517 | 12.07 |
| 1949 | 1144 | 682 | Apr. 15, 1949 | 281 | 476 | .816 | 11.09 | 470 | 10.94 |
| 1950 | 1174 | 880 | May 6, 1950 | 337 | 518 | .889 | 12.04 | - | - |

* Revised.

163. Pigeon River at Afton, Mich.

Location.--Lat 45°22'25", long. 84°30'50", in NE $\frac{1}{4}$ sec. 2, T. 34 N., R. 2 W., on right up-stream abutment of bridge on State Highway 68, three-quarters of a mile west of Afton, 2 miles downstream from Wilkes Creek, and 5 $\frac{1}{2}$ miles upstream from Mullett Lake.

Drainage area.--159 sq mi.

Gage.--Staff gage. Altitude of gage is 675 ft (by barometer). Prior to Sept. 13, 1943, staff gage at site 50 ft upstream at same datum.

Average discharge.--8 years (1942-50), 132 cfs.

Extremes.--1942-50: Maximum daily discharge, 1,100 cfs Mar. 31, 1943; maximum gage height, about 10.5 ft Mar. 31, 1943, from floodmarks (ice jam); minimum discharge observed, 60 cfs Aug. 12, 1945.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *268 | 190 | 143 | 110 | 93.2 | 126 | - |
| 1943 | 120 | 136 | 118 | 130 | 119 | 225 | 365 | 188 | 204 | 91.9 | 88.4 | 101 | 157 |
| 1944 | 109 | 167 | 116 | 119 | 112 | 129 | 175 | 141 | 117 | 83.1 | 73.7 | 106 | 121 |
| 1945 | 121 | 119 | 100 | 92.1 | 96.6 | 245 | 193 | 168 | 156 | 91.0 | 72.6 | *134 | *132 |
| 1946 | 167 | 228 | 136 | 145 | 135 | *286 | 161 | 168 | 134 | 113 | 79.9 | 109 | *155 |
| 1947 | 93.4 | 115 | 111 | 113 | 114 | 119 | 308 | 283 | 138 | 108 | 81.3 | 105 | 141 |
| 1948 | 98.5 | 115 | 124 | 87.4 | 89.8 | 239 | 231 | 139 | 97.9 | 87.5 | 73.0 | 76.4 | 122 |
| 1949 | 85.9 | 103 | 91.6 | 98.1 | 108 | 161 | 166 | 126 | 124 | 85.0 | 70.4 | 78.0 | 108 |
| 1950 | 81.9 | *85.3 | *104 | 110 | 89.5 | 146 | *237 | 138 | 102 | 81.4 | 98.9 | 131 | *117 |

* Revised.

‡ Not previously published; partially estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | *1.88 | 1.37 | 1.00 | 0.80 | 0.68 | 0.88 | - |
| 1943 | 0.87 | 0.95 | 0.86 | 0.94 | 0.78 | 1.64 | 2.57 | 1.36 | 1.43 | .67 | .64 | .71 | 13.42 |
| 1944 | .79 | 1.17 | .84 | .86 | .76 | .94 | 1.23 | 1.02 | .82 | .60 | .53 | .74 | 10.30 |
| 1945 | .88 | .83 | .73 | .67 | .63 | 1.78 | 1.35 | 1.22 | 1.09 | .66 | .53 | *.94 | *11.31 |
| 1946 | 1.21 | 1.60 | .99 | 1.05 | .88 | *2.08 | 1.13 | 1.22 | .94 | .82 | .58 | .77 | *13.28 |
| 1947 | .68 | .81 | .80 | .82 | .78 | .98 | 2.16 | 2.06 | .97 | .78 | .59 | .74 | 12.01 |
| 1948 | .71 | .81 | .90 | .63 | .61 | 1.73 | 1.62 | 1.01 | .69 | .63 | .53 | .54 | 10.41 |
| 1949 | .62 | .72 | .66 | .71 | .71 | 1.16 | 1.16 | .91 | .67 | .62 | .51 | .55 | 9.20 |
| 1950 | .59 | *.60 | *.75 | .80 | .59 | 1.06 | *1.66 | 1.00 | .72 | .59 | .72 | .92 | *10.00 |

* Revised.

‡ Not previously published; partially estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second, of Pigeon River at Afton, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | al,100 | Mar. 31, 1943 | 73 | 157 | 0.987 | 13.42 | 159 | 13.54 |
| 1944 | 1004 | 582 | Nov. 9, 1943 | 64 | 121 | .781 | 10.30 | 116 | 9.94 |
| 1945 | 1034,1437 | *a615 | Mar.19,20,1945* | 60 | *132 | *.850 | *11.31 | *148 | *12.67 |
| 1946 | 1054,1437 | *a560 | Mar. 15, 1946 | 73 | *155 | *.975 | *13.28 | *138 | *11.77 |
| 1947 | 1084 | 595 | Apr. 8, 1947 | 72 | 141 | .887 | 12.01 | 142 | 12.14 |
| 1948 | 1114 | b829 | Mar. 23, 1948 | 67 | 122 | .767 | 10.41 | 117 | 9.99 |
| 1949 | 1144 | b474 | Mar. 29, 1949 | 63 | 108 | .679 | 9.20 | *107 | *9.13 |
| 1950 | 1174,1437 | *a450 | Mar. 28, 1950* | 68 | *117 | *.738 | *10.00 | - | - |

* Revised.

a Maximum daily discharge.

b Maximum observed discharge.

164. Cheboygan River near Cheboygan, Mich.

Location.--Lat 45°34'40", long. 84°29'15", in SW¹ sec. 19, T. 37 N., R. 1 W., 300 ft downstream from Mullett Lake, 2½ miles upstream from Black River, and 5 miles south of Cheboygan.

Drainage area.--865 sq mi.

Gage.--Water-stage recorder. Datum of gage is 591.21 ft above mean sea level, datum of 1929. Auxiliary staff gage at Cheboygan 5 miles downstream. Datum of auxiliary gage is 590.00 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1942-50), 770 cfs.

Extremes.--1942-50: Maximum daily discharge, 1,590 cfs Apr. 16, 1943; maximum daily gage height, 3.13 ft Apr. 17, 1945, Apr. 11, 1948; minimum daily discharge, 100 cfs Nov. 3, 1949; minimum daily gage height, 1.17 ft Oct. 23, 27, 1946.

Remarks.--Flow affected by variable backwater from powerplant at Cheboygan 5 miles below station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1943 | *626 | *695 | 823 | 1,008 | 1,035 | 1,098 | 1,522 | 1,317 | 1,293 | 1,064 | 775 | 658 | *992 |
| 1944 | 436 | 588 | 725 | 880 | 888 | 817 | 793 | 959 | 749 | 642 | 636 | 515 | 719 |
| 1945 | 596 | 558 | 677 | 880 | 790 | 773 | 1,102 | 980 | 945 | 855 | 559 | 600 | 734 |
| 1946 | 579 | 952 | 850 | 990 | 1,082 | 1,091 | 1,011 | 784 | 935 | 834 | 736 | 766 | 882 |
| 1947 | 514 | 425 | 458 | 517 | 610 | 632 | 1,145 | 1,557 | 1,099 | 1,070 | 620 | 436 | 741 |
| 1948 | 642 | 505 | 657 | 805 | 611 | 760 | 1,273 | 1,352 | 663 | 604 | 568 | 415 | 722 |
| 1949 | 260 | 886 | 605 | 829 | 662 | 994 | 924 | 827 | 599 | 617 | 417 | 502 | 645 |
| 1950 | 468 | 428 | 594 | 820 | 839 | 814 | 1,249 | 1,169 | 698 | 607 | 571 | 520 | 731 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | *0.83 | *0.90 | 1.10 | 1.35 | 1.25 | 1.46 | 1.96 | 1.75 | 1.66 | 1.42 | 1.03 | 0.85 | *15.56 |
| 1944 | .58 | .76 | .97 | 1.18 | 1.11 | 1.09 | 1.02 | 1.28 | .97 | .86 | .85 | .66 | 11.33 |
| 1945 | .79 | .72 | .90 | .79 | .95 | 1.03 | 1.42 | 1.30 | 1.22 | .87 | .74 | .77 | 11.50 |
| 1946 | .77 | 1.23 | 1.13 | 1.31 | 1.30 | 1.45 | 1.30 | 1.04 | 1.20 | 1.11 | .98 | .99 | 13.81 |
| 1947 | .68 | .55 | .61 | .69 | .73 | .84 | 1.47 | 1.81 | 1.42 | 1.43 | .83 | .56 | 11.62 |
| 1948 | .86 | .65 | .88 | 1.07 | .76 | 1.01 | 1.64 | 1.53 | .85 | .80 | .76 | .54 | 11.35 |
| 1949 | .35 | .88 | .81 | .84 | .80 | 1.33 | 1.19 | 1.10 | .77 | .82 | .56 | .65 | 10.10 |
| 1950 | .62 | .55 | .79 | 1.09 | 1.01 | 1.08 | 1.61 | 1.56 | .90 | .81 | .76 | .67 | 11.45 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 1034 | 1,590 | Apr. 16, 1943 | *483 | *992 | *1.15 | *15.56 | 959 | 15.04 |
| 1944 | 1034 | 1,160 | (a) | 128 | 719 | .831 | 11.33 | 726 | 11.43 |
| 1945 | 1034 | 1,260 | Apr. 22, 1945 | 425 | 734 | .849 | 11.50 | 780 | 12.22 |
| 1946 | 1054 | 1,290 | Mar.27,28, 1946 | 368 | 882 | 1.02 | 13.81 | 800 | 12.52 |
| 1947 | 1084 | 1,500 | May 31, 1947 | 179 | 741 | .857 | 11.62 | 775 | 12.17 |
| 1948 | 1114 | 1,500 | Apr. 30, 1948 | 185 | 722 | .835 | 11.35 | 700 | 11.00 |
| 1949 | 1144 | 1,200 | Mar.12-14, 1949 | 119 | 643 | .743 | 10.10 | 638 | 10.02 |
| 1950 | 1174 | 1,500 | May 7, 1950 | 100 | 731 | .845 | 11.45 | - | - |

* Not previously published.

a Dec. 11, 1943, May 14, 1944.

165. Black River near Tower, Mich.

Location.--Lat 45°24', long. 84°20', in NW $\frac{1}{4}$ sec. 29, T. 35 N., R. 1 E., on right bank 400 ft downstream from Kleber Dam, 800 ft upstream from Milligan Creek, 3 miles northwest of Tower, and 8 miles upstream from Black Lake.

Drainage area.--313 sq mi. Prior to Aug. 1, 1949, 310 sq mi.

Gage.--Water-stage recorder. Datum of gage is 658.00 ft above mean sea level (Stanley Engineering Co. benchmark). Prior to Aug. 1, 1949, water-stage recorder at site 1 mile upstream at different datum.

Average discharge.--8 years (1942-50), 243 cfs.

Extremes.--1942-50: Maximum discharge, 1,660 cfs Apr. 1, 1943 (gage height, 5.30 ft, site and datum then in use); minimum, 0.6 cfs Mar. 11, 1950; minimum daily, 4.0 cfs Nov. 27, 1949.

Remarks.--Flow regulated by powerplants at Tower and Kleber Dam.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1943 | #243 | #266 | 229 | 276 | 232 | 372 | 768 | 377 | 309 | 172 | 148 | 163 | #296 |
| 1944 | 170 | 276 | 203 | 214 | 215 | 219 | 324 | 246 | 250 | 148 | 115 | 189 | 214 |
| 1945 | 223 | 204 | 186 | 159 | 174 | 443 | 362 | 316 | 317 | 169 | 130 | 228 | 243 |
| 1946 | 326 | 489 | 268 | 267 | 258 | 555 | 304 | 309 | 249 | 210 | 143 | 180 | 297 |
| 1947 | 160 | 203 | 176 | 191 | 194 | 226 | 669 | 625 | 294 | 207 | 134 | 189 | 272 |
| 1948 | 176 | 213 | 205 | 150 | 138 | 393 | 503 | 301 | 180 | 152 | 131 | 120 | 222 |
| 1949 | 140 | 213 | 175 | 176 | 188 | 260 | 326 | 241 | 214 | 128 | 86.1 | 116 | 188 |
| 1950 | 141 | 130 | 177 | 200 | 154 | 239 | 505 | 294 | 166 | 137 | 161 | 265 | 214 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | #0.90 | #0.96 | 0.85 | 1.03 | 0.78 | 1.38 | 2.77 | 1.41 | 1.11 | 0.64 | 0.55 | 0.59 | #12.97 |
| 1944 | #.63 | .99 | .76 | .80 | .75 | .81 | 1.17 | .92 | .90 | .55 | .43 | .68 | 9.39 |
| 1945 | .83 | .73 | .69 | .59 | .58 | 1.65 | 1.30 | 1.18 | 1.14 | .63 | .48 | .82 | 10.62 |
| 1946 | 1.21 | 1.76 | 1.00 | .99 | .87 | 2.06 | 1.09 | 1.15 | .90 | .78 | .53 | .65 | 12.99 |
| 1947 | .59 | .73 | .65 | .71 | .65 | .84 | 2.41 | 2.33 | 1.06 | .77 | .50 | .68 | 11.92 |
| 1948 | .65 | .77 | .76 | .56 | .48 | 1.46 | 1.81 | 1.12 | .65 | .56 | .49 | .43 | 9.74 |
| 1949 | .52 | .77 | .65 | .65 | .63 | .97 | 1.17 | .90 | .77 | .48 | .32 | .41 | 8.24 |
| 1950 | .52 | .46 | .65 | .74 | .51 | .88 | 1.80 | 1.08 | .59 | .50 | .59 | .94 | 9.26 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 1,660 | Apr. 1, 1943 | #119 | #296 | #0.955 | #12.97 | 288 | 12.64 |
| 1944 | 1004 | 671 | Apr. 25, 1944 | 90 | 214 | .690 | 9.39 | 211 | 9.26 |
| 1945 | 1034 | 1,260 | Mar. 20, 1945 | 116 | 243 | .784 | 10.62 | 282 | 12.34 |
| 1946 | 1054 | 1,150 | Mar. 15, 1946 | 105 | 297 | .958 | 12.99 | 251 | 10.99 |
| 1947 | 1084 | 1,180 | Apr. 14, 1947 | 84 | 272 | .877 | 11.92 | 277 | 12.13 |
| 1948 | 1114 | 1,180 | Mar. 23, 1948 | 88 | 222 | .716 | 9.74 | 216 | 9.50 |
| 1949 | 1144 | 675 | Mar. 29, 1949 | 40 | 198 | .605 | 8.24 | 182 | 7.93 |
| 1950 | 1174 | 830 | Aug. 30, 1950 | 4.0 | 214 | .684 | 9.26 | - | - |

* Not previously published.

166. Rainy River near Onaway, Mich.

Location.--Lat 45°21'25", long. 84°10'00", in SW $\frac{1}{4}$ sec. 2, T. 34 N., R. 2 E., on left bank 50 ft upstream from bridge on State Highway 68, $\frac{1}{2}$ miles downstream from Little Rainy River and 3 miles east of Onaway.

Drainage area.--79 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 747.77 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--8 years (1942-50), 20.9 cfs.

Extremes.--1942-50: Maximum discharge observed, 668 cfs Apr. 1, 1943 (gage height, 5.55 ft); no flow Aug. 24-28, 1949.

Monthly and yearly mean discharge, in cubic feet per second,
of Rainy River near Onaway, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|-------|------|------|-------|----------|
| 1942 | - | - | - | *27.4 | 17.9 | 66.5 | 215 | 51.4 | 31.5 | 5.84 | 0.79 | 1.99 | - |
| 1943 | 3.02 | 4.39 | 5.11 | 9.00 | 9.19 | 67.8 | 187 | 54.0 | 25.3 | 3.57 | .83 | 1.63 | 30.8 |
| 1944 | 1.77 | 13.6 | 5.79 | 6.21 | 6.00 | 14.5 | 53.2 | 32.2 | 4.47 | .84 | .21 | 3.68 | 11.8 |
| 1945 | 8.28 | 9.64 | 7.48 | 2.71 | 3.10 | 55.4 | 40.1 | 36.6 | 41.5 | 3.96 | .19 | 1.71 | 17.6 |
| 1946 | 15.4 | 75.5 | 22.9 | 29.2 | 12.1 | 128 | 43.2 | 28.5 | 29.3 | 24.4 | 1.22 | 2.20 | 34.5 |
| 1947 | 1.66 | 3.98 | 5.98 | 3.78 | 4.11 | 9.28 | 144 | 104 | 28.9 | 13.6 | 2.15 | 11.1 | 27.5 |
| 1948 | 6.45 | 12.1 | 15.9 | 7.19 | 4.42 | 94.1 | 93.4 | 32.3 | *5.14 | 1.41 | .43 | .19 | 22.6 |
| 1949 | .81 | 2.56 | 1.97 | 3.65 | 3.86 | 28.1 | 38.2 | 23.2 | 4.67 | 1.97 | .20 | .38 | 9.14 |
| 1950 | .46 | 1.01 | 2.45 | 4.98 | 2.29 | 23.7 | 94.2 | 23.4 | 2.73 | .99 | 1.24 | 5.51 | 13.5 |

* Revised.

* Not previously published; partly estimated on basis of weather records and records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | *0.40 | 0.24 | 0.97 | 3.04 | 0.75 | 0.45 | 0.09 | 0.01 | 0.03 | - |
| 1943 | 0.04 | 0.06 | 0.07 | .13 | .12 | .99 | 2.64 | .79 | .36 | .05 | .01 | .02 | 5.28 |
| 1944 | .03 | .19 | .08 | .09 | .08 | .21 | .75 | .47 | .06 | .01 | .003 | .05 | 2.02 |
| 1945 | .12 | .14 | .11 | .04 | .04 | .81 | .57 | .53 | .59 | .06 | .003 | .02 | 3.03 |
| 1946 | .22 | 1.07 | .33 | .43 | .16 | 1.87 | .61 | .42 | .41 | .36 | .02 | .03 | 5.93 |
| 1947 | .02 | .06 | .06 | .06 | .05 | .13 | 2.03 | 1.52 | .41 | .20 | .03 | .16 | 4.73 |
| 1948 | .09 | .17 | .20 | .10 | .06 | 1.37 | 1.32 | .47 | .07 | .02 | .006 | .003 | 3.88 |
| 1949 | .01 | .04 | .03 | .05 | .05 | .41 | .54 | .54 | .07 | .03 | .003 | .005 | 1.58 |
| 1950 | .006 | .01 | .04 | .07 | .03 | .35 | 1.33 | .34 | .04 | .01 | .02 | .08 | 2.33 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1942 | 954 | *580 | Apr. 5, 1942 | - | - | - | - | - | - | - | - |
| 1943 | 974 | a668 | Apr. 1, 1943 | 0.3 | 30.8 | 0.390 | 5.28 | 31.5 | 5.41 | | |
| 1944 | 1004 | *100 | Apr. 25, 1944* | .1 | 11.8 | .149 | 2.02 | 12.2 | 2.09 | | |
| 1945 | 1034 | *223 | Mar. 20, 1945 | .1 | 17.6 | .223 | 3.03 | 24.9 | 4.28 | | |
| 1946 | 1054 | *346 | Mar. 15, 1946 | .3 | 34.5 | .437 | 5.93 | 25.8 | 4.45 | | |
| 1947 | 1084 | *365 | Apr. 12, 1947 | .1 | 27.5 | .348 | 4.73 | 29.4 | 5.05 | | |
| 1948 | 1114, 1437 | *388 | Mar. 22, 1948 | .1 | 22.6 | .286 | 3.88 | *20.4 | 3.50 | | |
| 1949 | 1144 | *114 | Mar. 29, 1949 | 0 | 9.14 | .116 | 1.58 | 9.03 | 1.55 | | |
| 1950 | 1174 | 302 | Mar. 28, 1950 | .2 | 13.5 | .171 | 2.33 | - | - | | |

* Revised.

a Maximum observed.

167. Black River near Cheboygan, Mich.

Location.--Lat 45°30'00", long. 84°19'24", in sec. 21, T. 36 N., R. 1 E., on left bank half a mile downstream from Black Lake, 5½ miles upstream from Alverno Dam, and 12 miles southeast of Cheboygan.

Drainage area.--597 sq mi.

Gage.--Water-stage recorder. Datum of gage is 609.26 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Auxiliary water-stage recorder 3 miles downstream at same datum.

Average discharge.--8 years (1942-50), 387 cfs.

Extremes.--1942-50: Maximum daily discharge, 2,070 cfs Apr. 12, 1943; maximum daily gage height, 5.28 ft Apr. 7, 1943; minimum daily discharge, 11 cfs Aug. 14, 1949; minimum daily gage height, 1.60 ft Sept. 2, 1947.

Remarks.--Flow regulated by powerplant at Alverno Dam.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1943 | *330 | *441 | 330 | 383 | 603 | 498 | 1,602 | 676 | 430 | 261 | 234 | 228 | *499 |
| 1944 | 239 | 346 | 417 | 248 | 360 | 373 | 380 | 453 | 238 | 189 | 208 | 191 | 303 |
| 1945 | 315 | 223 | 302 | 340 | 365 | 547 | 656 | 343 | 400 | 181 | 219 | 164 | 338 |
| 1946 | 380 | 768 | 489 | 413 | 477 | 895 | 571 | 284 | 436 | 423 | 351 | 203 | 474 |
| 1947 | 196 | 230 | 252 | 315 | 442 | 391 | 1,029 | 1,129 | 603 | 321 | 237 | 164 | 442 |
| 1948 | 201 | 243 | 280 | 292 | 262 | 616 | 1,087 | 479 | 192 | 260 | 234 | 150 | 358 |
| 1949 | 148 | 256 | 287 | 297 | 390 | 437 | 507 | 363 | 304 | 285 | 144 | 190 | 300 |
| 1950 | 186 | 251 | 353 | 368 | 403 | 378 | 995 | 513 | 244 | 240 | 293 | 383 | 383 |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches, of Black River near Cheboygan, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | \$0.64 | *0.82 | 0.64 | 0.74 | 1.05 | 0.96 | 2.99 | 1.30 | 0.80 | 0.50 | 0.45 | 0.43 | \$11.32 |
| 1944 | .46 | .85 | .80 | .48 | .65 | .72 | .71 | .88 | .45 | .37 | .40 | .36 | 6.93 |
| 1945 | .61 | .42 | .58 | .66 | .64 | 1.06 | 1.23 | .66 | .75 | .35 | .42 | .31 | 7.69 |
| 1946 | .73 | 1.44 | .94 | .80 | .83 | 1.73 | 1.07 | .55 | .81 | .82 | .68 | .58 | 10.78 |
| 1947 | .58 | .43 | .49 | .61 | .77 | .76 | 1.92 | 2.18 | 1.13 | .62 | .46 | .51 | 10.06 |
| 1948 | .59 | .45 | .54 | .56 | .47 | 1.19 | 2.03 | .92 | .36 | .50 | .45 | .28 | 8.14 |
| 1949 | .29 | .48 | .55 | .57 | .68 | .84 | .95 | .70 | .57 | .55 | .28 | .35 | 6.81 |
| 1950 | .36 | .47 | .68 | .71 | .70 | .73 | 1.86 | .99 | .46 | .46 | .57 | .72 | 8.71 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 2,070 | Apr. 12, 1943 | - | \$499 | *0.836 | \$11.32 | 490 | 11.13 |
| 1944 | 1004 | 784 | Oct. 13, 1943 | 21 | 303 | .508 | 6.93 | 290 | 6.63 |
| 1945 | 1034 | 868 | Apr. 5, 1945 | 22 | 338 | .566 | 7.69 | 404 | 9.19 |
| 1946 | 1054 | 1,410 | Mar. 21, 1946 | 46 | 474 | .794 | 10.78 | 394 | 8.97 |
| 1947 | 1084 | 1,660 | Apr. 20, 1947 | 24 | 442 | .740 | 10.06 | 446 | 10.14 |
| 1948 | 1114 | 1,470 | Apr. 2, 1948 | 22 | 358 | .600 | 8.14 | 355 | 8.08 |
| 1949 | 1144 | 886 | July 2, 1949 | 11 | 300 | .503 | 6.81 | 308 | 7.00 |
| 1950 | 1174 | 1,300 | Apr. 22, 1950 | 67 | 383 | .642 | 8.71 | - | - |

* Not previously published.

168. Thunder Bay River near Hillman, Mich.

Location.--Lat 45°00'30", long. 83°58'15", on line between secs. 8 and 9, T. 30 N., R. 4 E., on left bank 25 ft upstream from bridge on State Highway 32, a quarter of a mile downstream from Miller Creek, and 5 miles southwest of Hillman.

Drainage area.--232 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 760 ft (by barometer).

Average discharge.--5 years (1945-50), 201 cfs.

Extremes.--1945-50: Maximum discharge, 1,380 cfs Apr. 12, 1947 (gage height, 8.86 ft); minimum daily, 98 cfs Aug. 7, 1949.

Remarks.--Prior to May 12, 1950, diurnal fluctuation below about 500 cfs by powerplant at Atlanta. Occasional regulation by dam at Atlanta thereafter.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|-------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | \$241 | 151 | 137 | 206 | - |
| 1946 | 215 | 296 | 186 | 248 | 242 | 422 | 214 | 223 | 200 | 177 | 135 | 175 | 228 |
| 1947 | 156 | 187 | 176 | 196 | 206 | 218 | 505 | 399 | 211 | 158 | 140 | 173 | 226 |
| 1948 | 154 | 177 | 184 | 149 | 143 | 303 | 338 | 216 | 167 | 168 | 136 | 124 | 188 |
| 1949 | 146 | 186 | 168 | 201 | 200 | 255 | 228 | 186 | 186 | 126 | 119 | 126 | 177 |
| 1950 | 136 | 150 | 200 | 203 | 139 | 204 | 327 | 212 | 144 | 144 | 162 | 208 | 186 |

* Not previously published; estimated on basis of records for stations on nearby streams and partial gage-height record.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|--------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | \$1.16 | 0.75 | 0.68 | 0.99 | - |
| 1946 | 1.07 | 1.43 | 0.92 | 1.23 | 1.08 | 2.10 | 1.03 | 1.11 | .96 | .88 | .67 | .84 | 13.32 |
| 1947 | .77 | .90 | .88 | .97 | .92 | 1.07 | 2.43 | 1.94 | 1.01 | .79 | .70 | .83 | 13.21 |
| 1948 | .77 | .85 | .91 | .74 | .66 | 1.51 | 1.63 | 1.07 | .80 | .83 | .68 | .60 | 11.05 |
| 1949 | .73 | .89 | .83 | 1.00 | .90 | 1.27 | 1.10 | .92 | .89 | .63 | .59 | .61 | 10.36 |
| 1950 | .68 | .72 | .99 | 1.01 | .62 | 1.01 | 1.57 | 1.05 | .69 | .72 | .80 | 1.00 | 10.86 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | *920 | Mar. 14, 1946 | 120 | 228 | 0.983 | 13.32 | 213 | 12.45 |
| 1947 | 1084 | 1,380 | Apr. 12, 1947 | 114 | 226 | .974 | 13.21 | 225 | 13.19 |
| 1948 | 1114 | 850 | Mar. 22, 1948 | 100 | 188 | .810 | 11.05 | 187 | 10.97 |
| 1949 | 1144 | 653 | Mar. 28, 1949 | 98 | 177 | .763 | 10.36 | 176 | 10.30 |
| 1950 | 1174 | a500 | Mar. 28, 1950 | 108 | 186 | .802 | 10.86 | - | - |

* Revised.

a Maximum daily discharge.

169. Upper South Branch Thunder Bay River near Lachine, Mich.

Location.--Lat 45°03'30", long. 83°47'00", on line between secs. 23 and 26, T. 31 N., R. 5 E., on left bank 50 ft upstream from bridge on State Highway 38, 1 mile upstream from mouth, 3½ miles downstream from Fletcher Pond, and 3½ miles southwest of Lachine.

Drainage area.--171 sq mi.

Gage.--Water-stage recorder. Datum of gage is 711.80 ft above mean sea level, datum of 1929. Prior to June 24, 1945, staff gage at same site and datum.

Average discharge.--5 years (1945-50), 95.2 cfs.

Extremes.--1945-50: Maximum discharge, 490 cfs (revised) May 27, 1947 (gage height, 4.19 ft); maximum gage height, 4.60 ft Apr. 12, 1947 (backwater from Thunder Bay River); minimum daily discharge, 0.7 cfs Nov. 21, 1949.

Remarks.--Flow regulated by Fletcher Pond (usable capacity, 1,750,000,000 cu ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | 5.15 | 6.59 | 59.8 | 203 | 223 | 121 | - |
| 1946 | 25.0 | 14.7 | 155 | 135 | 175 | 217 | 46.4 | 63.6 | 89.1 | 130 | 187 | 73.5 | 109 |
| 1947 | 110 | 81.4 | 105 | 76.5 | 102 | 145 | 30.1 | 138 | 127 | 223 | 254 | 92.5 | 124 |
| 1948 | 96.4 | 40.9 | 31.5 | 75.0 | 106 | 78.3 | 48.8 | 122 | 184 | 159 | 112 | 107 | 96.5 |
| 1949 | 102 | 32.6 | 5.33 | 32.2 | 125 | 132 | 5.48 | 3.85 | 88.8 | 165 | 127 | 78.8 | 74.8 |
| 1950 | 97.9 | 30.3 | 66.6 | 28.0 | 41.6 | 26.6 | 20.6 | 97.9 | 124 | 109 | 132 | 79.8 | 71.5 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1945 | 1054 | - | - | - | - | - | - | - | - | - |
| 1946 | 1054 | a450 | Mar. 15, 1946 | 1.0 | 109 | - | - | 118 | - | - |
| 1947 | 1084 | *490 | May 27, 1947* | 3.8 | 124 | - | - | 114 | - | - |
| 1948 | 1114 | *457 | Apr. 29, 1948* | 1.9 | 96.5 | - | - | 94.1 | - | - |
| 1949 | 1144 | a500 | June 14, 1949 | 1.7 | 74.8 | - | - | 79.4 | - | - |
| 1950 | 1174 | a250 | Aug. 25, 1950 | .7 | 71.5 | - | - | - | - | - |

* Revised.

a Maximum daily discharge.

170. Thunder Bay River near Bolton, Mich.

Location.--Lat 45°07'40", long. 83°38'30", in NE¼ sec. 36, T. 32 N., R. 6 E., on left bank half a mile upstream from Orchard Hill Bridge, 4 miles upstream from North Branch Thunder Bay River, 5 miles southwest of Bolton, and 11 miles northwest of Alpena.

Drainage area.--588 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 670 ft (by barometer). Prior to Aug. 12, 1945, staff gage at site 500 ft downstream at different datum.

Average discharge.--5 years (1945-50), 405 cfs.

Extremes.--1945-50: Maximum discharge, 3,410 cfs (revised) Apr. 12, 1947 (gage height, 9.00 ft); maximum gage height, 9.08 ft Mar. 21, 1948 (backwater from ice); minimum discharge, 96 cfs Nov. 27, 1949.

Remarks.--Diurnal fluctuation caused by powerplant at Hillman and regulation by Fletcher Pond on the Upper South Branch Thunder Bay River (usable capacity, 1,750,000,000 cu ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|--------|-------|-----|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | 360 | 422 | 434 | 366 | 366 | 366 | - |
| 1946 | 360 | 572 | 460 | 533 | 535 | *1,144 | 370 | 419 | 383 | 388 | 380 | 286 | *486 |
| 1947 | 288 | 308 | 333 | 344 | 370 | 446 | 1,279 | 889 | 480 | 422 | 403 | 306 | 487 |
| 1948 | 291 | 271 | 271 | 275 | 286 | 732 | 645 | 473 | 385 | 349 | 267 | 244 | 374 |
| 1949 | 269 | 245 | 198 | 268 | 408 | 544 | 403 | 288 | 360 | 360 | 278 | 236 | 321 |
| 1950 | 260 | 202 | 283 | 276 | 225 | 494 | 807 | 411 | 308 | 293 | 337 | 394 | 358 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1945 | 1054 | - | - | - | - | - | - | - | - | - |
| 1946 | 1054,1437 | *3,090 | Mar. 15, 1946 | 188 | *486 | - | - | *448 | - | - |
| 1947 | 1084 | 3,410 | Apr. 12, 1947 | 210 | 487 | - | - | 479 | - | - |
| 1948 | 1114 | 1,890 | Mar. 23, 1948 | 186 | 374 | - | - | 364 | - | - |
| 1949 | 1144 | 1,220 | Mar. 29, 1949 | 163 | 321 | - | - | 324 | - | - |
| 1950 | 1174 | a2,300 | Mar. 29, 1950 | 140 | 358 | - | - | - | - | - |

* Revised.

a Maximum daily discharge.

171. North Branch Thunder Bay River near Bolton, Mich.

Location.--Lat 45°08'55", long. 83°36'35", in sec. 29, T. 32 N., R. 7 E., on left bank 1½ miles upstream from mouth, 2½ miles south of Bolton, and 9 miles northwest of Alpena.

Drainage area.--184 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 675 ft (by barometer). Prior to Aug. 16, 1945, staff gage at site half a mile upstream at different datum.

Average discharge.--5 years (1945-50), 87.9 cfs.

Extremes.--1945-50: Maximum discharge, 2,330 cfs Apr. 13, 1947 (gage height, 7.00 ft), from rating curve extended above 1,370 cfs; maximum gage height, 7.98 ft Mar. 31, 1950 (ice jam); minimum discharge, 1.4 cfs Oct. 4, 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | 142 | 138 | 116 | 28.5 | 12.5 | 20.0 | - |
| 1946 | 60.0 | 233 | 79.0 | 169 | 83.9 | 552 | 106 | 93.7 | 79.6 | 40.5 | 16.7 | 17.0 | 128 |
| 1947 | 13.5 | 18.0 | 20.4 | 24.0 | 32.1 | 44.5 | 732 | 349 | 88.9 | 28.3 | 15.1 | 17.4 | 115 |
| 1948 | 14.8 | 22.4 | 30.5 | 25.7 | 27.8 | 276 | 265 | 145 | 27.5 | 22.2 | 11.5 | 4.52 | 72.8 |
| 1949 | 4.17 | 14.8 | 19.1 | 24.1 | 29.9 | 132 | 159 | 94.4 | 47.5 | 18.3 | 7.85 | 5.07 | 46.4 |
| 1950 | 5.81 | 5.86 | 15.5 | 39.5 | 32.4 | 162 | 457 | 97.4 | 25.4 | 15.3 | 19.2 | 54.2 | 77.1 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | 0.86 | 0.86 | 0.70 | 0.18 | 0.08 | 0.12 | - |
| 1946 | 0.38 | 1.42 | 0.49 | 1.06 | 0.47 | 3.46 | .64 | .59 | .48 | .25 | .10 | .10 | 9.44 |
| 1947 | .08 | .11 | .13 | .15 | .18 | .28 | 4.44 | 2.19 | .54 | .18 | .09 | .11 | 8.48 |
| 1948 | .09 | .14 | .19 | .16 | .16 | 1.73 | 1.61 | .91 | .17 | .14 | .07 | .03 | 5.40 |
| 1949 | .03 | .09 | .12 | .15 | .17 | .83 | .96 | .59 | .29 | .11 | .05 | .03 | 3.42 |
| 1950 | .04 | .04 | .10 | .24 | .18 | 1.01 | 2.77 | .61 | .15 | .10 | .12 | .33 | 5.69 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | 1,950 | Mar. 15, 1946 | 12 | 128 | 0.696 | 9.44 | 102 | 7.47 |
| 1947 | 1084 | 2,330 | Apr. 13, 1947 | 9.4 | 115 | .625 | 8.48 | 116 | 8.58 |
| 1948 | 1114 | 1,220 | Mar. 23, 1948 | 1.9 | 72.8 | .396 | 5.40 | 70.3 | 5.22 |
| 1949 | 1144 | 808 | Mar. 29, 1949 | 1.5 | 46.4 | .252 | 3.42 | 45.5 | 3.36 |
| 1950 | 1174 | 1,300 | Mar. 30, 1950 | 2.6 | 77.1 | .419 | 5.69 | - | - |

a Maximum daily discharge.

172. Lower South Branch Thunder Bay River near Hubbard Lake, Mich.

Location.--Lat 44°51'35", long. 83°35'40", in NE¼ sec. 4, T. 28 N., R. 7 E., on right bank 50 ft downstream from Hubbard Lake, 1 mile south of town of Hubbard Lake, and 8½ miles upstream from Wolf Creek.

Drainage area.--146 sq mi.

Gage.--Water-stage recorder. Datum of gage is 701.08 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--5 years (1945-50), 87.2 cfs.

Extremes.--1945-50: Maximum discharge, 530 cfs (revised) May 8, 1947; no flow May 25-27, 30, 31, 1949.

Remarks.--Flow regulated by Hubbard Lake (usable capacity, 1,310,000,000 cu ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | - | - | 67.5 | - |
| 1946 | 16.4 | 0.38 | 104 | 140 | 183 | 191 | 26.4 | 97.2 | 74.7 | 138 | 167 | 45.0 | 98.5 |
| 1947 | 75.8 | 48.6 | 76.0 | 68.6 | 89.8 | 161 | 2.38 | 238 | 101 | 138 | 127 | 112 | 104 |
| 1948 | 105 | 66.1 | 29.8 | 107 | 143 | 89.4 | 15.0 | 146 | 133 | 97.0 | 125 | 145 | 100 |
| 1949 | 114 | 94.0 | 77.6 | 96.6 | 89.2 | 2.53 | .20 | .15 | 31.2 | 64.9 | 106 | 96.4 | 64.3 |
| 1950 | 95.6 | 69.1 | 65.1 | 26.5 | 19.8 | 10.2 | 96.4 | 110 | 90.3 | 93.9 | 105 | 44.0 | 69.1 |

Yearly discharge, in cubic feet per second, of Lower South Branch Thunder Bay River near Hubbard Lake, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | - | - | - | - | - | - | - | - |
| 1946 | 1054 | *445 | Mar. 19, 20, 1946* | 0.2 | 98.5 | - | - | 105 | - |
| 1947 | 1084 | *530 | May 8, 1947* | .6 | 104 | - | - | 104 | - |
| 1948 | 1114 | *260 | June 14, 1948* | .1 | 100 | - | - | 107 | - |
| 1949 | 1144 | *182 | June 15, 1949* | 0 | 64.3 | - | - | 59.6 | - |
| 1950 | 1174 | 217 | Apr. 27, 28, 1950 | 5.2 | 69.1 | - | - | - | - |

* Revised.

173. Thunder Bay River near Alpena, Mich.

Location.--Lat 45°05'35" long. 83°30'00", in S½ sec. 7, T. 31 N., R. 8 E., at dam and powerplant of the Fletcher Paper Co., 3 miles downstream from Lower South Branch Thunder Bay River and 3 miles northwest of Alpena.

Drainage area.--1,260 sq mi., approximately.

Average discharge.--7 years (1901-8), 928 cfs.

Extremes.--1901-8: Maximum daily discharge, 7,275 cfs Apr. 9, 1904; minimum daily, about 65 cfs (revised) on many days during period, estimated leakage through dam and powerplant.

Remarks.--Daily discharge determined by computation of flow over dam and logways and through turbines. Flow regulated by Hubbard and Beaver Lakes, and by mill and powerplant at station.

Cooperation.--Records for period Jan. 1, 1906, to Dec. 31, 1908, furnished by D. W. Mead.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|-------|------|--------|--------|--------|-------|------|-------|-------|----------|
| 1901 | - | - | - | - | - | - | +2,962 | +1,236 | +736 | +673 | +614 | +684 | - |
| 1902 | +788 | +700 | +556 | +514 | +386 | +1,229 | +1,069 | +1,111 | +810 | +681 | +689 | +183 | +730 |
| 1903 | +559 | +925 | +483 | 565 | 699 | 2,117 | 1,482 | 792 | 551 | 616 | 1,058 | 1,002 | +905 |
| 1904 | 868 | 546 | 480 | 478 | 574 | 800 | 4,391 | 2,254 | 1,474 | 461 | 461 | 428 | 1,097 |
| 1905 | 476 | 444 | 441 | 497 | 451 | 1,268 | 1,911 | 1,262 | 905 | 492 | 479 | 371 | 749 |
| 1906 | 440 | 633 | 559 | 956 | 919 | 1,323 | 3,297 | 1,551 | 723 | 812 | 409 | 247 | 987 |
| 1907 | 631 | 1,125 | 982 | 1,321 | 853 | 1,840 | 1,629 | 1,686 | 1,136 | 523 | 451 | 466 | 1,053 |
| 1908 | 442 | 633 | 669 | 564 | 699 | 1,310 | 3,275 | 2,053 | 961 | 727 | 222 | 183 | 977 |
| 1909 | 513 | 661 | 703 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

a Mill shut down; storage pond refilling Sept. 1-12.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1901 | - | - | - | - | - | - | +2.62 | +1.13 | +0.65 | +0.62 | +0.56 | +0.61 | - |
| 1902 | +0.72 | +0.62 | +0.51 | +0.47 | +0.32 | +1.12 | +1.95 | +1.02 | +0.72 | +0.62 | +0.63 | +0.16 | +7.86 |
| 1903 | +0.51 | +0.82 | +0.44 | .51 | .57 | 1.93 | 1.29 | .71 | .49 | .55 | .95 | .88 | +9.65 |
| 1904 | .78 | .48 | .44 | .44 | +0.49 | +0.73 | 3.88 | 2.06 | 1.31 | .42 | .42 | .38 | +11.83 |
| 1905 | .44 | .39 | .40 | .46 | .36 | 1.16 | 1.70 | 1.15 | .45 | .80 | .44 | .33 | 8.08 |
| 1906 | .40 | .56 | .51 | .87 | .76 | 1.20 | 2.90 | 1.42 | .64 | .74 | .37 | .22 | 10.59 |
| 1907 | .58 | 1.00 | .90 | 1.21 | .69 | 1.68 | 1.44 | 1.54 | 1.00 | .48 | .41 | .41 | 11.54 |
| 1908 | .40 | .56 | .61 | .51 | .60 | 1.19 | 2.89 | 1.87 | .95 | .66 | .20 | .16 | 10.50 |
| 1909 | .47 | .59 | .64 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

a Mill shut down; storage pond refilling Sept. 1-12.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 83 | - | - | - | - | - | - | - | - |
| 1902 | 83 | 3,796 | Mar. 15, 1902 | (a) | +730 | +0.579 | +7.86 | +722 | +7.78 |
| 1903 | 97 | 4,864 | Mar. 22, 1903 | (a) | +905 | +0.718 | +9.65 | 903 | 9.58 |
| 1904 | 129 | 7,275 | Apr. 9, 1904 | (a) | 1,097 | .871 | +11.83 | 1,053 | +11.36 |
| 1905 | 170 | 6,326 | Mar. 31, 1905 | (a) | 749 | .594 | 8.08 | 771 | +8.32 |
| 1906 | 244 | 5,849 | Mar. 10, 1906 | (a) | 987 | .783 | 10.59 | 1,081 | +11.60 |
| 1907 | 244 | 4,989 | Mar. 29, 1907 | (a) | 1,053 | .836 | 11.34 | 969 | +10.43 |
| 1908 | 244 | 4,648 | Apr. 16, 1908 | (a) | 977 | .775 | 10.50 | 989 | +10.63 |
| 1909 | 244 | - | - | - | - | - | - | - | - |

† Corrected.

a Minimum day occurred when mill was shut down and only leakage flow was present. This has been reported as from 10 to 64 cfs. However, discharge measurements made in April 1906 and December 1908 indicate total leakage to be about 65 cfs. Published discharges less than 64 cfs are probably in error and should not be used.

174. Middle Branch Au Sable River at Grayling, Mich.

Location.--Lat 44°39'35", long. 84°42'45", in SE $\frac{1}{4}$ sec. 7, T. 26 N., R. 3 W., on right bank 65 ft upstream from bridge on U. S. Highway 27 at Grayling, and three-quarters of a mile upstream from East Branch.

Drainage area.--110 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,123.49 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1942-50), 77.5 cfs.

Extremes.--1942-50: Maximum discharge, 274 cfs June 2, 1943 (gage height, 3.00 ft); minimum, 28 cfs Apr. 21, 1946.

Remarks.--Diurnal fluctuation caused by powerplant 2.5 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | *61.0 | *66.4 | 68.0 | 65.5 | 65.0 | 80.5 | 130 | 97.5 | 132 | 89.5 | 71.0 | 66.6 | *82.8 |
| 1944 | 74.2 | 108 | 81.4 | 82.5 | 78.7 | 82.3 | 101 | 90.7 | 91.9 | 66.1 | 55.8 | 67.0 | 81.5 |
| 1945 | 68.9 | 72.6 | 66.5 | 60.9 | 63.0 | 104 | 91.5 | 90.8 | 95.6 | 63.7 | 61.2 | 88.0 | 77.2 |
| 1946 | 102 | 99.0 | 79.9 | 89.7 | 73.1 | 119 | 89.5 | 77.9 | 71.1 | 67.0 | 54.5 | 62.4 | 82.3 |
| 1947 | 59.0 | 67.5 | 63.0 | 65.7 | 65.4 | 66.1 | 148 | 133 | 90.0 | 75.7 | 60.4 | 76.4 | 80.6 |
| 1948 | 69.0 | 72.4 | 74.8 | 65.7 | 61.7 | 97.2 | 120 | 84.0 | 81.1 | 79.1 | 60.6 | 51.6 | 76.5 |
| 1949 | 57.8 | 69.3 | 66.2 | 69.9 | 69.9 | 86.2 | 94.3 | 75.5 | 77.9 | 64.7 | 55.5 | 54.3 | 70.1 |
| 1950 | 53.3 | 56.2 | 67.6 | 72.5 | 62.8 | 71.6 | 104 | 78.0 | 64.0 | 61.1 | 61.0 | 71.5 | 68.7 |

* Not previously published; estimated, or partly estimated, on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1943 | *0.64 | *0.67 | 0.71 | 0.69 | 0.62 | 0.84 | 1.32 | 1.02 | 1.34 | 0.94 | 0.74 | 0.68 | *10.21 |
| 1944 | .78 | 1.10 | .85 | .86 | .77 | .86 | 1.02 | .95 | .93 | .69 | .58 | .68 | 10.07 |
| 1945 | .72 | .74 | .70 | .64 | .60 | 1.09 | .93 | .95 | .97 | .67 | .64 | .89 | 9.54 |
| 1946 | 1.07 | 1.00 | .84 | .94 | .69 | 1.24 | .91 | .82 | .72 | .70 | .57 | .63 | 10.13 |
| 1947 | .62 | .68 | .66 | .68 | .62 | .69 | 1.51 | 1.40 | .91 | .77 | .63 | .78 | 9.95 |
| 1948 | .72 | .73 | .78 | .69 | .60 | 1.02 | 1.22 | .88 | .82 | .83 | .64 | .52 | 9.45 |
| 1949 | .61 | .70 | .69 | .73 | .68 | .90 | .96 | .79 | .79 | .68 | .58 | .55 | 8.64 |
| 1950 | .56 | .57 | .71 | .76 | .59 | .75 | 1.05 | .82 | .65 | .64 | .64 | .73 | 8.47 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1943 | 974 | 274 | June 2, 1943 | - | *82.8 | *0.753 | *10.21 | 88.4 | 10.92 |
| 1944 | 1004 | 194 | Nov. 9, 1943 | 45 | 81.5 | .741 | 10.07 | 76.9 | 9.50 |
| 1945 | 1054 | 222 | May 28, 1945 | 51 | 77.2 | .702 | 9.54 | 83.4 | 10.29 |
| 1946 | 1054 | 183 | Mar. 16, 1946 | 30 | 82.3 | .748 | 10.13 | 74.5 | 9.18 |
| 1947 | 1084 | 241 | Apr. 12, 1947 | 47 | 80.6 | .733 | 9.95 | 82.9 | 9.22 |
| 1948 | 1114 | 183 | Mar. 22, 1948 | 44 | 76.5 | .695 | 9.45 | 74.5 | 9.22 |
| 1949 | 1144 | 165 | Mar. 30, 1949 | 47 | 70.1 | .637 | 8.64 | 68.8 | 8.48 |
| 1950 | 1174 | 153 | Apr. 19, 1950 | 38 | 68.7 | .625 | 8.47 | - | - |

* Not previously published.

175. Au Sable River near Red Oak, Mich.^{1/}

Location.--Lat 84°18', long. 44°41', on line between secs. 2 and 3, T. 26 N., R. 1 E., 5 miles downstream from North Branch Au Sable River and 2 $\frac{1}{2}$ miles south of Red Oak.

Drainage area.--1,000 sq mi, approximately.

Gage.--Chain gage. Altitude of gage is about 1,000 ft. Prior to June 1916, staff gage at site 5 miles upstream at datum 1,004.69 ft above mean sea level (levels by Fargo Engineering Co.).

Average discharge.--7 years (1908-15), 923 cfs.

Extremes.--1908-16: Maximum daily discharge, 2,850 cfs May 29, 1912 (gage height, 4.7 ft, site and datum then in use); minimum observed, 525 cfs Jan. 28, 1931 (gage height, 5.84 ft).

Cooperation.--Records for period Oct. 1, 1914, to May 31, 1916, not previously published by Geological Survey, were furnished by Fargo Engineering Co.; figures of daily discharge not available.

^{1/} Published as "near Lovells" 1908-14.

Monthly and yearly mean discharge, in cubic feet per second, of Au Sable River near Red Oak, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1909 | 629 | 677 | 689 | *724 | 757 | 722 | 1,600 | 1,420 | 996 | 852 | 727 | 699 | *874 |
| 1910 | 757 | 843 | 875 | 732 | 702 | 1,080 | 1,050 | 839 | 749 | 618 | 650 | 743 | 803 |
| 1911 | 757 | 776 | 750 | 675 | 683 | 879 | 1,460 | 1,370 | 1,060 | 745 | 733 | 752 | 887 |
| 1912 | 1,160 | 1,290 | 1,340 | 1,000 | 900 | 864 | 1,520 | 1,590 | 1,380 | 1,090 | 1,130 | 1,220 | 1,207 |
| 1913 | 921 | 1,150 | 1,190 | 946 | 805 | 1,350 | 1,750 | 1,220 | 918 | 750 | 718 | 727 | 1,038 |
| 1914 | 871 | 907 | 842 | 727 | 682 | 797 | 1,260 | 1,040 | 788 | 673 | 714 | 664 | 830 |
| 1915 | 790 | 800 | 720 | 760 | 780 | 800 | 1,190 | 890 | 800 | 730 | 790 | 810 | 820 |
| 1916 | 800 | 820 | 800 | 360 | 810 | 890 | 1,860 | 1,380 | - | - | - | - | - |
| 1931 | - | - | *655 | 630 | 620 | 639 | 925 | 954 | 753 | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1909 | 0.73 | 0.76 | 0.79 | *0.83 | 0.79 | 0.83 | 1.78 | 1.64 | 1.11 | 0.98 | 0.84 | 0.78 | *11.86 |
| 1910 | .87 | .94 | 1.01 | .84 | .73 | 1.24 | 1.17 | .97 | .84 | .71 | .75 | .83 | 10.90 |
| 1911 | .87 | .87 | .86 | .78 | .71 | 1.01 | 1.63 | 1.58 | 1.18 | .86 | .85 | .84 | 12.04 |
| 1912 | 1.34 | 1.44 | 1.54 | 1.15 | .97 | 1.00 | 1.70 | 1.83 | 1.54 | 1.26 | 1.30 | 1.36 | 16.43 |
| 1913 | 1.06 | 1.28 | 1.37 | 1.09 | .84 | .56 | 1.95 | 1.41 | 1.02 | .86 | .83 | .81 | 14.08 |
| 1914 | 1.00 | 1.01 | .97 | .84 | .71 | .92 | 1.41 | 1.20 | .88 | .78 | .82 | .74 | 11.28 |
| 1915 | .91 | .89 | .83 | .88 | .81 | .92 | 1.33 | 1.02 | .89 | .84 | .91 | .90 | 11.13 |
| 1916 | .92 | .92 | .92 | 1.00 | .87 | 1.02 | 2.08 | 1.59 | - | - | - | - | - |
| 1931 | - | - | *.76 | .73 | .65 | .74 | 1.03 | 1.10 | .84 | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|--------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | 354 | - | - | - | - | - | - | - | - |
| 1909 | 354, 1437 | 2,060 | Apr. 13, 1909 | 586 | *874 | *0.874 | *11.86 | *914 | *12.40 |
| 1910 | 354 | 1,770 | Mar. 24, 25, 1910 | 540 | 803 | .803 | 10.90 | 787 | 10.68 |
| 1911 | 354 | 2,250 | Apr. 14, 15, 1911 | 586 | 887 | .887 | 12.04 | 1,010 | 13.76 |
| 1912 | 354 | 2,850 | May 29, 1912 | - | 1,207 | 1.21 | 16.43 | 1,160 | 15.82 |
| 1913 | 354 | 2,370 | Mar. 24, Apr. 4, 5 | - | 1,038 | 1.04 | 14.08 | 984 | 13.35 |
| 1914 | 354 | 1,640 | Apr. 12, 1914 | - | - | .830 | 11.28 | 805 | 10.93 |
| 1915 | - | *1,840 | Apr. 12, 1915* | - | *820 | *.820 | *11.13 | *830 | *11.26 |
| 1916 | - | *2,730 | Apr. 2, 1916* | - | - | - | - | - | - |
| 1931 | 714 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

176. Au Sable River at Bamfield, Mich.

Location.--Lat 44°34', long. 83°48', in NW $\frac{1}{4}$ sec. 14, T. 25 N., R. 5 E., just downstream from Bamfield Creek, three-quarters of a mile southwest of Bamfield, and 4 miles west of Glennie.

Drainage area.--1,420 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 787.35 ft above mean sea level, unadjusted. Prior to May 13, 1913, staff gage 600 ft upstream at datum 0.44 ft higher.

Average discharge.--11 years (1902-13), 1,444 cfs.

Extremes.--1902-13: Maximum discharge observed, 4,800 cfs Mar. 24, 1913 (gage height, 6.4 ft), from rating curve extended above 2,600 cfs; minimum daily discharge, 850 cfs Jan. 13, 1909, during period of backwater from ice, but may have been less during other ice periods.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1903 | 1,067 | 1,352 | 1,299 | *1,200 | *1,300 | *2,000 | 1,938 | 1,380 | 1,117 | 1,124 | 1,465 | 1,008 | *1,390 |
| 1904 | 1,228 | 1,107 | *1,100 | *1,100 | *1,200 | *1,400 | 2,698 | 2,142 | 1,506 | 1,290 | 1,212 | 1,108 | *1,424 |
| 1905 | 1,175 | 1,094 | *1,100 | *1,100 | *1,000 | *1,700 | 1,478 | 1,631 | 1,379 | 1,133 | 1,134 | 1,114 | *1,255 |
| 1906 | 1,069 | 1,202 | 1,175 | 1,270 | *1,300 | 1,350 | 2,280 | 1,610 | 1,570 | 1,320 | 1,210 | 1,120 | *1,370 |
| 1907 | 1,180 | 1,580 | *1,500 | *1,600 | *1,300 | *1,800 | 2,550 | 2,280 | 2,450 | 1,370 | 1,140 | 1,210 | *1,660 |
| 1908 | 1,260 | 1,200 | 1,170 | *1,100 | *1,200 | *1,300 | 2,440 | 1,950 | 1,680 | 1,300 | 1,150 | 1,060 | *1,400 |
| 1909 | 1,120 | 1,150 | 1,260 | 1,160 | 1,130 | 1,180 | 2,470 | 2,090 | 1,460 | 1,350 | 1,160 | 1,150 | *1,390 |
| 1910 | 1,180 | 1,290 | 1,320 | 1,140 | 1,080 | *1,680 | 1,560 | 1,310 | 1,220 | 1,120 | 1,080 | 1,210 | *1,270 |
| 1911 | 1,200 | 1,240 | 1,170 | 1,040 | 1,080 | 1,460 | 2,160 | 2,000 | 1,580 | 1,220 | 1,180 | 1,220 | 1,380 |
| 1912 | 1,700 | 1,920 | 2,030 | 1,500 | 1,400 | 1,330 | 2,340 | 2,360 | 2,000 | 1,630 | 1,640 | 1,720 | 1,800 |
| 1913 | 1,310 | 1,680 | 1,710 | 1,390 | 1,200 | 2,130 | 2,620 | 1,760 | 1,390 | 1,150 | 1,110 | 1,100 | 1,550 |
| 1914 | 1,230 | 1,410 | 1,300 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for Manistee River near Sherman and Thunder Bay River near Alpena.

a Only monthly figures revised; revised figures of daily discharge not available.

Monthly and yearly runoff, in inches, of Au Sable River at Bamfield, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|--------|-------|-------|--------|------|------|------|------|------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | - | 0.79 | - |
| 1903 | 0.86 | 1.06 | 1.05 | *0.97 | *0.95 | *1.62 | 1.52 | 1.12 | 0.88 | 0.91 | 1.19 | 1.13 | *13.26 |
| 1904 | .99 | .87 | *.89 | *.89 | *.91 | *1.14 | 2.11 | 1.75 | 1.18 | 1.04 | .98 | .87 | *13.60 |
| 1905 | .95 | .86 | *.89 | *.89 | *.73 | *1.58 | 1.16 | 1.31 | 1.08 | .92 | .92 | .87 | *11.96 |
| 1906 | .86 | .94 | .95 | 1.03 | *a.95 | 1.10 | 1.80 | 1.30 | 1.24 | 1.07 | .98 | .88 | *13.10 |
| 1907 | .96 | 1.24 | *a1.22 | *1.30 | *.95 | *1.46 | 2.01 | 1.86 | 1.93 | 1.11 | .93 | .95 | *15.92 |
| 1908 | 1.02 | .94 | .95 | *.89 | *.91 | *1.06 | 1.92 | 1.58 | 1.30 | 1.05 | .93 | .83 | *13.38 |
| 1909 | .91 | .90 | 1.02 | .94 | .83 | .96 | 1.94 | 1.70 | 1.15 | 1.10 | .94 | .90 | *13.29 |
| 1910 | .96 | 1.01 | 1.07 | .93 | .79 | *a1.56 | 1.23 | 1.06 | .96 | .91 | .88 | .95 | *12.11 |
| 1911 | .97 | .97 | .95 | .84 | .79 | 1.19 | 1.70 | 1.63 | 1.24 | .99 | .96 | .96 | 13.19 |
| 1912 | 1.38 | 1.51 | 1.65 | 1.22 | 1.06 | 1.08 | 1.84 | 1.91 | 1.57 | 1.33 | 1.33 | 1.35 | 17.23 |
| 1913 | 1.06 | 1.32 | 1.38 | 1.13 | .88 | 1.73 | 2.06 | 1.43 | 1.09 | .93 | .90 | .86 | 14.77 |
| 1914 | 1.00 | 1.11 | 1.05 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of weather records and records for Manistee River near Sherman and Thunder Bay River near Alpena.

a Only monthly figures revised; revised figures of daily discharge not available.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|--------------------|-------------|--------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1902 | 129 | - | - | - | - | - | - | - | - | - | - |
| 1903 | 129 | *2,670 | Mar. 21, 1903* | - | *1,390 | *0.975 | *13.26 | *1,366 | *13.04 | - | - |
| 1904 | 129 | *3,650 | Apr. 13, 26, 1904* | - | *1,424 | *.999 | *13.60 | *1,418 | *13.54 | - | - |
| 1905 | 170 | *2,730 | Mar. 27-30, 1905* | - | *1,255 | *.881 | *11.96 | *1,261 | *12.01 | - | - |
| 1906 | 206 | *3,050 | Apr. 11, 1906* | - | *1,370 | *.965 | *13.10 | *1,440 | *13.77 | - | - |
| 1907 | 244 | *4,220 | Mar. 29, 1907* | - | *1,660 | *1.17 | *15.92 | *1,611 | *15.41 | - | - |
| 1908 | 244 | *3,220 | Apr. 11, 1908* | - | *1,400 | *.986 | *13.38 | *1,390 | *13.30 | - | - |
| 1909 | 354 | *3,480 | Apr. 14, 1909* | 850 | 1,390 | .979 | 13.29 | 1,410 | 13.50 | - | - |
| 1910 | 354 | *2,810 | Mar. 24, 1910* | - | *1,270 | *.894 | *12.11 | *1,250 | *11.96 | - | - |
| 1911 | 354 | *4,120 | Apr. 15, 1911* | - | 1,380 | .972 | 13.19 | 1,550 | 14.84 | - | - |
| 1912 | 354 | *4,750 | May 30, 1912* | - | 1,800 | 1.27 | 17.23 | 1,720 | 16.45 | - | - |
| 1913 | 354 | *a4,800 | Mar. 24, 1913* | - | 1,550 | 1.09 | 14.77 | 1,480 | 14.17 | - | - |
| 1914 | 354 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

a Maximum observed.

177. Au Sable River near Au Sable, Mich.

Location.--Lat 44°26', long. 83°26', in sec. 35, T. 24 N., R. 8 E., at Foote hydraulic plant of Consumers Power Co., 5 miles northwest of Au Sable, and 10 miles upstream from mouth.

Drainage area.--1,540 sq mi, approximately.

Extremes.--1939-40: Maximum daily discharge, 2,900 cfs July 4, 1940; leakage only Jan. 1, June 9, July 27, 1940.

Remarks.--Flow regulated by powerplants at and upstream from station.

Cooperation.--Records furnished by Consumers Power Co.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1939 | - | - | - | - | - | - | - | - | - | 794 | 1,036 | 973 | - |
| 1940 | 921 | 989 | 966 | 871 | 888 | 1,024 | 1,314 | 1,454 | 1,127 | 1,008 | 1,132 | 1,161 | 1,071 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1939 | - | - | - | - | - | - | - | - | - | 0.59 | 0.78 | 0.71 | - |
| 1940 | 0.69 | 0.72 | 0.72 | 0.65 | 0.62 | 0.77 | 0.95 | 1.09 | 0.82 | .75 | .85 | .84 | 9.47 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|--------------|----------------|-------|-----------------------|------------------------|------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874 | - | - | - | - | - | - | - | - |
| 1940 | 894 | 2,900 | July 4, 1940 | - | 1,071 | 0.695 | 9.47 | - | - |

178. Houghton Creek near Lupton, Mich.

Location.--Lat 44°23'50", long. 84°02'55", in SE $\frac{1}{4}$ sec. 10, T. 23 N., R. 3 E., on right bank half a mile upstream from mouth, 3 miles downstream from Wilkins Creek, and 3 miles southwest of Lupton.

Drainage area.--27 sq mi, approximately.

Supplemental records available.--Records of water temperature for water year 1950 are contained in W.S.P. 1186.

Gage.--Water-stage recorder. Altitude of gage is 860 ft (by barometer).

Remarks.--Some regulation at low flow by sawmill on Sandback Creek at Rose City.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | - | #43.3 | 42.1 | 46.8 | - |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | - | #1.85 | 1.80 | 1.93 | - |

* Not previously published; estimated on basis of records for nearby stations.

179. Rifle River at "The Ranch", near Lupton, Mich.

Location.--Lat 44°23'35", long. 84°02'15", in SW $\frac{1}{4}$ sec. 11, T. 23 N., R. 3 E., on left bank a quarter of a mile downstream from Houghton Creek and 3 miles southwest of Lupton.

Drainage area.--54 sq-mi, approximately.

Supplemental records available.--Records of water temperature for the period July to September 1950 are contained in W.S.P. 1186.

Gage.--Water-stage recorder and wooden control. Altitude of gage is 850 ft (by barometer).

Remarks.--Some regulation at low flow from sawmill on Sandback Creek at Rose City.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | - | #69.6 | 66.0 | 77.0 | - |

* Not previously published; estimated on basis of records for stations on nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | - | #1.49 | 1.41 | 1.59 | - |

* Not previously published; estimated on basis of records for stations on nearby streams.

180. Rifle River at Michigan Highway 70, near Sterling, Mich.

Location.--Lat 44°04', long. 84°02', in SW $\frac{1}{4}$ sec. 5, T. 19 N., R. 4 E., on left bank 30 ft downstream from bridge on State Highway 70, 3 miles north of Sterling, and 18 miles upstream from mouth.

Drainage area.--320 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 641 ft (by barometer). Jan: 13, 1937, to June 7, 1938, chain gage and June 8, 1938, to Jan. 10, 1939, wire-weight gage, at same site and datum.

Average discharge.--14 years (1936-50), 302 cfs.

Extremes.--1936-50: Maximum discharge, 5,340 cfs Mar. 28, 1950 (gage height, 13.74 ft), from rating curve extended above 2,900 cfs; minimum, 87 cfs Dec. 2, 1946.

Remarks.--Diurnal fluctuation during low flow caused by powerplant above station.

STREAMS TRIBUTARY TO LAKE HURON

Monthly and yearly mean discharge, in cubic feet per second,
of Rifle River at Michigan Highway 70, near Sterling, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1937 | *250 | *220 | *270 | *373 | 316 | 253 | 607 | 345 | 206 | 170 | 154 | 213 | *281 |
| 1938 | 224 | 242 | 168 | 243 | 741 | *897 | 405 | 305 | 197 | 163 | 166 | 175 | *325 |
| 1939 | 180 | 213 | 253 | 264 | 250 | 527 | 595 | 325 | 318 | 180 | 238 | 185 | 290 |
| 1940 | 195 | *203 | *216 | 209 | 166 | 250 | 560 | *566 | *260 | *166 | *238 | 221 | *254 |
| 1941 | 247 | 368 | 538 | 416 | 340 | 559 | 806 | 256 | 189 | 141 | 146 | 184 | 349 |
| 1942 | 467 | 448 | 334 | 287 | 225 | 835 | 419 | 286 | 301 | 158 | 150 | 196 | 343 |
| 1943 | 197 | 298 | 305 | 249 | 475 | 874 | 616 | 539 | 681 | 263 | 197 | 174 | 405 |
| 1944 | 185 | 296 | 201 | 179 | 240 | 353 | 513 | 355 | 281 | 168 | 137 | 163 | 255 |
| 1945 | 171 | 210 | 170 | 155 | 175 | 390 | 262 | 450 | 842 | 191 | 151 | 181 | 279 |
| 1946 | 242 | 304 | 231 | 312 | 256 | 837 | 266 | 267 | 255 | 210 | 140 | 154 | 290 |
| 1947 | 159 | 216 | 202 | 222 | 203 | 313 | 1,039 | 656 | 281 | 181 | 144 | 208 | 318 |
| 1948 | 171 | 232 | 231 | 186 | 190 | 826 | 589 | 348 | 219 | 154 | 128 | 124 | 284 |
| 1949 | 150 | 212 | 214 | 221 | 289 | 474 | 334 | 248 | 188 | 163 | 132 | 157 | 231 |
| 1950 | 150 | 184 | 251 | 425 | 232 | 786 | 869 | 329 | 189 | 164 | 149 | 182 | 326 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations, weather records, and recorded range in stage.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|-------|------|-------|------|------|------|-------|----------|
| 1937 | *0.90 | *0.77 | *0.97 | *1.34 | 1.03 | 0.91 | 2.12 | 1.24 | 0.72 | 0.81 | 0.55 | 0.74 | *11.90 |
| 1938 | .81 | .84 | .61 | .88 | 2.42 | *3.25 | 1.42 | 1.10 | .69 | .59 | .60 | .61 | *15.80 |
| 1939 | .58 | .74 | .91 | .95 | .81 | 1.90 | 2.08 | 1.18 | 1.11 | .58 | .85 | .64 | 12.33 |
| 1940 | .70 | *.71 | *.78 | .75 | .56 | .90 | 1.95 | *1.32 | *.91 | *.60 | *.86 | .77 | *10.81 |
| 1941 | .89 | 1.28 | 1.94 | 1.50 | 1.11 | 2.02 | 2.81 | .92 | .66 | .51 | .52 | .64 | 14.80 |
| 1942 | 1.68 | 1.56 | 1.20 | 1.03 | .73 | 3.01 | 1.46 | 1.03 | 1.05 | .57 | .54 | .68 | 14.54 |
| 1943 | .71 | 1.04 | 1.10 | .90 | 1.54 | 3.15 | 2.14 | 1.94 | 2.38 | .95 | .71 | .81 | 17.17 |
| 1944 | .67 | 1.03 | .72 | .64 | .81 | 1.27 | 1.78 | 1.28 | .98 | .61 | .49 | .57 | 10.85 |
| 1945 | .62 | .73 | .61 | .56 | .57 | 1.41 | .91 | 1.63 | 2.93 | .69 | .54 | .63 | 11.83 |
| 1946 | .87 | 1.06 | .83 | 1.12 | .83 | 3.02 | .93 | .96 | .89 | .76 | .50 | .54 | 12.31 |
| 1947 | .57 | .75 | .73 | .80 | .66 | 1.13 | 3.63 | 2.36 | .98 | .65 | .52 | .73 | 13.51 |
| 1948 | .62 | .81 | .83 | .67 | .64 | 2.97 | 2.05 | 1.26 | .76 | .55 | .46 | .43 | 12.05 |
| 1949 | .54 | .74 | .77 | .80 | .94 | 1.71 | 1.16 | .89 | .66 | .59 | .48 | .55 | 9.83 |
| 1950 | .54 | .64 | .90 | 1.53 | .76 | 2.84 | 3.04 | 1.19 | .66 | .59 | .54 | .63 | 15.86 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1937 | 824 | *2,100 | Apr. 27, 1937 | *116 | *281 | *0.878 | *11.90 | *272 | *11.52 | |
| 1938 | 854,1437 | *2,140 | Mar. 21, 1938* | 116 | 325 | *1.02 | *13.80 | *324 | *13.77 | |
| 1939 | 874 | *2,000 | Mar. 25 or 26 | 134 | 290 | .906 | 12.33 | *289 | *12.29 | |
| 1940 | 894 | *2,200 | Mar. 31, 1940 | *119 | *254 | *.794 | *10.81 | *299 | *12.73 | |
| 1941 | 924 | 1,680 | Apr. 3, 1941 | 120 | 349 | 1.09 | 14.80 | 357 | 15.13 | |
| 1942 | 954 | 2,660 | Mar. 18, 1942 | 134 | 343 | 1.07 | 14.54 | 306 | 12.95 | |
| 1943 | 974 | 3,610 | June 2, 1943 | 151 | 405 | 1.27 | 17.17 | 395 | 16.74 | |
| 1944 | 1004 | 1,080 | Apr. 25, 1944 | 119 | 255 | .797 | 10.85 | 245 | 10.39 | |
| 1945 | 1034 | 3,560 | June 3, 1945 | 130 | 279 | .872 | 11.83 | 298 | 12.63 | |
| 1946 | 1054 | 2,460 | Mar. 15, 1946 | 126 | 290 | .906 | 12.31 | 274 | 11.60 | |
| 1947 | 1084 | 2,860 | Apr. 6, 1947 | 119 | 318 | .984 | 13.51 | 323 | 13.72 | |
| 1948 | 1114 | 4,890 | Mar. 21, 1948 | 109 | 284 | .868 | 12.05 | 279 | 11.84 | |
| 1949 | 1144 | 1,110 | Mar. 28, 1949 | 110 | 231 | .722 | 9.83 | 232 | 9.86 | |
| 1950 | 1174 | 5,340 | Mar. 28, 1950 | 120 | 326 | 1.02 | 13.86 | - | - | |

* Revised.

* Not previously published.

181. Shiawassee River at Byron, Mich.

Location.--Lat 42°49'25", long. 83°56'45", on line between secs. 14 and 23, T. 5 N., R. 4 E., on upstream side of highway bridge at Byron, a quarter of a mile downstream from milldam which is just upstream from South Branch Shiawassee River.

Drainage area.--368 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 822 ft (from topographic map).

Extremes.--1947-50: Maximum discharge, 2,860 cfs May 13, 1948 (gage height, 12.51 ft); minimum observed, 36 cfs Sept. 6, 1948 (gage height, 4.01 ft).

Remarks.--Low flow slightly regulated at times by mill above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|----------|
| 1948 | *228 | *325 | *433 | 184 | 450 | 1,149 | 584 | 914 | 473 | 271 | 85.8 | 71.8 | *431 |
| 1949 | 98.4 | 175 | 155 | 350 | 726 | 345 | 543 | 207 | 174 | 108 | 155 | 96.0 | 257 |
| 1950 | 127 | 112 | 434 | 681 | 542 | 920 | 1,055 | 359 | 307 | 111 | 102 | 215 | 423 |

* Not previously published; estimated on basis of records for stations at Owosso, near Fergus, Flint River near Flint, and Cedar River at East Lansing.

Monthly and yearly runoff, in inches, of Shiawassee River at Byron, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | *0.71 | *0.99 | *1.36 | 0.58 | 1.32 | 3.60 | 1.77 | 2.86 | 1.44 | 0.85 | 0.27 | 0.22 | *15.97 |
| 1949 | .31 | .53 | .49 | 1.10 | 2.05 | 1.08 | 1.65 | .65 | .53 | .34 | .49 | .29 | 9.51 |
| 1950 | .40 | .34 | 1.36 | 2.13 | 1.53 | 2.88 | 3.20 | 1.13 | .95 | .35 | .32 | .65 | 15.22 |

* Not previously published; estimated on basis of records for stations at Owosso, near Fergus, Flint River near Flint, and Cedar River at East Lansing.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches |
| | | Discharge | Date | | | | |
| 1948 | 1114 | 2,860 | May 13, 1948 | *37 | *431 | *1.17 | *15.97 |
| 1949 | 1144 | 2,270 | Feb. 17, 1949 | 64 | 257 | .698 | 9.51 |
| 1950 | *1174 | 2,220 | Apr. 6, 1950 | 56 | 413 | 1.12 | 15.22 |

* Not previously published.

182. Shiawassee River at Owosso, Mich.

Location.--Lat 43°00'54", long. 84°10'52", in SW $\frac{1}{4}$ sec. 12, T. 7 N., R. 2 E., on right bank on grounds of sewage treatment plant, $\frac{1}{2}$ miles north of Owosso.

Drainage area.--538 sq mi.

Supplemental records available.--Gage-height records for flood seasons, collected in this vicinity 1910-28, are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 707.25 ft above mean sea level, datum of 1929. Prior to Oct. 15, 1933, at site $\frac{1}{2}$ miles upstream at datum 5.46 ft higher (revised).

Average discharge.--19 years (1931-50), 316 cfs.

Extremes.--1931-50: Maximum discharge, 6,240 cfs Apr. 6, 1947 (gage height, 10.35 ft); minimum, 0.2 cfs July 27, 1934 (gage height, 1.12 ft).

Remarks.--Flow regulated below about 800 cfs by powerplant at Shiawassee town.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|-------|-------|-------|-------|------|------|-------|-------|----------|
| 1931 | - | - | - | - | - | *174 | 162 | 122 | 87.4 | 29.5 | 13.2 | 25.0 | - |
| 1932 | 37.4 | 84.9 | 169 | 444 | 380 | *324 | 474 | 693 | 245 | 95.3 | 44.3 | 172 | *263 |
| 1933 | 159 | 255 | 371 | 439 | 353 | 396 | 696 | 415 | 98.4 | 37.6 | 37.7 | 45.5 | 275 |
| 1934 | *94.7 | 150 | *238 | *237 | 132 | 155 | 679 | 128 | 34.0 | 24.0 | *14.8 | *34.8 | *160 |
| 1935 | *50.1 | *87.9 | *106 | *208 | *245 | 1,003 | 220 | *263 | *195 | *102 | *103 | *55.5 | *221 |
| 1936 | 58.8 | 177 | 149 | *153 | *183 | 588 | 343 | 191 | 74.5 | 24.4 | 13.9 | 53.5 | *167 |
| 1937 | 123 | 135 | 104 | 216 | 324 | 237 | 921 | *581 | *301 | 143 | 164 | *61.5 | *275 |
| 1938 | *87.2 | 106 | 156 | *259 | 1,728 | 745 | 508 | 333 | 137 | 75.1 | 72.2 | 55.2 | *346 |
| 1939 | 60.2 | 65.8 | 80.7 | 120 | 396 | 524 | 618 | 210 | 195 | 80.2 | 50.9 | 54.5 | 203 |
| 1940 | 60.2 | 70.6 | 82.4 | 66.9 | 65.6 | 250 | 549 | 203 | 273 | 144 | 105 | 174 | 170 |
| 1941 | 146 | 190 | 458 | 510 | 270 | 447 | 487 | 158 | 82.5 | 50.5 | 40.1 | 40.6 | 240 |
| 1942 | 78.8 | 185 | 134 | 121 | 282 | 1,435 | 377 | 163 | 238 | 106 | 190 | 105 | 285 |
| 1943 | 135 | 394 | 515 | 483 | 955 | 901 | 448 | 1,441 | 945 | 187 | 114 | 120 | 556 |
| 1944 | 124 | 247 | 114 | *99.3 | *399 | 656 | 704 | 533 | 142 | 61.6 | 50.8 | 52.5 | *264 |
| 1945 | 59.9 | 72.6 | 84.2 | 76.3 | 142 | 332 | 342 | 1,060 | 482 | 198 | 150 | 291 | 273 |
| 1946 | 742 | 296 | 219 | 559 | 207 | 1,166 | 231 | 222 | 235 | 92.0 | 56.1 | 46.0 | 342 |
| 1947 | 57.9 | 97.2 | 110 | 255 | 188 | 541 | 2,060 | 742 | 709 | 205 | 116 | 335 | 450 |
| 1948 | 260 | 407 | 499 | 224 | 661 | 1,682 | 764 | 1,228 | 536 | 317 | 103 | 82.1 | 564 |
| 1949 | 106 | 185 | 167 | 472 | 1,042 | 496 | 761 | 281 | 262 | 160 | 215 | 114 | 350 |
| 1950 | 140 | 124 | 599 | 1,009 | 770 | 1,351 | 1,508 | 490 | 448 | 143 | 162 | 373 | 591 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|-------|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | *0.37 | 0.34 | 0.26 | 0.18 | 0.06 | 0.03 | 0.05 | - |
| 1932 | 0.08 | 0.18 | 0.36 | 0.95 | 0.76 | *.69 | .98 | 1.48 | .51 | .20 | .09 | .36 | *6.84 |
| 1933 | .34 | .53 | .80 | .94 | .68 | .85 | 1.44 | .89 | .20 | .08 | .06 | .09 | 6.92 |
| 1934 | *.20 | .31 | *.51 | *.51 | .26 | .33 | 1.41 | .27 | .07 | .05 | *.03 | *.07 | *4.02 |
| 1935 | *.11 | *.18 | *.23 | *.45 | *.47 | 2.14 | .46 | *.56 | *.41 | *.22 | *.22 | *.12 | *5.57 |
| 1936 | .13 | .37 | .32 | *.33 | *.37 | 1.26 | .71 | .41 | .15 | .05 | .03 | .11 | *4.24 |
| 1937 | .26 | .28 | .22 | .46 | .63 | .51 | 1.91 | *1.25 | *.62 | .31 | .35 | *.13 | *6.93 |
| 1938 | *.19 | .22 | .33 | *.56 | 3.34 | 1.59 | 1.05 | .71 | .28 | .16 | .15 | .11 | *8.69 |
| 1939 | .13 | .14 | .17 | .26 | .77 | 1.12 | 1.27 | .45 | .40 | .17 | .11 | .11 | 5.10 |
| 1940 | .13 | .15 | .18 | .14 | .13 | .54 | 1.14 | .43 | .57 | .31 | .23 | .36 | 4.31 |
| 1941 | .31 | .39 | .98 | 1.09 | .52 | .96 | 1.01 | .34 | .17 | .11 | .09 | .08 | 6.05 |
| 1942 | .17 | .38 | .29 | .26 | .55 | 3.08 | .78 | .35 | .49 | .23 | .41 | .22 | 7.21 |
| 1943 | .29 | .82 | 1.10 | 1.04 | 1.85 | 2.12 | .93 | 3.09 | 1.96 | .36 | .24 | .25 | 14.05 |
| 1944 | .27 | .51 | .24 | *.21 | *.78 | 1.41 | 1.46 | 1.14 | .29 | .13 | .11 | .11 | *6.66 |
| 1945 | .13 | .15 | .18 | .16 | .27 | .71 | .71 | 2.27 | 1.00 | .42 | .28 | .60 | 6.88 |
| 1946 | 1.59 | .61 | .47 | 1.20 | .40 | 2.50 | .48 | .48 | .49 | .20 | .12 | .10 | 8.64 |
| 1947 | .12 | .20 | .24 | .55 | .36 | 1.16 | 4.27 | 1.59 | 1.47 | .44 | .25 | .70 | 11.35 |
| 1948 | .56 | .84 | 1.07 | .48 | 1.33 | 3.61 | 1.58 | 2.63 | 1.11 | .68 | .22 | .17 | 14.28 |
| 1949 | .23 | .38 | .36 | 1.01 | 2.02 | 1.06 | 1.57 | .60 | .54 | .34 | .46 | .24 | 8.81 |
| 1950 | .30 | .26 | 1.28 | 2.17 | 1.49 | 2.89 | 3.12 | 1.05 | .93 | .31 | .35 | .77 | 14.92 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second, of Shiawassee River at Owosso, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 294 | Mar. 31, 1931 | - | - | - | - | - | - |
| 1932 | 729,1337 | 1,630 | May 12, 1932 | 11 | *263 | *0.489 | *6.64 | *304 | *7.69 |
| 1933 | 744 | 1,400 | Apr. 1, 1933 | 15 | 275 | .511 | 6.92 | *249 | *6.27 |
| 1934 | 759,1337 | 1,440 | Apr. 4, 1934 | 2,0 | *160 | *.297 | *4.02 | *140 | *3.52 |
| 1935 | 784 | 1,960 | Mar. 11, 1935 | 18 | *221 | *.411 | *5.57 | *232 | *5.87 |
| 1936 | 804,1337 | 1,110 | Mar. 12, 1936 | 4.8 | *167 | *.310 | *4.24 | *166 | *4.18 |
| 1937 | 824,1337 | 2,310 | Apr. 22, 1937 | *35 | *275 | *.511 | *6.93 | *274 | *6.91 |
| 1938 | 854,1337 | 3,670 | Feb. 18, 1938 | *29 | *346 | *.643 | *9.69 | *334 | *8.39 |
| 1939 | 874 | 1,720 | Apr. 17, 1939 | 14 | 203 | .377 | 5.10 | 203 | 5.12 |
| 1940 | 894 | 2,300 | Mar. 30, 1940 | 24 | 170 | .316 | 4.31 | 219 | 5.53 |
| 1941 | 924 | 1,760 | Jan. 3, 1941* | 18 | 240 | .446 | 6.05 | 206 | 5.21 |
| 1942 | 954 | 4,230 | Mar. 17, 1942 | 33 | 285 | .530 | 7.21 | 339 | 8.58 |
| 1943 | 974 | 3,940 | June 2, 1943 | 78 | 556 | 1.03 | 14.05 | 510 | 12.86 |
| 1944 | 1004,1337 | 2,750 | Feb. 27, 1944 | 32 | *264 | *.491 | *6.66 | *241 | *6.10 |
| 1945 | 1034 | 3,670 | May 16, 1945 | 42 | 273 | .507 | 6.88 | 361 | 9.09 |
| 1946 | 1054 | 3,070 | Mar. 6, 1946 | 27 | 342 | .636 | 8.64 | 258 | 6.53 |
| 1947 | 1084 | 6,240 | Apr. 6, 1947 | 25 | 450 | .836 | 11.35 | 525 | 13.26 |
| 1948 | 1114 | 6,150 | Mar. 20, 1948 | 56 | 564 | 1.05 | 14.28 | 505 | 12.78 |
| 1949 | 1144 | *4,000 | Feb. 17, 1949 | 76 | 350 | .651 | 8.81 | 384 | 9.68 |
| 1950 | 1174 | 4,100 | Apr. 4, 1950 | 71 | 591 | 1.10 | 14.92 | - | - |

* Revised.

* Not previously published.

183. Shiawassee River near Fergus, Mich.

Location.--Lat 43°15'17", long. 84°06'20", in sec. 22, T. 10 N., R. 3 E., on downstream handrail of highway bridge, 1.2 miles east of Fergus and 1 3/4 miles upstream from Bear Creek.

Drainage area.--637 sq mi.

Gage.--Wire-weight gage. Datum of gage is 587.80 ft above mean sea level, datum of 1929.

Average discharge.--11 years (1939-50), 444 cfs.

Extremes.--1939-50: Maximum discharge, 7,500 cfs (revised) Apr. 6, 1947 (includes estimated overflow bypassing gage); maximum gage height observed, 12.72 ft Mar. 8, 1950 (ice jam); minimum discharge observed, 29 cfs Aug. 31, 1946.

Remarks.--Some regulation at low flow by powerplant above Owosso.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|--------|-------|-------|-------|------|------|-------|----------|
| 1940 | *68 | *77 | *88 | 80.5 | 76.4 | 343 | 625 | 225 | 287 | 181 | 115 | 183 | *195 |
| 1941 | 159 | *213 | 530 | 644 | 306 | 520 | 549 | 183 | 86.1 | 52.5 | 47.5 | 48.5 | *279 |
| 1942 | 88.7 | 225 | 150 | 143 | 301 | *1,702 | 443 | 193 | 295 | 111 | 223 | 126 | *334 |
| 1943 | 167 | 515 | 625 | 603 | 1,154 | 1,212 | 546 | 1,697 | 1,149 | 185 | 126 | 131 | 673 |
| 1944 | *144 | *283 | 128 | *111 | *572 | 955 | 846 | 603 | 161 | 65.3 | 52.0 | 57.5 | *330 |
| 1945 | 66.6 | 84.8 | 92.7 | 95.7 | 160 | 358 | 364 | 1,289 | 595 | 224 | 138 | 368 | 320 |
| 1946 | 876 | 351 | 251 | *717 | 266 | *1,435 | 253 | 229 | 238 | 102 | 59.5 | 51.6 | *406 |
| 1947 | 61.6 | 108 | 120 | 285 | 216 | 760 | 2,564 | 952 | 1,013 | 237 | 132 | 346 | 564 |
| 1948 | 314 | *474 | *601 | 271 | 784 | 2,020 | 921 | 1,430 | 597 | 362 | 117 | 94.2 | *666 |
| 1949 | 121 | 214 | 183 | 562 | 1,497 | 591 | 913 | 306 | 278 | 194 | 228 | 126 | 426 |
| 1950 | 167 | 144 | 693 | 1,197 | 888 | 1,587 | 1,651 | 524 | 460 | 267 | 218 | *471 | *687 |

* Revised.

* Not previously published; estimated on basis of weather records and records for station at Owosso.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|-------|------|------|------|------|------|-------|----------|
| 1940 | *0.12 | *0.13 | *0.16 | 0.15 | 0.13 | 0.62 | 1.09 | 0.41 | 0.50 | 0.33 | 0.21 | 0.32 | *4.17 |
| 1941 | .29 | *.37 | .96 | 1.16 | .50 | .94 | .96 | .33 | .15 | .09 | .09 | .08 | *5.92 |
| 1942 | .16 | .39 | .27 | .26 | .49 | *3.08 | .78 | .35 | .52 | .20 | .40 | .22 | *7.12 |
| 1943 | .30 | .90 | 1.13 | 1.09 | 1.88 | 2.19 | .96 | 3.07 | 2.01 | .33 | .23 | .23 | 14.32 |
| 1944 | *.26 | *.50 | .23 | *.20 | *.97 | 1.73 | 1.48 | 1.09 | .28 | .12 | .09 | .10 | *7.05 |
| 1945 | .12 | .15 | .17 | .17 | .26 | .65 | .64 | 2.33 | 1.04 | .41 | .25 | .64 | 6.83 |
| 1946 | 1.59 | .61 | .45 | *1.30 | .44 | *2.60 | .44 | .41 | .42 | .18 | .11 | .09 | *8.64 |
| 1947 | .11 | .19 | .22 | .52 | .35 | 1.37 | 4.50 | 1.72 | 1.77 | .43 | .24 | .61 | 12.03 |
| 1948 | .57 | *.83 | *1.09 | .49 | 1.33 | 3.66 | 1.62 | 2.58 | 1.05 | .65 | .21 | .17 | *14.25 |
| 1949 | .22 | .37 | .33 | 1.02 | 2.45 | 1.07 | 1.60 | .55 | .49 | .35 | .41 | .22 | 9.08 |
| 1950 | .30 | .25 | 1.26 | 2.17 | 1.45 | 2.87 | 2.89 | .95 | .81 | .48 | .39 | *.83 | *14.65 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Shiawassee River near Fergus, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | *3,080 | Mar. 31, 1940 | - | *195 | *0.306 | *4.17 | *252 | *5.38 |
| 1941 | 924,1337 | *2,270 | Jan. 3, 1941 | 35 | *279 | *.438 | *5.92 | 241 | 5.12 |
| 1942 | 954,1337 | *5,400 | Mar. 17, 1942 | 58 | *334 | *.524 | *7.12 | *405 | *8.63 |
| 1943 | 974 | *5,100 | June 2, 1943* | 100 | 673 | 1.06 | 14.32 | *610 | *12.98 |
| 1944 | 1004,1337 | *3,850 | Feb. 27, 1944 | 43 | *330 | *.518 | *7.05 | *304 | *6.50 |
| 1945 | 1034 | *4,600 | May 18, 1945 | 54 | 320 | .502 | 6.83 | 425 | 9.04 |
| 1946 | 1054,1337 | *3,900 | Mar. 6, 1946 | 34 | *406 | *.637 | *8.64 | *305 | *6.51 |
| 1947 | 1084 | *7,500 | Apr. 5, 1947 | 33 | 564 | .885 | 12.03 | *650 | *14.00 |
| 1948 | 1114,1337 | *7,300 | Mar.19,20,1948* | 79 | *666 | *1.05 | *14.25 | 593 | 12.68 |
| 1949 | 1144 | 4,900 | Feb. 16, 1949 | 95 | 426 | .659 | 9.08 | 468 | 9.97 |
| 1950 | 1174,1337 | 5,600 | Apr. 4, 1950 | 88 | *687 | *1.08 | *14.65 | - | - |

* Revised.

* Not previously published.

184. Bad River near Brant, Mich.

Location.--Lat 43°17'50", long. 84°13'45", in NW¹ sec. 3, T. 10 N., R. 2 E., on downstream side of highway bridge, 2½ miles north of Brant, and 6 miles upstream from South Fork.

Drainage area.--89 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 591.21 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1948-50: Maximum discharge, 1,830 cfs Apr. 4, 1950 (gage height, 13.70 ft), from rating curve extended above 1,100 cfs by logarithmic plotting; maximum gage height observed, 13.72 ft Mar. 8, 1950 (ice jam); no flow at times.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | - | - | 2.10 | 50.5 | 196 | 32.6 | 45.7 | 4.82 | 15.7 | 17.8 | 11.8 | 0.31 | - |
| 1950 | 0.65 | 1.00 | 58.7 | 216 | 22.1 | 254 | 252 | 14.1 | 2.02 | 63.6 | 24.0 | 63.2 | 81.5 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | - | - | 0.03 | 0.65 | 2.29 | 0.42 | 0.57 | 0.06 | 0.20 | 0.23 | 0.15 | 0.004 | - |
| 1950 | 0.008 | 0.01 | .76 | 2.80 | .26 | 3.30 | 3.16 | .18 | .03 | .82 | .31 | .79 | 12.43 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1949 | 1144 | 1,110 | Feb. 14, 1949 | - | - | - | - | 35.2 | 5.35 |
| 1950 | 1174 | 1,830 | Apr. 4, 1950 | 0 | 81.5 | 0.916 | 12.43 | - | - |

185. Farmers Creek near Lapeer, Mich.

Location.--Lat 43°02', long. 83°20', in sec. 6, T. 7 N., R. 10 E., at sewage-treatment plant at Michigan Home and Training School, 2 miles west of Lapeer.

Drainage area.--57 sq mi, approximately.

Gage.--Staff gage. Concrete control since October 1938. Datum of gage is 805.79 ft above mean sea level, datum of 1929.

Average discharge.--18 years (1932-50), 29.6 cfs.

Extremes.--1932-50: Maximum discharge, 1,280 cfs Apr. 6, 1947 (gage height, 19.87 ft, from floodmark), from rating curve extended above 660 cfs on basis of contracted-opening determination of peak flow; minimum not determined.

Remarks.--Prior to about 1941, occasional regulation by dam above station.

Monthly and yearly mean discharge, in cubic feet per second, of Farmers Creek near Lapeer, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|------|--------|--------|--------|--------|--------|----------|
| 1933 | \$52.6 | \$55.2 | \$53.4 | \$51.4 | \$42.6 | \$48.4 | 93.9 | 45.9 | 16.4 | 9.01 | 9.76 | 6.11 | \$38.6 |
| 1934 | 12.8 | 16.9 | 47.3 | 28.5 | 7.76 | 20.6 | 92.1 | \$13.3 | \$5.07 | \$3.29 | \$3.94 | \$3.79 | \$21.3 |
| 1935 | 6.08 | 11.3 | 6.22 | 24.5 | *19.5 | 107 | 20.7 | 28.0 | 16.0 | 7.88 | 4.95 | 5.01 | *21.6 |
| 1936 | 3.94 | 13.4 | *8.10 | *5.38 | 11.7 | 72.5 | 36.3 | 16.1 | 8.25 | 2.21 | 1.71 | 4.01 | *15.3 |
| 1937 | 9.61 | 10.1 | 6.66 | 17.3 | 25.3 | 22.5 | 87.3 | 34.5 | *23.0 | *12.5 | *49.8 | *12.2 | *25.8 |
| 1938 | *11.5 | 13.4 | 17.2 | 23.0 | 174 | 92.8 | 44.5 | 25.2 | 14.6 | 3.73 | 2.02 | 2.21 | *34.4 |
| 1939 | 2.36 | 3.84 | 8.72 | 8.56 | 34.1 | 59.3 | 52.1 | 24.8 | 10.3 | 3.19 | 1.61 | 1.97 | 17.4 |
| 1940 | 2.83 | 4.84 | 6.93 | 3.58 | 5.62 | 23.4 | 66.2 | 17.1 | 18.9 | 7.16 | 2.90 | 5.29 | 13.7 |
| 1941 | 10.10 | 11.3 | 36.4 | 37.2 | 18.0 | 38.8 | 45.5 | 12.2 | 3.20 | 1.60 | 1.53 | .89 | 18.1 |
| 1942 | 6.71 | 15.8 | 15.5 | 10.4 | 22.0 | 128 | 54.8 | 12.3 | 13.9 | 2.86 | 3.16 | 3.68 | 22.2 |
| 1943 | 11.6 | 27.6 | 32.7 | 35.5 | 81.4 | 109 | 45.7 | 132 | 127 | 15.5 | 6.03 | 6.33 | 52.3 |
| 1944 | 7.91 | 20.9 | 8.72 | 8.56 | 40.9 | 55.7 | 68.7 | 58.5 | 26.8 | 2.79 | 1.48 | 2.51 | 25.2 |
| 1945 | 3.48 | 7.16 | 5.79 | 3.81 | *11.2 | *39.0 | 34.9 | 98.6 | 59.6 | 9.99 | 6.97 | 12.8 | *24.5 |
| 1946 | 51.5 | 25.1 | 14.7 | 54.6 | 22.6 | 119 | 19.2 | 16.9 | 35.5 | 7.06 | 2.01 | 3.13 | 31.1 |
| 1947 | 4.90 | 9.83 | 11.2 | 33.0 | 18.7 | 76.2 | 226 | 75.4 | 52.7 | 23.9 | 10.3 | 60.3 | 50.0 |
| 1948 | 26.8 | 33.8 | 48.1 | 19.3 | 67.0 | 154 | 57.1 | 76.6 | 31.2 | 30.3 | 8.85 | 3.45 | 46.4 |
| 1949 | 6.45 | 19.1 | 13.9 | 40.5 | 88.6 | 47.0 | 64.1 | 19.9 | 6.72 | 9.28 | 7.00 | 5.16 | 26.8 |
| 1950 | 8.77 | 10.5 | 41.5 | 65.6 | 55.5 | 124 | 116 | 43.9 | 46.8 | 9.75 | 4.55 | 53.9 | 48.3 |

* Revised.

* Not previously published; estimated on basis of weather records and records for Flint River near Flint and at Genesee, Mich.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1933 | *0.66 | *1.08 | *1.08 | *1.04 | *0.78 | *0.98 | 1.84 | 0.93 | 0.32 | 0.18 | 0.20 | 0.12 | *9.21 |
| 1934 | .26 | .33 | .96 | .58 | .42 | 1.81 | *.27 | *.10 | *.07 | *.08 | *.07 | *.05 | *5.09 |
| 1935 | .12 | .22 | .13 | .50 | *.56 | 2.17 | .40 | .57 | .31 | .16 | .10 | .10 | *5.14 |
| 1936 | .08 | .26 | *.16 | *.11 | .22 | 1.46 | .71 | .33 | .16 | *.04 | .03 | .08 | *3.64 |
| 1937 | *.19 | .20 | .13 | .35 | .46 | 1.46 | 1.71 | .70 | *.45 | *.25 | 1.01 | *.24 | *6.15 |
| 1938 | *.23 | .26 | .35 | .47 | 3.18 | 1.88 | .87 | .51 | .29 | .07 | .04 | .04 | *8.19 |
| 1939 | .06 | .08 | .18 | .17 | .82 | 1.20 | 1.02 | .50 | .20 | .06 | .03 | .04 | 4.15 |
| 1940 | .06 | .09 | .14 | .07 | .11 | .47 | 1.30 | .35 | .57 | .14 | .06 | .10 | 3.26 |
| 1941 | .20 | .22 | .74 | .75 | .33 | .79 | .89 | .25 | .06 | .03 | .03 | .02 | 4.31 |
| 1942 | .14 | .27 | .27 | .21 | .40 | 2.59 | .68 | .25 | .27 | .06 | .06 | .07 | 5.27 |
| 1943 | .24 | .54 | .66 | .72 | 1.49 | 2.20 | .89 | 2.68 | 2.49 | .31 | .12 | .12 | 12.46 |
| 1944 | .16 | .41 | .18 | .17 | .77 | 1.13 | 1.35 | 1.19 | .52 | .06 | .03 | .05 | 6.02 |
| 1945 | .07 | .14 | .12 | .08 | *.20 | *.79 | .68 | 1.99 | 1.17 | .20 | .14 | .25 | *5.83 |
| 1946 | 1.04 | .49 | .30 | 1.10 | .41 | 2.41 | .38 | .34 | .70 | .14 | .04 | .06 | 7.41 |
| 1947 | .10 | .19 | .23 | .67 | .34 | 1.54 | 4.42 | 1.52 | 1.03 | .48 | .21 | 1.18 | 11.91 |
| 1948 | .54 | .66 | .97 | .39 | 1.27 | 3.11 | 1.12 | 1.54 | .61 | .61 | .18 | .07 | 11.07 |
| 1949 | .13 | .37 | .28 | .82 | 1.61 | .95 | 1.25 | .40 | .13 | .19 | .14 | .10 | 6.37 |
| 1950 | .18 | .21 | .84 | 1.33 | 1.01 | 2.51 | 2.28 | .89 | .92 | .20 | .09 | 1.06 | 11.52 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1933 | 744 | 186 | Apr. 3, 1933 | *2.7 | *38.6 | *0.677 | *9.21 | *33.3 | *7.94 |
| 1934 | 759,1337 | 226 | Apr. 5, 1934 | *1.4 | *21.3 | *.374 | *5.09 | *16.8 | *4.01 |
| 1935 | 784,1337 | *250 | Mar. 12, 1935* | 1.7 | *21.6 | *.379 | *5.14 | *21.7 | *5.17 |
| 1936 | 804,1337 | 130 | Mar.13,14, 1936 | .6 | *15.3 | *.268 | *3.64 | 15.4 | *3.66 |
| 1937 | 824,1337 | 175 | Apr. 23, 1937 | 4.2 | *25.8 | *.453 | *6.15 | *27.2 | *6.47 |
| 1938 | (a) | *530 | Feb.14,15,1938* | 1.0 | *34.4 | *.604 | *8.19 | 32.1 | 7.66 |
| 1939 | 874 | 168 | Feb. 22, 1939 | 1.1 | 17.4 | .305 | 4.15 | 17.4 | 4.13 |
| 1940 | 894, 924 | *475 | Mar. 31, 1940 | .5 | 13.7 | .240 | 3.26 | 17.3 | 4.13 |
| 1941 | 924 | 134 | Jan. 1, 1941 | .6 | 18.1 | .318 | 4.31 | 16.1 | 3.83 |
| 1942 | 954,1084 | 630 | Mar. 18, 1942 | 1.4 | 22.2 | .389 | 5.27 | 25.3 | 6.03 |
| 1943 | 974,1084 | 1,220 | June 3, 1943 | 3.5 | 52.3 | .918 | 12.46 | 49.4 | 11.77 |
| 1944 | 1004 | *329 | Feb. 28, 1944 | .6 | 25.2 | .442 | 6.02 | 23.4 | 5.60 |
| 1945 | 1034,1337 | *352 | May 19, 1945 | 3.1 | *24.5 | *.430 | *5.83 | *30.8 | *7.33 |
| 1946 | 1054 | *515 | Mar. 4, 1946 | 1.0 | 31.1 | .546 | 7.41 | 25.6 | 6.10 |
| 1947 | 1084 | 1,280 | Apr. 6, 1947 | 2.4 | 50.0 | .877 | 11.91 | 57.0 | 13.56 |
| 1948 | 1114 | *530 | Mar. 20, 1948 | 2.7 | 46.4 | .814 | 11.07 | 40.6 | 9.68 |
| 1949 | 1144 | *364 | Feb. 16, 1949 | 2.6 | 26.8 | .470 | 6.37 | 28.7 | 6.82 |
| 1950 | 1174 | *412 | Apr. 5, 1950 | 2.8 | 48.3 | .847 | 11.52 | - | - |

* Revised.

* Not previously published.

a In W.S.P. 854, 924, 1337.

186. Flint River at Columbiaville, Mich.

Location.--Lat 43°09'20", long. 83°24'40", in sec. 33, T. 9 N., R. 9 E., on downstream side of highway bridge at Columbiaville, 3 miles downstream from South Branch Flint River.

Drainage area.--486 sq mi, approximately.

Supplemental records available.--Gage-height records collected in this vicinity January 1932 to July 1933 are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage. Datum of gage is 736.26 ft above mean sea level, datum of 1929.

Extremes.--1947-50: Maximum discharge, 6,690 cfs Mar. 21, 1948 (gage height, 17.10 ft); minimum, 33 cfs Sept. 5, 6, 8, 1948 (gage height, 6.40 ft).

Monthly and yearly mean discharge, in cubic feet per second, of Flint River at Columbiaville, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-----|------|------|------|-------|----------|
| 1948 | *185 | *236 | *325 | 116 | 360 | 1,666 | 541 | 574 | 217 | 149 | 63.5 | 36.3 | *374 |
| 1949 | 57.3 | 134 | 112 | 361 | 1,008 | 368 | 518 | 173 | 80.3 | 85.3 | 52.6 | 42.3 | 244 |
| 1950 | 64.8 | 80.6 | 337 | 558 | 507 | 1,329 | 1,156 | 278 | 310 | 116 | 92.4 | 234 | 421 |

* Not previously published; estimated on basis of weather records and records for stations at Genesee, near Flint, and near Fosters.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | *0.44 | *0.54 | *0.77 | 0.28 | 0.80 | 3.95 | 1.24 | 1.36 | 0.50 | 0.35 | 0.15 | 0.08 | *10.46 |
| 1949 | .14 | .31 | .27 | .86 | 2.16 | .87 | 1.19 | .41 | .19 | .20 | .12 | .10 | 6.81 |
| 1950 | .15 | .19 | .80 | 1.33 | 1.08 | 3.15 | 2.66 | .66 | .71 | .28 | .22 | .54 | 11.77 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1948 | 1114 | 6,680 | Mar. 21, 1948 | *33 | *374 | *0.770 | *10.46 | 337 | 9.43 | | |
| 1949 | 1144 | 3,400 | Feb. 16, 17, 1949 | 34 | 244 | .502 | 6.81 | 259 | 7.23 | | |
| 1950 | 1174 | 4,160 | Mar. 29, 1950 | 37 | 421 | .866 | 11.77 | - | - | | |

* Not previously published.

187. Flint River at Genesee, Mich.

Location.--Lat 43°06'25", long. 83°37'00", in sec. 10, T. 8 N., R. 7 E., on downstream side of highway bridge in Genesee, three-quarters of a mile downstream from Butternut Creek.

Drainage area.--593 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 695.27 ft above mean sea level, datum of 1929. Prior to Oct. 19, 1932, wire-weight gage at site 500 ft downstream at datum 0.52 ft lower.

Average discharge.--20 years (1930-50), 338 cfs.

Extremes.--1930-50: Maximum discharge, 8,650 cfs Apr. 8, 1947 (gage height, 27.06 ft, from floodmark); minimum daily, about 15 cfs (revised) Aug. 11-17, 1936.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1931 | *88.0 | *90.5 | *99.4 | *93.5 | *152 | *191 | 156 | 117 | 79.3 | 37.6 | 26.0 | 36.8 | *96.9 |
| 1932 | 38.1 | 109 | 269 | 857 | 588 | 407 | 606 | 445 | 257 | 266 | *83.5 | *370 | *357 |
| 1933 | 393 | 621 | 588 | 540 | 468 | 500 | 1,280 | 478 | 128 | *64.9 | *60.1 | *60.3 | *429 |
| 1934 | 116 | *190 | 449 | 407 | 170 | *288 | 952 | 148 | 73.0 | 40.5 | 71.8 | 72.4 | *248 |
| 1935 | 73.9 | 110 | 105 | 393 | 279 | 1,451 | 239 | 292 | 168 | 98.1 | 60.2 | 51.5 | 278 |
| 1936 | *53.4 | *138 | *125 | *81.7 | *171 | 1,013 | 432 | *261 | *70.9 | 32.3 | *25.9 | 46.8 | *205 |
| 1937 | 84.4 | *91.2 | *90.4 | *236 | 378 | 340 | 746 | 359 | 181 | 107 | 386 | 110 | *258 |
| 1938 | *93.1 | 106 | 135 | *238 | 2,027 | 1,039 | 494 | 501 | 175 | 81.4 | 60.0 | 55.2 | *406 |
| 1939 | 54.7 | 71.8 | 82.9 | 102 | 338 | 625 | 579 | 241 | 132 | 56.5 | 40.1 | 40.3 | 196 |
| 1940 | 49.6 | 69.9 | 75.4 | 63.2 | 68.6 | 256 | 871 | 221 | 315 | 126 | 69.8 | 68.9 | 187 |
| 1941 | 109 | 139 | 448 | 486 | 244 | 457 | 398 | 132 | 69.8 | 47.0 | 41.0 | 29.6 | 217 |
| 1942 | 92.6 | 229 | 195 | 161 | 299 | 2,136 | 346 | 214 | 188 | 75.5 | 70.0 | 76.5 | 342 |
| 1943 | 120 | 298 | 407 | 489 | 1,044 | 1,371 | 475 | 1,313 | 807 | 245 | 139 | 103 | 565 |
| 1944 | 102 | 238 | 109 | 88.5 | 462 | 985 | 808 | 567 | 345 | 86.2 | 50.1 | 55.3 | 324 |
| 1945 | 64.5 | 91.0 | 79.6 | 56.8 | 144 | 493 | 452 | 1,172 | 807 | 194 | 150 | 211 | 327 |
| 1946 | 692 | 300 | 215 | 769 | 290 | 1,593 | 227 | 217 | 372 | 138 | 58.0 | 58.4 | 414 |
| 1947 | 67.4 | 111 | 129 | 315 | 185 | 676 | 2,441 | 948 | 126 | 249 | 135 | 513 | 555 |
| 1948 | *215 | *281 | *456 | 219 | 675 | 2,000 | 668 | 734 | 273 | 203 | 104 | 52.5 | *492 |
| 1949 | *72.3 | 157 | 149 | 554 | 1,354 | 501 | 685 | 221 | 121 | 143 | 98.5 | 63.3 | *336 |
| 1950 | 82.9 | 101 | 384 | 767 | 704 | 1,414 | 1,441 | 413 | 465 | 151 | 117 | 334 | 529 |

* Revised.

* Not previously published; estimated on basis of records for Huron River at Barton and Pine River at Alma and weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1931 | *0.17 | *0.17 | *0.19 | *0.18 | *0.27 | *0.37 | 0.29 | 0.23 | 0.15 | 0.07 | 0.05 | 0.07 | *2.21 |
| 1932 | .07 | .21 | .52 | 1.67 | 1.07 | .79 | 1.14 | .87 | .48 | .52 | *.16 | *.70 | *8.20 |
| 1933 | .74 | 1.17 | 1.14 | 1.06 | .82 | .97 | 2.41 | .93 | .24 | *.13 | *.12 | *.11 | *9.83 |
| 1934 | .23 | *.36 | .87 | .79 | .30 | *.56 | 1.80 | .29 | .14 | .08 | .14 | .14 | *5.70 |
| 1935 | .14 | .21 | .20 | .76 | .49 | 2.82 | .45 | .57 | .32 | .19 | .12 | .10 | 6.37 |

* Revised.

* Not previously published; see footnote to preceding table.

Monthly and yearly runoff, in inches, of Flint River at Genesee, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|------|------|-------|-------|------|-------|-------|----------|
| 1936 | *0.10 | *0.26 | *0.24 | *0.16 | *0.31 | 1.97 | 0.81 | *0.51 | *0.13 | 0.06 | *0.05 | 0.09 | *4.69 |
| 1937 | .16 | *.17 | *.18 | *.46 | .66 | 2.66 | 1.41 | .70 | .34 | .21 | .75 | .21 | *5.91 |
| 1938 | .18 | .20 | .26 | *.46 | 3.56 | 2.02 | .93 | .97 | .33 | .16 | .12 | .10 | *9.29 |
| 1939 | .11 | .14 | .16 | .20 | .59 | 1.22 | 1.09 | .47 | .25 | .11 | .08 | .08 | 4.50 |
| 1940 | .10 | .13 | .15 | .12 | .12 | .50 | 1.64 | .43 | .59 | .24 | .14 | .13 | 4.29 |
| 1941 | .21 | .26 | .87 | .94 | .43 | .89 | .75 | .26 | .13 | .09 | .08 | .06 | 4.97 |
| 1942 | .18 | .43 | .38 | .31 | .52 | 4.15 | .65 | .42 | .35 | .15 | .14 | .14 | 7.82 |
| 1943 | .23 | .56 | .79 | .95 | 1.83 | 2.66 | .89 | 2.55 | 1.52 | .48 | .27 | .19 | 12.92 |
| 1944 | .20 | .45 | .21 | .17 | .84 | 1.91 | 1.52 | 1.10 | .65 | .17 | .10 | .10 | 7.42 |
| 1945 | .13 | .17 | .15 | .11 | .25 | .96 | .85 | 2.28 | 1.52 | .38 | .29 | .40 | 7.49 |
| 1946 | 1.35 | .56 | .42 | 1.50 | .51 | 3.10 | .43 | .42 | .70 | .27 | .11 | .11 | 9.48 |
| 1947 | .13 | .21 | .25 | .61 | .32 | 1.31 | 4.60 | 1.84 | 2.12 | .48 | .26 | .59 | 12.72 |
| 1948 | *.42 | *.53 | *.89 | .43 | 1.23 | 3.88 | 1.29 | 1.43 | .51 | .39 | .20 | .10 | *11.30 |
| 1949 | *.14 | .30 | .29 | 1.08 | 2.37 | .97 | 1.29 | .43 | .23 | .27 | .19 | .12 | *7.68 |
| 1950 | .16 | .19 | .75 | 1.49 | 1.24 | 2.74 | 2.71 | .80 | .87 | .29 | .23 | .65 | 12.10 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|-------------|-------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 302 | Mar. 27-31, 1931 | 19 | *96.9 | *0.163 | *2.21 | *109 | *2.48 |
| 1932 | 729, 1337 | 1,250 | Jan. 17, 1932 | 29 | *357 | *.602 | *8.20 | *455 | *10.45 |
| 1933 | 744, 1337 | *2,580 | Apr. 4, 1933 | *37 | *429 | *.723 | *9.83 | *360 | *8.24 |
| 1934 | 759, 1337 | 2,480 | Apr. 7, 1934 | 21 | *248 | *.418 | *5.70 | *209 | *4.79 |
| 1935 | 784 | 3,380 | Mar. 8, 1935 | 31 | 278 | .469 | 6.37 | *281 | *6.42 |
| 1936 | 804, 1337 | 1,730 | Mar. 15, 1936 | *15 | *205 | *.346 | *4.69 | *201 | *4.60 |
| 1937 | 824, 1337 | 1,460 | Apr. 25, 1937 | 49 | *258 | *.435 | *5.91 | *264 | *6.04 |
| 1938 | 854, 1337 | *3,600 | Feb. 9, 1938 | *40 | *406 | *.685 | *9.29 | *396 | *9.06 |
| 1939 | 874 | 1,310 | Feb. 20, 1939 | 31 | 196 | .331 | 4.50 | 194 | 4.47 |
| 1940 | 894 | *2,680 | Apr. 3, 1940 | 38 | 187 | .315 | 4.29 | 229 | 5.25 |
| 1941 | 924 | 1,480 | Jan. 3, 1941 | 22 | 217 | .366 | 4.97 | 202 | 4.62 |
| 1942 | 954, 1054 | *5,540 | Mar. 19, 1942 | 38 | 342 | .577 | 7.82 | 368 | 8.41 |
| 1943 | 974 | 3,610 | Mar. 18, 1943 | 65 | 565 | .953 | 12.92 | 533 | 12.20 |
| 1944 | 1004 | *2,400 | Mar. 2, 1944 | 38 | 324 | .546 | 7.42 | 306 | 7.01 |
| 1945 | 1034 | 3,170 | May 19, 1945 | 50 | 327 | .551 | 7.49 | 409 | 9.37 |
| 1946 | 1054 | 4,880 | Mar. 6, 1946 | 46 | 414 | .698 | 9.48 | 338 | 7.74 |
| 1947 | 1084 | 8,650 | Apr. 8, 1947 | 44 | 556 | .938 | 12.72 | *610 | *13.97 |
| 1948 | 1114, 1337 | 5,540 | Mar. 21, 1948 | 35 | *492 | *.830 | *11.30 | *444 | *10.19 |
| 1949 | 1144, 1337 | 3,440 | Feb. 17, 1949 | *50 | *336 | *.567 | *7.68 | 352 | 8.05 |
| 1950 | 1174 | 4,120 | Mar. 29, 1950 | 53 | 529 | .892 | 12.10 | - | - |

* Revised.

* Not previously published.

188. Flint River near Flint, Mich.

Location.--Lat 43°02'20", long. 83°46'10", in SW¹ sec. 4, T. 7 N., R. 6 E., on left bank on grounds of sewage-treatment plant, 2 miles downstream from Flint, and 5 miles downstream from Swartz Creek.

Drainage area.--927 sq mi, approximately.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1911-28 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 678.80 ft above mean sea level (levels by U. S. Weather Bureau and city of Flint).

Average discharge.--18 years (1932-50), 543 cfs.

Extremes.--1932-50: Maximum discharge, 14,900 cfs Apr. 6, 1947 (gage height, 16.35 ft); minimum, 9.0 cfs Aug. 7, 1934.

Remarks.--Some regulation by reservoirs above station. City of Flint diverts water above station for municipal and industrial use, but sewage from city is included in flow at station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|--------|-------|-----|------|-------|------|-------|----------|
| 1932 | - | - | - | - | - | - | - | - | - | - | - | 607 | - |
| 1933 | 455 | 810 | 795 | 832 | 670 | 788 | 1,940 | 758 | 256 | 98.7 | 143 | 361 | 638 |
| 1934 | 210 | 245 | 645 | 621 | 201 | 358 | 1,543 | 212 | 81.3 | 77.2 | 93.5 | 126 | 368 |
| 1935 | 90.9 | 161 | 137 | 518 | 385 | *2,102 | 345 | 477 | 291 | 163 | 92.9 | 72.9 | *405 |
| 1936 | 60.6 | 237 | 189 | 111 | 315 | 1,187 | 666 | 362 | 125 | *56.1 | 31.3 | 98.8 | *286 |
| 1937 | 124 | 144 | 117 | 270 | 419 | 357 | 1,438 | 634 | *262 | *152 | *614 | *138 | *388 |
| 1938 | 128 | 172 | 181 | 309 | 2,867 | 1,521 | 820 | 597 | 223 | 110 | 80.7 | 75.2 | 575 |
| 1939 | 74.5 | 88.2 | 110 | 146 | 546 | 878 | 873 | 375 | 246 | 95.5 | 65.5 | 63.2 | 294 |
| 1940 | 71.8 | 92.5 | 106 | 84.8 | 87.6 | 469 | 1,109 | 295 | 500 | 199 | 135 | 132 | 272 |

* Revised.

Monthly and yearly mean discharge, in cubic feet per second,
of Flint River near Flint, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1941 | 202 | 230 | 750 | 818 | 388 | 774 | 726 | 188 | 92.3 | 65.1 | 46.6 | 45.9 | 361 |
| 1942 | 128 | 354 | 283 | 240 | 466 | 3,280 | 601 | 331 | 254 | 97.6 | 163 | 133 | 530 |
| 1943 | 226 | 586 | 844 | 765 | 1,784 | 2,062 | 901 | 2,333 | 1,613 | 314 | 148 | 151 | 972 |
| 1944 | 153 | 354 | 160 | 131 | 680 | 1,261 | 1,256 | 822 | 426 | 95.6 | 63.2 | 74.8 | 454 |
| 1945 | 83.5 | 144 | 117 | 87.4 | 236 | 637 | 676 | 1,974 | 1,214 | 317 | 261 | 434 | 516 |
| 1946 | 1,254 | 502 | 338 | 1,099 | 424 | 2,405 | 335 | 327 | 562 | 188 | 69.9 | 74.8 | 636 |
| 1947 | 103 | 172 | 194 | 493 | 271 | 1,136 | 4,209 | 1,482 | 1,497 | 368 | 216 | 641 | 896 |
| 1948 | 369 | 521 | 745 | 296 | 957 | 2,999 | 1,084 | 1,352 | 597 | 302 | 126 | 74.7 | 787 |
| 1949 | 90.9 | 236 | 199 | 630 | 1,635 | 750 | 1,177 | 360 | 239 | 208 | 148 | 100 | 472 |
| 1950 | 133 | 154 | 702 | 1,353 | 1,133 | 2,449 | 2,418 | 663 | 807 | 223 | 197 | 990 | 932 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1932 | - | - | - | - | - | - | - | - | - | - | - | 0.73 | - |
| 1933 | 0.57 | 0.98 | 0.99 | 1.03 | 0.75 | 0.98 | 2.33 | 0.92 | 0.31 | 0.12 | 0.18 | .19 | 9.35 |
| 1934 | .26 | .29 | .80 | .77 | .23 | .44 | 1.85 | .26 | .10 | .10 | .12 | .15 | 5.37 |
| 1935 | .11 | .19 | .17 | .64 | .43 | *2.61 | .42 | .59 | .35 | .20 | .12 | .09 | *5.92 |
| 1936 | .07 | .29 | .24 | .14 | .37 | 1.48 | .80 | .45 | .15 | *.07 | .04 | .12 | *4.22 |
| 1937 | .15 | .17 | .15 | .34 | .47 | .44 | 1.73 | .79 | *.32 | *.19 | .76 | *.17 | *5.68 |
| 1938 | .16 | .21 | .22 | .38 | 3.22 | 1.89 | .99 | .74 | .27 | .14 | .10 | .09 | 8.41 |
| 1939 | .09 | .11 | .14 | .18 | .61 | 1.09 | 1.05 | .47 | .30 | .12 | .08 | .08 | 4.32 |
| 1940 | .09 | .11 | .13 | .11 | .10 | .58 | 1.33 | .37 | .60 | .25 | .17 | .16 | 4.00 |
| 1941 | .25 | .28 | .93 | 1.02 | .44 | .96 | .87 | .23 | .11 | .08 | .06 | .06 | 5.29 |
| 1942 | .16 | .43 | .35 | .30 | .52 | 4.08 | .72 | .41 | .31 | .22 | .20 | .16 | 7.76 |
| 1943 | .28 | .71 | 1.05 | .95 | 2.00 | 2.56 | 1.08 | 2.90 | 1.94 | .39 | .18 | .18 | 14.22 |
| 1944 | .19 | .43 | .20 | .16 | .79 | 1.57 | 1.51 | 1.02 | .51 | .12 | .08 | .09 | 6.67 |
| 1945 | .10 | .17 | .15 | .11 | .27 | .79 | .81 | 2.46 | 1.46 | .39 | .33 | .52 | 7.66 |
| 1946 | 1.56 | .60 | .42 | 1.37 | .48 | 2.99 | .40 | .41 | .68 | .23 | .09 | .09 | 9.32 |
| 1947 | .13 | .21 | .24 | .61 | .30 | 1.42 | 5.06 | 1.84 | 1.80 | .46 | .27 | .77 | 13.11 |
| 1948 | .46 | .63 | .93 | .37 | 1.11 | 3.74 | 1.30 | 1.68 | .72 | .58 | .16 | .09 | 11.57 |
| 1949 | .11 | .28 | .25 | .78 | 1.83 | .93 | 1.42 | .45 | .29 | .26 | .18 | .12 | 6.90 |
| 1950 | .16 | .19 | .87 | 1.68 | 1.27 | 3.04 | 2.91 | .82 | .97 | .28 | .25 | 1.19 | 13.63 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1932 | 744 | - | - | - | - | - | - | - | - | - | - |
| 1933 | 744 | *4,740 | Apr. 1, 1933 | 33 | 638 | 0.688 | 9.35 | 558 | 8.16 | | |
| 1934 | 759 | *3,850 | Apr. 4, 1934 | 14 | 368 | .397 | 5.37 | 308 | 4.49 | | |
| 1935 | 784,1337 | *5,040 | Mar. 11, 1935 | 20 | *405 | *.437 | *5.92 | *413 | *6.05 | | |
| 1936 | 804,1337 | 2,250 | Feb. 26, 1936 | 17 | *286 | *.309 | *4.22 | *278 | *4.09 | | |
| 1937 | 824,1337 | *3,750 | Apr. 22, 1937† | 58 | *388 | *.419 | *5.68 | *396 | *5.80 | | |
| 1938 | 854 | 6,970 | Feb. 14, 1938 | 42 | 575 | .620 | 8.41 | *557 | *8.16 | | |
| 1939 | 874 | 2,180 | Feb. 20, 1939 | 38 | 294 | .317 | 4.32 | 294 | 4.31 | | |
| 1940 | 894 | 3,850 | Mar. 30, 1940 | 41 | 272 | .293 | 4.00 | 349 | 5.13 | | |
| 1941 | 954 | 2,950 | Jan. 3, 1941 | 34 | 361 | .389 | 5.29 | 325 | 4.77 | | |
| 1942 | 954 | 8,700 | Mar. 17, 1942 | 36 | 530 | .572 | 7.76 | 605 | 8.86 | | |
| 1943 | 974 | 8,810 | June 2, 1943 | 91 | 972 | 1.05 | 14.22 | 889 | 13.00 | | |
| 1944 | 1004 | 4,100 | Feb. 27, 1944 | 43 | 454 | .490 | 6.67 | 427 | 6.27 | | |
| 1945 | 1034 | 5,940 | May 18, 1945 | 49 | 516 | .557 | 7.56 | 664 | 9.72 | | |
| 1946 | 1054 | 6,940 | Mar. 7, 1946 | 46 | .636 | .686 | 9.32 | 499 | 7.32 | | |
| 1947 | 1084 | 14,900 | Apr. 6, 1947 | 65 | 896 | .967 | 13.11 | 994 | 14.55 | | |
| 1948 | 1114 | 10,100 | Mar. 20, 1948 | 55 | 787 | .849 | 11.57 | 694 | 10.19 | | |
| 1949 | 1144 | 4,940 | Feb. 15, 1949 | 53 | 472 | .509 | 6.90 | 512 | 7.48 | | |
| 1950 | 1174 | 6,640 | Apr. 4, 1950 | 76 | 932 | 1.01 | 13.63 | - | - | | |

* Revised.

† Corrected.

189. Flint River near Posters, Mich.

Location.--Lat 43°17'56", long. 83°55'58", on west line of sec. 6, T. 10 N., R. 5 E., on downstream side of Sheridan Road Bridge, 1 mile west of Posters, 1½ miles upstream from Birch Run, and 4 miles downstream from Silver Creek.

Drainage area.--1,120 sq mi, approximately.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1910-20, 1922-27 are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage. Datum of gage is 582.22 ft above mean sea level (levels by U. S. Weather Bureau). Prior to Aug. 21, 1943, chain gage at same site and datum.

Average discharge.--11 years (1939-50), 754 cfs.

Extremes.--1939-50: Maximum discharge, 19,000 cfs (revised) Apr. 7, 1947; maximum gage height, 17.97 ft Apr. 6, 1947 (from floodmark); minimum discharge observed, 27 cfs Aug. 6, 1941 (gage height, 3.67 ft). Maximum stage known, about 18.4 ft (from U. S. Weather Bureau data) in March 1904.

Remarks.--Records include flow bypassing gage during high stages. Some regulation at times by reservoirs upstream.

STREAMS TRIBUTARY TO LAKE HURON

Monthly and yearly mean discharge, in cubic feet per second, of Flint River near Fosters, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|--------|-------|-------|-------|------|------|-------|----------|
| 1940 | *85.8 | *111 | *127 | 93.1 | 98.3 | 563 | 1,304 | *358 | 527 | 204 | 138 | 135 | *311 |
| 1941 | 208 | 274 | 973 | 1,142 | 537 | 867 | 982 | 231 | 108 | 71.6 | 58.0 | 50.3 | 450 |
| 1942 | 154 | 483 | 318 | 294 | 548 | 4,076 | 741 | 377 | *337 | 138 | 212 | 134 | *659 |
| 1943 | 361 | 932 | 1,061 | 973 | 2,124 | 2,619 | 1,011 | 2,354 | 2,039 | 353 | 189 | 188 | 1,225 |
| 1944 | 178 | 398 | 190 | 162 | 913 | 1,496 | 1,468 | 1,045 | 499 | 111 | 75.2 | 89.8 | 549 |
| 1945 | 89.5 | *157 | *135 | 107 | 275 | 725 | 753 | 2,476 | 1,576 | 353 | 324 | 563 | 629 |
| 1946 | 1,572 | 646 | 389 | 1,508 | 505 | 2,970 | 404 | 389 | 586 | 231 | 83.6 | 84.4 | 787 |
| 1947 | 108 | 183 | 225 | 593 | 378 | 1,328 | 4,963 | 1,665 | 1,743 | 433 | 240 | 670 | 1,040 |
| 1948 | 405 | 546 | 826 | 306 | 958 | *3,398 | 1,322 | 1,563 | 696 | 377 | 152 | 90.1 | *889 |
| 1949 | 123 | 270 | *249 | *781 | 2,144 | 842 | 1,592 | *429 | *290 | 267 | 171 | 111 | *602 |
| 1950 | 140 | 164 | 873 | 1,722 | 1,455 | 3,049 | 2,929 | *752 | 967 | *312 | 240 | 1,349 | *1,158 |

* Revised.

* Not previously published; estimated on basis of records for station near Flint.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|-------|------|-------|------|------|------|-------|----------|
| 1940 | *0.09 | *0.11 | *0.13 | 0.10 | 0.09 | 0.58 | 1.30 | *0.37 | 0.53 | 0.21 | 0.14 | 0.13 | *3.78 |
| 1941 | .21 | .27 | 1.00 | 1.18 | .50 | .89 | .88 | .24 | .11 | .07 | .06 | .05 | 5.46 |
| 1942 | .16 | .48 | .33 | .30 | .51 | 4.20 | .74 | .39 | *.34 | .14 | .22 | .19 | *8.00 |
| 1943 | .37 | .93 | 1.09 | 1.00 | 1.98 | 2.70 | 1.01 | 3.04 | 2.03 | .36 | .17 | .17 | 14.85 |
| 1944 | .18 | .40 | .20 | .17 | .68 | 1.54 | 1.46 | 1.08 | .50 | .11 | .08 | .09 | 6.69 |
| 1945 | .09 | *.16 | *.14 | .11 | .26 | .75 | .75 | 2.55 | 1.57 | .36 | .33 | .56 | 7.63 |
| 1946 | 1.61 | .64 | .40 | 1.54 | .47 | 3.06 | .40 | .40 | .58 | .24 | .09 | .08 | 9.51 |
| 1947 | .11 | .18 | .23 | .61 | .35 | 1.37 | 4.94 | 1.72 | 1.74 | .45 | .25 | .67 | 12.62 |
| 1948 | .42 | .54 | .85 | .31 | .92 | *3.50 | 1.32 | 1.61 | .69 | .39 | .16 | .09 | *10.80 |
| 1949 | .13 | .27 | *.26 | *.80 | 1.99 | .97 | 1.58 | *.44 | *.29 | .27 | .18 | .11 | *7.29 |
| 1950 | .14 | .16 | .90 | 1.78 | 1.35 | 3.14 | 2.92 | .77 | .96 | *.32 | .25 | 1.34 | *14.03 |

* Revised.

* Not previously published; estimated on basis of records for station near Flint.

Yearly discharge, in cubic feet per second

| Year | W.S.F. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|-------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1940 | 894,1337 | *5,100 | Mar. 30, 1940 | *56 | *311 | *0.278 | *3.78 | 406 | *4.93 | |
| 1941 | 954 | 4,260 | Jan. 3, 1941 | 28 | 450 | .402 | 5.46 | 407 | 4.95 | |
| 1942 | 954,1337 | *11,200 | Mar. 17, 1942 | 54 | *659 | *.588 | *8.00 | *777 | *9.42 | |
| 1943 | 874 | *10,000 | June 3, 1943 | 111 | 1,225 | 1.09 | 14.85 | 1,092 | 13.24 | |
| 1944 | 1004 | *5,300 | Feb. 27, 1944 | 44 | 549 | .490 | 6.69 | *517 | 6.30 | |
| 1945 | 1034,1337 | *7,400 | May 18, 1945* | 71 | 629 | .562 | 7.63 | 817 | 9.89 | |
| 1946 | 1054 | *8,400 | Mar. 6, 1946* | 67 | 787 | .703 | 9.51 | 610 | 7.38 | |
| 1947 | 1084 | *19,000 | Apr. 7, 1947 | 76 | 1,040 | .929 | 12.62 | 1,146 | 13.91 | |
| 1948 | 1114,1337 | *11,500 | Mar. 20, 1948 | 87 | *889 | *.794 | *10.80 | *793 | *9.65 | |
| 1949 | 1144,1337 | 5,500 | Feb. 16, 1949 | 72 | *602 | *.538 | *7.29 | *648 | *7.83 | |
| 1950 | 1174,1337 | *8,100 | Apr. 4, 1950* | 78 | *1,158 | 1.03 | *14.03 | - | - | |

* Revised.

* Not previously published.

190. East Branch Cass River near Cass City, Mich.

Location.--Lat 43°33'10", long. 83°05'40", in E½ sec. 18, T. 13 N., R. 12 E., on downstream side of bridge on State Highway 53, 1 mile downstream from Stony Creek, 5 miles southeast of Cass City, and 5½ miles upstream from confluence with North Branch.

Drainage area.--247 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 713 ft above mean sea level (river-profile survey).

Extremes.--1948-50: Maximum discharge, 4,940 cfs (revised) Mar. 28, 1950 (gage height, 23.07 ft, from graph based on gage readings); minimum not determined, probably occurred in October 1948.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1949 | *1.3 | *5.1 | 15.1 | 108 | 437 | *120 | 170 | 37.3 | 21.6 | 35.4 | *20.5 | 3.56 | *78.7 |
| 1950 | 3.95 | 4.08 | *118 | *306 | 137 | 908 | 635 | 25.7 | 19.9 | *248 | *55.4 | *17.7 | *207 |

* Revised.

* Not previously published; estimated on basis of records for Cass River at Cass City.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|------|-------|------|-------|------|------|------|-------|-------|-------|----------|
| 1949 | *0.008 | *0.02 | 0.07 | 0.50 | 1.84 | *0.56 | 0.77 | 0.17 | 0.10 | 0.16 | *0.10 | 0.02 | *4.32 |
| 1950 | .02 | .02 | *.55 | *1.43 | .58 | 4.24 | 2.87 | .12 | .09 | *1.16 | *.26 | *.08 | *11.42 |

* Revised.

* Not previously published; estimated on basis of records for Cass River at Cass City.

Yearly discharge, in cubic feet per second, of East Branch Cass River near Cass City, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1949 | 1144,1337 | 2,600 | Feb. 15, 1949 | - | *78.7 | *0.319 | *4.32 | *87.5 | *4.81 |
| 1950 | (a) | *4,940 | Mar. 28, 1950 | 1.7 | *207 | .858 | *11.42 | - | - |

* Revised.

* Not previously published.

a In W.S.P. 1174, 1207, 1337.

191. Cass River at Cass City, Mich.

Location.--Lat 43°35'05", long. 83°10'20", on line between secs. 3 and 4, T. 13 N., R. 11 E., on downstream handrail of highway bridge, 1,000 ft downstream from confluence of North Branch and East Branch and 1 mile south of Cass City.

Drainage area.--370 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 697.92 ft above mean sea level, datum of 1929.

Extremes.--1947-50: Maximum discharge, 9,600 cfs Mar. 20, 1948 (gage height, 15.80 ft, from graph based on gage readings), from rating curve extended above 5,300 cfs by logarithmic plotting; minimum, 0.5 cfs Sept. 26, 1948 (gage height, 4.34 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1948 | *10 | *20 | *50 | 22.1 | 184 | 1,501 | 308 | 200 | 31.6 | 15.4 | 4.36 | 1.33 | *195 |
| 1949 | 2.58 | 9.23 | *26.8 | *217 | 603 | 253 | *285 | *54.2 | *26.7 | *39.3 | *21.7 | 3.83 | *125 |
| 1950 | 5.00 | 7.23 | *158 | *459 | 207 | 1,336 | 1,064 | 55.2 | 25.8 | *300 | 80.0 | 35.5 | *312 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations and weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| 1948 | *0.03 | *0.06 | *0.09 | 0.07 | 0.54 | 4.68 | 0.92 | 0.62 | 0.09 | 0.05 | 0.01 | 0.004 | *7.16 |
| 1949 | .008 | .03 | *.08 | *.68 | 1.70 | .79 | *.88 | *.17 | .08 | *.12 | *.07 | .01 | *4.60 |
| 1950 | .02 | .02 | *.49 | *1.43 | .58 | 4.16 | 3.21 | .17 | .07 | *.94 | .25 | .11 | *11.45 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations and weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1144 | 9,600 | Mar. 20, 1948 | *0.5 | *195 | *0.527 | *7.16 | *193 | *7.10 |
| 1949 | 1144,1337 | 2,740 | Feb. 15, 1949 | 1.1 | *125 | *.338 | *4.60 | *136 | *5.01 |
| 1950 | 1174,1337 | 7,250 | Mar. 28, 1950 | 2.7 | *312 | *.843 | *11.45 | - | - |

* Revised.

* Not previously published.

192. Cass River at Vassar, Mich.

Location.--Lat 43°22'10", long. 83°34'55", in SW $\frac{1}{4}$ sec. 7, T. 11 N., R. 8 E., on downstream side of bridge on State Highway 15 in Vassar, $1\frac{1}{4}$ miles upstream from Goodings Creek.

Drainage area.--700 sq mi, approximately.

Supplemental records available.--Gage-height records for flood seasons collected at same site 1910-28 are contained in reports of U. S. Weather Bureau.

Gage.--Wire-weight gage. Datum of gage is 612.376 ft above mean sea level, datum of 1929 (levels by U. S. Weather Bureau).

Extremes.--1948-50: Maximum discharge, 11,300 cfs Mar. 28, 1950 (gage height, 16.60 ft, revised); minimum, 24 cfs Oct. 8-10, 1949.

A stage of 20.8 ft, from U. S. Weather Bureau records, occurred on Mar. 20, 1948 (discharge, 18,000 cfs, from rating curve extended above 12,000 cfs by logarithmic plotting).

Remarks.--Some regulation by dam at Michigan Sugar Co. 10 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-----|------|------|------|-------|----------|
| 1949 | *37 | *77 | 83.8 | 410 | 1,030 | 441 | 564 | 147 | 68.9 | 107 | 68.4 | 34.3 | *250 |
| 1950 | 29.2 | 49.5 | 356 | 785 | 425 | 2,270 | 1,790 | 249 | 118 | 553 | 158 | 167 | 581 |

* Not previously published; estimated on basis of records for station at Frankenmuth and weather records.

Monthly and yearly runoff, in inches, of Cass River at Vassar, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | +0.06 | +0.12 | 0.14 | 0.68 | 1.53 | 0.73 | 0.90 | 0.24 | 0.11 | 0.18 | 0.11 | 0.05 | +4.85 |
| 1950 | .05 | .08 | .59 | 1.29 | .63 | 3.74 | 2.86 | .41 | .19 | .91 | .26 | .27 | 11.28 |

* Not previously published; estimated on basis of records for station at Frankenmuth and weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|---------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1949 | 1144 | 4,930 | Feb. 16, 1949 | +26 | +250 | +0.357 | +4.85 | 270 | 5.25 |
| 1950 | 1174 | 11,300 | Mar. 28, 1950 | 24 | 591 | .930 | 11.28 | - | - |

* Not previously published.

193. Cass River at Frankenmuth, Mich.

Location.--Lat 43°19'35", long. 83°44'50", in sec. 27, T. 11 N., R. 6 E., on right bank half a mile west of Frankenmuth, 3.4 miles upstream from Dead Creek, and 5.4 miles downstream from Perry Creek.

Drainage area.--848 sq mi.

Gage.--Water-stage recorder. Datum of gage is 583.96 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). February 1908 to March 1909 staff gage at site half a mile upstream at datum 1.81 ft lower. July 18 to Sept. 11, 1935, wire-weight gage, Sept. 12, 1935, to Sept. 30, 1936, and June 20, 1939, to Sept. 30, 1949, water-stage recorder at site half a mile downstream at datum 0.04 ft higher.

Average discharge.--12 years (1935-36, 1939-50), 454 cfs.

Extremes.--1908, 1935-36, 1939-50: Maximum discharge, 17,700 cfs Mar. 18, 1942; maximum gage height, 20.91 ft Mar. 10, 1942 (site and datum then in use, ice jam); minimum daily discharge, about 1.5 cfs Aug. 6, 1944.

Remarks.--Low and medium flows regulated by mill above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|--------|-------|-------|-------|------|------|-------|----------|
| 1908 | - | - | - | - | - | +4,700 | 1,500 | 1,400 | 140 | 109 | 81.9 | 40.1 | - |
| 1909 | 33.4 | 47.2 | 78.8 | 193 | 818 | 1,690 | - | - | - | - | - | - | - |
| 1935 | - | - | - | - | - | - | - | - | - | - | 36.1 | 38.4 | - |
| 1936 | 39.7 | 125 | 148 | 136 | 223 | 1,164 | 704 | 272 | 66.9 | 20.4 | 24.3 | 69.2 | 250 |
| 1939 | - | - | - | - | - | - | - | - | - | 195 | 57.8 | 45.2 | - |
| 1940 | 40.7 | 54.1 | 50.7 | 52.5 | 65.5 | 343 | 782 | 214 | 290 | 120 | 66.5 | 75.5 | 179 |
| 1941 | 93.6 | 122 | 590 | 572 | 291 | 733 | 516 | 104 | 61.4 | 54.4 | 41.8 | 23.5 | 268 |
| 1942 | 112 | 436 | 385 | 235 | 235 | 3,530 | 395 | 299 | 571 | 76.1 | 66.0 | 109 | 542 |
| 1943 | 191 | 521 | 659 | 594 | 1,463 | 2,281 | 798 | 1,619 | 945 | 189 | 125 | 83.0 | 787 |
| 1944 | 88.9 | 284 | 139 | 95.8 | 638 | 1,194 | 910 | 497 | 224 | 47.3 | 20.1 | 32.5 | 346 |
| 1945 | 38.7 | 68.0 | 74.7 | 53.5 | 145 | 432 | 356 | 1,446 | 1,499 | 261 | 92.0 | 225 | 391 |
| 1946 | 906 | 316 | 254 | 1,076 | 333 | 2,447 | 202 | 287 | 192 | 55.0 | 33.1 | 30.4 | 516 |
| 1947 | 31.7 | 53.2 | 83.5 | 319 | 160 | 729 | 3,122 | 1,463 | 803 | 129 | 87.2 | 86.1 | 588 |
| 1948 | 57.6 | 101 | 137 | 83.5 | 411 | 3,299 | 893 | 776 | 273 | 104 | 54.7 | 39.6 | 522 |
| 1949 | 49.2 | 99.5 | 98.1 | 498 | 1,428 | 532 | 738 | 205 | 105 | 165 | 100 | 51.0 | 331 |
| 1950 | 42.4 | 58.1 | 434 | 1,006 | 549 | 2,794 | 2,213 | 342 | 175 | 675 | 184 | 243 | 728 |

* Not previously published; partly estimated on basis of records for Huron River at Geddes.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | +6.39 | 1.97 | 1.90 | 0.18 | 0.15 | 0.11 | 0.05 | - |
| 1909 | 0.05 | 0.06 | 0.11 | 0.26 | 1.00 | 2.30 | - | - | - | - | - | - | - |
| 1935 | - | - | - | - | - | - | - | - | - | - | .05 | .05 | - |
| 1936 | .05 | .16 | .20 | .18 | .28 | 1.58 | .93 | .37 | .09 | .03 | .03 | .09 | 3.99 |
| 1939 | - | - | - | - | - | - | - | - | - | .27 | .08 | .06 | - |
| 1940 | .06 | .07 | .07 | .07 | .08 | .47 | 1.03 | .29 | .38 | .16 | .09 | .10 | 2.87 |
| 1941 | .13 | .16 | .80 | .78 | .36 | 1.00 | .68 | .14 | .08 | .07 | .06 | .03 | 4.29 |
| 1942 | .15 | .57 | .52 | .32 | .29 | 4.80 | .52 | .41 | .75 | .10 | .09 | .14 | 8.66 |
| 1943 | .26 | .68 | .90 | .81 | 1.82 | 3.10 | 1.05 | 2.20 | 1.24 | .26 | .17 | .11 | 12.60 |
| 1944 | .12 | .37 | .19 | .13 | .81 | 1.63 | 1.19 | .68 | .29 | .08 | .03 | .04 | 5.44 |
| 1945 | .05 | .09 | .10 | .07 | .18 | .59 | .47 | 1.97 | 1.98 | .56 | .12 | .30 | 6.28 |
| 1946 | 1.23 | .42 | .35 | 1.46 | .41 | 3.33 | .27 | .39 | .25 | .07 | .04 | .04 | 8.26 |
| 1947 | .04 | .07 | .11 | .43 | .20 | .99 | 4.11 | 1.99 | 1.06 | .18 | .12 | .11 | 9.41 |
| 1948 | .08 | .13 | .19 | .11 | .52 | 4.48 | 1.17 | 1.05 | .36 | .14 | .07 | .05 | 8.35 |
| 1949 | .07 | .13 | .13 | .68 | 1.75 | .72 | .97 | .28 | .14 | .22 | .14 | .07 | 5.30 |
| 1950 | .06 | .08 | .59 | 1.37 | .67 | 3.80 | 2.91 | .47 | .23 | .92 | .25 | .32 | 11.67 |

* Not previously published; partly estimated on basis of records for Huron River at Geddes.

Yearly discharge, in cubic feet per second, of Cass River at Frankenmuth, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | 244 | *9,550 | Mar. 16, 1908 | - | - | - | - | - | - |
| 1909 | 244, 264 | - | - | - | - | - | - | - | - |
| 1935 | 784 | - | - | - | - | - | - | - | - |
| 1936 | 804 | *3,200 | Mar. 13, 1936 | 2.3 | 250 | 0.295 | 3.99 | - | - |
| 1939 | 874 | - | - | - | - | - | - | - | - |
| 1940 | 894 | *5,650 | Apr. 1, 1940 | 9.0 | 179 | .211 | 2.87 | 235 | 3.76 |
| 1941 | 924 | 2,600 | Dec. 30, 1940 | 2 | 268 | .316 | 4.29 | 278 | 4.44 |
| 1942 | 954 | 17,700 | Mar. 18, 1942 | 7.7 | 542 | .639 | 8.66 | 579 | 9.26 |
| 1943 | 974 | 416,100 | Mar. 16, 1943 | 12 | 787 | .928 | 12.60 | 715 | 11.44 |
| 1944 | 1004 | 5,180 | Feb. 28, 1944 | 1.5 | 346 | .408 | 5.44 | 518 | 5.10 |
| 1945 | 1034 | 7,360 | June 3, 1945 | 7 | 391 | .461 | 6.28 | 501 | 8.04 |
| 1946 | 1054 | 11,800 | Mar. 8, 1946 | 24 | 516 | .608 | 8.26 | 406 | 6.48 |
| 1947 | 1084 | 15,400 | Apr. 6, 1947 | 5.0 | 588 | .693 | 9.41 | 598 | 9.59 |
| 1948 | 1114 | 17,600 | Mar. 20, 1948 | 20 | 522 | .616 | 8.35 | 518 | 8.28 |
| 1949 | 1144 | 5,290 | Feb. 16, 1949 | 26 | 331 | .390 | 5.30 | 356 | 5.70 |
| 1950 | 1174 | 12,500 | Mar. 28, 1950 | 22 | 728 | .858 | 11.67 | - | - |

* Revised.

† Not previously published.

a Peak caused by release of water from ice jams upstream; natural peak, 13,500 cfs Mar. 17, 1943.

194. Tobacco River at Beaverton, Mich.

Location.--Lat 43°52'45", long. 84°28'25", in sec. 7, T. 17 N., R. 1 W., on left bank 15 ft downstream from highway bridge, 1 mile downstream from powerplant dam at Beaverton, and 2 miles upstream from Venison Creek.

Drainage area.--487 sq mi.

Gage.--Water-stage recorder. Datum of gage is 683.27 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1948-50: Maximum discharge, 7,100 cfs (revised) Mar. 20, 1948 (gage height, 12.4 ft, from graph based on gage readings); minimum, 6.5 cfs Jan. 13, 1949 (gage height, 0.78 ft); minimum daily, 46 cfs Sept. 7, 1950.

Remarks.--Regulation at all stages by powerplant 1 mile upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | - | *178 | 149 | 139 | - |
| 1949 | 165 | 250 | 196 | 279 | 429 | 475 | 357 | 225 | 224 | 177 | 143 | 173 | 256 |
| 1950 | 175 | 193 | 317 | 639 | 301 | 1,129 | 1,034 | 327 | 212 | 197 | 174 | 225 | 411 |

* Not previously published.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|-------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | - | *0.42 | 0.35 | 0.32 | - |
| 1949 | 0.39 | 0.57 | 0.46 | 0.66 | 0.92 | 1.12 | 0.82 | 0.53 | 0.51 | .42 | .34 | .40 | 7.14 |
| 1950 | .41 | .44 | .75 | 1.51 | .64 | 2.67 | 2.37 | .77 | .48 | .47 | .41 | .52 | 11.44 |

* Not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1144 | *7,100 | Mar. 20, 1948 | - | - | - | - | - | - |
| 1949 | 1144 | 1,780 | Feb. 25, 1949 | 61 | 256 | 0.526 | 7.14 | 263 | 7.32 |
| 1950 | 1174 | 6,200 | Mar. 28, 1950 | 46 | 411 | .844 | 11.44 | - | - |

* Revised.

195. Kinney Creek near Clare, Mich.

Location.--Lat 43°45', long. 84°42', in NW $\frac{1}{4}$ sec. 29, T. 16 N., R. 3 W., 2 $\frac{1}{2}$ miles above mouth and 4 miles southeast of Clare.

Drainage area.--9 sq mi, approximately.

Gage.--Staff gage and V-notch weir. Altitude of gage is 760 ft (from adjacent topographic map).

Extremes.--1935-36: Maximum discharge not determined; maximum daily discharge, 159 cfs Mar. 13, 1936; minimum observed, 0.8 cfs (gage height, 0.62 ft) Dec. 2, 1935.

STREAMS TRIBUTARY TO LAKE HURON

Monthly and yearly mean discharge, in cubic feet per second, of Kinney Creek near Clare, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|-------|------|-------|----------|
| 1935 | - | - | - | - | - | - | - | - | - | *1.57 | 1.71 | 1.17 | - |
| 1936 | 1.29 | 1.80 | 1.49 | 1.47 | 1.43 | 37.6 | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|------|-----|------|-------|-------|-------|----------|
| 1935 | - | - | - | - | - | - | - | - | - | *0.20 | *0.22 | *0.14 | - |
| 1936 | *0.16 | *0.22 | *0.19 | *0.19 | *0.17 | *4.82 | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of weather records and records for nearby stations.

196. Salt River near North Bradley, Mich.

Location.--Lat 43°42'10", long. 84°28'15", in SE $\frac{1}{4}$ sec. 7, T. 15 N., R. 1 W., on downstream side of bridge on U. S. Highway 10, half a mile upstream from Bluff Creek and 1.1 miles southeast of North Bradley.

Drainage area.--138 sq mi.

Gage.--Wire-weight gage. Datum of gage is 618.01 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Mar. 27, 1942, staff gage at site 100 ft upstream at same datum.

Average discharge.--16 years (1934-50), 69.0 cfs.

Extremes.--1934-50: Maximum discharge, 8,200 cfs Mar. 20, 1948 (gage height, 14.95 ft, from graph based on gage readings), from rating curve extended above 4,400 cfs; minimum observed, 1.1 cfs Aug. 14, 1944 (gage height, 0.21 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|-------|------|------|------|-------|-------|-------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | *6.05 | 3.42 | 5.72 | 13.3 | - |
| 1935 | 11.0 | 57.6 | 42.3 | 124 | 64.6 | 618 | 53.2 | 40.9 | 25.5 | 9.39 | 14.1 | 7.48 | 89.8 |
| 1936 | 8.48 | 17.3 | 18.7 | 20.2 | *22.0 | 283 | 85.5 | 28.0 | 14.4 | 4.84 | 3.93 | 8.24 | *43.2 |
| 1937 | 14.5 | 10.6 | 27.3 | 50.2 | 106 | 37.7 | 222 | 46.2 | 31.6 | 10.0 | 6.60 | *7.29 | *46.8 |
| 1938 | *13.2 | *20.1 | 16.7 | 23.3 | 597 | 206 | 67.2 | 18.0 | 11.8 | 6.37 | 7.21 | 5.92 | *79.2 |
| 1939 | 6.03 | 9.84 | 13.1 | 24.6 | *97.4 | *164 | 129 | 34.6 | 15.5 | 3.76 | 6.41 | 5.73 | *42.1 |
| 1940 | 5.24 | 6.77 | 5.48 | 16.5 | 9.26 | 93.2 | 59.7 | 55.7 | 22.2 | 7.83 | 15.3 | 15.7 | 26.2 |
| 1941 | 15.2 | 31.8 | 117 | 81.0 | 28.2 | 233 | 106 | 19.1 | 8.67 | 5.09 | 4.24 | 43.3 | 58.1 |
| 1942 | 124 | 163 | 82.2 | 52.1 | 25.9 | 523 | 91.5 | 54.2 | 53.4 | 13.9 | 7.13 | 10.2 | 101 |
| 1943 | 16.8 | 73.1 | 107 | 63.4 | 299 | 478 | 119 | 189 | 273 | 17.3 | 9.37 | 12.3 | 137 |
| 1944 | 11.1 | 22.2 | 10.7 | 11.4 | 36.7 | 99.2 | 86.6 | 65.0 | 18.9 | 6.41 | 3.86 | 6.40 | 31.5 |
| 1945 | 6.85 | 9.06 | 9.43 | 7.21 | 10.6 | 46.8 | 20.8 | 51.2 | 296 | 12.4 | 7.76 | 111 | 48.8 |
| 1946 | 128 | 89.0 | 45.0 | 166 | 47.8 | 636 | 29.8 | 21.2 | 15.0 | 8.76 | 4.65 | 6.95 | 101 |
| 1947 | 6.09 | 13.1 | 11.8 | 37.0 | 21.1 | 200 | 357 | 315 | 85.8 | 16.3 | 7.26 | 14.8 | 90.7 |
| 1948 | 9.74 | 13.0 | 37.0 | 10.0 | 63.9 | 624 | 121 | 60.0 | 58.9 | 20.7 | 8.17 | 5.35 | 86.5 |
| 1949 | 6.59 | 11.0 | 8.28 | 44.2 | 171 | 112 | 65.1 | 23.4 | 14.7 | 7.51 | *5.08 | *8.05 | *38.8 |
| 1950 | 7.85 | 8.99 | 60.4 | 154 | *38.7 | 353 | 301 | 35.9 | 9.53 | *8.13 | *4.93 | *15.2 | *83.4 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|-------|------|------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | *0.05 | 0.03 | 0.05 | 0.11 | - |
| 1935 | 0.09 | 0.47 | 0.35 | 1.04 | 0.49 | 5.16 | 0.43 | 0.34 | *.21 | .08 | .12 | .06 | 8.84 |
| 1936 | .07 | .14 | .16 | .17 | *.17 | 2.36 | .69 | .23 | .12 | .04 | .03 | .07 | *4.25 |
| 1937 | .12 | .09 | .23 | .42 | .80 | .31 | 1.80 | .39 | .25 | .08 | .06 | *.06 | *4.61 |
| 1938 | *.11 | *.16 | .14 | .19 | 4.51 | 1.72 | .54 | .15 | .10 | .05 | .06 | .05 | *7.78 |
| 1939 | .05 | .08 | .11 | .21 | *.74 | *1.37 | 1.04 | .29 | .12 | .03 | .05 | .05 | *4.14 |
| 1940 | .04 | .05 | .05 | .14 | .07 | .78 | .48 | .47 | .18 | .07 | .13 | .13 | 2.59 |
| 1941 | .13 | .26 | .98 | .68 | .21 | 1.95 | .86 | .16 | .07 | .04 | .04 | .35 | 5.73 |
| 1942 | 1.04 | 1.32 | .69 | .44 | .20 | 4.37 | .74 | .45 | .43 | .12 | .06 | .08 | 9.94 |
| 1943 | .14 | .59 | .89 | .53 | 2.26 | 3.99 | .96 | 1.58 | 2.21 | .14 | .08 | .10 | 13.47 |
| 1944 | .09 | .18 | .09 | .10 | .29 | .83 | .70 | .54 | .15 | .05 | .03 | .05 | 3.10 |
| 1945 | .06 | .07 | .08 | .06 | .08 | .39 | .17 | .43 | 2.39 | .10 | .06 | .90 | 4.79 |
| 1946 | 1.07 | .72 | .38 | 1.38 | .36 | 5.32 | .24 | .18 | .12 | .07 | .04 | .06 | 9.94 |
| 1947 | .05 | .11 | .10 | .31 | .16 | 1.87 | 2.89 | 2.63 | .69 | .14 | .06 | .12 | 8.93 |
| 1948 | .08 | .10 | .31 | .08 | .50 | 5.21 | .98 | .50 | .48 | .17 | .07 | .04 | 8.52 |
| 1949 | .06 | .09 | .07 | .37 | 1.29 | .94 | .53 | .20 | .12 | .06 | .04 | *.07 | *3.84 |
| 1950 | .07 | .07 | .50 | 1.28 | *.29 | 2.95 | 2.43 | .30 | .08 | *.07 | .04 | .12 | *8.20 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second, of Salt River near North Bradley, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Discharge | Momentary maximum Date | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| 1934 | 759 | - | - | - | - | - | - | - | - |
| 1935 | 784 | 2,400 | Mar. 17, 1935 | 3.7 | 89.8 | 0.651 | 8.84 | 84.2 | 8.30 |
| 1936 | 804,1337 | *910 | Mar. 22, 1936 | 2.1 | *43.2 | *.313 | *4.25 | *43.9 | *4.32 |
| 1937 | 824,1337 | *1,090 | Apr. 27, 1937 | 2.7 | *46.8 | *.339 | *4.61 | *46.6 | *4.58 |
| 1938 | (a) | *5,500 | Feb. 7, 1938* | 3.5 | *79.2 | *.574 | *7.78 | *77.4 | *7.61 |
| 1939 | 874,1337 | *544 | Apr. 18, 1939 | 2.7 | *42.1 | *.305 | *4.14 | *41.1 | *4.04 |
| 1940 | 894 | *1,300 | Mar. 30, 1940 | 3.4 | 26.2 | .190 | 2.59 | 38.5 | 3.82 |
| 1941 | 924 | 1,200 | Mar. 24, 1941 | 2.0 | 58.1 | .421 | 5.73 | 75.2 | 7.41 |
| 1942 | 954 | 4,330 | Mar. 17, 1942 | 5.5 | 101 | .752 | 9.94 | 86.5 | 8.51 |
| 1943 | 974 | *2,960 | June 1, 1943 | 6.8 | 137 | .993 | 13.47 | 124 | 12.21 |
| 1944 | 1004 | 480 | Mar. 30, 1944 | 1.4 | 31.5 | .228 | 3.10 | 29.9 | 2.95 |
| 1945 | 1034 | 3,410 | June 2, 1945 | 4.9 | 48.8 | .354 | 4.79 | 68.7 | 6.75 |
| 1946 | 1054 | b,7,970 | Mar. 7, 1946 | 3.3 | 101 | .732 | 9.94 | 81.5 | 8.03 |
| 1947 | 1084 | 2,180 | Apr. 25, 1947 | 4.0 | 90.7 | .657 | 8.93 | 93.1 | 9.16 |
| 1948 | 1114 | 8,200 | Mar. 20, 1948 | 4.6 | 86.5 | .627 | 8.52 | 83.6 | 8.25 |
| 1949 | 1144,1337 | *1,100 | Feb. 25, 1949 | 3.4 | *38.8 | *.281 | *3.84 | *43.2 | *4.26 |
| 1950 | 1174,1337 | 2,300 | Mar. 28, 1950 | 3.8 | *83.4 | *.604 | *8.20 | - | - |

* Revised.

a In W.S.P. 854, 924, 1337.

b Maximum observed.

197. Chippewa River near Mount Pleasant, Mich.

Location.--Lat 43°37'35", long. 84°42'30", on line between secs. 7 and 8, T. 14 N., R. 3 W., on right bank 12 ft downstream from highway bridge and 4 miles northeast of Mount Pleasant.

Drainage area.--416 sq mi.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1910-27 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 710.38 ft above mean sea level (levels by Michigan Department of Conservation). Prior to Oct. 21, 1938, chain and wire-weight gages at site 30 ft upstream at same datum.

Average discharge.--19 years (1930-31, 1932-50), 276 cfs.

Extremes.--1930-31, 1932-50: Maximum discharge, 4,960 cfs Mar. 8, 1946 (gage height, 12.78 ft); minimum daily, 19 cfs Aug. 16, 1936.

Remarks.--Diurnal fluctuation below about 750 cfs caused by powerplant at Mount Pleasant.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|--------|--------|------|------|------|------|------|-------|----------|
| 1931 | #165 | 170 | 144 | *126 | *183 | *241 | 258 | 266 | 152 | #90 | #70 | #100 | #163 |
| 1933 | 168 | 236 | *410 | *321 | *466 | *346 | *773 | *709 | 182 | 145 | 138 | 159 | *337 |
| 1934 | 220 | 250 | 279 | *415 | *209 | *482 | *415 | 214 | 135 | 94.8 | 95.5 | 174 | *249 |
| 1935 | 135 | 292 | 287 | 398 | 311 | *1,293 | 342 | 258 | 182 | 141 | 142 | 125 | *326 |
| 1936 | 132 | 203 | 190 | *194 | *198 | 673 | 357 | 200 | 122 | 77.3 | 74.8 | 132 | *213 |
| 1937 | 170 | 168 | 239 | *351 | *367 | 204 | 504 | 281 | 147 | 117 | 129 | 148 | *236 |
| 1938 | 166 | 210 | 175 | 219 | *1,401 | 635 | 398 | 218 | 170 | 117 | 127 | 141 | *324 |
| 1939 | 121 | 151 | 172 | 234 | *328 | *483 | 399 | 231 | 180 | 105 | 121 | 128 | *220 |
| 1940 | 138 | 152 | *148 | *130 | 124 | 225 | 413 | 309 | 204 | 113 | *159 | 194 | *192 |
| 1941 | 145 | 212 | 319 | 311 | 237 | 324 | 446 | 206 | 117 | 84.6 | 85.4 | 237 | 227 |
| 1942 | 448 | 439 | 292 | 250 | 208 | 767 | 427 | 268 | 243 | 166 | 145 | 178 | 320 |
| 1943 | 198 | 352 | 341 | 286 | 553 | 923 | 554 | 542 | 711 | 250 | 157 | 165 | 416 |
| 1944 | 197 | 272 | 187 | 171 | 259 | 321 | 405 | 398 | 239 | 122 | 98.5 | 150 | 235 |
| 1945 | 139 | 164 | *161 | *112 | *179 | 355 | 231 | 284 | 706 | 161 | 136 | 370 | *249 |
| 1946 | 503 | 336 | 259 | 445 | 236 | 1,304 | 317 | 245 | 198 | 100 | 93.1 | 128 | 348 |
| 1947 | 117 | 196 | 199 | 270 | 230 | 366 | 367 | 684 | 357 | 198 | 135 | 155 | 313 |
| 1948 | 160 | 234 | 233 | *125 | 171 | 1,036 | 537 | 351 | 233 | 150 | 112 | 111 | *289 |
| 1949 | 151 | 214 | 174 | 252 | *466 | 401 | 367 | 205 | 166 | 135 | 92.1 | 144 | *229 |
| 1950 | 145 | 156 | 264 | 541 | 304 | 906 | 891 | 295 | 177 | 166 | 115 | 196 | 347 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|----------|
| 1931 | #0.46 | 0.46 | 0.40 | *0.35 | *0.46 | *0.67 | 0.69 | 0.74 | 0.41 | #0.25 | #0.20 | #0.26 | #5.35 |
| 1933 | .47 | .63 | *1.14 | *.89 | *1.17 | *.96 | *2.08 | *1.96 | .49 | .40 | .38 | .43 | *11.00 |
| 1934 | .61 | .67 | .77 | *1.15 | *.52 | *1.34 | *1.11 | .59 | .36 | .26 | .27 | .47 | *8.12 |
| 1935 | .37 | .78 | .80 | 1.08 | .78 | *3.58 | .92 | .71 | .49 | .39 | .39 | .33 | *10.62 |
| 1936 | .37 | .54 | .53 | *.54 | *.51 | 1.87 | .96 | .55 | .33 | .21 | .21 | .35 | *6.97 |
| 1937 | .47 | .45 | .66 | *.97 | *.97 | 1.56 | 1.35 | .78 | .39 | .32 | .36 | .40 | *7.68 |
| 1938 | .46 | .56 | .49 | .61 | *3.51 | 1.76 | 1.07 | .60 | .46 | .32 | .35 | .38 | *10.57 |
| 1939 | .34 | .40 | .48 | .65 | *.82 | *1.34 | 1.07 | .64 | .48 | .29 | .34 | .34 | *7.19 |
| 1940 | .38 | .41 | *.41 | *.36 | .32 | .62 | 1.11 | .86 | .55 | .31 | *.44 | .52 | *6.29 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

STREAMS TRIBUTARY TO LAKE HURON

Monthly and yearly runoff, in inches, of Chippewa River near Mount Pleasant, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.40 | 0.57 | 0.88 | 0.86 | 0.59 | 0.90 | 1.20 | 0.57 | 0.31 | 0.23 | 0.24 | 0.64 | 7.39 |
| 1942 | 1.24 | 1.18 | .81 | .69 | .52 | 2.12 | 1.15 | .74 | .65 | .46 | .40 | .47 | 10.43 |
| 1943 | .55 | .94 | .95 | .79 | 1.38 | 2.56 | 1.48 | 1.50 | 1.91 | .69 | .43 | .44 | 13.62 |
| 1944 | .55 | .73 | .52 | .47 | .67 | .89 | 1.09 | 1.10 | 1.64 | .34 | .27 | .40 | 7.67 |
| 1945 | .39 | .44 | *.45 | *.31 | *.45 | .98 | .62 | .79 | 1.90 | .45 | .38 | .99 | *8.15 |
| 1946 | 1.40 | .90 | .72 | 1.23 | .59 | 3.61 | .85 | .68 | .50 | .28 | .26 | .34 | 11.36 |
| 1947 | .32 | .53 | .55 | .75 | .58 | 1.01 | 2.32 | 1.84 | .96 | .55 | .37 | .42 | 10.20 |
| 1948 | .44 | .63 | .65 | *.35 | .44 | 2.87 | 1.44 | .97 | .62 | .42 | .31 | .30 | *9.44 |
| 1949 | .42 | .57 | .48 | .70 | *1.17 | 1.11 | .98 | .57 | .45 | .37 | .25 | .39 | *7.46 |
| 1950 | .40 | .42 | .73 | 1.50 | .76 | 2.51 | 2.39 | .82 | .47 | .46 | .32 | .53 | 11.31 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714,1337 | *500 | Mar. 29, 1931 | - | *163 | *0.392 | *5.35 | - | - |
| 1933 | 744,1337 | *2,800 | May 3, 1933 | 54 | *337 | *.810 | *11.00 | *331 | *10.81 |
| 1934 | 759,1337 | *1,400 | Mar. 18, 1934 | 62 | *249 | *.599 | *8.12 | *245 | *8.02 |
| 1935 | 784,1337 | *2,800 | Mar. 6, 1935 | 66 | *326 | *.784 | *10.62 | *310 | *10.11 |
| 1936 | 804,1337 | *1,010 | Mar. 25, 1936 | 19 | *213 | *.512 | *6.97 | *217 | *7.11 |
| 1937 | 824,1337 | *1,080 | Apr. 27, 1937 | 72 | *236 | *.567 | *7.68 | *233 | *7.61 |
| 1938 | 854,1337 | *4,460 | Feb. 6, 1938 | 84 | *324 | *.779 | *10.57 | *315 | *10.28 |
| 1939 | 874,1337 | *1,010 | Mar. 27, 1939 | 68 | *220 | *.529 | *7.19 | *220 | *7.17 |
| 1940 | 894,1337 | 1,130 | Mar. 30, 1940 | 80 | *192 | *.462 | *6.29 | *212 | *6.94 |
| 1941 | 924 | 762 | Sept. 11, 1941 | 54 | 227 | .546 | 7.39 | 269 | 8.77 |
| 1942 | 954 | 1,950 | Mar. 17, 1942 | 100 | 320 | .769 | 10.43 | 296 | 9.64 |
| 1943 | 974 | 2,110 | June 3, 1943 | 121 | 418 | 1.00 | 13.62 | 398 | 12.98 |
| 1944 | 1004 | 940 | Feb. 27, 1944 | 69 | *235 | *.565 | 7.67 | *219 | *7.15 |
| 1945 | 1034,1337 | 2,560 | June 2, 1945 | *90 | *249 | *.599 | *8.15 | *303 | *9.89 |
| 1946 | 1054 | 4,960 | Mar. 8, 1946 | 52 | 348 | .837 | 11.36 | 299 | 9.74 |
| 1947 | 1084 | 1,640 | Apr. 26, 1947 | 69 | 313 | .752 | 10.20 | 322 | 10.52 |
| 1948 | 1114,1337 | 4,460 | Mar. 20, 1948 | 68 | *289 | *.695 | *9.44 | 281 | *9.19 |
| 1949 | 1144,1337 | 1,800 | Feb. 25, 1949 | 48 | *229 | *.550 | *7.46 | *231 | *7.54 |
| 1950 | 1174 | 3,630 | Jan. 26, 1950 | 43 | 347 | .834 | 11.31 | - | - |

* Revised.

* Not previously published.

198. Chippewa River near Midland, Mich.

Location.--Lat 43°35'40", long. 84°22'10", on line between sec. 24, T. 14 N., R. 1 W., and sec. 28, T. 14 N., R. 1 E., on upstream side of bridge on State Highway 30, 5 miles upstream from Pipe River and 6 miles southwest of Midland.

Drainage area.--597 sq mi.

Gage.--Wire-weight gage. Datum of gage is 612.35 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1947-50: Maximum discharge, 8,510 cfs Mar. 20, 1948 (computed from graph based on gage readings); maximum gage height observed, 12.43 ft Mar. 19, 1948 (ice jam); minimum daily discharge, 44 cfs Aug. 16, 1948.

Remarks.--Diurnal fluctuation below about 750 cfs caused by powerplant at Mount Pleasant.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|--------|-------|-----|------|------|------|-------|----------|
| 1948 | *230 | *330 | *360 | 197 | 357 | 1,925 | 870 | 551 | 374 | 158 | 101 | 127 | *466 |
| 1949 | 139 | 225 | 219 | 389 | 659 | 630 | 536 | 248 | 209 | 157 | 134 | 131 | 304 |
| 1950 | 142 | 198 | 415 | 838 | *441 | *1,328 | 1,453 | 398 | 204 | 204 | 129 | 216 | *497 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|-------|------|------|------|------|------|-------|----------|
| 1948 | *0.44 | *0.62 | *0.69 | 0.38 | 0.64 | 3.71 | 1.63 | 1.06 | 0.70 | 0.31 | 0.19 | 0.24 | *10.61 |
| 1949 | .27 | .42 | .42 | .75 | 1.14 | 1.22 | 1.00 | .48 | .39 | .30 | .26 | .24 | 6.89 |
| 1950 | .28 | .37 | .80 | 1.62 | *.77 | *2.56 | 2.72 | .78 | .38 | .39 | .25 | .40 | *11.32 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Daily discharge, in cubic feet per second | | | | | | | | | | |
|---|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1948 | 1114 | 8,510 | Mar. 20, 1948 | *44 | *466 | *0.781 | *10.61 | 438 | 9.97 | |
| 1949 | 1144 | *2,700 | Feb. 26, 1949 | 49 | 304 | *.509 | 6.89 | 319 | 7.23 | |
| 1950 | 1174,1337 | *5,100 | Mar. 28, 1950 | 61 | *497 | *.832 | *11.32 | - | - | |

* Revised.

* Not previously published.

199. Pine River at Alma, Mich.

Location.--Lat 43°23', long. 84°39', in SE $\frac{1}{4}$ sec. 34, T. 12 N., R. 3 W., on right bank 270 ft downstream from Superior Street Bridge, on grounds of Municipal Water Works at Alma.

Drainage area.--288 sq mi.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1910-28 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 718.37 ft above mean sea level, datum of 1929. Prior to Dec. 9, 1930, tape gage at Superior Street Bridge at different datum. Dec. 10, 1930, to June 15, 1938, staff gage at site 70 ft downstream from bridge and June 16 to Oct. 25, 1938, wire-weight gage at bridge at present datum.

Average discharge.--20 years (1930-50), 184 cfs.

Extremes.--1930-50: Maximum discharge, 4,400 cfs Mar. 19, 1948 (gage height, 10.81 ft); minimum daily, 2 cfs July 23, 1938, caused by cofferdam upstream during bridge construction.

Remarks.--Occasional regulation caused by dam half a mile upstream.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|-------|-------|------|------|------|------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | *90 | 82.6 | 95.0 | 86.8 | 136 | 176 | *161 | *140 | *79.1 | 46.5 | 34.8 | 49.2 | *97.8 |
| 1932 | 66.5 | 147 | 185 | 321 | 248 | 202 | 234 | 223 | 121 | 82.1 | 55.8 | 47.5 | 161 |
| 1933 | 93.4 | 137 | 185 | 164 | 210 | 245 | 472 | 439 | 111 | 74.8 | 60.4 | 59.0 | 187 |
| 1934 | 131 | 145 | 201 | 207 | 89.8 | 258 | 267 | 120 | 50.8 | 35.6 | 54.1 | 89.7 | 138 |
| 1935 | 73.5 | 192 | 153 | 204 | 176 | 916 | 212 | 208 | 221 | 90.1 | 85.1 | 82.9 | 217 |
| 1936 | 66.8 | 139 | 135 | *127 | *121 | 576 | 301 | 137 | 67.1 | 37.8 | 34.7 | 82.2 | *152 |
| 1937 | 110 | 92.1 | 130 | 215 | 235 | 161 | 387 | 219 | 111 | 67.5 | 56.4 | 53.5 | 152 |
| 1938 | 99.4 | 114 | 101 | 141 | 997 | 412 | 304 | 152 | 123 | 66.0 | 107 | 86.0 | 220 |
| 1939 | 66.4 | 100 | 120 | 156 | *237 | *348 | 329 | 162 | 139 | 72.4 | 85.1 | 72.9 | *157 |
| 1940 | 69.9 | 88.2 | 78.4 | 103 | 72.6 | 176 | 337 | 209 | 147 | 65.3 | 59.6 | 93.0 | 125 |
| 1941 | 85.6 | 128 | 222 | 218 | 140 | 301 | 256 | 111 | 67.8 | 42.4 | 48.3 | 51.9 | 139 |
| 1942 | 204 | 286 | 186 | 157 | 130 | 606 | 220 | 157 | 200 | 67.0 | 65.5 | 98.1 | 199 |
| 1943 | 120 | 266 | 248 | 215 | 472 | 646 | 309 | 414 | 275 | 122 | 79.4 | 97.3 | 271 |
| 1944 | 104 | 163 | 94.8 | 91.8 | 192 | 283 | 330 | 276 | 147 | 64.7 | 51.8 | 78.4 | 156 |
| 1945 | 70.4 | 93.4 | *85.7 | *66.6 | 109 | 236 | 159 | 262 | 413 | 102 | 79.7 | 152 | *152 |
| 1946 | 332 | 207 | 147 | 323 | 148 | 983 | 174 | 135 | 101 | 56.9 | 49.6 | 65.9 | 228 |
| 1947 | 66.6 | 136 | 127 | 167 | 134 | 268 | 655 | 499 | 305 | 121 | 71.0 | 119 | 222 |
| 1948 | 111 | 159 | 207 | 91.0 | 172 | 914 | 498 | 372 | 175 | *87.0 | *67.0 | 56.0 | 243 |
| 1949 | 73.0 | 148 | 116 | 206 | *366 | 304 | 285 | 109 | 106 | 93.4 | 82.0 | 63.2 | *163 |
| 1950 | 69.7 | 93.2 | 218 | 463 | 222 | 870 | 721 | 226 | 104 | 160 | 86.5 | 285 | 294 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of weather records and records for nearby stations.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|------|------|------|-------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | *0.36 | 0.32 | 0.38 | 0.35 | 0.49 | 0.70 | *0.62 | *0.56 | *0.31 | 0.19 | 0.14 | 0.19 | *4.61 |
| 1932 | .27 | .57 | .73 | 1.28 | .93 | .81 | .90 | .89 | .47 | .33 | .22 | .18 | 7.58 |
| 1933 | .37 | .53 | .74 | .66 | .76 | .98 | 1.83 | 1.75 | .43 | .30 | .24 | .23 | 8.82 |
| 1934 | .52 | .56 | .80 | .83 | .32 | 1.02 | 1.03 | .48 | .20 | .14 | .22 | .35 | 6.47 |
| 1935 | .29 | .74 | .61 | .82 | .64 | 3.67 | .82 | .83 | .86 | .36 | .33 | .24 | 10.21 |
| 1936 | .27 | .84 | .54 | *.51 | *.45 | 2.31 | 1.17 | .55 | .26 | .15 | .14 | .32 | *7.21 |
| 1937 | .44 | .36 | .52 | .86 | .85 | .64 | 1.50 | .88 | .43 | .27 | .23 | .21 | 7.19 |
| 1938 | .40 | .44 | .40 | .56 | 3.60 | 1.65 | 1.18 | .61 | .48 | .26 | .43 | .33 | 10.34 |
| 1939 | .27 | .39 | .48 | .62 | *.86 | *1.39 | 1.27 | .65 | .54 | .29 | .34 | .28 | *7.38 |
| 1940 | .28 | .34 | .31 | .41 | .27 | .70 | 1.30 | .84 | .57 | .26 | .24 | .36 | 5.88 |
| 1941 | .34 | .50 | .89 | .87 | .51 | 1.21 | .99 | .44 | .26 | .17 | .19 | .20 | 6.57 |
| 1942 | .82 | 1.11 | .74 | .63 | .47 | 2.42 | .85 | .63 | .77 | .27 | .26 | .38 | 9.35 |
| 1943 | .48 | 1.03 | .99 | .86 | 1.71 | 2.58 | 1.19 | 1.66 | 1.07 | .49 | .32 | .38 | 12.76 |
| 1944 | .42 | .63 | .38 | .37 | .72 | 1.13 | 1.28 | 1.10 | .57 | .26 | .21 | .30 | 7.37 |
| 1945 | .28 | .36 | *.34 | *.27 | .39 | .94 | .62 | 1.05 | 1.60 | .41 | .32 | .59 | *7.17 |
| 1946 | 1.33 | .80 | .59 | 1.29 | .54 | 3.93 | .67 | .54 | .39 | .23 | .20 | .26 | 10.77 |
| 1947 | .27 | .53 | .51 | .67 | .46 | 1.07 | 2.53 | 1.99 | 1.18 | .48 | .28 | .46 | 10.45 |
| 1948 | .44 | .62 | .83 | .36 | .64 | 3.65 | 1.93 | 1.49 | .68 | .35 | .27 | .22 | 11.49 |
| 1949 | .29 | .57 | .46 | .82 | *1.39 | 1.22 | 1.10 | .44 | .41 | .37 | .33 | .24 | *7.64 |
| 1950 | .28 | .36 | .87 | 1.86 | .80 | 3.48 | 2.79 | .91 | .40 | .64 | .35 | 1.12 | 13.86 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714,1337 | *353 | Apr. 1, 1931* | *30 | *97.8 | *0.340 | *4.61 | *109 | *5.12 |
| 1932 | 729 | *1,060 | Feb. 12, 1932 | 40 | 161 | .559 | 7.58 | 162 | 7.65 |
| 1933 | 744 | *1,400 | May 2, 1935 | 34 | 187 | .653 | 8.82 | 132 | 9.06 |
| 1934 | 759 | *1,100 | Mar. 17, 1934 | 17 | 158 | .479 | 6.47 | 132 | 6.23 |
| 1935 | 784 | a5,560 | Mar. 5, 1935 | 29 | 217 | .753 | 10.21 | 210 | 9.92 |

* Revised.

* Not previously published.

a Maximum observed, probably regulated.

Yearly discharge, in cubic feet per second, of Pine River at Alma, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804,1337 | 965 | Mar. 18, 1936 | 14 | *152 | *0.528 | *7.21 | *152 | *7.18 |
| 1937 | 824 | 720 | Apr. 28, 1937 | 29 | 152 | .528 | 7.19 | 151 | 7.11 |
| 1938 | 854 | a4,070 | Feb. 6, 1938 | 2 | 220 | .764 | 10.34 | 217 | 10.24 |
| 1939 | 874,1337 | b660 | Apr. 22, 1939 | 44 | *157 | *.545 | *7.38 | *152 | *7.17 |
| 1940 | 894 | b1,330 | Mar. 30, 1940 | 17 | 125 | .434 | 5.88 | 142 | 6.68 |
| 1941 | 924 | b772 | Dec. 31, 1940 | 16 | 139 | .483 | 6.57 | 159 | 7.51 |
| 1942 | 954 | 2,210 | Mar. 17, 1942 | 47 | 199 | .691 | 9.35 | 195 | 9.18 |
| 1943 | 974 | 2,450 | Mar. 16, 1943 | 34 | 271 | .941 | 12.76 | 248 | 11.69 |
| 1944 | 1004 | b960 | Feb. 26, 1944 | 21 | 156 | .542 | 7.37 | 147 | *6.92 |
| 1945 | 1034,1337 | 1,840 | June 4, 1945* | 40 | *152 | *.528 | *7.17 | 169 | *8.91 |
| 1946 | 1054 | 3,650 | Mar. 8, 1946 | 27 | 228 | .792 | 10.77 | 198 | 9.36 |
| 1947 | 1084 | 1,820 | Apr. 6, 1947 | 42 | 222 | .771 | 10.45 | 235 | 11.03 |
| 1948 | 1114 | 4,400 | Mar. 19, 1948 | 7.6 | 243 | .844 | 11.49 | 231 | 10.92 |
| 1949 | 1144,1337 | *1,200 | Feb. 28, 1949 | 46 | *163 | *.566 | *7.64 | *167 | *7.83 |
| 1950 | 1174 | 3,210 | Mar. 28, 1950 | 54 | 294 | 1.02 | 13.86 | - | - |

* Revised.

a Maximum observed, probably regulated.

b Regulated.

200. Pine River near Midland, Mich.

Location.--Lat 43°33'50", long. 84°22'10", on line between sec. 36, T. 14 N., R. 1 W., and sec. 4, T. 13 N., R. 1 E., on left bank at downstream side of bridge on State Highway 30, 7 miles southwest of Midland and 8 miles upstream from mouth.

Drainage area.--390 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 623.87 ft above mean sea level (Michigan State Highway Department benchmark). May 31, 1934, to Sept. 30, 1938, tape, staff, or wire-weight gage at same site at datum 5.48 ft lower (revised). Feb. 3, 1948, to Sept. 21, 1949, wire-weight gage at present site and datum.

Average discharge.--6 years (1934-38, 1948-50), 253 cfs.

Extremes.--1934-38, 1948-50: Maximum discharge, 6,360 cfs Mar. 20, 1948 (gage height, 10.00 ft, from graph based on gage readings); minimum not determined.

Remarks.--Ordinary flow regulated by powerplant at St. Louis and small reservoir at Alma.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|--------|-------|------|-----|------|-------|-------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | 43.9 | 35.5 | 47.7 | 89.5 | - |
| 1935 | 76.4 | 192 | 176 | 278 | 242 | 1,238 | 219 | 229 | 365 | 108 | 89.0 | 76.6 | 275 |
| 1936 | 81.3 | *160 | *183 | *181 | *187 | *791 | 389 | 168 | 97.3 | 41.9 | 37.4 | 102 | *198 |
| 1937 | 131 | 115 | 157 | 259 | 363 | 244 | *587 | 254 | 145 | 91.1 | *73.8 | 77.8 | *207 |
| 1938 | 121 | 155 | 127 | 169 | *1,356 | 502 | 387 | 178 | 163 | 73.6 | 128 | 113 | *281 |
| 1948 | - | - | - | - | *176 | 1,365 | 612 | 418 | *185 | *90.6 | 80.9 | 58.0 | - |
| 1949 | 72.0 | 143 | 120 | 259 | *440 | 359 | 294 | 135 | 166 | 103 | 81.1 | 83.7 | *186 |
| 1950 | 76.2 | 94.8 | 270 | 576 | 280 | 1,177 | 984 | 225 | 110 | 182 | 129 | 332 | 370 |

* Revised.

* Not previously published; estimated on basis of records for station at Alma.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|------|------|------|------|------|-------|----------|
| 1934 | - | - | - | - | - | - | - | - | 0.13 | 0.11 | 0.14 | 0.26 | - |
| 1935 | 0.23 | 0.55 | 0.52 | 0.82 | 0.65 | 3.66 | 0.63 | 0.68 | 1.04 | .32 | .26 | .22 | 9.58 |
| 1936 | .24 | *.46 | *.54 | *.53 | *.46 | *2.31 | 1.08 | .50 | .28 | .12 | .11 | .29 | *6.90 |
| 1937 | .39 | .33 | .46 | .77 | .97 | *1.68 | .75 | .42 | .27 | .22 | .22 | .22 | *7.20 |
| 1938 | .36 | .44 | .38 | .50 | *3.62 | 1.48 | 1.11 | .55 | .47 | .22 | .38 | .32 | *9.81 |
| 1948 | - | - | - | - | *.49 | 4.03 | 1.75 | 1.24 | *.53 | *.27 | .24 | .17 | - |
| 1949 | .21 | .41 | .36 | .77 | *1.17 | 1.06 | .84 | .40 | .48 | .30 | .24 | .24 | *6.48 |
| 1950 | .23 | .27 | .80 | 1.70 | .75 | 3.48 | 2.82 | .66 | .32 | .54 | .38 | .95 | 12.90 |

* Revised.

* Not previously published; estimated on basis of records for station at Alma.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1934 | 759 | - | - | - | - | - | - | - | - |
| 1935 | 784 | *3,100 | Mar. 17 or 18 | 26 | 275 | 0.705 | 9.58 | 274 | *9.52 |
| 1936 | 804,1337 | *1,600 | Mar. 18, 1936 | 14 | *198 | *.506 | *6.90 | *196 | *6.84 |
| 1937 | 824,1337 | *1,460 | Apr. 25, 1937 | - | *207 | *.531 | *7.20 | *207 | *7.20 |
| 1938 | 854,1337 | 5,000 | Feb. 6, 1938 | 40 | *281 | *.721 | *9.81 | - | - |
| 1948 | 1207,1337 | 6,360 | Mar. 20, 1948 | - | - | - | - | - | - |
| 1949 | 1207,1337 | *1,600 | Feb. 28, 1949 | - | *186 | *.477 | *6.48 | *195 | *6.80 |
| 1950 | 1207 | 4,140 | Mar. 28, 1950 | 35 | 370 | .949 | 12.90 | - | - |

* Revised.

* Not previously published.

201. Tittabawassee River at Midland, Mich.

Location.--Lat 43°36', long. 84°15', in NE $\frac{1}{4}$ sec. 28, T. 14 N., R. 2 E., on right bank half a mile downstream from Dow Chemical Co. powerplant in Midland and 1 mile downstream from Chippewa River.

Drainage area.--2,400 sq mi, approximately.

Supplemental records available.--Gage-height records for flood seasons collected in this vicinity 1910-26 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 590.28 ft above mean sea level, datum of 1929.

Average discharge.--14 years (1936-50), 1,473 cfs (adjusted for diversion).

Extremes.--1936-50: Maximum discharge, 34,000 cfs Mar. 21, 1948 (gage height, 19.50 ft); minimum, 39 cfs Oct. 12, 1942; minimum daily, 111 cfs Aug. 21, 1949.

Remarks.--Discharge below about 4,000 cfs regulated by powerplants above station. Water is diverted from river a short distance above station for industrial use and returned to river below station. Runoff adjusted for diversions; extremes and daily discharges not adjusted.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1936 | - | - | - | - | - | - | 1,970 | 772 | 404 | 251 | 217 | 446 | - |
| 1937 | 652 | 655 | 873 | 1,460 | 1,510 | 1,135 | 3,580 | 1,602 | 727 | 474 | 402 | 464 | 1,122 |
| 1938 | 667 | 851 | 669 | 874 | 6,455 | 3,741 | 2,213 | 973 | 657 | 367 | 471 | 494 | 1,499 |
| 1939 | 399 | 573 | 590 | 757 | 1,104 | 2,319 | 2,968 | 981 | 840 | 279 | 412 | 422 | 967 |
| 1940 | 514 | 594 | 594 | 639 | 550 | 1,228 | 2,303 | 2,089 | 1,001 | 398 | 489 | 616 | 916 |
| 1941 | 705 | 1,143 | 2,049 | 1,844 | 1,043 | 2,568 | 2,889 | 823 | 489 | 234 | 225 | 507 | 1,211 |
| 1942 | 1,824 | 2,587 | 1,725 | 1,155 | 801 | 6,379 | 2,311 | 1,266 | 2,037 | 448 | 356 | 532 | 2,792 |
| 1943 | 681 | 1,746 | 1,725 | 1,697 | 3,603 | 5,614 | 3,008 | 3,574 | 3,552 | 750 | 506 | 466 | 2,216 |
| 1944 | 559 | 1,053 | 613 | 586 | 1,098 | 1,649 | 2,453 | 1,898 | 829 | 316 | 290 | 372 | 973 |
| 1945 | 380 | 592 | 480 | 388 | 615 | 1,767 | 969 | 2,205 | 5,270 | 568 | 343 | 1,272 | 1,234 |
| 1946 | 2,229 | 1,753 | 959 | 2,523 | 938 | 8,101 | 1,179 | 957 | 868 | 514 | 277 | 290 | 1,730 |
| 1947 | 359 | 644 | 483 | 1,115 | 780 | 2,530 | 5,670 | 4,933 | 1,849 | 587 | 272 | 625 | 1,655 |
| 1948 | 528 | 747 | 1,191 | 686 | 1,145 | 6,846 | 3,173 | 1,844 | 1,048 | 500 | 361 | 250 | 1,531 |
| 1949 | 344 | 684 | 535 | 951 | 1,948 | 1,898 | 1,526 | 778 | 605 | 427 | 288 | 400 | 857 |
| 1950 | 412 | 493 | 1,118 | 2,784 | 1,329 | 5,921 | 5,888 | 1,187 | 599 | 533 | 431 | 821 | 1,795 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1936 | - | - | - | - | - | - | 0.94 | 0.39 | 0.21 | 0.15 | 0.13 | 0.23 | - |
| 1937 | 0.34 | 0.32 | 0.44 | 0.72 | 0.68 | 0.57 | 1.68 | .80 | .37 | .26 | .22 | .24 | 6.64 |
| 1938 | .35 | .41 | .34 | .44 | 2.81 | 1.82 | 1.05 | .49 | .33 | .20 | .25 | .26 | 8.75 |
| 1939 | .22 | .29 | .30 | .38 | .50 | 1.13 | 1.41 | .50 | .42 | .16 | .23 | .23 | 5.77 |
| 1940 | .28 | .30 | .31 | .33 | .27 | .62 | 1.10 | 1.04 | .50 | .23 | .28 | .32 | 5.58 |
| 1941 | .37 | .55 | 1.01 | .91 | .47 | 1.26 | 1.37 | .43 | .27 | .15 | .15 | .28 | 7.22 |
| 1942 | .92 | 1.24 | .86 | .59 | .38 | 3.10 | 1.11 | .65 | .99 | .27 | .22 | .29 | 10.62 |
| 1943 | .37 | .85 | .86 | .85 | 1.59 | 2.73 | 1.44 | 1.66 | 1.70 | .41 | .29 | .26 | 13.01 |
| 1944 | .31 | .52 | .33 | .32 | .53 | .83 | 1.17 | .95 | .43 | .20 | .19 | .22 | 6.00 |
| 1945 | .23 | .32 | .28 | .24 | .31 | .89 | .49 | 1.10 | 2.50 | .32 | .22 | .64 | 7.54 |
| 1946 | 1.12 | .86 | .50 | 1.25 | .44 | 3.93 | .59 | .51 | .45 | .30 | .19 | .19 | 10.33 |
| 1947 | .22 | .35 | .28 | .58 | .38 | 1.26 | 2.68 | 2.42 | .91 | .33 | .19 | .34 | 9.94 |
| 1948 | .31 | .39 | .62 | .38 | .56 | 3.33 | 1.53 | .94 | .54 | .25 | .22 | .17 | 9.24 |
| 1949 | .21 | .36 | .30 | .50 | .88 | .95 | .75 | .42 | .33 | .25 | .18 | .23 | 5.36 |
| 1950 | .24 | .27 | .58 | 1.38 | .61 | 2.89 | 2.78 | .62 | .32 | .30 | .25 | .42 | 10.66 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|-------|-------|-----------------------|------------------------|-------|-------|------------------------|---------------|-------|----------|
| | | Observed | | | | | Adjusted | | | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches | | | |
| | | Discharge | Date | | | | | | | | | | | |
| 1936 | 804 | \$5,700 | Mar. 23, 1936 | - | - | - | - | - | - | - | - | - | - | |
| 1937 | 824 | 11,600 | Apr. 28, 1937 | 227 | 1,122 | 1,175 | 0.490 | 6.64 | 1,121 | 1,174 | 6.64 | 1,121 | 1,174 | 6.64 |
| 1938 | 854 | 21,100 | Feb. 7, 1938 | 206 | 1,499 | 1,547 | .645 | 8.75 | 1,449 | 1,496 | 8.46 | 1,449 | 1,496 | 8.46 |
| 1939 | 874 | 7,390 | Apr. 20, 1939 | 130 | 967 | 1,019 | .425 | 5.77 | 979 | 1,034 | 5.85 | 979 | 1,034 | 5.85 |
| 1940 | 894 | 6,980 | Mar. 31, 1940 | 173 | 916 | 982 | .409 | 5.58 | 1,101 | 1,167 | 6.62 | 1,101 | 1,167 | 6.62 |
| 1941 | 924 | 5,880 | Mar. 24, 1941 | 117 | 1,211 | 1,275 | .531 | 7.22 | 1,397 | 1,467 | 8.31 | 1,397 | 1,467 | 8.31 |
| 1942 | 954 | 26,000 | Mar. 18, 1942 | 191 | 1,792 | 1,874 | .781 | 10.62 | 1,626 | 1,710 | 9.68 | 1,626 | 1,710 | 9.68 |
| 1943 | 974 | 17,500 | June 2, 1943 | 169 | 2,216 | 2,304 | .960 | 13.01 | 2,054 | 2,141 | 12.09 | 2,054 | 2,141 | 12.09 |
| 1944 | 1004 | 5,780 | Feb. 28, 1944 | 123 | 973 | 1,060 | .442 | 6.00 | 909 | 1,001 | 5.67 | 909 | 1,001 | 5.67 |
| 1945 | 1054 | 28,000 | June 3, 1945 | 165 | 1,234 | 1,333 | .555 | 7.54 | 1,527 | 1,625 | 9.19 | 1,527 | 1,625 | 9.19 |
| 1946 | 1054 | 31,200 | Mar. 8, 1946 | 127 | 1,730 | 1,828 | .762 | 10.33 | 1,439 | 1,539 | 8.70 | 1,439 | 1,539 | 8.70 |
| 1947 | 1084 | 12,200 | Apr. 7, May 3 | 125 | 1,655 | 1,758 | .732 | 9.94 | 1,738 | 1,841 | 10.41 | 1,738 | 1,841 | 10.41 |
| 1948 | 1144 | 34,000 | Mar. 21, 1948 | 150 | 1,531 | 1,628 | .878 | 9.24 | 1,455 | 1,551 | 8.79 | 1,455 | 1,551 | 8.79 |
| 1949 | 1144 | 6,250 | Feb. 26, 1949 | 111 | 857 | 950 | .396 | 5.36 | 897 | 987 | 5.58 | 897 | 987 | 5.58 |
| 1950 | 1174 | 27,200 | Mar. 28, 1950 | 207 | 1,795 | 1,883 | .785 | 10.66 | - | - | - | - | - | - |

* Not previously published.

202. Tittabawassee River at Freeland, Mich.

Location.--Lat 43°31', long. 84°08', on line between secs. 16 and 21, T. 13 N., R. 3 E., at upstream side of highway bridge in Freeland.

Drainage area.--2,530 sq mi, approximately.

Supplemental records available.--August 1903 to December 1909, gage heights and discharge measurements only.

Gage.--Chain gage. Altitude of gage is 575 ft (from river-profile map).

Average discharge.--6 years (1930-36), 1,266 cfs.

Extremes.--1930-36: Maximum discharge, 25,400 cfs (revised) May 3, 1933 (gage height, 15.2 ft, from graph based on gage readings); minimum daily, 182 cfs Aug. 15, 1936.

Remarks.--Low-water flow regulated by powerplants upstream.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | 605 | 642 | 766 | 550 | 754 | 1,320 | 1,130 | 914 | 556 | 375 | 372 | 764 | 728 |
| 1932 | 632 | 1,310 | 1,430 | 2,910 | 2,250 | 1,780 | 2,050 | 1,980 | 951 | *759 | *511 | *508 | *1,421 |
| 1933 | 1,200 | 1,190 | 1,500 | 1,260 | 1,890 | 1,920 | 5,540 | 4,470 | 833 | 535 | 427 | 646 | 1,780 |
| 1934 | 1,167 | 1,207 | 1,552 | 1,655 | 908 | 2,086 | 2,476 | 852 | 440 | 390 | 395 | 699 | 1,154 |
| 1935 | 551 | 1,344 | 1,376 | 1,472 | 1,016 | 6,813 | 1,599 | 1,295 | 1,218 | 526 | 542 | 442 | 1,524 |
| 1936 | 468 | 859 | 717 | 661 | *908 | 3,486 | 2,264 | 877 | 460 | 316 | 258 | 568 | *987 |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1931 | 0.28 | 0.28 | 0.35 | 0.25 | 0.31 | 0.60 | 0.50 | 0.42 | 0.25 | 0.17 | 0.17 | 0.34 | 3.92 |
| 1932 | .29 | .58 | .65 | 1.33 | .96 | .81 | .90 | .42 | *.35 | *.23 | *.22 | | *7.64 |
| 1933 | .55 | .52 | .68 | .57 | .78 | .88 | 2.44 | 2.03 | .37 | .24 | .19 | .28 | 9.55 |
| 1934 | .53 | .53 | .71 | .75 | .37 | .95 | 1.09 | .59 | .19 | .18 | .18 | .31 | 6.18 |
| 1935 | .25 | .59 | .63 | .67 | .42 | 3.10 | .71 | .59 | .54 | .24 | .25 | .20 | 8.19 |
| 1936 | .21 | .38 | .33 | .30 | *.39 | 1.59 | 1.00 | .40 | .20 | .14 | .12 | .25 | *5.31 |

* Revised.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|--|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1931 | 744 | a2,210 | May 22, 1931 | 222 | 728 | 0.288 | 3.92 | 842 | 4.53 | | |
| 1932 | 744,1337 | *8,200 | Feb. 13, 1932 | *300 | *1,421 | *.562 | *7.64 | *1,465 | *7.87 | | |
| 1933 | 744 | *25,400 | May 3, 1933 | 282 | 1,780 | .704 | 9.53 | 1,783 | 9.55 | | |
| 1934 | 759 | *6,570 | Apr. 5, 1934 | 185 | 1,154 | .456 | 6.18 | 1,098 | 5.88 | | |
| 1935 | 784 | *16,000 | Mar. 18, 1935 | 328 | 1,524 | .602 | 8.19 | 1,421 | 7.64 | | |
| 1936 | 804,1337 | 5,820 | Mar. 23, 1936 | 182 | *987 | *.390 | *5.31 | - | - | | |

* Revised.

a Maximum daily discharge.

Note.--Records for the period 1912-30, published in W.S.P. 324, 354, 384, 404, 434, 454, 474, 504, 524, 544, 564, 584, 604, 624, 644, 664, 684, and 699, have not been published herein because base data were not available for evaluation.

203. Sebewaing River (State drain) near Sebewaing, Mich.

Location.--Lat 43°43', long. 83°26', in sec. 16, T. 15 N., R. 9 E., on right bank 60 ft downstream from highway bridge on Rescue Road, 1½ miles upstream from East Fork, and 1½ miles southeast of Sebewaing.

Drainage area.--62 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 590.0 ft above mean sea level (levels by Corps of Engineers). Prior to Apr. 9, 1941, wire-weight gage at same site and datum.

Average discharge.--11 years (1939-50), 30.6 cfs.

Extremes.--1939-50: Maximum discharge, 2,660 cfs Mar. 16, 1942 (gage height, 10.36 ft); maximum gage height, 12.81 ft Mar. 9, 1942 (ice jam); no flow for long periods.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1940 | #0.4 | #0 | #0.2 | 0.33 | 0 | 41.6 | 13.5 | 5.92 | 6.23 | 1.51 | 0.37 | 0.48 | #5.92 |
| 1941 | .61 | 1.84 | 30.6 | 25.9 | 20.8 | 46.0 | 21.9 | .67 | .16 | .09 | 0 | .03 | 12.4 |
| 1942 | 5.99 | 36.3 | 22.9 | 15.8 | 13.4 | 214 | 12.0 | 26.4 | 101 | 2.74 | .62 | 3.37 | 38.1 |
| 1943 | 20.8 | 37.4 | 40.5 | 9.56 | *182 | *184 | 35.3 | 60.2 | 48.5 | 3.50 | 6.50 | 2.58 | *51.7 |
| 1944 | 2.13 | 27.6 | 4.21 | 1.61 | 53.7 | 84.4 | 60.5 | 15.0 | 3.86 | 1.61 | 0 | .027 | 20.9 |
| 1945 | .219 | .723 | .358 | .042 | 8.99 | 19.5 | 10.6 | 69.6 | 178 | 6.59 | .606 | 37.1 | 27.5 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations and weather records.

Monthly and yearly mean discharge, in cubic feet per second,
of Sebawaing River (State drain) near Sebawaing, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|----------|
| 1946 | 115 | 16.7 | 17.1 | 87.8 | 16.7 | *199 | 2.94 | 12.8 | 6.73 | 1.83 | 0.052 | 0 | *40.3 |
| 1947 | 0 | .26 | 3.20 | 41.5 | 9.3 | *138 | *243 | 51.7 | 29.6 | *6.05 | .21 | .58 | *43.6 |
| 1948 | .05 | .85 | 4.15 | 1.56 | 49.7 | 231 | 46.4 | 28.6 | 7.12 | *10.2 | 0 | .02 | *31.7 |
| 1949 | 0 | .83 | 6.68 | 43.1 | 106 | 32.2 | 33.2 | 2.62 | 1.61 | .77 | .48 | .09 | 18.5 |
| 1950 | .01 | .21 | 21.9 | 77.2 | 27.8 | 151 | 146 | 9.45 | .97 | 63.1 | 24.6 | 35.5 | 46.7 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|------|--------|-------|-------|-------|-------|------|------|------|-------|-------|----------|
| 1940 | *0.007 | *0 | *0.004 | 0.006 | 0 | 0.77 | 0.24 | 0.11 | 0.11 | 0.03 | 0.007 | 0.009 | *1.29 |
| 1941 | .01 | .03 | .57 | .48 | .35 | .86 | .39 | .01 | .003 | .002 | 0 | .0005 | 2.71 |
| 1942 | .11 | .65 | .43 | .29 | .22 | 3.98 | .22 | .49 | 1.82 | .05 | .01 | .06 | 8.33 |
| 1943 | .39 | .67 | .75 | .18 | *3.05 | *3.43 | .63 | 1.12 | .87 | .06 | .12 | .05 | *11.32 |
| 1944 | .04 | .50 | .08 | .03 | .93 | 1.57 | 1.09 | .28 | .07 | .003 | 0 | .0005 | 4.59 |
| 1945 | .004 | .01 | .007 | .0008 | .15 | .36 | .19 | 1.29 | 3.20 | .12 | .01 | .67 | 6.01 |
| 1946 | 2.13 | .30 | .32 | 1.64 | .28 | *3.70 | .05 | .24 | .12 | .03 | .001 | 0 | *8.81 |
| 1947 | 0 | .005 | .06 | .77 | .16 | *2.58 | *4.37 | .96 | *.11 | .004 | .01 | .7 | 9.56 |
| 1948 | .0009 | .01 | .08 | .03 | .86 | 4.30 | .83 | .53 | .13 | *.19 | 0 | .0004 | *6.95 |
| 1949 | 0 | .01 | .12 | .80 | 1.78 | .60 | .60 | .05 | .03 | .01 | .009 | .002 | 4.01 |
| 1950 | .0002 | .004 | .41 | 1.44 | .47 | 2.81 | 2.63 | .18 | .02 | 1.17 | .46 | .64 | 10.23 |

* Revised.

‡ Not previously published; estimated on basis of records for nearby stations and weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | 1,740 | Mar. 29, 1940 | 0 | \$5.92 | *0.095 | *1.29 | 8.67 | 1.89 |
| 1941 | 924 | *542 | Dec. 29, 1940 | 0 | 12.4 | .200 | 2.71 | 15.0 | 3.29 |
| 1942 | 954 | 2,660 | Mar. 16, 1942 | 0 | 38.1 | .615 | 8.33 | 40.9 | 8.95 |
| 1943 | 974, 1437 | *2,400 | Mar. 16, 1943 | .1 | *51.7 | *.854 | *11.32 | *46.3 | *10.13 |
| 1944 | 1004 | 1,740 | Feb. 26, 1944 | 0 | 20.9 | .337 | 4.59 | 18.2 | 3.99 |
| 1945 | 1054 | 1,960 | June 28, 1945 | 0 | 27.5 | .444 | 6.01 | 40.0 | 8.74 |
| 1946 | 1054, 1437 | *2,160 | Mar. 6, 1946 | 0 | *40.3 | *.650 | *8.81 | *28.0 | *6.13 |
| 1947 | 1064, 1437 | *2,200 | Apr. 5, 1947‡ | 0 | *45.6 | *.703 | *9.56 | *43.8 | *9.58 |
| 1948 | 1114, 1437 | *2,160 | Mar. 20, 1948* | 0 | *31.7 | *.511 | *6.95 | *21.9 | *7.00 |
| 1949 | 1144 | 910 | Feb. 15, 1949 | 0 | 18.3 | .295 | 4.01 | 19.6 | 4.30 |
| 1950 | 1174 | 1,550 | Apr. 4, 1950 | 0 | 46.7 | .753 | 10.23 | - | - |

* Revised.

‡ Not previously published.

204. East Fork Sebawaing River (Columbia drain) near Sebawaing, Mich.

Location.--Lat 43°44', long. 83°24', on line between secs. 10 and 11, T. 15 N., R. 9 E., on right bank 10 ft downstream from highway bridge on Gettel Road, $2\frac{1}{2}$ miles upstream from mouth, and $2\frac{1}{2}$ miles southeast of Sebawaing.

Drainage area.--38 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 607.00 ft above mean sea level (levels by Corps of Engineers). Prior to Apr. 1, 1941, wire-weight gage at same site and datum.

Average discharge.--11 years (1939-50), 15.5 cfs.

Extremes.--1939-50: Maximum discharge, 1,050 cfs Mar. 17, 1942 (gage height, 5.24 ft); maximum gage height, 9.70 ft Mar. 15, 1943 (ice jam); no flow for long periods.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|------|------|------|-------|------|-------|----------|
| 1940 | *0.4 | *0 | *0.2 | 0.23 | 0.02 | 18.7 | 5.67 | 2.87 | 13.4 | 0.312 | 0 | 0.248 | *3.51 |
| 1941 | .29 | 2.22 | 11.4 | 12.9 | 10.7 | 26.7 | 9.44 | .21 | 0 | 0 | 0 | 0 | 6.16 |
| 1942 | 1.86 | 13.4 | 8.96 | 6.05 | 5.65 | 112 | 4.80 | 7.46 | 40.8 | 1.22 | .42 | .52 | 17.0 |
| 1943 | 6.04 | 10.7 | 17.7 | 3.76 | *53.7 | *78.6 | 17.8 | 32.2 | 41.7 | 2.89 | 3.77 | 2.21 | *22.4 |
| 1944 | 1.50 | 18.6 | 3.11 | 1.50 | 44.6 | 47.5 | 29.5 | 6.15 | 3.45 | 1.03 | 0 | 0 | 12.8 |
| 1945 | .416 | 1.28 | .871 | .171 | 5.69 | 9.89 | 6.46 | 30.5 | 83.2 | 3.33 | .213 | 19.1 | 13.3 |
| 1946 | 62.0 | 11.3 | 10.2 | 41.9 | 8.24 | 115 | 1.77 | 5.88 | 3.45 | .490 | 0 | 0 | 21.9 |
| 1947 | 0 | .26 | 1.51 | 32.0 | 4.4 | *80.7 | *140 | 29.4 | 13.5 | .40 | .03 | 0 | *25.2 |
| 1948 | 0 | .22 | 1.68 | .69 | *32.7 | 125 | 20.6 | 10.1 | .70 | 10.4 | .11 | .03 | *16.9 |
| 1949 | 0 | 1.16 | 11.2 | 28.6 | 71.4 | 19.2 | 16.4 | 1.20 | .94 | .37 | 0 | 0 | 12.1 |
| 1950 | 0 | .15 | 9.05 | *32.0 | 9.08 | 81.1 | 59.2 | 3.54 | .42 | 15.1 | 8.65 | 5.16 | *18.7 |

* Revised.

‡ Not previously published; estimated on basis of records for nearby stations and weather records.

STREAMS TRIBUTARY TO LAKE HURON

Monthly and yearly runoff, in inches, of East Fork Sebewaing River
(Columbia drain) near Sebewaing, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|--------|-------|--------|-------|-------|------|------|-------|-------|-------|----------|
| 1940 | *0.01 | *0 | *0.006 | 0.007 | 0.0006 | 0.57 | 0.17 | 0.09 | 0.39 | 0.009 | 0 | 0.007 | \$1.26 |
| 1941 | .009 | .07 | .35 | .39 | .29 | .81 | .28 | .006 | 0 | 0 | 0 | 0 | 2.20 |
| 1942 | .06 | .39 | .27 | .18 | .16 | 3.40 | .14 | .23 | 1.19 | .04 | .01 | .02 | 6.09 |
| 1943 | .18 | .31 | .54 | .11 | *1.47 | *2.38 | .52 | .98 | 1.23 | .09 | .11 | .06 | *7.98 |
| 1944 | .04 | .55 | .09 | .04 | 1.26 | 1.44 | .87 | .19 | .10 | .003 | 0 | 0 | 4.58 |
| 1945 | .01 | .04 | .02 | .005 | †.15 | .30 | .19 | .93 | 2.44 | .10 | .006 | .56 | 4.75 |
| 1946 | 1.88 | .33 | .31 | 1.27 | .23 | 3.49 | .05 | .18 | .10 | .01 | 0 | 0 | 7.85 |
| 1947 | 0 | *0.08 | .05 | .87 | .12 | *2.45 | *4.10 | .89 | .40 | .01 | .0009 | 0 | *9.00 |
| 1948 | 0 | *0.06 | .05 | .02 | *.93 | 3.79 | .60 | .31 | .02 | .32 | .003 | 0 | *6.05 |
| 1949 | 0 | .03 | .34 | .87 | 1.96 | .58 | .48 | .04 | .03 | .01 | 0 | 0 | 4.34 |
| 1950 | 0 | *.004 | .27 | *.97 | .25 | 2.46 | 1.74 | .11 | .01 | .46 | .26 | .15 | *6.68 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of records for nearby stations and weather records.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | *670 | Mar. 29 or 30 | 0 | \$3.51 | *0.092 | \$1.26 | 4.63 | 1.67 |
| 1941 | 924 | 110 | Jan. 3, 1941 | 0 | 6.16 | .162 | 2.20 | 7.00 | 2.50 |
| 1942 | 954 | 1,060 | Mar. 17, 1942 | 0 | 17.0 | .447 | 6.09 | 17.9 | 6.40 |
| 1943 | 974, 1437 | *910 | Mar. 16, 1943 | 0 | *22.4 | *.589 | *7.98 | *21.4 | *7.63 |
| 1944 | 1004 | 730 | Feb. 27, 1944 | 0 | 12.8 | .337 | 4.58 | 11.1 | 3.97 |
| 1945 | 1034 | 560 | June 2, 1945 | 0 | 13.3 | .350 | 4.75 | 20.2 | 7.20 |
| 1946 | 1054 | 708 | Mar. 7, 1946 | 0 | 21.9 | .576 | 7.85 | 15.0 | 5.39 |
| 1947 | 1034, 1437 | *840 | Apr. 5, 1947* | 0 | *25.2 | *.663 | *9.00 | *25.2 | *9.00 |
| 1948 | 1114, 1437 | 805 | Mar. 20, 1948 | 0 | 16.9 | *.445 | 6.05 | *17.8 | *6.36 |
| 1949 | 1144 | 525 | Feb. 15, 1949 | 0 | 12.1 | .318 | 4.34 | 11.9 | 4.24 |
| 1950 | 1174, 1437 | 488 | Mar. 27, 1950 | 0 | *18.7 | *.492 | *6.68 | - | - |

* Revised.

* Not previously published.

205. Pigeon River near Pigeon, Mich.

Location.--Lat 43°48'55" long. 83°17'10" in NE $\frac{1}{4}$ sec. 15, T. 16 N., R. 10 E., on upstream side of highway bridge, 0.1 mile downstream from West Branch Extension and 1 mile southwest of Pigeon.

Drainage area.--86 sq mi, approximately.

Gage.--Wire-weight gage. Altitude of gage is 607 ft (from county map).

Extremes.--1946-50: Maximum discharge observed, 3,700 cfs Mar. 28, 1950; maximum gage height, 14.90 ft Mar. 19, 1948 (revised), from high-water mark (ice jam); no flow for long periods.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | 7.35 | 17.7 | 7.9 | *198 | *364 | 276 | 60.0 | 4.59 | 1.53 | 3.58 | - |
| 1948 | 2.42 | 3.63 | 7.06 | 6.6 | 60.4 | *348 | 51.6 | 55.7 | 6.15 | 2.79 | .37 | 0 | *45.7 |
| 1949 | 1.41 | 2.84 | 4.51 | 75.1 | 244 | 56.5 | 27.1 | 7.76 | 12.1 | 13.3 | .50 | .66 | 35.8 |
| 1950 | 1.18 | 1.95 | 29.2 | 122 | 41.0 | 368 | 200 | 924 | 8.95 | 28.2 | 5.64 | 4.47 | 68.8 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1947 | - | - | 0.10 | 0.24 | 0.10 | *2.66 | *4.72 | 3.70 | 0.78 | 0.06 | 0.02 | 0.05 | - |
| 1948 | 0.03 | 0.05 | .09 | .09 | .76 | *4.67 | .67 | .75 | .08 | .04 | .005 | 0 | *7.24 |
| 1949 | .02 | .04 | .06 | 1.01 | 2.96 | .76 | .35 | .10 | .16 | .18 | .007 | .009 | 5.64 |
| 1950 | .02 | .03 | .39 | 1.63 | .50 | 4.94 | 2.60 | .12 | .12 | .38 | .08 | .06 | 10.87 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1144, 1437 | *3,100 | Apr. 5, 1947* | 0 | - | - | - | *79.2 | *12.50 |
| 1948 | 1144, 1437 | *2,800 | Mar. 20, 1948 | 0 | *45.7 | *0.531 | *7.24 | *45.3 | *7.19 |
| 1949 | 1144 | 1,000 | Feb. 15, 1949 | 0 | 35.8 | .416 | 5.64 | 37.8 | 5.98 |
| 1950 | 1174 | 83,700 | Mar. 28, 1950 | .2 | 68.8 | .800 | 10.87 | - | - |

* Revised.

a Maximum observed discharge.

206. Black River near Fargo, Mich.

Location.--Lat 43°06', long. 82°37', in NW $\frac{1}{4}$ sec. 32, T. 8 N., R. 16 E., on downstream side of highway bridge on Norman Road, 2 $\frac{1}{2}$ miles southeast of Fargo, 4 $\frac{1}{2}$ miles upstream from Mill Creek, and 12 miles northwest of Port Huron.

Drainage area.--475 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 610 ft (by barometer).

Average discharge.--6 years (1944-50), 313 cfs.

Extremes.--1944-52: Maximum discharge, 14,400 cfs Apr. 5, 1947 (gage height, 16.06 ft, from floodmark), from rating curve extended above 9,500 cfs; minimum observed, 1.8 cfs Sept. 18, 19, 1946.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | 853 | 406 | 243 | 45.6 | 13.7 | 8.65 | 6.75 | - |
| 1945 | 8.91 | 10.5 | 10.7 | 8.37 | 34.8 | 179 | 220 | 1,161 | 776 | 155 | 179 | 128 | 240 |
| 1946 | 492 | 100 | 91.2 | 626 | 168 | 1,781 | 54.2 | 137 | 69.3 | 22.0 | 9.91 | 5.89 | 296 |
| 1947 | 8.52 | 11.4 | 21.4 | 189 | 48.8 | 960 | 2,102 | 1,145 | 625 | 137 | 56.8 | 52.0 | 445 |
| 1948 | 30.0 | 36.7 | 136 | 32.6 | 737 | 2,341 | 369 | 326 | 40.9 | 22.1 | 8.34 | 5.53 | 341 |
| 1949 | 10.3 | 17.3 | 14.7 | 166 | 1,057 | 265 | 276 | 78.6 | 22.4 | 55.4 | 28.3 | 10.9 | 160 |
| 1950 | 13.0 | 13.2 | 282 | 709 | 404 | 1,701 | 1,273 | 71.3 | 46.7 | 102 | 49.0 | 44.7 | 393 |

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | 2.07 | 0.95 | 0.59 | 0.11 | 0.03 | 0.02 | 0.02 | - |
| 1945 | 0.02 | 0.02 | 0.03 | 0.02 | 0.08 | .44 | .52 | 2.82 | 1.82 | .38 | .43 | .30 | 6.88 |
| 1946 | 1.19 | .24 | .22 | 1.52 | .37 | 4.28 | .13 | .33 | .16 | .05 | .02 | .01 | 8.52 |
| 1947 | .02 | .03 | .05 | .46 | .11 | 2.33 | 4.94 | 2.78 | 1.47 | .33 | .09 | .12 | 12.73 |
| 1948 | .07 | .09 | .33 | .08 | 1.67 | 5.68 | .87 | .79 | .10 | .05 | .02 | .01 | 9.76 |
| 1949 | .03 | .04 | .04 | .40 | 2.32 | .64 | .65 | .19 | .05 | .13 | .07 | .03 | 4.59 |
| 1950 | .03 | .03 | .68 | 1.72 | .89 | 4.13 | 2.99 | .17 | .11 | .25 | .12 | .10 | 11.23 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | *3,900 | Feb. 27, 1944 | - | - | - | - | - | - |
| 1945 | 1034 | 6,050 | May 18, 1945 | 5.5 | 240 | 0.505 | 6.88 | 296 | 8.46 |
| 1946 | 1054 | 8,480 | Mar. 5, 1946 | 2.1 | 298 | .627 | 8.52 | 244 | 6.97 |
| 1947 | 1084 | 14,400 | Apr. 5, 1947 | 4.4 | 445 | .937 | 12.73 | 459 | 13.12 |
| 1948 | 1114 | 9,880 | Mar. 20, 1948 | 2.0 | 341 | .718 | 9.76 | 327 | 9.38 |
| 1949 | 1144 | 85,500 | Feb. 16, 1949 | 5.0 | 160 | .337 | 4.59 | 185 | 5.23 |
| 1950 | 1174 | *9,720 | Mar. 28, 1950 | 7.1 | 393 | .827 | 11.23 | - | - |

* Revised.

a Maximum daily discharge.

207. Mill Creek near Abbotsford, Mich.

Location.--Lat 43°03', long. 82°37', in NW $\frac{1}{4}$ sec. 17, T. 7 N., R. 16 E., on downstream side of highway bridge, 1 mile upstream from mouth and 2 miles northeast of Abbotsford.

Drainage area.--138 sq mi.

Gage.--Wire-weight gage. Altitude of gage is 600 ft (by barometer). Prior to Mar. 7, 1950, staff gage at same site and datum.

Extremes.--1947-50: Maximum discharge, 3,050 cfs Mar. 20, 1948 (gage height, 9.20 ft, from floodmark), from rating curve extended above 2,500 cfs; maximum gage height observed, 10.10 ft Feb. 28, 1948 (ice jam); minimum discharge, 3.8 cfs Aug. 11, 1949 (gage height, 2.28 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 212 | 63.6 | 23.8 | 60.3 | - |
| 1948 | 30.6 | 34.5 | 76.3 | 27.5 | 208 | 617 | 171 | 172 | 40.7 | 37.2 | 13.9 | 6.71 | 120 |
| 1949 | 9.12 | 15.7 | 14.8 | 143 | 299 | 136 | 189 | 42.8 | 10.6 | 12.9 | 13.0 | 9.20 | 72.8 |
| 1950 | 13.4 | 10.5 | 156 | *315 | 167 | 515 | 505 | 45 | 48.8 | 15.7 | 12.2 | 29.1 | *153 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 1.72 | 0.53 | 0.20 | 0.49 | - |
| 1948 | 0.26 | 0.28 | 0.64 | 0.23 | 1.63 | 5.15 | 1.38 | 1.44 | .33 | .31 | .12 | .05 | 11.82 |
| 1949 | .08 | .13 | .12 | 1.20 | 2.26 | 1.14 | 1.53 | .56 | .09 | .11 | .11 | .07 | 7.20 |
| 1950 | .11 | .08 | 1.30 | *2.63 | 1.26 | 4.30 | 4.08 | .38 | .39 | .13 | .10 | .24 | *15.00 |

* Revised.

STREAMS TRIBUTARY TO ST. CLAIR RIVER

Yearly discharge, in cubic feet per second, of Mill Creek near Abbottsford, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | - | - | - | - | - | - | - | - |
| 1948 | 1114 | 3,050 | Mar. 20, 1948 | 5.4 | 120 | 0.870 | 11.82 | 111 | 10.97 |
| 1949 | 1144 | 1,650 | Feb. 15, 1949 | 4.5 | 72.8 | .528 | 7.20 | 84.7 | 8.33 |
| 1950 | 1174,1437 | *2,650 | Apr. 4, 1950 | 6.0 | *153 | *1.11 | *15.00 | - | - |

* Revised.

208. Black River near Port Huron, Mich.

Location.--Lat 42°59', long. 82°32', in NW $\frac{1}{4}$ sec. 2, T. 6 N., R. 16 E., on downstream side of highway bridge, 6 miles west of Port Huron and 10 miles upstream from mouth.

Drainage area.--634 sq mi.

Gage.--Wire-weight gage. Datum of gage is 574.42 ft above mean sea level, datum of 1929. Prior to May 1938 and May 17, 1939, to Aug. 13, 1943, chain gage at same site and datum.

Average discharge.--11 years (1932-43), 289 cfs.

Extremes.--1932-43: Maximum discharge, 13,600 cfs May 12, 1943 (gage height, 24.2 ft, from high-water mark); minimum observed, 4.0 cfs June 22, 1931 (gage height, 4.48 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|-------|-------|-------|-------|--------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1931 | - | - | - | - | - | - | - | 59.4 | 25.9 | - | - | - |
| 1933 | 68.7 | 491 | 708 | 566 | 636 | 683 | 1,830 | 519 | 47.0 | 16.9 | *17 | *20 |
| 1934 | *35 | *55 | *110 | *103 | 24.7 | 212 | 1,253 | 55.6 | 21.5 | 29.7 | 52.8 | *163 |
| 1935 | 19.8 | 28.2 | 24.3 | 156 | 195 | *1,316 | 107 | 141 | 115 | 45.4 | 14.7 | *182 |
| 1936 | 15.3 | 42.5 | 30.1 | 17.1 | 29.7 | *900 | 442 | 157 | 35.5 | 10.4 | 8.81 | *143 |
| 1937 | 20.0 | 21.6 | 30.8 | 80.4 | 535 | 200 | 1,291 | 233 | 108 | 111 | *116 | *26.8 |
| 1938 | 23.0 | *27.9 | *22.2 | *34.4 | 2,536 | *1,121 | 419 | 382 | 84.9 | 45.9 | *31.7 | *17.8 |
| 1939 | 19.9 | 22.8 | 33.1 | 30.5 | 458 | 1,040 | 802 | 116 | 73.3 | 37.5 | 18.6 | 16.8 |
| 1940 | 20.7 | 23.9 | 28.2 | 20.4 | 19.3 | 357 | 1,014 | 108 | 488 | 84.5 | 62.6 | 38.4 |
| 1941 | 53.2 | 73.6 | 562 | 480 | 200 | 420 | 535 | 66.6 | 36.4 | 16.2 | 13.0 | 6.74 |
| 1942 | 24.2 | 79.0 | 112 | 77.9 | 231 | 2,385 | 231 | 114 | 227 | 33.9 | 22.4 | 26.8 |
| 1943 | 37.2 | 148 | 569 | 464 | 1,252 | 1,882 | 922 | 2,145 | 719 | 123 | 198 | 62.4 |
| 1944 | 47.6 | 211 | 53.5 | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of observer's notes, weather records, and records for nearby stations.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|-------|-------|-------|-------|------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1931 | - | - | - | - | - | - | - | 0.11 | 0.05 | - | - | - |
| 1933 | 0.12 | 0.86 | 1.29 | 1.03 | 1.04 | 1.24 | 3.22 | .94 | .08 | 0.03 | *0.03 | *0.04 |
| 1934 | *0.06 | *1.10 | *2.20 | *1.19 | .04 | .39 | 2.21 | .10 | .04 | .05 | .06 | .05 |
| 1935 | .04 | .05 | .04 | .28 | .32 | *2.39 | .19 | .26 | .20 | .08 | .03 | .02 |
| 1936 | .03 | .07 | .05 | .03 | .05 | *1.64 | .78 | .29 | .06 | .02 | .02 | .03 |
| 1937 | .04 | .04 | .08 | .15 | .88 | .36 | 2.28 | .42 | .19 | .20 | *2.1 | .08 |
| 1938 | .04 | .05 | *.04 | *.06 | 4.17 | *2.04 | .74 | .70 | .15 | .08 | *0.06 | .03 |
| 1939 | .04 | .04 | .06 | .06 | .75 | 1.89 | 1.41 | .21 | .13 | .07 | .03 | .03 |
| 1940 | .04 | .04 | .05 | .04 | .03 | .65 | 1.78 | .20 | .86 | .15 | .11 | .07 |
| 1941 | .10 | .13 | 1.02 | .87 | .33 | .76 | .94 | .12 | .06 | .03 | .02 | .01 |
| 1942 | .04 | .14 | .20 | .14 | .38 | 4.34 | .41 | .21 | .40 | .06 | .04 | .05 |
| 1943 | .07 | .26 | 1.03 | .84 | 2.05 | 3.42 | 1.62 | 3.90 | 1.26 | .22 | .36 | .11 |
| 1944 | .09 | .37 | .10 | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; see footnote to preceding table.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 744 | - | - | - | - | - | - | - | - |
| 1933 | 744 | *7,040 | Apr. 2, 1933 | - | *464 | *0.732 | *9.92 | *375 | *8.01 |
| 1934 | 759 | *5,000 | Apr. 4, 1934 | - | *163 | *.257 | *3.49 | *152 | *3.26 |
| 1935 | 784,1437 | *4,500 | Mar. 6, 1935 | 8.8 | *182 | *.287 | *3.90 | *184 | *3.92 |
| 1936 | 804,1437 | *3,740 | Mar. 16, 1936 | 4.8 | *143 | *.226 | *3.07 | *141 | *3.06 |
| 1937 | 824 | *5,720 | Apr. 22, 1937* | 13 | *227 | *.358 | *4.88 | *227 | *4.87 |
| 1938 | 854,1437 | *8,200 | Feb. 7, 1938 | 12 | *381 | *.601 | *8.16 | *381 | *8.17 |
| 1939 | 874 | 2,950 | Feb. 19, 1939 | 11 | 220 | .347 | 4.72 | 220 | 4.71 |
| 1940 | 894 | *6,800 | Mar. 31, 1940 | 12 | 187 | .295 | 4.02 | 240 | 5.14 |
| 1941 | 924 | b2,500 | Jan. 3, 1941 | 4.6 | 206 | .325 | 4.39 | 165 | 3.52 |
| 1942 | 954 | 12,300 | Mar. 18, 1942 | 12 | 299 | .472 | 6.41 | 345 | 7.39 |
| 1943 | 974 | 13,600 | May 12, 1943 | 18 | 708 | 1.12 | 15.14 | 671 | 14.34 |
| 1944 | 1004 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

a Maximum daily.

b Maximum observed.

209. Clinton River at Pontiac, Mich.

Location.--Lat 42°38'45", long. 83°16'10", in sec. 27, T. 3 N., R. 10 E., at municipal sewage-treatment plant in Pontiac.

Drainage area.--123 sq mi.

Gage.--Staff gage. Datum of gage is 876.01 ft above mean sea level.

Extremes.--1935-40: Maximum discharge observed, 716 cfs Feb. 12, 1938 (gage height, 5.10 ft), from rating curve extended above 150 cfs; minimum observed, 4.8 cfs Sept. 4, 1936.

Remarks.--Occasional regulation by dams upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|-------|------|------|-------|----------|
| 1935 | - | - | - | - | - | - | - | #64.5 | 44.6 | 26.6 | 37.0 | 17.1 | - |
| 1936 | 8.08 | 46.5 | 44.5 | 31.5 | 59.1 | 101 | 112 | 66.3 | 11.6 | 8.85 | 8.26 | 12.7 | 42.4 |
| 1937 | 59.7 | 47.3 | 41.0 | 79.2 | 101 | 80.8 | 123 | 152 | 67.8 | 53.5 | 48.6 | 28.6 | 71.7 |
| 1938 | 20.6 | 30.2 | 35.9 | 41.2 | 198 | 191 | 139 | 88.7 | 69.7 | 20.0 | 40.7 | 27.8 | 74.3 |
| 1939 | 17.3 | 14.4 | 12.6 | 41.0 | 89.8 | 132 | 142 | 109 | #73.1 | - | - | - | - |
| 1940 | - | - | - | - | 40.0 | 65.2 | 148 | 77.8 | 55.0 | 35.6 | 28.8 | 55.6 | - |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1935 | - | - | - | - | - | - | - | #0.61 | 0.40 | 0.25 | 0.35 | 0.16 | - |
| 1936 | 0.08 | 0.42 | 0.42 | 0.30 | 0.52 | 0.95 | 1.02 | .62 | .10 | .08 | .09 | .11 | 4.70 |
| 1937 | .37 | .43 | .58 | .74 | .85 | .76 | 1.12 | 1.43 | .61 | .50 | .46 | .26 | 7.91 |
| 1938 | .19 | .27 | .34 | .39 | 1.68 | 1.79 | 1.26 | .83 | .63 | .19 | .58 | .25 | 8.20 |
| 1939 | .16 | .13 | .12 | .38 | .76 | 1.24 | 1.29 | 1.02 | #.66 | - | - | - | - |
| 1940 | - | - | - | - | .35 | .61 | 1.35 | .73 | .50 | .33 | .27 | .50 | - |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Maximum observed | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1935 | 784 | - | - | - | - | - | - | - | - | - |
| 1936 | 804 | a300 | Feb. 6, 1936 | 5.5 | 42.4 | 0.345 | 4.70 | 44.9 | 4.96 | |
| 1937 | 824 | *445 | July 12, 1937* | 11 | 71.7 | .583 | 7.91 | 68.3 | 7.53 | |
| 1938 | 854 | 716 | Feb. 12, 1938 | 8.0 | 74.3 | .604 | 8.20 | 70.7 | 7.81 | |
| 1939 | 874 | 245 | Feb. 28, 1939 | - | - | - | - | - | - | |
| 1940 | 894 | 498 | Mar. 26, 1940 | - | - | - | - | - | - | |

* Revised.

a Maximum daily.

210. Clinton River near Fraser, Mich.

Location.--Lat 42°34'40", long. 82°57'00", in NW $\frac{1}{4}$ sec. 20, T. 2 N., R. 13 E., on left bank 800 ft downstream from bridge on Garfield Road, $2\frac{3}{4}$ miles north of Fraser, and 4 miles upstream from North Branch.

Drainage area.--454 sq mi.

Gage.--Water-stage recorder. Datum of gage is 577.71 ft above mean sea level, datum of 1929. Prior to Nov. 17, 1949, wire-weight gage at site 800 ft upstream at same datum.

Extremes.--1947-50: Maximum discharge, 8,000 cfs May 11, 1948 (gage height, 19.5 ft, from graph based on gage readings), from rating curve extended above 4,000 cfs; minimum, 64 cfs Aug. 14, 1950.

Flood of Apr. 5 or 6, 1947, reached a stage of 20 ft, from floodmarks (discharge, about 9,000 cfs, from rating curve extended above 4,000 cfs).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 620 | 324 | 186 | 337 | - |
| 1948 | 181 | 184 | 307 | 191 | 506 | 1,037 | 765 | 1,060 | 359 | 210 | 87.2 | 112 | 417 |
| 1949 | 102 | 259 | 212 | 399 | 803 | 451 | 583 | 280 | 120 | 118 | 95.4 | 141 | 293 |
| 1950 | 171 | 122 | 453 | 975 | 779 | 1,052 | 1,237 | 482 | 358 | 167 | 99.7 | 180 | 504 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 1.53 | 0.82 | 0.47 | 0.83 | - |
| 1948 | 0.46 | 0.45 | 0.78 | 0.49 | 1.20 | 2.63 | 1.87 | 2.69 | .88 | .53 | .22 | .28 | 12.48 |
| 1949 | .26 | .64 | .54 | 1.01 | 1.84 | 1.14 | 1.43 | .71 | .29 | .30 | .24 | .35 | 8.75 |
| 1950 | .44 | .30 | 1.15 | 2.48 | 1.79 | 2.67 | 3.04 | 1.22 | .88 | .42 | .25 | .44 | 15.08 |

Yearly discharge, in cubic feet per second, of Clinton River near Fraser, Mich.

| Daily discharges, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | \$9,000 | Apr. 5 or 6* | - | - | - | - | - | - |
| 1948 | 1114 | 8,000 | May 11, 1948 | 76 | 417 | 0.919 | 12.48 | 408 | 12.23 |
| 1949 | 1144 | 3,850 | Feb. 15, 1949 | 67 | 293 | .645 | 8.75 | 308 | 9.21 |
| 1950 | 1174 | 6,120 | Apr. 5, 1950 | 68 | 504 | 1.11 | 15.08 | - | - |

* Not previously published.

211. North Branch Clinton River near Mount Clemens, Mich.

Location.--Lat 42°37'45", long. 82°53'25", in NW¼ sec. 2, T. 2 N., R. 13 E., on left bank 30 ft upstream from bridge on State Highway 59, 2 miles north of Mount Clemens, and 3½ miles upstream from mouth.

Drainage area.--185 sq mi.

Gage.--Water-stage recorder. Datum of gage is 576.38 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). Prior to Nov. 15, 1949, wire-weight gage at same site and datum.

Extremes.--1947-50: Maximum daily discharge, 4,500 cfs Apr. 4, 1950; maximum gage height, 17.5 ft Apr. 4 or 5, 1950, from high-water mark in gage well (backwater from Clinton River); minimum discharge observed, 1.4 cfs (revised) Aug. 15, 22, 1949.

Flood of Apr. 5 or 6, 1947, reached a stage of 20.0 ft, from floodmark (discharge not determined).

Remarks.--Some regulation at times by mill above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 194 | 37.5 | 39.1 | 87.4 | - |
| 1948 | 45.7 | 45.4 | 130 | 30.5 | 292 | 567 | 246 | 379 | 59.0 | 24.6 | *7.66 | *6.94 | 153 |
| 1949 | 9.47 | 29.3 | 34.8 | 107 | 434 | 121 | 207 | 55.1 | 10.1 | 13.8 | 6.51 | 10.5 | 83.9 |
| 1950 | 25.9 | 19.7 | 241 | 473 | 278 | 617 | 549 | 60.0 | 82.0 | 20.8 | 20.5 | 107 | 207 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 1.17 | 0.23 | 0.24 | 0.53 | - |
| 1948 | 0.27 | 0.27 | 0.81 | 0.19 | 1.70 | 3.53 | 1.48 | 2.36 | .36 | .15 | .05 | *.04 | *11.21 |
| 1949 | .06 | .18 | .22 | .67 | 2.44 | .76 | 1.25 | .34 | .06 | .08 | .04 | .06 | 6.17 |
| 1950 | .16 | .12 | 1.80 | 2.95 | 1.56 | 3.84 | 3.31 | .37 | .49 | .13 | .13 | .64 | 15.20 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff inches | Mean | Runoff inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | - | - | - | - | - | - | - | - |
| 1948 | 1114, 1437 | 84,000 | May 11, 1948 | *2.6 | 153 | 0.827 | *11.21 | 140 | *10.32 |
| 1949 | 1144 | 3,000 | Feb. 16, 1949 | 1.6 | 83.9 | .454 | 6.17 | 102 | 7.49 |
| 1950 | 1174 | 84,500 | Apr. 4, 1950 | 5.5 | 207 | 1.12 | 15.20 | - | - |

* Revised.

a Maximum daily.

212. Middle Branch Clinton River near Mount Clemens, Mich.

Location.--Lat 42°37'40", long. 82°55'50" in NW¼ sec. 4, T. 2 N., R. 13 E., at bridge on State Highway 59, 3½ miles northwest of Mount Clemens and 3½ miles upstream from mouth.

Drainage area.--51 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 580.987 ft above mean sea level, datum of 1929.

Extremes.--1947-49: Maximum discharge not determined; maximum gage height, 12.1 ft May 11, 1948, from graph based on gage readings (backwater); minimum discharge observed, 1.5 cfs Aug. 2, 1948 (gage height, 2.18 ft).

Flood of Apr. 5 or 6, 1947, reached a stage of about 14 ft (from high-water marks).

Monthly and yearly mean discharge, in cubic feet per second, of Middle Branch Clinton River near Mount Clemens, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 42.5 | 15.0 | 7.78 | 23.2 | - |
| 1948 | 10.1 | 9.42 | 29.1 | 11.1 | 72.1 | 111 | 63.8 | 88.0 | 17.7 | 5.51 | 2.96 | 5.79 | 35.3 |
| 1949 | 4.34 | 11.8 | 11.9 | 20.9 | 90.4 | 28.0 | 37.3 | 15.3 | 3.69 | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | 0.93 | 0.34 | 0.18 | 0.51 | - |
| 1948 | 0.23 | 0.21 | 0.66 | 0.25 | 1.52 | 2.51 | 1.40 | 1.99 | .39 | .12 | .07 | .08 | - |
| 1949 | .10 | .26 | .27 | .47 | 1.84 | .63 | .82 | .35 | .08 | - | - | - | 9.43 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | - | - | - | - | - | - | - | - |
| 1948 | 1114 | al,000 | May 11, 1948 | 1.5 | 35.3 | 0.692 | 9.43 | 33.6 | 8.96 |
| 1949 | 1144 | bl,220 | Feb. 15, 1949 | - | - | - | - | - | - |

a Maximum daily.

b Maximum observed.

213. Clinton River at Mount Clemens, Mich.

Location.--Lat 42°35'45", long. 82°54'35", on left bank 20 ft downstream from bridge on Moravian Drive, a quarter of a mile downstream from North Branch and half a mile west of Mount Clemens.

Drainage area.--733 sq mi.

Gage.--Water-stage recorder. Datum of gage is 570.43 ft above mean sea level, datum of 1929. May 10, 1934, to May 7, 1935, chain gage and May 8, 1935, to Jan. 11, 1939, wire-weight gage, at same site and datum. Since Mar. 15, 1938, auxiliary wire-weight gage 8,500 ft downstream on Gratiot Avenue Bridge at same datum.

Average discharge.--16 years (1934-50), 485 cfs.

Extremes.--1934-50: Maximum discharge, 21,200 cfs Apr. 6, 1947 (gage height, 23.55 ft. from floodmark); minimum not determined; minimum gage height, 2.90 ft Oct. 15, 1934.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|--------|--------|--------|-------|-------|------|------|-------|----------|
| 1934 | - | - | - | - | - | - | - | *176 | 52.9 | 50.9 | 51.7 | 67.3 | - |
| 1935 | 64.1 | 112 | 122 | 454 | 442 | *1,267 | 280 | 398 | 280 | 134 | 123 | 83.5 | *314 |
| 1936 | 73.0 | 179 | 220 | 167 | 245 | 933 | 736 | 283 | 104 | 60.7 | 56.5 | 107 | 264 |
| 1937 | 187 | 199 | *216 | 999 | *1,104 | 388 | *1,691 | 635 | 289 | 232 | 181 | 95.2 | *512 |
| 1938 | 102 | 155 | *355 | *342 | 2,407 | *1,394 | 745 | 452 | 222 | 136 | 238 | 127 | *527 |
| 1939 | 110 | 102 | 144 | 258 | 1,089 | 1,354 | *1,384 | 332 | 246 | 111 | 76.5 | 87.7 | *436 |
| 1940 | 91.1 | 96.9 | 103 | 107 | 118 | 658 | 709 | 262 | 782 | 201 | 229 | 173 | 294 |
| 1941 | 193 | 245 | 979 | 623 | 289 | 638 | 813 | 220 | 119 | 87.9 | 99.0 | 52.5 | 365 |
| 1942 | 95.6 | 143 | 169 | 163 | 342 | 978 | 644 | 247 | 310 | 145 | 222 | 163 | 301 |
| 1943 | 295 | 467 | 851 | 587 | 1,685 | 1,497 | 869 | 2,747 | 942 | 417 | 228 | 202 | 896 |
| 1944 | 171 | 294 | 141 | 158 | 607 | 782 | *1,023 | 612 | 363 | 166 | 81.6 | 52.6 | 371 |
| 1945 | 90.7 | 79.0 | 84.3 | 93.9 | 177 | 448 | 651 | 1,848 | 806 | 157 | 123 | 195 | 396 |
| 1946 | 513 | 284 | 230 | 788 | 481 | 1,448 | 249 | 283 | 1,066 | 200 | 121 | 81.9 | 479 |
| 1947 | 101 | 132 | 190 | 335 | 224 | 803 | 3,090 | 1,496 | 953 | 407 | 253 | 456 | 702 |
| 1948 | 241 | 244 | 487 | 245 | 1,000 | 1,843 | 1,108 | 1,593 | 444 | 256 | 106 | 132 | 641 |
| 1949 | 135 | 318 | 355 | 686 | 1,480 | 613 | 926 | 347 | 135 | 143 | 111 | 169 | 444 |
| 1950 | 252 | 146 | 817 | 1,660 | 1,310 | *1,940 | 2,057 | 546 | 494 | 265 | 140 | 274 | *822 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1934 | - | - | - | - | - | - | - | *0.28 | *0.08 | *0.08 | *0.08 | *0.10 | - |
| 1935 | 0.10 | 0.17 | 0.19 | 0.71 | 0.63 | *1.99 | 0.43 | .63 | .43 | .21 | .19 | .13 | *5.81 |
| 1936 | .12 | .27 | .35 | .26 | .36 | 1.46 | 1.12 | .45 | .16 | .10 | .09 | .16 | 4.90 |
| 1937 | .29 | .30 | *.34 | 1.56 | *1.57 | .61 | *2.57 | 1.00 | .44 | .37 | .28 | .14 | *9.47 |
| 1938 | .16 | .24 | *.24 | *.54 | 3.42 | *2.19 | 1.14 | .71 | .34 | .21 | .37 | .19 | *9.75 |
| 1939 | .17 | .16 | .23 | .41 | 1.55 | 2.13 | *2.11 | .52 | .37 | .17 | .12 | .13 | *8.07 |
| 1940 | .14 | .15 | .16 | .17 | .17 | 1.04 | 1.08 | .41 | 1.19 | .32 | .36 | .26 | 5.45 |
| 1941 | .30 | .37 | 1.54 | .98 | .41 | 1.00 | 1.24 | .35 | .18 | .14 | .16 | .09 | 6.75 |
| 1942 | .15 | .22 | .27 | .26 | .49 | 1.53 | .98 | .39 | .47 | .23 | .35 | .25 | 5.59 |
| 1943 | .46 | .71 | 1.34 | .92 | 2.40 | 2.35 | 1.33 | 4.32 | 1.44 | .66 | .36 | .31 | 16.60 |
| 1944 | .27 | .45 | .22 | .25 | .89 | 1.23 | 1.56 | .96 | .58 | .26 | .13 | .08 | 6.88 |
| 1945 | .14 | .12 | .13 | .15 | .25 | .70 | .96 | 2.90 | 1.23 | .25 | .19 | .30 | 7.52 |

* Revised.

* Not previously published; estimated on basis of records for nearby stations.

STREAMS TRIBUTARY TO LAKE ST. CLAIR

Monthly and yearly runoff, in inches, of Clinton River
at Mount Clemens, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1946 | 0.81 | 0.43 | 0.36 | 1.24 | 0.68 | 2.28 | 0.38 | 0.44 | 1.62 | 0.31 | 0.19 | 0.12 | 8.86 |
| 1947 | .16 | .20 | .30 | .55 | .32 | 1.27 | 4.71 | 2.35 | 1.45 | .64 | .40 | .69 | 15.02 |
| 1948 | .38 | .37 | .77 | .39 | 1.47 | 2.89 | 1.68 | 2.50 | .68 | .40 | .17 | .20 | 11.90 |
| 1949 | .21 | .48 | .56 | 1.08 | 2.10 | .96 | 1.41 | .55 | .21 | .22 | .17 | .26 | 8.21 |
| 1950 | .40 | .22 | 1.28 | 2.61 | 1.86 | *3.05 | 3.13 | .86 | .75 | .42 | .22 | .42 | *15.22 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1954 | 759 | - | - | - | - | - | - | - | - |
| 1935 | 784,1457 | *3,320 | Mar. 12, 1935 | 44 | *314 | *0.428 | *5.81 | *328 | *6.09 |
| 1936 | 804 | *2,960 | Mar. 12, 1936 | 39 | 264 | .360 | 4.90 | *274 | *5.09 |
| 1937 | 824,1437 | *5,760 | Apr. 22, 1937 | 77 | *512 | *.698 | *3.47 | *496 | *9.18 |
| 1938 | (a) | *13,900 | Feb. 14, 1938 | 67 | *527 | *.719 | *9.75 | *522 | *9.67 |
| 1939 | 874,1437 | 8,460 | Feb. 20, 1939 | 55 | *436 | *.595 | *8.07 | *430 | *7.96 |
| 1940 | 894 | 4,940 | Mar. 30, 1940 | 65 | 294 | .401 | 5.45 | 389 | 7.21 |
| 1941 | 924 | 5,460 | Dec. 30, 1940 | 25 | 365 | .498 | 6.75 | 279 | 5.18 |
| 1942 | 954 | 4,150 | Mar. 17 or 18 | 60 | 301 | .411 | 5.59 | 403 | 7.46 |
| 1943 | 974,1084 | 17,700 | May 12, 1943 | 139 | 896 | 1.22 | 16.60 | 811 | 15.05 |
| 1944 | 1004 | 3,150 | Feb. 28, 1944 | 35 | 371 | .506 | 6.68 | 341 | 6.53 |
| 1945 | 1034,1084 | 12,200 | May 18, 1945 | 40 | 396 | .540 | 7.32 | 461 | 8.53 |
| 1946 | 1054,1084 | 12,400 | June 18, 1946 | 50 | 479 | .653 | 8.86 | 429 | 7.92 |
| 1947 | 1084 | 21,200 | Apr. 6, 1947 | 60 | 702 | .958 | 13.02 | 749 | 13.88 |
| 1948 | 1114 | 13,500 | May 11, 1948 | 90 | 641 | .874 | 11.90 | 627 | 11.63 |
| 1949 | 1144 | *7,000 | Feb. 15, 1949 | 85 | 444 | .606 | 8.21 | 479 | 8.86 |
| 1950 | 1174,1437 | 13,000 | Apr. 5, 1950 | 101 | *822 | *1.12 | *15.22 | - | - |

* Revised.

a In W.S.P. 854, 894, 1084, 1437.

STREAMS TRIBUTARY TO DETROIT RIVER

214. River Rouge at Birmingham, Mich.

Location.--Lat 42°32'45", long. 83°13'25", in NW $\frac{1}{4}$ sec. 36, T. 2 N., R. 10 E., on left bank 25 ft downstream from Quarton Lake Outlet and 100 ft upstream from bridge on West Maple Road, in Birmingham.

Drainage area.--33 sq mi, approximately.

Gage.--Water-stage recorder. Altitude of gage is 720 ft (by barometer).

Remarks.--Occasional regulation by Quarton Lake above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|-------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | *16.0 | 7.91 | 3.22 | 6.47 | - |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|-------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | *0.54 | 0.28 | 0.11 | 0.22 | - |

* Not previously published; estimated on basis of records for nearby streams.

215. River Rouge at Detroit, Mich.

Location.--Lat 42°22'20", long. 83°15'20", in SW $\frac{1}{4}$ sec. 27, T. 1 S., R. 10 E., on right bank 500 ft upstream from bridge on Plymouth Road in Detroit and 4 miles upstream from Middle River Rouge.

Drainage area.--193 sq mi. Prior to Oct. 16, 1948, 194 sq mi.

Gage.--Water-stage recorder. Datum of gage is 584.00 ft above mean sea level, datum of 1929. Prior to Aug. 10, 1943, chain gage and Aug. 11, 1943, to Oct. 15, 1948, wire-weight gage, at site 1 mile downstream at datum 4.6 ft (corrected) lower.

Average discharge.--20 years (1930-50), 106 cfs.

Extremes.--1930-50: Maximum discharge, 13,000 cfs Apr. 5, 1947; maximum gage height, 23.0 ft Apr. 6, 1947, from floodmark, site and datum then in use; minimum discharge observed, 2.7 cfs Aug. 11, 1934 (gage height, 3.50 ft, site and datum then in use).

Monthly and yearly mean discharge, in cubic feet per second,
of River Rouge at Detroit, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1931 | *18.0 | *17.3 | 22.5 | 21.0 | 39.2 | *59.5 | *49.3 | *35.0 | *24.4 | *11.1 | 5.58 | 7.03 | *25.7 |
| 1932 | 10.7 | 27.5 | 37.7 | 183 | 132 | 99.6 | 109 | *240 | 48.0 | 22.0 | 19.4 | 47.1 | *41.3 |
| 1933 | 46.9 | 86.6 | 188 | 173 | 127 | 140 | 272 | 377 | 39.2 | 25.5 | 16.3 | 12.0 | 125 |
| 1934 | 18.9 | 36.3 | 37.0 | 72.5 | *24.9 | *68.9 | 246 | 23.9 | 7.92 | 6.46 | 6.08 | 9.28 | *46.4 |
| 1935 | 11.8 | 18.3 | 17.9 | 69.2 | 66.6 | 213 | 62.5 | 93.5 | 48.7 | 15.3 | 13.6 | 9.07 | 53.4 |
| 1936 | 14.7 | 34.4 | 37.2 | 33.0 | 72.3 | 294 | 131 | 54.5 | 18.9 | *8.29 | *5.65 | *12.6 | *59.7 |
| 1937 | 33.6 | 42.0 | *49.1 | 200 | *175 | *66.7 | 335 | 198 | 130 | *52.3 | *80.6 | *17.0 | *114 |
| 1938 | 24.5 | 37.0 | *44.7 | 161 | 519 | 303 | 175 | 149 | 58.6 | 23.7 | 54.0 | 20.0 | *121 |
| 1939 | 21.4 | 27.9 | 37.5 | 60.5 | 513 | 331 | 378 | 61.3 | 54.7 | 16.6 | 11.8 | 10.5 | 124 |
| 1940 | 17.1 | 20.4 | 16.6 | 24.8 | 37.6 | 146 | 168 | 78.1 | 107 | 24.6 | 105 | 49.5 | 66.1 |
| 1941 | 45.3 | 69.1 | 228 | 173 | 80.3 | 140 | 154 | 58.6 | 38.8 | 14.5 | 17.1 | 15.0 | 86.4 |
| 1942 | 27.4 | 43.7 | 42.0 | 40.9 | 84.5 | 280 | 153 | 44.7 | 109 | 29.8 | 66.8 | 30.3 | 79.2 |
| 1943 | 74.0 | 125 | 263 | 131 | 380 | 302 | 171 | 683 | 176 | 58.8 | 44.2 | 30.3 | 203 |
| 1944 | 29.2 | 63.7 | 30.7 | 24.5 | 109 | 186 | 238 | 126 | 42.7 | 17.9 | 10.5 | 9.41 | 73.6 |
| 1945 | *13.0 | *18.6 | *17.4 | 17.2 | 23.1 | 99.8 | 152 | 476 | 176 | 46.6 | 19.1 | 25.4 | *91.1 |
| 1946 | 68.5 | 65.3 | 54.8 | 146 | 116 | 287 | 65.4 | 80.7 | 148 | 22.1 | 14.1 | 9.71 | 89.8 |
| 1947 | 16.6 | 29.2 | 51.9 | 86.8 | 61.3 | 219 | 965 | 407 | 243 | 110 | 58.5 | 168 | 201 |
| 1948 | 55.7 | 82.6 | 156 | 68.3 | 262 | 466 | 272 | 536 | 89.3 | 43.0 | 19.7 | 19.0 | 173 |
| 1949 | 23.4 | 74.9 | 74.5 | 169 | 353 | 157 | 233 | 99.8 | 27.4 | 20.3 | 21.8 | 24.6 | 105 |
| 1950 | 57.1 | 35.5 | 212 | 456 | 360 | 488 | 520 | 147 | 83.9 | 31.3 | 12.5 | 24.0 | 201 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1931 | *0.11 | *0.10 | 0.13 | 0.12 | 0.21 | *0.35 | *0.28 | *0.21 | *0.14 | 0.07 | 0.03 | 0.04 | *1.79 |
| 1932 | .06 | .16 | .22 | 1.08 | .73 | .59 | .63 | *1.42 | .28 | .13 | .12 | .27 | *5.69 |
| 1933 | .28 | .50 | 1.12 | 1.03 | .68 | .83 | 1.56 | 2.24 | .23 | .14 | .10 | .07 | 8.78 |
| 1934 | .11 | .21 | .22 | .43 | *.13 | *.41 | 1.42 | .14 | .05 | .04 | .04 | .05 | *3.25 |
| 1935 | .07 | .10 | .11 | .41 | .36 | 1.27 | .36 | .56 | .28 | .09 | .08 | .05 | 3.74 |
| 1936 | .09 | .20 | .22 | .20 | .40 | 1.75 | .75 | .32 | .11 | *.05 | *.03 | *.07 | *4.19 |
| 1937 | .09 | .24 | *.29 | 1.19 | *.94 | *.40 | 1.93 | 1.19 | .75 | *.31 | *.49 | *.10 | *8.01 |
| 1938 | .15 | .21 | *.27 | *.48 | 2.79 | 1.80 | 1.01 | .89 | .34 | .14 | .32 | .11 | *8.51 |
| 1939 | .13 | .16 | .22 | .36 | 2.75 | 1.97 | 2.16 | .36 | .31 | .10 | .07 | .06 | 8.65 |
| 1940 | .10 | .12 | .10 | .15 | .21 | .87 | .96 | .46 | .61 | .15 | .62 | .28 | 4.63 |
| 1941 | .27 | .40 | 1.35 | 1.03 | .43 | .83 | .89 | .35 | .22 | .09 | .10 | .09 | 6.05 |
| 1942 | .16 | .25 | .25 | .24 | .45 | 1.66 | .88 | .27 | .63 | .18 | .40 | .17 | 5.54 |
| 1943 | .44 | .72 | 1.57 | .78 | 2.04 | 1.80 | .38 | 4.06 | 1.01 | .35 | .26 | .17 | 14.18 |
| 1944 | .17 | .37 | .18 | .15 | .61 | 1.11 | 1.37 | .75 | .24 | .11 | .06 | .05 | 5.17 |
| 1945 | *.08 | *.11 | *.10 | .10 | .12 | .59 | .87 | 2.82 | 1.01 | .29 | .11 | .15 | *6.35 |
| 1946 | .41 | .38 | .33 | .87 | .62 | 1.71 | .38 | .48 | .85 | .13 | .08 | .06 | 6.30 |
| 1947 | .09 | .17 | .31 | .52 | .33 | 1.30 | 5.54 | 2.42 | 1.40 | .65 | .35 | .97 | 14.05 |
| 1948 | .33 | .48 | .93 | .41 | 1.46 | 2.77 | 1.56 | 3.18 | .51 | .26 | .12 | .11 | 12.12 |
| 1949 | .14 | .43 | .44 | 1.01 | 1.91 | .94 | 1.35 | .60 | .16 | .12 | .13 | .14 | 7.37 |
| 1950 | .34 | .21 | 1.26 | 2.72 | 1.94 | 2.92 | 3.01 | .88 | .48 | .19 | .07 | .14 | 14.16 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714,1437 | *a152 | Mar. 28, 1931 | *3.9 | *25.7 | *0.132 | *1.79 | *27.2 | *1.89 |
| 1932 | 729,1437 | *a1,720 | May 27, 1932 | 6.1 | *81.3 | *.419 | *5.69 | *102 | *7.15 |
| 1933 | 744 | 3,840 | May 1, 1933 | 7.0 | 125 | .644 | 8.78 | 106 | 7.42 |
| 1934 | 759,1437 | a1,650 | Apr. 2, 1934 | 2.7 | *46.4 | *.239 | *3.25 | *42.7 | *2.99 |
| 1935 | 784 | 760 | Mar. 11, 1935 | 6.3 | 53.4 | .275 | 3.74 | 56.6 | 3.97 |
| 1936 | 804 | *800 | Mar. 5, 1936 | - | *59.7 | *.308 | *4.01 | *62.9 | *4.41 |
| 1937 | (b) | 1,440 | Apr. 22, 1937 | - | *114 | *.588 | *8.19 | *113 | *7.91 |
| 1938 | (c) | 2,680 | Feb. 14, 1938 | 12 | *121 | *.624 | *8.51 | *120 | *8.39 |
| 1939 | 874,1054 | 6,140 | Feb. 20, 1939 | 6.0 | 124 | .639 | 8.65 | *121 | 8.46 |
| 1940 | 894 | d850 | Mar. 30, 1940 | 9.4 | 66.1 | .341 | 4.63 | 90.4 | 6.33 |
| 1941 | 924 | a1,100 | Dec. 30, 1940 | 12 | 86.4 | .445 | 6.05 | 67.0 | 4.69 |
| 1942 | 954 | 6,130 | Mar. 10, 1942 | 14 | 173 | .408 | 5.54 | 109 | 7.61 |
| 1943 | 974,1054 | 4,210 | May 12, 1943 | 19 | 203 | 1.05 | 14.18 | 174 | 12.17 |
| 1944 | 1004 | *920 | Mar. 16, 1944 | 6.0 | 73.6 | .379 | 5.17 | *67.4 | *4.74 |
| 1945 | 1034,1437 | 4,000 | May 18, 1945 | - | *91.1 | *.470 | *6.35 | 103 | 7.18 |
| 1946 | 1054 | 1,090 | June 18, 1946 | 5.2 | 89.8 | .463 | 6.30 | 82.2 | 5.75 |
| 1947 | 1084 | 13,000 | Apr. 5, 1947 | 8 | 201 | 1.04 | 14.05 | 217 | 15.22 |
| 1948 | 1114 | 6,130 | May 10, 1948 | 12 | 173 | .892 | 12.12 | 162 | 11.59 |
| 1949 | 1144 | 2,420 | Feb. 15, 1949 | 11 | 105 | .544 | 7.37 | 116 | 8.17 |
| 1950 | 1174 | 3,640 | Apr. 4, 1950 | 9.0 | 201 | 1.04 | 14.16 | - | - |

* Revised.

* Not previously published.

a Maximum observed.

b In W.S.P. 824, 1054, 1437.

c In W.S.P. 854, 1054, 1437.

d Maximum daily.

STREAMS TRIBUTARY TO DETROIT RIVER

216. Middle River Rouge near Garden City, Mich.

Location.--Lat 42°20'55", long. 83°18'45", in W $\frac{1}{2}$ sec. 6, T. 2 S., R. 10 E., on right bank 200 ft downstream from bridge on Inkster Road, 1 $\frac{3}{4}$ miles northeast of Garden City, and 6 $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--93 sq mi, approximately (revised).

Gage.--Water-stage recorder. Datum of gage is 600.95 ft above mean sea level, datum of 1929. June 6, 1947, to Oct. 18, 1948, wire-weight gage at site 200 ft upstream at same datum.

Extremes.--1947-50: Maximum discharge, 2,150 cfs May 10, 1948 (gage height, 10.50 ft, from floodmark); minimum observed, 3.0 cfs Aug. 16, 1947.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | #106 | 51.5 | 25.0 | 85.2 | - |
| 1948 | 31.5 | 43.4 | 67.3 | 35.0 | 146 | 264 | 153 | 228 | 37.9 | 24.2 | 15.9 | 16.8 | 88.5 |
| 1949 | 19.5 | 39.1 | 36.9 | 92.8 | 202 | 88.7 | 141 | 47.2 | 19.3 | 14.3 | 17.8 | 16.6 | 60.2 |
| 1950 | 28.8 | 21.1 | 107 | 247 | 195 | 295 | 313 | 75.4 | 52.9 | 26.3 | 15.5 | 30.6 | 117 |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | #1.27 | 0.64 | 0.31 | 1.02 | - |
| 1948 | 0.39 | 0.52 | 0.83 | 0.43 | 1.69 | 3.27 | 1.84 | 2.82 | 0.45 | 0.30 | 0.20 | 0.20 | 12.94 |
| 1949 | .24 | .47 | .46 | 1.15 | 2.27 | 1.10 | 1.69 | .58 | .23 | 1.18 | .22 | .20 | 8.79 |
| 1950 | .37 | .25 | 1.33 | 3.06 | 2.19 | 3.66 | 3.76 | .95 | .63 | .33 | .19 | .37 | 17.07 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | - | - | - | - | - | - | - | - |
| 1948 | 1114 | 2,150 | May 10, 1948 | 9.0 | 88.5 | 0.952 | 12.94 | 84.5 | 12.94 |
| 1949 | 1144 | *1,200 | Feb. 15, 1949 | 8.5 | 60.2 | .647 | 8.79 | 65.6 | 9.57 |
| 1950 | 1174 | 1,960 | Apr. 4, 1950 | 10 | 117 | 1.26 | 17.07 | - | - |

* Revised.

217. Middle River Rouge at Detroit, Mich.

Location.--Lat 42°20'15", long. 83°15'40", in NE $\frac{1}{4}$ sec. 9, T. 2 S., R. 10 E., on left bank about 150 ft upstream from bridge on Outer Drive and 1 $\frac{3}{4}$ miles above mouth.

Drainage area.--99 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 583.47 ft above mean sea level.

Extremes.--1930-33: Maximum discharge, 1,420 cfs May 1, 1933 (gage height, 11.55 ft, from floodmark); minimum discharge observed, 1.4 cfs Aug. 21, 24, 28, Sept. 21, 1931.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1931 | #16.0 | #16.0 | 20.2 | 19.6 | 39.3 | 42.3 | 32.6 | 26.9 | 19.0 | 8.85 | 5.64 | 4.97 | #20.8 |
| 1932 | 7.83 | 16.8 | 21.0 | 100 | 78.3 | 65.1 | 62.7 | 133 | 42.2 | 11.7 | 17.3 | 60.7 | 51.3 |
| 1933 | 29.3 | 53.5 | 138 | 101 | 90.2 | 95.6 | 175 | 224 | *26.4 | 19.8 | 10.1 | 8.34 | *81.0 |

* Revised.

* Not previously published; estimated or partly estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | #0.19 | #0.18 | 0.24 | 0.23 | 0.41 | 0.49 | 0.37 | 0.31 | 0.21 | 0.10 | 0.07 | 0.06 | #2.86 |
| 1932 | .09 | .19 | .24 | 1.16 | .85 | .76 | .71 | 1.54 | .48 | .14 | .20 | .68 | 7.04 |
| 1933 | .34 | .60 | 1.60 | 1.18 | .95 | 1.11 | 1.97 | 2.60 | *.30 | .23 | .12 | .09 | *11.09 |

* Revised.

* Not previously published; estimated or partly estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 76 | Mar. 29, May 11 | 1.4 | #20.8 | #0.210 | #2.86 | 20.3 | 2.77 |
| 1932 | 729 | *780 | May 27, 1932 | 1.6 | 51.3 | .518 | 7.04 | 66.0 | 9.06 |
| 1933 | 744,1437 | 1,420 | May 1, 1933 | 2.4 | *81.0 | *.818 | *11.09 | - | - |

* Revised.

* Not previously published.

218. Lower River Rouge at Inkster, Mich.

Location.--Lat 42°18'00", long. 83°18'00", in S½ sec. 19, T. 2 S., R. 10 E., on right bank 10 ft downstream from bridge on John Daly Road, 0.6 mile northeast of Inkster, and 4 3/4 miles upstream from mouth.

Drainage area.--90 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 593.14 ft above mean sea level, datum of 1929. Prior to Oct. 20, 1948, wire-weight gage at same site and datum.

Extremes.--1947-50: Maximum discharge, 3,120 cfs Apr. 4, 1950 (gage height, 12.42 ft); minimum, 0.4 cfs Dec. 2-4, 1948, Aug. 6, 7, 17, 1950; minimum gage height, 2.94 ft Aug. 1, 1949.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|--------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | \$51.0 | 5.90 | 4.95 | 38.2 | - |
| 1948 | 4.99 | 16.6 | 40.5 | 17.0 | 222 | 239 | 83.2 | 182 | 5.21 | 2.26 | 1.15 | 2.08 | 87.6 |
| 1949 | *2.11 | *5.08 | 14.5 | 73.4 | 177 | 65.4 | 102 | 14.0 | 2.75 | 7.23 | 5.31 | 4.13 | *39.4 |
| 1950 | 22.6 | 5.59 | 105 | 252 | 190 | 284 | 280 | 30.6 | 12.4 | 3.37 | .326 | 4.39 | 98.8 |

* Revised.

* Not previously published; estimated on basis of records for River Rouge at Detroit.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1947 | - | - | - | - | - | - | - | - | *0.63 | 0.08 | 0.06 | 0.47 | - |
| 1948 | 0.06 | 0.21 | 0.52 | 0.22 | 2.66 | 3.07 | 1.03 | 2.33 | .06 | .03 | .01 | .03 | 10.23 |
| 1949 | *.03 | .06 | .19 | .94 | 2.05 | .84 | 1.28 | .18 | .03 | .09 | .07 | .05 | *5.79 |
| 1950 | .29 | .07 | 1.36 | 3.23 | 2.20 | 3.63 | 3.47 | .39 | .15 | .04 | .01 | .05 | 14.89 |

* Revised.

* Not previously published; estimated on basis of records for River Rouge at Detroit.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1947 | 1084 | - | - | - | - | - | - | - | - | - |
| 1948 | 1114 | 2,920 | May 11, 1948 | 0.6 | 67.6 | 0.751 | 10.23 | *64.2 | *9.72 | |
| 1949 | 1144, 1437 | 1,980 | Feb. 15, 1949 | .5 | *36.4 | *.427 | *5.79 | 48.0 | 7.23 | |
| 1950 | 1174 | 3,120 | Apr. 4, 1950 | .5 | 98.8 | 1.10 | 14.89 | - | - | |

* Revised.

219. Lower River Rouge at Dearborn, Mich.

Location.--Lat 42°18'40", long. 83°14'40", in NW¼ sec. 22, T. 2 S., R. 10 E., at Ford Park in Dearborn, 1 mile upstream from mouth.

Drainage area.--96 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 576.875 ft above mean sea level.

Extremes.--1930-33: Maximum discharge, about 1,400 cfs May 1, 1933 (gage height, 12.16 ft, from floodmark), from rating curve extended above 730 cfs; minimum observed, 0.3 cfs Sept. 2, 1933.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1931 | \$4.0 | \$3.8 | 4.21 | 5.05 | 16.3 | 35.6 | 24.3 | 17.3 | 15.4 | 10.8 | 5.01 | 4.40 | \$12.1 |
| 1932 | 3.69 | 8.79 | 14.5 | 147 | 74.0 | 51.6 | 45.5 | 110 | 32.9 | 6.80 | 7.13 | 41.1 | 45.2 |
| 1933 | 15.2 | 34.6 | 106 | 88.4 | 50.9 | 71.5 | 154 | 152 | *5.70 | 1.96 | 1.72 | 1.83 | *57.1 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | *0.05 | *0.04 | 0.05 | 0.06 | 0.18 | 0.43 | 0.28 | 0.21 | 0.13 | 0.13 | 0.06 | 0.05 | \$1.72 |
| 1932 | .04 | .10 | .17 | 1.76 | .83 | .62 | .53 | 1.33 | .38 | .08 | .09 | .48 | 6.41 |
| 1933 | .18 | .40 | 1.27 | 1.06 | .55 | .86 | 1.78 | 1.82 | *.07 | .02 | .02 | .02 | *8.05 |

* Revised.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1931 | 714 | a178 | June 30, 1931 | \$1.8 | \$12.1 | *0.126 | \$1.72 | 13.4 | 1.89 | |
| 1932 | 729 | *a725 | Feb. 12, 1932 | 2.1 | 45.2 | .471 | 6.41 | 56.1 | 7.95 | |
| 1933 | 744, 1437 | 1,400 | May 1, 1933 | .3 | *57.1 | *.595 | *8.05 | - | - | |

* Revised.

* Not previously published.

a Maximum observed.

220. Hayes Creek at Commerce, Mich.

Location.--Lat 42°35'25", long. 83°28'45", on line between NW $\frac{1}{4}$ and SW $\frac{1}{4}$ sec. 11, T. 2 N., R. 8 E., at bridge 600 ft upstream from mouth and half a mile east of Commerce.

Drainage area.--8 sq mi, approximately (revised). Watershed indeterminate because of lakes and swamps.

Gage.--Staff gage. Datum of gage is 909.99 ft above mean sea level, datum of 1929.

Extremes.--1946-50: Maximum discharge, 154 cfs Apr. 7, 1947 (gage height, 4.25 ft, from graph based on gage readings); minimum observed, 2.4 cfs (revised) Oct. 1-3, 1946.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|-------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | 16.5 | 11.9 | 7.58 | 10.0 | 6.02 | 4.48 | *3.59 | - |
| 1947 | *4.09 | *4.46 | *5.21 | 6.83 | 10.1 | 10.5 | 59.1 | 20.5 | 20.5 | 19.6 | 14.0 | 21.2 | 16.3 |
| 1948 | 10.5 | 10.7 | 14.7 | 11.8 | 11.9 | 32.7 | 46.2 | 53.7 | 19.9 | 19.7 | 8.45 | 6.01 | 20.6 |
| 1949 | 6.06 | 9.85 | 9.15 | 11.9 | 19.7 | 18.5 | 17.0 | 11.4 | 6.89 | 5.83 | 5.29 | *5.95 | *10.6 |
| 1950 | 7.69 | 6.85 | 11.1 | 17.6 | 15.4 | 20.8 | 44.0 | 17.2 | 14.9 | 8.02 | 4.70 | 7.63 | 14.6 |

* Revised.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|------------------|----------------|-------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054,1437 | - | - | - | - | - | - | - | - |
| 1947 | 1084,1437 | 154 | Apr. 7, 1947 | *2.4 | 16.3 | - | - | 18.1 | - |
| 1948 | 1114 | 99 | May 12, 13, 1948 | 5.6 | 20.6 | - | - | 19.7 | - |
| 1949 | 1144,1437 | 46 | Feb. 17, 1949 | *4.3 | *10.6 | - | - | 10.6 | - |
| 1950 | 1174 | 65 | Apr. 4, 1950 | 3.8 | 14.6 | - | - | - | - |

* Revised.

221. Huron River at Commerce, Mich.

Location.--Lat 42°35'25", long. 83°29'05", on line between NE $\frac{1}{4}$ and SE $\frac{1}{4}$ sec. 10, T. 2 N., R. 8 E., on downstream left abutment of bridge on Commerce Road, 10 ft upstream from Hayes Creek and 0.2 mile east of Commerce. Records include flow of Hayes Creek.

Drainage area.--51 sq mi, approximately, includes that of Hayes Creek.

Gage.--Staff gage. Datum of gage is 910.00 ft above mean sea level, datum of 1929.

Extremes.--1946-50: Maximum discharge, 266 cfs Apr. 7, 1947 (gage height, 2.98 ft, from graph based on gage readings); maximum gage height, 3.10 ft May 12, 1948, from graph based on gage readings (backwater from debris); minimum discharge observed, 7.2 cfs Aug. 18, Sept. 28, 1946 (gage height, 0.84 ft).

Remarks.--Some regulation by dams operated for lake level control at outlets of Pontiac, Oxbow, and Union Lakes.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | 75.2 | 37.3 | 25.8 | 32.3 | 16.2 | 9.11 | 8.90 | - |
| 1947 | 13.1 | 19.0 | 20.4 | 23.9 | 35.8 | 45.1 | 136 | 85.9 | 88.7 | 54.9 | 42.5 | 61.3 | 52.1 |
| 1948 | 48.4 | 46.8 | 63.9 | 44.4 | 35.3 | 97.0 | 110 | 136 | 62.4 | 47.8 | 23.5 | 19.4 | 61.4 |
| 1949 | 19.2 | 44.2 | 45.9 | 54.0 | 78.1 | 78.9 | 68.8 | 43.3 | 20.5 | 14.8 | 15.7 | 17.3 | 41.5 |
| 1950 | 22.8 | 21.2 | 40.1 | 80.5 | 75.5 | 98.9 | 145 | 61.4 | 64.1 | 22.2 | 15.4 | 27.6 | 56.0 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | 1.70 | 0.82 | 0.58 | 0.71 | 0.37 | 0.21 | 0.20 | - |
| 1947 | 0.30 | 0.42 | 0.46 | 0.54 | 0.73 | 1.02 | 2.98 | 1.94 | 1.94 | 1.24 | .96 | 1.34 | 13.87 |
| 1948 | 1.09 | 1.02 | 1.44 | 1.00 | .75 | 2.19 | 2.41 | 3.08 | 1.36 | 1.08 | .53 | .42 | 16.37 |
| 1949 | .43 | .97 | 1.04 | 1.22 | 1.59 | 1.79 | 1.51 | .98 | .45 | .33 | .36 | .38 | 11.05 |
| 1950 | .51 | .46 | .91 | 1.82 | 1.54 | 2.26 | 3.16 | 1.39 | 1.40 | .50 | .35 | .60 | 14.90 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|-----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|---|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1946 | 1054 | 96 | Mar. 7, 9, 1946 | - | - | - | - | - | - | - | - |
| 1947 | 1084 | 266 | Apr. 7, 1947 | 9.8 | 52.1 | 1.02 | 13.87 | 61.0 | 16.24 | - | - |
| 1948 | 1114 | *207 | May. 12, 1948 | 17 | 61.4 | 1.20 | 16.37 | 57.2 | 15.26 | - | - |
| 1949 | 1144 | 156 | Feb. 17, 1949 | 12 | 41.5 | .814 | 11.05 | 39.4 | 10.49 | - | - |
| 1950 | 1174 | 181 | Apr. 5, 1950 | 11 | 56.0 | 1.10 | 14.90 | - | - | - | - |

* Revised.

222. Huron River at Milford, Mich.

Location.--Lat 42°34'45", long. 83°37'35", in SE $\frac{1}{4}$ sec. 9, T. 2 N., R. 7 E., on right bank 200 ft upstream from bridge on General Motors Road, half a mile downstream from Sherwood Creek, and half a mile west of Milford.

Drainage area.--125 sq mi.

Gage.--Water-stage recorder. Datum of gage is 880.00 ft above mean sea level, datum of 1929.

Extremes.--1948-50: Maximum discharge, 645 cfs Apr. 5, 1950 (gage height, 8.25 ft); minimum daily, 8.3 cfs Sept. 17, 1949.

Remarks.--Flow below about 300 cfs regulated by powerplant $1\frac{1}{2}$ miles above station.

Monthly and yearly discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1949 | 65.5 | 114 | 106 | 132 | 204 | 159 | 174 | 104 | 71.8 | 44.1 | 59.3 | 51.7 | 106 |
| 1950 | 66.2 | 62.8 | 110 | 199 | 194 | 259 | 389 | 165 | 134 | 65.5 | 48.0 | 112 | 151 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | 0.60 | 1.02 | 0.98 | 1.22 | 1.70 | 1.46 | 1.55 | 0.96 | 0.64 | 0.41 | 0.55 | 0.46 | 11.55 |
| 1950 | .61 | .56 | 1.02 | 1.84 | 1.62 | 2.48 | 3.48 | 1.52 | 1.19 | .60 | .44 | 1.00 | 16.36 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1144 | - | - | - | - | - | - | - | - |
| 1949 | 1144 | 414 | Feb. 15, 1949 | 8.3 | 106 | 0.848 | 11.55 | 103 | 11.14 |
| 1950 | 1207 | 645 | Apr. 5, 1950 | 14 | 151 | 1.21 | 16.36 | - | - |

223. Huron River near New Hudson, Mich.

Location.--Lat 42°30'45", long. 83°40'35", in NE $\frac{1}{4}$ sec. 1, T. 1 N., R. 6 E., on right bank 150 ft downstream from Kent Lake Dam, 2 miles upstream from Woodruff Creek, and 3 miles west of New Hudson.

Drainage area.--143 sq mi.

Gage.--Water-stage recorder. Datum of gage is 868.00 ft above mean sea level, datum of 1929.

Extremes.--1948-50: Maximum discharge, 582 cfs Apr. 6, 1950 (gage height, 4.12 ft); minimum, 9.2 cfs June 26, 1949 (gage height, 0.72 ft).

Remarks.--Occasional regulation by Kent Lake.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1949 | 81.7 | 131 | 170 | 154 | 221 | 175 | 191 | 92.8 | 59.4 | 39.5 | 81.2 | 56.5 | 120 |
| 1950 | 79.7 | 87.3 | 163 | 228 | 230 | 267 | 357 | 182 | 170 | 77.2 | 46.3 | 146 | 169 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1948 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1949 | 0.66 | 1.02 | 1.37 | 1.24 | 1.61 | 1.41 | 1.49 | 0.75 | 0.46 | 0.32 | 0.65 | 0.62 | 11.42 |
| 1950 | .64 | .68 | 1.31 | 1.84 | 1.67 | 2.15 | 2.79 | 1.47 | 1.33 | .62 | .37 | 1.14 | 16.01 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1948 | 1144 | - | - | - | - | - | - | - | - |
| 1949 | 1144 | 432 | Feb. 16, 1949 | 9.6 | 120 | 0.839 | 11.42 | 116 | 11.00 |
| 1950 | 1174 | 582 | Apr. 6, 1950 | 25 | 169 | 1.18 | 16.01 | - | - |

STREAMS TRIBUTARY TO LAKE ERIE

224. Portage Creek near Pinckney, Mich.

Location.--Lat 42°25'40", long. 83°57'35", in SW $\frac{1}{4}$ sec. 34, T. 1 N., R. 4 E., on right up-stream abutment of highway bridge, 2 miles upstream from Little Portage Lake and 2 $\frac{1}{2}$ miles southwest of Pinckney.

Drainage area.--79 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 860.38 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Average discharge.--6 years (1944-50), 58.8 cfs.

Extremes.--1944-50: Maximum discharge, 529 cfs Apr. 9, 10, 1947 (gage height, 5.72 ft, from graph based on gage readings); minimum, 0.6 cfs Oct. 5, 1946 (gage height, 0.56 ft).

Remarks.--Flow regulated by Hiland Lake 2 $\frac{1}{2}$ miles above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | #8.99 | 16.5 | 16.8 | 22.3 | 69.6 | 82.0 | 122 | 106 | 32.8 | 15.3 | 16.8 | #43.2 |
| 1946 | 59.7 | 35.0 | 32.5 | 72.3 | 46.6 | 127 | 40.6 | 26.2 | 38.6 | 12.6 | 2.21 | 1.21 | 41.3 |
| 1947 | 4.00 | 15.9 | 19.7 | 22.0 | 28.1 | 59.7 | 287 | 132 | 118 | 28.5 | 16.6 | 35.7 | 63.7 |
| 1948 | 39.8 | 58.7 | 62.4 | 37.6 | 49.4 | 194 | 134 | 146 | 37.0 | 31.1 | 10.1 | 10.9 | 67.7 |
| 1949 | 15.8 | 38.8 | 39.5 | 76.8 | 129 | 99.1 | 126 | 39.3 | 35.1 | 15.5 | 7.89 | 11.3 | 52.3 |
| 1950 | 30.3 | 25.0 | 61.7 | 145 | 123 | 153 | 251 | 104 | 60.9 | 23.3 | 14.2 | 34.7 | 84.9 |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | 215 | May 23, 1945 | - | #43.2 | #0.547 | #7.43 | 51.1 | 8.77 |
| 1946 | 1054 | 176 | Mar. 11, 1946 | 0.9 | 41.3 | .523 | 7.08 | 33.9 | 5.82 |
| 1947 | 1084 | 529 | Apr. 9, 10, 1947 | .6 | 63.7 | .806 | 10.92 | 73.9 | 12.67 |
| 1948 | 1114 | 264 | Mar. 24, 25, 27 * | 5.2 | 67.7 | .857 | 11.68 | 62.1 | 10.72 |
| 1949 | 1144 | 211 | Feb. 20-22, 1949* | 2.7 | 52.3 | .662 | 8.97 | 54.2 | 9.30 |
| 1950 | 1174 | 400 | Apr. 5, 6, 1950 | 6.0 | 84.9 | 1.07 | 14.60 | - | - |

* Revised.

* Not previously published.

225. Huron River near Dexter, Mich.

Location.--Lat 42°23'10", long. 83°54'40", in S $\frac{1}{2}$ sec. 13, T. 1 S., R. 4 E., on downstream side of highway bridge on North Territorial Road, half a mile east of Hudson Mills, 2 miles downstream from Portage Lake Outlet, and 4 miles north of Dexter.

Drainage area.--506 sq mi.

Supplemental records available.--August to December 1904, gage heights only; published as "at Dover".

Gage.--Wire-weight gage. Datum of gage is 837.11 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation).

Extremes.--1946-50: Maximum discharge, 3,120 cfs Apr. 9, 1947 (gage height, 8.17 ft, from graph based on gage readings); minimum observed, 56 cfs Sept. 6, 9, 10, 1946.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1946 | - | - | - | - | - | #767 | 292 | 207 | 300 | 124 | 70.1 | 64.6 | - |
| 1947 | 106 | 158 | 157 | 198 | 240 | 400 | 1,740 | 875 | 729 | 278 | 232 | 562 | 476 |
| 1948 | 397 | 466 | 527 | 351 | 366 | 1,075 | 926 | 1,044 | 428 | 340 | 159 | 169 | 522 |
| 1949 | 170 | 308 | 372 | 468 | 791 | 539 | 784 | 300 | 211 | 121 | 138 | 177 | 367 |
| 1950 | 234 | 210 | 450 | 892 | 640 | 1,062 | 1,580 | 698 | 474 | 213 | 145 | 327 | 591 |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1946 | - | - | - | - | - | #1.75 | 0.64 | 0.47 | 0.66 | 0.28 | 0.16 | 0.14 | - |
| 1947 | 0.24 | 0.35 | 0.36 | 0.45 | 0.49 | .91 | 3.84 | 1.99 | 1.61 | .63 | .67 | 1.24 | 12.78 |
| 1948 | .90 | 1.03 | 1.20 | .80 | .78 | 2.44 | 2.04 | 2.38 | .94 | .77 | .36 | .37 | 14.01 |
| 1949 | .39 | .68 | .85 | 1.07 | 1.62 | 1.36 | 1.73 | .68 | .47 | .28 | .31 | .39 | 9.83 |
| 1950 | .53 | .46 | 1.03 | 2.03 | 1.73 | 2.42 | 3.48 | 1.59 | 1.04 | .49 | .33 | .72 | 15.85 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of Huron River near Dexter, Mich.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | 1,140 | Mar. 12, 1946 | - | - | - | - | - | - |
| 1947 | 1084 | 3,120 | Apr. 9, 1947 | 72 | 476 | 0.941 | 12.78 | 558 | 14.96 |
| 1948 | 1114 | 1,750 | Mar. 24, 1948 | 105 | 522 | 1.03 | 14.01 | 476 | 12.80 |
| 1949 | 1144 | 1,450 | Feb. 20, 1949 | 100 | 367 | .725 | 9.83 | 371 | 9.93 |
| 1950 | 1174 | 2,340 | Apr. 7, 8, 1950 | 122 | 591 | 1.17 | 15.85 | - | - |

226. Huron River at Ann Arbor, Mich. 1/

Location.--Lat 42°17'10", long. 83°44'00", in NW $\frac{1}{4}$ sec. 28, T. 2 S., R. 6 E., on left bank 100 ft upstream from bridge on Wall Street in Ann Arbor, three-quarters of a mile downstream from Argo Dam, and 4 miles upstream from Geddes Dam.

Drainage area.--711 sq mi. 737 sq mi (revised) prior to 1914 and 702 sq mi (revised) 1914-47.

Gage.--Water-stage recorder. Datum of gage is 744.81 ft above mean sea level, datum of 1929 (levels by Michigan Department of Conservation). February 1904 to December 1914 at Geddes Dam, 4 miles downstream and January 1914 to September 1947 at Barton Dam, 3 miles upstream, headwater and tailwater gages.

Average discharge.--46 years (1904-50), 436 cfs.

Extremes.--1914-50: Maximum daily discharge, 5,840 cfs Mar. 14, 1918; minimum daily, 4 cfs Aug. 2, Sept. 11, 1931 (plant leakage), but may be doubtful due to change in leakage.

Remarks.--Flow regulated by Barton, Argo, and Geddes Power Plants. Discharge prior to 1948 determined by computation of flow through turbines over dam, and/or through undersluices. Discharge measurements made in 1942 and 1944 indicated total leakage at Barton of 22 cfs and 18 cfs, respectively, casting some doubt on minimums and low-flow periods prior to 1948. The effect on most of the record, however, is probably small.

Cooperation.--Records for 1904 furnished by L. E. Cooley, those for 1905-30 furnished by Gardner S. Williams, and those for 1931-47 furnished by Ayres, Lewis, Norris, and May.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1904 | - | - | - | - | 586 | 2,540 | 1,820 | 735 | 377 | 179 | 192 | 277 | - |
| 1905 | 320 | ±250 | ±270 | 224 | 191 | 837 | 746 | 671 | 1,220 | 454 | ±330 | ±300 | ±485 |
| 1906 | ±420 | ±480 | ±600 | 767 | 461 | 575 | 687 | 511 | 350 | 160 | 173 | 83.6 | ±441 |
| 1907 | 147 | 297 | 499 | 1,080 | 425 | 805 | 951 | 898 | 456 | 268 | 147 | 244 | 518 |
| 1908 | 352 | 396 | 511 | 748 | 1,070 | 2,220 | 978 | 703 | 450 | 150 | 294 | 152 | 668 |
| 1909 | 147 | 155 | 262 | 332 | 927 | 742 | 555 | 1,250 | 488 | 192 | 114 | 114 | 443 |
| 1910 | 134 | 390 | 454 | 524 | 552 | 927 | 548 | 850 | 436 | 134 | 106 | 159 | 434 |
| 1911 | 173 | 192 | 192 | 364 | 701 | 479 | 621 | 288 | 178 | 82.1 | 81.9 | 119 | 286 |
| 1912 | 364 | 495 | 531 | 275 | 246 | 927 | 1,820 | 697 | 277 | 115 | 307 | 390 | 537 |
| 1913 | 479 | 852 | 524 | 1,360 | 807 | 1,560 | 1,880 | 1,160 | 608 | 256 | 173 | 205 | 830 |
| 1914 | 268 | 436 | 531 | 349 | 362 | 630 | 854 | 1,293 | 343 | 372 | 208 | 394 | 506 |
| 1915 | 336 | 298 | 288 | 349 | 1,070 | 717 | 404 | 368 | 355 | 352 | 454 | 731 | 474 |
| 1916 | 526 | 400 | 384 | 888 | 816 | 1,200 | 1,650 | 1,010 | 762 | 331 | 159 | 135 | 680 |
| 1917 | 206 | 245 | 304 | 301 | 278 | 683 | 1,020 | 600 | 673 | 393 | 140 | 206 | 421 |
| 1918 | 249 | 315 | 226 | 163 | 1,260 | 2,310 | 838 | 398 | 160 | 98.5 | 74.5 | 134 | 498 |
| 1919 | 143 | 241 | 487 | 343 | 275 | 976 | 1,400 | 995 | 330 | 193 | 160 | 161 | 476 |
| 1920 | 228 | 358 | 338 | 190 | 205 | 1,210 | 782 | 478 | 252 | 138 | 138 | 132 | 372 |
| 1921 | 127 | 249 | 462 | 374 | 239 | 779 | 764 | 351 | 227 | 186 | 159 | 369 | 358 |
| 1922 | 327 | 557 | 682 | 401 | 462 | 819 | 1,620 | 661 | 261 | 140 | 117 | 155 | 517 |
| 1923 | 168 | 186 | 183 | 201 | 198 | 824 | 458 | 337 | 167 | 125 | 93.4 | 125 | 255 |
| 1924 | 138 | 167 | 321 | 276 | 275 | 860 | 757 | 469 | 374 | 242 | 112 | 124 | 343 |
| 1925 | 125 | 117 | 167 | 131 | 379 | 566 | 322 | 167 | 94.6 | 60.4 | 112 | 155 | 200 |
| 1926 | 410 | 682 | 444 | 357 | 460 | 1,250 | 1,620 | 426 | 241 | 118 | 181 | 337 | 542 |
| 1927 | 351 | 440 | 400 | 275 | 695 | 698 | 427 | 396 | 404 | 213 | 107 | 147 | 380 |
| 1928 | 208 | 278 | 789 | 597 | 581 | 533 | 670 | 358 | 360 | 212 | 180 | 131 | 408 |
| 1929 | 156 | 232 | 277 | 379 | 360 | 1,130 | 1,100 | 1,090 | 338 | 279 | 108 | 109 | 465 |
| 1930 | 218 | 387 | 410 | 1,040 | 910 | 643 | 799 | 487 | 252 | 125 | 68.0 | 107 | 468 |
| 1931 | 152 | 155 | 188 | 167 | 226 | 300 | 274 | 226 | 202 | 71.4 | 42.3 | 56.2 | 171 |
| 1932 | 79.4 | 155 | 187 | 413 | 426 | 323 | 430 | 495 | 288 | 119 | 103 | 226 | 270 |
| 1933 | 196 | 283 | 427 | 522 | 429 | 518 | 826 | 854 | 191 | 133 | 103 | 92 | 379 |
| 1934 | 133 | 178 | 221 | 235 | 145 | 199 | 990 | 211 | 72.0 | 31.5 | 21.1 | 55.8 | 206 |
| 1935 | 71.6 | 109 | 123 | 202 | 216 | 680 | 318 | 408 | 320 | 151 | 142 | 98.3 | 237 |
| 1936 | 105 | 268 | 247 | 189 | 229 | 775 | 544 | 260 | 125 | 62.4 | 28.8 | 90.0 | 244 |
| 1937 | 187 | 229 | 166 | 383 | 442 | 305 | 873 | 780 | 733 | 524 | 324 | 147 | 423 |
| 1938 | 169 | 210 | 234 | 301 | 1,272 | 1,029 | 762 | 460 | 363 | 157 | 120 | 127 | 427 |
| 1939 | 112 | 118 | 181 | 213 | 610 | 876 | 1,060 | 395 | 300 | 143 | 84.5 | 76.9 | 345 |
| 1940 | 132 | 152 | 149 | 149 | 150 | 374 | 780 | 343 | 334 | 175 | 112 | 210 | 254 |

* Not previously published; estimated on basis of records for nearby stations.

Note.--Monthly and yearly figures for period February 1904 to December 1914 revised; revised daily figures not available.

1/ Published as "at Geddes", 1904-14, and as "at Barton", 1914-40.

STREAMS TRIBUTARY TO LAKE ERIE

Monthly and yearly mean discharge, in cubic feet per second,
of Huron River at Ann Arbor, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|---------|---------|---------|-------|-------|-------|-------|----------|
| 1941 | 201 | 232 | 438 | 525 | 289 | 439 | 596 | 325 | 238 | 90.1 | 70.7 | 67.5 | 293 |
| 1942 | 141 | 257 | 235 | 228 | 332 | 1,161 | 745 | 279 | 404 | 130 | 145 | 135 | 349 |
| 1943 | 208 | 355 | 466 | 645 | 892 | 1,087 | 622 | 2,085 | 1,341 | 378 | 248 | 283 | 717 |
| 1944 | 244 | 433 | 246 | 201 | 451 | 745 | 891 | 701 | 393 | 132 | 66.3 | 89.0 | 382 |
| 1945 | 117 | 153 | 161 | 145 | 214 | 487 | 551 | 1,225 | 730 | 307 | 170 | 182 | 371 |
| 1946 | 435 | 290 | 263 | 526 | 477 | 982 | 345 | 258 | 352 | 131 | 72.5 | 80.7 | 351 |
| 1947 | 143 | 186 | 208 | 286 | 251 | 644 | 2,647 | 1,199 | 872 | 302 | 293 | 586 | 633 |
| 1948 | \$540 | \$630 | \$720 | \$470 | \$490 | \$1,500 | \$1,500 | \$1,500 | \$570 | \$450 | \$199 | 209 | 676 |
| 1949 | 205 | 411 | 424 | 673 | 1,254 | 744 | 1,044 | 407 | 273 | 215 | 150 | 193 | 493 |
| 1950 | 287 | 250 | 607 | 1,257 | 1,167 | 1,637 | 2,231 | 869 | 599 | 270 | 186 | 423 | 812 |

* Not previously published; estimated on basis of records for nearby stations.

Note.--Records for period October 1940 to September 1947 not previously published; only monthly figures available.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|------|------|--------|--------|--------|------|------|------|-------|----------|
| 1904 | - | - | - | - | 0.86 | 3.98 | 2.76 | 1.15 | 0.57 | 0.28 | 0.30 | 0.42 | - |
| 1905 | 0.50 | \$0.38 | \$0.42 | 0.35 | .27 | 1.31 | 1.13 | 1.05 | 1.84 | .71 | \$52 | \$45 | \$8.93 |
| 1906 | \$6.65 | \$7.73 | \$9.94 | 1.20 | .68 | .90 | 1.04 | .80 | .53 | .25 | .27 | .12 | \$8.11 |
| 1907 | .23 | .45 | .78 | 1.69 | .80 | 1.26 | 1.44 | 1.39 | .69 | .42 | .23 | .37 | 9.55 |
| 1908 | .55 | .60 | .80 | 1.17 | 1.57 | 3.47 | 1.49 | 1.10 | .68 | .23 | .46 | .23 | 12.34 |
| 1909 | .23 | .25 | .41 | .52 | 1.31 | 1.16 | .84 | 1.95 | .83 | .30 | .37 | .17 | 8.14 |
| 1910 | .21 | .59 | .71 | .82 | .78 | 1.45 | .83 | 1.33 | .66 | .21 | .16 | .24 | 7.99 |
| 1911 | .27 | .29 | .30 | .57 | .99 | .75 | .94 | .45 | .27 | .12 | .12 | .18 | 5.25 |
| 1912 | .57 | .75 | .83 | .43 | .36 | 1.45 | 2.75 | 1.09 | .42 | .18 | .48 | .59 | 9.90 |
| 1913 | .75 | 1.29 | .82 | 2.13 | 1.14 | 2.44 | 2.99 | 1.81 | .92 | .40 | .27 | .31 | 15.27 |
| 1914 | .42 | .66 | .83 | .58 | .57 | 1.03 | 1.36 | 2.12 | .55 | .61 | .34 | .63 | 9.70 |
| 1915 | .57 | .45 | .47 | .58 | 1.59 | 1.17 | .64 | .61 | .61 | .58 | .74 | 1.16 | 9.17 |
| 1916 | .87 | .64 | .63 | 1.46 | 1.26 | 1.97 | 2.46 | 1.66 | 1.20 | .55 | .26 | .22 | 13.18 |
| 1917 | .34 | .39 | .49 | .49 | .41 | 1.12 | 1.62 | .99 | 1.07 | .65 | .23 | .33 | 8.13 |
| 1918 | .41 | .50 | .37 | .27 | 1.87 | 3.80 | 1.01 | .65 | .26 | .16 | .12 | .22 | 9.64 |
| 1919 | .24 | .38 | .80 | .57 | .41 | 1.61 | 2.22 | 1.64 | .53 | .32 | .26 | .26 | 9.24 |
| 1920 | .37 | .57 | .56 | .31 | .32 | 1.98 | 1.24 | .78 | .40 | .23 | .23 | .21 | 7.20 |
| 1921 | .21 | .39 | .76 | .62 | .35 | 1.28 | 1.22 | .58 | .36 | .31 | .26 | .59 | 6.93 |
| 1922 | .54 | .89 | 1.12 | .66 | .72 | 1.34 | 2.57 | 1.08 | .41 | .23 | .20 | .25 | 10.01 |
| 1923 | .28 | .30 | .30 | .33 | .28 | 1.35 | .73 | .56 | .27 | .21 | .15 | .20 | 4.96 |
| 1924 | .23 | .27 | .53 | .45 | .41 | 1.41 | 1.20 | .77 | .60 | .40 | .19 | .20 | 6.66 |
| 1925 | .21 | .19 | .28 | .22 | .57 | .93 | .51 | .31 | .15 | .10 | .19 | .25 | 3.91 |
| 1926 | .67 | 1.08 | .73 | .59 | .68 | 2.05 | 2.57 | .70 | .38 | .20 | .30 | .54 | 10.49 |
| 1927 | .64 | .70 | .65 | .45 | 1.03 | 1.14 | .68 | .65 | .64 | .35 | .38 | .24 | 7.36 |
| 1928 | .34 | .44 | 1.30 | .38 | .90 | 1.88 | 1.06 | .59 | .56 | .35 | .30 | .21 | 7.35 |
| 1929 | .26 | .37 | .45 | .62 | .57 | 1.85 | 1.75 | 1.79 | .54 | .45 | .18 | .18 | 9.01 |
| 1930 | .36 | .62 | .67 | 1.71 | 1.35 | 1.39 | 1.28 | .80 | .40 | .21 | .11 | .18 | 9.08 |
| 1931 | .25 | .25 | .31 | .28 | .34 | .49 | .43 | .37 | .32 | .11 | .07 | .09 | 3.31 |
| 1932 | .13 | .25 | .31 | .68 | .66 | .54 | .68 | .81 | .45 | .20 | .16 | .36 | 5.23 |
| 1933 | .32 | .45 | .70 | .85 | .64 | .85 | 1.31 | 1.37 | .30 | .22 | .18 | .14 | 7.31 |
| 1934 | .22 | .28 | .36 | .38 | .22 | .31 | 1.58 | .35 | .11 | .05 | .03 | .09 | 3.98 |
| 1935 | .11 | .17 | .21 | .33 | .32 | 1.11 | .50 | .67 | .50 | .25 | .24 | .15 | 4.56 |
| 1936 | .18 | .42 | .40 | .31 | .35 | 1.27 | .87 | .43 | .20 | .10 | .05 | .14 | 4.72 |
| 1937 | .31 | .36 | .28 | .63 | .66 | .50 | 1.39 | 1.28 | 1.16 | .87 | .54 | .22 | 8.22 |
| 1938 | .28 | .33 | .38 | .49 | 1.88 | 1.69 | 1.20 | .75 | .58 | .26 | .20 | .21 | 8.25 |
| 1939 | .19 | .19 | .30 | .35 | .91 | 1.44 | 1.69 | .65 | .47 | .23 | .13 | .12 | 6.67 |
| 1940 | .22 | .24 | .25 | .25 | .23 | .62 | 1.24 | .57 | .54 | .29 | .19 | .33 | 4.97 |
| 1941 | .33 | .37 | .72 | .86 | .43 | .72 | .95 | .53 | .38 | .15 | .12 | .11 | 5.67 |
| 1942 | .23 | .41 | .39 | .38 | .49 | 1.91 | 1.18 | .46 | .64 | .21 | .24 | .21 | 6.75 |
| 1943 | .34 | .56 | .77 | 1.06 | 1.32 | 1.79 | .99 | 3.42 | 2.13 | .62 | .41 | .45 | 13.86 |
| 1944 | .40 | .69 | .40 | .33 | .69 | 1.22 | 1.42 | 1.15 | .62 | .22 | .11 | .14 | 7.39 |
| 1945 | .19 | .24 | .26 | .24 | .32 | .80 | .88 | 2.01 | 1.16 | .50 | .28 | .29 | 7.17 |
| 1946 | .71 | .46 | .43 | .86 | .71 | 1.61 | .55 | .42 | .56 | .21 | .12 | .13 | 6.77 |
| 1947 | .23 | .30 | .34 | .47 | .37 | 1.06 | 4.21 | 1.97 | 1.39 | .50 | .48 | .93 | 12.25 |
| 1948 | \$98 | \$99 | \$117 | \$76 | \$74 | \$2.43 | \$2.04 | \$2.43 | \$89 | \$73 | \$32 | \$33 | \$13.71 |
| 1949 | .33 | .64 | .69 | 1.09 | 1.83 | 1.21 | 1.64 | .66 | .43 | .35 | .24 | .30 | 9.41 |
| 1950 | .47 | .39 | .98 | 2.04 | 1.71 | 2.65 | 3.50 | 1.41 | .94 | .44 | .30 | .66 | 15.49 |

* Not previously published; estimated on basis of records for nearby stations.

Note.--Monthly and yearly figures for period February 1904 to December 1914 revised; revised daily figures not available. Records for period October 1940 to September 1947 not previously published; only monthly figures available.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Runoff in inches |
| | | Discharge | Date | | | | | |
| 1904 | 129 | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | \$485 | \$0.658 | \$8.93 | \$9.95 |
| 1906 | 244 | - | - | - | \$441 | \$598 | \$8.11 | \$7.25 |
| 1907 | 244 | - | - | - | \$518 | \$703 | \$9.55 | \$10.04 |
| 1908 | 244 | - | - | - | \$688 | \$906 | \$12.34 | \$11.28 |
| 1909 | 264 | - | - | - | \$443 | \$601 | \$8.14 | \$477 |
| 1910 | 284 | - | - | - | \$434 | \$589 | \$7.99 | \$399 |
| 1911 | 304 | - | - | - | \$286 | \$388 | \$5.25 | \$356 |
| 1912 | 324 | - | - | - | \$537 | \$729 | \$9.90 | \$575 |
| 1913 | 354 | - | - | - | \$830 | \$1.13 | \$15.27 | \$14.32 |
| 1914 | 384 | 3,266 | May 13, 1914 | 133 | \$506 | \$721 | \$9.70 | 479 |
| 1915 | 404 | 2,050 | Feb. 15, 1915 | 188 | 474 | .675 | 9.17 | 507 |

* Revised.

* Not previously published.

Yearly discharge, in cubic feet per second, of Huron River at Ann Arbor, Mich.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 434 | 3,951 | Mar. 27, 1916 | 22 | 680 | 0.969 | 13.18 | 632 | 12.26 |
| 1917 | 454 | 1,669 | Apr. 6, 1917 | 85 | 421 | .600 | 8.13 | 423 | 8.19 |
| 1918 | 474 | 5,840 | Mar. 14, 1918 | 18 | 498 | .709 | 9.64 | 505 | 9.78 |
| 1919 | 504 | 3,087 | Apr. 16, 1919 | 18 | 476 | .678 | 9.24 | 481 | 9.32 |
| 1920 | 504 | 2,485 | Mar. 16, 1920 | 20 | 372 | .530 | 7.20 | 365 | 7.06 |
| 1921 | 524 | 1,139 | Mar. 28, 1921 | 44 | 359 | .510 | 6.93 | 419 | 8.12 |
| 1922 | 544 | 3,357 | Apr. 18, 1922 | 6 | 517 | .736 | 10.01 | 431 | 8.34 |
| 1923 | 564 | 1,230 | Mar. 16, 1923 | 6 | 255 | .383 | 4.96 | 263 | 5.11 |
| 1924 | 584 | 1,750 | Mar. 5, 1924 | 6 | 343 | .489 | 6.66 | 325 | 6.31 |
| 1925 | 604 | 1,040 | Feb. 24, 1925 | 6 | 200 | .285 | 3.91 | 294 | 5.71 |
| 1926 | 624 | 2,950 | Apr. 9, 1926 | 32 | 542 | .772 | 10.49 | 517 | 10.01 |
| 1927 | 644 | 927 | Jan. 30, 1927 | 55 | 380 | .541 | 7.58 | 395 | 7.44 |
| 1928 | 664 | 942 | Dec. 16, 1927 | 53 | 408 | .561 | 7.93 | 356 | 6.93 |
| 1929 | 684 | 1,930 | Feb. 27, 1929 | 44 | 465 | .662 | 9.01 | 495 | 9.58 |
| 1930 | 699 | 1,820 | Feb. 26, 27, 1930 | 37 | 468 | .667 | 9.08 | 424 | 8.24 |
| 1931 | 729 | 467 | Mar. 29, 1931 | 4 | 171 | .244 | 3.31 | 165 | 3.19 |
| 1932 | 729 | 957 | May 27, 1932 | 61 | 270 | .385 | 5.23 | 310 | 6.01 |
| 1933 | 744 | 1,300 | May 1, 1933 | 53 | 379 | .540 | 7.31 | 348 | 6.70 |
| 1934 | 759 | 2,590 | Apr. 4, 1934 | 6 | 206 | .293 | 3.98 | 187 | 3.61 |
| 1935 | 784 | 1,160 | Mar. 11, 1935 | 51 | 237 | .338 | 4.56 | 263 | 5.07 |
| 1936 | 804 | 1,040 | Mar. 16, 1936 | 6 | 244 | .348 | 4.72 | 241 | 4.67 |
| 1937 | 824 | 1,960 | June 21, 1937 | 73 | 423 | .603 | 8.22 | 426 | 8.26 |
| 1938 | 874 | 2,140 | Feb. 18, 1938 | 71 | 427 | .608 | 8.25 | 411 | 7.94 |
| 1939 | 874 | 1,920 | Apr. 19, 1939 | 39 | 345 | .491 | 6.67 | 346 | 6.70 |
| 1940 | 894 | 1,260 | Apr. 4, 1940 | 57 | 254 | .362 | 4.97 | 291 | 5.68 |
| 1941 | - | 922 | Apr. 20, 1941* | 15 | 293 | \$.417 | \$5.67 | 272 | \$5.28 |
| 1942 | - | \$2,090 | Mar. 17, 1942* | 19 | 349 | \$.497 | \$6.75 | 392 | \$7.39 |
| 1943 | - | \$3,450 | May 11, 1943* | 108 | 1717 | \$1.02 | \$13.86 | 708 | \$13.68 |
| 1944 | - | \$1,300 | Feb. 27, 1944* | 24 | 382 | \$.544 | \$7.39 | 341 | \$6.59 |
| 1945 | - | \$2,890 | May 18, 1945* | 76 | 371 | \$.528 | \$7.17 | 418 | \$8.08 |
| 1946 | - | \$1,410 | Mar. 9, 1946* | 27 | 351 | \$.500 | \$6.77 | 313 | \$6.04 |
| 1947 | - | \$5,170 | Apr. 5, 1947* | 46 | 833 | \$.902 | \$12.25 | 747 | \$14.42 |
| 1948 | 1144 | - | - | 7 | 716 | \$1.01 | \$13.71 | 645 | \$12.33 |
| 1949 | 1144 | \$3,610 | Feb. 15, 1949 | 44 | 493 | .693 | 9.41 | 503 | 9.59 |
| 1950 | 1174 | \$4,730 | Apr. 4, 1950 | 116 | 812 | 1.14 | 15.49 | - | - |

* Not previously published.

a Momentary maximum.

227. Huron River at Flat Rock, Mich.

Location.--Lat 47°05'45", long. 83°17'45", in SW¼ sec. 31, T. 4 S., R. 10 E., on left downstream abutment of highway bridge at Flat Rock, 2,000 ft downstream from crossing of Detroit, Toledo and Ironton Railway.

Drainage area.--851 sq mi (revised).

Supplemental records available.--January 1912 to March 1922, gage heights only.

Gage.--Staff gage. Datum of gage is 578.5 ft above mean sea level (levels by G. S. Williams, consulting engineer).

Average discharge.--7 years (1904-11), 593 cfs.

Extremes.--1904-11: Maximum discharge, about 4,600 cfs during period of no gage-height record Mar. 7-20, 1908; minimum daily, 109 cfs July 26, 31, Aug. 2, 1911.

Remarks.--Flow regulated by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|----------|-------|-------|-------|------|------|-------|----------|
| 1904 | - | - | - | - | - | - | - | - | - | - | 210 | 320 | - |
| 1905 | 351 | 292 | 313 | *a270 | *a230 | \$a1,070 | 957 | 848 | 1,340 | 548 | 434 | 389 | *588 |
| 1906 | 513 | 612 | 753 | *960 | *a600 | 758 | 938 | 617 | 462 | 277 | 263 | 180 | *578 |
| 1907 | 259 | 419 | *a600 | 1,490 | *a500 | \$a1,000 | 903 | 909 | 610 | 357 | 253 | 306 | *636 |
| 1908 | 475 | 517 | 689 | 1,030 | 1,490 | 2,880 | 1,340 | 1,000 | 550 | 231 | 309 | 207 | 891 |
| 1909 | 227 | 258 | 336 | 408 | 995 | \$a1,000 | *a600 | 1,440 | 609 | 254 | 208 | 195 | *540 |
| 1910 | 227 | 449 | 588 | *a650 | *a650 | \$a1,200 | 688 | 1,080 | 509 | 179 | 167 | 200 | *549 |
| 1911 | 222 | 240 | 293 | *a500 | *a900 | 533 | 702 | 371 | 275 | 156 | 141 | 164 | *371 |
| 1912 | 447 | 638 | 674 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; partially estimated on basis of records for Huron River at Geddes.

a Only monthly figures revised; revised figures of daily discharge not available.

Monthly and yearly runoff, in inches, of Huron River at Flat Rock, Mich.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|--------|--------|--------|-------|------|------|------|-------|-------|----------|
| 1904 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1905 | 0.48 | 0.38 | 0.42 | *a0.37 | *a0.28 | *a1.45 | 1.25 | 1.15 | 1.76 | 0.74 | *0.28 | 0.42 | *9.38 |
| | | | | | | | | | | | .59 | .51 | |
| 1906 | .69 | .80 | 1.02 | *1.30 | *a.73 | 1.03 | 1.23 | .84 | .61 | .38 | .36 | .24 | *9.23 |
| 1907 | .35 | .55 | *a.81 | 2.02 | *a.61 | *a1.35 | 1.18 | 1.23 | .80 | .48 | .34 | .40 | *10.12 |
| 1908 | .64 | .68 | .93 | 1.40 | 1.89 | 3.87 | 1.76 | 1.35 | .72 | .31 | .42 | .27 | 14.24 |
| 1909 | .31 | .34 | .46 | .55 | 1.22 | *a1.35 | *a.79 | 1.95 | .80 | .32 | .28 | .26 | *8.63 |
| 1910 | .31 | .59 | .80 | *a.88 | *a.80 | *1.63 | .90 | 1.46 | .67 | .24 | .23 | .26 | *8.77 |
| 1911 | .30 | .31 | .40 | *a.68 | *a1.10 | .72 | .92 | .50 | .36 | .21 | .19 | .21 | *5.90 |
| 1912 | .61 | .84 | .91 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; partially estimated on basis of records for Huron River at Geddes.

a Only monthly figures revised; revised figures of daily discharge not available.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1904 | 170 | - | - | - | - | - | - | - | - |
| 1905 | 170 | \$2,540 | June 8, 1905* | - | *588 | *0.691 | *9.38 | *665 | *10.61 |
| 1906 | 206 | \$2,050 | Jan. 24, 1906* | 141 | *578 | *.679 | *9.23 | *527 | *8.43 |
| 1907 | 244 | \$2,240 | Jan. 21, 1907* | 148 | *636 | *.747 | *10.12 | *670 | *10.66 |
| 1908 | 244 | \$4,600 | (a) | 116 | 891 | 1.05 | 14.24 | 819 | 13.10 |
| 1909 | 264 | \$2,680 | May 2, 1909* | 124 | *540 | *.635 | *8.63 | *577 | *9.22 |
| 1910 | 284 | \$2,320 | May 4, 1910* | 140 | *549 | *.645 | *8.77 | *506 | *8.08 |
| 1911 | 304 | \$1,870 | Feb. 19, 1911* | 109 | *371 | *.436 | *5.90 | *455 | *7.25 |

* Revised.

* Not previously published.

a Occurred during period of no gage-height record Mar. 7-20, 1908.

228. River Raisin at Monroe, Mich.^{1/}

Location.--Lat 41°54'50", long. 83°23'15", on right bank 5 ft upstream from dam at municipal water-supply plant at Monroe, 4 miles upstream from mouth.

Drainage area.--1,020 sq mi, approximately.

Gage.--Water-stage recorder and concrete control. Datum of gage is 570.00 ft above mean sea level (levels by city of Monroe).

Average discharge.--13 years (1937-50), 724 cfs.

Extremes.--1937-50: Maximum discharge, 12,900 cfs May 19, 1945, Mar. 29, 1950; maximum gage height, 10.7 ft Feb. 1, 1949 (ice jam); minimum discharge, about 2 cfs Sept. 4, 1938, Sept. 19, 20, 1941; minimum gage height, 3.06 ft Oct. 12, 1946 (gates in dam open).

Remarks.--Some regulation by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|--------|-------|-------|-------|-------|-------|------|-------|----------|
| 1937 | - | - | - | - | - | - | - | - | - | - | - | 139 | - |
| 1938 | 186 | 148 | 220 | 614 | 1,633 | 2,038 | 1,603 | 548 | 552 | 192 | 164 | 113 | 660 |
| 1939 | 80.8 | 95.2 | 166 | 192 | *1,680 | 1,947 | 1,839 | 342 | 223 | 99.0 | 67.9 | 58.9 | *557 |
| 1940 | 71.2 | 95.4 | 111 | 131 | 153 | 538 | 790 | 257 | 274 | 138 | 69.8 | 98.5 | 227 |
| 1941 | 107 | 163 | 640 | 809 | 337 | 516 | 854 | 248 | 244 | 131 | 403 | 51.2 | 345 |
| 1942 | 130 | 451 | 431 | 324 | 1,271 | 2,524 | 1,300 | 314 | 632 | 157 | 258 | 206 | 662 |
| 1943 | 255 | 926 | 1,195 | 1,138 | 1,706 | 1,785 | 880 | 4,678 | 2,228 | 1,118 | 251 | 315 | 1,374 |
| 1944 | 218 | 418 | 226 | 199 | 824 | 1,779 | 2,180 | 1,257 | 1,023 | 257 | 118 | 101 | 714 |
| 1945 | 121 | 150 | 145 | 165 | 274 | 1,060 | 1,377 | 2,803 | 755 | 296 | 185 | 147 | 625 |
| 1946 | 578 | 249 | 350 | 1,012 | 732 | 1,574 | 313 | 250 | 402 | 113 | 57.5 | 56.7 | 474 |
| 1947 | 61.0 | 133 | 188 | 474 | 457 | 1,351 | 4,055 | 2,238 | 1,426 | 312 | 187 | 368 | 935 |
| 1948 | 283 | 412 | 648 | *508 | *1,292 | 3,012 | 1,445 | 1,350 | 324 | 226 | 116 | 138 | *813 |
| 1949 | 139 | 396 | 399 | 1,542 | 2,202 | 875 | 1,459 | 496 | 308 | 209 | 150 | 142 | 680 |
| 1950 | 359 | 215 | 872 | 2,959 | 2,245 | 3,583 | 3,860 | 893 | 480 | 350 | 133 | 289 | 1,347 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1937 | - | - | - | - | - | - | - | - | - | - | - | 0.15 | - |
| 1938 | 0.21 | 0.16 | 0.25 | 0.69 | 1.67 | 2.31 | 1.75 | 0.62 | 0.60 | 0.22 | 0.19 | .12 | 8.79 |
| 1939 | .09 | .10 | .19 | .22 | *1.72 | 2.20 | 2.01 | .39 | .24 | .11 | .08 | .06 | *7.41 |
| 1940 | .08 | .10 | .13 | .15 | .16 | .61 | .86 | .29 | .30 | .16 | .08 | .11 | 3.03 |
| 1941 | .12 | .18 | .72 | .91 | .34 | .58 | .93 | .28 | .27 | .15 | .05 | .06 | 4.59 |
| 1942 | .15 | .49 | .37 | 1.30 | 2.85 | 1.42 | .36 | .18 | .69 | .29 | .23 | .25 | 8.82 |
| 1943 | .30 | 1.01 | 1.35 | 1.29 | 1.74 | 2.02 | .96 | 5.29 | 2.43 | 1.27 | .28 | .34 | 18.28 |
| 1944 | .25 | .46 | .26 | .22 | .87 | 2.01 | 2.39 | 1.42 | 1.12 | .29 | .13 | .11 | 9.53 |
| 1945 | .14 | .18 | .16 | .19 | .28 | 1.20 | 1.51 | 3.17 | .80 | .33 | .21 | .16 | 8.33 |

* Revised.

^{1/} Published as Raisin River prior to 1953.

Monthly and yearly runoff, in inches, of River Raisin at Monroe, Mich.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|------|------|------|------|-------|----------|
| 1946 | 0.65 | 0.27 | 0.40 | 1.14 | 0.75 | 1.78 | 0.34 | 0.28 | 0.44 | 0.13 | 0.06 | 0.06 | 6.30 |
| 1947 | .07 | .14 | .21 | .54 | .47 | 1.52 | 4.44 | 2.52 | 1.56 | .35 | .21 | .40 | 12.43 |
| 1948 | .32 | .45 | .73 | *.57 | *1.37 | 3.40 | 1.58 | 1.52 | .35 | .26 | .13 | .15 | *10.83 |
| 1949 | .16 | .43 | .45 | 1.74 | 2.25 | .99 | 1.60 | .56 | .34 | .24 | .15 | .16 | 9.07 |
| 1950 | .41 | .24 | .99 | 5.34 | 2.29 | 4.05 | 4.22 | 1.01 | .53 | .40 | .15 | .32 | 17.95 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|------------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1937 | 854 | - | - | - | - | - | - | - | - |
| 1938 | 854 | 4,020 | Apr. 10, 1938 | 58 | 660 | 0.647 | 8.79 | 643 | 8.55 |
| 1939 | 874,1437 | *6,520 | Feb. 20, 1939 | - | *557 | *.546 | *7.41 | *551 | *7.34 |
| 1940 | 894 | 1,870 | Mar. 31, 1940 | 31 | 227 | .223 | 3.03 | 280 | 3.74 |
| 1941 | 924, 954 | 2,630 | Jan. 3, 1941 | 9 | 345 | .338 | 4.59 | 353 | 4.70 |
| 1942 | 954 | 5,700 | Mar. 9, 17, 1942 | 15 | 662 | .649 | 8.82 | 777 | 10.35 |
| 1943 | 974 | 10,900 | May 20, 1943 | 109 | 1,374 | 1.35 | 18.28 | 1,246 | 16.59 |
| 1944 | 1004 | 5,100 | June 24, 1944 | 69 | 714 | .700 | 9.53 | 678 | 9.04 |
| 1945 | 1034 | 12,900 | May 19, 1945 | 59 | 625 | .613 | 8.33 | 689 | 9.17 |
| 1946 | 1054 | 3,510 | Mar. 7, 1946 | 12 | 474 | .465 | 6.30 | 407 | 5.40 |
| 1947 | 1084 | 11,200 | Apr. 6, 1947 | 30 | 935 | .917 | 12.43 | 1,016 | 13.51 |
| 1948 | 1114,1437 | 8,350 | Mar. 22, 1948 | 47 | *813 | *.797 | *10.83 | *778 | *10.37 |
| 1949 | 1144 | 7,100 | Feb. 16, 1949 | 42 | 680 | .667 | 9.07 | 724 | 9.67 |
| 1950 | 1174 | 12,900 | Mar. 29, 1950 | 87 | 1,347 | 1.32 | 17.95 | - | - |

* Revised.

229. Tenmile Creek at Toledo, Ohio

Location.--Lat 41°39'29", long. 83°37'19", on line between secs. 31 and 32, T. 9 S., R. 7 E., at Secor Road Bridge at Toledo, a quarter of a mile upstream from Toledo University and 4½ miles west of Lucas County Courthouse.

Drainage area.--158 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 580.00 ft above mean sea level, datum of 1929.

Extremes.--1945-48: Maximum discharge, 1,930 cfs May 18, 1945 (gage height, 9.85 ft); no flow at times.

Flood of June 1, 1943, reached a stage of 11.4 ft, from floodmark, by Lucas County Sanitary Engineers (discharge, 3,400 cfs).

Flood of Apr. 25, 1950, reached a stage of 11.3 ft, from floodmark (discharge, 3,300 cfs).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | *107 | 184 | 358 | 80.3 | 10.4 | 2.07 | 2.15 | - |
| 1946 | 98.8 | 17.2 | 83.2 | 121 | 77.6 | 344 | 20.4 | 23.7 | 143 | 10.3 | .82 | .13 | 78.8 |
| 1947 | .85 | 3.04 | 6.14 | 31.0 | 39.1 | 94.0 | 357 | 304 | 187 | 12.9 | 13.4 | 15.0 | 88.5 |
| 1948 | 15.3 | 36.0 | 60.8 | 94.4 | 247 | 366 | 164 | 284 | 18.5 | 9.11 | 7.22 | 2.00 | 109 |

* Not previously published; partly estimated on basis of weather records and records for Bean Creek at Powers.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | *0.78 | 1.29 | 2.62 | 0.57 | 0.08 | 0.01 | 0.02 | - |
| 1946 | 0.72 | 0.12 | 0.61 | 0.88 | 0.51 | 2.51 | .14 | .17 | 1.01 | .07 | .006 | .0009 | 6.75 |
| 1947 | .006 | .02 | .04 | .23 | .26 | .69 | 2.52 | 2.21 | 1.32 | .09 | .10 | .11 | 7.60 |
| 1948 | .11 | .25 | .44 | .69 | 1.68 | 2.68 | 1.16 | 2.08 | .13 | .07 | .05 | .01 | 9.35 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | 1,930 | May 18, 1945 | 0 | - | - | - | - | - |
| 1946 | 1054 | 1,050 | Mar. 8, 1946 | 0 | 78.8 | 0.499 | 6.75 | 62.7 | 5.36 |
| 1947 | 1084 | 1,420 | June 3, 1947 | 0 | 88.5 | .560 | 7.60 | 97.1 | 8.33 |
| 1948 | 1114 | 1,680 | Feb. 29, 1948 | 1.4 | 109 | .690 | 9.35 | - | - |

230. St. Joseph River near Blakeslee, Ohio

Location.--Lat 41°31'05", long. 84°41'50", in SE $\frac{1}{4}$ sec. 36, T. 7 N., R. 1 E., at highway bridge 1 3/4 miles east of Blakeslee, Williams County, and 1 mile above Bear Creek.

Drainage area.--369 sq mi.

Gage.--Chain gage. Datum of gage is 819.94 ft above mean sea level.

Average discharge.--6 years (1926-32), 302 cfs.

Extremes.--1926-32: Maximum discharge, 5,460 cfs Dec. 1, 1927 (gage height, 14.8 ft, from graph based on gage readings), from rating curve extended above 3,300 cfs; minimum, 12 cfs Aug. 24-28, 31, Sept. 2, 1932 (gage height, 1.10 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|------|-------|-------|------|------|------|------|-------|----------|
| 1926 | - | - | - | - | - | - | - | - | - | - | - | 160 | - |
| 1927 | 198 | 245 | 222 | 115 | 815 | 533 | 420 | 195 | 327 | 54.9 | 27.2 | 30.6 | 261 |
| 1928 | 97.8 | 290 | 1,900 | 609 | 629 | 308 | 472 | 139 | 172 | 149 | 43.0 | 29.3 | 404 |
| 1929 | 32.5 | 70.7 | 216 | 737 | 377 | 1,410 | 1,260 | 662 | 129 | 114 | 35.1 | 31.0 | 424 |
| 1930 | 189 | 444 | 471 | 1,630 | 917 | 378 | 379 | 173 | 76.3 | 27.8 | 18.7 | 22.9 | 392 |
| 1931 | 33.6 | 33.8 | 59.1 | 76.5 | 93.6 | 222 | 128 | 66.0 | 265 | 96.4 | 33.2 | 33.1 | 94.8 |
| 1932 | 33.0 | 126 | 204 | 1,120 | 389 | 318 | 284 | 116 | 182 | 38.2 | 17.5 | 43.2 | 239 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1926 | - | - | - | - | - | - | - | - | - | - | - | 0.48 | - |
| 1927 | 0.62 | 0.74 | 0.69 | 0.36 | 2.30 | 1.66 | 1.27 | 0.61 | 0.99 | 0.17 | 0.09 | .09 | 9.59 |
| 1928 | .31 | .88 | 5.94 | 1.90 | 1.83 | .96 | 1.43 | .43 | .52 | .47 | .13 | .09 | 14.89 |
| 1929 | .10 | .21 | .67 | 2.31 | 1.06 | 4.40 | 3.80 | 2.06 | .39 | .36 | .11 | .09 | 15.56 |
| 1930 | .59 | 1.34 | 1.48 | 5.10 | 2.59 | 1.18 | 1.15 | .54 | .23 | .09 | .06 | .07 | 14.42 |
| 1931 | .10 | .10 | .18 | .24 | .26 | .69 | .39 | .21 | .80 | .30 | .10 | .10 | 3.47 |
| 1932 | .10 | .38 | .64 | 3.50 | 1.13 | .99 | .86 | .36 | .55 | .12 | .06 | .13 | 8.81 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1927 | 739 | 2,230 | Feb. 8, 1927 | 17 | 261 | 0.707 | 9.59 | 399 | 14.67 | | |
| 1928 | 739 | 5,460 | Dec. 1, 1927 | 22 | 404 | 1.09 | 14.89 | 238 | 8.74 | | |
| 1929 | 739 | 3,970 | Apr. 22, 1929 | 22 | 424 | 1.15 | 15.56 | 489 | 17.99 | | |
| 1930 | 739 | 3,420 | Jan. 4, 1930 | 14 | 392 | 1.06 | 14.42 | 310 | 11.39 | | |
| 1931 | 739 | 920 | June 9, 1931 | 17 | 94.8 | .257 | 3.47 | 115 | 4.21 | | |
| 1932 | 739 | 1,880 | Jan. 17, 24, 1932 | 12 | 239 | .648 | 8.61 | - | - | | |

231. St. Joseph River near Newville, Ind.

Location.--Lat 41°23'10", long. 84°48'05", in Ohio, in SW $\frac{1}{4}$ sec. 18, T. 5 N., R. 1 E., on left bank 20 ft downstream from bridge on Ohio State Highway 249 and 3 $\frac{1}{2}$ miles northeast of Newville.

Drainage area.--614 sq mi.

Gage.--Water-stage recorder. Datum of gage is 795.40 ft above mean sea level, datum of 1929. Prior to Oct. 22, 1947, wire-weight gage at same site and datum.

Extremes.--1946-50: Maximum discharge, 9,710 cfs Apr. 6, 1950 (gage height, 17.05 ft); minimum, 22 cfs Sept. 2-4, 1948 (gage height, 1.56 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1947 | #27.8 | #75.6 | 172 | 476 | 543 | 924 | 2,464 | 1,156 | 784 | 99.8 | 42.6 | 164 | #575 |
| 1948 | 75.3 | 204 | 453 | 386 | 841 | 1,778 | 805 | 824 | 152 | 83.9 | 37.5 | 30.4 | 472 |
| 1949 | 34.5 | 104 | 227 | 1,372 | 1,709 | 505 | 470 | 337 | 305 | 125 | 64.9 | 74.8 | 456 |
| 1950 | 191 | 69.9 | 671 | 2,545 | 1,493 | 2,178 | 3,102 | 597 | 329 | 457 | 124 | 377 | 1,008 |

* Not previously published; estimated on basis of records for St. Joseph River near Fort Wayne.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | #0.05 | #0.14 | 0.32 | 0.89 | 0.92 | 1.74 | 4.48 | 2.17 | 1.42 | 0.19 | 0.08 | 0.30 | #12.70 |
| 1948 | .14 | .37 | .85 | .73 | 1.48 | 3.34 | 1.46 | 1.55 | .28 | .16 | .07 | .06 | 10.49 |
| 1949 | .06 | .19 | .43 | 2.58 | 2.90 | .95 | .85 | .63 | .55 | .23 | .12 | .14 | 9.63 |
| 1950 | .36 | .13 | 1.26 | 4.78 | 2.53 | 4.09 | 5.64 | 1.12 | .60 | .86 | .23 | .69 | 22.29 |

* Not previously published; estimated on basis of records for St. Joseph River near Fort Wayne.

Yearly discharge, in cubic feet per second, of St. Joseph River near Newville, Ind.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | 6,050 | Apr. 23, 1947 | - | \$575 | \$0.936 | \$12.70 | 613 | 13.55 |
| 1948 | 1114 | 3,580 | Mar. 24, 1948 | 22 | 472 | .768 | 10.49 | 442 | 9.81 |
| 1949 | 1144 | 4,950 | Feb. 17, 1949 | 30 | 436 | .710 | 9.63 | 484 | 10.70 |
| 1950 | 1174 | 9,710 | Apr. 6, 1950 | 35 | 1,008 | 1.64 | 22.29 | - | - |

* Not previously published.

232. St. Joseph River at Hursh, Ind.

Location.--Lat 41°15', long. 84°57', in sec. 12, T. 32 N., R. 13 E., at Hurshtown Bridge at Hursh, three-quarters of a mile upstream from small tributary, 5½ miles upstream from Cedar Creek, and 14 miles northeast of Fort Wayne.

Drainage area.--737 sq mi.

Gage.--Wire-weight gage. Datum of gage is 769.68 ft above mean sea level, datum of 1929.

Extremes.--May to September 1950: Maximum discharge, 2,460 cfs July 22, 1950 (gage height, 7.10 ft); minimum, 100 cfs Aug. 27, 1950 (gage height, 3.55 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | 394 | 553 | 165 | 447 | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | - | - | 0.60 | 0.86 | 0.26 | 0.68 | - |

233. St. Joseph River at Cedarville, Ind.

Location.--Lat 41°12', long. 85°01', in SE¼ sec. 28, T. 32 N., R. 13 E., at highway bridge half a mile upstream from Cedar Creek and half a mile south of Cedarville.

Drainage area.--783 sq mi.

Gage.--Tape gage. Altitude of gage is 745 ft (from work-plan map by consulting engineers).

Extremes.--1931-32: Maximum daily discharge, 3,720 cfs Jan. 17, 1932 (gage height, 30.0 ft); minimum, 30 cfs Sept. 3, 1931.

Cooperation.--Records furnished by Hoad, Decker, Shoecraft and Drury, consulting engineers, Ann Arbor, Mich.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|-----|------|------|------|-------|----------|
| 1931 | - | - | - | 130 | 158 | 433 | 287 | 121 | 302 | 139 | 61.7 | 53.3 | - |
| 1932 | 69.3 | 217 | 325 | 1,930 | 704 | 613 | 494 | 183 | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | - | - | - | 0.19 | 0.21 | 0.64 | 0.41 | 0.18 | 0.43 | 0.21 | 0.09 | 0.08 | - |
| 1932 | 0.10 | 0.31 | 0.48 | 2.84 | .97 | .90 | .70 | .27 | - | - | - | - | - |

234. Cedar Creek at Auburn, Ind.

Location.--Lat 41°21', long. 85°03', in SW¼ sec. 29, T. 34 N., R. 13 E., on upstream side of Ninth Street Bridge in Auburn, 2 miles upstream from Peckhart ditch.

Drainage area.--93 sq mi, approximately.

Gage.--Wire-weight gage. Datum of gage is 847.14 ft above mean sea level (city of Auburn benchmark). Prior to Aug. 28, 1946, staff gage at same site and datum.

Average discharge.--7 years (1943-50), 78.0 cfs.

Extremes.--1943-50: Maximum discharge, 1,520 cfs (revised) Apr. 5, 1950 (gage height, 9.90 ft); minimum, 1.8 cfs Oct. 1, 1949.

Monthly and yearly mean discharge, in cubic feet per second, of Cedar Creek at Auburn, Ind.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|-------|-------|------|-------|----------|
| 1943 | - | - | - | - | - | - | - | - | - | - | 17.9 | 16.8 | - |
| 1944 | 8.59 | 25.2 | 13.5 | 8.95 | 62.0 | 209 | 338 | 113 | 50.2 | 11.4 | 4.62 | 3.12 | 70.2 |
| 1945 | 6.26 | 11.1 | 6.84 | 7.23 | 75.7 | 149 | 178 | 214 | 45.6 | 14.5 | 17.4 | 10.6 | 61.2 |
| 1946 | 55.1 | 17.4 | 31.7 | 81.3 | 106 | 90.9 | 21.0 | 22.5 | 127 | 15.5 | 5.50 | 7.41 | 48.0 |
| 1947 | 15.2 | 17.7 | 40.6 | 106 | 87.0 | 148 | *303 | *144 | *80.3 | *12.7 | 5.89 | 10.8 | *80.6 |
| 1948 | *18.3 | *30.4 | *60.6 | *89.0 | *179 | *201 | *100 | *134 | *36.9 | 12.7 | 6.39 | 3.87 | *72.4 |
| 1949 | 5.42 | 10.6 | *44.4 | 215 | *227 | 66.0 | 56.1 | 68.5 | 44.0 | 14.3 | 8.41 | 7.55 | *62.9 |
| 1950 | 28.1 | 9.82 | 103 | 425 | 231 | 346 | 362 | 50.5 | 45.0 | 91.9 | 22.2 | 99.3 | 151 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1943 | - | - | - | - | - | - | - | - | - | - | 0.22 | 0.20 | - |
| 1944 | 0.11 | 0.30 | 0.17 | 0.11 | 0.72 | 2.59 | 4.05 | 1.40 | 0.60 | 0.14 | 0.06 | 0.04 | 10.29 |
| 1945 | .08 | .13 | .08 | .09 | .85 | 1.85 | 2.13 | 2.66 | .55 | .18 | .22 | .13 | 8.95 |
| 1946 | .68 | .21 | .39 | 1.01 | 1.19 | 1.13 | .25 | .28 | 1.52 | .19 | .07 | .09 | 7.01 |
| 1947 | .15 | .21 | .50 | 1.31 | 1.97 | 1.85 | *3.54 | *1.79 | *.96 | *.16 | .07 | .13 | *11.76 |
| 1948 | *.23 | *.36 | *.75 | *1.10 | *2.06 | *2.50 | *1.20 | *1.66 | *.44 | .16 | .08 | .05 | *10.61 |
| 1949 | .07 | .13 | .55 | *2.66 | *2.54 | .82 | .67 | .85 | .53 | .18 | .10 | .09 | *9.19 |
| 1950 | .35 | .12 | 1.28 | 5.27 | 2.58 | 4.29 | 4.35 | .63 | .54 | 1.14 | .28 | 1.19 | 22.02 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1944 | 1004 | *1,230 | Apr. 12, 1944 | 2.4 | 70.2 | 0.755 | 10.29 | 68.3 | 10.00 | | |
| 1945 | 1034 | *1,150 | May 18, 1945 | 3.6 | 61.2 | .658 | 8.95 | 68.0 | 9.94 | | |
| 1946 | 1054 | 916 | June 13, 1946 | 2.8 | 48.0 | .516 | 7.01 | 45.4 | 6.63 | | |
| 1947 | 1084,1337 | 983 | Apr. 21, 1947 | 4.8 | *80.6 | *.867 | *11.76 | *83.6 | *12.20 | | |
| 1948 | 1114,1337 | 905 | Feb. 28, 1948 | 3.2 | *72.4 | *.778 | *10.61 | *68.4 | *10.02 | | |
| 1949 | 1144,1337 | 995 | Feb. 16, 1949 | 2.4 | *62.9 | *.676 | *9.19 | *69.8 | *10.19 | | |
| 1950 | 1174 | *1,520 | Apr. 5, 1950 | 2.0 | 151 | 1.62 | 22.02 | - | - | | |

* Revised.

235. Cedar Creek near Cedarville, Ind.

Location.--Lat 41°13', long. 85°05', in NW¹/₄ sec. 19, T. 32 N., R. 13 E., on left bank on downstream side of bridge on State Highway 427, 2 3/4 miles northwest of Cedarville and 4 miles upstream from mouth.

Drainage area.--279 sq mi.

Gage.--Water-stage recorder. Datum of gage is 780.09 ft above mean sea level, datum of 1929. Prior to Nov. 4, 1947, wire-weight gage at same site and datum.

Extremes.--1946-50: Maximum discharge, 4,870 cfs Apr. 5, 1950 (gage height, 11.67 ft); minimum, 12 cfs Oct. 3, 1949.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|------|-------|-------|-----|------|------|------|-------|----------|
| 1947 | *61.3 | 62.2 | 130 | 314 | 268 | 406 | 790 | 409 | 243 | 57.0 | 34.2 | 36.7 | *233 |
| 1948 | 95.2 | 109 | 179 | 277 | 585 | 660 | 334 | 406 | 124 | 53.1 | 37.1 | 24.9 | 240 |
| 1949 | 28.6 | 48.6 | 162 | 767 | 755 | 211 | 178 | 277 | 131 | 52.1 | 29.7 | 29.7 | 220 |
| 1950 | 122 | 49.0 | 328 | 1,393 | 717 | 1,057 | 1,130 | 185 | 270 | 262 | 82.9 | 236 | 485 |

* Not previously published; estimated on basis of records for Cedar Creek at Auburn, Ind.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1947 | *0.25 | 0.25 | 0.54 | 1.30 | 1.00 | 1.68 | 3.16 | 1.69 | 0.97 | 0.24 | 0.14 | 0.15 | *11.37 |
| 1948 | .39 | .44 | .74 | 1.15 | 2.26 | 2.73 | 1.34 | 1.68 | .49 | .22 | .15 | .10 | 11.69 |
| 1949 | .12 | .19 | .67 | 3.17 | 2.86 | .87 | .71 | 1.15 | .52 | .22 | .12 | .12 | 10.72 |
| 1950 | .51 | .20 | 1.35 | 5.76 | 2.68 | 4.37 | 4.52 | .77 | 1.08 | 1.08 | .34 | .94 | 23.60 |

* Not previously published; estimated on basis of records for Cedar Creek at Auburn, Ind.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1947 | 1084 | 3,050 | Apr. 21, 1947 | - | *233 | *0.835 | *11.37 | 244 | 11.90 | |
| 1948 | 1114 | 3,000 | Feb. 28, 1948 | 21 | 240 | .860 | 11.69 | 227 | 11.10 | |
| 1949 | 1144 | 3,980 | Feb. 16, 1949 | 18 | 220 | .789 | 10.72 | 242 | 11.80 | |
| 1950 | 1174 | 4,870 | Apr. 5, 1950 | 13 | 485 | 1.74 | 23.60 | - | - | |

* Not previously published.

236. St. Joseph River near Fort Wayne, Ind..

Location.--Lat 41°10', long. 85°04', in SW¹/₄SE¹/₄ sec. 4, T. 31 N., R. 13 E., at upstream side of bridge on Mayhew Road, 3½ miles downstream from Cedar Creek and 8 miles north-east of Fort Wayne.

Drainage area.--1,060 sq mi. Prior to July 1906, 1,091 sq mi.

Gage.--Water-stage recorder. Datum of gage is 751.42 ft above mean sea level, datum of 1929. Prior to July 1906, chain gage at bridge approximately 7½ miles downstream at different datum. Since Sept. 15, 1944, auxiliary water-stage recorder at St. Joe Dam 5½ miles downstream from base gage. Datum of auxiliary gage is 741.42 ft above mean sea level (Fort Wayne Water Co. benchmark).

Average discharge.--9 years (1941-50), 990 cfs.

Extremes.--1941-50: Maximum discharge, 12,200 cfs Apr. 7, 1950 (gage height, 17.90 ft); minimum daily, 27 cfs Aug. 21, 1941.

Remarks.--Flow affected at low stage by pumping plant 5½ miles below station. Prior to July 1906, small amount of diversion around station by canal taking off at dam 4 miles upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1905 | - | - | - | - | - | - | 1,544 | 3,380 | 1,654 | 394 | 154 | 157 | - |
| 1906 | 224 | 462 | 760 | 1,430 | 330 | 1,570 | 1,420 | 243 | 490 | - | - | - | - |
| 1941 | - | - | - | - | - | - | - | - | - | - | - | - | 51.5 |
| 1942 | 87.9 | 175 | 281 | 285 | 1,692 | 2,929 | 1,528 | 237 | 466 | 196 | 770 | 414 | 748 |
| 1943 | 275 | 1,342 | 1,208 | 1,422 | 1,908 | 2,280 | 822 | 5,819 | 1,511 | 1,310 | 220 | 374 | 1,527 |
| 1944 | 121 | 452 | 200 | 140 | 770 | 2,501 | 3,787 | 1,705 | 581 | 157 | 149 | 85.3 | 867 |
| 1945 | 110 | 105 | 92.6 | 99.2 | 662 | 1,665 | 2,047 | 2,967 | 535 | 280 | 385 | 135 | 774 |
| 1946 | 859 | 221 | 420 | 1,204 | 1,302 | 1,381 | 302 | 422 | 1,074 | 238 | 88.8 | 71.1 | 629 |
| 1947 | 77.6 | 159 | 358 | 932 | 982 | 1,492 | 3,537 | 1,765 | 1,238 | 228 | 106 | 217 | 920 |
| 1948 | 207 | 374 | 741 | 926 | 1,759 | 2,853 | 1,328 | 1,385 | 339 | 160 | 111 | 72.2 | 853 |
| 1949 | 87.8 | 214 | 520 | 2,604 | 2,861 | 876 | 773 | 851 | 515 | 214 | 102 | 111 | 798 |
| 1950 | 431 | 149 | 1,161 | 4,828 | 2,837 | 3,818 | 4,951 | 927 | 702 | 770 | 241 | 744 | 1,790 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | - | - | - | - | - | - | - | - | - | - | - | 0.05 | - |
| 1942 | 0.10 | 0.18 | 0.31 | 0.31 | 1.66 | 3.19 | 1.61 | 0.26 | 0.49 | 0.21 | 0.84 | .44 | 9.60 |
| 1943 | .30 | 1.41 | 1.31 | 1.55 | 1.87 | 2.48 | .86 | 6.33 | 1.38 | 1.43 | .24 | .39 | 19.55 |
| 1944 | .15 | .48 | .22 | .15 | .78 | 2.50 | 3.99 | 1.85 | .61 | .17 | .16 | .09 | 11.33 |
| 1945 | .12 | .11 | .10 | .11 | .85 | 1.81 | 2.15 | 3.25 | .56 | .30 | .42 | .14 | 9.30 |
| 1946 | .93 | .23 | .46 | 1.31 | 1.28 | 1.50 | .32 | .46 | 1.13 | .26 | .10 | .07 | 8.05 |
| 1947 | .08 | .17 | .39 | 1.01 | .97 | 1.62 | 3.72 | 1.92 | 1.30 | .25 | .11 | .23 | 11.77 |
| 1948 | .23 | .39 | .81 | 1.01 | 1.79 | 3.10 | 1.40 | 1.51 | .36 | .17 | .12 | .08 | 10.97 |
| 1949 | .10 | .23 | .57 | 2.83 | 2.81 | .95 | .81 | .93 | .54 | .23 | .11 | .12 | 10.23 |
| 1950 | .47 | .16 | 1.26 | 5.25 | 2.79 | 4.15 | 5.21 | 1.01 | .74 | .84 | .26 | .78 | 22.92 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | 6,650 | Mar. 18, 1942 | 38 | 748 | 0.706 | 9.60 | 939 | 12.03 |
| 1943 | 974 | 10,600 | May 18, 1943 | 144 | 1,527 | 1.44 | 19.55 | 1,355 | 17.36 |
| 1944 | 1004 | 10,100 | Apr. 12, 1944 | 62 | 867 | .818 | 11.33 | 829 | 10.63 |
| 1945 | 1034 | 10,000 | May 20, 1945 | 67 | 774 | .730 | 9.90 | 874 | 11.19 |
| 1946 | 1054 | 6,070 | June 14, 1946 | 55 | 629 | .593 | 8.05 | 552 | 7.07 |
| 1947 | 1084 | 6,970 | Apr. 24, 1947 | 51 | 920 | .868 | 11.77 | 981 | 12.56 |
| 1948 | 1114 | 6,750 | Feb. 29, 1948 | 58 | 853 | .805 | 10.97 | 811 | 10.44 |
| 1949 | 1144 | 8,820 | Feb. 16, 1949 | 63 | 798 | .753 | 10.23 | 877 | 11.22 |
| 1950 | 1174 | 12,200 | Apr. 7, 1950 | 69 | 1,790 | 1.69 | 22.92 | - | - |

237. St. Marys River near Willshire, Ohio

Location.--Lat 40°44'05", long 84°44'10", in sec. 34, T. 3 S., R. 1 E., at highway bridge three-quarters of a mile upstream from Black Creek, and 3 miles southeast of Willshire, Van Wert County.

Drainage area.--365 sq mi.

Gage.--Chain gage. Altitude of gage is 775 ft (from topographic map).

Average discharge.--7 years (1925-32), 277 cfs.

Extremes.--1925-32: Maximum discharge, 4,260 cfs Jan. 15, 1930 (gage height, 16.65 ft, from graph based on gage readings), from rating curve extended above 1,300 cfs; minimum, 5.3 cfs Aug. 20, 1932 (gage height, 1.18 ft).

Remarks.--Flow regulated by Lake St. Marys. Some diversion from or into Wabash River basin and into Miami & Erie Canal.

Monthly and yearly mean discharge, in cubic feet per second, of St. Marys River near Willshire, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1926 | 37.5 | 522 | 103 | *231 | *537 | 427 | 658 | 63.2 | 33.4 | 51.5 | 152 | 1,180 | *328 |
| 1927 | 711 | 238 | 327 | 451 | 848 | 938 | 780 | 704 | 232 | 40.0 | 22.2 | 22.3 | 425 |
| 1928 | 23.2 | 52.9 | 643 | 250 | 607 | 321 | 503 | 85.6 | 51.0 | 303 | 56.1 | 22.3 | 281 |
| 1929 | 31.6 | 33.8 | 101 | 684 | 309 | 586 | 530 | 443 | 96.3 | 279 | 299 | 35.4 | 287 |
| 1930 | 150 | 516 | 859 | 1,680 | 448 | 358 | 156 | 35.2 | 32.5 | 19.6 | 21.9 | 24.3 | 360 |
| 1931 | 27.3 | 25.9 | 25.0 | 22.9 | 30.9 | 80.2 | 220 | 37.0 | 23.8 | 45.7 | 27.8 | 48.9 | 51.1 |
| 1932 | 68.6 | 87.8 | 357 | 1,010 | 308 | 170 | 194 | 93.3 | 76.6 | 102 | 10.7 | 16.4 | 208 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624,1387 | 2,930 | Apr. 9, 1926 | 16 | *328 | - | - | 364 | - |
| 1927 | 644 | 3,960 | Mar. 22, 1927 | 16 | 425 | - | - | 395 | - |
| 1928 | 664 | 2,340 | Apr. 1, 1928 | 17 | 281 | - | - | 234 | - |
| 1929 | 684 | 2,740 | Feb. 28, 1929 | - | 287 | - | - | 401 | - |
| 1930 | 699 | 4,260 | Jan. 15, 1930 | 11 | 360 | - | - | 238 | - |
| 1931 | 714 | 565 | Apr. 3, 1931 | 9.8 | 51.1 | - | - | 87.9 | - |
| 1932 | 729 | 2,300 | Jan. 19, 1932 | 6.4 | 208 | - | - | - | - |

* Revised.

238. St. Marys River at Decatur, Ind.

Location.--Lat 40°51', long. 84°56', in SW¹/₄ sec. 27, T. 28 N., R. 14 E., on right bank 10 ft downstream from bridge on U. S. Highway 27, half a mile north of city limits of Decatur, and half a mile upstream from Holthouse ditch.

Drainage area.--615 sq mi.

Supplemental records available.--Gage-height records collected at site half a mile upstream since January 1932 are contained in reports of U. S. Weather Bureau.

Gage.--Water-stage recorder. Datum of gage is 760.44 ft above mean sea level, datum of 1929. Prior to July 27, 1948, wire-weight gage at same site and datum.

Extremes.--1946-50: Maximum discharge, 12,500 cfs Feb. 15, 1950 (gage height, 23.60 ft); minimum, 12 cfs Nov. 6, 1946 (gage height, 1.91 ft).

Remarks.--Flow regulated by Lake St. Marys. Some diversion from or into Wabash River basin and into Miami & Erie Canal.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|-------|-------|-------|-------|--------|------|------|-------|----------|
| 1947 | *17.0 | 24.7 | 136 | 819 | 452 | 560 | 1,352 | 1,491 | *1,495 | 317 | 113 | 137 | *575 |
| 1948 | 87.2 | 148 | 218 | 865 | 924 | 1,713 | 1,427 | 626 | 173 | 149 | 32.7 | 24.6 | 531 |
| 1949 | 34.5 | 367 | 840 | 2,236 | 1,542 | 673 | 474 | 571 | 423 | 286 | 126 | 84.2 | 619 |
| 1950 | 192 | 36.6 | 206 | 3,834 | 2,642 | 1,222 | 1,167 | 364 | 164 | 78.6 | 70.6 | 213 | 839 |

* Revised.

† Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084,1337 | *5,620 | June 2, 1947 | - | *575 | - | - | *598 | - |
| 1948 | 1114,1174 | 5,740 | Mar. 22, 1948 | 19 | 551 | - | - | 597 | - |
| 1949 | 1144 | 4,060 | Feb. 15, 1949 | 24 | 619 | - | - | 551 | - |
| 1950 | 1174 | 12,500 | Feb. 15, 1950 | 24 | 839 | - | - | - | - |

* Revised.

† Not previously published.

239. St. Marys River near Fort Wayne, Ind.

Location.--Lat 41°00', long. 85°07', in NE¹/₄ sec. 12, T. 29 N., R. 12 E., on left bank 130 ft downstream from highway bridge, 4 miles south of Fort Wayne, and 12 miles upstream from mouth.

Drainage area.--753 sq mi.

Gage.--Water-stage recorder. Datum of gage is 748.61 ft above mean sea level, unadjusted. Prior to Apr. 13, 1939, chain gage on highway bridge at same datum.

Average discharge.--20 years (1930-50), 527 cfs (revised).

Extremes.--1930-50: Maximum discharge, 13,400 cfs May 19, 1943 (gage height, 18.79 ft); minimum observed, 3.4 cfs Oct. 19, 1934 (gage height, 0.28 ft).

Remarks.--Flow regulated by Lake St. Marys. Some diversion from or into Wabash River basin and into Miami & Erie Canal.

Monthly and yearly mean discharge, in cubic feet per second, of St. Marys River near Fort Wayne, Ind.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1931 | *25 | *26 | 34.0 | 29.7 | 64.0 | 224 | 436 | 59.6 | 54.2 | 65.2 | 33.2 | 52.1 | *91.5 |
| 1932 | 98.1 | 103 | 571 | 1,930 | 523 | 253 | 337 | 182 | 103 | 184 | 13.9 | 38.4 | 365 |
| 1933 | 76.5 | 482 | 1,690 | 1,060 | 257 | 1,680 | 997 | 2,240 | *45.9 | *83.6 | *75.4 | 465 | *770 |
| 1934 | 465 | 59.3 | 174 | *312 | *120 | *992 | 750 | 64.1 | 69.1 | 61.0 | 60.4 | 41.2 | *266 |
| 1935 | 22.0 | 45.8 | 23.0 | 402 | 286 | 926 | 312 | 1,560 | 94.3 | 171 | 88.3 | 15.7 | 331 |
| 1936 | 15.7 | 32.2 | 48.0 | 135 | 1,102 | 1,337 | 306 | 317 | 41.1 | 11.9 | 13.9 | 13.3 | 279 |
| 1937 | 56.3 | 222 | 126 | 5,322 | 997 | 536 | 1,412 | 625 | 424 | 638 | 355 | 83.5 | 733 |
| 1938 | 217 | 78.9 | 986 | 319 | 1,190 | 2,248 | 2,339 | 133 | 347 | 247 | 135 | 43.6 | 687 |
| 1939 | 15.0 | 40.9 | 59.9 | 64.8 | 1,312 | 2,291 | 1,072 | 130 | 313 | 216 | 158 | 22.5 | 469 |
| 1940 | 61.9 | 24.7 | 46.5 | 153 | 397 | 997 | 1,715 | 199 | 553 | 98.8 | 33.5 | 22.1 | 356 |
| 1941 | 30.9 | 37.5 | 155 | 208 | 168 | 87.0 | 277 | 64.2 | 972 | 65.9 | 22.0 | 21.1 | 174 |
| 1942 | 66.0 | 54.9 | 93.2 | 113 | 1,282 | 1,464 | 1,409 | 219 | 177 | 36.3 | 230 | 74.8 | 422 |
| 1943 | 24.5 | 371 | 565 | 660 | 700 | 1,246 | 298 | 3,866 | 528 | 1,346 | 832 | 171 | 891 |
| 1944 | 64.1 | 147 | 42.0 | 28.1 | 371 | 1,489 | 2,743 | 710 | 289 | 26.4 | 44.7 | 11.6 | 495 |
| 1945 | 21.4 | 45.2 | 25.8 | 21.9 | 872 | 1,733 | 1,357 | 690 | 1,218 | 288 | 56.3 | 74.3 | 529 |
| 1946 | 407 | 267 | 465 | 1,030 | 651 | 969 | 90.7 | 484 | 812 | 382 | 55.1 | 23.7 | 470 |
| 1947 | *17.2 | *27.5 | 154 | 931 | 575 | 657 | 1,567 | 1,696 | 1,926 | 377 | 137 | 153 | *683 |
| 1948 | 96.0 | 167 | 267 | 1,069 | 1,235 | 2,165 | 1,610 | 798 | 176 | 188 | 38.8 | 26.8 | 651 |
| 1949 | 36.5 | 423 | 1,048 | 2,845 | 1,727 | 771 | 554 | 786 | 506 | 332 | 151 | 123 | 771 |
| 1950 | 330 | 47.1 | 348 | 4,897 | 3,259 | 1,625 | 1,643 | 448 | 190 | 75.3 | 63.8 | 335 | 1,093 |

* Revised.

* Not previously published; estimated on basis of weather records and records for Wabash River at Bloorfton.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 2,000 | Apr. 4, 1931 | - | *91.5 | - | - | 150 | - |
| 1932 | 729 | 4,440 | Jan. 17, 1932 | 9 | 363 | - | - | 487 | - |
| 1933 | 744, 1337 | 6,620 | May 14, 1933 | 14 | *770 | - | - | *640 | - |
| 1934 | 759 | 3,670 | Mar. 31, 1934 | - | *266 | - | - | *214 | - |
| 1935 | 784 | 4,830 | May 8, 1935* | 3.4 | 331 | - | - | 332 | - |
| 1936 | 804 | 7,500 | Feb. 27, 1936 | 7.6 | 279 | - | - | 304 | - |
| 1937 | 824 | 9,450 | Jan. 17, 1937 | 20 | 733 | - | - | 809 | - |
| 1938 | 854 | 7,400 | Apr. 11, 1938 | 12 | 687 | - | - | 587 | - |
| 1939 | 874 | 6,110 | Mar. 15, 1939 | 11 | 469 | - | - | 470 | - |
| 1940 | 894 | 4,960 | Apr. 22, 1940 | 11 | 356 | - | - | 364 | - |
| 1941 | 924 | 2,970 | June 13, 1941 | 13 | 174 | - | - | 173 | - |
| 1942 | 954, 974 | 5,070 | Apr. 13, 1942 | 12 | 422 | - | - | 484 | - |
| 1943 | 974 | 13,400 | May 19, 1943 | 19 | 891 | - | - | 832 | - |
| 1944 | 1004 | 8,930 | Apr. 13, 1944 | 7.1 | 495 | - | - | 461 | - |
| 1945 | 1034 | 5,150 | Apr. 2, 1945 | 6.7 | 529 | - | - | 618 | - |
| 1946 | 1054 | 3,500 | Jan. 1, 1946 | 15 | 470 | - | - | 391 | - |
| 1947 | 1084, 1337 | 7,150 | June 3, 1947 | 7.4 | *683 | - | - | 711 | - |
| 1948 | 1114 | 6,560 | Mar. 23, 1948 | 18 | 651 | - | - | 734 | - |
| 1949 | 1144 | 5,150 | May 23, 1949 | 23 | 771 | - | - | 706 | - |
| 1950 | 1174 | 12,300 | Feb. 16, 1950 | 24 | 1,093 | - | - | - | - |

* Revised.

* Not previously published.

Note.--Records for period 1925-27 have not been included herein because sufficient base data were not available for evaluation.

240. St. Marys River at Fort Wayne, Ind.

Location.--Lat 41°05', long. 85°09', in sec. 10, T. 30 N., R. 12 E., at Taylor Street Bridge, 2½ miles upstream from confluence with St. Joseph River.

Drainage area.--798 sq mi.

Gage.--Chain gage.

Remarks.--Flow regulated by Lake St. Marys. Some diversion from or into Wabash River basin and into Miami & Erie Canal.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1905 | - | - | - | - | - | - | - | - | 309 | 90.9 | 98.1 | 270 | - |
| 1906 | 81.9 | 145 | 386 | 586 | 157 | 945 | 1,120 | 43.6 | 61.1 | - | - | - | - |

241. Maumee River at New Haven, Ind.

Location.--Lat 41°05', long. 85°01', in SW $\frac{1}{4}$ sec. 1, T. 30 N., R. 13 E., on downstream side of highway bridge a quarter of a mile upstream from Wabash Railroad bridge, half a mile north of New Haven, and 6 miles downstream from confluence of St. Marys and St. Joseph Rivers.

Drainage area.--1,940 sq mi.

Gage.--Wire-weight gage. Datum of gage is 724.51 ft above mean sea level, datum of 1929.

Extremes.--1946-50: Maximum discharge, 19,100 cfs Feb. 16, 1950 (gage height, 21.4 ft).

Remarks.--Discharge computed for stages above 5.0 ft only. Flow regulated at low stage by powerplants above station. Flow slightly regulated by Lake St. Marys. Some diversion from or into Wabash River basin and into Miami & Erie Canal.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|--------|-------|-------|-------|-------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1947 | - | - | - | - | - | - | 5,515 | 3,701 | - | - | - | - | - |
| 1948 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1949 | - | - | - | 5,950 | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | 10,580 | 6,637 | 5,776 | 6,868 | - | - | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1947 | - | - | - | - | - | - | 3.17 | 2.20 | - | - | - | - | - |
| 1948 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1949 | - | - | - | 3.54 | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | 6.29 | 3.56 | 3.43 | 3.95 | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1947 | 1084 | 11,600 | June 3, 1947 | - | - | - | - | - | - | |
| 1948 | 1114 | 12,400 | Mar. 22, 1948 | - | - | - | - | - | - | |
| 1949 | 1144 | 13,200 | Feb. 17, 1949 | - | - | - | - | - | - | |
| 1950 | 1174 | 19,100 | Feb. 16, 1950 | - | - | - | - | - | - | |

242. Maumee River at Antwerp, Ohio

Location.--Lat 41°11'56", long. 84°44'40", in sec. 22, T. 3 N., R. 1 E., 425 ft downstream from bridge on State Highway 49, 1 mile north of Antwerp, 7 miles downstream from Indiana State line, and 10 miles upstream from Marie Delarme Creek.

Drainage area.--2,049 sq mi.

Supplemental records available.--Records of chemical analyses and water temperatures for the period October 1948 to September 1949 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 695.49 ft above mean sea level, adjustment of 1912. Prior to Sept. 13, 1925, chain gage at site 400 ft upstream at same datum.

Average discharge.--25 years (1921-35, 1939-50), 1,654 cfs.

Extremes.--1921-35, 1939-50: Maximum discharge, 26,200 cfs May 20, 1943 (gage height, 20.29 ft); minimum, 24 cfs Oct. 17, 1930, June 21, 22, 1933 (gage height, 0.32 ft).

Remarks.--Low flow slightly regulated by powerplant at Fort Wayne, Ind.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1921 | - | - | - | - | - | - | - | - | - | - | - | - | 218 |
| 1922 | 292 | *3,070 | 2,250 | *1,440 | *2,010 | 4,830 | 8,530 | 3,890 | 715 | 665 | 191 | 232 | *2,340 |
| 1923 | 191 | 201 | 436 | 1,960 | *1,780 | 5,720 | 1,230 | 2,790 | 304 | 568 | 325 | 400 | *1,330 |
| 1924 | 358 | 579 | 4,440 | 2,570 | 2,390 | 5,360 | 3,330 | 1,590 | 3,980 | 1,500 | 263 | 390 | *2,210 |
| 1925 | 203 | 194 | *1,750 | *286 | 3,320 | 5,180 | 561 | 348 | 254 | 744 | 243 | 235 | *1,100 |
| 1926 | 372 | 2,830 | *811 | *1,310 | 2,380 | 3,170 | 5,170 | 594 | 577 | 376 | 1,200 | 4,620 | *1,930 |
| 1927 | *2,970 | 1,410 | 989 | 1,410 | 5,000 | 4,780 | 4,070 | 2,730 | 1,890 | *324 | 217 | 162 | *2,140 |
| 1928 | 580 | 833 | 7,140 | 2,430 | 3,290 | 1,620 | 2,230 | 945 | 1,770 | 911 | 283 | 182 | 1,850 |
| 1929 | 168 | 252 | 569 | 3,390 | 1,450 | 4,820 | 5,150 | 3,760 | 714 | 1,150 | 845 | 214 | 1,880 |
| 1930 | 982 | 2,470 | 2,960 | 9,490 | 2,850 | 2,030 | 2,150 | 619 | 360 | 150 | 137 | 154 | 2,030 |

* Revised.

Monthly and yearly mean discharge, in cubic feet per second, of Maumee River
at Antwerp, Ohio--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|--------|-------|-------|--------|--------|-------|-------|-------|-------|----------|
| 1931 | 162 | 154 | 285 | 243 | 368 | 941 | 1,140 | 325 | 445 | 358 | 136 | 138 | 389 |
| 1932 | 230 | 423 | 1,100 | 5,019 | 1,770 | 1,110 | 1,280 | 631 | 490 | 556 | 114 | 372 | 1,090 |
| 1933 | 512 | 1,440 | 4,220 | 3,000 | 1,240 | 4,220 | 3,970 | 6,190 | 335 | 263 | 193 | 647 | 2,201 |
| 1934 | 839 | 193 | *359 | 679 | 181 | 1,962 | 3,273 | 325 | 169 | 152 | 181 | 192 | 710 |
| 1935 | 111 | 182 | 159 | 1,407 | 967 | 2,479 | 951 | 3,419 | 496 | 433 | 282 | 121 | 922 |
| 1936 | 134 | 209 | 273 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | - | *4,349 | 651 | 1,010 | 629 | 409 | 148 | - |
| 1940 | 188 | 195 | 215 | 402 | 922 | 2,930 | 3,387 | 798 | 1,678 | 353 | 150 | 188 | 946 |
| 1941 | 182 | 280 | 948 | 1,029 | 760 | 766 | 1,272 | 354 | 1,233 | 156 | 80.8 | 79.3 | 592 |
| 1942 | 224 | 275 | 447 | 474 | 3,817 | 4,807 | 3,378 | 538 | 839 | 270 | 1,370 | 656 | 1,406 |
| 1943 | 338 | 2,164 | 2,243 | 2,464 | 2,696 | 4,023 | 1,361 | 11,340 | 2,175 | 3,165 | 1,249 | 790 | 2,849 |
| 1944 | 255 | 697 | 261 | 190 | 1,223 | 4,371 | 8,029 | 2,844 | 1,035 | 187 | 148 | 104 | 1,605 |
| 1945 | 141 | 189 | 173 | 156 | 1,807 | 3,967 | 4,246 | 4,561 | 1,823 | 700 | 559 | 227 | 1,543 |
| 1946 | 1,569 | 514 | 1,009 | 2,922 | 2,204 | 2,810 | 470 | 1,121 | 2,310 | 770 | 162 | 109 | 1,329 |
| 1947 | 110 | 190 | 536 | 1,986 | 1,988 | 2,325 | 5,656 | 3,881 | 3,822 | 713 | 274 | 425 | 1,816 |
| 1948 | 356 | 639 | 1,172 | 2,347 | 3,424 | 6,111 | 3,500 | 2,715 | 582 | 436 | 166 | 116 | 1,795 |
| 1949 | 142 | 680 | 1,783 | 6,651 | 5,523 | 1,852 | 1,550 | 2,153 | 1,248 | 680 | 341 | 329 | 1,892 |
| 1950 | 898 | 254 | 1,799 | 11,570 | 7,451 | 6,182 | 7,683 | 1,646 | 1,284 | 969 | 423 | 1,638 | 3,459 |

* Revised.

* Not previously published; estimated on basis of weather records and records for stations at Defiance and Waterville.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|-------|------|-------|------|------|------|------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | - | - | - | 0.12 | - |
| 1922 | 0.16 | *1.67 | 1.27 | *0.81 | *1.02 | 2.72 | 4.64 | 2.19 | 0.39 | 0.37 | 0.11 | .13 | *15.48 |
| 1923 | .11 | .11 | .25 | 1.10 | *.90 | 3.22 | .67 | 1.57 | .17 | .32 | .18 | .22 | *8.82 |
| 1924 | .19 | .21 | 2.50 | 1.44 | 1.26 | 3.02 | 1.82 | .89 | 2.16 | .84 | .15 | .21 | 14.69 |
| 1925 | .11 | .11 | *.98 | *.16 | 1.69 | 2.92 | .31 | .20 | .14 | .42 | .14 | .13 | *7.31 |
| 1926 | .21 | 1.54 | *.46 | *.74 | 1.21 | 1.79 | 2.81 | .33 | .31 | .21 | .68 | 2.51 | *12.60 |
| 1927 | *1.67 | .77 | .56 | .79 | 2.54 | 2.69 | 2.22 | 1.53 | 1.03 | *.18 | .12 | .09 | *14.39 |
| 1928 | .53 | .45 | 4.01 | 1.37 | 1.74 | .91 | 1.22 | .53 | .96 | .51 | .16 | .10 | 12.29 |
| 1929 | .09 | .14 | .32 | 1.90 | 1.74 | 2.71 | 2.80 | 2.12 | .39 | .65 | .47 | .12 | 12.45 |
| 1930 | .55 | 1.35 | 1.66 | 5.34 | 1.45 | 1.14 | 1.17 | .35 | .20 | .08 | .08 | .08 | 13.45 |
| 1931 | .09 | .08 | .15 | .14 | .19 | .53 | .62 | .18 | .24 | .20 | .08 | .07 | 2.57 |
| 1932 | .13 | .23 | .62 | 2.82 | .93 | .62 | .69 | .56 | .27 | .31 | .06 | .20 | 7.24 |
| 1933 | .29 | .78 | 2.58 | 1.68 | .65 | 2.37 | 2.16 | 3.48 | .18 | .15 | .11 | .35 | 14.56 |
| 1934 | .47 | .10 | .20 | .38 | .09 | 1.10 | 1.79 | .18 | .09 | .09 | .10 | .10 | 4.69 |
| 1935 | .06 | .10 | .09 | .79 | .49 | 1.40 | .52 | 1.92 | .27 | .24 | .16 | .07 | 6.11 |
| 1936 | .07 | .11 | .15 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | - | *2.36 | .37 | .55 | .35 | .23 | .08 | - |
| 1940 | .11 | .11 | .12 | .23 | .48 | 1.65 | 1.84 | .45 | .91 | .20 | .08 | .10 | 6.28 |
| 1941 | .10 | .15 | .53 | .58 | .39 | .43 | .69 | .20 | .67 | .09 | .04 | .04 | 3.91 |
| 1942 | .13 | .15 | .25 | .27 | 1.94 | 2.71 | 1.84 | .30 | .46 | .15 | .77 | .36 | 9.33 |
| 1943 | .19 | 1.18 | 1.28 | 1.38 | 1.38 | 2.26 | .74 | 6.38 | 1.18 | 1.78 | .70 | .43 | 18.86 |
| 1944 | .14 | .38 | .15 | .11 | .64 | 2.46 | 4.37 | 1.60 | .56 | .10 | .08 | .06 | 10.65 |
| 1945 | .08 | .10 | .10 | .09 | .92 | 2.24 | 2.31 | 2.57 | .99 | .39 | .31 | .12 | 10.22 |
| 1946 | .88 | .28 | .57 | 1.65 | 1.12 | 1.58 | .26 | .63 | 1.26 | .43 | .09 | .06 | 8.81 |
| 1947 | .06 | .10 | .30 | 1.12 | 1.01 | 1.30 | 3.08 | 2.18 | 2.09 | .40 | .15 | .23 | 12.02 |
| 1948 | .20 | .35 | .66 | 1.33 | 1.80 | 3.44 | 1.91 | 1.53 | .32 | .25 | .09 | .06 | 11.94 |
| 1949 | .08 | .37 | 1.00 | 3.75 | 2.81 | 1.04 | .84 | 1.21 | .68 | .38 | .19 | .18 | 12.53 |
| 1950 | .50 | .14 | 1.01 | 6.51 | 3.79 | 3.48 | 4.18 | .93 | .70 | .55 | .24 | .89 | 22.92 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1921 | 544 | - | - | - | - | - | - | - | - | - | - |
| 1922 | 544,1387 | 14,700 | Apr. 2, 1922 | 148 | *2,340 | *1.14 | *15.48 | 1,940 | 12.85 | | |
| 1923 | 564,1387 | 14,400 | Mar. 18, 1923 | 145 | *1,330 | *.649 | *8.82 | 1,700 | 11.25 | | |
| 1924 | 584,1387 | 14,700 | Mar. 31, 1924 | 155 | 2,210 | 1.08 | 14.69 | 1,960 | 12.99 | | |
| 1925 | 604,1387 | 15,400 | Mar. 16, 1925 | 99 | *1,100 | *.537 | *7.31 | 1,250 | 8.32 | | |
| 1926 | 624,1387 | 15,600 | Apr. 10, 1926 | 160 | *1,930 | *.942 | *12.80 | 2,050 | 13.59 | | |
| 1927 | (a) | 12,700 | Mar. 24, 1927 | 75 | *2,140 | *1.04 | *14.19 | 2,410 | 15.98 | | |
| 1928 | 664 | *14,600 | Dec. 2, 1927 | 73 | 1,850 | .903 | 12.29 | 1,210 | 8.05 | | |
| 1929 | 684 | 11,600 | Apr. 2, 1929 | 63 | 1,880 | .918 | 12.45 | 2,330 | 15.46 | | |
| 1930 | 699 | 22,000 | Jan. 16, 1930 | 79 | 2,030 | .991 | 13.45 | 1,540 | 10.21 | | |
| 1931 | 714 | 3,380 | Apr. 5, 1931 | 29 | 389 | .190 | 2.57 | 487 | 3.23 | | |
| 1932 | 729 | 11,000 | Jan. 18, 1932 | 91 | 1,090 | .532 | 7.24 | 1,460 | 9.71 | | |
| 1933 | 744,1174 | 14,800 | May 12, 1933 | 26 | 2,201 | 1.07 | 14.56 | 1,798 | 11.88 | | |
| 1934 | 759,1387 | 7,780 | Apr. 1, 1934 | 46 | 710 | .347 | 4.69 | 631 | 4.17 | | |
| 1935 | 784 | 9,260 | May 7, 1935 | 40 | 922 | .450 | 6.11 | 936 | 6.19 | | |

* Revised.

* Not previously published.

a In W.S.P. 644, 1174, 1387.

STREAMS TRIBUTARY TO LAKE ERIE

Yearly discharge, in cubic feet per second, of Maumee River at Antwerp, Ohio--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1939 | 874 | - | - | - | - | - | - | - | - |
| 1940 | 894, 1174 | 11,000 | Mar. 4, 1940 | 83 | 946 | 0.462 | 6.28 | 1,015 | 6.72 |
| 1941 | 924 | 3,720 | June 14, 1941 | 57 | 592 | .289 | 3.91 | 553 | 3.66 |
| 1942 | 954 | 11,500 | Feb. 7, 1942 | 57 | 1,406 | .686 | 9.33 | 1,724 | 11.43 |
| 1943 | 974 | 26,200 | May 20, 1943 | 174 | 2,849 | 1.39 | 18.86 | 2,553 | 16.90 |
| 1944 | 1004 | 20,700 | Apr. 13, 1944 | 60 | 1,605 | .783 | 10.65 | 1,546 | 10.26 |
| 1945 | 1034 | 15,100 | May 18, 1945 | 69 | 1,543 | .753 | 10.22 | 1,762 | 11.67 |
| 1946 | 1054 | 8,840 | June 14, 1946 | 95 | 1,329 | .649 | 8.81 | 1,138 | 7.54 |
| 1947 | 1084 | 11,600 | June 4, 1947 | 77 | 1,816 | .886 | 12.02 | 1,928 | 12.77 |
| 1948 | 1114 | 13,400 | Mar. 23, 1948 | 101 | 1,785 | .876 | 11.94 | 1,832 | 12.18 |
| 1949 | 1144 | 13,700 | Feb. 17, 1949 | 114 | 1,892 | .923 | 12.53 | 1,922 | 12.73 |
| 1950 | 1174 | 20,000 | Feb. 17, 1950 | 122 | 3,459 | 1.69 | 22.32 | 3,958 | 26.09 |

243. Maumee River near Sherwood, Ohio

Location.--Lat 84°33'10", long 41°15'35", in SW $\frac{1}{4}$ sec. 32, T. 4 N., R. 3 E., at bridge 0.9 mile above Platter Creek and 2.5 miles south of Sherwood.

Drainage area.--2,190 sq mi.

Gage.--Chain gage. Altitude of gage is 660 ft above mean sea level (from topographic map).

Extremes.--1903-6: Maximum discharge, 19,100 cfs Mar. 27, 1904 (gage height, 19.9 ft, from graph based on gage readings); maximum observed stage, 22.5 ft Jan. 23, 1904 (backwater from ice gorge); minimum daily discharge, 95 cfs several days in November 1904.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | 1,313 | 287 | 255 | 689 | - |
| 1904 | 287 | 261 | - | - | - | - | 6,648 | 1,130 | 860 | 1,354 | 313 | 232 | - |
| 1905 | 229 | 113 | - | - | - | - | 2,471 | 4,582 | 2,709 | 534 | 280 | 508 | - |
| 1906 | 307 | 596 | 1,727 | 2,730 | 1,030 | 2,400 | 2,980 | 527 | 930 | - | - | - | - |
| 1914 | - | - | - | - | - | - | - | - | *639 | *519 | *306 | *416 | - |
| 1915 | *410 | *154 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; furnished by Corps of Engineers.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | 0.67 | 0.15 | 0.13 | 0.35 | - |
| 1904 | 0.15 | 0.13 | - | - | - | - | 3.39 | 0.60 | .44 | .71 | .16 | .32 | - |
| 1905 | .12 | .06 | - | - | - | - | 1.26 | 2.41 | 1.38 | .28 | .15 | .26 | - |
| 1906 | .16 | .30 | 0.91 | 1.44 | 0.49 | 1.27 | 1.52 | .28 | .47 | - | - | - | - |
| 1914 | - | - | - | - | - | - | - | - | *.36 | *.29 | *.17 | *.22 | - |
| 1915 | *.23 | *.08 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; furnished by Corps of Engineers.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 97 | - | - | - | - | - | - | - | - |
| 1904 | 129 | *19,100 | Mar. 27, 1904 | *145 | - | - | - | - | - |
| 1905 | 170 | *16,300 | May 13, 1905 | *95 | - | - | - | - | - |
| 1906 | 206 | *10,100 | Mar. 28, 1906 | - | - | - | - | - | - |
| 1914 | (a) | - | - | - | - | - | - | - | - |

* Not previously published.

a House Document 343, 65th Congress, 1st Session.

244. Bean Creek at Powers, Ohio

Location.--Lat 41°40'40", long. 84°13'50", in NE $\frac{1}{4}$ sec. 24, T. 9 S., R. 1 E., at bridge on U. S. Highway 20, 1 mile east of Powers and $2\frac{1}{4}$ miles upstream from Iron Creek.

Drainage area.--238 sq mi.

Gage.--Water-stage recorder. Datum of gage is 722.6 ft above mean sea level, adjustment of 1912. Prior to Jan. 18, 1941, wire-weight gage at same site and datum.

Average discharge.--10 years (1940-50), 175 cfs.

Extremes.--1940-50: Maximum discharge, 3,980 cfs Apr. 5, 1950 (gage height, 13.30 ft); minimum, 6.4 cfs Sept. 17, 1941.

Monthly and yearly mean discharge, in cubic feet per second, of Bean Creek at Powers, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1941 | 23.2 | 43.8 | 192 | 156 | 77.7 | 110 | 192 | 53.3 | 45.0 | 20.7 | 8.65 | 8.52 | 77.7 |
| 1942 | 19.4 | 49.5 | 59.3 | 42.7 | 278 | 579 | 285 | 55.2 | 47.5 | 20.3 | 41.8 | 37.5 | 125 |
| 1943 | 55.4 | 205 | 278 | 217 | 408 | 430 | 194 | 1,071 | 438 | 377 | 50.2 | 57.8 | 315 |
| 1944 | 34.7 | 70.6 | 40.1 | 39.1 | 199 | 388 | 489 | 294 | 122 | 29.7 | 15.8 | 13.7 | 144 |
| 1945 | 16.4 | 22.1 | 20.1 | 18.2 | 121 | 255 | 333 | 634 | 136 | 41.9 | 31.2 | 29.0 | 138 |
| 1946 | 119 | 49.3 | 106 | 227 | 258 | 321 | 77.1 | 66.5 | 51.9 | 23.3 | 10.3 | 10.6 | 110 |
| 1947 | 15.9 | 21.9 | 43.9 | 137 | 107 | 357 | 914 | 416 | 299 | 52.7 | 22.2 | 57.1 | 203 |
| 1948 | 32.4 | 61.0 | 117 | 67.4 | 499 | 605 | 302 | 249 | 53.1 | 33.6 | 17.9 | 17.2 | 170 |
| 1949 | 16.8 | 39.8 | 68.6 | 355 | 494 | 192 | 230 | 95.0 | 80.3 | 33.3 | 22.4 | 26.0 | 135 |
| 1950 | 57.6 | 33.9 | 210 | 703 | 534 | 817 | 1,019 | 192 | 118 | 114 | 34.4 | 134 | 329 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.11 | 0.21 | 0.93 | 0.76 | 0.34 | 0.53 | 0.90 | 0.26 | 0.21 | 0.10 | 0.04 | 0.04 | 4.43 |
| 1942 | .09 | .23 | .29 | .21 | 1.22 | 2.80 | 1.34 | .27 | .22 | 1.0 | .20 | .18 | 7.15 |
| 1943 | .27 | .96 | 1.35 | 1.05 | 1.78 | 2.09 | .91 | 5.19 | 2.05 | 1.82 | .24 | .27 | 17.98 |
| 1944 | .17 | .33 | .19 | .19 | .90 | 1.88 | 2.29 | 1.43 | .57 | .14 | .08 | .06 | 8.23 |
| 1945 | .08 | .10 | .10 | .09 | .53 | 1.23 | 1.56 | 3.07 | .64 | .20 | .15 | .14 | 7.89 |
| 1946 | .58 | .23 | .51 | 1.10 | 1.12 | 1.56 | .36 | .32 | .24 | .11 | .05 | .05 | 6.23 |
| 1947 | .07 | .10 | .21 | .66 | .47 | 1.73 | 4.28 | 2.02 | 1.41 | .25 | .11 | .27 | 11.58 |
| 1948 | .16 | .29 | .57 | .53 | 2.26 | 2.93 | 1.42 | 1.21 | .25 | .16 | .09 | .08 | 9.75 |
| 1949 | .08 | .19 | .33 | 1.72 | 2.17 | .93 | 1.08 | .46 | .38 | .16 | .11 | .12 | 7.73 |
| 1950 | .28 | .16 | 1.02 | 3.40 | 2.33 | 3.96 | 4.78 | .93 | .55 | .55 | .17 | .63 | 18.75 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1941 | 924 | 860 | Dec. 30, 1940 | 6.6 | 77.7 | 0.326 | 4.43 | 66.5 | 3.79 |
| 1942 | 954 | 1,760 | Mar. 9, 1942 | 9.1 | 125 | .525 | 7.15 | 160 | 9.12 |
| 1943 | 974 | 3,560 | May 12, 1943 | 24 | 315 | 1.32 | 17.98 | 282 | 16.09 |
| 1944 | 1004 | 1,600 | Mar. 16, 1944 | 12 | 144 | .605 | 8.23 | 137 | 7.82 |
| 1945 | 1034 | 3,650 | May 18, 1945 | 15 | 158 | .580 | 7.89 | 157 | 8.93 |
| 1946 | 1054 | 1,390 | Feb. 14, 1946 | 8.3 | 110 | .462 | 6.23 | 93.1 | 5.29 |
| 1947 | 1084 | 3,290 | Apr. 6, 21, 1947 | 11 | 203 | .853 | 11.58 | 214 | 12.22 |
| 1948 | 1114, 1387 | *2,430 | Feb. 28, 1948 | 13 | 170 | .714 | 9.75 | 163 | 9.33 |
| 1949 | 1144 | 2,980 | Feb. 15, 1949 | 13 | 135 | .567 | 7.73 | 150 | 8.59 |
| 1950 | 1174 | 3,980 | Apr. 5, 1950 | 18 | 329 | 1.38 | 18.75 | 362 | 20.63 |

* Revised.

245. Tiffin River at Stryker, Ohio 1/

Location.--Lat 41°30'05", long. 84°25'50", in SW¹/₄ sec. 5, T. 6 N., R. 4 E., at electric railroad bridge at west edge of Stryker.

Drainage area.--444 sq mi. Prior to 1929, 450 sq mi.

Gage.--Water-stage recorder. Datum of gage is 685.5 ft above mean sea level, adjustment of 1912. Prior to Sept. 30, 1928, chain gage at site 3 miles downstream at different datum. Oct. 13, 1940, to Jan. 17, 1941, staff gage at same site and datum.

Average discharge.--17 years (1921-28, 1940-50), 328 cfs.

Extremes.--1921-28, 1940-50: Maximum discharge, 6,640 cfs Apr. 25, 1950 (gage height, 15.45 ft); minimum, 5.0 cfs Sept. 20, 1941.

Flood of March 1913 reached a stage of 16.0 ft, from floodmarks (discharge, 7,600 cfs).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | - | - | - | - | 47.3 |
| 1922 | 67.3 | 340 | 410 | 228 | 273 | 826 | 1,794 | 431 | 88.6 | 53.0 | 28.1 | 57.7 | 582 |
| 1923 | 44.9 | 70.2 | 74.5 | 209 | 239 | 1,122 | 243 | 285 | 85.9 | 33.7 | 120 | 106 | 220 |
| 1924 | 45.9 | 62.3 | 722 | 385 | 254 | 1,140 | 453 | 164 | 363 | 258 | 54.0 | 36.5 | 330 |
| 1925 | 28.9 | 34.5 | *106 | *35.6 | 622 | 1,161 | 107 | 74.4 | 35.8 | 49.7 | 18.6 | 32.4 | *190 |
| 1926 | 63.6 | 462 | 180 | 390 | 720 | 934 | 1,093 | 101 | 94.5 | 29.0 | 41.9 | 347 | 367 |
| 1927 | 315 | 313 | 278 | 178 | 920 | 697 | 380 | 120 | 307 | 38.3 | 18.5 | 23.9 | 294 |
| 1928 | 57.4 | 130 | 1,785 | 770 | 739 | 405 | 585 | 146 | 175 | 128 | 33.4 | 28.9 | 415 |
| 1941 | 43.8 | 69.7 | 341 | 331 | 153 | 213 | 354 | 75.3 | 61.2 | 34.7 | 9.76 | 8.77 | 141 |
| 1942 | 30.8 | 72.5 | 85.7 | 81.5 | 534 | 1,265 | 529 | 81.0 | 81.1 | 32.9 | 66.2 | 40.5 | 281 |
| 1943 | 51.7 | 253 | 540 | 454 | 747 | 826 | 288 | 2,112 | 764 | 761 | 68.2 | 132 | 584 |
| 1944 | 46.4 | 170 | 57.5 | 44.9 | 332 | 857 | 1,210 | 639 | 204 | 40.4 | 23.0 | 17.0 | 300 |
| 1945 | 21.2 | 28.9 | 28.5 | 27.3 | 142 | 458 | 701 | 1,309 | 215 | 57.7 | 39.7 | 36.5 | 256 |
| 1946 | 247 | 82.0 | 153 | 426 | 420 | 611 | 106 | 104 | 126 | 57.1 | 13.9 | 16.5 | 196 |
| 1947 | 28.3 | 41.8 | 85.1 | 251 | 296 | 645 | 1,584 | 785 | 688 | 81.4 | 31.5 | 87.2 | 382 |
| 1948 | 51.3 | 129 | 278 | 206 | 717 | 1,204 | 534 | 525 | 91.1 | 55.8 | 26.5 | 24.3 | 319 |
| 1949 | 28.8 | 111 | 184 | 903 | 1,028 | 291 | 427 | 188 | 139 | 45.7 | 31.4 | 48.6 | 280 |
| 1950 | 145 | 51.3 | 481 | 1,597 | 1,222 | 1,451 | 1,990 | 338 | 233 | 297 | 53.4 | 236 | 671 |

* Revised.

1/ Published as "near Stryker", 1921-28.

Monthly and yearly runoff, in inches, of Tiffin River at Stryker, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1921 | | | | | | | | | | | | 0.14 | - |
| 1922 | 0.17 | 0.84 | 1.05 | 0.58 | 0.63 | 2.12 | 4.45 | 1.10 | 0.22 | 0.14 | 0.07 | .14 | 11.51 |
| 1923 | .12 | .17 | .19 | .53 | .55 | 2.87 | 1.60 | .75 | .21 | .09 | .51 | .26 | 6.65 |
| 1924 | .12 | .15 | 1.84 | .99 | .61 | 2.92 | 1.15 | .42 | .90 | .66 | .14 | .09 | 9.97 |
| 1925 | .07 | .09 | *.27 | *.09 | 1.44 | 2.97 | .27 | .19 | .09 | .13 | .05 | .08 | *5.74 |
| 1926 | .16 | 1.15 | .46 | 1.00 | 1.67 | 2.40 | 2.71 | .26 | .23 | .07 | .11 | .86 | 11.08 |
| 1927 | .81 | .78 | .71 | 4.46 | 2.12 | 1.79 | .94 | .31 | .76 | .10 | .05 | .06 | 8.89 |
| 1928 | .15 | .32 | 4.58 | 1.97 | 1.77 | 1.04 | 1.45 | .37 | .43 | .33 | .09 | .07 | 12.57 |
| 1941 | .11 | .18 | .89 | .86 | .36 | .55 | .89 | .20 | .15 | .09 | .03 | .02 | 4.33 |
| 1942 | .08 | .18 | .22 | .21 | 1.25 | 3.29 | 1.33 | .21 | .22 | .09 | .17 | .10 | 7.35 |
| 1943 | .13 | .64 | 1.41 | 1.18 | 1.75 | 2.14 | .72 | 5.49 | 1.92 | 1.97 | .18 | .33 | 17.86 |
| 1944 | .12 | .43 | .15 | .12 | .81 | 2.18 | 3.05 | 1.65 | .51 | .10 | .06 | .04 | 9.23 |
| 1945 | .06 | .07 | .07 | .07 | .33 | 1.19 | 1.76 | 3.40 | .54 | .15 | .10 | .09 | 7.83 |
| 1946 | .64 | .21 | .40 | 1.11 | .99 | 1.59 | .27 | .27 | .32 | .15 | .04 | .04 | 6.03 |
| 1947 | .07 | .10 | .22 | .65 | .69 | 1.67 | 3.98 | 2.04 | 1.73 | .21 | .08 | .22 | 11.86 |
| 1948 | .13 | .32 | .72 | .55 | 1.74 | 3.12 | 1.34 | 1.36 | .23 | .15 | .07 | .06 | 9.77 |
| 1949 | .07 | .28 | .46 | 2.34 | 2.42 | .76 | 1.07 | .49 | .35 | .12 | .08 | .12 | 8.58 |
| 1950 | .38 | .13 | 1.24 | 4.15 | 2.86 | 3.77 | 5.00 | .88 | .59 | .77 | .14 | .59 | 20.50 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1922 | 544,1144 | 4,820 | Apr. 1, 1922 | 19 | 382 | 0.849 | 11.51 | 329 | 9.93 |
| 1923 | 564,1144 | 3,650 | Mar. 17, 1923 | 16 | 220 | .489 | 6.63 | 275 | 8.26 |
| 1924 | 584,1144 | 4,820 | Mar. 7, 1924 | 23 | 330 | .733 | 9.97 | 274 | 8.29 |
| 1925 | (a) | 3,650 | Mar. 16, 1925 | 10 | *190 | *.422 | *5.74 | 235 | 7.08 |
| 1926 | 624,1144 | 4,220 | Feb. 27, 1926 | 16 | 367 | .816 | 11.08 | 385 | 11.61 |
| 1927 | 644,1144 | 2,140 | Feb. 8, 1927 | 12 | 294 | .653 | 8.89 | 386 | 11.64 |
| 1928 | 664,1144 | 4,970 | Dec. 15, 1927 | 20 | 415 | .922 | 12.57 | - | - |
| 1941 | 924 | 1,140 | Jan. 1, 1941 | 5.2 | 141 | .318 | 4.33 | 119 | 3.63 |
| 1942 | 954 | 3,280 | Mar. 10, 1942 | 15 | 241 | .543 | 7.35 | 296 | 9.05 |
| 1943 | 974 | 5,060 | May 20, 1943 | 34 | 584 | 1.32 | 17.86 | 536 | 16.38 |
| 1944 | 1004 | 3,800 | Apr. 12, 1944 | 13 | 300 | .676 | 9.23 | 284 | 8.73 |
| 1945 | 1034 | 5,690 | May 18, 1945 | 19 | 256 | .577 | 7.83 | 291 | 8.88 |
| 1946 | 1054 | 1,450 | Feb. 17, 1946 | 11 | 196 | .441 | 6.03 | 169 | 5.17 |
| 1947 | 1084 | 5,160 | Apr. 22, 1947 | 11 | 382 | .860 | 11.66 | 408 | 12.44 |
| 1948 | 1114 | 3,080 | Mar. 1, 1948 | 15 | 319 | .718 | 9.77 | 308 | 9.43 |
| 1949 | 1144 | 4,240 | Feb. 16, 1949 | 19 | 280 | .631 | 8.58 | 311 | 9.50 |
| 1950 | 1174 | 6,640 | Apr. 25, 1950 | 22 | 671 | 1.51 | 20.50 | - | - |

* Revised.

a In W.S.P. 604, 1144, 1387.

246. Tiffin River near Brunersburg, Ohio 1/

Location.--Lat 41°20'50", long. 84°25'10", on line between secs. 32 and 33, T. 5 N., R. 4 E., three-eighths of a mile downstream from Mud Creek and 3 miles northwest of Brunersburg, Defiance County.

Drainage area.--766 sq mi. Prior to Dec. 27, 1914, 776 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 670 ft (from topographic map). Prior to Dec. 27, 1914, chain gage at site 3 miles downstream at different datum.

Average discharge.--7 years (1928-35), 451 cfs.

Extremes.--1928-35: Maximum discharge, 9,990 cfs Jan. 14, 1930 (gage height, 23.3 ft), from rating curve extended above 4,800 cfs; minimum, 2.6 cfs July 30, 31, 1934 (gage height, 0.41 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1903 | | | | | | | | | 740 | 311 | 288 | 607 | - |
| 1904 | 159 | 141 | - | - | - | - | 1,865 | 328 | 209 | 270 | 109 | 49.7 | - |
| 1905 | 68.6 | 36.7 | - | - | - | 1,287 | 803 | 1,454 | 917 | 917 | 57.8 | 62.0 | - |
| 1906 | 76.8 | 197 | - | - | - | 714 | - | - | - | - | - | - | - |
| 1914 | - | - | - | - | - | - | - | - | *151 | *50 | *51 | *73 | - |
| 1915 | *138 | *52 | - | - | - | - | - | - | - | - | - | - | - |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | 30.4 | - |
| 1929 | 30.9 | 58.6 | 271 | 1,440 | 743 | 2,000 | 2,360 | 1,080 | 143 | 181 | 36.3 | 32.6 | 699 |
| 1930 | 497 | 1,180 | 925 | 5,010 | 1,560 | 723 | 1,080 | 188 | 73.0 | 27.0 | 18.8 | 15.3 | 771 |
| 1931 | 27.8 | 31.4 | 55.5 | 78.9 | 121 | 292 | 204 | 60.1 | 224 | 186 | 33.0 | 25.5 | 111 |
| 1932 | 25.3 | 170 | 399 | 2,320 | 694 | 496 | 460 | 161 | 154 | 128 | 14.3 | 108 | 428 |
| 1933 | 100 | 525 | 1,470 | 1,010 | 580 | 1,310 | 1,530 | 1,950 | 76.0 | 32.6 | 21.6 | 37.6 | 721 |
| 1934 | 42.5 | 41.7 | 55.1 | 101 | 43.8 | 378 | 1,661 | 79.4 | 33.0 | 10.4 | 31.6 | 23.4 | 207 |
| 1935 | 16.7 | 29.7 | 32.7 | 305 | 299 | 700 | 235 | 801 | 80.9 | 55.3 | 34.4 | 16.6 | 218 |
| 1936 | 23.3 | 53.8 | 61.8 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; furnished by Corps of Engineers.

1/ Published as "near Defiance", 1903-6, 1914-15.

Monthly and yearly runoff, in inches, of Tiffin River near Brunersburg, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | 1.06 | 0.46 | 0.43 | 0.87 | - |
| 1904 | 0.24 | 0.20 | - | - | - | - | 2.68 | 0.49 | .30 | .40 | .16 | .07 | - |
| 1905 | .10 | .05 | - | - | - | 1.91 | 1.15 | 2.16 | 1.32 | .37 | .09 | .09 | - |
| 1906 | .11 | .28 | - | - | - | 1.06 | - | - | - | - | - | - | - |
| 1914 | - | - | - | - | - | - | - | - | +.22 | +.07 | +.08 | +.10 | - |
| 1915 | +.21 | +.07 | - | - | - | - | - | - | - | - | - | - | - |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | .04 | - |
| 1929 | .05 | .08 | 0.41 | 2.17 | 1.01 | 3.01 | 3.44 | 1.63 | .21 | .27 | .05 | .05 | 12.38 |
| 1930 | .75 | 1.72 | 1.39 | 4.53 | 2.12 | 1.09 | 1.57 | .28 | .11 | .04 | .03 | .02 | 13.65 |
| 1931 | .04 | .05 | .08 | .12 | .16 | .44 | .30 | .09 | .33 | .28 | .05 | .04 | 1.98 |
| 1932 | .04 | .25 | .60 | 3.49 | .98 | .75 | .67 | .24 | .22 | .19 | .02 | .16 | 7.61 |
| 1933 | .15 | .76 | 2.21 | 1.52 | .79 | 1.97 | 2.23 | 2.91 | .11 | .05 | .03 | .05 | 12.78 |
| 1934 | .06 | .06 | .08 | .15 | .06 | .57 | 2.42 | .12 | .05 | .02 | .05 | .03 | 3.67 |
| 1935 | .03 | .04 | .05 | .46 | .41 | 1.05 | .34 | 1.21 | .12 | .08 | .05 | .02 | 3.86 |
| 1936 | .03 | .08 | .09 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; furnished by Corps of Engineers.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 97 | - | - | - | - | - | - | - | - |
| 1904 | 129 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | - | - | - | - | - |
| 1906 | 206 | - | - | - | - | - | - | - | - |
| 1914 | (a) | - | - | - | - | - | - | - | - |
| 1915 | (a) | - | - | - | - | - | - | - | - |
| 1928 | 664 | - | - | - | - | - | - | - | - |
| 1929 | 684 | 6,750 | Feb. 27, 1929 | 22 | 699 | 0.913 | 12.38 | 886 | 15.70 |
| 1930 | 714 | 9,990 | Jan. 14, 1930 | 11 | 771 | 1.01 | 13.65 | 563 | 9.96 |
| 1931 | 714 | 1,000 | Mar. 28, 1931 | 10 | 111 | .145 | 1.98 | 152 | 2.70 |
| 1932 | 729 | 4,420 | Jan. 18, 1932 | 9.9 | 428 | .559 | 7.61 | 554 | 9.84 |
| 1933 | 744 | 7,380 | Mar. 14, 1933 | 13 | 721 | .941 | 12.78 | 556 | 9.86 |
| 1934 | 759 | 5,600 | Apr. 6, 1934 | 2.7 | 207 | .270 | 3.67 | 202 | 3.59 |
| 1935 | 784 | 2,320 | May 15, 1935 | 12 | 218 | .285 | 3.86 | 223 | 3.94 |
| 1936 | 804 | - | - | - | - | - | - | - | - |

a House Document 343, 65th Congress, 1st Session.

Note.--Records for December 1903 published in W.S.P. 97 have been found in error. Those records are not published herein and should not be used.

247. Miami & Erie Canal at Delphos, Ohio

Location.--Lat 40°50'45", long. 84°20'25", in SE $\frac{1}{4}$ sec. 24, T. 2 S., R. 4 E., at old lock 9, at Third Street Bridge in Delphos, Allen County.

Gage.--Staff gage. Altitude of gage is 770 ft (from topographic map).

Supplemental records available.--October 1933 to April 1935, gage heights and discharge measurements only. August 1945 to September 1950, miscellaneous discharge measurements only.

Extremes.--1928-33: Maximum discharge, 132 cfs Dec. 24, 1932; no flow at times when water was cut off from canal.

Remarks.--Water is diverted into canal at feeder at Lake St. Marys and discharged into Jennings Creek, tributary to Auglaize River above Fort Jennings. Small amount of water diverted from canal above gage.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1928 | - | - | - | - | - | - | 27.8 | 23.3 | 35.0 | - | - | - | - |
| 1929 | - | - | - | - | - | - | 66.3 | 36.5 | 24.6 | 23.5 | 24.2 | 22.1 | - |
| 1930 | 26.5 | 25.8 | 0 | 0 | 0 | 0 | 16.8 | 15.5 | 11.5 | 0 | 17.4 | 16.9 | 10.9 |
| 1931 | 17.8 | 18.3 | 17.9 | 8.32 | 19.5 | 18.3 | 19.1 | 16.0 | 14.0 | 9.42 | 6.90 | 13.8 | 14.9 |
| 1932 | 5.68 | 6.03 | 6.32 | 19.6 | 11.5 | 9.61 | 19.1 | 10.9 | 9.43 | 10.8 | 10.6 | 14.6 | 11.2 |
| 1933 | 15.5 | 15.1 | 37.1 | 22.6 | 20.5 | 15.9 | 14.5 | 36.0 | 12.1 | 6.32 | 12.4 | 14.1 | 18.5 |

248. Auglaize River near Fort Jennings, Ohio

Location.--Lat 40°56'55", long. 84°15'58", in SE $\frac{1}{4}$ sec. 15, T. 1 S., R. 5 E., at bridge on U. S. Highway 224, 3 $\frac{1}{2}$ miles northeast of Fort Jennings and 6 miles upstream from Ottawa River.

Drainage area.--333 sq mi.

Gage.--Water-stage recorder. Datum of gage is 713.9 ft above mean sea level, adjustment of 1912. Prior to Oct. 6, 1930, chain gage at same site and datum.

Average discharge.--24 years (1921-35, 1940-50), 291 cfs.

Extremes.--1921-35, 1940-50: Maximum discharge, 9,550 cfs Feb. 15, 1950 (gage height 17.8 ft, from high-water mark); minimum, 5.0 cfs Aug. 28, 1932 (gage height, 0.75 ft).

Remarks.--Some diversion from Lake St. Marys by Miami & Erie Canal into Jennings Creek, tributary to Auglaize River above station. For records of diversion see preceding page.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | - | - | - | 40.2 | - |
| 1922 | 41.5 | 507 | 431 | 300 | 592 | 761 | 1,450 | 741 | 142 | 200 | 71.6 | 355 | 463 |
| 1923 | 73.1 | 35.9 | 240 | 875 | 410 | 853 | 303 | 626 | 84.3 | 53.9 | 49.6 | 51.0 | 306 |
| 1924 | 30.9 | 31.7 | 487 | 370 | 358 | 1,080 | 262 | 202 | 922 | 227 | 25.8 | 34.1 | 335 |
| 1925 | 34.0 | 34.1 | 395 | 78.4 | 470 | 483 | 68.1 | 47.5 | 47.1 | 37.7 | 51.4 | 62.5 | 149 |
| 1926 | 41.6 | 429 | 136 | 229 | 751 | 386 | 738 | 97.2 | 61.9 | 78.3 | 129 | 1,090 | 341 |
| 1927 | 782 | 218 | 135 | 754 | 869 | 1,150 | 772 | 675 | 125 | 64.6 | 83.5 | 45.2 | 471 |
| 1928 | 41.6 | 129 | 863 | 330 | 801 | 532 | 514 | 81.0 | 642 | 413 | 61.5 | 39.6 | 370 |
| 1929 | 36.7 | 49.3 | 135 | 803 | 497 | 574 | 581 | 394 | 88.3 | 239 | 141 | 37.8 | 297 |
| 1930 | 254 | 537 | 942 | 2,140 | 439 | 381 | 162 | 55.6 | 47.2 | 25.2 | 25.7 | 27.6 | 422 |
| 1931 | 26.2 | 29.7 | 33.1 | 37.7 | 48.5 | 126 | 296 | 57.1 | 42.0 | 26.1 | 16.0 | 48.2 | 65.3 |
| 1932 | 47.0 | 57.1 | 316 | 1,060 | 323 | 150 | 248 | 107 | 138 | 76.5 | 17.2 | 22.4 | 214 |
| 1933 | 33.9 | 361 | 666 | 520 | 166 | 730 | 443 | 783 | 43.3 | 38.8 | 66.8 | 417 | 358 |
| 1934 | 104 | 38.4 | 143 | 194 | 32.0 | 572 | 303 | 28.7 | 109 | 39.3 | 51.5 | 19.2 | 137 |
| 1935 | 22.3 | 26.1 | 25.6 | 127 | 98.9 | 400 | 147 | 645 | 37.6 | 458 | 131 | 23.6 | 181 |
| 1936 | 24.5 | 39.7 | 81.4 | - | - | - | - | - | - | - | - | - | - |
| 1941 | 18.9 | 26.9 | 75.3 | 111 | 127 | 116 | 122 | 51.2 | 431 | 39.7 | 17.4 | 12.1 | 94.8 |
| 1942 | 18.8 | 25.5 | 40.9 | 49.8 | 564 | 618 | 786 | 211 | 114 | 34.5 | 69.9 | 37.5 | 211 |
| 1943 | 29.0 | 108 | 334 | 296 | 335 | 678 | 167 | 1,237 | 509 | 250 | 43.9 | 35.9 | 359 |
| 1944 | 43.9 | 48.8 | 34.5 | 36.5 | 191 | 759 | 1,034 | 183 | 109 | 23.2 | 51.6 | 16.3 | 209 |
| 1945 | 22.8 | 45.5 | 40.5 | 31.9 | 560 | 968 | 594 | 494 | 877 | 119 | 61.7 | 44.9 | 319 |
| 1946 | 225 | 140 | 363 | 359 | 343 | 468 | 74.8 | 154 | 526 | 60.1 | 24.5 | 20.5 | 231 |
| 1947 | 25.2 | 36.9 | 87.6 | 524 | 214 | 334 | 748 | 686 | 687 | 132 | 106 | 134 | 309 |
| 1948 | 70.5 | 107 | 146 | 496 | 744 | 919 | 806 | 284 | 73.1 | 102 | 22.4 | 15.5 | 514 |
| 1949 | 16.5 | 228 | 573 | 1,439 | 640 | 435 | 282 | 257 | 146 | 100 | 132 | 59.4 | 359 |
| 1950 | 54.0 | 21.8 | 93.0 | 2,184 | 1,555 | 689 | 560 | 233 | 163 | 31.9 | 64.2 | 127 | 475 |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W. S. P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|--------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1921 | 604 | - | - | - | - | - | - | - | - |
| 1922 | 604 | *6,740 | Apr. 19, 1922 | 14 | 463 | - | - | 411 | - |
| 1923 | 604 | *3,680 | Mar. 17, 1923 | 16 | 306 | - | - | 323 | - |
| 1924 | 604 | *5,180 | Mar. 30, 1924 | 12 | 335 | - | - | 328 | - |
| 1925 | 604 | 3,730 | Dec. 20, 1924 | 13 | 149 | - | - | 160 | - |
| 1926 | 624 | *6,020 | Apr. 8, 1926 | 14 | 341 | - | - | 367 | - |
| 1927 | 644 | *8,430 | Mar. 21, 1927 | 26 | 471 | - | - | 435 | - |
| 1928 | 664 | 5,120 | Mar. 31, 1928 | 26 | 370 | - | - | 300 | - |
| 1929 | 684 | *6,280 | Feb. 27, 1929 | 19 | 297 | - | - | 425 | - |
| 1930 | 699, 974 | 8,200 | Jan. 15, 1930 | 14 | 422 | - | - | 283 | - |
| 1931 | 714 | 1,630 | Apr. 4, 1931 | 7.1 | 65.3 | - | - | 93.4 | - |
| 1932 | 744 | 3,130 | Jan. 18, 1932 | 6.3 | 214 | - | - | 267 | - |
| 1933 | 744 | 4,270 | Jan. 1, 1933 | 9.6 | 358 | - | - | 235 | - |
| 1934 | 759 | 2,280 | Mar. 5, 1934 | 12 | 137 | - | - | 119 | - |
| 1935 | 764 | 3,380 | May 4, 1935 | 12 | 181 | - | - | 187 | - |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1941 | 924 | 1,500 | June 4, 1941 | 6.5 | 94.8 | - | - | 91.8 | - |
| 1942 | 954 | 5,020 | Apr. 11, 1942 | 5.8 | 211 | - | - | 244 | - |
| 1943 | 974 | 7,920 | May 18, 1943 | 18 | 359 | - | - | 293 | - |
| 1944 | 1004 | 6,710 | Apr. 12, 1944 | 8.6 | 209 | - | - | 207 | - |
| 1945 | 1034 | 7,360 | June 19, 1945 | 14 | 319 | - | - | 371 | - |
| 1946 | 1054 | 3,840 | June 28, 1946 | 9.7 | 231 | - | - | 182 | - |
| 1947 | 1084 | 3,600 | Jan. 31, 1947 | 12 | 309 | - | - | 324 | - |
| 1948 | 1114 | 4,390 | Apr. 14, 1948 | 7.6 | 314 | - | - | 355 | - |
| 1949 | 1144 | 5,180 | Jan. 6, 1949 | 7.0 | 359 | - | - | 304 | - |
| 1950 | 1174 | 9,550 | Feb. 15, 1950 | 11 | 475 | - | - | 633 | - |

* Revised.

Note.--Figures of discharge in cubic feet per second per square mile and runoff in inches for water years 1921-26, 1934, have been found in error because of diversion into basin from Lake St. Marys; those figures are not published herein and should not be used.

249. Ottawa River at Allentown, Ohio

Location.--Lat 40°45'18", long. 84°11'41", in NW¼ sec. 29, T. 3 S., R. 6 E., at bridge on State Highway 81 at Allentown, 0.3 mile downstream from Kessler Run.

Drainage area.--168 sq mi.

Gage.--Water-stage recorder and concrete control. Datum of gage is 789.67 ft above mean sea level, adjustment of 1912. Prior to Oct. 1, 1925, chain gage and Oct. 1, 1925, to Dec. 31, 1935, water-stage recorder, at site 35 ft downstream at same datum.

Average discharge.--19 years (1923-35, 1943-50), 125 cfs.

Extremes.--1923-35, 1943-50: Maximum discharge, 4,760 cfs Feb. 14, 1950 (gage height, 9.17 ft); minimum, 1.4 cfs June 28, 29, 1933.

Flood of Mar. 15, 1939, reached a stage of 10.1 ft and flood of May 1943, a stage of about 10 ft (discharge not determined).

Remarks.--Diurnal fluctuation and some regulation due to operation of water-supply and sewage-treatment plants of city of Lima above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | 16.0 | 14.1 | 193 | 279 | 153 | 432 | 123 | 114 | 416 | 47.5 | 22.1 | 19.0 | 152 |
| 1925 | 15.2 | 17.3 | 170 | 42.9 | 203 | 189 | 21.9 | 20.1 | 20.1 | 46.1 | 14.1 | 14.4 | 63.3 |
| 1926 | 14.8 | 148 | 45.9 | 72.5 | 279 | 194 | 315 | 27.9 | 19.4 | 14.3 | 22.9 | 404 | 128 |
| 1927 | 322 | 84.9 | 59.3 | 323 | 375 | 451 | 290 | 238 | 59.1 | 60.0 | 31.9 | 14.5 | 192 |
| 1928 | 12.9 | 77.5 | 334 | 184 | 358 | 252 | 187 | 25.0 | 258 | 224 | 22.3 | 11.2 | 160 |
| 1929 | 12.8 | 16.6 | 47.9 | *292 | 210 | 323 | 284 | 195 | 43.8 | 179 | 55.2 | 16.1 | *140 |
| 1930 | 133 | 190 | 437 | 820 | 199 | 181 | 61.7 | 18.1 | 13.7 | 12.6 | 14.5 | 13.4 | 175 |
| 1931 | 10.5 | 11.4 | 11.9 | 14.3 | 15.5 | 49.7 | 108 | 33.2 | 37.0 | 12.5 | 15.5 | 40.2 | 29.8 |
| 1932 | 26.1 | 25.8 | 157 | 479 | 133 | 67.9 | 146 | 59.5 | 31.5 | 16.6 | 5.98 | 11.4 | 97.0 |
| 1933 | 15.8 | 104 | 316 | 155 | 71.2 | 386 | 212 | 351 | 6.74 | 10.6 | 65.9 | 226 | 161 |
| 1934 | 42.7 | 16.4 | 35.0 | 96.8 | 18.4 | 201 | 117 | 13.8 | 24.5 | 10.1 | 16.6 | 9.08 | 50.5 |
| 1935 | 8.51 | 13.8 | 11.5 | 34.9 | 29.8 | 187 | 42.2 | 294 | 15.5 | 75.9 | 39.0 | 11.5 | 64.4 |
| 1936 | 10.7 | 13.2 | 19.4 | - | - | - | - | - | - | - | - | - | - |
| 1943 | - | - | - | - | - | - | - | - | - | - | - | 20.0 | - |
| 1944 | 18.9 | 19.7 | 16.2 | 19.7 | 54.0 | 326 | 427 | 76.0 | 49.5 | 21.1 | 20.2 | 17.5 | 86.5 |
| 1945 | 16.7 | 20.9 | 17.1 | 12.6 | 138 | 419 | 240 | 206 | 384 | 55.4 | 24.2 | 22.6 | 129 |
| 1946 | 43.3 | 51.2 | 189 | 130 | 144 | 172 | 23.7 | 36.2 | 424 | 29.2 | 21.4 | 22.2 | 107 |
| 1947 | 20.4 | 21.8 | 27.4 | 209 | 71.6 | 200 | 413 | 336 | 451 | 26.7 | 37.8 | 107 | 160 |
| 1948 | 61.3 | 69.3 | 80.6 | 214 | 290 | 380 | 348 | 161 | 33.9 | 27.2 | 24.0 | 19.6 | 142 |
| 1949 | 19.3 | 103 | 214 | 613 | 274 | 169 | 129 | 83.9 | 106 | 30.0 | 30.6 | 21.4 | 149 |
| 1950 | 22.5 | 18.9 | 29.8 | 748 | 658 | 264 | 227 | 87.1 | 32.8 | 22.2 | 27.7 | 45.6 | 179 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1924 | 0.11 | 0.09 | 1.33 | 1.91 | 0.98 | 2.96 | 0.82 | 0.78 | 2.77 | 0.33 | 0.15 | 0.13 | 12.36 |
| 1925 | .10 | .11 | 1.16 | .29 | 1.26 | 1.29 | .14 | .14 | .09 | .32 | .10 | .10 | 5.10 |
| 1926 | .10 | .98 | .31 | .50 | 1.73 | 1.33 | 2.10 | .19 | .13 | .10 | .16 | 2.68 | 10.31 |
| 1927 | 2.21 | .56 | .41 | 2.21 | 2.32 | 3.09 | 1.93 | 1.64 | .39 | .41 | .22 | .10 | 15.49 |
| 1928 | .09 | .51 | 2.29 | 1.27 | 2.17 | 1.73 | 1.24 | .17 | 1.72 | 1.53 | .15 | .07 | 12.94 |
| 1929 | .09 | .11 | .33 | *2.01 | 1.30 | 2.21 | 1.89 | 1.54 | .29 | 1.23 | .38 | .11 | *11.29 |
| 1930 | .91 | 1.26 | 3.00 | 5.63 | 1.23 | 1.25 | .41 | .12 | .09 | .09 | .10 | .09 | 14.18 |
| 1931 | .07 | .08 | .08 | .10 | .10 | .34 | .72 | .23 | .25 | .09 | .11 | .27 | 2.44 |
| 1932 | .18 | .17 | 1.08 | 3.29 | .85 | .47 | .97 | .41 | .21 | .11 | .04 | .08 | 7.86 |
| 1933 | .11 | .69 | 2.17 | 1.06 | .44 | 2.65 | 1.41 | 2.41 | .04 | .07 | .45 | 1.51 | 13.01 |
| 1934 | .29 | .11 | .24 | .66 | .11 | 1.38 | .78 | .09 | .16 | .07 | .11 | .06 | 4.06 |
| 1935 | .06 | .09 | .08 | .24 | .18 | 1.28 | .28 | 2.02 | .10 | .52 | .27 | .08 | 5.20 |
| 1936 | .07 | .09 | .13 | - | - | - | - | - | - | - | - | - | - |
| 1943 | - | - | - | - | - | - | - | - | - | - | - | .13 | - |
| 1944 | .13 | .13 | .11 | .13 | .35 | 2.24 | 2.83 | .52 | .33 | .15 | .14 | .12 | 7.18 |
| 1945 | .11 | .14 | .12 | .09 | .85 | 2.67 | 1.60 | 1.42 | 2.56 | .38 | .17 | .15 | 10.46 |
| 1946 | .30 | .34 | 1.29 | .89 | .89 | 1.18 | .16 | .25 | 2.81 | .20 | .15 | .15 | 8.61 |
| 1947 | .14 | .14 | .19 | 1.43 | .44 | 1.37 | 2.74 | 2.31 | 2.99 | .18 | .26 | .71 | 12.90 |
| 1948 | .42 | .46 | .55 | 1.46 | 1.87 | 2.61 | 2.31 | 1.10 | .23 | .19 | .16 | .13 | 11.49 |
| 1949 | .13 | .68 | 1.46 | 4.21 | 1.70 | 1.16 | .86 | .58 | .70 | .21 | .21 | .14 | 12.04 |
| 1950 | .15 | .12 | .20 | 5.13 | 4.08 | 1.81 | 1.51 | .60 | .22 | .15 | .19 | .30 | 14.46 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1924 | 604,1004 | *3,750 | Mar. 29, 1924 | 8.5 | 152 | 0.905 | 12.56 | 151 |
| 1925 | 604 | 2,200 | Dec. 19, 1924 | 8.4 | 63.3 | .377 | 5.10 | 63.5 |
| 1926 | 624 | 2,360 | Sept. 5, 1926 | 9.6 | 128 | .762 | 10.31 | 150 |
| 1927 | (a) | *4,490 | Mar. 20, 1927 | 11 | 192 | 1.14 | 15.49 | 188 |
| 1928 | 644 | *3,100 | Mar. 30, 1928 | 9.3 | 160 | .952 | 12.94 | 131 |
| 1929 | 684,1387 | *2,850 | Jan. 19, 1929 | †9.0 | *140 | *.833 | *11.29 | 195 |
| 1930 | 699 | *3,550 | Jan. 8, 1930 | - | 175 | 1.04 | 14.18 | 114 |

* Revised.

† Corrected.

a In W.S.P. 644, 744, 1207.

STREAMS TRIBUTARY TO LAKE ERIE

Yearly discharge, in cubic feet per second, of Ottawa River at Allentown, Ohio--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 920 | Apr. 3, 1931 | 6.4 | 29.8 | 0.177 | 2.44 | 44.7 | 3.64 |
| 1932 | 729 | 2,030 | Apr. 26, 1932 | 4.3 | 97.0 | .577 | 7.86 | 116 | 9.40 |
| 1933 | 744 | 2,680 | Sept. 27, 1933 | 2.4 | 161 | .959 | 13.01 | 132 | 10.59 |
| 1934 | 759 | 1,240 | Mar. 3, 1934 | 6.5 | 50.5 | .301 | 4.06 | 45.4 | 3.65 |
| 1935 | 784 | *2,500 | May 4, 1935 | 5.6 | 64.4 | .383 | 5.20 | 65.2 | 5.26 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1943 | 1004 | - | - | - | - | - | - | - | - |
| 1944 | 1004, 1144 | 4,490 | Apr. 11, 1944 | 12 | 88.5 | .527 | 7.18 | 88.5 | 7.18 |
| 1945 | 1034 | 2,590 | June 18, 1945 | 9 | 129 | .768 | 10.46 | 149 | 12.02 |
| 1946 | 1054 | 3,140 | June 27, 1946 | 12 | 107 | .637 | 8.61 | 88.5 | 7.15 |
| 1947 | 1084 | 2,220 | June 7, 1947 | 14 | 160 | .952 | 12.90 | 172 | 13.86 |
| 1948 | 1114 | 2,440 | Apr. 14, 1948 | 13 | 142 | .845 | 11.49 | 152 | 12.33 |
| 1949 | 1144 | 2,380 | Feb. 15, 1949 | 10 | 149 | .887 | 12.04 | 127 | 10.24 |
| 1950 | 1174 | 4,760 | Feb. 14, 1950 | 16 | 179 | 1.07 | 14.46 | - | - |

* Revised.

250. Ottawa River at Kalida, Ohio

Location.--Lat 40°58'51", long. 84°12'12", in SW $\frac{1}{4}$ sec. 5, T. 1 S., R. 6 E., at highway bridge in Kalida, one mile upstream from Plum Creek and $3\frac{1}{2}$ miles upstream from mouth.

Drainage area.--315 sq mi.

Gage.--Chain gage. Datum of gage is 707.41 ft above mean sea level.

Average discharge.--5 years (1930-35), 152 cfs.

Extremes.--1930-35: Maximum discharge, 4,110 cfs Jan. 1, 1933 (gage height, 13.90 ft); minimum, 4.3 cfs Sept. 18, 1932 (gage height, 1.22 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|------|------|------|------|-------|-------|----------|
| 1931 | 12.2 | 12.9 | *17.5 | 21.6 | 23.0 | 81.7 | 202 | 49.9 | 51.7 | 18.4 | 21.5 | 59.5 | *47.5 |
| 1932 | 33.4 | 57.1 | 293 | 965 | 256 | 136 | 174 | 98.2 | 34.1 | 32.9 | 7.92 | 15.9 | 176 |
| 1933 | 23.2 | 254 | 586 | 383 | 132 | 664 | 416 | 706 | 21.5 | 23.7 | 77.1 | 340 | 504 |
| 1934 | 73.6 | 24.5 | 61.0 | 169 | 30.9 | 480 | 271 | 21.5 | 28.8 | 10.5 | 30.4 | 16.9 | 102 |
| 1935 | 11.7 | 17.6 | 16.8 | 75.0 | 54.8 | 331 | 80.2 | 595 | 28.1 | *259 | *48.2 | *11.8 | *129 |
| 1936 | *12.0 | *17.2 | *30.0 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of records for station at Allentown.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | 0.04 | 0.05 | *0.06 | 0.08 | 0.08 | 0.30 | 0.72 | 0.18 | 0.18 | 0.07 | 0.08 | 0.21 | *2.05 |
| 1932 | .12 | .20 | 1.07 | 3.53 | .88 | .50 | .62 | .36 | .12 | .12 | .03 | .06 | 7.61 |
| 1933 | .09 | .90 | 2.14 | 1.41 | .44 | 2.43 | 1.47 | 2.58 | .08 | .09 | .28 | 1.20 | 13.11 |
| 1934 | .27 | .09 | .22 | .62 | .10 | 1.75 | .96 | .08 | .10 | .04 | .11 | .06 | 4.40 |
| 1935 | .04 | .06 | .06 | .27 | .18 | 1.21 | .28 | 2.18 | .10 | *.95 | *.18 | *.04 | *5.55 |
| 1936 | *.04 | *.06 | *.11 | - | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published; estimated on basis of records for station at Allentown.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1930 | 729 | - | - | - | - | - | - | - | - |
| 1931 | 729, 1387 | 1,270 | Apr. 4, 1931 | 6.3 | *47.5 | *0.151 | *2.05 | 76.3 | 3.29 |
| 1932 | 729 | 3,830 | Jan. 18, 1932 | 4.5 | 176 | .569 | 7.61 | 216 | 9.35 |
| 1933 | 744 | 4,110 | Jan. 1, 1933 | 6.3 | 304 | .965 | 13.11 | 245 | 10.56 |
| 1934 | 759 | 2,230 | Mar. 30, 1934 | 4.7 | 102 | .324 | 4.40 | 92.7 | 3.98 |
| 1935 | 784, 1387 | 3,430 | May 4, 1935 | 5.4 | *129 | *.410 | *5.55 | *130 | *5.60 |
| 1936 | 784, 1387 | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

251. Eagle Creek near Findlay, Ohio

Location.--Lat 40°59'35", long. 83°39'05", on line between sec. 1, T. 1 S., R. 10 E., and sec. 36, T. 1 N., R. 10 E., at highway bridge, 3½ miles south of Findlay and 4½ miles upstream from mouth.

Drainage area.--46.5 sq mi.

Gage.--Water-stage recorder. Datum of gage is 780.02 ft above mean sea level. Prior to Jan. 1, 1949, wire-weight gage at same site and datum.

Extremes.--1947-50: Maximum discharge, 2,920 cfs June 7, 1947 (gage height, 13.38 ft); no flow for many days.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| 1947 | *0.17 | *0.72 | *5.64 | *80.5 | 14.4 | 60.7 | 144 | 125 | 216 | 6.01 | 27.7 | 21.1 | *58.5 |
| 1948 | 38.7 | 34.3 | 35.2 | 95.7 | 101 | 145 | 107 | 81.8 | 7.86 | 1.65 | .62 | .98 | 54.1 |
| 1949 | 3.89 | 69.4 | 73.6 | 194 | 94.3 | 55.1 | 34.3 | 52.7 | 18.3 | 10.3 | 13.4 | 1.11 | 51.6 |
| 1950 | .67 | 1.36 | 4.65 | 275 | 219 | 107 | 72.9 | 29.8 | 13.8 | 3.30 | 3.31 | 7.62 | 60.7 |

* Not previously published; estimated on basis of weather records and records for Blanchard River near Findlay.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| 1947 | *0.005 | *0.02 | *0.14 | *1.99 | 0.32 | 1.51 | 3.46 | 3.10 | 5.19 | 0.15 | 0.69 | 0.51 | *17.08 |
| 1948 | .96 | .82 | .87 | 2.38 | 2.34 | 3.60 | 2.57 | 2.03 | .19 | .04 | .01 | .02 | 15.83 |
| 1949 | .10 | 1.66 | 1.82 | 4.81 | 2.11 | 1.36 | .82 | 1.30 | .44 | .26 | .33 | .03 | 15.04 |
| 1950 | .02 | .03 | .12 | 6.81 | 4.90 | 2.65 | 1.75 | .74 | .33 | .08 | .08 | .16 | 17.89 |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1947 | 1084 | 2,920 | June 7, 1947 | - | *58.5 | *1.26 | *17.08 | *67.0 | *19.57 |
| 1948 | 1114 | 2,650 | Apr. 14, 1948 | 0 | 54.1 | 1.16 | 15.83 | 57.3 | 16.76 |
| 1949 | 1144 | 1,680 | Feb. 15, 1949 | .1 | 51.6 | 1.11 | 15.04 | 39.8 | 11.63 |
| 1950 | 1174 | 2,320 | Feb. 14, 1950 | 0 | 60.7 | 1.31 | 17.69 | - | - |

* Not previously published.

252. Blanchard River near Findlay, Ohio

Location.--Lat 41°03'21", long. 83°41'17", on east line sec. 10, T. 1 N., R. 10 E., at highway bridge, 2 miles west of Findlay and 3 miles downstream from Eagle Creek.

Drainage area.--343 sq mi.

Supplemental records available.--Records of chemical analyses for the period November 1947 to August 1948 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 754.55 ft above mean sea level. Prior to July 24, 1930, chain gage at same site and datum.

Average discharge.--22 years (1923-35, 1940-50), 234 cfs.

Extremes.--1924-35, 1940-50: Maximum discharge, 11,800 cfs (revised) Dec. 1, 1927 (gage height, 15.4 ft); minimum, 0.4 cfs Aug. 26, 27, Sept. 3, 1934.

Flood of March 1913 reached a stage of 18.5 ft (discharge, 22,000 cfs, from rating curve extended above 9,500 cfs).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|-------|------|-------|------|-------|------|------|------|-------|----------|
| 1924 | *16.7 | *16.8 | 676 | 575 | 280 | 944 | 250 | 173 | 514 | 49.4 | 11.2 | 70.7 | *299 |
| 1925 | 11.7 | 8.73 | 232 | 26.1 | 434 | 371 | 33.3 | 22.1 | 37.1 | 46.3 | 18.6 | 28.5 | 104 |
| 1926 | *48.5 | 434 | 80.7 | 110 | 708 | 301 | 735 | *86.7 | 63.9 | 12.9 | 57.4 | 944 | *292 |
| 1927 | 625 | 201 | 151 | 656 | 899 | 1,050 | 403 | 422 | 149 | 223 | 228 | 124 | 424 |
| 1928 | 47.9 | 262 | 956 | 295 | 539 | 525 | 455 | 66.4 | 504 | 86.4 | 14.4 | 6.1 | 312 |
| 1929 | 7.88 | 19.9 | 135 | 759 | 564 | 467 | 698 | 319 | 52.5 | 562 | 38.8 | 7.37 | 302 |
| 1930 | 296 | 408 | 958 | 1,800 | 379 | 414 | 256 | 43.5 | 29.2 | 9.23 | 2.64 | 4.25 | 386 |
| 1931 | 3.85 | 6.86 | 8.30 | 33.0 | 25.8 | 119 | 271 | 52.0 | 62.7 | 38.0 | 13.5 | 58.0 | 57.5 |
| 1932 | 27.6 | 30.1 | 273 | 908 | 308 | 204 | 212 | 81.9 | 18.3 | 19.8 | 2.92 | 2.90 | 175 |
| 1933 | 6.15 | 11.7 | 402 | 410 | 149 | 871 | 481 | 77.6 | 22.3 | 14.7 | 18.5 | 108 | 284 |
| 1934 | 32.3 | 17.2 | 47.7 | 125 | 20.8 | 373 | 253 | 27.0 | 27.0 | 4.27 | 1.24 | 1.62 | 78.1 |
| 1935 | 2.43 | 3.67 | 4.28 | 32.8 | 57.8 | 183 | 40.5 | 493 | 19.9 | 105 | 133 | 10.8 | 91.6 |
| 1936 | 4.37 | 8.28 | 32.2 | - | - | - | - | - | - | - | - | - | - |
| 1941 | 6.99 | 11.6 | 105 | 163 | 105 | 60.1 | 117 | 23.4 | 142 | 37.6 | 42.5 | 15.1 | 68.7 |
| 1942 | 43.7 | 33.4 | 58.0 | 42.6 | 442 | 491 | 602 | 94.6 | 130 | 40.9 | 52.6 | 10.6 | 183 |
| 1943 | 7.19 | 42.1 | 279 | 327 | 324 | 589 | 145 | 859 | 190 | 353 | 46.0 | 52.8 | 269 |
| 1944 | 11.6 | 9.54 | 9.52 | 10.1 | 57.1 | 479 | 706 | 137 | 138 | 6.29 | 4.77 | 3.42 | 131 |
| 1945 | 3.61 | 9.54 | 6.54 | 6.54 | 384 | 868 | 415 | 367 | 764 | 110 | 20.7 | 18.5 | 246 |

* Revised.

* Not previously published; estimated on basis of records for station at Glandorf.

STREAMS TRIBUTARY TO LAKE ERIE

Monthly and yearly mean discharge, in cubic feet per second, of Blanchard River near Findlay, Ohio--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|------|------|------|-------|------|------|-------|----------|
| 1946 | 111 | 86.6 | 304 | 281 | 262 | 310 | 37.6 | 63.9 | 1,063 | 29.6 | 9.21 | 6.44 | 212 |
| 1947 | 5.74 | 9.23 | 45.9 | 451 | 170 | 332 | 736 | 740 | 1,045 | 57.7 | 116 | 157 | 322 |
| 1948 | 85.3 | 162 | 163 | 464 | 629 | 895 | 598 | 393 | 85.9 | 58.1 | 23.9 | 8.97 | 296 |
| 1949 | 65.8 | 394 | 449 | 1,042 | 572 | 343 | 266 | 331 | 175 | 79.4 | 69.3 | 17.3 | 316 |
| 1950 | 8.18 | 7.62 | 16.2 | 1,306 | 1,191 | 617 | 403 | 167 | 88.3 | 32.0 | 19.3 | 62.4 | 319 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | \$0.06 | \$0.05 | 2.27 | 1.94 | 0.88 | 3.17 | 0.81 | 0.58 | 1.67 | 0.17 | 0.04 | 0.23 | \$11.87 |
| 1925 | .04 | .03 | .78 | .09 | 1.32 | 1.24 | .11 | .07 | .12 | .16 | .06 | .09 | 4.11 |
| 1926 | .17 | 1.42 | .27 | .37 | 2.14 | 1.01 | 2.39 | *.29 | .21 | .04 | .19 | 3.07 | *11.56 |
| 1927 | 2.10 | .65 | .44 | 2.20 | 2.73 | 3.53 | 1.30 | 1.42 | .48 | .75 | .77 | .40 | 16.77 |
| 1928 | .16 | .85 | 3.22 | .99 | 1.69 | 1.77 | 1.49 | .22 | 1.64 | .29 | .06 | .02 | 12.39 |
| 1929 | .03 | .06 | .45 | 2.55 | 1.71 | 1.57 | 2.26 | 1.07 | 1.17 | 1.89 | .13 | .02 | 11.91 |
| 1930 | .99 | 1.33 | 3.22 | 6.05 | 1.14 | 1.40 | .83 | .15 | .09 | .03 | .01 | .01 | 15.25 |
| 1931 | .01 | .02 | .03 | .11 | .08 | .40 | .88 | .18 | .20 | .13 | .04 | .19 | 2.27 |
| 1932 | .09 | .10 | .92 | 3.06 | .97 | .69 | .69 | .28 | .06 | .07 | .01 | .009 | 6.95 |
| 1933 | .02 | .38 | 1.35 | 1.38 | .45 | 2.93 | 1.60 | 2.61 | .07 | .05 | .06 | .35 | 11.25 |
| 1934 | .11 | .06 | .16 | .42 | .06 | 1.26 | .82 | .09 | .09 | .01 | .004 | .005 | 3.09 |
| 1935 | .008 | .01 | .01 | .11 | .18 | .62 | .13 | 1.66 | .06 | .35 | .45 | .03 | 3.62 |
| 1936 | .01 | .03 | .11 | - | - | - | - | - | - | - | - | - | - |
| 1941 | .02 | .04 | .35 | .55 | .32 | .20 | .38 | .08 | .46 | .13 | .14 | .05 | 2.72 |
| 1942 | .15 | .11 | .19 | .14 | 1.34 | 1.65 | 2.61 | .28 | .42 | .14 | .18 | .03 | 7.24 |
| 1943 | .02 | .14 | .94 | 1.10 | .98 | 1.98 | 1.47 | 2.88 | .62 | 1.19 | .15 | .17 | 10.64 |
| 1944 | .04 | .06 | .03 | .03 | .18 | 2.30 | .46 | .45 | .45 | .02 | .02 | .01 | 5.21 |
| 1945 | .01 | .03 | .02 | .02 | 1.17 | 2.92 | 1.35 | 1.23 | 2.49 | .37 | .07 | .06 | 9.74 |
| 1946 | .37 | .28 | 1.02 | .94 | .80 | 1.04 | .12 | .21 | 3.46 | .10 | .03 | .02 | 8.39 |
| 1947 | .02 | .03 | .15 | 1.51 | .52 | 1.12 | 2.40 | 2.49 | 3.40 | .19 | .39 | .51 | 12.73 |
| 1948 | .29 | .53 | .55 | 1.56 | 1.97 | 3.01 | 1.94 | 1.33 | .28 | .19 | .08 | .03 | 11.76 |
| 1949 | .22 | 1.28 | 1.51 | 3.50 | 1.74 | 1.15 | .87 | 1.11 | .57 | .27 | .23 | .08 | 12.51 |
| 1950 | .03 | .02 | .05 | 4.39 | 3.52 | 2.09 | 1.30 | .56 | .29 | .11 | .06 | .20 | 12.61 |

* Revised.

* Not previously published; estimated on basis of records for station at Glandorf.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches |
| | | Discharge | Date | | | | |
| 1924 | 584 | 4,280 | Mar. 30, 1924 | - | *299 | *0.872 | *11.87 |
| 1925 | 604 | 2,980 | Dec. 19, 1924 | 4 | 104 | .303 | 4.11 |
| 1926 | 624,1387 | 4,380 | Sept. 5, 1926 | 6 | *292 | *.851 | *11.56 |
| 1927 | 644,1054 | 7,460 | Mar. 21, 1927 | 14 | 424 | 1.24 | 16.77 |
| 1928 | 664,1054 | *11,800 | Dec. 1, 1927 | 3 | 312 | .910 | 12.56 |
| 1929 | 684,1054 | 6,010 | Jan. 19, 1929 | 2.4 | 302 | .880 | 11.91 |
| 1930 | 699,1054 | *8,580 | Jan. 15, 1930 | 1.2 | 386 | 1.13 | 15.25 |
| 1931 | 714 | 1,290 | Apr. 3, 1931 | 2.5 | 57.5 | .168 | 2.27 |
| 1932 | 729 | 3,400 | Jan. 19, 1932 | 1.1 | 175 | .510 | 6.95 |
| 1933 | 744,1054 | 5,760 | Mar. 14, 1933 | 1.2 | 284 | .828 | 11.25 |
| 1934 | 759 | 1,700 | Mar. 29, 1934 | .4 | 78.1 | .228 | 3.09 |
| 1935 | 784 | 2,900 | May 4, 1935 | .9 | 91.6 | .267 | 3.62 |
| 1936 | 804 | - | - | - | - | - | - |
| 1941 | 924 | 958 | Jan. 2, 1941 | 2.0 | 68.7 | .200 | 2.72 |
| 1942 | 954, 974 | 5,760 | Apr. 10, 1942 | 3.4 | 183 | .534 | 7.24 |
| 1943 | 974 | 4,520 | May 18, 1943 | 3.6 | 269 | .784 | 10.64 |
| 1944 | 1004 | 5,340 | Apr. 12, 1944 | 2.5 | 131 | .392 | 5.21 |
| 1945 | 1034,1054 | 6,140 | June 20, 1945 | 2.1 | 246 | .717 | 9.74 |
| 1946 | 1054 | 6,400 | June 18, 1946 | 4.0 | 212 | .618 | 8.39 |
| 1947 | 1084 | 8,160 | June 8, 1947 | 2.2 | 322 | .939 | 12.73 |
| 1948 | 1114 | 4,930 | Mar. 22, 1948 | 4.2 | 296 | .683 | 11.76 |
| 1949 | 1144 | 3,900 | Feb. 16, 1949 | 4.8 | 316 | .921 | 12.51 |
| 1950 | 1174 | 10,200 | Feb. 15, 1950 | 5.0 | 319 | .930 | 12.61 |

* Revised.

* Not previously published.

253. Blanchard River at Glandorf, Ohio 1/

Location.--Lat 41°02'40", long. 84°04'55", in NE $\frac{1}{4}$ sec. 17, T. 1 N., R. 7 E., at highway bridge, half a mile upstream from Pike Run and three-quarters of a mile north of Glandorf.

Drainage area.--643 sq. mi.

Supplemental records available.--November 1902 to August 1903, gage heights and discharge measurements only.

Gage.--Wire-weight gage. Altitude of gage is 685 ft above mean sea level (from topographic map). Prior to January 1947, chain gage at same site and datum.

Average discharge.--11 years (1921-28, 1946-50), 582 cfs.

Extremes.--1921-28, 1946-50: Maximum discharge, 15,800 cfs Feb. 15, 1950 (gage height, 27.0 ft, from gage reading on crest); minimum observed, 4.4 cfs Sept. 16, 1948 (gage height, 1.45 ft).

1/ Published as "at Ottawa", 1902-3.

STREAMS TRIBUTARY TO LAKE ERIE

| Monthly and yearly runoff, in inches, of Blanchard River near Dupont, Ohio | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1928 | - | - | - | - | - | - | - | - | - | - | 0.04 | 0.02 | - |
| 1929 | 0.02 | 0.05 | 0.37 | 2.76 | 1.25 | 2.81 | 2.16 | 1.34 | 0.14 | 1.84 | .13 | .03 | 12.90 |
| 1930 | 1.12 | 1.72 | 3.03 | 6.12 | 1.48 | 1.64 | .91 | .13 | .08 | .02 | .01 | .01 | 16.27 |
| 1931 | .02 | .02 | .03 | .10 | .07 | .34 | .76 | .15 | .12 | .09 | .04 | .10 | 1.84 |
| 1932 | .08 | .12 | .91 | 3.50 | .82 | .53 | .45 | .21 | .06 | .06 | .007 | .01 | 6.76 |
| 1933 | .03 | .47 | 1.49 | 1.68 | .47 | 3.15 | 1.58 | 3.63 | .07 | .06 | .04 | .28 | 12.95 |
| 1934 | .12 | .04 | .10 | .53 | .05 | 1.35 | 1.04 | .06 | .06 | .02 | .006 | .009 | 3.18 |
| 1935 | .01 | .02 | .02 | .14 | .14 | .64 | .12 | 1.72 | .07 | .37 | .19 | .02 | 3.46 |
| 1936 | .02 | .04 | .07 | - | - | - | - | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 664 | - | - | - | - | - | - | - | - |
| 1929 | 684 | 9,500 | Feb. 28, 1929 | 11 | 711 | 0.949 | 12.90 | 1,010 | 18.33 |
| 1930 | 699, 714 | 16,800 | Jan. 15, 1930 | 2.9 | 896 | 1.20 | 16.27 | 577 | 10.47 |
| 1931 | 714, 729 | 2,150 | Apr. 5, 1931 | 7.6 | 102 | .136 | 1.84 | 159 | 2.88 |
| 1932 | 729 | 7,600 | Jan. 19, 1932 | 1.4 | 375 | .498 | 6.76 | 421 | 7.64 |
| 1933 | 744 | 8,430 | May 15, 1933 | 2.9 | 715 | .955 | 12.95 | 619 | 11.22 |
| 1934 | 759 | 3,810 | Mar. 31, 1934 | 1.1 | 176 | .235 | 3.18 | 164 | 2.98 |
| 1935 | 784 | 4,400 | May 8, 1935 | 4.4 | 191 | .255 | 3.46 | 195 | 3.54 |
| 1936 | 804 | - | - | - | - | - | - | - | - |

255. Roller Creek at Ohio City, Ohio

Location.--Lat 40°46'15", long. 84°38'15", on line between secs. 16 and 21, T. 3 S., R. 2 E., at highway bridge, three-quarters of a mile west of Ohio City, Van Wert County, and $\frac{3}{4}$ miles upstream from mouth.

Drainage area.--4.94 sq mi.

Gage.--Water-stage recorder. Datum of gage is 805.7 ft above mean sea level, datum of 1929.

Supplemental records available.--October 1948 to September 1950, discharge measurements and fragmentary gage-height record.

Extremes.--1946-50: Maximum discharge, 228 cfs Feb. 13, 1950 (gage height, 8.08 ft); no flow at times each year.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | - | - | - | - | - | - | 0 | - |
| 1947 | 0 | - | 1.98 | 11.8 | - | 5.02 | - | - | - | - | - | - | - |
| 1948 | - | - | - | - | - | 13.1 | 6.97 | - | - | - | 0.02 | .04 | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|-----|------|------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | - | - | - | - | - | - | 0 | - |
| 1947 | 0 | - | 0.46 | 2.76 | - | 1.18 | - | - | - | - | - | - | - |
| 1948 | - | - | - | - | - | 3.06 | 1.57 | - | - | - | 0.005 | .009 | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|-------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff. in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1084 | - | - | - | - | - | - | - | - |
| 1947 | 1084 | *218 | Jan. 30, 1947 | 0 | - | - | - | - | - |
| 1948 | 1114 | *186 | Mar. 21, 1948 | 0 | - | - | - | - | - |
| 1949 | - | *222 | Feb. 15, 1949 | *0 | - | - | - | - | - |
| 1950 | - | *228 | Feb. 13, 1950 | *0 | - | - | - | - | - |

* Revised.

* Not previously published.

Note.--Records for July 1947 published in W.S.P. 1084 have been found to be in error on basis of restudy of original data. Those records are not published herein and should not be used.

256. Town Creek near Van Wert, Ohio

Location.--Lat 40°49'30", long. 84°34'50", in sec. 36, T. 2 S., R. 2 E., at bridge on U. S. Highway 127, 3 miles south of Van Wert and 5½ miles downstream from Roller Creek.

Drainage area.--20.4 sq mi.

Gage.--Water-stage recorder. Datum of gage is 777.93 ft above mean sea level (levels by Ohio Department of Highways).

Average discharge.--5 years (1945-50), 20.7 cfs.

Extremes.--1945-50: Maximum discharge, 935 cfs Mar. 21, 1948 (gage height, 9.34 ft), from rating curve extended above 440 cfs; no flow for many days each year.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | - | 0.08 | 3.05 | - |
| 1946 | 10.3 | 6.99 | 22.3 | 18.3 | 20.7 | 23.1 | 1.68 | 12.9 | 42.3 | 1.95 | 0 | 0 | 13.3 |
| 1947 | 0 | .20 | 2.42 | 40.9 | 4.51 | 16.2 | 43.4 | 58.7 | 48.8 | 3.87 | .20 | .49 | 18.4 |
| 1948 | 2.68 | 2.98 | 5.99 | 30.8 | 41.9 | 79.1 | 33.4 | 17.3 | 13.0 | 4.52 | .03 | 0 | 19.3 |
| 1949 | .05 | 17.2 | 30.9 | 69.3 | 49.4 | 15.5 | 13.2 | 27.0 | 17.3 | 16.5 | 2.60 | .23 | 21.5 |
| 1950 | 7.06 | .44 | 9.86 | 153 | 79.2 | 59.7 | 48.8 | 8.19 | 6.92 | .96 | .08 | .40 | 31.0 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1945 | - | - | - | - | - | - | - | - | - | - | 0.004 | 0.17 | - |
| 1946 | 0.58 | 0.38 | 1.26 | 1.03 | 1.05 | 1.30 | 0.09 | 0.73 | 2.31 | 0.11 | 0 | 0 | 8.84 |
| 1947 | 0 | .01 | .14 | 2.31 | .23 | .92 | 2.38 | 3.32 | 2.67 | .22 | .01 | .03 | 12.24 |
| 1948 | .15 | .16 | .34 | 1.74 | 2.21 | 4.47 | 1.83 | .98 | .71 | .26 | .002 | 0 | 12.85 |
| 1949 | .003 | .34 | 1.74 | 3.92 | 2.52 | .88 | .72 | 1.52 | .95 | .35 | .15 | .01 | 14.28 |
| 1950 | .40 | .02 | .56 | 8.65 | 4.04 | 3.38 | 2.67 | .46 | .58 | .05 | .004 | .02 | 20.63 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | - | - | 0 | - | - | - | - | - |
| 1946 | 1054 | #860 | June 27, 1946 | 0 | 13.3 | 0.652 | 8.84 | 10.2 | 6.77 |
| 1947 | 1084 | 720 | June 2, 1947 | 0 | 18.4 | .302 | 12.24 | 19.1 | 12.74 |
| 1948 | 1114 | 935 | Mar. 21, 1948 | 0 | 19.3 | .946 | 12.85 | 22.4 | 14.88 |
| 1949 | 1207 | 820 | Feb. 15, 1949 | 0 | 21.5 | 1.05 | 14.28 | 18.9 | 12.58 |
| 1950 | 1207 | 785 | Feb. 14, 1950 | 0 | 31.0 | 1.52 | 20.63 | - | - |

* Not previously published.

257. Auglaize River near Defiance, Ohio

Location.--Lat 41°14'15", long. 84°24'02", in NE¼ sec. 9, T. 3 N., R. 4 E., below dam and powerplant of Toledo Edison Co., a quarter of a mile upstream from Jackson ditch and 3 miles south of Defiance, Defiance County.

Drainage area.--2,329 sq mi.

Supplemental records available.--May 20 to Aug. 8, 1903, gage heights only.

Gage.--Water-stage recorder. Datum of gage is 660.00 ft above mean sea level, adjustment of 1912. May 20 to Aug. 8, 1903, staff gage at site 1 3/4 miles downstream at different datum. Apr. 13, 1915, to Dec. 6, 1933, and Jan. 1, 1936, to Sept. 30, 1940, staff gage on upstream side of dam at datum 6.00 ft higher.

Average discharge.--35 years (1915-50), 1,663 cfs.

Extremes.--1915-50: Maximum discharge, 52,500 cfs Feb. 16, 1950 (gage height, 26.4 ft, from graph based on hourly powerplant tailwater-gage readings); minimum daily, 6 cfs Oct. 17, 1923.

Flood of March 1913 reached a stage of 38.8 ft from reading on powerplant tailwater gage referred to present datum (discharge, 120,000 cfs, from rating curve extended above 51,000 cfs).

Remarks.--Flow regulated by powerplant above station (capacity 9,800 acre-feet). Some diversion by Miami & Erie Canal from Lake St. Marys into Jennings Creek, tributary to Auglaize River above station.

| Monthly and yearly mean discharge, in cubic feet per second, of Auglaize River near Defiance, Ohio | | | | | | | | | | | | |
|--|-------|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1915 | - | - | - | - | - | - | - | 287 | 1,050 | 5,460 | 4,560 | 2,970 |
| 1916 | 1,780 | 953 | 946 | 9,160 | 3,470 | 5,010 | 2,520 | 2,260 | 2,470 | 327 | 150 | 65.6 |
| 1917 | 123 | 98.1 | 189 | 1,790 | 1,140 | 3,480 | 4,200 | 1,890 | 1,260 | 564 | 158 | 1,004 |
| 1918 | 942 | 979 | 483 | 303 | 5,220 | 3,200 | 412 | 615 | 502 | 112 | 97.8 | 564 |
| 1919 | 157 | 599 | 3,420 | 1,080 | 599 | 6,420 | 2,150 | 1,830 | 469 | 217 | 345 | 122 |
| 1920 | 1,650 | 2,560 | 1,070 | 219 | 604 | 4,110 | 4,930 | 956 | 284 | 1,740 | 365 | 217 |
| 1921 | 200 | 1,960 | 2,580 | 2,160 | 3,610 | 6,970 | 3,580 | 2,940 | 458 | 137 | 89.3 | 89.8 |
| 1922 | 143 | 2,860 | 2,270 | 1,250 | 1,930 | 5,300 | 8,640 | 5,540 | 768 | 626 | 127 | 836 |
| 1923 | 113 | 75 | 504 | 5,830 | 1,740 | 5,400 | 1,500 | 3,550 | 355 | 362 | 198 | 199 |
| 1924 | 123 | 116 | 4,010 | 2,890 | 2,220 | 5,180 | 2,930 | 1,560 | 4,510 | 930 | 111 | 287 |
| 1925 | 103 | 50.4 | 1,920 | 290 | 3,550 | 3,680 | 323 | 193 | 169 | 299 | 132 | 150 |
| 1926 | 200 | 2,150 | 662 | 1,100 | 3,170 | 2,420 | 5,430 | 361 | 368 | 310 | 680 | 5,150 |
| 1927 | 3,120 | 1,500 | 918 | 2,180 | 5,690 | 6,240 | 3,990 | 2,890 | 1,010 | 308 | 717 | 216 |
| 1928 | 144 | 525 | 5,450 | 2,000 | 4,280 | 2,300 | 3,230 | 820 | 3,490 | 934 | 144 | 65.7 |
| 1929 | 56.0 | 108 | 464 | 3,570 | 1,680 | 4,060 | 4,320 | 3,020 | 437 | 1,860 | 419 | 81.0 |
| 1930 | 1,650 | 3,250 | 4,850 | 12,600 | 2,680 | 2,410 | 2,110 | 303 | 181 | 42.0 | 39.9 | 94.4 |
| 1931 | 47.0 | 56.5 | 67.5 | 127 | 286 | 836 | 1,680 | 294 | 310 | 175 | 63.1 | 190 |
| 1932 | 166 | 249 | 1,800 | 6,190 | 1,790 | 1,010 | 1,030 | 577 | 244 | 306 | 27.1 | 29.4 |
| 1933 | 134 | 1,410 | 4,050 | 3,340 | 1,110 | 5,380 | 3,570 | 7,200 | 128 | 141 | 148 | 836 |
| 1934 | 396 | 101 | 302 | 771 | 148 | 2,750 | 2,450 | 69.8 | 212 | 63.1 | 124 | 61.5 |
| 1935 | 38.7 | 61.2 | 67.4 | 842 | 504 | 2,267 | 466 | 4,021 | 171 | 975 | 360 | 60.4 |
| 1936 | 35.5 | 103 | 180 | 400 | 3,778 | 4,714 | 1,378 | 880 | 107 | 51 | 30 | 50 |
| 1937 | 94 | 354 | 224 | 9,645 | 3,870 | 1,793 | 4,405 | 1,222 | 3,234 | 2,395 | 589 | 320 |
| 1938 | 670 | 143 | 1,474 | 702 | 4,169 | 6,468 | 5,808 | 317 | 950 | 822 | 480 | 74 |
| 1939 | 67 | 128 | 199 | 242 | 4,327 | 7,159 | 3,278 | 296 | 1,187 | 460 | 218 | 77 |
| 1940 | 203 | 101 | 65.4 | 301 | 1,147 | 4,544 | 6,828 | 920 | 1,788 | 403 | 71 | 32 |
| 1941 | 54.7 | 51.4 | 424 | 749 | 655 | 382 | 940 | 158 | 1,498 | 170 | 60.7 | 52.6 |
| 1942 | 349 | 230 | 392 | 363 | 3,832 | 4,369 | 5,071 | 735 | 1,132 | 210 | 717 | 278 |
| 1943 | 71.4 | 1,309 | 2,194 | 2,111 | 1,886 | 3,842 | 1,081 | 10,490 | 2,457 | 5,419 | 629 | 271 |
| 1944 | 120 | 219 | 96.5 | 96.9 | 896 | 4,523 | 7,809 | 1,288 | 695 | 66.5 | 99.2 | 46.5 |
| 1945 | 59.3 | 157 | 60.5 | 56.2 | 2,352 | 5,303 | 3,845 | 3,150 | 3,671 | 567 | 115 | 264 |
| 1946 | 1,109 | 321 | 1,629 | 2,728 | 1,478 | 2,665 | 242 | 1,011 | 4,992 | 380 | 45.4 | 40.5 |
| 1947 | 49.0 | 96.2 | 458 | 2,763 | 1,816 | 2,276 | 4,836 | 4,547 | 6,733 | 499 | 275 | 596 |
| 1948 | 296 | 656 | 788 | 3,111 | 3,445 | 7,543 | 3,735 | 2,618 | 407 | 566 | 131 | 52.0 |
| 1949 | 72.6 | 1,112 | 2,447 | 7,394 | 4,465 | 1,878 | 1,604 | 3,255 | 1,598 | 613 | 433 | 172 |
| 1950 | 323 | 55.9 | 940 | 3,350 | 9,358 | 5,780 | 3,923 | 1,438 | 1,130 | 265 | 148 | 938 |

Note.--Records for period Jan. 1, 1936, to Sept. 30, 1940, not previously published, furnished by Toledo Edison Co.

| Yearly discharge, in cubic feet per second | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Runoff in inches |
| | | Discharge | Date | | | | | |
| 1915 | 544 | - | - | - | - | - | - | - |
| 1916 | 544 | *34,400 | Jan. 3, 1916 | 27 | 2,430 | - | - | 2,155 |
| 1917 | 544 | *17,400 | Apr. 3, 1917 | 11 | 1,260 | - | - | 1,423 |
| 1918 | 544 | *27,500 | Feb. 14, 1918 | 7 | 1,080 | - | - | 1,243 |
| 1919 | 544 | *37,100 | Mar. 18, 1919 | 22 | 1,470 | - | - | 1,554 |
| 1920 | 544 | *20,900 | Apr. 22, 1920 | 10 | 1,560 | - | - | 1,516 |
| 1921 | 544 | *22,000 | Mar. 29, 1921 | 13 | 2,060 | - | - | 2,101 |
| 1922 | 544 | *23,600 | Apr. 1, 1922 | 25 | 2,520 | - | - | 2,138 |
| 1923 | 564 | *21,400 | May 17, 1923 | 18 | 1,490 | - | - | 1,796 |
| 1924 | 584 | *22,300 | Mar. 31, 1924 | 6 | 2,090 | - | - | 1,886 |
| 1925 | 604 | *20,500 | Mar. 15, 1925 | 32 | 906 | - | - | 980 |
| 1926 | 624 | *32,100 | Apr. 9, 1926 | 34 | 1,810 | - | - | 2,006 |
| 1927 | 644 | *39,800 | Mar. 22, 1927 | 39 | 2,360 | - | - | 2,432 |
| 1928 | 664 | *21,000 | Dec. 15, 1927 | 37 | 1,940 | - | - | 1,474 |
| 1929 | 684 | *27,300 | Feb. 28, 1929 | 30 | 1,680 | - | - | 2,443 |
| 1930 | 699 | *45,000 | Jan. 15, 1930 | 30 | 2,530 | - | - | 1,725 |
| 1931 | 719 | *8,290 | Apr. 4, 1931 | 28 | 342 | - | - | 515 |
| 1932 | 724 | *18,000 | Jan. 19, 1932 | 14 | 1,120 | - | - | 1,406 |
| 1933 | 744 | *22,500 | May 15, 1933 | 24 | 2,310 | - | - | 1,903 |
| 1934 | 759 | *13,000 | Mar. 30, 1934 | 14 | 624 | - | - | 570 |
| 1935 | 784 | *16,600 | May 5, 1935 | 19 | 829 | - | - | 842 |
| 1936 | 804 | *31,300 | Feb. 27, 1936 | 20 | 966 | - | - | 996 |
| 1937 | - | *39,000 | Feb. 27, 1937 | 20 | 2,334 | - | - | 2,472 |
| 1938 | - | *31,400 | Apr. 10, 1938 | 35 | 1,822 | - | - | 1,661 |
| 1939 | - | *38,900 | Mar. 14, 1939 | 20 | 1,450 | - | - | 1,448 |
| 1940 | - | *25,500 | Mar. 5, 1940 | 20 | 1,342 | - | - | 1,356 |
| 1941 | 954 | 5,250 | June 6, 1941 | 20 | 429 | - | - | 466 |
| 1942 | 954 | 26,700 | Apr. 12, 1942 | 28 | 1,451 | - | - | 1,670 |
| 1943 | 974 | 48,000 | May 19, 1943 | 31 | 2,499 | - | - | 2,235 |
| 1944 | 1004 | 37,700 | Apr. 13, 1944 | 28 | 1,305 | - | - | 1,292 |
| 1945 | 1034 | 18,800 | Apr. 2, 1945 | 15 | 1,624 | - | - | 1,859 |
| 1946 | 1054 | 15,100 | June 14, 1946 | 17 | 1,386 | - | - | 1,176 |
| 1947 | 1084 | 25,100 | June 9, 1947 | 22 | 2,068 | - | - | 2,165 |
| 1948 | 1114 | 31,000 | Mar. 23, 1948 | 28 | 1,945 | - | - | 2,104 |
| 1949 | 1144 | 22,600 | May 23, 1949 | 28 | 2,076 | - | - | 1,883 |
| 1950 | 1174 | 52,500 | Feb. 16, 1950 | 28 | 3,102 | - | - | - |

* Revised.

Note.--See preceding table.

258. Miami & Erie Canal near Defiance, Ohio 1/

Location.--Lat 41°17'30", long. 84°16'50", in NW¼ sec. 22, T. 4 N., R. 5 E., at Independence Dam, 275 ft downstream from point of diversion from Maumee River, and 4½ miles east of Defiance

Supplemental records available.--Subsequent to May 1941, discharge measurements only at site "near Florida"

Gage.--Water-stage recorder prior to July 23, 1929. Datum of gage is 658.81 ft above mean sea level. May 10 to Dec. 31, 1935, staff gage at site 5½ miles downstream at different datum.

Extremes.--1924-29: Maximum daily discharge, 301 cfs Dec. 9, 1927; no flow July 23-31, 1929.

Remarks.--Water for canal is diverted from Maumee River at Independence Dam and returned to river near Florida, 5½ miles downstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1925 | *183 | 183 | 185 | 194 | 181 | 156 | 163 | 174 | 185 | 195 | 158 | 181 | 178 |
| 1926 | 192 | 207 | 217 | 234 | 249 | 237 | 194 | 214 | 202 | 196 | 183 | 168 | 208 |
| 1927 | 175 | 176 | 178 | 183 | 187 | 185 | 195 | 190 | 200 | 201 | 193 | 172 | 186 |
| 1928 | 165 | 192 | 216 | 237 | 226 | 201 | 201 | 193 | 190 | 195 | 177 | 192 | 199 |
| 1929 | 188 | 187 | 185 | 199 | 208 | 191 | 190 | 194 | 179 | 106 | - | - | - |
| 1935 | - | - | - | - | - | - | - | - | - | - | 9.09 | - | - |
| 1936 | 30.1 | 25.6 | 11.3 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of canal flow for November 1924.

259. Maumee River near Defiance, Ohio

Location.--Lat 41°17'30", long. 84°16'50", in NW¼ sec. 22, T. 4 N., R. 5 E., 40 ft upstream from Independence Dam, 275 ft downstream from point of diversion to Miami & Erie Canal, 4 miles downstream from Auglaize River, and 4½ miles east of Defiance.

Drainage area.--5,530 sq mi.

Gage.--Water-stage recorder above concrete dam. Datum of gage is 659.12 ft above mean sea level. Prior to Nov. 13, 1924, staff gage at same site and datum.

Average discharge.--22 years (1924-35, 1939-50), 3,929 cfs (not including flow in Miami & Erie Canal).

Extremes.--1924-35, 1939-50: Maximum discharge, 87,100 cfs Feb. 16, 1950 (gage height, 13.70 ft); minimum, 2 cfs Sept. 3, 1925 (gage height, 1.14 ft).

Remarks.--Flow affected by regulation of Auglaize River at hydroelectric plant of Toledo Edison Co., 3 miles south of Defiance. Water diverted into Miami & Erie Canal, 275 ft upstream, bypasses station. These records do not include flow in canal; see above for record of diversion.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|--------|----------|
| 1925 | *187 | 113 | 4,070 | 504 | 8,540 | 12,600 | *789 | *359 | 271 | 980 | 185 | 206 | 2,370 |
| 1926 | 515 | 5,910 | 1,570 | 3,230 | 7,530 | 7,810 | 13,700 | *868 | 951 | 676 | 2,220 | 11,500 | *4,640 |
| 1927 | *7,190 | 3,390 | 2,250 | 3,530 | 13,700 | 13,800 | 9,380 | 6,070 | 3,780 | 508 | 908 | 273 | *5,330 |
| 1928 | 522 | 1,540 | 15,600 | *5,890 | 9,270 | 4,540 | 6,690 | 2,010 | 5,450 | 1,830 | 368 | 114 | *4,450 |
| 1929 | 659 | 228 | 1,160 | 8,670 | 4,230 | 12,100 | 12,700 | 8,270 | 1,230 | 3,140 | 1,340 | 340 | 4,470 |
| 1930 | 3,370 | 7,090 | 8,950 | 26,400 | 7,530 | 5,370 | 6,010 | 1,100 | 593 | 211 | 154 | 220 | 5,590 |
| 1931 | 218 | 196 | 309 | 336 | 759 | 2,230 | 3,270 | 765 | 959 | 710 | 182 | 286 | 849 |
| 1932 | 332 | 755 | 3,260 | 13,800 | 4,530 | 2,620 | 2,950 | 1,580 | 754 | 929 | 111 | 464 | 2,680 |
| 1933 | 638 | 3,630 | 10,300 | 7,700 | 2,810 | 11,500 | 9,650 | 16,100 | 533 | 372 | 288 | 1,320 | 5,450 |
| 1934 | 1,365 | 581 | 761 | 1,660 | 384 | 4,911 | 7,960 | 499 | 359 | 215 | 263 | 235 | 1,584 |
| 1935 | 134 | 260 | 249 | 2,456 | 1,671 | 5,845 | 1,683 | 8,837 | 724 | 1,542 | 617 | 129 | 2,012 |
| 1936 | 137 | 308 | 482 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | 16,530 | 9,413 | 1,166 | 2,691 | 1,251 | 642 | 223 | - |
| 1940 | 447 | 385 | 360 | 852 | 2,271 | 8,427 | 12,020 | 1,797 | 3,903 | 927 | 244 | 261 | 2,643 |
| 1941 | 284 | 364 | 1,956 | 2,320 | 1,654 | 1,455 | 2,923 | 648 | 2,804 | 323 | 115 | 106 | 1,239 |
| 1942 | 555 | 612 | 1,058 | 1,050 | 9,628 | 12,150 | 10,430 | 1,432 | 2,302 | 521 | 2,371 | 1,128 | 3,553 |
| 1943 | 463 | 4,212 | 5,566 | 5,570 | 5,972 | 9,953 | 2,822 | 27,270 | 6,018 | 8,332 | 1,943 | 1,222 | 6,652 |
| 1944 | 408 | 1,156 | 416 | 315 | 2,612 | 10,880 | 18,920 | 5,444 | 2,245 | 292 | 237 | 176 | 3,574 |
| 1945 | 238 | 369 | 258 | 219 | 4,275 | 10,600 | 9,943 | 10,860 | 6,262 | 1,498 | 704 | 474 | 3,800 |
| 1946 | 3,216 | 917 | *2,826 | *6,416 | 4,480 | 7,002 | 825 | 2,459 | 8,278 | 1,501 | 231 | 172 | *3,190 |
| 1947 | 176 | 325 | 1,079 | 5,649 | 4,705 | 5,765 | 13,240 | 10,280 | 12,590 | 1,296 | 564 | 1,142 | 4,712 |
| 1948 | 708 | 1,591 | 2,371 | 5,959 | 8,045 | 16,880 | 8,692 | 7,103 | 1,162 | 1,130 | 340 | 201 | 4,613 |
| 1949 | 301 | 2,157 | 4,956 | 17,210 | 13,450 | 4,207 | 3,891 | 6,430 | 3,428 | 1,482 | 777 | 572 | 4,861 |
| 1950 | 1,589 | 348 | 3,806 | 30,150 | 21,190 | 15,580 | 15,770 | 3,796 | 2,779 | 1,604 | 607 | 3,099 | 8,286 |

* Revised.

1/ Published as "near Florida", 1935.

| Yearly discharge, in cubic feet per second, of Maumee River near Defiance, Ohio | | | | | | | | | |
|---|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|--------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604, 1387 | #47,100 | Mar. 15, 1925 | #3 | *2,370 | - | - | *2,660 | - |
| 1926 | (a) | #55,500 | Apr. 9, 1926 | #69 | *4,640 | - | - | 5,060 | - |
| 1927 | (b) | #52,400 | Mar. 22, 1927 | #82 | *5,330 | - | - | 5,730 | - |
| 1928 | 664, 1387 | #39,500 | Dec. 15, 1927 | #6 | *4,450 | - | - | 3,100 | - |
| 1929 | 684 | 46,000 | Feb. 28, 1929 | 27 | 4,470 | - | - | 5,980 | - |
| 1930 | 699, 974 | 79,400 | Jan. 16, 1930 | 103 | 5,590 | - | - | 4,030 | - |
| 1931 | 714 | 11,200 | Apr. 4, 1931 | 44 | 849 | - | - | 1,160 | - |
| 1932 | 729 | 33,200 | Jan. 19, 1932 | 61 | 2,680 | - | - | 3,540 | - |
| 1933 | 744 | 41,300 | May 13, 1933 | 50 | 5,450 | - | - | 4,430 | - |
| 1934 | 759 | 23,700 | Mar. 31, 1934 | 34 | 1,584 | - | - | 1,428 | - |
| 1935 | 784 | 28,200 | May 8, 1935 | 59 | 2,012 | - | - | 2,036 | - |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 59,800 | Mar. 14, 1939 | - | - | - | - | - | - |
| 1940 | 894 | 42,500 | Mar. 5, 1940 | 113 | 2,643 | - | - | 2,763 | - |
| 1941 | 924 | 8,550 | Jan. 4, 1941 | 45 | 1,239 | - | - | 1,206 | - |
| 1942 | 954 | 43,200 | Apr. 11, 1942 | 51 | 3,553 | - | - | 4,226 | - |
| 1943 | 974 | 80,800 | May 19, 1943 | 320 | 6,652 | - | - | 5,957 | - |
| 1944 | 1004 | 65,900 | Apr. 13, 1944 | 100 | 3,574 | - | - | 3,482 | - |
| 1945 | 1034 | 46,300 | May 18, 1945 | 130 | 3,800 | - | - | 4,294 | - |
| 1946 | 1054 | 30,100 | June 14, 1946 | 130 | *3,190 | - | - | *2,735 | - |
| 1947 | 1084 | 41,600 | June 4, 1947 | 100 | 4,712 | - | - | 4,971 | - |
| 1948 | 1114 | 50,100 | Mar. 23, 1948 | 153 | 4,513 | - | - | 4,744 | - |
| 1949 | 1144 | 43,200 | Feb. 17, 1949 | 192 | 4,861 | - | - | 4,632 | - |
| 1950 | 1174 | 87,100 | Feb. 16, 1950 | 270 | 8,286 | - | - | - | - |

* Revised.

Not previously published.

a In W.S.P. 624, 974, 1387.

b In W.S.P. 644, 974, 1387.

260. Miami & Erie Canal at Waterville, Ohio

Location.--Lat 41°30'05", long. 83°43'15", sec. 28, T. 6 N., R. 10 E., at Waterville.Gage.--Staff gage. Altitude of gage is 630 ft above mean sea level (from topographic map).Average discharge.--7 years (1921-28), 403 cfs.Extremes.--1921-29: Maximum discharge, 712 cfs Feb. 26, 1929 (gage height, 7.50 ft); no flow Mar. 15, 1923, Jan. 8-10, 12-16, and Mar. 6-21, 1924.Remarks.--The canal diverts water from Maumee River at Grand Rapids, 10 miles above Waterville. Canal shut down after June 30, 1929.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. |
| 1921 | - | - | - | - | - | - | - | - | - | - | 354 |
| 1922 | 422 | 474 | 506 | 505 | 533 | 475 | 361 | 411 | 439 | 480 | 466 |
| 1923 | 359 | 328 | 400 | 472 | 441 | 281 | 386 | 410 | 428 | 438 | 448 |
| 1924 | 401 | 430 | 430 | 103 | 204 | 52.0 | 219 | 333 | 386 | 433 | 401 |
| 1925 | 302 | 247 | 325 | 298 | 387 | 387 | 407 | 411 | 352 | 372 | 355 |
| 1926 | 335 | 407 | 394 | 368 | 394 | 304 | 395 | 428 | 434 | 422 | 446 |
| 1927 | 472 | 450 | 430 | 481 | 467 | 464 | 472 | 473 | 470 | 451 | 391 |
| 1928 | 458 | 375 | 461 | 482 | 518 | 484 | 489 | 493 | 495 | 515 | 448 |
| 1929 | 189 | 277 | 458 | 483 | 446 | 456 | 515 | 531 | 509 | - | - |

261. Maumee River at Waterville, Ohio

Location.--Lat 41°30'00", long. 83°42'46", at highway bridge in Waterville and 3 miles downstream from Tontogany Creek.Drainage area.--6,314 sq mi.Supplemental records available.--Records of chemical analyses, suspended-sediment loads, and water temperatures for the period March to September 1950 are published in reports of Geological Survey.Gage.--Water-stage recorder. Datum of gage is 596.33 ft above mean sea level, adjustment of 1912. Nov. 19, 1898, to Dec. 31, 1901, wire-weight gage, Aug. 26, 1921, to July 31, 1930, chain gage, Aug. 1, 1930, to Dec. 31, 1935, water-stage recorder, and Mar. 14, 1939, to Mar. 12, 1940, chain gage, all at same site and datum.Average discharge.--25 years (1921-35, 1939-50), 4,678 cfs (includes flow in Miami & Erie Canal; canal was abandoned in 1929).Extremes.--1899-1901, 1921-35, 1939-50: Maximum discharge, 94,000 cfs Feb. 16, 1950 (gage height, 14.52 ft); practically no flow at times prior to June 30, 1929, when entire flow was being diverted by canal; minimum discharge since canal was abandoned, 32 cfs Sept. 29, 1941.Remarks.--Records do not include canal flow for period prior to June 30, 1929, when canal was abandoned. For records of canal flow, see above.

Monthly and yearly mean discharge, in cubic feet per second, of Maumee River at Waterville, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|--------|--------|--------|---------|---------|---------|--------|-------|-------|--------|----------|
| 1899 | - | - | 8,203 | 10,979 | 6,301 | 19,431 | 6,028 | 1,990 | 1,057 | 285 | 1,362 | 259 | - |
| 1900 | 48 | 521 | 2,323 | 5,054 | 7,944 | 15,610 | 8,149 | 938 | 3,444 | 2,094 | 563 | 27 | 3,870 |
| 1901 | 41 | 2,619 | 1,509 | 2,389 | 3,716 | 11,207 | 3,846 | 3,147 | 3,599 | 2,503 | 47 | 42 | 2,860 |
| 1902 | 246 | 98 | 2,585 | - | - | - | - | - | - | - | - | - | - |
| 1921 | - | - | - | - | - | - | - | - | - | - | - | 44.0 | - |
| 1922 | 60.8 | 7,090 | 6,030 | 3,320 | 5,120 | 12,900 | *23,800 | 12,300 | 1,540 | 982 | 73.7 | 892 | *6,160 |
| 1923 | 81.7 | 68.0 | 804 | 8,280 | 5,160 | 16,500 | 3,690 | *8,320 | 429 | 667 | 319 | 501 | *3,750 |
| 1924 | 142 | 249 | 12,500 | 7,900 | 6,410 | 16,600 | 9,070 | 3,760 | 11,200 | 3,100 | 80.5 | 319 | 5,950 |
| 1925 | 99.8 | 70.1 | 4,440 | 486 | 9,320 | 13,900 | 788 | 245 | 153 | 713 | 68.6 | 67.8 | 2,500 |
| 1926 | 378 | 6,420 | 1,640 | 3,400 | 8,930 | 9,510 | 15,900 | 906 | 1,070 | 571 | 2,530 | 15,000 | 5,280 |
| 1927 | 8,040 | 5,650 | 2,640 | 4,500 | 15,200 | 14,800 | 10,100 | 6,840 | 4,090 | 352 | 728 | 77.3 | 5,850 |
| 1928 | 268 | 832 | 17,300 | 6,190 | 10,800 | 4,960 | 7,610 | 1,810 | 6,610 | 1,780 | 130 | 51.4 | 4,850 |
| 1929 | 65.8 | 188 | 1,330 | 9,410 | 4,630 | 13,700 | 14,800 | 8,970 | 1,120 | 4,690 | 1,410 | 376 | 5,070 |
| 1930 | 3,910 | 9,470 | 10,400 | 28,500 | 8,730 | 6,580 | 7,620 | 1,380 | 698 | 207 | 171 | 224 | 6,490 |
| 1931 | 230 | 214 | 312 | 349 | 745 | 2,330 | 3,730 | 929 | 1,090 | 839 | 194 | 312 | 938 |
| 1932 | 380 | 853 | 4,330 | 16,800 | 5,390 | 3,030 | 3,270 | 1,750 | 882 | 1,170 | 160 | 486 | 3,220 |
| 1933 | 646 | 4,220 | 11,900 | 9,460 | 3,650 | 13,900 | 11,700 | *18,400 | 602 | 466 | 330 | 1,290 | *6,420 |
| 1934 | 1,624 | 384 | 770 | 1,767 | 424 | 5,276 | 9,841 | 587 | 393 | 261 | 315 | 325 | 1,832 |
| 1935 | 175 | 287 | 281 | 3,089 | 1,940 | 6,512 | 1,923 | 10,630 | 796 | 1,644 | 674 | 175 | 2,364 |
| 1936 | 167 | 372 | 538 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | *19,150 | 11,370 | 1,065 | 3,072 | 1,257 | 653 | 138 | - |
| 1940 | 381 | 332 | 337 | 931 | 2,978 | 10,330 | 13,310 | 1,884 | 4,393 | 998 | 244 | 259 | 3,014 |
| 1941 | 278 | 427 | 2,407 | 2,929 | 2,120 | 1,759 | 3,370 | 665 | 2,897 | 370 | 146 | 146 | 1,450 |
| 1942 | 676 | 764 | 1,227 | 1,273 | 12,100 | 14,050 | 11,890 | 1,590 | 2,785 | 600 | 2,730 | 1,241 | 4,180 |
| 1943 | 490 | 4,749 | 6,367 | 6,470 | 7,036 | 10,930 | 3,110 | 29,540 | 6,841 | 9,910 | 2,254 | 1,336 | 7,460 |
| 1944 | 494 | 1,340 | 501 | 358 | 3,081 | 13,150 | 21,870 | 6,615 | 2,458 | 279 | 250 | 183 | 4,196 |
| 1945 | 248 | 439 | 283 | 235 | 4,405 | 11,880 | 11,180 | 12,290 | 7,050 | 1,620 | 777 | 484 | 4,233 |
| 1946 | 3,956 | 1,015 | 3,174 | 7,491 | 4,724 | 7,876 | 914 | 2,898 | 10,010 | 1,709 | 227 | 148 | 3,668 |
| 1947 | 194 | 401 | 1,295 | 6,552 | 5,739 | 6,216 | 14,310 | 11,210 | 13,750 | 1,536 | 631 | 1,264 | 5,230 |
| 1948 | 752 | 1,778 | 2,670 | 6,847 | 8,766 | 18,420 | 9,078 | 7,454 | 1,097 | 1,401 | 490 | 220 | 4,913 |
| 1949 | 324 | 2,442 | 5,742 | 19,160 | 14,200 | 4,471 | 4,453 | 7,517 | 4,122 | 1,505 | 849 | 647 | 5,412 |
| 1950 | 1,854 | 331 | 4,412 | 34,010 | 24,010 | 17,370 | 17,050 | 4,158 | 3,937 | 1,867 | 654 | 3,739 | 9,370 |

* Revised.

† Not previously published; estimated on basis of records for station near Defiance.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1930 | 0.71 | 1.67 | 1.90 | 5.20 | 1.44 | 1.20 | 1.35 | 0.25 | 0.12 | 0.04 | 0.03 | 0.04 | 13.95 |
| 1931 | .04 | .04 | .06 | .06 | .12 | .43 | .66 | .17 | .19 | .15 | .04 | .05 | 2.01 |
| 1932 | .07 | .15 | .79 | 3.07 | .92 | .55 | .58 | .32 | .16 | .21 | .03 | .09 | 6.94 |
| 1933 | .12 | .75 | 2.17 | 1.73 | .60 | 2.54 | 2.06 | 3.36 | .11 | .09 | .06 | .23 | 13.82 |
| 1934 | .30 | .07 | .14 | .32 | .07 | .96 | 1.74 | .11 | .07 | .05 | .06 | .06 | 3.95 |
| 1935 | .03 | .05 | .05 | .56 | .32 | 1.19 | .34 | 1.94 | .14 | .30 | .12 | .03 | 5.07 |
| 1936 | .03 | .07 | .10 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | 3.49 | 2.01 | .19 | .54 | .23 | .12 | .02 | - |
| 1940 | .07 | .06 | .06 | .17 | .51 | 1.89 | 2.35 | .34 | .77 | .18 | .04 | .05 | 6.49 |
| 1941 | .05 | .08 | .44 | .53 | .35 | .32 | .60 | .12 | .51 | .07 | .03 | .03 | 3.13 |
| 1942 | .12 | .14 | .22 | .23 | 2.00 | 2.57 | 2.10 | .29 | .49 | .11 | .50 | .22 | 8.99 |
| 1943 | .09 | .64 | 1.16 | 1.18 | 1.16 | 1.99 | .55 | 5.40 | 1.20 | 1.61 | .41 | .24 | 16.03 |
| 1944 | .09 | .24 | .09 | .07 | .53 | 2.40 | 3.86 | 1.21 | .43 | .05 | .05 | .03 | 9.05 |
| 1945 | .04 | .08 | .05 | .04 | .73 | 2.17 | 1.98 | 2.25 | 1.25 | .30 | .14 | .09 | 9.12 |
| 1946 | .70 | .18 | .58 | 1.37 | .78 | 1.44 | .16 | .53 | 1.77 | .31 | .04 | .03 | 7.89 |
| 1947 | .04 | .07 | .24 | 1.20 | .95 | 1.13 | 2.53 | 2.05 | 2.43 | .28 | .12 | .22 | 11.26 |
| 1948 | .14 | .31 | .49 | 1.24 | 1.50 | 3.37 | 1.61 | 1.36 | .19 | .26 | .09 | .04 | 10.60 |
| 1949 | .06 | .43 | 1.05 | 3.49 | 2.34 | .82 | .79 | 1.37 | .73 | .28 | .16 | .11 | 11.62 |
| 1950 | .34 | .07 | .81 | 6.21 | 3.96 | 3.17 | 3.01 | .76 | .70 | .34 | .12 | .66 | 20.15 |

Note.--Runoff for periods October 1929 to December 1935 and March 1939 not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|-------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1899 | (a) | - | - | - | - | - | - | 5,212 |
| 1900 | (a) | *b58,000 | Mar. 11, 1900 | 5 | 3,870 | - | - | 4,666 |
| 1901 | 75 | b27,600 | Mar. 13, 1901 | 5 | 2,860 | - | - | 2,771 |
| 1921 | 544 | - | - | - | - | - | - | - |
| 1922 | 544, 1387 | *48,600 | Apr. 2, 1922 | 33 | *6,160 | - | - | 5,140 |
| 1923 | 564, 1387 | *45,100 | Mar. 18, 1923 | 50 | *3,750 | - | - | 4,760 |
| 1924 | 584 | 49,500 | Mar. 31, 1924 | 49 | 5,950 | - | - | 5,250 |
| 1925 | 604 | 45,600 | Mar. 15, 1925 | 44 | 2,500 | - | - | 2,800 |
| 1926 | 624 | 55,900 | Apr. 9, 1926 | 50 | 5,280 | - | - | 5,790 |
| 1927 | 644 | 51,900 | Mar. 23, 1927 | 50 | 5,850 | - | - | 6,210 |
| 1928 | 664 | 40,900 | Dec. 16, 1927 | 24 | 4,850 | - | - | 3,430 |
| 1929 | 684 | 55,100 | Feb. 28, 1929 | - | 5,070 | - | - | 6,950 |
| 1930 | 699, 894 | 75,000 | Jan. 16, 1930 | 63 | 6,490 | †1.03 | †13.95 | 4,560 |

* Revised.

† Not previously published.

a 22d Annual Report, Part IV.

b Maximum daily.

| Yearly discharge, in cubic feet per second, of Maumee River at Waterville, Ohio--Continued | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|-------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 12,300 | Apr. 5, 1931 | 77 | 938 | 0.149 | #2.01 | 1,340 | 2.88 |
| 1932 | 729 | 35,600 | Jan. 18, 1932 | 65 | 3,220 | #.510 | #6.94 | 4,160 | 8.97 |
| 1933 | 744, 1387 | *45,900 | May 14, 1933 | 104 | *6,420 | #1.02 | #13.82 | 5,240 | 11.29 |
| 1934 | 759 | 25,500 | Mar. 31, 1934 | 47 | 1,832 | #.290 | #3.95 | 1,559 | 3.57 |
| 1935 | 784 | 33,500 | May 8, 1935 | 59 | 2,364 | #.374 | #5.07 | 2,392 | 5.14 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1939 | 894 | - | - | - | - | - | - | - | - |
| 1940 | 894 | 65,200 | Mar. 5, 1940 | 67 | 3,014 | .477 | 6.49 | 3,188 | 6.87 |
| 1941 | 924 | 12,700 | Jan. 3, 1941 | 36 | 1,450 | .230 | 3.13 | 1,412 | 3.04 |
| 1942 | 954 | 49,600 | Feb. 7, 1942 | 45 | 4,180 | .662 | 8.99 | 4,929 | 10.60 |
| 1943 | 974 | 78,000 | May 20, 1943 | 256 | 7,460 | 1.18 | 16.03 | 6,682 | 14.36 |
| 1944 | 1004 | 71,000 | Apr. 12, 1944 | 114 | 4,196 | .665 | 9.05 | 4,083 | 8.80 |
| 1945 | 1034 | 53,300 | May 19, 1945 | 143 | 4,233 | .670 | 9.12 | 4,833 | 10.41 |
| 1946 | 1054, 1084 | 37,400 | June 14, 1946 | 119 | 3,668 | .581 | 7.89 | 3,147 | 6.78 |
| 1947 | 1084 | 43,800 | June 4, 1947 | 110 | 5,230 | .828 | 11.26 | 5,508 | 11.85 |
| 1948 | 1114 | 54,100 | Mar. 23, 1948 | 145 | 4,933 | .778 | 10.60 | 5,192 | 11.20 |
| 1949 | 1144 | 45,900 | Feb. 17, 1949 | 177 | 5,412 | .857 | 11.82 | 5,261 | 11.30 |
| 1950 | 1174 | 94,000 | Feb. 16, 1950 | 222 | 9,370 | 1.48 | 20.15 | - | - |

* Revised.

Not previously published.

262. Swan Creek at Toledo, Ohio

Location.--Lat 41°37'37", long. 83°35'40", in SE $\frac{1}{4}$ sec. 9, T. 3 of Twelve Mile Reservation, at Detroit Avenue Bridge in Toledo, and 5.2 miles upstream from mouth.

Drainage area.--185 sq mi.

Gage.--Water-stage recorder. Datum of gage is 570.00 ft above mean sea level, datum of 1929.

Extremes.--1945-48: Maximum discharge, 2,200 cfs May 18, 1945 (gage height, 14.48 ft); minimum daily, 1.5 cfs Sept. 20-22, 27-29, 1948.

Flood of Apr. 25, 1950, reached a stage of 20.2 ft (discharge, 7,140 cfs, on basis of contracted-opening determination of peak flow at site $4\frac{1}{2}$ miles upstream, drainage area, 176 sq mi).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1945 | - | - | - | - | - | #137 | 265 | 431 | 81.4 | 39.8 | 6.84 | 4.09 | - |
| 1946 | 103 | 41.2 | 115 | 191 | 126 | 373 | 39.4 | 77.5 | 163 | 36.5 | 6.11 | 3.77 | 107 |
| 1947 | 3.76 | 8.79 | 15.8 | 68.2 | 88.9 | 147 | 445 | 460 | 314 | 26.3 | 14.6 | 28.3 | 135 |
| 1948 | 9.32 | 26.2 | 86.6 | 160 | 242 | 490 | 228 | 443 | 32.1 | 20.7 | 14.1 | 2.99 | 147 |

* Not previously published; partly estimated on basis of weather records and records for Bear Creek at Powers.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1945 | - | - | - | - | - | #0.85 | 1.60 | 2.69 | 0.49 | 0.25 | 0.04 | 0.02 | - |
| 1946 | 0.64 | 0.25 | 0.72 | 1.19 | 0.71 | 2.33 | .24 | .48 | .98 | .23 | .04 | .02 | 7.83 |
| 1947 | .02 | .05 | .10 | .43 | .50 | .92 | 2.69 | 2.87 | 1.90 | .16 | .09 | .17 | 9.90 |
| 1948 | .06 | .16 | .54 | 1.00 | 1.41 | 3.06 | 1.37 | 2.76 | .19 | .13 | .09 | .02 | 10.79 |

* Not previously published; see footnote to preceding table.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1054 | 2,200 | May 18, 1945 | - | - | - | - | - | - |
| 1946 | 1054 | 1,090 | Dec. 31, 1945 | 2.2 | 107 | 0.578 | 7.83 | 87.2 | 6.39 |
| 1947 | 1084 | 1,880 | Apr. 22, 1947 | 2.0 | 135 | .730 | 9.90 | 143 | 10.49 |
| 1948 | 1114 | 1,850 | May 13, 1948 | 1.5 | 147 | .795 | 10.79 | - | - |

263. South Branch Portage River near Pemberville, Ohio

Location.--Lat 41°22'45", long. 83°28'35", in sec. 21, T. 5 N., R. 12 E., at highway bridge $2\frac{1}{2}$ miles southwest of Pemberville.

Drainage area.--334 sq mi.

Gage.--Chain gage. Altitude of gage is 645 ft (from topographic map).

Average discharge.--5 years (1930-35), 139 cfs.

Extremes.--1930-35: Maximum discharge, 7,350 cfs Mar. 14, 1933 (gage height, 13.0 ft); minimum, 0.2 cfs Oct. 13-15, 1934.

Monthly and yearly mean discharge, in cubic feet per second,
of South Branch Portage River near Pemberville, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|------|-------|------|------|-------|-------|----------|
| 1930 | - | - | - | - | - | - | - | - | - | - | #2.49 | 3.66 | - |
| 1931 | 2.04 | 2.03 | 3.98 | 17.8 | 16.4 | 107 | 342 | 41.9 | 104 | 50.0 | 5.95 | 15.2 | 58.8 |
| 1932 | 9.55 | 24.8 | 304 | 849 | 232 | 179 | 126 | 72.8 | 8.98 | 55.0 | 2.51 | 3.88 | 156 |
| 1933 | 16.4 | 216 | 521 | 381 | 188 | 864 | 605 | 1,040 | 8.73 | 13.9 | 1.94 | 15.2 | 325 |
| 1934 | 4.70 | 2.88 | 6.69 | 43.8 | 1.57 | 298 | 472 | 11.6 | 34.7 | 11.9 | 1.71 | 3.21 | 74.5 |
| 1935 | 1.18 | 1.87 | 1.83 | 46.7 | *42.9 | 215 | 31.0 | 387 | 26.3 | 86.5 | 124 | 4.90 | *81.7 |

* Revised.

* Not previously published; partly estimated on basis of records for station at Woodville.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1930 | - | - | - | - | - | - | - | - | - | - | #0.01 | 0.01 | - |
| 1931 | 0.01 | 0.01 | 0.01 | 0.06 | 0.05 | 0.37 | 1.14 | 0.14 | 0.35 | 0.17 | .02 | .05 | 2.38 |
| 1932 | .03 | .08 | 1.05 | 2.93 | .75 | .82 | .42 | .25 | .03 | .19 | .009 | .01 | 6.37 |
| 1933 | .06 | .72 | 1.80 | 1.31 | .59 | 2.99 | 2.02 | 3.59 | .03 | .05 | .007 | .05 | 13.22 |
| 1934 | .02 | .01 | .02 | .15 | .005 | 1.03 | 1.57 | .04 | .12 | .04 | .006 | .01 | 3.02 |
| 1935 | .004 | .006 | .006 | .16 | *.13 | .74 | .10 | 1.34 | .09 | .30 | .43 | .02 | *3.33 |

* Revised.

* Not previously published; partly estimated on basis of records for station at Woodville.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1930 | 699 | - | - | - | - | - | - | - | - | - | - |
| 1931 | 714 | 1,660 | Apr. 4, 1931 | 1.0 | 58.8 | 0.176 | 2.38 | 86.7 | 3.51 | | |
| 1932 | 729 | 4,020 | Jan. 18, 1932 | .7 | 156 | .467 | 6.37 | 191 | 7.79 | | |
| 1933 | 744 | 7,350 | Mar. 14, 1933 | .3 | 325 | .973 | 13.22 | 263 | 10.69 | | |
| 1934 | 759 | *3,840 | Apr. 17, 1934 | .4 | 74.5 | .223 | 3.02 | 73.7 | 2.99 | | |
| 1935 | 784,1387 | 2,680 | May 7, 1935 | .2 | *81.7 | *.245 | *3.33 | - | - | | |

* Revised.

264. North Branch Portage River near Bowling Green, Ohio

Location.--Lat 41°23'20", long. 83°33'40", in SE $\frac{1}{4}$ sec. 14, T. 5 N., R. 11 E., at highway bridge 5 miles northeast of Bowling Green.

Drainage area.--54.0 sq mi.

Gage.--Chain gage. Altitude of gage is 655 ft (from topographic map).

Average discharge.--8 years (1923-32), 40.2 cfs.

Extremes.--1923-32: Maximum discharge, 962 cfs Jan. 10, 1930 (gage height, 6.7 ft); minimum, 0.1 cfs several days in 1930-32.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | 135 | 98.2 | 61.0 | 147 | 68.3 | 32.4 | 195 | 78.8 | 4.68 | 3.07 | - |
| 1925 | 1.73 | 1.53 | 32.6 | 3.71 | 107 | 86.5 | 5.56 | 5.67 | 7.13 | 1.85 | 1.30 | 3.58 | 21.0 |
| 1926 | 2.62 | 40.7 | 16.9 | 64.6 | 105 | 66.7 | 133 | 5.02 | 4.80 | 5.79 | 13.8 | 63.8 | 42.8 |
| 1927 | 54.9 | 22.6 | 23.7 | 96.5 | 142 | 138 | 49.4 | 61.1 | 65.3 | 49.9 | 31.6 | 3.20 | 61.2 |
| 1928 | 1.73 | 20.3 | 158 | 83.1 | 78.0 | 54.9 | 67.8 | 21.7 | 149 | 43.5 | 1.41 | 1.51 | 56.5 |
| 1929 | 1.04 | 1.43 | 9.50 | 87.3 | 58.9 | 103 | 108 | 126 | 31.8 | 57.7 | 1.48 | 1.71 | 49.1 |
| 1930 | 14.8 | 72.5 | 112 | 293 | 72.8 | 66.3 | 51.9 | 5.32 | 6.53 | .474 | .842 | 1.16 | 58.3 |
| 1931 | .78 | 1.30 | 1.54 | 5.95 | 2.20 | 16.9 | 42.0 | 6.50 | 11.4 | 5.86 | .374 | 2.39 | 8.08 |
| 1932 | 1.05 | 3.40 | 40.7 | 136 | 37.9 | 27.0 | 19.3 | 9.24 | 1.37 | 11.2 | .565 | 2.06 | 24.3 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | 2.88 | 2.10 | 1.22 | 3.14 | 1.41 | 0.69 | 4.03 | 1.88 | 0.10 | 0.06 | - |
| 1925 | 0.4 | 0.03 | .70 | .08 | 2.06 | 1.84 | .11 | .12 | .15 | .04 | .03 | .07 | 5.27 |
| 1926 | .06 | .84 | .36 | 1.38 | 2.02 | 1.43 | 2.74 | .11 | .10 | .12 | .30 | 1.32 | 10.78 |
| 1927 | 1.18 | .47 | .51 | 2.05 | 2.74 | 2.95 | 1.02 | 1.30 | 1.35 | 1.07 | .67 | .07 | 15.38 |
| 1928 | .04 | 4.20 | 3.38 | 1.78 | 1.55 | 1.18 | 1.41 | .46 | 3.08 | .93 | .03 | .03 | 18.07 |
| 1929 | .02 | .03 | .20 | 1.87 | 1.14 | 2.20 | 2.23 | 2.69 | .66 | 1.23 | .03 | .04 | 12.34 |
| 1930 | .32 | 1.50 | 2.39 | 6.26 | 1.41 | 1.42 | 1.07 | .11 | .14 | .01 | .02 | .02 | 14.67 |
| 1931 | .02 | .03 | .03 | .13 | .04 | .36 | .87 | .14 | .24 | .13 | .01 | .05 | 2.05 |
| 1932 | .02 | .07 | .87 | 2.90 | .73 | .58 | .40 | .20 | .03 | .24 | .01 | .04 | 6.09 |

Note.--Runoff in inches subsequent to September 1924 not previously published.

| Yearly discharge, in cubic feet per second, of North Branch Portage River near Bowling Green, Ohio | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 584 | *732 | June 29, 1924 | - | - | - | - | 60.3 | 1.12 |
| 1925 | 604 | *474 | Feb. 24, 1925 | 0.7 | 21.0 | ±0.389 | ±5.27 | 22.9 | 5.76 |
| 1926 | 624, 644 | 756 | Apr. 8, 1926 | .2 | 42.8 | ±.793 | ±10.78 | 46.4 | 11.69 |
| 1927 | 644 | 642 | July 23, 1927 | .9 | 61.2 | ±1.13 | ±15.38 | 67.8 | 20.84 |
| 1928 | 664 | 534 | Dec. 14, 1927 | .7 | 56.5 | ±1.05 | ±18.07 | 42.4 | 10.70 |
| 1929 | 684 | 708 | Feb. 26, 1929 | - | 49.1 | ±.909 | ±12.34 | 64.8 | 16.30 |
| 1930 | 699 | 962 | Jan. 10, 1930 | .1 | 58.3 | ±1.08 | ±14.67 | 41.9 | 10.54 |
| 1931 | 714 | 130 | Apr. 4, 1931 | .1 | 8.08 | ±.150 | ±2.05 | 11.6 | 2.93 |
| 1932 | 729 | 371 | Jan. 18, 1932 | .1 | 24.3 | ±.450 | ±6.09 | - | - |

* Revised.

Not previously published.

265. Portage River at Woodville, Ohio

Location.--Lat 41°26'55", long. 83°21'41", in sec. 28, T. 6 N., R. 13 E., at bridge on U. S. Highway 20 in Woodville.

Drainage area.--433 sq mi.

Gage.--Water-stage recorder. Datum of gage is 615.14 ft above mean sea level, adjustment of 1912. Prior to Mar. 24, 1933, chain gage, Apr. 7, 1933, to Oct. 8, 1933, staff gage, Oct. 9, 1933, to Dec. 31, 1935, water-stage recorder, and Oct. 17 to Nov. 29, 1939, wire-weight gage, all at same site and datum.

Average discharge.--18 years (1928-35, 1939-50), 289 cfs.

Extremes.--1928-35, 1939-50: Maximum discharge, 11,500 cfs Feb. 15, 1950 (gage height, 14.51 ft); minimum, 0.3 cfs Aug. 28, 1931; minimum gage height, 1.60 ft July 25, 26, 1934.

Flood of March 1913 reached a stage of 17 ft, from information by local residents (discharge, 17,000 cfs, from rating curve extended above 11,500 cfs).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|-------|------|------|-------|-------|-------|-------|-------|-------|-------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1928 | - | - | - | - | - | - | - | - | - | - | 17.9 | 9.0 |
| 1929 | 8.35 | 14.5 | 119 | 643 | 486 | 848 | 964 | 712 | 45.5 | 462 | 9.26 | 8.35 |
| 1930 | 199 | 728 | 691 | 2,123 | 589 | 534 | 488 | 64.5 | 23.7 | 2.81 | 3.89 | 9.65 |
| 1931 | 6.82 | 9.60 | 10.6 | 30.0 | 38.8 | 170 | 431 | *65.6 | *135 | *58.5 | 7.23 | 17.6 |
| 1932 | 12.8 | 31.5 | 392 | 1,080 | 303 | 228 | 167 | 89.3 | 12.9 | 73.6 | 3.85 | 7.72 |
| 1933 | *22.5 | 296 | 611 | 534 | 283 | 1,170 | 814 | 1,370 | 11.9 | 17.3 | 3.09 | 19.9 |
| 1934 | 7.18 | 4.17 | 9.02 | 49.6 | 2.00 | 336 | 613 | 25.4 | 42.8 | 16.9 | 5.31 | 7.28 |
| 1935 | 2.96 | 3.61 | 4.37 | 53.5 | 59.4 | 258 | 46.8 | 432 | 38.7 | 105 | 153 | 10.7 |
| 1936 | 6.60 | 24.4 | 49.7 | - | - | - | - | - | - | - | - | - |
| 1940 | 47.8 | 26.1 | 16.8 | 45.3 | 288 | 639 | 1,133 | 193 | 290 | 52.9 | 16.3 | 12.3 |
| 1941 | 14.6 | 24.4 | 322 | 305 | 169 | 118 | 231 | 41.4 | 57.3 | 30.0 | 9.84 | 5.66 |
| 1942 | 24.1 | 19.4 | 30.5 | 584 | 963 | 147 | 163 | 61.0 | 53.7 | 53.7 | 35.6 | 217 |
| 1943 | 18.7 | 215 | 533 | 397 | 391 | 670 | 222 | 1,685 | 597 | 637 | 51.5 | 319 |
| 1944 | 17.9 | 91.3 | 14.1 | 13.3 | 193 | 898 | 1,359 | 249 | 262 | 9.02 | 6.82 | 3.67 |
| 1945 | 4.32 | 9.11 | 5.20 | 2.24 | 315 | 796 | 576 | 607 | 449 | 71.4 | 7.03 | 13.0 |
| 1946 | 108 | 27.0 | 397 | 323 | 155 | 461 | 41.7 | 279 | 1,385 | 117 | 10.0 | 6.85 |
| 1947 | 14.2 | 28.1 | 124 | 810 | 224 | 498 | 807 | 831 | 956 | 98.4 | 44.6 | 137 |
| 1948 | 42.9 | 100 | 222 | 691 | 664 | 1,435 | 380 | 977 | 42.9 | 50.3 | 46.6 | 8.52 |
| 1949 | 20.3 | 218 | 442 | 1,022 | 805 | 245 | 368 | 631 | 150 | 14.9 | 24.2 | 31.4 |
| 1950 | 35.4 | 8.92 | 84.8 | 1,923 | 1,645 | 1,218 | 795 | 336 | 393 | 150 | 26.2 | 295 |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1928 | - | - | - | - | - | - | - | - | - | - | 0.05 | 0.02 |
| 1929 | 0.02 | 0.04 | 0.32 | 1.71 | 1.17 | 2.26 | 2.49 | 1.89 | 0.12 | 1.23 | .02 | 11.29 |
| 1930 | .53 | 1.87 | 1.84 | 5.65 | 1.42 | 1.42 | 1.26 | .17 | .06 | .01 | .01 | 14.26 |
| 1931 | .02 | .02 | .03 | .08 | .09 | .45 | 1.11 | *.18 | *.35 | *.16 | .02 | *2.56 |
| 1932 | .03 | .08 | 1.04 | 2.87 | .75 | .61 | .46 | .23 | .03 | .20 | .01 | .02 |
| 1933 | *.06 | .76 | 1.63 | 1.42 | .68 | 3.11 | 2.10 | 3.64 | .03 | .05 | .008 | *13.54 |
| 1934 | .02 | .01 | .02 | .13 | .005 | .89 | 1.58 | .07 | .11 | .04 | .009 | .02 |
| 1935 | .008 | .009 | .01 | .14 | .14 | .69 | .12 | 1.15 | .10 | .28 | .41 | .03 |
| 1936 | .02 | .06 | .13 | - | - | - | - | - | - | - | - | - |
| 1940 | .13 | .07 | .04 | .12 | .72 | 1.71 | 2.92 | .51 | .75 | .14 | .04 | .03 |
| 1941 | .04 | .06 | .86 | .81 | .41 | .31 | .59 | .11 | .15 | .08 | .03 | .01 |
| 1942 | .06 | .05 | .08 | .11 | 1.27 | 1.56 | 2.48 | .39 | .42 | .16 | .14 | .09 |
| 1943 | .05 | .55 | 1.42 | 1.06 | .94 | 1.79 | .57 | 4.48 | 1.54 | 1.70 | .14 | .82 |
| 1944 | .05 | .24 | .04 | .48 | .48 | 2.39 | 3.50 | .66 | .68 | .02 | .02 | .009 |
| 1945 | .01 | .02 | .01 | .006 | .76 | 2.12 | 1.48 | 1.61 | 1.16 | .13 | .02 | .03 |
| 1946 | .29 | .07 | 1.06 | .86 | .37 | 1.22 | .11 | .74 | 3.57 | .31 | .03 | .02 |
| 1947 | .04 | .07 | .33 | 2.16 | .54 | 1.33 | 2.08 | 2.21 | 2.47 | .26 | .12 | .35 |
| 1948 | .11 | .26 | .59 | 1.84 | 1.65 | 3.82 | .98 | 2.61 | .11 | .14 | .12 | .02 |
| 1949 | .05 | .56 | 1.18 | 2.72 | 1.94 | .65 | 1.00 | 1.68 | .39 | .04 | .06 | .08 |
| 1950 | .09 | .02 | .23 | 5.12 | 3.96 | 3.24 | 2.05 | .89 | 1.01 | .40 | .07 | .76 |

* Revised.

Yearly discharge, in cubic feet per second, of Portage River at Woodville, Ohio

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 714 | - | - | - | - | - | - | - | - |
| 1929 | 714, 894 | 7,450 | Feb. 27, 1929 | 3.1 | 360 | 0.831 | 11.29 | 483 | 15.15 |
| 1930 | 714, 894 | 9,150 | Jan. 15, 1930 | .5 | 455 | 1.05 | 14.26 | 322 | 10.09 |
| 1931 | 714, 1387 | 2,040 | Apr. 4, 1931 | .4 | *81.4 | *.188 | *2.56 | *116 | *3.64 |
| 1932 | 729 | 4,250 | Jan. 18, 1932 | 1.6 | 202 | .467 | 6.33 | *243 | *7.63 |
| 1933 | (a) | 8,220 | Mar. 15, 1933 | .9 | *432 | *.998 | *13.54 | 356 | 11.14 |
| 1934 | 759 | 4,000 | Apr. 17, 1934 | .8 | 93.0 | .215 | 2.90 | 92.2 | 2.88 |
| 1935 | 784 | 2,920 | May 8, 1935 | .8 | 98.4 | .227 | 3.09 | 104 | 3.27 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1940 | 894 | 4,930 | Apr. 19, 1940 | 1.5 | 228 | .527 | 7.18 | 251 | 7.90 |
| 1941 | 924 | 2,600 | Dec. 30, 1940 | 1.9 | 111 | .256 | 3.46 | 86.2 | 2.69 |
| 1942 | 954 | 6,010 | Apr. 11, 1942 | 2.4 | 217 | .501 | 6.81 | 276 | 8.64 |
| 1943 | 974 | 8,150 | May 19, 1943 | 8.0 | 480 | 1.11 | 15.06 | 426 | 13.37 |
| 1944 | 1004 | 9,300 | Apr. 12, 1944 | 1.6 | 258 | .596 | 8.13 | 250 | 7.84 |
| 1945 | 1034 | 4,930 | June 19, 1945 | 1.3 | 237 | .547 | 7.42 | 281 | 8.80 |
| 1946 | 1054 | 7,040 | June 18, 1946 | 2.6 | 276 | .637 | 8.65 | 245 | 7.67 |
| 1947 | 1084 | 7,580 | June 3, 1947 | 4.0 | 381 | .880 | 11.96 | 398 | 12.48 |
| 1948 | 1114 | 10,600 | Mar. 23, 1948 | 5.2 | 390 | .901 | 12.25 | 416 | 13.08 |
| 1949 | 1144 | 6,180 | Feb. 16, 1949 | 3.5 | 330 | .762 | 10.35 | 284 | 8.90 |
| 1950 | 1174 | 11,500 | Feb. 15, 1950 | 6.4 | 569 | 1.31 | 17.84 | 761 | 23.85 |

* Revised.

a In W.S.P. 744, 1207, 1387.

266. Sandusky River near Bucyrus, Ohio

Location.--Lat 40°48'13", long. 83°00'21", in NE¹ sec. 10, T. 3 S., R. 16 E., at highway bridge $\frac{1}{2}$ miles west of Bucyrus and 12 miles downstream from Loss Creek.

Drainage area.--89.8 sq mi.

Gage.--Water-stage recorder. Datum of gage is 955.9 ft above mean sea level, adjustment of 1912. Prior to May 11, 1940, chain gage at same site and datum.

Average discharge.--22 years (1925-35, 1938-50), 80.5 cfs.

Extremes.--1925-35, 1938-50: Maximum discharge, 5,800 cfs (revised) Dec. 14, 1927 (gage height, 9.15 ft); minimum discharge, 0.4 cfs Sept. 29, 1941, July 16, 1942. Flood of Mar. 23, 1913, reached a stage of 14.5 ft, from floodmarks.

Remarks.--Low flow slightly affected by reservoirs for municipal supply of Bucyrus.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | - | - | - | - | - | - | - | - | - | - | - | 34.3 | - |
| 1926 | 63.1 | 164 | 39.7 | 42.7 | 229 | 109 | 193 | 24.5 | 19.2 | 8.19 | 8.04 | 116 | 83.1 |
| 1927 | 278 | 91.5 | 51.6 | 204 | 179 | 278 | 87.7 | 151 | 20.2 | 19.0 | 3.96 | 10.7 | 115 |
| 1928 | 7.54 | 130 | 405 | 109 | 210 | 117 | 101 | 14.4 | 96.2 | 162 | 8.20 | 3.49 | 114 |
| 1929 | 5.08 | 13.5 | 57.3 | 223 | 154 | 213 | 218 | 154 | 14.2 | 178 | 13.1 | 5.54 | 104 |
| 1930 | 113 | 161 | 210 | 579 | 186 | 171 | 69.0 | 14.8 | 14.3 | 4.72 | 1.90 | 5.73 | 128 |
| 1931 | *3.34 | 3.40 | 4.21 | 19.6 | 46.1 | 70.9 | 129 | 32.1 | 39.2 | 11.1 | 29.2 | 56.4 | *36.7 |
| 1932 | 55.1 | 46.4 | 196 | 353 | 78.5 | 84.4 | 87.9 | 40.3 | 6.27 | 8.37 | 5.54 | 5.90 | 81.1 |
| 1933 | 17.5 | 140 | 174 | 112 | 71.3 | 325 | 167 | 147 | 4.03 | 4.97 | 1.79 | 4.65 | 97.7 |
| 1934 | 2.60 | 4.22 | 11.0 | 29.0 | 2.29 | 119 | 63.1 | 4.44 | 1.93 | 1.95 | 1.70 | 1.48 | 20.4 |
| 1935 | 1.28 | 1.34 | 1.39 | 11.9 | 33.2 | 84.9 | 9.64 | 134 | 9.34 | 38.3 | 43.7 | 5.60 | 31.5 |
| 1936 | 8.07 | 19.9 | - | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | - | 83.2 | 7.42 | - |
| 1939 | *1.75 | 16.1 | 22.6 | 76.7 | 216 | *291 | 124 | 13.4 | 17.8 | 6.92 | 2.71 | 2.54 | *65.1 |
| 1940 | 7.02 | 1.99 | 2.40 | 8.25 | 98.8 | 191 | 223 | 21.2 | 174 | 31.5 | 7.71 | 6.12 | 63.8 |
| 1941 | 5.82 | 9.40 | 133 | 82.0 | 89.8 | 48.5 | 28.7 | 7.71 | 27.8 | 5.16 | 12.7 | 2.80 | 37.5 |
| 1942 | 37.2 | 35.6 | 32.2 | 36.5 | 190 | 147 | 278 | 13.6 | 9.22 | 3.91 | 21.8 | 8.58 | 66.6 |
| 1943 | 5.71 | 74.4 | 218 | 139 | 160 | 237 | 44.9 | 168 | 76.1 | 66.1 | 25.2 | 6.15 | 102 |
| 1944 | 3.84 | 3.51 | 4.08 | 10.2 | 35.0 | 188 | 170 | 26.9 | 65.0 | 5.40 | 10.5 | 11.1 | 42.5 |
| 1945 | 4.99 | 3.06 | 3.36 | 9.05 | 213 | 385 | 108 | 168 | 89.5 | 24.0 | 10.7 | 17.9 | 85.7 |
| 1946 | 49.6 | 67.0 | 76.0 | 58.0 | 168 | 141 | 14.8 | 123 | 294 | 15.9 | 2.43 | 1.61 | 83.4 |
| 1947 | 4.31 | 12.2 | 58.5 | 233 | 47.1 | 145 | 275 | 233 | 428 | 45.1 | 23.7 | 27.8 | 128 |
| 1948 | 11.0 | 33.1 | 29.3 | 62.1 | 189 | 212 | 141 | 109 | 52.8 | 24.5 | 28.6 | 3.24 | 74.1 |
| 1949 | 12.8 | 95.8 | 144 | 275 | 148 | 123 | 158 | 28.8 | 10.3 | 13.9 | 23.9 | 14.3 | 87.0 |
| 1950 | 4.07 | 4.29 | 45.7 | 635 | 305 | 156 | 139 | 62.5 | 68.1 | 7.63 | 22.4 | 33.4 | 123 |

* Revised.

| Monthly and yearly runoff, in inches, of Sandusky River near Bucyrus, Ohio | | | | | | | | | | | | | |
|--|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1925 | - | - | - | - | - | - | - | - | - | - | - | 0.43 | - |
| 1926 | 0.81 | 2.04 | 0.51 | 0.55 | 2.66 | 1.39 | 2.40 | 0.31 | 0.24 | 0.10 | 0.10 | 1.44 | 12.55 |
| 1927 | 3.57 | 1.14 | .66 | 2.62 | 2.07 | 3.57 | 1.09 | 1.94 | .25 | .24 | .05 | .13 | 17.33 |
| 1928 | .10 | 1.62 | 5.20 | 1.39 | 2.52 | 1.50 | 1.25 | .18 | 1.19 | 2.08 | .10 | .04 | 17.17 |
| 1929 | .07 | .17 | .74 | 2.66 | 1.78 | 2.73 | 2.71 | 1.97 | .18 | 2.28 | .17 | .07 | 15.73 |
| 1930 | 1.44 | 2.00 | 2.70 | 7.44 | 2.16 | 2.19 | .86 | .19 | .18 | .06 | .02 | .05 | 19.29 |
| 1931 | *.04 | .04 | .05 | .25 | .53 | .91 | 1.61 | .41 | .49 | .14 | .37 | .70 | *5.54 |
| 1932 | .71 | .58 | 2.51 | 4.53 | .94 | 1.08 | 1.09 | .52 | .08 | .11 | .07 | .07 | 12.29 |
| 1933 | .22 | 1.74 | 2.24 | 1.44 | .83 | 4.17 | 2.08 | 1.89 | .05 | .06 | .02 | .06 | 14.80 |
| 1934 | .03 | .05 | .14 | .37 | .03 | 1.53 | .78 | .06 | .02 | .03 | .02 | .02 | 3.08 |
| 1935 | .02 | .02 | .02 | .15 | .39 | 1.09 | .12 | 1.72 | .12 | .49 | .56 | .07 | 4.77 |
| 1936 | .10 | .25 | - | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | - | 1.07 | .09 | - |
| 1939 | *.02 | .20 | .29 | .98 | 2.51 | *3.74 | 1.54 | .17 | .22 | .09 | .03 | .03 | *9.82 |
| 1940 | .09 | .02 | .03 | .11 | 1.19 | 2.46 | 2.77 | .27 | 2.16 | .40 | .10 | .08 | 9.68 |
| 1941 | .07 | .12 | 1.71 | 1.05 | 1.04 | .62 | .36 | .10 | .35 | .07 | .16 | .03 | 5.68 |
| 1942 | .48 | .44 | .41 | .47 | 2.21 | 1.89 | 3.46 | .17 | .11 | .05 | .28 | .11 | 10.08 |
| 1943 | .07 | .92 | 2.80 | 1.79 | 1.85 | 3.04 | .56 | 2.16 | .94 | .85 | .32 | .10 | 15.40 |
| 1944 | .05 | .04 | .05 | .13 | .41 | 2.16 | 2.11 | .35 | .81 | .04 | .13 | .14 | 6.42 |
| 1945 | .06 | .04 | .04 | .12 | 2.47 | 4.95 | 1.34 | 2.16 | 1.11 | .31 | .14 | .22 | 12.96 |
| 1946 | .64 | .83 | .98 | .74 | 1.95 | 1.91 | 1.8 | 1.58 | 3.65 | .20 | .05 | .02 | 12.61 |
| 1947 | .06 | .15 | .75 | 2.99 | .55 | 1.86 | 3.41 | 2.99 | 5.32 | .58 | .30 | .35 | 19.31 |
| 1948 | .14 | .41 | .36 | .80 | 2.26 | 2.72 | 1.75 | 1.40 | .66 | .51 | .37 | .04 | 11.24 |
| 1949 | .16 | 1.19 | 1.84 | 3.53 | 1.72 | 1.58 | 1.96 | .37 | .13 | .18 | .31 | .16 | 13.15 |
| 1950 | .05 | .05 | .59 | 8.15 | 3.54 | 2.01 | 1.73 | .80 | .85 | .10 | .29 | .42 | 18.58 |

* Revised.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 744 | - | - | - | - | - | - | - | - |
| 1926 | 744 | *1,780 | Apr. 9, 1926 | 1.6 | 83.1 | 0.925 | 12.55 | 96.4 | 14.56 |
| 1927 | 744 | 5,460 | Mar. 21, 1927 | 1.2 | 115 | 1.28 | 17.33 | 126 | 18.88 |
| 1928 | 744 | *5,800 | Dec. 14, 1927 | 1.5 | 114 | 1.27 | 17.17 | 74.3 | 11.23 |
| 1929 | 744 | 4,900 | Feb. 26, 1929 | 2.8 | 104 | 1.16 | 15.73 | 138 | 20.89 |
| 1930 | 744 | 3,460 | Jan. 8, 1930 | .8 | 128 | 1.44 | 19.29 | *87.9 | *13.28 |
| 1931 | 744, 1387 | 892 | Apr. 26, 1931 | 2.0 | *36.7 | *.409 | *5.54 | 60.9 | 9.21 |
| 1932 | 744 | *1,640 | Jan. 18, 1932 | .9 | 81.1 | .903 | 12.29 | 83.7 | 12.69 |
| 1933 | 744 | 4,600 | Dec. 31, 1932 | .9 | 97.7 | 1.09 | 14.80 | 71.5 | 10.82 |
| 1934 | 759 | *1,070 | Mar. 3, 1934 | .8 | 20.4 | .227 | 3.08 | 19.2 | 2.92 |
| 1935 | 784 | *1,260 | May 3, 1935 | .8 | 31.5 | .352 | 4.77 | - | - |
| 1936 | 784 | - | - | - | - | - | - | - | - |
| 1938 | 874 | - | - | - | - | - | - | - | - |
| 1939 | 874, 1387 | *4,200 | Mar. 12, 1939 | 1.0 | *65.1 | *.725 | *9.82 | *62.7 | *9.45 |
| 1940 | 894 | *2,660 | Mar. 3, 1940 | 1.0 | 63.8 | .710 | 9.68 | 75.3 | 11.44 |
| 1941 | 924 | 2,120 | Dec. 29, 1940 | .6 | 37.5 | .418 | 5.68 | 33.8 | 5.11 |
| 1942 | 954 | 2,010 | Apr. 10, 1942 | .7 | 66.6 | .742 | 10.08 | 83.0 | 12.54 |
| 1943 | 974 | 2,420 | Mar. 20, 1943 | 1.2 | 102 | 1.14 | 15.40 | 77.8 | 11.75 |
| 1944 | 1004 | 2,160 | Apr. 12, 1944 | 1.0 | 42.5 | .473 | 6.42 | 42.5 | 6.42 |
| 1945 | 1034 | 2,790 | May 18, 1945 | .8 | 85.7 | .954 | 12.96 | 101 | 15.27 |
| 1946 | 1054 | *3,020 | June 17, 1946 | .6 | 83.4 | .929 | 12.61 | 73.6 | 11.12 |
| 1947 | 1084 | 3,030 | June 7, 1947 | .8 | 128 | 1.43 | 19.31 | 128 | 19.28 |
| 1948 | 1114 | 3,190 | Feb. 14, 1948 | 1.2 | 74.1 | .825 | 11.24 | 89.1 | 13.50 |
| 1949 | 1144 | 1,580 | Feb. 15, 1949 | 2.4 | 87.0 | .969 | 13.15 | 70.4 | 10.65 |
| 1950 | 1174 | 4,610 | Jan. 16, 1950 | 2.0 | 123 | 1.37 | 18.58 | 145 | 21.98 |

* Revised.

267. Sandusky River near Upper Sandusky, Ohio

Location.--Lat 40°51'02", long. 83°15'23", in sec. 21, T. 2 S., R. 14 E., at highway bridge, three-quarters of a mile upstream from Rock Run and 2 miles northeast of Upper Sandusky.

Drainage area.--299 sq mi.

Supplemental records available.--Gage-height records (fragmentary) collected at site 3 miles upstream since 1912 are contained in reports of U. S. Weather Bureau. Records of chemical analysis for the period November 1947 to August 1948 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 792.8 ft above mean sea level, adjustment of 1912. Prior to Sept. 14, 1924, chain gage at same site and datum.

Average discharge.--26 years (1921-35, 1938-50), 246 cfs.

Extremes.--1921-35, 1938-50: Maximum discharge, 8,900 cfs Dec. 15, 1927 (gage height, 10.5 ft); minimum, 0.9 cfs Sept. 24, 1939; minimum gage height, 0.87 ft Sept. 6, 7, 1934.

Flood in June 1937 reached a stage of 14.3 ft, from high-water marks in gage well.

Monthly and yearly mean discharge, in cubic feet per second,
of Sandusky River near Upper Sandusky, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|------|------|-------|-------|------|-------|----------|
| 1922 | 413.0 | 473 | 336 | 368 | 671 | 708 | 917 | 685 | 194 | 276 | 31.0 | 31.0 | *392 |
| 1923 | 14.3 | 18.2 | 91.3 | 606 | 588 | 604 | 288 | 339 | 28.9 | *70.4 | 16.5 | 16.5 | 225 |
| 1924 | 21.5 | 40.2 | 874 | 702 | *292 | 817 | 177 | 198 | 613 | 101 | 10.3 | 10.3 | *323 |
| 1925 | 13.5 | 10.0 | *256 | *42.1 | *743 | 531 | 52.3 | 37.6 | 12.2 | 156 | 69.2 | 69.2 | *167 |
| 1926 | 168 | 408 | 152 | *183 | 818 | 407 | 610 | 77.7 | 85.2 | 29.4 | 83.3 | 83.3 | *290 |
| 1927 | 795 | 301 | 173 | *784 | 635 | 914 | 337 | 449 | 98.9 | 58.5 | 14.0 | 14.0 | *381 |
| 1928 | 30.7 | 258 | 1,070 | *227 | 706 | 395 | 385 | 64.6 | 333 | 332 | 20.3 | 20.3 | *352 |
| 1929 | 17.0 | 45.6 | 187 | 830 | *528 | 577 | 655 | 391 | 39.1 | 339 | 37.2 | 37.2 | *287 |
| 1930 | 293 | 447 | 651 | 1,701 | 531 | 439 | 208 | 42.6 | 30.0 | 14.3 | 4.27 | 4.27 | 365 |
| 1931 | 12.7 | 13.8 | 22.4 | 66.6 | 104 | 189 | 364 | 103 | 114 | 49.4 | 126 | 208 | 114 |
| 1932 | 234 | 188 | 591 | 1,040 | 284 | 240 | 291 | 147 | 40.2 | 34.7 | 14.2 | 15.9 | 261 |
| 1933 | 31.1 | 324 | 299 | 484 | 208 | 1,036 | 569 | 496 | 18.3 | 15.3 | 15.8 | 25.8 | 295 |
| 1934 | 22.5 | 18.8 | 48.9 | 104 | 17.8 | 395 | 184 | 18.2 | 6.44 | 8.07 | 5.96 | 2.97 | 70.0 |
| 1935 | 5.26 | 9.32 | 7.06 | 42.7 | 105 | 273 | 45.2 | 342 | 31.3 | 75.2 | 112 | 10.7 | 88.6 |
| 1936 | 24.7 | 55.2 | 215 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | 688 | 872 | 554 | 63.8 | 85.2 | 29.9 | 157 | 20.9 | - |
| 1939 | 5.32 | 31.8 | 55.8 | 159 | 615 | 941 | 391 | 59.3 | 87.2 | 26.5 | 5.51 | 3.27 | 196 |
| 1940 | 15.6 | 8.09 | 7.87 | 28.0 | 383 | 550 | 709 | 79.2 | 391 | 107 | 44.5 | 22.5 | 194 |
| 1941 | 10.5 | 27.4 | 298 | 278 | 236 | 114 | 98.2 | 25.1 | 120 | 23.5 | 27.9 | 5.61 | 105 |
| 1942 | 69.7 | 81.4 | 73.5 | 92.4 | 592 | 462 | 836 | 52.6 | 52.6 | 13.8 | 53.8 | 26.3 | 198 |
| 1943 | 19.1 | 202 | 554 | 539 | 462 | 692 | 120 | 490 | 220 | 392 | 76.8 | 20.7 | 316 |
| 1944 | 9.66 | 13.6 | 10.1 | 19.7 | *60.8 | 481 | 509 | 104 | 121 | 10.0 | 11.7 | 12.7 | *115 |
| 1945 | 11.1 | 8.32 | 9.36 | 13.9 | 529 | 948 | 327 | 440 | 396 | 74.3 | 31.4 | 18.5 | 232 |
| 1946 | 88.1 | 130 | 169 | 205 | 425 | 426 | 37.3 | 407 | 723 | 44.9 | 8.66 | 3.77 | 221 |
| 1947 | 9.27 | 28.1 | 124 | 641 | 216 | 347 | 728 | 746 | 1,283 | 154 | 54.4 | 73.6 | 366 |
| 1948 | 25.0 | 84.6 | 87.3 | 203 | 527 | 719 | 464 | 360 | 146 | 61.7 | 50.5 | 10.2 | 229 |
| 1949 | 27.6 | 252 | 432 | 891 | 476 | 323 | 443 | 102 | 80.8 | 37.6 | 27.9 | 41.3 | 260 |
| 1950 | 11.6 | 11.4 | 74.1 | 1,626 | 924 | 486 | 426 | 267 | 270 | 24.8 | 39.3 | 47.4 | 348 |

* Revised.

* Not previously published; partly estimated on basis of weather records and records for nearby stations.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|-------|------|------|------|------|------|------|-------|----------|
| 1922 | *0.05 | 1.76 | 1.29 | 1.42 | 2.33 | 2.73 | 3.42 | 2.64 | 0.72 | 1.06 | 0.12 | 0.22 | *17.76 |
| 1923 | 0.06 | .07 | .36 | 2.34 | 2.05 | 2.33 | 1.07 | 1.31 | 11 | *.27 | .06 | .22 | *10.25 |
| 1924 | .08 | .15 | 3.37 | 2.71 | *1.05 | 3.15 | .66 | .76 | 2.29 | .39 | .04 | .05 | *14.70 |
| 1925 | .05 | .04 | *.99 | *.16 | *2.58 | 2.05 | .20 | .15 | .05 | .60 | .27 | .45 | *7.59 |
| 1926 | .65 | 1.52 | .59 | *.71 | 2.85 | 1.57 | 2.28 | .30 | .32 | .11 | .32 | 1.96 | *13.18 |
| 1927 | 3.07 | 1.13 | .67 | *3.02 | 2.21 | 3.53 | 1.26 | 1.73 | .37 | .15 | .05 | .11 | *17.30 |
| 1928 | .12 | .96 | 4.13 | 2.42 | 2.54 | 1.52 | 1.44 | .25 | 1.24 | 1.28 | .08 | .04 | *16.02 |
| 1929 | .07 | .17 | .72 | 2.43 | *1.84 | 2.22 | 2.44 | 1.51 | .15 | 1.30 | .14 | .05 | *13.04 |
| 1930 | 1.13 | 1.66 | 2.51 | 6.56 | 1.85 | 1.69 | .78 | .16 | .11 | .06 | .02 | .04 | 16.57 |
| 1931 | .05 | .05 | .09 | .26 | .36 | .73 | 1.36 | .40 | .43 | .19 | .49 | .78 | 5.19 |
| 1932 | .90 | .70 | 2.28 | 4.01 | 1.02 | .93 | 1.09 | .57 | .15 | .13 | .05 | .06 | 11.89 |
| 1933 | .12 | 1.20 | 1.15 | 1.87 | .73 | 3.99 | 2.12 | 1.91 | .07 | .06 | .06 | .10 | 13.38 |
| 1934 | .09 | .07 | .19 | .40 | .06 | 1.52 | .69 | .07 | .02 | .03 | .02 | .01 | 3.17 |
| 1935 | .02 | .03 | .03 | .16 | .37 | 1.05 | .16 | 1.31 | .12 | .29 | .43 | .04 | 4.01 |
| 1936 | .10 | .21 | .83 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | .34 | 2.40 | 3.37 | 2.06 | .25 | .32 | .12 | .61 | .08 | - |
| 1939 | .02 | .12 | .22 | .61 | 2.14 | 3.63 | 1.46 | .23 | .33 | .10 | .02 | .01 | 8.89 |
| 1940 | .06 | .03 | .03 | .11 | 1.38 | 2.12 | 2.64 | .31 | 1.46 | .41 | .17 | .08 | 8.80 |
| 1941 | .04 | .10 | 1.15 | 1.07 | .82 | .44 | .37 | .10 | .45 | .09 | .11 | .02 | 4.76 |
| 1942 | .27 | .30 | .28 | .36 | 2.06 | 1.79 | 3.12 | .24 | .20 | .05 | .21 | .10 | 8.98 |
| 1943 | .07 | .75 | 2.13 | 2.08 | 1.61 | 2.66 | .45 | 1.89 | .62 | 1.51 | .30 | .08 | 14.55 |
| 1944 | .04 | .05 | .04 | .08 | *.29 | 1.86 | 1.90 | .40 | .45 | .04 | .04 | .05 | *5.24 |
| 1945 | .04 | .03 | .04 | .05 | 1.84 | 3.66 | 1.22 | 1.70 | 1.47 | .29 | .12 | .07 | 10.53 |
| 1946 | .34 | .49 | .65 | .79 | 1.48 | 1.64 | .14 | 1.57 | 2.70 | .17 | .03 | .01 | 10.01 |
| 1947 | .04 | .10 | .48 | 2.47 | .75 | 1.34 | 2.71 | 2.87 | 4.79 | .59 | .21 | .27 | 16.62 |
| 1948 | .10 | .32 | .34 | .78 | 1.90 | 2.77 | 1.73 | 1.46 | .54 | .24 | .19 | .04 | 10.41 |
| 1949 | .11 | .94 | 1.66 | 3.44 | 1.68 | 1.24 | 1.65 | .39 | .30 | .15 | .11 | .15 | 11.80 |
| 1950 | .04 | .04 | .29 | 6.27 | 3.22 | 1.98 | 1.58 | 1.03 | 1.01 | .10 | .15 | .18 | 15.79 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly mean discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1922 | 544 | *4,500 | Apr. 18, 1922 | *10 | *392 | *1.31 | *17.76 | 334 | 15.15 | |
| 1923 | 564,1387 | *3,100 | Jan. 15, 1923 | 7.5 | 225 | .753 | *10.25 | *294 | *13.36 | |
| 1924 | 584,1387 | *4,600 | Mar. 30, 1924 | 5 | *323 | *1.08 | *14.70 | *267 | *12.18 | |
| 1925 | 604,1387 | 3,520 | Feb. 24, 1925 | 3.8 | *167 | *.559 | *7.59 | *204 | *9.27 | |
| 1926 | 624,1387 | 3,890 | Apr. 9, 1926 | 6.3 | *290 | *.970 | *13.18 | *336 | *15.29 | |
| 1927 | (a) | 8,280 | Mar. 21, 1927 | - | *381 | *1.27 | *17.30 | *389 | *17.64 | |
| 1928 | (b) | 8,900 | Dec. 15, 1927 | 3.7 | *352 | *1.18 | *16.02 | *259 | *11.77 | |
| 1929 | (c) | 8,590 | Feb. 27, 1929 | 5.3 | *287 | *.960 | *13.04 | *383 | *17.38 | |
| 1930 | 899, 874 | 7,670 | Jan. 13, 1930 | 2.4 | 365 | 1.22 | 16.57 | 252 | 11.46 | |

* Revised.

* Not previously published.

a In W.S.P. 644, 874, 1387.

b In W.S.P. 664, 874, 1387.

c In W.S.P. 684, 874, 1387.

| Yearly discharge, in cubic feet per second, of Sandusky River near Upper Sandusky, Ohio--Continued | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 1,580 | Apr. 27, 1931 | 5.6 | 114 | 0.381 | 5.19 | 195 | 8.88 |
| 1932 | 729 | 2,770 | Jan. 16, 1932 | 3.3 | 261 | .873 | 11.89 | 230 | 10.48 |
| 1933 | 744 | 7,370 | Mar. 15, 1933 | 1.3 | 295 | .987 | 13.38 | 248 | 11.26 |
| 1934 | 759 | 2,020 | Mar. 3, 1934 | 1.0 | 70.0 | .234 | 3.17 | 64.2 | 2.90 |
| 1935 | 784 | 2,380 | May 4, 1935 | 2.1 | 88.6 | .296 | 4.01 | 112 | 5.07 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1938 | 854 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 7,970 | Mar. 15, 1939 | 1.0 | 196 | .656 | 8.89 | 191 | 8.65 |
| 1940 | 894 | 5,630 | Mar. 4, 1940 | 2.1 | 194 | .649 | 8.80 | 219 | 9.97 |
| 1941 | 924 | 3,180 | Dec. 30, 1940 | 1.4 | 105 | .351 | 4.76 | 95.1 | 4.32 |
| 1942 | 954 | 4,670 | Apr. 11, 1942 | 3.2 | 198 | .662 | 8.98 | 244 | 11.08 |
| 1943 | 974 | 4,270 | Mar. 21, 1943 | 7.9 | 316 | 1.06 | 14.35 | 254 | 11.53 |
| 1944 | 1004 | 1,387 | Apr. 12, 1944 | 2.8 | *115 | *.385 | *5.24 | *115 | *5.22 |
| 1945 | 1034 | 4,500 | Mar. 21, 1945 | 3.2 | 232 | .776 | 10.53 | 262 | 11.90 |
| 1946 | 1054 | 5,590 | June 18, 1946 | 2.2 | 221 | .739 | 10.01 | 202 | 9.15 |
| 1947 | 1084 | 6,330 | June 3, 1947 | 1.6 | 366 | 1.22 | 16.62 | 369 | 16.76 |
| 1948 | 1114 | 3,700 | Feb. 14 or 15 | 3.2 | 229 | .766 | 10.41 | 272 | 12.36 |
| 1949 | 1144 | 2,780 | Feb. 16, 1949 | 6.7 | 260 | .870 | 11.80 | 209 | 9.46 |
| 1950 | 1174 | 6,800 | Feb. 15, 1950 | 8.1 | 348 | 1.16 | 15.79 | 417 | 18.93 |

* Revised.

268. Sandusky River near Mexico, Ohio

Location.--Lat 41°02'39", long. 83°11'42", in sec. 13, T. 1 N., R. 14 E., at highway bridge, 3 miles upstream from Honey Creek and 4½ miles north of Mexico.

Drainage area.--776 sq mi.

Supplemental records available.--November 1898 to November 1900, gage heights and discharge measurements only.

Gage.--Water-stage recorder. Datum of gage is 733.1 ft above mean sea level, adjustment of 1912. Prior to Aug. 15, 1929, chain gage at same site and datum.

Average discharge.--24 years (1923-35, 1938-50), 569 cfs.

Extremes.--1923-35, 1938-50: Maximum discharge, 15,200 cfs Mar. 22, 1927 (gage height, 19.9 ft, from graph based on gage readings); minimum, 1.8 cfs (during repairs to small dam above station) Oct. 31, 1942.

Flood in June 1937 reached a stage of 22.5 ft, from information by local residents (discharge, 19,000 cfs, from rating curve extended above 13,000 cfs).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|-------|-------|-------|-------|--------|--------|-------|-------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1923 | - | - | - | - | - | 1,380 | 589 | 985 | 97.9 | 223 | 67.6 | 160 |
| 1924 | 65.9 | 102 | 2,170 | 1,610 | 854 | 2,100 | 634 | 472 | 1,650 | 241 | 24.0 | 62.7 |
| 1925 | *59.7 | *32.9 | *518 | *106 | *1,590 | 1,140 | 100 | 55.9 | 28.5 | 190 | 121 | 276 |
| 1926 | 267 | 964 | 251 | 482 | 1,730 | 799 | 1,460 | 119 | 111 | 58.1 | 232 | 1,670 |
| 1927 | 1,680 | 634 | 365 | 1,840 | 2,180 | 2,390 | 957 | 1,070 | 313 | 97.3 | 66.9 | 99.2 |
| 1928 | 43.1 | 425 | 2,520 | *895 | *1,330 | *1,010 | 1,030 | 133 | 954 | 492 | 32.6 | 24.2 |
| 1929 | *23.8 | *72.4 | 392 | 1,780 | 1,160 | 1,770 | 1,460 | 808 | 78.2 | 606 | 78.3 | 20.6 |
| 1930 | *685 | 991 | 1,570 | 4,280 | 1,220 | 1,050 | 507 | 98.5 | 105 | 35.5 | 15.3 | 28.5 |
| 1931 | *30.2 | *32.8 | *48.7 | 138 | 230 | 459 | 878 | 196 | 207 | 88.5 | 202 | 401 |
| 1932 | 265 | 273 | 1,160 | 2,320 | 733 | 605 | 632 | 279 | 73.5 | 81.1 | 25.3 | 23.0 |
| 1933 | 62.3 | 521 | 585 | 1,190 | 546 | 2,400 | 1,310 | 1,350 | 56.4 | 51.1 | 50.4 | 99.3 |
| 1934 | 62.7 | 54.8 | 113 | 256 | 46.6 | 929 | 492 | 48.6 | 21.8 | 18.5 | 19.7 | 23.3 |
| 1935 | 14.5 | 21.0 | 21.4 | 133 | 256 | 640 | 120 | 940 | 83.4 | 195 | 387 | 27.5 |
| 1936 | 32.2 | 58.5 | 403 | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | 318 | 46.2 | - |
| 1939 | 14.6 | 98.1 | 143 | 204 | 1,403 | 2,390 | 964 | 118 | 271 | 100 | 50.2 | 13.0 |
| 1940 | 22.8 | 26.5 | 23.8 | 65.2 | 1,048 | 1,466 | 2,025 | 144 | 699 | 299 | 72.4 | 495 |
| 1941 | 23.8 | 57.2 | 487 | 655 | 464 | 201 | 243 | 72.3 | 375 | 117 | 74.8 | 14.2 |
| 1942 | 96.1 | 123 | 126 | 120 | 1,197 | 977 | 2,038 | 144 | 166 | 50.3 | 115 | 67.4 |
| 1943 | 38.9 | 369 | 901 | 1,335 | 934 | 1,664 | 285 | 1,359 | 539 | 937 | 155 | 35.4 |
| 1944 | 31.9 | 37.7 | 26.5 | 37.8 | 130 | 1,153 | 1,299 | 286 | 231 | 23.7 | 37.2 | 20.3 |
| 1945 | 24.2 | 31.1 | 31.0 | 40.9 | 1,082 | 2,062 | 821 | 930 | 1,200 | 212 | 110 | 48.7 |
| 1946 | 239 | 264 | 373 | 583 | 838 | 1,124 | 111 | 563 | 1,801 | 108 | 25.5 | 13.3 |
| 1947 | 26.6 | 61.5 | 229 | 1,231 | 571 | 784 | 1,728 | 2,061 | 2,898 | 325 | 140 | 199 |
| 1948 | 75.9 | 256 | 249 | 661 | 1,413 | 1,997 | 1,309 | 857 | 334 | 171 | 111 | 20.9 |
| 1949 | 50.6 | 703 | 1,072 | 2,279 | 1,298 | 844 | 905 | 353 | 349 | 138 | 156.6 | 31.7 |
| 1950 | 29.7 | 29.2 | 103 | 3,703 | 2,521 | 1,228 | 1,013 | 677 | 591 | 60.7 | 70.4 | 116 |

* Revised.

† Corrected.

| Monthly and yearly runoff, in inches, of Sandusky River near Mexico, Ohio | | | | | | | | | | | | | |
|---|------|------|------|-------|-------|-------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1923 | - | - | - | - | - | 2.05 | 0.85 | 1.46 | 0.14 | 0.33 | 0.10 | 0.22 | - |
| 1924 | 0.10 | 0.15 | 3.23 | 2.39 | 1.19 | 3.12 | .91 | .70 | 2.38 | .36 | .04 | .09 | 14.66 |
| 1925 | *.06 | *.05 | *.77 | *.16 | *2.12 | 1.70 | .14 | .08 | .04 | .28 | .04 | .40 | *5.98 |
| 1926 | .40 | 1.38 | .37 | .72 | 2.32 | 1.19 | 2.10 | .18 | .16 | .09 | .34 | 2.40 | 11.65 |
| 1927 | 2.49 | .91 | .54 | 2.73 | 2.93 | 3.55 | 1.37 | 1.59 | .45 | .14 | .10 | .14 | 16.94 |
| 1928 | .06 | .61 | 3.75 | *1.35 | *1.84 | *1.50 | 1.48 | .20 | 1.37 | .75 | .05 | .03 | *12.95 |
| 1929 | *.04 | *.10 | .58 | 2.64 | 1.55 | 2.93 | 2.10 | 1.20 | .11 | .90 | .12 | .03 | *12.00 |
| 1930 | 1.02 | 1.43 | 2.53 | 6.36 | 1.63 | 1.56 | .75 | .15 | .15 | .05 | .02 | .04 | 15.47 |
| 1931 | *.04 | *.05 | *.07 | .21 | .31 | .68 | 1.26 | .29 | .30 | .13 | .30 | .58 | *4.22 |
| 1932 | .39 | .39 | 1.72 | 3.45 | 1.02 | .90 | .91 | .42 | .11 | .12 | .04 | .03 | 9.50 |
| 1933 | .09 | .75 | .87 | 1.76 | .73 | 3.56 | 1.89 | 2.01 | .08 | .08 | .07 | .14 | 12.01 |
| 1934 | .09 | .08 | .17 | .38 | .06 | 1.38 | .71 | .07 | .03 | .03 | .03 | .03 | 3.06 |
| 1935 | .02 | .03 | .03 | .20 | .54 | .95 | .17 | 1.40 | .12 | .29 | .58 | .04 | 4.17 |
| 1936 | .05 | .08 | .60 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | - | .47 | .07 | - |
| 1939 | .02 | .14 | .21 | .30 | 1.88 | 3.55 | 1.38 | .17 | .39 | .15 | .07 | .02 | 8.29 |
| 1940 | .03 | .04 | .04 | .10 | 1.46 | 2.18 | 2.91 | .21 | 1.01 | .44 | .11 | .16 | 8.69 |
| 1941 | .04 | .08 | .72 | .97 | .62 | .30 | .35 | .11 | .54 | .17 | .11 | .02 | 4.03 |
| 1942 | .14 | .18 | .19 | .18 | 1.60 | 1.45 | 2.93 | .21 | .24 | .07 | .17 | .10 | 7.46 |
| 1943 | .06 | .53 | 1.34 | 1.98 | 1.25 | 2.47 | .41 | 2.02 | .77 | 1.40 | .23 | .05 | 12.51 |
| 1944 | .05 | .05 | .04 | .06 | .18 | 1.72 | 1.86 | .43 | .33 | .04 | .06 | .03 | 4.85 |
| 1945 | .04 | .04 | .05 | .06 | 1.45 | 3.07 | 1.18 | 1.38 | 1.73 | .31 | .16 | .07 | 9.54 |
| 1946 | .36 | .38 | .55 | .87 | 1.12 | 1.67 | .16 | .84 | 2.59 | .16 | .04 | .02 | 8.76 |
| 1947 | .04 | .09 | .34 | 1.83 | .77 | 1.16 | 2.49 | 3.07 | 4.16 | .48 | .21 | .29 | 14.93 |
| 1948 | .11 | .37 | .98 | 1.96 | 2.96 | 1.89 | 1.27 | .48 | .25 | .16 | .05 | .03 | 10.83 |
| 1949 | .07 | 1.01 | 1.59 | 3.39 | 1.74 | 1.26 | 1.30 | .52 | .50 | .21 | .08 | .14 | 11.81 |
| 1950 | .04 | .04 | .15 | 5.50 | 3.38 | 1.82 | 1.46 | 1.01 | .85 | .09 | .10 | .17 | 14.61 |

* Revised.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1923 | 564 | - | - | - | - | - | - | - | - |
| 1924 | 584 | 8,200 | Mar. 31, 1924 | 10 | 835 | 1.08 | 14.66 | 687 | 12.06 |
| 1925 | 604,1387 | 5,000 | Feb. 25, 1925 | 6 | *342 | *.441 | *5.98 | 415 | 7.25 |
| 1926 | 624 | 7,200 | Apr. 10, 1926 | 9 | 666 | .858 | 11.65 | 768 | 13.44 |
| 1927 | 644, 874 | 15,200 | Mar. 22, 1927 | 24 | 970 | 1.25 | 16.94 | 996 | 17.42 |
| 1928 | 664,1387 | *11,900 | Dec. 16, 1927 | 4 | *739 | *.952 | *12.95 | 529 | 9.25 |
| 1929 | 714,1387 | *14,300 | Feb. 28, 1929 | 9.7 | *688 | *.887 | *12.00 | 919 | 16.06 |
| 1930 | 714,1387 | *14,600 | Jan. 15, 1930 | 13 | 885 | 1.14 | 15.47 | 621 | 10.85 |
| 1931 | 714,1387 | 3,300 | Apr. 4, 1931 | 12 | *241 | *.311 | *4.22 | 375 | 6.56 |
| 1932 | 729 | 5,410 | Jan. 18, 1932 | 15 | 542 | .698 | 9.50 | 496 | 8.71 |
| 1933 | 744 | 10,900 | Mar. 16, 1933 | 8.4 | 687 | .885 | 12.01 | 609 | 10.66 |
| 1934 | 759 | 4,840 | Mar. 5, 1934 | 7.2 | 175 | .226 | 3.06 | 161 | 2.80 |
| 1935 | 784 | 4,600 | May 4, 1935 | 6.7 | 238 | .307 | 4.17 | 275 | 4.82 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1938 | 854 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 13,000 | Mar. 14, 1939 | 5.8 | 475 | .612 | 8.29 | 459 | 8.02 |
| 1940 | 894 | 11,100 | Mar. 5, 1940 | 5.8 | 495 | .638 | 8.69 | 537 | 9.42 |
| 1941 | 924 | 4,280 | Dec. 31, 1940 | 4.3 | 231 | .298 | 4.03 | 212 | 3.70 |
| 1942 | 954 | 9,600 | Apr. 11, 1942 | 4.3 | 427 | .550 | 7.46 | 508 | 8.88 |
| 1943 | 974 | 6,820 | Mar. 22, 1943 | 2.0 | 716 | .923 | 12.51 | 614 | 10.72 |
| 1944 | 1004 | 7,020 | Apr. 14, 1944 | 7.7 | 276 | .356 | 4.85 | 275 | 4.84 |
| 1945 | 1034 | 8,600 | June 20, 1945 | 14 | 545 | .702 | 9.54 | 612 | 10.70 |
| 1946 | 1054 | 9,470 | June 20, 1946 | 8.2 | 500 | .644 | 8.76 | 453 | 7.94 |
| 1947 | 1084 | 10,500 | June 8, 1947 | 10 | 853 | 1.10 | 14.93 | 875 | 15.31 |
| 1948 | 1114 | 8,500 | Feb. 15, 1948 | 11 | 618 | .796 | 10.83 | 723 | 12.65 |
| 1949 | 1144 | 5,730 | Jan. 28, 1949 | 21 | 675 | .870 | 11.81 | 536 | 9.37 |
| 1950 | 1174 | 12,800 | Feb. 16, 1950 | 21 | 836 | 1.08 | 14.61 | - | - |

* Revised.

Note.--Records for November 1898 to November 1900 published in the 22d Annual Report, Part 4, have been found to be unreliable and should not be used.

269. Havens Creek at Havens, Ohio

Location.--Lat 41°17'40", long. 83°11'55", in sec. 24, T. 4 N., R. 14 E., at bridge on State Highway 12, three-quarters of a mile southeast of Havens, and 1 3/4 miles above mouth.

Drainage area.--5.00 sq mi.

Gage.--Water-stage recorder. Datum of gage is 665.69 ft above mean sea level, datum of 1929.

Supplemental records available.--October 1949 to September 1950, gage heights and discharge measurements only.

Extremes.--1946-49: Maximum discharge, 208 cfs Mar. 21, 1948 (gage height, 5.12 ft); no flow for long periods.

Flood of Feb. 14, 1950, reached a stage of 5.16 ft (discharge, 214 cfs).

| Monthly and yearly mean discharge, in cubic feet per second, of Havens Creek at Havens, Ohio | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | - | - | - | - | - | - | 0 | - |
| 1947 | 0.01 | 0.08 | 0.90 | 5.75 | 0.81 | 2.75 | 4.27 | 4.03 | 5.99 | 0.04 | 0.19 | 0.36 | 2.18 |
| 1948 | - | - | 1.19 | 5.21 | - | 13.6 | 2.15 | - | .19 | .03 | .10 | 0 | - |
| 1949 | 0 | 2.17 | 3.88 | 9.12 | 5.95 | 2.71 | 2.85 | 4.15 | 2.16 | 1.45 | 0 | .01 | 2.86 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|------|------|------|------|------|------|------|------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | - | - | - | - | - | - | - | - | - | - | - | 0 | - |
| 1947 | 0.002 | 0.02 | 0.21 | 1.33 | 0.17 | 0.63 | 0.95 | 0.93 | 1.34 | 0.009 | 0.04 | 0.30 | 5.93 |
| 1948 | - | - | .27 | - | - | - | .48 | - | .04 | .007 | .02 | 0 | - |
| 1949 | 0 | .48 | .89 | 2.10 | 1.24 | .62 | .64 | .96 | .48 | .33 | 0 | .002 | 7.74 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1946 | 1084 | - | - | 0 | - | - | - | - | - | - |
| 1947 | 1084 | 150 | June 2, 1947 | 0 | 2.18 | 0.436 | 5.93 | - | - | - |
| 1948 | 1114 | 208 | Mar. 21, 1948 | 0 | - | - | - | - | - | - |
| 1949 | 1144 | 98 | Feb. 15, 1949 | 0 | 2.86 | .572 | 7.74 | - | - | - |

270. Sandusky River near Fremont, Ohio

Location.--Lat 41°18'28", long. 83°09'32", in sec. 17, T. 4 N., R. 15 E., at highway bridge, 2½ miles downstream from Wolf Creek, 2.3 miles upstream from Ballville power dam, and 3½ miles southwest of Fremont.

Drainage area.--1,248 sq mi.

Supplemental records available.--November 1898 to March 1901, gage heights and discharge measurements only, published as "at Fremont". Records of chemical analyses and water temperatures for the period October 1947 to September 1948 (at Fremont Waterworks) and March 1950 to September 1950 (U. S. Highway 20) are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 626.3 ft above mean sea level, adjustment of 1912. Nov. 18, 1898, to Mar. 10, 1901, staff gage at site 4 miles downstream at different datum. Nov. 8, 1923, to Sept. 5, 1930, chain gage at same site and datum.

Average discharge.--24 years (1923-35, 1938-50), 924 cfs.

Extremes.--1923-35, 1938-50: Maximum discharge, 27,300 cfs Jan. 15, 1930 (gage height, 11.1 ft); minimum, 5.0 cfs Sept. 27, 28, 1941 (gage height, 0.80 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|--------|--------|--------|--------|--------|--------|-------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1924 | *106 | *162 | 3,192 | 2,454 | 1,232 | 3,461 | 1,175 | 899 | 2,415 | 416 | 61.7 | 159 | *1,510 |
| 1925 | 62.5 | 53.0 | *918 | *182 | 2,555 | 1,843 | 189 | 148 | 128 | 344 | 149 | 362 | *566 |
| 1926 | 371 | 1,596 | 480 | 881 | 3,150 | 1,484 | 2,662 | 271 | 221 | 82.6 | 314 | 2,456 | 1,140 |
| 1927 | 2,521 | 1,090 | 618 | 3,054 | 3,434 | 3,956 | 1,347 | 1,627 | 555 | 179 | 142 | 145 | 1,549 |
| 1928 | 59.1 | 522 | 3,474 | *1,635 | 2,426 | 1,721 | 1,848 | 3,591 | 1,558 | 562 | 61.2 | 43.0 | *1,184 |
| 1929 | 40.2 | 130 | 631 | 3,064 | 1,761 | 2,665 | 2,360 | 1,280 | 183 | 951 | *128 | 40.4 | *1,102 |
| 1930 | 1,019 | 1,470 | 2,572 | 7,659 | 2,696 | 1,767 | 900 | 212 | 188 | 50.3 | 24.4 | 41.1 | 1,551 |
| 1931 | *36.5 | *35.9 | 61.4 | 133 | 270 | 622 | *1,460 | 341 | 296 | 129 | 218 | 454 | *342 |
| 1932 | 388 | 340 | *1,640 | *3,750 | *1,250 | *1,100 | *1,130 | 450 | 100 | 110 | 42.5 | 26.5 | *861 |
| 1933 | 70.4 | 657 | *1,140 | *1,690 | *830 | 3,990 | *1,810 | *2,490 | 90.9 | 58.1 | 71.7 | 126 | *1,100 |
| 1934 | 86.5 | 64.3 | 157 | 390 | 65.4 | *1,373 | 863 | 111 | 56.5 | 30.9 | 40.7 | 40.1 | *275 |
| 1935 | 30.5 | 30.8 | 37.1 | 207 | 415 | 869 | 156 | *967 | 129 | 287 | 656 | 37.3 | *320 |
| 1936 | 34.6 | 66.2 | 448 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | - | 406 | 91.1 | - |
| 1939 | 33.9 | 175 | 256 | 317 | 2,753 | 3,821 | 1,646 | 211 | 282 | 145 | 81.9 | 23.1 | 799 |
| 1940 | 36.0 | 48.3 | 41.2 | 118 | 1,603 | 2,293 | 3,587 | 286 | 1,040 | 421 | 105 | 164 | 819 |
| 1941 | 44.7 | 75.4 | 802 | 1,047 | 712 | 319 | 453 | 100 | 518 | 139 | 84.1 | 21.0 | 358 |
| 1942 | 134 | 160 | 150 | 160 | 2,259 | 1,642 | 3,431 | 309 | 279 | 102 | 150 | 80.0 | 723 |
| 1943 | 57.4 | 453 | 1,422 | 2,078 | 1,485 | 2,719 | 476 | 2,796 | 1,129 | 1,517 | 222 | 205 | 1,218 |
| 1944 | 47.5 | 75.6 | 54.0 | 67.3 | 252 | 1,859 | 2,172 | 539 | 393 | 40.7 | 64.6 | 24.6 | 464 |
| 1945 | 33.1 | 42.0 | 47.3 | 69.5 | 1,768 | 3,334 | 1,527 | 1,584 | 2,057 | 327 | 129 | 110 | 895 |
| 1946 | 477 | 403 | 598 | 842 | 1,176 | 1,707 | 144 | 728 | 2,936 | 186 | 53.2 | 19.7 | 768 |
| 1947 | 36.4 | 82.6 | 355 | 2,086 | 854 | 1,226 | 2,853 | 3,426 | 4,528 | 453 | 204 | 369 | 1,371 |
| 1948 | 99.5 | 329 | 412 | 1,203 | 2,186 | 3,614 | 1,968 | 1,423 | 402 | 217 | 279 | 36.5 | 1,011 |
| 1949 | 75.8 | 1,050 | 1,667 | 3,463 | 2,098 | 1,243 | 1,435 | 810 | 562 | 241 | 71.7 | 128 | 1,065 |
| 1950 | 44.1 | 42.4 | 137 | 5,593 | 4,090 | 2,295 | 1,747 | 1,303 | 867 | 214 | 120 | 491 | 1,397 |

* Revised.

* Not previously published; estimated on basis of records for station near Mexico.

Monthly and yearly runoff, in inches, of Sandusky River near Fremont, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|-------|----------|
| 1924 | *0.10 | *0.14 | 2.95 | 2.27 | 1.06 | 3.19 | 1.05 | 0.83 | 2.16 | 0.38 | 0.06 | 0.12 | *14.31 |
| 1925 | .06 | .05 | *.85 | *.17 | 2.14 | 1.71 | .17 | .14 | .11 | .32 | .14 | .32 | *6.18 |
| 1926 | .34 | 1.43 | .44 | .81 | 2.62 | 1.35 | 2.38 | .25 | .20 | .08 | .29 | 2.20 | 12.39 |
| 1927 | 2.33 | .97 | .57 | 2.82 | 2.86 | 3.66 | 1.20 | 1.50 | .50 | .16 | .13 | .13 | 16.83 |
| 1928 | .05 | .47 | 3.20 | *1.51 | 2.09 | 1.59 | 1.65 | .33 | 1.40 | .52 | .06 | .04 | *12.91 |
| 1929 | .04 | .12 | .58 | 2.84 | 1.47 | 2.47 | 2.11 | 1.19 | .18 | .88 | *1.12 | .04 | *12.02 |
| 1930 | .94 | 1.32 | 2.38 | 7.08 | 2.25 | 1.64 | .80 | .20 | .17 | .05 | .02 | .04 | 16.89 |
| 1931 | .03 | .03 | .06 | .18 | .22 | .57 | *1.30 | .31 | .26 | .12 | .20 | .41 | *3.69 |
| 1932 | .36 | .30 | *1.51 | *3.46 | *1.08 | *1.02 | *1.01 | .40 | .09 | .10 | .04 | .02 | *9.39 |
| 1933 | .06 | .59 | *1.05 | *1.56 | *.69 | 3.69 | *1.71 | *2.31 | .08 | .05 | .07 | .11 | *11.96 |
| 1934 | .08 | .06 | .15 | .36 | .05 | *1.27 | .77 | .10 | .05 | .03 | .04 | .04 | *3.00 |
| 1935 | .03 | .03 | .03 | .19 | .35 | .80 | .14 | *.89 | .11 | .27 | .61 | .03 | *3.48 |
| 1936 | .03 | .06 | .41 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | - | - | - | - | - | .37 | .08 | - |
| 1939 | .03 | .16 | .24 | .29 | 2.30 | 3.53 | 1.47 | .19 | .25 | .13 | .08 | .02 | 8.69 |
| 1940 | .03 | .04 | .04 | .11 | 1.55 | 2.12 | 3.20 | .26 | .93 | .59 | .10 | .15 | 8.92 |
| 1941 | .04 | .07 | .74 | .97 | .59 | .30 | .40 | .09 | .46 | .13 | .08 | .02 | 3.89 |
| 1942 | .12 | .14 | .14 | .15 | 1.89 | 1.52 | 3.07 | .29 | .25 | .09 | .14 | .07 | 7.87 |
| 1943 | .05 | .40 | 1.31 | 1.92 | 1.24 | 2.51 | .43 | 2.58 | 1.01 | 1.41 | .21 | .18 | 13.25 |
| 1944 | .04 | .07 | .05 | .06 | .22 | 1.72 | 1.94 | .50 | .35 | .04 | .06 | .02 | 5.07 |
| 1945 | .03 | .04 | .04 | .06 | 1.48 | 3.08 | 1.18 | 1.46 | 1.84 | .30 | .12 | .10 | 9.73 |
| 1946 | .44 | .36 | .55 | .78 | .98 | 1.58 | .13 | .67 | 2.62 | .17 | .05 | .02 | 8.35 |
| 1947 | .03 | .07 | .33 | 1.92 | .71 | 1.13 | 2.56 | 3.17 | 4.05 | .42 | .19 | .33 | 14.91 |
| 1948 | .09 | .29 | .38 | 1.11 | 1.89 | 3.34 | 1.76 | 1.31 | .36 | .20 | .26 | .03 | 11.02 |
| 1949 | .07 | .94 | 1.54 | 3.19 | 1.75 | 1.15 | 1.28 | .75 | .50 | .22 | .07 | .11 | 11.57 |
| 1950 | .04 | .04 | .13 | 5.16 | 3.42 | 2.12 | 1.56 | 1.20 | .78 | .20 | .11 | .44 | 15.20 |

* Revised.

* Not previously published; estimated on basis of records for station near Mexico.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|-----------------|-------------|--------|-----------------|------------------|-------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 1144 | 14,800 | Jan. 11, 1924 | *21 | *1,310 | *1.05 | *14.31 | 1,108 | 12.08 |
| 1925 | 1144,1387 | 10,200 | Feb. 24, 1925 | 15 | *566 | *.454 | *6.18 | 682 | 7.43 |
| 1926 | 1144 | 13,100 | Feb. 26, 1926 | 19 | 1,140 | .913 | 12.39 | 1,292 | 14.05 |
| 1927 | 1144 | 20,000 | Mar. 22, 1927 | 29 | 1,549 | 1.24 | 16.83 | 1,535 | 16.88 |
| 1928 | 1144,1387 | 14,100 | Dec. 16, 1927 | 23 | *1,184 | *.949 | *12.91 | 910 | 9.93 |
| 1929 | 1144,1387 | 17,500 | Feb. 28, 1929 | 22 | *1,102 | *.883 | *12.02 | 1,460 | 15.92 |
| 1930 | 1144 | 27,300 | Jan. 15, 1930 | 19 | 1,551 | 1.24 | 16.89 | 1,136 | 12.37 |
| 1931 | 744,1387 | *5,400 | Apr. 4, 1931 | *24 | *342 | *.274 | *3.69 | 531 | 5.74 |
| 1932 | 744,1387 | *10,200 | Jan. 18, 1932 | 16 | *861 | *.690 | *9.39 | 818 | 8.92 |
| 1933 | 744,1387 | *22,600 | Mar. 14, 1933 | 17 | *1,100 | *.881 | *11.96 | 959 | 10.55 |
| 1934 | 759,1387 | *8,700 | Mar. 5, 1934 | 11 | *275 | *.220 | *3.00 | *257 | *2.80 |
| 1935 | 784,1387 | *5,850 | May 4, 1935 | 11 | *320 | *.258 | *3.48 | *359 | *3.89 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1938 | 854 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 15,900 | Mar. 13, 1939 | 11 | 799 | .640 | 8.69 | 771 | 8.37 |
| 1940 | 894 | 18,000 | Mar. 4, 1940 | 13 | 819 | .656 | 8.92 | 866 | 9.66 |
| 1941 | 924 | 6,650 | Dec. 30, 1940 | 5.6 | 358 | .287 | 3.89 | 317 | 3.44 |
| 1942 | 954 | 18,400 | Apr. 11, 1942 | 7.7 | 723 | .579 | 7.87 | 848 | 9.23 |
| 1943 | 974 | 13,600 | Mar. 17, May 19 | 20 | 1,218 | .976 | 13.25 | 1,070 | 11.65 |
| 1944 | 1004 | 13,200 | Apr. 12, 1944 | 12 | 464 | .372 | 5.07 | 460 | 5.02 |
| 1945 | 1034 | 13,600 | June 19, 1945 | 20 | 895 | .717 | 9.73 | 1,010 | 10.97 |
| 1946 | 1054 | 14,600 | June 18, 1946 | 13 | 768 | .615 | 8.35 | 684 | 7.43 |
| 1947 | 1084 | 17,500 | June 3, 1947 | 15 | 1,371 | 1.10 | 14.91 | 1,401 | 15.24 |
| 1948 | 1114 | 17,800 | Mar. 22, 1948 | 21 | 1,011 | .810 | 11.02 | 1,175 | 12.81 |
| 1949 | 1144 | 11,100 | Feb. 16, 1949 | 31 | 1,065 | .853 | 11.57 | 849 | 9.23 |
| 1950 | 1174 | 22,900 | Feb. 15, 1950 | 28 | 1,397 | 1.12 | 15.20 | - | - |

* Revised.

* Not previously published.

271. East Branch Huron River near Norwalk, Ohio

Location.--Lat 41°14'58", long. 82°38'52", at highway bridge, 1½ miles northwest of Norwalk and 1½ miles below mouth of Cole Creek.

Drainage area.--84.9 sq mi.

Gage.--Chain gage. Altitude of gage is 635 ft (from topographic map).

Average discharge.--12 years (1923-35), 65.5 cfs.

Extremes.--1923-35: Maximum discharge, 4,700 cfs Feb. 26, 1929 (gage height, 9.5 ft, from graph based on gage readings), from rating curve extended above 1,290 cfs; minimum, 0.1 cfs July 26, 1933.

STREAMS TRIBUTARY TO LAKE ERIE

Monthly and yearly mean discharge, in cubic feet per second,
of East Branch Huron River near Norwalk, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | *7.23 | *8.11 | 260 | 166 | 77.3 | 224 | 57.2 | 83.0 | 206 | 28.0 | 5.58 | 23.4 | *96.1 |
| 1925 | 11.3 | 7.65 | 108 | 17.7 | 240 | 177 | 20.1 | 20.2 | 8.88 | 13.8 | 6.80 | 51.3 | 55.8 |
| 1926 | 24.4 | 105 | 40.7 | 53.8 | 251 | 120 | 188 | 24.2 | 25.4 | 16.1 | 33.3 | 203 | 88.7 |
| 1927 | 317 | 87.7 | 55.2 | 236 | 240 | 250 | 39.2 | 56.4 | 16.9 | 9.64 | 9.61 | 6.06 | 110 |
| 1928 | 7.95 | 63.5 | 178 | 102 | 89.8 | 120 | 97.3 | 13.3 | 78.1 | 38.6 | 6.50 | 3.61 | 66.6 |
| 1929 | 8.35 | 16.1 | 33.4 | 176 | 174 | 149 | 193 | 117 | 29.2 | 73.9 | 5.28 | 5.14 | 81.2 |
| 1930 | 44.5 | 85.9 | 133 | 449 | 122 | 119 | 71.1 | 16.3 | 10.9 | 4.94 | 2.95 | 5.89 | 89.0 |
| 1931 | 6.19 | 7.98 | 11.0 | 65.4 | 23.5 | 28.5 | 96.2 | 21.5 | 14.3 | 4.03 | 12.5 | 12.2 | 25.2 |
| 1932 | 5.91 | 10.7 | 55.5 | 185 | 66.6 | 104 | 54.6 | 15.8 | 4.79 | 3.02 | 1.73 | 1.57 | 43.4 |
| 1933 | 3.12 | 17.7 | 89.4 | 62.0 | 64.2 | 256 | 157 | 180 | 11.1 | 6.16 | 3.25 | 4.49 | 71.5 |
| 1934 | 3.62 | 13.0 | 15.0 | 16.9 | 5.3 | 111 | 17.2 | 5.75 | 1.84 | .75 | 13.8 | 6.3 | 30.4 |
| 1935 | 5.30 | 5.73 | 9.40 | 32.0 | 63.7 | 73.2 | 13.0 | 68.2 | 13.2 | 33.7 | 26.1 | 2.07 | 28.7 |
| 1936 | 3.47 | 6.81 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for station on East Branch Black River at Elyria.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | *0.10 | *0.11 | 3.53 | 2.26 | 0.98 | 3.04 | 0.75 | 1.13 | 2.71 | 0.38 | 0.08 | 0.31 | *15.38 |
| 1925 | .15 | .10 | 1.46 | .24 | 2.95 | 2.40 | .26 | .27 | .12 | .19 | .09 | .67 | 8.90 |
| 1926 | .33 | 1.38 | .55 | .73 | 3.08 | 1.63 | 2.47 | .33 | .33 | .22 | .45 | 2.67 | 14.17 |
| 1927 | 4.30 | 1.15 | .75 | 3.20 | 2.95 | 3.40 | .52 | .77 | .22 | .13 | .13 | .08 | 17.60 |
| 1928 | .11 | .83 | 2.42 | 1.38 | 1.14 | 1.63 | 1.26 | .18 | 1.05 | .52 | .09 | .05 | 10.66 |
| 1929 | .11 | .21 | .45 | 2.39 | 2.13 | 2.05 | 2.53 | 1.59 | .38 | 1.00 | .07 | .07 | 12.96 |
| 1930 | .60 | 1.13 | 1.81 | 6.10 | 1.50 | 1.61 | .93 | .22 | .14 | .07 | .04 | .08 | 14.23 |
| 1931 | .08 | .10 | .15 | .89 | .29 | .39 | 1.26 | .29 | .19 | .05 | .17 | .16 | 4.02 |
| 1932 | .08 | .14 | .75 | 2.65 | .85 | 1.41 | .72 | .21 | .06 | .04 | .02 | .02 | 6.95 |
| 1933 | .04 | .23 | 1.21 | .84 | .79 | 3.48 | 2.06 | 2.44 | .15 | .08 | .04 | .06 | 11.42 |
| 1934 | .05 | .17 | .20 | .23 | .06 | 1.51 | 2.25 | .08 | .02 | .01 | .19 | .08 | 4.86 |
| 1935 | .07 | .07 | .13 | .43 | .78 | .99 | .17 | .93 | .17 | .46 | .35 | .03 | 4.58 |
| 1936 | .05 | .09 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1924 | 604 | *2,270 | Mar. 29, 1924 | - | *96.1 | *1.13 | *15.38 | 83.3 | 13.35 | | |
| 1925 | 604 | *2,330 | Feb. 23, 1925 | 2.6 | 55.8 | .657 | 8.90 | 59.2 | 9.45 | | |
| 1926 | 624 | *2,860 | Feb. 25, 1926 | 2.9 | 88.7 | 1.04 | 14.17 | 113 | 16.11 | | |
| 1927 | 644 | *3,970 | Oct. 5, 1925 | 4.2 | 110 | 1.50 | 17.60 | 92.2 | 14.76 | | |
| 1928 | 664 | 2,790 | Mar. 30, 1928 | 2.9 | 66.6 | .784 | 10.66 | 50.5 | 8.07 | | |
| 1929 | 684 | *4,700 | Feb. 26, 1929 | 2.9 | 81.2 | .956 | 12.96 | 98.4 | 15.73 | | |
| 1930 | 699 | *3,970 | Jan. 12, 1930 | 2.3 | 89.0 | 1.05 | 14.23 | 69.0 | 11.02 | | |
| 1931 | 714 | *930 | Apr. 22, 1931 | .4 | 25.2 | .297 | 4.02 | 29.2 | 4.66 | | |
| 1932 | 729 | *1,560 | Mar. 22, 1932 | .6 | 43.4 | .511 | 6.95 | 46.6 | 7.46 | | |
| 1933 | 744 | 4,610 | Mar. 14, 1933 | 1.0 | 70.5 | .842 | 11.42 | 64.8 | 10.36 | | |
| 1934 | 759 | *3,650 | Apr. 4, 1934 | .2 | 30.4 | .358 | 4.86 | 29.4 | 4.71 | | |
| 1935 | 784 | *1,130 | Aug. 7, 1935 | .9 | 28.7 | .338 | 4.58 | - | - | | |

* Revised.

* Not previously published.

272. Huron River at Milan, Ohio

Location.--Lat 41°18'00", long. 82°36'30", in SE $\frac{1}{4}$ sec. 4, T. 5 N., R. 22 W., at bridge on U. S. Highway 250, a quarter of a mile northwest of Milan and 2 miles downstream from confluence of East and West Branches.

Drainage area.--363 sq mi.

Supplemental records available.--Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Gage.--Wire-weight gage. Datum of gage is 573.43 ft above mean sea level, adjustment of 1912.

Extremes.--March to September 1950: Maximum discharge, 7,640 cfs Apr. 24 (gage height, 17.1 ft, from graph based on gage readings); minimum observed, 7.9 cfs Aug. 5 (gage height, 5.40 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | 854 | 416 | 340 | 97.6 | 49.4 | 251 | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | 2.62 | 1.34 | 1.03 | 0.31 | 0.16 | 0.75 | - |

273. Vermilion River near Vermilion, Ohio

Location.--Lat 41°22'55", long. 82°19'00", in T. 6 N., R. 19 W., at bridge on North Ridge Road, 3½ miles southeast of Vermilion, and 4½ miles upstream from mouth.

Drainage area.--260 sq mi.

Supplemental records available.--Records of chemical analyses and water temperatures are published in reports of Geological Survey.

Gage.--Wire-weight gage. Datum of gage is 592.58 ft above mean sea level (Lorain County benchmark).

Extremes.--March to September 1950: Maximum discharge, 8,100 cfs Apr. 24 (gage height, 10.7 ft, from graph based on gage readings); minimum observed, 3.8 cfs Aug. 17, 18 (gage height, 3.11 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | 656 | 360 | 174 | 44.1 | 31.1 | 72.1 | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1950 | - | - | - | - | - | - | 2.81 | 1.59 | 0.75 | 0.20 | 0.14 | 0.31 | - |

274. East Branch Black River at Elyria, Ohio

Location.--Lat 41°20'51", long. 82°05'40", at Fuller Street Bridge, 1¼ miles southeast of center of Elyria, and 3 miles above junction with West Branch.

Drainage area.--211 sq mi.

Gage.--Chain gage. Altitude of gage is 710 ft (from topographic map).

Average discharge.--13 years (1922-35), 178 cfs.

Extremes.--1922-35: Maximum discharge observed, 11,400 cfs (revised) Mar. 14, 1933 (gage height, 10.10 ft), from rating curve extended above 6,930 cfs; no flow several days in August 1930 and in August and September 1933.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|--------|--------|------|------|------|------|------|------|------|-------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | - | 1.94 | 7.49 | - |
| 1923 | 1.86 | 8.09 | 14.4 | 183 | 70.1 | 375 | 408 | 215 | 11.9 | 24.1 | 63.8 | 32.4 | 118 |
| 1924 | 8.83 | 67.9 | 706 | 399 | 143 | 480 | 156 | 216 | 453 | 122 | 5.24 | 105 | 239 |
| 1925 | 54.5 | 6.26 | 116 | 28.4 | 597 | 478 | 21.3 | 40.2 | 5.28 | 21.8 | 15.7 | 169 | 126 |
| 1926 | 121 | 368 | 126 | 184 | *557 | 311 | 449 | 21.7 | 62.7 | 22.5 | 7.75 | 528 | *226 |
| 1927 | 533 | 241 | 70.5 | 460 | 623 | *823 | 79.5 | 323 | 33.8 | 4.81 | 2.27 | 6.01 | *266 |
| 1928 | 3.77 | 367 | *1,150 | 507 | 655 | 333 | 348 | 27.8 | 380 | 209 | 20.9 | 1.33 | *315 |
| 1929 | 3.75 | 16.0 | 58.6 | *610 | 424 | 410 | 536 | 29.0 | 13.2 | 320 | 3.91 | 3.37 | *239 |
| 1930 | 21.5 | 28.2 | 290 | *1,490 | 452 | 382 | 210 | 28.4 | 7.10 | 1.11 | .71 | .90 | *243 |
| 1931 | .48 | 1.71 | 5.60 | 19.9 | 98.0 | 111 | 427 | 56.0 | 57.7 | 5.35 | 5.30 | 7.41 | 65.4 |
| 1932 | 3.92 | 28.8 | 207 | 682 | 144 | 140 | 152 | 126 | 6.92 | 7.05 | .56 | .54 | 126 |
| 1933 | 2.05 | 44.7 | *231 | *258 | 149 | *962 | 358 | 344 | 9.82 | 5.54 | .48 | .24 | *198 |
| 1934 | .24 | 3.12 | 6.69 | 12.8 | 5.57 | 161 | 246 | 13.0 | 10.7 | 11.2 | 32.5 | 5.17 | 42.4 |
| 1935 | 2.24 | 4.04 | 9.64 | 49.3 | 256 | 246 | 26.4 | 141 | 12.0 | 92.9 | *440 | 4.58 | *107 |
| 1936 | 3.45 | 8.88 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|------|------|------|------|-------|-------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | - | 0.01 | 0.04 | - |
| 1923 | 0.01 | 0.04 | 0.08 | 1.00 | 0.35 | 2.05 | 2.15 | 1.18 | 0.06 | 0.13 | .35 | .17 | 7.57 |
| 1924 | .05 | .36 | 3.86 | 2.18 | .73 | 2.62 | .82 | 1.18 | 2.40 | .67 | .03 | .56 | 15.46 |
| 1925 | .50 | .03 | .63 | .16 | 2.95 | 2.62 | .11 | .22 | .03 | .12 | .09 | .89 | 8.15 |
| 1926 | .66 | 1.94 | .69 | 1.01 | *2.75 | 1.70 | 2.38 | .12 | .33 | .12 | .04 | 2.79 | *14.53 |
| 1927 | 2.92 | 1.27 | .38 | 2.51 | 3.07 | *4.50 | .42 | 1.76 | .18 | .03 | .01 | .03 | *17.08 |
| 1928 | .02 | 1.94 | *6.28 | 1.67 | 3.34 | 1.82 | 1.84 | .15 | 2.01 | 1.14 | .11 | .01 | *20.33 |
| 1929 | .02 | .08 | .32 | *3.33 | *3.08 | 2.24 | 2.83 | 1.58 | .07 | 1.75 | .02 | .02 | *15.34 |
| 1930 | .12 | .15 | 1.58 | *8.14 | 2.23 | 2.09 | 1.11 | .16 | .04 | .01 | .004 | .005 | *15.64 |
| 1931 | .002 | .01 | .03 | .11 | .48 | .61 | 2.25 | .31 | .30 | .03 | .03 | .04 | 4.20 |
| 1932 | .02 | .15 | 1.13 | 3.72 | .74 | .77 | .80 | .69 | .04 | .04 | .003 | .003 | 8.11 |
| 1933 | .11 | .24 | *1.26 | *1.41 | .74 | *5.26 | 1.90 | 1.88 | .05 | .03 | .003 | .001 | *12.88 |
| 1934 | .001 | .02 | .04 | .07 | .03 | .88 | 1.31 | .07 | .06 | .06 | .18 | .03 | 2.75 |
| 1935 | .01 | .02 | .05 | .27 | 1.26 | 1.35 | .14 | .77 | .06 | .51 | *2.41 | .02 | *6.87 |
| 1936 | .02 | .05 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

| Yearly discharge, in cubic feet per second, of East Branch Black River at Elyria, Ohio | | | | | | | | | |
|--|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Maximum observed | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1922 | 544 | - | - | - | - | - | - | - | - |
| 1923 | 564 | 2,420 | Apr. 6, 1923 | 0.2 | 118 | 0.559 | 7.57 | 182 | 11.71 |
| 1924 | 584 | *3,140 | Mar. 29, 1924 | .6 | 239 | 1.13 | 15.45 | 188 | 12.15 |
| 1925 | 604 | *3,260 | Feb. 11, Mar. 11 | .3 | 126 | .597 | 8.15 | 163 | 10.48 |
| 1926 | 624,1437 | *5,670 | Feb. 26, 1926 | .3 | *226 | *1.07 | *14.53 | *246 | *15.81 |
| 1927 | 644,1437 | *5,670 | Mar. 21, 1927 | .3 | *266 | *1.26 | *17.08 | *322 | *20.75 |
| 1928 | 664,1437 | *5,980 | Dec. 14, 1927 | .5 | *315 | *1.49 | *20.33 | 194 | 12.51 |
| 1929 | 684,1437 | *6,460 | Feb. 27, 1929 | .1 | *239 | *1.13 | *15.34 | *261 | *16.77 |
| 1930 | 699,1437 | *6,460 | Jan. 9, 1930 | 0 | *243 | *1.15 | *15.64 | *215 | *15.83 |
| 1931 | 714 | 2,120 | Apr. 23, 1931 | .1 | 65.4 | .310 | 4.20 | 85.0 | 5.46 |
| 1932 | 729 | *3,020 | Jan. 18, 1932 | .1 | 126 | .597 | 8.11 | *129 | *8.42 |
| 1933 | 744,1437 | *11,400 | Mar. 14, 1933 | 0 | *198 | *.958 | *12.88 | *176 | *11.33 |
| 1934 | 759 | *2,780 | Apr. 5, 1934 | .1 | 42.4 | .201 | 2.75 | 42.8 | 2.77 |
| 1935 | 784,1437 | *11,200 | Aug. 7, 1935 | .2 | *107 | *.507 | *6.87 | - | - |

* Revised.

275. Black River at Elyria, Ohio

Location.--Lat 41°22'50", long. 82°06'15", in T. 6 N., R. 17 W., in Cascade Park at Elyria, three-quarters of a mile below confluence of East and West Branches.

Drainage area.--392 sq mi.

Supplemental records available.--Records of chemical analyses and water temperatures for the period March to September 1950 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 621.6 ft above mean sea level (city of Elyria benchmark).

Average discharge.--6 years (1944-50), 327 cfs.

Extremes.--1944-50: Maximum discharge, 9,770 cfs Feb. 14, 1950 (gage height, 14.98 ft); minimum, 0.4 cfs Oct. 5, 1945.

Remarks.--Some regulation at low flow for industrial use.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1945 | 2.34 | 5.78 | 5.82 | 8.48 | 609 | 1,000 | 411 | 491 | 117 | 55.3 | 7.75 | 36.5 |
| 1946 | 126 | 124 | 278 | 223 | 359 | 394 | 22.0 | 273 | 772 | 33.0 | 13.1 | 2.84 |
| 1947 | 8.60 | 37.7 | 134 | 853 | 207 | 3921 | 2,777 | 1,044 | 1,245 | 80.8 | 118 | 242 |
| 1948 | 18.7 | 188 | 180 | 290 | 575 | 1,047 | 556 | 477 | 60.8 | 30.0 | 165 | 8.41 |
| 1949 | 15.6 | 116 | 508 | 908 | 513 | 517 | 478 | 128 | 35.0 | 127 | 37.1 | 22.2 |
| 1950 | 7.41 | 15.2 | 92.6 | 1,738 | 1,038 | 1,070 | 880 | 412 | 231 | 48.9 | 23.6 | 53.5 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|-------|------|------|------|------|------|------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1945 | 0.007 | 0.02 | 0.02 | 0.03 | 1.61 | 2.94 | 1.17 | 1.44 | 0.33 | 0.16 | 0.02 | 0.10 |
| 1946 | .37 | .35 | .82 | .66 | .95 | 1.16 | .06 | .80 | 2.20 | .10 | .04 | .008 |
| 1947 | .03 | .11 | .39 | 2.51 | .55 | 1.15 | 3.64 | 3.07 | 3.55 | .24 | .35 | .69 |
| 1948 | .06 | .54 | .53 | .85 | 1.58 | 3.08 | 1.58 | 1.41 | .17 | .09 | .49 | .02 |
| 1949 | .05 | .33 | 1.50 | 2.68 | 1.36 | 1.52 | 1.36 | .38 | .10 | .37 | .11 | .06 |
| 1950 | .02 | .04 | .27 | 5.11 | 2.76 | 3.15 | 2.50 | 1.21 | .66 | .14 | .07 | .15 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1945 | 1034 | 6,050 | May 18, 1945 | | 0.6 | 227 | 0.580 | 7.85 | 270 |
| 1946 | 1054 | 8,460 | June 18, 1946 | | 1.4 | 217 | .554 | 7.52 | 188 |
| 1947 | 1084 | 8,930 | June 3, 1947 | | 2.1 | 470 | 1.20 | 16.28 | 487 |
| 1948 | 1114 | 8,930 | Mar. 22, 1948 | | 4.8 | 299 | .763 | 10.40 | 321 |
| 1949 | 1144 | 4,500 | Dec. 16, 1948 | | 4.5 | 283 | .722 | 9.82 | 239 |
| 1950 | 1174 | 9,770 | Feb. 14, 1950 | | 2.0 | 465 | 1.19 | 16.08 | - |

Note.--Records for May 1903 to July 1906, published as "near Elyria" in W.S.P. 97, 129, 170, and 206, have been found in error on basis of restudy of the original data. Those records are not published herein and should not be used.

276. Rocky River near Berea, Ohio

Location.--Lat 41°24'22", long. 81°53'13", in T. 6 N., R. 15 W., at highway bridge just below confluence of East and West Branches, 3 miles northwest of Berea.

Drainage area.--269 sq mi.

Gage.--Water-stage recorder. Datum of gage is 649.9 ft above mean sea level, datum of 1929 (Cuyahoga County benchmark). Prior to Aug. 31, 1929, chain gage and Aug. 31, 1929, to Sept. 30, 1935, staff gage, at same site and datum.

Average discharge.--19 years (1923-35, 1943-50), 253 cfs.

Extremes.--1923-35, 1943-50: Maximum discharge, 16,600 cfs (revised) Jan. 19, 1929 (gage height, 11.0 ft, from graph based on gage readings), from rating curve extended above 10,600 cfs; maximum gage height, 18.6 ft June 29, 1924 (backwater caused by tornado); minimum discharge, 0.2 cfs Sept. 2, 1932, Aug. 18, 19, 22, 27, 28, 30, 31, 1933. Maximum stage known, 20.9 ft in March 1913.

Remarks.--Some regulation by small reservoirs on East Branch at low flow.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|--------|-------|------|------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1924 | *23.1 | *23.9 | 954 | *618 | 219 | 676 | 271 | 262 | 573 | 320 | 15.6 | 820 | *416 |
| 1925 | 123 | 16.6 | 433 | 35.2 | 926 | 572 | 64.8 | 75.2 | 18.6 | 58.9 | 32.9 | 325 | 219 |
| 1926 | 224 | 613 | 119 | 223 | 671 | 597 | *774 | 52.8 | 41.0 | 32.9 | 84.3 | 626 | *334 |
| 1927 | 935 | 513 | 271 | 634 | 597 | 817 | 123 | 394 | 41.3 | 20.1 | 17.9 | 17.7 | 365 |
| 1928 | 12.4 | 376 | *1,400 | 367 | 640 | 359 | 253 | 56.0 | 281 | 255 | 62.0 | 9.90 | *339 |
| 1929 | 16.7 | 50.7 | 124 | *899 | *618 | 659 | 999 | 442 | 110 | 292 | 10.7 | 8.97 | *351 |
| 1930 | 23.7 | 124 | 347 | 1,400 | 749 | 559 | 256 | 30.5 | 17.8 | 6.81 | 1.39 | 2.97 | 291 |
| 1931 | 7.37 | 12.7 | 19.8 | 107 | 139 | 148 | 528 | 85.3 | 90.1 | 14.1 | 10.4 | 32.5 | 98.5 |
| 1932 | 15.2 | 37.8 | 242 | 905 | 227 | 329 | 316 | 319 | 19.4 | 23.8 | 4.07 | 2.96 | 205 |
| 1933 | 6.72 | 50.1 | 442 | 252 | 245 | 870 | 525 | 389 | 10.1 | 5.28 | .90 | .94 | 234 |
| 1934 | 1.25 | 10.3 | 16.9 | 43.3 | 17.0 | 351 | 426 | 17.6 | 11.6 | 47.8 | 18.9 | 10.4 | 79.5 |
| 1935 | 6.19 | 22.5 | 41.0 | 215 | 362 | 250 | 57.6 | 122 | 25.4 | 67.3 | 553 | 14.6 | 144 |
| 1944 | 23.7 | 50.9 | 39.5 | 83.5 | 285 | 531 | 607 | 273 | 58.6 | 5.45 | 6.02 | 21.9 | 165 |
| 1945 | 5.80 | 10.7 | 21.9 | *32.4 | 640 | 728 | 461 | 352 | 68.5 | 33.2 | 21.9 | 59.9 | *200 |
| 1946 | 212 | 197 | 307 | 174 | 304 | 374 | 40.9 | 284 | 522 | 11.9 | 7.84 | 3.43 | 202 |
| 1947 | 12.4 | 33.0 | 95.8 | 675 | 89.9 | 378 | 1,026 | 816 | 911 | 54.2 | 110 | 114 | 360 |
| 1948 | 11.9 | 54.4 | 113 | 157 | 565 | 786 | 576 | 477 | 67.1 | 21.2 | 106 | 8.38 | 244 |
| 1949 | 31.4 | 140 | 403 | 623 | 411 | 451 | 341 | 92.3 | 13.8 | 39.8 | 9.22 | 13.7 | 213 |
| 1950 | 9.15 | 14.6 | 87.0 | 1,204 | 696 | 856 | 819 | 281 | 163 | 40.3 | 7.79 | 17.9 | 348 |

* Revised.

* Not previously published; estimated on basis of weather records and records for East Branch Black River near Elyria.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|-------|-------|-------|-------|------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1924 | *0.10 | *0.99 | 4.09 | *2.65 | 0.88 | 2.89 | 1.13 | 1.12 | 2.38 | 1.37 | 0.07 | 3.40 | *21.07 |
| 1925 | .53 | .07 | 1.86 | .15 | 3.58 | 2.46 | .27 | .32 | .08 | .25 | .14 | 1.35 | 11.06 |
| 1926 | .96 | 2.54 | .51 | .96 | 2.59 | 2.56 | *3.21 | .23 | .17 | .14 | .36 | 2.60 | *16.83 |
| 1927 | 4.07 | 2.13 | 1.16 | 2.72 | 2.31 | 3.50 | .51 | 1.88 | .17 | .09 | .08 | .07 | 18.43 |
| 1928 | .05 | 1.56 | *6.00 | 1.57 | 2.57 | 1.53 | 1.05 | .24 | 1.16 | 1.08 | .27 | .04 | *17.12 |
| 1929 | .07 | .21 | .53 | *3.85 | *2.40 | 2.82 | 4.14 | 1.89 | .46 | 1.26 | .05 | .04 | *17.72 |
| 1930 | .10 | .51 | 1.49 | 6.00 | 2.89 | 2.40 | 1.06 | .13 | .07 | .03 | .01 | .01 | 14.70 |
| 1931 | .03 | .05 | .09 | .46 | .54 | .63 | 2.19 | .37 | .37 | .06 | .04 | .13 | 4.96 |
| 1932 | .07 | .16 | 1.04 | 3.87 | .91 | 1.41 | 1.31 | 1.37 | .08 | .10 | .02 | .01 | 10.35 |
| 1933 | .03 | .21 | 1.89 | 1.08 | .95 | 3.72 | 2.18 | 1.67 | .04 | .02 | .004 | .004 | 11.80 |
| 1934 | .005 | .04 | .07 | .19 | .07 | 1.42 | 1.76 | .07 | .05 | .21 | .08 | .04 | 4.00 |
| 1935 | .03 | .09 | .18 | .92 | 1.41 | 1.07 | .24 | .52 | .10 | .29 | 2.37 | .06 | 7.28 |
| 1943 | - | - | - | - | - | - | - | - | - | - | - | .02 | - |
| 1944 | .10 | .21 | .17 | .36 | 1.14 | 2.27 | 2.52 | 1.16 | .24 | .02 | .03 | .09 | 8.31 |
| 1945 | .03 | .04 | .09 | *.14 | 2.48 | 3.12 | 1.91 | 1.51 | .28 | .14 | .09 | .25 | *10.08 |
| 1946 | .91 | .82 | 1.31 | .75 | 1.18 | 1.60 | .17 | 1.22 | 2.16 | .05 | .03 | .01 | 10.21 |
| 1947 | .05 | .14 | .41 | 2.89 | .35 | 1.61 | 4.25 | 3.48 | 3.78 | .23 | .47 | .47 | 18.14 |
| 1948 | .05 | .23 | .48 | .67 | 2.25 | 3.37 | 2.39 | 2.04 | .28 | .09 | .45 | .03 | 12.33 |
| 1949 | .13 | .56 | 1.73 | 2.68 | 1.59 | 1.94 | 1.42 | .40 | .06 | .17 | .04 | .06 | 10.80 |
| 1950 | .04 | .06 | .37 | 5.16 | 2.70 | 3.67 | 3.39 | 1.20 | .68 | .17 | .03 | .07 | 17.54 |

* Revised.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Rocky River near Berea, Ohio

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 604,1437 | *9,220 | Jan. 11, 1924 | *6 | *416 | *1.55 | *21.07 | *362 | *18.35 |
| 1925 | 604 | *9,420 | Sept. 15, 1925 | 3.2 | 219 | .814 | 11.06 | 250 | 12.61 |
| 1926 | 624,1437 | *13,200 | Feb. 25, 1926 | 6 | *334 | *1.24 | *16.83 | *399 | *20.12 |
| 1927 | 644 | *10,300 | Mar. 20, 1927 | 8 | 365 | 1.56 | 16.43 | *372 | *18.74 |
| 1928 | 664,1437 | *15,700 | Dec. 14, 1927 | 7 | *339 | *1.26 | *17.12 | 204 | 10.32 |
| 1929 | 684,1437 | *16,600 | Jan. 19, 1929 | 2.8 | *351 | *1.30 | *17.72 | *377 | *19.01 |
| 1930 | 699 | *9,420 | Jan. 8, 1930 | .4 | 291 | 1.08 | 14.70 | 253 | 12.77 |
| 1931 | 729 | *3,770 | Apr. 22, 1931 | .5 | 98.5 | .366 | 4.96 | 120 | 6.06 |
| 1932 | 729 | *5,300 | Mar. 22, 1932 | .2 | 205 | .762 | 10.35 | 222 | 11.21 |
| 1933 | 744 | *11,200 | Mar. 14, 1933 | .2 | 234 | .870 | 11.80 | 194 | 9.78 |
| 1934 | 759 | *7,020 | Apr. 4, 1934 | .5 | 79.5 | .296 | 4.00 | 82.9 | 4.19 |
| 1935 | 784,1114 | *15,400 | Aug. 7, 1935 | 2.0 | 144 | .535 | 7.28 | - | - |
| 1943 | 1004 | - | - | - | - | - | - | - | - |
| 1944 | 1004 | 7,480 | Apr. 12, 1944 | 2.4 | 165 | .613 | 8.31 | 158 | 7.99 |
| 1945 | 1034,1437 | 8,200 | Feb. 22, 1945 | 2.8 | *200 | *.743 | *10.08 | *257 | *12.96 |
| 1946 | 1054 | 8,190 | June 17, 1946 | 2.4 | 202 | .751 | 10.21 | 154 | 7.77 |
| 1947 | 1084 | 13,700 | June 3, 1947 | 2.5 | 360 | 1.34 | 18.14 | 353 | 18.30 |
| 1948 | 1114 | 9,860 | Mar. 21, 1948 | 3.8 | 244 | .907 | 12.33 | 277 | 14.01 |
| 1949 | 1144 | 4,010 | Dec. 16, 1948 | 2.1 | 213 | .792 | 10.80 | 174 | 8.83 |
| 1950 | 1174 | 11,100 | Jan. 16, 1950 | 3.0 | 348 | 1.29 | 17.54 | 405 | 20.43 |

* Revised.

* Not previously published.

277. Cuyahoga River at Hiram Rapids, Ohio 1/

Location.--Lat 41°20'27", long. 81°10'01", in T. 5 N., R. 7 W., at highway bridge at Hiram Rapids and 0.6 mile downstream from Black Brook.

Drainage area.--147 sq mi. 1927-35: 152 sq mi.

Supplemental records available.--Records of chemical analyses and water temperature for the period October 1948 to September 1949 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 1,087.46 ft above mean sea level, unadjusted. Prior to Aug. 26, 1927, staff gage and Aug. 26, 1927, to Dec. 31, 1935, water-stage recorder, at site 2 3/4 miles downstream at different datum. Oct. 20, 1944, to Oct. 22, 1946, wire-weight gage at present site and datum.

Average discharge.--14 years (1927-35, 1944-50), 181 cfs (unadjusted).

Extremes.--1927-35, 1944-50: Maximum discharge, 2,760 cfs Mar. 23, 1948 (gage height, 7.00 ft); minimum, 5.1 cfs Sept. 2, 1933.

Remarks.--Flow regulated by East Branch Reservoir (usable capacity, 4,140 acre-ft) since 1939. Runoff adjusted for storage at East Branch Reservoir since October 1944.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1927 | - | - | - | - | - | - | - | - | - | - | - | 23.7 | - |
| 1928 | 26.0 | 158 | 684 | 477 | 480 | 272 | 270 | 83.2 | 254 | 198 | 68.6 | 25.5 | 249 |
| 1929 | 38.5 | 115 | 181 | 479 | 193 | 565 | 599 | 412 | 66.0 | 109 | 32.0 | 34.6 | 236 |
| 1930 | 36.5 | 147 | 334 | 733 | 378 | 455 | 377 | 50.2 | 43.0 | 23.4 | 17.6 | 18.7 | 217 |
| 1931 | 20.8 | 35.0 | 167 | *193 | *220 | 210 | 299 | 153 | 79.1 | 51.2 | 20.9 | 23.1 | *122 |
| 1932 | 24.4 | 54.1 | 156 | 431 | 273 | 228 | 224 | 170 | 34.5 | 46.9 | 25.4 | 24.6 | 141 |
| 1933 | 27.6 | 70.6 | 139 | 258 | 206 | 477 | 383 | 99.5 | 42.5 | 15.3 | 17.1 | 15.9 | 146 |
| 1934 | 35.2 | 107 | 134 | 170 | 40.6 | 376 | 222 | 33.6 | 21.6 | 16.2 | 28.8 | 85.4 | 106 |
| 1935 | 41.3 | 204 | 128 | 270 | 245 | 352 | 85.4 | 106 | 41.1 | 34.2 | 179 | 31.6 | 143 |
| 1936 | 33.3 | 48.3 | 180 | - | - | - | - | - | - | - | - | - | - |
| 1945 | 35.3 | 40.3 | 49.8 | 57.9 | 326 | 521 | 207 | 321 | 111 | 60.4 | 39.5 | 91.4 | 154 |
| 1946 | 325 | 200 | 142 | 356 | 244 | 450 | 76.2 | 367 | 200 | 30.8 | 36.0 | 39.1 | 206 |
| 1947 | 47.2 | 48.1 | 107 | 377 | 233 | 361 | 694 | 456 | 413 | 49.7 | 43.6 | 71.8 | 241 |
| 1948 | 47.7 | 65.9 | 77.6 | 81.1 | 346 | 527 | 264 | 375 | 67.4 | 48.1 | 60.2 | 34.2 | 166 |
| 1949 | 45.1 | 89.2 | 178 | 329 | 327 | 306 | 216 | 167 | 48.2 | 60.5 | 36.6 | 64.6 | 155 |
| 1950 | 22.6 | 37.4 | 135 | 722 | 499 | 679 | 474 | 208 | 74.8 | 52.2 | 32.2 | 97.0 | 252 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|------|------|------|------|------|------|-------|----------|
| 1927 | - | - | - | - | - | - | - | - | - | - | - | 0.17 | - |
| 1928 | 0.20 | 1.16 | 5.19 | 3.39 | 3.64 | 2.06 | 1.99 | 0.63 | 1.86 | 1.50 | 0.52 | .19 | 22.33 |
| 1929 | .29 | .84 | 1.37 | 3.63 | 1.32 | 4.29 | 4.40 | 3.12 | .48 | .83 | .24 | .25 | 21.06 |
| 1930 | .28 | 1.08 | 2.54 | 5.56 | 2.59 | 3.45 | 2.77 | .38 | .32 | .18 | .13 | .14 | 19.42 |
| 1931 | .16 | .26 | 1.27 | *1.46 | *1.51 | 1.59 | 2.20 | 1.16 | .58 | .39 | .16 | .17 | *10.91 |
| 1932 | .19 | .40 | 1.19 | 3.27 | 1.94 | 1.73 | 1.64 | 1.29 | .25 | .36 | .19 | .18 | 12.68 |
| 1933 | .21 | .52 | 1.05 | 1.96 | 1.42 | 3.62 | 2.81 | .76 | .31 | .12 | .13 | .12 | 13.03 |
| 1934 | .27 | .79 | 1.02 | 1.29 | .28 | 2.85 | 1.63 | .25 | .16 | .12 | .22 | .63 | 9.51 |
| 1935 | .31 | 1.50 | .97 | 2.05 | 1.68 | 2.67 | .63 | .80 | .30 | .26 | 1.36 | .23 | 12.76 |
| 1936 | .25 | .35 | 1.36 | - | - | - | - | - | - | - | - | - | - |

* Revised.

1/ Published as "near Hiram", 1927-35.

Monthly and yearly runoff, in inches (adjusted), of Cuyahoga River at Hiram Rapids, Ohio--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1945 | 0.19 | 0.38 | 0.50 | 0.56 | 2.43 | 4.08 | 1.56 | 2.51 | 0.88 | 0.43 | 0.29 | 0.72 | 14.53 |
| 1946 | 2.56 | 1.52 | 1.13 | 2.78 | 1.74 | 3.52 | .57 | 2.88 | 1.51 | .24 | .10 | .10 | 18.65 |
| 1947 | .31 | .42 | 1.04 | 3.15 | 1.64 | 2.86 | 5.26 | 3.58 | 3.12 | .39 | .39 | .40 | 22.56 |
| 1948 | .19 | .36 | .75 | .78 | 2.66 | 4.13 | 2.01 | 2.93 | .51 | .31 | .42 | .05 | 15.10 |
| 1949 | .39 | .78 | 1.57 | 2.59 | 2.31 | 2.41 | 1.63 | 1.31 | .34 | .35 | .23 | .29 | 14.20 |
| 1950 | .19 | .33 | 1.29 | 5.79 | 3.53 | 5.33 | 3.59 | 1.63 | .56 | .41 | .13 | .60 | 23.38 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1927 | 664 | - | - | - | - | - | - | - | - | - | - |
| 1928 | 664 | 1,630 | Dec. 15, 1927 | 19 | 249 | - | 1.64 | 22.33 | 204 | - | 18.28 |
| 1929 | 684 | 2,260 | Jan. 20, 1929 | 21 | 236 | - | 1.55 | 21.06 | 251 | - | 22.46 |
| 1930 | 699 | 1,710 | Jan. 14, 1930 | 13 | 217 | - | 1.43 | 19.42 | 193 | - | 17.21 |
| 1931 | 714, 1437 | 689 | Apr. 5, 1931 | 16 | *122 | - | *.803 | *10.91 | *123 | - | *11.00 |
| 1932 | 729 | 795 | Mar. 25, 1932 | 13 | 141 | - | .928 | 12.63 | 141 | - | 12.63 |
| 1933 | 744 | 1,360 | Mar. 16, 1933 | 6.6 | 146 | - | .961 | 13.03 | 149 | - | 13.33 |
| 1934 | 759 | 1,620 | Mar. 7, 1934 | 9.6 | 106 | - | .697 | 9.51 | 114 | - | 10.21 |
| 1935 | 784 | 1,000 | Feb. 17, 1935 | 11 | 143 | - | .941 | 12.76 | 134 | - | 11.94 |
| 1936 | 804 | - | - | - | - | - | - | - | - | - | - |
| 1945 | 1054 | 1,480 | Feb. 24, 1945 | 21 | 154 | 157 | 1.07 | 14.53 | 200 | 202 | 18.67 |
| 1946 | 1054 | 1,060 | Jan. 8, 1946 | 22 | 206 | 202 | 1.37 | 18.65 | 167 | 165 | 15.21 |
| 1947 | 1084 | 1,690 | Apr. 3, 1947 | 24 | 241 | 244 | 1.66 | 22.56 | 240 | 239 | 22.09 |
| 1948 | 1114 | 2,760 | Mar. 23, 1948 | 18 | 166 | 163 | 1.11 | 15.10 | 176 | 179 | 16.54 |
| 1949 | 1144 | 790 | Jan. 29, 1949 | 16 | 155 | 154 | 1.05 | 14.20 | 145 | 144 | 13.27 |
| 1950 | 1174 | 2,170 | Feb. 15, 1950 | 21 | 252 | 254 | 1.73 | 23.38 | 298 | - | - |

* Revised.

278. Cuyahoga River near Kent, Ohio

Location.--Lat 41°10'48", long. 81°20'09", in T. 3 N., R. 9 W., at highway bridge, 300 ft downstream from Pennsylvania Railroad bridge, a quarter of a mile below Lake Rockwell Dam, and 2 miles northeast of Kent.

Drainage area.--205 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,027.56 ft above mean sea level.

Extremes.--1933-35: Maximum discharge, 1,400 cfs Mar. 7, 1934 (gage height, 7.30 ft); minimum discharge, 1.2 cfs Aug. 22, 1934.

Remarks.--Flow regulated by Lake Rockwell (capacity, about 8,290 acre-ft). Runoff adjusted for diversion for municipal supply of city of Akron and for change in contents of Lake Rockwell.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1934 | 5.11 | 48.0 | 145 | 175 | 51.5 | 320 | 245 | 12.8 | 7.70 | 3.40 | 1.78 | 18.5 | 86.5 |
| 1935 | 29.2 | 195 | 112 | 338 | 314 | 446 | 70.0 | 121 | 29.7 | 14.8 | 267 | 11.0 | †162 |
| 1936 | 20.0 | 51.1 | 212 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1934 | 0.20 | 0.67 | 0.88 | 1.15 | 0.38 | 2.16 | 1.51 | 0.26 | 0.20 | 0.15 | 0.28 | 0.59 | 8.43 |
| 1935 | .28 | 1.23 | .80 | 2.10 | 1.80 | 2.62 | .65 | .88 | .35 | .27 | 1.54 | .28 | 12.80 |
| 1936 | .29 | .37 | 1.43 | - | - | - | - | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1934 | 759 | 1,400 | Mar. 7, 1934 | 1.4 | 86.5 | 127 | 0.620 | 8.43 | - | - | - |
| 1935 | 784 | 1,160 | Feb. 18, Aug. 3 | 6.2 | †162 | 193 | .941 | 12.80 | 158 | 190 | 12.58 |
| 1936 | 804 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

STREAMS TRIBUTARY TO LAKE ERIE

279. Congress Lake Outlet near Kent, Ohio

Location.--Lat 41°09'21", long. 81°19'10", at bridge on Kent-Ravenna highway, 1 mile downstream from Muddy Lake Outlet and 2 miles east of Kent.

Drainage area.--76.9 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,035.54 ft above mean sea level.

Average discharge.--8 years (1927-35), 62.8 cfs.

Extremes.--1927-35: Maximum discharge, 1,060 cfs Feb. 28, 1929 (gage height, 9.5 ft); minimum, 3.1 cfs July 12, 1930.

Remarks.--Flow is affected by storage in Congress Lake and other small lakes and ponds.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1927 | - | - | - | - | - | - | - | - | - | 28.7 | 21.1 | - | - |
| 1928 | 20.0 | 62.0 | 277 | 113 | 164 | 120 | 107 | 36.1 | 54.4 | 193 | 67.5 | 16.8 | 103 |
| 1929 | 29.3 | 49.7 | 66.6 | 118 | 112 | 201 | 207 | 173 | 40.6 | 88.1 | 17.9 | 16.1 | 95.2 |
| 1930 | 19.8 | 60.3 | 93.1 | 242 | 118 | 142 | 90.8 | 26.9 | 17.4 | 10.1 | 7.78 | 9.88 | 69.7 |
| 1931 | 13.3 | 16.7 | 25.0 | 32.9 | 58.6 | 51.4 | 102 | 46.4 | 40.1 | 8.39 | 16.3 | 27.8 | 36.3 |
| 1932 | 14.3 | 22.5 | 92.7 | 207 | 105 | 63.2 | 155 | 85.5 | 20.6 | 28.4 | 11.0 | 11.6 | 68.0 |
| 1933 | 13.9 | 30.2 | 42.2 | 59.2 | 49.2 | 217 | 169 | 60.8 | 42.7 | 13.4 | 9.89 | 7.23 | 59.6 |
| 1934 | 7.78 | 11.6 | 16.9 | 21.8 | 10.9 | 107 | 110 | 12.3 | 16.9 | 10.0 | 9.52 | 10.3 | 28.8 |
| 1935 | 10.9 | 21.5 | 19.7 | 49.5 | 74.0 | 99.6 | 24.5 | 64.1 | 19.4 | 23.9 | 107 | 10.3 | 43.7 |
| 1936 | 15.0 | 23.8 | 66.8 | - | - | - | - | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1927 | - | - | - | - | - | - | - | - | - | - | 0.43 | 0.31 | - |
| 1928 | 0.30 | 0.90 | 4.15 | 1.70 | 2.30 | 1.80 | 1.55 | 0.54 | 0.79 | 2.89 | 1.01 | .24 | 18.17 |
| 1929 | .44 | .72 | 1.00 | 1.76 | 1.52 | 3.01 | 3.00 | 2.59 | .59 | 1.33 | .27 | .23 | 16.46 |
| 1930 | .30 | .97 | 1.40 | 3.63 | 1.59 | 2.13 | 1.32 | .40 | .25 | .15 | .12 | .14 | 12.30 |
| 1931 | .20 | .24 | .37 | .49 | .79 | .77 | 1.48 | .70 | .59 | .13 | .24 | .40 | 6.39 |
| 1932 | .21 | .33 | 1.39 | 3.10 | 1.48 | .95 | 2.25 | 1.28 | .30 | .43 | .16 | .17 | 12.05 |
| 1933 | .21 | .44 | .63 | .89 | .67 | 3.25 | 2.45 | .91 | .62 | .20 | .15 | .10 | 10.52 |
| 1934 | .12 | .17 | .28 | .33 | .15 | 1.60 | 1.60 | .18 | .25 | .15 | .14 | .15 | 5.09 |
| 1935 | .16 | .31 | .50 | .74 | 1.00 | 1.50 | .36 | .96 | .28 | .36 | 1.60 | .15 | 7.72 |
| 1936 | .22 | .34 | 1.00 | - | - | - | - | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1928 | 664 | 934 | Dec. 2, 1927 | 11 | 103 | 1.34 | 18.17 | 84.7 | 14.98 | |
| 1929 | 684 | 1,060 | Feb. 28, 1929 | 10 | 93.2 | 1.21 | 16.46 | 95.6 | 16.87 | |
| 1930 | 699 | 617 | Jan. 15, 1930 | 5.2 | 69.7 | .906 | 12.30 | 59.7 | 10.54 | |
| 1931 | 714 | 212 | Apr. 5, 1931 | 4.4 | 36.3 | .472 | 6.39 | 42.6 | 7.51 | |
| 1932 | 729 | 378 | Jan. 20, 1932 | 8.0 | 68.0 | .884 | 12.05 | 64.4 | 11.40 | |
| 1933 | 744 | 1,020 | Mar. 16, 1933 | 5.0 | 59.6 | .775 | 10.52 | 55.4 | 9.78 | |
| 1934 | 759 | 411 | Apr. 7, 1934 | 4.6 | 28.8 | .375 | 5.09 | 30.1 | 5.32 | |
| 1935 | 784 | 395 | Aug. 7, 1935 | 4.4 | 43.7 | .568 | 7.72 | 48.2 | 8.51 | |
| 1936 | 804 | - | - | - | - | - | - | - | - | |

280. Little Cuyahoga River at Mogadore, Ohio

Location.--Lat 41°03'45", long. 81°23'40", in T. 1 N., R. 10 W., at bridge on State Highway 532, three-quarters of a mile upstream from Fritch Lake Outlet, and 0.8 mile north of Mogadore.

Drainage area.--12.3 sq mi.

Gage.--Water-stage recorder and concrete control. Altitude of gage is 1,065 ft (from topographic map).

Extremes.--1946-50: Maximum discharge, 143 cfs June 7, 1947 (gage height, 3.15 ft); minimum, 0.5 cfs Apr. 15, 1949 (gage height, 0.26 ft).

Remarks.--Flow regulated by Mogadore Reservoir.

Monthly and yearly mean discharge, in cubic feet per second,
of Little Cuyahoga River at Mogadore, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | - | - | - | - | 13.7 | 23.7 | 8.45 | 6.37 | 15.2 | 6.94 | 7.39 | 1.86 | - |
| 1947 | 2.18 | 6.71 | 9.06 | 16.4 | 15.3 | 12.0 | 32.2 | 32.6 | 41.5 | 9.32 | 12.8 | 6.59 | 16.4 |
| 1948 | 6.35 | 8.09 | 13.6 | 11.5 | 10.6 | 12.7 | 12.9 | 25.7 | 13.6 | 5.67 | 7.17 | 7.49 | 11.3 |
| 1949 | 10.2 | 7.63 | 9.92 | 19.1 | 25.8 | 13.4 | 15.7 | 4.85 | 2.74 | 7.94 | 4.18 | 3.84 | 10.4 |
| 1950 | 4.94 | 8.39 | 8.58 | 26.0 | 33.7 | 27.4 | 24.9 | 19.2 | 20.5 | 14.8 | 5.52 | 5.46 | 16.5 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | - | - | - | - | - | - | - | - |
| 1947 | 1084 | 143 | June 7, 1947 | 0.8 | 16.4 | - | - | 17.2 | - |
| 1948 | 1114 | 90 | June 29, 1948 | 2.4 | 11.3 | - | - | 11.3 | - |
| 1949 | 1144 | 97 | July 20, 1949 | .5 | 10.4 | - | - | 9.85 | - |
| 1950 | 1174 | 113 | June 26, 1950 | .5 | 16.5 | - | - | - | - |

281. Little Cuyahoga River at Massillon Road, Akron, Ohio

Location.--Lat 41°03'35", long. 81°27'45", in T. 1 N., R. 10 W., at bridge on Massillon Road in Akron and 250 ft upstream from Springfield Lake Outlet.

Drainage area.--31.0 sq mi.

Supplemental records available.--Records of chemical analyses for the period October 1948 to September 1949 are published in reports of Geological Survey.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,005.20 ft above mean sea level (city of Akron benchmark).

Extremes.--1946-50: Maximum discharge, 521 cfs Aug. 25, 1947 (gage height, 2.81 ft); minimum, 3.8 cfs Sept. 18, 1946 (gage height, 0.30 ft).

Remarks.--Flow regulated by Fritch Lake and Mogadore Reservoir.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | - | - | - | - | 32.9 | 44.7 | 16.7 | 33.8 | 31.8 | 15.1 | 16.7 | 8.04 | - |
| 1947 | 9.74 | 14.3 | 19.2 | 41.7 | 25.9 | 28.5 | 67.3 | 79.1 | 33.7 | 23.0 | 37.5 | 20.1 | 39.3 |
| 1948 | 12.8 | 17.7 | 22.1 | 20.8 | 29.4 | 39.1 | 42.7 | 57.0 | 29.8 | 13.4 | 16.5 | 12.7 | 26.1 |
| 1949 | 18.7 | 17.8 | 24.2 | 42.0 | 45.0 | 29.7 | 33.8 | 16.1 | 9.12 | 25.0 | 12.1 | 9.79 | 23.5 |
| 1950 | 9.35 | 13.7 | 17.4 | 70.5 | 72.1 | 61.9 | 57.6 | 43.4 | 41.3 | 27.0 | 12.8 | 14.1 | 36.5 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | - | - | - | - | - | - | - | - |
| 1947 | 1084 | 521 | Aug. 25, 1947 | 4.9 | 38.3 | - | - | 39.1 | - |
| 1948 | 1114 | 256 | May 5, 1948 | 7.0 | 26.1 | - | - | 26.8 | - |
| 1949 | 1144 | 180 | July 21, 1949 | 5.7 | 25.5 | - | - | 21.8 | - |
| 1950 | 1174 | 303 | Jan. 10, 1950 | 4.7 | 36.5 | - | - | - | - |

282. Springfield Lake Outlet at Akron, Ohio

Location.--Lat 41°03'20", long. 81°27'50", in T. 1 N., R. 10 W., in Akron, 0.3 mile upstream from mouth and 3 miles downstream from Springfield Lake.

Drainage area.--8.40 sq mi.

Supplemental records available.--Records of chemical analyses for the period October 1948 to September 1949 are published in reports of Geological Survey.

Gage.--Water-stage recorder and concrete control. Datum of gage is 1,015.34 ft above mean sea level (city of Akron benchmark).

Extremes.--1946-50: Maximum discharge, 139 cfs Aug. 17, 1947; maximum gage height, 2.72 ft Feb. 14, 1948 (backwater from ice); minimum discharge, 0.3 cfs Sept. 17-19, 1948, Aug. 20, 1949, June 22, 1950.

Remarks.--Flow regulated by Springfield Lake.

STREAMS TRIBUTARY TO LAKE ERIE

Monthly and yearly mean discharge, in cubic feet per second,
of Springfield Lake Outlet at Akron, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | - | - | - | - | - | - | - | - | 7.51 | 4.52 | 2.61 | 1.79 | - |
| 1947 | 2.33 | 2.45 | 3.79 | 9.78 | 5.62 | 9.50 | 17.9 | 20.8 | 25.8 | 5.29 | 14.6 | 6.44 | 10.4 |
| 1948 | 2.18 | 3.37 | 3.44 | 5.13 | 8.64 | 9.05 | 10.5 | 14.6 | 7.15 | 2.31 | 1.27 | .75 | 5.68 |
| 1949 | .99 | 1.77 | 4.54 | 10.6 | 11.9 | 9.86 | 9.45 | 4.14 | 1.65 | 2.03 | 1.24 | .98 | 4.88 |
| 1950 | .74 | 1.00 | 1.65 | 18.1 | 20.2 | 18.1 | 16.2 | 11.6 | 15.5 | 5.19 | 2.88 | 2.95 | 9.42 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | - | - | - | - | - | - | - | - |
| 1947 | 1084 | 139 | Aug. 17, 1947 | 1.15 | 10.4 | - | - | 10.4 | - |
| 1948 | 1114 | 107 | May 5, 1948 | .3 | 5.68 | - | - | 5.54 | - |
| 1949 | 1144 | 82 | July 30, 1949 | .4 | 4.88 | - | - | 4.56 | - |
| 1950 | 1174 | 130 | June 25, 1950 | .5 | 9.42 | - | - | - | - |

283. Little Cuyahoga River at Akron, Ohio

Location.--Lat 41°03'34", long. 81°28'32", at Seiberling Street, Akron, half a mile downstream from mouth of Springfield Lake Outlet.

Drainage area.--42.0 sq mi.

Gage.--Water-stage recorder and sharp-crested weir. Datum of gage is 997.41 ft above mean sea level.

Average discharge.--13 years (1920-33), 37.2 cfs.

Extremes.--1920-34: Maximum daily discharge, 838 cfs Mar. 14, 1933; no flow June 24, July 14, 1923, caused by regulation above station.

Remarks.--Flow regulated by Fritch Lake and Springfield Lake.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | 47.2 | 22.1 | - |
| 1921 | 20.5 | 30.6 | 28.1 | 34.3 | 60.5 | 94.7 | 60.3 | 31.8 | 25.0 | 20.7 | 18.2 | 19.8 | 36.9 |
| 1922 | 21.8 | 55 | 31 | 27.3 | 39.8 | 63 | 87.8 | 48.4 | 22.5 | 30.1 | 18.8 | 48.2 | 41.0 |
| 1923 | 14.8 | 28.6 | 21.2 | 34.0 | 19.3 | 33.4 | 21.5 | 32.6 | 6.01 | 6.23 | 15.8 | 20.9 | 21.2 |
| 1924 | 16.9 | 24.1 | 61.8 | 69.7 | 38.3 | 63.0 | 54.7 | 69.0 | 90.9 | 27.9 | 19.3 | 43.6 | 48.3 |
| 1925 | 24.6 | 16.2 | 37.5 | 20.4 | 74.2 | 57.9 | 25.1 | 25.7 | 11.9 | 16.0 | 14.5 | 19.4 | 28.3 |
| 1926 | 29.3 | 34.6 | 23.1 | 39.8 | 44.5 | 51.8 | 54.8 | 26.7 | 29.9 | 19.8 | 21.1 | 63.4 | 36.4 |
| 1927 | 66.9 | 75.6 | 42.6 | 75.3 | 89.9 | 96.2 | 50.1 | 62.2 | 41.5 | 23.4 | 21.4 | 19.3 | 55.2 |
| 1928 | 17.5 | 42.4 | 109.0 | 56.6 | 71.3 | 61.9 | 64.0 | 31.9 | 36.2 | 55.5 | 35.8 | 21.4 | 50.3 |
| 1929 | 22.4 | 30.6 | 32.8 | 68.3 | 65.9 | 75.5 | 129 | 88.6 | 35.0 | 45.7 | 22.4 | 21.1 | 52.9 |
| 1930 | 22.9 | 32.8 | 40.9 | 87.5 | 55.1 | 60.3 | 52.0 | 26.6 | 19.0 | 15.5 | 12.8 | 12.0 | 36.4 |
| 1931 | 11.7 | 12.1 | 13.4 | 19.0 | 23.5 | 19.3 | 33.2 | 21.4 | 13.9 | 10.2 | 18.7 | 16.3 | 17.7 |
| 1932 | 10.2 | 13.7 | 37.4 | 71.3 | 36.2 | 25.2 | 61.1 | 44.0 | 13.4 | 15.0 | 15.6 | 12.7 | 29.7 |
| 1933 | 13.0 | 19.4 | 23.6 | 23.9 | 20.1 | 96.0 | 64.1 | 34.4 | 16.1 | 14.2 | 11.9 | 12.1 | 29.1 |
| 1934 | 10.3 | 11.5 | 10.9 | 10.5 | 5.08 | 29.9 | 37.4 | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1920 | 644 | - | - | - | - | - | - | - | - |
| 1921 | 644 | - | - | - | 3.6 | 36.9 | - | 39.2 | - |
| 1922 | 644 | - | - | - | 5.1 | 41.0 | - | 37.4 | - |
| 1923 | 644 | - | - | - | 1.5 | 21.2 | - | 24.5 | - |
| 1924 | 644 | - | - | - | 7.4 | 48.3 | - | 46.2 | - |
| 1925 | 644 | - | - | - | 6.8 | 28.3 | - | 29.0 | - |
| 1926 | 644 | - | - | - | 8.7 | 36.4 | - | 44.6 | - |
| 1927 | 644 | 400 | Mar. 22, 1927 | - | 10.1 | 55.2 | - | 53.9 | - |
| 1928 | 664 | 743 | Dec. 1, 1927 | - | 11.6 | 50.3 | - | 43.3 | - |
| 1929 | 684 | 938 | Feb. 26, 1929 | - | 11.6 | 52.9 | - | 53.8 | - |
| 1930 | 699 | 315 | Jan. 12, 1930 | - | 6.5 | 36.4 | - | 31.4 | - |
| 1931 | 714 | 106 | Aug. 26, 1931 | - | 6.5 | 17.7 | - | 19.7 | - |
| 1932 | 729 | 312 | Apr. 26, 1932 | - | 6.0 | 29.7 | - | 29.2 | - |
| 1933 | 744 | - | - | - | 7.1 | 29.1 | - | 27.2 | - |
| 1934 | 759 | 232 | Apr. 4, 1934 | - | - | - | - | - | - |

Note.--Records for May 1934 to December 1935 and March 1939 to September 1942 published in W.S.P. 759, 784, 874, 894, 924, and 954 were affected by uncertain amounts of diversion and recirculation. Those records are not published herein and should not be used.

284. Cuyahoga River at Old Portage, Ohio

Location.--Lat 41°08'04", long. 81°32'49", 230 ft upstream from highway bridge at Old Portage, 1 1/4 miles downstream from Little Cuyahoga River, and 4 miles northwest of Akron.

Drainage area.--405 sq mi.

Gage.--Water-stage recorder. Datum of gage is 740.11 ft above mean sea level, unadjusted. Prior to Dec. 21, 1923, chain gage at same site and datum.

Average discharge.--25 years (1921-35, 1939-50), 414 cfs (unadjusted).

Extremes.--1921-35, 1939-50: Maximum discharge, 4,450 cfs (revised) June 28, 1924 (gage height, 10.8 ft); minimum, 14 cfs Aug. 27, 1944 (gage height, 0.47 ft).

Remarks.--Diurnal fluctuation caused by powerplants above station. Flow regulated by reservoirs and lakes above station. Municipal water supply for city of Akron is diverted at Lake Rockwell, about 16 miles above gage. Prior to 1923 most of sewage entered river above station. After 1939 sewage from city entered below station. A small amount of water from Tuscarawas River is diverted into this basin at Portage Lakes.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1922 | 272 | 888 | 494 | 443 | 478 | 776 | 1,020 | 456 | 240 | 230 | 117 | 214 | 468 |
| 1923 | 128 | 145 | 215 | 704 | 400 | 854 | 507 | 415 | 172 | 125 | 159 | 136 | 329 |
| 1924 | 136 | 242 | 967 | 975 | 508 | 826 | 764 | 675 | 609 | 632 | 187 | 498 | 566 |
| 1925 | 421 | 181 | 504 | 221 | 1,090 | 974 | 290 | 260 | 106 | 200 | 194 | 292 | 391 |
| 1926 | 316 | 699 | 529 | 425 | 753 | 1,040 | 925 | 280 | 263 | 218 | 249 | 1,150 | 567 |
| 1927 | 1,200 | 902 | 573 | 828 | 1,070 | 1,420 | 557 | 613 | 311 | 207 | 201 | 181 | 669 |
| 1928 | 140 | 414 | 1,520 | 876 | 1,050 | 712 | 740 | 346 | 577 | 657 | 303 | 186 | 626 |
| 1929 | 170 | 280 | 402 | 895 | 591 | 1,270 | 1,460 | 1,080 | 271 | 408 | 135 | 125 | 600 |
| 1930 | 125 | 331 | 620 | 1,540 | 750 | 943 | 746 | 191 | 159 | 107 | 65.4 | 67.5 | 470 |
| 1931 | 64.7 | 86.4 | 212 | 228 | 346 | 282 | 552 | 274 | 119 | 90.2 | 96.0 | 94.2 | 202 |
| 1932 | 63.1 | 102 | 324 | 997 | 563 | 439 | 667 | 434 | 125 | 159 | 78.3 | 76.1 | 335 |
| 1933 | 78.3 | 181 | 230 | 468 | 303 | 1,140 | 1,000 | 381 | 138 | 85.8 | 58.2 | 56.1 | 344 |
| 1934 | 50.8 | 91.8 | 202 | 256 | 112 | 553 | 529 | 85.4 | 85.4 | 85.6 | 68.6 | 80.5 | 181 |
| 1935 | 76.7 | 216 | 117 | 444 | 470 | 758 | 166 | 354 | 163 | 166 | 645 | 92.1 | 306 |
| 1936 | 96.5 | 144 | 431 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | 1,140 | 1,036 | 278 | 258 | 161 | 116 | 90.7 | - |
| 1940 | 181 | 148 | 129 | 170 | 466 | 933 | 1,520 | 418 | 734 | 255 | 159 | 156 | 437 |
| 1941 | 89.7 | 203 | 640 | 629 | 459 | 569 | 270 | 107 | 166 | 224 | 129 | 90.4 | 298 |
| 1942 | 156 | 180 | 170 | 220 | 904 | 1,132 | 738 | 441 | 307 | 150 | 174 | 96.3 | 385 |
| 1943 | 165 | 287 | 566 | 870 | 782 | 858 | 472 | 832 | 570 | 365 | 120 | 113 | 499 |
| 1944 | 135 | 134 | 106 | 107 | 352 | 768 | 778 | 385 | 186 | 77.5 | 93.5 | 80.7 | 266 |
| 1945 | 55.7 | 61.1 | 76.9 | 101 | 592 | 1,176 | 408 | 691 | 232 | 128 | 106 | 223 | 320 |
| 1946 | 548 | 436 | 304 | 537 | 502 | 813 | 170 | 656 | 448 | 111 | 83.6 | 71.1 | 391 |
| 1947 | 109 | 98.8 | 218 | 708 | 463 | 558 | 1,371 | 1,088 | 183 | 206 | 230 | 225 | 525 |
| 1948 | 93.8 | 155 | 177 | 198 | 550 | 822 | 549 | 799 | 246 | 110 | 152 | 82.9 | 327 |
| 1949 | 128 | 184 | 342 | 659 | 668 | 535 | 486 | 289 | 122 | 176 | 106 | 86.4 | 313 |
| 1950 | 67.2 | 72.2 | 206 | 1,393 | 1,095 | 1,255 | 939 | 523 | 369 | 177 | 110 | 142 | 526 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1922 | 544 | 2,130 | Mar. 31, 1922 | 69 | 468 | - | - | 371 | - |
| 1923 | 564 | 1,840 | Jan. 21, 1923 | 61 | 329 | - | - | 401 | - |
| 1924 | 584 | *4,450 | June 28, 1924 | 73 | 586 | - | - | 566 | - |
| 1925 | 604 | 2,200 | Feb. 12, 1925 | 52 | 391 | - | - | 427 | - |
| 1926 | 624 | 2,820 | Sept. 6, 1926 | 46 | 567 | - | - | 663 | - |
| 1927 | 644 | 3,100 | Mar. 21, 1927 | 82 | 669 | - | - | 619 | - |
| 1928 | 664 | 3,430 | Dec. 16, 1927 | 78 | 626 | - | - | 523 | - |
| 1929 | 684 | 3,820 | Apr. 5, 1929 | 73 | 600 | - | - | 619 | - |
| 1930 | 699 | 3,280 | Jan. 13, 1930 | 44 | 470 | - | - | 410 | - |
| 1931 | 714 | 1,300 | Sept. 16, 1931 | 40 | 202 | - | - | 213 | - |
| 1932 | 729 | 1,720 | Jan. 23, 1932 | 34 | 335 | - | - | 335 | - |
| 1933 | 744 | 3,560 | Mar. 14, 1933 | 34 | 344 | - | - | 332 | - |
| 1934 | 759 | 2,030 | Apr. 4, 1934 | 31 | 181 | - | - | 187 | - |
| 1935 | 784 | 2,750 | Aug. 4, 1935 | 30 | 306 | - | - | 328 | - |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1939 | 874 | - | - | - | - | - | - | - | - |
| 1940 | 894 | 2,940 | Apr. 20, 1940 | 36 | 437 | - | - | 477 | - |
| 1941 | 924 | 3,040 | July 7, 1941 | 32 | 298 | - | - | 262 | - |
| 1942 | 954 | 2,490 | Mar. 14, 1942 | 46 | 385 | - | - | 429 | - |
| 1943 | 974 | 3,480 | Dec. 31, 1942 | 43 | 499 | - | - | 445 | - |
| 1944 | 1004 | 2,680 | Apr. 12, 1944 | 27 | 266 | - | - | 251 | - |
| 1945 | 1034 | 3,480 | May 18, 1945 | 26 | 320 | - | - | 412 | - |
| 1946 | 1054 | 2,300 | Feb. 27, 1946 | 42 | 391 | - | - | 319 | - |
| 1947 | 1084 | 3,100 | June 7, 1947 | 46 | 525 | - | - | 525 | - |
| 1948 | 1114 | 2,810 | Mar. 24, 1948 | 39 | 327 | - | - | 347 | - |
| 1949 | 1144 | 2,320 | July 30, 1949 | 43 | 313 | - | - | 287 | - |
| 1950 | 1174 | 3,120 | Jan. 15, 1950 | 54 | 526 | - | - | - | - |

* Revised.

285. Cuyahoga River at Brecksville, Ohio

Location.--Lat 41°19'19", long. 81°35'19", at highway bridge at Brecksville railroad station, 800 ft downstream from Chippewa Creek, and 2 miles east of Brecksville.

Drainage area.--584 sq mi.

Gage.--Staff gage and recording pressure gage. Datum of gage is 625.89 ft above mean sea level.

Extremes.--March 1923-May 1924: Maximum daily discharge (combined river and canal), 7,000 cfs Jan. 11, 1924; minimum daily, 88 cfs Oct. 21, 1923.

Remarks.--Water is diverted into Ohio Canal feeder at dam 300 ft below gage (see following record). Records as published herein are combined flows of river and canal feeder. Flow slightly regulated by reservoir and lakes above Akron. A small amount of water from Tuscarawas River is diverted into the Cuyahoga River basin at Portage Lakes.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|-------|-------|------|-------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1923 | - | - | - | - | - | 1,220 | 721 | 597 | 220 | 155 | 158 | 168 | - |
| 1924 | 158 | 329 | 1,400 | 1,410 | 625 | 1,190 | 918 | 735 | - | - | - | - | - |

286. Ohio Canal feeder at Brecksville, Ohio

Location.--Lat 41°19'13", long. 81°35'14", below dam on Cuyahoga River at Brecksville railroad station, 2 miles east of Brecksville.

Gage.--Staff gage. Datum of gage is 623.15 ft above mean sea level.

Extremes.--March 1923-May 1924: Maximum daily discharge, 160 cfs May 14, 1924; minimum daily, 44 cfs Mar. 14, 15, 1923.

Remarks.--The feeder diverts water from Cuyahoga River at diversion dam at Brecksville for industrial use in Cleveland. For record of combined river and canal flow, see preceding record.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1923 | - | - | - | - | - | 68.0 | 71.6 | 75.2 | 99.2 | 126 | 117 | 114 | - |
| 1924 | 103 | 93.2 | 106 | 133 | 114 | 108 | 107 | 127 | - | - | - | - | - |

287. Ohio Canal at Independence, Ohio

Location.--Lat 41°23'25", long. 81°37'35", in T. 6 N., R. 12 W., at dam 0.4 mile upstream from Rockside Road, 1 mile northeast of Independence, and 6 miles below diversion dam at Brecksville.

Gage.--Staff gage. Datum of gage is 605.31 ft above mean sea level. Prior to Dec. 9, 1946, staff or chain gages or water-stage recorder at site 0.4 mile downstream at various datums.

Extremes.--1921-22, 1927-35, 1940-50: Maximum daily discharge, 92 cfs June 13, 15-17, 1922; minimum daily, no flow June 4, 1947, July 2-7, 1950.

Remarks.--Water is diverted from Cuyahoga River into canal at headgates at Brecksville, 6 miles upstream. Some diurnal fluctuation caused by small mill above station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1922 | 73.4 | 77.8 | 73.5 | 71.0 | 69.6 | 66.5 | 60.3 | 65.6 | 85.9 | 76.1 | 70.9 | 71.0 | 71.8 |
| 1923 | 65.6 | 74.1 | 67.7 | 68.2 | 66.9 | 66.9 | 62.1 | 63.3 | - | - | - | - | - |
| 1927 | - | - | - | - | - | - | - | - | - | - | - | 55.0 | - |
| 1928 | 54.8 | 47.5 | 37.9 | 44.2 | 46.2 | 49.5 | 45.6 | 43.2 | 46.3 | 55.5 | 53.1 | 49.1 | 47.7 |
| 1929 | 50.0 | 57.7 | 63.0 | 54.2 | 51.6 | 63.2 | 37.2 | 47.2 | 42.2 | 47.6 | 39.5 | 40.6 | 49.5 |
| 1930 | 56.8 | 54.6 | 52.7 | 56.0 | 54.3 | 50.0 | 54.9 | 61.4 | 58.6 | 45.7 | 55.5 | 59.4 | 55.0 |
| 1931 | 59.7 | 57.6 | 58.2 | 53.6 | 52.5 | 51.5 | 51.4 | 51.2 | 53.7 | 55.6 | 58.8 | 52.0 | 54.7 |
| 1932 | 48.8 | 52.4 | 58.6 | 60.3 | 56.7 | 57.0 | 56.5 | 52.8 | 53.4 | 45.7 | 42.4 | 43.4 | 52.2 |
| 1933 | 42.5 | 54.8 | 56.6 | 54.2 | 62.8 | 61.6 | 62.0 | 64.3 | 69.0 | 43.0 | 30.1 | 40.4 | 53.3 |
| 1934 | 52.6 | 56.5 | 46.9 | 46.6 | 39.5 | 54.0 | 54.6 | 54.9 | 53.8 | 68.5 | 58.0 | 28.6 | 51.3 |
| 1935 | 37.2 | 46.2 | 46.5 | 51.2 | 52.1 | 55.0 | 49.2 | 39.4 | 52.8 | 46.3 | 42.7 | 54.8 | 47.7 |

Monthly and yearly mean discharge, in cubic feet per second,
of Ohio Canal at Independence, Ohio--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1936 | 58.7 | 62.8 | 58.5 | - | - | - | - | - | - | - | - | - | - |
| 1941 | 51.4 | 49.7 | 54.1 | 45.8 | 48.1 | 50.2 | 55.5 | 51.5 | 48.3 | 47.7 | 61.4 | 55.4 | 51.6 |
| 1942 | 55.8 | 56.1 | 58.4 | 62.7 | 62.8 | 62.0 | 62.0 | 63.0 | 57.2 | 47.8 | 46.0 | 60.6 | 57.8 |
| 1943 | 47.8 | 47.1 | 60.1 | 57.0 | 55.3 | 55.3 | 49.1 | 59.4 | 59.2 | 64.4 | 64.1 | 66.8 | 57.2 |
| 1944 | 55.3 | 56.9 | 63.4 | 60.6 | 56.6 | 47.3 | 57.9 | 56.1 | 50.5 | 58.7 | 58.4 | 59.2 | 56.7 |
| 1945 | 54.5 | 61.5 | 60.0 | 63.4 | 58.6 | 45.5 | 53.0 | 49.1 | 56.4 | 61.1 | 47.2 | 54.8 | 55.4 |
| 1946 | 54.8 | 58.3 | 61.4 | 59.0 | 58.3 | 53.7 | 53.7 | 55.6 | 54.8 | 56.4 | 57.0 | 52.7 | 56.3 |
| 1947 | 50.6 | 62.7 | 61.2 | 54.6 | 62.2 | 57.0 | 54.3 | 57.3 | 51.6 | 62.7 | 55.8 | 53.0 | 56.9 |
| 1948 | 55.2 | 54.8 | 51.0 | 51.1 | 56.4 | 55.1 | 54.6 | 58.4 | 56.2 | 52.1 | 47.7 | 48.4 | 53.4 |
| 1949 | 52.4 | 57.9 | 55.6 | 55.1 | 54.2 | 55.3 | 56.9 | 52.8 | 51.3 | 47.3 | 48.7 | 52.6 | 53.3 |
| 1950 | 53.0 | 51.4 | 56.0 | 60.4 | 62.9 | 58.0 | 58.6 | 60.3 | 50.4 | 38.0 | 48.6 | 59.2 | 54.7 |

Note.--Records for October 1940 to September 1950 not previously published.

Yearly discharge, in cubic feet per second

| Daily discharge, in cubic feet per second | | | | | | | | | |
|---|---------------|----------------------------|-----------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1922 | 544 | 92 | June 13,15-17 | 54 | 71.8 | - | - | 70.3 | - |
| 1923 | 564 | - | - | - | - | - | - | - | - |
| 1927 | 664 | - | - | - | - | - | - | - | - |
| 1928 | 664 | 64 | July 24,25,1928 | 12 | 47.7 | - | - | 50.3 | - |
| 1929 | 684 | 75 | Jan. 19, 1929 | - | 49.5 | - | - | 49.0 | - |
| 1930 | 699 | - | - | 18 | 55.0 | - | - | 55.9 | - |
| 1931 | 714 | 64 | (a) | 46 | 54.7 | - | - | 53.4 | - |
| 1932 | 729 | 68 | Feb. 3,12, 1932 | 31 | 52.2 | - | - | 51.6 | - |
| 1933 | 744 | 79 | June 15, 1933 | 26 | 53.3 | - | - | 53.5 | - |
| 1934 | 759 | 75 | July 25-29,1934 | 20 | 51.3 | - | - | 49.1 | - |
| 1935 | 784 | 79 | June 28, 1935 | 22 | 47.7 | - | - | 52.8 | - |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1941 | 1437 | 67 | Aug. 5, 15, 31 | 35 | 51.6 | - | - | 52.9 | - |
| 1942 | 1437 | 70 | (b) | 37 | 57.8 | - | - | 56.5 | - |
| 1943 | 1437 | 70 | (c) | 35 | 57.2 | - | - | 58.9 | - |
| 1944 | 1437 | 70 | (d) | 20 | 56.7 | - | - | 56.8 | - |
| 1945 | 1437 | 70 | (e) | 35 | 55.4 | - | - | 55.3 | - |
| 1946 | 1437 | 67 | (f) | 47 | 56.3 | - | - | 56.3 | - |
| 1947 | 1437 | 71 | Feb. 14, 1947 | 0 | 56.9 | - | - | 55.8 | - |
| 1948 | 1437 | 62 | Apr. 15, 1948 | 43 | 53.4 | - | - | 53.8 | - |
| 1949 | 1437 | 61 | Nov. 25,29,1948 | 44 | 53.3 | - | - | 52.9 | - |
| 1950 | 1437 | 71 | Feb. 17,18,1950 | 0 | 54.7 | - | - | - | - |

a Oct. 15-20, 29, 31, Nov. 1, 1930; Aug. 23, 24, 1931.

b Jan. 28, Feb. 9, Apr. 4, 1942.

c July 7, Aug. 2, Sept. 4, 6, 8, 11, 17, 1943.

d Dec. 16, 17, 28, 1943.

e Nov. 1, 1944; Feb. 23, 1945.

f Dec. 26, 1945; Feb. 16, 1946.

Note.--Records for October 1940 to September 1950 not previously published.

288. Cuyahoga River at Independence, Ohio

Location.--Lat 41°23'44", long. 81°37'54" in T. 6 N., R. 12 W., 140 ft downstream from highway bridge on Rockside Road, 1 mile northeast of Independence and 3 miles downstream from Tinkers Creek.

Drainage area.--709 sq mi.

Supplemental records available.--January to July 1906, gage heights and discharge measurements only. Records of chemical analyses and water temperatures for the period October 1948 to September 1949 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 584.14 ft above mean sea level (levels by city of Cleveland). Sept. 21, 1903, to July 21, 1906, chain gage at bridge 140 ft upstream at same datum. Sept. 28, 1921, to May 30, 1923, chain gage at bridge 140 ft upstream at datum 2.42 ft higher. Sept. 5 to Oct. 8, 1927, staff gage at present site and datum.

Average discharge.--19 years (1921-22, 1927-35, 1940-50), 698 cfs (not including flow in Ohio Canal).

Extremes.--1921-23, 1927-35, 1940-50: Maximum discharge, 12,600 cfs (revised) June 2, 1947 (gage height, 19.07 ft); minimum, 14 cfs Nov. 30, 1930; minimum combined discharge of river and canal, 48 cfs Aug. 29, 1933.

Remarks.--Diurnal fluctuation caused by powerplants above station. Flow slightly regulated by reservoirs and lakes above station. A small amount of water from Tuscarawas River is diverted into this basin at Portage Lakes. Water diverted into Ohio Canal at Brecksville, 6 miles above station, bypasses station; for records of canal flow, see Ohio Canal at Independence.

STREAMS TRIBUTARY TO LAKE ERIE

Monthly and yearly mean discharge, in cubic feet per second,
of Cuyahoga River at Independence, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|--------|-------|-------|-------|-------|-------|------|-------|-------|----------|
| 1904 | 472 | 337 | - | - | - | - | 1,641 | 959 | 1,094 | 546 | 288 | 92.7 | - |
| 1905 | 104 | 109 | - | - | - | - | 596 | 740 | 533 | 446 | 399 | - | - |
| 1906 | - | 572 | 762 | - | - | - | - | - | - | - | - | - | - |
| 1922 | 265 | 1,590 | 704 | 663 | 766 | 1,440 | 1,790 | 516 | 202 | 228 | 128 | 251 | 708 |
| 1923 | 116 | 126 | 298 | †1,190 | 699 | 1,390 | 758 | 675 | - | - | - | - | - |
| 1928 | 143 | 853 | 2,680 | 1,500 | 1,870 | 1,170 | 1,220 | 528 | 1,040 | 940 | 343 | 144 | 1,040 |
| 1929 | 159 | 366 | 656 | 1,780 | 1,000 | 2,150 | 2,740 | 1,830 | 597 | 737 | 181 | 153 | 1,030 |
| 1930 | 176 | 533 | 1,050 | 2,810 | 1,280 | 1,500 | 1,170 | 226 | 189 | 98.2 | 76.5 | 73.9 | 764 |
| 1931 | 66.7 | 74.9 | 210 | 304 | 570 | 584 | 1,180 | 484 | 268 | 115 | 81.3 | 138 | 337 |
| 1932 | 92.7 | 147 | 609 | 2,120 | 964 | 820 | 1,260 | 768 | 173 | 234 | 113 | 114 | 618 |
| 1933 | 104 | 233 | 496 | 830 | 589 | 1,900 | 1,610 | 679 | 182 | 106 | 62.3 | 61.0 | 571 |
| 1934 | 65.8 | 114 | 249 | 328 | 194 | 794 | 1,087 | 120 | 111 | 86.6 | 76.9 | 110 | 278 |
| 1935 | 132 | 318 | 178 | 876 | 1,092 | 1,251 | 245 | 505 | 217 | 344 | 1,124 | 126 | 533 |
| 1936 | 127 | 206 | 859 | - | - | - | - | - | - | - | - | - | - |
| 1940 | - | - | - | - | - | - | 2,624 | 808 | 1,203 | 330 | 222 | 213 | - |
| 1941 | 139 | 289 | 1,186 | 1,016 | 808 | 929 | 477 | 198 | 289 | 374 | 196 | 122 | 502 |
| 1942 | 235 | 296 | 311 | 583 | 1,744 | 2,084 | 1,378 | 802 | 458 | 252 | 285 | 158 | 691 |
| 1943 | 278 | 598 | 1,194 | 1,580 | 1,480 | 1,712 | 1,042 | 1,558 | 1,140 | 618 | 196 | 194 | 964 |
| 1944 | 213 | 252 | 204 | 256 | 784 | 1,569 | 1,567 | 801 | 279 | 118 | 135 | 142 | 525 |
| 1945 | 101 | 117 | 144 | 191 | 1,354 | 2,294 | 854 | 1,373 | 446 | 219 | 188 | 475 | 642 |
| 1946 | 1,119 | 835 | 667 | 913 | 972 | 1,482 | 244 | 1,289 | 691 | 173 | 143 | 114 | 721 |
| 1947 | 188 | 199 | 425 | 1,463 | 730 | 1,073 | 2,750 | 2,217 | 2,114 | 338 | 353 | 379 | 1,018 |
| 1948 | 170 | 282 | 361 | 1,468 | 1,182 | 1,734 | 1,515 | 1,612 | 426 | 200 | 293 | 133 | 680 |
| 1949 | 222 | 365 | 808 | 1,422 | 1,318 | 1,132 | 1,101 | 570 | 190 | 270 | 190 | 149 | 646 |
| 1950 | 103 | 128 | 378 | 2,804 | 2,064 | 2,502 | 1,971 | 950 | 591 | 257 | 155 | 226 | 1,005 |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1904 | 129 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | - | - | - | - | - |
| 1906 | 206 | - | - | - | - | - | - | - | - |
| 1921 | 544 | - | - | - | - | - | - | - | - |
| 1922 | 544 | *6,850 | Apr. 15, 1922 | 40 | 708 | - | - | 541 | - |
| 1923 | 564 | *6,740 | Jan. 21, 1923 | - | - | - | - | - | - |
| 1927 | 664 | - | - | - | - | - | - | - | - |
| 1928 | 664 | *10,600 | Dec. 1, 1927 | 58 | 1,040 | - | - | 825 | - |
| 1929 | 684 | *12,200 | Jan. 19, 1929 | 70 | 1,030 | - | - | 1,080 | - |
| 1930 | 699 | *7,850 | Jan. 12, 1930 | 30 | 764 | - | - | 646 | - |
| 1931 | 714 | 3,760 | Apr. 26, 1931 | 26 | 337 | - | - | 379 | - |
| 1932 | 729 | 5,800 | Mar. 22, 1932 | 51 | 618 | - | - | 616 | - |
| 1933 | 744 | *7,850 | Dec. 31, 1932 | 21 | 571 | - | - | 537 | - |
| 1934 | 759 | 6,710 | Apr. 4, 1934 | 24 | 278 | - | - | 294 | - |
| 1935 | 784 | 5,940 | Feb. 26, 1935 | 59 | 533 | - | - | 581 | - |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1940 | 894 | *12,100 | Apr. 20, 1940 | - | - | - | - | - | - |
| 1941 | 924 | 6,570 | Dec. 29, 1940 | 62 | 502 | - | - | 436 | - |
| 1942 | 954 | 8,910 | Mar. 16 or 17 | 83 | 691 | - | - | 795 | - |
| 1943 | 974 | 8,550 | Dec. 30, 1942 | 95 | 964 | - | - | 846 | - |
| 1944 | 1004 | 7,680 | Apr. 11, 1944 | 56 | 525 | - | - | 499 | - |
| 1945 | 1034 | 9,180 | May 18, 1945 | 59 | 642 | - | - | 832 | - |
| 1946 | 1054 | 5,380 | Feb. 27, 1946 | 77 | 721 | - | - | 569 | - |
| 1947 | 1084 | *12,600 | June 2, 1947 | 81 | 1,018 | - | - | 1,018 | - |
| 1948 | 1114 | 8,640 | Mar. 22, 1948 | 83 | 680 | - | - | 729 | - |
| 1949 | 1144 | 5,450 | Jan. 28, 1949 | 83 | 646 | - | - | 580 | - |
| 1950 | 1174 | *10,900 | Jan. 16, 1950 | 85 | 1,005 | - | - | - | - |

* Revised.

Note.--Discharge in cubic feet per second per square mile and runoff in inches published in W.S.P. 170 were affected by regulation and diversion into Ohio Canal. These figures are discredited and should not be used.

289. Chagrin River at Willoughby, Ohio

Location.--Lat 41°37'51", long. 81°24'13", 150 ft downstream from waterworks dam, 800 ft downstream from East Branch, 1 mile southeast of Willoughby, and 5 miles upstream from mouth.

Drainage area.--251 sq mi.

Supplemental records available.--Records of chemical analyses and water temperatures for the period March to August 1950 are published in reports of Geological Survey.

Gage.--Water-stage recorder. Datum of gage is 594.24 ft above mean sea level, datum of 1929. Prior to Dec. 20, 1939, staff gage on upstream side of waterworks dam, 150 ft upstream at datum 7 ft higher.

Average discharge.--21 years (1925-35, 1939-50), 298 cfs (adjusted for diversion).

Extremes.--1925-35, 1939-50: Maximum discharge, 28,000 cfs Mar. 22, 1948 (gage height, 17.95 ft, from high-water mark in well), from rating curve extended above 9,600 cfs on basis of contracted-opening determination of peak flow; minimum daily, 3.0 cfs July 25, 26, 1934.

Remarks.--Runoff records adjusted for water diverted at dam just above station for municipal supply of city of Willoughby.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|-------|------|------|------|------|------|-------|----------|
| 1925 | - | - | - | - | - | - | - | - | - | - | 40.3 | 261 | - |
| 1926 | 339 | 655 | 236 | 330 | 613 | 974 | 755 | 108 | 109 | 48.3 | 61.3 | 641 | 403 |
| 1927 | 976 | 578 | 288 | 659 | 586 | 864 | 246 | 460 | 96.0 | 55.4 | 38.5 | 35.5 | 407 |
| 1928 | 49.9 | 536 | 975 | 399 | 680 | 365 | 285 | 125 | 372 | 233 | 74.1 | 35.4 | 343 |
| 1929 | 58.8 | 212 | 276 | 708 | 489 | 687 | 913 | 534 | 165 | 200 | 42.4 | 40.2 | 350 |
| 1930 | 47.6 | 206 | 461 | 1,210 | 577 | 580 | 489 | 85.5 | 89.6 | 30.3 | 16.8 | 25.0 | 317 |
| 1931 | 32.3 | 45.8 | 217 | 259 | 267 | 318 | 464 | 212 | 475 | 125 | 35.7 | 42.0 | 207 |
| 1932 | 42.5 | 128 | 282 | 803 | 375 | 410 | 414 | 368 | 57.4 | 58.6 | 34.7 | 31.5 | 251 |
| 1933 | 46.4 | 151 | 371 | 283 | 308 | 719 | 540 | 189 | 36.7 | 20.8 | 18.4 | 17.6 | 225 |
| 1934 | 34.0 | 128 | 182 | 283 | 48.1 | 517 | 387 | 59.4 | 23.1 | 20.3 | 42.0 | 50.1 | 148 |
| 1935 | 35.5 | 149 | 125 | 409 | 507 | 367 | 121 | 173 | 49.3 | 198 | 291 | 55.1 | 205 |
| 1936 | 47.9 | 96.6 | - | - | - | - | - | - | - | - | - | - | - |
| 1940 | 42.5 | 69.8 | 112 | 131 | 381 | 807 | 818 | 455 | 620 | 140 | 49.4 | 58.3 | 306 |
| 1941 | 88.8 | 115 | 631 | 429 | 213 | 417 | 178 | 85.3 | 59.8 | 79.2 | 42.5 | 20.3 | 193 |
| 1942 | 45.2 | 65.5 | 115 | 164 | 825 | 867 | 590 | 429 | 187 | 99.2 | 182 | 60.5 | 299 |
| 1943 | 120 | 385 | 696 | 495 | 580 | 661 | 405 | 476 | 469 | 111 | 46.6 | 47.6 | 375 |
| 1944 | 84.6 | 129 | 105 | 165 | 485 | 636 | 693 | 294 | 85.1 | 74.7 | 30.5 | 25.3 | 227 |
| 1945 | 34.5 | 88.1 | 102 | 141 | 768 | 765 | 368 | 550 | 379 | 115 | 51.7 | 208 | 294 |
| 1946 | 544 | 311 | 318 | 331 | 345 | 623 | 120 | 517 | 317 | 44.9 | 29.6 | 23.5 | 294 |
| 1947 | 50.4 | 76.5 | 191 | 671 | 181 | 576 | 957 | 854 | 781 | 123 | 98.6 | 64.9 | 386 |
| 1948 | 39.2 | 78.0 | 197 | 206 | 540 | 1,063 | 502 | 585 | 109 | 61.9 | 117 | 32.9 | 294 |
| 1949 | 93.5 | 221 | 344 | 537 | 492 | 489 | 440 | 300 | 53.1 | 58.3 | 32.7 | 40.7 | 257 |
| 1950 | 29.1 | 76.9 | 275 | 1,221 | 777 | 1,113 | 876 | 276 | 141 | 131 | 46.5 | 177 | 427 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | - | - | - | - | - | - | - | - | - | - | 0.19 | 1.16 | - |
| 1926 | 1.56 | 2.91 | 1.09 | 1.52 | 2.55 | 4.47 | 3.36 | 0.50 | 0.49 | 0.23 | .29 | 2.86 | 21.83 |
| 1927 | 4.48 | 2.58 | 1.33 | 3.03 | 2.44 | 3.98 | 1.10 | 2.12 | .43 | .26 | .18 | .16 | 22.09 |
| 1928 | .23 | 2.39 | 4.48 | 1.83 | 2.92 | 1.68 | 1.27 | .58 | 1.66 | 1.07 | .35 | .16 | 18.62 |
| 1929 | .28 | .95 | 1.27 | 3.25 | 2.03 | 3.16 | 4.07 | 2.47 | .74 | .92 | .20 | .19 | 19.53 |
| 1930 | .23 | .92 | 2.12 | 5.57 | 2.40 | 2.66 | 2.18 | .40 | .41 | .15 | .09 | .12 | 17.25 |
| 1931 | .15 | .21 | 1.00 | 1.20 | 1.11 | 1.46 | 2.06 | .98 | 2.12 | .58 | .17 | .19 | 11.23 |
| 1932 | .20 | .57 | 1.30 | 3.69 | 1.62 | 1.89 | 1.84 | 1.70 | .26 | .28 | .17 | .15 | 13.67 |
| 1933 | .22 | .68 | 1.71 | 1.30 | 1.28 | 3.31 | 2.41 | .87 | .17 | .10 | .09 | .08 | 12.22 |
| 1934 | .16 | .57 | .84 | 1.30 | 2.20 | 2.37 | 1.73 | .25 | .11 | .10 | .20 | .23 | 8.06 |
| 1935 | .17 | .67 | .58 | 1.88 | 2.10 | 1.69 | .54 | .80 | .23 | .92 | 1.35 | .25 | 11.18 |
| 1936 | .23 | .44 | - | - | - | - | - | - | - | - | - | - | - |
| 1940 | .20 | .32 | .52 | .61 | 1.64 | 3.71 | 3.64 | 2.10 | 2.76 | .65 | .24 | .27 | 16.66 |
| 1941 | .19 | .52 | 2.90 | 1.97 | .89 | 1.92 | .80 | .40 | .27 | .37 | .21 | .10 | 10.54 |
| 1942 | .22 | .30 | .54 | .76 | 3.43 | 3.99 | 2.63 | 1.98 | .84 | .46 | .85 | .28 | 16.28 |
| 1943 | .56 | 1.72 | 3.20 | 2.28 | 2.42 | 3.04 | 1.81 | 2.19 | 2.10 | .52 | .22 | .22 | 20.28 |
| 1944 | .40 | .58 | .49 | .77 | 2.09 | 2.93 | 3.09 | 1.36 | .30 | .12 | .15 | .13 | 12.41 |
| 1945 | .17 | .40 | .48 | .66 | 3.20 | 3.53 | 1.64 | 2.54 | 1.70 | .54 | .25 | .93 | 16.04 |
| 1946 | 2.51 | 1.40 | 1.46 | 1.53 | 1.44 | 2.87 | .54 | 2.39 | 1.42 | .22 | .15 | .11 | 16.04 |
| 1947 | .24 | .35 | .89 | 3.09 | .76 | 2.65 | 4.26 | 3.93 | 3.48 | .57 | .46 | .30 | 20.98 |
| 1948 | .19 | .36 | .91 | .96 | 2.33 | 4.89 | 2.24 | 2.70 | .49 | .30 | .55 | .16 | 16.08 |
| 1949 | .44 | .99 | 1.59 | 2.48 | 2.05 | 2.26 | 1.96 | 1.38 | .25 | .28 | .16 | .19 | 14.03 |
| 1950 | .14 | .35 | 1.27 | 5.62 | 3.23 | 5.12 | 3.90 | 1.28 | .64 | .61 | .22 | .80 | 25.18 |

Note.--Adjusted runoff figures for 1925 to 1932 not previously published.

| Yearly discharge, in cubic feet per second, of Chagrin River at Willoughby, Ohio | | | | | | | | | | | |
|--|------------|----------------------------|------------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1925 | 604 | - | - | - | - | - | - | - | - | - | - |
| 1926 | 624 | *10,400 | Sept. 24, 1926* | 23 | 403 | 404 | 1.61 | 21.83 | 455 | 456 | 24.66 |
| 1927 | 644 | *8,900 | Jan. 22, Mar. 20 | 21 | 407 | 408 | 1.63 | 22.09 | 384 | 385 | 20.80 |
| 1928 | 664 | *12,700 | Dec. 14, 1927 | 26 | 343 | 344 | 1.37 | 18.62 | 253 | 259 | 14.02 |
| 1929 | 684 | 22,000 | Jan. 19, 1929 | 23 | 360 | 361 | 1.44 | 19.53 | 374 | 376 | 20.30 |
| 1930 | 699 | *10,700 | Jan. 12, 1930 | 5.2 | 317 | 319 | 1.27 | 17.25 | 282 | 284 | 15.34 |
| 1931 | 714 | 24,000 | June 26, 1931 | 14 | 207 | 208 | .829 | 11.23 | 220 | 221 | 11.94 |
| 1932 | 729 | *5,860 | Mar. 22, 1932 | 15 | 251 | 252 | 1.00 | 13.67 | 260 | 261 | 14.21 |
| 1933 | 744 | *8,600 | Mar. 14, 1933* | 6.2 | 225 | 226 | .900 | 12.22 | 206 | 207 | 11.15 |
| 1934 | 759 | *4,390 | Mar. 3, 1934* | 3.0 | 149 | 149 | .594 | 8.06 | 145 | 146 | 7.91 |
| 1935 | 784 | *6,540 | Aug. 3, 1935 | 14 | 205 | 206 | .821 | 11.18 | - | - | - |
| 1936 | 784 | - | - | - | - | - | - | - | - | - | - |
| 1940 | 894 | 6,850 | Apr. 20, 1940 | 18 | 306 | 308 | 1.23 | 16.66 | 353 | 354 | 19.23 |
| 1941 | 924 | 5,960 | Dec. 29, 1940 | 13 | 193 | 195 | .777 | 10.54 | 146 | 148 | 7.99 |
| 1942 | 954 | *10,000 | May 16, 1942 | 19 | 299 | 301 | 1.20 | 18.28 | 381 | 383 | 20.70 |
| 1943 | 974 | 8,160 | Mar. 17, 1943 | 28 | 373 | 375 | 1.49 | 20.28 | 299 | 301 | 16.27 |
| 1944 | 1004 | 7,900 | Apr. 11, 1944 | 15 | 227 | 229 | .912 | 12.41 | 219 | 221 | 11.99 |
| 1945 | 1034 | 8,740 | May 18, 1945 | 16 | 294 | 296 | 1.18 | 16.04 | 374 | 376 | 20.36 |
| 1946 | 1054 | 4,370 | June 1, 1946 | 18 | 294 | 296 | 1.18 | 16.04 | 222 | 224 | 12.15 |
| 1947 | 1084 | 14,400 | June 2, 1947 | 24 | 386 | 388 | 1.55 | 20.98 | 386 | 388 | 20.96 |
| 1948 | 1114 | 28,000 | Mar. 22, 1948 | 23 | 294 | 296 | 1.18 | 16.08 | 323 | 325 | 17.64 |
| 1949 | 1144 | 5,060 | May 22, 1949 | 16 | 257 | 259 | 1.03 | 14.03 | 234 | 236 | 12.77 |
| 1950 | 1174 | 9,400 | Feb. 14, 1950 | 24 | 427 | 429 | 1.71 | 23.18 | - | - | - |

* Revised.

Note.--Adjusted runoff figures for 1925 to 1932 not previously published.

290. Grand River near North Bristol, Ohio

Location.--Lat 41°24'45", long. 80°54'45", in T. 6 N., R. 5 W., at highway bridge an eighth of a mile downstream from Center Creek and $2\frac{1}{2}$ miles west of North Bristol.

Drainage area.--89.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 812 ft (from topographic map). Prior to Aug. 28, 1942, wire-weight gage at same site and datum.

Average discharge.--5 years (1942-47), 101 cfs.

Extremes.--1942-47: Maximum discharge, 2,950 cfs Feb. 23, 1945, June 3, 1947 (gage height, 12.80 ft), from rating curve extended above 1,930 cfs; minimum, 1.1 cfs Sept. 25, 1946.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|-------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | 192 | 119 | 43.1 | 9.78 | 12.6 | 7.28 | - |
| 1943 | 56.8 | 128 | 288 | 190 | 233 | 177 | 151 | 190 | 156 | 59.1 | 6.32 | 5.21 | 156 |
| 1944 | 5.96 | 9.81 | *7.19 | 36.9 | 137 | 222 | 204 | 60.5 | 17.9 | 3.95 | 4.69 | 3.65 | 59.1 |
| 1945 | 4.73 | 8.57 | 12.0 | 20.3 | 387 | 260 | 72.7 | 135 | 18.9 | 9.57 | 18.9 | 84.1 | 83.8 |
| 1946 | 213 | 119 | 123 | 109 | 188 | 178 | 14.5 | 264 | 37.8 | 5.84 | 3.16 | 2.26 | 105 |
| 1947 | 6.20 | 21.5 | 87.4 | 311 | 44.0 | 131 | 322 | 283 | 230 | 13.6 | 6.46 | 9.25 | 122 |
| 1948 | 5.13 | - | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | 2.39 | 1.53 | 0.54 | 0.13 | 0.16 | 0.09 | - |
| 1943 | 0.73 | 1.60 | 3.70 | 2.44 | 2.71 | 2.27 | 1.87 | 2.44 | 1.94 | .76 | .08 | .06 | 20.60 |
| 1944 | .08 | .12 | .09 | .47 | 1.65 | 2.85 | 2.53 | .78 | .22 | .05 | .06 | .05 | 8.95 |
| 1945 | .06 | .11 | .15 | .28 | 4.49 | 3.34 | .90 | 1.71 | .24 | .12 | .24 | 1.05 | 12.67 |
| 1946 | 2.73 | 1.48 | 1.58 | 1.41 | 2.19 | 2.28 | .18 | 3.39 | .47 | .07 | .04 | .03 | 15.85 |
| 1947 | .08 | .27 | 1.12 | 4.00 | .51 | 1.68 | 4.00 | 3.63 | 2.86 | .18 | .08 | .11 | 18.52 |
| 1948 | .07 | - | - | - | - | - | - | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - |
| 1943 | 974 | 2,500 | June 17, 1943 | 3.8 | 136 | 1.52 | 20.60 | 96.2 |
| 1944 | 1004, 1437 | 2,150 | Apr. 12, 1944 | 1.9 | 59.1 | .659 | 8.95 | 59.3 |
| 1945 | 1034 | 2,950 | Feb. 23, 1945 | 1.5 | 85.8 | .934 | 12.67 | 120 |
| 1946 | 1054 | 2,110 | May 21, 1946 | 1.4 | 105 | 1.17 | 15.85 | 76.2 |
| 1947 | 1084 | 2,950 | June 3, 1947 | 2.2 | 122 | 1.56 | 18.52 | - |
| 1948 | 1084 | - | - | - | - | - | - | - |

291. Phelps Creek near Windsor, Ohio

Location.--Lat 41°30'55", long. 80°56'05", in T. 8 N., R. 5 W., at bridge on State Highway 534, 1.4 miles south of Windsor and $\frac{1}{2}$ miles upstream from mouth.

Drainage area.--26.4 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 800 ft (from topographic map). Prior to June 11, 1942, wire-weight gage at same site and datum.

Average discharge.--8 years (1942-50), 34.2 cfs.

Extremes.--1942-50: Maximum discharge, 2,700 cfs (revised) Mar. 22, 1948 (gage height, 8.97 ft), from rating curve extended above 1,600 cfs; no flow Aug. 20, 21, 1943, Oct. 24, 25, 1946.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | 54.7 | 34.8 | 25.6 | 12.6 | 43.4 | 1.78 | - |
| 1943 | 17.5 | 41.7 | 92.2 | 47.1 | 97.7 | 86.8 | 40.8 | 53.6 | 55.9 | 8.91 | .65 | .78 | 45.0 |
| 1944 | 3.30 | 6.92 | 6.20 | 23.2 | 99.8 | 86.2 | 75.8 | 45.6 | 1.70 | .58 | .59 | .63 | 28.9 |
| 1945 | .66 | 2.62 | 4.86 | 11.0 | 132 | 74.5 | 36.6 | 53.9 | 29.0 | 4.34 | 10.0 | 29.5 | 31.7 |
| 1946 | 66.8 | 34.8 | 29.4 | 44.8 | 54.9 | 73.3 | 5.16 | 76.6 | 26.2 | 1.01 | .86 | .37 | 34.5 |
| 1947 | .88 | 4.51 | 23.9 | 98.4 | 14.4 | 65.3 | 108 | 72.1 | 55.0 | 1.27 | 14.9 | 3.55 | 38.6 |
| 1948 | 1.03 | 2.99 | 13.4 | 17.7 | 95.5 | 99.9 | 60.7 | 45.3 | 3.82 | 2.13 | 1.98 | 1.20 | 28.6 |
| 1949 | 3.49 | 14.9 | 27.2 | 65.3 | 46.8 | 52.0 | 31.4 | 26.3 | 1.98 | 5.08 | 5.34 | 5.65 | 23.7 |
| 1950 | 1.08 | 4.24 | 36.8 | 145 | 84.2 | 139 | 72.2 | 20.3 | 3.73 | 2.94 | .64 | 4.95 | 42.8 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | 2.31 | 1.52 | 1.08 | 0.55 | 1.89 | 0.07 | - |
| 1943 | 0.76 | 1.76 | 4.02 | 2.05 | 3.85 | 3.79 | 1.75 | 2.34 | 2.36 | .39 | .03 | .03 | 23.11 |
| 1944 | .14 | .29 | .27 | 1.01 | 4.08 | 3.77 | 3.20 | 1.99 | .07 | .03 | .03 | .03 | 14.91 |
| 1945 | .03 | .11 | .21 | .48 | 5.21 | 3.25 | 1.55 | 2.35 | 1.23 | .19 | .44 | 1.25 | 16.30 |
| 1946 | 2.92 | 1.47 | 1.28 | 1.96 | 2.17 | 3.20 | .22 | 3.34 | 1.11 | .04 | .04 | .02 | 17.77 |
| 1947 | .04 | .19 | 1.04 | 4.30 | .57 | 2.85 | 4.56 | 3.17 | 2.32 | .06 | .65 | .14 | 19.89 |
| 1948 | .04 | .13 | .59 | .77 | 3.90 | 4.36 | 2.57 | 1.98 | .16 | .09 | .09 | .05 | 14.73 |
| 1949 | .15 | .63 | 1.19 | 2.85 | 1.94 | 2.27 | 1.33 | 1.15 | .08 | .22 | .23 | .24 | 12.18 |
| 1950 | .05 | .18 | 1.60 | 6.33 | 3.32 | 6.08 | 3.05 | .89 | .16 | .13 | .03 | .21 | 22.03 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | *1,650 | Feb. 11, 1943 | 0 | 45.0 | 1.70 | 23.11 | 33.6 | 17.27 |
| 1944 | 1004 | *1,980 | Feb. 23, 1944 | .4 | 28.9 | 1.09 | 14.91 | 28.2 | 14.56 |
| 1945 | 1034 | *2,220 | Feb. 22, 1945 | .5 | 31.7 | 1.20 | 16.30 | 42.0 | 21.62 |
| 1946 | 1054 | 1,120 | Mar. 15, 1946 | .2 | 34.5 | 1.31 | 17.77 | 26.0 | 13.37 |
| 1947 | 1084 | *1,800 | June 2, 1947 | .1 | 38.8 | 1.46 | 19.69 | 37.6 | 19.38 |
| 1948 | 1114 | *2,700 | Mar. 22, 1948 | .6 | 29.6 | 1.08 | 14.73 | 30.9 | 15.94 |
| 1949 | 1144 | 635 | Feb. 15, 1949 | .4 | 23.7 | .898 | 12.18 | 23.5 | 12.04 |
| 1950 | 1174 | *1,980 | Jan. 15, 1950 | .4 | 42.8 | 1.62 | 22.03 | - | - |

* Revised.

292. Grand River near Rome, Ohio

Location.--Lat 41°36'20", long. 80°53'40", in T. 9 N., R. 4 W., at bridge on U. S. Highway 6, 24 miles upstream from Mud Creek and $2\frac{1}{2}$ miles west of Rome.

Drainage area.--276 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 770 ft (from topographic map). Prior to Aug. 10, 1942, wire-weight gage at same site and datum.

Average discharge.--5 years (1942-47), 307 cfs.

Extremes.--1942-47: Maximum discharge, 4,530 cfs Dec. 31, 1942 (gage height, 20.0 ft); minimum, 3.7 cfs Sept. 28, 29, 1946.

STREAMS TRIBUTARY TO LAKE ERIE

| Monthly and yearly mean discharge, in cubic feet per second, of Grand River near Rome, Ohio | | | | | | | | | | | | | |
|---|------|------|------|-------|------|------|-------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | 537 | 366 | 147 | 81.7 | 224 | 21.1 | - |
| 1943 | *129 | *345 | *665 | *708 | 748 | 664 | 396 | 534 | 516 | 158 | 17.5 | 10.1 | *406 |
| 1944 | 17.7 | 37.0 | 29.4 | *83.1 | 435 | 702 | 718 | 350 | 48.6 | 8.14 | 10.3 | 7.59 | *203 |
| 1945 | 10.7 | 24.9 | 36.7 | 63.8 | 800 | 783 | 255 | 402 | 116 | 43.1 | 61.9 | 237 | 232 |
| 1946 | 664 | 336 | 282 | 503 | 390 | 720 | 48.5 | 754 | 187 | 17.4 | 9.37 | 5.34 | 328 |
| 1947 | 15.5 | 42.2 | 199 | 739 | 213 | 490 | 1,070 | 784 | 711 | 44.2 | 41.3 | 66.0 | 368 |
| 1948 | 14.0 | - | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|-------|-------|-------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | | | | | | | 2.18 | 1.53 | 0.59 | 0.34 | 0.94 | 0.08 | - |
| 1943 | *0.54 | *1.40 | *2.78 | *2.96 | 2.82 | 2.78 | 1.60 | 2.22 | 2.09 | .66 | .07 | .04 | *19.96 |
| 1944 | .07 | .15 | .12 | *.35 | 1.70 | 2.93 | 2.90 | 1.46 | .20 | .03 | .04 | .03 | *9.98 |
| 1945 | .04 | .10 | .15 | .27 | 3.02 | 3.27 | 1.03 | 1.68 | .47 | .18 | .26 | .96 | 11.43 |
| 1946 | 2.78 | 1.36 | 1.18 | 2.10 | 1.47 | 3.01 | .20 | 3.15 | .76 | .07 | .04 | .02 | 16.14 |
| 1947 | .06 | .17 | .83 | 3.09 | .80 | 2.05 | 4.33 | 3.27 | 2.88 | .18 | .17 | .27 | 18.10 |
| 1948 | .06 | - | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|---|---|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | | |
| | | Discharge | Date | | | | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - | - | - | |
| 1943 | 974,1437 | 4,530 | Dec. 31, 1942 | 7.4 | *406 | 1.47 | *19.96 | *317 | *15.58 | | | |
| 1944 | 1004,1437 | 3,350 | Apr. 13, 1944 | 5.8 | *203 | *.736 | *9.98 | *202 | *9.93 | | | |
| 1945 | 1034 | 3,150 | Feb. 24, 1945 | 6.8 | 232 | .641 | 11.43 | 334 | 16.46 | | | |
| 1946 | 1054 | 2,020 | May 21, 1946 | 4.0 | 328 | 1.19 | 16.14 | 242 | 11.88 | | | |
| 1947 | 1084 | 3,120 | June 4, 1947 | 5.0 | 368 | 1.33 | 18.10 | - | - | | | |

* Revised.

293. Rock Creek near Rock Creek, Ohio

Location.--Lat 41°39'05", long. 80°50'10", in T. 10 N., R. 4 W., at highway bridge 0.4 mile downstream from Plum Creek, 1.4 miles southeast of village of Rock Creek, 1½ miles downstream from Sugar Creek, and 3 miles upstream from mouth.

Drainage area.--56.6 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 810 ft (from topographic map). Prior to June 10, 1942, chain gage at same site and datum.

Average discharge.--8 years (1942-50), 81.9 cfs.

Extremes.--1942-50: Maximum discharge, 5,730 cfs Mar. 22, 1948 (gage height, 8.82 ft), from rating curve extended above 2,200 cfs on basis of velocity-area studies; no flow at times.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | 133 | 163 | 64.2 | 42.0 | 130 | 2.22 | - |
| 1943 | 29.6 | 117 | 221 | 172 | 182 | 156 | 90.4 | 132 | 61.4 | 49.0 | .44 | .28 | 101 |
| 1944 | 1.40 | 5.20 | 8.38 | 22.6 | 137 | 184 | 236 | 66.6 | 3.81 | .01 | 0 | 0 | 54.9 |
| 1945 | 0 | 1.10 | 8.36 | 22.4 | 264 | 205 | 69.0 | 101 | 30.8 | 17.8 | 4.11 | 43.5 | 62.6 |
| 1946 | 190 | 89.0 | 102 | 103 | 111 | 175 | 8.30 | 198 | 51.7 | 1.41 | .07 | 0 | 86.0 |
| 1947 | 1.72 | 9.74 | 61.5 | 227 | 31.1 | 151 | 269 | 221 | 243 | 10.4 | 6.54 | 13.4 | 104 |
| 1948 | .15 | 1.49 | 30.7 | 40.1 | 158 | 299 | 129 | 107 | 5.70 | 10.0 | 10.8 | 1.38 | 66.0 |
| 1949 | 12.7 | 54.5 | 96.1 | 178 | 124 | 119 | 72.8 | 115 | 7.73 | 14.3 | 1.94 | 1.72 | 66.4 |
| 1950 | .27 | 7.88 | 74.6 | 382 | 239 | 364 | 189 | 74.9 | 32.7 | 1.70 | 2.45 | 15.4 | 115 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | 2.62 | 3.32 | 1.26 | 0.86 | 2.65 | 0.04 | - |
| 1943 | 0.60 | 2.31 | 4.50 | 3.50 | 3.35 | 3.18 | 1.78 | 2.69 | 1.20 | 1.00 | .009 | .005 | 24.12 |
| 1944 | .03 | .10 | .17 | .46 | 2.61 | 3.75 | 4.65 | 1.36 | .07 | .0002 | 0 | 0 | 13.20 |
| 1945 | 0 | .02 | .17 | .46 | 4.85 | 4.17 | 1.36 | 2.05 | .61 | .36 | .08 | .86 | 14.99 |
| 1946 | 3.87 | 1.75 | 2.08 | 2.10 | 2.04 | 3.56 | .18 | 4.04 | 1.02 | .03 | .001 | 0 | 20.65 |
| 1947 | .04 | .19 | 1.26 | 4.62 | .57 | 3.08 | 5.30 | 5.00 | 4.79 | .21 | .13 | .26 | 22.95 |
| 1948 | .003 | .03 | .62 | .82 | 3.01 | 6.09 | 2.54 | 2.18 | .11 | .20 | .22 | .03 | 15.85 |
| 1949 | .26 | 1.07 | 1.96 | 3.62 | 2.28 | 2.42 | 1.44 | 2.34 | .15 | .29 | .04 | .03 | 15.90 |
| 1950 | .006 | .16 | 1.52 | 7.78 | 4.39 | 7.41 | 3.73 | 1.52 | .64 | .03 | .05 | .30 | 27.54 |

Yearly discharge, in cubic feet per second, of Rock Creek near Rock Creek, Ohio

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 1,770 | Feb. 11, 1943 | 0 | 101 | 1.78 | 24.12 | 71.0 | 17.01 |
| 1944 | 1004 | 2,250 | Apr. 12, 1944 | 0 | 54.9 | 1.970 | 13.20 | 54.4 | 13.09 |
| 1945 | 1034 | 2,520 | Feb. 22, 1945 | 0 | 62.6 | 1.11 | 14.99 | 93.9 | 22.50 |
| 1946 | 1054 | 1,170 | June 1, 1946 | 0 | 86.0 | 1.52 | 20.65 | 60.1 | 14.44 |
| 1947 | 1084 | 3,150 | June 3, 1947 | 0 | 104 | 1.84 | 24.95 | 101 | 24.11 |
| 1948 | 1114 | 5,730 | Mar. 22, 1948 | 0 | 66.0 | 1.17 | 15.85 | 76.9 | 18.49 |
| 1949 | 1144 | 2,070 | May 23, 1949 | 0 | 66.4 | 1.17 | 15.90 | 59.6 | 14.30 |
| 1950 | 1174 | 3,830 | Jan. 16, 1950 | 0 | 115 | 2.03 | 27.54 | - | - |

294. Mill Creek near Jefferson, Ohio

Location.--Lat 41°45'10", long. 80°48'00", in T. 11 N., R. 3 W., at bridge on State Highway 307, 1 3/4 miles northwest of Jefferson, and 3 1/2 miles downstream from Griggs Creek.

Drainage area.--78.3 sq mi.

Gage.--Water-stage recorder. Datum of gage is 822.6 ft above mean sea level (from County Engineer benchmark). Prior to June 10, 1942, wire-weight gage at same site and datum.

Average discharge.--8 years (1942-50), 107 cfs.

Extremes.--1942-50: Maximum discharge, 7,010 cfs Mar. 22, 1948 (gage height, 9.95 ft); no flow for many days.

Remarks.--Small amount of diversion above station for municipal supply of village of Jefferson.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1942 | - | - | - | - | - | - | 150 | 224 | 57.3 | 207 | 82.7 | 0.09 | - |
| 1943 | 45.9 | 168 | 320 | 186 | 248 | 193 | 169 | 178 | 58.3 | 55.7 | .11 | .01 | 134 |
| 1944 | .98 | 24.6 | 19.7 | 71.1 | 190 | 208 | 303 | 452.9 | .87 | 0 | 0 | .01 | 71.8 |
| 1945 | .01 | 7.98 | 35.3 | 57.5 | 394 | 245 | 68.1 | 145 | 66.8 | 3.39 | .32 | 47.5 | 87.3 |
| 1946 | 320 | 102 | 89.3 | 109 | 130 | 243 | 4.81 | 198 | 170 | 1.74 | .10 | 0 | 114 |
| 1947 | .05 | 17.6 | 94.4 | 309 | 41.3 | 253 | 362 | 283 | 248 | 49.0 | .34 | 1.31 | 139 |
| 1948 | 0 | .25 | 73.4 | 49.2 | 259 | 374 | 116 | 149 | 8.30 | 3.53 | 12.0 | 0 | 86.7 |
| 1949 | 4.60 | 55.9 | 70.1 | 183 | 159 | 142 | 126 | 76.7 | 2.35 | .96 | .05 | .01 | 67.9 |
| 1950 | 0 | 24.1 | 131 | 461 | 298 | 481 | 208 | 70.8 | 61.1 | 18.8 | 10.2 | 138 | 158 |

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1942 | - | - | - | - | - | - | 2.14 | 3.30 | 0.82 | 3.04 | 1.22 | 0.001 | - |
| 1943 | 0.55 | 2.40 | 4.72 | 2.74 | 3.30 | 2.84 | 2.41 | 2.62 | .83 | .82 | .002 | .0001 | 23.33 |
| 1944 | .01 | .35 | .29 | 1.05 | 2.62 | 3.07 | 4.32 | .78 | .01 | 0 | 0 | .0001 | 12.50 |
| 1945 | .0002 | .11 | .52 | .85 | 5.24 | 3.61 | .97 | 2.13 | .95 | .05 | .005 | .68 | 15.12 |
| 1946 | 4.72 | 1.45 | 1.31 | 1.60 | 1.73 | 3.57 | .07 | 2.92 | 2.42 | .03 | .002 | 0 | 19.82 |
| 1947 | .0007 | .25 | 1.40 | 4.55 | .55 | 3.72 | 5.16 | 4.16 | 3.54 | .72 | .005 | .02 | 24.08 |
| 1948 | 0 | .004 | 1.08 | .72 | 3.57 | 5.51 | 1.65 | 2.19 | .12 | .05 | .18 | 0 | 15.07 |
| 1949 | .07 | .80 | 1.03 | 2.70 | 2.11 | 2.09 | 1.80 | 1.13 | .03 | .01 | .0007 | .0001 | 11.77 |
| 1950 | 0 | .34 | 1.92 | 6.79 | 3.97 | 7.08 | 2.97 | 1.04 | .87 | .28 | .15 | 1.96 | 27.37 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - |
| 1943 | 974 | 3,000 | Dec. 28, 1942 | 0 | 134 | 1.71 | 23.33 | 93.5 | 16.21 |
| 1944 | 1004 | 3,140 | Apr. 12, 1944 | 0 | 71.8 | .917 | 12.50 | 771.7 | 12.48 |
| 1945 | 1034 | 4,140 | Feb. 23, 1945 | 0 | 87.3 | 1.11 | 15.12 | 127 | 21.96 |
| 1946 | 1054 | 2,730 | Oct. 9, 1945 | 0 | 114 | 1.46 | 19.82 | 80.6 | 13.99 |
| 1947 | 1084 | 3,960 | June 7, 1947 | 0 | 159 | 1.78 | 24.08 | 136 | 23.51 |
| 1948 | 1114 | 7,010 | Mar. 22, 1948 | 0 | 86.7 | 1.11 | 15.07 | 91.4 | 15.89 |
| 1949 | 1144 | 1,640 | Apr. 27, 1949 | 0 | 67.9 | .867 | 11.77 | 70.0 | 12.13 |
| 1950 | 1174 | 5,290 | Feb. 14, 1950 | 0 | 158 | 2.02 | 27.37 | - | - |

† Corrected.

295. Grand River near Madison, Ohio

Location--Lat 41°44'26", long. 81°02'48", at bridge on State Highway 528, half a mile upstream from Griswold Creek and 2 miles south of Madison, Lake County.

Drainage area--587 sq mi.

Gage--Water-stage recorder. Datum of gage is 674.47 ft above mean sea level, adjustment of 1912. Prior to Jan. 20, 1939, chain gage at same site and datum.

Average discharge--25 years (1922-35, 1938-50), 632 cfs.

Extremes--1922-35, 1938-50: Maximum discharge, 15,100 cfs (revised) Mar. 22, 1948 (gage height, 12.48 ft); no flow July 31, Aug. 1, 2, 1934.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|-------|--------|--------|-------|-------|-------|-------|-------|------|------|--------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | - | 42.8 | 17.5 | - |
| 1923 | 8.25 | 19.9 | 159 | 1,120 | 911 | 1,610 | 677 | 349 | 68.3 | 22.1 | 10.4 | 30.1 | 414 |
| 1924 | 16.4 | 103 | 1,980 | 1,820 | 828 | 1,470 | 939 | 879 | 229 | 770 | 53.5 | 1,130 | 854 |
| 1925 | 605 | 41.5 | 1,200 | 200 | 2,250 | 1,500 | 168 | 203 | 24.8 | 31.7 | 30.7 | 521 | *555 |
| 1926 | 1,170 | 1,970 | 687 | 1,170 | 2,530 | 2,150 | 1,480 | 78.9 | 116 | 15.1 | 47.5 | *1,720 | *1,080 |
| 1927 | *2,280 | 1,450 | 593 | 1,450 | 1,760 | 1,890 | 394 | 651 | 109 | 19.6 | 25.9 | 9.48 | *681 |
| 1928 | 14.3 | 700 | *2,220 | 1,510 | 1,580 | 771 | 775 | 161 | 690 | 526 | 127 | 15.0 | *763 |
| 1929 | 29.7 | 538 | 697 | *1,790 | *744 | 2,110 | 2,320 | 1,630 | 64.5 | 143 | 18.2 | 11.1 | *843 |
| 1930 | 18.0 | 342 | 1,200 | *2,520 | 1,280 | 1,410 | 1,070 | 42.6 | 46.0 | 18.3 | 6.81 | 8.13 | *662 |
| 1931 | 10.6 | 18.7 | 248 | 540 | 605 | 597 | 1,110 | 635 | 102 | 15.3 | 10.2 | 8.35 | 323 |
| 1932 | 13.7 | 62.7 | 472 | 1,590 | 800 | 724 | 711 | 775 | 25.6 | 64.6 | 11.4 | 6.83 | 439 |
| 1933 | 9.16 | 114 | *463 | 675 | 642 | 1,830 | 1,420 | 201 | 37.7 | 12.6 | 8.66 | 4.20 | *451 |
| 1934 | 7.73 | 308 | 511 | 784 | 75.8 | 1,166 | 844 | 38.5 | 6.60 | 8.03 | 177 | 196 | 346 |
| 1935 | 40.7 | 346 | 407 | *1,050 | 960 | 1,054 | 167 | 469 | 45.6 | 124 | 272 | 35.0 | *413 |
| 1936 | 19.4 | 52.5 | 534 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | 1,334 | 1,286 | 173 | 110 | 40.5 | 97.6 | 449 | - |
| 1939 | 20.0 | 204 | 406 | 609 | 2,264 | 1,616 | 1,306 | 117 | 113 | 34.2 | 17.5 | 5.02 | 547 |
| 1940 | 12.6 | 26.2 | 73.5 | 214 | 745 | 2,089 | 2,304 | 761 | 931 | 141 | 23.9 | 45.1 | 611 |
| 1941 | 16.4 | 238 | 1,683 | 1,125 | 743 | 1,025 | 386 | 43.6 | 137 | 16.5 | 54.4 | 9.91 | 457 |
| 1942 | 25.6 | 70.7 | 274 | 338 | 1,634 | 2,508 | 1,136 | 958 | 399 | 495 | 739 | 28.9 | 711 |
| 1943 | 332 | 936 | 1,545 | 1,463 | 1,609 | 1,449 | 920 | 1,187 | 577 | 580 | 24.0 | 14.0 | 881 |
| 1944 | 30.7 | 112 | 89.9 | 249 | 1,031 | 1,453 | 1,743 | 704 | 72.0 | 8.59 | 11.8 | 7.03 | 456 |
| 1945 | 13.8 | 57.7 | 125 | 237 | 2,150 | 1,711 | 608 | 1,005 | 304 | 104 | 82.6 | 431 | 558 |
| 1946 | 1,576 | 652 | 527 | 946 | *878 | 1,613 | 102 | 1,563 | 779 | 27.5 | 10.5 | 4.40 | *726 |
| 1947 | 21.6 | 31.1 | 441 | 1,690 | 508 | 1,240 | 2,438 | 1,625 | 1,746 | 145 | 27.5 | 126 | 858 |
| 1948 | 11.9 | 37.5 | 319 | 511 | 1,291 | 2,246 | 957 | 1,103 | 101 | 55.1 | 67.7 | 8.52 | 541 |
| 1949 | 50.6 | 246 | 593 | 1,370 | 1,138 | 971 | 817 | 565 | 42.8 | 35.1 | 38.8 | 32.3 | 489 |
| 1950 | 8.49 | 82.6 | 600 | 2,827 | 1,952 | 2,981 | 1,498 | 604 | 250 | 57.9 | 25.8 | 317 | 930 |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | - | 0.08 | 0.03 | - |
| 1923 | 0.02 | 0.04 | 0.31 | 2.20 | 1.61 | 3.16 | 1.28 | 0.69 | 0.13 | 0.04 | 0.02 | 0.06 | 9.56 |
| 1924 | 0.03 | 0.20 | 3.88 | 3.57 | 1.52 | 2.88 | 1.78 | 1.73 | .44 | 1.51 | 1.10 | 2.15 | 19.79 |
| 1925 | 1.19 | .08 | *2.35 | .39 | *4.00 | 2.95 | .32 | .40 | .05 | .06 | .06 | .99 | *12.84 |
| 1926 | 2.29 | 3.75 | 1.35 | 2.29 | 4.49 | 4.22 | 2.81 | .15 | .22 | .03 | .09 | *3.27 | *24.96 |
| 1927 | *4.47 | 2.72 | 1.16 | 2.85 | 3.12 | *3.71 | .75 | 1.28 | .21 | .04 | .05 | .02 | *20.38 |
| 1928 | .03 | 1.33 | *4.36 | 2.96 | 3.08 | 1.51 | 1.47 | .32 | 1.32 | 1.03 | .25 | .03 | *17.69 |
| 1929 | .06 | 1.02 | 1.37 | *3.52 | *1.32 | 4.14 | 4.41 | 3.20 | .12 | .28 | .04 | .03 | *19.51 |
| 1930 | .04 | .65 | 2.35 | *4.95 | 2.27 | 2.77 | 2.03 | .08 | .09 | .04 | .01 | .02 | *15.30 |
| 1931 | .02 | .04 | .49 | 1.06 | 1.07 | 1.18 | 2.11 | 1.25 | .19 | .03 | .02 | .02 | 7.48 |
| 1932 | .03 | .12 | .93 | 3.12 | 1.47 | 1.42 | 1.35 | 1.52 | .05 | .13 | .02 | .01 | 10.17 |
| 1933 | .02 | .22 | *.91 | 1.33 | 1.14 | 3.60 | 2.70 | .39 | .07 | .02 | .02 | .008 | *10.43 |
| 1934 | .01 | .59 | 1.00 | 1.54 | .13 | 2.29 | 1.61 | .08 | .01 | .02 | .35 | .37 | 8.00 |
| 1935 | .08 | .66 | .80 | 2.06 | 1.71 | 2.08 | .32 | .92 | .08 | .24 | .53 | .07 | *9.55 |
| 1936 | .04 | .10 | 1.05 | - | - | - | - | - | - | - | - | - | - |
| 1938 | - | - | - | - | - | 2.62 | 2.44 | .34 | .21 | .08 | .19 | .85 | - |
| 1939 | .04 | .39 | .80 | 1.20 | 4.02 | 3.17 | 2.48 | .23 | .21 | .07 | .03 | .01 | 12.65 |
| 1940 | .02 | .05 | .14 | .42 | 1.37 | 4.10 | 4.38 | 1.50 | 1.77 | .28 | .05 | .08 | 14.16 |
| 1941 | .03 | .45 | 3.31 | 2.21 | 1.32 | 2.02 | .73 | .09 | .26 | .03 | .11 | .02 | 10.58 |
| 1942 | .06 | .13 | .54 | .66 | 3.25 | 4.53 | 2.16 | 1.88 | .76 | .97 | 1.45 | .05 | 16.43 |
| 1943 | .65 | 1.77 | 3.03 | 2.85 | 2.85 | 2.85 | 1.75 | 2.35 | 1.44 | .75 | .05 | .03 | 20.37 |
| 1944 | .06 | .21 | .18 | .49 | 1.90 | 2.86 | 3.31 | 1.39 | .14 | .02 | .02 | .01 | 10.58 |
| 1945 | .03 | .11 | .25 | .47 | 3.61 | 3.36 | 1.16 | 1.97 | .58 | .20 | .16 | .82 | 12.92 |
| 1946 | 3.09 | 1.24 | 1.04 | 1.86 | *1.56 | 3.17 | .19 | 3.07 | 1.48 | .05 | .02 | .008 | *16.78 |
| 1947 | .04 | .15 | .87 | 3.32 | .90 | 2.43 | 4.63 | 3.58 | 3.31 | .28 | .05 | .24 | 19.80 |
| 1948 | .02 | .07 | .63 | .61 | 2.37 | 4.42 | 1.82 | 2.17 | .19 | .11 | .15 | .02 | 12.56 |
| 1949 | .10 | .47 | 1.16 | 2.69 | 2.02 | 1.90 | 1.55 | 1.11 | .08 | .07 | .08 | .06 | 11.29 |
| 1950 | .02 | .16 | 1.18 | 5.56 | 3.47 | 6.86 | 2.84 | 1.19 | .46 | .11 | .05 | .60 | 21.52 |

* Revised.

Yearly discharge, in cubic feet per second, of Grand River near Madison, Ohio

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1922 | 564 | - | - | - | - | - | - | - | - |
| 1923 | 564,1437 | *5,130 | Apr. 6, 1923 | 2 | 414 | 0.705 | 9.56 | 576 | 13.30 |
| 1924 | 584,1437 | *9,060 | Jan. 11, 1924 | 7 | 854 | 1.45 | 19.79 | *832 | *19.30 |
| 1925 | 604,1437 | *6,210 | Feb. 23, 1925* | 8 | *555 | *.945 | *12.84 | *718 | *16.61 |
| 1926 | 624,1437 | *11,500 | Sept. 25, 1926 | 8 | *1,080 | *1.84 | *24.96 | *1,122 | *25.92 |
| 1927 | 644,1437 | *7,710 | Oct. 25, 1926 | 6.6 | *881 | *1.50 | *20.38 | *767 | *17.75 |
| 1928 | 664,1437 | *8,470 | Dec. 1, 1927* | 7.8 | *763 | *1.30 | *17.69 | *622 | *14.42 |
| 1929 | 684,1437 | *14,100 | Jan. 19, 1929 | 5.0 | *843 | *1.44 | *19.51 | *869 | *20.10 |
| 1930 | 699,1437 | *7,330 | Jan. 13, 1930 | 1.8 | *662 | *1.13 | *15.30 | *554 | *12.61 |
| 1931 | 714 | 3,710 | Apr. 27, 1931 | .7 | 323 | .550 | 7.48 | 346 | 8.02 |
| 1932 | 729,1437 | *6,210 | May 8, 1932 | 1.2 | 439 | .748 | 10.17 | *442 | *10.24 |
| 1933 | 744,1437 | *8,090 | Mar. 14, 1933 | .2 | *451 | *.768 | *10.43 | 470 | 10.88 |
| 1934 | 759,1437 | *5,850 | Jan. 2, 1934 | 0 | 346 | .589 | 8.00 | 343 | 7.94 |
| 1935 | 784,1437 | *5,850 | Jan. 22, 1935 | 8.3 | *413 | *.704 | *9.55 | *397 | *9.20 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1938 | 854,1437 | - | - | - | - | - | - | - | - |
| 1939 | 874 | 7,900 | Feb. 20, 1939 | .2 | 547 | .932 | 12.65 | 503 | 11.63 |
| 1940 | 894 | 8,520 | Mar. 30, 1940 | 4.2 | 611 | 1.04 | 14.16 | 765 | 17.74 |
| 1941 | 924 | 5,500 | Dec. 13, 1940 | 1.0 | 457 | .779 | 10.58 | 324 | 7.51 |
| 1942 | 954 | 11,200 | Mar. 9, 1942 | 1.4 | 711 | 1.21 | 15.43 | 915 | 21.16 |
| 1943 | 974 | 8,900 | Dec. 31, 1942 | 9.0 | 881 | 1.50 | 20.37 | 664 | 15.37 |
| 1944 | 1004 | 10,200 | Apr. 12, 1944 | 1.5 | 456 | .777 | 10.58 | 453 | 10.52 |
| 1945 | 1034 | 9,650 | Feb. 23, 1945 | 5.9 | 558 | .951 | 12.92 | 774 | 17.90 |
| 1946 | 1054,1437 | 7,380 | June 1, 1946 | 3.0 | *726 | *1.24 | *16.78 | *539 | *12.47 |
| 1947 | 1084 | 8,900 | June 3, 1947 | 4.4 | 858 | 1.46 | 19.80 | 843 | 19.46 |
| 1948 | 1114 | *15,100 | Mar. 22, 1948 | 4.7 | 541 | .922 | 12.56 | 585 | 13.57 |
| 1949 | 1144 | 5,070 | May 23, 1949 | 7.4 | 469 | .833 | 11.29 | 472 | 10.92 |
| 1950 | 1174 | 13,600 | Feb. 14, 1950 | 5.5 | 930 | 1.58 | 21.52 | - | - |

* Revised.

296. Ashtabula River near Ashtabula, Ohio

Location.--Lat 41°51'19", long. 80°45'43", at highway bridge 1 mile upstream from Hubbard Run, $1\frac{1}{4}$ miles southeast of Ashtabula, Ashtabula County, and $5\frac{1}{2}$ miles upstream from mouth.

Drainage area.--118 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 605 ft (from topographic map). Prior to Aug. 27, 1924, staff gage at same site and datum.

Average discharge.--19 years (1924-35, 1939-47), 144 cfs.

Extremes.--1924-35, 1939-47: Maximum discharge, 10,800 cfs May 16, 1942 (gage height, 9.67 ft); no flow at times during most years.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1925 | 70.3 | 8.77 | 218 | 42.3 | 420 | 132 | 50.1 | 35.0 | 1.21 | 1.23 | 8.53 | 55.8 | 84.9 |
| 1926 | 340 | 377 | 101 | *178 | *258 | 444 | 271 | 18.9 | 22.0 | .82 | 45.5 | 473 | *210 |
| 1927 | 653 | 402 | 154 | 342 | 244 | 319 | 131 | 184 | 26.0 | 3.77 | 5.01 | 1.19 | 206 |
| 1928 | 11.8 | 361 | 596 | 267 | 294 | 170 | 158 | 15.4 | 92.2 | 77.2 | 3.63 | .98 | 188 |
| 1929 | 13.4 | 163 | 140 | 300 | 177 | 349 | 415 | 281 | 8.45 | 24.3 | .47 | .03 | 156 |
| 1930 | 5.16 | 69.3 | 285 | 496 | 333 | 428 | 288 | 13.7 | 29.1 | .30 | 0 | .11 | 162 |
| 1931 | 1.96 | 7.62 | 104 | 153 | 150 | 196 | 246 | 150 | 38.5 | 1.08 | .07 | .52 | 87.0 |
| 1932 | 1.43 | 24.2 | 204 | 387 | 181 | *190 | 197 | 186 | 4.41 | 2.22 | .41 | .27 | *115 |
| 1933 | 3.13 | 49.9 | 230 | 220 | 215 | 330 | 308 | 62.4 | 2.90 | 0 | .07 | .04 | 118 |
| 1934 | .49 | 100 | 176 | 205 | 24.8 | *245 | 203 | 4.63 | .15 | .03 | 82.9 | 6.65 | *88.0 |
| 1935 | 2.93 | 71.2 | 113 | 209 | 254 | 312 | 37.4 | 100 | 6.20 | 2.56 | 10.5 | 10.1 | 93.4 |
| 1936 | 1.69 | 11.4 | 136 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | 347 | 283 | 14.9 | 77.9 | 10.9 | .12 | .07 | - |
| 1940 | 1.02 | 4.90 | 23.4 | 81.0 | 177 | 511 | 442 | 239 | 134 | 22.3 | 5.01 | 8.81 | 137 |
| 1941 | 2.32 | 85.9 | 480 | 223 | 139 | 192 | 86.4 | 10.1 | 11.9 | .03 | 1.55 | .24 | 103 |
| 1942 | 3.64 | 26.5 | 108 | 114 | 398 | 556 | 254 | 358 | 131 | 300 | 60.2 | 5.38 | 192 |
| 1943 | 96.2 | 253 | 423 | 247 | 326 | 313 | 274 | 295 | 91.2 | 26.1 | 1.45 | .37 | 195 |
| 1944 | 34.3 | 98.2 | 56.3 | 130 | 252 | 284 | 436 | 132 | 4.44 | .35 | 0 | 2.96 | 118 |
| 1945 | 6.54 | 39.7 | 91.1 | 108 | 538 | 451 | 142 | 174 | 107 | 7.51 | 1.15 | 58.7 | 141 |
| 1946 | 449 | 165 | 157 | 148 | 165 | 312 | 12.7 | 261 | 373 | 3.41 | .31 | 0 | 171 |
| 1947 | 2.06 | 25.1 | 144 | 434 | 77.9 | 386 | 514 | 411 | 313 | 28.1 | 2.15 | 2.68 | 196 |
| 1948 | .38 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | - | - | - | 285 | 110 | 87.3 | 20.5 | 8.47 | 156 | - |

* Revised.

Monthly and yearly runoff, in inches, of Ashtabula River near Ashtabula, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|------|------|------|-------|-------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1925 | 0.69 | 0.08 | 2.13 | 0.41 | 3.71 | 1.29 | 0.47 | 0.34 | 0.01 | 0.01 | 0.08 | 1.32 | 9.75 |
| 1926 | 3.32 | 3.56 | .99 | *1.74 | *2.28 | 4.35 | 2.57 | .18 | .21 | .008 | .45 | 4.47 | *24.13 |
| 1927 | 6.38 | 3.80 | 1.51 | 3.34 | 2.16 | 3.11 | 1.24 | 1.80 | .25 | .04 | .05 | .01 | *23.69 |
| 1928 | .12 | 3.41 | 5.82 | 2.61 | 2.69 | 1.66 | 1.31 | .15 | .87 | .75 | .04 | .009 | 19.44 |
| 1929 | .13 | 1.57 | 1.37 | 2.93 | 1.56 | 3.41 | 3.93 | 2.74 | .08 | .24 | .005 | .0003 | 17.97 |
| 1930 | .05 | .65 | 2.79 | 4.84 | 2.94 | 4.18 | 2.72 | .13 | .28 | .003 | 0 | .001 | 18.58 |
| 1931 | .02 | .07 | 1.02 | 1.50 | 1.32 | 1.91 | 2.32 | 1.46 | .36 | .01 | .0007 | .005 | 10.00 |
| 1932 | .01 | .23 | 1.99 | 3.78 | 1.65 | *1.86 | 1.86 | 1.82 | .04 | .02 | .004 | .003 | *13.27 |
| 1933 | .03 | .47 | 2.25 | 2.14 | 1.90 | 3.23 | 2.91 | .61 | .03 | 0 | .0007 | .004 | 13.57 |
| 1934 | .005 | .94 | 1.72 | 2.01 | .22 | *2.40 | 1.92 | .04 | .001 | .0003 | .81 | .06 | *10.13 |
| 1935 | .03 | .67 | 1.10 | 2.04 | 2.24 | 3.04 | .35 | .98 | .06 | .3 | .10 | .10 | 10.74 |
| 1936 | .02 | .11 | 1.33 | - | - | - | - | - | - | - | - | - | - |
| 1939 | - | - | - | - | - | 3.39 | 2.68 | .14 | .74 | .11 | .001 | .0007 | - |
| 1940 | .01 | .05 | .23 | .79 | 1.62 | 4.99 | 4.18 | 2.34 | 1.27 | .22 | .05 | .08 | 15.83 |
| 1941 | .02 | .81 | 4.69 | 2.18 | 1.23 | 1.88 | .82 | .10 | .11 | .0003 | .01 | .002 | 11.85 |
| 1942 | .04 | .25 | 1.05 | 1.11 | 3.51 | 5.43 | 2.40 | 3.49 | 1.24 | 2.93 | .59 | .05 | 22.09 |
| 1943 | .94 | 2.59 | 4.13 | 2.41 | 2.87 | 3.06 | 2.59 | 2.88 | .86 | .25 | .01 | .003 | 22.39 |
| 1944 | .34 | .93 | .55 | 1.27 | 2.31 | 2.78 | 4.12 | 1.29 | .04 | .003 | 0 | .03 | 13.66 |
| 1945 | .06 | .37 | .89 | 1.04 | 4.75 | 4.40 | 1.34 | 1.70 | 1.01 | .07 | .01 | .55 | 16.19 |
| 1946 | 4.39 | 1.56 | 1.53 | 1.44 | 1.46 | 3.04 | .12 | 2.55 | 3.53 | .03 | .003 | 0 | 19.65 |
| 1947 | .02 | .24 | 1.41 | 4.24 | .69 | 3.77 | 4.86 | 4.01 | 2.96 | .27 | .02 | .03 | 22.52 |
| 1948 | .004 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | - | - | - | 2.70 | 1.07 | .83 | .20 | .08 | 1.48 | - |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 784 | - | - | - | - | - | - | - | - |
| 1925 | 784 | #3,250 | Feb. 9, 1925 | 0 | 84.9 | 0.719 | 9.75 | 128 | 14.72 |
| 1926 | 784, 1437 | #4,050 | Sept. 24, 1926 | 0 | *210 | *1.78 | *24.13 | *243 | *27.95 |
| 1927 | 784 | *1,000 | Oct. 25, 1926 | 0 | 206 | 1.75 | 23.69 | 186 | 21.35 |
| 1928 | 784 | #5,430 | Dec. 1, 1927 | 0 | 168 | 1.42 | 19.44 | 114 | 13.16 |
| 1929 | 784, 954 | 7,500 | Jan. 19, 1929 | 0 | 156 | 1.32 | 17.97 | 160 | 18.39 |
| 1930 | 784 | #3,050 | Jan. 12, 1930 | 0 | 162 | 1.37 | 18.58 | 141 | 16.20 |
| 1931 | 784 | #2,010 | Apr. 2, 1931 | 0 | 87.0 | .737 | 10.00 | 96.8 | 11.12 |
| 1932 | 784, 1437 | #3,150 | May 8, 1932 | 0 | *115 | *.975 | *13.27 | *120 | *13.79 |
| 1933 | 784 | #5,230 | Dec. 31, 1932 | 0 | 118 | 1.00 | 13.57 | 117 | 13.49 |
| 1934 | 784, 1437 | #3,170 | Aug. 9, 1934 | 0 | *88.0 | *.746 | *10.13 | *80.4 | *9.26 |
| 1935 | 784 | #2,500 | Feb. 15, 1935 | .1 | 93.4 | .792 | 10.74 | 90.4 | 10.40 |
| 1936 | 804 | - | - | - | - | - | - | - | - |
| 1940 | 894 | 4,470 | Mar. 30, 1940 | 0 | 137 | 1.16 | 15.83 | 183 | 21.06 |
| 1941 | 924 | 2,700 | Dec. 13, 1940 | 0 | 103 | .873 | 11.85 | 66.7 | 7.67 |
| 1942 | 954, 974 | 10,800 | May 16, 1942 | 0 | 192 | 1.63 | 22.09 | 245 | 28.21 |
| 1943 | 974 | 3,930 | Dec. 28, 1942 | 0 | 195 | 1.65 | 22.39 | 146 | 16.75 |
| 1944 | 1004 | 3,700 | Apr. 12, 1944 | 0 | 118 | 1.00 | 13.66 | 114 | 13.16 |
| 1945 | 1034 | 5,010 | Feb. 23, 1945 | 0 | 141 | 1.19 | 16.19 | 195 | 22.35 |
| 1946 | 1054 | 4,180 | June 1, 1946 | 0 | 171 | 1.45 | 19.65 | 120 | 13.84 |
| 1947 | 1084 | 7,500 | June 8, 1947 | 0 | 196 | 1.68 | 22.52 | - | - |
| 1948 | 1084 | - | - | - | - | - | - | - | - |
| 1950 | 1207 | - | - | - | - | - | - | - | - |

* Revised.

† Not previously published.

297. Conneaut Creek at Amboy, Ohio

Location.--Lat 41°55'34", long. 80°36'18", at highway bridge half a mile east of Amboy, Ashtabula County, 3 miles southwest of Conneaut, and $6\frac{1}{2}$ miles upstream from mouth.

Drainage area.--178 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 605 ft (from topographic map). Prior to Aug. 17, 1924, chain gage at same site and datum.

Average discharge.--13 years (1922-35), 221 cfs.

Extremes.--1922-35: Maximum discharge, 7,900 cfs (revised) Dec. 1, 1927, Jan. 19, 1929; maximum gage height, 12.94 ft Mar. 4, 1934 (ice jam); minimum discharge, 0.2 cfs July 31, Aug. 1, 1933, Aug. 1, 2, 1934.

Monthly and yearly mean discharge, in cubic feet per second, of Conneaut Creek at Amboy, Ohio

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|--------|------|------|------|------|------|------|------|------|-------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | 22.2 | 35.2 | 14.5 | - |
| 1923 | 10.1 | 41.0 | 167 | 751 | 422 | 589 | 249 | 200 | 26.7 | 5.42 | 3.19 | 7.63 | 206 |
| 1924 | 4.95 | 38.9 | 570 | 772 | 286 | 400 | 319 | 498 | 84.3 | 133 | 15.2 | 149 | 274 |
| 1925 | 132 | 28.0 | 445 | 90.0 | 602 | 436 | 130 | 85.8 | 10.9 | 16.9 | 20.0 | 61.6 | 169 |
| 1926 | 399 | 557 | 196 | 518 | 726 | 672 | *504 | 52.9 | 46.7 | 8.41 | 108 | *656 | *367 |
| 1927 | 804 | 650 | 258 | *493 | 462 | 441 | 191 | 270 | 66.0 | 20.9 | 15.3 | 10.8 | *306 |
| 1928 | 22.0 | *524 | *1,050 | 422 | -545 | 274 | 203 | 40.6 | 181 | 91.0 | 19.7 | 10.0 | *281 |
| 1929 | 39.7 | 247 | 239 | *534 | *268 | 565 | 610 | 428 | 34.9 | 52.5 | 6.39 | 6.39 | *253 |
| 1930 | 11.4 | 124 | 427 | *786 | 432 | 514 | 432 | 39.3 | 60.6 | 11.1 | 3.19 | 5.65 | *237 |
| 1931 | 10.8 | 18.5 | 180 | 238 | 236 | 295 | 326 | 252 | 94.4 | 17.7 | 5.64 | 9.30 | 140 |
| 1932 | 16.0 | 89.0 | 351 | 565 | 283 | 319 | 323 | 253 | 19.1 | 14.1 | 5.98 | 3.56 | 191 |
| 1933 | 9.23 | 73.6 | *263 | 277 | 275 | 442 | 412 | 109 | 18.2 | 2.82 | 4.62 | 4.40 | *156 |
| 1934 | 6.87 | 170 | 268 | 304 | 39.6 | 498 | 303 | 20.2 | 5.46 | 2.79 | 47.8 | 11.2 | 141 |
| 1935 | 8.62 | 127 | 210 | 360 | 428 | 446 | 69.9 | 181 | 25.1 | 16.3 | 15.1 | 20.0 | 158 |
| 1936 | 10.0 | 29.9 | 244 | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | - | - | - | 522 | 215 | 195 | 78.7 | 38.7 | 384 | - |

* Revised.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|------|-------|------|------|------|------|-------|----------|
| 1922 | - | - | - | - | - | - | - | - | - | 0.14 | 0.23 | 0.09 | - |
| 1923 | 0.07 | 0.26 | 1.08 | 4.86 | 2.47 | 3.82 | 1.56 | 1.29 | 0.17 | .03 | .02 | .05 | 15.68 |
| 1924 | .03 | .24 | 3.69 | 5.00 | 1.74 | 2.59 | 2.00 | 3.23 | .53 | .86 | .10 | .93 | 20.94 |
| 1925 | .86 | .18 | 2.68 | .58 | 3.52 | 2.82 | .81 | .56 | .07 | .11 | .13 | .39 | 12.91 |
| 1926 | 2.58 | 3.49 | 1.27 | 3.36 | 4.25 | 4.36 | *3.16 | .34 | .29 | .05 | .70 | *4.12 | *27.97 |
| 1927 | 5.21 | 4.07 | 1.67 | *3.19 | 2.71 | 2.86 | 1.19 | 1.75 | .41 | .13 | .10 | .07 | *23.36 |
| 1928 | .14 | *3.28 | *6.80 | 2.73 | 3.30 | 1.78 | 1.27 | .26 | 1.14 | .59 | .13 | .06 | *21.48 |
| 1929 | .26 | 1.55 | 1.54 | *3.46 | *1.57 | 3.66 | 3.83 | 2.77 | .22 | .34 | .04 | .04 | *19.28 |
| 1930 | .07 | .78 | 2.77 | *5.10 | 2.53 | 3.33 | 2.71 | .25 | .58 | .07 | .02 | .04 | *18.05 |
| 1931 | .07 | .12 | 1.16 | 1.54 | 1.38 | 1.91 | 2.04 | 1.64 | .59 | .11 | .04 | .06 | 10.66 |
| 1932 | .10 | .56 | 2.27 | 3.65 | 1.71 | 2.06 | 2.02 | 1.90 | .12 | .09 | .04 | .02 | 14.54 |
| 1933 | .06 | .46 | *1.64 | 1.80 | 1.60 | 2.86 | 2.58 | .71 | .11 | .02 | .03 | .03 | *11.90 |
| 1934 | .04 | 1.07 | 1.74 | 1.97 | .23 | 3.23 | 1.90 | .13 | .03 | .02 | .31 | .07 | 10.74 |
| 1935 | .06 | .80 | 1.36 | 2.32 | 2.50 | 2.89 | .44 | 1.18 | .16 | .11 | .10 | .12 | 12.04 |
| 1936 | .06 | .19 | 1.58 | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | - | - | - | - | 3.27 | 1.40 | 1.23 | .51 | .25 | 2.41 | - |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1922 | 544 | - | - | - | - | - | - | - | - | - | - |
| 1923 | 564 | *3,190 | Mar. 4, 1923 | 1.7 | 206 | 1.16 | 15.68 | 239 | 18.23 | | |
| 1924 | 584 | *7,320 | May 9, 1924 | 2.9 | 274 | 1.54 | 20.94 | 272 | 20.90 | | |
| 1925 | 604 | *3,900 | Feb. 9, 1925 | 3.5 | 169 | .949 | 12.91 | 214 | 16.33 | | |
| 1926 | 714,1437 | *7,700 | Sept. 25, 1926 | 2.9 | *367 | *2.06 | *27.97 | *414 | *31.58 | | |
| 1927 | 644,1437 | *4,850 | Oct. 26, 1926 | 4.7 | *305 | *1.72 | *23.36 | *297 | *22.63 | | |
| 1928 | 684,1437 | *7,900 | Dec. 1, 1927 | 4.0 | *281 | *1.58 | *21.48 | 191 | 14.61 | | |
| 1929 | 684,1437 | *7,900 | Jan. 19, 1929 | 3.1 | *253 | *1.42 | *19.28 | *256 | *19.55 | | |
| 1930 | 699,1437 | *3,610 | Jan. 13, 1930 | 1.0 | *237 | *1.33 | *18.05 | *207 | *15.78 | | |
| 1931 | 714 | *2,050 | Apr. 2, 1931 | 1.9 | 140 | .787 | 10.66 | 161 | 12.24 | | |
| 1932 | 729 | *3,530 | May 9, 1932 | 1.3 | 191 | 1.07 | 14.54 | *180 | *13.77 | | |
| 1933 | 744,1437 | *4,850 | Jan. 1, 1933 | .3 | *156 | *.876 | *11.90 | 165 | 12.59 | | |
| 1934 | 759 | 83,900 | Mar. 4, 1934 | .3 | 141 | .792 | 10.74 | 132 | 10.11 | | |
| 1935 | 784 | *3,750 | Feb. 16, 1935 | 2.5 | 158 | .888 | 12.04 | 153 | 11.65 | | |
| 1936 | 804 | - | - | - | - | - | - | - | - | | |
| 1950 | 1237 | - | - | - | - | - | - | - | - | | |

* Revised.

a Estimated.

298. Cattaraugus Creek at Gowanda, N. Y.

Location.--Lat 42°27'50", long. 78°56'10", on right bank at Gowanda, Erie County, 380 ft downstream from highway bridge, 600 ft downstream from powerhouse of Niagara Mohawk Power Corp., and 4.2 miles downstream from South Branch.

Drainage area.--428 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map).

Average discharge.--10 years (1940-50), 724 cfs.

Extremes.--1939-50: Maximum discharge, 35,900 cfs Mar. 17, 1942 (gage height, 13.73 ft), from rating curve extended above 6,500 cfs by logarithmic plotting; minimum, about 6 cfs Aug. 21, 1941 (gage height, 1.01 ft); minimum daily, 52 cfs Sept. 13, 1945.

Remarks.--Flow regulated by several industrial plants above station. Diurnal fluctuation at low and medium flow caused by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second, of Cattaraugus Creek at Gowanda, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1940 | - | - | 791 | 583 | 548 | 1,319 | 3,175 | 655 | 1,076 | 320 | 179 | 333 | - |
| 1941 | 203 | 606 | 1,509 | 778 | 388 | 1,129 | 1,729 | 283 | 175 | 111 | 79.5 | 92.5 | 591 |
| 1942 | 131 | 168 | 452 | 493 | 536 | 3,198 | 1,470 | 466 | 220 | 246 | 133 | 176 | 642 |
| 1943 | 337 | 1,268 | 1,592 | 829 | 1,598 | 1,309 | 1,419 | 1,948 | 981 | 264 | 214 | 138 | 968 |
| 1944 | 299 | 590 | 379 | 461 | 614 | 1,260 | 1,567 | 878 | 855 | 224 | 138 | 183 | 618 |
| 1945 | 208 | 339 | 461 | 363 | 1,049 | 3,824 | 1,144 | 786 | 588 | 585 | 234 | 398 | 832 |
| 1946 | 1,573 | 918 | 799 | 901 | 429 | 1,133 | 279 | 874 | 759 | 185 | 158 | 108 | 680 |
| 1947 | 167 | 470 | 735 | 1,679 | 657 | 1,332 | 3,686 | 1,728 | 844 | 471 | 284 | 271 | 1,027 |
| 1948 | 161 | 302 | 953 | 228 | 1,250 | 1,908 | 1,380 | 890 | 425 | 230 | 237 | 135 | 673 |
| 1949 | 386 | 405 | 456 | 1,163 | 946 | 1,031 | 1,148 | 371 | 149 | 156 | 112 | 141 | 536 |
| 1950 | 106 | 252 | 762 | 1,251 | 667 | 1,908 | 1,493 | 522 | 262 | 257 | 146 | 217 | 655 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1940 | - | - | 2.13 | 1.03 | 1.38 | 3.55 | 8.28 | 1.76 | 2.80 | 0.86 | 0.48 | 0.87 | - |
| 1941 | 0.55 | 1.58 | 4.07 | 2.10 | .94 | 3.04 | 4.51 | .76 | .46 | .30 | .21 | .24 | 16.76 |
| 1942 | .35 | .44 | 1.22 | 1.33 | 1.30 | 8.59 | 3.83 | 1.26 | .57 | .66 | .36 | .46 | 20.37 |
| 1943 | .91 | 3.36 | 4.29 | 2.23 | 3.86 | 3.53 | 3.70 | 5.25 | 2.56 | .71 | .58 | .36 | 31.34 |
| 1944 | .78 | 1.54 | 1.02 | 1.24 | 1.55 | 3.40 | 4.09 | 2.37 | 2.23 | .60 | .37 | .48 | 19.67 |
| 1945 | .56 | .88 | 1.24 | .98 | 2.55 | 10.30 | 2.98 | 2.12 | 1.53 | 1.58 | .63 | 1.04 | 26.39 |
| 1946 | 4.24 | 2.39 | 2.15 | 2.43 | 1.04 | 3.05 | .73 | 2.35 | 1.98 | .50 | .43 | .28 | 21.57 |
| 1947 | .45 | 1.23 | 1.98 | 4.52 | 1.60 | 3.59 | 9.61 | 4.65 | 2.20 | 1.27 | .77 | .71 | 32.58 |
| 1948 | .43 | .79 | 2.57 | .61 | 3.15 | 5.14 | 3.60 | 2.40 | 1.11 | .62 | .64 | .35 | 21.41 |
| 1949 | 1.04 | 1.06 | 1.23 | 3.13 | 2.30 | 2.78 | 2.99 | 1.00 | .39 | .42 | .30 | .37 | 17.01 |
| 1950 | .29 | .66 | 2.05 | 3.37 | 1.62 | 5.14 | 3.89 | 1.41 | .68 | .69 | .39 | .57 | 20.76 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | - | - | - | - | - | - | 856 | 27.21 |
| 1941 | 924 | 15,500 | Apr. 5, 1941 | 53 | 591 | 1.36 | 18.76 | 459 | 14.57 |
| 1942 | 954 | 35,900 | Mar. 17, 1942 | 66 | 642 | 1.50 | 20.37 | 849 | 26.92 |
| 1943 | 974 | 16,800 | Dec. 30, 1942 | 112 | 988 | 2.31 | 31.34 | 823 | 26.12 |
| 1944 | 1004 | 19,400 | June 24, 1944 | 81 | 618 | 1.44 | 19.67 | 598 | 19.01 |
| 1945 | 1034 | 14,400 | Mar. 3, 1945 | 52 | 832 | 1.94 | 26.39 | 1,024 | 32.49 |
| 1946 | 1054 | 21,100 | Oct. 2, 1945 | 82 | 680 | 1.59 | 21.57 | 518 | 16.45 |
| 1947 | 1084 | 24,700 | Apr. 5, 1947 | 92 | 1,027 | 2.40 | 32.58 | 1,031 | 32.71 |
| 1948 | 1114 | 17,600 | Mar. 22, 1948 | 103 | 673 | 1.57 | 21.41 | 658 | 20.95 |
| 1949 | 1144 | 8,820 | Jan. 5, 1949 | 56 | 536 | 1.25 | 17.01 | 526 | 16.68 |
| 1950 | 1174 | 15,000 | Mar. 28, 1950 | 87 | 655 | 1.53 | 20.76 | - | - |

299. Cattaraugus Creek at Versailles, N. Y.

Location.--Lat 42°31'25", long. 78°59'20", at upstream side in right span of steel highway bridge at Versailles, Cattaraugus County, 2½ miles upstream from Clear Creek, about 6 miles downstream from Gowanda, and about 8 miles upstream from Mouth.

Drainage area.--464 sq mi.

Gage.--Chain gage. Altitude of gage is 650 ft (from topographic map).

Average discharge.--13 years (1910-23), 738 cfs.

Extremes.--1910-23: Maximum discharge, 25,500 cfs (revised) Mar. 25, 1913 (gage height, 12.3 ft, from floodmarks); minimum, 39 cfs several times in August 1923.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|--------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1911 | 464 | 1,500 | 964 | †2,290 | 1,360 | 1,530 | 1,440 | 560 | 270 | †192 | 579 | 826 | 995 |
| 1912 | 775 | 1,480 | 1,640 | 470 | 290 | 2,050 | 2,590 | 689 | 197 | 193 | 279 | 467 | 927 |
| 1913 | 509 | 524 | 1,020 | 3,450 | 750 | 3,060 | 1,700 | 659 | 425 | 175 | 123 | 80 | 1,050 |
| 1914 | 246 | 557 | 307 | 903 | 441 | 1,870 | 1,510 | 1,650 | 234 | 117 | 280 | 266 | 701 |
| 1915 | 181 | 491 | 584 | 1,110 | 1,800 | 539 | 645 | 362 | 171 | 570 | 388 | 227 | 598 |
| 1916 | 848 | 632 | 939 | 1,820 | 370 | 2,050 | 2,120 | 1,310 | 753 | 320 | 122 | 90 | 952 |
| 1917 | 134 | 319 | 282 | 675 | 796 | 1,940 | 1,030 | 808 | 1,140 | 712 | 223 | 249 | 692 |
| 1918 | 1,870 | 720 | 914 | 282 | 1,760 | 1,690 | 491 | 414 | 236 | 181 | 107 | 252 | 756 |
| 1919 | 436 | 598 | 737 | 737 | 479 | 924 | 1,220 | 1,660 | 283 | 136 | 173 | 98.5 | 625 |
| 1920 | 151 | 339 | 425 | 173 | 161 | 2,430 | 854 | 390 | 271 | 514 | 196 | 171 | 509 |
| 1921 | 204 | 665 | 991 | 974 | 825 | 1,370 | 848 | 395 | 191 | 172 | 137 | 102 | 572 |
| 1922 | 224 | 1,550 | 782 | 620 | 1,040 | 1,470 | 1,110 | 425 | 633 | 426 | 400 | 192 | 736 |
| 1923 | 191 | 247 | 384 | 800 | 710 | 1,830 | 753 | 457 | 153 | 119 | 76.6 | 79.3 | 484 |

† Corrected.

Monthly and yearly runoff, in inches, of Cattaraugus Creek at Versailles, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1911 | 1.15 | 3.61 | 2.40 | †5.69 | 3.04 | 3.81 | 3.47 | 1.39 | 0.65 | 0.48 | 1.44 | 1.99 | 29.12 |
| 1912 | 1.93 | 3.55 | 4.07 | 1.17 | .67 | 5.09 | 6.23 | 1.71 | .47 | .48 | .69 | 1.12 | 27.18 |
| 1913 | 1.27 | 1.26 | 2.54 | 8.58 | 1.68 | 7.61 | 4.09 | 1.64 | 1.02 | .44 | .31 | .19 | 30.63 |
| 1914 | .61 | 1.54 | .76 | 2.24 | .99 | 4.64 | 3.62 | 4.10 | .56 | .29 | .70 | .64 | 20.49 |
| 1915 | .46 | 1.18 | 1.45 | 2.75 | 4.04 | 1.34 | 1.55 | .90 | .41 | 1.42 | .96 | .55 | 17.00 |
| 1916 | 2.11 | 1.52 | 2.33 | 4.53 | .86 | 5.09 | 5.10 | 3.25 | 1.81 | .79 | .30 | .22 | 27.91 |
| 1917 | .33 | .77 | .70 | 1.68 | 1.79 | 4.82 | 2.48 | 2.01 | 2.74 | 1.77 | .56 | .60 | 20.25 |
| 1918 | 4.66 | 1.73 | 2.27 | .70 | 3.95 | 4.70 | 1.18 | 1.03 | .57 | .45 | .27 | .61 | 22.12 |
| 1919 | 1.08 | 1.44 | 1.83 | 1.83 | 1.07 | 2.30 | 2.94 | 4.12 | .68 | .34 | .43 | .24 | 18.30 |
| 1920 | .38 | .82 | 1.06 | .43 | .37 | 6.03 | 2.05 | .97 | .65 | 1.28 | .49 | .41 | 14.94 |
| 1921 | .51 | 1.60 | 2.46 | 2.42 | 1.85 | 3.40 | 2.04 | .98 | .46 | .43 | .34 | .25 | 16.74 |
| 1922 | .56 | 3.73 | 1.94 | 1.54 | 2.34 | 3.66 | 2.66 | 1.06 | 1.52 | 1.06 | .99 | .46 | 21.52 |
| 1923 | .47 | .59 | .95 | 1.99 | 1.59 | 4.55 | 1.81 | 1.14 | .37 | .30 | .19 | .19 | 14.14 |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1911 | 324 | *9,340 | Feb. 17, 1911* | 85 | 995 | 2.14 | 29.12 | 1,080 | 31.51 |
| 1912 | 324 | *11,300 | Apr. 1, 1912* | 75 | 927 | 2.00 | 27.18 | †774 | 22.70 |
| 1913 | 354 | *25,800 | Mar. 25, 1913 | 55 | 1,050 | 2.28 | 30.63 | 966 | 28.27 |
| 1914 | 394 | *16,800 | Mar. 28, 1914 | 66 | 701 | 1.51 | 20.49 | 713 | 20.86 |
| 1915 | 404 | 9,050 | Jan. 7, 1915 | 90 | 598 | 1.29 | 17.00 | 679 | 19.88 |
| 1916 | 454 | *16,000 | Mar. 27, 1916* | 61 | 952 | 2.05 | 27.91 | 810 | 23.75 |
| 1917 | 454 | *9,260 | Mar. 12, 1917* | 64 | 692 | 1.49 | 20.25 | 926 | 27.11 |
| 1918 | 474 | *21,300 | Mar. 14, 1918* | 55 | 756 | 1.63 | 22.12 | 609 | 17.81 |
| 1919 | 504 | 14,200 | May 10, 1919 | 75 | 625 | 1.35 | 18.30 | 553 | 16.21 |
| 1920 | 504 | 20,000 | Mar. 12, 1920 | 50 | 509 | 1.10 | 14.94 | 588 | 17.25 |
| 1921 | 524 | *10,500 | Feb. 16, 1921 | 70 | 572 | 1.23 | 16.74 | 629 | 18.40 |
| 1922 | 544 | 7,680 | Mar. 7, 1922 | 100 | 736 | 1.59 | 21.52 | 592 | 17.30 |
| 1923 | 564 | 11,700 | Mar. 4, 1923 | 46 | 484 | 1.04 | 14.14 | - | - |

* Revised.

† Corrected.

* Not previously published.

300. Buffalo Creek at Gardenville, N. Y.

Location.--Lat 42°51'15" long. 78°45'30", on left bank in Gardenville, Erie County, 700 ft downstream from bridge on Union Road and 2 miles upstream from Cayuga Creek.

Drainage area.--145 sq mi.

Gage.--Water-stage recorder. Datum of gage is 604.04 ft above mean sea level, unadjusted.

Average discharge.--12 years (1938-50), 187 cfs (revised).

Extremes.--1938-50: Maximum discharge, 11,500 cfs (revised) Mar. 17, 1942 (gage height, 8.80 ft), from rating curve extended above 4,000 cfs by logarithmic plotting; maximum gage height, 11.90 ft Mar. 9, 1942 (ice jam); minimum discharge, 0.7 cfs Aug. 22, 24, 25, 1941.

Remarks.--Diurnal fluctuation at low flow caused by mill 3.2 miles above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|--------|------|------|------|------|------|-------|----------|
| 1939 | 32.1 | 116 | 109 | *176 | *535 | *506 | *373 | 53.9 | 30.1 | 17.9 | 12.0 | 8.09 | *161 |
| 1940 | 28.3 | 40.3 | 119 | 58.7 | 152 | 492 | *903 | 128 | 191 | 45.7 | 20.4 | 51.2 | *185 |
| 1941 | 26.1 | 143 | *565 | 232 | 95.0 | 433 | *451 | 38.5 | 21.2 | 13.0 | 11.9 | 28.9 | *172 |
| 1942 | 30.7 | 58.2 | 141 | 189 | 201 | *1,048 | *479 | 96.2 | 34.4 | 56.4 | 11.5 | 48.2 | 200 |
| 1943 | 34.6 | *500 | *484 | 244 | 495 | *374 | *428 | *469 | *182 | 28.6 | 26.4 | 15.0 | *277 |
| 1944 | 39.9 | 109 | 60.4 | 102 | 199 | *411 | *469 | 189 | *197 | 21.2 | 15.8 | 21.0 | *152 |
| 1945 | 20.0 | 26.1 | 51.1 | 37.0 | 285 | *972 | 270 | 185 | 75.8 | 56.6 | 21.0 | 46.0 | *170 |
| 1946 | *376 | *302 | 285 | *313 | 115 | *408 | 68.8 | 136 | 109 | 35.6 | 19.0 | 17.3 | *183 |
| 1947 | 34.6 | *130 | 206 | *443 | 141 | *456 | *950 | *462 | *235 | 74.1 | 21.3 | 25.1 | *265 |
| 1948 | 15.7 | 79.3 | *308 | 55.6 | *517 | *533 | 271 | *253 | 61.4 | 19.5 | 13.9 | 25.6 | *178 |
| 1949 | 95.4 | 140 | 129 | *342 | *258 | *281 | 267 | 64.8 | 24.0 | 19.7 | 13.3 | 17.6 | 137 |
| 1950 | 15.8 | 47.1 | 166 | *375 | 209 | *643 | *291 | 72.4 | 31.3 | 21.5 | 16.8 | 31.7 | *160 |

* Revised.

Monthly and yearly runoff, in inches, of Buffalo Creek at Gardenville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1939 | 0.25 | 0.89 | 0.87 | *1.40 | *3.84 | *4.02 | *2.87 | 0.43 | 0.23 | 0.14 | 0.10 | 0.06 | *15.10 |
| 1940 | .22 | .31 | .95 | .47 | 1.13 | 3.91 | *6.85 | 1.02 | 1.47 | .36 | .16 | .39 | *17.34 |
| 1941 | .21 | 1.10 | *4.50 | 1.84 | .68 | 3.45 | *3.47 | .31 | .16 | .10 | .09 | .22 | *16.13 |
| 1942 | .24 | .45 | 1.12 | 1.50 | 1.45 | *8.54 | *3.68 | .76 | .26 | .45 | .09 | .37 | *18.71 |
| 1943 | .80 | *3.85 | *3.85 | 1.94 | 3.54 | *2.97 | *3.30 | *3.73 | 1.40 | .23 | .21 | .12 | *25.94 |
| 1944 | .32 | .84 | .48 | .81 | 1.48 | *3.26 | *3.61 | 1.50 | *1.52 | .17 | .13 | .16 | *14.28 |
| 1945 | .16 | .20 | .41 | .29 | 2.03 | *7.73 | 2.08 | 1.47 | .57 | .45 | .17 | .35 | *15.91 |
| 1946 | *2.99 | *2.33 | 2.26 | *2.52 | .85 | *3.24 | .53 | 1.08 | .84 | .28 | .15 | .13 | *17.15 |
| 1947 | .28 | *1.00 | 1.64 | *3.59 | 1.01 | *3.62 | *7.31 | *3.68 | *1.81 | .59 | .17 | .19 | *24.82 |
| 1948 | .12 | .61 | 2.45 | .44 | *3.84 | *4.24 | 2.09 | *2.01 | .47 | .16 | .11 | .20 | *16.74 |
| 1949 | .74 | 1.08 | 1.03 | *2.72 | *1.85 | 2.24 | 2.06 | .52 | .18 | .16 | .11 | .14 | *12.83 |
| 1950 | .11 | .36 | 1.32 | *2.98 | 1.50 | *5.11 | *2.24 | .58 | .24 | .17 | .13 | .24 | *14.98 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874,1337 | *9,100 | Feb. 20, 1939 | 2.6 | *161 | *1.11 | *15.10 | *156 | *14.57 |
| 1940 | 894,1337 | *7,350 | Mar. 31, 1940 | 7.4 | *185 | 1.28 | *17.34 | *231 | *21.67 |
| 1941 | 924,1337 | *7,870 | Apr. 5, 1941 | 2.1 | *172 | *1.19 | *16.13 | *130 | *12.13 |
| 1942 | 954,1337 | *11,500 | Mar. 17, 1942 | 7.5 | *200 | 1.38 | *19.71 | *271 | *25.40 |
| 1943 | 974,1337 | *6,630 | Apr. 28, 1943 | 11 | *277 | *1.91 | *25.94 | *204 | *19.08 |
| 1944 | 1004,1337 | *6,880 | June 24, 1944 | 8.3 | *152 | *1.05 | *14.28 | *143 | *13.41 |
| 1945 | 1034,1337 | *6,630 | Mar. 4, 1945 | 8.4 | *170 | *1.17 | *15.91 | *243 | *22.72 |
| 1946 | 1054,1337 | *8,520 | Oct. 2, 1945 | 9.0 | *183 | *1.26 | *17.15 | *133 | *12.49 |
| 1947 | 1084,1337 | *8,420 | Apr. 5, 1947 | 8.7 | *265 | *1.83 | *24.82 | *288 | *25.08 |
| 1948 | 1114,1337 | *5,940 | Feb. 19, 1948 | 4.8 | *178 | *1.23 | *16.74 | *175 | *16.41 |
| 1949 | 1144,1337 | *4,750 | Jan. 5, 1949 | 4.4 | *137 | .945 | *12.83 | *128 | *11.77 |
| 1950 | 1174,1337 | *8,080 | Mar. 28, 1950 | 7.4 | *160 | *1.10 | *14.98 | - | - |

* Revised.

301. Cayuga Creek near Lancaster, N. Y.

Location.--Lat 42°53'20", long. 78°38'40", on right bank just upstream from low flat-crested dam in Como Lake Park, 700 ft downstream from bridge on Bowen Road, 800 ft downstream from Little Buffalo Creek, and 2 miles southeast of Lancaster, Erie County.

Drainage area.--93.3 sq mi.

Gage.--Water-stage recorder. Datum of gage is 672.80 ft above mean sea level, unadjusted.

Average discharge.--12 years (1938-50), 124 cfs.

Extremes.--1938-50: Maximum discharge, 7,480 cfs Mar. 17, 1942 (gage height, 9.3 ft, from graph based on gage readings); maximum gage height, 12.36 ft Mar. 9, 1942 (ice jam); practically no flow Aug. 8, 9, 1939, when permanent stoplogs were installed in dam.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1939 | 10.7 | 78.0 | 74.9 | 114 | 423 | 352 | 284 | 27.8 | 12.5 | 5.65 | 1.87 | 2.34 | 112 |
| 1940 | 10.3 | 17.4 | 63.4 | 34.6 | 90.4 | 319 | 623 | 80.4 | 57.3 | 14.0 | 9.05 | 12.0 | 110 |
| 1941 | 11.0 | 87.9 | 350 | 134 | 53.1 | 262 | 290 | 18.7 | 10.9 | 3.79 | 4.13 | 9.88 | 103 |
| 1942 | 19.8 | 40.9 | 94.3 | 122 | 143 | 680 | 356 | 66.7 | 22.1 | 34.5 | 6.58 | 80.9 | 139 |
| 1943 | 107 | 403 | 328 | 171 | 357 | 239 | 266 | 274 | 115 | 9.64 | 11.8 | 5.94 | 189 |
| 1944 | 28.2 | 89.4 | 39.1 | 57.1 | 109 | 260 | 370 | 99.2 | 101 | 7.89 | 2.71 | 4.10 | 96.8 |
| 1945 | 4.51 | 6.03 | 19.3 | 23.3 | 234 | 653 | 177 | 123 | 34.4 | 25.2 | 4.15 | 18.8 | 110 |
| 1946 | 224 | 193 | 216 | 264 | 76.0 | 317 | 36.5 | 53.4 | 39.7 | 8.74 | 54.1 | 13.4 | 126 |
| 1947 | 35.6 | 134 | 157 | 316 | 93.5 | 355 | 600 | 330 | 158 | 83.6 | 9.72 | 10.3 | 191 |
| 1948 | 4.88 | 74.4 | 197 | 28.3 | 357 | 347 | 168 | 150 | 28.4 | 6.64 | 2.82 | 8.66 | 114 |
| 1949 | 33.6 | 91.9 | 75.8 | 256 | 197 | 226 | 204 | 31.9 | 8.20 | 5.36 | 3.21 | 6.05 | 94.2 |
| 1950 | 3.84 | 30.1 | 127 | 281 | 155 | 443 | 174 | 30.6 | 11.3 | 5.23 | 4.29 | 17.2 | 107 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1939 | 0.13 | 0.93 | 0.93 | 1.41 | 4.72 | 4.35 | 3.16 | 0.34 | 0.15 | 0.07 | 0.02 | 0.03 | 16.24 |
| 1940 | .13 | .21 | .78 | .43 | 1.05 | 3.94 | 7.45 | .99 | .68 | .17 | .11 | .14 | 16.08 |
| 1941 | .14 | 1.05 | 4.32 | 1.66 | .59 | 3.24 | 3.47 | .23 | .13 | .05 | .05 | .12 | 15.05 |
| 1942 | .24 | .49 | 1.16 | 1.51 | 1.59 | 8.40 | 4.26 | .82 | .26 | .43 | .08 | .97 | 20.21 |
| 1943 | 1.33 | 4.82 | 4.05 | 2.12 | 3.99 | 2.96 | 3.19 | 3.39 | 1.37 | .12 | .15 | .07 | 27.56 |
| 1944 | .36 | 1.07 | .48 | .71 | 1.25 | 5.21 | 4.42 | 1.23 | 1.21 | .10 | .03 | .05 | 14.12 |
| 1945 | .05 | .07 | .24 | .29 | 2.62 | 8.07 | 2.11 | 1.53 | .41 | .31 | .05 | .23 | 15.98 |
| 1946 | 2.77 | 2.30 | 2.67 | 3.27 | .85 | 3.92 | .44 | .66 | .47 | .11 | .67 | .16 | 18.29 |
| 1947 | .44 | 1.60 | 1.94 | 3.90 | 1.04 | 4.38 | 7.18 | 4.07 | 1.89 | 1.03 | .12 | .12 | 27.71 |
| 1948 | .06 | .89 | 2.43 | .35 | 4.13 | 4.29 | 2.00 | 1.85 | .34 | .08 | .03 | .10 | 16.55 |
| 1949 | .41 | 1.10 | .94 | 3.16 | 2.19 | 2.79 | 2.44 | .39 | .10 | .07 | .04 | .07 | 13.70 |
| 1950 | .05 | .36 | 1.57 | 3.47 | 1.73 | 5.47 | 2.08 | .38 | .14 | .06 | .05 | .21 | 15.57 |

Yearly discharge, in cubic feet per second, of Cayuga Creek near Lancaster, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1939 | 874 | 6,720 | Feb. 20, 1939 | 0.1 | 112 | 1.20 | 16.24 | 106 | 15.37 |
| 1940 | 894 | - | - | 1.6 | 110 | 1.18 | 16.08 | 140 | 20.47 |
| 1941 | 924 | 5,830 | Apr. 5, 1941 | 1.5 | 103 | 1.10 | 15.05 | 78.5 | 11.43 |
| 1942 | 954 | 7,480 | Mar. 17, 1942 | 1.6 | 139 | 1.49 | 20.21 | 196 | 28.52 |
| 1943 | 974 | 3,900 | Dec. 30, 1942 | 2.8 | 189 | 2.03 | 27.56 | 132 | 19.27 |
| 1944 | 1004 | 4,440 | Apr. 12, 1944 | 1.2 | 96.8 | 1.04 | 14.12 | 86.2 | 12.57 |
| 1945 | 1034 | 3,700 | Mar. 3, 1945 | .8 | 110 | 1.18 | 15.98 | 161 | 23.36 |
| 1946 | 1054 | 5,910 | Oct. 2, 1945 | 1.3 | 126 | 1.35 | 18.29 | 99.8 | 14.53 |
| 1947 | 1084 | 5,690 | Apr. 5, 1947 | 3.0 | 191 | 2.05 | 27.71 | 186 | 27.11 |
| 1948 | 1114 | 3,820 | Mar. 19, 1948 | .5 | 114 | 1.22 | 16.55 | 107 | 15.62 |
| 1949 | 1144 | 4,140 | Jan. 5, 1949 | .2 | 94.2 | 1.01 | 13.70 | 90.9 | 13.23 |
| 1950 | 1174 | 5,440 | Mar. 27, 1950 | .6 | 107 | 1.15 | 15.57 | - | - |

302. Cazenovia Creek at Ebenezer, N. Y.

Location.--Lat 42°49'45", long. 78°46'40", on right bank 40 ft upstream from highway bridge on Ridge Road in Ebenezer, Erie County, 4.4 miles upstream from mouth, and 5 miles southeast of Buffalo.

Drainage area.--136 sq mi.

Gage.--Water-stage recorder. Datum of gage is 606.86 ft above mean sea level, unadjusted.

Average discharge.--10 years (1940-50), 210 cfs.

Extremes.--1940-50: Maximum discharge, 11,200 cfs Mar. 17, 1942 (gage height, 13.11 ft), from rating curve extended above 5,200 cfs by logarithmic plotting; minimum, 3.3 cfs Aug. 17, 1949.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1940 | - | - | - | - | - | - | - | - | - | 55.0 | 26.8 | 66.1 | - |
| 1941 | 25.4 | 181 | 632 | 255 | 99.6 | 442 | 494 | 43.6 | 22.2 | 12.1 | 9.76 | 42.2 | 198 |
| 1942 | 55.5 | 117 | 190 | 213 | 237 | 961 | 465 | 87.3 | 31.1 | 30.5 | 11.1 | 57.9 | 205 |
| 1943 | 132 | 555 | 498 | 253 | 465 | 421 | 466 | 462 | 156 | 29.6 | 52.9 | 16.9 | 292 |
| 1944 | 102 | 193 | 90.8 | 118 | 227 | 447 | 497 | 222 | 227 | 24.5 | 10.9 | 21.0 | 181 |
| 1945 | 24.8 | 45.9 | 83.7 | 52.8 | 309 | 1,062 | 283 | 184 | 89.1 | 58.1 | 26.1 | 44.4 | 188 |
| 1946 | 410 | 299 | 253 | 357 | 141 | 470 | 79.9 | 215 | 130 | 34.2 | 14.6 | 17.7 | 203 |
| 1947 | 37.8 | 177 | 247 | 497 | 173 | 476 | 1,005 | 494 | 238 | 73.6 | 26.0 | 32.1 | 290 |
| 1948 | 12.2 | 113 | 423 | 66.6 | 564 | 597 | 509 | 279 | 58.9 | 16.9 | 15.5 | 19.3 | 205 |
| 1949 | 113 | 172 | 173 | 394 | 311 | 350 | 327 | 75.5 | 21.2 | 18.3 | 11.4 | 16.7 | 164 |
| 1950 | 13.3 | 69.7 | 252 | 470 | 254 | 660 | 350 | 73.5 | 32.1 | 17.2 | 13.0 | 34.0 | 187 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1940 | - | - | - | - | - | - | - | - | - | 0.47 | 0.23 | 0.54 | - |
| 1941 | 0.22 | 1.48 | 5.36 | 2.17 | 0.76 | 3.75 | 3.97 | 0.37 | 0.18 | .10 | .08 | .35 | 18.79 |
| 1942 | .47 | .96 | 1.61 | 1.81 | 1.81 | 8.15 | 3.82 | .74 | .26 | .26 | .09 | .48 | 20.46 |
| 1943 | 1.12 | 4.56 | 4.22 | 2.15 | 3.71 | 3.57 | 3.82 | 3.92 | 1.28 | .25 | .45 | .14 | 29.19 |
| 1944 | .87 | 1.58 | .77 | 1.00 | 1.80 | 3.79 | 4.08 | 1.88 | 1.87 | .21 | .09 | .17 | 18.11 |
| 1945 | .21 | .38 | .71 | .45 | 2.36 | 9.00 | 2.32 | 1.56 | .73 | .49 | .22 | .36 | 18.79 |
| 1946 | 3.47 | 2.46 | 2.14 | 3.02 | 1.08 | 3.98 | .66 | 1.82 | 1.06 | .29 | .12 | .15 | 20.25 |
| 1947 | .32 | 1.45 | 2.09 | 4.21 | 1.32 | 4.04 | 8.25 | 4.19 | 1.95 | .62 | .22 | .26 | 28.92 |
| 1948 | .10 | .35 | 3.59 | .56 | 4.47 | 5.06 | 2.53 | 2.37 | .48 | .14 | .13 | .16 | 20.52 |
| 1949 | .96 | 1.41 | 1.46 | 3.34 | 2.38 | 2.96 | 2.69 | .64 | .17 | .16 | .10 | .14 | 16.41 |
| 1950 | .11 | .57 | 2.13 | 3.98 | 1.94 | 5.60 | 2.87 | .62 | .26 | .15 | .11 | .28 | 18.62 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1941 | 924 | 6,820 | Apr. 5, 1941 | 4.5 | 188 | 1.38 | 18.79 | 148 | 14.77 |
| 1942 | 954 | 11,200 | Mar. 17, 1942 | 6.7 | 205 | 1.51 | 20.46 | 274 | 27.32 |
| 1943 | 974 | 6,820 | Apr. 28, 1943 | 9.5 | 292 | 2.15 | 29.19 | 226 | 22.51 |
| 1944 | 1004 | 8,490 | June 24, 1944 | 6.0 | 181 | 1.33 | 18.11 | 162 | 16.19 |
| 1945 | 1034 | 5,070 | Mar. 3, 1945 | 5.1 | 188 | 1.38 | 18.79 | 256 | 25.56 |
| 1946 | 1054 | 9,530 | Oct. 2, 1945 | 5.6 | 203 | 1.49 | 20.25 | 161 | 16.04 |
| 1947 | 1084 | 9,210 | Apr. 5, 1947 | 6.9 | 290 | 2.13 | 28.92 | 297 | 29.68 |
| 1948 | 1114 | 5,220 | Mar. 22, 1948 | 4.2 | 205 | 1.51 | 20.52 | 197 | 19.73 |
| 1949 | 1144 | 4,770 | Jan. 5, 1949 | 3.8 | 164 | 1.21 | 16.41 | 154 | 15.39 |
| 1950 | 1174 | 6,480 | Mar. 27, 1950 | 5.4 | 187 | 1.38 | 18.62 | - | - |

303. Little Tonawanda Creek at Linden, N. Y.

Location.--Lat 42°52'35", long. 78°09'45", on right bank at upstream side of highway bridge in Linden, Genesee County, and 7 miles upstream from mouth.

Drainage area.--22.0 sq mi.

Gage.--Water-stage recorder and concrete control. Prior to Aug. 26, 1943, staff gage at same site and datum. Altitude of gage is 1,060 ft (from topographic map).

Average discharge.--37 years (1912-19, 1920-50), 27.4 cfs.

Extremes.--1912-50: Maximum discharge, 2,400 cfs Apr. 22, 1916 (gage height, 14.6 ft, from floodmarks), from rating curve extended above 1,500 cfs by logarithmic plotting; minimum observed, 0.1 cfs Sept. 5-7, 1934, and several times during Aug. 4-28, 1936.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1912 | - | - | - | - | - | - | - | - | - | - | 3.09 | 1.57 | - |
| 1913 | 1.91 | 5.31 | 13.8 | 11.7 | 23.7 | 132 | 46.0 | 11.9 | 4.33 | 1.60 | .749 | 1.575 | 30.2 |
| 1914 | 4.872 | 4.34 | 4.71 | 29.5 | 16.8 | 96.6 | 73.4 | 47.7 | 4.18 | 1.69 | 4.60 | 5.23 | 24.2 |
| 1915 | 2.81 | 4.38 | 9.51 | 36.5 | 91.6 | 19.8 | 25.7 | 7.91 | 4.01 | 11.1 | 3.96 | 1.73 | 17.8 |
| 1916 | 7.05 | 9.64 | 25.4 | 76.5 | 9.43 | 101 | 107 | 64.5 | 48.7 | 9.8 | 1.57 | .85 | 38.6 |
| 1917 | .73 | 1.99 | 4.72 | 13.0 | 22.5 | 102 | 56.4 | 32.9 | 76.5 | 22.0 | 2.42 | 2.30 | 28.1 |
| 1918 | 44.6 | 17.2 | 16.9 | 6.1 | 82.0 | 107 | 22.0 | 9.39 | 8.34 | 2.16 | .964 | 1.69 | 26.2 |
| 1919 | 7.76 | 9.80 | 25.8 | 23.0 | 15.5 | 47.9 | 135 | 29.2 | 3.9 | 3.18 | 2.48 | 2.95 | 29.5 |
| 1920 | 11.3 | 20.3 | - | - | - | - | 29.4 | 11.4 | 3.98 | 12.9 | 4.48 | 2.98 | - |
| 1921 | 7.15 | 20.4 | 44.5 | 38.1 | 41.8 | 78.0 | 35.0 | 10.0 | 2.68 | 1.23 | .800 | .523 | 23.3 |
| 1922 | .713 | 15.9 | 12.5 | 20.5 | 69.1 | 56.5 | 45.9 | 7.08 | 9.52 | 4.03 | 3.46 | 1.24 | 20.2 |
| 1923 | .997 | 1.49 | 3.10 | 12.1 | 18.3 | 132 | 43.6 | 16.1 | 17.7 | 7.34 | 1.90 | 1.07 | 21.4 |
| 1924 | .887 | 3.67 | 27.6 | 35.6 | 7.97 | 53.8 | 69.7 | 59.2 | 8.81 | 4.75 | 7.18 | 22.6 | 25.2 |
| 1925 | 12.4 | 4.61 | 19.6 | 7.11 | 104 | 70.9 | 20.7 | 8.89 | 2.22 | 1.82 | 3.44 | 15.6 | 22.0 |
| 1926 | 45.0 | 50.3 | 24.3 | 29.0 | 17.9 | 82.6 | 110 | 12.3 | 12.5 | 2.55 | 6.31 | 9.34 | 33.5 |
| 1927 | 45.1 | 61.0 | 37.6 | 43.1 | 46.8 | 78.9 | 29.3 | 7.35 | 3.78 | 2.60 | .883 | 32.1 | 32.7 |
| 1928 | 8.92 | 85.5 | 97.4 | 54.0 | 46.2 | 73.0 | 43.0 | 11.0 | 66.8 | 14.8 | 3.43 | 1.61 | 42.0 |
| 1929 | 2.79 | 24.3 | 41.1 | 67.9 | 24.2 | 89.0 | 85.2 | 37.4 | 5.27 | 1.91 | 1.05 | 1.89 | 31.9 |
| 1930 | 5.32 | 7.14 | 24.9 | 105 | 43.7 | 90.9 | 48.8 | 9.94 | 8.13 | 3.40 | 1.51 | 1.17 | 29.2 |
| 1931 | 2.32 | 2.97 | 20.9 | 13.9 | 29.0 | 90.9 | 79.6 | 47.4 | 14.8 | 3.43 | 2.51 | 1.53 | 25.7 |
| 1932 | 1.48 | 4.31 | 25.3 | 69.1 | 49.0 | 55.7 | 71.9 | 42.2 | 3.53 | 4.88 | 1.28 | .827 | 27.4 |
| 1933 | .96 | 10.6 | 23.3 | 34.7 | 19.4 | 95.3 | 46.7 | 37.4 | 9.21 | 1.49 | .82 | 7.0 | 23.5 |
| 1934 | .67 | 5.31 | 25.6 | 48.6 | 9.80 | 60.7 | 50.7 | 7.53 | 1.91 | .62 | .33 | .72 | 17.8 |
| 1935 | .81 | 6.19 | 13.5 | 37.9 | 39.5 | 68.3 | 22.5 | 29.2 | 8.06 | 12.2 | 1.69 | 1.03 | 21.0 |
| 1936 | 1.13 | 3.42 | 13.9 | 11.3 | 18.3 | 178 | 59.9 | 9.74 | 2.11 | .54 | .23 | .59 | 25.1 |
| 1937 | 1.07 | 7.32 | 19.7 | 54.9 | 26.5 | 27.5 | 90.6 | 42.3 | 43.7 | 4.80 | 25.2 | 3.34 | 28.8 |
| 1938 | 5.05 | 14.4 | 14.9 | 24.4 | 105 | 67.2 | 39.8 | 13.6 | 3.59 | 6.98 | 2.91 | 4.98 | 24.7 |
| 1939 | 2.44 | 7.26 | 12.6 | 24.8 | 77.2 | 105 | 62.7 | 8.21 | 6.46 | 2.80 | 1.37 | .640 | 25.6 |
| 1940 | 1.10 | 3.66 | 9.81 | 6.85 | 14.7 | 65.3 | 179 | 19.2 | 17.3 | 4.62 | 1.43 | 1.66 | 26.9 |
| 1941 | 1.67 | 11.2 | 62.5 | 28.7 | 17.1 | 50.1 | 91.7 | 5.74 | 1.84 | .74 | .51 | .53 | 22.7 |
| 1942 | .64 | 1.03 | 5.15 | 12.6 | 24.9 | 164 | 95.9 | 13.9 | 6.14 | 4.44 | 1.38 | 15.0 | 28.8 |
| 1943 | 14.7 | 71.4 | 78.7 | 42.6 | 78.9 | 71.6 | 76.8 | 82.0 | 29.2 | 2.76 | 1.60 | 1.10 | 45.7 |
| 1944 | 1.95 | 7.69 | 7.40 | 13.5 | 30.3 | 77.3 | 75.3 | 33.3 | 10.7 | 1.84 | .61 | .81 | 21.5 |
| 1945 | .61 | .70 | 3.43 | 5.50 | 37.8 | 196 | 34.8 | 47.0 | 12.4 | 5.94 | 3.80 | 7.35 | 29.7 |
| 1946 | 52.1 | 43.8 | 63.9 | 74.8 | 20.8 | 67.4 | 11.7 | 34.0 | 14.2 | 2.66 | 5.36 | 1.71 | 33.0 |
| 1947 | 5.62 | 20.1 | 33.7 | 64.7 | 22.9 | 72.0 | 152 | 54.6 | 37.5 | 16.5 | 5.14 | 3.86 | 40.7 |
| 1948 | 1.81 | 7.36 | 30.6 | 10.6 | 67.7 | 91.4 | 52.6 | 36.7 | 16.0 | 2.60 | 1.16 | .68 | 26.5 |
| 1949 | 1.22 | 4.65 | 7.38 | 48.3 | 44.2 | 46.0 | 44.9 | 10.6 | 3.10 | 1.55 | .74 | .81 | 17.6 |
| 1950 | .71 | 2.21 | 15.7 | 45.1 | 26.8 | 110 | 71.9 | 16.5 | 4.43 | 1.61 | 1.13 | 1.26 | 24.7 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1912 | - | - | - | - | - | - | - | - | - | - | 0.18 | 0.08 | - |
| 1913 | 0.10 | 0.27 | 0.72 | 6.13 | 1.12 | 6.92 | 2.33 | 0.82 | 0.22 | 0.08 | .04 | .03 | 18.58 |
| 1914 | .04 | .22 | .25 | 1.54 | 1.80 | 5.06 | 3.73 | 2.50 | .21 | .09 | .24 | .26 | 14.94 |
| 1915 | .15 | .22 | .50 | 1.91 | 4.33 | 1.04 | 1.30 | .42 | .20 | .58 | .21 | .09 | 10.95 |
| 1916 | .37 | .49 | 1.33 | 4.01 | .46 | 5.29 | 5.43 | 3.38 | 2.47 | .51 | .08 | .04 | 23.86 |
| 1917 | .04 | .10 | .25 | .68 | 1.06 | 5.35 | 2.86 | 1.72 | 3.87 | 1.15 | .13 | .12 | 17.33 |
| 1918 | 2.34 | .87 | .98 | .32 | 3.88 | 5.60 | 1.12 | .49 | .42 | .11 | .05 | .09 | 16.15 |
| 1919 | .41 | .50 | 1.35 | 1.20 | .75 | 2.51 | 2.47 | 7.08 | 1.48 | .20 | .17 | .13 | 18.23 |
| 1920 | .59 | 1.03 | - | - | - | - | 1.50 | .60 | .20 | .68 | .24 | .15 | - |
| 1921 | .37 | 1.03 | 2.33 | 1.97 | 1.98 | 4.09 | 1.77 | .52 | .14 | .06 | .04 | .03 | 14.35 |
| 1922 | .04 | .81 | .65 | 1.09 | 3.28 | 2.96 | 2.33 | .37 | .48 | .21 | .18 | .06 | 12.43 |
| 1923 | .05 | .08 | .16 | .63 | .87 | 6.92 | 2.21 | .84 | .90 | .39 | .10 | .05 | 13.20 |
| 1924 | .05 | .19 | 1.44 | 1.87 | .39 | 2.82 | 3.54 | 3.10 | .45 | .25 | .58 | 1.15 | 15.63 |
| 1925 | .65 | .23 | 1.03 | .37 | 4.92 | 3.71 | 1.05 | .47 | .11 | .10 | .18 | .79 | 13.61 |
| 1926 | 2.36 | 2.56 | 1.27 | 1.52 | .85 | 4.32 | 5.58 | .64 | .63 | .13 | .33 | .47 | 20.66 |
| 1927 | 2.36 | 3.09 | 1.98 | 2.26 | 2.22 | 4.14 | 1.48 | 1.53 | .37 | .20 | .14 | .04 | 19.81 |
| 1928 | .47 | 4.34 | 5.11 | 2.82 | 2.25 | 3.83 | 2.18 | .58 | 3.39 | .78 | .18 | .08 | 26.02 |
| 1929 | .15 | 1.23 | 2.16 | 3.56 | 1.14 | 4.67 | 4.32 | 1.96 | .27 | .10 | .06 | .10 | 19.72 |
| 1930 | .28 | .36 | 1.30 | 5.50 | 2.07 | 4.76 | 2.48 | .52 | .41 | .18 | .08 | .06 | 18.00 |
| 1931 | .12 | .15 | 1.10 | .73 | 1.38 | 4.76 | 4.04 | 2.48 | .75 | .18 | .13 | .08 | 15.90 |
| 1932 | .08 | .22 | 1.33 | 3.62 | 2.40 | 2.92 | 3.65 | 2.21 | .18 | .26 | .07 | .03 | 16.97 |
| 1933 | .05 | .54 | 1.22 | 1.82 | .92 | 4.99 | 2.36 | 1.96 | .47 | .08 | .04 | .04 | 14.49 |
| 1934 | .03 | .27 | 1.54 | 2.55 | .46 | 3.18 | 2.57 | .39 | .10 | .03 | .02 | .04 | 10.98 |
| 1935 | .04 | .31 | .71 | 2.61 | 1.87 | 3.57 | 1.14 | 1.53 | .41 | .64 | .09 | .05 | 12.97 |

Monthly and yearly runoff, in inches, of Little Tonawanda Creek at Linden, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1936 | 0.06 | 0.17 | 0.73 | 0.59 | 0.90 | 9.33 | 3.04 | 0.51 | 0.11 | 0.03 | 0.01 | 0.03 | 15.51 |
| 1937 | .06 | .37 | 1.03 | 2.88 | 1.25 | 1.44 | 4.60 | 2.21 | 2.22 | .24 | 1.33 | .17 | 17.80 |
| 1938 | .27 | .75 | .78 | 1.28 | 4.97 | 3.52 | 2.02 | .72 | .18 | .36 | .15 | .25 | 15.23 |
| 1939 | .15 | .37 | .66 | 1.30 | 3.66 | 5.50 | 3.18 | .43 | .35 | .15 | .07 | .05 | 15.81 |
| 1940 | .06 | .19 | .51 | .36 | .72 | 3.42 | 9.08 | 1.01 | .88 | .24 | .07 | .08 | 16.62 |
| 1941 | .09 | .57 | 3.27 | 1.50 | .81 | 2.63 | 4.65 | .50 | .09 | .04 | .03 | .03 | 14.01 |
| 1942 | .03 | .05 | .27 | .66 | 1.18 | 8.59 | 4.86 | .73 | .31 | .23 | .07 | .76 | 17.74 |
| 1943 | .77 | 3.62 | 4.12 | 2.23 | 3.73 | 3.75 | 3.89 | 4.30 | 1.48 | .14 | .08 | .06 | 28.17 |
| 1944 | .10 | .39 | .39 | .71 | 1.48 | 4.05 | 3.72 | 1.75 | .54 | .10 | .03 | .03 | 13.29 |
| 1945 | .05 | .04 | .18 | .29 | 1.79 | 10.25 | 1.77 | 2.46 | .63 | .31 | .20 | .37 | 18.32 |
| 1946 | 2.73 | 2.22 | 3.55 | 3.92 | .98 | 3.53 | .59 | 1.78 | .72 | .14 | .28 | .09 | 20.33 |
| 1947 | .29 | 1.02 | 1.76 | 3.39 | 1.08 | 3.77 | 7.72 | 2.86 | 1.90 | .86 | .27 | .20 | 25.12 |
| 1948 | .09 | .37 | 1.61 | .55 | 3.32 | 4.79 | 2.67 | 1.92 | .81 | .14 | .06 | .03 | 16.36 |
| 1949 | .06 | .24 | .39 | 2.53 | 2.09 | 2.41 | 2.28 | .55 | .16 | .08 | .04 | .04 | 10.87 |
| 1950 | .04 | .11 | .72 | 2.36 | 1.27 | 5.77 | 3.64 | .87 | .22 | .08 | .06 | .06 | 15.20 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 324 | - | - | - | - | - | - | - | - |
| 1913 | 354 | 1,500 | Mar. 25, 1913 | 0.43 | 30.2 | 1.37 | 18.58 | 29.2 | 18.00 |
| 1914 | 384 | 1,000 | Mar. 26, 1914 | .43 | 24.2 | 1.10 | 14.94 | 24.8 | 15.50 |
| 1915 | 404 | 452 | Feb. 24, 1915 | 1.17 | 17.8 | .809 | 10.95 | 19.9 | 12.27 |
| 1916 | 434 | 2,400 | Apr. 22, 1916 | .59 | 38.6 | 1.75 | 23.86 | 35.7 | 22.06 |
| 1917 | 454 | - | - | .51 | 28.1 | 1.28 | 17.33 | 34.0 | 21.01 |
| 1918 | 474 | *1,600 | Mar. 12, 1918* | .5 | 26.2 | 1.19 | 16.15 | 23.2 | 14.34 |
| 1919 | 504 | *2,500 | May 10, 1919 | 1.8 | 29.5 | 1.53 | 18.23 | - | - |
| 1920 | 504 | - | - | - | - | - | - | - | - |
| 1921 | 524 | 1,230 | Feb. 16, 1921 | .4 | 23.3 | 1.06 | 14.35 | 19.7 | 12.12 |
| 1922 | 544 | 1,370 | Feb. 23, 1922 | .4 | 20.2 | .918 | 12.43 | 18.2 | 11.22 |
| 1923 | 564 | 1,070 | Mar. 3, 1923 | .7 | 21.4 | .973 | 13.20 | 23.7 | 14.59 |
| 1924 | 584 | 502 | May 12, 1924 | .6 | 25.2 | 1.15 | 15.63 | 25.6 | 15.86 |
| 1925 | 604 | 655 | Feb. 23, 1925 | 1.0 | 22.0 | 1.00 | 13.61 | 29.0 | 17.89 |
| 1926 | 624 | 567 | Apr. 8, 1926 | 1.4 | 33.5 | 1.52 | 20.66 | 35.6 | 21.90 |
| 1927 | 644 | 436 | Nov. 16, 1926 | .6 | 32.1 | 1.46 | 19.81 | 36.1 | 22.50 |
| 1928 | 664 | 932 | June 21, 1928 | .6 | 42.0 | 1.91 | 26.02 | 31.8 | 19.64 |
| 1929 | 684 | 930 | Jan. 18, 1929 | .8 | 31.9 | 1.45 | 19.72 | 29.3 | 18.12 |
| 1930 | 699 | 994 | Mar. 17, 1930 | .9 | 29.2 | 1.33 | 18.00 | 28.3 | 17.43 |
| 1931 | 714 | 1,080 | Mar. 28, 1931 | .7 | 25.7 | 1.17 | 15.90 | 26.2 | 16.16 |
| 1932 | 729 | 830 | Feb. 11, 1932 | .5 | 27.4 | 1.25 | 16.97 | 27.7 | 17.15 |
| 1933 | 744 | 1,500 | Mar. 14, 1933 | .3 | 23.5 | 1.07 | 14.49 | 23.2 | 14.32 |
| 1934 | 759 | 655 | Jan. 1, 1934 | .1 | 17.8 | .809 | 10.98 | 16.9 | 10.40 |
| 1935 | 784 | 816 | Feb. 15, 1935 | .5 | 21.0 | .955 | 12.97 | 20.8 | 12.87 |
| 1936 | 804 | 1,490 | Mar. 25, 1936 | .1 | 25.1 | 1.14 | 15.51 | 25.9 | 16.00 |
| 1937 | 824 | 1,990 | June 21, 1937 | .5 | 28.8 | 1.51 | 17.80 | 29.4 | 18.12 |
| 1938 | 854 | 1,990 | Mar. 5, 1938 | .7 | 24.7 | 1.12 | 15.23 | 23.7 | 14.61 |
| 1939 | 874 | 1,450 | Mar. 20, 1939 | .4 | 25.6 | 1.16 | 15.61 | 24.9 | 15.41 |
| 1940 | 894 | 1,180 | Apr. 4, 1940 | .6 | 26.9 | 1.22 | 16.62 | 32.0 | 19.79 |
| 1941 | 924 | 1,730 | Apr. 5, 1941 | .3 | 22.7 | 1.03 | 14.01 | 16.9 | 10.43 |
| 1942 | 954 | 2,130 | Mar. 17, 1942 | .3 | 28.8 | 1.31 | 17.74 | 42.0 | 25.90 |
| 1943 | 974 | 1,020 | Dec. 30, 1942 | .8 | 45.7 | 2.08 | 28.17 | 33.3 | 20.54 |
| 1944 | 1004 | 828 | Apr. 12, 1944 | .4 | 21.5 | .977 | 13.29 | 20.5 | 12.66 |
| 1945 | 1034 | 1,080 | Mar. 3, 1945 | .5 | 29.7 | 1.35 | 18.32 | 42.7 | 26.37 |
| 1946 | 1054 | 1,190 | May 20, 1946 | 1.1 | 33.0 | 1.50 | 20.33 | 24.5 | 15.10 |
| 1947 | 1084 | 1,370 | Apr. 5, 1947 | 1.0 | 40.7 | 1.85 | 25.12 | 39.1 | 24.12 |
| 1948 | 1114 | 845 | Feb. 19, 1948 | .5 | 26.5 | 1.20 | 16.36 | 24.2 | 14.98 |
| 1949 | 1144 | 370 | Feb. 13, 1949 | .4 | 17.6 | .800 | 10.87 | 17.9 | 11.05 |
| 1950 | 1174 | 1,490 | Mar. 28, 1950 | .6 | 24.7 | 1.12 | 15.20 | - | - |

* Revised.

* Not previously published.

304. Tonawanda Creek at Batavia, N. Y.

Location.--Lat 42°59'55", long. 78°11'20", on right bank 150 ft downstream from municipal dam, 500 ft upstream from Walnut Street Bridge in Batavia, Genesee County, and 3.5 miles downstream from Little Tonawanda Creek.

Drainage area.--172 sq mi.

Gage.--Water-stage recorder. Datum of gage is 876.01 ft above mean sea level (city of Batavia benchmark).

Extremes.--1944-50: Maximum discharge, 5,530 cfs Mar. 29, 1950; maximum gage height, 13.85 ft Apr. 6, 1947; minimum discharge, 1.0 cfs Aug. 17, 1949.
Maximum stage known, 14.5 ft in March 1942, from records of city of Batavia.

Remarks.--Slight regulation at low flow by plants above station.

STREAMS TRIBUTARY TO NIAGARA RIVER

Monthly and yearly mean discharge, in cubic feet per second, of Tonawanda Creek at Batavia, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | 7.91 | 12.0 | - |
| 1945 | 12.9 | 17.2 | 40.9 | 48.1 | 243 | 1,206 | 263 | 302 | 90.9 | 51.2 | 33.6 | 51.0 | 197 |
| 1946 | 34.4 | 262 | 434 | 451 | 144 | 451 | 82.1 | 166 | 91.6 | 25.9 | 40.9 | 16.3 | 211 |
| 1947 | 43.1 | 131 | 189 | 440 | 201 | 486 | 1,100 | 467 | 261 | 181 | 42.3 | 32.4 | 298 |
| 1948 | 19.0 | 61.1 | 210 | 56.6 | 449 | 592 | 328 | 229 | 89.4 | 25.2 | 17.3 | 11.9 | 173 |
| 1949 | 31.4 | 62.1 | 72.6 | 341 | 302 | 321 | 299 | 77.6 | 26.2 | 19.9 | 9.79 | 15.5 | 130 |
| 1950 | 14.0 | 26.3 | 121 | 323 | 200 | 730 | 412 | 99.6 | 31.5 | 18.0 | 13.5 | 24.1 | 168 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | - | - | - | - | - | - | - | - | - | - | 0.05 | 0.08 | - |
| 1945 | 0.09 | 0.11 | 0.27 | 0.32 | 1.47 | 8.08 | 1.71 | 2.03 | 0.59 | 0.34 | .23 | .33 | 15.57 |
| 1946 | 2.31 | 1.70 | 2.91 | 3.03 | .87 | 3.02 | .53 | 1.12 | .59 | .17 | .27 | .11 | 16.63 |
| 1947 | .29 | .85 | 1.27 | 2.95 | 1.21 | 3.25 | 7.14 | 3.13 | 1.69 | 1.21 | .28 | .21 | 23.48 |
| 1948 | .13 | .40 | 1.40 | .38 | 2.81 | 3.97 | 2.13 | 1.54 | .58 | .17 | .12 | .08 | 13.71 |
| 1949 | .21 | .40 | .49 | 2.28 | 1.83 | 2.15 | 1.94 | .52 | .17 | .13 | .07 | .10 | 10.29 |
| 1950 | .09 | .17 | .81 | 2.17 | 1.21 | 4.89 | 2.67 | .67 | .20 | .12 | .09 | .16 | 13.25 |

Yearly discharge, in cubic feet per second

| Year | W. S. P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|--------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1034 | - | - | - | - | - | - | - | - |
| 1945 | 1034 | 3,670 | Mar. 4, 1945 | 7.6 | 197 | 1.15 | 15.57 | 279 | 22.02 |
| 1946 | 1054 | 4,010 | Jan. 7, 1946 | 10 | 211 | 1.23 | 16.63 | 154 | 12.12 |
| 1947 | 1084 | 4,840 | Apr. 6, 1947 | 11 | 298 | 1.73 | 23.48 | 292 | 23.00 |
| 1948 | 1114 | 2,810 | Mar. 22, 1948 | 6.8 | 173 | 1.01 | 13.71 | 163 | 12.88 |
| 1949 | 1144 | 1,670 | Mar. 23, 1949 | 1.6 | 130 | .756 | 10.29 | 130 | 10.26 |
| 1950 | 1174 | 5,530 | Mar. 29, 1950 | 4.9 | 168 | .977 | 13.25 | - | - |

305. Barge Canal at lock 32, Pittsford, N. Y.

Location.--Lat 43°05'30", long. 77°32'45", on left bank of bypass channel around lock 32, New York State Barge Canal, three-quarters of a mile upstream from Pittsford, Monroe County, and 5½ miles downstream from junction of the canal and Genesee River.

Gage.--Water-stage recorder. Altitude of gage is 460 ft (from topographic map).

Remarks.--Records obtained during navigation season only. Total discharge is obtained by adding to flow through bypass the flow through the lock as determined from the number of lockages a day; leakage through lock not included.

Cooperation.--Records subsequent to June 30, 1921, furnished by State engineer and surveyor.

Monthly mean discharge, in cubic feet per second

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | The year |
|------|------|------|------|------|-----|------|------|------|-------|------|------|------|----------|
| 1919 | - | - | - | - | - | 77.7 | 97.7 | 87.6 | 65.3 | 66.9 | 69.4 | - | - |
| 1920 | - | - | - | - | - | 98.0 | 109 | 114 | 132 | 140 | 108 | - | - |
| 1921 | - | - | - | - | - | 94.3 | 130 | 133 | 103 | 109 | 102 | - | - |
| 1922 | - | - | - | - | 100 | 113 | 106 | 108 | 122 | 130 | 125 | - | - |
| 1923 | - | - | - | - | - | 121 | 155 | 165 | 159 | 147 | 146 | - | - |
| 1924 | - | - | - | - | - | 109 | 124 | 110 | 117 | 120 | 113 | - | - |
| 1925 | - | - | - | - | 86 | 78 | 83 | 81 | 123 | - | - | - | - |

Note.--Records subsequent to June 1921 not previously published.

306. Barge Canal at lock 30, Macedon, N. Y.

Location.--Lat 43°04'20", long. 77°17'45", on right bank at lock 30, in Macedon, Wayne County, 200 ft downstream from headgate in old Erie Canal.

Gage.--Staff gage. Altitude of gage is 440 ft (from topographic map).

Remarks.--Records obtained during navigation season only. This record represents net diversion from Niagara basin into Oswego River basin through Erie division of Barge Canal.

Monthly mean discharge, in cubic feet per second

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | The year |
|------|------|------|------|------|-----|------|------|------|-------|------|------|------|----------|
| 1919 | - | - | - | - | - | - | - | - | - | - | 140 | - | - |
| 1920 | - | - | - | - | - | 128 | 145 | 145 | 142 | 157 | 118 | - | - |

307. Oak Orchard Creek near Medina, N. Y.

Location.--Lat 43°09'30", long. 78°24'30", on right bank at downstream side of Coon's Bridge, just downstream from Tonawanda feeder, and 6 miles upstream from Medina, Orleans County.

Drainage area.--143 sq mi.

Gage.--Staff gage. Altitude of gage is 600 ft (from topographic map).

Remarks.--During periods of low water the flow consists of the discharge of Oak Orchard Creek proper, the inversion from Tonawanda Creek to the feeder channel, the inflow from Whitney Creek and the portion of Tonawanda Swamp intercepted by the feeder, the drainage from the swamp, and the inflow from farm drains to the feeder within Oak Orchard watershed.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | - | 13.2 | 26.1 | 41.4 | 43.3 | - |
| 1904 | 32.6 | 33.7 | 46.3 | - | - | - | 576 | 149 | 40.8 | 29.5 | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|------|------|------|-------|-------|-------|-------|------|-------|----------|
| 1903 | - | - | - | - | - | - | 0.103 | 0.211 | 0.334 | 0.338 | - | - | - |
| 1904 | 0.263 | 0.263 | 0.374 | - | - | - | 4.50 | 1.20 | .318 | .238 | - | - | - |

308. Genesee River at Scio, N. Y.

Location.--Lat 42°09'50", long. 77°58'50", on left bank 0.4 mile upstream from Vandermark Creek and three-quarters of a mile upstream from Scio, Allegany County.

Drainage area.--309 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,440 ft (from topographic map). Prior to Aug. 11, 1938, staff gage and Aug. 11 to Oct. 11, 1938, water-stage recorder, at same site at datum 1.0 ft higher.

Average discharge.--34 years (1916-50), 382 cfs.

Extremes.--1916-50: Maximum discharge, 12,000 cfs May 28, 1946 (gage height, 10.63 ft); minimum, 5.8 cfs Sept. 4, 1939.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | 1,190 | 143 | 45.4 | 48.5 | - |
| 1917 | 49.5 | 145 | 165 | 278 | 196 | 918 | 588 | 535 | 795 | 717 | 546 | 226 | 415 |
| 1918 | 1,040 | 455 | 198 | 67 | 1,110 | 1,560 | 935 | 460 | 256 | 114 | 106 | 303 | 529 |
| 1919 | 231 | 534 | 213 | 334 | 179 | 488 | 815 | 1,540 | 254 | 134 | 303 | 88.9 | 437 |
| 1920 | 109 | 480 | 243 | 83 | 78 | 1,250 | 481 | 281 | 83.0 | 460 | 200 | 62.8 | 319 |
| 1921 | 111 | 256 | 418 | 222 | 321 | 838 | 434 | 288 | 80.7 | 194 | 68.2 | 54.7 | 274 |
| 1922 | 77.4 | 793 | 383 | 215 | 511 | 748 | 802 | 184 | 679 | 218 | 171 | 68.9 | 401 |
| 1923 | 48.7 | 44.2 | 111 | 275 | 199 | 1,230 | 643 | 464 | 107 | 65.6 | 29.4 | 27.4 | 271 |
| 1924 | 28.2 | 53.9 | 297 | 836 | 151 | 459 | 1,100 | 688 | 212 | 144 | 61.1 | 403 | 370 |
| 1925 | 285 | 37.1 | 228 | 76.6 | 1,450 | 542 | 415 | 350 | 105 | 83.5 | 70.2 | 75.6 | 303 |
| 1926 | 298 | 580 | 284 | 305 | 281 | 768 | 802 | 200 | 91.1 | 49.8 | 50.5 | 102 | 317 |
| 1927 | 330 | 689 | 227 | 424 | 609 | 1,200 | 584 | 955 | 168 | 78.3 | 62.5 | 23.8 | 445 |
| 1928 | 141 | 1,630 | 1,650 | 367 | 325 | 768 | 1,020 | 391 | 541 | 253 | 112 | 36.9 | 602 |
| 1929 | 72.6 | 263 | 408 | 459 | 222 | 1,390 | 1,480 | 952 | 173 | 154 | 35.4 | 61.3 | 475 |
| 1930 | 328 | 288 | 463 | 853 | 445 | 857 | 618 | 265 | 164 | 64.5 | 19.7 | 20.4 | 366 |
| 1931 | 19.4 | 20.6 | 31.3 | 26.6 | 58.9 | 391 | 889 | 913 | 383 | 211 | 75.6 | 48.0 | 256 |
| 1932 | 27.7 | 60.3 | 424 | 779 | 534 | 470 | 896 | 619 | 126 | 74.0 | 24.2 | 16.3 | 337 |
| 1933 | 45.9 | 339 | 167 | 202 | 115 | 650 | 799 | 374 | 311 | 118 | 82.9 | 276 | 276 |
| 1934 | 73.3 | 247 | 410 | 506 | 72.3 | 645 | 756 | 104 | 41.5 | 25.8 | 29.9 | 57.3 | 248 |
| 1935 | 46.8 | 215 | 198 | 503 | 249 | 875 | 786 | 620 | 89.7 | 641 | 365 | 182 | 400 |
| 1936 | 135 | 221 | 287 | 144 | 215 | 2,623 | 808 | 219 | 74.9 | 23.2 | 35.9 | 47.1 | 406 |
| 1937 | 76.1 | 422 | 451 | 1,329 | 240 | 1,058 | 694 | 439 | 85.5 | 199 | 56.2 | 441 | 441 |
| 1938 | 168 | 325 | 324 | 281 | 802 | 840 | 710 | 270 | 205 | 89.4 | 43.3 | 180 | 349 |
| 1939 | 68.4 | 152 | 286 | 264 | 891 | 956 | 638 | 126 | 49.6 | 23.3 | 16.6 | 17.0 | 286 |
| 1940 | 98.8 | 228 | 396 | 107 | 119 | 710 | 2,394 | 305 | 144 | 129 | 43.5 | 82.1 | 395 |
| 1941 | 55.7 | 158 | 655 | 253 | 129 | 415 | 1,041 | 106 | 121 | 78.7 | 53.1 | 23.6 | 258 |
| 1942 | 41.3 | 67.5 | 195 | 191 | 147 | 1,559 | 768 | 602 | 173 | 562 | 212 | 289 | 403 |
| 1943 | 329 | 719 | 696 | 545 | 668 | 854 | 1,014 | 1,368 | 312 | 65.5 | 52.2 | 28.6 | 554 |
| 1944 | 68.6 | 220 | 119 | 143 | 289 | 706 | 782 | 515 | 428 | 108 | 23.9 | 48.0 | 285 |
| 1945 | 78.5 | 92.2 | 213 | 226 | 508 | 2,152 | 647 | 1,150 | 524 | 205 | 110 | 506 | 536 |
| 1946 | 709 | 533 | 426 | 729 | 165 | 625 | 142 | 782 | 944 | 604 | 287 | 129 | 511 |
| 1947 | 259 | 185 | 233 | 824 | 313 | 493 | 1,447 | 1,088 | 636 | 223 | 227 | 165 | 508 |
| 1948 | 54.9 | 121 | 243 | 81.6 | 588 | 1,505 | 1,011 | 545 | 219 | 94.4 | 126 | 28.5 | 384 |
| 1949 | 47.6 | 182 | 285 | 664 | 425 | 451 | 655 | 387 | 85.4 | 50.7 | 27.8 | 29.1 | 275 |
| 1950 | 24.8 | 39.9 | 218 | 670 | 258 | 934 | 1,354 | 576 | 149 | 75.3 | 36.1 | 77.0 | 367 |

* Revised.

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly runoff, in inches, of Genesee River at Scio, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | *4.29 | 0.53 | 0.17 | 0.18 | - |
| 1917 | 0.18 | 0.52 | 0.62 | 1.04 | 0.66 | 3.42 | 2.12 | 2.00 | 2.87 | 2.68 | 1.29 | .81 | 18.21 |
| 1918 | 3.89 | 1.64 | .70 | .25 | 3.75 | 5.08 | 3.38 | 1.71 | .92 | .42 | .40 | 1.10 | 23.24 |
| 1919 | .86 | 1.93 | 1.17 | 1.25 | .60 | 1.82 | 2.94 | 5.74 | .92 | .50 | 1.13 | .32 | 19.18 |
| 1920 | .41 | 1.73 | .91 | .31 | .27 | 4.66 | 1.74 | 1.05 | .30 | 1.72 | .75 | .23 | 14.08 |
| 1921 | .41 | .93 | 1.56 | .83 | 1.08 | 3.13 | 1.57 | 1.07 | .29 | .72 | .25 | .20 | 12.04 |
| 1922 | .29 | 2.86 | 1.43 | .80 | 1.72 | 2.79 | 2.89 | .69 | 2.45 | .81 | .64 | .25 | 17.62 |
| 1923 | .18 | .16 | .41 | 1.03 | .67 | 4.58 | 2.32 | 1.73 | .39 | .24 | .11 | .10 | 11.92 |
| 1924 | .11 | .19 | 1.11 | 3.12 | .53 | 1.71 | 3.99 | 2.57 | .76 | .54 | .23 | 1.45 | 16.31 |
| 1925 | 1.06 | .13 | .85 | .29 | 4.90 | 2.02 | 1.50 | 1.31 | .38 | .31 | .26 | .27 | 13.28 |
| 1926 | 1.11 | 2.10 | 1.06 | 1.14 | .95 | 2.87 | 2.90 | .75 | .33 | .19 | .19 | .37 | 13.96 |
| 1927 | 1.23 | 2.49 | .85 | 1.58 | 2.05 | 4.46 | 2.11 | 3.56 | .60 | .29 | .23 | .09 | 19.54 |
| 1928 | .52 | 5.90 | 6.17 | 1.37 | 1.14 | 2.87 | 3.67 | 1.46 | 1.95 | .94 | .42 | .13 | 26.54 |
| 1929 | .27 | .95 | 1.52 | 1.71 | .75 | 5.19 | 5.35 | 3.55 | .63 | .57 | .13 | .22 | 20.84 |
| 1930 | 1.22 | 1.04 | 1.73 | 3.18 | 1.50 | 3.20 | 2.23 | .99 | .59 | .24 | .07 | .07 | 16.06 |
| 1931 | .07 | .07 | .12 | .10 | .20 | 1.46 | 3.21 | 3.41 | 1.38 | .79 | .28 | .17 | 11.26 |
| 1932 | .10 | .22 | 1.56 | 2.90 | 1.86 | 1.75 | 3.24 | 2.31 | 1.45 | .28 | .09 | .16 | 11.84 |
| 1933 | .17 | 1.23 | .62 | .75 | .39 | 2.43 | 2.88 | 1.39 | 1.15 | .37 | .44 | .30 | 12.12 |
| 1934 | .27 | .89 | 1.53 | 1.89 | .24 | 2.41 | 2.73 | .59 | .15 | .10 | .11 | .21 | 10.92 |
| 1935 | .17 | .78 | .74 | 1.88 | .84 | 3.26 | 2.83 | 2.32 | .32 | 2.39 | 1.36 | .66 | 17.55 |
| 1936 | .50 | .80 | 1.07 | .54 | .75 | 9.79 | 2.91 | .82 | .27 | .11 | .13 | .17 | 17.86 |
| 1937 | .28 | 1.53 | 1.68 | 4.96 | .81 | .87 | 3.82 | 2.59 | 1.58 | .34 | .74 | .20 | 19.38 |
| 1938 | .63 | 1.17 | 1.21 | 1.05 | 2.71 | 3.14 | 2.57 | 1.01 | .74 | .53 | .18 | .65 | 15.37 |
| 1939 | .25 | .55 | 1.07 | .98 | 3.00 | 3.56 | 2.30 | .47 | .18 | .09 | .08 | .06 | 12.57 |
| 1940 | .37 | .82 | 1.48 | .40 | .42 | 2.65 | 8.65 | 1.14 | .52 | .48 | .16 | .30 | 17.39 |
| 1941 | .21 | .57 | 2.44 | .94 | .43 | 1.54 | 3.76 | .40 | .44 | .29 | .20 | .08 | 11.30 |
| 1942 | .15 | .24 | .73 | .71 | .50 | 5.82 | 2.78 | 2.25 | .62 | 2.10 | .79 | 1.04 | 17.73 |
| 1943 | 1.23 | 2.59 | 2.60 | 2.03 | 2.25 | 3.19 | 3.66 | 5.10 | 1.13 | .24 | .19 | .10 | 24.31 |
| 1944 | .26 | .80 | .44 | .53 | 1.01 | 2.63 | 2.75 | 1.92 | 1.54 | .40 | .09 | .17 | 12.54 |
| 1945 | .29 | .33 | .80 | .84 | 1.71 | 8.05 | 2.34 | 4.29 | 1.89 | .76 | .41 | 1.83 | 23.52 |
| 1946 | 2.64 | 1.92 | 1.63 | 2.72 | .56 | 2.33 | .51 | 2.92 | 3.41 | 2.25 | 1.07 | .47 | 22.43 |
| 1947 | .97 | .87 | .87 | 3.07 | 1.05 | 1.84 | 5.22 | 4.06 | 2.29 | .83 | .85 | .59 | 22.31 |
| 1948 | .20 | .44 | .91 | .30 | 2.05 | 5.62 | 3.65 | 2.03 | .79 | .35 | .47 | .10 | 16.91 |
| 1949 | .18 | .66 | 1.06 | 2.48 | 1.43 | 1.68 | 2.37 | 1.44 | .31 | .19 | .10 | .11 | 12.01 |
| 1950 | .09 | .14 | .81 | 2.50 | .80 | 3.48 | 4.89 | 2.15 | .54 | .28 | .13 | .28 | 16.09 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1916 | 434 | - | - | - | - | - | - | - | - | - |
| 1917 | 454 | 15,020 | Mar. 12, 1917 | 26 | 415 | 1.34 | 18.21 | 527 | 23.12 | |
| 1918 | 474 | 10,400 | Mar. 14, 1918 | 34 | 529 | 1.71 | 23.24 | 477 | 20.37 | |
| 1919 | 504 | 10,600 | May 22, 1919 | 27 | 437 | 1.41 | 19.18 | 416 | 18.27 | |
| 1920 | 504 | 8,810 | Mar. 12, 1920 | 25 | 319 | 1.03 | 14.08 | 316 | 13.93 | |
| 1921 | 524 | 3,810 | Feb. 17, 1921 | 21 | 274 | .887 | 12.04 | 312 | 13.72 | |
| 1922 | 544 | 4,230 | June 12, 1922 | 34 | 401 | 1.30 | 17.62 | 314 | 13.79 | |
| 1923 | 564 | 6,010 | Mar. 4, 1923 | 17 | 271 | .877 | 11.92 | 286 | 12.58 | |
| 1924 | 584 | 8,320 | Sept. 30, 1924 | 20 | 370 | 1.20 | 16.31 | 385 | 16.94 | |
| 1925 | 604 | 8,140 | Feb. 11, 1925 | 16 | 303 | .981 | 13.28 | 353 | 15.51 | |
| 1926 | 624 | 3,530 | Mar. 23, 1926 | 23 | 317 | 1.03 | 13.96 | 324 | 14.26 | |
| 1927 | 644 | 6,090 | Mar. 21, 1927 | 16 | 445 | 1.44 | 19.54 | 628 | 27.56 | |
| 1928 | 664 | 7,600 | Dec. 1, 1927 | 17 | 602 | 1.95 | 26.54 | 379 | 16.69 | |
| 1929 | 684 | 6,800 | Apr. 21, 1929 | 20 | 475 | 1.54 | 20.84 | 503 | 22.09 | |
| 1930 | 699 | 4,710 | Feb. 25, 1930 | 17 | 366 | 1.18 | 16.06 | 281 | 12.33 | |
| 1931 | 714 | 3,020 | May 24, 1931 | 18 | 256 | .828 | 11.26 | 294 | 12.90 | |
| 1932 | 729 | 3,970 | Feb. 11, 1932 | 13 | 337 | 1.09 | 14.84 | 340 | 14.96 | |
| 1933 | 744 | 3,410 | Apr. 7, 1933 | 17 | 276 | .893 | 12.12 | 291 | 12.79 | |
| 1934 | 759 | 4,710 | Mar. 27, 1934 | 18 | 248 | .803 | 10.92 | 226 | 9.92 | |
| 1935 | 784 | 8,560 | July 8, 1935 | 28 | 400 | 1.29 | 17.55 | 415 | 18.23 | |
| 1936 | 804 | 7,760 | Mar. 12, 1936 | 19 | 406 | 1.31 | 17.86 | 431 | 18.98 | |
| 1937 | 824 | 6,640 | Jan. 25, 1937 | 23 | 441 | 1.43 | 19.38 | 430 | 18.90 | |
| 1938 | 854 | 7,120 | Mar. 6, 1938 | 19 | 349 | 1.13 | 15.37 | 323 | 14.23 | |
| 1939 | 874 | 7,180 | Feb. 20, 1939 | 6.9 | 286 | .926 | 12.57 | 305 | 13.37 | |
| 1940 | 894 | 8,530 | Mar. 31, 1940 | 24 | 395 | 1.28 | 17.39 | 407 | 17.94 | |
| 1941 | 924 | 7,200 | Apr. 5, 1941 | 15 | 258 | .835 | 11.30 | 210 | 9.20 | |
| 1942 | 954 | 9,740 | July 18, 1942 | 16 | 403 | 1.30 | 17.73 | 524 | 23.03 | |
| 1943 | 974 | 8,290 | Dec. 30, 1942 | 20 | 554 | 1.79 | 24.31 | 442 | 19.39 | |
| 1944 | 1004 | 4,810 | Mar. 17, 1944 | 16 | 285 | .922 | 12.54 | 283 | 12.46 | |
| 1945 | 1034 | 8,390 | May 18, 1945 | 29 | 536 | 1.73 | 23.52 | 644 | 28.29 | |
| 1946 | 1054 | 12,000 | May 28, 1946 | 64 | 511 | 1.65 | 22.43 | 427 | 18.75 | |
| 1947 | 1084 | 9,030 | Apr. 5, 1947 | 59 | 508 | 1.64 | 22.31 | 486 | 21.35 | |
| 1948 | 1114 | 9,190 | Mar. 22, 1948 | 16 | 384 | 1.24 | 16.91 | 392 | 17.26 | |
| 1949 | 1144 | 2,690 | Jan. 6, 1949 | 10 | 273 | .883 | 12.01 | 254 | 11.15 | |
| 1950 | 1174 | 9,390 | Mar. 28, 1950 | 19 | 367 | 1.19 | 16.09 | - | - | |

† Corrected.

309. Caneadea Creek at Caneadea, N. Y.

Location.--Lat 42°23'10", long. 78°09'45", on left bank at Caneadea, Allegany County, 800 ft upstream from unnamed tributary and 0.6 mile upstream from mouth.

Drainage area.--61.5 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,240 ft (from topographic map).

Extremes.--1949-50: Maximum discharge, 1,570 cfs Apr. 5, 1950 (gage height, 4.98 ft), from rating curve extended above 250 cfs by logarithmic plotting; minimum, 0.9 cfs Oct. 21, 1949 (gage height, 1.63 ft); minimum daily, 1.0 cfs Oct. 19, 20, 1949.

Remarks.--Flow regulated by Rushford Lake (capacity, 1,106,000,000 cu ft) about 2 miles above station.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | - | - | - | - | - | - | - | - | - | 3.42 | 191 | 77.8 | - |
| 1950 | 121 | 1.70 | 45.8 | 3.18 | 258 | 140 | 157 | 85.5 | 20.2 | 1.75 | 1.49 | 8.49 | 69.1 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1949 | - | - | - | - | - | - | - | - | - | 0.17 | 0.27 | 0.24 | - |
| 1950 | 0.19 | 0.50 | 2.16 | 3.33 | 1.67 | 5.09 | 4.72 | 0.88 | 0.37 | .50 | .16 | .15 | 19.72 |

Note.--Adjusted runoff in inches not previously published; computed on basis of records of change in contents in Rushford Lake.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|--------------|-------------|------|----------|-----------------|------------------|---------------|----------|------------------|
| | | Observed | | | | Adjusted | | | Observed | Adjusted | |
| | | Discharge | Date | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | | | | | | | | | | |
| 1949 | 1144 | - | - | - | - | - | - | - | - | - | - |
| 1950 | 1174 | 1,570 | Apr. 5, 1950 | 1.0 | 69.1 | 89.4 | 1.45 | 19.72 | - | - | - |

* Not previously published.

310. Lost Nation Brook near Centerville, N. Y.

Location.--Lat 42°30'00", long. 78°15'45", on left bank three-quarters of a mile above confluence with Sixtown Creek and $\frac{1}{2}$ miles northwest of Centerville, Allegany County.

Drainage area.--1.12 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,800 ft (from topographic map).

Extremes.--October 1934 to August 1935: Maximum discharge, 49 cfs Jan. 9 (gage height, 3.36 ft); minimum, 0.018 cfs Aug. 6 (gage height, 1.12 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|-------|------|-------|----------|
| 1935 | - | 2.46 | 1.29 | 4.30 | 2.05 | 6.42 | 3.37 | 2.85 | 0.412 | 0.290 | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1935 | - | 2.45 | 1.33 | 4.43 | 1.91 | 6.61 | 3.36 | 2.93 | 0.41 | 0.30 | - | - | - |

Note.--Runoff in inches not previously published.

311. Genesee River at Portageville, N. Y.^{1/}

Location.--Lat 42°34'10", long. 78°02'45", on left bank in Portageville, Wyoming County, 300 ft downstream from small tributary, 350 ft downstream from Pennsylvania Railroad bridge, and 0.7 mile upstream from Upper Falls.

Drainage area.--982 sq mi. Prior to Oct. 1, 1946, 1,017 sq mi.

Gage.--Water-stage recorder since Oct. 1, 1946. Datum of gage is 1,082.60 ft above mean sea level (levels by Corps of Engineers). Prior to Aug. 24, 1911, chain gage and Aug. 24, 1911, to Sept. 30, 1946, water-stage recorder, at site 8 miles downstream at different datum. Both recorders in operation Dec. 16, 1945, to Sept. 30, 1950.

Average discharge.--42 years (1908-50), 1,219 cfs.

Extremes.--1908-50: Maximum discharge, 44,400 cfs May 17, 1916 (gage height, 12.81 ft, site and datum then in use); maximum gage height, 19.28 ft Mar. 29, 1950; minimum discharge, 18 cfs Oct. 5, 17, 1913 (gage height, 1.70 ft, site and datum then in use).

Remarks.--Some seasonal regulation by Rushford lake (capacity, 1,106,000,000 cu ft) since July 1928. Diurnal fluctuation at low flow caused by powerplants above station.

^{1/} Published as "at St. Helena" prior to 1946.

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly mean discharge, in cubic feet per second, of Genesee River at Portageville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1909 | 125 | 168 | 160 | 1,400 | 2,620 | 2,010 | 2,880 | 2,490 | 726 | 158 | 83.9 | 88.8 | 1,060 |
| 1910 | 153 | 210 | 173 | 1,140 | 880 | 5,480 | 3,100 | 1,860 | 407 | 191 | 131 | 256 | 1,170 |
| 1911 | 238 | 918 | 778 | 2,750 | 1,570 | 2,750 | 2,670 | 730 | 662 | 141 | 497 | 631 | 1,190 |
| 1912 | 1,020 | 1,450 | 1,830 | 669 | 409 | 3,500 | 4,850 | 1,270 | 244 | 150 | 178 | 485 | 1,340 |
| 1913 | 622 | 757 | 979 | 4,800 | 577 | 5,330 | 2,610 | 917 | 408 | 119 | 66.6 | 50 | 1,450 |
| 1914 | 208 | 852 | 373 | 1,180 | 1,190 | 3,450 | 3,430 | 3,020 | 286 | 110 | 310 | 450 | 1,230 |
| 1915 | 128 | 400 | 491 | 2,140 | 4,020 | 996 | 1,640 | 607 | 183 | 1,880 | 1,260 | 290 | 1,150 |
| 1916 | 1,360 | 1,040 | 1,180 | 3,120 | 693 | 5,530 | 6,320 | 3,100 | 3,300 | 547 | 136 | 131 | 2,040 |
| 1917 | 165 | 563 | 452 | 989 | 1,100 | 3,580 | 1,890 | 1,550 | 2,390 | 1,800 | 627 | 529 | 1,340 |
| 1918 | 3,320 | 1,020 | 482 | 215 | 2,840 | 4,140 | 1,570 | 650 | 412 | 146 | 176 | 520 | 1,290 |
| 1919 | 573 | 1,120 | 1,290 | 999 | 404 | 1,540 | 2,400 | 4,830 | 722 | 241 | 464 | 218 | 1,240 |
| 1920 | 289 | 1,200 | 909 | 226 | 229 | 3,970 | 1,400 | 717 | 259 | 1,180 | 374 | 220 | 920 |
| 1921 | 421 | 1,090 | 1,360 | 829 | 1,090 | 2,880 | 1,460 | 715 | 249 | 443 | 231 | 138 | 909 |
| 1922 | 264 | 2,560 | 1,040 | 711 | 1,620 | 2,560 | 2,240 | 597 | 1,540 | 682 | 912 | 384 | 1,250 |
| 1923 | 206 | 211 | 481 | 820 | 815 | 3,770 | 1,760 | 919 | 300 | 224 | 115 | 120 | 814 |
| 1924 | 121 | 222 | 1,140 | 2,240 | 487 | 1,920 | 3,340 | 2,520 | 919 | 465 | 265 | 1,010 | 1,220 |
| 1925 | 874 | 166 | 918 | 335 | 3,730 | 2,100 | 1,240 | 708 | 212 | 222 | 364 | 273 | 910 |
| 1926 | 1,170 | 2,150 | 1,030 | 1,050 | 803 | 2,820 | 3,210 | 566 | 378 | 164 | 320 | 599 | 1,190 |
| 1927 | 1,380 | 2,250 | 777 | 1,400 | 2,620 | 3,520 | 1,710 | 2,690 | 516 | 327 | 254 | 92.0 | 1,410 |
| 1928 | 422 | 400 | 4,330 | 1,220 | 1,190 | 2,230 | 2,730 | 878 | 1,770 | 549 | 258 | 129 | 1,660 |
| 1929 | 217 | 694 | 1,440 | 1,880 | 784 | 4,100 | 4,720 | 2,780 | 453 | 318 | 126 | 150 | 1,490 |
| 1930 | 686 | 705 | 1,580 | 3,380 | 2,010 | 2,670 | 1,630 | 755 | 614 | 190 | 139 | 120 | 1,200 |
| 1931 | 89.3 | 185 | 194 | 216 | 324 | 1,540 | 2,700 | 2,500 | 869 | 335 | 297 | 207 | 789 |
| 1932 | 170 | 423 | 1,750 | 2,790 | 2,030 | 2,000 | 2,630 | 2,090 | 307 | 234 | 79.3 | 91.4 | 1,220 |
| 1933 | 245 | 1,110 | 692 | 867 | 425 | 2,690 | 2,320 | 1,280 | 1,110 | 250 | 271 | 247 | 960 |
| 1934 | 260 | 695 | 1,259 | 1,630 | 594 | 2,170 | 2,255 | 294 | 118 | 64.8 | 64.5 | 132 | 782 |
| 1935 | 237 | 767 | 686 | 1,712 | 1,113 | 3,094 | 2,010 | 1,751 | 358 | 1,466 | 464 | 344 | 1,172 |
| 1936 | 357 | 567 | 727 | 372 | 548 | 7,360 | 2,579 | 616 | 241 | 67.9 | 101 | 169 | 1,148 |
| 1937 | 217 | 750 | 1,203 | 3,453 | 1,102 | 945 | 3,704 | 1,933 | 1,868 | 285 | 603 | 302 | 1,363 |
| 1938 | 463 | 767 | 829 | 855 | 2,523 | 2,544 | 2,216 | 869 | 453 | 318 | 357 | 565 | 1,052 |
| 1939 | 455 | 582 | 939 | 1,055 | 2,759 | 3,714 | 2,635 | 529 | 247 | 148 | 81.9 | 143 | 1,094 |
| 1940 | 438 | 693 | 1,201 | 418 | 482 | 1,978 | 7,780 | 1,010 | 919 | 461 | 265 | 453 | 1,336 |
| 1941 | 320 | 871 | 2,677 | 1,036 | 724 | 1,777 | 3,759 | 406 | 325 | 237 | 219 | 176 | 1,044 |
| 1942 | 194 | 166 | 502 | 605 | 634 | 5,157 | 2,585 | 1,273 | 453 | 1,308 | 532 | 707 | 1,183 |
| 1943 | 754 | 2,015 | 2,274 | 1,747 | 2,482 | 2,714 | 2,963 | 4,601 | 1,125 | 247 | 330 | 183 | 1,800 |
| 1944 | 287 | 661 | 457 | 463 | 912 | 2,283 | 2,866 | 1,868 | 988 | 297 | 221 | 353 | 969 |
| 1945 | 244 | 283 | 721 | 698 | 1,566 | 6,846 | 1,928 | 2,619 | 1,262 | 916 | 364 | 937 | 1,536 |
| 1946 | 269 | 1,974 | 1,680 | 2,163 | 609 | 2,172 | 450 | 2,103 | 2,387 | 824 | 540 | 244 | 1,460 |
| 1947 | 649 | 889 | 1,104 | 2,578 | 1,091 | 1,672 | 5,182 | 3,133 | 1,645 | 487 | 456 | 337 | 1,619 |
| 1948 | 168 | 486 | 1,027 | 402 | 1,852 | 4,157 | 2,829 | 1,751 | 732 | 274 | 407 | 181 | 1,187 |
| 1949 | 372 | 738 | 932 | 1,919 | 1,697 | 1,358 | 1,844 | 958 | 217 | 114 | 296 | 205 | 882 |
| 1950 | 204 | 166 | 816 | 2,011 | 988 | 3,540 | 3,590 | 1,172 | 394 | 356 | 131 | 305 | 1,141 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1909 | 0.14 | 0.18 | 0.18 | 1.59 | 2.68 | 2.27 | 3.16 | 2.83 | 0.80 | 0.19 | 0.10 | 0.13 | 14.21 |
| 1910 | .17 | .23 | .20 | 1.29 | .90 | 6.21 | 3.40 | 2.11 | .45 | .22 | .15 | .28 | 15.61 |
| 1911 | .27 | 1.01 | .88 | 3.12 | 1.60 | 3.11 | 2.93 | .83 | .73 | .16 | .56 | .69 | 15.89 |
| 1912 | 1.15 | 1.59 | 2.08 | .76 | .43 | 3.97 | 5.32 | 1.44 | .27 | .17 | .20 | .53 | 17.91 |
| 1913 | .71 | .83 | 1.11 | 5.44 | .59 | 6.05 | 2.87 | 1.04 | .45 | .13 | .08 | .05 | 19.35 |
| 1914 | .24 | .91 | .42 | 1.33 | 1.21 | 3.91 | 3.77 | 3.43 | .31 | .12 | .35 | .47 | 16.47 |
| 1915 | .15 | .44 | .56 | 2.42 | 4.11 | 1.12 | 1.80 | .69 | .20 | 2.13 | 1.43 | .32 | 15.37 |
| 1916 | 1.54 | 1.14 | 1.34 | 3.54 | .73 | 4.00 | 6.93 | 3.52 | 3.62 | .62 | .15 | .14 | 27.27 |
| 1917 | .19 | .62 | .51 | 1.12 | 1.13 | 4.06 | 2.07 | 1.76 | 2.62 | 2.04 | .71 | .58 | 17.41 |
| 1918 | 3.76 | 1.12 | .55 | .24 | 2.91 | 4.69 | 1.72 | .74 | .45 | .17 | .20 | .57 | 17.12 |
| 1919 | .65 | 1.23 | 1.46 | 1.13 | .41 | 1.74 | 2.64 | 5.47 | .79 | .27 | .53 | .24 | 16.56 |
| 1920 | .33 | 1.32 | 1.03 | .26 | .24 | 4.50 | 1.54 | .81 | .28 | 1.34 | .42 | .24 | 12.31 |
| 1921 | .48 | 1.20 | 1.54 | .94 | 1.10 | 3.27 | 1.60 | .81 | .27 | .50 | .26 | .15 | 12.12 |
| 1922 | .30 | 2.81 | 1.18 | .81 | 1.66 | 1.91 | 2.46 | .69 | 1.69 | .77 | 1.03 | .42 | 16.72 |
| 1923 | .23 | .23 | .55 | .93 | .83 | 4.27 | 1.93 | 1.04 | .33 | .25 | .13 | .13 | 10.85 |
| 1924 | .14 | .24 | 1.29 | 2.54 | .52 | 2.18 | 3.66 | 2.86 | 1.01 | .53 | .30 | 1.11 | 16.38 |
| 1925 | .99 | .18 | 1.04 | .38 | 3.82 | 2.39 | 1.36 | .80 | .23 | .25 | .41 | .30 | 12.15 |
| 1926 | 1.32 | 2.36 | 1.17 | 1.19 | .82 | 3.19 | 3.53 | .64 | .41 | .19 | .36 | .66 | 15.84 |
| 1927 | 1.56 | 2.47 | .88 | 1.59 | 2.07 | 3.99 | 1.88 | 3.04 | .57 | .37 | .29 | .10 | 18.81 |
| 1928 | .48 | 4.61 | 4.91 | 1.38 | 1.27 | 2.53 | 3.00 | 1.94 | .62 | .29 | .14 | .22 | 22.16 |
| 1929 | .25 | .98 | 1.65 | 2.13 | .80 | 4.65 | 5.18 | 3.15 | .50 | .36 | .14 | .16 | 19.93 |
| 1930 | .78 | .77 | 1.79 | 3.94 | 2.05 | 3.03 | 1.79 | .86 | .67 | .22 | .16 | .13 | 16.09 |
| 1931 | .10 | .20 | .22 | .24 | .33 | 1.75 | 2.96 | 2.84 | .95 | .38 | .34 | .23 | 10.54 |
| 1932 | .19 | .46 | 1.98 | 3.16 | 2.15 | 2.27 | 2.89 | 2.37 | .94 | .27 | .09 | .10 | 16.27 |
| 1933 | .28 | 1.22 | .78 | .98 | .44 | 3.05 | 2.54 | 1.45 | 1.22 | .28 | .31 | .27 | 12.82 |
| 1934 | .50 | .76 | 1.44 | 1.84 | .40 | 2.46 | 2.48 | 1.33 | .13 | .07 | .07 | .14 | 10.42 |
| 1935 | .27 | .84 | .78 | 1.94 | 1.14 | 3.50 | 2.21 | 1.98 | .59 | 1.68 | .53 | .39 | 15.64 |
| 1936 | .40 | .62 | .82 | .42 | .58 | 8.35 | 2.83 | .70 | .26 | .08 | .11 | .19 | 15.36 |
| 1937 | .25 | .82 | 1.36 | 3.92 | 1.12 | 1.07 | 4.06 | 2.19 | 2.05 | .32 | .68 | .33 | 18.17 |
| 1938 | .52 | .84 | .94 | .97 | 2.58 | 2.88 | 2.43 | .98 | .50 | .36 | .40 | .62 | 14.02 |
| 1939 | .49 | .64 | 1.06 | 1.20 | 2.82 | 4.21 | 2.89 | .60 | .27 | .17 | .09 | .16 | 14.60 |
| 1940 | .50 | .76 | 1.36 | .47 | .51 | 2.24 | 8.54 | 1.14 | 1.01 | .55 | .30 | .50 | 17.88 |

Monthly and yearly runoff, in inches, of Genesee River at Portageville, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.36 | 0.96 | 3.03 | 1.18 | 0.74 | 2.02 | 4.13 | 0.46 | 0.36 | 0.27 | 0.25 | 0.19 | 13.95 |
| 1942 | .22 | .18 | .57 | .69 | .65 | 5.84 | 2.83 | 1.44 | 1.50 | 1.49 | .60 | .78 | 15.79 |
| 1943 | .85 | 2.21 | 2.58 | 1.98 | 2.54 | 3.08 | 5.25 | 5.44 | 1.25 | .28 | .57 | .20 | 24.01 |
| 1944 | .32 | .72 | .52 | .52 | .37 | 2.58 | 3.14 | 2.12 | 1.08 | .54 | .25 | .39 | 12.96 |
| 1945 | .28 | .31 | .82 | .79 | 1.60 | 7.76 | 2.12 | 2.97 | 1.38 | 1.04 | .41 | 1.03 | 20.51 |
| 1946 | 2.57 | 2.17 | 1.90 | 2.45 | .62 | 2.46 | .49 | 2.38 | 2.62 | .93 | .61 | .27 | 19.47 |
| 1947 | .76 | 1.01 | 1.30 | 3.03 | 1.16 | 2.20 | 5.89 | 3.68 | 1.87 | .57 | .54 | .38 | 22.39 |
| 1948 | .20 | .55 | 1.21 | .47 | 2.03 | 4.88 | 3.21 | 2.06 | .83 | .32 | .48 | .21 | 16.45 |
| 1949 | .44 | .84 | 1.09 | 2.25 | 1.79 | 1.59 | 2.09 | 1.12 | .25 | .13 | .35 | .23 | 12.17 |
| 1950 | .24 | .19 | .96 | 2.36 | 1.05 | 4.16 | 4.08 | 1.38 | .45 | .42 | .15 | .35 | 15.79 |

Note.--Records since October 1943 not previously published.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | 264 | - | - | - | - | - | - | - | - |
| 1909 | 264 | 26,300 | Apr. 30, 1909 | 59 | 1,060 | 1.04 | 14.21 | 1,080 | 14.31 |
| 1910 | 284 | 30,200 | Feb. 28, 1910 | 64 | 1,170 | 1.15 | 15.61 | 1,280 | 17.17 |
| 1911 | 304 | 12,600 | Aug. 28, 1911 | 61 | 1,190 | 1.17 | 15.89 | 1,390 | 18.55 |
| 1912 | 324 | 22,700 | Mar. 30, 1912 | 64 | 1,340 | 1.32 | 17.91 | 1,180 | 15.74 |
| 1913 | 354 | 42,800 | Mar. 26, 1913 | - | 1,450 | 1.43 | 19.35 | 1,370 | 18.07 |
| 1914 | 384 | 23,200 | Mar. 28, 1914 | 20 | 1,230 | 1.21 | 16.47 | 1,200 | 16.05 |
| 1915 | 404 | 21,400 | Feb. 15, 1915 | 61 | 1,150 | 1.13 | 15.37 | 1,370 | 18.24 |
| 1916 | 434 | 44,400 | May 17, 1916 | 77 | 2,040 | 2.01 | 27.27 | 1,840 | 24.57 |
| 1917 | 454 | 16,700 | Mar. 12, 1917 | 81 | 1,340 | 1.32 | 17.41 | 1,610 | 21.52 |
| 1918 | 474 | 29,500 | Mar. 14, 1918 | 91 | 1,280 | 1.26 | 17.12 | 1,130 | 15.03 |
| 1919 | 504 | 32,800 | May 22, 1919 | 78 | 1,240 | 1.22 | 16.56 | 1,190 | 15.90 |
| 1920 | 504 | 39,700 | Mar. 13, 1920 | 56 | 920 | .905 | 12.31 | 961 | 12.85 |
| 1921 | 524 | 18,100 | Feb. 17, 1921 | 37 | 909 | .894 | 12.12 | 989 | 13.19 |
| 1922 | 544 | 12,600 | Mar. 7, 1922 | 127 | 1,250 | 1.23 | 16.72 | 1,010 | 13.44 |
| 1923 | 564 | 16,400 | Mar. 16, 1923 | 50 | 814 | .800 | 10.85 | 863 | 11.51 |
| 1924 | 584 | 17,600 | Sept. 30, 1924 | 65 | 1,220 | 1.20 | 16.38 | 1,260 | 16.92 |
| 1925 | 604 | 17,500 | Feb. 12, 1925 | 86 | 910 | .895 | 12.15 | 1,110 | 14.79 |
| 1926 | 624 | 14,800 | Mar. 25, 1926 | 88 | 1,190 | 1.17 | 15.84 | 1,190 | 15.90 |
| 1927 | 644 | 15,800 | May 24, 1927 | 70 | 1,410 | 1.39 | 18.81 | 1,790 | 23.90 |
| 1928 | 664 | 42,700 | Dec. 1, 1927 | 72 | 1,660 | 1.63 | 22.16 | 1,120 | 15.02 |
| 1929 | 684 | 26,700 | Apr. 21, 1929 | 71 | 1,490 | 1.47 | 19.93 | 1,530 | 20.41 |
| 1930 | 699 | 20,500 | Feb. 26, 1930 | 65 | 1,200 | 1.18 | 16.09 | 994 | 13.27 |
| 1931 | 714 | 11,600 | May 24, 1931 | 52 | 789 | .776 | 10.54 | 948 | 12.65 |
| 1932 | 729 | 14,200 | Feb. 11, 1932 | 47 | 1,220 | 1.20 | 16.27 | 1,190 | 15.92 |
| 1933 | 744 | 17,200 | Mar. 14, 1933 | 65 | 960 | .944 | 12.82 | 976 | 13.04 |
| 1934 | 759 | 15,200 | Mar. 4, 1934 | 28 | 782 | .769 | 10.42 | 756 | 9.81 |
| 1935 | 784 | 17,400 | July 9, 1935 | 75 | 1,172 | 1.15 | 15.64 | 1,170 | 15.59 |
| 1936 | 804 | 25,500 | Mar. 26, 1936 | 36 | 1,148 | 1.13 | 15.36 | 1,192 | 15.95 |
| 1937 | 824 | 18,100 | Jan. 25, 1937 | 58 | 1,363 | 1.34 | 18.17 | 1,353 | 18.04 |
| 1938 | 854 | 17,200 | Mar. 6, 1938 | 80 | 1,052 | 1.03 | 14.02 | 1,044 | 13.91 |
| 1939 | 874 | 28,400 | Feb. 20, 1939 | 32 | 1,094 | 1.08 | 14.60 | 1,126 | 15.03 |
| 1940 | 894 | 26,500 | Apr. 5, 1940 | 77 | 1,536 | 1.31 | 17.88 | 1,465 | 19.61 |
| 1941 | 924 | 29,400 | Apr. 6, 1941 | 72 | 1,044 | 1.03 | 13.95 | 790 | 10.57 |
| 1942 | 954 | 32,300 | Mar. 17, 1942 | 86 | 1,183 | 1.16 | 15.79 | 1,533 | 20.46 |
| 1943 | 974 | 27,400 | May 26, 1943 | 108 | 1,800 | 1.77 | 24.01 | 1,494 | 19.93 |
| 1944 | 1004 | 15,200 | Mar. 17, 1944 | 83 | 969 | .953 | 12.96 | 957 | 12.81 |
| 1945 | 1034 | 24,600 | Mar. 4, 1945 | 125 | 1,536 | 1.51 | 20.51 | 1,929 | 25.74 |
| 1946 | 1054 | 25,200 | May 28, 1946 | 176 | 1,460 | 1.44 | 19.47 | 1,194 | 15.92 |
| 1947 | 1084 | 28,300 | Apr. 6, 1947 | 156 | 1,619 | 1.65 | 22.39 | 1,538 | 21.28 |
| 1948 | 1114 | 24,100 | Mar. 22, 1948 | 83 | 1,187 | 1.21 | 16.45 | 1,216 | 16.86 |
| 1949 | 1144 | 9,660 | Jan. 6, 1949 | 73 | 882 | .898 | 12.17 | 810 | 11.19 |
| 1950 | 1174 | 31,900 | Mar. 29, 1950 | 80 | 1,141 | 1.16 | 15.79 | - | - |

312. Genesee River at Mount Morris, N. Y.

Location.--Lat 42°44'20", long. 77°52'55", at dam of Mount Morris Water Power Co. in Mount Morris, Livingston County, about 2 miles upstream from Canaseraga Creek

Drainage area.--1,078 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 570 ft (from topographic map).

Remarks.--Discharge over dam and wasteways and through wheels in powerplant computed by Formula and wheel ratings. Diversion through mills determined at gaging station on tailrace below mills. Leakage from wasteway at head of canal and through banks, estimated as varying between 6 cfs and 40 cfs, not included in estimates of total discharge. Records for the period September 1893 to November 1896, published in the Twentieth Annual Report, Part 4, have not been included herein because base data were not available for evaluation of them.

Monthly and yearly mean discharge, in cubic feet per second, of Genesee River at Mount Morris, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1905 | - | - | - | - | - | - | - | - | - | - | - | 324 | - |
| 1906 | 416 | 818 | 1,690 | 1,900 | 643 | 1,520 | 2,450 | 1,230 | 637 | 287 | 522 | 255 | 1,030 |
| 1907 | 1,250 | 1,790 | 1,730 | 2,770 | 696 | 2,990 | 2,130 | 1,400 | 1,140 | 922 | 216 | 234 | 1,450 |
| 1908 | 642 | 848 | 2,370 | 1,100 | 2,450 | 4,520 | 2,070 | 2,950 | 1,280 | 1,030 | 342 | 173 | 1,650 |
| 1909 | 161 | 209 | 230 | 1,540 | 2,870 | 2,170 | 2,940 | 2,660 | 832 | 191 | 148 | - | - |

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1905 | - | - | - | - | - | - | - | - | - | - | - | 0.34 | - |
| 1906 | 0.45 | 0.85 | 1.80 | 2.04 | 0.62 | 1.62 | 2.53 | 1.31 | 0.66 | 0.31 | 0.56 | .26 | 13.01 |
| 1907 | 1.54 | 1.86 | 1.85 | 2.96 | .67 | 3.20 | 2.20 | 1.49 | 1.18 | .99 | .23 | .24 | 18.21 |
| 1908 | .69 | .88 | 2.53 | 1.18 | 2.45 | 4.83 | 2.14 | 3.16 | 1.53 | 1.10 | .37 | .18 | 20.84 |
| 1909 | .17 | .22 | .25 | 1.65 | 2.77 | 2.32 | 3.04 | 2.84 | .86 | .20 | .18 | - | - |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|------|-------------|-------|-----------------|------------------|-------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1905 | 244 | - | - | - | - | - | - | - | - | - |
| 1906 | 244 | - | - | 116 | 1,030 | 0.955 | 13.01 | 1,180 | 14.96 | - |
| 1907 | 244 | - | - | 82 | 1,450 | 1.35 | 18.21 | 1,360 | 17.26 | - |
| 1908 | 244 | - | - | 99 | 1,650 | 1.53 | 20.84 | 1,380 | 17.38 | - |
| 1909 | 284 | - | - | - | - | - | - | - | - | - |

313. Canaseraga Creek near Dansville, N. Y.1/

Location.--Lat 42°33'40", long. 77°42'55", on left bank just downstream from Ossian Street Bridge, half a mile downstream from Mill Creek and 1 mile west of Dansville, Livingston County.

Drainage area.--153 sq mi. October 1917 to September 1919, October 1938 to September 1940, 155 sq mi.

Gage.--Water-stage recorder. Datum of gage is 640.00 ft above mean sea level (levels by New York State Conservation Commission). Prior to Oct. 19, 1920, staff gage at or within 1 mile of present site at various datums. Oct. 19, 1920, to Sept. 30, 1938, water-stage recorder at present site and datum, and Oct. 1, 1938, to Oct. 8, 1940, at site 0.9 mile downstream at datum 15.70 ft lower.

Average discharge.--35 years (1910-12, 1915-16, 1917-19, 1920-50), 152 cfs.

Extremes.--1910-12, 1915-50: Maximum discharge at present site, 8,830 cfs July 23, 1940 (gage height, 13.1 ft, from floodmark), from rating curve extended above 900 cfs on basis of contracted-opening determination of peak flow; maximum at former site, 9,110 cfs July 23, 1940 (gage height, 9.93 ft), from rating curve extended above 2,100 cfs on basis of slope-area determination of peak flow; minimum, 3 cfs Apr. 28, 1912.

Remarks.--For the period March to June 1919 records have been published both for the site near Dansville and for a site near Cumminsville. The Cumminsville record, which is believed to be the better for this period, is published herein.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|-------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | 28.5 | 26.4 | 26.3 | - |
| 1911 | 25.7 | 43.4 | 35.7 | 222 | 249 | 566 | 230 | 78.5 | 60.7 | 24.5 | 42.9 | 47.0 | 135 |
| 1912 | 95.0 | 118 | 198 | 89.1 | 48.6 | 512 | 475 | 267 | 93.2 | 182 | 49.6 | 84.1 | 185 |
| 1913 | 50.3 | 73.8 | 118 | - | - | - | - | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | 119 | 125 | 40.5 | - |
| 1916 | 191 | 115 | 120 | 315 | 81.1 | 524 | 760 | 484 | 464 | 183 | 48.5 | 39.6 | 277 |
| 1917 | 19.7 | 32.7 | 25.3 | 87.1 | 132 | 410 | 166 | 191 | 692 | - | 27.3 | 36.4 | 162 |
| 1918 | 820 | 135 | 112 | 68.4 | 412 | 457 | 194 | 104 | 61.7 | 34.9 | 20.3 | 32.6 | 141 |
| 1919 | 34.4 | 64.5 | 62.0 | 85.2 | 39.1 | 211 | 336 | 569 | 147 | 61.5 | 51.9 | 36.8 | - |
| 1920 | - | - | - | - | - | 524 | 132 | 82.3 | 359.9 | 171 | 47.4 | 35.7 | - |
| 1921 | 56.3 | 112 | 150 | 115 | 136 | 367 | 171 | 72.4 | 32.8 | 37.3 | 26.1 | 35.3 | 109 |
| 1922 | 35.2 | 29.6 | 126 | 124 | 258 | 387 | 261 | 85.3 | 141 | 62.0 | 79.9 | 131 | 164 |
| 1923 | 56.5 | 47.6 | 65.5 | 112 | 116 | 619 | 245 | 116 | 54.8 | 47.0 | 20.3 | 22.5 | 127 |
| 1924 | 26.2 | 36.2 | 97.5 | 201 | 66.6 | 165 | 365 | 331 | 167 | 54.5 | 41.1 | 91.9 | 137 |
| 1925 | 70.5 | 34.1 | 66.8 | 37.2 | 485 | 259 | 162 | 94.3 | 56.7 | 36.3 | 28.9 | 45.7 | 112 |
| 1926 | 103 | 166 | 103 | 123 | 144 | 364 | 389 | 83.6 | 47.6 | 23.5 | 53.1 | 65.2 | 138 |
| 1927 | 119 | 202 | 95.9 | 172 | 205 | 369 | 239 | 394 | 102 | 74.5 | 49.4 | 31.5 | 171 |
| 1928 | 83.9 | 561 | 597 | 149 | 173 | 303 | 377 | 164 | 184 | 66.1 | 47.4 | 23.1 | 227 |
| 1929 | 34.2 | 113 | 142 | 215 | 154 | 484 | 687 | 397 | 70.8 | 44.5 | 27.6 | 23.5 | 198 |
| 1930 | 93.6 | 71.7 | 153 | 334 | 151 | 472 | 254 | 127 | 86.2 | 29.2 | 18.8 | 19.0 | 151 |
| 1931 | 20.6 | 23.3 | 20.4 | 19.0 | 42.3 | 209 | 282 | 308 | 99.3 | 103 | 43.6 | 30.2 | 100 |
| 1932 | 24.3 | 34.0 | 174 | 236 | 156 | 238 | 367 | 292 | 48.4 | 34.5 | 25.4 | 19.0 | 138 |
| 1933 | 32.4 | 102 | 62.1 | 70.2 | 41.4 | 388 | 290 | 158 | 75.6 | 30.0 | 37.7 | 25.4 | 110 |
| 1934 | 30.4 | 54.2 | 82.4 | 157 | 38.4 | 280 | 249 | 46.5 | 23.2 | 16.8 | 17.4 | 16.9 | 84.8 |
| 1935 | 19.2 | 46.8 | 46.8 | 160 | 122 | 316 | 250 | 228 | 53.9 | 438 | 60.1 | 38.6 | 149 |

* Not previously published; estimated on basis of records for nearby streams.

1/ Published as "at Cumminsville" 1918 and 1919.

Monthly and yearly mean discharge, in cubic feet per second, of Canaseraga Creek near Dansville, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1936 | 37.8 | 59.7 | 90.4 | 53.0 | 79.0 | 1,032 | 374 | 125 | 56.7 | 27.3 | 21.5 | 28.6 | 166 |
| 1937 | 21.7 | 34.4 | 65.2 | 255 | 117 | 106 | 505 | 263 | 244 | 63.2 | 41.7 | 24.5 | 145 |
| 1938 | 34.5 | 58.2 | 77.2 | 94.4 | 276 | 320 | 266 | 121 | 64.9 | 34.3 | 27.1 | 120 | 123 |
| 1939 | 42.8 | 68.4 | 117 | 126 | 436 | 454 | 348 | 94.2 | 44.1 | 37.3 | 19.9 | 19.9 | 149 |
| 1940 | 29.1 | 44.0 | 89.9 | 40.7 | 63.8 | 331 | 778 | 161 | 158 | 109 | 46.2 | 50.0 | 158 |
| 1941 | 42.3 | 86.1 | 275 | 127 | 93.0 | 255 | 528 | 81.4 | 43.1 | 27.0 | 20.7 | 15.4 | 133 |
| 1942 | 18.7 | 22.3 | 35.4 | 50.6 | 68.6 | 747 | 326 | 146 | 131 | 121 | 61.3 | 36.1 | 148 |
| 1943 | 50.5 | 166 | 293 | 218 | 259 | 268 | 320 | 635 | 190 | 63.7 | 43.8 | 29.3 | 211 |
| 1944 | 40.6 | 70.1 | 46.5 | 48.8 | 100 | 279 | 346 | 256 | 156 | 54.6 | 26.9 | 25.3 | 121 |
| 1945 | 34.8 | 35.7 | 68.0 | 76.0 | 241 | 866 | 241 | 392 | 175 | 110 | 86.7 | 117 | 204 |
| 1946 | 214 | 240 | 246 | 282 | 77.6 | 255 | 84.4 | 157 | 229 | 70.0 | 49.1 | 44.9 | 163 |
| 1947 | 101 | 117 | 128 | 336 | 162 | 254 | 688 | 403 | 224 | 77.3 | 77.2 | 56.6 | 218 |
| 1948 | 28.7 | 49.5 | 70.1 | 35.0 | 201 | 461 | 321 | 230 | 118 | 45.3 | 40.4 | 25.5 | 135 |
| 1949 | 32.0 | 46.4 | 54.0 | 203 | 213 | 170 | 190 | 111 | 39.7 | 23.3 | 26.4 | 26.8 | 93.8 |
| 1950 | 22.9 | 32.1 | 72.5 | 215 | 102 | 494 | 409 | 101 | 52.5 | 74.0 | 30.4 | 31.4 | 137 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|-------|------|------|------|-------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | #0.21 | 0.20 | 0.19 | - |
| 1911 | 0.19 | 0.32 | #0.27 | #1.67 | #1.69 | 4.26 | 1.68 | 0.59 | 0.44 | .18 | .32 | .34 | #11.95 |
| 1912 | .72 | .86 | 1.49 | #.67 | #.34 | #3.86 | 3.46 | 2.01 | .68 | 1.37 | .37 | .61 | #16.44 |
| 1913 | .38 | .54 | .89 | - | - | - | - | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | #.90 | .94 | .30 | - |
| 1916 | 1.44 | .84 | .90 | 2.37 | #.57 | #3.95 | 5.54 | 3.64 | 3.38 | 1.38 | .37 | .29 | #24.67 |
| 1917 | .15 | .24 | .19 | #.69 | #.90 | 3.09 | 1.21 | 1.44 | 5.05 | - | - | - | - |
| 1918 | #2.38 | .97 | .83 | .51 | 2.77 | 3.40 | 1.39 | .77 | .44 | .26 | .20 | .26 | #14.18 |
| 1919 | .26 | .39 | .46 | .63 | .26 | 1.57 | 2.42 | 4.23 | 1.06 | .46 | .39 | .23 | 12.36 |
| 1920 | - | - | - | - | - | #2.44 | .96 | .62 | #.29 | 1.29 | .36 | .25 | - |
| 1921 | .42 | .82 | 1.13 | .86 | .93 | 2.77 | 1.25 | .55 | .24 | .28 | .20 | .26 | 9.71 |
| 1922 | .27 | 2.16 | .95 | .93 | 1.75 | 2.92 | 1.90 | .64 | 1.03 | .47 | .60 | .95 | 14.57 |
| 1923 | .43 | .35 | .49 | .84 | .79 | 4.66 | 1.79 | .88 | .40 | .35 | .15 | .16 | 11.29 |
| 1924 | .20 | .26 | .73 | 1.52 | .47 | 1.24 | 2.66 | 2.49 | 1.22 | .41 | .31 | .67 | 12.18 |
| 1925 | .53 | .25 | .50 | .29 | 3.30 | 1.95 | 1.18 | .71 | .41 | .29 | .22 | .33 | 9.95 |
| 1926 | .77 | 1.21 | .78 | .92 | .98 | 2.74 | 2.84 | .63 | .35 | .18 | .40 | .48 | 12.28 |
| 1927 | .90 | 1.48 | .72 | 1.29 | 1.39 | 2.78 | 1.75 | 2.97 | .74 | .56 | .37 | .23 | 15.18 |
| 1928 | .63 | 4.09 | 4.50 | 1.13 | 1.22 | 2.28 | 2.75 | 1.24 | 1.34 | .50 | .36 | .17 | 20.21 |
| 1929 | .26 | .82 | 1.07 | 1.62 | 1.05 | 3.65 | 4.87 | 3.00 | .52 | .34 | .21 | .17 | 17.58 |
| 1930 | .71 | .52 | 1.15 | 2.52 | 1.03 | 3.56 | 1.85 | .95 | .63 | .22 | .14 | .14 | 13.42 |
| 1931 | .16 | .17 | .15 | .14 | .29 | 1.57 | 2.06 | 2.32 | .72 | .78 | .33 | .22 | 8.91 |
| 1932 | .18 | .25 | 1.31 | 1.78 | 1.10 | 1.79 | 2.68 | 2.20 | .35 | .26 | .19 | .14 | 12.23 |
| 1933 | .24 | .74 | .47 | .53 | .28 | 2.92 | 2.11 | 1.17 | .55 | .23 | .28 | .18 | 9.70 |
| 1934 | .23 | .40 | .62 | 1.19 | .26 | 2.11 | 1.82 | .35 | .17 | .12 | .13 | .12 | 7.52 |
| 1935 | .14 | .34 | .35 | 1.21 | .83 | 2.59 | 1.82 | 1.72 | .39 | 3.30 | .45 | .28 | 13.22 |
| 1936 | .28 | .44 | .68 | .40 | .56 | 7.78 | 2.72 | .94 | .41 | .21 | .16 | .21 | 14.79 |
| 1937 | .16 | .25 | .49 | 1.92 | .80 | .80 | 3.68 | 1.98 | 1.77 | .48 | .31 | .18 | 12.62 |
| 1938 | .26 | .42 | .58 | .71 | 1.87 | 2.41 | 1.94 | .91 | .47 | .26 | .20 | .87 | 10.90 |
| 1939 | .32 | .49 | .87 | .94 | 2.93 | 3.58 | 2.51 | .70 | .32 | .28 | .15 | .14 | 13.03 |
| 1940 | .22 | .32 | .67 | .30 | .44 | 2.47 | 5.60 | 1.20 | 1.14 | .81 | .34 | .36 | 13.87 |
| 1941 | .32 | .63 | 2.08 | .96 | .63 | 1.92 | 3.95 | .61 | .31 | .20 | .16 | .11 | 11.78 |
| 1942 | .14 | .16 | .27 | .38 | .47 | 5.63 | 2.38 | 1.10 | .96 | .91 | .35 | .26 | 13.12 |
| 1943 | .38 | 1.21 | 2.21 | 1.64 | 1.76 | 2.02 | 2.34 | 4.78 | 1.39 | .48 | .33 | .21 | 18.75 |
| 1944 | .31 | .51 | .35 | .37 | .71 | 2.10 | 2.53 | 1.93 | 1.14 | .41 | .20 | .18 | 10.74 |
| 1945 | .26 | .26 | .56 | .51 | .57 | 6.53 | 1.75 | 2.95 | 1.28 | .83 | .65 | .85 | 18.08 |
| 1946 | 1.61 | 1.75 | 1.98 | 2.12 | .53 | 1.92 | .82 | 1.18 | 1.67 | .53 | .37 | .33 | 14.49 |
| 1947 | .76 | .85 | .96 | 2.53 | 1.10 | 1.91 | 5.02 | 3.03 | 1.63 | .58 | .58 | .41 | 19.36 |
| 1948 | .22 | .36 | .53 | .26 | 1.42 | 3.47 | 2.34 | 1.73 | .86 | .34 | .30 | .19 | 12.02 |
| 1949 | .24 | .34 | .41 | 1.53 | 1.45 | 1.28 | 1.39 | .83 | .29 | .18 | .20 | .20 | 8.34 |
| 1950 | .17 | .23 | .55 | 1.62 | .69 | 3.72 | 2.99 | .76 | .38 | .56 | .23 | .23 | 12.13 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1910 | 324 | - | - | - | - | - | - | - | - |
| 1911 | 324 | #1,880 | Mar. 27, 1911* | 10 | #135 | #0.882 | #11.95 | #161 | #14.24 |
| 1912 | 324 | #4,900 | July 9, 1912 | 3 | #185 | #1.21 | #16.44 | #171 | #15.18 |
| 1913 | 324 | - | - | - | - | - | - | - | - |
| 1915 | 404 | - | - | - | - | - | - | - | - |
| 1916 | 434 | 6,600 | May 16, 1916 | #32 | #277 | #1.81 | #24.67 | #248 | #22.07 |
| 1917 | 454 | 2,380 | June 11, 1917 | - | - | - | - | - | - |
| 1918 | 504 | 3,790 | Feb. 12, 1918 | 21 | #162 | #1.05 | #14.18 | 127 | 11.11 |
| 1919 | 504 | 6,540 | May 22, 1919 | 21 | 141 | .910 | 12.36 | - | - |
| 1920 | 504 | 3,950 | July 24, 1920 | - | - | - | - | - | - |
| 1921 | 524 | 1,270 | Mar. 9, 1921 | 18 | 109 | .712 | 9.71 | 121 | 10.72 |
| 1922 | 544 | 3,500 | Sept. 4, 1922 | 23 | 164 | 1.07 | 14.57 | 141 | 12.46 |
| 1923 | 604 | 3,570 | Mar. 4, 1923 | 17 | 127 | .830 | 11.29 | 127 | 11.21 |
| 1924 | 604 | 1,830 | Sept. 30, 1924 | 19 | 137 | .895 | 12.18 | 138 | 12.27 |
| 1925 | 604 | 3,240 | Feb. 11, 1925 | 22 | 112 | .732 | 9.95 | 129 | 11.43 |

* Not previously published.

| Yearly discharge, in cubic feet per second, of Canaseraga Creek near Dansville, N. Y.--Continued | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | 2,100 | Apr. 8, 1926 | 19 | 138 | 0.902 | 12.28 | 142 | 12.62 |
| 1927 | 644 | 2,600 | May 24, 1927 | 29 | 171 | 1.12 | 15.18 | 240 | 21.30 |
| 1928 | 664 | 6,900 | Nov. 30, 1927 | 19 | 227 | 1.48 | 20.21 | 148 | 13.14 |
| 1929 | 684 | 6,150 | Apr. 21, 1929 | 18 | 196 | 1.29 | 17.58 | 201 | 17.81 |
| 1930 | 699 | 1,850 | Mar. 17, 1930 | 15 | 151 | .987 | 13.42 | 130 | 11.52 |
| 1931 | 714 | 2,400 | May 13, 1931 | 13 | 100 | .654 | 8.91 | 115 | 10.17 |
| 1932 | 729 | 3,350 | May 9, 1932 | 16 | 138 | .902 | 12.23 | 134 | 11.94 |
| 1933 | 744 | 3,160 | Mar. 14, 1933 | 16 | 110 | .719 | 9.70 | 107 | 9.50 |
| 1934 | 759 | - | - | 12 | 84.8 | .554 | 7.52 | 80.2 | 7.10 |
| 1935 | 784, 894 | 6,390 | July 8, 1935 | 14 | 149 | .974 | 13.22 | 155 | 13.79 |
| 1936 | 804 | 4,240 | Mar. 25, 1936 | 18 | 166 | 1.08 | 14.79 | 161 | 14.29 |
| 1937 | 824 | 2,830 | June 21, 1937 | 17 | 145 | .948 | 12.82 | 149 | 13.18 |
| 1938 | 854 | 4,420 | Mar. 5, 1938 | 16 | 123 | .804 | 10.90 | *128 | *11.32 |
| 1939 | 874 | 4,860 | Feb. 20, 1939 | 16 | 149 | .961 | 13.03 | 143 | 12.56 |
| 1940 | 894 | 9,110 | July 23, 1940 | 20 | 158 | 1.02 | 13.87 | 178 | 15.69 |
| 1941 | 924 | 5,860 | Apr. 5, 1941 | 11 | 133 | .869 | 11.78 | 105 | 9.32 |
| 1942 | 954 | 8,400 | Mar. 17, 1942 | 14 | 148 | .967 | 13.12 | 184 | 16.35 |
| 1943 | 974 | 7,560 | May 28, 1943 | 25 | 211 | 1.38 | 18.75 | 182 | 16.12 |
| 1944 | 1004 | 4,490 | Mar. 16, 1944 | 21 | 121 | .791 | 10.74 | 119 | 10.60 |
| 1945 | 1034 | 6,370 | May 17, 1945 | 24 | 204 | 1.33 | 18.08 | 251 | 22.27 |
| 1946 | 1054 | 4,260 | June 1, 1946 | 26 | 163 | 1.07 | 14.49 | 133 | 11.84 |
| 1947 | 1084 | 4,310 | Apr. 5, 1947 | 32 | 218 | 1.42 | 19.36 | 202 | 17.90 |
| 1948 | 1114 | 6,350 | Mar. 19, 1948 | 19 | 135 | .882 | 12.02 | 134 | 11.90 |
| 1949 | 1144 | 1,680 | Feb. 14, 1949 | 16 | 93.8 | .613 | 8.34 | 93.4 | 8.30 |
| 1950 | 1174 | 7,170 | Mar. 28, 1950 | 18 | 137 | .895 | 12.13 | - | - |

* Not previously published.

314. Canaseraga Creek at Groveland Station, N. Y.

Location.--Lat 42°39'40", long. 77°46'10", near center of downstream side of highway bridge at Groveland Station, Livingston County.

Drainage area.--181 sq mi (revised).

Supplemental records available.--August 1915 to February 1917, gage heights and discharge measurements only.

Gage.--Chain gage. Datum of gage is 560.00 ft above mean sea level (Conservation Commission datum). Prior to Mar. 30, 1916, inclined staff gage on right bank about 400 ft upstream at about same datum.

Extremes.--1915-20: Maximum discharge, 4,380 cfs May 22, 1919 (gage height, 18.05 ft); minimum observed, 19 cfs Nov. 12, 16, 1918.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1917 | - | - | - | - | - | 455 | 217 | - | 364 | 280 | 74.5 | - | - |
| 1918 | 412 | 196 | - | - | - | - | 226 | 122 | 65.4 | 39.6 | 29.4 | 41.8 | - |
| 1919 | 61.2 | 86.6 | 132 | 123 | 59.1 | 214 | 351 | 686 | 171 | 71.5 | 59.9 | 46.6 | 173 |
| 1920 | 46.4 | - | - | - | - | - | - | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1917 | - | - | - | - | - | 2.90 | 1.34 | - | 2.24 | 1.78 | 0.47 | - | - |
| 1918 | 2.63 | 1.21 | - | - | - | - | 1.41 | 0.77 | 1.40 | .25 | .19 | 0.26 | - |
| 1919 | .39 | .53 | 0.84 | 0.78 | 0.34 | 1.36 | 2.17 | 4.37 | 1.05 | .46 | .38 | .29 | 12.96 |
| 1920 | .30 | - | - | - | - | - | - | - | - | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1917 | 454 | 4,170 | July 29, 1917 | - | - | - | - | - |
| 1918 | 474 | - | - | - | - | - | - | - |
| 1919 | 504 | 4,380 | May 22, 1919 | 25 | 173 | 0.956 | 12.96 | - |
| 1920 | 504 | - | - | - | - | - | - | - |

315. Keshequa Creek at Craig Colony, Sonyea, N. Y. 1/

Location.--Lat 42°40'55", long. 77°49'45", on right bank 200 ft downstream from private bridge on grounds of Craig Colony at Sonyea, Livingston County, about 2 miles upstream from mouth.

Drainage area.--69.1 sq mi. September 1915 to October 1917, 76.5 sq mi.

Gage.--Staff gage. Altitude of gage is 600 ft (from topographic map). Prior to Dec. 31, 1912, staff or chain gage at highway bridge 200 ft upstream at different datum; Aug. 29, 1915, to Oct. 31, 1917, staff gage at site about 1 mile downstream near Delaware, Lackawanna and Western Railroad bridge at different datum.

Average discharge.--15 years (1917-32), 49.7 cfs.

Extremes.--1911-12, 1917-32: Maximum discharge, 5,940 cfs Mar. 14, 1918, May 22, 1919; minimum, about 0.1 cfs Sept. 8-21, 1932.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1911 | - | - | - | - | - | 156 | 88.5 | 25.6 | 8.6 | 5.2 | 6.2 | 35.8 | - |
| 1912 | 24.0 | 58.6 | 72.9 | - | - | 237 | 224 | 40.9 | 7.1 | 7.5 | 4.9 | 8.9 | - |
| 1913 | 10.4 | 16.5 | 37.5 | - | - | - | - | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | - | - | 4.08 | - |
| 1916 | 53.0 | 37.5 | 65.8 | - | - | - | 327 | 170 | 72.8 | 13.8 | 4.0 | 5.7 | - |
| 1917 | .832 | 5.26 | 14.9 | - | - | - | - | - | - | - | 12.4 | 19.2 | - |
| 1918 | 146 | 36.6 | 38.3 | 10.7 | 146 | 191 | 65.8 | 45.6 | 13.4 | 5.32 | 3.23 | 5.96 | 58.6 |
| 1919 | 12.8 | 15.7 | 24.0 | 25.4 | 11.1 | 50.0 | 96.0 | 223 | 34.3 | 6.27 | 7.65 | 5.90 | 43.0 |
| 1920 | 11.1 | 24.9 | 23.6 | 1.19 | 1.90 | 203 | 37.8 | 22.1 | 13.6 | 56.8 | 14.5 | 9.57 | 35.3 |
| 1921 | 15.0 | 52.0 | 52.2 | 38.5 | 62.0 | 142 | 70.6 | 20.9 | 6.57 | 3.58 | 3.51 | 3.07 | 39.1 |
| 1922 | 5.60 | 87.9 | 32.8 | 39.5 | 118 | 156 | 80.1 | 22.0 | 45.2 | 16.8 | 20.4 | 9.29 | 52.1 |
| 1923 | 8.73 | 8.34 | 11.5 | 39.1 | 39.4 | 198 | 71.8 | 22.3 | 7.32 | 13.6 | 1.80 | 3.19 | 35.5 |
| 1924 | 3.66 | 7.38 | 29.3 | 65.8 | 20.7 | 84.5 | 154 | 147 | 27.5 | 7.48 | 6.83 | 44.6 | 50.0 |
| 1925 | 18.3 | 8.66 | 21.1 | 9.46 | 207 | 101 | 45.4 | 15.4 | 5.96 | 5.14 | 5.81 | 5.83 | 36.3 |
| 1926 | 27.8 | 68.7 | 31.5 | 38.7 | 50.0 | 138 | 147 | 17.0 | 10.7 | 3.72 | 13.4 | 16.9 | 46.8 |
| 1927 | 36.4 | 65.3 | 37.7 | 65.5 | 84.7 | 124 | 73.5 | 125 | 17.9 | 15.4 | 8.83 | 3.60 | 54.7 |
| 1928 | 21.7 | 298 | 210 | 54.3 | 75.2 | 94.5 | 109 | 36.1 | 113 | 13.5 | 17.0 | 4.78 | 86.8 |
| 1929 | 8.75 | 35.6 | 39.8 | 79.6 | 64.9 | 158 | 238 | 148 | 15.9 | 7.15 | 2.78 | 3.09 | 66.8 |
| 1930 | 18.5 | 17.4 | 54.7 | 179 | 74.2 | 198 | 66.7 | 22.6 | 18.1 | 4.51 | 1.07 | 1.58 | 54.8 |
| 1931 | 3.02 | 4.60 | 5.09 | 4.88 | 16.4 | 63.4 | 90.8 | 184 | 18.6 | 6.19 | 4.13 | 3.29 | 33.9 |
| 1932 | 2.95 | 6.84 | 42.7 | 124 | 74.1 | 115 | 116 | 123 | 8.08 | 4.50 | 1.39 | .573 | 51.8 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1911 | - | - | - | - | - | 2.60 | 1.43 | 0.43 | 0.14 | 0.09 | 0.10 | 0.58 | - |
| 1912 | 0.40 | 0.95 | 1.22 | - | - | 3.95 | 3.62 | .68 | .11 | .13 | .08 | .14 | - |
| 1913 | .17 | .27 | .63 | - | - | - | - | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | - | - | .06 | - |
| 1916 | .80 | .55 | .99 | - | - | - | 4.76 | 2.56 | 1.06 | .21 | .06 | .08 | - |
| 1917 | .01 | .08 | .22 | - | - | - | - | - | - | - | .19 | .28 | - |
| 1918 | 2.20 | .59 | .64 | 0.18 | 2.20 | 3.19 | 1.06 | .76 | .22 | .09 | .05 | .10 | 11.28 |
| 1919 | .21 | .25 | .40 | .42 | .17 | .83 | 1.55 | 3.71 | .55 | .10 | .13 | .10 | 8.42 |
| 1920 | .19 | .40 | .39 | .02 | .03 | 3.38 | .61 | .37 | .22 | .95 | .24 | .15 | 6.95 |
| 1921 | .25 | .84 | .87 | .64 | .93 | 2.37 | 1.14 | .35 | .11 | .06 | .06 | .05 | 7.67 |
| 1922 | .09 | 1.42 | .55 | .66 | 1.75 | 2.60 | 1.29 | .37 | .73 | .28 | .34 | .15 | 10.23 |
| 1923 | .15 | .13 | .19 | .65 | .59 | 3.31 | 1.16 | .37 | .12 | .23 | .03 | .05 | 6.98 |
| 1924 | .06 | .32 | .49 | 1.10 | .32 | 1.41 | 2.49 | 2.46 | .44 | .12 | .11 | .72 | 9.84 |
| 1925 | .31 | .14 | .35 | .16 | 3.12 | 1.69 | .73 | .26 | .10 | .09 | .10 | .09 | 7.14 |
| 1926 | .46 | 1.11 | .53 | .65 | .75 | 2.30 | 2.38 | .28 | .17 | .06 | .22 | .27 | 9.18 |
| 1927 | .61 | 1.05 | .63 | 1.09 | 1.28 | 2.07 | 1.19 | 2.08 | .29 | .26 | .15 | .06 | 10.76 |
| 1928 | .36 | 4.82 | 3.50 | .91 | 1.17 | 1.58 | 1.77 | .60 | 1.82 | .23 | .28 | .08 | 17.12 |
| 1929 | .15 | .57 | .66 | 1.33 | .98 | 2.64 | 3.84 | 2.48 | .26 | .12 | .05 | .05 | 13.15 |
| 1930 | .31 | .28 | .91 | 2.98 | 1.12 | 3.30 | 1.08 | .38 | .29 | .09 | .02 | .03 | 10.79 |
| 1931 | .05 | .07 | .08 | .08 | .25 | 1.06 | 1.47 | 3.07 | .30 | .10 | .07 | .05 | 6.65 |
| 1932 | .05 | .11 | .71 | 2.07 | 1.16 | 1.92 | 1.88 | 2.05 | .13 | .08 | .02 | .01 | 10.19 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|-------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1911 | 304, 324 | - | - | - | - | - | - | - | - | - |
| 1912 | 324 | - | - | - | - | - | - | - | - | - |
| 1913 | 324 | - | - | - | - | - | - | - | - | - |
| 1915 | 404 | - | - | - | - | - | - | - | - | - |
| 1916 | 434 | - | - | - | - | - | - | - | - | - |
| 1917 | 454 | - | - | - | - | - | - | - | - | - |
| 1918 | 474 | †5,940 | Mar. 14, 1918 | - | 0.8 | 58.6 | 0.848 | 11.28 | 44.3 | 8.71 |
| 1919 | 504 | 5,940 | May 22, 1919 | - | 1.8 | 43.0 | .622 | 8.42 | 43.5 | 8.54 |
| 1920 | 504 | 3,310 | Mar. 12, 1920 | 1 | 35.3 | .511 | 6.95 | 40.3 | 7.93 | |
| 1921 | 524 | 1,410 | Feb. 16, 1921 | 1.3 | 39.1 | .566 | 7.67 | 39.6 | 7.77 | |
| 1922 | 544 | 1,840 | Mar. 7, 1922 | 3.2 | 52.1 | .754 | 10.23 | 44.0 | 8.64 | |
| 1923 | 564 | 1,780 | Mar. 3, 1923 | .9 | 55.5 | .514 | 6.98 | 35.5 | 7.18 | |
| 1924 | 584 | 2,500 | May 12, 1924 | 1.5 | 50.0 | .724 | 9.84 | 50.6 | 9.97 | |
| 1925 | 604 | 2,000 | Feb. 11, 1925 | 1.1 | 36.3 | .525 | 7.14 | 42.9 | 8.44 | |

† Corrected.

1/ Published as "at Sonyea", 1911-13, and as "near Sonyea", 1915-17.

Yearly discharge, in cubic feet per second, of Keshequa Creek at Craig Colony, Seneca, N. Y.--Con.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | 2,160 | Apr. 8, 1926 | 1.3 | 46.8 | 0.677 | 9.18 | 47.8 | 9.37 |
| 1927 | 644 | 1,990 | May 9, 1927 | 1.5 | 54.7 | 0.792 | 10.76 | 87.2 | 17.15 |
| 1928 | 664 | 5,640 | Nov. 17, 1927 | 1.8 | 86.8 | 1.26 | 17.12 | 49.8 | 9.82 |
| 1929 | 684 | 2,200 | Apr. 21, 1929 | .8 | 66.8 | .967 | 13.13 | 67.4 | 13.25 |
| 1930 | 699 | 2,330 | Jan. 14, 1930 | .2 | 54.8 | .793 | 10.78 | 48.2 | 9.48 |
| 1931 | 714 | 5,500 | May 12, 1931 | .9 | 33.9 | .491 | 6.65 | 37.2 | 7.32 |
| 1932 | 729 | 3,110 | May 9, 1932 | .1 | 51.8 | .750 | 10.19 | - | - |

* Not previously published.

316. Genesee River at Jones Bridge, near Mount Morris, N. Y.

Location.--Lat 42°45'55", long. 77°50'25", on right bank at Jones Bridge, 1½ miles downstream from Canaseraga Creek and 3½ miles northeast of Mount Morris, Livingston County.

Drainage area.--1,419 sq mi.

Gage.--Water-stage recorder. Datum of gage is 540.00 ft above mean sea level (levels by New York State Conservation Commission). Prior to Sept. 11, 1915, chain gage on bridge at datum 2.73 ft lower.

Average discharge.--40 years (1908-13, 1915-50), 1,583 cfs.

Extremes.--1903-6, 1908-14, 1915-50: Maximum discharge, 55,100 cfs May 17, 1916 (gage height, 25.44 ft); minimum, 18 cfs Aug. 29, 1909; minimum daily, 30 cfs Aug. 8, 1909.

Remarks.--Diurnal fluctuation at low flow caused by powerplants. Slight seasonal regulation by Rushford Lake since July 1928 (capacity, 1,106,000,000 cu ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1903 | - | - | - | - | - | - | - | - | 626 | 479 | 1,208 | 757 | - |
| 1904 | 982 | 1,061 | 1,006 | - | - | - | - | 2,029 | 1,229 | 735 | 323 | 267 | - |
| 1905 | 704 | 308 | 939 | - | - | - | - | 598 | 1,346 | 828 | 583 | 311 | - |
| 1906 | 359 | 784 | 1,921 | 2,830 | 650 | 1,690 | 3,290 | - | - | - | - | - | - |
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 171 | - |
| 1909 | 151 | 216 | 230 | 2,120 | 3,980 | 2,590 | 3,290 | 3,430 | 1,040 | 240 | 102 | 112 | 1,440 |
| 1910 | 217 | 288 | 261 | 1,400 | 1,000 | 6,990 | 3,510 | 2,630 | 541 | 226 | 178 | 316 | 1,470 |
| 1911 | 300 | 989 | 900 | 3,500 | 2,200 | 3,950 | 3,120 | 7895 | 7636 | 7188 | 7578 | 7766 | 1,500 |
| 1912 | 1,070 | 1,550 | 2,150 | 780 | 580 | 4,500 | 6,110 | 1,680 | 377 | 256 | 296 | 701 | 1,670 |
| 1913 | 921 | 983 | 1,340 | 5,900 | 881 | 6,670 | 3,450 | 1,520 | 657 | 216 | 123 | 116 | *1,900 |
| 1914 | 304 | 1,060 | 529 | - | - | 4,280 | 4,800 | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | - | 1,380 | 422 | - |
| 1916 | 1,630 | 1,080 | 1,420 | 3,610 | 797 | 4,430 | 8,450 | 5,190 | 3,940 | 693 | 232 | 198 | 2,640 |
| 1917 | 228 | 590 | 586 | 1,190 | 1,280 | 4,300 | 2,270 | 1,880 | 3,040 | 2,360 | 794 | 681 | 1,600 |
| 1918 | 4,550 | 1,500 | 810 | 344 | 3,640 | 5,940 | 2,130 | 1,040 | 590 | 215 | 221 | 616 | 1,790 |
| 1919 | 658 | 1,340 | 1,390 | 1,260 | 575 | 1,970 | 3,350 | 6,550 | 1,040 | 446 | 542 | 318 | †1,630 |
| 1920 | 404 | 1,410 | 1,180 | 356 | 356 | 5,130 | 1,670 | 982 | 401 | 1,630 | 534 | 270 | 1,200 |
| 1921 | 542 | 1,350 | 1,760 | 1,270 | 1,730 | 3,920 | 1,940 | 929 | 322 | 547 | 267 | 187 | 1,230 |
| 1922 | 288 | 3,160 | 1,280 | 1,030 | 2,690 | 3,680 | 3,210 | 788 | 1,850 | 789 | 1,100 | 567 | 1,690 |
| 1923 | 305 | 301 | 640 | 1,120 | 1,110 | 5,220 | 2,440 | 1,150 | 397 | 282 | 168 | 145 | 1,110 |
| 1924 | 188 | 298 | 1,300 | 2,780 | 606 | 2,290 | 4,260 | 3,330 | 1,180 | 539 | 322 | 1,010 | 1,510 |
| 1925 | 1,320 | 259 | 1,100 | 430 | 5,190 | 2,960 | 1,680 | 905 | 323 | 335 | 455 | 356 | 1,250 |
| 1926 | 1,370 | 2,480 | 1,270 | 1,360 | 1,120 | 3,770 | 4,290 | 739 | 489 | 223 | 425 | 713 | 1,520 |
| 1927 | 1,650 | 2,790 | 1,040 | 1,840 | 2,720 | 4,520 | 2,330 | 3,490 | 731 | 390 | 459 | 158 | 1,840 |
| 1928 | 603 | 5,450 | 6,320 | 1,730 | 1,710 | 3,070 | 3,710 | 1,430 | 2,550 | 724 | 388 | 192 | 2,320 |
| 1929 | 297 | 1,190 | 1,880 | 2,540 | 1,150 | 5,240 | 6,560 | 3,850 | 611 | 417 | 185 | 194 | 2,020 |
| 1930 | 843 | 874 | 2,130 | 4,380 | 2,560 | 4,000 | 2,300 | 979 | 780 | 265 | 176 | 143 | 1,620 |
| 1931 | 119 | 215 | 251 | 252 | 435 | 1,950 | 3,280 | 3,240 | 1,110 | 495 | 361 | 267 | 999 |
| 1932 | 221 | 496 | 2,050 | 3,300 | 2,550 | 2,620 | 3,680 | 2,950 | 408 | 294 | 114 | 113 | 1,560 |
| 1933 | 277 | 1,310 | 841 | 1,150 | 570 | 3,780 | 3,000 | 1,730 | 1,240 | 292 | 379 | 271 | 1,240 |
| 1934 | 288 | 772 | 1,552 | 2,144 | 489 | 2,805 | 2,688 | 410 | 146 | 84.3 | 82.8 | 154 | 972 |
| 1935 | 261 | 828 | 752 | 1,955 | 1,397 | 3,886 | 2,470 | 2,231 | 477 | 1,937 | 580 | 426 | 1,438 |
| 1936 | 447 | 695 | 943 | 529 | 777 | 10,010 | 3,856 | 927 | 355 | 109 | 127 | 203 | 1,589 |
| 1937 | 240 | 824 | 1,394 | 4,011 | 1,474 | 1,269 | 4,810 | 2,751 | 2,570 | 441 | 780 | 378 | 1,745 |
| 1938 | 562 | 958 | 1,097 | 1,137 | 3,464 | 3,286 | 2,798 | 1,171 | 601 | 421 | 427 | 834 | 1,580 |
| 1939 | 508 | 709 | 1,142 | 1,291 | 3,500 | 4,536 | 3,251 | 703 | 331 | 231 | 106 | 154 | 1,358 |
| 1940 | 459 | 736 | 1,313 | 520 | 643 | 2,592 | 9,914 | 1,311 | 1,384 | 771 | 351 | 559 | 1,703 |
| 1941 | 405 | 945 | 3,209 | 1,357 | 936 | 2,210 | 4,657 | 529 | 396 | 266 | 250 | 200 | 1,280 |
| 1942 | 227 | 216 | 548 | 690 | 778 | 7,123 | 3,351 | 1,467 | 661 | 1,493 | 627 | 752 | 1,503 |
| 1943 | 854 | 2,338 | 2,923 | 2,661 | 3,199 | 3,384 | 3,655 | 6,388 | 1,629 | 372 | 411 | 220 | 2,333 |
| 1944 | 348 | 820 | 579 | 634 | 1,304 | 2,991 | 3,562 | 2,457 | 1,243 | 458 | 276 | 339 | 1,251 |
| 1945 | 300 | 346 | 899 | 900 | 2,120 | 8,947 | 2,382 | 3,363 | 1,566 | 1,155 | 544 | 1,096 | 1,974 |
| 1946 | 2,913 | 2,514 | 2,411 | 2,800 | 813 | 2,787 | 636 | 2,426 | 2,897 | 1,006 | 670 | 331 | 1,862 |
| 1947 | 892 | 1,209 | 1,451 | 3,266 | 1,592 | 2,476 | 6,851 | 4,009 | 2,172 | 640 | 589 | 459 | 2,132 |
| 1948 | 234 | 614 | 1,221 | 520 | 2,536 | 5,494 | 3,776 | 2,331 | 1,069 | 359 | 467 | 224 | 1,566 |
| 1949 | 410 | 774 | 993 | 2,480 | 2,156 | 1,801 | 2,345 | 1,118 | 305 | 156 | 322 | 249 | 1,086 |
| 1950 | 244 | 208 | 911 | 2,299 | 1,204 | 4,932 | 4,815 | 1,439 | 519 | 455 | 172 | 354 | 1,465 |

* Revised.

† Corrected.

STREAMS TRIBUTARY TO LAKE ONTARIO

277

| Monthly and yearly runoff, in inches, of Genesee River at Jones Bridge, near Mount Morris, N. Y. | | | | | | | | | | | | | |
|--|------|------|------|------|------|-------|------|------|------|-------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1903 | - | - | - | - | - | - | - | - | 0.49 | †0.39 | 0.98 | 0.60 | - |
| 1904 | 0.80 | 0.83 | 0.82 | 1.66 | - | - | - | 1.65 | .97 | .60 | .26 | .21 | - |
| 1905 | .57 | .24 | - | - | - | - | - | .49 | 1.06 | .67 | .47 | .24 | - |
| 1906 | .29 | .62 | 1.56 | 2.30 | 0.48 | 1.37 | 2.58 | - | - | - | - | - | - |
| 1907 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1908 | - | .17 | - | - | - | - | - | - | - | - | - | .13 | - |
| 1909 | .12 | .17 | .19 | 1.72 | 2.92 | 2.10 | 2.59 | 2.78 | .82 | .20 | .08 | .09 | 13.78 |
| 1910 | .18 | .23 | .21 | 1.14 | .73 | 5.68 | 2.76 | 2.14 | .43 | .18 | .14 | .25 | 14.07 |
| 1911 | .24 | .78 | .73 | 2.84 | 1.61 | 3.21 | 2.45 | .73 | .50 | .15 | .47 | .60 | 14.31 |
| 1912 | .87 | 1.22 | 1.75 | .63 | .44 | 3.66 | 4.81 | 1.36 | .30 | .21 | .24 | .55 | 16.04 |
| 1913 | .67 | .77 | 1.09 | 4.80 | .65 | *5.42 | 2.72 | 1.23 | .52 | .18 | .10 | .09 | *18.24 |
| 1914 | .25 | .84 | .43 | - | - | 3.48 | 3.77 | - | - | - | - | - | - |
| 1915 | - | - | - | - | - | - | - | - | - | - | 1.12 | .33 | - |
| 1916 | 1.32 | .85 | 1.16 | 2.95 | .61 | 3.60 | 6.64 | 4.22 | 3.10 | .58 | .19 | .16 | 25.34 |
| 1917 | .18 | .48 | .48 | .96 | .94 | 3.50 | 1.78 | 1.53 | 2.39 | 1.92 | .65 | .54 | 15.33 |
| 1918 | 3.69 | 1.18 | .66 | .28 | 2.67 | 4.83 | 1.67 | .84 | .46 | .17 | .18 | .48 | 17.11 |
| 1919 | .53 | .05 | 1.13 | 1.02 | .42 | 1.60 | 2.63 | 5.32 | .82 | .36 | .44 | .25 | 15.57 |
| 1920 | .33 | 1.11 | .96 | .29 | .27 | 4.17 | 1.31 | .80 | .32 | 1.33 | .43 | .21 | 11.53 |
| 1921 | .44 | 1.06 | 1.43 | 1.03 | 1.27 | 3.18 | 1.53 | .76 | .25 | .44 | .22 | .15 | 11.76 |
| 1922 | .23 | 2.49 | 1.04 | .84 | 1.97 | 2.99 | 2.52 | .64 | 1.46 | .64 | .89 | .45 | 16.16 |
| 1923 | .25 | .24 | .52 | .91 | .61 | 4.24 | 1.92 | .94 | .30 | .23 | .14 | .11 | 10.61 |
| 1924 | .14 | .23 | 1.05 | 2.26 | .46 | 1.86 | 3.35 | 2.71 | .91 | .44 | .26 | .79 | 14.46 |
| 1925 | 1.07 | .20 | .89 | .35 | 3.81 | 2.40 | 1.32 | .73 | .25 | .27 | .37 | .28 | 11.94 |
| 1926 | 1.11 | 1.95 | 1.03 | 1.10 | .83 | 3.06 | 3.37 | .60 | .38 | .18 | .35 | .56 | 14.52 |
| 1927 | 1.34 | 2.19 | .85 | 1.50 | 1.99 | 3.67 | 1.83 | 2.84 | .57 | .32 | .37 | .12 | 17.59 |
| 1928 | .49 | 4.28 | 5.13 | 1.41 | 1.30 | 2.50 | 2.92 | 1.16 | 2.01 | .59 | .32 | .15 | 22.28 |
| 1929 | .24 | .94 | 1.53 | 2.06 | .84 | 4.26 | 5.15 | 3.13 | .48 | .54 | .15 | .15 | 19.27 |
| 1930 | .69 | .69 | 1.73 | 3.56 | 1.88 | 3.25 | 1.81 | .80 | .61 | .22 | .14 | .11 | 15.49 |
| 1931 | .10 | .17 | .20 | .21 | .32 | 1.58 | 2.58 | 2.63 | .87 | .39 | .29 | .21 | 9.55 |
| 1932 | .18 | .39 | 1.67 | 2.68 | 1.94 | 2.13 | 2.89 | 2.32 | .32 | .24 | .09 | .09 | 14.94 |
| 1933 | .23 | 1.03 | .68 | .93 | .42 | 3.07 | 2.36 | 1.41 | .98 | .24 | .31 | .21 | 11.87 |
| 1934 | .23 | .61 | 1.26 | 1.74 | .36 | 2.28 | 2.11 | .33 | .11 | .07 | .07 | .12 | 9.29 |
| 1935 | .21 | .65 | .61 | 1.59 | 1.02 | 3.16 | 1.94 | 1.81 | .37 | 1.58 | .47 | .33 | 15.74 |
| 1936 | .36 | .55 | .77 | .43 | .59 | 8.13 | 3.04 | .75 | .28 | .09 | .10 | .16 | 15.25 |
| 1937 | .19 | .65 | 1.13 | 3.26 | 1.08 | 1.05 | 3.78 | 2.24 | 2.02 | .36 | .63 | .30 | 16.69 |
| 1938 | .46 | .75 | .89 | .92 | 2.54 | 2.68 | 2.20 | .95 | .47 | .34 | .35 | .66 | 13.21 |
| 1939 | .41 | .56 | .93 | 1.05 | 2.57 | 3.69 | 2.56 | .57 | .26 | .19 | .09 | .13 | 13.01 |
| 1940 | .37 | .58 | 1.07 | .42 | .49 | 2.11 | 7.80 | 1.07 | 1.09 | .63 | .28 | .44 | 16.35 |
| 1941 | .33 | .74 | 2.61 | 1.10 | .69 | 1.80 | 3.66 | .43 | .31 | .22 | .20 | .16 | 12.25 |
| 1942 | .18 | .17 | .44 | .56 | .57 | 5.79 | 2.63 | 1.19 | .52 | 1.21 | .51 | .59 | 14.36 |
| 1943 | .69 | 1.84 | 2.37 | 2.16 | 2.35 | 2.75 | 2.87 | 5.19 | 1.28 | .30 | .33 | .17 | 22.30 |
| 1944 | .28 | .64 | .47 | .52 | .99 | 2.43 | 2.80 | 2.00 | .98 | .36 | .22 | .31 | 12.00 |
| 1945 | .24 | .27 | .73 | .73 | 1.56 | 7.27 | 1.87 | 2.73 | 1.23 | .94 | .44 | .86 | 17.87 |
| 1946 | 2.37 | 1.98 | 1.96 | 2.27 | .60 | 2.27 | .50 | 1.97 | 2.27 | .82 | .54 | .26 | 16.81 |
| 1947 | .73 | .95 | 1.18 | 2.65 | 1.17 | 2.01 | 5.39 | 3.26 | 1.71 | .52 | .48 | .36 | 20.41 |
| 1948 | .19 | .48 | .99 | .42 | 1.93 | 4.46 | 2.97 | 1.89 | .84 | .29 | .37 | .18 | 15.01 |
| 1949 | .33 | .61 | .81 | 2.02 | 1.58 | 1.46 | 1.84 | .91 | .24 | .13 | .26 | .20 | 10.39 |
| 1950 | .20 | .16 | .74 | 1.87 | .88 | 4.01 | 3.79 | 1.17 | .41 | .37 | .14 | .28 | 14.02 |

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 97 | - | - | - | - | - | - | - | - |
| 1904 | 129 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | - | - | - | - | - |
| 1906 | 206 | - | - | - | - | - | - | - | - |
| 1908 | 244 | - | - | - | - | - | - | - | - |
| 1909 | 264 | *24,000 | May 2, 1909* | 30 | 1,440 | 1.01 | 13.78 | †1,450 | 13.92 |
| 1910 | 284 | - | - | 60 | 1,470 | 1.04 | 14.07 | †1,590 | 15.20 |
| 1911 | 304 | - | - | 80 | 1,500 | 1.06 | 14.31 | 1,710 | 16.40 |
| 1912 | 324 | - | - | 141 | 1,670 | 1.18 | 16.04 | 1,540 | 14.73 |
| 1913 | 354,1387 | *38,000 | Mar. 26, 1913 | 58 | *1,900 | *1.34 | *18.24 | *1,800 | *17.23 |
| 1914 | 384 | - | - | - | - | - | - | - | - |
| 1915 | 404 | - | - | - | - | - | - | - | - |
| 1916 | 434 | 55,100 | May 17, 1916 | 138 | 2,640 | 1.86 | 25.34 | 2,410 | 23.13 |
| 1917 | 454 | 31,800 | Mar. 12, 1917 | 118 | 1,600 | 1.13 | 15.33 | 2,060 | 19.74 |
| 1918 | 474 | *29,000 | Mar. 15, 1918 | 126 | 1,790 | 1.26 | 17.11 | 1,500 | 14.29 |
| 1919 | 504 | 32,000 | May 23, 1919 | 187 | †1,630 | 1.15 | 15.57 | 1,600 | 15.26 |
| 1920 | 504 | 20,700 | July 24, 1920 | 117 | 1,200 | .846 | 11.53 | 1,260 | 12.06 |
| 1921 | 524 | 17,900 | Feb. 17, 1921 | 94 | 1,230 | .867 | 11.76 | 1,320 | 12.59 |
| 1922 | 544 | 14,600 | Apr. 1, 1922 | 154 | 1,690 | 1.19 | 16.16 | 1,400 | 13.41 |
| 1923 | 564 | 12,200 | Apr. 5, 1923 | 66 | 1,110 | .782 | 10.61 | 1,150 | 11.02 |
| 1924 | 584 | 20,100 | Sept. 30, 1924 | 78 | 1,510 | 1.06 | 14.46 | 1,590 | 15.20 |
| 1925 | 604 | *26,600 | Feb. 12, 1925 | 108 | 1,250 | .881 | 11.94 | 1,450 | 13.87 |

* Revised.

† Corrected.

* Not previously published.

STREAMS TRIBUTARY TO LAKE ONTARIO

Yearly discharge, in cubic feet per second, of Genesee River at Jones Bridge,
near Mount Morris, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | 14,500 | Apr. 9, 1926 | 133 | 1,520 | 1.07 | 14.52 | 1,550 | 14.81 |
| 1927 | 644 | 16,600 | May 24, 1927 | 58 | 1,840 | 1.30 | 17.59 | 2,420 | 23.11 |
| 1928 | 664 | 46,800 | Dec. 1, 1927 | 130 | 2,320 | 1.63 | 22.26 | 1,570 | 15.07 |
| 1929 | 684 | 26,000 | Apr. 21, 1929 | 137 | 2,020 | 1.42 | 15.27 | 2,060 | 19.67 |
| 1930 | 699 | 19,600 | Feb. 26, 1930 | 36 | 1,620 | 1.14 | 15.49 | 1,340 | 12.85 |
| 1931 | 714 | 13,000 | May 24, 1931 | 81 | 999 | .704 | 9.55 | 1,180 | 11.32 |
| 1932 | 729 | 16,000 | May 10, 1932 | 73 | 1,560 | 1.10 | 14.94 | 1,530 | 14.64 |
| 1933 | 744 | 18,100 | Mar. 15, 1933 | 108 | 1,240 | .874 | 11.87 | 1,257 | 12.03 |
| 1934 | 759 | 14,300 | Mar. 5, 1934 | 36 | 972 | .685 | 9.29 | 906 | 8.66 |
| 1935 | 784 | 14,500 | July 9, 1935 | 93 | 1,438 | 1.01 | 13.74 | 1,450 | 13.95 |
| 1936 | 804 | 26,300 | Mar. 26, 1936 | 53 | 1,589 | 1.12 | 15.25 | 1,620 | 15.54 |
| 1937 | 824 | 18,000 | Jan. 25, 1937 | 89 | 1,745 | 1.23 | 16.69 | 1,758 | 16.82 |
| 1938 | 854 | 18,000 | Mar. 6, 1938 | 85 | 1,380 | .973 | 13.21 | 1,359 | 13.01 |
| 1939 | 874 | 25,500 | Feb. 21, 1939 | 46 | 1,358 | .957 | 13.01 | 1,371 | 13.13 |
| 1940 | 894 | 29,600 | Apr. 1, 1940 | 110 | 1,703 | 1.20 | 16.35 | 1,876 | 18.01 |
| 1941 | 924 | 24,600 | Apr. 6, 1941 | 73 | 1,280 | .902 | 12.25 | 979 | 9.36 |
| 1942 | 954 | 32,400 | Mar. 18, 1942 | 93 | 1,503 | 1.06 | 14.36 | 1,933 | 18.47 |
| 1943 | 974 | 27,800 | Dec. 31, 1942 | 78 | 2,333 | 1.64 | 22.30 | 1,966 | 18.79 |
| 1944 | 1004 | 17,000 | Mar. 17, 1944 | 81 | 1,251 | .882 | 12.00 | 1,236 | 11.85 |
| 1945 | 1034 | 22,300 | Mar. 4, 1945 | 127 | 1,974 | 1.39 | 18.87 | 2,502 | 23.94 |
| 1946 | 1054 | 23,100 | May 29, 1946 | 235 | 1,862 | 1.31 | 17.81 | 1,501 | 14.36 |
| 1947 | 1084 | 30,600 | Apr. 6, 1947 | 205 | 2,132 | 1.50 | 20.41 | 2,008 | 19.21 |
| 1948 | 1114 | 27,700 | Mar. 22, 1948 | 94 | 1,566 | 1.10 | 15.01 | 1,574 | 15.10 |
| 1949 | 1144 | 412,800 | Jan. 6, 1949 | 56 | 1,085 | .765 | 10.39 | 1,018 | 9.74 |
| 1950 | 1174 | 45,400 | Mar. 29, 1950 | 107 | 1,465 | 1.03 | 14.02 | - | - |

* Not previously published.

317. Conesus Creek near Lakeville, N. Y.

Location.--Lat 42°51'20", long. 77°43'00", on upstream side of right abutment of Millville Bridge, $\frac{1}{2}$ miles downstream from Lakeville, Livingston County.

Drainage area.--72.0 sq mi.

Gage.--Staff gage. Altitude of gage is 810 ft (from topographic map).

Average discharge.--15 years (1919-34), 48.3 cfs.

Extremes.--1919-34: Maximum discharge, 625 cfs Dec. 1, 1928 (gage height, 3.6 ft); minimum, 0.4 cfs Dec. 18, 20, 21, 1932.

Remarks.--Considerable regulation by Conesus Lake. Water supply for villages of Avon and Genesee taken from Conesus Lake.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | 10.9 | 15.1 | 18.6 | 19.9 | 19.9 | 98.3 | 86.6 | 58.8 | 29.2 | 18.9 | 39.4 | 27.8 | 437.0 |
| 1921 | 21.3 | 20.0 | 55.0 | 48.0 | 57.2 | 105 | 93.9 | 63.6 | 21.8 | 13.6 | 4.44 | 3.47 | 42.2 |
| 1922 | 2.55 | 2.74 | 4.95 | 14.6 | 68.1 | 135 | 139 | 67.0 | 47.1 | 39.0 | 24.9 | 19.8 | 46.8 |
| 1923 | 12.2 | 6.05 | 4.15 | 20.0 | 28.6 | 132 | 115 | 58.0 | 31.4 | 26.1 | 14.1 | 10.4 | 38.3 |
| 1924 | 3.83 | 1.87 | 6.26 | 17.5 | 20.7 | 35.1 | 112 | 171 | 83.1 | 36.4 | 17.5 | 16.8 | 43.4 |
| 1925 | 17.3 | 3.48 | 23.9 | 23.0 | 164 | 173 | 113 | 62.0 | 29.8 | 19.1 | 15.2 | 15.5 | 56.8 |
| 1926 | 15.6 | 24.5 | 40.0 | 44.1 | 49.0 | 91.5 | 189 | 80.3 | 38.2 | 16.7 | 8.41 | 11.4 | 50.6 |
| 1927 | 13.0 | 23.9 | 34.6 | 47.5 | 70.8 | 120 | 112 | 76.6 | 54.9 | 24.0 | 16.7 | 11.2 | 50.2 |
| 1928 | 12.8 | 99.9 | 305 | 121 | 90.2 | 86.1 | 101 | 84.6 | 134 | 99.5 | 44.9 | 24.4 | 101 |
| 1929 | 15.2 | 18.9 | 31.4 | 35.5 | 38.1 | 98.8 | 190 | 174 | 71.6 | 31.5 | 16.1 | 7.45 | 60.8 |
| 1930 | 11.3 | 9.82 | 16.4 | 92.7 | 66.0 | 170 | 121 | 58.1 | 37.5 | 23.3 | 7.12 | 2.69 | 51.3 |
| 1931 | 3.35 | 1.43 | 1.18 | 1.00 | 4.56 | 36.3 | 127 | 99.5 | 83.3 | 36.3 | 19.9 | 10.6 | 35.4 |
| 1932 | 4.10 | 2.84 | 6.35 | 46.3 | 79.4 | 77.6 | 181 | 143 | 52.5 | 27.2 | 11.8 | 4.08 | 52.8 |
| 1933 | 3.02 | 4.57 | 2.97 | 8.57 | 11.4 | 76.0 | 153 | 130 | 74.8 | 8.43 | 3.69 | 11.0 | 40.6 |
| 1934 | 5.96 | 1.52 | 2.36 | 9.37 | 10.1 | 38.0 | 72.3 | 43.9 | 15.1 | 3.25 | 1.71 | 1.91 | 17.1 |

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | 40.17 | 40.23 | 0.30 | 0.32 | 0.30 | 1.57 | 1.34 | 0.94 | 0.45 | 0.30 | 0.63 | 0.43 | 46.98 |
| 1921 | .34 | .31 | .88 | .77 | .83 | 1.68 | 1.46 | 1.02 | .34 | .22 | .07 | .05 | 7.97 |
| 1922 | .04 | .04 | .08 | .23 | .98 | 2.16 | 2.16 | 1.07 | .73 | .62 | .40 | .31 | 8.82 |
| 1923 | .20 | .09 | .07 | .32 | .41 | 2.12 | 1.79 | .93 | .49 | .42 | .23 | .16 | 7.23 |
| 1924 | .06 | .03 | .10 | .28 | .31 | .56 | 1.73 | 2.73 | 1.29 | .58 | .28 | .26 | 8.21 |
| 1925 | .28 | .54 | .58 | .37 | 2.37 | 2.77 | 1.76 | .99 | .46 | .31 | .24 | .24 | 10.71 |
| 1926 | .25 | .38 | .64 | .71 | .71 | 1.46 | 2.93 | 1.29 | .59 | .27 | .13 | .18 | 9.54 |
| 1927 | .21 | .37 | .55 | .76 | 1.02 | 1.91 | 1.74 | 1.23 | .85 | .38 | .27 | .17 | 9.46 |
| 1928 | .21 | 1.55 | 4.89 | 1.94 | 1.35 | 1.38 | 1.56 | 1.36 | 2.08 | 1.59 | .72 | .38 | 19.01 |
| 1929 | .24 | .29 | .50 | .57 | .55 | 1.58 | 2.94 | 2.79 | 1.11 | .50 | .26 | .11 | 11.44 |
| 1930 | .18 | .15 | .26 | 1.49 | .95 | 2.72 | 1.87 | .93 | .58 | .37 | .11 | .04 | 9.65 |
| 1931 | .05 | .02 | .02 | .02 | .07 | .58 | 1.96 | 1.59 | 1.29 | .58 | .32 | .16 | 6.66 |
| 1932 | .07 | .04 | .10 | .74 | 1.19 | 1.24 | 2.80 | 2.29 | .91 | .44 | .19 | .06 | 9.97 |
| 1933 | .05 | .07 | .05 | .14 | .16 | 1.22 | 2.36 | 2.09 | 1.16 | .13 | .06 | .17 | 7.66 |
| 1934 | .10 | .02 | .04 | .15 | .15 | .61 | 1.12 | .70 | .23 | .05 | .03 | .03 | 3.23 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second, of Conesus Creek near Lakeville, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|------------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1920 | 524 | 159 | Mar. 17, 1920 | #8 | \$37.0 | \$0.514 | \$6.98 | 41.4 | 7.81 |
| 1921 | 524 | 157 | Feb. 16, 1921 | 2.8 | 42.2 | .586 | 7.97 | 35.0 | 6.60 |
| 1922 | 544 | 178 | Apr. 1, 1922 | 2.5 | 46.8 | .650 | 8.82 | 47.9 | 9.02 |
| 1923 | 564 | 202 | Mar. 20, 1923 | - | 38.3 | .532 | 7.23 | 37.4 | 7.06 |
| 1924 | 584 | 285 | May 15, 1924 | .7 | 43.4 | .603 | 8.21 | 48.8 | 9.22 |
| 1925 | 604 | 296 | Feb. 23, 1925 | 10 | 56.8 | .789 | 10.71 | 57.2 | 10.78 |
| 1926 | 624 | 308 | Apr. 10, 1926 | 6.9 | 50.6 | .703 | 9.54 | 49.9 | 9.40 |
| 1927 | 644 | 188 | Mar. 21, 1927 | 6.9 | 50.2 | .697 | 9.46 | 79.4 | 14.98 |
| 1928 | 664 | 625 | Dec. 1, 1927 | 6.1 | 101 | 1.40 | 19.01 | 70.9 | 13.39 |
| 1929 | 684 | 400 | Apr. 22, 1929 | 4.1 | 60.8 | .844 | 11.44 | 58.4 | 11.00 |
| 1930 | 699 | 278 | Mar. 22, 1930 | 1.1 | 51.3 | .712 | 9.65 | 48.6 | 9.15 |
| 1931 | 714 | 168 | Apr. 5, 1931 | .6 | 35.4 | .492 | 6.66 | 36.0 | 6.78 |
| 1932 | 729 | 275 | May 11, 1932 | 1.4 | 52.8 | .735 | 9.97 | 52.6 | 9.95 |
| 1933 | 744 | 189 | May 14, 1933 | .4 | 40.5 | .564 | 7.66 | 40.6 | 7.65 |
| 1934 | 759 | 86 | Apr. 12-17, 1934 | .8 | 17.1 | .238 | 3.23 | - | - |

* Not previously published.

318. Canadice Lake near Hemlock, N. Y.

Location.--Lat 42°44'25", long. 77°34'15", upstream from weir at outlet, in Ontario County, 4 miles southeast of Hemlock, Livingston County.

Drainage area.--12.6 sq mi.

Gage.--Hook gage. Datum of gage is 1,093.00 ft above mean sea level (furnished by city of Rochester).

Remarks.--Subsequent to May 1949, discharge from lake below elevation 1,092.00 ft augmented by pumps. Available storage below elevation 1,092.00 ft, 287,058,980 cu ft.

Cooperation.--Contents, in cubic feet, furnished by Department of Public Works, city of Rochester, rounded off by Geological Survey.

Month-end contents, in millions of cubic feet

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1903 | - | - | - | - | - | - | 162.3 | 139.9 | 143.3 | 131.5 | 127.0 | 115.7 |
| 1904 | 120.4 | 122.4 | 115.6 | 141.1 | 135.7 | 172.0 | 170.7 | 172.6 | 155.2 | 149.1 | 123.9 | 107.0 |
| 1905 | 92.2 | 77.7 | 85.9 | 87.5 | 75.4 | 155.4 | 144.4 | 131.5 | 159.7 | 169.3 | 136.4 | 115.0 |
| 1906 | 99.5 | 89.3 | 111.1 | 115.0 | 107.0 | 141.5 | 126.8 | 150.7 | 137.5 | 123.6 | 133.6 | 117.2 |
| 1907 | 140.7 | 158.1 | 133.5 | 123.8 | 101.6 | 153.2 | 149.1 | 140.9 | 134.1 | 116.2 | 91.6 | 82.8 |
| 1908 | 95.7 | 112.6 | 168.5 | 122.2 | 127.8 | 141.6 | 155.0 | 153.2 | 158.4 | 134.8 | 111.5 | 92.6 |
| 1909 | 78.9 | 64.6 | 53.6 | 69.9 | 121.4 | 131.1 | 148.0 | 141.5 | 120.7 | 100.9 | 84.9 | 68.6 |
| 1910 | 57.7 | 46.8 | 37.1 | 57.2 | 89.6 | 134.6 | 174.7 | 159.8 | 145.2 | 128.7 | 119.5 | 112.5 |
| 1911 | 101.0 | 97.6 | 99.1 | 138.6 | 141.4 | 154.1 | 147.6 | 149.5 | 145.3 | 124.7 | 110.5 | 102.5 |
| 1912 | 100.6 | 104.2 | 125.0 | 111.7 | 111.0 | 181.9 | 159.1 | 152.2 | 128.1 | 114.4 | 103.2 | 105.0 |
| 1913 | 102.0 | 99.2 | 116.3 | 142.8 | 111.5 | 175.9 | 194.2 | 154.7 | 161.3 | 135.8 | 114.6 | 95.2 |
| 1914 | 87.1 | 95.7 | 90.0 | 121.6 | 110.9 | 169.3 | 173.2 | 171.8 | 153.5 | 137.7 | 160.7 | 148.7 |
| 1915 | 134.6 | 119.9 | 115.5 | 129.2 | 164.2 | 115.4 | 153.9 | 156.3 | 143.3 | 144.4 | 128.4 | 115.9 |
| 1916 | 129.1 | 145.0 | 145.8 | 127.7 | 121.6 | 191.4 | 166.9 | 159.8 | 152.2 | 151.9 | 128.3 | 120.6 |
| 1917 | 118.0 | 113.5 | 104.6 | 107.9 | 124.2 | 153.6 | 132.9 | 149.6 | 159.5 | 154.1 | 137.2 | 127.9 |
| 1918 | 182.8 | 139.0 | 144.9 | 136.6 | 162.3 | 140.9 | 145.9 | 145.8 | 138.0 | 128.3 | 113.2 | 106.1 |
| 1919 | 108.7 | 109.2 | 127.8 | 128.0 | 98.6 | 100.6 | 159.7 | 166.6 | 166.9 | 166.5 | 163.6 | 130.6 |
| 1920 | 94.3 | 87.6 | 89.3 | 83.0 | 74.8 | 156.6 | 167.4 | 172.0 | 169.0 | 124.8 | 92.8 | 88.5 |
| 1921 | 83.4 | 107.3 | 99.0 | 94.6 | 102.9 | 159.3 | 162.3 | 136.6 | 91.0 | 82.2 | 75.5 | 57.3 |
| 1922 | 49.7 | 96.7 | 88.3 | 92.2 | 121.6 | 158.6 | 154.6 | 164.3 | 161.3 | 165.5 | 167.9 | 130.9 |
| 1923 | 115.4 | 115.3 | 101.4 | 102.7 | 100.4 | 153.5 | 121.8 | 102.1 | 90.9 | 84.0 | 50.6 | 41.5 |
| 1924 | 32.2 | 34.2 | 64.5 | 78.1 | 72.6 | 99.7 | 169.0 | 166.4 | 173.6 | 122.5 | 91.4 | 116.1 |
| 1925 | 90.8 | 84.8 | 78.1 | 69.6 | 165.4 | 169.2 | 168.6 | 153.5 | 118.4 | 101.0 | 82.9 | 62.6 |
| 1926 | 92.6 | 84.4 | 106.7 | 103.8 | 104.4 | 146.7 | 166.3 | 145.6 | 139.1 | 108.1 | 94.0 | 88.2 |
| 1927 | 94.0 | 102.2 | 95.2 | 105.8 | 121.0 | 179.0 | 168.8 | 179.3 | 151.7 | 137.9 | 130.9 | 124.3 |
| 1928 | 146.3 | 245.6 | 174.6 | 131.9 | 144.8 | 182.4 | 195.6 | 169.5 | 172.0 | 141.0 | 110.6 | 89.9 |
| 1929 | 93.4 | 127.7 | 153.5 | 180.7 | 162.7 | 190.5 | 181.7 | 179.0 | 148.5 | 123.4 | 92.1 | 72.7 |
| 1930 | 83.0 | 72.6 | 94.0 | 140.0 | 137.9 | 162.7 | 146.6 | 144.8 | 135.4 | 112.5 | 90.6 | 81.0 |
| 1931 | 51.5 | 46.6 | 47.6 | 66.6 | 80.6 | 163.8 | 123.9 | 132.2 | 105.9 | 87.8 | 84.1 | 78.3 |
| 1932 | 73.3 | 73.8 | 103.2 | 172.4 | 172.3 | 191.1 | 170.7 | 156.6 | 118.3 | 78.7 | 65.8 | 49.4 |
| 1933 | 43.0 | 54.0 | 54.8 | 55.7 | 67.7 | 111.5 | 108.9 | 189.1 | 149.9 | 85.5 | 60.7 | 36.1 |
| 1934 | 26.6 | 24.6 | 39.5 | 60.7 | 57.4 | 73.1 | 66.7 | 54.9 | 63.7 | 63.7 | 57.1 | 51.3 |
| 1935 | 36.3 | 44.9 | 55.3 | 90.1 | 101.0 | 109.3 | 98.2 | 84.7 | 67.5 | 75.3 | 56.5 | 66.5 |
| 1936 | 60.1 | 64.2 | 86.2 | 84.1 | 124.6 | 176.9 | 187.4 | 179.1 | 170.4 | 142.6 | 171.8 | 81.6 |
| 1937 | 57.3 | 55.0 | 55.8 | 75.6 | 68.4 | 72.3 | 149.3 | 181.2 | 177.8 | 152.1 | 135.7 | 110.8 |
| 1938 | 102.7 | 76.6 | 83.1 | 112.9 | 174.8 | 181.2 | 179.2 | 176.8 | 154.5 | 136.2 | 111.1 | 106.7 |
| 1939 | 98.2 | 99.5 | 99.2 | 101.5 | 175.4 | 197.0 | 180.9 | 174.9 | 189.0 | 153.9 | 114.3 | 86.8 |
| 1940 | 69.7 | 58.2 | 64.1 | 61.9 | 81.1 | 178.5 | 189.1 | 179.2 | 177.5 | 172.1 | 143.3 | 122.3 |

Month-end contents, in millions of cubic feet, of Canadice Lake near Hemlock, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| 1941 | 95.0 | 89.7 | 107.7 | 89.1 | 77.6 | 102.7 | 173.8 | 172.4 | 169.4 | 146.2 | 123.0 | 103.3 |
| 1942 | 87.5 | 61.9 | 57.4 | 58.8 | 65.5 | 191.2 | 180.9 | 179.2 | 155.0 | 125.5 | 86.5 | 65.3 |
| 1943 | 66.1 | 115.1 | 184.9 | 173.8 | 178.5 | 189.4 | 210.9 | 198.7 | 189.2 | 181.9 | 158.6 | 149.2 |
| 1944 | 153.4 | 147.7 | 152.1 | 101.1 | 76.2 | 95.1 | 115.4 | 162.3 | 169.8 | 157.6 | 128.5 | 105.6 |
| 1945 | 86.3 | 64.3 | 67.2 | 62.8 | 89.3 | 210.9 | 225.2 | 221.9 | 214.8 | 207.5 | 189.7 | 169.0 |
| 1946 | 161.5 | 152.0 | 146.2 | 127.8 | 89.8 | 152.7 | 168.8 | 209.1 | 184.4 | 129.5 | 91.7 | 91.6 |
| 1947 | 109.6 | 123.5 | 121.8 | 172.7 | 160.4 | 202.4 | 231.6 | 230.1 | 173.5 | 74.3 | 59.3 | 44.3 |
| 1948 | 41.5 | 45.1 | 65.5 | 64.5 | 98.9 | 204.5 | 224.4 | 208.7 | 191.9 | 181.8 | 169.1 | 87.9 |
| 1949 | 59.8 | 58.7 | 42.9 | 64.3 | 63.4 | 65.1 | 70.1 | -61.2 | a277.0 | 248.4 | 218.7 | 204.5 |
| 1950 | 271.9 | 289.4 | 152.2 | 149.4 | 152.1 | 253.5 | 263.5 | 220.1 | 184.4 | 188.7 | 192.3 | 144.0 |

a Contents by capacity table used beginning June 1, 1949; contents June 30, 1949, by capacity table used prior to June 1, 1949, was 43.1 million cu ft.

319. Canadice Lake Outlet near Hemlock, N. Y.

Location---Lat 42°44'25", long. 77°34'15", upstream from weir at outlet of Canadice Lake, Ontario County, 4 miles southeast of Hemlock, Livingston County.

Drainage area---12.6 sq mi.

Gage---Hook gage. Datum of gage is 1,093.00 ft above mean sea level (furnished by city of Rochester).

Average discharge---47 years (1903-50), 11.7 cfs (unadjusted).

Remarks---Flow regulated by Canadice Lake. Runoff adjusted for change in contents in Canadice Lake (see preceding table).

Cooperation---Records furnished by Department of Public Works, city of Rochester.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | - | 8.33 | 8.50 | 8.03 | 6.44 | 4.50 | - |
| 1904 | 4.04 | 5.08 | 5.90 | 8.70 | 26.5 | 40.8 | 32.5 | 25.3 | 17.2 | 9.72 | 8.35 | 6.06 | 15.8 |
| 1905 | 5.04 | 2.84 | 3.97 | 12.2 | 5.5 | 18.2 | 21.8 | 11.2 | 16.8 | 19.7 | 18.0 | 7.5 | 11.9 |
| 1906 | 6.1 | 5.2 | 6.1 | 9.52 | 9.53 | 11.1 | 27.7 | 13.1 | 10.9 | 8.74 | 8.14 | 6.54 | 10.2 |
| 1907 | 6.97 | 27.1 | 33.0 | 27.6 | 13.1 | 17.3 | 21.4 | 11.2 | 7.66 | 7.93 | 5.90 | 4.40 | 15.3 |
| 1908 | 3.44 | 6.20 | 17.0 | 26.4 | 23.2 | 33.6 | 16.5 | 32.0 | 10.2 | 11.2 | 8.6 | 4.3 | 16.1 |
| 1909 | 2.9 | 4.0 | 3.7 | 3.29 | 5.65 | 16.0 | 28.0 | 19.9 | 8.63 | 5.78 | 3.26 | 4.79 | 8.82 |
| 1910 | 4.47 | 4.49 | 3.24 | 3.70 | 4.13 | 23.0 | 11.0 | 24.2 | 5.66 | 4.57 | 4.27 | 4.99 | 8.19 |
| 1911 | 4.80 | 5.93 | 5.83 | 4.97 | 5.57 | 9.86 | 10.5 | 3.99 | 4.18 | 3.86 | 3.66 | 3.64 | 5.56 |
| 1912 | 3.78 | 4.15 | 4.28 | 9.79 | 8.44 | 16.3 | 48.9 | 15.1 | 9.49 | 7.58 | 5.30 | 5.20 | 11.5 |
| 1913 | 5.65 | 6.54 | 7.22 | 47.1 | 17.6 | 35.2 | 29.3 | 19.1 | 6.86 | 6.50 | 4.53 | 4.45 | 15.7 |
| 1914 | 3.74 | 3.96 | 4.02 | 6.84 | 30.3 | 41.6 | 47.5 | 6.71 | 4.95 | 4.48 | 5.94 | 14.2 | 10.9 |
| 1915 | 4.58 | 5.94 | 6.64 | 17.9 | 31.6 | 25.8 | 8.12 | 7.49 | 6.26 | 5.98 | 5.39 | 5.39 | 10.9 |
| 1916 | 7.54 | 1.20 | 11.1 | 32.4 | 10.2 | 24.3 | 55.6 | 46.2 | 37.6 | 6.69 | 5.34 | .92 | 19.8 |
| 1917 | .10 | 2.08 | 3.63 | 3.68 | 3.93 | 16.3 | 25.6 | 13.2 | 20.2 | 22.8 | 4.20 | 3.32 | 9.91 |
| 1918 | 14.3 | 20.8 | 4.93 | 4.83 | 16.2 | 41.5 | 12.4 | 9.23 | 6.48 | 3.53 | 2.78 | 2.17 | 11.6 |
| 1919 | 1.82 | 2.17 | 2.43 | 5.39 | 15.7 | 16.9 | 16.2 | 48.8 | 8.58 | 5.54 | .80 | 9.92 | 11.0 |
| 1920 | 14.1 | 6.45 | 6.79 | 3.95 | 3.47 | 15.0 | 9.74 | 4.14 | 1.57 | 28.0 | 14.7 | 2.99 | 9.24 |
| 1921 | 2.99 | 2.44 | 17.7 | 11.9 | 11.5 | 11.1 | 17.8 | 9.84 | 16.4 | 3.00 | .16 | 2.02 | 8.91 |
| 1922 | 1.54 | 2.31 | 3.49 | 3.74 | 6.64 | 19.5 | 20.4 | .32 | 31.8 | 2.65 | 13.1 | 12.5 | 9.83 |
| 1923 | 4.14 | .21 | 6.52 | 7.29 | 10.9 | 27.9 | 30.0 | 14.6 | 6.48 | 3.17 | 2.78 | 1.60 | 9.62 |
| 1924 | .16 | 0 | 1.96 | 3.26 | 3.35 | 3.76 | 18.2 | 37.0 | 4.76 | 21.1 | 11.8 | 4.47 | 9.16 |
| 1925 | 9.78 | 1.78 | .30 | .29 | 24.9 | 21.8 | 16.9 | 9.11 | 14.4 | 9.95 | 5.34 | 1.11 | 9.64 |
| 1926 | 4.04 | 8.24 | 9.19 | 15.5 | 11.7 | 17.2 | 28.9 | 9.75 | 6.95 | 9.36 | 5.75 | 3.44 | 10.8 |
| 1927 | 4.05 | 11.4 | 11.9 | 11.2 | 15.8 | 11.5 | 14.6 | 16.0 | 10.9 | 5.59 | .62 | .11 | 9.48 |
| 1928 | .07 | 30.3 | 59.6 | 23.7 | 12.9 | 11.5 | 21.2 | 17.1 | 36.1 | 11.7 | 12.2 | 5.10 | 20.1 |
| 1929 | 2.85 | 4.93 | .12 | 4.51 | 11.2 | 35.0 | 56.4 | 35.7 | 11.2 | 8.25 | 7.51 | 3.23 | 15.1 |
| 1930 | 2.40 | 3.55 | 3.72 | 15.5 | 13.0 | 34.8 | 21.4 | 9.33 | 9.21 | 7.07 | 4.10 | 1.76 | 10.5 |
| 1931 | 5.26 | .58 | 0 | .40 | 2.26 | 8.76 | 43.8 | 27.1 | 15.3 | 7.41 | .20 | .45 | 9.27 |
| 1932 | 0 | 4.51 | 0 | 2.33 | 17.1 | 22.1 | 37.3 | 28.5 | 13.4 | 14.0 | 4.01 | 3.85 | 11.8 |
| 1933 | 4.51 | 3.63 | 5.36 | 8.09 | 7.18 | 18.0 | 31.4 | 4.84 | 14.9 | 18.0 | 6.49 | 4.29 | 10.6 |
| 1934 | 1.33 | .95 | 1.55 | 5.35 | 5.28 | 19.0 | 20.4 | 4.43 | .23 | .20 | .20 | .19 | 4.76 |
| 1935 | 1.32 | .03 | .03 | .98 | 17.9 | 22.2 | 21.6 | 20.5 | 10.6 | 15.6 | 5.74 | 4.39 | 10.0 |
| 1936 | 3.66 | 6.42 | 7.42 | 9.00 | 1.00 | 53.2 | 20.6 | 9.68 | 3.90 | 4.72 | 3.83 | 12.6 | 11.4 |
| 1937 | 8.35 | 2.22 | .65 | 14.3 | 17.7 | 14.3 | 22.3 | 20.2 | 33.3 | 6.69 | 6.41 | 5.78 | 12.6 |
| 1938 | 4.92 | 12.4 | 2.51 | .23 | 9.24 | 24.7 | 24.1 | 16.7 | 9.46 | 7.12 | 5.65 | 6.26 | 10.2 |
| 1939 | 1.39 | 1.85 | 5.47 | 9.26 | 13.4 | 27.3 | 29.6 | 4.97 | 7.62 | 16.0 | 11.1 | 7.56 | 11.5 |
| 1940 | 6.10 | 3.57 | 2.87 | 5.55 | 5.17 | 10.1 | 63.4 | 15.7 | 12.5 | 4.51 | 8.70 | 7.49 | 11.9 |
| 1941 | 8.48 | 5.91 | 14.7 | 16.8 | 13.1 | 14.4 | 21.5 | 3.50 | 2.96 | 5.77 | 5.21 | 4.86 | 9.75 |
| 1942 | 5.63 | 7.95 | 3.21 | 3.06 | 10.7 | 33.5 | 35.6 | 9.37 | 9.45 | 13.5 | 11.9 | 8.56 | 12.7 |
| 1943 | 5.28 | 4.07 | 12.8 | 21.0 | 18.3 | 22.3 | 31.8 | 55.9 | 9.39 | 1.07 | 8.44 | .14 | 15.9 |
| 1944 | 0 | 6.39 | 0 | 22.3 | 20.4 | 26.6 | 24.3 | 5.85 | 4.51 | 3.58 | 7.47 | 7.98 | 10.7 |
| 1945 | 6.08 | 9.60 | 9.78 | 9.56 | 11.0 | 37.0 | 14.5 | 32.5 | 14.1 | 7.94 | 6.36 | 17.8 | 14.7 |
| 1946 | 30.1 | 27.4 | 28.6 | 28.0 | 19.8 | 1.98 | .04 | 1.68 | 23.3 | 18.4 | 13.3 | 2.02 | 16.2 |
| 1947 | .04 | 6.28 | 8.55 | 8.29 | 13.7 | 13.6 | 39.9 | 37.2 | 34.4 | 37.3 | 7.80 | 1.82 | 17.4 |
| 1948 | 0 | 0 | 0 | 2.63 | 7.62 | .97 | 19.8 | 27.5 | 16.5 | 6.24 | 4.92 | 24.3 | 9.15 |
| 1949 | 8.99 | 4.66 | 2.45 | 8.34 | 11.4 | 12.7 | 16.2 | 9.38 | 6.23 | 9.24 | 9.45 | 3.92 | 8.57 |
| 1950 | 10.0 | 9.74 | 9.55 | 9.28 | 9.91 | 14.0 | 21.9 | 21.5 | 14.1 | 0 | 0 | 15.4 | 11.2 |

Monthly and yearly runoff, in inches (adjusted), of Canadice Lake Outlet near Hemlock, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|-------|-------|-------|-------|----------|
| 1903 | - | - | - | - | - | - | - | 0 | 0.87 | 0.33 | 0.44 | 0.01 | - |
| 1904 | 0.53 | 0.52 | 0.24 | 1.74 | 2.08 | 4.98 | 2.83 | 2.38 | 0.93 | 0.68 | -0.10 | -0.04 | 16.77 |
| 1905 | -0.04 | -0.24 | 0.64 | 1.17 | 0.40 | 4.40 | 1.56 | 0.58 | 2.45 | 2.13 | 0.52 | 0.07 | 13.28 |
| 1906 | 0.03 | 0.11 | 1.30 | 1.00 | 0.50 | 2.20 | 1.95 | 2.01 | 0.52 | 0.32 | 1.08 | 0.02 | 11.04 |
| 1907 | 1.44 | 3.00 | 2.18 | 2.19 | 0.32 | 2.66 | 2.44 | 0.74 | 0.44 | 0.09 | 0.30 | 0.09 | 15.89 |
| 1908 | 0.42 | 1.47 | 3.39 | 0.90 | 1.79 | 3.54 | 1.92 | 2.86 | 1.08 | 0.22 | -0.01 | -0.26 | 17.32 |
| 1909 | -0.20 | -0.14 | -0.04 | 0.86 | 2.22 | 1.79 | 3.06 | 1.59 | 0.05 | -0.15 | -0.25 | -0.13 | 8.66 |
| 1910 | 0.04 | 0.04 | -0.03 | 1.02 | 1.45 | 3.64 | 2.34 | 1.70 | 0.01 | -0.15 | 0.08 | 0.20 | 10.34 |
| 1911 | 0.04 | 0.41 | 0.58 | 1.80 | 0.56 | 1.33 | 0.71 | 0.43 | 0.23 | -0.35 | -0.15 | 0.05 | 5.64 |
| 1912 | 0.28 | 0.49 | 1.10 | 0.44 | 0.70 | 3.92 | 3.55 | 1.14 | 0.02 | 0.23 | 0.10 | 0.52 | 12.49 |
| 1913 | 0.41 | 0.48 | 1.24 | 0.22 | 0.39 | 5.23 | 3.22 | 0.40 | 0.84 | -0.28 | -0.31 | -0.27 | 16.57 |
| 1914 | 0.07 | 0.64 | 0.17 | 1.52 | 0.67 | 4.77 | 3.82 | 4.30 | -0.03 | -0.08 | 0.10 | 0.12 | 17.17 |
| 1915 | -0.06 | 0.03 | 0.46 | 2.11 | 3.81 | 0.69 | 2.04 | 0.77 | 0.11 | 0.59 | -0.05 | 0.05 | 10.55 |
| 1916 | 1.14 | 0.64 | 1.04 | 2.35 | 0.66 | 4.61 | 3.91 | 3.99 | 3.07 | 0.60 | -0.32 | -0.18 | 21.51 |
| 1917 | -0.08 | 0.03 | 0.05 | 0.45 | 0.88 | 2.50 | 1.56 | 1.79 | 2.12 | 1.90 | -0.19 | -0.02 | 10.97 |
| 1918 | 3.18 | 0.34 | 0.65 | 2.22 | 5.06 | 1.27 | 0.84 | 0.51 | -0.08 | -0.19 | -0.05 | -0.05 | 11.71 |
| 1919 | 0.25 | 0.21 | 0.86 | 0.50 | 0.29 | 1.62 | 3.45 | 4.71 | 0.77 | 0.29 | -0.02 | -0.23 | 12.68 |
| 1920 | 0.06 | 0.34 | 0.68 | 1.14 | 0.02 | 4.17 | 1.23 | 0.54 | 0.04 | 1.05 | 0.25 | 0.12 | 8.64 |
| 1921 | 0.10 | 1.03 | 1.34 | 0.94 | 1.24 | 2.94 | 1.68 | 0.02 | 0.10 | -0.02 | -0.21 | -0.44 | 8.52 |
| 1922 | -0.12 | 1.81 | 0.04 | 0.48 | 1.55 | 3.05 | 1.67 | 0.36 | 2.71 | 0.38 | 1.28 | -0.16 | 13.05 |
| 1923 | -0.15 | 0.02 | 0.12 | 0.71 | 0.82 | 4.37 | 1.57 | 0.66 | 0.19 | 0.06 | -0.89 | -0.17 | 7.31 |
| 1924 | -0.30 | 0.07 | 1.21 | 0.77 | 1.10 | 1.27 | 3.98 | 3.30 | 0.67 | 0.19 | 0.20 | 1.24 | 12.70 |
| 1925 | 0.03 | -0.05 | -0.20 | -0.26 | 5.32 | 2.12 | 1.47 | 0.32 | 0.08 | 0.32 | -0.13 | -0.60 | 8.42 |
| 1926 | 1.39 | 0.45 | 1.60 | 1.32 | 0.98 | 3.02 | 3.22 | 0.19 | 0.39 | -0.20 | 0.04 | 0.11 | 12.51 |
| 1927 | 0.57 | 1.29 | 0.85 | 1.42 | 1.79 | 3.03 | 0.95 | 1.10 | 0.02 | 0.04 | -0.18 | -0.22 | 10.66 |
| 1928 | 0.76 | 6.07 | 3.02 | 0.70 | 0.66 | 2.34 | 2.33 | 0.67 | 3.11 | 0.11 | 0.08 | 0.26 | 20.11 |
| 1929 | 0.38 | 1.61 | 0.89 | 1.34 | 1.00 | 3.47 | 4.69 | 3.17 | -0.04 | -0.10 | -0.38 | -0.38 | 15.65 |
| 1930 | 0.57 | -0.04 | 1.07 | 2.99 | 1.00 | 4.03 | 1.35 | 0.79 | 0.50 | -0.14 | -0.37 | -0.17 | 11.58 |
| 1931 | -0.53 | -0.14 | 0.04 | 0.68 | 0.66 | 3.64 | 2.51 | 2.78 | 0.49 | 0.02 | -0.11 | -0.16 | 9.86 |
| 1932 | -0.17 | 0.02 | 1.00 | 2.58 | 1.45 | 2.67 | 2.61 | 2.13 | -0.12 | -0.14 | -0.01 | -0.02 | 12.00 |
| 1933 | 0.20 | 0.70 | 0.52 | 0.77 | 0.32 | 3.83 | 2.73 | 3.15 | -0.06 | -0.52 | -0.25 | -0.46 | 10.93 |
| 1934 | -0.20 | 0.02 | 0.65 | 1.21 | 0.16 | 2.27 | 1.59 | 0 | 0.32 | 0.02 | -0.21 | -0.18 | 5.65 |
| 1935 | -0.39 | 0.30 | 0.36 | 1.28 | 1.85 | 2.32 | 1.53 | 1.41 | 0.35 | 1.70 | -0.12 | 0.73 | 11.32 |
| 1936 | 0.12 | 0.71 | 1.43 | 0.75 | 1.47 | 6.66 | 2.18 | 0.60 | 0.05 | -0.52 | 1.35 | -1.96 | 12.84 |
| 1937 | -0.07 | 0.12 | 0.09 | 1.98 | 1.22 | 1.44 | 4.60 | 2.94 | 2.83 | -0.26 | 0.02 | -0.34 | 14.57 |
| 1938 | 0.17 | 0.21 | 0.45 | 1.04 | 2.88 | 2.48 | 2.06 | 1.45 | 0.07 | 0.03 | -0.34 | 0.37 | 10.87 |
| 1939 | 0.13 | 0.21 | 0.49 | 0.93 | 3.63 | 3.24 | 2.07 | 0.25 | 1.02 | 0.40 | 0.34 | 0.27 | 12.98 |
| 1940 | -0.02 | -0.08 | 0.46 | 0.25 | 1.10 | 4.25 | 5.98 | 1.10 | 1.05 | 0.23 | -0.18 | -0.05 | 14.09 |
| 1941 | -0.16 | 0.34 | 1.96 | 0.90 | 0.69 | 0.46 | 4.33 | 0.27 | 0.16 | -0.26 | -0.32 | -0.24 | 8.13 |
| 1942 | -0.02 | -0.17 | 0.14 | 0.33 | 1.11 | 7.36 | 2.80 | 0.80 | 0.01 | -0.22 | -0.25 | 0.03 | 12.36 |
| 1943 | 0.51 | 2.03 | 3.55 | 1.54 | 1.67 | 2.41 | 3.56 | 4.80 | 0.60 | -0.15 | -0.02 | -0.31 | 20.19 |
| 1944 | 0.14 | 0.37 | 0.15 | 0.30 | 0.90 | 3.08 | 2.85 | 2.12 | 0.66 | -0.11 | -0.31 | 0.07 | 10.08 |
| 1945 | -0.10 | 0.10 | 1.00 | 0.72 | 1.82 | 7.54 | 1.78 | 2.86 | 1.00 | 0.48 | -0.03 | 0.87 | 18.04 |
| 1946 | 2.50 | 2.11 | 2.42 | 1.93 | 0.34 | 2.33 | 0.55 | 1.53 | 1.22 | -0.19 | -0.08 | 0.17 | 14.83 |
| 1947 | 0.62 | 1.03 | 0.72 | 2.50 | 0.71 | 2.68 | 4.53 | 3.36 | 1.11 | 0.03 | 0.20 | -0.35 | 17.14 |
| 1948 | -0.10 | 0.12 | 0.70 | 0.21 | 1.82 | 3.70 | 2.43 | 1.98 | 0.89 | 0.23 | 0.02 | -0.62 | 11.38 |
| 1949 | -0.14 | 0.38 | -0.32 | 1.49 | 0.91 | 1.22 | 1.61 | 0.56 | -0.07 | -0.13 | -0.15 | -0.14 | 5.22 |
| 1950 | -0.20 | 0.06 | 0.29 | 1.47 | 0.91 | 4.74 | 2.28 | 0.48 | 0.03 | 0.15 | 0.12 | -0.29 | 10.04 |

Note.--Adjusted monthly runoff prior to October 1946 and adjusted yearly runoff prior to 1914 not previously published. Previously published annual and monthly adjusted runoff were based on other than midnight lake elevations and may differ slightly from the above data. Negative figures indicate that natural losses from lake exceeded inflow.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | | |
|------|------------|----------------------------|------|---------|---------|----------|------|-----------------|------------------|------|----------|------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted | |
| | | Momentary | | Maximum | Minimum | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | day | day | | | | | | | |
| 1903 | 129 | - | - | - | - | - | - | - | - | - | - | - |
| 1904 | 170 | - | - | - | - | 15.8 | 15.5 | 1.23 | 16.77 | 15.6 | 14.7 | 15.84 |
| 1905 | 170 | - | - | - | - | 11.9 | 12.2 | 0.967 | 13.28 | 12.4 | 13.2 | 14.36 |
| 1906 | 206 | - | - | - | - | 10.2 | 10.3 | 0.814 | 11.04 | 14.3 | 15.0 | 16.22 |
| 1907 | 244 | - | - | - | - | 15.3 | 14.2 | 1.13 | 15.89 | 11.9 | 12.9 | 14.55 |
| 1908 | 244 | - | - | - | - | 16.1 | 16.4 | 1.30 | 17.32 | 14.7 | 18.3 | 11.66 |
| 1909 | 264 | - | - | - | - | 8.82 | 8.06 | 0.640 | 8.66 | 8.96 | 8.44 | 9.09 |
| 1910 | 284 | - | - | - | - | 8.19 | 9.58 | 0.761 | 10.34 | 8.51 | 10.5 | 11.32 |
| 1911 | 304 | - | - | - | - | 5.56 | 5.25 | 0.416 | 5.64 | 5.21 | 6.03 | 6.48 |
| 1912 | 324 | - | - | - | - | 11.5 | 11.6 | 0.917 | 12.49 | 12.1 | 11.8 | 12.75 |
| 1913 | 354 | - | - | - | - | 15.7 | 15.4 | 1.22 | 16.57 | 15.0 | 14.2 | 15.32 |
| 1914 | 384 | - | - | - | - | 14.2 | 15.9 | 1.26 | 17.17 | 14.7 | 15.5 | 16.72 |
| 1915 | 404 | - | - | - | - | 10.9 | 9.89 | 0.785 | 10.55 | 11.0 | 12.0 | 12.94 |
| 1916 | 434 | - | - | - | - | 19.8 | 19.9 | 1.58 | 21.51 | 18.6 | 17.3 | 18.67 |
| 1917 | 454 | - | - | - | - | 9.91 | 10.1 | 0.805 | 10.97 | 12.8 | 14.1 | 15.16 |
| 1918 | 504 | - | - | - | - | 11.6 | 10.9 | 0.864 | 11.71 | 8.76 | 8.22 | 8.66 |
| 1919 | 504 | - | - | - | - | 11.0 | 11.8 | 0.935 | 12.68 | 12.8 | 11.5 | 12.44 |
| 1920 | 504 | - | - | - | - | 9.24 | 7.91 | 0.628 | 8.64 | 8.97 | 9.28 | 10.03 |
| 1921 | 524 | - | - | - | - | 8.91 | 7.92 | 0.628 | 8.52 | 7.54 | 7.20 | 7.78 |
| 1922 | 544 | - | - | - | - | 9.83 | 12.2 | 0.965 | 13.05 | 10.1 | 10.5 | 11.31 |
| 1923 | 564 | - | - | - | - | 9.62 | 6.79 | 0.539 | 7.31 | 8.87 | 7.70 | 8.30 |
| 1924 | 584 | - | - | - | - | 9.16 | 11.5 | 0.914 | 12.70 | 10.0 | 10.5 | 11.50 |
| 1925 | 604 | - | - | - | - | 9.64 | 7.94 | 0.630 | 8.42 | 10.5 | 11.4 | 12.08 |

Note.--Adjusted runoff prior to 1914 not previously published. Previously published adjusted yearly runoff data were based on other than midnight lake elevations and may differ slightly from above figures.

Yearly discharge, in cubic feet per second, of Canadice Lake Outlet near Hemlock, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|---------------|----------------------------|---------|---------|------|----------|-----------------------|------------------------|---------------|------|------------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary | Maximum | Minimum | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | day | | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| 1926 | 624 | - | - | - | 10.8 | 11.6 | 0.924 | 12.51 | 11.3 | 10.9 | 11.78 |
| 1927 | 644 | - | - | - | 9.48 | 10.6 | 0.867 | 10.66 | 14.7 | 17.2 | 17.80 |
| 1928 | 664 | - | - | - | 20.1 | 19.0 | 1.51 | 20.11 | 13.2 | 12.6 | 13.14 |
| 1929 | 684 | - | - | - | 15.1 | 14.5 | 1.15 | 15.65 | 15.2 | 13.3 | 14.37 |
| 1930 | 699 | - | - | - | 10.5 | 10.8 | .853 | 11.58 | 10.1 | 8.68 | 9.35 |
| 1931 | 714 | - | - | - | 9.27 | 9.18 | .729 | 9.86 | 8.79 | 10.6 | 11.34 |
| 1932 | 729 | - | - | - | 11.8 | 10.9 | .867 | 12.00 | 13.0 | 11.4 | 12.57 |
| 1933 | 744 | - | - | - | 10.6 | 10.1 | .804 | 10.33 | 9.74 | 9.26 | 9.98 |
| 1934 | 759 | - | - | - | 4.76 | 5.24 | .416 | 5.65 | 4.55 | 5.06 | 5.45 |
| 1935 | 784 | - | - | - | 10.0 | 10.5 | .833 | 11.32 | 11.4 | 12.3 | 13.31 |
| 1936 | 804 | - | - | - | 11.4 | 11.9 | .943 | 12.84 | 10.9 | 9.92 | 10.72 |
| 1937 | 824 | - | - | - | 12.6 | 13.5 | 1.07 | 14.57 | 13.3 | 14.2 | 15.26 |
| 1938 | 854 | - | - | - | 10.2 | 10.1 | .801 | 10.87 | 9.33 | 9.84 | 10.87 |
| 1939 | 874 | - | - | - | 11.3 | 10.7 | .847 | 12.98 | 11.6 | 10.5 | 12.51 |
| 1940 | 894 | - | - | - | 11.9 | 13.0 | 1.03 | 14.09 | 13.5 | 14.7 | 15.87 |
| 1941 | 924 | - | - | - | 9.75 | 9.15 | .726 | 8.13 | 8.70 | 7.10 | 5.94 |
| 1942 | 954 | - | - | - | 12.7 | 11.5 | .911 | 12.36 | 13.1 | 17.2 | 18.50 |
| 1943 | 974 | - | - | - | 15.9 | 18.6 | 1.47 | 20.19 | 14.6 | 13.5 | 14.76 |
| 1944 | 1004 | - | - | - | 10.7 | 9.32 | .740 | 10.08 | 12.3 | 9.62 | 10.42 |
| 1945 | 1034 | - | - | - | 14.7 | 16.7 | 1.33 | 18.04 | 19.8 | 22.3 | 24.07 |
| 1946 | 1054 | - | - | - | 16.2 | 13.8 | 1.09 | 14.83 | 10.2 | 9.45 | 10.17 |
| 1947 | 1084 | - | - | - | 17.4 | 15.9 | 1.26 | 17.14 | 16.2 | 14.4 | 15.49 |
| 1948 | 1114 | - | - | - | 9.15 | 10.5 | .836 | 11.38 | 10.5 | 9.79 | 10.58 |
| 1949 | 1144 | - | - | - | 8.57 | 4.81 | .382 | 5.22 | 9.68 | 5.06 | 5.45 |
| 1950 | 1174 | - | - | - | 11.2 | 9.33 | .740 | 10.04 | - | - | - |

Note.--Previously published adjusted yearly runoff data were based on other than midnight lake elevations and may differ slightly from above figures.

320. Honeoye Creek at Honeoye Falls, N. Y.

Location.--Lat 42°57'25", long. 77°35'20", on right bank 25 ft downstream from highway bridge in Honeoye Falls, Monroe County, and 13 miles upstream from mouth.

Drainage area.--197 sq. mi.

Gage.--Water-stage recorder. Datum of gage is 609.98 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--5 years (1945-50), 160 cfs (adjusted).

Extremes.--1945-50: Maximum discharge, 4,630 cfs Mar. 28, 1950 (gage height, 6.42 ft), from rating curve extended above 2,100 cfs by logarithmic plotting; minimum, 0.06 cfs Aug. 28, 1949 (gage height, 0.35 ft); minimum daily, 0.1 cfs Aug. 24-28, 1949.

Remarks.--Diurnal fluctuation at low flow caused by mills above station. Some diversion from and regulation by Hemlock and Canadice Lakes for water supply of city of Rochester. Runoff adjusted for change in contents in Hemlock and Canadice Lakes and for diversion for municipal supply of city of Rochester.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 222 | 246 | 493 | 275 | 86.3 | 219 | 50.0 | 74.5 | 100 | 34.8 | 14.2 | 7.33 | 153 |
| 1947 | 31.5 | 64.7 | 65.0 | 186 | 125 | 222 | 496 | 486 | 256 | 40.9 | 55.5 | 17.4 | 170 |
| 1948 | 3.87 | 10.5 | 22.1 | 15.1 | 113 | 320 | 276 | 200 | 91.3 | 28.1 | 14.4 | 2.74 | 91.2 |
| 1949 | 4.57 | 14.5 | 24.6 | 178 | 178 | 155 | 149 | 75.3 | 32.2 | 2.79 | 7.5 | .94 | 65.5 |
| 1950 | .83 | 2.50 | 7.02 | 43.7 | 87.5 | 442 | 242 | 55.8 | 20.7 | 12.8 | 4.11 | 5.05 | 77.0 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 1.80 | 1.66 | 2.95 | 1.85 | 0.58 | 1.95 | 0.45 | 0.84 | 0.96 | 0.25 | 0.13 | 0.10 | 13.52 |
| 1947 | .41 | .67 | .58 | 1.77 | .96 | 2.06 | 3.92 | 3.22 | 1.59 | .28 | .62 | .10 | 16.18 |
| 1948 | .02 | .13 | .31 | .15 | 1.10 | 2.96 | 2.36 | 1.83 | .85 | .26 | .13 | -.05 | 10.05 |
| 1949 | .05 | .18 | .17 | 1.58 | 1.40 | 1.40 | 1.29 | .60 | .09 | 0.26 | -.02 | -.02 | 6.72 |
| 1950 | .03 | .06 | .13 | .64 | .74 | 3.82 | 2.17 | .52 | .21 | .16 | .07 | .05 | 8.60 |

Note.--Negative figures indicate that natural losses from lakes exceeded inflow.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|---------|------|----------|-----------------------|------------------------|---------------|------|------------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary | Maximum | Minimum | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | day | | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| 1946 | 1054 | 1,490 | Dec. 7, 1945 | 4.4 | 153 | 196 | 0.995 | 13.52 | 85.5 | 127 | 8.77 |
| 1947 | 1084 | 1,740 | June 3, 1947 | 6.8 | 170 | 235 | 1.19 | 16.18 | 160 | 217 | 14.98 |
| 1948 | 1114 | 1,080 | Mar. 16, 1948 | 1.3 | 91.2 | 145 | .736 | 10.05 | 91.8 | 145 | 9.99 |
| 1949 | 1144 | 1,200 | Jan. 6, 1949 | .1 | 65.5 | 97.5 | .495 | 6.72 | 62.7 | 94.9 | 6.54 |
| 1950 | 1174 | 4,630 | Mar. 28, 1950 | .7 | 77.0 | 125 | .635 | 8.60 | - | - | - |

321. Honeoye Creek at East Rush, N. Y.

Location--Lat 42°59'40", long. 77°38'40", on left bank at the gristmill dam in East Rush, Monroe County, about 6 miles upstream from mouth and about 7 miles downstream from Honeoye Falls.

Drainage area--238 sq mi (revised).

Gage--Staff gage. Altitude of gage is 530 ft (from topographic map).

Remarks--Flow regulated by Hemlock and Canadice Lakes. Records do not include diversion of about 22 cfs from Hemlock Lake for water supply of city of Rochester. Diurnal fluctuation at low flow caused by mills above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1903 | - | - | - | - | - | \$555 | \$460 | \$69 | \$79 | \$75 | \$91 | \$53 | - |
| 1904 | \$43 | \$51 | \$36 | - | - | \$683 | \$277 | \$187 | \$76 | \$49 | \$28 | \$43 | - |
| 1905 | \$42 | \$38 | \$47 | 46 | 39 | 346 | 138 | 27 | 67 | 27 | 54 | 47 | 77 |
| 1906 | 40 | 43 | 101 | 90.0 | 76.8 | 202 | 370 | - | - | - | - | - | - |

† Corrected.

* Not previously published; missing daily discharges estimated on basis of records for adjacent days.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|---------|---------|---------|-------|-------|--------|--------|---------|---------|---------|---------|---------|----------|
| 1903 | - | - | - | - | - | \$2.69 | \$2.15 | \$0.354 | \$0.370 | \$0.363 | \$0.440 | \$0.249 | - |
| 1904 | \$0.209 | \$0.239 | \$0.174 | - | - | \$3.22 | \$1.29 | \$.906 | \$.354 | \$.238 | \$.136 | \$.202 | - |
| 1905 | \$.203 | \$.178 | \$.227 | 0.222 | 0.171 | 1.67 | .647 | .130 | .314 | .130 | .262 | .220 | 4.37 |
| 1906 | .194 | .202 | .483 | .44 | .34 | .98 | 1.73 | - | - | - | - | - | - |

† Corrected.

* Not previously published; partially estimated by interpolation.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 129 | - | - | - | - | - | - | - | - |
| 1904 | 129 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | 7 | 77 | 0.324 | 4.37 | 81 |
| 1906 | 206 | - | - | - | - | - | - | - | - |

322. Oatka Creek at Garbutt, N. Y.

Location--Lat 43°00'30", long. 77°47'25", on right bank 40 ft downstream from highway bridge at Garbutt, Genesee County, and 3.5 miles upstream from mouth.

Drainage area--208 sq mi.

Gage--Water-stage recorder. Datum of gage is 560.89 ft above mean sea level (levels by Corps of Engineers).

Average discharge--5 years (1945-50), 208 cfs.

Extremes--1945-50: Maximum discharge, 6,080 cfs Mar. 29, 1950 (gage height, 8.52 ft); minimum, 10 cfs Dec. 9, 1949 (gage height, 1.975 ft, backwater from ice and debris).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1946 | 367 | 255 | 557 | 482 | 177 | 528 | 117 | 187 | 125 | 46.8 | 39.3 | 25.8 | 244 |
| 1947 | 28.4 | 66.3 | 117 | 399 | 218 | 508 | 1,069 | 508 | 390 | 181 | 91.0 | 55.9 | 302 |
| 1948 | 40.0 | 47.5 | 121 | 67.0 | 388 | 653 | 411 | 297 | 131 | 47.2 | 38.4 | 30.5 | 189 |
| 1949 | 29.5 | 41.0 | 41.5 | 234 | 299 | 295 | 339 | 115 | 45.6 | 34.9 | 27.5 | 23.3 | 126 |
| 1950 | 22.2 | 22.2 | 43.3 | 169 | 181 | 804 | 508 | 191 | 77.2 | 48.4 | 37.1 | 32.8 | 178 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1946 | 2.03 | 1.37 | 3.09 | 2.67 | 0.89 | 2.93 | 0.63 | 1.04 | 0.67 | 0.26 | 0.22 | 0.14 | 15.94 |
| 1947 | .16 | .36 | .65 | 2.21 | 1.09 | 2.81 | 5.73 | 2.82 | 2.09 | 1.01 | .50 | .30 | 19.73 |
| 1948 | .22 | .25 | .67 | .37 | 2.01 | 3.62 | 2.20 | 1.65 | .70 | .26 | .21 | .16 | 12.32 |
| 1949 | .16 | .22 | .23 | 1.30 | 1.50 | 1.64 | 1.82 | .64 | .24 | .19 | .15 | .12 | 6.21 |
| 1950 | .12 | .12 | .24 | .94 | .91 | 4.46 | 2.72 | 1.06 | .41 | .27 | .21 | .18 | 11.64 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | 2,830 | Jan. 7, 1946 | 23 | 244 | 1.17 | 15.94 | 162 | 10.62 |
| 1947 | 1084 | 3,680 | Apr. 6, 1947 | 20 | 302 | 1.45 | 19.73 | 302 | 19.70 |
| 1948 | 1114 | 2,150 | Mar. 23, 1948 | 27 | 189 | .909 | 12.32 | 180 | 11.79 |
| 1949 | 1144 | 1,030 | Feb. 15, 1949 | 21 | 126 | .606 | 8.21 | 124 | 8.08 |
| 1950 | 1174 | 6,080 | Mar. 29, 1950 | 19 | 178 | .856 | 11.64 | - | - |

323. Black Creek at Churchville, N. Y.

Location.--Lat 43°06'00", long. 77°53'00", on right bank at east end of Carrol Street, in Churchville, Monroe County, 60 ft downstream from main line tracks of New York Central Railroad and 1 mile upstream from unnamed tributary.

Drainage area.--123 sq mi.

Gage.--Water-stage recorder. Datum of gage is 552.45 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--5 years (1945-50), 112 cfs.

Extremes.--1945-50: Maximum discharge, 4,750 cfs Mar. 28, 1950 (gage height, 8.83 ft); minimum, 0.7 cfs Sept. 29, 1950 (gage height, 0.98 ft); minimum daily, 0.9 cfs Sept. 30, 1950.

Remarks.--New York Central System diverts the equivalent of a mean discharge of about 0.5 cfs from a point just above station for use by locomotives.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | 235 | 119 | 355 | 239 | 120 | 335 | 51.6 | 46.7 | 29.3 | 12.8 | 7.44 | 6.60 | 131 |
| 1947 | 17.7 | 33.9 | 35.3 | 274 | 118 | 250 | 497 | 297 | 238 | 138 | 32.7 | 24.7 | 163 |
| 1948 | 13.4 | 33.2 | 50.9 | 25.6 | 275 | 371 | 189 | 138 | 47.1 | 16.8 | 9.32 | 5.43 | 97.2 |
| 1949 | 11.5 | 26.6 | 17.7 | 102 | 187 | 186 | 136 | 38.1 | 10.7 | 18.8 | 3.75 | 6.17 | 61.2 |
| 1950 | 4.83 | 12.6 | 35.3 | 106 | 120 | 571 | 243 | 100 | 33.6 | 16.8 | 9.98 | 13.0 | 106 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1946 | 2.20 | 1.08 | 3.32 | 2.24 | 1.02 | 3.14 | 0.47 | 0.44 | 0.27 | 0.12 | 0.07 | 0.06 | 14.43 |
| 1947 | .17 | .31 | .33 | 2.57 | 1.00 | 2.35 | 4.51 | 2.78 | 2.16 | 1.30 | .31 | .22 | 18.01 |
| 1948 | .13 | .30 | .48 | .24 | 2.41 | 3.47 | 1.71 | 1.30 | .45 | .16 | .09 | .05 | 10.77 |
| 1949 | .11 | .24 | .17 | .86 | 1.59 | 1.74 | 1.23 | .36 | .10 | .18 | .04 | .06 | 6.78 |
| 1950 | .05 | .11 | .33 | 1.00 | 1.02 | 5.35 | 2.20 | .94 | .31 | .16 | .09 | .12 | 11.68 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1946 | 1054 | 1,740 | Mar. 5, 1946 | 3.4 | 131 | 1.07 | 14.43 | 78.1 | 8.64 |
| 1947 | 1084 | 1,940 | Apr. 6, 1947 | 4.9 | 163 | 1.33 | 18.01 | 164 | 18.11 |
| 1948 | 1114 | 1,540 | Feb. 20, 1948 | 3.1 | 97.2 | .790 | 10.77 | 93.7 | 10.38 |
| 1949 | 1144 | 800 | Feb. 16, 1949 | 2.4 | 61.2 | .498 | 6.78 | 61.0 | 6.75 |
| 1950 | 1174 | 4,750 | Mar. 28, 1950 | .9 | 106 | .862 | 11.68 | - | - |

324. Genesee River at Rochester, N. Y.

Location.--Lat 43°07'25", long. 77°37'55", on right bank in pumphouse at downstream side of Elmwood Avenue Bridge, about 3 miles upstream from Erie Canal aqueduct crossing, 3½ miles downstream from Black Creek, 3½ miles upstream from center of city of Rochester, Monroe County, and 7½ miles upstream from mouth.

Drainage area.--2,450 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 506.848 ft above mean sea level, Barge Canal datum. Prior to December 1910, staff gage on downstream end of first pier from right abutment at same datum.

Average discharge.--13 years (1905-18), 2,580 cfs.

Extremes.--1904-18: Maximum discharge, 48,300 cfs Mar. 30, 1916 (gage height, 12.3 ft), minimum, 102 cfs Nov. 1, 1912.

Remarks.--Some diversion from Hemlock Lake for water supply of city of Rochester, and from Allen Creek for water supply of Erie Canal. Some water may have been received from 26.6 sq mi on Genesee-Allegany divide through Cuba Reservoir. Slight regulation by mills, reservoir, and lakes.

| Monthly and yearly mean discharge, in cubic feet per second, of Genesee River at Rochester, N. Y. | | | | | | | | | | | | | |
|---|-------|-------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1904 | - | - | - | - | - | - | 7,460 | 3,160 | 2,230 | 1,310 | 634 | 523 | - |
| 1905 | 986 | 562 | †1,550 | - | - | - | 4,150 | 1,460 | 2,670 | 1,340 | 1,230 | 580 | - |
| 1906 | 589 | 1,400 | 2,690 | 3,250 | 1,320 | 2,680 | 5,110 | 2,130 | 1,300 | 783 | 878 | †481 | 1,890 |
| 1907 | 2,280 | 3,650 | 4,070 | 6,350 | 1,500 | 5,400 | 4,210 | 2,870 | 1,850 | 1,420 | 393 | 368 | 2,880 |
| 1908 | 1,020 | 1,540 | 4,930 | 3,790 | 5,940 | 9,080 | 4,000 | 6,020 | 2,420 | 1,780 | 733 | 280 | 3,460 |
| 1909 | 260 | 350 | 380 | 2,700 | 6,000 | 4,200 | 4,350 | 5,850 | 1,280 | 487 | 325 | 293 | 2,180 |
| 1910 | 377 | 439 | 493 | 1,920 | 1,260 | 10,600 | 4,620 | 4,130 | 906 | 379 | 291 | 533 | 2,180 |
| 1911 | 537 | 1,290 | 1,110 | 5,130 | 3,810 | 6,310 | 5,110 | 1,450 | 1,080 | 458 | 590 | 901 | 2,310 |
| 1912 | 1,410 | 2,060 | 3,070 | 1,330 | 958 | 6,790 | 10,000 | 2,860 | 773 | 395 | 341 | 651 | 2,550 |
| 1913 | 754 | 962 | 1,610 | 8,830 | 1,680 | 10,000 | 5,150 | 2,790 | 1,060 | 350 | 229 | 199 | 2,820 |
| 1914 | 338 | 1,110 | 571 | 1,380 | 2,970 | 6,660 | 8,680 | 6,560 | 982 | 403 | 652 | 765 | 2,580 |
| 1915 | 331 | 487 | 760 | 3,130 | 7,790 | 2,450 | 2,490 | 1,140 | 479 | 2,510 | 1,720 | 577 | 1,960 |
| 1916 | 2,130 | 1,360 | 1,710 | 5,240 | 1,520 | 5,670 | †4,100 | 7,490 | 5,970 | 1,200 | 438 | 332 | 3,930 |
| 1917 | 339 | 724 | 661 | 1,240 | 1,350 | 6,230 | 3,450 | 2,450 | 4,560 | 3,040 | 1,040 | 1,060 | 2,130 |
| 1918 | 4,630 | 2,510 | 1,440 | 560 | 5,890 | 8,700 | 3,190 | 1,350 | 982 | 725 | 591 | 1,010 | 2,610 |

† Corrected.

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|----------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1904 | 206 | - | - | - | - | - | - | - | - | - |
| 1905 | 206 | - | - | - | - | - | - | - | - | - |
| 1906 | 206 | a15,500 | Mar. 29, 1906 | 400 | 1,890 | 0.771 | 10.45 | 2,330 | †12.91 | |
| 1907 | 244 | a15,000 | Jan. 9, 1907 | 310 | 2,880 | 1.18 | 15.94 | †2,670 | 14.80 | |
| 1908 | 244 | a21,800 | Mar. 17, 1908 | - | 3,460 | 1.41 | 19.22 | 2,920 | 16.18 | |
| 1909 | 264 | a21,400 | May 3, 4, 1909 | - | 2,180 | .890 | 12.08 | †2,210 | 12.23 | |
| 1910 | 284 | a29,000 | Mar. 5, 1910 | 174 | 2,180 | .890 | 12.07 | †2,310 | 12.82 | |
| 1911 | 304 | 14,700 | Mar. 29, 1911 | 206 | 2,310 | .943 | 12.78 | 2,610 | 14.46 | |
| 1912 | 324 | 25,500 | Apr. 3, 1912 | 250 | 2,550 | 1.04 | 14.18 | 2,280 | 12.69 | |
| 1913 | 354 | 42,000 | Mar. 28, 1913 | 102 | 2,820 | 1.15 | 15.64 | 2,710 | 15.03 | |
| 1914 | 384 | 26,900 | Mar. 30, 1914 | 170 | 2,580 | 1.05 | 14.33 | 2,550 | 14.15 | |
| 1915 | 404 | 20,000 | Feb. 26, 1915 | 313 | 1,960 | .800 | 10.83 | 2,260 | 12.49 | |
| 1916 | 434 | 48,300 | Mar. 30, 1916 | 264 | 3,930 | 1.60 | †21.82 | 3,630 | 20.20 | |
| 1917 | 454 | 14,200 | Mar. 14, 1917 | 243 | 2,190 | .894 | 12.12 | 2,770 | 15.32 | |
| 1918 | 474 | 27,900 | Mar. 16, 1918 | 300 | 2,610 | 1.07 | †14.48 | - | - | |

† Corrected.

a Maximum daily.

325. Genesee River at Driving Park Avenue, Rochester, N. Y.

Location.--Lat 43°11'05", long. 77°37'40", on right bank at Rochester, Monroe County, 40 ft downstream from plant 5 of Rochester Gas & Electric Corp. and 100 ft upstream from Driving Park Avenue Bridge.

Drainage area.--2,467 sq mi.

Gage.--Water-stage recorder. Datum of gage is 250 ft above mean sea level (Barge Canal datum). Prior to Apr. 4, 1927, water-stage recorder and chain gage in plant 5 at same datum.

Average discharge.--30 years (1920-50), 2,753 cfs.

Extremes.--1919-50: Maximum discharge (revised), 34,400 cfs Mar. 19, 1942; maximum gage height, 14.08 ft Apr. 2, 1940; minimum, less than 10 cfs, occurred during low-water periods in some years when powerplant was shut down; minimum daily, 219 cfs Aug. 14, 1927.

Maximum discharge known, about 54,000 cfs Mar. 18, 1865.

Remarks.--Excessive diurnal fluctuation caused by powerplants above station. New York State Barge Canal crosses river 5.4 miles above station. Water diverted by the canal from Lake Erie is discharged into river from the west, the canal again diverting a smaller amount of water from river to the east. Additional regulation is provided by Caneadea Reservoir.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1920 | - | - | - | 448 | 560 | 8,600 | 2,530 | 1,670 | 1,250 | 2,100 | 1,260 | 895 | - |
| 1921 | 1,250 | 2,200 | 2,820 | 1,660 | 2,650 | 5,920 | 2,810 | 2,270 | 1,450 | 1,550 | 987 | 837 | 2,200 |
| 1922 | 889 | 3,860 | 2,050 | 1,230 | 3,450 | 5,140 | 5,040 | 1,560 | 2,700 | 1,690 | 1,700 | 1,210 | 2,530 |
| 1923 | 938 | 909 | 1,100 | 1,590 | 1,820 | 9,050 | 3,460 | 2,200 | 1,580 | 1,050 | 857 | 822 | 2,120 |
| 1924 | 855 | 1,020 | 2,380 | 3,450 | 825 | 3,950 | 7,350 | 6,710 | 2,610 | 1,530 | 1,170 | 1,490 | 2,780 |
| 1925 | 2,520 | 1,020 | 1,910 | 858 | 9,160 | 4,720 | 2,580 | 1,710 | 1,140 | 1,100 | 1,160 | 1,200 | 2,380 |
| 1926 | 2,310 | 4,020 | 2,350 | 2,090 | 1,910 | 6,430 | 7,360 | 1,490 | 1,300 | 973 | 1,060 | 1,450 | 2,730 |
| 1927 | 2,390 | 4,080 | 2,100 | 2,910 | 4,370 | 6,990 | 4,400 | 5,420 | 1,740 | 972 | 1,771 | 806 | 3,070 |
| 1928 | 1,510 | 7,380 | 9,970 | 3,560 | 4,090 | 5,270 | 5,130 | 3,100 | 4,860 | 2,190 | 1,330 | 958 | 4,110 |
| 1929 | 1,060 | 2,080 | 2,950 | 3,950 | 2,160 | 7,670 | 9,800 | 5,990 | 1,680 | 1,300 | 988 | 936 | 3,390 |
| 1930 | 1,660 | 1,600 | 2,780 | 7,200 | 4,150 | 8,100 | 3,890 | 2,140 | 1,840 | 1,120 | 865 | 828 | 3,010 |
| 1931 | 785 | 850 | 919 | 818 | 1,270 | 3,480 | 5,280 | 4,980 | 2,380 | 1,330 | 1,130 | 936 | 2,010 |
| 1932 | 943 | 1,160 | 3,040 | 5,160 | 4,360 | 3,950 | 7,120 | 5,300 | 1,340 | 1,200 | 834 | 750 | 2,930 |
| 1933 | 889 | 2,000 | 1,610 | 2,490 | 1,470 | 6,460 | 5,670 | 3,670 | 2,280 | 1,020 | 983 | 951 | 2,460 |
| 1934 | 909 | 1,322 | 2,228 | 2,957 | 1,133 | 4,089 | 4,043 | 1,221 | 828 | 678 | 654 | 717 | 1,740 |
| 1935 | 815 | 1,403 | 1,468 | 3,082 | 2,263 | 5,410 | 3,747 | 3,825 | 1,325 | 2,739 | 1,366 | 1,081 | 2,383 |

Monthly and yearly mean discharge, in cubic feet per second, of Genesee River at Driving Park Avenue, Rochester, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|----------|
| 1936 | 1,096 | 1,394 | 1,861 | 1,483 | 1,940 | 14,290 | 6,103 | 1,994 | 1,093 | 723 | 686 | 764 | 2,795 |
| 1937 | 840 | 1,458 | 1,953 | 5,101 | 2,560 | 2,213 | 7,158 | 4,463 | 4,188 | 1,387 | 1,976 | 1,001 | 2,854 |
| 1938 | 1,226 | 1,879 | 2,045 | 2,075 | 5,755 | 5,088 | 4,471 | 2,310 | 1,436 | 1,150 | 1,203 | 1,505 | 2,487 |
| 1939 | 1,153 | 1,407 | 1,935 | 2,100 | 5,185 | 7,224 | 5,431 | 1,742 | 1,064 | 1,113 | 767 | 797 | 2,474 |
| 1940 | 1,088 | 1,430 | 1,962 | 1,072 | 1,367 | 2,799 | 14,160 | 2,701 | 2,365 | 1,659 | 967 | 1,159 | 2,712 |
| 1941 | 998 | 1,633 | 3,907 | 2,701 | 1,978 | 5,689 | 7,128 | 1,416 | 1,115 | 930 | 886 | 815 | 2,264 |
| 1942 | 857 | 881 | 1,222 | 1,174 | 1,427 | 10,820 | 6,513 | 2,726 | 1,565 | 2,213 | 1,352 | 1,489 | 2,697 |
| 1943 | 1,667 | 4,032 | 3,923 | 5,402 | 5,333 | 5,321 | 6,440 | 10,230 | 3,399 | 1,195 | 1,138 | 879 | 4,074 |
| 1944 | 1,054 | 1,683 | 1,362 | 1,214 | 2,348 | 5,180 | 6,728 | 4,318 | 2,357 | 1,227 | 943 | 1,026 | 2,448 |
| 1945 | 893 | 979 | 1,604 | 1,492 | 3,585 | 14,300 | 4,301 | 5,863 | 2,682 | 2,263 | 1,406 | 1,886 | 3,447 |
| 1946 | 5,194 | 4,253 | 5,695 | 5,123 | 1,908 | 5,004 | 1,561 | 3,395 | 4,012 | 1,781 | 1,384 | 968 | 3,376 |
| 1947 | 1,604 | 2,103 | 2,240 | 5,362 | 3,472 | 4,545 | 10,807 | 7,055 | 4,525 | 1,895 | 1,501 | 1,263 | 3,859 |
| 1948 | 975 | 1,420 | 2,259 | 1,273 | 4,002 | 8,177 | 5,705 | 3,757 | 2,080 | 1,079 | 1,186 | 819 | 2,723 |
| 1949 | 1,036 | 1,553 | 1,269 | 3,612 | 4,027 | 3,625 | 3,923 | 2,120 | 992 | 784 | 927 | 787 | 2,041 |
| 1950 | 576 | 572 | 1,684 | 3,558 | 2,581 | 7,440 | 7,552 | 2,665 | 1,170 | 946 | 609 | 780 | 2,510 |

| Year | W.S.P. no. | Yearly discharge, in cubic feet per second | | | | | | | Calendar year | |
|-----------|---------------|--|---------------|----------------|-------|-----------------------|------------------------|-------|------------------------|--|
| | | Water year ending Sept. 30 | | | | | Runoff in inches | Mean | Runoff in inches | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | | | | |
| Discharge | Date | | | | | | | | | |
| 1920 | 504 | 26,000 | Mar. 17, 1920 | - | - | - | - | 2,140 | 11.82 | |
| 1921 | 524 | 16,500 | Mar. 9, 1921 | 560 | 2,200 | 0.892 | 12.09 | 2,240 | 12.31 | |
| 1922 | 544 | 15,700 | Apr. 2, 1922 | 420 | 2,530 | 1.03 | 13.90 | 2,210 | 12.15 | |
| 1923 | 564 | 19,300 | Mar. 13, 1923 | 389 | 2,120 | .859 | 11.68 | 2,230 | 12.28 | |
| 1924 | 584 | 21,600 | Apr. 20, 1924 | - | 2,780 | 1.13 | 15.35 | 2,890 | 15.91 | |
| 1925 | 604 | 24,800 | Feb. 25, 1925 | 661 | 2,380 | .965 | 13.08 | 2,640 | 14.55 | |
| 1926 | 624 | 22,800 | Apr. 10, 1926 | 689 | 2,730 | 1.11 | 14.98 | 2,720 | 14.92 | |
| 1927 | 644 | 22,400 | Jan. 24, 1927 | 219 | 3,070 | 1.24 | 16.89 | 3,940 | 21.65 | |
| 1928 | 664 | 29,600 | Dec. 2, 1927 | 772 | 4,110 | 1.67 | 22.66 | 3,040 | 16.78 | |
| 1929 | 684 | 23,800 | Apr. 23, 1929 | 740 | 3,390 | 1.37 | 18.63 | 3,380 | 18.60 | |
| 1930 | 699 | 19,200 | Jan. 16, 1930 | 686 | 3,010 | 1.22 | 16.56 | 2,720 | 14.95 | |
| 1931 | 714 | 17,300 | Mar. 30, 1931 | 350 | 2,010 | .815 | 11.08 | 2,230 | 9.04 | |
| 1932 | 729 | 19,400 | May 11, 1932 | 625 | 2,930 | 1.19 | 16.18 | 2,870 | 15.84 | |
| 1933 | 744 | 19,900 | Mar. 16, 1933 | 586 | 2,460 | .997 | 13.52 | 2,458 | 13.51 | |
| 1934 | 759 | 22,300 | Mar. 5, 1934 | 451 | 1,740 | .705 | 9.57 | 1,675 | 9.21 | |
| 1935 | 784 | 22,700 | Jan. 23, 1935 | 610 | 2,383 | .966 | 13.11 | 2,440 | 13.42 | |
| 1936 | 804 | 27,700 | Mar. 28, 1936 | 500 | 2,795 | 1.13 | 15.42 | 2,787 | 15.37 | |
| 1937 | 824 | 20,200 | Apr. 23, 1937 | 465 | 2,854 | 1.16 | 15.71 | 2,929 | 16.13 | |
| 1938 | 854 | 19,000 | Mar. 7, 1938 | 628 | 2,487 | 1.01 | 13.69 | 2,433 | 13.39 | |
| 1939 | 874 | 19,000 | Feb. 23, 1939 | 600 | 2,474 | 1.00 | 13.62 | 2,473 | 13.62 | |
| 1940 | 894 | 33,500 | Apr. 2, 1940 | 375 | 2,712 | 1.10 | 14.95 | 2,885 | 15.89 | |
| 1941 | 924 | 22,700 | Apr. 7, 1941 | 676 | 2,264 | .918 | 12.44 | 1,962 | 10.79 | |
| 1942 | 954 | 34,400 | Mar. 19, 1942 | 597 | 2,697 | 1.09 | 14.83 | 3,254 | 17.89 | |
| 1943 | 974 | 25,400 | Jan. 1, 1943 | 720 | 4,074 | 1.65 | 22.41 | 3,611 | 19.87 | |
| 1944 | 1004 | 18,900 | Mar. 17, 1944 | 705 | 2,448 | .892 | 13.51 | 2,397 | 13.23 | |
| 1945 | 1034 | 24,700 | Mar. 5, 1945 | 711 | 3,447 | 1.40 | 18.96 | 4,429 | 24.36 | |
| 1946 | 1054 | 18,900 | Jan. 7, 1946 | 458 | 3,376 | 1.37 | 18.57 | 2,601 | 14.31 | |
| 1947 | 1084 | 23,800 | Apr. 8, 1947 | 782 | 3,859 | 1.56 | 21.24 | 3,751 | 20.65 | |
| 1948 | 1114 | 21,600 | Mar. 23, 1948 | 685 | 2,723 | 1.10 | 15.02 | 2,656 | 14.63 | |
| 1949 | 1144 | 16,400 | Feb. 16, 1949 | 383 | 2,041 | .827 | 11.22 | 1,957 | 10.77 | |
| 1950 | 1174 | 33,100 | Mar. 30, 1950 | 418 | 2,510 | 1.02 | 13.81 | - | - | |

* Not previously published.

326. Cayuga Inlet near Ithaca, N. Y.

Location.--Lat 42°23'35", long. 76°32'40", on left bank half a mile upstream from Butter-nut Creek and 5 miles south of Ithaca, Tompkins County.

Drainage area.--36.7 sq mi.

Gage.--Water-stage recorder. Datum of gage is 437.16 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--13 years (1937-50), 38.6 cfs.

Extremes.--1937-50: Maximum discharge, 4,110 cfs Aug. 13, 1942 (gage height, 7.58 ft), from rating curve extended above 650 cfs on basis of slope-area determinations at gage heights 5.5 ft and 7.58 ft; minimum, 1.8 cfs Aug. 30, 31, Sept. 1, 2, 1939 (gage height, 0.42 ft).

Monthly and yearly mean discharge, in cubic feet per second, of Cayuga Inlet near Ithaca, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1937 | - | - | - | - | - | - | 112 | 62.5 | 29.3 | 14.7 | 51.8 | 31.3 | - |
| 1938 | 50.0 | 63.5 | 50.7 | 38.5 | 65.1 | 91.0 | 51.8 | 24.9 | 9.75 | 5.08 | 4.13 | 19.6 | 39.3 |
| 1939 | 7.99 | 13.3 | 36.5 | 19.4 | 99.8 | 97.2 | 80.1 | 21.1 | 8.05 | 3.96 | 4.45 | 3.47 | 32.5 |
| 1940 | 6.06 | 7.52 | 17.3 | 9.00 | 14.7 | 99.2 | 174 | 75.7 | 39.1 | 19.5 | 6.27 | 6.80 | 39.6 |
| 1941 | 6.39 | 11.6 | 33.7 | 22.5 | 18.9 | 48.1 | 115 | 17.4 | 11.5 | 17.0 | 7.66 | 3.39 | 26.1 |
| 1942 | 4.25 | 6.59 | 16.1 | 14.3 | 26.7 | 140 | 65.3 | 29.1 | 13.2 | 16.4 | 66.2 | 34.8 | 36.2 |
| 1943 | 34.3 | 50.7 | 98.3 | 58.5 | 66.2 | 88.0 | 85.2 | 127 | 46.2 | 13.8 | 8.37 | 5.46 | 56.9 |
| 1944 | 33.8 | 57.0 | 18.6 | 10.8 | 23.5 | 95.5 | 65.2 | 71.1 | 42.3 | 12.3 | 6.45 | 5.48 | 36.8 |
| 1945 | 8.80 | 13.9 | 25.9 | 27.0 | 57.1 | 182 | 46.8 | 107 | 46.8 | 16.7 | 8.69 | 24.0 | 47.2 |
| 1946 | 43.9 | 66.5 | 57.9 | 59.1 | 21.6 | 97.1 | 21.8 | 93.0 | 56.7 | 14.4 | 13.0 | 7.73 | 46.3 |
| 1947 | 18.0 | 13.3 | 10.9 | 43.2 | 29.4 | 62.5 | 92.2 | 126 | 89.9 | 19.0 | 11.7 | 9.42 | 43.8 |
| 1948 | 6.67 | 21.0 | 16.0 | 9.93 | 24.4 | 131 | 79.3 | 57.2 | 25.4 | 9.85 | 10.6 | 5.68 | 33.1 |
| 1949 | 8.97 | 27.8 | 29.0 | 61.7 | 57.2 | 45.6 | 44.0 | 26.9 | 8.89 | 4.91 | 6.05 | 6.60 | 27.1 |
| 1950 | 6.04 | 10.2 | 24.1 | 48.6 | 29.9 | 130 | 92.0 | 27.8 | 24.7 | 8.66 | 8.33 | 24.6 | 36.3 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1937 | - | - | - | - | - | - | 3.40 | 1.96 | 0.89 | 0.46 | 1.63 | 0.95 | - |
| 1938 | 1.57 | 1.93 | 1.59 | 1.21 | 1.84 | 2.86 | 1.57 | .78 | .30 | .16 | .15 | .60 | 14.54 |
| 1939 | 2.45 | .40 | 1.15 | .61 | 2.83 | 3.06 | 2.43 | .66 | .24 | .12 | .14 | .11 | 12.00 |
| 1940 | .19 | .23 | .54 | .28 | .43 | 3.11 | 5.29 | 2.38 | 1.19 | .61 | .20 | .21 | 14.66 |
| 1941 | .20 | .35 | 1.06 | .71 | .54 | 1.51 | 3.49 | .55 | .35 | .53 | .24 | .10 | 9.63 |
| 1942 | .13 | .20 | .51 | .45 | .76 | 4.39 | 1.99 | .91 | .40 | .52 | 2.08 | 1.06 | 13.40 |
| 1943 | 1.08 | 1.54 | 3.09 | 1.84 | 1.88 | 2.76 | 2.59 | 3.99 | 1.40 | .43 | .26 | .17 | 21.03 |
| 1944 | 1.06 | 1.73 | .58 | .34 | .68 | 3.00 | 1.98 | 2.23 | 1.29 | .39 | .20 | .17 | 13.65 |
| 1945 | .28 | .42 | .81 | .85 | 1.62 | 5.72 | 1.42 | 3.38 | 1.42 | .53 | .27 | .73 | 17.45 |
| 1946 | 1.38 | 2.02 | 1.82 | 1.86 | .61 | 3.05 | .66 | 2.92 | 1.72 | .45 | .41 | .24 | 17.14 |
| 1947 | .56 | .40 | .34 | 1.36 | .83 | 1.96 | 2.80 | 3.95 | 2.73 | .60 | .37 | .29 | 16.19 |
| 1948 | .21 | .64 | .50 | .31 | .72 | 4.10 | 2.41 | 1.80 | .77 | .31 | .33 | .17 | 12.27 |
| 1949 | .28 | .84 | .91 | 1.94 | 1.62 | 1.43 | 1.34 | .85 | .27 | .15 | .19 | .20 | 10.02 |
| 1950 | .19 | .31 | .76 | 1.53 | .85 | 4.07 | 2.80 | .87 | .75 | .27 | .26 | .75 | 13.41 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1937 | 824 | - | - | - | - | - | - | - | - |
| 1938 | 854 | 1,550 | Mar. 6, 1938 | 2.5 | 39.3 | 1.07 | 14.54 | 30.4 | 11.25 |
| 1939 | 874 | 1,330 | Feb. 20, 1939 | 2.2 | 32.5 | .886 | 12.00 | 30.2 | 11.16 |
| 1940 | 894 | 2,110 | Mar. 31, 1940 | 3.9 | 39.6 | 1.08 | 14.66 | 41.3 | 15.31 |
| 1941 | 924 | 1,110 | June 30, 1941 | 2.6 | 26.1 | .711 | 9.63 | 24.0 | 8.86 |
| 1942 | 954 | 4,110 | Aug. 13, 1942 | 3.0 | 36.2 | .986 | 13.40 | 49.4 | 18.27 |
| 1943 | 974 | 2,020 | Dec. 30, 1942 | 4.4 | 56.9 | 1.55 | 21.03 | 50.6 | 18.69 |
| 1944 | 1004 | 1,060 | Mar. 16, 1944 | 4.2 | 36.8 | 1.00 | 13.65 | 31.8 | 11.79 |
| 1945 | 1034 | 1,080 | May 18, 1945 | 4.6 | 47.2 | 1.29 | 17.45 | 57.2 | 21.16 |
| 1946 | 1054 | 1,890 | May 27, 1946 | 5.0 | 46.3 | 1.26 | 17.14 | 35.8 | 13.22 |
| 1947 | 1084 | 2,690 | June 3, 1947 | 6.3 | 43.8 | 1.19 | 16.19 | 43.9 | 16.24 |
| 1948 | 1114 | 1,320 | Mar. 22, 1948 | 4.2 | 33.1 | .902 | 12.27 | 35.0 | 12.95 |
| 1949 | 1144 | 461 | Nov. 20, 1948 | 2.8 | 27.1 | .738 | 10.02 | 25.0 | 9.25 |
| 1950 | 1174 | 1,740 | Mar. 28, 1950 | 4.4 | 36.3 | .989 | 13.41 | - | - |

327. Fall Creek near Ithaca, N. Y.

Location.--Lat 42°27'20", long. 76°28'30", on left bank in Forest Home, half a mile upstream from Cornell University Dam, 1½ miles northeast of Ithaca, Tompkins County, and 2 miles upstream from mouth.

Drainage area.--124 sq mi.

Supplemental records available.--July 1908 to June 1909, gage heights only.

Gage.--Water-stage recorder. Datum of gage is 794.81 ft above mean sea level, adjustment of 1912 (levels by Corps of Engineers).

Average discharge.--25 years (1925-50), 186 cfs.

Extremes.--1925-50: Maximum discharge, 15,500 cfs July 8, 1935 (gage height, 9.52 ft); from average of computed flow over each of four dams; minimum, about 3 cfs Aug. 25, 1927 (gage height, 0.18 ft).

STREAMS TRIBUTARY TO LAKE ONTARIO

| Monthly and yearly mean discharge, in cubic feet per second, of Fall Creek near Ithaca, N. Y. | | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1925 | - | - | - | - | - | 334 | 236 | 174 | 55.5 | 98.2 | 58.5 | 59.1 | - |
| 1926 | 109 | 260 | 190 | 130 | 132 | 317 | 477 | 135 | 71.5 | 36.9 | 93.8 | 215 | 180 |
| 1927 | 207 | 439 | 123 | 150 | 232 | 569 | 253 | 320 | 101 | 57.8 | 47.1 | 43.0 | 213 |
| 1928 | 265 | 497 | 427 | 186 | 264 | 344 | 315 | 210 | 230 | 129 | 74.7 | 28.6 | 247 |
| 1929 | 48.0 | 121 | 170 | 84.6 | 88.6 | 536 | 620 | 383 | 83.0 | 115 | 76.5 | 43.3 | 198 |
| 1930 | 188 | 163 | 184 | 318 | 198 | 463 | 287 | 137 | 249 | 78.5 | 24.8 | 27.2 | 193 |
| 1931 | 20.7 | 26.9 | 48.7 | 40.4 | 106 | 430 | 413 | 245 | 98.5 | 42.5 | 22.9 | 22.3 | 126 |
| 1932 | 18.0 | 40.5 | 236 | 342 | 263 | 274 | 524 | 272 | 53.8 | 55.6 | 24.6 | 13.3 | 176 |
| 1933 | 93.1 | 192 | 87.1 | 97.0 | 61.8 | 392 | 406 | 90.1 | 41.2 | 25.0 | 121 | 56.3 | 139 |
| 1934 | 53.5 | 129 | 176 | 233 | 44.1 | 351 | 433 | 62.0 | 57.1 | 21.0 | 16.1 | 59.1 | 137 |
| 1935 | 41.8 | 162 | 160 | 333 | 128 | 441 | 414 | 285 | 65.7 | 608 | 70.1 | 46.6 | 231 |
| 1936 | 44.8 | 153 | 181 | 129 | 86.7 | 1,037 | 379 | 207 | 42.6 | 18.7 | 16.0 | 16.8 | 194 |
| 1937 | 35.2 | 133 | 178 | 396 | 236 | 207 | 575 | 205 | 166 | 50.5 | 101 | 58.2 | 194 |
| 1938 | 235 | 240 | 224 | 186 | 375 | 399 | 254 | 115 | 40.6 | 24.2 | 121 | 350 | 212 |
| 1939 | 78.9 | 90.6 | 192 | 113 | 391 | 486 | 455 | 83.7 | 59.7 | 18.3 | 15.9 | 10.5 | 161 |
| 1940 | 18.3 | 25.7 | 71.8 | 42.2 | 56.7 | 271 | 1,021 | 212 | 129 | 151 | 48.1 | 36.5 | 173 |
| 1941 | 29.1 | 89.0 | 254 | 129 | 109 | 225 | 614 | 79.3 | 39.2 | 35.2 | 36.9 | 20.0 | 138 |
| 1942 | 25.1 | 45.8 | 132 | 133 | 118 | 648 | 302 | 124 | 45.0 | 29.8 | 96.4 | 85.9 | 149 |
| 1943 | 122 | 250 | 395 | 274 | 314 | 476 | 369 | 529 | 218 | 48.1 | 38.6 | 20.7 | 254 |
| 1944 | 176 | 245 | 92.4 | 69.4 | 91.1 | 484 | 332 | 262 | 154 | 39.8 | 21.2 | 24.5 | 166 |
| 1945 | 36.9 | 67.9 | 132 | 143 | 232 | 879 | 234 | 389 | 204 | 69.7 | 37.9 | 238 | 222 |
| 1946 | 359 | 422 | 221 | 222 | 87.3 | 438 | 100 | 258 | 221 | 95.8 | 54.3 | 50.4 | 212 |
| 1947 | 180 | 110 | 78.1 | 312 | 128 | 381 | 564 | 516 | 332 | 143 | 98.6 | 47.4 | 241 |
| 1948 | 25.1 | 109 | 106 | 46.3 | 154 | 589 | 300 | 319 | 115 | 51.7 | 102 | 24.2 | 162 |
| 1949 | 29.9 | 158 | 125 | 351 | 291 | 237 | 244 | 131 | 54.4 | 39.3 | 28.2 | 46.4 | 144 |
| 1950 | 37.1 | 69.5 | 162 | 294 | 134 | 505 | 508 | 132 | 226 | 76.5 | 31.1 | 154 | 194 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1925 | - | - | - | - | - | 3.10 | 2.12 | 1.62 | 0.50 | 0.91 | 0.54 | 0.53 | - |
| 1926 | 1.01 | 2.34 | 1.76 | 1.21 | 1.11 | 2.95 | 4.29 | 1.25 | .64 | .34 | .87 | 1.94 | 19.71 |
| 1927 | 1.92 | 3.95 | 1.15 | 1.49 | 1.95 | 5.29 | 2.28 | 2.98 | .91 | .54 | .44 | .39 | 23.29 |
| 1928 | 2.47 | 4.47 | 3.97 | 1.73 | 2.29 | 3.20 | 2.83 | 1.95 | 2.07 | 1.20 | .69 | .26 | 27.13 |
| 1929 | 1.45 | 1.08 | 1.58 | .79 | .74 | 4.98 | 5.58 | 3.56 | .75 | 1.07 | .71 | .39 | 21.68 |
| 1930 | 1.75 | 1.47 | 1.71 | 2.96 | 1.66 | 4.30 | 2.58 | 1.27 | 2.24 | .73 | .23 | .24 | 21.14 |
| 1931 | .19 | .24 | .45 | .38 | .89 | 4.00 | 3.72 | 2.27 | .89 | .40 | .21 | .20 | 13.84 |
| 1932 | .17 | .36 | 2.20 | 3.18 | 2.29 | 2.55 | 4.72 | 2.53 | .48 | .52 | .23 | .12 | 19.35 |
| 1933 | .87 | 1.73 | .81 | .90 | .52 | 3.64 | 3.66 | .84 | .37 | .23 | 1.12 | .51 | 15.20 |
| 1934 | .50 | 1.16 | 1.64 | 2.17 | .37 | 3.26 | 3.89 | .58 | .51 | .19 | .15 | .53 | 14.95 |
| 1935 | .39 | 1.46 | 1.49 | 3.10 | 1.07 | 4.10 | 3.73 | 2.65 | .59 | 5.65 | .65 | .42 | 25.30 |
| 1936 | .42 | 1.37 | 1.68 | 1.20 | .75 | 9.64 | 3.41 | 1.92 | .38 | .17 | .15 | .15 | 21.24 |
| 1937 | .33 | 1.19 | 1.66 | 3.68 | 1.98 | 1.92 | 5.18 | 1.90 | 1.50 | .47 | .94 | .52 | 21.27 |
| 1938 | 2.19 | 2.16 | 2.09 | 1.73 | 3.14 | 3.71 | 2.29 | 1.07 | .36 | .22 | 1.13 | 3.15 | 23.24 |
| 1939 | .73 | .82 | 1.79 | 1.05 | 3.28 | 4.52 | 3.92 | .78 | .36 | .17 | .15 | .09 | 17.66 |
| 1940 | .17 | .23 | .67 | .39 | .49 | 2.52 | 9.18 | 1.97 | 1.16 | 1.41 | .45 | .33 | 18.97 |
| 1941 | .27 | .80 | 2.36 | 1.20 | .92 | 2.09 | 5.52 | .74 | .35 | .33 | .34 | .18 | 15.10 |
| 1942 | .23 | .41 | 1.22 | 1.23 | .99 | 6.03 | 2.72 | 1.15 | .40 | .28 | .90 | .77 | 16.33 |
| 1943 | 1.13 | 2.25 | 3.68 | 2.55 | 2.64 | 4.42 | 3.32 | 4.92 | 1.97 | .45 | .36 | .19 | 27.88 |
| 1944 | 1.64 | 2.20 | .86 | .65 | .79 | 4.50 | 2.99 | 2.44 | 1.38 | .37 | .20 | .22 | 18.24 |
| 1945 | .34 | .61 | 1.23 | 1.33 | 1.95 | 8.18 | 2.11 | 3.61 | 1.84 | .65 | .35 | 2.14 | 24.34 |
| 1946 | 3.34 | 3.79 | 2.06 | 2.06 | .73 | 4.07 | .90 | 2.40 | 1.99 | .89 | .50 | .45 | 23.18 |
| 1947 | 1.34 | .98 | .73 | 2.90 | 1.08 | 3.54 | 5.07 | 4.80 | 2.98 | 1.33 | .92 | .43 | 26.44 |
| 1948 | .23 | .98 | .99 | .43 | 1.34 | 5.47 | 2.70 | 2.96 | 1.04 | .48 | .94 | .22 | 17.77 |
| 1949 | .28 | 1.42 | 1.17 | 3.27 | 2.44 | 2.20 | 2.19 | 1.22 | .49 | .37 | .26 | .42 | 15.73 |
| 1950 | .34 | .63 | 1.51 | 2.74 | 1.13 | 4.70 | 4.57 | 1.23 | 2.04 | .71 | .29 | 1.38 | 21.27 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604 | - | - | - | - | - | - | - | - |
| 1926 | 624 | 2,240 | Mar. 25, 1926 | 21 | 180 | 1.45 | 19.71 | 198 | 21.62 |
| 1927 | 644 | 5,320 | Nov. 16, 1926 | 17 | 213 | 1.72 | 23.29 | 248 | 27.18 |
| 1928 | 664 | 2,950 | Oct. 19, 1927 | 14 | 247 | 1.99 | 27.13 | 176 | 19.33 |
| 1929 | 684 | 3,370 | Apr. 21, 1929 | 17 | 198 | 1.60 | 21.68 | 215 | 23.50 |
| 1930 | 699 | 2,260 | Mar. 8, 1930 | 14 | 193 | 1.56 | 21.14 | 156 | 17.09 |
| 1931 | 714 | 1,770 | Mar. 29, 1931 | 9 | 126 | 1.02 | 13.84 | 143 | 15.69 |
| 1932 | 729 | 2,170 | Mar. 31, 1932 | 10 | 176 | 1.42 | 19.35 | 182 | 20.03 |
| 1933 | 744 | 1,700 | Aug. 24, 1933 | 17 | 139 | 1.12 | 15.20 | 158 | 15.09 |
| 1934 | 759 | 3,480 | Mar. 27, 1934 | 10 | 137 | 1.10 | 14.95 | 137 | 14.99 |
| 1935 | 874 | 15,500 | July 8, 1935 | 20 | 231 | 1.86 | 25.30 | 232 | 25.43 |
| 1936 | 874 | 5,040 | Mar. 18, 1936 | 12 | 194 | 1.56 | 21.24 | 191 | 20.95 |
| 1937 | 874 | 1,880 | Apr. 6, 1937 | 14 | 194 | 1.56 | 21.27 | 224 | 24.53 |
| 1938 | 874 | 2,580 | Oct. 29, 1937 | 13 | 212 | 1.71 | 23.24 | 184 | 20.14 |
| 1939 | 874 | 4,400 | Feb. 20, 1939 | 7.9 | 161 | 1.30 | 17.66 | 141 | 15.39 |
| 1940 | 894 | 4,300 | Mar. 31, 1940 | 11 | 173 | 1.40 | 18.97 | 194 | 21.33 |

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Yearly discharge, in cubic feet per second, of Fall Creek near Ithaca, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1941 | 924 | 3,890 | Apr. 6, 1941 | 12 | 138 | 1.11 | 15.10 | 124 | 13.53 |
| 1942 | 954 | 4,630 | Mar. 17, 1942 | 13 | 149 | 1.20 | 16.33 | 197 | 21.53 |
| 1943 | 974 | 5,660 | Dec. 30, 1942 | 16 | 254 | 2.05 | 27.88 | 233 | 25.52 |
| 1944 | 1004 | 3,310 | Mar. 17, 1944 | 15 | 186 | 1.34 | 18.24 | 143 | 15.72 |
| 1945 | 1034 | 2,920 | Mar. 17, 22, 1945 | 19 | 222 | 1.79 | 24.34 | 286 | 31.35 |
| 1946 | 1054 | 2,480 | May 28, 1946 | 21 | 212 | 1.71 | 23.18 | 159 | 17.38 |
| 1947 | 1084 | 5,180 | June 3, 1947 | 28 | 241 | 1.94 | 26.44 | 231 | 25.25 |
| 1948 | 1114 | 3,510 | Mar. 17, 1948 | 18 | 162 | 1.31 | 17.77 | 168 | 18.44 |
| 1949 | 1144 | 2,220 | Nov. 20, 1948 | 11 | 144 | 1.16 | 15.73 | 140 | 15.34 |
| 1950 | 1174 | 5,120 | Mar. 28, 1950 | 20 | 194 | 1.56 | 21.27 | - | - |

328. Canandaigua Lake at Canandaigua, N. Y.

Location--Lat 42°52'20", long. 77°16'20", at south end of City Pier at northern end of Canandaigua Lake, 1 mile southeast of Canandaigua, Ontario County.

Drainage area--189 sq mi.

Gage--Water-stage recorder. Datum of gage is 680.76 ft above mean sea level (levels by Corps of Engineers). Prior to June 26, 1946, staff gage at E. T. Waldorf's boathouse at same datum. December 1927 to November 1939, records collected by city of Canandaigua at site on west side of E. T. Waldorf's boathouse.

Remarks--Elevation of lake surface regulated by gates on east outlet and stoplogs on west outlet. West outlet, which usually carries most of lake outflow, is an artificial canal 1½ miles long which discharges into Canandaigua Lake Outlet; spillway consists of permanent stoplog 9.8 ft long with top at gage height 3.2 ft extending across a masonry arch opening under roadway. East outlet is at head of natural outlet channel from lake; flow regulated above gage height of about 4.6 ft by two gates at highway bridge half a mile downstream. The city engineer of Canandaigua regulates storage in lake for Oswego River Watershed Corp., Fulton, by operation of gates and stoplogs on outlets. Capacity of lake between gage height 3.2 and 9.2 ft, 2,772 million cu ft, on basis of water surface area of 16.57 sq mi. Contents prior to October 1945 not computed; accuracy of staff-gage readings uncertain because of wave action.

Month-end contents, in millions of cubic feet

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1945 | - | - | - | - | - | - | - | - | - | - | - | 1,778.5 |
| 1946 | 1,542.9 | 1,672.2 | 1,750.8 | 1,533.7 | 1,265.7 | 1,533.7 | 1,538.3 | 1,732.3 | 1,797.0 | 1,432.0 | 1,362.7 | 1,330.4 |
| 1947 | 1,404.3 | 1,408.9 | 1,256.5 | 1,450.5 | 1,187.2 | 1,529.0 | 2,009.5 | 1,935.5 | 1,542.9 | 1,524.4 | 1,584.5 | 1,399.7 |
| 1948 | 1,307.3 | 1,233.4 | 1,117.9 | 900.8 | 1,164.1 | 1,732.3 | 1,736.9 | 2,051.0 | 1,861.8 | 1,575.2 | 1,450.5 | 1,293.4 |
| 1949 | 1,136.4 | 1,117.9 | 1,071.7 | 1,432.0 | 1,418.2 | 1,356.1 | 1,616.8 | 1,709.2 | 1,612.2 | 1,547.5 | 1,427.4 | 1,228.6 |
| 1950 | 1,076.3 | 947.0 | 682.3 | 1,127.3 | 1,330.4 | 2,429.8 | 1,718.4 | 1,663.0 | 1,667.6 | 1,704.6 | 1,378.9 | 1,427.4 |

329. Canandaigua Lake Outlet at Chapin, N. Y.

Location--Lat 42°55'00", long. 77°14'00", on left bank in Chapin, Ontario County, 500 ft upstream from highway bridge and 3 miles downstream from Canandaigua Lake.

Drainage area--199 sq mi.

Gage--Water-stage recorder. Datum of gage is 673.6 ft above mean sea level (levels by Corps of Engineers).

Average discharge--10 years (1940-50), 147 cfs (unadjusted).

Extremes--1939-50: Maximum discharge, 1,100 cfs Mar. 17, 1942 (gage height, 4.64 ft); minimum, 4.6 cfs Sept. 17, 1948.

Remarks--Flow regulated by Canandaigua Lake. Monthly runoff adjusted for change in contents in Canandaigua Lake since October 1945 (see above).

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1940 | - | - | 30.6 | 29.6 | 34.1 | 61.1 | 831 | 425 | 321 | 186 | 87.5 | 61.3 | - |
| 1941 | 45.1 | 37.6 | 73.0 | 117 | 102 | 144 | 380 | 91.9 | 71.7 | 47.5 | 34.6 | 30.6 | 97.5 |
| 1942 | 34.4 | 29.4 | 22.7 | 23.7 | 28.0 | 468 | 569 | 176 | 46.8 | 36.5 | 32.0 | 74.0 | 129 |
| 1943 | 73.5 | 115 | 165 | 364 | 285 | 303 | 229 | 725 | 528 | 90.4 | 33.5 | 23.5 | 244 |
| 1944 | 47.7 | 75.3 | 115 | 84.5 | 88.8 | 226 | 297 | 381 | 141 | 95.5 | 68.0 | 47.8 | 139 |
| 1945 | 33.5 | 24.5 | 58.6 | 70.0 | 112 | 586 | 466 | 411 | 96.7 | 92.6 | 71.9 | 68.2 | 175 |
| 1946 | 321 | 243 | 424 | 365 | 191 | 228 | 61.4 | 65.7 | 154 | 159 | 24.2 | 23.0 | 189 |
| 1947 | 39.6 | 49.5 | 89.3 | 180 | 211 | 212 | 444 | 520 | 403 | 34.5 | 33.5 | 32.9 | 187 |
| 1948 | 18.9 | 20.1 | 55.6 | 86.9 | 91.8 | 275 | 399 | 214 | 210 | 122 | 27.7 | 29.4 | 129 |
| 1949 | 48.6 | 47.0 | 39.0 | 96.7 | 241 | 210 | 107 | 86.7 | 51.4 | 28.3 | 29.1 | 23.0 | 83.2 |
| 1950 | 18.1 | 24.3 | 29.8 | 45.5 | 41.7 | 207 | 615 | 122 | 27.9 | 20.7 | 25.3 | 21.6 | 99.6 |

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly runoff, in inches (adjusted), of Canandaigua Lake Outlet at Chapin, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|-------|-------|----------|
| 1946 | 1.35 | 1.64 | 2.63 | 1.65 | 0.42 | 1.90 | 0.35 | 0.80 | 1.00 | 0.13 | -0.01 | 0.06 | 11.92 |
| 1947 | .39 | .29 | .19 | 1.46 | .54 | 1.96 | 3.53 | 2.86 | 1.41 | .16 | .32 | -.22 | 12.89 |
| 1948 | -.09 | -.05 | .07 | 1.03 | 1.07 | 2.82 | 2.25 | 1.92 | .77 | .09 | -.11 | -.17 | 8.60 |
| 1949 | -.06 | -.22 | .13 | 1.55 | 1.23 | 1.09 | 1.16 | .70 | .08 | .02 | -.09 | -.30 | 5.53 |
| 1950 | -.22 | -.14 | .03 | .79 | .66 | 3.58 | 1.91 | .59 | .17 | .20 | -.12 | -.21 | 7.24 |

Note.--Negative figures indicate that natural losses from Canandaigua Lake exceeded inflow.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|--|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted | |
| | | Momentary | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | | | |
| 1940 | 894 | - | - | - | - | - | - | - | 182 | 193 | 13.19 | |
| 1941 | 924 | 542 | Apr. 5, 1941 | 24 | 97.5 | 96.9 | 0.487 | 6.60 | 91.6 | 78.1 | 5.33 | |
| 1942 | 954 | 1,100 | Mar. 17, 1942 | 18 | 129 | 138 | .693 | 9.43 | 151 | 184 | 12.60 | |
| 1943 | 974 | 964 | May 26, 1943 | 12 | 244 | 241 | 1.21 | 16.48 | 235 | 213 | 14.52 | |
| 1944 | 1004 | 506 | May 10, 1944 | 35 | 139 | 135 | .678 | 9.22 | 129 | 125 | 8.57 | |
| 1945 | 1034 | 940 | Mar. 23, 1945 | 21 | 175 | 195 | .980 | 13.30 | 248 | 274 | 18.70 | |
| 1946 | 1054 | 551 | Dec. 11, 1945 | 17 | 189 | 175 | .879 | 11.92 | 121 | 105 | 7.17 | |
| 1947 | 1084 | 792 | June 3, 1947 | 17 | 187 | 189 | .950 | 12.89 | 180 | 175 | 11.95 | |
| 1948 | 1114 | 580 | Apr. 25, 1948 | 5.2 | 129 | 126 | .633 | 8.60 | 132 | 131 | 8.96 | |
| 1949 | 1144 | 335 | Feb. 15, 1949 | 5.53 | 83.2 | 81.1 | .408 | 5.53 | 77.9 | 71.9 | 4.91 | |
| 1950 | 1174 | 1,090 | Mar. 27, 1950 | 8.4 | 99.6 | 106 | .533 | 7.24 | - | - | - | |

Note.--Annual runoff adjusted for change in contents in Canandaigua Lake; adjustments prior to 1946 are only approximate due to wave action.

330. Owasco Lake Outlet near Auburn, N. Y.

Location.--Lat 42°56'45", long. 76°36'05", on left bank 2½ miles downstream from center of Auburn, Cayuga County, and 4 miles downstream from State dam at outlet of Owasco Lake. Drainage area.--208 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 540 ft (from topographic map).

Average discharge.--37 years (1913-50), 285 cfs.

Extremes.--1912-50: Maximum discharge, 2,090 cfs Mar. 19, 1936, Apr. 9, 1940, Apr. 4, 1950; maximum gage height, 4.88 ft Mar. 19, 1936, Apr. 9, 1940; minimum discharge, about 2 cfs Dec. 5, 1936 (gage height, 1.36 ft); minimum daily, 5 cfs Nov. 11, 1934.

Remarks.--Diurnal fluctuation caused by mills in Auburn; seasonal regulation at State dam. Water supply for Auburn taken from Owasco Lake, part of which returns as sewage to outlet above gaging station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1913 | - | - | 258 | 716 | 264 | 586 | 684 | 164 | 135 | 122 | 93.5 | 83.3 | 307 |
| 1914 | 74.5 | 77.7 | 101 | 169 | 285 | 421 | 1,540 | 410 | 158 | 187 | 154 | 285 | 304 |
| 1915 | 151 | 130 | 108 | 356 | 598 | 425 | 194 | 188 | 145 | 283 | 334 | 366 | 271 |
| 1916 | 501 | 322 | 300 | 502 | 328 | 330 | 988 | 537 | 411 | 207 | 118 | 110 | 387 |
| 1917 | 84.4 | 72.4 | 94.2 | 126 | 164 | 358 | 639 | 388 | 243 | 469 | 225 | 215 | 291 |
| 1918 | 268 | 390 | 229 | 174 | 187 | 626 | 476 | 306 | 247 | 187 | 182 | 146 | 284 |
| 1919 | 136 | 151 | 205 | 296 | 190 | 293 | 643 | 590 | 193 | 173 | 175 | 142 | 266 |
| 1920 | 122 | 152 | 141 | 149 | 128 | 830 | 580 | 250 | 175 | 129 | 72.5 | 72.6 | 234 |
| 1921 | 122 | 116 | 421 | 275 | 217 | 572 | 304 | 251 | 158 | 146 | 131 | 92.9 | 235 |
| 1922 | 57.6 | 94.3 | 189 | 196 | 371 | 674 | 737 | 228 | 805 | 454 | †306 | 275 | 364 |
| 1923 | 174 | 130 | 151 | 191 | 289 | 690 | 583 | 303 | 218 | 205 | 170 | 98.8 | 265 |
| 1924 | 77.5 | 81.9 | 128 | 361 | 236 | 214 | 709 | 443 | 200 | 158 | 175 | 160 | 245 |
| 1925 | 142 | 152 | 156 | 148 | 644 | 575 | 592 | 294 | 195 | 187 | 202 | 207 | 272 |
| 1926 | 159 | 248 | 375 | 249 | 255 | 413 | 801 | 301 | 179 | 153 | 92.1 | 127 | 279 |
| 1927 | 233 | 581 | 391 | 272 | 436 | 757 | 339 | 369 | 258 | 155 | 175 | 157 | 343 |
| 1928 | 143 | 505 | 1,050 | 415 | 345 | 341 | 430 | 346 | 228 | 203 | 219 | 135 | 364 |
| 1929 | 117 | 147 | 155 | 161 | 192 | 817 | 1,070 | 848 | 191 | 132 | 169 | 165 | 348 |
| 1930 | 201 | 234 | 258 | 534 | 298 | 645 | 411 | 193 | 458 | 293 | 168 | 136 | 319 |
| 1931 | 86.0 | 60.1 | 71.5 | 74.5 | 104 | 277 | 668 | 424 | 312 | 170 | 154 | 81.1 | 207 |
| 1932 | 63.1 | 56.5 | 96.8 | 236 | 589 | 362 | 869 | 443 | 159 | 138 | 149 | 110 | 271 |
| 1933 | 82.1 | 107 | 115 | 169 | 126 | 311 | 691 | 255 | 167 | 132 | 97.7 | 82.0 | 195 |
| 1934 | 53.5 | 49.9 | 106 | 211 | 215 | 264 | 542 | 222 | 151 | 107 | 71.7 | 45.5 | 169 |
| 1935 | 35.7 | 46.2 | 177 | 362 | 334 | 447 | 682 | 531 | 190 | 468 | 291 | 135 | 309 |
| 1936 | 89.2 | 116 | 283 | 300 | 248 | 1,171 | 822 | 385 | 206 | 124 | 55.6 | 32.8 | 320 |
| 1937 | 29.3 | 28.2 | 129 | 500 | 531 | 396 | 654 | 463 | 290 | 186 | 123 | 154 | 288 |
| 1938 | 121 | 333 | 350 | 314 | 638 | 614 | 412 | 355 | 187 | 109 | 82.7 | 110 | 300 |
| 1939 | 183 | 162 | 175 | 170 | 305 | 682 | 739 | 256 | 147 | 66.9 | 46.9 | 43.0 | 247 |
| 1940 | 25.7 | 29.5 | 37.0 | 39.4 | 56.9 | 245 | 1,476 | 429 | 337 | 317 | 166 | 115 | 272 |
| 1941 | 69.8 | 31.1 | 116 | 348 | 312 | 279 | 763 | 273 | 142 | 91.1 | 58.6 | 44.7 | 209 |
| 1942 | 35.7 | 28.9 | 60.4 | 120 | 136 | 811 | 540 | 244 | 161 | 132 | 132 | 152 | 217 |
| 1943 | 139 | 210 | 358 | 851 | 437 | 699 | 595 | 892 | 523 | 229 | 96.2 | 48.5 | 424 |
| 1944 | 36.6 | 292 | 244 | 161 | 163 | 434 | 625 | 480 | 302 | 244 | 106 | 68.7 | 263 |
| 1945 | 38.2 | 27.1 | 115 | 216 | 262 | 1,255 | 503 | 552 | 339 | 291 | 170 | 134 | 326 |
| 1946 | 402 | 563 | 552 | 398 | 255 | 548 | 290 | 221 | 328 | 292 | 211 | 127 | 349 |
| 1947 | 155 | 231 | 199 | 244 | 425 | 443 | 834 | 647 | 775 | 235 | 165 | 130 | 372 |
| 1948 | 58.2 | 42.0 | 76.3 | 113 | 150 | 576 | 496 | 491 | 368 | 180 | 78.7 | 50.6 | 224 |
| 1949 | 31.4 | 26.4 | 146 | 360 | 430 | 462 | 353 | 78.7 | 35.4 | 35.4 | 77.2 | 204 | 272 |
| 1950 | 107 | 40.7 | 183 | 407 | 362 | 575 | 1,056 | 320 | 209 | 205 | 176 | 165 | 316 |

† Corrected.

Yearly discharge, in cubic feet per second, of Owaseo Lake Outlet near Auburn, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|-------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1913 | 354, 804 | - | - | - | - | - | - | 259 | 16.89 |
| 1914 | 384, 824 | 1,850 | Apr. 3, 1914 | 47 | 304 | 1.46 | 19.82 | 315 | 20.57 |
| 1915 | 404 | 1,260 | Feb. 26, 1915 | 57.2 | 271 | 1.30 | 17.70 | 333 | 21.74 |
| 1916 | 434, 824 | 1,720 | Apr. 3, 1916 | 48 | 387 | 1.86 | 25.35 | 315 | 20.60 |
| 1917 | 454 | 1,070 | June 30, 1917 | 10.0 | 291 | 1.40 | 19.01 | 344 | 22.44 |
| 1918 | 474 | 1,100 | Mar. 17, 1918 | 48 | 284 | 1.37 | 18.56 | 251 | 16.40 |
| 1919 | 504 | 1,160 | Apr. 12, 1919 | 33 | 266 | 1.28 | 17.35 | 259 | 16.93 |
| 1920 | 504, 824 | 1,460 | Mar. 29, 1920 | 15 | 234 | 1.12 | 15.32 | 255 | 16.67 |
| 1921 | 524 | 1,040 | Mar. 16, 1921 | 19 | 235 | 1.13 | 15.31 | 208 | 13.57 |
| 1922 | 544, 824 | 1,620 | June 22, 1922 | 9.8 | 364 | 1.75 | 23.79 | 372 | 24.30 |
| 1923 | 564 | 1,250 | Mar. 24, 1923 | 56 | 265 | 1.27 | 17.31 | 253 | 16.50 |
| 1924 | 584 | 1,390 | Jan. 28, 1924 | 27 | 245 | 1.18 | 16.02 | 258 | 16.89 |
| 1925 | 604 | 1,250 | Feb. 27, 1925 | 61 | 272 | 1.31 | 17.72 | 300 | 19.56 |
| 1926 | 624 | 1,140 | Apr. 12, 1926 | 40 | 279 | 1.34 | 18.21 | 314 | 20.50 |
| 1927 | 644 | 1,110 | Mar. 23, 1927 | 99 | 343 | 1.65 | 22.38 | 385 | 25.14 |
| 1928 | 664, 824 | 1,620 | Dec. 2, 1927 | 95 | 364 | 1.75 | 23.84 | 256 | 16.80 |
| 1929 | 684, 824 | 1,800 | Apr. 22, 1929 | 34 | 348 | 1.67 | 22.69 | 371 | 24.19 |
| 1930 | 698 | 1,110 | June 19, 1930 | 98 | 319 | 1.53 | 20.84 | 280 | 18.24 |
| 1931 | 714 | 1,260 | Apr. 4, 1931 | 24 | 207 | .995 | 13.49 | 207 | 13.48 |
| 1932 | 729, 824 | *1,620 | Apr. 4, 1932 | 20 | 271 | 1.30 | 17.72 | 278 | 18.21 |
| 1933 | 744 | 920 | Apr. 8, 1933 | 56 | 195 | .937 | 12.72 | 187 | 12.20 |
| 1934 | 759 | 696 | Apr. 5, 1934 | 15 | 169 | .812 | 11.03 | 173 | 11.30 |
| 1935 | 784 | 1,080 | Apr. 20, 1935 | 5 | 509 | 1.49 | 20.14 | 328 | 21.39 |
| 1936 | 804 | 2,090 | Mar. 19, 1936 | 18 | 320 | *1.54 | *20.93 | 295 | 19.27 |
| 1937 | 824 | 1,040 | Jan. 28, 1937 | 14 | 288 | 1.38 | 18.80 | 340 | 22.17 |
| 1938 | 854 | 1,350 | May 29, 1938 | 40 | 300 | 1.44 | 19.56 | 276 | 18.02 |
| 1939 | 874 | 1,060 | Feb. 28, 1939 | 17 | 247 | 1.19 | 16.13 | 211 | 13.79 |
| 1940 | 894 | 2,090 | Apr. 9, 1940 | 14 | 272 | 1.31 | 17.79 | 282 | 18.48 |
| 1941 | 924 | 1,300 | Apr. 8, 1941 | 19 | 209 | 1.00 | 13.66 | 202 | 13.13 |
| 1942 | 954 | 1,510 | Mar. 17, 1942 | 18 | 217 | 1.04 | 14.17 | 266 | 17.38 |
| 1943 | 974 | 1,610 | Dec. 31, 1942 | 14 | 424 | 2.04 | 27.66 | 412 | 26.89 |
| 1944 | 1004 | 1,210 | Apr. 13, 1944 | 8.2 | 263 | 1.26 | 17.18 | 230 | 15.07 |
| 1945 | 1034 | 2,030 | Mar. 22, 1945 | 20 | 326 | 1.57 | 21.30 | 438 | 28.61 |
| 1946 | 1054 | 1,000 | Mar. 9, 1946 | 99 | 349 | 1.68 | 22.79 | 271 | 17.68 |
| 1947 | 1084 | 1,420 | June 7, 1947 | 27 | 372 | 1.79 | 24.28 | 358 | 22.05 |
| 1948 | 1114 | 1,400 | Mar. 22, 1948 | 21 | 224 | 1.08 | 14.62 | 226 | 14.77 |
| 1949 | 1144 | 732 | Feb. 16, 24, 1949 | 13 | 204 | .981 | 13.32 | 215 | 14.02 |
| 1950 | 1174 | 2,090 | Apr. 4, 1950 | 19 | 316 | 1.52 | 20.64 | - | - |

* Revised.

† Not previously published.

331. Skaneateles Lake Outlet at Willow Glen, N. Y. 1/

Location.--Lat 42°57'40", long. 76°26'25", at Willow Glen, Onondaga County, 1½ miles downstream from Skaneateles and foot of lake.

Drainage area.--75.8 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 840 ft (from topographic map). Prior to Mar. 10, 1895, staff gages at sites about half a mile and 1½ miles upstream at different datums.

Average discharge.--13 years (1895-1908), 92.5 cfs (adjusted).

Remarks.--Seasonal flow regulated by storage in Skaneateles Lake. Diversion from Skaneateles Lake for municipal supply of city of Syracuse since July 1, 1894. Runoff adjusted for diversions from Skaneateles Lake since March 1895.

Monthly and yearly mean discharge, in cubic feet per second (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|------|------|-------|------|------|------|------|-------|-------|----------|
| 1891 | 101 | 107 | 113 | 103 | 115 | 183 | 187 | - | 96.4 | 94.9 | - | - | - |
| 1892 | - | - | - | - | - | - | - | - | - | - | - | 102 | - |
| 1893 | 97.7 | 85.2 | 82.1 | 68.0 | 74.7 | 80.2 | 93.1 | 223 | 158 | 157 | - | - | - |
| 1894 | - | - | - | - | - | - | - | - | - | 33.2 | *57.6 | 79.3 | - |
| 1895 | 81.2 | 79.4 | - | - | - | - | *142 | 111 | 84.0 | 89.7 | 97.8 | 97.2 | - |
| 1896 | 99.2 | 97.3 | 84.1 | 80.0 | 82.5 | *86.2 | 83.4 | 84.3 | 83.1 | 76.3 | 78.8 | 83.5 | 84.9 |
| 1897 | 79.4 | 76.2 | 68.6 | 64.5 | 61.0 | 53.3 | 5.6 | 61.9 | 73.8 | 75.3 | 126 | 77.1 | 68.8 |
| 1898 | *86.7 | 81.5 | *67.8 | 68.6 | 67.4 | 69.5 | 70.8 | 74.7 | 71.3 | 72.7 | 72.2 | 71.8 | 73.0 |
| 1899 | 72.9 | 72.0 | 72.2 | 75.5 | 68.9 | 69.7 | 76.0 | 72.3 | 78.9 | 79.1 | 67.7 | 64.1 | 72.5 |
| 1900 | 60.9 | 60.1 | 27.0 | 16.0 | 28.7 | 14.5 | 9.07 | 18.6 | 34.2 | 46.3 | 69.1 | 67.4 | 37.7 |
| 1901 | 93.5 | 82.7 | 50.4 | 36.0 | 32.0 | 43.1 | 88.4 | 120 | *174 | 128 | 95.4 | 83.4 | 85.7 |
| 1902 | 98.9 | 103 | 82.4 | 70.8 | 70.5 | 77.1 | 75.0 | - | 77.7 | 100 | 149 | 127 | 92.5 |
| 1903 | 117 | 112 | 85.0 | 80.2 | 81.8 | 91.9 | 150 | 116 | 109 | 112 | 108 | 113 | 106 |
| 1904 | 123 | 113 | 91.4 | 93.6 | 84.3 | 96.5 | 118 | 127 | 115 | 97.1 | 114 | 112 | 107 |
| 1905 | 104 | 92.9 | 78.9 | 80.5 | 71.1 | 60.8 | 35.8 | 56.2 | 69.1 | 61.5 | 62.8 | 76.7 | 70.9 |
| 1906 | 92.2 | 89.5 | *51.2 | 30.9 | 30.7 | 31.2 | 35.1 | 69.7 | 67.8 | 67.1 | 77.2 | 68.4 | *59.4 |
| 1907 | 57.8 | 58.1 | 55.8 | 51.2 | 40.5 | 42.8 | 15.0 | 25.8 | 32.6 | 41.9 | 38.6 | 52.6 | 42.8 |
| 1908 | 55.4 | 56.4 | 55.9 | 56.7 | 56.3 | 85.0 | 104 | 132 | 93.0 | 88.8 | 92.0 | 83.2 | 79.9 |
| 1909 | 82.5 | 82.4 | 52.6 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

* Not previously published; computed on basis of gage-height record.

1/ Published as "at Skaneateles Lake Dam, Skaneateles" prior to 1892.

STREAMS TRIBUTARY TO LAKE ONTARIO

| Monthly and yearly runoff, in inches (adjusted), of Skaneateles Lake Outlet at Willow Glen, N. Y. | | | | | | | | | | | | | |
|---|------|------|-------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1891 | 1.58 | 1.62 | 1.77 | 1.61 | 1.62 | 2.86 | 2.82 | - | 1.46 | 1.48 | - | - | - |
| 1892 | - | - | - | - | - | - | - | - | - | - | - | 1.50 | - |
| 1893 | 1.49 | 1.25 | 1.25 | 1.03 | 1.03 | 1.22 | 1.37 | 3.39 | 2.33 | 2.39 | - | - | - |
| 1894 | - | - | - | - | - | - | - | - | - | .51 | 0.88 | 1.17 | - |
| 1895 | 1.23 | 1.17 | - | - | - | - | 2.33 | 1.93 | 1.50 | 1.64 | 1.73 | 1.65 | - |
| 1896 | 1.73 | 1.63 | 1.47 | 1.41 | 1.36 | 1.50 | 1.40 | 1.48 | 1.50 | 1.39 | 1.40 | 1.42 | 17.69 |
| 1897 | 1.39 | 1.28 | 1.26 | 1.17 | 1.01 | 1.00 | .25 | 1.13 | 1.25 | 1.35 | 2.10 | 1.32 | 14.51 |
| 1898 | 1.50 | 1.37 | 1.22 | 1.24 | 1.10 | 1.25 | 1.22 | 1.31 | 1.24 | 1.34 | 1.32 | 1.26 | 15.37 |
| 1899 | 1.32 | 1.26 | 1.30 | 1.38 | 1.16 | 1.29 | 1.35 | 1.32 | 1.39 | 1.44 | 1.29 | 1.18 | 15.68 |
| 1900 | 1.16 | 1.11 | .65 | .47 | .61 | .46 | .39 | .53 | .77 | .97 | 1.34 | 1.26 | 9.72 |
| 1901 | 1.69 | 1.46 | 1.02 | .82 | .68 | .92 | 1.56 | 2.10 | 2.86 | 2.24 | 1.73 | 1.50 | 18.58 |
| 1902 | 1.78 | 1.78 | 1.52 | 1.35 | 1.22 | 1.46 | 1.39 | 1.44 | 1.41 | 1.81 | 2.56 | 2.15 | 19.87 |
| 1903 | 2.07 | 1.94 | 1.57 | 1.51 | 1.37 | 1.69 | 2.47 | 2.07 | 1.90 | 2.01 | 1.95 | 1.96 | 22.51 |
| 1904 | 2.17 | 1.94 | 1.66 | 1.70 | 1.47 | 1.75 | 2.02 | 2.22 | 1.97 | 1.78 | 2.04 | 1.93 | 22.65 |
| 1905 | 1.89 | 1.62 | 1.47 | 1.51 | 1.24 | 1.22 | .82 | 1.15 | 1.28 | 1.23 | 1.24 | 1.40 | 16.07 |
| 1906 | 1.69 | 1.57 | *1.05 | .75 | .69 | .77 | .80 | 1.35 | 1.28 | 1.31 | 1.46 | 1.28 | *14.00 |
| 1907 | 1.16 | 1.13 | 1.13 | 1.06 | .81 | .94 | .50 | .68 | .76 | .93 | .88 | 1.05 | 11.03 |
| 1908 | 1.12 | 1.10 | 1.13 | 1.14 | 1.07 | 1.58 | 1.81 | 2.30 | 1.65 | 1.64 | 1.69 | 1.50 | 17.73 |
| 1909 | 1.55 | 1.49 | 1.09 | - | - | - | - | - | - | - | - | - | - |

* Not previously published; computed on basis of gage-height record.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|------|----------------|-------|----------|-----------------------|------------------------|---------------|----------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
| | | Observed | | | | Adjusted | | | Observed | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1891 | 65 | - | - | - | - | - | - | - | - | - | - |
| 1892 | 65 | - | - | - | - | - | - | - | - | - | - |
| 1893 | 65 | - | - | - | - | - | - | - | - | - | - |
| 1894 | 65 | - | - | - | - | - | - | - | - | - | - |
| 1895 | 65 | - | - | - | - | - | - | - | - | - | - |
| 1896 | 65 | - | - | 74.7 | 84.9 | 98.5 | 1.30 | 17.69 | 80.2 | 93.5 | 16.79 |
| 1897 | 65 | - | - | 2.5 | 68.8 | 81.0 | 1.07 | 14.51 | 69.8 | 81.9 | 14.67 |
| 1898 | 65 | - | - | 64.6 | 73.0 | 85.8 | 1.13 | 15.37 | 71.4 | 84.7 | 15.16 |
| 1899 | 65 | - | - | 62.1 | 72.5 | 87.6 | 1.16 | 15.68 | 66.7 | 82.2 | 14.72 |
| 1900 | 65 | - | - | 5.2 | 37.7 | 54.3 | .716 | 9.72 | 44.3 | 61.3 | 10.97 |
| 1901 | 65 | - | - | 32.0 | 85.7 | 104 | 1.37 | 18.58 | 90.6 | 109 | 19.49 |
| 1902 | 82 | - | - | 69.6 | 92.5 | 111 | 1.46 | 19.87 | 95.0 | 114 | 20.37 |
| 1903 | 97 | - | - | 80.0 | 106 | 126 | 1.66 | 22.51 | 108 | 127 | 22.70 |
| 1904 | 129 | - | - | 69.6 | 107 | 126 | 1.66 | 22.65 | 103 | 122 | 21.86 |
| 1905 | 170 | - | - | 32.0 | 70.9 | 89.7 | 1.18 | 16.07 | *87.3 | *86.0 | *15.40 |
| 1906 | 206 | - | - | 30 | *59.4 | *78.2 | *1.03 | *14.00 | 54.1 | 73.1 | 13.11 |
| 1907 | 244 | - | - | 3.1 | 42.8 | 61.6 | .813 | 11.03 | 42.4 | 61.1 | 10.96 |
| 1908 | 244 | - | - | 10.4 | 79.9 | 98.7 | 1.30 | 17.73 | 84.0 | 103 | 18.51 |
| 1909 | 244 | - | - | - | - | - | - | - | - | - | - |

* Not previously published.

332. Seneca River at Baldwinsville, N. Y.

Location.--Lat 43°09'25", long. 76°19'55", on left bank 200 ft downstream from highway bridge in Baldwinsville, Onondaga County, and 400 ft downstream from navigation dam of New York State Barge Canal System.

Drainage area.--3,130 sq mi.

Gage.--Water-stage recorder. Datum of gage is 362.60 ft above mean sea level (New York State Barge Canal datum). Auxiliary water-stage recorder on right bank 1,500 ft downstream from base gage. Prior to Dec. 31, 1908, staff gages on dam at same site at different datum; records not equivalent to later records at same site because of extensive development of Barge Canal system.

Average discharge.--9 years (1899-1908), 3,550 cfs.

Extremes.--1949-50: Maximum discharge (river channel only), 15,700 cfs Apr. 1, 1950 (gage height, 8.50 ft); minimum daily discharge, 659 cfs Dec. 18, 1949.

Remarks.--Discharge from 1898 to 1908 determined on basis of head on dam, flow through ten mills nearby, lockages at Oswego Canal lock, estimated leakage of dam, wheel gates, flumes, and penstocks; not adjusted for inflow from Lake Erie through Erie Canal. Discharge since November 1949, computed by using fall as determined by auxiliary water-stage recorder as a factor, represents total discharge at Baldwinsville and includes flow in Baldwin and Barge Canals.

A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Barge Canal system in river basin. Large diurnal fluctuations at low and medium flows by powerplants above station. Seneca River basin receives water from Erie division of Barge Canal through lock 32 near Pittsford. During part of year, entire flow from 45 sq mi of Mud Creek drainage area may be diverted from Chemung River basin into Keuka Lake in Oswego River basin.

Cooperation.--Records of discharge for period January 1907 to December 1908 furnished by New York State engineer and surveyor. Records of lockages at lock 24 furnished by New York State Department of Public Works since November 1949.

Monthly and yearly mean discharge, in cubic feet per second, of Seneca River at Baldwinsville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1899 | - | - | 2,689 | 2,851 | 1,769 | 3,875 | 4,543 | 2,568 | 1,573 | 776 | 455 | 481 | - |
| 1900 | 637 | 1,612 | 1,722 | 2,150 | 3,129 | 4,441 | 6,945 | 3,120 | 1,508 | 720 | 551 | 471 | 2,242 |
| 1901 | 1,063 | 1,498 | 4,126 | 2,630 | 1,930 | 4,049 | 8,951 | 5,545 | 4,272 | 2,024 | 2,099 | 1,776 | 3,330 |
| 1902 | 1,892 | 2,071 | 3,387 | 3,279 | 2,341 | 8,375 | 5,056 | 2,788 | 2,264 | 2,864 | 3,114 | 1,848 | 3,273 |
| 1903 | 2,210 | 2,539 | 2,252 | 3,427 | 5,311 | 7,546 | 8,051 | 4,194 | 2,759 | 2,084 | 1,819 | 2,976 | 3,764 |
| 1904 | 4,109 | 4,277 | 2,837 | 2,594 | 4,490 | 6,986 | 8,663 | 6,421 | 4,673 | 2,818 | 2,065 | 1,711 | 4,304 |
| 1905 | 2,266 | 2,647 | 2,411 | 3,467 | 2,793 | 4,165 | 6,720 | 3,749 | 3,762 | 3,848 | 2,127 | 1,980 | 3,328 |
| 1906 | 2,535 | 2,930 | 3,618 | 3,680 | 2,790 | 3,420 | 5,680 | 3,840 | 3,490 | 3,000 | 2,210 | 1,930 | 3,260 |
| 1907 | 2,720 | 3,820 | 3,960 | 5,580 | 3,460 | 4,370 | 4,560 | 4,610 | 3,270 | 2,430 | 1,530 | 1,470 | 3,480 |
| 1908 | 2,240 | 3,340 | 3,880 | 4,170 | 3,970 | 5,950 | 5,310 | 5,470 | 3,590 | 2,480 | 1,670 | 1,260 | 3,610 |
| 1909 | 1,660 | 1,630 | 1,590 | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | 1,196 | 2,821 | 4,077 | 6,079 | 9,176 | 2,626 | 2,753 | 1,988 | 1,175 | 1,897 | - |

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1899 | - | - | 0.89 | 1.05 | 0.59 | 1.43 | 1.62 | 0.95 | 0.56 | 0.29 | 0.17 | 0.17 | - |
| 1900 | 0.24 | 0.57 | 0.63 | 0.79 | 1.04 | 1.64 | 2.44 | 1.15 | 0.54 | 0.27 | 0.20 | 0.17 | 9.68 |
| 1901 | .39 | .53 | 1.52 | .97 | .64 | 1.49 | 3.19 | 2.04 | 1.52 | .75 | .77 | .63 | 14.44 |
| 1902 | .70 | .74 | 1.24 | 1.21 | .78 | 3.09 | 1.81 | 1.03 | .81 | 1.05 | 1.15 | .66 | 14.27 |
| 1903 | .81 | .90 | .83 | 1.26 | 1.77 | 2.78 | 2.87 | 1.54 | .98 | .77 | .67 | 1.06 | 16.24 |
| 1904 | 1.51 | 1.53 | 1.04 | .96 | 1.54 | 2.57 | 3.09 | 2.36 | 1.66 | 1.04 | .76 | .61 | 18.67 |
| 1905 | .83 | .94 | .89 | 1.28 | .93 | 1.53 | 2.40 | 1.38 | 1.34 | 1.42 | .78 | .71 | 14.43 |
| 1906 | .83 | 1.04 | 1.34 | 1.36 | .93 | 1.26 | 2.02 | 1.42 | 1.25 | 1.10 | .81 | .69 | 14.15 |
| 1907 | 1.00 | 1.36 | 1.46 | 2.05 | 1.16 | 1.61 | 1.63 | 1.70 | 1.16 | .89 | .56 | .52 | 15.10 |
| 1908 | .83 | 1.19 | 1.43 | 1.53 | 1.37 | 2.19 | †1.90 | 2.02 | 1.28 | .91 | .62 | .45 | 15.72 |
| 1909 | .61 | .58 | .59 | - | - | - | - | - | - | - | - | - | - |
| 1950 | - | - | .44 | 1.04 | 1.36 | 2.24 | 3.27 | .97 | .98 | .73 | .43 | .68 | - |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1899 | 36 | - | - | - | - | - | - | 1,905 | 8.27 |
| 1900 | 65 | - | - | 70 | 2,242 | 0.716 | 9.68 | 2,469 | 10.68 |
| 1901 | 65 | - | - | 234 | 3,330 | 1.06 | 14.44 | 3,366 | 14.69 |
| 1902 | 82 | - | - | 1,008 | 3,273 | 1.05 | 14.27 | 3,245 | 14.13 |
| 1903 | 97 | - | - | 1,020 | 3,764 | 1.20 | 16.24 | 4,116 | †17.78 |
| 1904 | 129 | - | - | 800 | 4,304 | 1.38 | 18.67 | 3,979 | 17.25 |
| 1905 | 170 | - | - | 1,150 | 3,328 | 1.06 | 14.43 | 3,474 | 15.08 |
| 1906 | 206 | - | - | 1,340 | 3,260 | 1.04 | 14.15 | 3,380 | 14.66 |
| 1907 | 244 | - | - | 625 | 3,460 | 1.11 | 15.10 | 3,390 | 14.73 |
| 1908 | 244 | - | - | 526 | 3,610 | 1.15 | 15.72 | *3,230 | *14.05 |
| 1909 | 244 | - | - | - | - | - | - | - | - |
| 1950 | 1174 | - | - | - | - | - | - | - | - |

* Revised.

† Corrected.

333. Onondaga Creek at Syracuse, N. Y.

Location.--Lat 43°00'35", long. 76°09'00", 75 ft upstream from end of channel improvement, 300 ft upstream from Ballantyne Road Bridge, and 2 miles south of center of Syracuse, Onondaga County.

Drainage area.--98.2 sq mi.

Gage.--Water-stage recorder. Datum of gage is 401.25 ft above mean sea level, datum of 1929.

Average discharge.--8 years (1940-48), 124 cfs.

Extremes.--1939-49: Maximum discharge, 3,980 cfs Dec. 30, 1942 (gage height, 9.58 ft); minimum, 1.2 cfs Sept. 12, 1941 (gage height, 1.85 ft); minimum daily, 8.5 cfs Sept. 6, 1942.

Remarks.--Diurnal fluctuation at low and medium flows caused by mills above station.

STREAMS TRIBUTARY TO LAKE ONTARIO

| Monthly and yearly mean discharge, in cubic feet per second, of Onondaga Creek at Syracuse, N. Y. | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1940 | - | - | 37.2 | 35.8 | 80.7 | 209 | 703 | 163 | 81.2 | 65.5 | 20.1 | 18.6 | - |
| 1941 | 20.0 | 30.2 | 128 | 120 | 111 | 150 | 378 | 68.0 | 28.4 | 19.0 | 14.6 | 15.1 | 89.7 |
| 1942 | 17.3 | 20.7 | 43.0 | 55.2 | 67.5 | 383 | 194 | 87.5 | 41.2 | 16.8 | 15.4 | 21.8 | 80.5 |
| 1943 | 32.6 | 94.3 | 246 | 211 | 255 | 321 | 267 | 337 | 172 | 41.4 | 43.0 | 23.3 | 170 |
| 1944 | 72.9 | 141 | 84.0 | 78.0 | 107 | 294 | 250 | 147 | 119 | 53.7 | 25.2 | 25.4 | 116 |
| 1945 | 29.1 | 39.7 | 101 | 111 | 195 | 547 | 163 | 210 | 113 | 64.1 | 34.2 | 159 | 147 |
| 1946 | 326 | 249 | 186 | 145 | 126 | 282 | 85.6 | 85.0 | 94.7 | 49.4 | 27.1 | 23.2 | 140 |
| 1947 | 58.9 | 62.6 | 68.9 | 228 | 151 | 284 | 335 | 280 | 256 | 113 | 43.7 | 31.2 | 158 |
| 1948 | 25.5 | 46.5 | 60.6 | 44.6 | 127 | 281 | 194 | 174 | 98.4 | 36.7 | 31.8 | 18.2 | 94.7 |
| 1949 | 22.6 | 58.2 | 67.8 | 201 | 175 | 158 | 168 | 103 | 41.1 | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1940 | - | - | 0.44 | 0.42 | 0.89 | 2.45 | 7.99 | 1.91 | 0.92 | 0.77 | 0.24 | 0.21 | - |
| 1941 | 0.24 | 0.34 | 1.50 | 1.41 | 1.17 | 1.76 | 4.30 | .80 | .32 | .22 | .17 | .17 | 12.40 |
| 1942 | .20 | .24 | .50 | .65 | .72 | 4.49 | 2.21 | 1.03 | .47 | .20 | .18 | .25 | 11.14 |
| 1943 | .38 | 1.07 | 2.88 | 2.47 | 2.70 | 3.77 | 3.04 | 3.96 | 1.96 | .49 | .51 | .27 | 23.50 |
| 1944 | .86 | 1.60 | .99 | .92 | 1.18 | 3.45 | 2.84 | 1.73 | 1.35 | .63 | .30 | .29 | 16.14 |
| 1945 | .34 | .45 | 1.18 | 1.30 | 2.05 | 6.42 | 1.85 | 2.46 | 1.28 | .75 | .40 | 1.81 | 20.29 |
| 1946 | 3.83 | 2.83 | 2.18 | 1.70 | 1.34 | 3.31 | .97 | 1.00 | 1.08 | .58 | .32 | .26 | 19.40 |
| 1947 | .69 | .71 | .81 | 2.68 | 1.39 | 3.34 | 3.81 | 3.28 | 2.90 | 1.33 | .51 | .35 | 21.80 |
| 1948 | .30 | .53 | .71 | .52 | 1.39 | 3.29 | 2.21 | 2.04 | 1.12 | .43 | .37 | .21 | 13.12 |
| 1949 | .27 | .66 | .80 | 2.36 | 1.85 | 1.85 | 1.91 | 1.20 | .47 | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | - | - | - | - | - | - | 129 | 17.88 |
| 1941 | 924 | 2,150 | Apr. 6, 1941 | 9.2 | 89.7 | 0.913 | 12.40 | 81.5 | 11.26 |
| 1942 | 954 | 2,860 | Mar. 9, 1942 | 8.5 | 80.5 | .820 | 11.14 | 105 | 14.53 |
| 1943 | 974 | 3,980 | Dec. 30, 1942 | 16 | 170 | 1.73 | 23.50 | 163 | 22.62 |
| 1944 | 1004 | 1,160 | Mar. 17, 1944 | 18 | 116 | 1.18 | 16.14 | 106 | 14.66 |
| 1945 | 1034 | 1,990 | Mar. 22, 1945 | 20 | 147 | 1.50 | 20.29 | 196 | 27.16 |
| 1946 | 1054 | 1,830 | Oct. 2, 1945 | 17 | 140 | 1.43 | 19.40 | 92.4 | 12.77 |
| 1947 | 1084 | 2,540 | June 5, 1947 | 21 | 158 | 1.61 | 21.80 | 153 | 21.13 |
| 1948 | 1114 | 1,040 | Mar. 20, 1948 | 15 | 94.7 | .964 | 13.12 | 96.0 | 13.31 |
| 1949 | 1144 | - | - | - | - | - | - | - | - |

334. Onondaga Creek at Temple Street, Syracuse, N. Y.

Location.--Lat 43°02'25", long. 76°09'20", on right bank 150 ft upstream from Temple Street Bridge in Syracuse, Onondaga County.

Gage.--Water-stage recorder. Datum of gage is 353.4 ft above mean sea level (levels by city of Syracuse).

Drainage area.--Not determined because of uncertainty regarding origin of storm-water flow within city storm-sewer system.

Extremes.--1949-50: Maximum discharge, 2,560 cfs Mar. 28, 1950 (gage height, 12.6 ft, from floodmark), from rating curve extended above 1,000 cfs by logarithmic plotting; minimum, 18 cfs July 21, 1949.

Remarks.--Extensive diurnal fluctuation caused by gristmill. High flow regulated by Onondaga Reservoir above station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1949 | - | - | - | - | - | - | - | - | - | 33.9 | 29.8 | 37.1 | - |
| 1950 | 31.1 | 46.4 | 90.5 | 198 | 151 | 433 | 483 | 124 | 92.7 | 61.6 | 50.7 | 89.1 | 154 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1949 | 1144 | - | - | - | - | - | - | - | - |
| 1950 | 1174 | 2,560 | Mar. 28, 1950 | 28 | 154 | - | - | - | - |

335. West Branch Fish Creek at McConnellsville, N. Y.

Location.--Lat 43°16'30", long. 75°41'40", at Harden Dam in McConnellsville, Oneida County, and about 4 miles upstream from confluence with East Branch.

Drainage area.--192 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 450 ft (from topographic map).

Extremes.--1898-1901: Maximum discharge observed, 4,560 cfs Mar. 27, 1901. Estimated maximum discharge prior to 1898, 6,170 cfs in 1884.

Remarks.--Diurnal fluctuation caused by operation of mills at this site.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1899 | 333 | 384 | 210 | 435 | 206 | 648 | 1,206 | 239 | 101 | 57 | +42 | +48 | +326 |
| 1900 | +75 | +110 | +220 | +360 | +550 | +650 | +900 | 143 | 68 | 60 | 57 | 65 | +269 |
| 1901 | 88 | 168 | 99 | 119 | 97 | 625 | +659 | 192 | 463 | +70 | +110 | +190 | +240 |

† Corrected.

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|-------|----------|
| 1899 | 2.00 | 2.23 | 1.27 | 2.61 | 1.12 | 3.89 | 7.01 | 1.44 | 0.59 | 0.34 | +0.25 | +0.28 | +23.03 |
| 1900 | +4.5 | +6.4 | +1.32 | +2.16 | +2.98 | +3.90 | +5.23 | .86 | .40 | .36 | .34 | .38 | +19.02 |
| 1901 | .53 | .98 | .59 | .72 | .53 | 3.75 | +3.83 | 1.15 | 2.69 | +4.2 | +6.6 | +1.10 | +16.95 |

† Corrected.

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1899 | 49 | - | - | - | +326 | +1.70 | +23.03 | +282 | +19.94 |
| 1900 | 49 | - | - | - | +269 | +1.40 | +19.02 | +266 | +18.71 |
| 1901 | 65 | - | - | - | +240 | +1.25 | +16.95 | - | - |

* Not previously published.

336. East Branch Fish Creek at Fish Creek, near Constableville, N. Y.

Location.--Lat 43°31'15", long. 75°32'45", on right bank at downstream side of bridge half a mile west of Fish Creek, Lewis County, half a mile downstream from mouth of Alder Creek, and 6½ miles southwest of Constableville.

Drainage area.--75 sq mi.

Gage.--Chain gage. Altitude of gage is 1,540 ft (from topographic map).

Average discharge.--9 years (1923-32), 269 cfs.

Extremes.--1923-32: Maximum discharge, 5,520 cfs Apr. 8, 1928; maximum gage height, 8.3 ft Apr. 6, 1928 (ice jam); minimum, 18 cfs Aug. 24-27, 1931 (gage height, 1.17 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1924 | +109 | 151 | 324 | 379 | 87.1 | 148 | 1,160 | 533 | 79.8 | 52.4 | 59.2 | 193 | +273 |
| 1925 | 152 | 126 | 138 | 53.1 | 512 | 653 | 727 | 233 | 73.2 | 106 | 60.4 | 150 | 246 |
| 1926 | 320 | 642 | 244 | 123 | 61.5 | 116 | 988 | 740 | 201 | 69.3 | 123 | 126 | 313 |
| 1927 | 315 | 575 | 113 | 104 | 132 | 563 | 506 | 329 | 91.8 | 62.7 | 48.4 | 77.4 | 245 |
| 1928 | 288 | 474 | 492 | 271 | 199 | 351 | 1,000 | 678 | 197 | 145 | 147 | 108 | 352 |
| 1929 | 235 | 265 | 346 | 324 | 102 | 754 | 898 | 396 | 99.6 | 98.8 | 159 | 97.8 | 300 |
| 1930 | 160 | 231 | 226 | 536 | 266 | 364 | 769 | 289 | 203 | 85.2 | 37.8 | 39.2 | 267 |
| 1931 | 43.5 | 49.7 | 83.3 | 44.2 | 53.0 | 151 | 719 | 338 | 79.9 | 79.2 | 43.3 | 161 | 154 |
| 1932 | 163 | 284 | 307 | 419 | 228 | 145 | 777 | 326 | 81.3 | 177 | 114 | 91.0 | 259 |

* Not previously published; estimated on basis of records for East Branch Fish Creek at Taberg.

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly runoff, in inches, of East Branch Fish Creek at Fish Creek,
near Constableville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1924 | 1.67 | 2.24 | 4.98 | 5.82 | 1.25 | 2.27 | 17.26 | 8.20 | 1.18 | 0.81 | 0.91 | 2.87 | 49.46 |
| 1925 | 2.34 | 1.87 | 2.12 | .82 | 7.11 | 10.04 | 10.81 | 3.58 | 1.09 | 1.63 | .93 | 2.23 | 44.57 |
| 1926 | 4.92 | 9.55 | 3.75 | 1.89 | .85 | 1.79 | 14.70 | 11.38 | 2.99 | 1.07 | 1.89 | 1.87 | 56.65 |
| 1927 | 4.84 | 8.56 | 1.74 | 1.60 | 1.83 | 8.66 | 7.53 | 5.06 | 1.36 | 1.27 | .74 | 1.15 | 44.34 |
| 1928 | 4.43 | 7.05 | 7.56 | 4.16 | 2.86 | 5.40 | 14.87 | 10.39 | 2.93 | 2.25 | 2.26 | 1.61 | 65.77 |
| 1929 | 3.61 | 3.94 | 5.32 | 4.98 | 1.42 | 11.64 | 10.39 | 6.09 | 1.48 | 1.52 | 2.44 | 1.45 | 54.28 |
| 1930 | 2.46 | 3.44 | 3.47 | 8.24 | 3.70 | 5.59 | 11.49 | 4.44 | 3.02 | 1.31 | .58 | .58 | 48.32 |
| 1931 | .67 | .74 | 1.28 | .68 | .74 | 2.32 | 10.70 | 5.20 | 1.19 | 1.22 | .67 | 2.40 | 27.81 |
| 1932 | 2.50 | 4.23 | 4.72 | 6.44 | 3.28 | 2.22 | 11.56 | 5.02 | 1.20 | 2.72 | 1.75 | 1.35 | 46.99 |

* Not previously published; estimated on basis of records for East Branch Fish Creek at Taberg.

| Year | W.S.P. no. | Yearly discharge, in cubic feet per second | | | | | | | | Calendar year | |
|------|------------|--|----------------|-------------|------|-----------------|------------------|------|------------------|---------------|------------------|
| | | Water year ending Sept. 30 | | | | | | | | Mean | Runoff in inches |
| | | Momentary Discharge | maximum Date | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| 1924 | 604 | 4,000 | Sept. 30, 1924 | 22 | 273 | 3.64 | 49.46 | 259 | 46.90 | | |
| 1925 | 604 | *2,760 | Feb. 24, 1925* | 24 | 246 | 3.28 | 44.57 | 312 | 56.46 | | |
| 1926 | 624 | 4,280 | (a) | 29 | 313 | 4.17 | 56.65 | 296 | 53.57 | | |
| 1927 | 644 | 2,560 | Nov. 17, 1926 | 26 | 245 | 3.27 | 44.34 | 267 | 48.24 | | |
| 1928 | 664 | 5,520 | Apr. 8, 1928 | 36 | 362 | 4.83 | 65.77 | 328 | 59.60 | | |
| 1929 | 664 | 3,460 | Apr. 6, 1929 | 27 | 300 | 4.00 | 54.28 | 280 | 50.78 | | |
| 1930 | 699 | *4,750 | Jan. 8, 1930 | 21 | 267 | 3.56 | 48.32 | 230 | 41.64 | | |
| 1931 | 714 | 2,710 | Apr. 10, 1931 | 18 | 154 | 2.05 | 27.81 | 202 | 36.57 | | |
| 1932 | 729 | 1,920 | May 1, 1932 | 30 | 259 | 3.45 | 46.99 | - | - | | |

* Revised.

* Not previously published.

a Nov. 14, 1925, Apr. 25, 1926.

337. East Branch Fish Creek at Taberg, N. Y.

Location.--Lat 43°18'05", long. 75°37'10" on left bank at downstream side of highway bridge at Taberg, Oneida County, just downstream from Furnace Creek and 2½ miles upstream from confluence of East and West Branches near Blossvale.

Drainage area.--189 sq mi.

Gage.--Water-stage recorder. Datum of gage is 491.12 ft above mean sea level, datum of 1929. Prior to Oct. 6, 1923, staff gage at same site and datum.

Average discharge.--27 years (1923-50), 544 cfs (unadjusted).

Extremes.--1923-50: Maximum discharge, 13,600 cfs Oct. 2, 1945 (gage height, 10.90 ft); minimum, 4.9 cfs Aug. 15, 16, 1949.

Remarks.--Diurnal fluctuation at low flow caused by small power operations upstream and diversions from basin for water supply of cities of Rome and Oneida (since Oct. 26, 1926). Annual discharge adjusted for diversion for water supply of city of Rome.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|-------|----------|
| 1923 | - | - | - | - | - | - | 1,920 | 663 | 268 | 86.1 | 51.5 | 116 | - |
| 1924 | 226 | 357 | 656 | 844 | 240 | 392 | 2,200 | 1,040 | 220 | 120 | 125 | 458 | 573 |
| 1925 | 351 | 310 | 306 | 158 | 1,100 | 1,480 | 1,360 | 480 | 194 | 234 | 175 | 397 | 541 |
| 1926 | 761 | 1,320 | 641 | 366 | 210 | 316 | 2,100 | 1,280 | 474 | 175 | 335 | 383 | 696 |
| 1927 | 735 | 1,220 | 303 | 311 | 378 | 1,310 | 939 | 695 | 201 | 197 | 137 | 142 | 547 |
| 1928 | 512 | 1,070 | 1,108 | 668 | 458 | 719 | 1,810 | 413 | 363 | 343 | 231 | 723 | |
| 1929 | 825 | 566 | 734 | 690 | 208 | 1,470 | 1,510 | 950 | 227 | 208 | 300 | 187 | 636 |
| 1930 | 334 | 510 | 459 | 1,050 | 540 | 742 | 1,460 | 517 | 465 | 190 | 68.2 | 102 | 536 |
| 1931 | 110 | 126 | 198 | 108 | 150 | 401 | 1,470 | 665 | 181 | 286 | 162 | 431 | 357 |
| 1932 | 434 | 745 | 777 | 1,060 | 576 | 382 | 1,800 | 642 | 182 | 370 | 299 | 219 | 621 |
| 1933 | 1,040 | 907 | 543 | 548 | 255 | 427 | 1,890 | 387 | 81.6 | 33.1 | 60.5 | 61.3 | 519 |
| 1934 | 136 | 475 | 463 | 452 | 102 | 576 | 1,649 | 235 | 130 | 73.0 | 38.0 | 129 | 371 |
| 1935 | 214 | 558 | 422 | 878 | 280 | 873 | 984 | 678 | 467 | 306 | 57.1 | 135 | 491 |
| 1936 | 393 | 608 | 307 | 226 | 129 | 1,980 | 1,565 | 531 | 105 | 47.0 | 70.1 | 152 | 511 |
| 1937 | 560 | 656 | 611 | 1,424 | 630 | 221 | 1,612 | 663 | 219 | 86.7 | 77.7 | 59.7 | 567 |
| 1938 | 611 | 778 | 339 | 289 | 1,083 | 1,487 | 1,038 | 334 | 117 | 163 | 204 | 648 | 586 |
| 1939 | 224 | 444 | 460 | 290 | 362 | 722 | 1,765 | 522 | 158 | 48.4 | 60.2 | 46.0 | 424 |
| 1940 | 159 | 205 | 341 | 121 | 170 | 217 | 2,109 | 964 | 309 | 143 | 39.0 | 120 | 406 |
| 1941 | 117 | 597 | 1,027 | 390 | 290 | 249 | 1,591 | 164 | 52.9 | 86.0 | 13.3 | 324 | 411 |
| 1942 | 506 | 664 | 757 | 401 | 320 | 1,019 | 1,666 | 378 | 169 | 62.5 | 137 | 340 | 535 |
| 1943 | 290 | 782 | 555 | 579 | 461 | 1,316 | 1,761 | 1,807 | 376 | 165 | 203 | 96.4 | 702 |
| 1944 | 374 | 623 | 200 | 166 | 188 | 538 | 1,965 | 713 | 296 | 71.1 | 31.5 | 154 | 441 |
| 1945 | 150 | 132 | 210 | 270 | 250 | 2,158 | 1,215 | 783 | 377 | 271 | 120 | 472 | 536 |
| 1946 | 164 | 818 | 283 | 381 | 329 | 1,698 | 591 | 498 | 245 | 149 | 95.4 | 98.0 | 532 |
| 1947 | 599 | 806 | 772 | 958 | 499 | 680 | 2,726 | 2,073 | 948 | 632 | 125 | 74.4 | 909 |
| 1948 | 71.2 | 295 | 328 | 160 | 278 | 1,730 | 1,207 | 664 | 199 | 129 | 137 | 28.9 | 437 |
| 1949 | 79.5 | 725 | 502 | 628 | 599 | 1,226 | 1,240 | 293 | 59.6 | 39.4 | 101 | 343 | 484 |
| 1950 | 201 | 388 | 1,229 | 1,276 | 314 | 495 | 1,815 | 477 | 291 | 93.1 | 109 | 314 | 584 |

Yearly discharge, in cubic feet per second, of East Branch Fish Creek at Taberg, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|---------------|----------------------------|---------------|----------------|------|----------|-----------------------|------------------------|---------------|------|------------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1923 | 564,1054 | - | - | - | - | - | - | - | - | - | - |
| 1924 | 584,1054 | 9,860 | Apr. 6, 1924 | 44 | 573 | 586 | 3.10 | 42.18 | 550 | 563 | 40.53 |
| 1925 | 604,1054 | 5,260 | Oct. 1, 1924 | 53 | 541 | 555 | 2.94 | 39.84 | 688 | 701 | 50.36 |
| 1926 | 624,1054 | 8,190 | Apr. 25, 1926 | 59 | 696 | 710 | 3.76 | 51.00 | 656 | 670 | 48.16 |
| 1927 | 644,1054 | 5,800 | Nov. 16, 1926 | 56 | 547 | 561 | 2.97 | 40.28 | 584 | 597 | 42.90 |
| 1928 | 664,1054 | 8,350 | Apr. 8, 1928 | 57 | 723 | 736 | 3.89 | 52.99 | 653 | 667 | 48.00 |
| 1929 | 684,1054 | 5,840 | Mar. 16, 1929 | 47 | 636 | 650 | 3.44 | 46.67 | 591 | 604 | 43.39 |
| 1930 | 699,1054 | 9,040 | Jan. 8, 1930 | 25 | 536 | 549 | 2.90 | 39.46 | 465 | 477 | 34.24 |
| 1931 | 714,1054 | 4,800 | Apr. 11, 1931 | 21 | 357 | 369 | 1.95 | 26.52 | 484 | 497 | 35.66 |
| 1932 | 729,1054 | 4,550 | Jan. 18, 1932 | 58 | 621 | 633 | 3.35 | 45.62 | 665 | 678 | 48.82 |
| 1933 | 744,1054 | 10,700 | Oct. 6, 1932 | 13 | 519 | 532 | 2.81 | 38.19 | 400 | 413 | 29.69 |
| 1934 | 759,1054 | 6,130 | Nov. 30, 1933 | 18 | 371 | 388 | 2.05 | 27.85 | 381 | 398 | 28.60 |
| 1935 | 764,1054 | 5,760 | Jan. 10, 1935 | 18 | 491 | 506 | 2.68 | 36.36 | 500 | 515 | 37.02 |
| 1936 | 804,1054 | 6,050 | Mar. 18, 1936 | 16 | 511 | 527 | 2.79 | 37.92 | 555 | 571 | 41.09 |
| 1937 | 824,1054 | 4,900 | Jan. 15, 1937 | 16 | 567 | 582 | 3.08 | 41.83 | 558 | 574 | 41.20 |
| 1938 | 854,1054 | 5,910 | Mar. 24, 1938 | 25 | 586 | 601 | 3.18 | 43.14 | 536 | 550 | 39.53 |
| 1939 | 874,1054 | 4,280 | Apr. 26, 1939 | 15 | 424 | 438 | 2.32 | 31.49 | 388 | 402 | 28.90 |
| 1940 | 894,1054 | 6,470 | Apr. 18, 1940 | 21 | 406 | 420 | 2.22 | 30.25 | 493 | 507 | 36.50 |
| 1941 | 924,1054 | 7,780 | Dec. 30, 1940 | 8.8 | 411 | 428 | 2.26 | 30.73 | 427 | 444 | 31.91 |
| 1942 | 954,1054 | 7,730 | Dec. 25, 1941 | 16 | 535 | 555 | 2.93 | 39.69 | 509 | 527 | 37.87 |
| 1943 | 974,1054 | 6,220 | May 1, 1943 | 40 | 702 | 723 | 3.83 | 51.91 | 666 | 687 | 49.37 |
| 1944 | 1004,1054 | 5,930 | Apr. 24, 1944 | 14 | 441 | 464 | 2.46 | 33.45 | 383 | 406 | 29.27 |
| 1945 | 1054,1054 | 7,100 | Mar. 22, 1945 | 28 | 536 | 559 | 2.96 | 40.16 | 685 | 708 | 50.82 |
| 1946 | 1054 | 13,600 | Oct. 2, 1945 | 16 | 532 | 554 | 2.93 | 39.81 | 525 | 548 | 39.32 |
| 1947 | 1084 | 9,050 | Apr. 12, 1947 | 32 | 909 | 932 | 4.93 | 66.93 | 784 | 807 | 57.97 |
| 1948 | 1114 | 9,220 | Mar. 22, 1948 | 17 | 437 | 460 | 2.43 | 33.12 | 487 | 510 | 36.74 |
| 1949 | 1144 | 5,340 | Mar. 28, 1949 | 5.2 | 484 | 506 | 2.68 | 36.34 | 529 | 550 | 39.53 |
| 1950 | 1174 | 5,550 | Apr. 5, 1950 | 21 | 584 | 605 | 3.20 | 43.47 | - | - | - |

338. Oneida Creek at Kenwood, N. Y.

Location.--Lat 43°03'30", long. 75°36'05", at dam of Oneida Community Limited at Kenwood, Madison County, about $1\frac{1}{2}$ miles upstream from Taylor Creek and 3 miles upstream from Oneida.

Drainage area.--82.1 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 470 ft (from topographic map).

Extremes.--1898-1901: Maximum discharge, 2,075 cfs Dec. 15, 1901 (computed flow over dam).

Maximum observed discharge, 3,292 cfs in 1892 (computed flow over dam).

Remarks.--Diurnal fluctuation caused by operation of mills. Flow computed on basis of depth of water on crest of dam and head on wheels.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|------|------|------|-------|-------|------|-------|----------|
| 1899 | †83.1 | 105 | †87.1 | 117 | 92.9 | 157 | 183 | 62.3 | 30.4 | 25.4 | †18 | †15 | †81.2 |
| 1900 | †23.3 | †35.3 | 60.2 | †91.0 | †140 | †143 | †194 | †46 | †21.6 | †36.8 | 19.5 | †14.9 | †68.3 |
| 1901 | †18.5 | 90.8 | 127 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

* Not previously published; partly estimated on basis of records for Chittenango Creek at Chittenango.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|------|------|------|-------|-------|----------|
| 1899 | 1.34 | 1.88 | †1.62 | 2.17 | 1.56 | 2.91 | 3.29 | 1.16 | 0.55 | 0.47 | †0.33 | †0.27 | †17.55 |
| 1900 | †.43 | †.63 | 1.12 | †1.69 | †2.35 | †2.66 | †3.48 | †.85 | †.39 | †.68 | †.56 | †.27 | †14.91 |
| 1901 | †.34 | 1.63 | 2.37 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches |
| | | Discharge | Date | | | | |
| 1899 | 49 | - | - | - | †81.2 | †1.31 | †17.55 |
| 1900 | 49 | - | - | - | †68.3 | †1.10 | †14.91 |
| 1901 | 65 | 2,075 | Dec. 15, 1901 | - | - | - | - |

* Not previously published.

STREAMS TRIBUTARY TO LAKE ONTARIO

339. Oneida Creek at Oneida, N. Y.

Location.--Lat 43°05'50", long. 75°38'20", on right bank 70 ft upstream from highway bridge at Oneida, Madison County, and 500 ft downstream from Sconondoa Creek.

Drainage area.--112 sq mi.

Gage.--Water-stage recorder. Datum of gage is 409.33 ft above mean sea level (Corps of Engineers benchmark).

Extremes.--1950: Maximum discharge, 7,440 cfs Mar. 28, 1950 (gage height, 13.78 ft); minimum, 18 cfs Aug. 18, 1950 (gage height, 1.425 ft).

Remarks.--Slight diurnal fluctuation at low flow caused by small mills above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1950 | 39.1 | 79.1 | 136 | 261 | 144 | 524 | 462 | 133 | 88.7 | 48.3 | 30.0 | 81.6 | 169 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1950 | 0.40 | 0.79 | 1.40 | 2.68 | 1.34 | 5.40 | 4.61 | 1.37 | 0.88 | 0.50 | 0.31 | 0.81 | 20.49 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1950 | 1174 | 7,440 | Mar. 28, 1950 | 20 | 169 | 1.51 | 20.49 | - | - |

340. Chittenango Creek at Chittenango, N. Y.

Location.--Lat 43°02'35", long. 75°52'10", at upstream side of right abutment of Main Street Bridge at Chittenango, Madison County, half a mile upstream from State dam and about 10½ miles upstream from Butternut Creek.

Drainage area.--76.0 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 450 ft (from topographic map).

Average discharge.--5 years (1901-6), 148 cfs.

Extremes.--1901-6: Maximum discharge, 4,700 cfs Dec. 15, 1901 (gage height, 7.0 ft), from rating curve extended above 1,100 cfs by logarithmic plotting; minimum observed, 8 cfs Dec. 15-18, 1904.

Remarks.--Flow regulated by storage in Cazenovia Lake and Erieville Reservoir.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|-------|------|------|------|------|------|------|-------|----------|
| 1901 | - | - | - | - | - | - | - | - | 191 | 64 | 65 | 54 | - |
| 1902 | 55 | 67 | *310 | 94 | 192 | 579 | 203 | 87 | 258 | 256 | 141 | 77 | 192 |
| 1903 | 148 | 114 | 184 | 171 | 286 | 400 | 222 | 56 | 71 | 55 | 60 | 48 | 148 |
| 1904 | 228 | 117 | 79 | *119 | *164 | 361 | 305 | 91.5 | 52.4 | 48.0 | 62.7 | 48.0 | 140 |
| 1905 | 42.6 | 48.0 | *60.4 | *151 | *69.3 | *321 | 249 | 90.4 | 168 | 105 | 111 | 104 | 127 |
| 1906 | 165 | 108 | 155 | 177 | 87.8 | *183 | 217 | 166 | 164 | 68.9 | 52.6 | 51.7 | 133 |
| 1907 | 91.6 | 92.7 | *115 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

* Not previously published; partly estimated on basis of records for Salmon River near Pulaski.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1901 | - | - | - | - | - | - | - | - | 2.61 | 0.96 | 0.98 | 0.80 | - |
| 1902 | 0.84 | 0.99 | *4.71 | 1.43 | 2.63 | 8.78 | 2.98 | 1.32 | 3.50 | 3.88 | 2.13 | 1.14 | 34.33 |
| 1903 | 2.25 | 1.67 | 2.49 | 2.60 | 3.64 | 6.07 | 3.26 | .85 | 1.05 | .84 | .92 | .70 | 26.34 |
| 1904 | 3.46 | 1.71 | 1.20 | *1.80 | *2.32 | 5.48 | 4.48 | 1.39 | .77 | .73 | .95 | .70 | 24.99 |
| 1905 | .65 | .71 | *.92 | *2.29 | *.95 | *4.86 | 3.66 | 1.37 | 2.46 | 1.60 | 1.69 | 1.53 | 22.69 |
| 1906 | 2.50 | 1.58 | 2.35 | 2.69 | 1.20 | *2.78 | 3.19 | 2.52 | 2.41 | 1.04 | .80 | .76 | 23.82 |
| 1907 | 1.39 | 1.36 | 1.74 | - | - | - | - | - | - | - | - | - | - |

† Corrected.

* Not previously published; partly estimated on basis of records for Salmon River near Pulaski.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 97 | - | - | - | - | - | - | - | - |
| 1902 | 97 | *4,700 | Dec. 15, 1901* | 48 | 192 | 2.53 | 34.33 | 191 | 34.20 |
| 1903 | 97 | *1,410 | Feb. 28, 1903* | 45 | 148 | 1.95 | 26.34 | 148 | 26.30 |
| 1904 | 129 | *1,970 | Mar. 26, 1904* | 29 | 140 | 1.84 | 24.99 | 117 | 20.90 |
| 1905 | 170 | *3,890 | June 23, 1905* | 8 | 127 | 1.67 | 22.69 | 150 | 26.84 |
| 1906 | 206 | *1,240 | Mar. 27, 1906* | 20 | 133 | 1.75 | 23.82 | 123 | 21.88 |
| 1907 | 206 | - | - | - | - | - | - | - | - |

* Not previously published.

341. Limestone Creek at Fayetteville, N. Y.

Location.--Lat 43°01'45", long. 87°00'50", on left bank 100 ft downstream from Genesee Street Bridge at Fayetteville, Onondaga County, and 8 miles upstream from mouth.

Drainage area.--85.7 sq mi, not including 15.7 sq mi of Middle Branch Tioughnioga Creek basin, flow from which may be completely diverted into Limestone Creek basin through DeRuyter Reservoir.

Gage.--Water-stage recorder. Datum of gage is 427.62 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--10 years (1940-50), 144 cfs.

Extremes.--1939-50: Maximum discharge, 7,010 cfs Mar. 28, 1950 (gage height, 7.78 ft), from rating curve extended above 3,500 cfs by logarithmic plotting; minimum, 14 cfs Aug. 10, 1940, Aug. 17, 1941.

Remarks.--Canal diverts from Limestone Creek about 3 miles above station and returns water to creek about 400 ft above station. Flow regulated by DeRuyter Reservoir.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1940 | - | - | 69.2 | 61.6 | 110 | 259 | 673 | 153 | 95.4 | 93.6 | 36.7 | 38.1 | - |
| 1941 | 44.0 | 61.8 | 237 | 140 | 117 | 146 | 440 | 68.3 | 39.3 | 26.6 | 26.2 | 26.1 | 114 |
| 1942 | 33.3 | 40.8 | 82.3 | 82.2 | 90.1 | 414 | 197 | 99.3 | 60.1 | 34.3 | 43.7 | 45.4 | 102 |
| 1943 | 68.9 | 161 | 319 | 217 | 307 | 412 | 273 | 363 | 150 | 47.4 | 65.1 | 41.2 | 202 |
| 1944 | 116 | 172 | 103 | 91.4 | 106 | 322 | 244 | 182 | 123 | 57.7 | 52.0 | 62.1 | 136 |
| 1945 | 69.3 | 87.5 | 126 | 140 | 190 | 599 | 142 | 192 | 125 | 65.0 | 50.4 | 201 | 166 |
| 1946 | 344 | 244 | 180 | 151 | 137 | 291 | 89.1 | 104 | 121 | 72.6 | 45.5 | 43.0 | 152 |
| 1947 | 71.0 | 75.0 | 79.2 | 229 | 140 | 331 | 379 | 330 | 304 | 158 | 48.9 | 36.8 | 182 |
| 1948 | 28.7 | 61.4 | 84.2 | 57.5 | 158 | 385 | 228 | 197 | 105 | 49.7 | 46.1 | 28.7 | 119 |
| 1949 | 35.1 | 104 | 118 | 278 | 229 | 202 | 184 | 132 | 55.8 | 35.5 | 33.2 | 51.2 | 121 |
| 1950 | 73.3 | 95.8 | 101 | 190 | 127 | 445 | 438 | 102 | 61.8 | 37.1 | 31.9 | 63.4 | 147 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1940 | 894 | - | - | - | - | - | - | 155 | 24.58 |
| 1941 | 924, 954 | 2,360 | Apr. 6, 1941 | 21 | 114 | 1.33 | 18.05 | 98.2 | 15.56 |
| 1942 | 954 | 4,150 | Mar. 9, 1942 | 21 | 102 | 1.19 | 16.19 | 135 | 21.41 |
| 1943 | 974 | 6,260 | Dec. 30, 1942 | 35 | 202 | 2.36 | 31.97 | 189 | 29.86 |
| 1944 | 1004 | 1,780 | Mar. 17, 1944 | 40 | 136 | 1.59 | 21.63 | 127 | 20.20 |
| 1945 | 1034 | 3,580 | Mar. 22, 1945 | 40 | 166 | 1.94 | 26.25 | 206 | 32.69 |
| 1946 | 1054 | 4,070 | Oct. 2, 1945 | 36 | 152 | 1.77 | 24.09 | 107 | 16.98 |
| 1947 | 1084 | 5,170 | June 3, 1947 | 29 | 182 | 2.12 | 28.83 | 178 | 28.15 |
| 1948 | 1114 | 2,680 | Mar. 17, 1948 | 25 | 119 | 1.39 | 18.89 | 126 | 19.99 |
| 1949 | 1144 | 1,420 | Jan. 6, 1949 | 22 | 121 | 1.41 | 19.15 | 122 | 19.33 |
| 1950 | 1174 | 7,010 | Mar. 28, 1950 | 26 | 147 | 1.72 | 23.32 | - | - |

342. Oneida River at Caughdenoy, N. Y. 1/

Location.--Lat 43°16'20", long. 76°12'15", on right bank 40 ft upstream from navigation dam of New York State Barge Canal system, 700 ft upstream from highway bridge in Caughdenoy, Oswego County, 0.5 mile downstream from Caughdenoy Creek, and 5 miles downstream from Oneida Lake.

Drainage area.--1,377 sq mi; 1902-9, 1,433 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 362.00 ft above mean sea level (New York State Barge Canal benchmark). Prior to June 4, 1907, headwater readings and June 5, 1907, to Dec. 31, 1909, staff-gage readings at Oak Orchard State Dam 6 miles downstream at different datum. Jan. 1, 1910, to Dec. 31, 1912, staff gage at present site at different datum.

Average discharge.--13 years (1902-12, 1947-50), 2,700 cfs.

Remarks.--Jan. 1, 1910, to Dec. 31, 1912: Flow over dam computed on basis of coefficient determined for model of dam of same general type; flow through gate and diversion through lock culverts estimated by theoretical calculations.

1947-50: Record represents total discharge at Caughdenoy, including flow in Oneida and Barge Canals. A large amount of natural storage by Oneida Lake. Considerable seasonal regulation by operation of gates in Oneida and Barge Canals. Occasional large diurnal fluctuations caused by seiche in Oneida Lake. Water may be diverted into or received from Mohawk River basin through summit level of Barge Canal between New London and Utica. Nearly all of flow from 16 sq mi of the Tioughnioga River basin may be diverted into DeRuyter Reservoir, in Oswego River basin.

Cooperation.--Records for period 1907-12 furnished by New York State engineer and surveyor. Records of gate openings, lockages, and elevations of water surface in Barge Canal above and below lock 23, 1947-50, furnished by New York State Department of Public Works.

1/ Published as "near Euclid" prior to January 1910.

STREAMS TRIBUTARY TO LAKE ONTARIO

| Monthly and yearly mean discharge, in cubic feet per second, of Oneida River at Caughdenoy, N. Y. | | | | | | | | | | | | | The year |
|---|-------|-------|-------|-------|-------|--------|---------|---------|---------|-------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1902 | - | - | - | - | - | - | - | - | - | - | - | 1,694 | - |
| 1903 | 1,633 | 2,093 | 2,814 | 4,186 | 6,179 | 10,619 | 9,143 | 2,635 | 1,853 | 1,829 | 1,422 | 1,230 | 3,786 |
| 1904 | 2,800 | 2,712 | 2,007 | 2,162 | 3,403 | 5,934 | 9,474 | 5,944 | 2,592 | 1,439 | 1,204 | 1,152 | 3,396 |
| 1905 | 1,517 | 1,535 | 1,544 | 2,459 | 1,592 | 2,977 | 10,210 | 3,905 | 2,279 | 2,362 | 1,714 | 2,240 | 2,841 |
| 1906 | 2,078 | 2,805 | 3,835 | 4,240 | 3,470 | 3,200 | 5,970 | 3,350 | 2,390 | 1,780 | 1,080 | 744 | 2,910 |
| 1907 | 962 | 1,280 | 2,570 | 5,980 | 2,540 | 2,940 | 4,020 | \$3,640 | \$1,400 | 1,220 | 930 | 614 | \$2,350 |
| 1908 | 873 | 2,190 | 2,360 | 4,150 | 4,620 | 5,610 | \$6,500 | 5,310 | 2,680 | 1,700 | 1,220 | 728 | \$3,150 |
| 1909 | 897 | 1,230 | 1,030 | 2,090 | 3,840 | 6,090 | 7,360 | 6,350 | 3,660 | 1,020 | 675 | 667 | 2,900 |
| 1910 | 878 | 1,140 | 1,240 | 3,524 | 4,926 | 8,983 | 3,381 | 1,670 | 1,514 | 519 | 367 | 377 | 2,566 |
| 1911 | 304 | 1,159 | 1,329 | 2,257 | 1,935 | 2,316 | 6,369 | 3,212 | 1,548 | 871 | 465 | 723 | 1,865 |
| 1912 | 1,002 | 1,935 | 3,368 | 2,559 | 1,343 | 2,145 | 7,712 | 4,627 | 2,571 | 843 | 575 | 1,107 | 2,479 |
| 1913 | 1,804 | 2,130 | 3,117 | - | - | - | - | - | - | - | - | - | - |
| 1948 | 278 | 1,467 | 3,192 | 2,931 | 1,759 | 3,979 | 4,431 | 3,175 | 2,085 | 1,237 | 869 | 478 | 2,151 |
| 1949 | 275 | 1,833 | 3,348 | 4,952 | 3,877 | 3,951 | 3,063 | 2,460 | 991 | 419 | 288 | 1,037 | 2,200 |
| 1950 | 1,112 | 1,297 | 4,135 | 5,206 | 4,206 | 3,458 | 6,943 | 2,399 | 1,585 | 920 | 189 | 1,140 | 2,703 |

† Corrected.

* Not previously published.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | The year |
|--------------------------------------|------|------|------|------|--------|------|--------|--------|--------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | |
| 1902 | - | - | - | - | - | - | - | - | - | - | - | 1.32 | - |
| 1903 | 1.31 | 1.63 | 2.26 | 3.37 | 4.49 | 8.54 | 7.12 | 2.12 | 1.44 | 1.47 | 1.14 | .96 | 35.85 |
| 1904 | 2.25 | 2.11 | 1.61 | 1.74 | 2.56 | 4.77 | 7.38 | 4.78 | 2.02 | 1.16 | 1.97 | .90 | 32.25 |
| 1905 | 1.22 | 1.19 | 1.08 | 1.98 | 1.16 | 2.39 | 7.95 | 3.14 | 1.77 | 1.90 | 1.38 | 1.74 | 26.90 |
| 1906 | 1.67 | 2.18 | 3.08 | 3.41 | 2.52 | 2.57 | 4.65 | 2.69 | 1.86 | 1.43 | .87 | .58 | 27.51 |
| 1907 | .77 | 1.00 | 2.07 | 4.81 | 1.85 | 2.37 | 3.13 | \$2.93 | \$1.09 | .98 | .75 | .48 | \$22.23 |
| 1908 | .70 | 1.71 | 1.90 | 3.33 | 3.47 | 4.52 | \$5.06 | 4.27 | 2.08 | 1.36 | .98 | .57 | \$29.95 |
| 1909 | .72 | .95 | .83 | 1.69 | 2.79 | 4.90 | 5.73 | 5.11 | 2.85 | .82 | .54 | .52 | 27.45 |
| 1910 | .71 | .89 | 1.00 | 2.95 | \$3.72 | 7.52 | 2.74 | 1.40 | 1.23 | .43 | .32 | .31 | 23.22 |
| 1911 | .26 | .94 | 1.11 | 1.87 | 1.47 | 1.94 | 5.17 | 2.69 | 1.25 | .73 | .39 | .59 | 18.41 |
| 1912 | .84 | 1.57 | 2.82 | 2.14 | 1.05 | 1.80 | 6.25 | 3.87 | 2.09 | .71 | .48 | .90 | 24.52 |
| 1913 | 1.51 | 1.72 | 2.61 | - | - | - | - | - | - | - | - | - | - |
| 1948 | .23 | 1.19 | 2.67 | 2.37 | 1.38 | 3.33 | 3.59 | 2.66 | 1.69 | 1.04 | .73 | .39 | 21.27 |
| 1949 | .23 | 1.49 | 2.80 | 4.15 | 2.93 | 3.31 | 2.48 | 2.06 | .80 | .35 | .24 | .84 | 21.68 |
| 1950 | .93 | 1.05 | 3.46 | 4.36 | 3.18 | 2.90 | 5.63 | 2.01 | 1.28 | .77 | .16 | .92 | 26.65 |

† Corrected.

* Not previously published.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|---------------|----------------------------|------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 97 | - | - | 990 | 3,786 | 2.64 | 35.85 | 3,885 | 36.62 |
| 1904 | 129 | - | - | 1,040 | 3,396 | 2.37 | 32.25 | 3,142 | 29.77 |
| 1905 | 170 | - | - | 940 | 2,841 | 1.98 | 26.90 | 3,204 | 30.34 |
| 1906 | 206 | - | - | 495 | 2,910 | 2.03 | 27.51 | 2,570 | 24.42 |
| 1907 | 244 | - | - | 262 | 2,350 | 1.64 | 22.23 | 2,400 | 22.70 |
| 1908 | 244 | - | - | 574 | 3,150 | 2.20 | 29.95 | 2,960 | 28.14 |
| 1909 | 264 | - | - | 320 | 2,900 | 2.02 | 27.45 | 2,920 | 27.55 |
| 1910 | 284 | - | - | 242 | 2,366 | 1.72 | 23.22 | 2,326 | 22.93 |
| 1911 | 304 | - | - | 52 | 1,865 | 1.35 | 18.41 | 2,164 | 21.33 |
| 1912 | 324 | - | - | 412 | 2,479 | 1.80 | 24.52 | 2,540 | 25.13 |
| 1948 | 1114 | - | - | 170 | 2,151 | 1.56 | 21.27 | 2,194 | 21.70 |
| 1949 | 1144 | - | - | 160 | 2,200 | 1.60 | 21.68 | 2,294 | 22.60 |
| 1950 | 1174 | - | - | 62 | 2,703 | 1.96 | 26.65 | - | - |

† Corrected.

* Not previously published.

Note.--Data for calendar year 1913, published in W.S.P. 354, are not published herein because they do not include unknown diversion through lock 23 on landline cutoff.

343. Oswego River at lock 7, Oswego, N. Y. 1/

Location.--Lat 43°27'00", long. 76°30'25", on right bank at lock 7 in Oswego, Oswego County, three-quarters of a mile upstream from mouth.

Drainage area.--5,121 sq mi. Prior to 1933, 5,111 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 246.00 ft above mean sea level (New York State Barge Canal datum). Prior to 1933, staff gage at site about 6 miles upstream at different datum.

Average discharge.--17 years (1933-50), 6,289 cfs.

Extremes.--1933-50: Maximum discharge, 37,500 cfs Mar. 28, 1936, includes mean daily discharge of canals; maximum gage height, 13.46 ft Apr. 10, 1940; minimum daily discharge, 353 cfs Aug. 14, 1949.

Remarks.--Record prior to 1933 does not include diversion to Oswego Canal. Record since 1933 represents total flow at Oswego and includes flow in Hydraulic and Barge Canals. A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Barge Canal system in river basin. Large diurnal fluctuations at low and medium flows caused by powerplants above station. Oswego River basin receives water from Erie division of Barge Canal through lock 32 near Pittsford. Water may be diverted into or received from Mohawk River basin through summit level of Barge Canal between New London and Utica. At times the entire flow from 45 sq mi of drainage area of Mud Creek may be diverted from Chemung River basin into Lake Keuka in Oswego River basin. Nearly all of flow from 15.7 sq mi of the Tioughnioga River basin may be diverted into DeRuyter Reservoir, in Oswego River basin.

1/ Published as "above Minetto" or "near Minetto" prior to January 1904, and as "at Battle Island" from January 1904 to April 1906.

Monthly and yearly mean discharge, in cubic feet per second, of Oswego River at lock 7, Oswego, N.Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|----------|
| 1901 | 1,823 | 2,797 | 9,465 | 5,475 | 3,667 | 9,499 | 18,721 | 10,967 | 7,215 | 4,428 | 2,813 | 3,097 | 6,664 |
| 1902 | 3,118 | 3,668 | 9,158 | 8,722 | 9,238 | 18,540 | 12,345 | 16,567 | 6,212 | 8,066 | 6,998 | 3,057 | 7,772 |
| 1903 | 4,648 | 5,797 | 9,118 | 9,168 | 9,922 | 17,273 | 16,260 | 6,541 | 4,496 | 4,248 | 3,503 | 4,335 | 7,609 |
| 1904 | 7,930 | 8,120 | 6,402 | 55,000 | 8,000 | 15,000 | 19,330 | 13,320 | 7,497 | 4,436 | 3,291 | 3,223 | 8,292 |
| 1905 | 4,904 | 4,719 | 44,000 | 46,500 | 44,000 | 7,500 | 16,370 | 7,978 | 6,748 | 7,177 | 4,668 | 5,312 | 6,706 |
| 1906 | 4,731 | 6,730 | 8,387 | 9,610 | 6,500 | 7,000 | 12,400 | - | - | - | - | - | - |
| 1934 | 1,800 | 2,086 | 4,235 | 6,198 | 3,749 | 7,216 | 10,270 | 3,968 | 2,319 | 1,405 | 836 | 1,147 | 3,767 |
| 1935 | 1,379 | 2,643 | 4,170 | 7,192 | 6,973 | 8,490 | 9,867 | 9,500 | 3,980 | 10,030 | 4,963 | 2,816 | 6,005 |
| 1936 | 1,602 | 4,510 | 6,584 | 7,035 | 6,207 | 21,570 | 22,780 | 7,529 | 2,891 | 1,285 | 942 | 1,161 | 7,045 |
| 1937 | 2,321 | 4,617 | 4,794 | 9,729 | 11,080 | 8,303 | 11,890 | 11,380 | 5,857 | 3,893 | 2,358 | 2,478 | 6,524 |
| 1938 | 2,632 | 7,589 | 8,625 | 7,302 | 12,700 | 14,410 | 9,265 | 5,186 | 3,544 | 2,157 | 2,365 | 3,511 | 6,564 |
| 1939 | 3,562 | 3,139 | 4,435 | 4,425 | 6,313 | 15,300 | 13,960 | 5,728 | 2,953 | 1,760 | 1,261 | 1,048 | 5,316 |
| 1940 | 1,173 | 1,937 | 2,917 | 3,875 | 3,793 | 4,354 | 26,750 | 12,160 | 7,413 | 4,863 | 2,168 | 1,289 | 6,033 |
| 1941 | 1,288 | 2,535 | 6,111 | 8,528 | 7,726 | 7,347 | 12,880 | 3,505 | 1,970 | 1,510 | 1,370 | 1,955 | 4,702 |
| 1942 | 1,617 | 3,064 | 3,641 | 4,161 | 4,138 | 15,830 | 13,740 | 5,275 | 3,885 | 1,920 | 2,397 | 2,948 | 5,219 |
| 1943 | 3,225 | 5,804 | 7,978 | 16,370 | 12,200 | 14,010 | 10,060 | 20,350 | 13,210 | 4,166 | 3,005 | 2,487 | 9,399 |
| 1944 | 2,065 | 7,342 | 5,971 | 6,092 | 6,645 | 8,945 | 11,760 | 10,980 | 5,755 | 3,836 | 2,256 | 1,293 | 6,071 |
| 1945 | 1,467 | 1,994 | 5,304 | 6,912 | 9,052 | 18,820 | 10,940 | 12,720 | 7,984 | 4,884 | 2,900 | 4,124 | 7,255 |
| 1946 | 12,720 | 10,330 | 14,630 | 11,190 | 8,277 | 10,330 | 3,782 | 3,455 | 6,395 | 3,282 | 2,255 | 1,844 | 7,587 |
| 1947 | 3,838 | 5,550 | 6,516 | 8,958 | 11,000 | 10,550 | 18,160 | 15,517 | 5,235 | 3,808 | 2,533 | 2,992 | 9,102 |
| 1948 | 1,460 | 3,321 | 5,645 | 4,314 | 4,894 | 10,760 | 10,330 | 9,978 | 6,213 | 2,834 | 2,533 | 1,943 | 5,353 |
| 1949 | 2,026 | 3,215 | 4,820 | 10,820 | 10,560 | 8,083 | 6,213 | 4,539 | 2,263 | 1,439 | 1,324 | 2,342 | 4,770 |
| 1950 | 2,706 | 2,809 | 5,911 | 9,182 | 8,788 | 11,440 | 18,300 | 5,560 | 4,650 | 3,026 | 1,581 | 3,105 | 6,394 |

† Corrected.

* Not previously published; estimated on basis of records for Oneida River at Euclid and Seneca River at Baldwinsville.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|------|------|------|------|------|------|-------|----------|
| 1901 | 0.41 | 0.61 | 2.13 | 1.23 | 0.75 | 2.14 | 4.08 | 2.48 | 1.57 | 1.00 | 0.63 | 0.68 | 17.71 |
| 1902 | .70 | 0.80 | 2.06 | 1.97 | 1.27 | 4.18 | 2.70 | 1.48 | 1.36 | 1.82 | 1.58 | 67 | 20.59 |
| 1903 | 1.05 | 1.26 | 1.15 | 22.06 | 2.02 | 3.90 | 3.55 | 1.48 | .98 | .96 | .79 | .95 | 20.15 |
| 1904 | 1.79 | 1.77 | 1.44 | 11.13 | 2.01 | 3.61 | 4.22 | 3.01 | 1.64 | 1.00 | .74 | .70 | 22.06 |
| 1905 | 1.11 | 1.03 | 1.08 | 1.60 | 1.12 | 2.03 | 3.57 | 1.80 | 1.47 | 1.61 | 1.05 | 1.16 | 17.80 |
| 1906 | 1.07 | 1.47 | 1.89 | 2.17 | 1.12 | 1.58 | 2.71 | - | - | - | - | - | - |
| 1934 | 4.40 | 4.45 | .95 | 1.40 | .76 | 1.63 | 2.24 | .89 | .51 | .32 | .19 | .25 | 9.99 |
| 1935 | .31 | .58 | .94 | 1.61 | 1.42 | 1.91 | 2.15 | 2.14 | .87 | 2.26 | 1.12 | .61 | 15.92 |
| 1936 | .41 | .98 | 1.49 | 1.58 | 1.30 | 4.85 | 4.96 | 1.70 | .63 | .29 | .21 | .32 | 18.72 |
| 1937 | .52 | 1.01 | 1.08 | 2.19 | 2.25 | 1.87 | 2.59 | 2.56 | 1.27 | .88 | .53 | .54 | 17.29 |
| 1938 | .59 | 1.65 | 1.94 | 1.65 | 2.58 | 3.24 | 2.02 | 1.16 | .77 | .49 | .53 | .77 | 17.39 |
| 1939 | .80 | .68 | 1.00 | 1.00 | 1.28 | 3.45 | 3.05 | 1.29 | .64 | .40 | .28 | .23 | 14.10 |
| 1940 | .26 | .42 | .66 | .87 | .80 | .98 | 5.82 | 2.73 | 1.62 | 1.10 | .49 | .28 | 16.03 |
| 1941 | .29 | .55 | 1.37 | 1.92 | 1.57 | 1.65 | 2.81 | .79 | .43 | .34 | .31 | .43 | 12.46 |
| 1942 | .36 | .67 | .82 | .94 | .84 | 3.58 | 2.99 | 1.19 | .85 | .43 | .54 | .64 | 13.83 |
| 1943 | .73 | 1.26 | 1.80 | 3.68 | 2.48 | 3.15 | 2.19 | 4.58 | 2.88 | .94 | .68 | .54 | 24.91 |
| 1944 | .46 | 1.60 | 1.34 | 1.37 | 1.40 | 2.01 | 2.56 | 2.47 | 1.25 | .86 | .51 | .28 | 16.11 |
| 1945 | .33 | .43 | 1.19 | 1.56 | 1.84 | 4.24 | 2.38 | 2.86 | 1.74 | 1.10 | .65 | .90 | 19.22 |
| 1946 | 2.86 | 2.25 | 3.29 | 2.52 | 1.68 | 2.32 | .82 | .78 | 1.39 | .74 | .51 | .40 | 19.56 |
| 1947 | .86 | 1.21 | 1.47 | 2.02 | 2.24 | 2.37 | 3.95 | 3.72 | 3.70 | 1.18 | .86 | .55 | 24.13 |
| 1948 | .33 | .72 | 1.27 | .97 | 1.03 | 2.42 | 2.25 | 2.25 | 1.35 | .64 | .57 | .42 | 14.22 |
| 1949 | .46 | .70 | 1.08 | 2.43 | 2.15 | 1.82 | 1.35 | 1.02 | .49 | .32 | .30 | .51 | 12.63 |
| 1950 | .61 | .61 | 1.33 | 2.07 | 1.79 | 2.58 | 3.98 | 1.25 | 1.01 | .68 | .36 | .68 | 16.95 |

† Corrected.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|-------|------------------|--|--|---------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | | | |
| | | Discharge | Date | | | | | | | | | | |
| 1901 | 82 | #20,200 | Apr. 21, 1901* | 1,280 | 6,664 | 1.30 | 17.71 | 6,819 | 18.12 | | | | |
| 1902 | 82 | 22,500 | Mar. 13, 1902 | 1,348 | 7,724 | 1.51 | 20.59 | 7,692 | 20.49 | | | | |
| 1903 | 97 | #20,300 | Mar. 25, 1903* | 2,420 | 7,609 | 1.49 | 20.15 | 8,167 | 21.69 | | | | |
| 1904 | 129 | #22,200 | Apr. 2, 1904* | 2,280 | 8,282 | 1.62 | 22.06 | 8,000 | 21.28 | | | | |
| 1905 | 170 | #21,300 | Mar. 28, 1905* | 1,002 | 6,706 | 1.31 | 17.80 | 7,229 | 19.19 | | | | |
| 1906 | 206 | #14,900 | Apr. 10, 1906* | - | - | - | - | - | - | | | | |
| 1934 | 759 | 16,400 | Apr. 15, 1934 | 465 | 3,767 | 1.736 | 9.99 | 3,772 | 10.02 | | | | |
| 1935 | 784 | 16,900 | July 14, 1935 | 820 | 6,005 | 1.17 | 15.92 | 6,399 | 16.97 | | | | |
| 1936 | 804 | 37,500 | Mar. 28, 1936 | 700 | 7,045 | 1.38 | 18.72 | 6,946 | 18.45 | | | | |
| 1937 | 824 | 21,200 | Apr. 24, 1937 | 1,440 | 6,524 | 1.27 | 17.29 | 7,121 | 18.86 | | | | |
| 1938 | 854 | 18,000 | Mar. 1, 1938 | 811 | 6,564 | 1.28 | 17.39 | 5,976 | 15.69 | | | | |
| 1939 | 874 | 23,200 | Mar. 8, 1939 | 699 | 5,316 | 1.04 | 14.10 | 4,886 | 12.96 | | | | |
| 1940 | 894 | 35,000 | Apr. 10, 1940 | 753 | 6,053 | 1.18 | 16.03 | 6,363 | 16.90 | | | | |
| 1941 | 924 | 19,900 | Apr. 7, 1941 | 748 | 4,702 | .918 | 12.46 | 4,563 | 12.10 | | | | |
| 1942 | 954 | 25,900 | Mar. 18, 1942 | 755 | 5,219 | 1.02 | 15.83 | 5,949 | 15.77 | | | | |
| 1943 | 974 | 25,400 | May 15, 1943 | 1,150 | 9,399 | 1.84 | 24.91 | 9,257 | 24.52 | | | | |
| 1944 | 1004 | 16,000 | Apr. 14, 1944 | 720 | 6,071 | 1.19 | 16.11 | 5,525 | 14.66 | | | | |
| 1945 | 1034 | 23,400 | Mar. 26, 1945 | 906 | 7,255 | 1.42 | 19.22 | 9,688 | 25.67 | | | | |
| 1946 | 1054 | 22,000 | Oct. 4, 1945 | 833 | 7,387 | 1.44 | 19.56 | 5,550 | 14.70 | | | | |
| 1947 | 1084 | 25,100 | Apr. 8, 1947 | 1,240 | 9,102 | 1.78 | 24.13 | 8,643 | 22.91 | | | | |
| 1948 | 1114 | 18,400 | Mar. 26, 1948 | 560 | 5,353 | 1.05 | 14.22 | 5,323 | 14.14 | | | | |
| 1949 | 1144 | 16,300 | Feb. 17, 1949 | 353 | 4,770 | .931 | 12.63 | 4,887 | 12.94 | | | | |
| 1950 | 1174 | 29,400 | Mar. 30, 1950 | 460 | 6,394 | 1.25 | 16.95 | - | - | | | | |

† Corrected.

* Not previously published.

344. Salmon River at Stillwater Bridge, near Redfield, N. Y.

Location.--Lat 43°31'00", long. 75°55'00", on upstream side of Stillwater Bridge, seven-eighths of a mile downstream from Pennock Brook, 5 miles by road downstream from Redfield, Oswego County, and 7 miles downstream from North Branch.

Drainage area.--188 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 880 ft (from topographic map).

Extremes.--1911-13: Maximum discharge, 10,000 cfs Mar. 27, 1913 (gage height, 10.5 ft); minimum observed, 42 cfs Aug. 21, 1913 (gage height, 1.38 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|-------|-------|------|-------|-------|-------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| The year | | | | | | | | | | | | |
| 1911 | - | - | - | - | - | - | - | - | - | 153 | 110 | 237 |
| 1912 | 523 | 841 | 1,240 | 250 | 200 | 323 | 2,950 | 1,130 | 293 | 101 | 125 | 333 |
| 1913 | 578 | 589 | 854 | 2,010 | 466 | 2,140 | 1,390 | 392 | 220 | 127 | 68.9 | 98.9 |
| 1914 | 470 | 685 | - | - | - | - | - | - | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|------|-------|------|-------|-------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| The year | | | | | | | | | | | | |
| 1911 | - | - | - | - | - | - | - | - | - | 0.94 | 0.67 | 1.41 |
| 1912 | 3.21 | 4.99 | 7.60 | 1.53 | 1.15 | 1.98 | 17.48 | 6.94 | 1.74 | .82 | .77 | 1.98 |
| 1913 | 3.54 | 3.50 | 5.23 | 12.32 | 2.59 | 13.10 | 8.26 | 2.40 | 1.31 | .78 | .42 | .59 |
| 1914 | 2.85 | 4.06 | - | - | - | - | - | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|---|--|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1911 | 304 | - | - | - | - | - | - | - | - | - | |
| 1912 | 324 | \$8,150 | Apr. 23, 1912 | 68 | 690 | 3.67 | 50.01 | 642 | 46.48 | - | |
| 1913 | 354 | 10,000 | Mar. 27, 1913 | 42 | 748 | 3.98 | 54.03 | 718 | 51.85 | - | |
| 1914 | 354 | - | - | - | - | - | - | - | - | - | |

† Not previously published.

345. Orwell Brook near Altmar, N. Y.

Location.--Lat 43°31'35", long. 76°01'00", at downstream side of highway bridge, one-eighth of a mile upstream from Salmon River, and 1½ miles by road northwest of Altmar, Oswego County.

Drainage area.--22.3 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 520 ft (from topographic map).

Extremes.--1911-16: Maximum discharge, 610 cfs Apr. 7, 1912 (gage height, 5.5 ft); minimum, 5 cfs Aug. 6, 7, 14, 22, 23, 24, Sept. 8, 1911 (gage height, 1.65 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|-------|-------|-------|-------|------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| The year | | | | | | | | | | | | |
| 1911 | - | - | - | - | - | - | - | - | - | 16.7 | 7.87 | 18.5 |
| 1912 | 28.5 | 66.6 | 89.5 | †36.9 | †35.7 | †65.1 | 232 | 70.9 | 30.7 | 11.8 | 17.8 | 28.8 |
| 1913 | 45.5 | 57.3 | 72.9 | 155 | †71.0 | 183 | 80.5 | 33.7 | 20.7 | 10.0 | 7.16 | 7.67 |
| 1914 | 38.6 | 44.0 | 49.4 | †38.1 | †46.8 | †103 | 99.1 | 37.8 | 34.8 | 12.3 | 12.1 | 13.0 |
| 1915 | 12.1 | 38.6 | †51.5 | †39.3 | †75.3 | 46.8 | 91.3 | 24.6 | 13.1 | 13.4 | 12.5 | 10.4 |
| 1916 | 23.5 | 45.4 | †49.5 | †75.3 | †55.7 | †71.4 | 138 | 78.3 | 50.1 | - | - | - |

* Revised.

† Not previously published; estimated on basis of records for other streams in area.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | |
|--------------------------------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| The year | | | | | | | | | | | | |
| 1911 | - | - | - | - | - | - | - | - | - | 0.87 | 0.41 | 0.93 |
| 1912 | 1.48 | 3.36 | 4.67 | †1.93 | †1.74 | †3.39 | 11.73 | 3.70 | 1.55 | .82 | .93 | 1.45 |
| 1913 | 2.37 | 2.89 | 3.80 | 8.10 | †3.34 | 9.53 | 4.06 | 1.76 | 1.05 | .52 | .37 | .39 |
| 1914 | 2.02 | 2.22 | 2.58 | †1.99 | †2.20 | †5.36 | 5.00 | 1.97 | 1.75 | .64 | .63 | .65 |
| 1915 | .63 | 1.95 | †2.69 | †2.05 | †3.55 | 2.44 | 4.61 | 1.28 | .66 | .70 | .65 | .53 |
| 1916 | 1.22 | 2.29 | †2.58 | †3.93 | †2.72 | †3.73 | 6.96 | 4.08 | 2.53 | - | - | - |

* Revised.

† Not previously published; estimated on basis of records for other streams in area.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|------|------------------------|---|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1911 | 304 | - | - | - | - | - | - | - | - | - | - |
| 1912 | 324 | 610 | Apr. 7, 1912 | 10 | 59.3 | 2.68 | 36.55 | 58.6 | 36.10 | - | - |
| 1913 | 354 | 530 | Mar. 14, 1913 | 6 | 82.2 | 2.81 | 38.18 | 58.5 | 35.94 | - | - |
| 1914 | 384,1387 | 475 | Mar. 28, 1914 | 6 | 44.0 | 1.99 | 27.01 | 41.5 | 25.46 | - | - |
| 1915 | 404 | 400 | Feb. 25, 1915 | 8 | 35.4 | 1.60 | 21.74 | 36.8 | 22.56 | - | - |
| 1916 | 434,1387 | 497 | May 17, 1916 | - | - | - | - | - | - | - | - |

† Not previously published.

346. Salmon River near Pulaski, N. Y.

Location.--Lat 43°33'00", long. 76°05'45" at upstream side near center of right span of Fox's Bridge, about 2½ miles upstream from Pulaski, Oswego County, about 2½ miles upstream from Trout Brook, and 6½ miles upstream from mouth.

Drainage area.--257 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 390 ft (from topographic map). Prior to July 23, 1902, staff gage on upstream end of center pier at datum 1.20 ft above that of chain gage.

Extremes.--1900-14: Maximum discharge, 13,300 cfs Mar. 27, 1913 (gage height, 8.2 ft); minimum observed, 46 cfs Sept. 19, 1906 (gage height, 2.2 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|--------|--------|-------|------|-------|--------|-------|-------|------|-------|-------|----------|
| 1901 | 343 | +1,269 | 641 | - | - | - | +2,899 | +825 | 1,065 | 281 | 460 | 787 | - |
| 1902 | 943 | 798 | 930 | - | - | - | - | - | - | +643 | 375 | - | - |
| 1903 | 615 | 796 | 934 | - | - | - | 1,584 | 232 | 382 | 367 | 370 | 214 | - |
| 1904 | 1,120 | 466 | - | - | - | - | 3,175 | 2,143 | 411 | 443 | 1,430 | 581 | - |
| 1905 | 874 | +320 | - | - | - | - | 2,927 | 955 | 1,043 | 488 | +414 | 374 | - |
| 1906 | 972 | 1,048 | +1,135 | 1,340 | 640 | 880 | 2,350 | 943 | 370 | 390 | 125 | 104 | 858 |
| 1907 | 519 | 606 | 554 | 1,160 | - | - | 1,040 | 894 | 636 | - | - | - | - |
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 121 | - |
| 1909 | 153 | 507 | - | - | - | - | - | - | - | - | - | - | - |
| 1910 | - | - | - | - | - | - | - | - | - | - | 336 | 318 | - |
| 1911 | 423 | 720 | 335 | - | - | - | 3,380 | 871 | 651 | 226 | 131 | 324 | - |
| 1912 | 582 | 1,010 | 1,530 | 340 | 270 | 440 | 4,150 | 1,510 | 450 | 137 | 154 | 444 | 914 |
| 1913 | 763 | 863 | 1,050 | 2,310 | 530 | 2,980 | 1,570 | 491 | 282 | 155 | 80 | 106 | 940 |
| 1914 | 572 | 805 | 602 | - | - | - | 2,340 | - | - | - | - | - | - |

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|------|-------|-------|-------|------|------|-------|-------|----------|
| 1901 | 1.54 | +5.51 | 2.87 | - | - | - | - | +3.70 | 4.62 | 1.26 | 2.06 | 3.42 | - |
| 1902 | 4.23 | 3.47 | 4.17 | - | - | - | - | - | - | - | +2.88 | 1.63 | - |
| 1903 | 2.76 | 3.46 | 4.19 | - | - | - | 6.87 | 1.04 | 1.66 | 1.65 | 1.66 | .93 | - |
| 1904 | 5.03 | 2.03 | - | - | - | - | 13.79 | 9.61 | 1.79 | 1.99 | 1.93 | 2.52 | - |
| 1905 | 3.92 | +1.39 | - | - | - | - | 12.71 | 4.28 | 4.53 | 2.19 | +1.86 | 1.62 | - |
| 1906 | 4.38 | 4.55 | +5.09 | 6.01 | 2.59 | 3.95 | 10.18 | 4.23 | 1.61 | 1.75 | .56 | .45 | 45.33 |
| 1907 | 2.33 | 2.63 | 2.48 | 5.22 | - | - | 4.52 | 4.01 | 2.76 | - | - | - | - |
| 1908 | - | - | - | - | - | - | - | - | - | - | - | .53 | - |
| 1909 | .69 | 2.20 | - | - | - | - | - | - | - | - | - | - | - |
| 1910 | - | - | - | - | - | - | - | - | - | - | 1.51 | 1.38 | - |
| 1911 | 1.90 | 3.13 | 1.50 | - | - | - | 14.69 | 3.91 | 2.83 | 1.01 | .59 | 1.41 | - |
| 1912 | 2.61 | 4.37 | 6.86 | 1.52 | 1.13 | 1.97 | 18.00 | 6.77 | 1.95 | .61 | .69 | 1.93 | 48.41 |
| 1913 | 3.51 | 3.75 | 4.73 | 10.38 | 2.15 | 13.37 | 6.82 | 2.20 | 1.22 | .70 | .36 | .46 | 49.65 |
| 1914 | 2.57 | 3.49 | 2.70 | - | - | - | 10.18 | - | - | - | - | - | - |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1901 | 65 | - | - | - | - | - | - | - | - |
| 1902 | 82 | - | - | - | - | - | - | - | - |
| 1903 | 97 | - | - | - | - | - | - | - | - |
| 1904 | 129 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | - | - | - | - | - |
| 1906 | 206 | +10,000 | Apr. 15, 1906† | 46 | 858 | 3.34 | 45.33 | 735 | 38.77 |
| 1907 | 244 | - | - | - | - | - | - | - | - |
| 1908 | 244 | - | - | - | - | - | - | - | - |
| 1909 | 244 | - | - | - | - | - | - | - | - |
| 1910 | 284 | - | - | - | - | - | - | - | - |
| 1911 | 304 | - | - | - | - | - | - | - | - |
| 1912 | 324 | +10,400 | Apr. 16, 1912† | 88 | 914 | 3.66 | 48.41 | 879 | 46.56 |
| 1913 | 354 | 13,300 | Mar. 27, 1913 | 60 | 940 | 3.66 | 49.65 | 879 | 46.42 |
| 1914 | 384 | - | - | - | - | - | - | - | - |

† Not previously published.

347. Forestport feeder near Boonville, N. Y.

Location.--Gage 1 at lat 43°29'35", long. 75°16'40", on left bank at Hawkinsville; gage 2, 2.53 miles downstream and 1 mile upstream from basin in Boonville, Oneida County.

Gage.--Two water-stage recorders. Altitude of gage 1 is 1,130 ft (from topographic map).

Remarks.--Flow in feeder regulated at outlet of Forestport Reservoir. Record collected during canal season only. Sum of this record and record for Black River near Boonville indicates the total runoff of the Black River basin above these gaging stations. Normal minimum flow in feeder about 30 cfs to 35 cfs during winter.

Monthly mean discharge, in cubic feet per second, of Forestport feeder near Boonville, N. Y.

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------|------|------|------|------|------|------|------|------|-------|------|------|------|
| 1915 | - | - | - | - | - | - | - | - | - | - | 312 | - |
| 1916 | - | - | - | - | - | 287 | 278 | 259 | 251 | 251 | - | - |
| 1917 | - | - | - | - | - | 270 | 263 | 233 | 233 | 244 | - | - |
| 1918 | - | - | - | - | - | 235 | 239 | 218 | 228 | 221 | - | - |
| 1919 | - | - | - | - | - | - | 235 | 197 | 206 | 234 | - | - |
| 1920 | - | - | - | - | - | - | 205 | 202 | 208 | 196 | - | - |
| 1921 | - | - | - | - | - | 203 | 222 | 217 | 215 | 206 | - | - |
| 1922 | - | - | - | - | - | - | 177 | 195 | 184 | 178 | - | - |
| 1923 | - | - | - | - | - | - | 127 | 141 | 161 | 169 | - | - |
| 1924 | - | - | - | - | - | - | 174 | 166 | 170 | 168 | - | - |
| 1925 | - | - | - | - | - | - | 144 | 168 | 154 | 160 | 193 | - |
| 1926 | - | - | - | - | - | 148 | 218 | 226 | 218 | 173 | - | - |
| 1927 | - | - | - | - | - | - | 118 | 111 | 102 | 82.2 | 57.4 | - |
| 1928 | - | - | - | - | - | 40.0 | 70.4 | 103 | 99.4 | - | - | - |
| 1929 | - | - | - | - | - | - | 49.8 | 28.8 | 11.9 | 5.97 | - | - |
| 1930 | - | - | - | - | - | 65.0 | 108 | 109 | 109 | 113 | - | - |
| 1931 | - | - | - | - | 18.0 | 38.3 | 53.2 | 85.0 | 94.1 | 99.9 | - | - |
| 1932 | - | - | - | - | - | - | - | 54.1 | 61.1 | 58.8 | - | - |
| 1933 | - | - | - | - | 34.8 | 75.9 | 115 | 127 | 145 | 152 | - | - |

348. Mill Creek sluiceway at Boonville, N. Y.

Location.--Lat 43°29'10", long. 75°19'40", on right bank about 500 ft upstream from Schuyler Street at Boonville, Oneida County, and a quarter of a mile upstream from confluence with Mill Creek.

Gage.--Water-stage recorder. Altitude of gage is 1,110 ft (from topographic map).

Extremes.--1933-40: Maximum discharge (regulated), 146 cfs Oct. 3, 1934; maximum gage height, 2.86 ft sometime during period Dec. 11-16, 1933 (ice jam); no flow during periods of no diversion.

Remarks.--The sum of this record and that of Black River Canal (flowing south) represents the total diversion from Black River at Forestport through Forestport feeder and also includes the runoff from about 14 sq mi tributary to the canal system and Mill Creek. This record shows the amount of water returned to Black River.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|------|------|-------|------|------|------|-------|----------|
| 1934 | - | 10.3 | 11.3 | 0.130 | 0.050 | 1.0 | 0.63 | 0.521 | 12.4 | 16.4 | 19.6 | 18.2 | - |
| 1935 | 0.70 | .49 | .47 | .34 | .01 | .45 | .43 | 4.96 | 10.6 | 15.7 | 14.7 | 14.2 | 5.28 |
| 1936 | 8.98 | 7.60 | 1.23 | .06 | .16 | 9.32 | 6.30 | 5.43 | 12.6 | 10.9 | 10.6 | 9.23 | 6.88 |
| 1937 | 9.41 | 5.09 | 5.05 | 8.32 | 2.69 | .27 | 7.56 | 3.25 | 3.80 | 12.1 | 12.4 | 12.6 | 6.91 |
| 1938 | 12.6 | 9.60 | 1.46 | .73 | 1.71 | 3.78 | 1.43 | .29 | .25 | 3.47 | 4.01 | 4.98 | 3.71 |
| 1939 | 8.77 | 6.59 | 2.99 | 2.55 | 1.73 | 2.24 | 6.53 | .89 | .45 | 1.15 | 1.76 | 1.87 | 3.12 |
| 1940 | 1.17 | 2.02 | - | - | - | - | - | 5.01 | 1.78 | 1.80 | 1.98 | 5.51 | - |

349. Black River Canal (flowing south) near Boonville, N. Y.

Location.--Lat 43°27'20", long. 75°19'25", gage 1 on left bank at lock 69, 2 miles south of Boonville, Oneida County, and gage 2 on right bank of Lansingkill spillway, 100 ft downstream from spillway headgates, 600 ft upstream from lock 70, and half a mile upstream from lock 69.

Gage.--Two water-stage recorders. Datum of gage 1 is 1,105.56 ft above mean sea level, datum of 1929. Prior to June 7, 1929, station was operated as a slope station on summit level of canal. September 1915 to September 1942 station operated only during canal seasons.

Extremes.--1915-50: Maximum daily discharge recorded, 323 cfs Nov. 30, 1915; practically no flow at times when no water is being diverted.

Remarks.--Record shows combined flow at gages 1 and 2 and represents total diversion from Black River at Forestport, through Forestport feeder, into Mohawk River basin. Discharge during periods when no water was diverted is made up of leakage through headgates and runoff from area draining into canal above station.

Monthly and yearly mean discharge, in cubic feet per second, of Black River Canal (flowing south) near Boonville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1916 | 230 | 254 | - | - | - | - | - | - | 220 | 206 | 210 | 200 | - |
| 1917 | 210 | 205 | - | - | - | - | - | - | 189 | 183 | 173 | 169 | - |
| 1918 | 176 | 182 | - | - | - | - | - | - | 177 | 154 | 161 | 158 | - |
| 1919 | 137 | 181 | - | - | - | - | - | - | - | 176 | 164 | 169 | - |
| 1920 | 184 | - | - | - | - | - | - | - | - | 151 | 136 | 118 | - |
| 1921 | 144 | - | - | - | - | - | - | - | 146 | 166 | 156 | 158 | - |
| 1922 | 156 | - | - | - | - | - | - | - | - | 123 | 142 | 144 | - |
| 1923 | 145 | - | - | - | - | - | - | - | - | 84.6 | 97.7 | 129 | - |
| 1924 | 141 | - | - | - | - | - | - | - | - | 111 | 105 | 109 | - |
| 1925 | 125 | - | - | - | - | - | - | - | - | 47.6 | 40.8 | 37.6 | - |
| 1926 | 35.7 | - | - | - | - | - | - | - | 108 | 151 | 161 | 153 | - |
| 1927 | 130 | - | - | - | - | - | - | - | - | 97.5 | 93.8 | 87.5 | - |
| 1928 | - | - | - | - | - | - | - | - | 25.5 | 51.7 | 85.1 | 85.7 | - |
| 1929 | - | - | - | - | - | - | - | - | - | 34.7 | 19.7 | 7.30 | - |
| 1930 | 4.65 | - | - | - | - | - | - | - | 29.9 | 64.9 | 84.5 | 91.1 | - |
| 1931 | 98.1 | - | - | - | - | - | - | 12.5 | 26.8 | 20.4 | 49.2 | 72.5 | - |
| 1932 | 84.1 | - | - | - | - | - | - | - | - | - | 30.5 | 36.0 | - |
| 1933 | 47.5 | - | - | - | - | - | - | - | - | 78.4 | 89.2 | 121 | - |
| 1934 | 135 | - | - | - | - | - | - | - | - | 52.4 | 56.3 | 62.6 | - |
| 1935 | - | - | - | - | - | - | - | - | 22.7 | 31.1 | 50.4 | 60.5 | - |
| 1936 | 57.8 | 43.0 | - | - | - | - | - | - | 30.1 | 41.9 | 45.6 | 51.3 | - |
| 1937 | 65.4 | - | - | - | - | - | - | - | 16.5 | 33.6 | 56.8 | 67.4 | - |
| 1938 | 69.9 | - | - | - | - | - | - | - | 28.0 | 42.3 | 42.6 | 51.9 | - |
| 1939 | 36.5 | - | - | - | - | - | - | - | 49.9 | 52.0 | 51.4 | 54.6 | - |
| 1940 | 42.3 | - | - | - | - | - | - | 6.78 | 30.5 | 39.4 | 42.9 | 14.2 | - |
| 1941 | 62.3 | - | - | - | - | - | - | 43.0 | 46.7 | 53.5 | 53.0 | 58.2 | - |
| 1942 | 62.7 | - | - | - | - | - | 9.2 | 44.3 | 48.2 | 55.3 | 56.6 | 61.4 | - |
| 1943 | 27.3 | 34.2 | 9.66 | 4.58 | 4.24 | 14.5 | 16.8 | 19.6 | 12.6 | 34.2 | 47.7 | 55.7 | 23.5 |
| 1944 | 62.3 | 17.1 | 6.11 | 2.06 | 1.81 | 97.4 | 16.0 | 8.29 | 38.5 | 21.0 | 18.1 | 29.2 | 19.2 |
| 1945 | 28.7 | 12.6 | 4.76 | 6.42 | 4.96 | 16.2 | 15.8 | 25.0 | 14.9 | 54.5 | 57.3 | 48.6 | 24.3 |
| 1946 | 22.6 | 9.32 | 4.86 | 5.71 | 5.48 | 12.1 | 4.29 | 7.50 | 18.5 | 22.8 | 23.8 | 29.8 | 14.0 |
| 1947 | 46.9 | 12.6 | 1.16 | .95 | .81 | .83 | 1.46 | 1.29 | 1.28 | 7.02 | 8.45 | 61.7 | 12.0 |
| 1948 | 72.0 | 80.7 | 4.20 | 1.89 | 4.17 | 12.6 | 3.52 | 33.7 | 38.1 | 44.1 | 58.3 | 66.5 | 35.0 |
| 1949 | 63.9 | 50.3 | 1.65 | 1.73 | 1.98 | 1.87 | 1.64 | 27.0 | 63.1 | 62.5 | 62.2 | 76.3 | 34.6 |
| 1950 | 62.1 | 37.9 | 1.75 | 1.93 | 1.65 | 2.18 | 4.26 | 8.99 | 19.0 | 33.2 | 24.7 | 62.0 | 21.7 |

350. Black River near Boonville, N. Y.

Location.--Lat 43°30'35", long. 75°18'25", on left bank at downstream side of highway bridge, three-quarters of a mile upstream from Sugar River and 2 miles northeast of Boonville, Oneida County.

Drainage area.--295 sq mi.

Gage.--Water-stage recorder. Datum of gage is 935.50 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Sept. 27, 1933, chain gage and staff gage at same site and datum.

Average discharge.--39 years (1911-50), 679 cfs (unadjusted).

Extremes.--1911-50: Maximum discharge, 12,400 cfs Mar. 28, 1913 (gage height, about 12.5 ft, from floodmarks); minimum observed, about 5 cfs Aug. 28, 1918 (gage height, 2.40 ft).

Remarks.--Flow slightly regulated by several headwater reservoirs. Forestport feeder diverts water from State Pond at Forestport. That portion of diverted water which does not pass down Black River Canal (flowing south) returns to Black River below station through Mill Creek sluiceway.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1911 | - | - | - | 375 | 275 | 608 | 2,310 | 1,090 | 572 | 65.3 | 79.1 | 167 | - |
| 1912 | 360 | 791 | 1,310 | 471 | 344 | 943 | 3,000 | 1,440 | 385 | 59.3 | 52.0 | 266 | 784 |
| 1913 | 340 | 680 | 806 | 1,840 | 616 | 2,090 | 1,340 | 675 | 415 | 55.4 | 41.5 | 49.4 | 749 |
| 1914 | 225 | 738 | 403 | 227 | 302 | 690 | 2,290 | 934 | 90.9 | 74.1 | 175 | 129 | 523 |
| 1915 | 55.0 | 242 | 410 | 698 | 925 | 496 | 1,570 | 562 | 64.8 | 49.4 | 209 | 94.2 | 481 |
| 1916 | 440 | 337 | 568 | 981 | 832 | 622 | 2,140 | 1,480 | 503 | 142 | 101 | 146 | 689 |
| 1917 | 267 | 366 | 794 | 625 | 515 | 893 | 2,490 | 1,190 | 1,710 | 365 | 361 | 144 | 793 |
| 1918 | 961 | 893 | 312 | 203 | 590 | 1,290 | 1,860 | 919 | 211 | 216 | 44.8 | 476 | 663 |
| 1919 | 631 | 694 | 981 | 617 | 469 | 967 | 1,770 | 961 | 72 | 185 | 102 | 117 | 632 |
| 1920 | 606 | 743 | 710 | 201 | 183 | 1,000 | 2,350 | 872 | 55.0 | 121 | 154 | 238 | 620 |
| 1921 | 248 | 438 | 1,300 | 757 | 365 | 2,390 | 1,510 | 335 | 211 | 279 | 149 | 62.9 | 675 |
| 1922 | 228 | 1,100 | 724 | 419 | 754 | 1,510 | 2,180 | 776 | 915 | 444 | 212 | 136 | 778 |
| 1923 | 151 | 241 | 324 | 565 | 244 | 722 | 2,450 | 1,190 | 344 | 161 | 88.2 | 96.7 | 548 |
| 1924 | 141 | 204 | 752 | 1,100 | 444 | 354 | 1,950 | 1,530 | 318 | 161 | 85.6 | 256 | 608 |
| 1925 | 765 | 271 | 508 | 236 | 1,360 | 1,540 | 1,640 | 691 | 308 | 539 | 273 | 326 | 700 |
| 1926 | 712 | 948 | 784 | 479 | 330 | 365 | 1,810 | 1,550 | 534 | 234 | 301 | 325 | 698 |
| 1927 | 735 | 1,460 | 530 | 378 | 385 | 1,220 | 1,220 | 1,070 | 431 | 280 | 215 | 245 | 682 |
| 1928 | 456 | 1,030 | 1,440 | 797 | 623 | 738 | 2,010 | 885 | 512 | 382 | 452 | 310 | 865 |
| 1929 | 678 | 802 | 769 | 759 | 474 | 1,370 | 1,960 | 1,510 | 382 | 487 | 206 | 274 | 798 |
| 1930 | 507 | 554 | 625 | 1,370 | 566 | 952 | 1,680 | 624 | 604 | 329 | 204 | 203 | 685 |

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly mean discharge, in cubic feet per second, of Black River
near Boonville, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1931 | 158 | 149 | 262 | 158 | 167 | 302 | 1,530 | 960 | 346 | 630 | 251 | 463 | 448 |
| 1932 | 414 | 665 | 816 | 1,050 | 706 | 494 | 1,830 | 825 | 351 | 432 | 380 | 249 | 683 |
| 1933 | 1,040 | 1,110 | 530 | 614 | 449 | 561 | 1,950 | 502 | 255 | 181 | 155 | 128 | 622 |
| 1934 | 124 | 268 | 493 | 466 | 369 | 698 | 2,144 | 454 | 239 | 172 | 202 | 167 | 485 |
| 1935 | 365 | 606 | 517 | 908 | 294 | 705 | 1,342 | 948 | 712 | 654 | 255 | 406 | 644 |
| 1936 | 462 | 772 | 492 | 222 | 179 | 2,277 | 1,736 | 985 | 278 | 199 | 258 | 307 | 682 |
| 1937 | 625 | 707 | 647 | 1,489 | 781 | 521 | 1,655 | 955 | 415 | 396 | 317 | 185 | 724 |
| 1938 | 454 | 804 | 486 | 394 | 1,072 | 1,373 | 1,213 | 497 | 261 | 258 | 244 | 855 | 653 |
| 1939 | 360 | 619 | 805 | 508 | 708 | 816 | 1,953 | 779 | 379 | 148 | 163 | 186 | 616 |
| 1940 | 235 | 418 | 453 | 371 | 407 | 431 | 2,173 | 997 | 466 | 427 | 150 | 263 | 564 |
| 1941 | 246 | 710 | 1,167 | 656 | 400 | 455 | 1,857 | 328 | 188 | 246 | 139 | 641 | 585 |
| 1942 | 503 | 679 | 774 | 457 | 381 | 1,085 | 1,701 | 616 | 391 | 197 | 235 | 682 | 641 |
| 1943 | 766 | 1,061 | 683 | 855 | 608 | 1,457 | 1,786 | 2,363 | 702 | 393 | 464 | 289 | 955 |
| 1944 | 481 | 683 | 328 | 305 | 335 | 595 | 2,173 | 1,085 | 505 | 239 | 158 | 431 | 606 |
| 1945 | 403 | 351 | 371 | 547 | 437 | 2,077 | 1,547 | 1,139 | 700 | 462 | 172 | 949 | 769 |
| 1946 | 1,695 | 1,141 | 433 | 501 | 504 | 1,771 | 742 | 922 | 504 | 324 | 325 | 180 | 757 |
| 1947 | 495 | 732 | 774 | 1,062 | 757 | 947 | 2,512 | 2,157 | 1,463 | 980 | 373 | 280 | 1,044 |
| 1948 | 151 | 399 | 435 | 327 | 466 | 1,877 | 1,827 | 1,022 | 498 | 400 | 260 | 88.1 | 646 |
| 1949 | 123 | 811 | 776 | 1,048 | 766 | 1,453 | 1,571 | 675 | 160 | 109 | 251 | 399 | 677 |
| 1950 | 420 | 603 | 1,200 | 1,475 | 605 | 677 | 1,914 | 757 | 599 | 324 | 270 | 470 | 774 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|---------------|----------------------------|-------------------|----------------|-------|-----------------------|------------------------|------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1911 | 304 | - | - | - | - | - | - | 667 | - |
| 1912 | 324,1084 | 6,800 | Apr. 17, 1912 | 36 | 784 | - | - | 730 | - |
| 1913 | 354,1084 | 12,400 | Mar. 28, 1913 | 28 | 749 | - | - | 710 | - |
| 1914 | 384 | 16,040 | Apr. 20, 1914† | 33 | 523 | - | - | 467 | - |
| 1915 | 404 | 4,090 | Apr. 12, 1915 | 28 | 481 | - | - | 535 | - |
| 1916 | 434 | 4,750 | May 18, 1916 | 38 | 689 | - | - | 696 | - |
| 1917 | 454,1084 | 5,600 | June 12, 1917 | 31 | 793 | - | - | 855 | - |
| 1918 | 474,1084 | 5,230 | Oct. 31, 1917 | 7 | 683 | - | - | 675 | - |
| 1919 | 504,1084 | 6,380 | Apr. 13, 1919 | 28 | 632 | - | - | 610 | - |
| 1920 | 504 | 3,620 | Apr. 21, 1920 | 31 | 620 | - | - | 614 | - |
| 1921 | 524 | 4,410 | Dec. 15, 1920 | 30 | 675 | - | - | 678 | - |
| 1922 | 544,1084 | 5,790 | Apr. 12, 1922 | 28 | 778 | - | - | 667 | - |
| 1923 | 564 | 3,980 | Apr. 8, 22, 1923 | 42 | 548 | - | - | 581 | - |
| 1924 | 584,1084 | 6,590 | Jan. 12, 1924 | 34 | 608 | - | - | 646 | - |
| 1925 | 604 | 4,920 | Oct. 1, 1924 | 47 | 700 | - | - | 775 | - |
| 1926 | 624,1084 | 7,240 | Apr. 25, 26, 1926 | 33 | 698 | - | - | 721 | - |
| 1927 | 644 | 3,880 | Mar. 19, 1927 | 97 | 682 | - | - | 700 | - |
| 1928 | 664,1084 | 7,020 | Apr. 8, 1928 | 97 | 803 | - | - | 729 | - |
| 1929 | 684 | 4,680 | (a) | 184 | 798 | - | - | 767 | - |
| 1930 | 699,1084 | 5,980 | Jan. 9, 1930 | 88 | 685 | - | - | 591 | - |
| 1931 | 714 | 3,880 | Apr. 12, 1931 | 87 | 448 | - | - | 559 | - |
| 1932 | 729 | 3,750 | Apr. 11, 1932 | 113 | 683 | - | - | 749 | - |
| 1933 | 744,1084 | 7,020 | Oct. 7, 1932 | 46 | 622 | - | - | 473 | - |
| 1934 | 759 | 5,200 | Apr. 17, 1934 | 46 | 485 | - | - | 533 | - |
| 1935 | 784 | 3,350 | June 18, 1935 | 120 | 644 | - | - | 664 | - |
| 1936 | 804 | 6,300 | Mar. 18, 1936 | 108 | 682 | - | - | 704 | - |
| 1937 | 824 | 3,660 | Jan. 1, 1937 | 135 | 724 | - | - | 703 | - |
| 1938 | 854 | 6,240 | Mar. 25, 1938 | 108 | 653 | - | - | 658 | - |
| 1939 | 874 | 4,270 | (b) | 78 | 616 | - | - | 559 | - |
| 1940 | 894 | 4,870 | Apr. 19, 1940 | 93 | 564 | - | - | 649 | - |
| 1941 | 924 | 7,460 | Dec. 30, 1940 | 80 | 585 | - | - | 571 | - |
| 1942 | 954 | 6,840 | Sept. 28, 1942 | 100 | 641 | - | - | 688 | - |
| 1943 | 974 | 4,920 | May 1, 1943 | 149 | 955 | - | - | 868 | - |
| 1944 | 1004 | 5,030 | Apr. 25, 1944 | 138 | 606 | - | - | 578 | - |
| 1945 | 1034 | 5,870 | Mar. 22, 1945 | 106 | 769 | - | - | 949 | - |
| 1946 | 1054 | 10,400 | Oct. 3, 1945 | 124 | 757 | - | - | 650 | - |
| 1947 | 1084 | 8,650 | June 3, 1947 | 176 | 1,044 | - | - | 969 | - |
| 1948 | 1114 | 7,240 | Mar. 28, 1948 | 67 | 646 | - | - | 705 | - |
| 1949 | 1144 | 5,290 | Mar. 28, 1949 | 56 | 677 | - | - | 721 | - |
| 1950 | 1174 | 5,400 | Apr. 21, 1950 | 109 | 774 | - | - | - | - |

† Corrected.

a Apr. 7, May 4, 1929.

b Feb. 22, Apr. 26, 1939.

351. Sugar River at Talcottville, N. Y.

Location.--Lat 43°32'05", long. 75°22'05" on left bank 150 ft upstream from falls, 250 ft downstream from steel highway bridge at Talcottville, Lewis County, and 4 miles north-west of Boonville.

Drainage area.--42 sq mi.

Gage.--Staff gage. Altitude of gage is 1,110 ft (from topographic map).

Average discharge.--5 years (1926-31), 118 cfs.

Extremes.--1926-32: Maximum discharge, 2,800 cfs Jan. 8, 1930 (gage height, 5.3 ft), from rating curve extended above 1,000 cfs by logarithmic plotting; minimum, 3.9 cfs Oct. 16, 17, 1930 (gage height, 0.71 ft).

| Monthly and yearly mean discharge, in cubic feet per second, of Sugar River at Talcottville, N. Y. | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1926 | - | - | - | - | - | - | - | - | - | - | 64.5 | 58.7 | - |
| 1927 | 212 | 267 | 59.2 | 74.1 | 86.5 | 370 | 148 | 166 | 31.1 | 23.9 | 18.2 | 23.5 | 124 |
| 1928 | 89.4 | 283 | 287 | 142 | 103 | 248 | 472 | 115 | 66.6 | 53.7 | 87.9 | 37.1 | 165 |
| 1929 | 101 | 127 | 174 | 178 | 39.4 | 374 | 225 | 174 | 26.6 | 24.9 | 37.5 | 34.4 | 127 |
| 1930 | 72.7 | 124 | 108 | 244 | 165 | 205 | 289 | 54.0 | 37.5 | 27.4 | 8.21 | 7.84 | 111 |
| 1931 | 7.31 | 10.4 | 25.3 | 16.6 | 13.6 | 84.0 | 266 | 116 | 23.7 | 30.8 | 22.8 | 115 | 60.9 |
| 1932 | 111 | 173 | 180 | 227 | 128 | 90.4 | 385 | 74.6 | - | - | - | - | - |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1926 | - | - | - | - | - | - | - | - | - | - | 1.78 | 1.56 | - |
| 1927 | 5.82 | 7.10 | 1.63 | 2.03 | 2.14 | 10.16 | 3.93 | 4.55 | 0.83 | 0.66 | 1.50 | .62 | 39.97 |
| 1928 | 2.46 | 7.52 | 7.87 | 3.90 | 2.64 | 6.80 | 12.54 | 3.16 | 1.77 | 1.48 | 2.41 | .99 | 53.54 |
| 1929 | 2.77 | 3.37 | 4.77 | 4.89 | .98 | 10.26 | 5.98 | 4.77 | .71 | .68 | 1.03 | .91 | 41.12 |
| 1930 | 1.99 | 3.29 | 2.96 | 6.70 | 4.09 | 5.63 | 7.68 | 1.49 | 1.00 | .75 | .22 | .21 | 36.01 |
| 1931 | .20 | .28 | .69 | .46 | .34 | 2.31 | 7.06 | 3.18 | .63 | .85 | .63 | 3.06 | 19.69 |
| 1932 | 3.04 | 4.60 | 4.95 | 6.23 | 3.29 | 2.48 | 10.23 | 2.05 | - | - | - | - | - |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 644 | - | | - | - | - | - | - | - |
| 1927 | 644 | 1,840 | Nov. 16, 1926 | 6.5 | 124 | 2.95 | 39.97 | 134 | 43.27 |
| 1928 | 664 | 2,440 | Apr. 7, 1928 | 10 | 165 | 3.93 | 53.54 | 144 | 46.60 |
| 1929 | 684 | 1,550 | Jan. 19, 1929 | 6.7 | 127 | 3.02 | 41.12 | 119 | 38.45 |
| 1930 | 699 | 2,800 | Jan. 8, 1930 | 4.3 | 111 | 2.64 | 36.01 | 89.5 | 28.94 |
| 1931 | 714 | 1,120 | Apr. 10, 1931 | 3.9 | 60.9 | 1.45 | 19.69 | 96.2 | 31.11 |
| 1932 | 729 | - | | - | - | - | - | - | - |

352. Middle Branch Moose River at Old Forge, N. Y.

Location.--Lat 43°42'50", long. 74°58'10", on left bank in Old Forge, Herkimer County, 400 ft downstream from State dam and 1 1/4 miles upstream from North Branch Moose River.

Drainage area.--52 sq mi, approximately.

Gage.--Staff gage. Datum of gage is 1,690.63 ft above mean sea level, datum of 1929.

Average discharge.--39 years (1911-50), 105 cfs.

Extremes.--1911-50: Maximum daily discharge, 862 cfs Mar. 23, 1921, from rating curve extended above 450 cfs by logarithmic plotting; minimum daily, about 0.1 cfs many times during 1938-39, 1944-45 when gates in dam were closed.

Remarks.--Flow regulated by Fulton Chain of Lakes since about 1880.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|-------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1912 | 444.7 | 450 | 209 | 95.1 | 118 | 88.6 | 231 | 210 | 60.2 | 63.7 | 66.4 | 98.0 | 419 |
| 1913 | 111 | 149 | 143 | 39.9 | 74.6 | 269 | 247 | 65.6 | 35.8 | 24.9 | 65.5 | 60.3 | 107 |
| 1914 | 118 | 194 | 17.9 | 10.3 | 14.3 | 205 | 221 | 94.5 | 60.6 | 29.7 | 69.4 | 96.4 | 94.4 |
| 1915 | 215 | 35.2 | 17.3 | 54.4 | 154 | 116 | 36.7 | 73.0 | 69.3 | 89.5 | 92.1 | 86.1 | 86.3 |
| 1916 | 153 | 110 | 35.4 | 53.0 | 140 | 86.1 | 228 | 208 | 62.8 | 76.4 | 82.5 | 131 | 113 |
| 1917 | 150 | 83.0 | 43.5 | 64.2 | 102 | 153 | 198 | 142 | 209 | 87.3 | 64.8 | 72.6 | 114 |
| 1918 | 109 | 190 | 58 | 61.6 | 133 | 128 | 183 | 218 | 87.1 | 87.6 | 72.2 | 101 | 119 |
| 1919 | 216 | 156 | 93.5 | 58.6 | 62.2 | 126 | 220 | 84.7 | 37.9 | 32.9 | 101 | 163 | 113 |
| 1920 | 62.7 | 101 | 37.4 | 96.8 | 122 | 46.9 | 226 | 118 | 46.0 | 38.3 | 115 | 106 | 92.5 |
| 1921 | 79.2 | 32.4 | 79.9 | 79.9 | 93.4 | 386 | 180 | 52.7 | 46.5 | 46.6 | 40.5 | 163 | 107 |
| 1922 | 90.1 | 69.5 | 92.7 | 94.2 | 99.3 | 94.0 | 313 | 83.0 | 203 | 138 | 85.6 | 138 | 125 |
| 1923 | 121 | 67.7 | 50.0 | 47.0 | 84.5 | 47.6 | 128 | 155 | 69.4 | 57.3 | 41.9 | 67.4 | 78.0 |
| 1924 | 93.9 | 75.6 | 25.1 | 106 | 80.8 | 117 | 242 | 209 | 63.4 | 44.6 | 45.4 | 46.3 | 95.7 |
| 1925 | 179 | 85.9 | 34.4 | 95.2 | 73.5 | 186 | 291 | 138 | 65.5 | 63.5 | 80.5 | 55.8 | 112 |
| 1926 | 106 | 183 | 154 | 96.9 | 121 | 161 | 242 | 244 | 112 | 64.3 | 70.9 | 85.0 | 137 |
| 1927 | 131 | 193 | 122 | 120 | 138 | 156 | 69.5 | 144 | 59.6 | 39.6 | 66.1 | 195 | 119 |
| 1928 | 98.9 | 52.9 | 218 | 94.8 | 238 | 261 | 79.2 | 184 | 110 | 61.8 | 49.7 | 150 | 133 |
| 1929 | 123 | 3.20 | 59.7 | 124 | 218 | 75.4 | 191 | 258 | 69.6 | 125 | 44.5 | 177 | 122 |
| 1930 | 96.2 | 74.7 | 108 | 201 | 164 | 141 | 152 | 121 | 122 | 86.2 | 32.3 | 169 | 122 |
| 1931 | 189 | 70.4 | 20.1 | 45.5 | 57.7 | 42.4 | 6.60 | 5.42 | 57.7 | 123 | 54.3 | 38.6 | 59.4 |
| 1932 | 97.9 | 152 | 138 | 206 | 230 | 129 | 143 | 64.2 | 81.4 | 139 | 96.5 | 172 | 137 |
| 1933 | 34.1 | 184 | 144 | 172 | 121 | 64.1 | 116 | 121 | 60.4 | 40.3 | 30.7 | 115 | 99.8 |
| 1934 | 145 | 18.8 | 21.9 | 55.3 | 153 | 36.5 | 143 | 41.2 | 65.6 | 17.4 | 29.0 | 150 | 70.6 |
| 1935 | 86.3 | 1.37 | 97.8 | 102 | 244 | 85.8 | 12.0 | 163 | 114 | 64.1 | 51.6 | 141 | 96.0 |

* Not previously published; estimated on basis of lake levels and gate openings.

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly mean discharge, in cubic feet per second, of Middle Branch Moose River at Old Forge, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1936 | 114 | 5.12 | 38.1 | 153 | 170 | 64.5 | 188 | 119 | 14.8 | 66.1 | 40.3 | 93.4 | 88.5 |
| 1937 | 90.2 | 50.2 | 136 | 191 | 213 | 211 | 19.0 | 165 | 36.8 | 37.2 | 45.0 | 204 | 116 |
| 1938 | 134 | .20 | 48.3 | 158 | 70.5 | 215 | 113 | 61.6 | 39.4 | 68.5 | 51.0 | 145 | 92.5 |
| 1939 | 166 | 151 | 58.7 | 130 | 198 | 101 | 50.6 | 159 | 39.4 | 39.1 | 40.1 | 224 | 112 |
| 1940 | 151 | 109 | 7.54 | 105 | 84.9 | 53.9 | 1.64 | 1.97 | 10.8 | 56.7 | 43.5 | 120 | 62.1 |
| 1941 | 209 | 27.9 | 127 | 139 | 175 | 126 | 8.37 | 2.13 | 1.51 | 1.05 | .75 | 76.7 | 74.2 |
| 1942 | 78.7 | 1.44 | 81.4 | 134 | 234 | 61.4 | 89.8 | 103 | 63.4 | 43.6 | 20.6 | 110 | 74.0 |
| 1943 | 37.0 | 137 | 183 | 250 | 244 | 42.0 | 23.1 | 125 | 47.5 | 21.4 | 54.7 | 192 | 143 |
| 1944 | 238 | 3.30 | 99.1 | 172 | 95.0 | 124 | 193 | 104 | 44.6 | 12.1 | 6.25 | 212 | 85.9 |
| 1945 | 222 | 145 | 102 | 81.6 | 61.4 | 15.8 | 61.2 | 196 | 96.3 | 92.0 | 14.6 | 168 | 105 |
| 1946 | 277 | 187 | 67.8 | 172 | 218 | 128 | 43.3 | 113 | 76.2 | 33.8 | 18.6 | 227 | 129 |
| 1947 | 87.4 | 77.4 | 80.6 | 143 | 257 | 225 | 119 | 340 | 237 | 128 | 34.6 | 267 | 165 |
| 1948 | 197 | 49.8 | 4.26 | 5.12 | 58.3 | 72.3 | 129 | 146 | 59.7 | 42.5 | 51.2 | 190 | 89.6 |
| 1949 | 204 | 36.3 | 6.68 | 27.5 | 152 | 211 | 87.4 | 85.2 | 27.2 | 21.0 | 40.1 | 116 | 94.1 |
| 1950 | 163 | 91.2 | 89.0 | 144 | 175 | 197 | 45.7 | 92.9 | 85.7 | 47.2 | 44.4 | 170 | 112 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 304, 324 | - | - | #5 | #119 | #2.29 | #31.27 | 119 | 31.25 |
| 1913 | 354 | - | - | 10 | 107 | 2.06 | 27.98 | 101 | 26.34 |
| 1914 | 324 | - | - | 5.8 | 94.4 | 1.82 | 24.55 | 88.5 | 23.36 |
| 1915 | 404 | - | - | 1.9 | 86.3 | 1.66 | 22.55 | 89.7 | 23.19 |
| 1916 | 434 | - | - | 5.0 | 113 | 2.17 | 29.70 | 112 | 29.22 |
| 1917 | 454 | - | - | 22 | 114 | 2.19 | 29.75 | 121 | 31.50 |
| 1918 | 474 | - | - | 16 | 119 | 2.29 | 31.04 | 128 | 33.42 |
| 1919 | 504 | - | - | 26 | 113 | 2.17 | 29.42 | 90.4 | 23.61 |
| 1920 | 504 | - | - | 16 | 92.5 | 1.78 | 24.23 | 91.8 | 24.07 |
| 1921 | 524 | - | - | 22 | 107 | 2.06 | 27.86 | 112 | 29.19 |
| 1922 | 544 | - | - | 28 | 125 | 2.40 | 32.52 | 123 | 32.21 |
| 1923 | 564 | - | - | 22 | 78.0 | 1.50 | 20.34 | 74.2 | 19.36 |
| 1924 | 584 | - | - | 23 | 95.7 | 1.84 | 25.06 | 105 | 27.36 |
| 1925 | 604 | - | - | 28 | 112 | 2.15 | 29.31 | 124 | 32.47 |
| 1926 | 624 | - | - | 43 | 137 | 2.63 | 35.69 | 137 | 35.72 |
| 1927 | 644 | - | - | 38 | 119 | 2.29 | 31.14 | 113 | 29.55 |
| 1928 | 664 | - | - | - | 133 | 2.56 | 34.81 | 118 | 30.78 |
| 1929 | 684 | - | - | 1 | 122 | 2.35 | 31.77 | 129 | 33.78 |
| 1930 | 699 | - | - | 2 | 122 | 2.35 | 31.83 | 122 | 31.83 |
| 1931 | 714 | - | - | 1.5 | 59.4 | 1.14 | 15.51 | 68.4 | 17.86 |
| 1932 | 729 | - | - | 1.5 | 137 | 2.63 | 35.83 | 135 | 35.24 |
| 1933 | 744 | - | - | 1.44 | 99.8 | 1.92 | 26.08 | 85.3 | 22.29 |
| 1934 | 759 | - | - | 2 | 70.6 | 1.36 | 18.44 | 70.6 | 18.44 |
| 1935 | 784 | - | - | .3 | 96.0 | 1.85 | 25.04 | 93.6 | 24.41 |
| 1936 | 804 | - | - | .3 | 88.5 | 1.70 | 23.19 | 98.5 | 25.80 |
| 1937 | 824 | - | - | .3 | 116 | 2.23 | 30.32 | 108 | 28.27 |
| 1938 | 854 | - | - | .2 | 92.5 | 1.78 | 21.114 | 108 | 28.29 |
| 1939 | 874 | - | - | .1 | 112 | 2.15 | 28.55 | 103 | 26.98 |
| 1940 | 894 | - | - | .7 | 62.1 | 1.19 | 16.25 | 70.4 | 16.45 |
| 1941 | 924 | - | - | .5 | 74.2 | 1.43 | 19.38 | 57.2 | 14.91 |
| 1942 | 954 | - | - | .8 | 84.0 | 1.62 | 21.94 | 98.5 | 25.73 |
| 1943 | 974 | - | - | 2.2 | 143 | 2.75 | 37.29 | 143 | 37.46 |
| 1944 | 1004 | - | - | .1 | 85.9 | 1.65 | 22.48 | 96.4 | 25.23 |
| 1945 | 1034 | - | - | .1 | 105 | 2.02 | 27.58 | 110 | 28.74 |
| 1946 | 1054 | - | - | 4.8 | 129 | 2.48 | 33.77 | 105 | 27.51 |
| 1947 | 1084 | - | - | 14 | 165 | 3.17 | 43.18 | 166 | 43.32 |
| 1948 | 1114 | - | - | 3.4 | 83.6 | 1.61 | 21.88 | 83.3 | 21.80 |
| 1949 | 1144 | - | - | 4.3 | 84.1 | 1.62 | 21.96 | 92.0 | 24.03 |
| 1950 | 1174 | - | - | 4.9 | 112 | 2.15 | 29.16 | - | - |

* Not previously published.

353. Middle Branch Moose River near McKeever, N. Y.

Location.--Lat 43°37'45", long. 75°04'55", on right bank half a mile upstream from confluence with South Branch and 1½ miles northeast of McKeever, Herkimer County.

Drainage area.--148 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,530.29 ft above mean sea level, datum of 1929.

Average discharge.--25 years (1925-50), 330 cfs

Extremes.--1925-50: Maximum discharge, 2,100 cfs Apr. 27, 1926; maximum gage height, 7.15 ft Jan. 18, 1938 (ice jam); minimum discharge, 27 cfs Aug. 18, 1946 (gage height, 1.73 ft).

Remarks.--Flow regulated to some extent by Fulton Chain of Lakes since about 1880.

Monthly and yearly mean discharge, in cubic feet per second, of Middle Branch Moose River near McKeever, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1926 | 581 | 513 | 408 | 252 | 220 | 263 | 826 | 936 | 425 | 235 | 265 | 284 | 416 |
| 1927 | 525 | 763 | 291 | 232 | 268 | 585 | 445 | 502 | 229 | 142 | 129 | 272 | 365 |
| 1928 | 300 | 472 | 698 | 328 | 358 | 532 | 872 | 613 | 295 | 195 | 205 | 258 | 427 |
| 1929 | 307 | 239 | 273 | 402 | 319 | 545 | 798 | 816 | 248 | 513 | 168 | 240 | 390 |
| 1930 | 270 | 280 | 296 | 682 | 354 | 376 | 698 | 426 | 349 | 229 | 87.0 | 240 | 357 |
| 1931 | 245 | 122 | 92.8 | 96.1 | 111 | 105 | 592 | 355 | 171 | 228 | 131 | 161 | 201 |
| 1932 | 229 | 416 | 393 | 652 | 468 | 268 | 734 | 442 | 204 | 417 | 220 | 250 | 391 |
| 1933 | 419 | 535 | 317 | 430 | 238 | 198 | 790 | 416 | 163 | 86.3 | 73.0 | 150 | 318 |
| 1934 | 212 | 96.7 | 238 | 197 | 194 | 196 | 820 | 251 | 188 | 84.5 | 72.9 | 205 | 229 |
| 1935 | 207 | 188 | 236 | 324 | 328 | 304 | 409 | 644 | 416 | 234 | 118 | 219 | 302 |
| 1936 | 218 | 162 | 153 | 235 | 230 | 611 | 816 | 506 | 125 | 132 | 86.5 | 179 | 288 |
| 1937 | 311 | 517 | 289 | 660 | 484 | 364 | 492 | 618 | 175 | 102 | 157 | 253 | 351 |
| 1938 | 268 | 279 | 198 | 278 | 431 | 658 | 509 | 261 | 125 | 190 | 172 | 376 | 316 |
| 1939 | 320 | 517 | 354 | 255 | 356 | 321 | 581 | 526 | 172 | 104 | 78.5 | 258 | 301 |
| 1940 | 222 | 210 | 131 | 185 | 151 | 133 | 539 | 468 | 123 | 187 | 93.1 | 170 | 218 |
| 1941 | 264 | 237 | 426 | 408 | 276 | 207 | 526 | 115 | 61.4 | 65.5 | 81.4 | 317 | 248 |
| 1942 | 277 | 240 | 264 | 317 | 331 | 307 | 761 | 343 | 259 | 114 | 75.2 | 224 | 292 |
| 1943 | 228 | 489 | 362 | 432 | 391 | 490 | 474 | 1,291 | 277 | 101 | 146 | 246 | 411 |
| 1944 | 353 | 236 | 178 | 231 | 173 | 166 | 666 | 625 | 144 | 83.5 | 43.5 | 266 | 262 |
| 1945 | 354 | 267 | 211 | 199 | 169 | 631 | 652 | 624 | 309 | 357 | 72.2 | 345 | 350 |
| 1946 | 885 | 568 | 209 | 395 | 374 | 685 | 320 | 379 | 258 | 144 | 61.8 | 267 | 379 |
| 1947 | 289 | 389 | 379 | 485 | 528 | 501 | 877 | 1,142 | 786 | 393 | 177 | 339 | 523 |
| 1948 | 255 | 159 | 123 | 79.7 | 174 | 593 | 779 | 486 | 183 | 188 | 149 | 242 | 284 |
| 1949 | 261 | 289 | 219 | 388 | 389 | 560 | 608 | 264 | 84.2 | 64.5 | 91.6 | 289 | 291 |
| 1950 | 293 | 276 | 449 | 546 | 332 | 339 | 601 | 346 | 254 | 113 | 106 | 292 | 329 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1926 | 624 | 2,100 | Apr. 27, 1926 | 137 | 416 | 2.81 | 58.19 | 439 | 40.27 | |
| 1927 | 644 | 1,200 | Mar. 22, 1927 | 96 | 365 | 2.47 | 33.47 | 357 | 32.71 | |
| 1928 | 664 | 1,980 | Apr. 10, 1928 | 88 | 427 | 2.89 | 39.27 | 373 | 34.24 | |
| 1929 | 684 | 1,550 | May 6, 1929 | 73 | 390 | 2.64 | 35.72 | 392 | 35.93 | |
| 1930 | 699 | 1,780 | Jan. 11, 1930 | 63 | 357 | 2.41 | 32.76 | 324 | 29.79 | |
| 1931 | 714 | *1,400 | Apr. 11, 1931* | 42 | 201 | 1.36 | 18.44 | 249 | 22.89 | |
| 1932 | 729 | 1,330 | Jan. 21, 1932 | 116 | 391 | 2.64 | 35.96 | 410 | 37.72 | |
| 1933 | 744 | 1,590 | Apr. 20, 1933 | 47 | 318 | 2.15 | 29.18 | 258 | 23.66 | |
| 1934 | 759 | 1,050 | Apr. 17, 1934 | 48 | 229 | 1.55 | 20.39 | 236 | 21.61 | |
| 1935 | 784 | 1,450 | May 2, 1935 | 65 | 302 | 2.04 | 27.68 | 294 | 26.93 | |
| 1936 | 804 | 1,110 | Mar. 29, 1936 | 55 | 288 | 1.95 | 26.45 | 320 | 29.40 | |
| 1937 | 824 | 942 | May 2, 1937 | 64 | 351 | 2.37 | 32.20 | 337 | 30.88 | |
| 1938 | 854 | 1,630 | Mar. 26, 1938 | 65 | 316 | 2.14 | 28.98 | 335 | 30.73 | |
| 1939 | 874 | 1,470 | Apr. 29, 1939 | 67 | 301 | 2.03 | 27.60 | 267 | 24.44 | |
| 1940 | 894 | 1,130 | May 4, 1940 | 38 | 218 | 1.47 | 20.00 | 248 | 22.82 | |
| 1941 | 924 | 1,240 | Apr. 17, 1941 | 44 | 248 | 1.68 | 22.73 | 236 | 21.60 | |
| 1942 | 954 | 1,260 | Apr. 9, 1942 | 55 | 292 | 1.97 | 26.74 | 316 | 28.99 | |
| 1943 | 974 | 1,870 | May 14, 1943 | 66 | 411 | 2.78 | 37.71 | 384 | 35.20 | |
| 1944 | 1004 | 1,260 | Apr. 27, 1944 | 33 | 262 | 1.77 | 24.07 | 269 | 24.72 | |
| 1945 | 1034 | 1,520 | Mar. 22, 1945 | 30 | 350 | 2.36 | 32.11 | 420 | 38.52 | |
| 1946 | 1054 | 2,070 | Oct. 4, 1945 | 27 | 379 | 2.56 | 34.80 | 328 | 30.11 | |
| 1947 | 1084 | 1,860 | May 22, 1947 | 78 | 523 | 3.53 | 47.93 | 479 | 43.95 | |
| 1948 | 1114 | 1,690 | Mar. 24, 1948 | 64 | 284 | 1.92 | 26.16 | 303 | 27.92 | |
| 1949 | 1144 | 1,270 | Mar. 30, 1949 | 47 | 291 | 1.97 | 26.71 | 312 | 28.67 | |
| 1950 | 1174 | 956 | Apr. 25, 1950 | 83 | 329 | 2.22 | 30.16 | - | - | |

* Not previously published; estimated on basis of records for Moose River at McKeever.

354. Moose River at McKeever, N. Y. 1/

Location.--Lat 43°36'40", long. 75°06'35", on left bank half a mile west of McKeever, Herkimer County, and 2 miles downstream from South Branch.

Drainage area.--365 sq mi; 1900-22, 368 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 1,479.92 ft above mean sea level, datum of 1929. June 5, 1900, to Sept. 30, 1922, staff gage at site 2½ miles downstream at various datums. Oct. 1 to Nov. 2, 1922, staff gage at present site at datum 1 ft higher.

Average discharge.--45 years (1905-50), 832 cfs.

Extremes.--1900-50: Maximum discharge, 18,700 cfs June 3, 1947 (gage height, 17.45 ft, from floodmark), result of failure of dam; minimum, about 42 cfs July 21, 23, 25-27, 1913.

Remarks.--Some diurnal fluctuation caused by paper mill at McKeever prior to 1947. Flow regulated to some extent by Fulton Chain of Lakes since about 1880.

1/ Published as "at Moose River" prior to Oct. 1, 1922.

Monthly and yearly mean discharge, in cubic feet per second, of Moose River at McKeever, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|---------|-------|-------|-------|--------|-------|-------|-------|------|-------|----------|
| 1900 | - | - | - | - | - | - | - | - | - | 243 | 251 | 216 | - |
| 1901 | 241 | 805 | - | - | - | - | - | 1,229 | 1,437 | 439 | 454 | 492 | - |
| 1902 | 620 | 417 | \$1,730 | - | - | - | †1,584 | 912 | 751 | †644 | 486 | 309 | - |
| 1903 | 491 | 589 | - | - | - | - | 1,648 | 324 | 495 | 507 | 593 | 358 | - |
| 1904 | 1,340 | 388 | - | - | - | - | - | 1,998 | 858 | 445 | 482 | 887 | - |
| 1905 | 1,266 | 686 | - | - | - | - | 2,496 | 1,117 | 1,651 | 1,062 | 618 | 1,298 | - |
| 1906 | 786 | 740 | 730 | 1,320 | \$711 | \$568 | 1,710 | 1,530 | 557 | 500 | 324 | 267 | \$814 |
| 1907 | 413 | 550 | \$398 | 988 | 272 | 755 | 1,430 | 1,450 | 573 | 406 | 234 | 525 | \$670 |
| 1908 | 985 | 1,070 | 1,240 | 851 | 834 | 1,500 | 2,990 | 2,050 | 499 | 321 | 305 | 292 | 1,080 |
| 1909 | 271 | 328 | 303 | 587 | 1,150 | 696 | 2,920 | 2,400 | 530 | 275 | 214 | 233 | 822 |
| 1910 | 281 | 330 | 226 | 600 | 500 | 3,030 | 1,940 | 1,160 | 814 | 258 | 679 | 410 | 854 |
| 1911 | 681 | 620 | 308 | 600 | 400 | 700 | 2,630 | 1,660 | 592 | 321 | 202 | 244 | 746 |
| 1912 | 782 | 943 | 1,610 | 482 | 268 | 535 | 2,700 | 1,940 | 570 | 215 | 242 | 390 | 895 |
| 1913 | 741 | 1,020 | 793 | 1,780 | 638 | 3,050 | 1,430 | 561 | 494 | 194 | 144 | 134 | 917 |
| 1914 | 597 | 1,170 | 449 | \$336 | \$753 | 2,900 | 1,230 | 346 | 354 | 347 | 370 | 216 | \$759 |
| 1915 | 355 | 534 | 544 | 804 | 910 | 528 | 1,590 | 655 | 373 | 588 | 576 | 316 | 645 |
| 1916 | 512 | 520 | 611 | 1,070 | 941 | 536 | 2,360 | 1,960 | 561 | 561 | 240 | 286 | 844 |
| 1917 | 502 | 736 | 865 | 434 | 379 | 754 | 2,450 | 1,550 | 1,570 | 534 | 261 | 256 | 858 |
| 1918 | 1,070 | 900 | 353 | 231 | 446 | 742 | 2,190 | 1,630 | 629 | 513 | 215 | 719 | 902 |
| 1919 | 1,110 | 964 | 947 | 700 | 470 | 1,570 | 2,120 | 1,190 | 299 | 237 | 257 | 448 | 861 |
| 1920 | 834 | 1,070 | 894 | 320 | 300 | 1,200 | 2,600 | 1,220 | 238 | 381 | 366 | 278 | 809 |
| 1921 | 334 | 573 | 1,470 | 686 | 394 | 2,890 | 1,380 | 482 | 270 | 584 | 203 | 336 | 806 |
| 1922 | 535 | 1,030 | 953 | 538 | 554 | 1,420 | 2,900 | 990 | 1,640 | 767 | 439 | 319 | 1,010 |
| 1923 | 353 | 369 | 319 | 582 | 312 | 539 | 2,770 | 1,470 | 429 | 208 | 126 | 240 | 642 |
| 1924 | 412 | 512 | 1,010 | 1,290 | 337 | 341 | 2,420 | 2,170 | 395 | 254 | 311 | 469 | 828 |
| 1925 | 982 | 439 | 519 | 353 | 1,460 | 1,800 | 2,370 | 1,130 | 470 | 648 | 494 | 558 | 931 |
| 1926 | 1,020 | 1,500 | 1,000 | 593 | 426 | 475 | 2,240 | 2,420 | 940 | 467 | 544 | 531 | 1,020 |
| 1927 | 1,200 | 1,740 | 643 | 436 | 495 | 1,450 | 1,320 | 1,350 | 543 | 334 | 318 | 443 | 857 |
| 1928 | 652 | 1,589 | 1,752 | 895 | 641 | 1,105 | 2,654 | 1,746 | 665 | 443 | 499 | 474 | 1,086 |
| 1929 | 697 | 646 | 779 | 1,070 | 558 | 1,910 | 2,310 | 1,840 | 700 | 610 | 357 | 412 | 993 |
| 1930 | 672 | 769 | 740 | 1,840 | 774 | 931 | 2,030 | 1,220 | 784 | 542 | 189 | 349 | 904 |
| 1931 | 336 | 243 | 254 | 207 | 231 | 248 | 1,920 | 1,280 | 438 | 679 | 260 | 798 | 575 |
| 1932 | 750 | 976 | 1,050 | 1,630 | 972 | 525 | 2,210 | 1,330 | 479 | 935 | 444 | 385 | 973 |
| 1933 | 1,593 | 1,420 | 541 | 904 | 446 | 465 | 2,430 | 942 | 339 | 184 | 228 | 210 | 804 |
| 1934 | 359 | 409 | 745 | 520 | 304 | 546 | 2,480 | 649 | 431 | 199 | 141 | 308 | 590 |
| 1935 | 433 | 586 | 629 | 854 | 522 | 807 | 1,473 | 1,431 | 1,001 | 600 | 264 | 404 | 751 |
| 1936 | 474 | 619 | 370 | 428 | 358 | 2,354 | 2,130 | 1,387 | 287 | 245 | 191 | 377 | 770 |
| 1937 | 856 | 780 | 711 | 1,719 | 999 | 540 | 1,756 | 1,655 | 419 | 263 | 322 | 325 | 862 |
| 1938 | 630 | 822 | 521 | 518 | 1,250 | 1,785 | 1,668 | 606 | 282 | 397 | 373 | 1,156 | 829 |
| 1939 | 540 | 728 | 955 | 496 | 765 | 1,021 | 2,134 | 1,264 | 453 | 205 | 160 | 298 | 747 |
| 1940 | 345 | 416 | 421 | 340 | 251 | 235 | 1,820 | 1,603 | 525 | 679 | 202 | 314 | 613 |
| 1941 | 413 | 805 | 1,152 | 790 | 425 | 349 | 1,953 | 295 | 195 | 291 | 171 | 663 | 624 |
| 1942 | 639 | 702 | 840 | 637 | 496 | 800 | 2,358 | 735 | 654 | 212 | 191 | 861 | 758 |
| 1943 | 762 | 1,199 | 704 | 807 | 722 | 1,629 | 1,630 | 3,310 | 621 | 238 | 348 | 373 | 1,023 |
| 1944 | 558 | 619 | 313 | 372 | 319 | 529 | 2,293 | 1,715 | 566 | 205 | 111 | 433 | 668 |
| 1945 | 556 | 463 | 405 | 468 | 325 | 2,285 | 1,811 | 1,491 | 737 | 659 | 150 | 999 | 864 |
| 1946 | 2,199 | 1,304 | 459 | 777 | 709 | 2,105 | 870 | 1,086 | 575 | 314 | 147 | 348 | 911 |
| 1947 | 726 | 961 | 954 | 1,229 | 1,172 | 1,212 | 2,746 | 2,943 | 1,858 | 931 | 342 | 440 | 1,290 |
| 1948 | 330 | 392 | 392 | 230 | 442 | 2,001 | 1,988 | 1,157 | 420 | 404 | 339 | 275 | 699 |
| 1949 | 351 | 905 | 708 | 1,147 | 899 | 1,453 | 1,691 | 694 | 193 | 143 | 348 | 621 | 761 |
| 1950 | 556 | 777 | 1,410 | 1,508 | 624 | 695 | 1,975 | 936 | 606 | 317 | 317 | 678 | 867 |

† Corrected.

* Not previously published; estimated on basis of weather records and records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1900 | 170 | - | - | - | - | - | - | - | - | - |
| 1901 | 170 | - | - | - | - | - | - | - | - | - |
| 1902 | 170 | \$14,500 | Dec. 16, 1901* | - | - | - | - | - | - | - |
| 1903 | 170 | - | - | - | - | - | - | - | - | - |
| 1904 | 170 | - | - | - | - | - | - | - | - | - |
| 1905 | 170 | \$6,300 | Apr. 22, 1905* | - | - | - | - | - | - | - |
| 1906 | 206 | \$7,000 | Jan. 24, 1906* | 103 | \$814 | \$2.21 | \$30.01 | \$740 | \$27.28 | |
| 1907 | 244 | \$4,740 | May 1, 1907* | 148 | \$670 | \$1.82 | \$24.72 | 827 | 30.69 | |
| 1908 | 244 | \$6,380 | Apr. 22, 1908* | 250 | 1,080 | 2.93 | 39.87 | 879 | 32.43 | |
| 1909 | 264 | \$8,060 | Apr. 14, 1909* | 74 | 822 | 2.23 | 30.31 | 820 | 30.11 | |
| 1910 | 284 | \$5,050 | Mar. 27, 1910* | 90 | 854 | 2.32 | 31.50 | 917 | 33.98 | |
| 1911 | 304 | \$9,660 | May 2, 1911* | 90 | 746 | 2.03 | 27.50 | 897 | 33.08 | |
| 1912 | 324 | \$9,920 | Apr. 23, 1912* | 90 | 895 | 2.43 | 33.12 | 824 | 30.46 | |
| 1913 | 354 | 15,500 | Mar. 27, 1913 | 92 | 917 | 2.49 | 33.82 | 898 | 32.77 | |
| 1914 | 384 | 10,200 | Apr. 20, 1914 | 79 | \$759 | \$2.06 | \$28.01 | \$694 | \$25.60 | |
| 1915 | 404 | 5,470 | Apr. 12, 1915 | 58 | 645 | 1.75 | 23.76 | 663 | 24.43 | |
| 1916 | 434 | 9,250 | May 18, 1916 | 69 | 844 | 2.29 | 31.22 | 882 | 32.63 | |
| 1917 | 454 | 7,480 | June 12, 1917 | 69 | 858 | 2.33 | 31.64 | 876 | 32.30 | |
| 1918 | 474 | 6,680 | Oct. 31, 1917 | 65 | 802 | 2.18 | 29.59 | 842 | 31.78 | |
| 1919 | 504 | 10,400 | Apr. 12, 1919 | 103 | 861 | 2.34 | 31.77 | 842 | 31.08 | |
| 1920 | 504 | \$5,000 | Apr. 21, 1920 | 99 | 809 | 2.20 | 29.91 | 775 | 28.65 | |
| 1921 | 524 | 7,060 | Dec. 15, 1920 | 58 | 806 | 2.19 | 29.74 | 817 | 30.13 | |
| 1922 | 544 | 11,600 | June 22, 1922 | 101 | 1,010 | 2.74 | 37.13 | 883 | 32.58 | |
| 1923 | 564 | 6,050 | Apr. 22, 1923 | 100 | 642 | 1.76 | 23.88 | 717 | 26.68 | |
| 1924 | 584 | 8,900 | Jan. 12, 1924 | 157 | 828 | 2.27 | 30.90 | 829 | 30.93 | |
| 1925 | 604 | 8,340 | Oct. 1, 1924 | 82 | 931 | 2.55 | 34.61 | 1,060 | 39.52 | |

* Not previously published.

Yearly discharge, in cubic feet per second, of Moose River at McKeever, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1926 | 624 | 9,620 | Apr. 25, 1926 | 200 | 1,020 | 2.79 | 37.76 | 1,020 | 37.91 |
| 1927 | 644 | 5,240 | Nov. 17, 1927 | 195 | 857 | 2.35 | 31.85 | 892 | 33.16 |
| 1928 | 664 | 11,100 | Apr. 8, 1928 | 194 | 1,086 | 3.00 | 40.76 | 937 | 34.94 |
| 1929 | 684 | 6,830 | Apr. 6, 1929 | 203 | 993 | 2.72 | 36.91 | 998 | 37.09 |
| 1930 | 699 | 10,500 | Jan. 9, 1930 | 112 | 904 | 2.48 | 33.61 | 791 | 29.40 |
| 1931 | 714 | 6,010 | Apr. 11, 1931 | 105 | 575 | 1.58 | 21.37 | 738 | 27.43 |
| 1932 | 729 | 5,180 | May 1, 1932 | 282 | 973 | 2.67 | 36.28 | 1,030 | 38.38 |
| 1933 | 744 | 10,600 | Oct. 7, 1932 | 109 | 804 | 2.20 | 29.88 | 642 | 23.85 |
| 1934 | 759 | 5,340 | Apr. 17, 1934 | 116 | 590 | 1.62 | 21.93 | 601 | 22.35 |
| 1935 | 784 | 5,670 | Apr. 30, 1935 | 158 | 751 | 2.06 | 27.94 | 755 | 27.35 |
| 1936 | 804 | 7,340 | Mar. 19, 1936 | 123 | 770 | 2.11 | 28.71 | 844 | 31.50 |
| 1937 | 824 | 5,470 | Jan. 1, 1937 | 128 | 862 | 2.36 | 32.05 | 830 | 30.85 |
| 1938 | 854 | 10,400 | Mar. 24, 1938 | 156 | 829 | 2.27 | 30.84 | 849 | 31.58 |
| 1939 | 874 | 5,980 | Apr. 28, 1939 | 118 | 747 | 2.05 | 27.79 | 661 | 24.59 |
| 1940 | 894 | 7,120 | May 2, 1940 | 127 | 613 | 1.68 | 22.86 | 712 | 28.58 |
| 1941 | 924 | 6,920 | Apr. 16, 1941 | 116 | 624 | 1.71 | 23.20 | 608 | 22.60 |
| 1942 | 954 | 10,500 | Sept. 28, 1942 | 124 | 758 | 2.08 | 28.20 | 798 | 29.68 |
| 1943 | 974 | 6,990 | May 12, 1943 | 143 | 1,023 | 2.80 | 38.05 | 925 | 34.40 |
| 1944 | 1004 | 5,460 | Apr. 25, 1944 | 80 | 668 | 1.83 | 24.90 | 663 | 24.72 |
| 1945 | 1034 | 6,940 | Mar. 22, 1945 | 90 | 864 | 2.37 | 32.16 | 1,078 | 40.09 |
| 1946 | 1054 | 11,400 | Oct. 2, 1945 | 112 | 911 | 2.50 | 35.88 | 798 | 29.67 |
| 1947 | 1084 | 118,700 | June 3, 1947 | 187 | 1,290 | 3.53 | 47.97 | 1,163 | 43.27 |
| 1948 | 1114 | 8,440 | Mar. 23, 1948 | 146 | 699 | 1.92 | 26.06 | 769 | 28.70 |
| 1949 | 1144 | 6,600 | Dec. 31, 1948 | 104 | 761 | 2.08 | 28.30 | 827 | 30.76 |
| 1950 | 1174 | 6,130 | Apr. 20, 1950 | 168 | 867 | 2.38 | 32.23 | - | - |

a Result of failure of dam at McKeever.

355. Otter Creek near Glenfield, N. Y.

Location.--Lat 43°43'20", long. 75°21'05", on left bank a quarter of a mile upstream from dam of Otter Creek Power Corp., $1\frac{1}{4}$ miles upstream from mouth, and $2\frac{1}{2}$ miles east of Glenfield, Lewis County.

Drainage area.--64.3 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 955 ft (from topographic map). Prior to Aug. 22, 1924, staff gage at same site and datum.

Average discharge.--8 years (1924-32), 141 cfs.

Extremes.--Maximum discharge, 2,130 cfs Apr. 8, 1928 (gage height, 7.1 ft); minimum, about 20 cfs Sept. 27, 1932.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | 49.3 | 70.3 | - |
| 1925 | 114 | 67.2 | 92.4 | 46.6 | 209 | 294 | 291 | 144 | 66.0 | 76.8 | 75.2 | 95.4 | 130 |
| 1926 | 174 | 235 | 155 | 98.6 | 73.6 | 89.0 | 454 | 265 | 140 | 60.4 | 63.7 | 65.2 | 156 |
| 1927 | 182 | 312 | 93.0 | 60.2 | 69.8 | 260 | 163 | 179 | 69.7 | 65.5 | 50.4 | 47.7 | 130 |
| 1928 | 126 | 246 | 269 | 146 | 116 | 169 | 468 | 185 | 124 | 92.9 | 95.7 | 55.7 | 174 |
| 1929 | 103 | 130 | 151 | 169 | 85.1 | 287 | 288 | 277 | 121 | 94.1 | 77.5 | 60.0 | 154 |
| 1930 | 124 | 135 | 92.1 | 266 | 117 | 197 | 360 | 173 | 141 | 89.5 | 39.1 | 37.1 | 148 |
| 1931 | 32.9 | 37.9 | 51.0 | 40.2 | 39.9 | 74.2 | 298 | 175 | 75.4 | 74.4 | 50.9 | 65.0 | 84.5 |
| 1932 | 97.6 | 165 | 192 | 208 | 150 | 90.6 | 379 | 157 | 79.7 | 158 | 76.6 | 42.9 | 149 |
| 1933 | 245 | 206 | 116 | 134 | 73.2 | 104 | 362 | 159 | 67.2 | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | 0.88 | 1.22 | - |
| 1925 | 2.05 | 1.17 | 1.66 | 0.84 | 3.38 | 5.28 | 5.05 | 2.58 | 1.15 | 1.38 | 1.35 | 1.66 | 27.55 |
| 1926 | 3.12 | 4.08 | 2.77 | 1.77 | 1.19 | 1.60 | 7.88 | 4.74 | 2.43 | 1.08 | 1.14 | 1.13 | 32.93 |
| 1927 | 3.27 | 5.42 | 1.67 | 1.08 | 1.13 | 4.67 | 2.83 | 3.21 | 1.21 | 1.17 | .90 | .83 | 27.39 |
| 1928 | 2.26 | 4.27 | 4.82 | 2.62 | 1.94 | 3.04 | 8.12 | 3.52 | 2.15 | 1.67 | 1.72 | .97 | 36.90 |
| 1929 | 1.84 | 2.26 | 2.71 | 3.03 | 1.36 | 5.15 | 5.00 | 4.96 | 2.09 | 1.69 | 1.59 | 1.04 | 32.54 |
| 1930 | 2.22 | 2.34 | 1.65 | 4.76 | 1.89 | 3.54 | 6.25 | 3.11 | 2.45 | 1.61 | .70 | .64 | 31.16 |
| 1931 | .59 | .66 | .91 | .72 | .65 | 1.33 | 5.17 | 3.14 | 1.31 | 1.33 | .91 | 1.13 | 17.85 |
| 1932 | 1.75 | 2.86 | 3.44 | 3.73 | 2.52 | 1.63 | 6.57 | 2.81 | 1.38 | 2.84 | 1.37 | .74 | 31.64 |
| 1933 | 4.39 | 3.57 | 2.07 | 2.41 | 1.19 | 1.87 | 6.28 | 2.83 | 1.17 | - | - | - | - |

STREAMS TRIBUTARY TO LAKE ONTARIO

Yearly discharge, in cubic feet per second, of Otter Creek near Glenfield, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1924 | 644 | - | - | - | - | - | - | - | - |
| 1925 | 644 | 700 | Mar. 28, 1925 | 28 | 130 | 2.02 | 27.55 | 155 | 32.64 |
| 1926 | 644 | 1,920 | Apr. 25, 1926 | 29 | 156 | 2.43 | 32.93 | 158 | 33.32 |
| 1927 | 644 | 810 | Mar. 19, 1927 | 29 | 130 | 2.02 | 27.39 | 134 | 28.38 |
| 1928 | 664 | 2,130 | Apr. 8, 1928 | 32 | 174 | 2.71 | 36.90 | 153 | 32.36 |
| 1929 | 684 | 920 | May 4, 1929 | 37 | 154 | 2.40 | 32.54 | 151 | 31.94 |
| 1930 | 699 | 1,470 | Jan. 9, 1930 | 27 | 148 | 2.30 | 31.16 | 128 | 27.11 |
| 1931 | 714 | 1,020 | Apr. 11, 1931 | 23 | 84.5 | 1.31 | 17.85 | 112 | 23.74 |
| 1932 | 729 | 755 | Apr. 12, 1932 | 22 | 149 | 2.32 | 31.64 | 159 | 33.62 |
| 1933 | 744 | 1,490 | Oct. 6, 1932 | - | - | - | - | - | - |

356. Independence River at Sperryville, N. Y.

Location.--Lat 43°46'30", long. 75°18'05", on right bank half a mile upstream from highway bridge at Sperryville, Lewis County, and 9½ miles east of Lowville.

Drainage area.--85 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,190 ft (from topographic map).

Average discharge.--13 years (1928-41), 164 cfs.

Extremes.--1927-42: Maximum discharge, 4,700 cfs Oct. 6, 1932 (gage height, 9.2 ft)

From rating curve extended above 1,310 cfs; minimum, 14 cfs Aug. 31 to Sept. 2, 1934, Sept. 2, 3, 1939.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1928 | - | - | - | 157 | 144 | 237 | 639 | 249 | 126 | 96.7 | 116 | 76.8 | - |
| 1929 | 158 | 177 | 195 | 223 | 79.5 | 415 | 445 | 359 | 116 | 91.2 | 101 | 66.4 | 203 |
| 1930 | 154 | 190 | 126 | 404 | 158 | 244 | 550 | 226 | 162 | 91.8 | 35.8 | 36.0 | 198 |
| 1931 | 31.5 | 35.8 | 48.5 | 35.5 | 31.0 | 88.6 | 495 | 271 | 79.5 | 99.8 | 28.7 | 58.1 | 109 |
| 1932 | 106 | 189 | 214 | 313 | 189 | 98.7 | 557 | 192 | 86.1 | 228 | 90.8 | 44.0 | 192 |
| 1933 | 403 | 260 | 155 | 184 | 93.4 | 127 | 537 | 215 | 78.9 | 25.8 | 32.2 | 29.3 | 178 |
| 1934 | 46.5 | 87.8 | 147 | 143 | 38.9 | 176 | 556 | 124 | 83.3 | 39.1 | 17.7 | 25.7 | 124 |
| 1935 | 74.0 | 138 | 131 | 305 | 70.9 | 218 | 408 | 269 | 289 | 139 | 37.7 | 47.1 | 178 |
| 1936 | 75.6 | 139 | 91.3 | 64.9 | 33.8 | 575 | 397 | 240 | 59.9 | 40.8 | 27.2 | 53.9 | 150 |
| 1937 | 194 | 175 | 210 | 335 | 198 | 77.1 | 496 | 282 | 89.9 | 37.5 | 70.0 | 26.2 | 182 |
| 1938 | 114 | 215 | 145 | 115 | 371 | 460 | 313 | 120 | 60.1 | 109 | 74.5 | 265 | 195 |
| 1939 | 92.2 | 144 | 219 | 132 | 115 | 241 | 543 | 145 | 97.9 | 31.1 | 23.5 | 21.3 | 150 |
| 1940 | 48.5 | 74.0 | 109 | 41.3 | 44.9 | 59.0 | 650 | 294 | 83.3 | 73.0 | 23.3 | 27.5 | 127 |
| 1941 | 41.4 | 151 | 303 | 137 | 55.8 | 53.6 | 501 | 82.9 | 29.4 | 56.8 | 32.6 | 280 | 143 |
| 1942 | 183 | 192 | 174 | 120 | 85.0 | 283 | 730 | 195 | 119 | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1928 | - | - | - | 2.13 | 1.83 | 3.21 | 8.39 | 3.38 | 1.65 | 1.31 | 1.58 | 1.01 | - |
| 1929 | 2.14 | 2.33 | 2.65 | 3.03 | 1.97 | 5.63 | 5.84 | 4.87 | 1.52 | 1.24 | 1.37 | .87 | 32.46 |
| 1930 | 2.09 | 2.49 | 1.71 | 5.48 | 1.94 | 3.51 | 7.22 | 3.07 | 2.12 | 1.25 | .49 | .47 | 31.64 |
| 1931 | .43 | .47 | .66 | .48 | .38 | 1.20 | 6.49 | 3.68 | 1.04 | 1.35 | .39 | .76 | 17.33 |
| 1932 | 1.44 | 2.48 | 2.90 | 4.24 | 2.39 | 1.34 | 7.31 | 2.61 | 1.13 | 3.07 | 1.23 | .58 | 30.72 |
| 1933 | 5.46 | 3.41 | 2.10 | 2.49 | 1.14 | 1.72 | 7.05 | 2.92 | 1.04 | .35 | .44 | .38 | 28.50 |
| 1934 | 1.63 | 1.15 | 1.99 | 1.94 | .48 | 2.39 | 7.30 | 1.68 | 1.09 | .63 | .24 | .34 | 19.76 |
| 1935 | 1.00 | 1.61 | 1.78 | 4.14 | .87 | 2.95 | 5.56 | 3.64 | 3.79 | 1.89 | .51 | .62 | 28.36 |
| 1936 | 1.02 | 1.83 | 1.23 | .88 | .43 | 7.79 | 5.21 | 3.25 | .79 | .55 | .37 | .71 | 24.06 |
| 1937 | 2.63 | 2.28 | 2.85 | 4.55 | 2.43 | 1.05 | 6.52 | 3.83 | 1.18 | .51 | .95 | .34 | 29.12 |
| 1938 | 1.54 | 2.82 | 1.97 | 1.56 | 4.54 | 6.24 | 4.11 | 1.63 | .79 | 1.48 | 1.01 | 3.48 | 31.17 |
| 1939 | 1.24 | 1.89 | 2.97 | 1.79 | 1.41 | 3.27 | 7.13 | 1.97 | 1.28 | .42 | .32 | .28 | 23.97 |
| 1940 | .66 | .97 | 1.48 | .58 | .57 | .80 | 8.54 | 3.99 | 1.09 | .99 | .32 | .36 | 20.33 |
| 1941 | .56 | 1.99 | 4.10 | 1.86 | .68 | .73 | 6.57 | 1.12 | .39 | .77 | .44 | 3.67 | 22.88 |
| 1942 | 2.48 | 2.52 | 2.36 | 1.63 | 1.04 | 3.84 | 9.58 | 2.64 | 1.56 | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 664 | 3,700 | Apr. 8, 1928 | 47 | - | - | - | 197 | 31.61 |
| 1929 | 684 | 1,480 | Mar. 16, 1929 | 40 | 203 | 2.39 | 32.46 | 198 | 31.63 |
| 1930 | 699 | 2,860 | Jan. 9, 1930 | 20 | 198 | 2.33 | 31.64 | 168 | 26.91 |
| 1931 | 714 | 2,150 | Apr. 11, 1931 | 15 | 109 | 1.28 | 17.33 | 142 | 22.59 |
| 1932 | 729 | 1,210 | Apr. 11, 1932 | 24 | 192 | 2.26 | 30.72 | 218 | 34.87 |
| 1933 | 744 | 4,700 | Oct. 6, 1932 | 16 | 178 | 2.09 | 28.50 | 133 | 21.30 |
| 1934 | 759 | 975 | Apr. 12, 1934 | 14 | 124 | 1.46 | 19.76 | 129 | 20.58 |
| 1935 | 784 | 2,220 | June 18, 1935 | 22 | 178 | 2.09 | 28.36 | 175 | 27.85 |
| 1936 | 804 | 2,150 | Mar. 19, 1936 | 16 | 150 | 1.76 | 24.06 | 173 | 27.74 |
| 1937 | 824 | 1,090 | (a) | 15 | 182 | 2.14 | 29.12 | 173 | 27.89 |
| 1938 | 854 | 2,540 | Mar. 24, 1938 | 19 | 195 | 2.29 | 31.17 | 194 | 30.94 |
| 1939 | 874 | 1,450 | Apr. 26, 1939 | 14 | 150 | 1.76 | 23.97 | 151 | 20.98 |
| 1940 | 894 | 1,660 | Apr. 19, 1940 | 16 | 127 | 1.49 | 20.33 | 149 | 23.87 |
| 1941 | 924 | 2,550 | Sept. 1, 1941 | 16 | 143 | 1.68 | 22.88 | 148 | 23.59 |
| 1942 | 954 | 2,550 | Apr. 7, 1942 | 35 | - | - | - | - | - |

a Dec. 28, 1936, Jan. 1, 1937.

357. Independence River at Donnattsburg, N. Y.

Location.--Lat 43°44'50", long. 75°20'05", on right bank at downstream side of highway bridge at Donnattsburg, Lewis County, $1\frac{1}{4}$ miles downstream from Chase Lake Outlet and 5 miles upstream from mouth.

Drainage area.--91.7 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 980 ft (from topographic map). Prior to Sept. 16, 1949, wire-weight gage at same site and datum.

Average discharge.--8 years (1942-50), 205 cfs.

Extremes.--1942-50: Maximum discharge, 3,410 cfs Oct. 2, 1945 (gage height, 8.8 ft, from graph based on gage readings); minimum observed, 18 cfs Sept. 17, 1948, Aug. 4, 5, 1949 (gage height, 2.85 ft).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | - | - | - | 47.7 | 63.7 | 128 | - |
| 1943 | 150 | 292 | 143 | 206 | 156 | 397 | 525 | 587 | 136 | 61.6 | 91.5 | 75.2 | 235 |
| 1944 | 151 | 200 | 75.4 | 66.9 | 73.4 | 139 | 738 | 290 | 82.7 | 37.2 | 25.4 | 89.2 | 163 |
| 1945 | 105 | 115 | 101 | 128 | 97.5 | 707 | 432 | 367 | 145 | 187 | 41.3 | 164 | 217 |
| 1946 | 509 | 309 | 119 | 188 | 136 | 598 | 205 | 193 | 132 | 114 | 40.6 | 34.1 | 216 |
| 1947 | 234 | 343 | 249 | 289 | 222 | 235 | 794 | 474 | 301 | 257 | 66.5 | 44.1 | 292 |
| 1948 | 34.1 | 114 | 109 | 62.1 | 97.6 | 489 | 486 | 232 | 81.3 | 107 | 72.3 | 25.8 | 159 |
| 1949 | 44.4 | 266 | 121 | 319 | 212 | 375 | 371 | 138 | 40.1 | 28.9 | 53.3 | 147 | 176 |
| 1950 | 108 | 174 | 345 | 309 | 112 | 171 | 527 | 154 | 125 | 42.0 | 58.5 | 70.8 | 183 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1942 | - | - | - | - | - | - | - | - | - | 0.60 | 0.80 | 1.56 | - |
| 1943 | 1.89 | 3.56 | 1.80 | 2.59 | 1.77 | 4.99 | 6.39 | 7.38 | 1.65 | .77 | 1.15 | .92 | 34.86 |
| 1944 | 1.89 | 2.43 | .93 | .84 | .86 | 1.75 | 8.98 | 3.64 | 1.01 | .47 | .32 | 1.09 | 24.23 |
| 1945 | 1.32 | 1.40 | 1.27 | 1.61 | 1.11 | 8.89 | 5.25 | 4.61 | 1.77 | 2.35 | .52 | 2.00 | 32.10 |
| 1946 | 6.40 | 3.76 | 1.49 | 2.36 | 1.55 | 7.52 | 2.50 | 2.42 | 1.60 | 1.43 | .51 | .41 | 31.95 |
| 1947 | 2.94 | 4.18 | 3.13 | 3.63 | 2.52 | 2.95 | 9.66 | 5.95 | 3.66 | 3.23 | .84 | .54 | 43.23 |
| 1948 | .43 | 1.39 | 1.37 | .78 | 1.15 | 6.15 | 5.91 | 2.92 | .99 | 1.34 | .91 | .31 | 23.65 |
| 1949 | .56 | 3.23 | 1.53 | 4.01 | 2.41 | 4.72 | 4.51 | 1.73 | .49 | .36 | .67 | 1.79 | 26.01 |
| 1950 | 1.35 | 2.12 | 4.34 | 3.88 | 1.27 | 2.15 | 6.41 | 1.94 | 1.52 | .53 | .73 | .86 | 27.10 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|---|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1942 | 954 | - | - | - | - | - | - | - | - | - | - |
| 1943 | 974 | 1,380 | Apr. 25, 1943 | 37 | 235 | 2.56 | 34.86 | 222 | 32.88 | - | - |
| 1944 | 1004 | 1,970 | Apr. 11, 1944 | 20 | 163 | 1.78 | 24.23 | 155 | 22.95 | - | - |
| 1945 | 1034 | 1,890 | Mar. 22, 1945 | 21 | 217 | 2.37 | 32.10 | 269 | 39.76 | - | - |
| 1946 | 1054 | 3,410 | Oct. 2, 1945 | 23 | 216 | 2.56 | 31.95 | 206 | 30.55 | - | - |
| 1947 | 1084 | 3,290 | Apr. 12, 1947 | 31 | 292 | 3.18 | 43.23 | 244 | 36.17 | - | - |
| 1948 | 1114 | 2,500 | Mar. 23, 1948 | 19 | 159 | 1.73 | 23.65 | 174 | 25.78 | - | - |
| 1949 | 1144 | 2,210 | Mar. 29, 1949 | 18 | 176 | 1.82 | 26.01 | 193 | 28.50 | - | - |
| 1950 | 1174 | 1,780 | Apr. 20, 1950 | 24 | 183 | 2.00 | 27.10 | - | - | - | - |

358. Stillwater Reservoir (Beaver River) near Beaver River, N. Y.

Location.--Lat 43°53'50", long. 75°03'05", in gatehouse at Stillwater Dam, $2\frac{1}{2}$ miles upstream from Moshier Creek and $7\frac{1}{2}$ miles west of Beaver River post office, Herkimer County.

Drainage area.--172 sq mi.

Gage.--Float-tape gage. Datum of gage is at mean sea level, adjustment of 1912.

Remarks.--Reservoir originally formed about 1885; enlarged at various times and in 1924 enlarged to a usable capacity of 4,623,000,000 cu ft between elevations 1,650.3 and 1,679.3 ft above mean sea level. Elevation of gate sill of lowest outlet, 1,642.3 ft. Capacity below elevation 1,650.3 ft, about 90,000,000 cu ft. Reservoir is used to regulate flow of Beaver and Black Rivers for control of floods, for power development, and for general welfare of the public. Record of contents herein represents those above elevation 1,650.3 ft.

Cooperation.--Records of gate openings and reservoir elevations furnished by Board of Black River Regulating District.

STREAMS TRIBUTARY TO LAKE ONTARIO

Month-end contents, in millions of cubic feet, of Stillwater Reservoir (Beaver River)
near Beaver River, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1908 | - | - | - | - | - | - | - | 834 | 818 | 706 | 626 | 421 |
| 1909 | -29 | 28 | 64 | 371 | 639 | 736 | 902 | 854 | 748 | 581 | 118 | -29 |
| 1910 | -26 | 115 | 71 | 266 | 116 | 995 | 876 | 855 | 823 | 619 | 512 | 308 |
| 1911 | 296 | 523 | 430 | 674 | 483 | 259 | 1,024 | 865 | 842 | 513 | 80 | 63 |
| 1912 | 279 | 832 | 850 | 667 | 5 | 135 | 885 | 940 | 719 | 476 | 243 | 168 |
| 1913 | 379 | 825 | 815 | 876 | 823 | 994 | 783 | 848 | 707 | 422 | 40 | -47 |
| 1914 | 408 | 828 | 813 | 457 | 77 | 348 | 975 | 804 | 743 | 575 | 362 | 270 |
| 1915 | 166 | 627 | 816 | 828 | 884 | 804 | 810 | 791 | 816 | 816 | 816 | 743 |
| 1916 | 635 | 764 | 812 | 925 | 791 | 762 | 892 | 841 | 818 | 692 | 294 | 34 |
| 1917 | -28 | 182 | 481 | 418 | 230 | 541 | 898 | 353 | 847 | 800 | 504 | 203 |
| 1918 | 766 | 706 | 424 | 131 | 300 | 806 | 878 | 366 | 810 | 714 | 253 | 273 |
| 1919 | 790 | 794 | 804 | 695 | 405 | 871 | 853 | 828 | 558 | 256 | 67 | 31 |
| 1920 | 315 | 861 | 806 | 538 | 59 | 727 | 920 | 933 | 546 | 667 | 391 | 189 |
| 1921 | 48 | 503 | 847 | 885 | 581 | 939 | 965 | 829 | 687 | 795 | 317 | -5 |
| 1922 | 180 | 816 | 844 | 537 | 429 | 892 | 867 | 949 | 1,015 | 821 | 372 | -25 |
| 1923 | -39 | -25 | -39 | -30 | -39 | 85 | 960 | 962 | 748 | 428 | 86 | -31 |
| 1924 | 70 | 250 | 726 | 694 | 215 | 78 | 888 | 748 | 727 | 485 | 572 | 582 |
| 1925 | 480 | 315 | 319 | 94 | 631 | 2,355 | 3,524 | 3,708 | 3,471 | 3,378 | 2,703 | 2,310 |
| 1926 | 3,082 | 4,225 | 4,156 | 4,156 | 3,307 | 2,732 | 4,450 | 4,436 | 4,565 | 4,048 | 3,731 | 3,382 |
| 1927 | 4,122 | 4,362 | 3,744 | 2,950 | 2,529 | 3,827 | 4,623 | 4,623 | 4,298 | 3,901 | 3,186 | 2,547 |
| 1928 | 2,995 | 4,444 | 4,323 | 4,212 | 3,448 | 2,708 | 4,124 | 4,635 | 4,447 | 3,962 | 3,561 | 2,780 |
| 1929 | 2,602 | 2,732 | 2,632 | 2,587 | 1,786 | 3,581 | 4,625 | 4,577 | 4,368 | 3,898 | 3,127 | 2,284 |
| 1930 | 2,003 | 2,382 | 2,345 | 3,471 | 2,632 | 3,082 | 4,496 | 4,591 | 4,516 | 3,989 | 2,965 | 2,049 |
| 1931 | 1,119 | 790 | 744 | 392 | 102 | 82 | 2,468 | 3,922 | 4,039 | 3,994 | 3,269 | 2,805 |
| 1932 | 2,464 | 2,833 | 3,138 | 4,487 | 4,018 | 3,312 | 4,623 | 4,635 | 4,209 | 4,329 | 3,626 | 2,619 |
| 1933 | 4,094 | 4,562 | 4,467 | 4,178 | 3,326 | 3,574 | 4,585 | 4,553 | 3,830 | 2,890 | 2,024 | 1,322 |
| 1934 | 820 | 715 | 1,094 | 856 | -29 | 875 | 3,672 | 4,015 | 3,688 | 2,897 | 1,842 | 1,033 |
| 1935 | 785 | 1,059 | 1,082 | 1,557 | 707 | 1,678 | 3,670 | 4,582 | 4,585 | 4,132 | 3,117 | 2,423 |
| 1936 | 1,611 | 1,302 | 860 | 376 | 50 | 2,321 | 4,501 | 4,606 | 4,151 | 3,390 | 2,425 | 1,658 |
| 1937 | 1,891 | 2,262 | 2,036 | 3,027 | 2,681 | 2,369 | 4,516 | 4,565 | 4,214 | 3,471 | 3,183 | 2,216 |
| 1938 | 2,128 | 2,734 | 2,308 | 1,265 | 2,020 | 3,358 | 4,620 | 4,464 | 3,788 | 3,601 | 2,798 | 2,883 |
| 1939 | 2,363 | 2,187 | 2,386 | 1,568 | 1,051 | 1,464 | 3,940 | 4,606 | 4,167 | 3,066 | 1,815 | 828 |
| 1940 | 465 | 731 | 1,238 | 682 | 82 | 0 | 2,529 | 4,588 | 4,340 | 4,178 | 2,997 | 1,958 |
| 1941 | 993 | 1,677 | 2,280 | 2,072 | 1,204 | 739 | 2,974 | 3,036 | 2,587 | 2,216 | 1,899 | 2,116 |
| 1942 | 2,454 | 3,084 | 3,043 | 2,491 | 1,673 | 2,591 | 4,643 | 4,632 | 4,542 | 3,644 | 2,723 | 2,479 |
| 1943 | 2,600 | 3,319 | 2,901 | 2,319 | 1,623 | 2,060 | 4,138 | 4,629 | 4,504 | 3,706 | 3,013 | 2,068 |
| 1944 | 1,414 | 1,818 | 1,260 | 921 | 672 | 683 | 3,652 | 4,606 | 4,074 | 3,077 | 1,808 | 1,567 |
| 1945 | 1,410 | 1,205 | 860 | 609 | 263 | 3,183 | 4,646 | 4,649 | 4,539 | 4,482 | 3,378 | 3,202 |
| 1946 | 4,490 | 4,405 | 3,431 | 2,919 | 2,210 | 4,105 | 4,655 | 4,643 | 4,156 | 3,629 | 2,446 | 1,415 |
| 1947 | 2,436 | 3,414 | 3,422 | 3,378 | 2,856 | 1,943 | 4,698 | 4,635 | 4,632 | 4,625 | 3,840 | 2,769 |
| 1948 | 1,743 | 1,687 | 1,420 | 965 | 480 | 2,487 | 4,565 | 4,632 | 4,430 | 4,077 | 3,283 | 1,930 |
| 1949 | 837 | 1,378 | 1,602 | 2,222 | 2,238 | 3,351 | 4,635 | 4,574 | 3,680 | 2,438 | 1,699 | 1,953 |
| 1950 | 1,517 | 1,451 | 2,626 | 3,877 | 3,404 | 3,223 | 4,638 | 4,459 | 4,053 | 3,122 | 2,183 | 1,579 |

359. Beaver River below Stillwater Dam, near Beaver River, N. Y. 1/

Location.--Lat 43°53'50", long. 75°03'05", in gatehouse at Stillwater Dam, 2½ miles up-stream from Moshier Creek and 7½ miles west of Beaver River Post Office, Herkimer County.

Drainage area.--172 sq mi.

Gage.--Float-tape gage. Datum of gage is at mean sea level, adjustment of 1912. May 11, 1908, to May 31, 1924, staff gage on west corner of gatehouse and June 1, 1924, to Nov. 14, 1929, staff gage at site 1,000 ft downstream, all gages at same datum.

Average discharge.--42 years (1908-50), 366 cfs (unadjusted).

Extremes.--1908-50: Maximum discharge, about 3,700 cfs May 3, 1926; practically no flow at times when gates in dam are closed.

Remarks.--Flow completely regulated by Stillwater Reservoir. Runoff adjusted for change in contents in Stillwater Reservoir (see preceding page).

Cooperation.--Records of gate openings and reservoir elevations furnished by Board of Black River Regulating District.

1/ Published as "at State dam, near Beaver River" prior to June 1924.

Monthly and yearly mean discharge, in cubic feet per second (observed),
of Beaver River below Stillwater Dam, near Beaver River, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | 270 | 177 | 102 | 109 | - |
| 1909 | 301 | 184 | 118 | 140 | 359 | 219 | 1,220 | 1,050 | 307 | 148 | 256 | 152 | 369 |
| 1910 | 113 | 144 | 180 | 132 | 259 | 560 | 862 | 548 | 430 | 159 | 157 | 206 | 312 |
| 1911 | 123 | 42.9 | 166 | 106 | 258 | 355 | 926 | 982 | 568 | 198 | 216 | 128 | 339 |
| 1912 | 136 | 140 | 392 | 298 | 367 | 124 | 1,040 | 574 | 351 | 154 | 177 | 181 | 326 |
| 1913 | 144 | 217 | 373 | 906 | 309 | 923 | 888 | 271 | 258 | 220 | 208 | 96.8 | 402 |
| 1914 | 96.2 | 387 | 327 | 248 | 289 | 146 | 1,090 | 518 | 162 | 156 | 206 | 182 | 316 |
| 1915 | 181 | 97.7 | 267 | 419 | 390 | 266 | 705 | 216 | 163 | 181 | 223 | 176 | 273 |
| 1916 | 220 | 217 | 259 | 511 | 514 | +231 | 962 | 886 | 328 | 212 | 241 | 195 | 397 |
| 1917 | 126 | 172 | 237 | 238 | 228 | 216 | 1,080 | 588 | 562 | 211 | 221 | 231 | 342 |
| 1918 | 228 | 328 | 246 | 219 | 188 | 245 | 1,100 | 781.7 | 475 | 237 | 257 | 208 | +377 |
| 1919 | 242 | 475 | 417 | 299 | 282 | 418 | 1,040 | 552 | 233 | 232 | 196 | 166 | 379 |
| 1920 | 194 | 175 | 375 | 220 | 284 | 215 | 1,020 | 449 | 316 | 169 | 240 | 238 | 324 |
| 1921 | 263 | 170 | 412 | 210 | 324 | 1,330 | 511 | 214 | 179 | 143 | 259 | 231 | 355 |
| 1922 | 115 | 185 | 295 | 277 | 470 | 1,370 | 313 | 485 | 300 | 273 | 250 | 385 | 385 |
| 1923 | 94.5 | 128 | 125 | 168 | 156 | 1,100 | 625 | 267 | 205 | 175 | 179 | 278 | 278 |
| 1924 | 70.0 | 150 | 285 | 570 | 356 | 255 | 815 | 1,080 | 219 | 189 | 232 | 224 | 370 |
| 1925 | 493 | 236 | 221 | 215 | 339 | 158 | 449 | 366 | 342 | 231 | 365 | 431 | 320 |
| 1926 | 156 | 171 | 430 | 337 | 572 | 434 | 501 | 1,180 | 416 | 374 | 336 | 386 | 441 |
| 1927 | 290 | 708 | 548 | 497 | 380 | 226 | 215 | 532 | 320 | 310 | 435 | 380 | 404 |
| 1928 | 195 | 233 | 853 | 491 | 578 | 702 | 802 | 454 | 380 | 342 | 345 | 430 | 484 |
| 1929 | 370 | 327 | 444 | 576 | 553 | 164 | 584 | 820 | 326 | 406 | 506 | 505 | 465 |
| 1930 | 412 | 296 | 450 | 461 | 665 | 284 | 450 | 448 | 308 | 395 | 505 | 499 | 430 |
| 1931 | 459 | 235 | 153 | 247 | 231 | 129 | 9.33 | 11.5 | 117 | 156 | 355 | 333 | 203 |
| 1932 | 354 | 220 | 274 | 199 | 568 | 525 | 519 | 477 | 332 | 374 | 481 | 504 | 401 |
| 1933 | 173 | 339 | 388 | 513 | 617 | 173 | 763 | 491 | 428 | 392 | 394 | 359 | 417 |
| 1934 | 304 | 286 | 216 | 396 | 448 | 28.3 | 12.2 | 138 | 266 | 420 | 457 | 416 | 281 |
| 1935 | 280 | 174 | 317 | 354 | 544 | 87.2 | 12.8 | 305 | 511 | 428 | 473 | 393 | 322 |
| 1936 | 490 | 397 | 376 | 361 | 262 | 85.5 | 12.5 | 507 | 339 | 380 | 466 | 468 | 346 |
| 1937 | 321 | 256 | 471 | 430 | 564 | 346 | 45.3 | 642 | 353 | 384 | 405 | 463 | 390 |
| 1938 | 299 | 229 | 474 | 617 | 420 | 339 | 260 | 363 | 407 | 322 | 504 | 391 | 386 |
| 1939 | 438 | 361 | 372 | 569 | 514 | 308 | 12.9 | 206 | 373 | 503 | 555 | 457 | 389 |
| 1940 | 261 | 15.8 | 22.0 | 331 | 342 | 157 | 10.4 | 17.6 | 350 | 331 | 544 | 490 | 239 |
| 1941 | 485 | 67.7 | 284 | 444 | 539 | 318 | 29.2 | 169 | 262 | 286 | 297 | 188 | 280 |
| 1942 | 242 | 102 | 381 | 534 | 538 | 114 | 375 | 368 | 342 | 478 | 489 | 405 | 363 |
| 1943 | 260 | 219 | 547 | 577 | 650 | 499 | 138 | 1,164 | 340 | 453 | 528 | 558 | 495 |
| 1944 | 487 | 199 | 399 | 307 | 293 | 245 | 14.0 | 384 | 410 | 501 | 586 | 328 | 348 |
| 1945 | 288 | 309 | 348 | 358 | 347 | 68.3 | 290 | 677 | 308 | 389 | 521 | 369 | 356 |
| 1946 | 370 | 566 | 627 | 559 | 556 | 211 | 207 | 394 | 474 | 482 | 591 | 519 | 462 |
| 1947 | 35.5 | 235 | 552 | 608 | 724 | 744 | 342 | 1,149 | 761 | 483 | 433 | 505 | 548 |
| 1948 | 469 | 214 | 317 | 348 | 353 | 223 | 120 | 541 | 293 | 339 | 457 | 598 | 357 |
| 1949 | 533 | 201 | 269 | 312 | 400 | 237 | 284 | 281 | 433 | 522 | 386 | 178 | 336 |
| 1950 | 364 | 338 | 203 | 232 | 450 | 360 | 370 | 412 | 343 | 428 | 468 | 384 | 362 |

† Corrected.

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | 1.71 | 0.90 | 0.48 | 0.19 | - |
| 1909 | 0.89 | 1.34 | 0.88 | 1.71 | 2.73 | 1.71 | 8.30 | 6.91 | 1.73 | .57 | .56 | .62 | 27.95 |
| 1910 | .76 | 1.28 | 1.10 | 1.37 | 1.20 | 5.95 | 5.29 | 3.62 | 2.71 | .55 | .78 | .82 | 25.43 |
| 1911 | .79 | .84 | .88 | 1.33 | 1.08 | 1.82 | 7.91 | 6.19 | 3.63 | .50 | .36 | .78 | 26.11 |
| 1912 | 1.45 | 2.29 | 2.68 | 1.54 | .65 | 1.15 | 8.62 | 3.98 | 1.73 | .43 | .60 | .99 | 26.11 |
| 1913 | 1.50 | 2.52 | 2.48 | 6.24 | 1.74 | 6.62 | 5.23 | 1.98 | 1.33 | .76 | .44 | .41 | 31.25 |
| 1914 | 1.79 | 3.57 | 2.16 | .77 | .80 | 1.66 | 8.65 | 3.04 | .90 | .62 | .85 | .95 | 25.76 |
| 1915 | .95 | 1.78 | 2.27 | 2.85 | 2.50 | 1.98 | 4.59 | 1.41 | 1.13 | 1.21 | 1.50 | .96 | 23.13 |
| 1916 | 1.21 | 1.73 | 1.86 | 3.73 | 2.88 | 1.48 | 6.55 | 5.61 | 2.06 | 1.11 | .62 | .61 | 29.63 |
| 1917 | .69 | 1.64 | 2.34 | 1.41 | .91 | 2.22 | 7.91 | 3.83 | 3.64 | 1.30 | .74 | .75 | 27.40 |
| 1918 | 2.94 | 1.98 | .95 | .74 | 1.56 | 2.90 | 7.33 | 5.44 | 2.93 | 1.35 | .43 | 1.41 | 29.96 |
| 1919 | 2.92 | 3.09 | 2.82 | 1.73 | .99 | 3.97 | 6.68 | 3.64 | .84 | .80 | .84 | .99 | 29.31 |
| 1920 | 2.01 | 2.50 | 2.38 | .80 | 5.58 | 3.11 | 7.07 | 3.04 | 1.08 | 1.43 | .92 | 1.04 | 29.96 |
| 1921 | 1.42 | 2.24 | 3.62 | 1.50 | 1.20 | 9.79 | 3.38 | 1.09 | .80 | 1.22 | .54 | .69 | 27.49 |
| 1922 | 1.23 | 2.79 | 2.05 | 1.21 | 1.41 | 4.30 | 8.82 | 2.31 | 3.31 | 1.53 | .72 | .63 | 30.31 |
| 1923 | .60 | .86 | .80 | 1.15 | .62 | 1.36 | 9.34 | 4.20 | 1.19 | .57 | .32 | .87 | 21.89 |
| 1924 | .72 | 1.43 | 3.10 | 3.74 | 1.03 | 1.37 | 7.33 | 6.31 | 1.37 | .63 | 1.76 | 1.48 | 30.87 |
| 1925 | 3.06 | 1.12 | 1.49 | .88 | 3.40 | 5.37 | 5.84 | 2.92 | 1.63 | 1.31 | .76 | 1.82 | 29.60 |
| 1926 | 2.97 | 5.97 | 2.71 | 2.26 | 1.33 | 1.46 | 7.52 | 7.84 | 3.02 | 1.21 | 1.46 | 1.63 | 37.38 |
| 1927 | 3.79 | 5.20 | 2.12 | 1.29 | 1.29 | 4.76 | 3.38 | 3.56 | 1.26 | 1.09 | 1.13 | .86 | 29.73 |
| 1928 | 2.42 | 5.13 | 5.49 | 3.02 | 1.72 | 2.86 | 8.76 | 4.32 | 2.00 | 1.08 | 1.30 | .84 | 38.94 |
| 1929 | 2.04 | 2.44 | 2.73 | 3.75 | 1.34 | 5.59 | 6.40 | 5.37 | 1.59 | 1.54 | 1.46 | 1.17 | 35.41 |
| 1930 | 2.05 | 2.87 | 2.92 | 5.90 | 1.93 | 3.03 | 6.46 | 3.24 | 1.81 | 1.33 | .82 | .94 | 33.30 |
| 1931 | .82 | .70 | .91 | .78 | .67 | .82 | 6.04 | 3.71 | 1.05 | .93 | .56 | 1.00 | 17.99 |
| 1932 | 1.52 | 2.34 | 2.61 | 4.72 | 2.39 | 1.75 | 6.62 | 3.23 | 1.09 | 2.81 | 1.46 | .75 | 31.29 |
| 1933 | 4.85 | 3.37 | 2.36 | 2.71 | 1.60 | 1.79 | 7.46 | 3.20 | .97 | .27 | .48 | .57 | 29.63 |
| 1934 | .78 | 1.58 | 2.40 | 2.05 | .50 | 2.46 | 7.07 | 1.79 | .91 | .84 | .42 | .68 | 21.48 |
| 1935 | 1.26 | 1.82 | 2.19 | 3.56 | 1.17 | 3.02 | 5.08 | 4.34 | 3.32 | 1.74 | .63 | .81 | 28.94 |
| 1936 | 1.26 | 1.81 | 1.42 | 1.21 | .83 | 6.25 | 5.54 | 3.66 | 1.06 | .64 | .71 | 1.12 | 25.51 |
| 1937 | 2.73 | 2.59 | 2.59 | 5.36 | 2.55 | 1.53 | 5.67 | 4.43 | 1.42 | .72 | 1.99 | .58 | 32.16 |
| 1938 | 1.79 | 3.00 | 2.11 | 1.53 | 4.44 | 5.63 | 4.84 | 2.04 | .95 | 1.70 | 1.37 | 2.76 | 32.16 |
| 1939 | 1.64 | 1.85 | 3.04 | 1.76 | 1.81 | 3.10 | 6.28 | 3.06 | 1.33 | .62 | .59 | .49 | 25.57 |
| 1940 | .84 | .77 | 1.42 | .82 | .65 | .85 | 6.39 | 5.28 | 1.65 | 1.82 | .69 | .58 | 21.76 |

Note.--Adjusted runoff prior to October 1925 not previously published.

Monthly and yearly runoff, in inches (adjusted), of Beaver River
below Stillwater Dam, near Beaver River, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.84 | 2.15 | 3.41 | 2.46 | 1.09 | 0.96 | 5.78 | 1.29 | 0.58 | 0.99 | 1.20 | 1.76 | 22.51 |
| 1942 | 2.47 | 2.24 | 2.46 | 2.20 | 1.21 | 3.07 | 7.56 | 2.44 | 1.99 | .96 | .97 | 2.02 | 29.59 |
| 1943 | 2.04 | 3.21 | 2.62 | 2.41 | 2.19 | 4.44 | 6.10 | 9.03 | 1.90 | 1.04 | 1.80 | 1.25 | 38.03 |
| 1944 | 1.63 | 2.30 | 1.28 | 1.21 | 1.22 | 1.67 | 7.52 | 4.96 | 1.33 | .86 | .75 | 1.53 | 26.26 |
| 1945 | 1.53 | 1.49 | 1.47 | 1.77 | 1.23 | 7.77 | 5.54 | 4.55 | 1.72 | 2.46 | .73 | 1.95 | 32.21 |
| 1946 | 5.70 | 3.46 | 1.77 | 2.46 | 1.59 | 6.16 | 2.72 | 2.61 | 1.85 | 1.91 | 1.00 | .78 | 32.01 |
| 1947 | 2.79 | 3.97 | 3.72 | 3.96 | 3.03 | 2.75 | 9.11 | 7.54 | 4.93 | 3.25 | .94 | .60 | 46.59 |
| 1948 | .58 | 1.25 | 1.45 | .94 | 1.25 | 6.51 | 5.98 | 3.80 | 1.40 | 1.39 | 1.07 | .49 | 26.11 |
| 1949 | .84 | 2.66 | 2.36 | 3.64 | 2.46 | 4.37 | 5.05 | 1.73 | 1.57 | .39 | .74 | 1.79 | 26.60 |
| 1950 | 1.35 | 2.05 | 4.30 | 4.68 | 1.54 | 1.96 | 5.94 | 2.31 | 1.21 | .54 | .79 | .98 | 27.63 |

| Year | W.S.P. no. | Yearly discharge, in cubic feet per second | | | | | | | | | | Calendar year | | |
|------|---------------|--|------|---------|---------|----------|------|-----------------|------------------|----------|------|------------------|------|------|
| | | Water year ending Sept. 30 | | | | | | | | | | | | |
| | | Observed | | | | Adjusted | | | | Observed | | Adjusted | | |
| | | Momentary | | Maximum | Minimum | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches | Mean | Mean |
| | | Discharge | Date | | | | | | | | | | | |
| 1908 | 434 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1909 | 434 | - | - | - | 0 | 369 | 355 | 2.07 | 27.95 | 355 | 355 | 27.98 | | |
| 1910 | 434 | - | - | - | 0 | 312 | 323 | 1.88 | 25.43 | 303 | 314 | 24.80 | | |
| 1911 | 434 | - | - | - | 0 | 339 | 331 | 1.92 | 26.11 | 367 | 433 | 30.02 | | |
| 1912 | 434 | - | - | - | 0 | 326 | 329 | 1.91 | 26.11 | 332 | 331 | 26.19 | | |
| 1913 | 434 | - | - | - | 22 | 402 | 395 | 2.30 | 31.25 | 408 | 408 | 32.27 | | |
| 1914 | 434 | - | - | - | 0 | 316 | 326 | 1.90 | 25.76 | 295 | 295 | 23.24 | | |
| 1915 | 434 | - | - | - | 0 | 273 | 288 | 1.67 | 23.13 | 285 | 285 | 22.93 | | |
| 1916 | 434 | - | - | - | 111 | 397 | 375 | 2.18 | 29.63 | 383 | 372 | 29.50 | | |
| 1917 | 454 | - | - | - | 85 | 342 | 347 | 2.02 | 27.40 | 364 | 362 | 28.60 | | |
| 1918 | 474 | - | - | - | 160 | 377 | 379 | 2.20 | 29.96 | 405 | 417 | 32.92 | | |
| 1919 | 504 | - | - | - | 4 | 379 | 371 | 2.16 | 29.31 | 346 | 346 | 27.37 | | |
| 1920 | 504 | - | - | - | 0 | 324 | 329 | 1.91 | 25.96 | 332 | 333 | 26.35 | | |
| 1921 | 524 | - | - | - | 0 | 355 | 349 | 2.03 | 27.49 | 334 | 334 | 26.28 | | |
| 1922 | 544 | - | - | - | 24 | 385 | 384 | 2.23 | 30.31 | 364 | 356 | 26.50 | | |
| 1923 | 564 | - | - | - | 0 | 278 | 278 | 1.62 | 21.89 | 291 | 315 | 24.87 | | |
| 1924 | 584 | - | - | - | 0 | 370 | 389 | 2.26 | 30.97 | 407 | 394 | 31.29 | | |
| 1925 | 604 | - | - | - | 0 | 320 | 375 | 2.18 | 29.60 | 304 | 426 | 33.58 | | |
| 1926 | 624 | - | - | - | 3 | 441 | 475 | 2.76 | 37.38 | 506 | 493 | 38.84 | | |
| 1927 | 644 | - | - | - | 4 | 404 | 378 | 2.20 | 29.73 | 383 | 401 | 31.66 | | |
| 1928 | 664 | - | - | - | 10 | 484 | 491 | 2.85 | 38.94 | 471 | 418 | 33.11 | | |
| 1929 | 684 | - | - | - | 2 | 465 | 449 | 2.61 | 35.41 | 466 | 457 | 36.04 | | |
| 1930 | 699 | - | - | - | 0 | 430 | 423 | 2.46 | 33.30 | 403 | 352 | 27.90 | | |
| 1931 | 714 | - | - | - | 0 | 203 | 227 | 1.32 | 17.99 | 203 | 279 | 22.03 | | |
| 1932 | 729 | - | - | - | 0 | 401 | 395 | 2.30 | 31.29 | 405 | 447 | 35.40 | | |
| 1933 | 744 | - | - | - | 10 | 417 | 376 | 2.19 | 29.63 | 409 | 302 | 23.81 | | |
| 1934 | 759 | - | - | - | 7 | 281 | 272 | 1.58 | 21.48 | 279 | 278 | 21.99 | | |
| 1935 | 784 | - | - | - | 10 | 322 | 366 | 2.13 | 28.94 | 363 | 356 | 28.16 | | |
| 1936 | 804 | - | - | - | 2 | 346 | 322 | 1.87 | 25.51 | 329 | 366 | 28.93 | | |
| 1937 | 824 | - | - | - | 12 | 390 | 408 | 2.37 | 32.16 | 386 | 395 | 31.15 | | |
| 1938 | 854 | - | - | - | 12 | 386 | 407 | 2.37 | 32.16 | 400 | 402 | 31.79 | | |
| 1939 | 874 | - | - | - | 11 | 389 | 324 | 1.88 | 25.57 | 316 | 280 | 22.07 | | |
| 1940 | 894 | - | - | - | 6 | 239 | 275 | 1.60 | 21.76 | 284 | 317 | 25.13 | | |
| 1941 | 924 | - | - | - | 10 | 280 | 285 | 1.66 | 22.51 | 271 | 295 | 23.28 | | |
| 1942 | 954 | - | - | - | 12 | 363 | 375 | 2.18 | 29.59 | 388 | 384 | 30.29 | | |
| 1943 | 974 | - | - | - | 15 | 495 | 482 | 2.80 | 38.03 | 500 | 448 | 35.37 | | |
| 1944 | 1004 | - | - | - | 11 | 348 | 332 | 1.93 | 26.26 | 335 | 323 | 25.54 | | |
| 1945 | 1034 | - | - | - | 11 | 356 | 408 | 2.37 | 32.21 | 408 | 490 | 38.65 | | |
| 1946 | 1054 | - | - | - | 15 | 462 | 406 | 2.36 | 32.01 | 400 | 400 | 31.56 | | |
| 1947 | 1084 | - | - | - | 8 | 548 | 590 | 3.43 | 46.59 | 563 | 499 | 39.39 | | |
| 1948 | 1114 | - | - | - | 10 | 357 | 350 | 1.92 | 26.11 | 357 | 363 | 28.69 | | |
| 1949 | 1144 | - | - | - | 12 | 336 | 337 | 1.96 | 26.60 | 328 | 360 | 28.42 | | |
| 1950 | 1174 | - | - | - | 14 | 362 | 350 | 2.03 | 27.63 | - | - | - | | |

* Corrected.

Note.--Adjusted runoff prior to 1926 not previously published.

360. Beaver River at Eagle Falls, near Number Four, N. Y.

Location.--Lat 43°54'30", long. 75°11'55", on left bank 500 ft downstream from Eagle Falls powerplant of Northern New York Utilities Inc., 2½ miles downstream from Beaver Lake, 4 miles north of Number Four, Lewis County, and 9 miles downstream from Stillwater Dam at outlet of Beaver River Flow.

Drainage area.--230 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 1,300 ft (from topographic map).

Extremes.--1921-25: Maximum discharge, 4,980 cfs Apr. 13, 1922 (gage height, 7.30 ft); minimum, 5.8 cfs Dec. 17, 1923 (gage height, 0.22 ft).

Remarks.--Flow almost completely regulated by Stillwater Reservoir (see p.313). Some regulation in other ponds above station.

Monthly and yearly mean discharge, in cubic feet per second,
of Beaver River at Eagle Falls, near Number Four, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1921 | - | - | - | - | - | - | - | - | - | - | - | 263 | - |
| 1922 | 239 | 445 | 458 | 359 | 365 | 750 | 1,850 | 503 | 830 | 458 | 312 | 266 | 565 |
| 1923 | 104 | 169 | 149 | 233 | 137 | 228 | 1,270 | 1,010 | 377 | 238 | 194 | 186 | 358 |
| 1924 | 106 | 215 | 468 | 817 | 452 | 315 | 1,490 | 1,500 | 271 | 223 | 291 | 280 | 536 |
| 1925 | 761 | 490 | 337 | 258 | 533 | 477 | 757 | 535 | 413 | 284 | 364 | 497 | 474 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1921 | 524 | - | - | - | - | - | - | - | - | - | - |
| 1922 | 544 | 4,980 | Apr. 13, 1922 | 34 | 565 | 2.46 | 35.34 | 506 | 29.88 | | |
| 1923 | 564 | 3,090 | Apr. 23, 1923 | 11 | 358 | 1.56 | 21.12 | 389 | 22.94 | | |
| 1924 | 584 | 3,500 | Apr. 21, 1924 | 15 | 536 | 2.33 | 31.71 | 603 | 35.70 | | |
| 1925 | 604 | 2,360 | Apr. 15, 1925 | 8 | 474 | 2.06 | 28.02 | - | - | | |

361. Beaver River near Croghan, N. Y.

Location.--Lat 43°55'40", long. 75°22'10", on downstream face of right abutment of right span of Tisse's bridge about $\frac{2}{3}$ miles upstream from Croghan, Lewis County, and about 20 miles downstream from the State dam near Beaver River Post Office.

Drainage area.--268 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 900 ft (from topographic map).

Remarks.--Flow almost completely regulated by State dam and other powerplant ponds. Diurnal fluctuation at low and medium flow.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|-------|-------|-------|------|------|-------|-------|----------|
| 1901 | - | - | - | - | - | - | - | - | 689 | 293 | 278 | 365 | - |
| 1902 | 612 | 563 | 1,142 | 566 | 540 | 1,618 | 1,109 | 1,620 | 767 | 552 | 515 | 286 | - |
| 1903 | 401 | 461 | 673 | 525 | 715 | 3,003 | - | 608 | 425 | 626 | 1,127 | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1902 | 97 | - | - | 95 | 828 | 3.09 | 41.91 | 762 | 58.57 | | |
| 1903 | 97 | - | - | 50 | - | - | - | - | - | | |

362. Beaver River at Croghan, N. Y.

Location.--Lat 43°53'50", long. 75°24'15", on left bank 1,000 ft upstream from Black Creek and half a mile west of Croghan, Lewis County.

Drainage area.--294 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 810 ft (from topographic map).

Average discharge.--20 years (1930-50), 575 cfs.

Extremes.--1930-50: Maximum discharge, 4,310 cfs May 13, 1943 (gage height, 6.47 ft); minimum, about 18 cfs Feb. 24, 1936 (gage height, 0.89 ft); minimum daily, 35 cfs May 13, 1934.

Remarks.--Flow almost completely regulated by Stillwater Reservoir (see p. 313). Between Stillwater Dam and this station flow is further regulated by several powerplant ponds. Diurnal fluctuation at low and medium flow.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-----|------|------|------|-------|----------|
| 1931 | 510 | 299 | 253 | 317 | 319 | 440 | 501 | 315 | 250 | 300 | 377 | 449 | 361 |
| 1932 | 453 | 463 | 497 | 575 | 877 | 691 | 1,275 | 772 | 434 | 595 | 584 | 530 | 644 |
| 1933 | 600 | 689 | 623 | 829 | 763 | 436 | 1,460 | 831 | 561 | 450 | 476 | 391 | 674 |
| 1934 | 392 | 367 | 501 | 592 | 494 | 416 | 582 | 254 | 340 | 422 | 479 | 399 | 436 |
| 1935 | 386 | 319 | 479 | 732 | 699 | 452 | 406 | 618 | 735 | 602 | 523 | 487 | 536 |
| 1936 | 547 | 542 | 490 | 455 | 336 | 775 | 522 | 772 | 447 | 422 | 498 | 523 | 529 |
| 1937 | 603 | 518 | 693 | 836 | 789 | 474 | 726 | 880 | 444 | 437 | 488 | 520 | 617 |
| 1938 | 446 | 473 | 642 | 699 | 879 | 884 | 567 | 515 | 432 | 480 | 558 | 659 | 601 |
| 1939 | 511 | 542 | 627 | 659 | 689 | 637 | 661 | 332 | 408 | 511 | 539 | 448 | 546 |
| 1940 | 295 | 160 | 175 | 357 | 450 | 367 | 661 | 473 | 336 | 429 | 531 | 506 | 394 |

STREAMS TRIBUTARY TO LAKE ONTARIO

Monthly and yearly mean discharge, in cubic feet per second,
of Beaver River at Croghan, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1941 | 535 | 265 | 562 | 644 | 540 | 464 | 553 | 199 | 244 | 374 | 400 | 332 | 426 |
| 1942 | 421 | 307 | 609 | 642 | 628 | 565 | 993 | 634 | 449 | 504 | 521 | 543 | 568 |
| 1943 | 409 | 478 | 729 | 832 | 832 | 1,051 | 697 | 1,977 | 554 | 562 | 690 | 626 | 788 |
| 1944 | 634 | 469 | 516 | 393 | 419 | 503 | 812 | 701 | 540 | 516 | 589 | 449 | 546 |
| 1945 | 400 | 420 | 436 | 425 | 443 | 844 | 675 | 1,101 | 528 | 585 | 512 | 592 | 581 |
| 1946 | 944 | 970 | 799 | 777 | 763 | 753 | 431 | 628 | 631 | 549 | 606 | 510 | 697 |
| 1947 | 374 | 683 | 779 | 896 | 923 | 1,072 | 1,156 | 1,787 | 1,184 | 767 | 577 | 520 | 893 |
| 1948 | 479 | 359 | 493 | 453 | 519 | 909 | 672 | 746 | 429 | 492 | 546 | 593 | 558 |
| 1949 | 582 | 458 | 438 | 586 | 644 | 720 | 703 | 484 | 447 | 537 | 458 | 336 | 532 |
| 1950 | 435 | 500 | 592 | 598 | 589 | 707 | 848 | 631 | 469 | 442 | 506 | 514 | 569 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 1,630 | Apr. 13, 1931 | 63 | 361 | 1.23 | 16.64 | 390 | 18.01 |
| 1932 | 729 | 2,700 | May 2, 1932 | 72 | 644 | 2.19 | 29.83 | 686 | 31.75 |
| 1933 | 744 | 3,390 | Apr. 19, 1933 | 88 | 674 | 2.29 | 31.12 | 620 | 28.61 |
| 1934 | 759 | 1,460 | Apr. 13, 1934 | 35 | 436 | 1.48 | 20.13 | 430 | 19.83 |
| 1935 | 784 | 2,040 | Jan. 10, 1935 | 53 | 556 | 1.82 | 24.73 | 569 | 26.26 |
| 1936 | 804 | 2,230 | Mar. 20, 1936 | 50 | 529 | 1.80 | 24.48 | 549 | 25.40 |
| 1937 | 824 | 2,590 | Apr. 6, 1937 | 83 | 617 | 2.10 | 28.47 | 585 | 27.48 |
| 1938 | 854 | 1,950 | Mar. 25, 1938 | 84 | 601 | 2.04 | 27.76 | 611 | 28.22 |
| 1939 | 874 | 1,460 | Apr. 29, 1939 | 46 | 546 | 1.86 | 25.21 | 458 | 21.15 |
| 1940 | 894 | 1,820 | Apr. 20, 1940 | 46 | 394 | 1.34 | 18.26 | 456 | 21.11 |
| 1941 | 924 | 1,870 | Dec. 31, 1940 | 61 | 426 | 1.45 | 19.68 | 424 | 19.58 |
| 1942 | 954 | 1,810 | Apr. 22, 1942 | 81 | 568 | 1.93 | 28.20 | 591 | 27.26 |
| 1943 | 974 | 4,310 | May 13, 1943 | 100 | 788 | 2.68 | 36.38 | 789 | 36.40 |
| 1944 | 1004 | 1,980 | Apr. 26, 1944 | 79 | 546 | 1.86 | 25.26 | 535 | 23.84 |
| 1945 | 1034 | 2,010 | Apr. 28, 1945 | 96 | 581 | 1.98 | 26.85 | 704 | 32.50 |
| 1946 | 1054 | 2,490 | Oct. 3, 1945 | 116 | 697 | 2.37 | 32.19 | 623 | 28.79 |
| 1947 | 1084 | 3,820 | May 2, 1947 | 122 | 893 | 3.04 | 41.24 | 851 | 39.29 |
| 1948 | 1114 | 2,260 | Mar. 23, 1948 | 72 | 558 | 1.90 | 25.84 | 570 | 26.41 |
| 1949 | 1144 | 1,950 | Mar. 30, 1949 | 65 | 532 | 1.81 | 24.60 | 537 | 24.79 |
| 1950 | 1174 | 1,980 | Apr. 22, 1950 | 70 | 569 | 1.94 | 26.26 | - | - |

363. Deer River at Copenhagen, N. Y.

Location.--Lat 43°53'55", long. 75°39'40", on left bank at powerplant half a mile north-east of Copenhagen, Lewis County, 3 3/4 miles downstream from Cobb Creek, and 7 miles upstream from mouth.

Drainage area.--89 sq mi, approximately.

Gage.--Water-stage recorder. Datum of gage is 963.41 ft above mean sea level, datum of 1929.

Average discharge.--21 years (1929-50), 220 cfs.

Extremes.--1929-50: Maximum discharge, 14,400 cfs Sept. 1, 1941 (gage height, 12.08 ft), from rating curve extended above 3,900 cfs on basis of computation of peak flow over dam; maximum gage height, 13.18 ft Jan. 31, 1947 (ice jam); minimum discharge, 0.7 cfs Aug. 12, 1940 (gage height, 0.17 ft); minimum daily, 0.8 cfs July 22 to Aug. 2, 1933.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1930 | 215 | 265 | 266 | *563 | *351 | 367 | *731 | 178 | 149 | 37.5 | 16.7 | 22.2 | *262 |
| 1931 | 34.1 | 32.5 | 72.7 | 55.2 | 59.9 | 177 | *869 | 372 | 90.0 | 86.5 | 17.7 | 53.7 | *160 |
| 1932 | 84.5 | 292 | 396 | 246 | 118 | *873 | 171 | 51.2 | 88.9 | 62.5 | 55.6 | *222 | |
| 1933 | 363 | 346 | 308 | 240 | 114 | *727 | 335 | 29.6 | 6.36 | 14.3 | 18.9 | *208 | |
| 1934 | 70.7 | 236 | 204 | 244 | 34.8 | 339 | 713 | 80.6 | 39.2 | 4.95 | 2.09 | 5.74 | 165 |
| 1935 | 22.3 | 161 | 148 | 326 | 82.3 | 386 | 405 | 216 | 214 | 92.1 | 11.0 | 30.6 | 175 |
| 1936 | 117 | 249 | 151 | 94.4 | 40.1 | 974 | 600 | 175 | 27.1 | 15.2 | 7.73 | 38.7 | 208 |
| 1937 | 217 | 359 | 381 | 623 | 209 | 78.3 | 825 | 276 | 47.8 | 15.8 | 10.4 | 10.1 | 254 |
| 1938 | 228 | 384 | 156 | 140 | 568 | 695 | 358 | 115 | 30.3 | 61.1 | 82.5 | 268 | 255 |
| 1939 | 88.2 | 198 | 262 | 185 | 208 | 471 | 882 | 131 | 38.2 | 6.17 | 7.62 | 9.59 | 207 |
| 1940 | 32.4 | 92.3 | 182 | 54.0 | 64.2 | 76.2 | 1,143 | 301 | 73.7 | 37.9 | 10.9 | 13.4 | 172 |
| 1941 | 34.8 | 248 | 442 | 157 | 100 | 72.0 | 734 | 53.0 | 17.6 | 38.0 | 98.5 | 300 | 191 |
| 1942 | 277 | 330 | 264 | 177 | 125 | 540 | 118 | 129 | 42.5 | 15.8 | 26.7 | 112 | 238 |
| 1943 | 90.3 | 339 | 192 | 256 | 285 | 735 | 826 | 669 | 115 | 28.7 | 53.1 | 29.7 | 301 |
| 1944 | 172 | 281 | 121 | 89.7 | 81.9 | 291 | 822 | 179 | 36.0 | 9.50 | 6.50 | 24.6 | 175 |
| 1945 | 50.6 | 56.5 | 99.7 | 142 | 112 | 1,107 | 464 | 373 | 92.8 | 119 | 13.6 | 156 | 234 |
| 1946 | 512 | 405 | 145 | 206 | 157 | 809 | 200 | 190 | 123 | 45.2 | 17.4 | 23.1 | 237 |
| 1947 | 288 | 430 | 316 | 461 | 202 | 413 | 1,170 | 558 | 311 | 182 | 44.5 | 17.9 | 366 |
| 1948 | 15.2 | 93.3 | 186 | 64.0 | 182 | 887 | 390 | 257 | 32.2 | 33.9 | 50.3 | 8.66 | 184 |
| 1949 | 20.4 | 237 | 210 | 349 | 325 | 490 | 397 | 90.1 | 16.7 | 6.28 | 24.1 | 80.9 | 186 |
| 1950 | 70.9 | 177 | 534 | 434 | 86.8 | 248 | 699 | 89.6 | 54.1 | 13.3 | 26.3 | 84.3 | 210 |

* Revised.

Monthly and yearly runoff, in inches, of Deer River at Copenhagen, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|--------|------|------|------|------|-------|----------|
| 1930 | 2.79 | 5.32 | 3.45 | *7.29 | *4.11 | 4.75 | *9.16 | 2.30 | 1.86 | 0.49 | 0.22 | 0.28 | *40.02 |
| 1931 | .44 | .41 | .94 | .71 | .70 | 2.30 | *10.89 | 4.82 | 1.13 | 1.12 | .23 | .67 | *24.36 |
| 1932 | 1.09 | 3.00 | 3.78 | 5.13 | 3.01 | 1.53 | *10.95 | 2.22 | .64 | 1.15 | .81 | .70 | *34.01 |
| 1933 | 4.70 | 4.53 | 4.00 | 3.11 | 1.33 | 2.52 | *9.12 | 1.75 | .37 | .08 | .19 | .24 | *31.74 |
| 1934 | .92 | 2.96 | 2.64 | 3.16 | .41 | 4.39 | 8.94 | 1.04 | .49 | .06 | .05 | .07 | 25.11 |
| 1935 | .29 | 2.02 | 1.91 | 4.22 | .96 | 5.00 | 5.08 | 2.80 | 2.68 | 1.19 | .14 | .58 | 26.67 |
| 1936 | 1.51 | 3.12 | 1.96 | 1.22 | .49 | 12.57 | 7.52 | 2.27 | .34 | .20 | .10 | .49 | 31.79 |
| 1937 | 2.81 | 4.50 | 4.93 | 8.07 | 2.45 | 1.01 | 10.34 | 3.57 | .60 | .21 | .13 | .13 | 36.75 |
| 1938 | 2.95 | 4.81 | 2.02 | 1.81 | 6.64 | 9.00 | 4.48 | 1.49 | .38 | .79 | 1.07 | 3.36 | 38.80 |
| 1939 | 1.14 | 2.48 | 3.39 | 2.40 | 2.44 | 6.10 | 11.06 | 1.70 | .48 | .11 | .10 | .12 | 31.52 |
| 1940 | .42 | 1.16 | 2.35 | .70 | .78 | .99 | 14.33 | 3.90 | .92 | .49 | .14 | .17 | 26.35 |
| 1941 | .45 | 3.11 | 5.73 | 2.03 | 1.17 | .93 | 9.20 | .69 | .22 | .49 | 1.28 | 3.76 | 29.06 |
| 1942 | 3.58 | 4.14 | 3.42 | 2.29 | 1.46 | 7.00 | 10.25 | 1.67 | .53 | .21 | .35 | 1.41 | 36.31 |
| 1943 | 1.17 | 4.25 | 2.48 | 3.32 | 3.33 | 9.52 | 10.35 | 8.66 | 1.44 | .37 | .69 | .37 | 45.95 |
| 1944 | 2.23 | 3.52 | 1.57 | 1.16 | .99 | 3.77 | 10.30 | 2.32 | .45 | .12 | .08 | .31 | 26.82 |
| 1945 | .66 | .71 | 1.29 | 1.84 | 1.31 | 14.34 | 5.82 | 4.83 | 1.16 | 1.54 | .18 | 1.96 | 35.64 |
| 1946 | 6.63 | 5.08 | 1.88 | 2.66 | 1.84 | 10.48 | 2.51 | 2.47 | 1.55 | .59 | .23 | .29 | 36.21 |
| 1947 | 3.74 | 5.39 | 4.09 | 5.97 | 2.36 | 5.35 | 14.67 | 7.23 | 3.90 | 2.36 | .58 | .22 | 55.86 |
| 1948 | .20 | 1.17 | 2.41 | .83 | 2.21 | 11.49 | 4.89 | 3.33 | .40 | .44 | .65 | .11 | 28.13 |
| 1949 | .26 | 2.97 | 2.72 | 4.52 | 3.80 | 6.35 | 4.98 | 1.17 | .21 | .08 | .31 | 1.01 | 28.58 |
| 1950 | .92 | 2.22 | 6.92 | 5.62 | 1.02 | 3.21 | 8.76 | 1.16 | .68 | .17 | .34 | 1.06 | 32.08 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1930 | 699,1387 | *5,600 | Jan. 8, 1930 | 10 | *262 | *2.94 | *40.02 | *211 | *32.25 |
| 1931 | 714,1387 | *3,330 | Apr. 10, 1931 | 11 | *160 | *1.80 | *24.36 | *200 | *30.44 |
| 1932 | 729,1387 | *2,230 | Apr. 8, 1932 | 10 | *222 | *2.49 | *34.01 | *256 | *39.17 |
| 1933 | 744,1387 | *3,180 | Oct. 6, 1932 | .8 | *208 | *2.34 | *31.74 | *165 | *25.23 |
| 1934 | 784 | 3,600 | Jan. 1, 1934 | 1.0 | 165 | 1.85 | 25.11 | 150 | 22.81 |
| 1935 | 784 | 2,270 | Jan. 10, 1935 | 2.5 | 175 | 1.97 | 26.67 | 190 | 29.04 |
| 1936 | 804 | 2,800 | Mar. 12, 1936 | 3.2 | 208 | 2.34 | 31.79 | 245 | 37.44 |
| 1937 | 824 | 4,560 | Apr. 6, 1937 | 1.7 | 254 | 2.85 | 38.75 | 238 | 36.29 |
| 1938 | 854 | 3,640 | Mar. 24, 1938 | 4.4 | 255 | 2.87 | 38.80 | 236 | 36.03 |
| 1939 | 874 | 4,760 | Mar. 27, 1939 | 2.0 | 207 | 2.33 | 31.52 | 186 | 28.44 |
| 1940 | 894 | 3,720 | Apr. 18, 1940 | 2.4 | 172 | 1.95 | 26.35 | 207 | 31.71 |
| 1941 | 924 | 14,400 | Sept. 1, 1941 | 1.2 | 191 | 2.15 | 29.06 | 203 | 30.91 |
| 1942 | 954 | 3,190 | Apr. 7, 1942 | 4.3 | 238 | 2.67 | 36.31 | 217 | 33.07 |
| 1943 | 974 | 3,060 | May 1, 1943 | 5.0 | 301 | 3.38 | 45.95 | 298 | 45.37 |
| 1944 | 1004 | 3,420 | Apr. 10, 1944 | 2.1 | 175 | 1.97 | 26.82 | 145 | 22.16 |
| 1945 | 1034 | 4,010 | Mar. 16, 1945 | 5.6 | 234 | 2.63 | 35.64 | 305 | 46.57 |
| 1946 | 1054 | 4,400 | Oct. 2, 1945 | 4.9 | 237 | 2.66 | 36.21 | 235 | 35.84 |
| 1947 | 1084 | 4,380 | Apr. 12, 1947 | 8.7 | 366 | 4.11 | 55.86 | 304 | 46.42 |
| 1948 | 1114 | 3,740 | Mar. 20, 1948 | 5.5 | 184 | 2.07 | 28.13 | 198 | 30.30 |
| 1949 | 1144 | 3,060 | Feb. 15, 1949 | 4.2 | 186 | 2.09 | 28.38 | 213 | 32.49 |
| 1950 | 1174 | 3,990 | Mar. 28, 1950 | 7.8 | 210 | 2.36 | 32.08 | - | - |

* Revised.

364. Black River at Black River, N. Y. 1/

Location.--Lat 44°00'05", long. 75°48'35", on left bank about a quarter of a mile downstream from concrete-arch highway bridge and powerplant of Northern New York Utilities Co., three-quarters of a mile downstream from village of Black River, Jefferson County, and about 4 miles upstream from Watertown, N. Y.

Drainage area.--1,858 sq mi (revised). March 1897 to November 1901, 1,870 sq mi (revised); September 1902 to December 1913, 1,851 sq mi.

Gage.--Staff gage. Altitude of gage is 510 ft (from topographic map). Prior to September 1902, staff gage 2 miles upstream from Watertown at different datum; September 1902 to December 1913, staff gage 9 miles upstream from Watertown at different datum.

Average discharge.--19 years (1897-1901, 1902-13, 1916-20), 3,706 cfs.

Extremes.--1897-1901, 1902-13, 1916-20: Maximum discharge, 32,500 cfs Mar. 28, 1913; minimum daily, 10 cfs Aug. 26, 1907.

Remarks.--Appreciable regulation by Stillwater Reservoir (see p. 313), Fulton Chain of Lakes, and other reservoirs. Diurnal fluctuation at low stages caused by mills and powerplants upstream. During canal season, water is diverted out of basin through Forestport feeder and Black River Canal (flowing south). Water for municipal supply of city of Watertown diverted from river at Huntingtonville dam.

Cooperation.--Records September 1902 to December 1905 and May 1907 to December 1913 furnished by State Engineer.

1/ Published as "at Huntingtonville dam, near Watertown", 1897-1901, and "at Felts Mills", 1902-13.

Monthly and yearly mean discharge, in cubic feet per second, of Black River at Black River, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|---------|---------|---------|---------|---------|----------|----------|---------|-------|---------|---------|---------|----------|
| 1897 | - | - | - | - | - | \$5,510 | \$9,150 | 4,267 | 2,713 | \$940 | \$1,890 | \$1,000 | - |
| 1898 | \$1,080 | \$3,722 | 4,725 | 3,402 | \$3,699 | 9,609 | 4,654 | 3,174 | 1,639 | \$1,160 | 1,495 | \$1,483 | \$3,220 |
| 1899 | 3,138 | 3,932 | 2,720 | 4,712 | 2,326 | 5,051 | 13,894 | 5,609 | 1,528 | 1,205 | \$926 | 990 | \$3,835 |
| 1900 | 1,018 | 1,652 | 3,501 | 2,834 | 5,734 | 2,970 | 13,926 | 5,711 | 1,630 | 1,321 | 1,134 | \$1,020 | \$3,508 |
| 1901 | 1,219 | \$4,710 | \$4,200 | 2,844 | 2,421 | 6,024 | 14,354 | 5,007 | 5,316 | 1,626 | 2,135 | \$3,170 | \$4,408 |
| 1902 | 3,316 | 2,712 | - | - | - | - | - | - | - | - | - | - | - |
| 1903 | 2,150 | 2,780 | 3,260 | 2,840 | 5,050 | \$13,960 | \$4,340 | 1,200 | 2,210 | 2,390 | 2,960 | 1,220 | \$3,690 |
| 1904 | 6,110 | 2,050 | 2,460 | 1,690 | 3,320 | 5,630 | 10,640 | \$6,990 | 2,580 | 1,800 | 1,980 | \$2,390 | \$3,970 |
| 1905 | 4,700 | 1,920 | \$1,630 | 2,640 | 2,360 | \$4,200 | 11,350 | 3,560 | 6,080 | 3,800 | \$3,080 | 3,300 | \$4,050 |
| 1906 | 2,770 | 3,710 | 4,050 | 7,070 | 3,220 | 3,330 | 7,710 | 5,110 | 2,170 | 2,310 | 1,390 | 1,190 | 3,670 |
| 1907 | 2,280 | 2,790 | 2,110 | \$5,500 | \$1,600 | \$4,600 | 6,270 | 5,450 | 1,950 | 1,370 | 752 | 1,650 | \$3,040 |
| 1908 | 3,480 | 4,780 | 5,220 | \$6,000 | \$5,000 | 6,280 | 8,910 | 6,900 | 2,260 | 1,460 | 1,000 | 760 | \$4,330 |
| 1909 | 1,100 | 1,470 | 1,470 | 3,480 | 5,500 | 3,920 | 12,300 | 7,680 | 2,230 | 1,160 | 1,050 | 882 | \$3,490 |
| 1910 | 1,210 | 1,750 | 1,710 | 2,426 | 1,925 | 9,004 | 6,048 | 3,959 | 2,800 | 938 | 1,834 | 1,506 | 2,920 |
| 1911 | 2,020 | 2,551 | 1,276 | 2,672 | 1,834 | 2,822 | 11,579 | 5,946 | 2,967 | 830 | 1,068 | 1,338 | 3,070 |
| 1912 | 2,065 | 4,118 | 7,049 | 2,253 | 2,170 | 3,236 | 15,646 | 7,092 | 3,685 | 1,141 | 1,077 | 1,745 | 4,260 |
| 1913 | 2,559 | 3,129 | 3,263 | \$7,500 | \$5,000 | 11,365 | 7,739 | 2,323 | 1,743 | 1,107 | 856 | 706 | \$3,940 |
| 1914 | 2,329 | 3,854 | 2,433 | - | - | - | - | - | - | - | - | - | - |
| 1917 | \$2,900 | \$3,200 | \$3,800 | \$3,000 | \$1,500 | \$4,400 | \$11,300 | 5,860 | 5,750 | 2,330 | 1,680 | 1,470 | \$3,940 |
| 1918 | 4,450 | 4,370 | 1,850 | 1,410 | 3,550 | 6,520 | 10,300 | 5,860 | 3,080 | 2,050 | 1,160 | 2,030 | \$3,880 |
| 1919 | 3,640 | 4,770 | 3,940 | 3,450 | 1,720 | 6,270 | 9,460 | 5,400 | 1,550 | 1,630 | 1,050 | 1,440 | 3,700 |
| 1920 | 2,670 | 4,050 | 4,730 | \$1,750 | 1,470 | 7,040 | 11,100 | 3,890 | 1,060 | \$1,550 | \$1,290 | \$1,230 | \$3,490 |

* Revised.

† Corrected.

* Not previously published; records 1897-1901 estimated on basis of records for Oswego River at Oswego; 1902-13 estimated on basis of records for Hudson River at Mechanicville and Oswegatchie River at Ogdensburg; 1917-20 estimated on basis of records for Black River near Boonville and Forestport feeder near Boonville.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|---------|-----------------|------------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | Runoff in inches |
| 1898 | 49 | - | - | 330 | \$3,220 | \$1.72 | \$24.13 | 3,348 |
| 1899 | 49 | - | - | 458 | 3,835 | 2.05 | \$27.84 | 3,532 |
| 1900 | 49 | - | - | 390 | \$3,508 | \$1.88 | \$25.47 | \$3,936 |
| 1901 | 65 | - | - | 580 | \$4,408 | \$2.36 | \$32.01 | - |
| 1902 | 65 | - | - | - | - | - | - | - |
| 1903 | (a) | - | - | 259 | \$3,690 | \$1.99 | \$27.09 | \$3,900 |
| 1904 | (a) | - | - | 632 | \$3,970 | \$2.14 | \$29.11 | \$3,770 |
| 1905 | (a) | - | - | 520 | \$4,050 | \$2.19 | \$29.69 | \$4,240 |
| 1906 | 206 | - | - | 80 | 3,670 | 1.98 | 26.92 | 3,380 |
| 1907 | 244 | - | - | 10 | \$3,040 | \$1.64 | \$22.29 | \$3,570 |
| 1908 | 244 | - | - | 502 | \$4,330 | \$2.33 | \$31.82 | \$3,540 |
| 1909 | 264 | - | - | 171 | 3,490 | 1.99 | 25.64 | 3,570 |
| 1910 | 284 | - | - | 70 | 2,920 | 1.58 | 21.45 | 3,020 |
| 1911 | 304 | - | - | 240 | 3,070 | 1.66 | 22.48 | 3,680 |
| 1912 | 324 | - | - | 720 | 4,260 | 2.30 | 31.35 | 3,900 |
| 1913 | 354 | 32,500 | Mar. 28, 1913 | 208 | \$3,940 | \$2.13 | \$28.86 | \$3,900 |
| 1917 | 454 | 19,300 | Apr. 4, 1917 | - | \$3,940 | \$2.12 | \$28.77 | \$4,000 |
| 1918 | 474 | 16,600 | Apr. 4, 1918 | 440 | 3,890 | 2.09 | 28.34 | 4,020 |
| 1919 | 504 | 17,600 | Apr. 14, 1919 | 519 | 3,700 | 1.99 | 27.05 | 3,630 |
| 1920 | 504,1387 | \$18,400 | Mar. 28, 1920* | - | \$3,490 | \$1.88 | \$25.56 | - |

* Revised.

* Not previously published.

s From State Engineer Report.

Note.--Records for period 1903-5 supersede those published in W.S.P. 129 and 170.

365. Black River at Watertown, N. Y.

Location.--Lat 43°59'05", long. 75°55'30", on right bank at Vanduzee Street Bridge at Watertown, Jefferson County, 3½ miles upstream from Philomel Creek.

Drainage area.--1,876 sq mi.

Gage.--Water-stage recorder. Datum of gage is 374.88 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Sept. 3, 1921, staff gage at same site and datum.

Average discharge.--30 years (1920-50), 3,913 cfs.

Extremes.--1920-50: Maximum discharge, 33,900 cfs Apr. 9, 1928 (gage height, 10.6 ft); minimum, 10 cfs Sept. 2, 1934 (gage height, -0.19 ft); minimum daily, 137 cfs Sept. 4, 1939.

Maximum discharge known, about 39,700 cfs in April 1869 (from New York State Museum Bulletin 85).

Remarks.--Flow partly regulated by Stillwater Reservoir (see p. 313), Fulton Chain of Lakes, and other reservoirs. Extensive diurnal fluctuation at low and medium flow caused by mills and powerplants in and above Watertown. During canal season, water is diverted out of basin through Forestport feeder and Black River Canal (flowing south).

Monthly and yearly mean discharge, in cubic feet per second, of Black River at Watertown, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | 1,300 | 1,240 | - |
| 1921 | 1,540 | 3,560 | 7,170 | 3,590 | 2,530 | 13,600 | 6,200 | 2,190 | 1,170 | 1,800 | 966 | 956 | 3,790 |
| 1922 | 1,730 | 4,630 | 4,160 | 2,370 | 2,960 | 7,390 | 13,200 | 3,770 | 5,450 | 3,530 | 1,810 | 1,250 | 4,350 |
| 1923 | 1,280 | 1,560 | 1,400 | 2,540 | 1,470 | 4,080 | 11,900 | 6,440 | 2,080 | 1,090 | 730 | 819 | 2,950 |
| 1924 | 1,400 | 1,970 | 4,760 | 6,510 | 2,430 | 3,280 | 12,600 | 8,830 | 2,010 | 1,190 | 1,440 | 1,810 | 4,020 |
| 1925 | 4,090 | 2,160 | 2,980 | 1,570 | 6,710 | 9,050 | 8,750 | 4,420 | 1,920 | 2,440 | 1,950 | 2,410 | 4,020 |
| 1926 | 4,690 | 6,590 | 4,640 | 3,080 | 2,400 | 3,090 | 12,200 | 9,340 | 3,820 | 1,950 | 2,040 | 2,240 | 4,670 |
| 1927 | 4,870 | 6,280 | 3,740 | 2,880 | 2,960 | 8,140 | 4,970 | 5,500 | 2,200 | 1,580 | 1,410 | 1,710 | 4,020 |
| 1928 | 3,470 | 6,860 | 9,130 | 5,500 | 4,160 | 6,030 | 12,400 | 5,610 | 3,020 | 2,250 | 2,440 | 1,950 | 5,230 |
| 1929 | 3,300 | 3,650 | 4,960 | 5,630 | 2,570 | 8,210 | 8,720 | 7,970 | 2,500 | 2,340 | 2,040 | 1,770 | 4,480 |
| 1930 | 2,290 | 3,640 | 4,180 | 8,400 | 4,910 | 6,420 | 9,380 | 4,460 | 3,320 | 2,190 | 1,430 | 1,550 | 4,400 |
| 1931 | 1,480 | 1,120 | 1,420 | 1,240 | 1,290 | 2,800 | 8,380 | 5,090 | 1,840 | 2,350 | 1,380 | 2,540 | 2,580 |
| 1932 | 2,580 | 4,160 | 4,610 | 6,810 | 4,980 | 3,290 | 11,300 | 4,860 | 1,940 | 3,160 | 2,080 | 1,750 | 4,280 |
| 1933 | 5,960 | 6,170 | 3,870 | 4,570 | 3,100 | 3,660 | 10,900 | 3,870 | 1,850 | 1,200 | 1,250 | 1,130 | 3,950 |
| 1934 | 1,385 | 2,053 | 3,546 | 3,331 | 1,678 | 3,872 | 10,070 | 2,345 | 1,542 | 1,049 | 1,042 | 1,094 | 2,749 |
| 1935 | 1,575 | 2,460 | 2,966 | 5,302 | 2,421 | 4,967 | 5,505 | 5,364 | 3,910 | 2,986 | 1,397 | 1,613 | 3,380 |
| 1936 | 2,039 | 3,413 | 2,914 | 2,112 | 1,574 | 10,950 | 8,931 | 5,060 | 1,484 | 1,188 | 1,122 | 1,575 | 3,537 |
| 1937 | 3,179 | 3,931 | 3,769 | 8,658 | 4,633 | 2,412 | 9,576 | 6,101 | 1,963 | 1,519 | 1,675 | 1,294 | 4,053 |
| 1938 | 2,846 | 4,508 | 3,089 | 2,827 | 7,299 | 8,846 | 6,519 | 2,849 | 1,484 | 1,790 | 1,872 | 4,477 | 4,005 |
| 1939 | 2,329 | 5,244 | 4,383 | 3,057 | 3,585 | 5,695 | 10,280 | 4,301 | 1,917 | 1,171 | 1,124 | 1,163 | 3,498 |
| 1940 | 1,317 | 1,668 | 2,051 | 1,490 | 1,645 | 1,776 | 12,560 | 6,071 | 2,114 | 2,350 | 1,144 | 1,373 | 2,921 |
| 1941 | 1,527 | 3,057 | 4,322 | 4,415 | 2,172 | 1,873 | 9,331 | 1,600 | 991 | 1,190 | 1,120 | 3,355 | 2,905 |
| 1942 | 2,723 | 3,678 | 4,405 | 3,288 | 2,292 | 6,692 | 9,850 | 3,422 | 2,243 | 1,275 | 1,470 | 2,506 | 3,655 |
| 1943 | 3,588 | 5,170 | 3,420 | 4,890 | 3,842 | 9,552 | 8,977 | 12,790 | 3,218 | 1,699 | 2,148 | 1,755 | 5,099 |
| 1944 | 2,579 | 4,106 | 1,981 | 1,718 | 1,701 | 3,604 | 11,080 | 6,129 | 2,294 | 1,345 | 1,176 | 1,721 | 3,278 |
| 1945 | 1,986 | 1,827 | 1,925 | 2,437 | 2,064 | 11,620 | 7,631 | 7,210 | 3,490 | 2,785 | 1,280 | 3,567 | 4,000 |
| 1946 | 9,058 | 6,641 | 3,329 | 4,549 | 3,482 | 9,693 | 3,946 | 4,172 | 2,858 | 1,924 | 1,501 | 1,331 | 4,398 |
| 1947 | 3,432 | 5,100 | 4,900 | 6,229 | 5,731 | 5,846 | 14,720 | 11,460 | 8,235 | 4,399 | 2,555 | 1,748 | 6,186 |
| 1948 | 1,414 | 2,193 | 2,516 | 1,639 | 2,679 | 10,930 | 8,383 | 5,275 | 2,086 | 2,064 | 1,762 | 1,230 | 3,519 |
| 1949 | 1,472 | 3,745 | 2,930 | 5,697 | 4,750 | 7,025 | 7,778 | 3,064 | 1,195 | 1,047 | 1,250 | 2,247 | 3,504 |
| 1950 | 2,127 | 2,989 | 6,445 | 7,101 | 2,875 | 3,912 | 10,450 | 3,753 | 2,504 | 1,474 | 1,554 | 2,501 | 3,976 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1920 | 504 | - | - | - | - | - | - | - | - |
| 1921 | 524 | 23,100 | Mar. 11, 1921 | 514 | 3,790 | 2.02 | 27.42 | 3,640 | 26.31 |
| 1922 | 544 | 26,200 | Apr. 13, 1922 | 661 | 4,350 | 2.32 | 31.43 | 3,820 | 27.64 |
| 1923 | 564 | 22,000 | Apr. 9, 1923 | 410 | 2,950 | 1.57 | 21.89 | 3,280 | 23.77 |
| 1924 | 584 | 24,400 | Apr. 8, 1924 | 516 | 4,020 | 2.14 | 29.16 | 4,110 | 29.83 |
| 1925 | 604 | 15,300 | Oct. 3, 1924 | 650 | 4,020 | 2.14 | 29.07 | 4,570 | 33.09 |
| 1926 | 624 | 31,900 | Apr. 26, 1926 | 873 | 4,670 | 2.49 | 33.81 | 4,750 | 34.38 |
| 1927 | 644 | 16,600 | Mar. 21, 1927 | 776 | 4,020 | 2.14 | 29.04 | 4,240 | 30.64 |
| 1928 | 664 | 33,900 | Apr. 9, 1928 | 952 | 5,230 | 2.79 | 37.92 | 4,590 | 33.29 |
| 1929 | 684 | 17,500 | May 6, 1929 | 779 | 4,480 | 2.39 | 32.43 | 4,400 | 31.81 |
| 1930 | 699 | 22,300 | Jan. 11, 1930 | 960 | 4,400 | 2.35 | 31.85 | 3,830 | 27.72 |
| 1931 | 714 | 15,900 | Apr. 13, 1931 | 775 | 2,580 | 1.58 | 18.65 | 3,190 | 23.09 |
| 1932 | 729 | 19,400 | Apr. 12, 1932 | 1,180 | 4,280 | 2.28 | 31.05 | 4,670 | 33.88 |
| 1933 | 744 | 26,000 | Oct. 8, 1932 | 503 | 3,950 | 2.11 | 28.59 | 3,197 | 23.13 |
| 1934 | 759 | 16,500 | Apr. 3, 1934 | 436 | 2,749 | 1.47 | 19.89 | 2,749 | 19.89 |
| 1935 | 764 | 17,000 | Jan. 12, 1935 | 720 | 3,580 | 1.80 | 24.45 | 3,493 | 25.28 |
| 1936 | 804 | 28,000 | Mar. 20, 1936 | 570 | 3,537 | 1.89 | 25.67 | 3,749 | 27.20 |
| 1937 | 824 | 17,700 | Apr. 7, 1937 | 480 | 4,053 | 2.16 | 29.34 | 4,014 | 29.06 |
| 1938 | 854 | 23,800 | Mar. 25, 1938 | 864 | 4,005 | 2.13 | 28.98 | 3,967 | 28.71 |
| 1939 | 874 | 16,000 | Apr. 29, 1939 | 137 | 3,498 | 1.86 | 25.30 | 3,084 | 22.30 |
| 1940 | 894 | 19,300 | Apr. 12, 1940 | 626 | 2,921 | 1.56 | 21.22 | 3,245 | 23.57 |
| 1941 | 924 | 19,900 | Dec. 31, 1940 | 600 | 2,905 | 1.55 | 21.01 | 3,065 | 22.17 |
| 1942 | 954 | 20,400 | Apr. 9, 1942 | 673 | 3,655 | 1.95 | 26.46 | 3,767 | 27.26 |
| 1943 | 974 | 19,400 | May 2, 1943 | 955 | 5,099 | 2.72 | 36.87 | 4,804 | 34.74 |
| 1944 | 1004 | 20,000 | Apr. 26, 1944 | 544 | 3,278 | 1.75 | 23.78 | 3,037 | 22.03 |
| 1945 | 1034 | 25,200 | Mar. 23, 1945 | 548 | 4,000 | 2.13 | 28.95 | 5,115 | 37.03 |
| 1946 | 1054 | 29,500 | Oct. 4, 1945 | 246 | 4,388 | 2.34 | 31.75 | 3,917 | 28.33 |
| 1947 | 1084 | 32,200 | Apr. 13, 1947 | 354 | 6,186 | 3.30 | 44.76 | 5,574 | 40.35 |
| 1948 | 1114 | 33,400 | Mar. 24, 1948 | 500 | 3,519 | 1.88 | 25.53 | 3,585 | 26.74 |
| 1949 | 1144 | 20,800 | Mar. 30, 1949 | 336 | 3,504 | 1.87 | 25.35 | 3,796 | 27.47 |
| 1950 | 1174 | 20,800 | Apr. 7, 1950 | 408 | 3,976 | 2.12 | 28.77 | - | - |

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

366. Cranberry Lake at Cranberry Lake, N. Y.

Location.--Lat 44°13'15", long. 74°50'55", on right wall of outlet structure, at village of Cranberry Lake, St. Lawrence County.

Drainage area.--144 sq mi.

Gage.--Staff gage. Datum of gage is 1,469.75 ft above mean sea level, datum of 1929.

Remarks.--Reservoir used to regulate seasonal flow of East Branch Oswegatchie River and Oswegatchie River since 1867. Usable capacity above elevation 1,474.25 ft is 2,530,000,000 cu ft, and record of contents herein represents those above that elevation.

Cooperation.--Record of reservoir elevations and capacity table furnished by Oswegatchie River-Cranberry Lake Reservoir Commission.

| Month-end contents, in millions of cubic feet | | | | | | | | | | | | |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
| 1923 | - | - | - | - | - | - | 1,830 | 2,530 | 2,392 | 1,895 | 1,331 | 993 |
| 1924 | 703 | 661 | 1,120 | 1,624 | 1,441 | 974 | 2,246 | 2,451 | 2,310 | 1,850 | 1,710 | 1,655 |
| 1925 | 1,775 | 1,570 | 1,550 | 1,111 | 1,390 | 2,100 | 2,530 | 2,494 | 2,310 | 1,894 | 1,410 | 1,340 |
| 1926 | 1,700 | 2,192 | 2,274 | 2,001 | 1,635 | 871 | 2,069 | 2,455 | 2,310 | 1,819 | 1,340 | 1,094 |
| 1927 | 1,314 | 2,148 | 2,079 | 1,819 | 1,601 | 2,218 | 2,380 | 2,530 | 2,170 | 1,741 | 1,340 | 1,094 |
| 1928 | 1,254 | 2,335 | 2,380 | 2,346 | 1,679 | 1,460 | 2,380 | 2,431 | 2,299 | 1,871 | 1,570 | 695 |
| 1929 | 844 | 1,120 | 1,400 | 1,840 | 1,530 | 2,404 | 2,506 | 2,479 | 2,404 | 2,251 | 1,939 | 1,431 |
| 1930 | 1,350 | 1,450 | 1,422 | 2,035 | 1,905 | 2,056 | 2,346 | 2,479 | 2,358 | 2,111 | 1,689 | 1,294 |
| 1931 | 958 | 748 | 653 | 455 | 341 | 355 | 1,720 | 2,479 | 2,392 | 2,218 | 1,720 | 1,501 |
| 1932 | 1,350 | 1,601 | 1,960 | 2,431 | 2,321 | 2,181 | 2,506 | 2,321 | 2,148 | 2,479 | 2,170 | 1,601 |
| 1933 | 2,494 | 2,431 | 2,416 | 2,380 | 2,159 | 1,980 | 2,506 | 2,518 | 2,274 | 1,731 | 1,350 | 1,047 |
| 1934 | 764 | 731 | 985 | 1,094 | 825 | 947 | 2,431 | 2,392 | 2,134 | 1,785 | 1,331 | 1,056 |
| 1935 | 913 | 966 | 1,138 | 1,539 | 1,267 | 1,460 | 2,346 | 2,479 | 2,506 | 2,346 | 1,915 | 1,754 |
| 1936 | 1,551 | 1,570 | 1,396 | 1,146 | 645 | 2,080 | 2,392 | 2,506 | 2,191 | 1,809 | 1,460 | 1,470 |
| 1937 | 1,861 | 2,090 | 2,240 | 2,467 | 1,939 | 1,120 | 2,392 | 2,479 | 2,346 | 1,970 | 2,191 | 1,720 |
| 1938 | 1,601 | 1,905 | 1,905 | 1,539 | 1,840 | 2,274 | 2,358 | 2,321 | 1,960 | 1,980 | 1,809 | 2,170 |
| 1939 | 2,014 | 1,861 | 2,025 | 1,470 | 1,138 | 861 | 1,741 | 2,530 | 2,380 | 1,915 | 1,410 | 844 |
| 1940 | 587 | 731 | 974 | 703 | 455 | 225 | 1,796 | 2,455 | 2,404 | 2,148 | 1,645 | 1,094 |
| 1941 | 679 | 869 | 1,248 | 1,157 | 756 | 245 | 1,410 | 1,419 | 1,036 | 888 | 653 | 400 |
| 1942 | 603 | 941 | 1,267 | 1,212 | 949 | 1,551 | 2,656 | 2,656 | 2,644 | 2,100 | 1,840 | 1,624 |
| 1943 | 1,561 | 1,991 | 1,819 | 1,741 | 1,239 | 1,276 | 2,656 | 2,656 | 2,542 | 2,251 | 2,251 | 2,001 |
| 1944 | 1,905 | 2,218 | 1,971 | 1,479 | 1,036 | 619 | 2,506 | 2,656 | 2,530 | 2,045 | 1,510 | 1,510 |
| 1945 | 1,410 | 1,340 | 1,369 | 1,111 | 355 | 2,282 | 2,704 | 2,692 | 2,581 | 2,467 | 1,939 | 2,001 |
| 1946 | 2,566 | 2,542 | 1,939 | 1,551 | 1,036 | 2,134 | 2,479 | 2,581 | 2,310 | 2,001 | 1,580 | 1,256 |
| 1947 | 1,980 | 2,455 | 2,431 | 2,443 | 1,915 | 1,166 | 2,455 | 2,554 | 2,431 | 2,542 | 1,840 | 1,369 |
| 1948 | 1,094 | 1,083 | 993 | 800 | 629 | 1,991 | 2,566 | 2,479 | 2,289 | 2,056 | 1,905 | 1,295 |
| 1949 | 989 | 1,164 | 1,398 | 1,632 | 1,364 | 2,212 | 2,500 | 2,440 | 2,184 | 1,723 | 1,352 | 1,318 |
| 1950 | 1,252 | 1,263 | 1,970 | 2,380 | 1,931 | 1,364 | 2,440 | 2,440 | 2,254 | 1,866 | 1,580 | 1,472 |

367. East Branch Oswegatchie River at Cranberry Lake, N. Y.

Location.--Lat 44°13'15", long. 74°51'00", on right bank 900 ft downstream from dam at outlet of Cranberry Lake, at village of Cranberry Lake, St. Lawrence County.

Drainage area.--144 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,458.23 ft above mean sea level, datum of 1929. Prior to Oct. 1, 1938, staff gage at site 80 ft upstream at same datum.

Average discharge.--27 years (1923-50), 293 cfs (unadjusted).

Extremes.--1923-50: Maximum discharge, 1,940 cfs May 13, 1943 (gage height, 7.70 ft); minimum daily, about 3 cfs Apr. 9-16, 1931.

Remarks.--Since 1867, flow almost completely regulated by Cranberry Lake. Runoff adjusted for change in contents in Cranberry Lake (see above).

Monthly and yearly mean discharge, in cubic feet per second (observed),
of East Branch Oswegatchie River at Cranberry Lake, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-------|------|------|------|-------|----------|
| 1923 | - | - | - | - | - | - | - | - | 236 | 263 | 300 | 286 | - |
| 1924 | 268 | 200 | 163 | 188 | 295 | 306 | 266 | 988 | 251 | 288 | 315 | 297 | 320 |
| 1925 | 218 | 302 | 245 | 318 | 323 | 285 | 553 | 347 | 297 | 324 | 317 | 318 | 320 |
| 1926 | 291 | 307 | 324 | 316 | 343 | 494 | 399 | 665 | 340 | 378 | 350 | 319 | 378 |
| 1927 | 262 | 211 | 242 | 295 | 297 | 363 | 333 | 342 | 330 | 303 | 267 | 217 | 289 |
| 1928 | 223 | 235 | 600 | 414 | 512 | 514 | 741 | 470 | 299 | 314 | 355 | 543 | 434 |
| 1929 | 201 | 179 | 191 | 268 | 303 | 413 | 744 | 644 | 256 | 272 | 323 | 335 | 344 |
| 1930 | 523 | 275 | 237 | 355 | 409 | 369 | 820 | 437 | 339 | 321 | 306 | 282 | 372 |
| 1931 | 242 | 185 | 169 | 162 | 154 | 149 | 39.6 | 95.4 | 164 | 191 | 234 | 209 | 166 |
| 1932 | 202 | 158 | 164 | 327 | 337 | 244 | 826 | 430 | 218 | 220 | 276 | 310 | 308 |
| 1933 | 241 | 428 | 256 | 295 | 282 | 275 | 784 | 393 | 235 | 239 | 221 | 211 | 321 |
| 1934 | 199 | 161 | 134 | 155 | 211 | 215 | 222 | 242 | 210 | 211 | 209 | 195 | 197 |
| 1935 | 173 | 147 | 116 | 167 | 264 | 287 | 240 | 419 | 399 | 215 | 220 | 222 | 239 |
| 1936 | 225 | 202 | 231 | 250 | 308 | 175 | 555 | 435 | 234 | 219 | 204 | 192 | 269 |
| 1937 | 160 | 201 | 256 | 639 | 497 | 514 | 257 | 503 | 248 | 228 | 190 | 239 | 327 |
| 1938 | 247 | 210 | 228 | 301 | 370 | 489 | 589 | 233 | 222 | 182 | 213 | 201 | 290 |
| 1939 | 240 | 242 | 313 | 403 | 334 | 421 | 200 | 265 | 248 | 256 | 255 | 271 | 287 |
| 1940 | 200 | 56.0 | 70.3 | 194 | 197 | 231 | 107 | 335 | 197 | 198 | 220 | 270 | 190 |
| 1941 | 269 | 155 | 166 | 261 | 315 | 313 | 145 | 107 | 210 | 167 | 139 | 148 | 199 |
| 1942 | 84.1 | 21.7 | 91.6 | 210 | 239 | 104 | 422 | 294 | 216 | 219 | 217 | 240 | 196 |
| 1943 | 199 | 145 | 272 | 323 | 469 | 501 | 207 | 1,065 | 249 | 233 | 194 | 356 | 351 |
| 1944 | 263 | 171 | 306 | 330 | 362 | 407 | 108 | 494 | 198 | 248 | 247 | 171 | 275 |
| 1945 | 172 | 170 | 134 | 270 | 448 | 168 | 414 | 541 | 285 | 235 | 243 | 231 | 274 |
| 1946 | 278 | 420 | 456 | 428 | 468 | 241 | 206 | 312 | 282 | 235 | 252 | 231 | 316 |
| 1947 | 74.1 | 273 | 364 | 424 | 631 | 698 | 748 | 966 | 692 | 254 | 355 | 275 | 478 |
| 1948 | 182 | 154 | 205 | 196 | 234 | 273 | 430 | 547 | 253 | 215 | 202 | 280 | 264 |
| 1949 | 247 | 202 | 115 | 293 | 451 | 244 | 516 | 305 | 160 | 216 | 217 | 140 | 237 |
| 1950 | 160 | 179 | 165 | 327 | 398 | 504 | 303 | 257 | 200 | 192 | 196 | 154 | 252 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1923 | - | - | - | - | - | - | - | - | 1.42 | 0.62 | 0.71 | 1.28 | - |
| 1924 | 1.28 | 1.43 | 2.68 | 3.02 | 1.66 | 1.06 | 5.86 | 8.46 | 1.58 | .93 | 2.10 | 2.14 | 32.20 |
| 1925 | 2.11 | 1.73 | 1.85 | 1.30 | 3.17 | 4.41 | 5.57 | 2.67 | 1.75 | 1.32 | 1.12 | 2.25 | 29.25 |
| 1926 | 3.41 | 3.85 | 2.84 | 1.71 | 1.39 | 1.67 | 6.67 | 6.48 | 2.20 | 1.56 | 1.37 | 1.74 | 34.89 |
| 1927 | 2.75 | 4.13 | 1.73 | 1.58 | 1.50 | 4.75 | 3.06 | 3.19 | 1.48 | 1.15 | .94 | .95 | 27.21 |
| 1928 | 2.27 | 5.08 | 4.94 | 3.21 | 1.84 | 3.46 | 8.49 | 3.92 | 1.92 | 1.23 | 1.94 | 1.59 | 39.86 |
| 1929 | 2.05 | 2.21 | 2.37 | 3.46 | 1.27 | 5.92 | 6.07 | 5.08 | 1.75 | 1.72 | 1.65 | 1.08 | 34.63 |
| 1930 | 2.34 | 2.43 | 1.81 | 4.68 | 2.57 | 3.40 | 7.22 | 3.90 | 2.26 | 1.83 | 1.19 | 1.01 | 34.64 |
| 1931 | .94 | .80 | 1.07 | .70 | .77 | 1.23 | 4.39 | 3.03 | 1.01 | 1.01 | .39 | .97 | 16.31 |
| 1932 | 1.16 | 1.98 | 2.39 | 4.03 | 2.20 | 1.53 | 7.37 | 2.89 | 1.17 | 2.75 | 1.29 | .70 | 29.46 |
| 1933 | 4.60 | 3.13 | 2.01 | 2.25 | 1.38 | 1.66 | 7.65 | 3.18 | 1.09 | .29 | .63 | .73 | 28.60 |
| 1934 | .75 | 1.15 | 1.63 | 1.57 | .73 | 2.09 | 6.15 | 1.82 | .85 | .65 | .32 | .69 | 18.60 |
| 1935 | .96 | 1.29 | 1.45 | 2.54 | 1.09 | 2.87 | 4.50 | 3.75 | 3.17 | 1.24 | .48 | 1.24 | 24.58 |
| 1936 | 1.19 | 1.62 | 1.31 | 1.27 | .81 | 5.72 | 5.21 | 3.82 | .85 | .64 | .59 | 1.52 | 24.55 |
| 1937 | 2.45 | 2.24 | 2.50 | 5.80 | 2.01 | 1.67 | 5.80 | 4.29 | 1.52 | .68 | 2.15 | .47 | 31.58 |
| 1938 | 1.62 | 2.54 | 1.83 | 1.32 | 3.58 | 5.21 | 4.82 | 1.75 | .64 | 1.52 | 1.20 | 2.64 | 28.67 |
| 1939 | 1.45 | 1.42 | 2.99 | 1.57 | 1.42 | 2.54 | 4.18 | 4.48 | 1.47 | .66 | .53 | .41 | 23.12 |
| 1940 | .83 | .86 | 1.29 | .74 | .73 | 1.16 | 5.52 | 4.65 | 1.37 | .82 | .26 | .44 | 18.67 |
| 1941 | .91 | 1.76 | 2.47 | 1.82 | 1.07 | .98 | 4.60 | .88 | .48 | .90 | .41 | .39 | 16.67 |
| 1942 | 1.28 | 1.18 | 1.72 | 1.51 | .94 | 2.63 | 6.57 | 2.35 | 1.64 | .13 | .96 | 1.22 | 22.13 |
| 1943 | 1.41 | 2.41 | 1.66 | 2.35 | 1.88 | 4.13 | 5.72 | 8.53 | 1.58 | .99 | 1.56 | 2.02 | 34.24 |
| 1944 | 1.82 | 2.26 | 1.42 | 1.47 | 1.39 | 2.01 | 6.48 | 4.32 | 1.15 | .54 | .38 | 1.32 | 24.56 |
| 1945 | 1.08 | 1.11 | 1.16 | 1.39 | .98 | 7.04 | 4.53 | 4.30 | 1.87 | 1.54 | .36 | 1.97 | 27.33 |
| 1946 | 3.91 | 3.19 | 1.85 | 2.27 | 1.85 | 5.21 | 2.63 | 2.80 | 1.37 | .95 | .76 | .82 | 27.61 |
| 1947 | 2.76 | 3.54 | 2.84 | 3.42 | 2.99 | 3.35 | 9.65 | 6.03 | 5.00 | 2.37 | .74 | .72 | 45.42 |
| 1948 | .63 | 1.16 | 1.38 | .99 | 1.24 | 6.28 | 5.05 | 4.12 | 1.39 | 1.03 | 1.17 | .31 | 24.73 |
| 1949 | 1.09 | 2.09 | 1.69 | 3.08 | 2.46 | 4.49 | 4.86 | 2.26 | .47 | .35 | .62 | .98 | 24.34 |
| 1950 | 1.09 | 1.42 | 3.43 | 3.84 | 1.53 | 2.34 | 5.57 | 2.06 | 1.00 | .38 | .71 | .87 | 24.24 |

Note.--Adjusted records prior to 1943 not previously published.

| Year | W.S.P. no. | Yearly discharge, in cubic feet per second | | | | | | | | | | |
|-----------|---------------|--|-------------------|----------------|----------|------|-----------------------|------------------------|---------------|------|------------------------|--|
| | | Water year ending Sept. 30 | | | | | | | Calendar year | | | |
| | | Observed | | | Adjusted | | | | Observed | | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches | |
| Discharge | Date | | | | | | | | | | | |
| 1924 | 584 | a1,590 | May 15-21, 1924 | 144 | 320 | 341 | 2.37 | 32.20 | 351 | 344 | 32.50 | |
| 1925 | 604 | a990 | Apr. 19-28, 1925 | 105 | 320 | 310 | 2.15 | 29.25 | 333 | 357 | 33.66 | |
| 1926 | 624 | a1,170 | May 6-8, 1926 | 266 | 378 | 370 | 2.57 | 34.89 | 361 | 354 | 33.40 | |
| 1927 | 644 | a680 | Mar. 26-30, 1927 | 200 | 289 | 289 | 2.01 | 27.21 | 318 | 327 | 30.86 | |
| 1928 | 664 | a1,100 | Apr. 10-12, 1928 | 190 | 434 | 422 | 2.93 | 39.86 | 393 | 362 | 34.23 | |
| 1929 | 684 | a1,340 | May 5-8, 1929 | 160 | 344 | 367 | 2.55 | 34.63 | 366 | 367 | 34.58 | |
| 1930 | 699 | a1,320 | Apr. 15, 16, 1930 | 234 | 372 | 368 | 2.56 | 34.64 | 352 | 327 | 30.87 | |
| 1931 | 714 | a270 | Oct. 1, 1930 | 3 | 166 | 173 | 1.20 | 16.31 | 160 | 202 | 19.03 | |
| 1932 | 729 | a1,390 | Apr. 12-15, 1932 | 76 | 308 | 312 | 2.17 | 29.46 | 342 | 356 | 33.67 | |
| 1933 | 744 | a1,620 | Apr. 17-20, 1933 | 18 | 321 | 303 | 2.10 | 28.60 | 285 | 240 | 22.59 | |
| 1934 | 759 | a325 | Apr. 30 - May 4 | 119 | 197 | 197 | 1.37 | 18.60 | 192 | 197 | 18.57 | |
| 1935 | 784 | a930 | June 21-23, 1935 | 5 | 239 | 261 | 1.81 | 24.58 | 257 | 265 | 25.00 | |

a Maximum daily discharge.

Note.--Adjusted records prior to 1943 not previously published.

Yearly discharge, in cubic feet per second, of East Branch Oswegatchie River at Cranberry Lake, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|------------|----------------------------|-----------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1936 | 804 | a800 | Apr. 9-15, 1936 | 9 | 269 | 260 | 1.81 | 24.55 | 265 | 292 | 27.62 |
| 1937 | 824 | a1,200 | (b) | 38 | 327 | 355 | 2.35 | 31.58 | 333 | 322 | 30.38 |
| 1938 | 854 | a1,080 | (c) | 77 | 290 | 304 | 2.11 | 28.67 | 299 | 303 | 28.54 |
| 1939 | 874 | 499 | Dec. 16, 1938 | 92 | 287 | 245 | 1.70 | 23.12 | 248 | 215 | 20.24 |
| 1940 | 894 | 742 | May 7, 1940 | 44 | 190 | 198 | 1.38 | 18.67 | 212 | 221 | 20.83 |
| 1941 | 924 | 365 | Mar. 7, 1941 | 38 | 199 | 177 | 1.23 | 16.67 | 166 | 167 | 15.71 |
| 1942 | 954 | 1,280 | Apr. 20, 1942 | 21 | 196 | 235 | 1.63 | 22.13 | 231 | 249 | 23.43 |
| 1943 | 974 | 1,940 | May 13, 1943 | 97 | 351 | 363 | 2.52 | 34.24 | 362 | 364 | 34.26 |
| 1944 | 1004 | 995 | May 9, 1944 | 58 | 275 | 260 | 1.81 | 24.56 | 255 | 237 | 22.41 |
| 1945 | 1034 | 1,020 | Apr. 4, 1945 | 48 | 274 | 290 | 2.01 | 27.33 | 331 | 349 | 32.93 |
| 1946 | 1054 | 657 | Nov. 4, 1945 | 100 | 316 | 293 | 2.03 | 27.61 | 279 | 295 | 27.80 |
| 1947 | 1084 | 1,850 | May 7, 1947 | 62 | 478 | 482 | 3.35 | 45.42 | 464 | 418 | 39.45 |
| 1948 | 1114 | 1,340 | May 16, 1948 | 115 | 264 | 262 | 1.82 | 24.73 | 266 | 278 | 26.33 |
| 1949 | 1144 | 681 | Apr. 27, 1949 | 83 | 257 | 258 | 1.79 | 24.34 | 252 | 271 | 25.51 |
| 1950 | 1174 | 828 | Apr. 25, 1950 | 94 | 252 | 257 | 1.78 | 24.24 | - | - | - |

a Maximum daily discharge.

b Jan. 18-20, May 15-19, 1937.

c Mar. 27, 28, Apr. 1-6, 1938.

Note.--Adjusted records prior to 1943 not previously published.

368. East Branch Oswegatchie River at Newton Falls, N. Y.

Location.--Lat 44°12'45", long. 74°59'40" on left bank 600 ft downstream from lower dam of Newton Falls Paper Co. in Newton Falls, St. Lawrence County, 4 miles upstream from Little River, and 10 miles downstream from outlet of Cranberry Lake.

Drainage area.--171 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 1,370 ft (from topographic map). Datum lowered 1.0 ft July 28, 1920.

Average discharge.--10 years (1912-22), 346 cfs (unadjusted).

Extremes.--1912-23: Maximum discharge, 2,100 cfs (revised) Mar. 28, 1913 (gage height, 6.1 ft, from floodmark); no flow at times in 1920 when paper mills shut down.

Remarks.--Some diurnal fluctuation at low flow caused by operation of paper mills; since 1867, flow almost completely regulated by Cranberry Lake (see p. 322).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | |
|---|------|------|------|------|------|------|-------|-----|------|------|------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | The year |
| 1913 | *254 | 333 | 393 | 707 | 423 | 750 | 781 | 242 | 274 | 251 | 232 | 253 |
| 1914 | 313 | 323 | 277 | *250 | *320 | 304 | 590 | 460 | 201 | 252 | 229 | 277 |
| 1915 | 287 | 258 | 325 | 356 | 325 | 254 | 321 | 213 | 178 | 218 | 314 | 258 |
| 1916 | 256 | 235 | 286 | 438 | 373 | 422 | 522 | 887 | 357 | 293 | 261 | 242 |
| 1917 | 264 | 298 | 340 | 271 | 252 | 255 | 350 | 429 | 447 | 235 | 307 | 329 |
| 1918 | 292 | 259 | 316 | 291 | 350 | 367 | 399 | 692 | 491 | 248 | 325 | 338 |
| 1919 | 398 | 382 | 456 | 408 | 312 | 329 | 898 | 534 | 294 | 291 | 303 | 277 |
| 1920 | 321 | 307 | 317 | 275 | 276 | 311 | 399 | 515 | 291 | 274 | 242 | 269 |
| 1921 | 269 | 231 | 239 | 247 | 290 | 915 | 581 | 277 | 230 | 253 | 274 | 245 |
| 1922 | 257 | 205 | 174 | 178 | 245 | 283 | 1,050 | 303 | 272 | 467 | 268 | 298 |
| 1923 | 320 | 339 | 285 | 199 | 157 | 139 | 267 | - | - | - | - | - |

* Not previously published; estimated on basis of records for Oswegatchie River near Ogdensburg.

| Yearly discharge, in cubic feet per second | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|---|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1913 | 354 | *2,100 | Mar. 28, 1913 | 30 | 408 | - | - | 402 | - | - |
| 1914 | 384 | *1,150 | Apr. 20, 1914 | 28 | 316 | - | - | 313 | - | - |
| 1915 | 404 | *980 | Apr. 12, 1915 | 22 | 275 | - | - | 268 | - | - |
| 1916 | 434 | *1,930 | May 18, 1916 | 70 | 382 | - | - | 392 | - | - |
| 1917 | 454 | *938 | June 12, 1917 | 54 | 315 | - | - | 312 | - | - |
| 1918 | 474 | *1,440 | May 15, 1918 | 20 | 364 | - | - | 395 | - | - |
| 1919 | 504 | *1,680 | Apr. 13, 1919 | 40 | 407 | - | - | 382 | - | - |
| 1920 | 504 | 1,800 | Apr. 30, 1920 | - | 317 | - | - | 299 | - | - |
| 1921 | 524 | *2,000 | Mar. 24, 1921 | 0 | 338 | - | - | 329 | - | - |
| 1922 | 544 | *2,000 | Apr. 18, 1922 | 75 | 333 | - | - | 358 | - | - |
| 1923 | 564 | - | - | - | - | - | - | - | - | - |

* Revised.

* Not previously published.

369. East Branch Oswegatchie River near Oswegatchie, N. Y.

Location.--Lat 44°13'25", long. 75°04'35", on left bank 300 ft downstream from Flat Rock hydroelectric plant of Niagara Mohawk Power Corp. and 2 3/4 miles north of Oswegatchie, St. Lawrence County.

Drainage area.--263 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,016.52 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Average discharge.--26 years (1924-50), 527 cfs.

Extremes.--1924-50: Maximum discharge, 4,090 cfs Apr. 12, 1947; maximum gage height, 7.1 ft Apr. 6, 1928; minimum discharge, probably less than 1 cfs during complete shutdown of powerplant; minimum daily, 1 cfs July 25, 1926.

Remarks.--Extensive diurnal fluctuation at low and medium flow caused by powerplant; since 1867, seasonal flow partly regulated by Cranberry Lake (see p. 322).

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|-------|-------|------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1925 | *527 | 457 | 479 | 450 | 791 | 850 | 778 | 661 | 470 | 434 | 392 | 466 | *561 |
| 1926 | 616 | 695 | 599 | 505 | 438 | 640 | 1,250 | 1,200 | 582 | 415 | 408 | 404 | 647 |
| 1927 | 476 | 647 | 427 | 413 | 448 | 874 | 480 | 642 | 389 | 408 | 371 | 285 | 489 |
| 1928 | 445 | 770 | 1,100 | 749 | 689 | 874 | 1,530 | 786 | 493 | 370 | 465 | 618 | 739 |
| 1929 | 374 | 431 | 459 | 638 | 423 | 922 | 1,280 | 1,150 | 460 | 410 | 443 | 434 | 521 |
| 1930 | 561 | 512 | 445 | 902 | 668 | 691 | 1,480 | 774 | 549 | 428 | 340 | 316 | 637 |
| 1931 | 295 | 260 | 273 | 230 | 225 | 288 | 594 | 420 | 322 | 251 | 287 | 281 | 311 |
| 1932 | 295 | 412 | 422 | 687 | 596 | 389 | 1,560 | 712 | 328 | 410 | 388 | 367 | 545 |
| 1933 | 592 | 744 | 497 | 557 | 464 | 484 | 1,420 | 665 | 352 | 285 | 266 | 275 | 549 |
| 1934 | 284 | 301 | 322 | 344 | 308 | 508 | 820 | 431 | 279 | 255 | 239 | 240 | 361 |
| 1935 | 276 | 300 | 239 | 449 | 381 | 655 | 697 | 736 | 693 | 535 | 401 | 324 | 477 |
| 1936 | 415 | 394 | 365 | 370 | 444 | 930 | 1,032 | 751 | 368 | 306 | 263 | 394 | 503 |
| 1937 | 487 | 526 | 533 | 1,094 | 729 | 635 | 1,010 | 894 | 423 | 318 | 306 | 269 | 601 |
| 1938 | 361 | 483 | 422 | 434 | 787 | 1,076 | 965 | 425 | 299 | 359 | 274 | 459 | 526 |
| 1939 | 350 | 403 | 557 | 557 | 567 | 720 | 840 | 454 | 366 | 316 | 276 | 280 | 473 |
| 1940 | 304 | 177 | 293 | 258 | 278 | 374 | 981 | 674 | 361 | 343 | 292 | 302 | 386 |
| 1941 | 346 | 352 | 459 | 467 | 452 | 394 | 698 | 219 | 222 | 230 | 194 | 207 | 352 |
| 1942 | 189 | 188 | 330 | 369 | 357 | 511 | 1,149 | 501 | 367 | 257 | 248 | 338 | 399 |
| 1943 | 291 | 410 | 411 | 568 | 693 | 1,017 | 902 | 1,659 | 395 | 326 | 353 | 503 | 628 |
| 1944 | 467 | 432 | 444 | 468 | 486 | 643 | 913 | 822 | 336 | 343 | 313 | 294 | 497 |
| 1945 | 261 | 291 | 263 | 455 | 534 | 1,097 | 821 | 1,028 | 478 | 404 | 282 | 406 | 527 |
| 1946 | 685 | 826 | 613 | 739 | 651 | 878 | 460 | 638 | 432 | 328 | 315 | 297 | 572 |
| 1947 | 460 | 706 | 715 | 796 | 970 | 1,086 | 1,787 | 1,515 | 1,218 | 590 | 452 | 336 | 884 |
| 1948 | 273 | 322 | 347 | 283 | 376 | 1,089 | 860 | 1,011 | 381 | 350 | 328 | 278 | 439 |
| 1949 | 330 | 429 | 274 | 587 | 751 | 741 | 1,015 | 579 | 231 | 270 | 306 | 274 | 480 |
| 1950 | 264 | 342 | 554 | 687 | 526 | 763 | 810 | 413 | 341 | 206 | 280 | 296 | 456 |

* Not previously published; estimated on basis of records for other stations in basin.

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604 | 2,320 | Apr. 23, 1925 | 15 | *561 | *2.13 | *28.97 | 599 | 50.90 |
| 1926 | 624 | 3,730 | Apr. 26, 1926 | 1 | 647 | 2.46 | 33.40 | 616 | 51.82 |
| 1927 | 644 | 2,270 | Mar. 15, 1927 | 25 | 489 | 1.86 | 25.24 | 554 | 28.57 |
| 1928 | 664 | 4,010 | Apr. 6, 1928 | 26 | 739 | 2.81 | 38.25 | 651 | 53.70 |
| 1929 | 684 | 3,780 | Apr. 1, 1929 | 24 | 621 | 2.36 | 32.05 | 642 | 53.15 |
| 1930 | 699 | 3,910 | Jan. 8, 1930 | 22 | 637 | 2.42 | 32.91 | 579 | 29.92 |
| 1931 | 714 | *2,200 | Apr. 11, 1931* | 64 | 311 | 1.18 | 16.03 | 336 | 17.33 |
| 1932 | 729 | 3,960 | Apr. 12, 1932 | 89 | 545 | 2.07 | 28.21 | 604 | 51.26 |
| 1933 | 744 | 3,800 | Apr. 19, 1933 | 165 | 549 | 2.09 | 28.35 | 472 | 24.33 |
| 1934 | 759 | 1,940 | Apr. 15, 1934 | 139 | 361 | 1.37 | 18.61 | 353 | 18.22 |
| 1935 | 784 | 2,290 | May 12, 1935 | 116 | 477 | 1.81 | 24.59 | 507 | 26.15 |
| 1936 | 804 | 2,650 | Mar. 18, 1936 | 120 | 503 | 1.91 | 26.01 | 534 | 27.62 |
| 1937 | 824 | 2,090 | May 18, 1937 | 120 | 601 | 2.29 | 31.04 | 578 | 29.81 |
| 1938 | 854 | 3,190 | Mar. 24, 1938 | 108 | 526 | 2.00 | 27.17 | 530 | 27.38 |
| 1939 | 874 | 1,600 | Feb. 22, 1939 | 92 | 473 | 1.80 | 24.40 | 428 | 22.09 |
| 1940 | 894 | 2,590 | Apr. 19, 1940 | 88 | 386 | 1.47 | 19.98 | 418 | 21.65 |
| 1941 | 924 | 2,180 | Dec. 30, 1940 | 107 | 352 | 1.34 | 18.21 | 315 | 16.24 |
| 1942 | 954 | 2,070 | Apr. 7, 1942 | 10 | 399 | 1.52 | 20.63 | 433 | 22.38 |
| 1943 | 974 | 3,100 | May 13, 1943 | 190 | 628 | 2.39 | 32.39 | 647 | 53.40 |
| 1944 | 1004 | 2,180 | Apr. 25, 1944 | 62 | 497 | 1.89 | 25.71 | 452 | 23.40 |
| 1945 | 1034 | 2,740 | Mar. 29, 1945 | 112 | 527 | 2.00 | 27.17 | 637 | 32.84 |
| 1946 | 1054 | 2,520 | Mar. 9, 1946 | 203 | 572 | 2.17 | 29.52 | 551 | 28.47 |
| 1947 | 1084 | 4,090 | Apr. 12, 1947 | 202 | 884 | 3.36 | 45.62 | 805 | 41.57 |
| 1948 | 1114 | 3,310 | Mar. 22, 1948 | 112 | 492 | 1.87 | 25.50 | 500 | 25.87 |
| 1949 | 1144 | 2,500 | Mar. 28, 1949 | 8.6 | 480 | 1.83 | 24.75 | 491 | 25.33 |
| 1950 | 1174 | 2,320 | Apr. 5, 1950 | 6.7 | 456 | 1.73 | 23.56 | - | - |

* Not previously published.

370. West Branch Oswegatchie River near Harrisville, N. Y.

Location.--Lat 44°11'10", long. 75°19'55", on right bank at highway bridge, half a mile northeast of Geers Corners, 1½ miles downstream from Jenny Creek, and 4 miles downstream from Harrisville, Lewis County.

Drainage area.--258 sq mi.

Gage.--Water-stage recorder. Datum of gage is 738.51 ft above mean sea level, datum of 1929. Prior to Nov. 30, 1933, staff gage at same site and datum.

Average discharge.--34 years (1916-50), 514 cfs.

Extremes.--1916-50: Maximum discharge, 6,920 cfs Jan. 9, 1930 (gage height, 9.6 ft); minimum, 25 cfs Sept. 1, 1934 (gage height, 0.86 ft).

Remarks.--Diurnal fluctuation, principally during low flow, caused by pulp mill at Harrisville.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 180 | 82.1 | 82.9 | - |
| 1917 | 194 | 299 | 493 | 320 | 237 | 957 | 1,390 | 665 | 574 | 198 | 123 | 158 | 468 |
| 1918 | 611 | 530 | 201 | 105 | 618 | 953 | 1,520 | 766 | 568 | 223 | 105 | 302 | 540 |
| 1919 | 734 | 918 | 775 | 409 | 258 | 927 | 1,230 | 684 | 239 | 181 | 132 | 246 | 563 |
| 1920 | 577 | 508 | 506 | 158 | 130 | 1,220 | 1,340 | 548 | 120 | 412 | 116 | 163 | 485 |
| 1921 | 175 | 506 | 1,130 | 454 | 304 | 1,950 | 738 | 256 | 178 | 163 | 82.1 | 54.4 | 502 |
| 1922 | 275 | 691 | 469 | 231 | 366 | 1,200 | 1,670 | 412 | 825 | 449 | 171 | 83.0 | 570 |
| 1923 | 105 | 196 | 145 | 283 | 150 | 596 | 1,490 | 720 | 296 | 87.5 | 52.8 | 115 | 353 |
| 1924 | 197 | 376 | 736 | 866 | 266 | 384 | 1,690 | 1,090 | 324 | 185 | 347 | 264 | 564 |
| 1925 | 727 | 365 | 451 | 174 | 1,170 | 1,230 | 699 | 571 | 305 | 217 | 203 | 328 | 549 |
| 1926 | 796 | 895 | 590 | 357 | 231 | 389 | 1,980 | 1,130 | 472 | 179 | 194 | 233 | 621 |
| 1927 | 580 | 1,110 | 375 | 269 | 351 | 1,260 | 985 | 672 | 202 | 241 | 99.3 | 114 | 481 |
| 1928 | 504 | 1,320 | 1,240 | 921 | 455 | 966 | 1,700 | 886 | 339 | 188 | 259 | 167 | 736 |
| 1929 | 391 | 594 | 695 | 844 | 248 | 1,510 | 1,240 | 1,060 | 276 | 313 | 319 | 185 | 644 |
| 1930 | 467 | 563 | 427 | 1,430 | 585 | 1,000 | 1,480 | 698 | 390 | 252 | 121 | 97.2 | 627 |
| 1931 | 128 | 165 | 236 | 120 | 156 | 457 | 1,380 | 784 | 338 | 195 | 77.5 | 113 | 345 |
| 1932 | 234 | 550 | 615 | 1,040 | 614 | 312 | 1,920 | 565 | 238 | 472 | 189 | 111 | 570 |
| 1933 | 842 | 787 | 472 | 591 | 305 | 467 | 1,510 | 479 | 212 | 71.2 | 62.5 | 77 | 480 |
| 1934 | 123 | 178 | 475 | 460 | 356 | 381 | 1,639 | 394 | 178 | 82.9 | 36.9 | 51.4 | 351 |
| 1935 | 188 | 325 | 317 | 760 | 223 | 792 | 1,026 | 862 | 573 | 556 | 162 | 238 | 504 |
| 1936 | 313 | 401 | 339 | 216 | 159 | 1,566 | 1,018 | 618 | 314 | 126 | 71.1 | 251 | 451 |
| 1937 | 667 | 666 | 522 | 1,307 | 482 | 232 | 1,538 | 857 | 311 | 141 | 166 | 90.0 | 582 |
| 1938 | 342 | 824 | 411 | 291 | 1,042 | 1,322 | 931 | 430 | 157 | 323 | 200 | 578 | 550 |
| 1939 | 300 | 396 | 555 | 371 | 358 | 809 | 1,411 | 527 | 252 | 99.1 | 73.3 | 49.0 | 433 |
| 1940 | 118 | 249 | 462 | 179 | 185 | 237 | 1,913 | 834 | 224 | 221 | 83.6 | 65.0 | 396 |
| 1941 | 87.0 | 394 | 656 | 531 | 240 | 160 | 1,190 | 236 | 94.1 | 147 | 131 | 135 | 333 |
| 1942 | 325 | 446 | 592 | 413 | 236 | 974 | 1,461 | 464 | 287 | 87.5 | 94.7 | 192 | 465 |
| 1943 | 258 | 611 | 348 | 584 | 528 | 1,203 | 1,230 | 1,398 | 319 | 177 | 247 | 267 | 598 |
| 1944 | 356 | 675 | 289 | 202 | 226 | 507 | 1,588 | 844 | 226 | 92.8 | 60.5 | 147 | 433 |
| 1945 | 198 | 242 | 230 | 256 | 276 | 1,802 | 999 | 995 | 426 | 315 | 79.6 | 290 | 511 |
| 1946 | 1,047 | 895 | 406 | 576 | 380 | 1,267 | 501 | 570 | 330 | 145 | 89.8 | 86.7 | 526 |
| 1947 | 658 | 833 | 619 | 815 | 796 | 760 | 2,263 | 1,252 | 1,135 | 601 | 201 | 95.6 | 833 |
| 1948 | 82.8 | 278 | 329 | 152 | 324 | 1,720 | 1,125 | 877 | 255 | 254 | 191 | 52.2 | 471 |
| 1949 | 111 | 561 | 316 | 781 | 699 | 1,079 | 1,047 | 473 | 121 | 61.8 | 92.7 | 203 | 460 |
| 1950 | 211 | 343 | 841 | 865 | 310 | 615 | 1,299 | 384 | 264 | 78.7 | 107 | 237 | 465 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 0.80 | 0.37 | 0.36 | - |
| 1917 | 0.87 | 1.29 | 2.20 | 1.43 | 0.96 | 4.28 | 6.00 | 2.97 | 2.48 | 0.89 | .55 | .88 | 24.59 |
| 1918 | 2.73 | 2.29 | .90 | .47 | 2.50 | 4.28 | 6.59 | 3.43 | 2.46 | 1.00 | .47 | 1.30 | 28.40 |
| 1919 | 3.28 | 3.97 | 3.46 | 1.83 | 1.04 | 4.14 | 5.32 | 3.06 | 1.03 | .81 | .59 | 1.06 | 29.59 |
| 1920 | 2.58 | 2.20 | 2.26 | .71 | .54 | 5.44 | 5.81 | 2.45 | .52 | 1.84 | .52 | .71 | 25.58 |
| 1921 | .78 | 2.19 | 5.04 | 2.03 | 1.23 | 8.71 | 3.19 | 1.14 | .77 | .73 | .37 | .24 | 26.42 |
| 1922 | 1.23 | 2.99 | 2.09 | 1.03 | 1.56 | 5.37 | 7.21 | 1.84 | 3.57 | 2.01 | .76 | .36 | 30.02 |
| 1923 | .47 | .95 | .65 | 1.26 | .61 | 2.66 | 6.44 | 3.22 | 1.28 | .39 | .24 | .50 | 18.57 |
| 1924 | .88 | 1.63 | 3.29 | 3.36 | 1.11 | 1.72 | 7.32 | 4.87 | 1.40 | .83 | 1.55 | 1.23 | 29.79 |
| 1925 | 3.25 | 1.58 | 2.01 | .78 | 4.73 | 5.48 | 3.89 | 2.55 | 1.32 | .97 | .91 | 1.42 | 28.69 |
| 1926 | 3.56 | 3.87 | 2.64 | 1.60 | .93 | 1.74 | 8.57 | 5.03 | 2.04 | .80 | .87 | 1.01 | 32.66 |
| 1927 | 2.59 | 4.79 | 1.68 | 1.20 | 1.42 | 5.61 | 2.14 | 3.00 | .87 | 1.08 | .44 | .49 | 25.31 |
| 1928 | 2.25 | 5.73 | 5.56 | 4.11 | 1.90 | 4.41 | 7.37 | 3.06 | 1.72 | .84 | 1.16 | .72 | 38.83 |
| 1929 | 1.76 | 2.57 | 3.11 | 3.77 | 1.00 | 6.75 | 5.36 | 4.73 | 1.19 | 1.40 | 1.45 | .80 | 33.88 |
| 1930 | 2.09 | 2.43 | 1.91 | 6.41 | 2.36 | 4.48 | 6.41 | 3.12 | 1.69 | 1.12 | .54 | .42 | 32.98 |
| 1931 | .57 | .72 | 1.06 | .54 | .63 | 2.04 | 5.95 | 3.50 | 1.46 | .87 | .35 | .49 | 18.18 |
| 1932 | 1.04 | 2.38 | 2.75 | 4.65 | 2.57 | 1.39 | 8.30 | 2.52 | 1.03 | 2.11 | .85 | .48 | 30.07 |
| 1933 | 3.76 | 3.40 | 2.11 | 2.64 | 1.23 | 2.09 | 6.54 | 2.14 | .92 | .32 | .28 | .33 | 25.76 |
| 1934 | .55 | .77 | 2.11 | 2.05 | .55 | 2.59 | 7.08 | 1.76 | .77 | .37 | .16 | .22 | 18.98 |
| 1935 | .84 | 1.41 | 1.42 | 3.40 | .90 | 3.54 | 4.44 | 3.85 | 2.48 | 2.49 | .72 | 1.03 | 26.52 |
| 1936 | 1.40 | 1.73 | 1.51 | .97 | .68 | 7.00 | 4.41 | 2.77 | 1.36 | .56 | .32 | 1.09 | 23.78 |
| 1937 | 2.99 | 2.88 | 2.33 | 5.84 | 1.95 | 1.04 | 6.65 | 3.83 | 1.35 | .63 | .74 | .39 | 30.62 |
| 1938 | 1.53 | 2.70 | 1.83 | 1.30 | 4.21 | 5.90 | 4.03 | 1.92 | .68 | 1.44 | .89 | 2.50 | 28.93 |
| 1939 | 1.34 | 1.71 | 2.48 | 1.66 | 1.45 | 3.62 | 6.10 | 2.35 | 1.09 | .44 | .33 | .21 | 22.78 |
| 1940 | .53 | 1.08 | 2.06 | .80 | .77 | 1.06 | 8.27 | 3.72 | .97 | .99 | .37 | .28 | 20.90 |

Monthly and yearly runoff, in inches, of West Branch Oswegatchie River
near Harrisville, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.39 | 1.71 | 2.93 | 2.38 | 0.97 | 0.71 | 5.14 | 1.05 | 0.41 | 0.66 | 0.59 | 0.58 | 17.52 |
| 1942 | 1.45 | 1.93 | 2.64 | 1.84 | .95 | 4.36 | 6.32 | 2.08 | 1.24 | .39 | .42 | .35 | 24.45 |
| 1943 | 1.15 | 2.64 | 1.56 | 2.61 | 2.13 | 5.38 | 5.32 | 6.25 | 1.38 | .79 | 1.11 | 1.15 | 31.47 |
| 1944 | 1.59 | 2.92 | 1.29 | .90 | .95 | 2.26 | 6.87 | 3.77 | .98 | .41 | .27 | .63 | 22.84 |
| 1945 | .88 | 1.05 | 1.03 | 1.15 | 1.11 | 8.05 | 4.32 | 4.44 | 1.84 | 1.41 | .36 | 1.25 | 26.89 |
| 1946 | 4.68 | 3.87 | 1.81 | 2.57 | 1.53 | 5.66 | 2.17 | 2.55 | 1.43 | .65 | .40 | .37 | 27.69 |
| 1947 | 2.94 | 3.60 | 2.76 | 3.64 | 3.21 | 3.39 | 9.79 | 5.59 | 4.91 | 2.68 | .90 | .41 | 43.82 |
| 1948 | .37 | 1.20 | 1.47 | .68 | 1.35 | 7.69 | 4.87 | 3.92 | 1.10 | 1.14 | .85 | .23 | 24.87 |
| 1949 | .49 | 2.43 | 1.31 | 3.49 | 2.82 | 4.82 | 4.53 | 2.11 | .52 | .26 | .41 | .88 | 21.19 |
| 1950 | .94 | 1.48 | 3.76 | 3.95 | 1.25 | 2.75 | 5.62 | 1.71 | 1.14 | .35 | .48 | 1.02 | 24.45 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|---------------|------------------|---|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1916 | 454 | - | - | - | - | - | - | - | - | - | - |
| 1917 | 454 | 4,880 | Mar. 28, 1917 | 50 | 468 | 1.81 | 24.59 | 497 | 26.15 | | |
| 1918 | 474 | 3,980 | Apr. 3, 1918 | 51 | 540 | 2.09 | 28.40 | 631 | 33.19 | | |
| 1919 | 504 | 3,360 | Apr. 13, 1919 | 74 | 563 | 2.18 | 29.59 | 493 | 25.92 | | |
| 1920 | 504 | 3,410 | Mar. 27, 1920 | 60 | 485 | 1.88 | 25.58 | 503 | 26.55 | | |
| 1921 | 524 | 4,580 | Mar. 22, 1921 | 36 | 502 | 1.95 | 26.42 | 470 | 24.72 | | |
| 1922 | 544 | 4,220 | June 23, 1922 | 49 | 570 | 2.21 | 30.02 | 488 | 25.68 | | |
| 1923 | 564 | 3,740 | Apr. 7, 1923 | 30 | 353 | 1.37 | 18.57 | 426 | 22.40 | | |
| 1924 | 584 | 3,360 | Jan. 12, 1924 | 32 | 564 | 2.19 | 29.79 | 584 | 30.83 | | |
| 1925 | 604 | 4,640 | Oct. 2, 1924 | 38 | 549 | 2.13 | 28.89 | 610 | 32.12 | | |
| 1926 | 624 | 5,760 | Apr. 26, 1926 | 77 | 621 | 2.41 | 32.66 | 601 | 31.65 | | |
| 1927 | 644 | 3,600 | Mar. 15, 1927 | 66 | 481 | 1.86 | 25.31 | 566 | 29.79 | | |
| 1928 | 664 | 4,780 | Apr. 8, 1928 | 74 | 736 | 2.85 | 38.83 | 620 | 32.72 | | |
| 1929 | 684 | 3,940 | Jan. 20, 1929 | 86 | 644 | 2.50 | 33.88 | 625 | 32.88 | | |
| 1930 | 699 | 6,920 | Jan. 9, 1930 | 56 | 627 | 2.43 | 32.98 | 549 | 28.90 | | |
| 1931 | 714 | 3,500 | Apr. 12, 1931 | 51 | 345 | 1.34 | 18.18 | 418 | 22.00 | | |
| 1932 | 729 | 3,720 | Apr. 10-12, 1932 | 76 | 570 | 2.21 | 30.07 | 629 | 33.17 | | |
| 1933 | 744 | 4,380 | Oct. 8, 1932 | 33 | 490 | 1.90 | 25.76 | 379 | 19.92 | | |
| 1934 | 784 | 2,820 | Apr. 2, 1934 | 27 | 361 | 1.40 | 18.98 | 366 | 19.22 | | |
| 1935 | 784 | 4,140 | Jan. 11, 1935 | 54 | 504 | 1.95 | 26.52 | 523 | 27.49 | | |
| 1936 | 804 | 4,180 | Mar. 19, 1936 | 46 | 451 | 1.75 | 23.78 | 518 | 27.34 | | |
| 1937 | 824 | 4,210 | Apr. 7, 1937 | 49 | 582 | 2.26 | 30.62 | 541 | 28.48 | | |
| 1938 | 854 | 4,970 | Mar. 25, 1938 | 58 | 550 | 2.13 | 28.93 | 540 | 28.40 | | |
| 1939 | 874 | 2,620 | Mar. 28, 1939 | 35 | 433 | 1.68 | 22.78 | 398 | 20.92 | | |
| 1940 | 894 | 4,050 | Apr. 19, 1940 | 42 | 396 | 1.53 | 20.90 | 422 | 22.26 | | |
| 1941 | 924 | 3,580 | Dec. 31, 1940 | 49 | 333 | 1.29 | 17.52 | 352 | 18.51 | | |
| 1942 | 954 | 2,700 | Apr. 8, 1942 | 46 | 465 | 1.80 | 24.45 | 452 | 23.78 | | |
| 1943 | 974 | 3,330 | Mar. 18, 1943 | 79 | 598 | 2.32 | 31.47 | 607 | 31.92 | | |
| 1944 | 1004 | 3,280 | Apr. 26, 1944 | 34 | 433 | 1.68 | 22.84 | 379 | 20.00 | | |
| 1945 | 1034 | 4,010 | Mar. 19, 1945 | 46 | 511 | 1.98 | 26.89 | 652 | 34.29 | | |
| 1946 | 1054 | 3,690 | Mar. 10, 1946 | 51 | 526 | 2.04 | 27.69 | 506 | 26.63 | | |
| 1947 | 1084 | 6,180 | Apr. 13, 1947 | 55 | 833 | 3.23 | 43.82 | 714 | 37.56 | | |
| 1948 | 1114 | 5,940 | Mar. 23, 1948 | 42 | 471 | 1.83 | 24.87 | 496 | 26.16 | | |
| 1949 | 1144 | 4,070 | Mar. 29, 1949 | 42 | 460 | 1.78 | 24.19 | 495 | 26.04 | | |
| 1950 | 1174 | 3,550 | Apr. 6, 1950 | 52 | 465 | 1.80 | 24.45 | - | - | | |

371. Oswegatchie River near Heuvelton, N. Y.

Location.--Lat 44°36'00", long. 75°22'45", on right bank $1\frac{1}{2}$ miles downstream from Beaver Creek, and $2\frac{1}{2}$ miles upstream from Heuvelton, St. Lawrence County.

Drainage area.--973 sq mi.

Gage.--Water-stage recorder. Datum of gage is 288.85 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Sept. 16, 1916, staff gage at same site and datum.

Average discharge.--34 years (1916-50), 1,692 cfs.

Extremes.--1916-50: Maximum discharge, 15,800 cfs Apr. 9, 1947 (gage height, 9.26 ft); maximum gage height, 9.33 ft Apr. 9, 1947 (ice jam); minimum discharge, 130 cfs Aug. 17, 1949 (gage height, 0.47 ft).

Remarks.--Since 1867, seasonal flow slightly regulated by Cranberry Lake (see p. 322); slight diurnal fluctuation at low and medium flow caused by powerplants. During high stages on Grass River, part of flow of that stream may pass through Upper Lake, Indian Creek, and Lower Lake and enter Oswegatchie River at Rensselaer Falls, $4\frac{1}{2}$ miles above station.

Monthly and yearly mean discharge, in cubic feet per second,
of Oswegatchie River near Heuvelton, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 748 | 500 | 403 | - |
| 1917 | 596 | 788 | 1,270 | 1,060 | 795 | 3,590 | 3,760 | 1,780 | 2,090 | 736 | 542 | +639 | 1,470 |
| 1918 | 1,520 | 1,560 | 867 | 564 | 1,960 | 3,890 | 4,400 | 2,630 | 1,630 | 653 | 502 | 886 | 1,750 |
| 1919 | 2,400 | 2,800 | 2,850 | 1,830 | 1,080 | 3,390 | 4,470 | 2,810 | 1,340 | 871 | 561 | 786 | 2,110 |
| 1920 | 1,320 | 1,520 | 1,410 | 674 | 853 | 3,970 | 3,560 | 1,880 | 541 | 1,020 | 505 | 615 | 1,480 |
| 1921 | 839 | 1,540 | 4,180 | 1,660 | 1,240 | 5,410 | 2,500 | 814 | 597 | 506 | 450 | 379 | 1,660 |
| 1922 | 850 | 1,860 | 1,450 | 697 | 1,350 | 4,050 | 5,710 | 1,170 | 1,850 | 1,650 | 664 | 439 | 1,810 |
| 1923 | 519 | 880 | 582 | 822 | 553 | 2,360 | 4,340 | 1,960 | 1,220 | 445 | 408 | 527 | 1,200 |
| 1924 | 597 | 960 | 2,180 | 2,400 | 1,030 | 2,240 | 4,810 | 3,200 | 822 | 690 | 932 | 797 | 1,810 |
| 1925 | 1,900 | 1,370 | 1,830 | 735 | 4,020 | 4,070 | 2,720 | 1,660 | 1,020 | 718 | 704 | 1,170 | 1,720 |
| 1926 | 2,130 | 2,730 | 2,150 | 1,320 | 910 | 1,740 | 7,180 | 3,280 | 1,350 | 745 | 738 | 770 | 2,090 |
| 1927 | 1,680 | 3,240 | 1,630 | 1,340 | 1,510 | 4,450 | 1,400 | 1,840 | 832 | 812 | 469 | 472 | 1,640 |
| 1928 | 1,120 | 4,280 | 4,520 | 3,890 | 1,710 | 3,660 | 5,170 | 2,020 | 1,170 | 730 | 806 | 872 | 2,500 |
| 1929 | 1,030 | 1,620 | 2,190 | 2,640 | 918 | 4,790 | 4,100 | 3,460 | 960 | 974 | 951 | 728 | 2,040 |
| 1930 | 1,300 | 1,800 | 1,400 | 5,370 | 2,400 | 3,470 | 4,810 | 1,940 | 1,140 | 827 | 560 | 466 | 2,220 |
| 1931 | 553 | 632 | 819 | 512 | 599 | 1,940 | 3,000 | 1,940 | 921 | 526 | 416 | 476 | 1,030 |
| 1932 | 639 | 1,500 | 1,630 | 3,080 | 2,170 | 1,130 | 6,970 | 1,790 | 655 | 921 | 622 | 520 | 1,790 |
| 1933 | 1,820 | 2,630 | 1,670 | 2,050 | 1,260 | 1,810 | 5,300 | 1,980 | 701 | 598 | 354 | 367 | 1,690 |
| 1934 | 454 | 617 | 1,276 | 1,673 | 538 | 2,684 | 4,867 | 1,261 | 576 | 393 | 278 | 320 | 1,245 |
| 1935 | 510 | 744 | 814 | 2,060 | 675 | 3,064 | 3,044 | 2,566 | 1,892 | 1,606 | 685 | 656 | 1,650 |
| 1936 | 847 | 1,029 | 1,221 | 835 | 878 | 5,256 | 3,392 | 1,921 | 878 | 544 | 406 | 784 | 1,503 |
| 1937 | 2,026 | 2,384 | 1,541 | 4,389 | 1,781 | 1,090 | 5,474 | 2,628 | 1,072 | 588 | 566 | 401 | 1,993 |
| 1938 | 798 | 1,743 | 1,307 | 1,238 | 3,703 | 4,560 | 2,888 | 1,175 | 557 | 758 | 538 | 1,184 | 1,668 |
| 1939 | 829 | 1,106 | 1,621 | 1,497 | 1,097 | 2,630 | 5,184 | 1,485 | 719 | 472 | 407 | 397 | 1,452 |
| 1940 | 551 | 685 | 1,353 | 676 | 670 | 972 | 6,153 | 1,991 | 775 | 704 | 447 | 409 | 1,277 |
| 1941 | 504 | 952 | 1,794 | 1,994 | 1,131 | 984 | 3,607 | 620 | 391 | 371 | 421 | 394 | 1,094 |
| 1942 | 588 | 1,090 | 1,454 | 1,366 | 964 | 4,189 | 3,911 | 1,282 | 737 | 389 | 386 | 564 | 1,410 |
| 1943 | 708 | 1,543 | 1,093 | 1,845 | 2,504 | 4,484 | 3,322 | 5,203 | 1,102 | 606 | 666 | 793 | 1,988 |
| 1944 | 947 | 2,064 | 1,073 | 902 | 930 | 2,307 | 4,309 | 2,354 | 685 | 493 | 425 | 471 | 1,411 |
| 1945 | 518 | 597 | 715 | 904 | 1,260 | 5,453 | 3,064 | 3,442 | 1,441 | 924 | 439 | 973 | 1,649 |
| 1946 | 2,636 | 2,791 | 1,594 | 2,440 | 1,593 | 4,002 | 1,443 | 2,120 | 1,026 | 542 | 427 | 413 | 1,757 |
| 1947 | 1,633 | 2,497 | 2,260 | 3,299 | 2,635 | 3,198 | 4,478 | 4,312 | 4,481 | 2,098 | 1,033 | 576 | 2,952 |
| 1948 | 461 | 989 | 1,295 | 605 | 1,286 | 5,601 | 3,263 | 2,808 | 890 | 746 | 623 | 388 | 1,563 |
| 1949 | 557 | 1,434 | 1,000 | 2,664 | 2,677 | 3,302 | 3,769 | 1,540 | 456 | 376 | 362 | 563 | 1,549 |
| 1950 | 597 | 951 | 2,488 | 2,735 | 1,279 | 2,612 | 4,230 | 1,113 | 342 | 357 | 434 | 728 | 1,523 |

† Corrected.

Yearly and monthly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 0.89 | 0.59 | 0.46 | - |
| 1917 | 0.71 | 0.90 | 1.51 | 1.26 | 0.85 | 4.25 | 4.31 | 2.08 | 2.39 | .87 | .64 | +7.3 | 20.50 |
| 1918 | 1.80 | 1.78 | 1.03 | .67 | 2.09 | 4.60 | 5.04 | 3.12 | 1.97 | .77 | .60 | 1.02 | 24.39 |
| 1919 | 2.85 | 3.21 | 3.38 | 2.17 | 1.16 | 4.01 | 5.13 | 3.33 | 1.54 | 1.03 | .66 | .90 | 29.37 |
| 1920 | 1.57 | 1.74 | 1.68 | .80 | .72 | 4.71 | 4.08 | 2.22 | .62 | 1.20 | .60 | .71 | 20.65 |
| 1921 | .99 | 1.54 | 4.95 | 1.97 | 1.22 | 6.41 | 2.86 | .96 | .68 | .60 | .53 | .43 | 23.14 |
| 1922 | 1.01 | 2.14 | 1.72 | .83 | 1.44 | 4.80 | 6.55 | 1.58 | 2.12 | 1.95 | .79 | .50 | 25.23 |
| 1923 | .62 | .78 | .69 | .97 | .59 | 2.79 | 4.97 | 2.33 | 1.39 | .53 | .46 | .60 | 18.74 |
| 1924 | .71 | 1.10 | 2.59 | 2.84 | 1.14 | 2.65 | 5.52 | 3.79 | .94 | .82 | 1.10 | .91 | 24.11 |
| 1925 | 2.25 | 1.57 | 2.17 | .87 | 4.30 | 4.82 | 3.12 | 1.96 | 1.17 | .85 | .63 | 1.34 | 25.25 |
| 1926 | 2.52 | 3.13 | 2.55 | 1.56 | .97 | 2.06 | 8.23 | 3.88 | 1.55 | .88 | .87 | .88 | 29.08 |
| 1927 | 1.99 | 3.71 | 1.93 | 1.59 | 1.62 | 5.27 | 1.61 | 2.18 | .95 | .96 | .56 | .54 | 22.91 |
| 1928 | 1.33 | 4.91 | 5.36 | 4.61 | 1.90 | 4.33 | 5.92 | 2.39 | 1.35 | .86 | .95 | 1.00 | 34.91 |
| 1929 | 1.22 | 1.86 | 2.59 | 3.13 | .98 | 5.68 | 4.70 | 4.10 | 1.12 | 1.15 | 1.13 | .83 | 28.49 |
| 1930 | 1.54 | 2.06 | 1.65 | 6.36 | 2.56 | 4.11 | 5.51 | 2.30 | 1.30 | .98 | .66 | .53 | 29.56 |
| 1931 | .66 | .73 | .97 | .61 | .64 | 2.30 | 3.43 | 2.30 | 1.06 | .62 | .49 | .55 | 14.36 |
| 1932 | .76 | 1.72 | 1.93 | 3.65 | 2.40 | 1.34 | 7.99 | 2.12 | .76 | 1.09 | .74 | .60 | 25.10 |
| 1933 | 2.16 | 3.01 | 1.97 | 2.43 | 1.35 | 2.15 | 6.07 | 2.34 | .80 | .47 | .42 | .42 | 23.59 |
| 1934 | .54 | .71 | 1.51 | 1.98 | .58 | 3.18 | 5.58 | 1.50 | .66 | .47 | .33 | .37 | 17.39 |
| 1935 | .60 | .85 | .96 | 2.47 | .94 | 3.63 | 3.49 | 3.04 | 2.16 | 1.90 | .81 | .75 | 21.60 |
| 1936 | 1.00 | 1.18 | 1.44 | .99 | .97 | 6.23 | 3.89 | 2.27 | 1.01 | .64 | .48 | .90 | 21.00 |
| 1937 | 2.40 | 2.73 | 1.82 | 5.20 | 1.91 | 1.29 | 6.28 | 3.11 | 1.23 | .70 | .67 | .46 | 27.80 |
| 1938 | .94 | 2.00 | 1.54 | 1.46 | 3.97 | 5.41 | 3.31 | 1.40 | .64 | .90 | .64 | 1.36 | 23.57 |
| 1939 | .98 | 1.27 | 1.92 | 1.78 | 1.18 | 3.11 | 5.95 | 1.76 | .82 | .58 | .48 | .46 | 20.27 |
| 1940 | .65 | .79 | 1.59 | .80 | .74 | 1.15 | 7.05 | 2.36 | .89 | .83 | .53 | .47 | 17.95 |
| 1941 | .60 | 1.09 | 2.12 | 2.36 | 1.21 | 1.16 | 4.14 | .73 | .45 | .44 | .50 | .45 | 15.25 |
| 1942 | .69 | 1.25 | 1.70 | 1.61 | 1.03 | 4.97 | 4.48 | 1.52 | .84 | .46 | .46 | .65 | 19.66 |
| 1943 | .84 | 1.77 | 1.30 | 2.19 | 2.68 | 5.31 | 3.81 | 6.16 | 1.26 | .72 | .79 | .91 | 27.74 |
| 1944 | 1.12 | 2.37 | 1.27 | 1.07 | 1.03 | 2.73 | 4.94 | 2.79 | .79 | .58 | .50 | .54 | 19.73 |
| 1945 | .61 | .68 | .85 | 1.07 | 1.35 | 6.46 | 3.51 | 4.08 | 1.65 | 1.10 | .52 | 1.12 | 23.00 |
| 1946 | 3.12 | 3.20 | 1.89 | 2.89 | 1.70 | 4.74 | 1.65 | 2.51 | 1.16 | .64 | .51 | .47 | 24.50 |
| 1947 | 1.94 | 2.86 | 2.69 | 3.51 | 2.62 | 3.79 | 5.57 | 5.11 | 5.14 | 2.48 | 1.22 | .66 | 41.18 |
| 1948 | .55 | 1.13 | 1.63 | .72 | 1.45 | 6.64 | 3.74 | 3.33 | 1.02 | .88 | .74 | .44 | 22.15 |
| 1949 | .66 | 1.64 | 1.18 | 3.16 | 2.66 | 3.91 | 4.32 | 1.82 | .52 | .44 | .43 | .65 | 21.59 |
| 1950 | .71 | 1.09 | 2.95 | 3.24 | 1.37 | 3.10 | 4.85 | 1.32 | .85 | .42 | .51 | .83 | 21.24 |

† Corrected.

Yearly discharge, in cubic feet per second, of Oswegatchie River near Heuvelton, N. Y.

| Year | W.S.F. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | Runoff in inches |
| 1916 | 434 | - | - | - | - | - | - | - |
| 1917 | 454 | 11,700 | Mar. 30, 1917 | 382 | 1,470 | 1.51 | 20.50 | 1,580 |
| 1918 | 474 | 9,220 | Apr. 4, 1918 | 355 | 1,750 | 1.80 | 24.39 | 2,090 |
| 1919 | 504 | 7,760 | Mar. 21, 1919 | 433 | 2,110 | 2.17 | 29.37 | 1,790 |
| 1920 | 504 | 7,950 | Mar. 29, 1920 | 365 | 1,480 | 1.52 | 20.65 | 1,650 |
| 1921 | 524 | 9,700 | Dec. 16, 1920 | 279 | 1,660 | 1.71 | 23.14 | 1,470 |
| 1922 | 544 | 9,390 | Apr. 14, 1922 | 310 | 1,810 | 1.86 | 25.23 | 1,610 |
| 1923 | 564 | 9,920 | Apr. 10, 1923 | 308 | 1,200 | 1.23 | 16.74 | 1,370 |
| 1924 | 584 | 8,600 | Apr. 9, 1924 | 344 | 1,720 | 1.77 | 24.11 | 1,840 |
| 1925 | 604 | 8,520 | Feb. 13, 1925 | 238 | 1,810 | 1.86 | 25.25 | 1,970 |
| 1926 | 624 | 12,400 | Apr. 15, 1926 | 312 | 2,090 | 2.15 | 29.08 | 2,040 |
| 1927 | 644 | 10,700 | Mar. 17, 1927 | 279 | 1,640 | 1.69 | 22.91 | 1,930 |
| 1928 | 664 | 12,400 | Nov. 20, 1927 | 252 | 2,500 | 2.57 | 34.91 | 2,070 |
| 1929 | 684 | 8,220 | Mar. 27, 1929 | 340 | 2,040 | 2.10 | 28.49 | 2,010 |
| 1930 | 699 | 15,600 | Jan. 11, 1930 | 334 | 2,120 | 2.18 | 29.56 | 1,910 |
| 1931 | 714 | 6,140 | Mar. 28, 1931 | 289 | 1,030 | 1.06 | 14.36 | 1,180 |
| 1932 | 729 | 11,600 | Apr. 14, 1932 | 366 | 1,790 | 1.84 | 25.10 | 1,990 |
| 1933 | 744 | 7,780 | Apr. 3, 1933 | 282 | 1,690 | 1.74 | 23.59 | 1,377 |
| 1934 | 759 | 8,770 | Apr. 5, 1934 | 212 | 1,245 | 1.28 | 17.39 | 1,221 |
| 1935 | 784 | 6,690 | Jan. 11, 1935 | 300 | 1,550 | 1.59 | 21.60 | 1,637 |
| 1936 | 804 | 9,980 | Mar. 23, 1936 | 326 | 1,503 | 1.54 | 21.00 | 1,741 |
| 1937 | 824 | 14,200 | Apr. 7, 1937 | 295 | 1,993 | 2.05 | 27.80 | 1,816 |
| 1938 | 854 | 11,100 | Mar. 25, 1938 | 343 | 1,688 | 1.73 | 23.57 | 1,666 |
| 1939 | 874 | 7,630 | Apr. 3, 1939 | 328 | 1,452 | 1.49 | 20.27 | 1,370 |
| 1940 | 894 | 10,900 | Apr. 10, 1940 | 350 | 1,277 | 1.31 | 17.85 | 1,333 |
| 1941 | 924 | 6,990 | Jan. 1, 1941 | 245 | 1,094 | 1.12 | 15.25 | 1,082 |
| 1942 | 954 | 8,030 | Mar. 19, 1942 | 274 | 1,410 | 1.45 | 19.66 | 1,429 |
| 1943 | 974 | 9,010 | May 14, 1943 | 416 | 1,988 | 2.04 | 27.74 | 2,050 |
| 1944 | 1004 | 6,740 | Apr. 28, 1944 | 248 | 1,411 | 1.45 | 19.73 | 1,224 |
| 1945 | 1034 | 8,410 | Mar. 23, 1945 | 286 | 1,649 | 1.69 | 23.00 | 2,084 |
| 1946 | 1054 | 8,340 | Mar. 15, 1946 | 319 | 1,757 | 1.81 | 24.50 | 1,704 |
| 1947 | 1084 | 15,800 | Apr. 9, 1947 | 440 | 2,952 | 3.03 | 41.18 | 2,647 |
| 1948 | 1114 | 14,400 | Mar. 24, 1948 | 239 | 1,583 | 1.63 | 22.15 | 1,603 |
| 1949 | 1144 | 8,950 | Mar. 31, 1949 | 152 | 1,549 | 1.59 | 21.59 | 1,639 |
| 1950 | 1174 | 13,000 | Mar. 31, 1950 | 204 | 1,523 | 1.57 | 21.24 | - |

372. Oswegatchie River near Ogdensburg, N. Y.

Location.--Lat 44°38'00", long. 75°28'30", on upstream side of Eel Weir Bridge, about 1 mile downstream from mouth of Black Lake and 5½ miles upstream from Ogdensburg, St. Lawrence County, and mouth of river.

Drainage area.--1,580 sq mi.

Gage.--Chain gage. Altitude of gage is 270 ft (from topographic map).

Average discharge.--13 years (1903-16), 2,660 cfs.

Extremes.--1903-16: Maximum discharge, 15,800 cfs Mar. 31, 1905 (gage height, 10.15 ft); minimum daily, 295 cfs June 10, 1915.

Remarks.--Some diurnal fluctuation caused by operation of mills at Heuvelton, 5 miles upstream, and at Rensselaer Falls, 10 miles upstream. Seasonal flow slightly regulated by Cranberry Lake (see p. 322), and by natural storage in Black Lake.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-------|-------|----------|
| 1903 | - | - | - | - | - | - | - | 903 | 1,210 | 1,220 | 2,070 | 876 | - |
| 1904 | 3,090 | 1,660 | 1,960 | 1,400 | 1,610 | 6,150 | 7,860 | 3,260 | 1,360 | 1,120 | 1,020 | 1,460 | 2,590 |
| 1905 | 3,040 | 1,480 | 838 | 1,930 | 796 | 3,750 | 7,470 | 2,960 | 4,000 | 2,770 | 2,310 | 1,710 | 2,750 |
| 1906 | 1,690 | 2,210 | 3,120 | 6,070 | 2,520 | 2,030 | 4,120 | 2,280 | 2,600 | 1,460 | 977 | 866 | 2,500 |
| 1907 | 3,410 | 3,320 | 2,910 | 5,390 | 1,140 | 3,380 | 4,800 | 3,910 | 1,250 | 909 | 628 | 847 | 2,670 |
| 1908 | 1,670 | 3,940 | 3,550 | 4,420 | 3,650 | 6,560 | 7,100 | 6,930 | 1,710 | 1,370 | 1,130 | 787 | 3,570 |
| 1909 | 643 | 688 | 807 | 2,520 | 4,400 | 3,970 | 9,220 | 6,330 | 1,600 | 899 | 791 | 653 | 2,690 |
| 1910 | 831 | 1,260 | 1,970 | 1,960 | 1,670 | 7,780 | 3,240 | 2,270 | 1,550 | 578 | 588 | 924 | 2,060 |
| 1911 | 1,350 | 3,210 | 1,840 | 3,120 | 1,810 | 3,560 | 9,820 | 3,480 | 2,150 | 867 | 376 | 813 | 2,690 |
| 1912 | 1,130 | 2,670 | 5,380 | 1,880 | 841 | 2,080 | 10,000 | 4,070 | 5,040 | 686 | 612 | 1,320 | 2,970 |
| 1913 | 2,010 | 4,700 | 5,570 | 8,410 | 3,630 | *7,080 | *6,950 | 992 | 1,310 | 581 | 436 | 408 | *3,530 |
| 1914 | 1,440 | 3,140 | 2,300 | 1,050 | 2,720 | 2,600 | 7,920 | 3,070 | 913 | 909 | 464 | 759 | 2,260 |
| 1915 | 591 | 886 | 1,370 | 3,250 | 3,220 | 2,620 | 3,180 | 958 | 545 | 840 | 1,690 | 1,060 | 1,670 |
| 1916 | 954 | 819 | 1,530 | 4,360 | 2,950 | 1,890 | 8,410 | 5,530 | 3,130 | 1,350 | 676 | 406 | 2,660 |
| 1917 | 619 | 845 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

Monthly and yearly runoff, in inches, of Oswegatchie River near Ogdensburg, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|------|-------|-------|------|------|------|------|-------|----------|
| 1905 | - | - | - | - | - | - | - | 0.86 | 0.85 | 0.89 | 1.51 | 0.82 | - |
| 1904 | 2.26 | 1.17 | 0.77 | 1.02 | 1.10 | 4.48 | 5.54 | 2.38 | 2.36 | .82 | .74 | 1.03 | 22.27 |
| 1905 | 2.21 | 1.05 | .61 | 1.34 | .52 | 2.73 | 5.28 | 2.16 | 2.92 | 2.02 | 1.68 | 1.20 | 23.62 |
| 1906 | 1.23 | 1.56 | 2.27 | 4.43 | 1.66 | 1.48 | 2.91 | 1.66 | 1.84 | 1.07 | .71 | .63 | 21.45 |
| 1907 | 2.49 | 2.34 | 2.12 | 3.93 | .75 | 2.47 | 3.39 | 2.85 | .88 | .66 | .46 | .60 | 22.94 |
| 1908 | 1.22 | 2.78 | 2.59 | 3.23 | 2.49 | 4.78 | 5.01 | 5.06 | 1.20 | 1.00 | .82 | .56 | 30.74 |
| 1909 | .47 | .49 | .59 | 1.83 | 2.90 | 2.89 | 6.52 | 4.62 | 1.13 | .66 | .58 | .47 | 23.15 |
| 1910 | .61 | .89 | 1.44 | 1.43 | 1.10 | 5.67 | 2.29 | 1.66 | 1.09 | .82 | .43 | .65 | 17.68 |
| 1911 | .98 | 2.26 | 1.34 | †2.27 | 1.20 | 2.59 | 6.94 | 2.54 | 1.52 | .63 | .27 | .57 | †23.11 |
| 1912 | .82 | 1.89 | 3.93 | 1.37 | .57 | 1.52 | 7.06 | 2.97 | 3.56 | .50 | .45 | .93 | 25.57 |
| 1913 | 1.46 | 3.47 | 4.07 | 6.13 | 2.40 | *5.16 | *4.91 | .72 | .92 | .42 | .32 | .29 | *30.27 |
| 1914 | 1.05 | 2.22 | 1.68 | .77 | 1.79 | 1.90 | 5.59 | 2.24 | .64 | .66 | .34 | .54 | 19.42 |
| 1915 | .43 | .62 | 1.00 | 2.38 | 2.12 | 1.92 | 2.24 | .70 | .38 | .61 | 1.23 | .75 | 14.38 |
| 1916 | .70 | .58 | 1.12 | 3.18 | 2.02 | 1.38 | 5.94 | 4.04 | 2.21 | .98 | .49 | .29 | 22.93 |
| 1917 | .45 | .60 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|--------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1904 | 206 | †15,500 | Mar. 29, 1904† | 680 | 2,590 | 1.64 | 22.27 | 2,550 | 21.94 |
| 1905 | 206 | †15,800 | Mar. 31, 1905† | 680 | 2,750 | 1.74 | 23.62 | 2,880 | 24.81 |
| 1906 | 206 | †9,800 | Jan. 27, 1906† | 590 | 2,500 | 1.58 | 21.45 | 2,720 | 23.34 |
| 1907 | 244 | †11,000 | Mar. 30, 1907† | 590 | 2,670 | 1.69 | 22.94 | 2,620 | 22.58 |
| 1908 | 244 | †13,200 | Apr. 2, 1908† | 680 | 3,570 | 2.26 | 30.74 | 2,880 | 25.70 |
| 1909 | 264 | †11,900 | Apr. 10, 1909† | 590 | 2,690 | 1.70 | 23.15 | 2,870 | 24.54 |
| 1910 | 284 | †12,900 | Mar. 9, 1910† | 330 | 2,060 | 1.30 | 17.68 | 2,250 | 19.32 |
| 1911 | 304 | †14,000 | Apr. 8, 1911† | 330 | 2,690 | 1.70 | †23.11 | 2,930 | †25.17 |
| 1912 | 324 | †15,500 | Apr. 10, 1912† | 450 | 2,970 | 1.88 | 25.57 | 3,240 | 27.93 |
| 1913 | 354,1387 | *14,800 | Mar. 31, 1913* | 300 | *3,530 | *2.23 | *30.27 | *3,050 | *26.22 |
| 1914 | 384 | *11,600 | Apr. 4, 1914* | 330 | 2,260 | 1.43 | 19.42 | 1,920 | 16.52 |
| 1915 | 404 | 6,650 | Mar. 1, 1915 | 295 | 1,670 | 1.06 | 14.38 | 1,710 | 14.73 |
| 1916 | 434 | †15,100 | Apr. 4, 1916† | 390 | 2,660 | 1.68 | 22.93 | - | - |

* Revised.

† Corrected.

† Not previously published.

ST. LAWRENCE RIVER MAIN STEM

373. St. Lawrence River at Ogdensburg, N. Y.

Location.--Lat 44°42'05", long. 75°29'40", at Ogdensburg, N. Y.Drainage area.--295,200 sq mi, including that of Oswegatchie River.

Gage.--Basic gage located at lock 25 at Iroquois, Ontario. Auxiliary gages located at Prescott, Ont.; at lock 27 above Cardinal, Ont.; at lock 24 between Iroquois and Morrisburg, Ont.; and at lock 23 at Morrisburg, Ont. These are gages of the Canadian Hydrographic Service. Discharge in this reach of river is considered to be same as discharge at Ogdensburg, N. Y., which is directly opposite Prescott, Ont.

Average discharge.--90 years (June 1860 to September 1950), 240,000 cfs.

Extremes.--1917-50: Maximum daily discharge, 303,000 cfs June 15, July 30, 1947; minimum daily, 139,000 cfs Feb. 7, 1936.
 1860-1950: Maximum monthly discharge, 315,000 cfs May 1870; minimum monthly, 154,000 cfs February 1936.

Remarks.--Records do not include water diverted from Lake Michigan by Illinois and Michigan Canal during period of its operation prior to 1910, and by Chicago Sanitary and Ship Canal, operation of which began in 1900. They include water diverted into Lake Superior from Hudson Bay drainage by Long Lake Project, operation of which began in July 1939, and by Ogoki Project, operation of which began in July 1943. Diversions into Lake Superior amounted to less than one percent of the average St. Lawrence River discharge before July 1943, and since that time have averaged about 5,000 cfs.

These are the official records of the U. S. Lake Survey, Corps of Engineers, U. S. Army, which have been coordinated with and concurred in by the counterpart Canadian agencies. They supersede all previously published records for this station.

Monthly and yearly mean discharge, in thousands of cubic feet per second, of St. Lawrence River at Ogdensburg, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1860 | - | - | - | - | - | - | - | - | 276 | 279 | 276 | 269 | - |
| 1861 | 261 | 267 | 264 | 234 | 241 | 262 | 279 | 300 | 303 | 304 | 296 | 284 | 275 |
| 1862 | 286 | 285 | 285 | 259 | 248 | 262 | 289 | 311 | 305 | 302 | 294 | 282 | 284 |
| 1863 | 272 | 282 | 260 | 261 | 257 | 256 | 278 | 294 | 296 | 290 | 286 | 271 | 273 |
| 1864 | 260 | 260 | 258 | 238 | 246 | 253 | 265 | 287 | 297 | 287 | 278 | 269 | 266 |
| 1865 | 262 | 264 | 268 | 259 | 238 | 255 | 280 | 285 | 285 | 279 | 268 | 255 | 266 |
| 1866 | 246 | 243 | 240 | 219 | 213 | 227 | 244 | 256 | 267 | 269 | 266 | 260 | 246 |
| 1867 | 258 | 260 | 270 | 238 | 254 | 258 | 278 | 295 | 303 | 295 | 283 | 268 | 272 |
| 1868 | 253 | 248 | 230 | 221 | 209 | 222 | 244 | 247 | 262 | 260 | 252 | 252 | 242 |
| 1869 | 239 | 234 | 241 | 218 | 211 | 205 | 235 | 271 | 275 | 283 | 282 | 279 | 249 |
| 1870 | 274 | 265 | 252 | 258 | 259 | 258 | 290 | 315 | 308 | 306 | 290 | 278 | 279 |
| 1871 | 269 | 260 | 256 | 241 | 236 | 253 | 265 | 274 | 274 | 270 | 260 | 253 | 259 |
| 1872 | 244 | 231 | 224 | 210 | 194 | 198 | 220 | 231 | 238 | 239 | 235 | 230 | 224 |
| 1873 | 224 | 226 | 209 | 197 | 197 | 210 | 251 | 270 | 272 | 270 | 264 | 257 | 237 |
| 1874 | 247 | 242 | 246 | 254 | 230 | 274 | 276 | 275 | 281 | 279 | 273 | 259 | 261 |
| 1875 | 252 | 241 | 253 | 194 | 173 | 206 | 235 | 247 | 250 | 251 | 247 | 238 | 231 |
| 1876 | 235 | 230 | 225 | 229 | 238 | 254 | 282 | 295 | 300 | 302 | 291 | 276 | 263 |
| 1877 | 273 | 262 | 259 | 210 | 235 | 243 | 257 | 262 | 262 | 263 | 255 | 245 | 252 |
| 1878 | 240 | 234 | 236 | 228 | 233 | 251 | 261 | 270 | 270 | 266 | 267 | 264 | 252 |
| 1879 | 257 | 254 | 272 | 246 | 257 | 254 | 264 | 268 | 267 | 264 | 254 | 249 | 259 |
| 1880 | 237 | 227 | 227 | 232 | 236 | 243 | 253 | 256 | 261 | 260 | 249 | 244 | 244 |
| 1881 | 235 | 233 | 227 | 182 | 195 | 228 | 243 | 247 | 252 | 254 | 247 | 237 | 232 |
| 1882 | 229 | 231 | 254 | 243 | 244 | 261 | 267 | 269 | 282 | 274 | 261 | 251 | 226 |
| 1883 | 248 | 241 | 243 | 204 | 208 | 224 | 252 | 264 | 279 | 288 | 285 | 272 | 251 |
| 1884 | 264 | 261 | 261 | 232 | 244 | 260 | 288 | 296 | 299 | 288 | 283 | 270 | 270 |
| 1885 | 258 | 252 | 249 | 240 | 229 | 218 | 232 | 266 | 276 | 278 | 271 | 270 | 253 |
| 1886 | 262 | 265 | 271 | 267 | 270 | 272 | 291 | 302 | 297 | 287 | 280 | 273 | 278 |
| 1887 | 263 | 263 | 256 | 245 | 252 | 264 | 282 | 292 | 292 | 286 | 272 | 261 | 269 |
| 1888 | 255 | 243 | 237 | 224 | 205 | 218 | 248 | 253 | 256 | 255 | 254 | 246 | 241 |
| 1889 | 237 | 236 | 236 | 238 | 220 | 231 | 252 | 255 | 265 | 269 | 264 | 251 | 246 |
| 1890 | 236 | 232 | 243 | 250 | 254 | 264 | 260 | 280 | 288 | 292 | 277 | 270 | 262 |
| 1891 | 262 | 263 | 256 | 240 | 248 | 262 | 278 | 276 | 266 | 263 | 253 | 242 | 259 |
| 1892 | 229 | 220 | 217 | 212 | 200 | 201 | 228 | 232 | 244 | 258 | 253 | 251 | 229 |
| 1893 | 239 | 232 | 230 | 212 | 193 | 210 | 246 | 272 | 279 | 274 | 259 | 256 | 242 |
| 1894 | 247 | 235 | 231 | 229 | 207 | 242 | 249 | 255 | 266 | 261 | 244 | 238 | 242 |
| 1895 | 233 | 228 | 218 | 207 | 190 | 195 | 223 | 228 | 226 | 219 | 215 | 207 | 216 |
| 1896 | 200 | 193 | 194 | 197 | 198 | 196 | 231 | 238 | 236 | 233 | 226 | 214 | 213 |
| 1897 | 207 | 207 | 202 | 197 | 191 | 203 | 227 | 237 | 243 | 240 | 240 | 225 | 218 |
| 1898 | 213 | 209 | 213 | 211 | 215 | 228 | 242 | 247 | 248 | 243 | 235 | 226 | 228 |
| 1899 | 219 | 220 | 221 | 215 | 210 | 221 | 239 | 245 | 249 | 244 | 233 | 222 | 228 |
| 1900 | 213 | 210 | 212 | 208 | 209 | 215 | 239 | 245 | 246 | 244 | 237 | 230 | 226 |
| 1901 | 221 | 216 | 222 | 214 | 209 | 206 | 234 | 244 | 248 | 242 | 235 | 229 | 227 |
| 1902 | 223 | 211 | 215 | 210 | 189 | 222 | 238 | 240 | 243 | 248 | 250 | 245 | 228 |
| 1903 | 235 | 230 | 224 | 220 | 220 | 240 | 258 | 260 | 258 | 260 | 255 | 250 | 242 |
| 1904 | 239 | 227 | 220 | 203 | 206 | 220 | 256 | 270 | 277 | 278 | 273 | 264 | 244 |
| 1905 | 255 | 243 | 221 | 209 | 218 | 212 | 238 | 242 | 249 | 259 | 257 | 254 | 238 |
| 1906 | 247 | 241 | 235 | 242 | 234 | 232 | 241 | 244 | 246 | 250 | 243 | 234 | 241 |
| 1907 | 231 | 229 | 227 | 223 | 230 | 235 | 255 | 261 | 262 | 263 | 258 | 249 | 244 |
| 1908 | 247 | 245 | 244 | 232 | 231 | 248 | 278 | 292 | 294 | 289 | 279 | 262 | 262 |
| 1909 | 247 | 238 | 227 | 215 | 208 | 224 | 241 | 261 | 266 | 264 | 256 | 244 | 241 |
| 1910 | 236 | 225 | 222 | 209 | 200 | 228 | 237 | 248 | 249 | 246 | 241 | 231 | 231 |
| 1911 | 226 | 220 | 214 | 204 | 200 | 206 | 224 | 232 | 232 | 231 | 223 | 215 | 219 |
| 1912 | 211 | 212 | 212 | 202 | 191 | 198 | 236 | 255 | 268 | 259 | 252 | 247 | 229 |
| 1913 | 243 | 241 | 243 | 247 | 243 | 249 | 273 | 280 | 280 | 275 | 265 | 252 | 258 |
| 1914 | 244 | 242 | 238 | 226 | 215 | 218 | 253 | 257 | 257 | 252 | 245 | 241 | 241 |
| 1915 | 229 | 226 | 215 | 213 | 203 | 222 | 222 | 221 | 220 | 221 | 227 | 229 | 221 |
| 1916 | 224 | 219 | 212 | 218 | 216 | 214 | 245 | 262 | 275 | 277 | 266 | 252 | 240 |
| 1917 | 239 | 230 | 223 | 215 | 224 | 221 | 242 | 245 | 257 | 268 | 266 | 257 | 241 |
| 1918 | 253 | 251 | 246 | 230 | 223 | 241 | 258 | 260 | 259 | 257 | 248 | 243 | 247 |
| 1919 | 237 | 239 | 234 | 239 | 235 | 239 | 251 | 267 | 277 | 275 | 266 | 255 | 251 |
| 1920 | 245 | 240 | 233 | 212 | 204 | 209 | 229 | 229 | 229 | 232 | 229 | 226 | 226 |
| 1921 | 223 | 219 | 226 | 227 | 221 | 235 | 245 | 251 | 250 | 245 | 236 | 226 | 234 |
| 1922 | 215 | 219 | 218 | 208 | 198 | 218 | 248 | 250 | 252 | 257 | 243 | 237 | 229 |
| 1923 | 229 | 219 | 208 | 200 | 196 | 196 | 221 | 229 | 236 | 231 | 225 | 216 | 217 |
| 1924 | 208 | 204 | 207 | 210 | 202 | 208 | 224 | 240 | 243 | 242 | 238 | 230 | 221 |
| 1925 | 226 | 218 | 208 | 183 | 188 | 215 | 227 | 230 | 226 | 222 | 216 | 208 | 214 |
| 1926 | 204 | 206 | 210 | 195 | 180 | 187 | 214 | 225 | 224 | 222 | 217 | 214 | 208 |
| 1927 | 218 | 227 | 227 | 211 | 200 | 221 | 236 | 237 | 242 | 239 | 234 | 224 | 226 |
| 1928 | 217 | 216 | 233 | 236 | 231 | 231 | 247 | 249 | 250 | 254 | 251 | 242 | 238 |
| 1929 | 234 | 231 | 235 | 231 | 229 | 236 | 262 | 266 | 267 | 285 | 279 | 267 | 255 |
| 1930 | 255 | 252 | 238 | 249 | 252 | 269 | 278 | 279 | 261 | 279 | 266 | 255 | 263 |
| 1931 | 243 | 231 | 222 | 214 | 205 | 205 | 216 | 219 | 224 | 221 | 213 | 207 | 218 |
| 1932 | 201 | 197 | 194 | 204 | 216 | 219 | 233 | 240 | 237 | 235 | 229 | 216 | 218 |
| 1933 | 208 | 204 | 203 | 204 | 198 | 197 | 212 | 222 | 224 | 217 | 208 | 202 | 208 |
| 1934 | 193 | 184 | 179 | 169 | 173 | 183 | 203 | 206 | 202 | 195 | 187 | 180 | 188 |
| 1935 | 175 | 170 | 170 | 166 | 168 | 177 | 187 | 194 | 199 | 202 | 197 | 188 | 185 |

Monthly and yearly mean discharge, in thousands of cubic feet per second, of St. Lawrence River at Ogdensburg, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1936 | 183 | 176 | 175 | 169 | 154 | 180 | 218 | 223 | 218 | 211 | 200 | 195 | 192 |
| 1937 | 193 | 193 | 186 | 198 | 207 | 210 | 217 | 233 | 236 | 237 | 231 | 223 | 214 |
| 1938 | 214 | 214 | 210 | 196 | 201 | 208 | 233 | 235 | 233 | 229 | 229 | 220 | 218 |
| 1939 | 215 | 211 | 206 | 197 | 183 | 196 | 230 | 239 | 237 | 234 | 230 | 218 | 216 |
| 1940 | 212 | 202 | 198 | 188 | 184 | 185 | 210 | 226 | 234 | 234 | 228 | 221 | 210 |
| 1941 | 213 | 210 | 211 | 215 | 202 | 202 | 228 | 226 | 221 | 216 | 210 | 205 | 213 |
| 1942 | 199 | 199 | 194 | 193 | 188 | 204 | 225 | 232 | 237 | 235 | 232 | 226 | 214 |
| 1943 | 221 | 221 | 222 | 209 | 220 | 226 | 257 | 274 | 292 | 287 | 282 | 271 | 248 |
| 1944 | 256 | 256 | 250 | 235 | 227 | 229 | 242 | 256 | 259 | 260 | 252 | 243 | 247 |
| 1945 | 234 | 222 | 222 | 195 | 207 | 232 | 258 | 287 | 273 | 271 | 267 | 259 | 242 |
| 1946 | 268 | 263 | 265 | 260 | 239 | 256 | 263 | 258 | 260 | 256 | 250 | 241 | 257 |
| 1947 | 238 | 237 | 232 | 227 | 232 | 233 | 257 | 271 | 294 | 296 | 289 | 279 | 257 |
| 1948 | 265 | 255 | 250 | 224 | 220 | 240 | 274 | 282 | 284 | 278 | 269 | 255 | 258 |
| 1949 | 244 | 241 | 234 | 233 | 237 | 247 | 254 | 255 | 249 | 241 | 230 | 223 | 241 |
| 1950 | 216 | 208 | 208 | 220 | 225 | 231 | 259 | 262 | 263 | 257 | 249 | 240 | 236 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1860 | - | - | - | - | - | - | - | - | 1.04 | 1.09 | 1.08 | 1.02 | - |
| 1861 | 1.02 | 1.01 | 1.03 | 0.91 | 0.85 | 1.02 | 1.05 | 1.17 | 1.15 | 1.19 | 1.16 | 1.07 | 12.63 |
| 1862 | 1.12 | 1.08 | 1.11 | 1.01 | .87 | 1.02 | 1.09 | 1.21 | 1.15 | 1.18 | 1.15 | 1.07 | 13.06 |
| 1863 | 1.06 | .99 | 1.02 | 1.02 | .91 | 1.00 | 1.05 | 1.15 | 1.12 | 1.13 | 1.09 | 1.02 | 12.56 |
| 1864 | 1.02 | .98 | 1.01 | .95 | .90 | .99 | 1.00 | 1.12 | 1.12 | 1.12 | 1.09 | 1.02 | 12.30 |
| 1865 | 1.02 | 1.00 | 1.05 | 1.01 | .84 | 1.00 | 1.06 | 1.11 | 1.08 | 1.09 | 1.05 | .96 | 12.27 |
| 1866 | .96 | .92 | .94 | .86 | .75 | .89 | .92 | 1.01 | 1.01 | 1.05 | 1.04 | .98 | 11.32 |
| 1867 | 1.01 | .98 | 1.05 | .93 | .90 | 1.01 | 1.05 | 1.15 | 1.15 | 1.15 | 1.11 | 1.01 | 12.50 |
| 1868 | .99 | .94 | .90 | .86 | .76 | .87 | .92 | .96 | .99 | 1.02 | .98 | .95 | 11.14 |
| 1869 | .93 | .88 | .94 | .85 | .74 | .80 | .96 | 1.06 | 1.04 | 1.11 | 1.10 | 1.05 | 11.46 |
| 1870 | 1.07 | 1.00 | .98 | 1.01 | .91 | 1.01 | 1.10 | 1.23 | 1.16 | 1.19 | 1.13 | 1.05 | 12.84 |
| 1871 | 1.05 | .98 | 1.00 | .94 | .83 | .99 | 1.00 | 1.07 | 1.04 | 1.05 | 1.02 | .96 | 11.93 |
| 1872 | .95 | .87 | .87 | .82 | .71 | .77 | .83 | .90 | .90 | .93 | .92 | .87 | 10.34 |
| 1873 | .87 | .85 | .82 | .77 | .70 | .82 | .95 | 1.05 | 1.03 | 1.05 | 1.03 | .97 | 10.91 |
| 1874 | .96 | .91 | .96 | .99 | .81 | 1.07 | 1.04 | 1.07 | 1.06 | 1.09 | 1.07 | .98 | 12.01 |
| 1875 | .98 | .91 | .91 | .76 | .61 | .80 | .89 | .96 | .94 | .98 | .96 | .90 | 10.60 |
| 1876 | .92 | .87 | .88 | .89 | .87 | .99 | 1.07 | 1.15 | 1.13 | 1.18 | 1.14 | 1.04 | 12.13 |
| 1877 | 1.07 | .89 | 1.01 | .82 | .83 | .95 | .97 | 1.02 | .99 | 1.03 | 1.00 | .93 | 11.61 |
| 1878 | .94 | .88 | .92 | .89 | .82 | .98 | .99 | 1.05 | 1.02 | 1.04 | 1.04 | 1.00 | 11.57 |
| 1879 | 1.00 | .96 | 1.06 | .96 | .91 | .99 | 1.00 | 1.05 | 1.01 | 1.03 | .99 | .94 | 11.90 |
| 1880 | .93 | .86 | .89 | .91 | .86 | .95 | .96 | 1.00 | .99 | 1.02 | .97 | .92 | 11.26 |
| 1881 | .92 | .88 | .89 | .71 | .69 | .89 | .92 | .96 | .95 | .99 | .96 | .90 | 10.66 |
| 1882 | .89 | .87 | .91 | .95 | .86 | 1.02 | 1.01 | 1.05 | 1.07 | 1.10 | 1.07 | .99 | 11.79 |
| 1883 | .97 | .91 | .85 | .80 | .73 | .87 | .95 | 1.03 | 1.05 | 1.12 | 1.11 | 1.05 | 11.52 |
| 1884 | 1.03 | .99 | 1.02 | .91 | .89 | 1.02 | 1.09 | 1.18 | 1.08 | 1.12 | 1.11 | 1.02 | 12.45 |
| 1885 | 1.01 | .95 | .97 | .94 | .81 | .85 | .88 | 1.04 | 1.04 | 1.09 | 1.06 | 1.02 | 11.66 |
| 1886 | 1.02 | 1.00 | 1.06 | 1.04 | .95 | 1.06 | 1.10 | 1.18 | 1.12 | 1.12 | 1.09 | 1.03 | 12.77 |
| 1887 | 1.03 | .99 | 1.00 | .96 | .89 | 1.03 | 1.07 | 1.14 | 1.10 | 1.12 | 1.06 | .99 | 12.38 |
| 1888 | 1.00 | .92 | .93 | .87 | .75 | .85 | .94 | .99 | .97 | 1.00 | .99 | .93 | 11.14 |
| 1889 | .93 | .89 | .92 | .93 | .78 | .90 | .95 | 1.00 | 1.00 | 1.05 | 1.03 | .95 | 11.33 |
| 1890 | .92 | .88 | .95 | .98 | .90 | 1.03 | .98 | 1.09 | 1.09 | 1.14 | 1.08 | 1.02 | 12.06 |
| 1891 | 1.02 | .99 | 1.00 | .94 | .87 | 1.02 | 1.05 | 1.06 | 1.01 | 1.03 | .99 | .91 | 11.91 |
| 1892 | .89 | .83 | .85 | .83 | .73 | .78 | .86 | .91 | .92 | 1.01 | .99 | .95 | 10.55 |
| 1893 | .93 | .88 | .90 | .83 | .68 | .82 | .93 | 1.06 | 1.05 | 1.07 | 1.01 | .97 | 11.13 |
| 1894 | .96 | .89 | .90 | .89 | .73 | .95 | .94 | 1.00 | 1.01 | 1.02 | .95 | .90 | 11.14 |
| 1895 | .91 | .86 | .85 | .81 | .67 | .76 | .84 | .89 | .85 | .86 | .84 | .78 | 9.92 |
| 1896 | .78 | .73 | .76 | .77 | .72 | .77 | .87 | .93 | .89 | .91 | .88 | .81 | 9.82 |
| 1897 | .81 | .76 | .79 | .77 | .77 | .79 | .86 | .93 | .92 | .94 | .94 | .85 | 10.05 |
| 1898 | .83 | .79 | .83 | .82 | .76 | .89 | .91 | .96 | .94 | .95 | .92 | .85 | 10.45 |
| 1899 | .86 | .83 | .86 | .84 | .74 | .86 | .90 | .96 | .94 | .95 | .91 | .84 | 10.49 |
| 1900 | .83 | .79 | .83 | .81 | .74 | .84 | .90 | .96 | .93 | .95 | .93 | .87 | 10.38 |
| 1901 | .86 | .82 | .87 | .84 | .74 | .80 | .88 | .95 | .94 | .95 | .92 | .87 | 10.44 |
| 1902 | .87 | .80 | .84 | .82 | .67 | .87 | .90 | .94 | .92 | .97 | .98 | .92 | 10.50 |
| 1903 | .92 | .87 | .87 | .86 | .78 | .94 | .97 | 1.02 | .97 | 1.02 | 1.00 | .94 | 11.16 |
| 1904 | .85 | .86 | .86 | .79 | .75 | .86 | .97 | 1.05 | 1.05 | 1.09 | 1.07 | 1.00 | 11.28 |
| 1905 | 1.00 | .92 | .86 | .82 | .77 | .83 | .90 | .95 | .94 | 1.01 | 1.00 | .96 | 10.96 |
| 1906 | .96 | .91 | .92 | .95 | .83 | .91 | .91 | .95 | .93 | .98 | .95 | .88 | 11.08 |
| 1907 | .90 | .87 | .89 | .87 | .81 | .92 | .96 | 1.02 | .99 | 1.03 | 1.01 | .94 | 11.21 |
| 1908 | .96 | .93 | .95 | .91 | .84 | .97 | 1.05 | 1.14 | 1.11 | 1.12 | 1.09 | .99 | 12.06 |
| 1909 | .96 | .90 | .89 | .84 | .73 | .87 | .91 | 1.02 | 1.01 | 1.03 | 1.00 | .92 | 11.06 |
| 1910 | .92 | .85 | .87 | .82 | .71 | .89 | .90 | .97 | .94 | .96 | .94 | .87 | 10.64 |

Monthly and yearly runoff, in inches, of St. Lawrence River at Ogdensburg, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1911 | 0.88 | 0.83 | 0.84 | 0.80 | 0.71 | 0.80 | 0.85 | 0.91 | 0.88 | 0.90 | 0.87 | 0.81 | 10.08 |
| 1912 | .82 | .80 | .83 | .79 | .70 | .77 | .89 | 1.00 | 1.01 | 1.01 | .98 | .93 | 10.53 |
| 1913 | .95 | .91 | .95 | .96 | .86 | .97 | 1.03 | 1.09 | 1.06 | 1.07 | 1.03 | .95 | 11.83 |
| 1914 | .95 | .91 | .83 | .88 | .76 | .85 | .96 | 1.00 | .97 | .98 | .96 | .91 | 11.06 |
| 1915 | .89 | .85 | .84 | .83 | .72 | .87 | .84 | .86 | .83 | .86 | .89 | .87 | 10.15 |
| 1916 | .87 | .83 | .83 | .85 | .79 | .84 | .93 | 1.02 | 1.04 | 1.08 | 1.04 | .95 | 11.07 |
| 1917 | .93 | .87 | .87 | .84 | .79 | .86 | .91 | .96 | .97 | 1.05 | 1.04 | .97 | 11.06 |
| 1918 | .99 | .95 | .96 | .90 | .79 | .94 | .97 | 1.02 | .98 | 1.00 | .97 | .92 | 11.39 |
| 1919 | .93 | .90 | .91 | .93 | .83 | .93 | .95 | 1.04 | 1.05 | 1.07 | 1.04 | .96 | 11.54 |
| 1920 | .96 | .91 | .91 | .83 | .75 | .82 | .87 | .89 | .87 | .91 | .89 | .85 | 10.46 |
| 1921 | .87 | .83 | .88 | .89 | .78 | .92 | .93 | .98 | .94 | .96 | .92 | .85 | 10.75 |
| 1922 | .86 | .79 | .84 | .81 | .70 | .83 | .91 | .97 | .95 | 1.00 | .97 | .90 | 10.53 |
| 1923 | .89 | .83 | .81 | .78 | .69 | .77 | .84 | .89 | .89 | .90 | .88 | .82 | 9.99 |
| 1924 | .81 | .77 | .81 | .82 | .74 | .81 | .85 | .94 | .92 | .95 | .93 | .87 | 10.22 |
| 1925 | .88 | .82 | .81 | .71 | .66 | .84 | .86 | .90 | .85 | .87 | .84 | .79 | 9.83 |
| 1926 | .80 | .78 | .82 | .76 | .64 | .73 | .81 | .88 | .85 | .87 | .85 | .81 | 9.60 |
| 1927 | .85 | .86 | .89 | .82 | .71 | .86 | .89 | .93 | .91 | .93 | .91 | .85 | 10.41 |
| 1928 | .85 | .82 | .91 | .92 | .84 | .90 | .93 | .97 | .94 | .99 | .98 | .91 | 10.96 |
| 1929 | .91 | .87 | .92 | .90 | .81 | .93 | .99 | 1.12 | 1.08 | 1.11 | 1.09 | 1.01 | 11.74 |
| 1930 | 1.00 | .95 | .93 | .97 | .89 | 1.05 | 1.05 | 1.09 | 1.06 | 1.09 | 1.04 | .96 | 12.08 |
| 1931 | .95 | .87 | .87 | .84 | .72 | .80 | .82 | .88 | .85 | .86 | .83 | .78 | 10.05 |
| 1932 | .78 | .74 | .75 | .80 | .79 | .86 | .88 | .94 | .90 | .92 | .89 | .82 | 10.08 |
| 1933 | .81 | .77 | .79 | .80 | .70 | .77 | .80 | .87 | .85 | .85 | .81 | .76 | 9.58 |
| 1934 | .75 | .70 | .70 | .66 | .61 | .71 | .77 | .80 | .76 | .78 | .73 | .68 | 8.63 |
| 1935 | .68 | .64 | .66 | .65 | .59 | .69 | .71 | .76 | .75 | .79 | .77 | .71 | 8.40 |
| 1936 | .71 | .67 | .68 | .66 | .56 | .70 | .82 | .87 | .82 | .82 | .78 | .74 | 8.83 |
| 1937 | .75 | .73 | .73 | .77 | .73 | .82 | .82 | .91 | .89 | .93 | .90 | .84 | 9.82 |
| 1938 | .84 | .81 | .82 | .77 | .71 | .81 | .86 | .92 | .88 | .89 | .89 | .85 | 10.05 |
| 1939 | .84 | .80 | .80 | .77 | .65 | .77 | .87 | .93 | .90 | .91 | .90 | .82 | 9.96 |
| 1940 | .83 | .76 | .77 | .73 | .67 | .72 | .79 | .88 | .88 | .91 | .89 | .84 | 9.67 |
| 1941 | .83 | .79 | .82 | .84 | .71 | .79 | .86 | .88 | .84 | .84 | .82 | .77 | 9.79 |
| 1942 | .78 | .75 | .76 | .75 | .66 | .80 | .85 | .91 | .90 | .92 | .91 | .85 | 9.84 |
| 1943 | .86 | .84 | .87 | .82 | .78 | .88 | .97 | 1.07 | 1.10 | 1.12 | 1.10 | 1.02 | 11.43 |
| 1944 | 1.00 | .97 | .98 | .92 | .83 | .89 | .91 | 1.00 | .98 | 1.02 | .98 | .92 | 11.40 |
| 1945 | .91 | .84 | .87 | .76 | .75 | .91 | .97 | 1.04 | 1.03 | 1.06 | 1.04 | .98 | 11.14 |
| 1946 | 1.05 | .99 | 1.03 | 1.02 | .84 | 1.00 | .99 | 1.01 | .99 | 1.00 | .98 | .91 | 11.80 |
| 1947 | .92 | .90 | .91 | .89 | .82 | .91 | .97 | 1.06 | 1.11 | 1.16 | 1.13 | 1.05 | 11.83 |
| 1948 | 1.03 | .96 | .98 | .87 | .80 | .94 | 1.04 | 1.10 | 1.07 | 1.09 | 1.05 | .96 | 11.89 |
| 1949 | .95 | .91 | .91 | .91 | .84 | .96 | .96 | 1.00 | .94 | .94 | .90 | .84 | 11.06 |
| 1950 | .84 | .79 | .81 | .86 | .79 | .90 | .98 | 1.02 | .99 | 1.00 | .97 | .91 | 10.86 |

Yearly discharge, in thousands of cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1918 | | 269 | Oct. 13, 1917, Apr. 22, 24, 1918 | 205 | 247 | 0.837 | 11.39 | 244 | 11.23 |
| 1919 | | 281 | May 29, June 9, June 14, 1919 | 222 | 251 | .850 | 11.54 | 252 | 11.58 |
| 1920 | | 264 | Nov. 30, 1919 | 186 | 226 | .766 | 10.46 | 222 | 10.26 |
| 1921 | | 256 | May 15, 22, 1921 | 200 | 234 | .793 | 10.75 | 232 | 10.66 |
| 1922 | | 261 | July 8, 1922 | 182 | 229 | .776 | 10.53 | 230 | 10.57 |
| 1923 | | 244 | June 27, 1923 | 167 | 217 | .735 | 9.99 | 214 | 9.85 |
| 1924 | | 254 | May 19, 1924 | 189 | 221 | .749 | 10.22 | 224 | 10.34 |
| 1925 | | 244 | Oct. 1, 1924 | 167 | 214 | .725 | 9.83 | 211 | 9.72 |
| 1926 | | 234 | May 20, 22, 1926 | 166 | 208 | .705 | 9.60 | 212 | 9.80 |
| 1927 | | 248 | June 8, 1927 | 177 | 226 | .766 | 10.41 | 226 | 10.39 |
| 1928 | | 262 | Apr. 15, 1928 | 206 | 238 | .806 | 10.96 | 241 | 11.08 |
| 1929 | | 296 | May 16, 1929 | 206 | 255 | .864 | 11.74 | 259 | 11.92 |
| 1930 | | 287 | June 1, 1930 | 210 | 263 | .891 | 12.08 | 259 | 11.89 |
| 1931 | | 253 | Oct. 19, 1930 | 194 | 218 | .738 | 10.05 | 210 | 9.64 |
| 1932 | | 246 | May 17, 1932 | 180 | 218 | .739 | 10.08 | 220 | 10.17 |
| 1933 | | 250 | June 12, 1933 | 177 | 208 | .705 | 9.58 | 203 | 9.36 |
| 1934 | | 214 | Apr. 26, 1934 | 145 | 188 | .637 | 8.63 | 184 | 8.46 |
| 1935 | | 206 | June 23, 27, July 12, 13, 1935 | 152 | 183 | .620 | 8.40 | 184 | 8.48 |
| 1936 | | 228 | Apr. 17, May 15 | 139 | 192 | .650 | 8.83 | 195 | 8.98 |
| 1937 | | 240 | June 9, 13, 21 | 178 | 214 | .725 | 9.82 | 219 | 10.08 |
| 1938 | | 250 | Sept. 22, 1938 | 178 | 218 | .758 | 10.05 | 218 | 10.02 |
| 1939 | | 246 | May 30, June 12 | 166 | 216 | .732 | 9.96 | 215 | 9.88 |
| 1940 | | 240 | June 29, 1940 | 166 | 210 | .711 | 9.67 | 212 | 9.75 |

ST. LAWRENCE RIVER MAIN STEM

Yearly discharge, in thousands of cubic feet per second, of St. Lawrence River
at Ogdensburg, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|--------------------------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1941 | | 243 | Apr. 21, 1941 | 175 | 213 | 0.722 | 9.79 | 210 | 9.64 |
| 1942 | | 242 | July 7, 1942 | 175 | 214 | .725 | 9.84 | 220 | 10.12 |
| 1943 | | 297 | June 18, 1943 | 180 | 248 | .840 | 11.43 | 257 | 11.81 |
| 1944 | | 272 | Oct. 17, 1943 | 220 | 247 | .837 | 11.40 | 240 | 11.07 |
| 1945 | | 284 | May 23, 1945 | 160 | 242 | .820 | 11.14 | 252 | 11.59 |
| 1946 | | 276 | Oct. 2, 1945, Dec. 16, 1945 | 214 | 257 | .871 | 11.80 | 249 | 11.46 |
| 1947 | | 303 | June 15, July 30 | 204 | 257 | .871 | 11.83 | 262 | 12.07 |
| 1948 | | 288 | May 8, June 13 | 177 | 258 | .874 | 11.89 | 254 | 11.69 |
| 1949 | | 260 | Apr. 21, 23, May 25 | 217 | 241 | .816 | 11.06 | 233 | 10.73 |
| 1950 | | 277 | May 6, 1950 | 194 | 256 | .799 | 10.06 | - | - |

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

374. North Branch Grass River near South Colton, N. Y.

Location.--Lat 44°27'30", long. 74°56'50", on right bank at Gleason's Mill, $\frac{1}{4}$ miles southwest of South Colton, St. Lawrence County, and about 9 miles upstream from Grass River.

Drainage area.--25.8 sq mi.

Gage.--Staff gage. Altitude of gage is 980 ft (from topographic map).

Average discharge.--8 years (1924-32), 54.8 cfs.

Extremes.--1924-32: Maximum discharge, about 700 cfs Apr. 25, 1926 (gage height, 4.3 ft); minimum, 1.9 cfs Aug. 25, 26, 1931 (gage height, 0.66 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|---------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | 65.3 | 48.4 | 52.7 | 17.2 | 113 | 133 | 89.2 | 46.2 | 31.4 | 17.5 | 7.53 | 37.3 | 54.4 |
| 1926 | 61.8 | 77.9 | 56.6 | 38.2 | 16.3 | 21.4 | 183 | 139 | 53.1 | 36.5 | 21.0 | 19.4 | 58.8 |
| 1927 | 49.8 | 91.3 | 34.6 | 33.7 | 30.5 | 117 | 61.7 | 22.0 | 22.8 | 19.5 | 8.68 | 11.5 | 45.2 |
| 1928 | 41.9 | 153 | 143 | 94.3 | 36.8 | 93.7 | 192 | 71.0 | 42.0 | 27.0 | 24.8 | 21.5 | 78.4 |
| 1929 | 40.1 | 55.3 | 65.9 | 56.3 | 18.0 | 134 | 139 | 90.8 | 24.4 | 26.8 | 24.5 | 15.7 | 57.8 |
| 1930 | 53.5 | 48.6 | 32.1 | 98.5 | 47.4 | 67.2 | 157 | 84.0 | 50.5 | 25.0 | 9.64 | 12.0 | 57.0 |
| 1931 | 17.0 | 16.4 | 15.8 | 11.1 | 10.9 | 29.1 | 117 | 61.0 | 27.1 | 17.7 | 5.52 | 20.6 | 29.1 |
| 1932 | 28.5 | 55.0 | 47.7 | 87.8 | 42.5 | 26.4 | 242 | 86.2 | 23.0 | 31.6 | 15.1 | 10.9 | 58.0 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|---------------|------|------|------|------|------|------|-------|------|------|------|------|-------|----------|
| 1925 | 2.92 | 2.10 | 2.35 | 0.77 | 4.56 | 5.95 | 3.86 | 2.06 | 1.36 | 0.78 | 0.34 | 1.62 | 28.67 |
| 1926 | 2.77 | 3.37 | 2.52 | 1.71 | .86 | .96 | 7.05 | 6.21 | 2.30 | 1.63 | .94 | .84 | 30.96 |
| 1927 | 2.18 | 3.95 | 1.54 | 1.51 | 1.23 | 5.23 | 2.67 | 2.77 | .98 | .83 | .39 | .50 | 23.78 |
| 1928 | 1.87 | 6.62 | 6.39 | 4.22 | 1.54 | 4.18 | 8.30 | 3.17 | 1.82 | 1.21 | 1.11 | .93 | 41.36 |
| 1929 | 1.79 | 2.39 | 2.94 | 2.51 | .73 | 5.98 | 6.01 | 4.06 | 1.06 | 1.20 | 1.10 | .68 | 30.45 |
| 1930 | 2.39 | 2.10 | 1.43 | 4.40 | 1.92 | 3.00 | 6.80 | 3.76 | 2.19 | 1.12 | .43 | .52 | 30.06 |
| 1931 | .76 | .71 | .71 | .50 | .44 | 1.30 | 5.05 | 2.72 | 1.17 | .79 | .25 | .89 | 15.29 |
| 1932 | 1.27 | 2.36 | 2.13 | 3.92 | 1.78 | 1.18 | 10.46 | 3.94 | .99 | 1.42 | .67 | .47 | 30.61 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604 | 561 | Oct. 1, 1924 | 2.5 | 54.4 | 2.11 | 28.67 | 56.9 | 29.96 |
| 1926 | 624 | 700 | Apr. 25, 1926 | 6.9 | 58.8 | 2.28 | 30.96 | 56.9 | 29.97 |
| 1927 | 644 | 350 | Mar. 19, 1927 | 2.5 | 45.2 | 1.75 | 23.78 | 58.9 | 30.99 |
| 1928 | 664 | 670 | Nov. 18, 1927 | 5.3 | 78.4 | 3.04 | 41.36 | 63.7 | 33.60 |
| 1929 | 684 | 323 | Mar. 24, 1929 | 4.5 | 57.8 | 2.24 | 30.45 | 55.5 | 29.25 |
| 1930 | 699 | 522 | Jan. 9, 1930 | 5.2 | 57.0 | 2.21 | 30.06 | 49.9 | 26.32 |
| 1931 | 714 | 385 | Apr. 14, 1931 | 1.9 | 29.1 | 1.13 | 15.29 | 36.0 | 18.89 |
| 1932 | 729 | *685 | Apr. 9, 1932 | 5.0 | 58.0 | 2.25 | 30.61 | - | - |

* Revised.

375. Grass River at Pyrites, N. Y.

Location.--Lat 44°31'30", long. 75°11'50", on left bank 1,000 ft downstream from lower bridge in Pyrites, St. Lawrence County, and half a mile upstream from Harrison Creek.

Drainage area.--335 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 360 ft (from topographic map).

Average discharge.--26 years (1924-50), 599 cfs (revised).

Extremes.--1924-50: Maximum discharge, about 8,300 cfs Nov. 18, 1927 (gage height, 13.0 ft, from floodmark); minimum observed, 8.8 cfs Sept. 21, 1948 (gage height, 0.57 ft); minimum daily, 59 cfs Aug. 29 to Sept. 1, 1934.

Remarks.--Diurnal fluctuation at low flow caused by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | 313 | - |
| 1925 | 827 | 501 | 600 | 220 | 1,370 | 1,540 | 1,130 | 664 | 434 | 246 | 198 | 520 | 683 |
| 1926 | 794 | 964 | 724 | 467 | 299 | 342 | 2,360 | 1,380 | 750 | 391 | 284 | 244 | 750 |
| 1927 | 529 | 1,070 | 436 | 410 | 424 | 1,460 | 683 | 781 | 274 | 243 | 159 | 146 | 552 |
| 1928 | 415 | 1,760 | 1,490 | 1,090 | 550 | 1,000 | 2,010 | 796 | 520 | 269 | 269 | 228 | 876 |
| 1929 | 344 | 536 | 511 | 656 | 266 | 1,470 | 1,440 | 1,100 | 395 | 349 | 257 | 179 | 628 |
| 1930 | 499 | 545 | 390 | 1,130 | 702 | 822 | 1,640 | 991 | 551 | 300 | 165 | 141 | 655 |
| 1931 | 180 | 181 | 230 | 147 | 171 | 516 | 1,240 | 734 | 298 | 204 | 107 | 218 | 353 |
| 1932 | 275 | 602 | 618 | 1,020 | 581 | 447 | 2,420 | 802 | 316 | 353 | 189 | 141 | 645 |
| 1933 | 743 | 751 | 552 | 574 | 363 | 504 | 2,040 | 778 | 233 | 109 | 104 | 124 | 572 |
| 1934 | 166 | 242 | 430 | 494 | 157 | 605 | 2,016 | 499 | 272 | 160 | 69.5 | 103 | 434 |
| 1935 | 218 | 325 | 302 | 680 | 314 | 904 | 1,243 | 954 | 657 | 490 | 194 | 242 | 545 |
| 1936 | 285 | 323 | 311 | 202 | 160 | 1,552 | 1,343 | 781 | 343 | 249 | 145 | 466 | 514 |
| 1937 | 930 | 854 | 707 | 1,262 | 516 | 280 | 2,168 | 1,090 | 560 | 235 | 391 | 153 | 782 |
| 1938 | 322 | 556 | 358 | 373 | 841 | 1,380 | 1,091 | 505 | 194 | 284 | 253 | 560 | 557 |
| 1939 | 299 | 389 | 613 | 417 | 359 | 797 | 1,878 | 714 | 379 | 170 | 110 | 119 | 520 |
| 1940 | 236 | 329 | 533 | 248 | 225 | 252 | 2,183 | 848 | 424 | 352 | 176 | 126 | 493 |
| 1941 | 166 | 416 | 836 | 565 | 307 | 225 | 1,252 | 257 | 122 | 173 | 116 | 122 | 379 |
| 1942 | 322 | 391 | 532 | 309 | 288 | 1,429 | 1,667 | 449 | 285 | 122 | 143 | 237 | 619 |
| 1943 | 272 | 520 | 418 | 446 | 649 | 1,249 | 1,438 | 1,794 | 558 | 364 | 366 | 312 | 699 |
| 1944 | 440 | 724 | 339 | 247 | 237 | 561 | 1,792 | 859 | 279 | 148 | 89.7 | 217 | 493 |
| 1945 | 256 | 280 | 260 | 321 | 299 | 1,946 | 1,285 | 1,249 | 451 | 293 | 133 | 408 | 601 |
| 1946 | 926 | 938 | 410 | 530 | 415 | 1,441 | 658 | 846 | 308 | 187 | 128 | 151 | 580 |
| 1947 | 951 | 1,171 | 812 | 993 | 942 | 1,137 | 2,810 | 1,563 | 1,639 | 767 | 317 | 232 | 1,107 |
| 1948 | 162 | 452 | 454 | 245 | 402 | 1,856 | 1,125 | 1,120 | 331 | 229 | 268 | 97.8 | 563 |
| 1949 | 211 | 500 | 345 | 821 | 791 | 1,241 | 1,378 | 660 | 218 | 144 | 127 | 251 | 555 |
| 1950 | 222 | 381 | 371 | 785 | 308 | 384 | 1,598 | 492 | 306 | 142 | 300 | 438 | 553 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1924 | - | - | - | - | - | - | - | - | - | - | - | 1.04 | - |
| 1925 | 2.85 | 1.67 | 2.07 | 0.76 | 4.27 | 5.28 | 5.78 | 2.29 | 1.44 | 0.85 | 0.68 | 1.73 | 27.67 |
| 1926 | 2.73 | 3.21 | 2.49 | 1.61 | .93 | 1.18 | 7.84 | 4.74 | 2.50 | 1.35 | .98 | .81 | 30.37 |
| 1927 | 1.82 | 3.55 | 1.50 | 1.41 | 1.32 | 5.03 | 2.27 | 2.69 | .91 | .84 | .55 | .49 | 22.58 |
| 1928 | 1.43 | 5.85 | 5.14 | 3.75 | 1.77 | 3.78 | 6.70 | 2.74 | 1.73 | .99 | .93 | .76 | 35.57 |
| 1929 | 1.19 | 1.78 | 1.76 | 2.26 | .83 | 5.06 | 4.78 | 3.79 | 1.31 | 1.20 | .88 | .60 | 25.44 |
| 1930 | 1.72 | 1.81 | 1.34 | 3.90 | 2.18 | 2.83 | 5.45 | 3.41 | 1.83 | 1.03 | .57 | .47 | 26.54 |
| 1931 | .62 | .60 | .79 | .51 | .53 | 1.78 | 4.14 | 2.53 | .99 | .70 | .37 | .73 | 14.29 |
| 1932 | .95 | 2.01 | 2.13 | 3.50 | 1.87 | 1.54 | 8.07 | 2.76 | 1.05 | 1.21 | .65 | .47 | 26.21 |
| 1933 | 2.56 | 2.50 | 1.90 | 1.97 | 1.13 | 1.73 | 6.80 | 2.68 | .78 | .38 | .36 | .41 | 23.20 |
| 1934 | .57 | .81 | 1.48 | 1.70 | .49 | 2.09 | 6.72 | 1.72 | .91 | .55 | .24 | .34 | 17.62 |
| 1935 | .75 | 1.08 | 1.04 | 2.34 | .98 | 3.11 | 4.14 | 3.29 | 2.19 | 1.68 | .67 | .81 | 22.08 |
| 1936 | .98 | 1.08 | 1.07 | .70 | .52 | 5.34 | 4.47 | 2.69 | 1.14 | .86 | .50 | 1.55 | 20.90 |
| 1937 | 3.20 | 2.94 | 2.43 | 4.35 | 1.60 | .96 | 7.22 | 3.75 | 1.86 | .81 | 1.35 | .51 | 30.88 |
| 1938 | 1.11 | 1.85 | 1.23 | 1.28 | 2.61 | 4.75 | 3.64 | 1.74 | .65 | .98 | .87 | 1.86 | 22.57 |
| 1939 | 1.03 | 1.29 | 2.11 | 1.43 | 1.11 | 2.74 | 6.26 | 2.46 | 1.26 | .58 | .38 | .40 | 21.05 |
| 1940 | .81 | 1.10 | 1.85 | .85 | .72 | .87 | 7.27 | 2.92 | 1.42 | 1.21 | .61 | .42 | 20.03 |
| 1941 | .57 | 1.38 | 2.88 | 1.95 | .95 | .77 | 4.17 | .88 | .41 | .59 | .40 | .41 | 15.36 |
| 1942 | 1.11 | 1.30 | 1.83 | 1.06 | .90 | 4.92 | 5.56 | 1.54 | .95 | .42 | .49 | .79 | 20.87 |
| 1943 | .93 | 1.73 | 1.44 | 1.54 | 2.02 | 4.30 | 4.79 | 6.17 | 1.86 | 1.25 | 1.26 | 1.04 | 28.33 |
| 1944 | 1.51 | 2.41 | 1.17 | .85 | .76 | 1.93 | 5.97 | 2.96 | .93 | .51 | .31 | .72 | 20.03 |
| 1945 | .88 | .93 | .89 | 1.11 | .93 | 6.70 | 4.27 | 4.30 | 1.50 | 1.01 | .46 | 1.36 | 24.34 |
| 1946 | 3.19 | 3.13 | 1.41 | 1.83 | 1.29 | 4.96 | 2.19 | 2.91 | 1.03 | .64 | .44 | .50 | 23.52 |
| 1947 | 3.20 | 3.90 | 2.79 | 3.42 | 2.93 | 3.91 | 9.36 | 5.38 | 5.46 | 2.64 | 1.09 | .77 | 44.85 |
| 1948 | .56 | 1.50 | 1.56 | .84 | 1.29 | 6.39 | 3.75 | 3.85 | 1.10 | .79 | .92 | .33 | 22.88 |
| 1949 | .73 | 1.67 | 1.18 | 2.82 | 2.46 | 4.27 | 4.59 | 2.27 | .72 | .49 | .44 | .84 | 22.48 |
| 1950 | .77 | 1.27 | 3.00 | 2.70 | .96 | 3.39 | 4.66 | 1.66 | 1.02 | .49 | 1.03 | 1.46 | 22.41 |

Yearly discharge, in cubic feet per second, of Grass River at Pyrites, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604 | 4,150 | Oct. 2, 1924 | 80 | 683 | 2.04 | 27.67 | 728 | 29.51 |
| 1926 | 624 | 6,790 | Apr. 26, 1926 | 124 | 750 | 2.24 | 30.37 | 711 | 28.81 |
| 1927 | 644 | 3,740 | Mar. 19, 1927 | 99 | 552 | 1.65 | 22.38 | 689 | 27.93 |
| 1928 | 664 | 8,300 | Nov. 18, 1927 | 129 | 876 | 2.61 | 35.57 | 686 | 27.88 |
| 1929 | 684 | 4,960 | Mar. 24, 1929 | 94 | 628 | 1.87 | 25.44 | 632 | 25.58 |
| 1930 | 699 | - | Jan. 9, 1930 | 97 | 655 | 1.96 | 26.54 | 585 | 23.68 |
| 1931 | 714 | 3,590 | Apr. 12, 1931 | 73 | 353 | 1.05 | 14.29 | 428 | 17.37 |
| 1932 | 729 | 4,940 | Apr. 12, 1932 | 85 | 645 | 1.93 | 26.21 | 691 | 28.08 |
| 1933 | 744 | 4,420 | Oct. 7, 1932 | 70 | 572 | 1.71 | 23.20 | 471 | 19.10 |
| 1934 | 759 | 4,420 | Apr. 1, 1934 | 59 | 434 | 1.30 | 17.62 | 435 | 17.63 |
| 1935 | 784 | 3,310 | May 1, 1935 | 103 | 545 | 1.63 | 22.08 | 551 | 22.34 |
| 1936 | 804 | 3,510 | Mar. 21, 1936 | 90 | 514 | 1.53 | 20.90 | 646 | 26.24 |
| 1937 | 824 | 7,390 | Apr. 6, 1937 | 104 | 782 | 2.27 | 30.88 | 656 | 26.60 |
| 1938 | 854 | 4,950 | Mar. 25, 1938 | 110 | 557 | 1.66 | 22.57 | 583 | 22.81 |
| 1939 | 874 | 3,330 | Apr. 20, 1939 | 71 | 520 | 1.55 | 21.05 | 503 | 20.36 |
| 1940 | 894 | 4,900 | Apr. 19, 1940 | 61 | 493 | 1.47 | 20.03 | 520 | 21.12 |
| 1941 | 924 | 4,760 | Dec. 30, 31, 1940 | 65 | 379 | 1.13 | 15.36 | 365 | 14.77 |
| 1942 | 954 | 4,200 | Mar. 18, 1942 | 73 | 515 | 1.54 | 20.87 | 511 | 20.73 |
| 1943 | 974 | 3,860 | May 13, 1943 | 143 | 699 | 2.09 | 28.33 | 723 | 29.32 |
| 1944 | 1004 | 5,000 | Apr. 26, 1944 | 72 | 493 | 1.47 | 20.03 | 434 | 17.64 |
| 1945 | 1034 | 4,410 | Mar. 19, 1945 | 77 | 601 | 1.79 | 24.34 | 724 | 29.37 |
| 1946 | 1054 | 3,800 | Mar. 10, 1946 | 89 | 580 | 1.73 | 23.52 | 634 | 25.68 |
| 1947 | 1084 | 6,780 | Apr. 13, 1947 | 149 | 1107 | 3.30 | 44.85 | 952 | 38.58 |
| 1948 | 1114 | 6,000 | Mar. 23, 1948 | 79 | 563 | 1.68 | 22.88 | 562 | 22.84 |
| 1949 | 1144 | 5,060 | Mar. 29, 1949 | 64 | 555 | 1.66 | 22.48 | 591 | 23.94 |
| 1950 | 1174 | 6,950 | Mar. 28, 1950 | 78 | 553 | 1.65 | 22.41 | - | - |

376. Raquette River at Raquette Falls, near Coreys, N. Y.

Location.--Lat 44°08'40", long. 74°19'30", on right bank 2 miles downstream from Moose Creek, 5 miles downstream from outlet of Long Lake, 6 miles upstream from Axton, and 8½ miles south of Coreys, Franklin County.

Drainage area.--419 sq mi (revised).

Gage.--Staff gage. Datum of gage is 1,606.16 ft above mean sea level, levels by State Water-Supply Commission. Prior to July 1909, water-stage recorder at same site and datum.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 70.8 | - |
| 1909 | 114 | - | - | - | - | - | - | - | - | - | 159 | 132 | - |
| 1910 | 154 | #150 | #200 | 250 | 300 | 1,500 | 2,550 | 1,980 | 1,150 | 228 | 218 | 299 | #749 |
| 1911 | 304 | 388 | 200 | 373 | 341 | 311 | 1,660 | 2,970 | 1,240 | 272 | 101 | 216 | 696 |
| 1912 | 446 | 657 | 1,290 | 754 | 308 | 255 | 2,530 | 2,250 | 1,030 | 162 | 182 | 353 | 851 |
| 1913 | 531 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for station at Piercefield.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|------|------|------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 0.19 | - |
| 1909 | 0.31 | - | - | - | - | - | - | - | - | - | 0.44 | .35 | - |
| 1910 | .42 | #0.40 | #0.55 | 0.69 | 0.75 | 4.13 | 6.80 | 5.45 | 3.05 | 0.62 | .60 | .80 | #24.26 |
| 1911 | .84 | 1.03 | .55 | 1.03 | .85 | .85 | 4.42 | 8.17 | 3.29 | .75 | .28 | .59 | 22.64 |
| 1912 | 1.25 | 1.75 | 3.55 | 2.08 | .79 | .70 | 6.75 | 6.18 | 2.75 | .45 | .50 | .48 | 27.67 |
| 1913 | 1.46 | - | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for station at Piercefield.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | 264 | - | - | - | - | - | - | - | - |
| 1909 | 264 | - | - | - | - | - | - | - | - |
| 1910 | 284 | - | - | - | - | #749 | 1.79 | 24.26 | 780 |
| 1911 | 304 | - | - | 70 | 698 | 1.67 | 22.64 | 825 | 26.75 |
| 1912 | 324 | - | - | 115 | 851 | 2.03 | 27.67 | - | - |
| 1913 | 324 | - | - | - | - | - | - | - | - |

* Not previously published.

377. Bog River near Tupper Lake, N. Y.

Location.--Lat 44°07'40", long. 74°32'45", on left bank at head of Bog River Falls, about 100 ft upstream from Tupper Lake, and about 8 miles upstream from village of Tupper Lake, Hamilton County.

Drainage area.--132 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,563.76 ft above mean sea level.

Extremes.--1909-12: Maximum discharge, 1,690 cfs Apr. 16, 1910 (gage height, 5.1 ft); minimum observed, 7.5 cfs Oct. 21-23, 1908.

Remarks.--Flow regulated for log driving and by small powerplant.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 32.1 | - |
| 1909 | *24.9 | - | - | - | - | - | - | - | - | 60 | 42 | 44 | - |
| 1910 | 62 | 68 | *90 | 100 | *140 | *350 | 648 | 750 | 512 | 47.0 | 28.8 | 61.7 | *220 |
| 1911 | 83.3 | +174 | *90 | 120 | *150 | 120 | 783 | 723 | 286 | 80.1 | 23.9 | 49.6 | *223 |
| 1912 | 73.8 | 247 | *500 | *300 | *120 | *100 | 759 | 495 | 290 | - | - | - | - |

* Revised.

† Corrected.

‡ Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 0.27 | - |
| 1909 | *0.22 | - | - | - | - | - | - | - | - | 0.52 | 0.37 | .37 | - |
| 1910 | .54 | 0.57 | *0.79 | 0.87 | *1.10 | *3.06 | 5.48 | 6.58 | 2.63 | .41 | .25 | .52 | *22.60 |
| 1911 | .73 | +1.47 | *.79 | 1.05 | *1.19 | 1.05 | 6.62 | 6.32 | 2.42 | .70 | .21 | .42 | *22.97 |
| 1912 | .64 | 2.09 | *4.37 | *2.62 | *.98 | *.87 | 6.42 | 4.32 | 2.46 | - | - | - | - |

* Revised.

† Corrected.

‡ Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.F. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1908 | 244 | - | - | - | - | - | - | - | - |
| 1909 | 264 | - | - | - | - | - | - | - | - |
| 1910 | 284 | 1,690 | Apr. 16, 1910 | - | *220 | *1.67 | *22.60 | *230 | *23.69 |
| 1911 | 304 | *1,610 | May 3, 1911 | - | *223 | *1.69 | *22.97 | *263 | *27.08 |
| 1912 | 324 | *1,300 | Apr. 19, 1912 | - | - | - | - | - | - |

* Revised.

‡ Not previously published.

378. Raquette River at Piercefield, N. Y.

Location.--Lat 44°14'05", long. 74°34'20", on left bank half a mile downstream from dam of International Paper Co. at Piercefield, St. Lawrence County.

Drainage area.--722 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,502.12 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Dec. 31, 1912, staff on chain gage at same site (datum of chain gage lowered 2 ft Jan. 1, 1911, to present datum).

Average discharge.--42 years (1908-50), 1,286 cfs.

Extremes.--1908-50: Maximum discharge, 8,240 cfs May 16, 1943 (gage height, 12.09 ft); minimum, 4.1 cfs Oct. 12, 1947 (gage height, 0.61 ft), caused by construction work above station; minimum daily, 4.1 cfs Oct. 12, 1947.

Remarks.--Seasonal distribution of flow appreciably modified by natural storage in lakes and ponds above station. Extensive diurnal fluctuation by powerplant at Piercefield.

Monthly and yearly mean discharge, in cubic feet per second,
of Raquette River at Piercefield, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|--------|--------|-------|-------|--------|-------|-------|-------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | - | 220 |
| 1909 | 95.9 | 133 | 387 | 641 | 1,310 | 1,230 | 3,390 | 4,560 | 1,600 | 501 | 282 | 348 | 1,210 |
| 1910 | 330 | 270 | 393 | 503 | 700 | 1,830 | 4,270 | 3,110 | 2,040 | *555 | 269 | 438 | *1,220 |
| 1911 | 446 | 637 | 410 | 587 | 715 | 543 | 2,030 | 4,120 | 1,600 | 544 | 293 | 358 | 1,030 |
| 1912 | 304 | 785 | 1,890 | 1,210 | 557 | 423 | 2,280 | 3,330 | 1,740 | 332 | 319 | 429 | 1,130 |
| 1913 | *840 | 1,850 | 1,520 | 2,190 | 1,540 | 2,170 | 4,600 | 1,240 | 1,190 | *311 | *456 | *429 | *1,500 |
| 1914 | 411 | 1,260 | 1,220 | 599 | 474 | 520 | 3,330 | 3,880 | 704 | 446 | 431 | 448 | 1,150 |
| 1915 | 344 | 424 | 893 | 908 | 939 | 1,050 | 2,120 | 2,090 | 512 | 725 | 653 | 674 | 945 |
| 1916 | 480 | 469 | *720 | *1,350 | *2,150 | 1,310 | 3,050 | 4,120 | 1,870 | 694 | 489 | 188 | *1,400 |
| 1917 | 256 | 481 | 1,220 | 832 | 644 | 689 | 3,590 | 3,110 | 3,020 | 1,180 | 408 | 409 | 1,320 |
| 1918 | *806 | 1,640 | 835 | 543 | 453 | 1,130 | 3,880 | 3,340 | 1,780 | 1,120 | 632 | 504 | 1,380 |
| 1919 | 1,970 | 2,290 | 1,510 | 1,190 | 848 | 1,210 | 3,860 | 2,980 | 1,070 | 508 | 323 | 427 | 1,490 |
| 1920 | 679 | 1,470 | 1,290 | 585 | 435 | 541 | 3,550 | 3,410 | 1,020 | 775 | 542 | 356 | 1,230 |
| 1921 | 579 | 725 | 1,960 | 1,250 | 747 | 3,580 | 3,830 | *1,320 | 711 | 491 | 543 | 356 | *1,350 |
| 1922 | 348 | 1,000 | 1,380 | 707 | 574 | 1,630 | 5,250 | 2,680 | 1,520 | 2,110 | 558 | 362 | 1,510 |
| 1923 | 258 | 365 | 438 | 603 | 423 | 464 | 2,810 | 3,320 | 1,460 | 507 | 194 | 208 | 921 |
| 1924 | 265 | 469 | 1,450 | 1,630 | 964 | 815 | 2,490 | 4,800 | 1,310 | 574 | 653 | 854 | 1,340 |
| 1925 | 1,910 | 691 | 1,050 | 572 | 1,100 | 2,200 | 3,550 | 2,610 | 1,220 | 929 | 848 | 1,150 | 1,480 |
| 1926 | 1,650 | 2,140 | 1,500 | 952 | 744 | 647 | 2,110 | 5,090 | 1,650 | 924 | 647 | 774 | 1,590 |
| 1927 | 1,250 | 2,480 | 1,570 | 649 | 618 | 1,550 | 2,030 | 2,320 | 1,390 | 563 | 471 | 532 | 1,290 |
| 1928 | 837 | 2,140 | 3,390 | 1,680 | 1,100 | 1,010 | 4,560 | 3,220 | 1,460 | 770 | 796 | 648 | 1,800 |
| 1929 | 711 | 1,000 | 1,150 | 1,230 | 1,100 | 1,810 | 4,090 | 3,420 | 1,190 | 1,200 | 664 | 461 | 1,500 |
| 1930 | 751 | 1,120 | 1,080 | 2,330 | 1,260 | 1,530 | 3,260 | 3,070 | 1,860 | 1,100 | 491 | 373 | 1,510 |
| 1931 | 324 | 291 | 348 | 372 | 331 | 364 | 2,280 | 2,070 | 1,010 | 566 | 625 | 433 | 751 |
| 1932 | 568 | 1,060 | 1,140 | 2,070 | 1,650 | 1,010 | 2,790 | 3,240 | 1,020 | 1,150 | 1,020 | 706 | 1,450 |
| 1933 | 1,910 | 1,890 | 1,210 | 1,230 | 913 | 735 | 3,850 | 3,080 | 962 | 327 | 300 | 263 | 1,390 |
| 1934 | 259 | 290 | 818 | 718 | 543 | 509 | 3,474 | 2,154 | 724 | 376 | 182 | 355 | 866 |
| 1935 | 232 | 549 | 997 | 1,230 | 921 | 887 | 1,669 | 3,068 | 1,904 | 1,043 | 639 | 494 | 1,138 |
| 1936 | 858 | 704 | 782 | 556 | 368 | 2,059 | 3,561 | 2,743 | 897 | 422 | 238 | 789 | 1,166 |
| 1937 | 1,216 | 1,434 | 669 | 2,181 | 1,435 | 1,093 | 2,009 | 3,941 | 1,457 | 503 | 1,025 | 748 | 1,491 |
| 1938 | 583 | 1,373 | 1,194 | 703 | 1,160 | 2,036 | 1,196 | 1,867 | 654 | 616 | 1,061 | 1,614 | 1,390 |
| 1939 | 1,476 | 847 | 1,469 | 925 | 928 | 1,104 | 2,348 | 3,503 | 822 | 507 | 362 | 127 | 1,205 |
| 1940 | 334 | 313 | 498 | 489 | 413 | 325 | 1,808 | 3,998 | 1,230 | 852 | 677 | 518 | 958 |
| 1941 | 469 | 684 | 981 | 1,638 | 673 | 535 | 2,125 | 1,131 | 396 | 403 | 355 | 445 | 820 |
| 1942 | 481 | 881 | 710 | 817 | 670 | 857 | 3,355 | 1,959 | 1,464 | 558 | 301 | 592 | 1,051 |
| 1943 | 1,184 | 1,519 | 1,043 | 1,062 | 1,008 | 1,279 | 2,108 | 6,094 | 2,133 | 798 | 1,052 | 898 | 1,685 |
| 1944 | 532 | 1,309 | 706 | 695 | 822 | 647 | 2,326 | 4,601 | 969 | 828 | 416 | 294 | 1,164 |
| 1945 | 592 | 622 | 575 | 750 | 644 | 2,101 | 4,203 | 3,109 | 1,407 | 1,373 | 683 | 899 | 1,415 |
| 1946 | 3,292 | 1,940 | 1,046 | 990 | 904 | 2,295 | 2,028 | 1,841 | 1,439 | 684 | 461 | 415 | 1,449 |
| 1947 | 879 | 1,569 | 1,649 | 1,173 | 1,828 | 1,256 | 3,865 | 5,396 | 3,982 | 1,396 | 981 | 403 | 2,028 |
| 1948 | 54.7 | 534 | 510 | 578 | 673 | 1,632 | 4,010 | 2,251 | 1,182 | 695 | 678 | 612 | 1,115 |
| 1949 | 516 | 448 | 952 | 2,212 | 1,221 | 1,455 | 3,208 | 1,670 | 511 | 343 | 363 | 627 | 1,125 |
| 1950 | 668 | 737 | 1,279 | 2,090 | 1,166 | 1,120 | 2,321 | 2,325 | 832 | 359 | 365 | 647 | 1,158 |

* Revised.

† Corrected.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|-------|-------|-------|------|------|-------|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | - | 0.34 |
| 1909 | 0.15 | 0.21 | 0.62 | 1.02 | 1.89 | 1.97 | 5.24 | 7.29 | 2.48 | 0.80 | 0.45 | .54 | 22.66 |
| 1910 | .53 | .42 | .63 | .80 | 1.01 | 2.92 | 6.60 | 4.96 | 3.15 | *.89 | .43 | .68 | *23.02 |
| 1911 | .71 | .98 | .66 | .94 | 1.03 | .87 | 3.14 | 6.58 | 2.48 | .87 | .47 | .55 | 19.28 |
| 1912 | .49 | 1.21 | 3.02 | 1.93 | .83 | .68 | 3.52 | 5.32 | 2.68 | .53 | .51 | .66 | 21.38 |
| 1913 | *1.34 | 2.85 | 2.43 | 3.50 | 2.22 | 3.46 | 7.11 | 1.98 | 1.84 | *.82 | *.39 | *.17 | *28.11 |
| 1914 | .66 | 1.95 | 1.95 | .96 | .68 | .83 | 5.14 | 6.20 | 1.09 | .71 | .69 | .69 | 21.55 |
| 1915 | .55 | .65 | 1.43 | 1.45 | 1.36 | 1.67 | 3.27 | 3.34 | .79 | 1.16 | 1.04 | 1.04 | 17.75 |
| 1916 | .77 | .73 | *1.15 | *2.16 | *3.21 | 2.09 | 4.72 | 6.58 | 2.89 | 1.11 | .78 | .29 | *26.48 |
| 1917 | .41 | .74 | 1.96 | 1.33 | .93 | 1.10 | 5.55 | 4.97 | 4.66 | 1.89 | .65 | .63 | 24.92 |
| 1918 | 1.29 | 2.53 | 1.01 | .55 | .65 | 1.80 | 6.00 | 3.33 | 2.75 | 1.79 | .71 | .78 | 25.49 |
| 1919 | 3.14 | 3.53 | 2.41 | *1.91 | .94 | 1.92 | 5.96 | 4.49 | 1.66 | .81 | .52 | .66 | *28.05 |
| 1920 | 1.08 | 2.27 | 2.05 | .93 | .65 | .86 | 5.49 | 5.45 | 1.58 | 1.23 | .87 | .67 | 25.13 |
| 1921 | .92 | 1.12 | 3.13 | 2.00 | 1.08 | 5.71 | 5.92 | *2.11 | 1.10 | .78 | .87 | .55 | *25.29 |
| 1922 | .56 | 1.55 | 2.20 | 1.13 | .83 | 2.60 | 8.12 | 4.27 | 2.35 | 3.37 | .89 | .55 | 28.43 |
| 1923 | .41 | .56 | .70 | .96 | .61 | .74 | 4.35 | 5.30 | 2.25 | .81 | .31 | .32 | 17.32 |
| 1924 | .42 | .72 | 2.32 | 2.60 | 1.44 | .93 | 3.84 | 7.56 | 2.02 | .92 | 1.04 | 1.32 | 25.28 |
| 1925 | 2.89 | 1.07 | 1.68 | .91 | 1.58 | 3.52 | 5.48 | 4.17 | 1.89 | 1.48 | 1.35 | *1.78 | 27.80 |
| 1926 | 2.64 | 3.31 | 2.40 | 1.52 | 1.07 | 1.03 | 3.28 | 8.13 | 2.85 | 1.48 | 1.03 | 1.20 | 29.92 |
| 1927 | 2.00 | 3.93 | 2.51 | 1.04 | .89 | 2.47 | 3.14 | 3.70 | 2.14 | .90 | .75 | .82 | 24.19 |
| 1928 | 1.34 | 3.50 | 5.42 | 2.69 | 1.64 | 1.61 | 7.05 | 5.14 | 2.26 | 1.23 | 1.27 | 1.00 | 33.95 |
| 1929 | 1.14 | 1.55 | 1.83 | 1.96 | 1.59 | 2.89 | 6.32 | 5.45 | 1.84 | 1.92 | 1.06 | .71 | 28.26 |
| 1930 | 1.20 | 1.73 | 1.72 | 3.71 | 1.82 | 2.44 | 5.03 | 4.82 | 2.88 | 1.75 | .78 | .58 | 28.46 |
| 1931 | .52 | .45 | .55 | .59 | .48 | .58 | 3.49 | 3.31 | 1.56 | .90 | 1.00 | .67 | 14.10 |
| 1932 | .91 | 1.64 | 1.83 | 3.31 | 2.46 | 1.61 | 4.31 | 5.17 | 1.58 | 1.83 | 1.62 | 1.09 | 27.56 |
| 1933 | 3.05 | 2.92 | 1.93 | 1.97 | 1.32 | 1.17 | 5.95 | 4.91 | 1.49 | .52 | .48 | .41 | 26.12 |
| 1934 | .41 | .45 | 1.30 | 1.15 | .78 | .81 | 5.37 | 3.44 | 1.12 | .60 | .29 | .55 | 16.27 |
| 1935 | .37 | .85 | 1.59 | 1.96 | 1.33 | 1.42 | 2.58 | 4.90 | 2.94 | 1.66 | 1.02 | .76 | 21.58 |
| 1936 | 1.37 | 1.09 | 1.24 | .89 | .55 | 3.29 | 5.50 | 4.38 | 1.38 | .67 | .38 | 1.22 | 21.96 |
| 1937 | 1.94 | 2.22 | 1.33 | 3.48 | 2.07 | 1.74 | 3.10 | 6.30 | 2.25 | .80 | 1.64 | 1.16 | 28.03 |
| 1938 | .93 | 2.06 | 1.90 | 1.12 | 2.10 | 3.25 | 4.94 | 2.50 | 1.01 | .98 | 1.70 | 2.50 | 24.99 |
| 1939 | 2.35 | 1.30 | 2.34 | 1.48 | 1.34 | 1.76 | 3.53 | 5.59 | 1.27 | .81 | .58 | .20 | 22.65 |
| 1940 | .53 | .48 | .80 | .78 | .62 | .52 | 2.79 | 6.39 | 1.90 | 1.36 | 1.08 | .80 | 18.05 |

* Revised.

† Corrected.

Monthly and yearly runoff, in inches, of Raquette River at Piercefield, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.75 | 1.06 | 1.57 | 2.62 | 0.97 | 0.85 | 3.28 | 1.61 | 0.61 | 0.64 | 0.57 | 0.69 | 15.42 |
| 1942 | .77 | 1.36 | 1.13 | 1.30 | .97 | 1.37 | 5.19 | 3.12 | 2.26 | .89 | .48 | .91 | 19.75 |
| 1943 | 1.86 | 2.35 | 1.67 | 1.70 | 1.45 | 2.04 | 3.26 | 9.73 | 3.30 | 1.26 | 1.68 | 1.39 | 31.69 |
| 1944 | .85 | 2.02 | 1.13 | 1.11 | .93 | 1.05 | 3.59 | 7.55 | 1.50 | 1.32 | .66 | .45 | 21.94 |
| 1945 | .95 | .96 | .92 | 1.20 | .93 | 3.35 | 6.50 | 4.96 | 2.17 | 2.19 | 1.09 | 1.39 | 26.61 |
| 1946 | 5.26 | 3.00 | 1.67 | 1.58 | 1.30 | 3.66 | 3.13 | 2.94 | 2.22 | 1.09 | .74 | .64 | 27.23 |
| 1947 | 1.40 | 2.42 | 2.63 | 1.87 | 2.64 | 2.01 | 5.97 | 8.62 | 6.15 | 2.23 | 1.57 | .62 | 36.13 |
| 1948 | .09 | .83 | .81 | .92 | 1.01 | 2.61 | 6.20 | 3.59 | 1.83 | 1.11 | 1.08 | .95 | 21.03 |
| 1949 | .82 | .69 | 1.52 | 3.53 | 1.76 | 2.32 | 4.95 | 2.67 | .79 | .55 | .58 | .97 | 21.15 |
| 1950 | 1.07 | 1.14 | 2.04 | 3.34 | 1.68 | 1.79 | 3.59 | 3.71 | 1.29 | .54 | .56 | 1.00 | 21.77 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|--------|------------------|---|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1908 | 244 | - | - | - | - | - | - | - | - | - |
| 1909 | 264 | \$5,560 | May 14, 1909 | 91 | 1,210 | 1.68 | 22.66 | †1,240 | 23.26 | |
| 1910 | 284,1387 | \$4,900 | Apr. 6, 1910 | 90 | 1,220 | 1.69 | *23.02 | 1,270 | 23.79 | |
| 1911 | 304 | \$6,000 | May 1, 1911 | 54 | 1,030 | 1.43 | 19.28 | 1,150 | 21.66 | |
| 1912 | 324 | \$7,100 | Apr. 30, 1912 | 22 | 1,130 | 1.57 | 21.38 | *1,240 | *23.28 | |
| 1913 | 354,1387 | 7,100 | Apr. 1, 1913 | *9 | *1,500 | *2.08 | *26.11 | *1,390 | *26.06 | |
| 1914 | 384,1387 | \$6,590 | Apr. 26, 1914* | - | 1,150 | 1.59 | 21.55 | 1,040 | 19.62 | |
| 1915 | 404 | 3,760 | Apr. 21, 1915 | 68 | 945 | 1.31 | 17.75 | 945 | 17.77 | |
| 1916 | 434,1387 | 4,780 | May 22, 1916 | 59 | *1,400 | *1.94 | *26.48 | *1,380 | *25.97 | |
| 1917 | 454 | 4,950 | Apr. 30, 1917 | 62 | 1,320 | 1.83 | 24.82 | 1,410 | 26.54 | |
| 1918 | 474 | 5,990 | Apr. 2, 1918 | 70 | 1,360 | 1.88 | 25.49 | 1,580 | 29.74 | |
| 1919 | 504 | 5,100 | Apr. 16, 1919 | 50 | 1,490 | 2.06 | †28.05 | 1,300 | 24.37 | |
| 1920 | 504 | \$5,300 | Apr. 29, 1920 | 98 | 1,230 | 1.70 | 23.13 | 1,220 | 22.90 | |
| 1921 | 524,1387 | 7,150 | Mar. 30, 1921 | 220 | *1,350 | *1.87 | *25.29 | *1,300 | *24.43 | |
| 1922 | 544 | 7,580 | Apr. 17, 1922 | 95 | 1,510 | 2.09 | 28.43 | 1,370 | 25.79 | |
| 1923 | 564 | 4,600 | Apr. 30, 1923 | 56 | 921 | 1.28 | 17.32 | 1,020 | 19.11 | |
| 1924 | 604 | 5,930 | May 5, 1924 | 77 | 1,340 | 1.86 | 25.28 | 1,460 | 27.46 | |
| 1925 | 604 | 4,380 | Apr. 6, 1925 | 140 | 1,480 | 2.05 | 27.80 | 1,620 | 30.51 | |
| 1926 | 624 | 6,920 | May 7, 1926 | 118 | 1,590 | 2.20 | 29.92 | 1,590 | 29.91 | |
| 1927 | 644 | 3,150 | May 23, 1927 | 214 | 1,290 | 1.79 | 24.19 | 1,380 | 25.91 | |
| 1928 | 664 | 6,750 | Apr. 14, 1928 | 197 | 1,800 | 2.49 | 33.95 | 1,510 | 28.41 | |
| 1929 | 684 | 5,220 | Apr. 12, 1929 | 194 | 1,500 | 2.08 | 28.26 | 1,510 | 28.39 | |
| 1930 | 699 | 4,760 | Apr. 21, 1930 | 180 | 1,510 | 2.09 | 28.46 | 1,350 | 25.33 | |
| 1931 | 714 | 3,620 | Apr. 22, 1931 | 65 | 751 | 1.04 | 14.10 | 902 | 16.96 | |
| 1932 | 729 | 4,890 | May 4, 1932 | 164 | 1,450 | 2.01 | 27.36 | 1,640 | 30.88 | |
| 1933 | 744 | 6,620 | Apr. 23, 1933 | 99 | 1,390 | 1.93 | 26.12 | 1,084 | 20.38 | |
| 1934 | 759 | 4,900 | Apr. 21, 1934 | 70 | 866 | 1.20 | 16.27 | 900 | 16.92 | |
| 1935 | 784 | 4,460 | May 8, 1935 | 63 | 1,138 | 1.58 | 21.38 | 1,185 | 22.27 | |
| 1936 | 804 | 5,330 | Mar. 30, 1936 | 138 | 1,166 | 1.61 | 21.96 | 1,260 | 23.75 | |
| 1937 | 824 | 4,600 | May 22, 1937 | 299 | 1,491 | 2.07 | 26.03 | 1,460 | 27.43 | |
| 1938 | 854 | 4,250 | Mar. 29, 1938 | 319 | 1,330 | 1.84 | 24.99 | 1,389 | 26.09 | |
| 1939 | 874 | 5,810 | May 2, 1939 | 35 | 1,205 | 1.67 | 22.65 | 962 | 18.47 | |
| 1940 | 894 | 6,300 | May 7, 1940 | 115 | 958 | 1.33 | 18.05 | 1,040 | 19.62 | |
| 1941 | 924 | 3,970 | Apr. 23, 1941 | 144 | 820 | 1.14 | 15.42 | 814 | 15.30 | |
| 1942 | 954 | 5,110 | Apr. 22, 1942 | 134 | 1,051 | 1.46 | 19.75 | 1,190 | 22.37 | |
| 1943 | 974 | 8,240 | May 16, 1943 | 555 | 1,685 | 2.33 | 31.69 | 1,585 | 29.81 | |
| 1944 | 1004 | 4,640 | Apr. 9, 1944 | 158 | 1,164 | 1.61 | 21.94 | 1,102 | 20.77 | |
| 1945 | 1034 | 6,970 | Apr. 5, 1945 | 292 | 1,415 | 1.96 | 26.61 | 1,793 | 33.71 | |
| 1946 | 1064 | 4,230 | Oct. 10, 1946 | 359 | 1,449 | 2.01 | 27.23 | 1,265 | 23.75 | |
| 1947 | 1084 | 7,300 | May 8, 1947 | 52 | 2,028 | 2.81 | 36.13 | 1,777 | 33.41 | |
| 1948 | 1114 | 5,990 | Apr. 5, 1948 | 4.1 | 1,115 | 1.54 | 21.03 | 1,184 | 22.33 | |
| 1949 | 1144 | 4,220 | Apr. 3, 1949 | 65 | 1,125 | 1.56 | 21.15 | 1,190 | 22.37 | |
| 1950 | 1174 | 3,580 | Apr. 26, 1950 | 218 | 1,158 | 1.60 | 21.77 | - | - | |

* Revised.

† Corrected.

* Not previously published.

379. Raquette River at Raymondville, N. Y.

Location.--Lat 44°50'20", long. 74°58'45", on right bank 250 ft upstream from old highway bridge at Raymondville, St. Lawrence County, 0.3 mile downstream from Trout Brook, 0.4 mile downstream from powerplant of Niagara Mohawk Power Corp., and 18 miles upstream from mouth.

Drainage area.--1,131 sq mi.

Gage.--Water-stage recorder. Datum of gage is 183.33 ft above mean sea level, datum of 1929.

Average discharge.--6 years (1944-50), 2,114 cfs.

Extremes.--1943-50: Maximum discharge, 10,300 cfs June 8, 1947; maximum gage height, 7.75 ft Mar. 29, 1950 (backwater from ice); minimum discharge, 5.6 cfs July 13, 1950 (gage height, 0.42 ft); minimum daily, 21 cfs Aug. 21, 1949.

Remarks.--Extensive diurnal fluctuation caused by power and industrial operations.

Seasonal distribution of flow appreciably modified by natural storage in lakes and ponds above station.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly mean discharge, in cubic feet per second,
of Raquette River at Raymondville, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1944 | - | - | 1,113 | 1,098 | 1,033 | 1,284 | 3,955 | 5,897 | 1,504 | 1,023 | 587 | 496 | - |
| 1945 | 790 | 908 | 833 | 1,007 | 870 | 3,811 | 5,810 | 4,725 | 2,069 | 1,686 | 998 | 1,221 | 2,066 |
| 1946 | 4,521 | 2,900 | 1,627 | 1,665 | 1,409 | 3,843 | 2,797 | 2,722 | 1,916 | 966 | 547 | 550 | 2,129 |
| 1947 | 1,844 | 2,757 | 2,700 | 2,281 | 2,725 | 2,530 | 6,385 | 7,296 | 5,889 | 2,383 | 1,458 | 685 | 3,241 |
| 1948 | 299 | 888 | 991 | 798 | 1,024 | 3,324 | 5,405 | 3,520 | 1,720 | 971 | 1,103 | 597 | 1,719 |
| 1949 | 779 | 944 | 1,374 | 3,179 | 2,162 | 2,644 | 4,855 | 2,462 | 803 | 540 | 398 | 924 | 1,751 |
| 1950 | 936 | 1,104 | 1,938 | 3,010 | 1,658 | 1,977 | 3,874 | 3,038 | 1,299 | 451 | 701 | 1,374 | 1,779 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1944 | - | - | 1.13 | 1.12 | 0.98 | 1.31 | 3.90 | 6.01 | 1.48 | 1.04 | 0.58 | 0.49 | - |
| 1945 | 0.91 | 0.90 | 0.85 | 1.03 | 0.80 | 3.88 | 5.73 | 4.82 | 2.04 | 1.72 | 1.02 | 1.20 | 24.80 |
| 1946 | 4.61 | 2.86 | 1.66 | 1.70 | 1.30 | 3.92 | 2.76 | 2.77 | 1.89 | .99 | .56 | .54 | 25.55 |
| 1947 | 1.88 | 2.72 | 2.75 | 2.32 | 2.51 | 2.58 | 6.30 | 7.44 | 5.81 | 2.43 | 1.49 | .68 | 38.91 |
| 1948 | .30 | .88 | 1.01 | .81 | .98 | 3.39 | 5.53 | 3.59 | 1.70 | .99 | 1.12 | .59 | 20.69 |
| 1949 | .79 | .93 | 1.40 | 3.24 | 1.99 | 2.69 | 4.79 | 2.51 | .79 | .55 | .41 | .91 | 21.00 |
| 1950 | .95 | 1.09 | 1.98 | 3.07 | 1.53 | 2.01 | 3.82 | 3.10 | 1.28 | .46 | .71 | 1.35 | 21.55 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|-------|-----------------|------------------|-------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1944 | 1004 | - | - | - | - | - | - | 1,618 | - |
| 1945 | 1034 | 9,860 | Apr. 2, 1945 | 40 | 2,066 | 1.83 | 24.80 | 2,614 | - |
| 1946 | 1054 | 7,060 | Mar. 10, 1946 | 230 | 2,129 | 1.88 | 25.55 | 1,981 | - |
| 1947 | 1084 | 10,300 | June 8, 1947 | 50 | 3,241 | 2.87 | 38.91 | 2,811 | - |
| 1948 | 1114 | 8,500 | Mar. 29, 1948 | 37 | 1,719 | 1.52 | 20.69 | 1,797 | - |
| 1949 | 1144 | 7,590 | Mar. 30, 1949 | 21 | 1,751 | 1.55 | 21.00 | 1,825 | - |
| 1950 | 1174 | 10,200 | Mar. 29, 1950 | 105 | 1,779 | 1.57 | 21.55 | - | - |

380. Raquette River at Massena Springs, N. Y.

Location.--Lat 44°55'05", long. 74°53'20", near center of left span on upstream side of concrete highway bridge in Massena Springs, St. Lawrence County, 2 3/4 miles downstream from Plum Brook, 8 miles downstream from Raymondville, and 10 miles upstream from mouth.

Drainage area.--1,197 sq mi (revised).

Gage.--Chain gage. Altitude of gage is 160 ft (from topographic map). Sept. 21, 1903, to Aug. 15, 1906, staff gage on upstream side of right abutment and Aug. 16, 1906, to Feb. 2, 1912, chain gage near center of right span on upstream side, at old highway bridge 50 ft upstream at datum 1.0 ft higher.

Average discharge.--11 years (1905-16), 2,110 cfs.

Extremes.--1905-16: Maximum discharge, 16,500 cfs Mar. 31, 1913 (gage height, 14.2 ft, from floodmark); minimum daily, 52 cfs Oct. 13, 1913.

Remarks.--Low flow regulated by operation of several powerplants upstream. These plants usually run 24 hours a day but close on Sundays. The effect of this closing is noticeable for several days. Seasonal distribution of flow affected by controlled storage in numerous upstream lakes.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1904 | - | - | - | - | - | - | - | 4,257 | 2,694 | 978 | 605 | 1,011 | - |
| 1905 | 2,580 | 2,125 | - | - | - | - | - | 4,349 | 4,219 | 3,929 | 2,542 | 2,869 | - |
| 1906 | 2,167 | 1,943 | 3,688 | 4,140 | 2,910 | 2,920 | 3,640 | 3,250 | 1,900 | 875 | 851 | 2,530 | - |
| 1907 | 1,100 | 1,600 | 1,500 | 3,000 | 650 | 2,000 | 3,780 | 4,210 | 1,770 | 1,430 | 616 | 605 | 1,860 |
| 1908 | 1,850 | 2,540 | 2,000 | 3,000 | 2,000 | 4,000 | 5,360 | 6,870 | 1,990 | 902 | 545 | 343 | 2,600 |
| 1909 | 260 | 434 | 673 | 850 | 1,800 | 1,700 | 5,170 | 6,870 | 2,320 | 772 | 468 | 521 | 1,820 |
| 1910 | 597 | 527 | 550 | 690 | 960 | 4,040 | 4,560 | 3,210 | 2,390 | 770 | 538 | 666 | 1,630 |
| 1911 | 926 | 1,210 | 660 | 1,400 | 1,200 | 1,350 | 4,800 | 5,840 | 2,520 | 881 | 436 | 530 | 1,810 |
| 1912 | 737 | 1,370 | 3,150 | 1,500 | 763 | 972 | 6,230 | 4,940 | 3,070 | 479 | 516 | 881 | 2,050 |
| 1913 | 1,210 | 2,760 | 3,940 | 6,690 | 4,650 | 6,480 | 7,190 | 1,540 | 1,480 | 659 | 359 | 180 | 3,080 |
| 1914 | 666 | 2,040 | 2,020 | 1,100 | 800 | 1,100 | 6,440 | 5,550 | 1,480 | 571 | 536 | 802 | 1,920 |
| 1915 | 592 | 679 | 1,590 | 1,700 | 1,600 | 2,300 | 3,430 | 2,910 | 854 | 1,280 | 1,490 | 939 | 1,600 |
| 1916 | 1,170 | 1,150 | 1,220 | 2,610 | 2,510 | 2,600 | 5,870 | 5,210 | 2,910 | 1,020 | 678 | 387 | 2,270 |
| 1917 | 692 | 594 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Monthly and yearly runoff, in inches, of Raquette River at Massena Springs, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1904 | - | - | - | - | - | - | - | 4.10 | 2.50 | 0.94 | 0.58 | 0.94 | - |
| 1905 | 2.49 | 1.98 | - | - | - | - | - | 4.19 | 3.95 | 3.78 | 2.45 | 2.67 | - |
| 1906 | 2.09 | 1.81 | 3.55 | 3.99 | *1.74 | 2.80 | 2.72 | 3.50 | 3.03 | 1.83 | .84 | .79 | *28.69 |
| 1907 | 1.06 | 1.49 | *1.44 | 2.89 | .57 | 1.93 | 3.53 | 4.06 | 1.65 | 1.37 | .59 | .57 | *21.15 |
| 1908 | 1.78 | 2.37 | 1.93 | 2.89 | 1.80 | 3.85 | 5.00 | 6.42 | 1.86 | .87 | .53 | .32 | 29.62 |
| 1909 | .25 | .40 | .65 | .82 | 1.57 | 1.64 | 4.82 | 6.61 | 2.16 | .74 | .45 | .49 | 20.60 |
| 1910 | .57 | .49 | .53 | .66 | .84 | 3.89 | 4.25 | 3.09 | 2.23 | .74 | .52 | .62 | 18.43 |
| 1911 | .89 | 1.13 | .64 | 1.35 | 1.04 | 1.30 | 4.47 | 5.62 | 2.35 | .85 | .42 | .49 | 20.55 |
| 1912 | .71 | 1.28 | 3.03 | 1.44 | .68 | .94 | 5.81 | 4.76 | 2.86 | .46 | .50 | .82 | 23.30 |
| 1913 | 1.17 | 2.57 | 3.80 | 6.45 | 4.04 | 6.24 | 6.70 | 1.49 | 1.38 | .63 | .35 | .17 | 34.99 |
| 1914 | .64 | 1.90 | 1.94 | *1.06 | *.70 | *1.06 | 6.00 | 5.34 | 1.36 | .55 | .52 | .75 | *21.82 |
| 1915 | .57 | .63 | 1.34 | *1.64 | *1.40 | *2.21 | 3.20 | 2.80 | .80 | 1.23 | 1.43 | .88 | *18.13 |
| 1916 | 1.12 | 1.07 | 1.17 | 2.51 | 2.26 | 2.51 | 5.47 | 5.02 | 2.71 | .99 | .65 | .36 | 25.84 |
| 1917 | .67 | .55 | - | - | - | - | - | - | - | - | - | - | - |

* Not previously published; estimated on basis of records for nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|--------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1904 | 170 | - | - | - | - | - | - | - | - |
| 1905 | 170 | - | - | - | - | - | - | - | - |
| 1906 | 206 | - | - | 265 | *2,530 | *2.11 | *29.69 | *2,230 | *25.23 |
| 1907 | 244 | - | - | - | *1,860 | *1.55 | *21.15 | 2,040 | 23.24 |
| 1908 | 244 | - | - | 105 | 2,600 | 2.17 | 29.62 | 2,180 | 24.84 |
| 1909 | 264 | *11,500 | May 11, 1909* | 130 | 1,820 | 1.52 | 20.60 | 1,850 | 20.89 |
| 1910 | 284 | *6,450 | Mar. 14, 1910* | 284 | 1,630 | 1.36 | 18.43 | 1,720 | 19.50 |
| 1911 | 304 | *8,960 | May 3, 1911* | 305 | 1,810 | 1.51 | 20.55 | 2,020 | 22.91 |
| 1912 | 324 | *10,700 | May 31, 1912* | 86 | 2,050 | 1.71 | 23.30 | 2,270 | 25.82 |
| 1913 | 354 | 16,500 | Mar. 31, 1913 | - | 3,080 | 2.57 | 34.99 | 2,820 | 31.93 |
| 1914 | 384 | *9,450 | Apr. 29, 1914 | - | *1,920 | *1.92 | *21.82 | *1,750 | *19.88 |
| 1915 | 404 | *5,400 | Apr. 13, 1915 | 155 | *1,600 | *1.34 | *18.13 | *1,670 | *18.95 |
| 1916 | 434 | *14,700 | Apr. 1, 1916 | 230 | 2,270 | 1.90 | 25.84 | - | - |
| 1917 | 434 | - | - | - | - | - | - | - | - |

* Not previously published.

381. St. Regis River at Brasher Center, N. Y.

Location.--Lat 44°51'50", long. 74°46'45", on left bank 600 ft upstream from highway bridge at Brasher Center, St. Lawrence County, and 6½ miles downstream from confluence of East and West Branches at Winthrop.

Drainage area.--616 sq mi.

Gage.--Water-stage recorder. Datum of gage is 217.23 ft above mean sea level, datum of 1929. Prior to June 24, 1916, chain gage on bridge 600 ft downstream at different datum. June 24, 1916, to Nov. 10, 1917, and Jan. 1, 1919, to Aug. 13, 1920, staff gage at present site and datum.

Average discharge.--40 years (1910-50), 1,061 cfs.

Extremes.--1910-50: Maximum discharge, 16,800 cfs Apr. 6, 1937, from rating curve extended above 8,300 cfs by logarithmic plotting; maximum gage height recorded, about 15.3 ft Apr. 6, 1937 (ice jam); minimum discharge observed, about 34 cfs Aug. 8, 1917 (gage height, 5.25 ft); minimum daily, 37 cfs Aug. 8, 1917.

Remarks.--Slight diurnal fluctuation caused by powerplant operations above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | - | 404 | - |
| 1911 | 800 | 769 | *640 | *1,080 | *664 | *1,240 | 4,530 | 1,870 | 952 | 455 | 388 | 537 | *1,160 |
| 1912 | 702 | 1,080 | 1,820 | *632 | *482 | *1,060 | *4,550 | 2,010 | 1,300 | 315 | 510 | 1,130 | *1,300 |
| 1913 | 876 | 1,430 | 2,190 | *2,680 | *1,050 | 3,430 | 2,500 | 829 | 676 | 325 | 258 | 233 | *1,380 |
| 1914 | 893 | 1,080 | 919 | *528 | *578 | *2,000 | 3,570 | 1,230 | 388 | 291 | 185 | 426 | *1,010 |
| 1915 | 355 | 561 | *520 | *704 | *991 | *791 | 2,000 | 914 | 501 | 626 | 765 | 395 | *758 |
| 1916 | 472 | 549 | 541 | *1,600 | *1,140 | *1,250 | *3,570 | 2,010 | 996 | 404 | 219 | 225 | 1,080 |
| 1917 | 454 | 465 | 581 | 387 | 1331 | 1,220 | 2,700 | 1,380 | 1,340 | 467 | 261 | 378 | 830 |
| 1918 | 883 | *1,090 | *529 | *321 | *1,100 | *2,140 | *2,990 | *1,840 | *1,220 | *444 | *261 | *576 | *1,110 |
| 1919 | *1,680 | *2,380 | *1,620 | 1,050 | 533 | 1,970 | 2,650 | 1,730 | 633 | 396 | 326 | 574 | *1,300 |
| 1920 | 982 | 1,420 | 873 | 391 | 380 | 2,330 | 2,590 | 1,200 | 396 | 975 | 360 | 553 | 1,040 |
| 1921 | 653 | 829 | 2,130 | 1,040 | 626 | 3,080 | 1,540 | 532 | 474 | 343 | 249 | 210 | 961 |
| 1922 | 569 | 1,410 | 739 | 360 | 528 | 2,150 | 3,280 | 1,140 | 1,600 | 964 | 527 | 211 | 1,120 |
| 1923 | 326 | 578 | 442 | 473 | 362 | 1,100 | 1,120 | 1,540 | 1,460 | 370 | 176 | 247 | 847 |
| 1924 | 428 | 691 | 1,130 | 1,360 | 541 | 894 | 3,120 | 2,450 | 535 | 436 | 520 | 498 | 1,050 |
| 1925 | 1,260 | 777 | 894 | 385 | 1,770 | 2,370 | 1,920 | 1,280 | 974 | 725 | 547 | 1,040 | 1,160 |

* Revised.

† Corrected.

* Not previously published; estimated on basis of records for Oswegatchie River at Heuvelton.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly mean discharge, in cubic feet per second,
of St. Regis River at Brasher Center, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1926 | 1,500 | 1,610 | 1,260 | 894 | 586 | 564 | 3,610 | 2,640 | 1,410 | 989 | 819 | 583 | 1,370 |
| 1927 | 1,110 | 1,920 | 854 | 781 | 652 | 2,150 | 1,210 | 1,290 | 525 | 496 | 331 | 278 | 1,979 |
| 1928 | 613 | 2,470 | 2,330 | 1,610 | 1,000 | 2,020 | 3,520 | 1,820 | 1,080 | 654 | 616 | 494 | 1,500 |
| 1929 | 807 | 1,110 | 1,080 | 1,240 | 594 | 2,350 | 3,030 | 2,160 | 883 | 674 | 489 | 358 | 1,240 |
| 1930 | 851 | 972 | 698 | 1,290 | 1,290 | 1,570 | 3,150 | 1,970 | 1,260 | 661 | 361 | 286 | 1,270 |
| 1931 | 318 | 374 | 378 | 273 | 304 | 671 | 2,090 | 1,210 | 635 | 701 | 235 | 544 | 644 |
| 1932 | 538 | 1,090 | 1,050 | 1,580 | 874 | 711 | 4,400 | 1,590 | 695 | 632 | 422 | 534 | 1,170 |
| 1933 | 1,590 | 1,260 | 941 | 987 | 858 | 959 | 3,870 | 1,750 | 551 | 227 | 235 | 265 | 1,080 |
| 1934 | 513 | 455 | 789 | 898 | 335 | 1,195 | 1,843 | 910 | 522 | 129 | 129 | 155 | 814 |
| 1935 | 305 | 444 | 421 | 1,003 | 486 | 1,431 | 2,095 | 1,797 | 1,577 | 994 | 565 | 525 | 972 |
| 1936 | 582 | 662 | 585 | 403 | 330 | 2,690 | 2,312 | 1,553 | 620 | 717 | 393 | 1,003 | 989 |
| 1937 | 1,561 | 1,546 | 1,037 | 2,077 | 1,021 | 518 | 3,323 | 2,588 | 1,274 | 500 | 803 | 359 | 1,384 |
| 1938 | 541 | 986 | 625 | 672 | 1,595 | 2,569 | 2,132 | 1,018 | 355 | 487 | 384 | 752 | 1,005 |
| 1939 | 478 | 557 | 926 | 635 | 518 | 1,146 | 3,170 | 1,614 | 895 | 496 | 274 | 261 | 912 |
| 1940 | 491 | 612 | 717 | 355 | 305 | 403 | 3,017 | 1,601 | 911 | 568 | 268 | 234 | 788 |
| 1941 | 316 | 591 | 1,008 | 765 | 438 | 337 | 2,235 | 495 | 247 | 225 | 148 | 160 | 581 |
| 1942 | 433 | 568 | 634 | 432 | 400 | 1,784 | 3,266 | 942 | 631 | 245 | 251 | 420 | 833 |
| 1943 | 505 | 905 | 509 | 574 | 783 | 1,655 | 2,501 | 3,660 | 1,022 | 789 | 889 | 552 | 1,198 |
| 1944 | 755 | 1,176 | 621 | 505 | 485 | 932 | 2,925 | 1,815 | 649 | 295 | 180 | 402 | 893 |
| 1945 | 452 | 415 | 399 | 393 | 457 | 2,951 | 2,345 | 2,122 | 775 | 581 | 314 | 764 | 1,001 |
| 1946 | 1,653 | 1,416 | 667 | 998 | 676 | 2,298 | 1,167 | 1,383 | 614 | 381 | 255 | 261 | 985 |
| 1947 | 1,569 | 1,772 | 1,675 | 1,673 | 1,569 | 1,695 | 4,337 | 3,062 | 2,848 | 1,364 | 553 | 517 | 1,884 |
| 1948 | 343 | 724 | 693 | 417 | 706 | 2,735 | 1,942 | 1,815 | 611 | 434 | 409 | 204 | 921 |
| 1949 | 360 | 877 | 542 | 1,379 | 1,290 | 2,011 | 2,545 | 1,087 | 366 | 231 | 246 | 418 | 942 |
| 1950 | 378 | 594 | 1,245 | 1,216 | 466 | 1,267 | 2,706 | 1,120 | 558 | 256 | 563 | 853 | 936 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | - | 0.73 | - |
| 1911 | 1.50 | 1.39 | *1.20 | *2.03 | *1.12 | *2.33 | 8.20 | 3.50 | 1.72 | 0.85 | 0.73 | .97 | *25.54 |
| 1912 | 1.31 | 1.96 | 3.40 | *1.18 | *.84 | *1.99 | *8.24 | 3.76 | 2.35 | .59 | .95 | 2.05 | *28.62 |
| 1913 | 1.64 | 2.59 | 4.09 | *5.01 | *1.78 | *6.43 | 4.52 | 1.55 | 1.22 | .61 | .48 | .42 | *30.34 |
| 1914 | 1.67 | 1.95 | 1.72 | *.99 | *.98 | *3.75 | 6.47 | 2.30 | .70 | .54 | .35 | .77 | *22.19 |
| 1915 | .66 | 1.02 | *.97 | *1.32 | *1.68 | *1.48 | 5.63 | 1.71 | .91 | 1.17 | 1.43 | .72 | *16.70 |
| 1916 | .88 | .99 | *1.12 | *3.29 | *2.07 | *2.34 | *6.47 | 3.77 | 1.80 | .76 | .41 | .41 | 23.84 |
| 1917 | .85 | .84 | 1.09 | .73 | .56 | 2.29 | 4.89 | 2.58 | 2.43 | .67 | .49 | .68 | 18.30 |
| 1918 | 1.65 | *1.97 | *.99 | *.60 | *1.86 | *4.00 | *5.42 | *3.44 | *2.21 | *.83 | *.49 | *1.04 | *24.50 |
| 1919 | *3.14 | *4.51 | *3.04 | 1.96 | .90 | 3.69 | 4.80 | 3.24 | 1.15 | .74 | .61 | 1.04 | *28.62 |
| 1920 | 1.84 | 2.56 | 1.63 | .73 | .67 | 4.36 | 4.68 | 2.25 | .72 | 1.82 | .67 | 1.00 | 22.93 |
| 1921 | 1.22 | 1.50 | 3.99 | 1.95 | 1.06 | 5.76 | 2.99 | .99 | .86 | .44 | .47 | .38 | 21.61 |
| 1922 | 1.06 | 2.55 | 1.38 | .67 | .89 | 4.03 | 5.94 | 2.13 | 2.90 | 1.80 | .99 | .38 | 24.72 |
| 1923 | .61 | 1.05 | .83 | .89 | .58 | 2.06 | 5.65 | 2.88 | 2.65 | .69 | .33 | .45 | 18.67 |
| 1924 | .80 | 1.25 | 2.11 | 2.55 | .95 | 1.67 | 5.64 | 4.59 | .97 | .82 | .97 | .90 | 23.22 |
| 1925 | 2.36 | 1.41 | 1.67 | .72 | 2.99 | 4.44 | 3.48 | 2.40 | 1.76 | 1.36 | 1.02 | 1.89 | 25.50 |
| 1926 | 2.81 | 2.91 | 2.36 | 1.67 | .99 | 1.06 | 6.54 | 4.95 | 2.56 | 1.86 | 1.53 | 1.06 | 30.30 |
| 1927 | 2.08 | 3.48 | 1.56 | 1.46 | 1.29 | 4.02 | 2.19 | 2.41 | 1.04 | .93 | .62 | .50 | 21.58 |
| 1928 | 1.15 | 4.47 | 4.36 | 3.01 | 1.75 | 3.78 | 6.37 | 3.03 | 1.95 | 1.22 | 1.15 | .89 | 33.13 |
| 1929 | 1.51 | 2.01 | 2.02 | 2.32 | 1.00 | 4.39 | 5.49 | 4.05 | 1.60 | 1.26 | .92 | .65 | 27.22 |
| 1930 | 1.59 | 1.76 | 1.30 | 4.05 | 2.18 | 2.94 | 5.70 | 3.69 | 2.29 | 1.23 | .68 | .52 | 27.93 |
| 1931 | .59 | .68 | .71 | .51 | .51 | 1.26 | 3.78 | 2.26 | 1.15 | 1.31 | .44 | .99 | 14.19 |
| 1932 | 1.01 | 1.98 | 1.96 | 2.95 | 1.53 | 1.33 | 7.97 | 2.97 | 1.26 | 1.19 | .79 | .97 | 25.91 |
| 1933 | 2.61 | 2.29 | 1.76 | 1.84 | 1.11 | 1.59 | 7.01 | 3.27 | 1.00 | .43 | .44 | .48 | 23.83 |
| 1934 | .59 | .82 | 1.48 | 1.68 | .57 | 2.24 | 6.96 | 1.71 | .94 | .43 | .24 | .28 | 17.94 |
| 1935 | .57 | .80 | .79 | 1.88 | .82 | 2.68 | 3.79 | 3.37 | 2.86 | 1.86 | 1.06 | .95 | 21.43 |
| 1936 | 1.09 | 1.19 | 1.10 | .75 | .58 | 5.04 | 4.18 | 2.90 | 1.13 | 1.54 | .74 | 1.82 | 21.86 |
| 1937 | 2.92 | 2.80 | 1.94 | 3.88 | 1.73 | .97 | 6.01 | 4.84 | 2.31 | .94 | 1.50 | .65 | 30.49 |
| 1938 | 1.01 | 1.78 | 1.16 | 1.26 | 2.70 | 4.81 | 3.86 | 1.90 | .64 | .91 | .72 | 1.36 | 22.11 |
| 1939 | .89 | .97 | 1.74 | 1.19 | .88 | 2.14 | 5.75 | 3.02 | 1.61 | .93 | .51 | .47 | 20.10 |
| 1940 | .92 | 1.11 | 1.34 | .66 | .53 | .75 | 5.47 | 3.00 | 1.65 | 1.06 | .50 | .42 | 17.41 |
| 1941 | .59 | 1.07 | 1.89 | 1.46 | .74 | .63 | 4.05 | .93 | .45 | .42 | .28 | .29 | 12.80 |
| 1942 | .81 | 1.03 | 1.19 | .81 | .68 | 3.34 | 5.91 | 1.76 | 1.14 | .46 | .47 | .76 | 18.36 |
| 1943 | .95 | 1.64 | .95 | 1.07 | 1.32 | 3.10 | 4.53 | 6.85 | 1.85 | 1.48 | 1.66 | 1.00 | 26.40 |
| 1944 | 1.41 | 2.13 | 1.16 | .95 | .85 | 1.74 | 5.30 | 3.40 | 1.18 | .55 | .34 | .73 | 19.74 |
| 1945 | .85 | .75 | .75 | .73 | .77 | 5.52 | 4.25 | 3.97 | 1.40 | 1.09 | .59 | 1.38 | 22.05 |
| 1946 | 3.09 | 2.56 | 1.25 | 1.87 | 1.14 | 4.30 | 2.11 | 2.59 | 1.11 | .71 | .48 | .47 | 21.68 |
| 1947 | 2.94 | 3.23 | 3.14 | 3.13 | 2.65 | 3.17 | 7.85 | 5.73 | 5.16 | 2.55 | 1.04 | .94 | 41.51 |
| 1948 | .84 | 1.31 | 1.30 | .78 | 1.24 | 5.12 | 3.52 | 3.40 | 1.11 | .81 | .76 | .37 | 20.36 |
| 1949 | .67 | 1.59 | 1.01 | 2.58 | 2.18 | 3.76 | 4.61 | 2.03 | .66 | .43 | .46 | .76 | 20.74 |
| 1950 | .71 | 1.08 | 2.33 | 2.28 | .79 | 2.37 | 4.90 | 2.10 | 1.01 | .48 | 1.05 | 1.55 | 20.65 |

* Revised.

* Not previously published; estimated on basis of records for Oswegatchie River at Heuvelton.

Yearly discharge, in cubic feet per second, of St. Regis River at Brasher Center, N. Y.

| Year | W.S.F. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|--------|-----------------|------------------|--------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1910 | 324 | - | - | - | - | - | - | - |
| 1911 | 324,1387 | *16,240 | Apr. 7, 1911* | 225 | *1,160 | *1.88 | *25.54 | *1,280 |
| 1912 | 324,1387 | *15,750 | Apr. 6, 1912* | 225 | *1,300 | *2.11 | *28.62 | *1,370 |
| 1913 | 354,1387 | *8,000 | Mar. 27, 1913 | 148 | *1,380 | *2.24 | *30.34 | *1,240 |
| 1914 | 324,1387 | *12,400 | Mar. 27, 1914 | 106 | *1,010 | *1.64 | *22.19 | 685 |
| 1915 | 404,1387 | *6,650 | Apr. 12, 1915 | 128 | *758 | *1.23 | *16.70 | 769 |
| 1916 | 434,1387 | *14,700 | Apr. 2, 1916 | 171 | 1,080 | 1.75 | 23.84 | 1,070 |
| 1917 | 454 | *6,510 | Apr. 3, 1917 | 37 | 830 | 1.35 | 18.30 | 914 |
| 1918 | 474 | - | - | - | *1,110 | *1.80 | *24.50 | 1,380 |
| 1919 | 504 | 5,850 | Apr. 12, 1919 | - | *1,300 | *2.11 | *28.62 | 1,100 |
| 1920 | 504 | 8,700 | Mar. 18, 1920 | 121 | 1,040 | 1.69 | 22.93 | 1,070 |
| 1921 | 524 | 7,460 | Mar. 10, 1921 | 158 | 981 | 1.59 | 21.61 | 903 |
| 1922 | 544 | 7,530 | Apr. 12, 1922 | 179 | 1,120 | 1.82 | 24.72 | 1,010 |
| 1923 | 564 | 6,430 | Apr. 9, 1923 | 146 | 847 | 1.37 | 18.67 | 923 |
| 1924 | 584 | 5,670 | Apr. 7, 1924 | 212 | 1,050 | 1.70 | 23.22 | 1,110 |
| 1925 | 604 | 5,880 | Feb. 12, 1925 | 184 | 1,160 | 1.88 | 25.50 | 1,280 |
| 1926 | 624 | 11,800 | Apr. 26, 1926 | 316 | 1,370 | 2.22 | 30.30 | 133 |
| 1927 | 644 | 5,350 | Mar. 19, 1927 | 230 | 979 | 1.59 | 21.59 | 111 |
| 1928 | 664 | 10,700 | Nov. 18, 1927 | 201 | 1,500 | 2.44 | 33.13 | 130 |
| 1929 | 684 | 5,820 | Mar. 15, 1929 | 201 | 1,240 | 2.01 | 27.22 | 120 |
| 1930 | 699 | 8,200 | Apr. 2, 1930 | 207 | 1,270 | 2.06 | 27.93 | 115 |
| 1931 | 714 | 5,420 | Apr. 11, 1931 | 145 | 644 | 1.05 | 14.19 | 779 |
| 1932 | 729 | - | - | 201 | 1,170 | 1.90 | 25.91 | 125 |
| 1933 | 744 | 7,300 | Oct. 7, 1932 | 157 | 1,060 | 1.75 | 23.85 | 910 |
| 1934 | 759 | 6,060 | Apr. 2, 1934 | 110 | 814 | 1.32 | 17.94 | 781 |
| 1935 | 784 | 5,640 | May 1, 1935 | 140 | 972 | 1.58 | 21.43 | 1,027 |
| 1936 | 804 | 7,080 | Mar. 20, 1936 | 200 | 989 | 1.61 | 21.86 | 1,183 |
| 1937 | 824 | 16,800 | Apr. 6, 1937 | 198 | 1,384 | 2.25 | 30.49 | 1,217 |
| 1938 | 854 | 11,600 | Mar. 24, 1938 | 173 | 1,005 | 1.63 | 22.11 | 988 |
| 1939 | 874 | 5,220 | Apr. 28, 1939 | 158 | 912 | 1.48 | 20.10 | 901 |
| 1940 | 894 | 6,510 | Apr. 19, 1940 | 161 | 788 | 1.28 | 17.41 | 798 |
| 1941 | 924 | 5,550 | Apr. 15, 1941 | 108 | 581 | 1.943 | 12.80 | 557 |
| 1942 | 954 | 7,050 | Apr. 16, 1942 | 134 | 833 | 1.35 | 18.36 | 856 |
| 1943 | 974 | 9,310 | May 12, 1943 | 231 | 1,198 | 1.94 | 26.40 | 1,251 |
| 1944 | 1004 | 9,040 | Apr. 25, 1944 | 147 | 893 | 1.45 | 19.74 | 786 |
| 1945 | 1034 | 5,890 | Apr. 1, 1945 | 206 | 1,001 | 1.62 | 22.05 | 1,208 |
| 1946 | 1054 | 6,990 | Mar. 15, 1946 | 178 | 985 | 1.60 | 21.68 | 1,092 |
| 1947 | 1084 | 9,540 | Apr. 13, 1947 | 344 | 1,884 | 3.06 | 41.51 | 1,610 |
| 1948 | 1114 | 7,720 | Mar. 23, 1948 | 174 | 921 | 1.50 | 20.36 | 922 |
| 1949 | 1144 | 7,780 | Mar. 28, 1949 | 174 | 942 | 1.53 | 20.74 | 980 |
| 1950 | 1174 | 11,200 | Mar. 28, 1950 | 226 | 936 | 1.52 | 20.65 | - |

* Revised.

* Not previously published.

382. Deer River at Brasher Iron Works, N. Y.^{1/}

Location.--Lat 44°53'35", long. 74°41'45", on left bank about 1,000 ft downstream from steel highway bridge in village of Brasher Iron Works, St. Lawrence County, and 2 miles upstream from confluence of Deer River with St. Regis River in Helena, N. Y.

Drainage area.--189 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 210 ft (from topographic map).

Extremes.--1912-16: Maximum discharge, 9,700 cfs Jan. 17, 1913 (gage height, 9.3 ft), from rating curve extended above 3,000 cfs by logarithmic plotting; minimum observed, 17 cfs Aug. 20, Sept. 14, 1913 (gage height, 0.80 ft).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|------|------|------|-----|------|------|------|-------|----------|
| 1912 | - | - | - | - | - | - | - | - | - | - | 94.3 | 269 | - |
| 1913 | 208 | 475 | 686 | *883 | *215 | *698 | 624 | 138 | *102 | 48.2 | 45.2 | 42.0 | *348 |
| 1914 | 142 | 186 | 210 | *98.9 | *132 | *389 | 703 | 187 | 63.9 | 57.3 | 49.6 | 81.1 | *191 |
| 1915 | 79.3 | 131 | *115 | *177 | *238 | *210 | 381 | 149 | 84.6 | 72.5 | 134 | 61.5 | *152 |
| 1916 | 88.7 | 99.9 | *99.4 | *355 | *218 | *272 | 762 | 406 | 255 | 97.2 | 47.9 | 51.7 | *229 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|------|------|-------|------|------|-------|----------|
| 1912 | - | - | - | - | - | - | - | - | - | - | 0.58 | 1.70 | - |
| 1913 | 1.27 | 2.80 | 4.18 | *5.39 | *1.19 | *4.26 | 3.68 | 0.84 | *0.60 | 0.29 | .26 | .25 | *25.01 |
| 1914 | .86 | 1.10 | 1.28 | *.60 | *.73 | *2.37 | 4.15 | 1.14 | .38 | .35 | .30 | .48 | *13.74 |
| 1915 | .48 | .78 | *.70 | *1.08 | *1.31 | *1.28 | 2.25 | .91 | .50 | .44 | .81 | .56 | *10.90 |
| 1916 | .54 | .59 | *.61 | *2.17 | *1.25 | *1.66 | 4.50 | 2.47 | 1.51 | .59 | .29 | .31 | *16.49 |

* Revised.

* Not previously published; estimated on basis of records for nearby streams.

^{1/} Published as "at Ironton" prior to 1913.

Yearly discharge, in cubic feet per second, of Deer River at Brasher Iron Works, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1913 | 354,1387 | 9,700 | Jan. 17, 1913 | 17 | *348 | *1.84 | *25.01 | *279 | *20.00 |
| 1914 | 384,1387 | - | - | *25 | *191 | *1.01 | *13.74 | *173 | *12.46 |
| 1915 | 404,1387 | 1,050 | Apr. 13, 1915 | *55 | *152 | *.804 | *10.90 | *149 | *10.68 |
| 1916 | 434,1387 | 4,220 | Apr. 1, 1916 | *24 | *229 | *1.21 | *16.49 | - | - |

* Revised.

* Not previously published.

383. Salmon River at Chasm Falls, N. Y.

Location.--Lat 44°45'20", long. 74°13'10", on right bank a quarter of a mile downstream from powerplant of Niagara Mohawk Power Corp. at Chasm Falls, Franklin County, and 3 miles downstream from Duane Stream.

Drainage area.--132 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,011.52 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Average discharge.--25 years (1925-50), 228 cfs.

Extremes.--1925-50: Maximum discharge, 2,890 cfs Apr. 25, 1926 (gage height, 5.0 ft); minimum, 14 cfs Feb. 12, 1943 (gage height, 0.44 ft); minimum daily, 28 cfs Sept. 4, 1934.

Remarks.--Diurnal fluctuation at low and medium flow caused by powerplant. A small diversion from tributary stream above station is used as water supply for village of Malone.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1925 | - | - | - | - | - | - | - | - | - | - | 165 | 295 | - |
| 1926 | 374 | 271 | 297 | 209 | 165 | 158 | 661 | 510 | 304 | 243 | 232 | 188 | 301 |
| 1927 | 243 | 308 | 157 | 157 | 168 | 395 | 271 | 282 | 157 | 164 | 99.0 | 104 | 209 |
| 1928 | 150 | 446 | 401 | 277 | 174 | 305 | 725 | 569 | 266 | 176 | 158 | 146 | 299 |
| 1929 | 229 | 230 | 216 | 266 | 148 | 456 | 528 | 407 | 281 | 166 | 139 | 127 | 267 |
| 1930 | 197 | 203 | 153 | 372 | 228 | 205 | 590 | 435 | 274 | 171 | 119 | 120 | 255 |
| 1931 | 116 | 122 | 120 | 113 | 114 | 135 | 484 | 259 | 130 | 146 | 85.1 | 130 | 163 |
| 1932 | 130 | 212 | 215 | 253 | 181 | 143 | 663 | 358 | 180 | 215 | 137 | 98.7 | 232 |
| 1933 | 210 | 202 | 189 | 204 | 149 | 150 | 849 | 348 | 164 | 106 | 113 | 143 | 235 |
| 1934 | 118 | 120 | 157 | 169 | 105 | 246 | 750 | 218 | 155 | 84.4 | 65.4 | 95.6 | 188 |
| 1935 | 104 | 93.5 | 106 | 187 | 94.9 | 232 | 387 | 314 | 276 | 170 | 158 | 128 | 186 |
| 1936 | 143 | 136 | 126 | 102 | 90.7 | 574 | 406 | 357 | 162 | 166 | 109 | 149 | 211 |
| 1937 | 280 | 270 | 233 | 379 | 204 | 163 | 585 | 527 | 285 | 137 | 196 | 140 | 283 |
| 1938 | 155 | 196 | 158 | 151 | 231 | 489 | 383 | 247 | 123 | 130 | 100 | 174 | 211 |
| 1939 | 123 | 128 | 195 | 144 | 146 | 199 | 522 | 353 | 216 | 122 | 102 | 119 | 197 |
| 1940 | 122 | 148 | 142 | 122 | 103 | 102 | 485 | 382 | 246 | 211 | 102 | 127 | 191 |
| 1941 | 125 | 161 | 194 | 169 | 128 | 110 | 497 | 129 | 89.8 | 79.3 | 66.7 | 87.0 | 153 |
| 1942 | 120 | 147 | 149 | 119 | 97.3 | 223 | 672 | 202 | 207 | 90.5 | 95.6 | 122 | 187 |
| 1943 | 127 | 174 | 140 | 129 | 154 | 264 | 489 | 700 | 253 | 218 | 228 | 195 | 257 |
| 1944 | 181 | 257 | 183 | 173 | 164 | 182 | 578 | 407 | 189 | 105 | 88.4 | 164 | 222 |
| 1945 | 155 | 164 | 130 | 135 | 120 | 538 | 395 | 467 | 203 | 168 | 110 | 173 | 231 |
| 1946 | 295 | 253 | 199 | 219 | 162 | 450 | 282 | 298 | 155 | 114 | 96.3 | 126 | 221 |
| 1947 | 221 | 301 | 331 | 237 | 305 | 247 | 795 | 680 | 540 | 393 | 188 | 212 | 364 |
| 1948 | 155 | 185 | 184 | 139 | 156 | 529 | 347 | 346 | 183 | 155 | 136 | 126 | 221 |
| 1949 | 117 | 199 | 179 | 256 | 247 | 397 | 462 | 237 | 116 | 91.9 | 113 | 149 | 213 |
| 1950 | 107 | 175 | 244 | 293 | 168 | 179 | 496 | 251 | 124 | 90.1 | 148 | 197 | 206 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | - | - | - | - | - | - | - | - | - | - | 1.44 | 2.49 | - |
| 1926 | 3.26 | 2.29 | 2.59 | 1.83 | 1.30 | 1.38 | 5.59 | 4.45 | 2.57 | 2.12 | 2.02 | 1.59 | 30.99 |
| 1927 | 2.13 | 2.60 | 1.37 | 1.37 | 1.33 | 3.45 | 2.29 | 2.46 | 1.33 | 1.45 | .86 | .88 | 21.50 |
| 1928 | 1.31 | 3.77 | 3.50 | 2.42 | 1.42 | 2.66 | 6.13 | 3.23 | 2.24 | 1.54 | 1.39 | 1.23 | 30.83 |
| 1929 | 1.99 | 1.95 | 1.89 | 2.32 | 1.17 | 4.07 | 4.46 | 3.55 | 2.37 | 1.45 | 1.21 | 1.08 | 27.51 |
| 1930 | 1.72 | 1.71 | 1.33 | 3.25 | 1.79 | 1.79 | 4.99 | 3.80 | 2.32 | 1.50 | 1.04 | 1.01 | 26.25 |
| 1931 | 1.01 | 1.03 | 1.05 | .99 | .90 | 1.18 | 4.08 | 2.27 | 1.10 | 1.28 | .74 | 1.10 | 16.74 |
| 1932 | 1.15 | 1.79 | 1.98 | 2.21 | 1.48 | 1.25 | 5.60 | 3.12 | 1.52 | 1.88 | 1.19 | .83 | 23.89 |
| 1933 | 1.83 | 1.71 | 1.65 | 1.78 | 1.18 | 1.31 | 7.17 | 3.04 | 1.39 | .95 | .99 | 1.21 | 24.19 |
| 1934 | 1.03 | 1.01 | 1.37 | 1.48 | .83 | 2.14 | 6.17 | 1.90 | 1.29 | .74 | .57 | .81 | 19.34 |
| 1935 | .91 | .79 | .93 | 1.64 | .75 | 2.03 | 3.27 | 2.74 | 2.33 | 1.49 | 1.21 | 1.08 | 19.17 |
| 1936 | 1.24 | 1.15 | 1.10 | .89 | .74 | 5.02 | 3.44 | 3.11 | 1.37 | 1.45 | .95 | 1.26 | 21.72 |
| 1937 | 2.44 | 2.29 | 2.04 | 3.31 | 1.61 | 1.42 | 4.94 | 4.60 | 2.41 | 1.20 | 1.71 | 1.18 | 29.15 |
| 1938 | 1.35 | 1.65 | 1.38 | 1.31 | 1.92 | 4.27 | 3.24 | 2.18 | 1.04 | 1.14 | .87 | 1.47 | 21.70 |
| 1939 | 1.07 | 1.08 | 1.71 | 1.26 | 1.16 | 1.74 | 4.41 | 3.08 | 1.83 | 1.07 | .89 | 1.01 | 20.31 |
| 1940 | 1.07 | 1.25 | 1.24 | 1.07 | .84 | .89 | 4.10 | 3.33 | 2.08 | 1.84 | .89 | 1.07 | 19.67 |

Monthly and yearly runoff, in inches, of Salmon River at Chasm Falls, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 1.09 | 1.36 | 1.70 | 1.48 | 1.01 | 0.96 | 4.21 | 1.13 | 0.76 | 0.69 | 0.58 | 0.74 | 15.71 |
| 1942 | 1.05 | 1.24 | 1.30 | 1.04 | .77 | 1.95 | 5.68 | 1.76 | 1.75 | .79 | .84 | 1.03 | 19.20 |
| 1943 | 1.11 | 1.47 | 1.22 | 1.15 | 1.21 | 2.30 | 4.14 | 6.11 | 2.14 | 1.90 | 1.99 | 1.65 | 26.37 |
| 1944 | 1.58 | 2.17 | 1.59 | 1.51 | 1.34 | 1.59 | 4.89 | 3.55 | 1.60 | .92 | .77 | 1.38 | 22.89 |
| 1945 | 1.36 | 1.39 | 1.13 | 1.18 | .94 | 4.70 | 3.34 | 4.08 | 1.72 | 1.46 | .96 | 1.46 | 25.72 |
| 1946 | 2.57 | 2.14 | 1.74 | 1.92 | 1.27 | 3.93 | 2.39 | 2.60 | 1.31 | .99 | .84 | 1.07 | 22.77 |
| 1947 | 1.93 | 2.54 | 2.89 | 2.07 | 2.41 | 2.16 | 6.70 | 5.31 | 4.56 | 3.45 | 1.64 | 1.79 | 37.43 |
| 1948 | 1.35 | 1.57 | 1.61 | 1.22 | 1.27 | 4.62 | 2.94 | 3.02 | 1.54 | 1.35 | 1.18 | 1.11 | 22.78 |
| 1949 | 1.02 | 1.68 | 1.56 | 2.23 | 1.95 | 3.46 | 3.91 | 2.07 | .98 | .80 | .99 | 1.26 | 21.91 |
| 1950 | .94 | 1.48 | 2.13 | 2.56 | 1.35 | 1.57 | 4.19 | 2.19 | 1.05 | .79 | 1.29 | 1.67 | 21.19 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1926 | 624 | 2,890 | Apr. 25, 1926 | 102 | 301 | 2.28 | 30.99 | 281 | 28.95 | |
| 1927 | 644 | 1,300 | Mar. 19, 1927 | 55 | 209 | 1.58 | 21.50 | 233 | 23.98 | |
| 1928 | 664 | 2,820 | Apr. 8, 1928 | 52 | 299 | 2.27 | 30.83 | 272 | 28.08 | |
| 1929 | 684 | 1,180 | Apr. 7, 1929 | 73 | 267 | 2.02 | 27.51 | 257 | 26.44 | |
| 1930 | 699 | 1,300 | Apr. 7, 1930 | 58 | 255 | 1.93 | 26.25 | 239 | 24.58 | |
| 1931 | 714 | 1,360 | Apr. 11, 1931 | 42 | 163 | 1.23 | 16.74 | 179 | 18.46 | |
| 1932 | 729 | 1,440 | Apr. 13, 1932 | 77 | 232 | 1.76 | 23.89 | 236 | 24.27 | |
| 1933 | 744 | 2,300 | Apr. 18, 1933 | 81 | 235 | 1.78 | 24.19 | 218 | 22.41 | |
| 1934 | 759 | 1,460 | Apr. 12, 1934 | 28 | 188 | 1.42 | 19.34 | 181 | 18.56 | |
| 1935 | 784 | 858 | May 1, 1935 | 56 | 186 | 1.41 | 19.17 | 195 | 20.03 | |
| 1936 | 804 | 1,750 | Mar. 20, 1936 | 62 | 211 | 1.60 | 21.72 | 242 | 25.00 | |
| 1937 | 824 | 2,050 | Apr. 6, 1937 | 92 | 285 | 2.14 | 29.15 | 260 | 26.76 | |
| 1938 | 854 | 2,240 | Mar. 24, 1938 | 60 | 211 | 1.60 | 21.70 | 206 | 21.19 | |
| 1939 | 874 | 1,320 | Apr. 28, 1939 | 74 | 197 | 1.49 | 20.31 | 194 | 20.01 | |
| 1940 | 894 | 1,430 | May 2, 1940 | 53 | 191 | 1.45 | 19.67 | 196 | 20.26 | |
| 1941 | 924 | 1,940 | Apr. 16, 1941 | 49 | 153 | 1.16 | 15.71 | 147 | 15.15 | |
| 1942 | 954 | 1,900 | Apr. 16, 1942 | 68 | 187 | 1.42 | 19.20 | 189 | 19.41 | |
| 1943 | 974 | 1,950 | May 12, 1943 | 79 | 257 | 1.95 | 26.37 | 272 | 27.91 | |
| 1944 | 1004 | 1,830 | Apr. 26, 1944 | 72 | 222 | 1.68 | 22.89 | 208 | 21.43 | |
| 1945 | 1034 | 1,370 | Mar. 18, 1945 | 76 | 231 | 1.75 | 23.72 | 256 | 26.29 | |
| 1946 | 1054 | 1,150 | Mar. 15, 1946 | 77 | 221 | 1.67 | 22.77 | 230 | 23.68 | |
| 1947 | 1084 | 2,620 | Apr. 12, 1947 | 143 | 364 | 2.76 | 37.43 | 336 | 34.60 | |
| 1948 | 1114 | 1,970 | Mar. 23, 1948 | 92 | 221 | 1.67 | 22.78 | 218 | 22.51 | |
| 1949 | 1144 | 1,790 | Mar. 28, 1949 | 72 | 213 | 1.61 | 21.91 | 216 | 22.20 | |
| 1950 | 1174 | 1,250 | Apr. 5, 1950 | 73 | 206 | 1.56 | 21.19 | - | - | |

384. Chateaugay River near Chateaugay, N. Y.

Location.--Lat 44°54'35", long. 74°05'10", on right bank 150 ft downstream from dam of International Hydroelectric Corp., 1 mile south of Chateaugay, Franklin County, and 5 miles upstream from Marble River.

Drainage area.--112 sq mi. Prior to Dec. 13, 1908, 116 sq mi.

Gage.--Water-stage recorder. Datum of gage is 847.04 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. September to December 1908, staff gage 2½ miles downstream from present gage and about 1,200 ft upstream from dam of Chasm Power Co. at different datum.

Average discharge.--24 years (1926-50), 176 cfs.

Extremes.--1926-50: Maximum discharge, 2,060 cfs Apr. 8, 1928 (gage height, 7.3 ft), from rating curve extended above 970 cfs by logarithmic plotting; minimum, 6 cfs Nov. 20, 1928 (gage height, 0.23 ft); minimum daily, 26 cfs July 8, 1934.

Remarks.--Flow regulated by Upper and Lower Chateaugay Lakes. Considerable diurnal fluctuation at all stages caused by power operations.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1909 | 86.8 | 104 | - | - | - | - | - | - | - | - | - | - | - |
| 1927 | 119 | 149 | 149 | 146 | 161 | 163 | 168 | 192 | 109 | 135 | 121 | 115 | 144 |
| 1928 | 88.3 | 257 | 405 | 272 | 154 | 237 | 707 | 319 | 220 | 131 | 128 | 147 | 255 |
| 1929 | 100 | 99.6 | 108 | 186 | 252 | 405 | 435 | 371 | 140 | 136 | 95.7 | 118 | 203 |
| 1930 | 111 | 96.6 | 137 | 210 | 164 | 254 | 487 | 289 | 204 | 150 | 118 | 120 | 195 |
| 1931 | 108 | 92.6 | 84.9 | 78.9 | 69.2 | 79.6 | 253 | 192 | 123 | 110 | 106 | 103 | 117 |
| 1932 | 98.4 | 99.2 | 101 | 175 | 154 | 154 | 626 | 280 | 136 | 136 | 128 | 95.7 | 161 |
| 1933 | 98.6 | 94.5 | 104 | 151 | 152 | 175 | 816 | 306 | 149 | 112 | 102 | 100 | 196 |
| 1934 | 99.5 | 98.0 | 86.0 | 98.7 | 99.8 | 207 | 508 | 166 | 100 | 66.9 | 49.5 | 57.6 | 136 |
| 1935 | 55.6 | 57.7 | 66.9 | 114 | 145 | 276 | 187 | 293 | 276 | 156 | 184 | 117 | 161 |
| 1936 | 109 | 109 | 111 | 113 | 97.8 | 486 | 232 | 332 | 132 | 121 | 82.1 | 65.4 | 167 |
| 1937 | 89.5 | 135 | 155 | 269 | 225 | 184 | 434 | 515 | 163 | 122 | 225 | 127 | 225 |
| 1938 | 134 | 104 | 102 | 103 | 165 | 444 | 338 | 223 | 118 | 106 | 98.9 | 97.3 | 170 |
| 1939 | 101 | 96.8 | 108 | 116 | 138 | 253 | 426 | 284 | 212 | 128 | 103 | 91.7 | 171 |
| 1940 | 77.4 | 81.3 | 81.0 | 81.5 | 74.7 | 82.9 | 414 | 348 | 282 | 158 | 111 | 100 | 157 |

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly mean discharge, in cubic feet per second,
of Chateaugay River near Chateaugay, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 92.2 | 98.6 | 112 | 184 | 142 | 124 | 297 | 94.5 | 79.0 | 68.1 | 62.0 | 60.4 | 117 |
| 1942 | 65.0 | 68.3 | 77.0 | 104 | 92.3 | 206 | 595 | 174 | 120 | 105 | 92.8 | 85.2 | 149 |
| 1943 | 79.6 | 80.8 | 91.1 | 115 | 137 | 207 | 373 | 552 | 137 | 133 | 124 | 120 | 179 |
| 1944 | 103 | 169 | 180 | 133 | 160 | 180 | 386 | 363 | 114 | 111 | 75.9 | 63.8 | 170 |
| 1945 | 86.4 | 107 | 114 | 141 | 165 | 330 | 351 | 483 | 160 | 116 | 106 | 97.7 | 188 |
| 1946 | 183 | 203 | 174 | 205 | 196 | 278 | 206 | 234 | 131 | 91.0 | 76.8 | 72.9 | 171 |
| 1947 | 110 | 168 | 302 | 213 | 288 | 242 | 587 | 454 | 481 | 376 | 141 | 112 | 289 |
| 1948 | 128 | 131 | 133 | 134 | 130 | 321 | 228 | 295 | 122 | 119 | 112 | 96.8 | 163 |
| 1949 | 86.7 | 97.1 | 113 | 236 | 245 | 247 | 445 | 170 | 96.7 | 82.5 | 84.1 | 87.5 | 165 |
| 1950 | 90.5 | 94.3 | 112 | 225 | 194 | 215 | 310 | 152 | 105 | 79.2 | 92.7 | 132 | 150 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1927 | 644 | 595 | May 20, 1927 | 78 | 144 | 1.29 | 17.45 | 172 | 20.86 |
| 1928 | 664 | 2,060 | Apr. 8, 1928 | 67 | 255 | 2.28 | 31.02 | 218 | 26.51 |
| 1929 | 684 | 870 | Mar. 22, 1929 | 28 | 203 | 1.81 | 24.65 | 207 | 25.03 |
| 1930 | 699 | 910 | Apr. 7, 1930 | 27 | 195 | 1.74 | 23.63 | 190 | 23.02 |
| 1931 | 714 | 500 | Apr. 21, 1931 | 60 | 117 | 1.04 | 14.15 | 118 | 14.29 |
| 1932 | 729 | 1,060 | Apr. 12, 1932 | 79 | 181 | 1.62 | 22.04 | 181 | 22.03 |
| 1933 | 744 | 1,700 | Apr. 18, 1933 | 75 | 196 | 1.75 | 23.76 | 195 | 23.62 |
| 1934 | 759 | 779 | Apr. 12, 1934 | 26 | 136 | 1.21 | 16.51 | 128 | 15.45 |
| 1935 | 784 | 1,080 | Mar. 16, 1935 | 50 | 161 | 1.44 | 19.46 | 173 | 20.98 |
| 1936 | 804 | 1,080 | Mar. 25, 1936 | 45 | 167 | 1.49 | 20.23 | 176 | 21.31 |
| 1937 | 824 | 1,740 | Apr. 6, 1937 | 61 | 225 | 2.01 | 27.28 | 217 | 26.32 |
| 1938 | 854 | 998 | Mar. 25, 1938 | 80 | 170 | 1.52 | 20.53 | 167 | 20.17 |
| 1939 | 874 | 1,050 | Apr. 29, 1939 | 78 | 171 | 1.53 | 20.74 | 166 | 20.07 |
| 1940 | 894 | 993 | May 3, 1940 | 69 | 157 | 1.40 | 19.14 | 163 | 19.78 |
| 1941 | 924 | 857 | Apr. 17, 1941 | 55 | 117 | 1.04 | 14.23 | 110 | 13.29 |
| 1942 | 954 | 1,190 | Apr. 19, 1942 | 59 | 149 | 1.33 | 17.98 | 152 | 18.41 |
| 1943 | 974 | 1,100 | May 12, 1943 | 73 | 179 | 1.60 | 21.75 | 196 | 23.78 |
| 1944 | 1004 | 1,040 | Apr. 26, 1944 | 59 | 170 | 1.52 | 20.64 | 158 | 19.17 |
| 1945 | 1034 | 968 | Apr. 2, 1945 | 59 | 188 | 1.68 | 22.83 | 210 | 25.41 |
| 1946 | 1054 | 494 | Mar. 9, 1946 | 68 | 171 | 1.53 | 20.73 | 173 | 20.94 |
| 1947 | 1084 | 1,060 | Apr. 14, 1947 | 55 | 289 | 2.58 | 35.03 | 273 | 33.09 |
| 1948 | 1114 | 842 | Mar. 18, 1948 | 91 | 163 | 1.46 | 19.77 | 155 | 18.82 |
| 1949 | 1144 | 794 | Feb. 15, 1949 | 80 | 165 | 1.47 | 20.01 | 165 | 20.00 |
| 1950 | 1174 | 950 | Mar. 28, 1950 | 74 | 150 | 1.34 | 18.12 | - | - |

385. Great Chazy River near Mooers, N. Y.

Location.--Lat 44°57'30", long. 73°36'20", on highway bridge at Thorn's Corners, about $\frac{1}{2}$ miles below confluence of two branches which form main stream, and about $\frac{1}{2}$ miles upstream from Mooers, Clinton County.

Drainage area.--204 sq mi.

Gage.--Altitude of gage is 280 ft (from topographic map).

Remarks.--Flow regulated by mills.

Monthly and yearly mean discharge, in cubic feet per second

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | The year |
|------|------|------|------|------|-----|------|------|------|-------|------|------|------|----------|
| 1908 | - | - | - | - | - | - | - | - | 17.7 | 22.5 | 45 | - | - |

Monthly and yearly runoff, in inches

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | The year |
|------|------|------|------|------|-----|------|------|------|-------|------|------|------|----------|
| 1908 | - | - | - | - | - | - | - | - | 0.10 | 0.13 | 0.25 | - | - |

386. Great Chazy River at Perry Mills, N. Y.

Location.--Lat 45°00'00", long. 73°30'05", on left bank 500 ft upstream from highway bridge at Perry Mills, Clinton County, and 7.5 miles upstream from Corbeau Creek.

Drainage area.--247 sq mi.

Gage.--Water-stage recorder. Datum of gage is 164.93 ft above mean sea level, datum of 1929, supplementary adjustment of 1943.

Average discharge.--22 years (1928-50), 268 cfs.

Extremes.--1928-50: Maximum discharge, 6,000 cfs Apr. 7, 1937; maximum gage height, 11.5 ft, from floodmark, Mar. 9, 1946 (ice jam); minimum discharge, about 0.8 cfs Sept. 18, 1932 (gage height, 1.33 ft); minimum daily, 10 cfs Sept. 18, 1932.

Remarks.--Diurnal fluctuation at low and medium flow caused by sawmill immediately upstream. Slight regulation by Chazy Lake, from which Clinton Prison at Dannemora obtains its water supply.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1929 | 183 | 325 | 312 | 295 | 142 | 1,180 | 1,020 | 645 | 260 | 122 | 60.5 | 24.9 | 383 |
| 1930 | 65.7 | 98.2 | 75.1 | 775 | 553 | 711 | 977 | 348 | 305 | 107 | 46.8 | 33.9 | 340 |
| 1931 | 31.6 | 35.8 | 52.4 | 146 | 137 | 268 | 697 | 177 | 94.1 | 88.6 | 38.0 | 89.3 | 154 |
| 1932 | 78.7 | 200 | 307 | 511 | 375 | 301 | 1,400 | 246 | 117 | 66.6 | 38.7 | 21.5 | 303 |
| 1933 | 102 | 197 | 253 | 340 | 187 | 135 | 1,240 | 448 | 95.3 | 47.7 | 87.9 | 82.8 | 267 |
| 1934 | 70.1 | 81.4 | 123 | 144 | 121 | 382 | 1,127 | 181 | 70.3 | 71.9 | 40.0 | 76.3 | 205 |
| 1935 | 69.5 | 74.1 | 70.6 | 245 | 126 | 415 | 665 | 341 | 403 | 174 | 155 | 93.3 | 236 |
| 1936 | 107 | 126 | 212 | 209 | 124 | 1,217 | 549 | 382 | 119 | 114 | 71.6 | 61.0 | 276 |
| 1937 | 162 | 305 | 334 | 499 | 339 | 221 | 988 | 739 | 254 | 116 | 217 | 95.9 | 355 |
| 1938 | 102 | 193 | 151 | 168 | 278 | 910 | 526 | 406 | 116 | 76.0 | 52.8 | 163 | 262 |
| 1939 | 92.6 | 98.1 | 184 | 155 | 166 | 213 | 1,269 | 404 | 236 | 105 | 87.5 | 91.8 | 257 |
| 1940 | 96.2 | 104 | 90.9 | 96.8 | 87.7 | 104 | 966 | 370 | 277 | 169 | 101 | 95.1 | 213 |
| 1941 | 88.5 | 133 | 184 | 200 | 128 | 94.5 | 747 | 97.2 | 43.5 | 39.8 | 44.2 | 36.6 | 152 |
| 1942 | 38.5 | 43.5 | 67.7 | 61.4 | 73.5 | 536 | 989 | 201 | 223 | 40.7 | 64.1 | 67.6 | 200 |
| 1943 | 65.8 | 103 | 91.8 | 153 | 227 | 579 | 662 | 772 | 213 | 155 | 87.5 | 78.4 | 266 |
| 1944 | 204 | 262 | 201 | 202 | 192 | 304 | 992 | 332 | 122 | 58.0 | 69.6 | 71.0 | 250 |
| 1945 | 60.1 | 71.5 | 97.2 | 139 | 157 | 914 | 614 | 959 | 187 | 151 | 86.0 | 163 | 301 |
| 1946 | 456 | 383 | 230 | 413 | 224 | 685 | 323 | 309 | 120 | 43.3 | 66.4 | 93.6 | 280 |
| 1947 | 147 | 347 | 417 | 396 | 377 | 390 | 1,177 | 369 | 852 | 823 | 149 | 128 | 514 |
| 1948 | 96.2 | 155 | 137 | 129 | 136 | 760 | 352 | 378 | 138 | 102 | 83.4 | 83.5 | 213 |
| 1949 | 68.8 | 190 | 92.4 | 552 | 412 | 580 | 607 | 223 | 78.7 | 70.3 | 79.1 | 59.3 | 252 |
| 1950 | 44.1 | 104 | 200 | 290 | 193 | 299 | 746 | 203 | 91.4 | 74.9 | 110 | 118 | 206 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1929 | 0.85 | 1.47 | 1.46 | 1.38 | 0.60 | 5.51 | 4.62 | 3.01 | 1.18 | 0.57 | 0.28 | 0.11 | 21.04 |
| 1930 | .51 | .44 | .35 | 3.62 | 2.33 | 3.32 | 4.42 | 1.62 | 1.58 | .50 | .22 | .15 | 18.66 |
| 1931 | .15 | .16 | .24 | .68 | .58 | 1.25 | 3.15 | .82 | .42 | .41 | .18 | .40 | 8.44 |
| 1932 | .37 | .90 | 1.43 | 2.39 | 1.64 | 1.40 | 6.50 | 1.15 | .53 | .31 | .18 | .10 | 16.70 |
| 1933 | .48 | .89 | 1.18 | 1.59 | .79 | .63 | 5.60 | 2.09 | .42 | .22 | .41 | .37 | 14.67 |
| 1934 | .33 | .37 | .57 | .67 | .51 | 1.79 | 5.09 | .75 | .32 | .34 | .19 | .34 | 11.27 |
| 1935 | .32 | .33 | .33 | 1.14 | .53 | 1.94 | 3.00 | 1.59 | 1.82 | .81 | .72 | .42 | 12.95 |
| 1936 | .50 | .57 | .99 | .98 | .54 | 5.68 | 2.48 | 1.79 | .54 | .53 | .33 | .28 | 15.21 |
| 1937 | .76 | 1.37 | 1.56 | 2.33 | 1.43 | 1.03 | 4.46 | 3.45 | 1.15 | .54 | 1.01 | .43 | 19.52 |
| 1938 | .48 | .67 | .70 | .78 | 1.18 | 4.24 | 2.58 | 1.89 | .52 | .36 | .25 | .74 | 14.39 |
| 1939 | .43 | .44 | .86 | .72 | .70 | .99 | 5.74 | 1.89 | 1.07 | .49 | .41 | .42 | 14.16 |
| 1940 | .46 | .47 | .42 | .45 | .38 | .49 | 4.36 | 1.73 | 1.25 | .79 | .47 | .43 | 11.70 |
| 1941 | .41 | .60 | .86 | .93 | .54 | .44 | 3.37 | .45 | .20 | .19 | .21 | .17 | 8.37 |
| 1942 | .18 | .20 | .32 | .29 | .31 | 2.50 | 4.46 | .94 | 1.01 | .19 | .30 | .51 | 11.01 |
| 1943 | .51 | .47 | .43 | .72 | .96 | 2.70 | 2.99 | 3.61 | .96 | .72 | .41 | .35 | 14.83 |
| 1944 | .95 | 1.18 | .94 | .84 | .84 | 1.42 | 4.48 | 1.55 | .55 | .27 | .32 | .32 | 13.76 |
| 1945 | .28 | .32 | .45 | .65 | .66 | 4.26 | 2.77 | 4.48 | .84 | .70 | .40 | .74 | 16.55 |
| 1946 | 2.13 | 1.73 | 1.07 | 1.93 | .95 | 3.20 | 1.46 | 1.44 | .54 | .20 | .31 | .42 | 15.38 |
| 1947 | .69 | 1.57 | 1.94 | 1.85 | 1.59 | 1.82 | 5.32 | 4.53 | 3.85 | 3.84 | .70 | .58 | 28.28 |
| 1948 | .45 | .70 | .64 | .60 | .59 | 3.55 | 1.59 | 1.76 | .63 | .47 | .39 | .38 | 11.75 |
| 1949 | .41 | .86 | .43 | 2.58 | 1.74 | 2.71 | 2.74 | 1.04 | .56 | .33 | .37 | .21 | 15.84 |
| 1950 | .21 | .47 | .93 | 1.35 | .61 | 1.39 | 3.37 | .95 | .41 | .35 | .51 | .53 | 11.28 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1929 | 684 | 5,810 | Mar. 16, 1929 | 12 | 363 | 1.55 | 21.04 | 334 | 18.36 |
| 1930 | 714 | 4,450 | Jan. 9, 1930 | 19 | 340 | 1.38 | 18.66 | 330 | 18.11 |
| 1931 | 714 | 2,540 | Apr. 11, 1931 | 11 | 154 | .623 | 8.44 | 193 | 10.59 |
| 1932 | 729 | 3,530 | Apr. 13, 1932 | 10 | 303 | 1.23 | 16.70 | 300 | 16.55 |
| 1933 | 744 | 2,940 | Apr. 18, 1933 | 19 | 267 | 1.08 | 14.67 | 235 | 13.39 |
| 1934 | 759 | 3,780 | Apr. 13, 1934 | 17 | 205 | .850 | 11.27 | 200 | 10.98 |
| 1935 | 784 | 2,410 | June 18, 1935 | 30 | 256 | .955 | 12.95 | 255 | 14.03 |

Yearly discharge, in cubic feet per second, of Great Chazy River at Perry Mills, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1936 | 804 | 4,700 | Mar. 19, 1936 | 28 | 276 | 1.12 | 15.21 | 305 | 16.84 |
| 1937 | 824 | 8,000 | Apr. 7, 1937 | 43 | 355 | 1.44 | 19.52 | 326 | 17.88 |
| 1938 | 854 | 5,690 | Mar. 22, 1938 | 23 | 262 | 1.06 | 14.38 | 256 | 14.07 |
| 1939 | 874 | 3,270 | Apr. 20, 1939 | 47 | 257 | 1.04 | 14.16 | 251 | 13.78 |
| 1940 | 894 | 2,540 | Apr. 19, 1940 | 57 | 213 | .862 | 11.70 | 222 | 12.22 |
| 1941 | 924 | 2,510 | Apr. 14, 1941 | 13 | 152 | .615 | 8.37 | 131 | 7.20 |
| 1942 | 954 | 3,970 | Apr. 16, 1942 | 17 | 200 | .810 | 11.01 | 209 | 11.52 |
| 1943 | 874 | 3,610 | May 12, 1943 | 30 | 266 | 1.08 | 14.63 | 300 | 16.49 |
| 1944 | 1004 | 2,990 | Apr. 25, 1944 | 31 | 250 | 1.01 | 13.76 | 213 | 11.74 |
| 1945 | 1034 | 3,200 | Mar. 18, 1945 | 38 | 301 | 1.22 | 16.55 | 372 | 20.43 |
| 1946 | 1054 | - | - | 24 | 280 | 1.13 | 15.38 | 267 | 14.65 |
| 1947 | 1084 | 4,840 | Apr. 7, 1947 | 58 | 514 | 2.08 | 28.28 | 470 | 25.87 |
| 1948 | 1114 | 5,010 | Mar. 21, 1948 | 38 | 213 | .862 | 11.75 | 212 | 11.66 |
| 1949 | 1144 | 2,650 | Mar. 28, 1949 | 34 | 252 | 1.02 | 13.84 | 250 | 13.75 |
| 1950 | 1174 | - | - | 30 | 206 | .854 | 11.28 | - | - |

387. Saranac River near Saranac Lake, N. Y.

Location.--Lat 44°16'40", long. 74°09'10", on stump in pond, 35 ft upstream from State dam at foot of Saranac Lake, 4 miles upstream from village of Saranac Lake, St. Lawrence County.

Drainage area.--146 sq mi (revised).

Gage.--Staff gage. Altitude of gage is 1,530 ft (from topographic map).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|-------|------|-------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | \$188 | - | - |
| 1903 | - | - | - | - | - | - | - | - | \$128 | 173 | 212 | 136 | - |

* Not previously published; estimated on basis of records for station near Plattsburg and weather records.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|--------|------|--------|-------|----------|
| 1902 | - | - | - | - | - | - | - | - | - | - | \$1.49 | - | - |
| 1903 | - | - | - | - | - | - | - | - | \$0.98 | 1.36 | 1.68 | 1.03 | - |

* Not previously published; see footnote to preceding table.

388. Saranac River at Saranac, N. Y.

Location.--Lat 44°38'45", long. 73°44'40", on right bank 500 ft upstream from highway bridge at Saranac, Clinton County.

Drainage area.--521 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 750 ft (from topographic map).

Average discharge.--13 years (1930-43), 668 cfs.

Extremes.--1930-43: Maximum discharge, 7,060 cfs May 12, 1943; maximum gage height, 12.74 ft Dec. 2, 1936 (ice jam); minimum discharge, 67 cfs Aug. 27, 1934 (gage height, 1.63 ft); minimum daily, 78 cfs Sept. 15, 1941.

Flood of July 13, 1947, reached a stage of 9.15 ft (discharge, about 9,000 cfs).

Remarks.--Diurnal fluctuation caused by power operations. Flow partly regulated by storage in Lower Saranac Lake and elsewhere.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|------|-------|-------|-------|-------|------|-------|-------|----------|
| 1931 | 307 | 272 | 179 | 171 | 168 | 269 | 1,280 | 742 | 424 | 348 | 283 | 227 | 389 |
| 1932 | 269 | 487 | 510 | 847 | 621 | 622 | 2,100 | 1,180 | 555 | 725 | 514 | 386 | 734 |
| 1933 | 592 | 684 | 645 | 689 | 463 | 616 | 2,790 | 1,440 | 463 | 353 | 278 | 243 | 771 |
| 1934 | 260 | 297 | 381 | 454 | 411 | 530 | 2,156 | 734 | 546 | 313 | 265 | 195 | 543 |
| 1935 | 151 | 179 | 302 | 485 | 382 | 765 | 1,000 | 1,156 | 1,384 | 766 | 607 | 340 | 627 |
| 1936 | 403 | 488 | 473 | 313 | 356 | 1,763 | 1,484 | 1,323 | 458 | 468 | 324 | 468 | 695 |
| 1937 | 1,010 | 984 | 690 | 1,110 | 740 | 681 | 1,777 | 2,118 | 888 | 549 | 462 | 548 | 964 |
| 1938 | 341 | 559 | 582 | 516 | 674 | 1,595 | 1,506 | 861 | 531 | 420 | 451 | 847 | 739 |
| 1939 | 641 | 522 | 673 | 518 | 453 | 688 | 1,824 | 1,350 | 718 | 512 | 285 | 251 | 704 |
| 1940 | 225 | 258 | 297 | 302 | 344 | 445 | 1,236 | 1,358 | 893 | 589 | 401 | 246 | 549 |
| 1941 | 287 | 375 | 566 | 573 | 466 | 486 | 1,401 | 386 | 323 | 276 | 228 | 158 | 461 |
| 1942 | 180 | 365 | 320 | 402 | 344 | 736 | 1,928 | 876 | 1,021 | 340 | 325 | 390 | 586 |
| 1943 | 375 | 550 | 551 | 500 | 723 | 302 | 1,424 | 2,324 | 980 | 829 | 1,138 | 705 | 918 |

Monthly and yearly runoff, in inches, of Saranac River at Saranac, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | 0.68 | 0.58 | 0.40 | 0.38 | 0.34 | 0.60 | 2.73 | 1.64 | 0.91 | 0.77 | 0.63 | 0.49 | 10.15 |
| 1932 | .59 | 1.04 | 1.13 | 1.87 | 1.29 | 1.38 | 4.50 | 2.62 | 1.19 | 1.60 | 1.14 | .83 | 19.18 |
| 1933 | 1.31 | 1.46 | 1.43 | 1.53 | .93 | 1.36 | 5.98 | 3.19 | .99 | .78 | .62 | .52 | 20.10 |
| 1934 | .58 | .64 | .84 | 1.00 | .82 | 1.18 | 4.62 | 1.63 | 1.17 | .69 | .59 | .42 | 14.18 |
| 1935 | .33 | .38 | .67 | 1.07 | .76 | 1.70 | 2.14 | 2.56 | 2.97 | 1.70 | 1.35 | .73 | 16.36 |
| 1936 | .89 | 1.05 | 1.05 | .69 | .74 | 3.90 | 3.18 | 2.93 | .98 | 1.04 | .72 | 1.00 | 18.17 |
| 1937 | 2.24 | 2.11 | 1.52 | 2.46 | 1.48 | 1.51 | 3.80 | 4.69 | 1.90 | 1.21 | 1.02 | 1.17 | 25.11 |
| 1938 | .76 | 1.19 | 1.29 | 1.14 | 1.34 | 3.53 | 3.22 | 1.90 | 1.14 | .93 | 1.00 | 1.82 | 19.26 |
| 1939 | 1.42 | 1.12 | 1.49 | 1.15 | .90 | 1.52 | 3.90 | 2.99 | 1.54 | 1.13 | .63 | .54 | 18.33 |
| 1940 | .50 | .55 | .66 | .67 | .71 | .98 | 2.64 | 3.01 | 1.91 | 1.30 | .89 | .53 | 14.35 |
| 1941 | .64 | .80 | 1.26 | 1.27 | .97 | 1.08 | 3.00 | .85 | .69 | .61 | .50 | .34 | 12.01 |
| 1942 | .40 | .82 | .71 | .89 | .69 | 1.63 | 4.13 | 1.50 | 2.19 | .75 | .72 | .84 | 15.27 |
| 1943 | .83 | 1.18 | 1.22 | 1.11 | 1.45 | 2.00 | 3.05 | 5.14 | 2.10 | 1.63 | 2.52 | 1.51 | 23.94 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | |
| 1931 | 714 | 2,740 | Apr. 11, 1931 | 120 | 389 | 0.747 | 10.15 | 431 | 11.25 | |
| 1932 | 729 | 4,250 | Apr. 12, 1932 | 130 | 734 | 1.41 | 19.18 | 789 | 20.62 | |
| 1933 | 744 | 5,780 | Apr. 17, 1933 | 144 | 771 | 1.48 | 20.10 | 689 | 17.96 | |
| 1934 | 759 | 3,070 | Apr. 18, 1934 | 96 | 543 | 1.04 | 14.18 | 518 | 13.50 | |
| 1935 | 784 | 2,670 | June 17, 1935 | 96 | 627 | 1.20 | 16.36 | 689 | 17.97 | |
| 1936 | 804 | - | - | 192 | 695 | 1.33 | 18.17 | 805 | 21.05 | |
| 1937 | 824 | 5,080 | Apr. 6, 1937 | 290 | 964 | 1.85 | 25.11 | 863 | 22.48 | |
| 1938 | 854, 874 | 4,890 | Mar. 24, 1938 | 166 | 739 | 1.42 | 19.26 | 770 | 20.05 | |
| 1939 | 874 | 3,960 | Apr. 27, 1939 | 132 | 704 | 1.35 | 18.33 | 615 | 16.01 | |
| 1940 | 894 | 2,910 | May 3, 1940 | 110 | 549 | 1.05 | 14.35 | 587 | 15.34 | |
| 1941 | 924 | 3,960 | Apr. 16, 1941 | 78 | 461 | .885 | 12.01 | 432 | 11.24 | |
| 1942 | 954 | 4,380 | Apr. 16, 1942 | 105 | 586 | 1.12 | 15.27 | 635 | 16.57 | |
| 1943 | 974 | 7,060 | May 12, 1943 | 131 | 918 | 1.76 | 23.94 | - | - | |

389. Saranac River at Plattsburg, N. Y.]

Location.--Lat 44°40'50", long. 73°28'20", on right bank at Plattsburg, Clinton County, 600 ft downstream from Imperial Paper and Color Corp. dam and 3 miles upstream from mouth.

Drainage area.--608 sq mi. Prior to Nov. 12, 1919, 607 sq mi.

Gage.--Water-stage recorder. Datum of gage is 155.74 ft above mean sea level, datum of 1929, supplemental adjustment of 1943. Prior to Nov. 12, 1919, staff gage and Nov. 12 1919, to Sept. 30, 1930, water-stage recorder, at site 1.5 miles upstream at different datum.

Average discharge.--34 years (1903-30, 1943-50), 836 cfs.

Extremes.--1903-30, 1943-50: Maximum discharge, 11,500 cfs Apr. 8, 1928, from computation of flow over dam and through waste gates and powerplant; minimum daily, 18 cfs June 19, 1949.

Remarks.--Slight regulation by storage in Lower Saranac Lake. Considerable diurnal fluctuation caused by power and industrial operations. Small amount of diversion from tributaries above station for municipal supply of Plattsburg.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|--------|--------|--------|-------|-------|------|-------|----------|
| 1903 | - | - | - | - | - | - | 1,639 | 518 | 652 | 768 | 831 | 448 | - |
| 1904 | 689 | 651 | 607 | 455 | 428 | 1,122 | 1,634 | 1,208 | 507 | 383 | 414 | 519 | 718 |
| 1905 | 748 | 482 | 327 | 370 | 363 | 1,261 | 1,403 | 1,261 | 1,322 | 1,386 | 961 | 1,219 | 891 |
| 1906 | 703 | 766 | 680 | 991 | 776 | 687 | 1,030 | 1,120 | 803 | 649 | 436 | 311 | 746 |
| 1907 | 401 | 516 | 431 | *584 | *381 | *996 | *1,020 | *1,210 | *574 | *501 | *334 | *440 | *617 |
| 1908 | *570 | *575 | *726 | *684 | *684 | *1,180 | *1,910 | *1,890 | *762 | *363 | *303 | *249 | *825 |
| 1909 | 294 | 330 | 309 | 406 | 765 | 756 | 2,520 | 2,040 | 903 | 412 | 346 | 541 | 785 |
| 1910 | 353 | 437 | 375 | 402 | 394 | 1,510 | 1,240 | 982 | 724 | 319 | 333 | 365 | 1621 |
| 1911 | 436 | 455 | 385 | 412 | 397 | 613 | 1,960 | 1,320 | 788 | 394 | 266 | 346 | 647 |
| 1912 | 378 | 463 | 757 | 463 | 419 | 491 | 2,300 | 1,180 | 869 | 371 | 361 | 855 | 742 |
| 1913 | 670 | 850 | 789 | 1,350 | 625 | 2,190 | 2,090 | 840 | 719 | 364 | 326 | 280 | 923 |
| 1914 | 468 | 672 | 656 | 516 | 521 | 677 | 2,310 | 1,210 | 482 | 384 | 368 | 369 | 719 |
| 1915 | 324 | 357 | 330 | 425 | 602 | 610 | 1,260 | 872 | 524 | 714 | 620 | 366 | 583 |
| 1916 | 376 | 433 | 376 | 898 | 937 | 845 | 2,060 | 1,610 | 1,040 | 657 | 394 | 312 | 826 |
| 1917 | 361 | 405 | 568 | 533 | 478 | 1,010 | 2,210 | 1,060 | 1,280 | 796 | 312 | 408 | 782 |
| 1918 | 692 | 627 | 388 | 488 | 899 | 1,440 | 2,340 | 1,290 | 897 | 613 | 533 | 798 | 915 |
| 1919 | 1,540 | 1,540 | 1,140 | 835 | 565 | 1,430 | 2,020 | 1,650 | 781 | 407 | 363 | 400 | 1,060 |
| 1920 | 770 | 979 | 646 | 403 | 423 | 1,440 | 2,230 | 1,450 | 598 | 668 | 492 | 531 | 887 |

* Revised.

† Corrected.

] Published as "near Plattsburg", 1903-30.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly mean discharge, in cubic feet per second,
of Saranac River at Plattsburg, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|----------|
| 1921 | 823 | 609 | 1,200 | 732 | 582 | 2,490 | 1,410 | 617 | 481 | 386 | 381 | 341 | 824 |
| 1922 | 290 | 355 | 454 | 392 | 430 | 1,570 | 2,650 | 1,210 | 966 | 733 | 460 | 412 | 828 |
| 1923 | 283 | 239 | 515 | 302 | 328 | 491 | 1,900 | 1,250 | 1,120 | 454 | 337 | 290 | 609 |
| 1924 | 317 | 257 | 686 | 733 | 587 | 670 | 2,030 | 2,110 | 577 | 380 | 368 | 442 | 764 |
| 1925 | 654 | 543 | 528 | 411 | 902 | 1,690 | 1,660 | 1,140 | 883 | 586 | 605 | 820 | 867 |
| 1926 | 1,370 | 1,130 | 990 | 691 | 652 | 667 | 2,160 | 1,970 | 1,200 | 904 | 671 | 536 | 1,080 |
| 1927 | 710 | 1,140 | 705 | 565 | 682 | 1,400 | 1,020 | 1,110 | 687 | 545 | 512 | 365 | 787 |
| 1928 | 597 | 1,320 | 1,700 | 957 | 829 | 1,040 | 2,980 | 1,400 | 1,050 | 619 | 582 | 480 | 1,110 |
| 1929 | 990 | 741 | 667 | 739 | 593 | 1,740 | 2,420 | 1,820 | 826 | 740 | 493 | 466 | 968 |
| 1930 | 515 | 526 | 491 | 715 | 908 | 856 | 2,320 | 1,720 | 1,010 | 570 | 495 | 464 | 881 |
| 1944 | 613 | 924 | 729 | 703 | 694 | 823 | 2,172 | 1,719 | 609 | 464 | 355 | 321 | 843 |
| 1945 | 466 | 478 | 390 | 630 | 589 | 1,744 | 1,701 | 1,932 | 740 | 717 | 491 | 686 | 882 |
| 1946 | 1,569 | 1,119 | 812 | 796 | 730 | 1,673 | 906 | 1,102 | 832 | 445 | 422 | 294 | 911 |
| 1947 | 490 | 1,106 | 1,092 | 967 | 1,130 | 1,139 | 3,070 | 2,693 | 2,757 | 1,820 | 723 | 512 | 1,458 |
| 1948 | 499 | 403 | 508 | 484 | 567 | 1,651 | 1,383 | 1,400 | 848 | 598 | 515 | 426 | 775 |
| 1949 | 377 | 576 | 711 | 1,282 | 1,069 | 1,566 | 1,887 | 905 | 453 | 301 | 303 | 595 | 833 |
| 1950 | 382 | 417 | 642 | 1,015 | 691 | 871 | 1,855 | 861 | 574 | 326 | 479 | 476 | 715 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1903 | - | - | - | - | - | - | 3.01 | 0.98 | 1.20 | 1.46 | 1.58 | 0.82 | - |
| 1904 | 1.31 | 1.20 | 1.15 | 0.87 | 0.76 | 2.13 | 3.00 | 2.29 | .93 | .73 | .79 | .95 | 16.11 |
| 1905 | .69 | .80 | .62 | .70 | .62 | 2.39 | 2.58 | 2.39 | 2.43 | 2.63 | 1.83 | 2.24 | 19.92 |
| 1906 | 1.34 | 1.41 | 1.29 | 1.88 | 1.33 | 1.31 | 1.90 | 2.13 | 1.48 | 1.23 | .83 | .57 | 16.70 |
| 1907 | .76 | .95 | .82 | *1.11 | *.85 | *1.89 | *1.88 | *2.29 | *1.05 | *.95 | *.63 | *.81 | *13.79 |
| 1908 | *1.08 | *1.06 | *1.38 | *1.30 | *1.21 | *2.25 | *3.51 | *3.60 | *1.40 | *.69 | *.58 | *.46 | *18.52 |
| 1909 | .56 | .61 | .59 | .77 | 1.34 | *1.43 | 4.63 | 3.87 | 1.66 | .78 | .66 | .63 | 17.53 |
| 1910 | .67 | .80 | .71 | .76 | .68 | 2.87 | 2.28 | 1.87 | 1.33 | .61 | .63 | .67 | 13.88 |
| 1911 | .83 | .84 | .73 | .78 | .68 | 1.16 | 3.60 | 2.50 | 1.45 | .75 | .50 | .64 | 14.46 |
| 1912 | .72 | .85 | 1.44 | .88 | .74 | .93 | 4.23 | 2.24 | 1.60 | .70 | .69 | 1.57 | 16.59 |
| 1913 | 1.27 | 1.56 | 1.50 | 2.56 | 1.07 | 4.16 | 3.84 | 1.59 | 1.32 | .69 | .62 | .51 | 20.69 |
| 1914 | .89 | 1.24 | 1.24 | .98 | .89 | 1.28 | 4.24 | 2.29 | .88 | .73 | .70 | .68 | 16.04 |
| 1915 | .62 | .66 | .63 | .81 | 1.03 | 1.16 | 2.32 | 1.66 | .96 | 1.36 | 1.18 | .67 | 13.06 |
| 1916 | .71 | .80 | .71 | 1.71 | 1.66 | 1.60 | 3.78 | 3.06 | 1.91 | 1.24 | .75 | .57 | 18.50 |
| 1917 | .69 | .74 | 1.08 | 1.01 | .82 | 1.91 | 4.06 | 2.02 | 2.35 | 1.51 | .59 | .75 | 17.53 |
| 1918 | 1.31 | 1.15 | .74 | .93 | 1.54 | 2.73 | 4.31 | 2.46 | 1.65 | 1.16 | 1.01 | 1.46 | 20.45 |
| 1919 | 2.93 | 2.83 | 2.17 | 1.59 | .97 | 2.72 | 3.72 | 3.14 | 1.44 | .77 | .69 | .73 | 23.70 |
| 1920 | 1.46 | 1.80 | 1.22 | .77 | .75 | 2.73 | 4.10 | 2.76 | 1.10 | 1.27 | .94 | .98 | 19.88 |
| 1921 | 1.19 | 1.12 | 2.28 | 1.40 | 1.00 | 4.73 | 2.59 | 1.18 | .88 | .73 | .72 | .63 | 18.45 |
| 1922 | .55 | .65 | .86 | .74 | .74 | 2.99 | 4.88 | 2.29 | 1.77 | 1.41 | .87 | .76 | 18.51 |
| 1923 | .54 | .44 | .60 | .57 | .56 | .93 | 3.49 | 2.38 | 2.06 | .86 | .84 | .53 | 15.60 |
| 1924 | .60 | .47 | 1.30 | 1.40 | 1.04 | 1.27 | 3.73 | 4.01 | 1.06 | .72 | .70 | .81 | 17.11 |
| 1925 | 1.24 | 1.00 | 1.00 | .78 | 1.55 | 3.20 | 3.06 | 2.17 | 1.62 | 1.11 | 1.15 | 1.51 | 19.38 |
| 1926 | 2.61 | 2.08 | 1.88 | 1.31 | 1.11 | 1.27 | 3.97 | 3.75 | 2.21 | 1.72 | 1.28 | .99 | 24.18 |
| 1927 | 1.35 | 2.10 | 1.34 | 1.07 | 1.17 | 2.66 | 1.87 | 2.11 | 1.26 | 1.04 | .97 | .67 | 17.61 |
| 1928 | 1.13 | 2.42 | 3.23 | 1.82 | 1.12 | 1.97 | 5.48 | 2.66 | 1.93 | 1.18 | 1.11 | .88 | 24.93 |
| 1929 | 1.12 | 1.36 | 1.27 | 1.41 | 1.02 | 3.31 | 4.45 | 3.46 | 1.52 | 1.41 | .94 | .86 | 22.13 |
| 1930 | .98 | .97 | .93 | 1.36 | 1.56 | 1.63 | 4.26 | 3.26 | 1.85 | 1.08 | .94 | .85 | 19.67 |
| 1944 | 1.16 | 1.70 | 1.38 | 1.33 | 1.23 | 1.56 | 3.99 | 3.26 | 1.12 | .88 | .67 | .59 | 18.67 |
| 1945 | .88 | .88 | .74 | 1.20 | 1.01 | 3.31 | 3.12 | 3.66 | 1.36 | 1.36 | .93 | 1.26 | 19.71 |
| 1946 | 2.98 | 2.05 | 1.54 | 1.51 | 1.25 | 3.55 | 1.66 | 2.09 | 1.53 | .84 | .80 | .54 | 20.34 |
| 1947 | .93 | 2.03 | 2.07 | 1.83 | 1.94 | 2.20 | 5.83 | 5.11 | 5.06 | 3.45 | 1.37 | .94 | 32.56 |
| 1948 | .95 | .74 | .96 | .92 | 1.01 | 3.13 | 2.54 | 2.65 | 1.56 | 1.13 | .98 | .78 | 17.35 |
| 1949 | .72 | 1.06 | 1.35 | 2.43 | 1.83 | 2.97 | 3.46 | 1.72 | .63 | .57 | .58 | 1.09 | 18.61 |
| 1950 | .72 | .76 | 1.22 | 1.93 | 1.18 | 1.65 | 3.40 | 1.63 | 1.05 | .62 | .91 | .87 | 15.94 |

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
|------|------------|----------------------------|------|-------------|------|-----------------|------------------|------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1903 | 97 | - | - | - | - | - | - | - |
| 1904 | 129 | - | - | 107 | 718 | 1.18 | 16.11 | 649 |
| 1905 | 170 | - | - | 100 | 891 | 1.47 | 19.92 | 975 |
| 1906 | 206 | - | - | 52 | 746 | 1.23 | 16.70 | 679 |
| 1907 | 244,1587 | - | - | *42 | *617 | *1.02 | *13.79 | *662 |
| 1908 | 244,1587 | - | - | *68 | *825 | *1.36 | *18.52 | *746 |
| 1909 | 384 | - | - | 135 | 785 | 1.29 | 17.53 | 804 |
| 1910 | 384 | - | - | 210 | *621 | 1.02 | 13.88 | 630 |
| 1911 | 384 | - | - | 140 | 647 | 1.06 | 14.46 | 675 |
| 1912 | 384 | - | - | 228 | 742 | 1.22 | 16.59 | 799 |
| 1913 | 384 | - | - | 155 | 923 | 1.52 | 20.69 | 860 |
| 1914 | 384 | - | - | 90 | 719 | 1.18 | 16.04 | 653 |
| 1915 | 404 | - | - | 114 | 583 | .960 | 13.06 | 598 |

* Revised.

† Corrected.

Yearly discharge, in cubic feet per second, of Saranac River at Plattsburg, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1916 | 434 | - | - | 165 | 826 | 1.36 | 18.50 | 838 | 18.79 |
| 1917 | 454 | - | - | 100 | 782 | 1.29 | 17.53 | 813 | 18.22 |
| 1918 | 474 | - | - | 200 | 915 | 1.51 | 20.45 | 1,130 | 25.18 |
| 1919 | 504 | - | - | 205 | 1,060 | 1.74 | 23.70 | 905 | 20.25 |
| 1920 | 504 | - | - | 270 | 887 | 1.46 | 19.88 | 891 | 19.99 |
| 1921 | 524 | - | - | 140 | 824 | 1.36 | 18.45 | 712 | 15.92 |
| 1922 | 544 | - | - | 122 | 828 | 1.36 | 18.51 | 806 | 18.03 |
| 1923 | 564 | - | - | 65 | 609 | 1.00 | 13.60 | 644 | 14.39 |
| 1924 | 564 | - | - | 144 | 764 | 1.26 | 17.11 | 802 | 17.98 |
| 1925 | 604 | - | - | 178 | 867 | 1.43 | 19.38 | 1,020 | 22.71 |
| 1926 | 624 | - | - | 255 | 1,080 | 1.78 | 24.18 | 1,000 | 22.40 |
| 1927 | 644 | - | - | 158 | 787 | 1.30 | 17.61 | 877 | 19.60 |
| 1928 | 664 | 11,500 | Apr. 8, 1928 | 226 | 1,110 | 1.83 | 24.93 | 976 | 21.90 |
| 1929 | 684 | - | - | 360 | 988 | 1.63 | 22.13 | 949 | 21.26 |
| 1930 | 699 | - | - | 310 | 881 | 1.45 | 19.67 | - | - |
| 1944 | 1004 | 6,540 | Apr. 25, 1944 | 167 | 843 | 1.39 | 18.87 | 765 | 17.13 |
| 1945 | 1034 | 4,800 | Apr. 1, 1945 | 175 | 892 | 1.45 | 19.71 | 1,065 | 23.78 |
| 1946 | 1054 | 5,000 | Mar. 15, 1946 | 164 | 911 | 1.50 | 20.34 | 842 | 18.80 |
| 1947 | 1084 | 9,250 | June 3, 1947 | 149 | 1,458 | 2.40 | 32.56 | 1,352 | 30.18 |
| 1948 | 1114 | 4,730 | Mar. 28, 1948 | 217 | 775 | 1.27 | 17.35 | 796 | 17.83 |
| 1949 | 1144 | 7,090 | Mar. 28, 1949 | 18 | 833 | 1.37 | 18.61 | 815 | 18.18 |
| 1950 | 1174 | 4,270 | Apr. 20, 1950 | 131 | 715 | 1.18 | 15.94 | - | - |

390. West Branch Ausable River near Newman, N. Y.

Location.--Lat 44°18'40", long. 73°55'00", on right bank 4 miles northeast of Newman, Essex County, and 4 miles downstream from Lake Placid Outlet.

Drainage area.--116 sq mi.

Gage.--Water-stage recorder. Datum of gage is 1,620.76 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to July 14, 1927, staff gage at same site and datum.

Average discharge.--31 years (1919-50), 218 cfs.

Extremes.--1919-50: Maximum discharge, 10,800 cfs Sept. 22, 1938 (gage height, 12.20 ft), from rating curve extended above 3,200 cfs by logarithmic plotting; practically no flow Sept. 13, 1920 (gage height, 1.60 ft), caused by closing gates in logging dam; minimum daily, 7.2 cfs July 29, 1920.

Remarks.--Diurnal fluctuation at low and medium flow caused by mills above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 229 | 58.5 | 87.0 | - |
| 1917 | 117 | 159 | 187 | - | - | - | - | 454 | 565 | 101 | 89.4 | 103 | - |
| 1918 | 333 | 137 | 67.4 | - | - | - | - | - | - | - | - | - | - |
| 1919 | - | - | - | - | - | - | - | - | - | - | 68.1 | 186 | - |
| 1920 | 153 | 99.5 | 97.2 | 48.0 | 55.0 | 280 | 532 | 380 | 97.2 | 192 | 74.5 | 74.3 | 174 |
| 1921 | 186 | 170 | 352 | 122 | 81.6 | *832 | 356 | 108 | 75.6 | 63.6 | 54.1 | 40.7 | *205 |
| 1922 | 105 | 225 | 144 | 57.1 | 148 | *386 | *704 | 345 | 342 | 117 | 65.0 | 44.0 | *223 |
| 1923 | 61.0 | 81.4 | 51.4 | 50.7 | 22.9 | 120 | *647 | 403 | 299 | 58.9 | 37.8 | 64.8 | *158 |
| 1924 | 87.4 | 87.6 | 226 | 243 | 68.3 | 78.1 | 440 | *933 | 180 | 82.1 | 85.5 | *219 | *228 |
| 1925 | *258 | 145 | 124 | 42.3 | 285 | 447 | 413 | 370 | 299 | 189 | 153 | 201 | *243 |
| 1926 | 348 | 344 | 219 | 139 | 61.1 | 74.9 | 601 | 615 | 349 | 106 | 183 | 135 | 265 |
| 1927 | 254 | 386 | 84.7 | 73.7 | 87.1 | 318 | 277 | 382 | 122 | 156 | 115 | 97.4 | 197 |
| 1928 | 261 | 554 | 403 | 162 | 113 | 302 | 631 | 527 | 246 | 140 | 159 | 145 | 304 |
| 1929 | 186 | 217 | 136 | 175 | 85.5 | 398 | 653 | 499 | 274 | 199 | 104 | 86.7 | 252 |
| 1930 | 166 | 190 | 191 | 366 | 147 | 193 | 570 | 611 | 295 | 118 | 65.3 | 57.9 | 248 |
| 1931 | 62.6 | 86.4 | 63.9 | 42.6 | 37.1 | 66.5 | 608 | 385 | 123 | 159 | 52.1 | 98.6 | 149 |
| 1932 | 83.5 | 201 | 117 | 292 | 148 | 79.6 | 564 | 544 | 181 | 305 | 133 | 65.3 | 225 |
| 1933 | 424 | 325 | 130 | 149 | 93.7 | 142 | 876 | 486 | 115 | 53.3 | 98.0 | 95.5 | 249 |
| 1934 | 85.2 | 93.1 | 97.8 | 93.5 | 38.6 | 206 | 650 | 331 | 228 | 53.0 | 40.8 | 52.4 | 164 |
| 1935 | 87.5 | 172 | 132 | 170 | 61.4 | 162 | 349 | 423 | 410 | 187 | 113 | 105 | 198 |
| 1936 | 118 | 167 | 84.8 | 56.8 | 46.9 | 651 | 442 | 472 | 91.7 | 65.4 | 73.5 | 177 | 205 |
| 1937 | 292 | 177 | 170 | 338 | 179 | 95.0 | 472 | 757 | 223 | 102 | 140 | 79.3 | 253 |
| 1938 | 188 | 214 | 92.8 | 134 | 238 | 400 | 434 | 292 | 105 | 180 | 199 | 435 | 247 |
| 1939 | 135 | 137 | 217 | 120 | 137 | 191 | 541 | 497 | 164 | 73.3 | 64.6 | 49.1 | 194 |
| 1940 | 85.6 | 72.8 | 72.6 | 50.6 | 42.8 | 52.2 | 365 | 873 | 239 | 116 | 65.6 | 82.6 | 177 |
| 1941 | 85.3 | 153 | 185 | 128 | 92.5 | 58.6 | 554 | 141 | 60.1 | 81.3 | 42.5 | 39.6 | 135 |
| 1942 | 111 | 132 | 129 | 85.4 | 51.8 | 175 | 723 | 336 | 247 | 54.3 | 47.5 | 201 | 191 |
| 1943 | 157 | 199 | 102 | 103 | 123 | 247 | 350 | 859 | 332 | 183 | 214 | 129 | 247 |
| 1944 | 168 | 235 | 95.3 | 89.6 | 87.9 | 128 | 430 | 664 | 199 | 101 | 53.6 | 105 | 201 |
| 1945 | 123 | 99.9 | 76.7 | 102 | 82.8 | 616 | 470 | 607 | 154 | 330 | 67.0 | 329 | 256 |
| 1946 | 512 | 264 | 117 | 147 | 83.7 | 461 | 265 | 407 | 168 | 101 | 71.4 | 70.7 | 224 |
| 1947 | 287 | 295 | 226 | 170 | 173 | 205 | 732 | 977 | 492 | 398 | 112 | 87.0 | 347 |
| 1948 | 66.6 | 108 | 78.3 | 58.7 | 65.8 | 443 | 478 | 441 | 185 | 113 | 108 | 55.0 | 184 |
| 1949 | 90.0 | 312 | 261 | 327 | 161 | 323 | 430 | 302 | 81.6 | 51.1 | 84.8 | 138 | 214 |
| 1950 | 113 | 169 | 240 | 301 | 81.3 | 128 | 455 | 356 | 124 | 50.1 | 104 | 181 | 192 |

* Revised.

Monthly and yearly runoff, in inches, of West Branch Ausable River near Newman, N. Y.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1916 | - | - | - | - | - | - | - | - | - | 2.27 | 0.58 | 0.84 | - |
| 1917 | 1.16 | 1.53 | 1.86 | - | - | - | - | 4.51 | 5.43 | 1.00 | .69 | .99 | - |
| 1918 | 3.31 | 1.32 | .67 | - | - | - | - | - | - | - | - | - | - |
| 1919 | - | - | - | - | - | - | - | - | - | - | .68 | 1.78 | - |
| 1920 | 1.52 | .96 | .97 | 0.48 | 0.51 | 2.78 | 5.12 | 3.78 | .94 | 1.91 | .74 | .72 | 20.43 |
| 1921 | 1.84 | 1.64 | 3.49 | 1.21 | .73 | *8.27 | 3.42 | 1.07 | .73 | .63 | .54 | .39 | *23.96 |
| 1922 | 1.04 | 2.16 | 1.43 | .57 | 1.33 | *3.84 | *6.77 | 3.42 | 3.29 | 1.16 | .65 | .42 | *26.08 |
| 1923 | .61 | .78 | .51 | .50 | .21 | 1.19 | *6.23 | 4.00 | 2.88 | .59 | .38 | .62 | *18.50 |
| 1924 | .87 | 1.84 | 2.25 | 2.41 | .64 | .78 | 4.23 | *9.27 | 1.73 | .82 | .85 | *2.11 | *26.80 |
| 1925 | *2.56 | 1.40 | 1.23 | .42 | 2.56 | 4.44 | 3.97 | 3.68 | 2.98 | 1.88 | 1.52 | 1.93 | *28.47 |
| 1926 | 3.46 | 3.31 | 2.18 | 1.38 | .55 | .74 | 5.78 | 6.11 | 3.56 | 1.05 | 1.82 | 1.29 | 31.03 |
| 1927 | 2.52 | 3.72 | .84 | .73 | .78 | 3.16 | 2.67 | 3.79 | 1.17 | 1.54 | 1.14 | .94 | 23.00 |
| 1928 | 2.59 | 5.33 | 4.00 | 1.61 | 1.05 | 3.00 | 6.07 | 5.23 | 2.36 | 1.40 | 1.58 | 1.40 | 35.62 |
| 1929 | 1.84 | 2.09 | 1.35 | 1.74 | .77 | 3.95 | 6.28 | 4.96 | 2.63 | 1.98 | 1.03 | .83 | 29.45 |
| 1930 | 1.65 | 1.83 | 1.90 | 3.64 | 1.32 | 1.91 | 5.48 | 6.08 | 2.83 | 1.18 | .65 | .56 | 29.03 |
| 1931 | .62 | .83 | .64 | .42 | .33 | .66 | 5.85 | 3.83 | 1.18 | 1.58 | .52 | .95 | 17.41 |
| 1932 | .83 | 1.93 | 1.10 | 2.90 | 1.38 | .78 | 5.42 | 5.41 | 1.74 | 3.03 | 1.30 | .63 | 26.45 |
| 1933 | 4.22 | 3.12 | 1.29 | 1.48 | .84 | 1.41 | 8.42 | 4.83 | 1.11 | .53 | .97 | .92 | 29.14 |
| 1934 | .95 | .90 | .97 | .93 | .35 | 2.05 | 6.25 | 3.29 | 2.20 | .53 | .41 | .50 | 19.23 |
| 1935 | .87 | 1.65 | 1.31 | 1.70 | .55 | 1.61 | 3.36 | 4.21 | 3.94 | 1.86 | 1.12 | 1.01 | 23.19 |
| 1936 | 1.18 | 1.61 | .84 | .56 | .44 | 6.47 | 4.25 | 4.89 | .98 | .65 | .73 | 1.71 | 24.01 |
| 1937 | 2.90 | 1.71 | 1.70 | 3.36 | 1.60 | .94 | 4.54 | 7.53 | 2.14 | 1.01 | 1.40 | .76 | 29.59 |
| 1938 | 1.87 | 2.05 | .92 | 1.34 | 2.14 | 3.98 | 4.17 | 2.90 | 1.02 | 1.79 | 1.98 | 4.74 | 28.90 |
| 1939 | 1.34 | 1.32 | 2.16 | 1.19 | 1.23 | 1.90 | 5.20 | 4.93 | 1.57 | .73 | .64 | .47 | 22.68 |
| 1940 | .85 | .70 | .72 | .50 | .40 | .52 | 3.51 | 8.68 | 2.50 | 1.15 | .65 | .79 | 20.77 |
| 1941 | .85 | 1.47 | 1.83 | 1.27 | .83 | .58 | 5.33 | 1.41 | .58 | .81 | .42 | .38 | 15.76 |
| 1942 | 1.10 | 1.27 | 1.28 | .85 | .47 | 1.74 | 6.95 | 3.34 | 2.38 | .54 | .47 | 1.93 | 22.32 |
| 1943 | 1.56 | 1.91 | 1.01 | 1.02 | 1.11 | 2.46 | 3.17 | 8.53 | 3.19 | 1.62 | 2.13 | 1.24 | 28.95 |
| 1944 | 1.67 | 2.26 | .95 | .89 | .82 | 1.28 | 4.71 | 6.80 | 1.91 | 1.01 | .53 | 1.01 | 23.84 |
| 1945 | 1.22 | .96 | .76 | 1.01 | .74 | 6.12 | 4.52 | 6.04 | 1.48 | 3.28 | .67 | 3.17 | 29.97 |
| 1946 | 5.08 | 2.54 | 1.16 | 1.46 | .75 | 4.58 | 2.55 | 4.05 | 1.62 | 1.00 | .71 | .68 | 26.18 |
| 1947 | 2.85 | 2.84 | 2.24 | 1.69 | 1.55 | 2.04 | 7.04 | 9.71 | 4.74 | 3.95 | 1.11 | .84 | 40.60 |
| 1948 | .66 | 1.04 | .78 | .58 | .61 | 4.40 | 4.59 | 4.38 | 1.78 | 1.12 | 1.07 | .53 | 21.54 |
| 1949 | .89 | 3.00 | 2.59 | 3.25 | 1.44 | 3.21 | 4.14 | 3.01 | .79 | .51 | .84 | 1.33 | 25.00 |
| 1950 | 1.13 | 1.63 | 2.38 | 3.00 | .73 | 1.27 | 4.38 | 3.54 | 1.20 | .50 | 1.04 | 1.74 | 22.54 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1920 | 504 | *1,750 | Apr. 22, 1920 | 7.2 | 174 | 1.50 | 20.43 | 204 | 23.95 |
| 1921 | 524,1337 | *4,380 | Mar. 21, 1921 | 26 | *205 | *1.77 | *23.96 | *185 | *21.62 |
| 1922 | 544,1337 | *4,380 | Apr. 12, 1922 | 13 | *223 | *1.92 | *26.08 | *200 | *23.35 |
| 1923 | 564,1337 | *2,780 | Apr. 21, 1923 | 8 | *158 | *1.36 | *18.50 | *176 | *20.56 |
| 1924 | 584,1337 | *83,900 | May 4, 1924 | 34 | *228 | *1.97 | *26.80 | *239 | *28.03 |
| 1925 | 604,1337 | *5,670 | Oct. 1, 1924 | 34 | *243 | *2.09 | *28.47 | 275 | 32.23 |
| 1926 | 624 | 3,430 | Apr. 25, 1926 | 43 | 265 | 2.28 | 31.03 | 249 | 29.16 |
| 1927 | 644 | 3,210 | Nov. 17, 1926 | 44 | 197 | 1.70 | 23.00 | 238 | 27.84 |
| 1928 | 664 | 3,810 | Nov. 18, 1927 | 45 | 304 | 2.62 | 35.62 | 247 | 28.98 |
| 1929 | 684 | 2,940 | Mar. 24, 1929 | 44 | 252 | 2.17 | 29.45 | 252 | 29.55 |
| 1930 | 699 | 4,190 | Jan. 8, 1930 | 33 | 248 | 2.14 | 29.03 | 220 | 25.74 |
| 1931 | 714 | 1,840 | Apr. 11, 1931 | 28 | 149 | 1.28 | 17.41 | 164 | 19.18 |
| 1932 | 729 | 2,090 | Jan. 15, 1932 | 43 | 225 | 1.94 | 26.45 | 266 | 31.22 |
| 1933 | 744 | 6,200 | Oct. 6, 1932 | 29 | 249 | 2.15 | 29.14 | 199 | 23.23 |
| 1934 | 759 | 1,940 | Mar. 28, 1934 | 28 | 164 | 1.41 | 19.23 | 174 | 20.34 |
| 1935 | 784 | 1,750 | Apr. 30, 1935 | 40 | 198 | 1.71 | 23.19 | 196 | 22.99 |
| 1936 | 804 | 4,440 | Mar. 18, 1936 | 36 | 205 | 1.77 | 24.01 | 227 | 26.69 |
| 1937 | 824 | 3,290 | Apr. 6, 1937 | 46 | 253 | 2.18 | 29.59 | 240 | 28.12 |
| 1938 | 854 | 10,800 | Sept. 22, 1938 | 46 | 247 | 2.13 | 28.90 | 247 | 28.88 |
| 1939 | 874 | 2,390 | Dec. 6, 1938 | 39 | 194 | 1.67 | 22.68 | 172 | 20.13 |
| 1940 | 894 | 2,740 | May 2, 1940 | 36 | 177 | 1.53 | 20.77 | 193 | 22.65 |
| 1941 | 924 | 2,970 | Apr. 16, 1941 | 24 | 135 | 1.16 | 15.76 | 130 | 15.26 |
| 1942 | 954 | 5,360 | Sept. 27, 1942 | 35 | 191 | 1.65 | 22.32 | 198 | 23.15 |
| 1943 | 974 | 2,820 | May 12, 1943 | 45 | 247 | 2.13 | 28.95 | 251 | 29.35 |
| 1944 | 1004 | 2,490 | May 5, 1944 | 40 | 201 | 1.73 | 23.64 | 185 | 21.70 |
| 1945 | 1034 | 4,040 | July 15, 1945 | 46 | 256 | 2.21 | 29.97 | 306 | 35.61 |
| 1946 | 1054 | 3,350 | Oct. 2, 1945 | 46 | 224 | 1.93 | 26.18 | 217 | 25.33 |
| 1947 | 1084 | 4,550 | May 22, 1947 | 59 | 347 | 2.99 | 40.60 | 300 | 35.15 |
| 1948 | 1114 | 3,200 | Mar. 22, 1948 | 42 | 184 | 1.59 | 21.54 | 218 | 25.54 |
| 1949 | 1144 | 7,020 | Dec. 31, 1948 | 32 | 214 | 1.84 | 25.00 | 202 | 23.66 |
| 1950 | 1174 | 2,330 | Apr. 20, 1950 | 30 | 192 | 1.68 | 22.54 | - | - |

* Revised.

a Maximum peak discharge; maximum discharge during year, 5,540 cfs (revised) at 12 p.m. Sept. 30, 1924.

391. Black Brook at Black Brook, N. Y.

Location.--Lat 44°28'50", long. 73°44'45", on right bank three-quarters of a mile south of hamlet of Black Brook, Clinton County, and 1½ miles upstream from mouth.

Drainage area.--49.4 sq mi.

Gage.--Water-stage recorder. Datum of gage is 888.48 ft above mean sea level, datum of 1929, supplementary adjustment of 1943. Prior to Oct. 24, 1936, staff gage at same site and datum.

Average discharge.--26 years (1924-50), 50.0 cfs.

Extremes.--1924-50: Maximum discharge, 1,050 cfs Apr. 6, 1937 (gage height, 6.95 ft), from rating curve extended above 450 cfs by logarithmic plotting; minimum, 0.8 cfs July 2, Aug. 29, 1931.

Remarks.--Flow regulated by Fern Lake and Taylor Pond. Prior to 1928, water was diverted during low-water periods from Little Black Brook by a flume half a mile above East Kilns. Diurnal distribution of flow was controlled completely by operation of power-plant, prior to 1938.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | 36.9 | 42.2 | 33.3 | 28.8 | 54.8 | 140 | 74.5 | 46.6 | 30.1 | 38.5 | 37.4 | 49.3 | 52.3 |
| 1926 | 64.0 | 80.8 | 81.7 | 57.6 | 42.8 | 48.3 | 154 | 81.7 | 56.2 | 35.5 | 36.1 | 36.2 | 64.5 |
| 1927 | 35.7 | 44.2 | 49.7 | 54.3 | 65.5 | 88.1 | 40.4 | 76.6 | 25.3 | 23.5 | 34.2 | 42.8 | 48.3 |
| 1928 | 27.5 | 58.5 | 76.0 | 67.5 | 51.9 | 59.9 | 159 | 82.7 | 52.0 | 20.5 | 35.4 | 37.0 | 60.5 |
| 1929 | 34.5 | 33.6 | 34.5 | 56.2 | 67.5 | 89.1 | 130 | 116 | 49.7 | 30.8 | 44.8 | 86.8 | 64.5 |
| 1930 | 22.5 | 25.2 | 33.4 | 37.5 | 54.8 | 36.3 | 133 | 63.5 | 31.3 | 33.0 | 59.7 | 71.5 | 49.8 |
| 1931 | 53.3 | 50.7 | 33.9 | 22.1 | 19.2 | 18.4 | 86.7 | 31.3 | 17.1 | 9.65 | 15.6 | 17.7 | 31.3 |
| 1932 | 15.1 | 17.4 | 28.6 | 42.1 | 27.3 | 18.0 | 160 | 45.3 | 21.4 | 6.97 | 13.7 | 36.0 | 35.8 |
| 1933 | 24.5 | 30.7 | 37.7 | 30.7 | 35.3 | 47.0 | 252 | 100 | 50.9 | 57.2 | 36.5 | 22.3 | 60.3 |
| 1934 | 12.6 | 27.0 | 22.8 | 37.2 | 59.8 | 57.6 | 178 | 35.1 | 17.6 | 31.9 | 31.0 | 29.3 | 44.6 |
| 1935 | 14.5 | 16.2 | 11.8 | 38.6 | 27.0 | 47.5 | 82.3 | 72.7 | 94.9 | 32.3 | 33.3 | 48.4 | 43.2 |
| 1936 | 14.4 | 32.9 | 20.2 | 44.9 | 60.8 | 154 | 81.4 | 54.4 | 20.0 | 36.3 | 38.4 | 24.3 | 48.6 |
| 1937 | 42.5 | 44.0 | 32.7 | 48.2 | 43.4 | 38.6 | 138 | 202 | 49.4 | 51.3 | 69.5 | 53.1 | 67.9 |
| 1938 | 39.4 | 31.4 | 19.2 | 55.3 | 41.6 | 75.7 | 67.7 | 47.1 | 32.9 | 31.2 | 36.9 | 45.4 | 43.7 |
| 1939 | 28.3 | 54.7 | 49.9 | 61.0 | 70.8 | 82.1 | 142 | 51.6 | 23.9 | 40.2 | 54.6 | 57.8 | 59.5 |
| 1940 | 37.8 | 21.4 | 25.8 | 28.3 | 18.4 | 17.1 | 101 | 59.5 | 42.4 | 28.1 | 33.8 | 30.0 | 37.0 |
| 1941 | 27.5 | 12.8 | 26.1 | 25.5 | 28.2 | 28.6 | 94.8 | 22.4 | 17.9 | 41.2 | 38.7 | 19.1 | 31.9 |
| 1942 | 8.39 | 10.8 | 12.0 | 9.20 | 28.3 | 45.8 | 102 | 28.8 | 51.1 | 41.9 | 54.0 | 27.1 | 34.7 |
| 1943 | 11.7 | 13.3 | 10.7 | 14.7 | 25.5 | 49.5 | 65.7 | 78.1 | 27.1 | 12.7 | 18.3 | 11.2 | 28.2 |
| 1944 | 45.4 | 27.9 | 20.2 | 21.9 | 25.1 | 47.4 | 198 | 103 | 34.3 | 29.2 | 59.7 | 45.7 | 54.8 |
| 1945 | 25.6 | 11.0 | 11.5 | 20.0 | 28.4 | 111 | 64.5 | 130 | 42.2 | 36.7 | 102 | 54.3 | 53.4 |
| 1946 | 72.2 | 53.3 | 43.9 | 43.4 | 27.4 | 152 | 43.5 | 46.5 | 48.6 | 51.0 | 50.9 | 43.3 | 56.6 |
| 1947 | 19.3 | 44.2 | 43.4 | 38.5 | 38.8 | 44.3 | 196 | 168 | 185 | 188 | 55.4 | 71.1 | 91.0 |
| 1948 | 48.0 | 43.8 | 40.4 | 30.0 | 28.0 | 88.0 | 54.9 | 61.9 | 32.2 | 25.0 | 31.2 | 56.4 | 46.1 |
| 1949 | 36.2 | 35.6 | 38.4 | 73.3 | 56.4 | 103 | 99.9 | 54.5 | 16.1 | 44.2 | 49.3 | 21.1 | 52.3 |
| 1950 | 21.2 | 18.0 | 29.1 | 35.1 | 20.2 | 40.7 | 137 | 81.3 | 11.6 | 41.4 | 40.7 | 18.5 | 33.7 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604,1337 | *885 | Mar. 28, 1925 | 5 | *51.0 | *1.03 | *14.01 | *60.6 | *16.64 |
| 1926 | 624 | 720 | Apr. 25, 1926 | 6 | 64.5 | 1.31 | 17.73 | 56.4 | 15.50 |
| 1927 | 644 | 277 | Mar. 19, 1927 | 6 | 48.3 | .978 | 13.29 | 51.0 | 14.03 |
| 1928 | 664 | 670 | Apr. 8, 1928 | 6 | 60.5 | 1.22 | 16.68 | 55.6 | 15.31 |
| 1929 | 684 | 297 | Apr. 7, 1929 | 6 | 64.3 | 1.30 | 17.66 | 62.4 | 17.13 |
| 1930 | 699 | 475 | Apr. 7, 1930 | 4 | 49.8 | 1.01 | 13.67 | 54.7 | 15.02 |
| 1931 | 714 | 380 | Apr. 11, 1931 | 1.0 | 31.3 | .634 | 8.61 | 24.8 | 6.84 |
| 1932 | 729 | 359 | Apr. 23, 1932 | 1.0 | 35.8 | .725 | 9.86 | 38.5 | 10.59 |
| 1933 | 744 | 533 | Apr. 18, 1933 | 5.0 | 60.3 | 1.22 | 16.56 | 57.7 | 15.85 |
| 1934 | 759 | 402 | Apr. 3, 1934 | 6.0 | 44.6 | .903 | 12.27 | 43.0 | 11.82 |
| 1935 | 764 | 375 | June 18, 1935 | 3.0 | 43.2 | .874 | 11.89 | 45.3 | 12.45 |
| 1936 | 804 | 800 | Mar. 19, 1936 | 2.0 | 48.6 | .984 | 13.39 | 52.9 | 14.58 |
| 1937 | 824 | 1,050 | Apr. 6, 1937 | 3.0 | 67.9 | 1.37 | 19.66 | 65.5 | 18.00 |
| 1938 | 854 | 694 | Sept. 22, 1938 | 5.8 | 43.7 | .865 | 12.00 | 47.2 | 12.98 |
| 1939 | 874 | 373 | Apr. 20, 1939 | 9.0 | 59.5 | 1.20 | 16.34 | 55.6 | 15.24 |
| 1940 | 894 | 287 | Apr. 19, 1940 | 6.0 | 37.0 | .749 | 10.17 | 35.4 | 9.75 |
| 1941 | 924 | 453 | Apr. 14, 1941 | 6.3 | 31.9 | .646 | 8.74 | 28.9 | 7.92 |
| 1942 | 954 | 605 | June 15, 1942 | 5.1 | 34.7 | .702 | 9.52 | 35.1 | 9.62 |
| 1943 | 974 | 413 | May 12, 1943 | 5.4 | 28.2 | .571 | 7.74 | 33.1 | 9.06 |
| 1944 | 1004 | 590 | Apr. 25, 1944 | 12 | 54.8 | 1.11 | 15.09 | 51.0 | 14.05 |
| 1945 | 1034 | 424 | Mar. 19, 1945 | 8.0 | 53.4 | 1.08 | 14.68 | 63.5 | 17.46 |
| 1946 | 1054 | 498 | Mar. 15, 1946 | 17 | 56.6 | 1.15 | 15.56 | 51.4 | 14.12 |
| 1947 | 1084 | 961 | July 13, 1947 | 8.9 | 91.0 | 1.84 | 25.01 | 93.2 | 25.60 |
| 1948 | 1114 | 505 | Mar. 22, 1948 | 13 | 45.1 | .913 | 12.41 | 43.2 | 11.90 |
| 1949 | 1144 | 628 | Mar. 28, 1949 | 6.8 | 52.3 | 1.06 | 14.38 | 48.8 | 13.42 |
| 1950 | 1174 | 495 | Apr. 21, 1950 | 5.4 | 39.7 | .804 | 10.91 | - | - |

* Revised.

392. East Branch Ausable River at Au Sable Forks, N. Y.

Location.--Lat 44°26'20", long. 73°40'55", on left bank 700 ft upstream from upper highway bridge in Au Sable Forks, Essex County, and half a mile upstream from confluence with West Branch.

Drainage area.--198 sq mi.

Gage.--Water-stage recorder. Datum of gage is 545.37 ft above mean sea level, datum of 1929. Prior to Sept. 21, 1938, staff gage at lower highway bridge in Au Sable Forks, 400 ft upstream from confluence with West Branch at datum 3.54 ft lower.

Average discharge.--26 years (1924-50), 307 cfs.

Extremes.--1924-50: Maximum discharge, 20,100 cfs Sept. 22, 1938 (gage height, 12.91 ft), from rating curve extended above 5,800 cfs by logarithmic plotting on basis of velocity-area studies; minimum observed, 20 cfs Aug. 11, 14, 28, 1934.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| 1925 | 414 | 257 | 177 | 72.4 | 486 | 817 | 619 | 471 | 309 | 242 | 222 | 311 | 365 |
| 1926 | 428 | 541 | 354 | 210 | 89.8 | 117 | 789 | 814 | 451 | 119 | 123 | 124 | 344 |
| 1927 | 226 | 564 | 134 | 117 | 119 | 488 | 445 | 656 | 197 | 122 | 118 | 280 | |
| 1928 | 283 | 874 | 692 | 245 | 178 | 517 | 823 | 342 | 208 | 144 | 154 | 448 | |
| 1929 | 181 | 265 | 167 | 268 | 92.7 | 683 | 1,060 | 832 | 287 | 250 | 87.4 | 67.2 | 355 |
| 1930 | 191 | 218 | 193 | 485 | 211 | 289 | 1,020 | 832 | 421 | 119 | 61.1 | 47.4 | 340 |
| 1931 | 53.0 | 94.5 | 65.7 | 44.0 | 36.9 | 73.4 | 858 | 523 | 192 | 154 | 64.7 | 117 | 189 |
| 1932 | 85.0 | 205 | 135 | 321 | 143 | 87.9 | 850 | 660 | 190 | 240 | 126 | 57.6 | 258 |
| 1933 | 481 | 464 | 168 | 198 | 123 | 115 | 1,480 | 691 | 118 | 43.6 | 175 | 87.9 | 345 |
| 1934 | 93.6 | 117 | 129 | 105 | 44.4 | 350 | 982 | 472 | 250 | 41.3 | 27.6 | 65.6 | 223 |
| 1935 | 91.6 | 221 | 173 | 260 | 66.6 | 264 | 505 | 567 | 554 | 361 | 112 | 121 | 276 |
| 1936 | 141 | 192 | 96.7 | 72.1 | 57.8 | 1203 | 635 | 631 | 82.2 | 57.0 | 82.2 | 163 | 286 |
| 1937 | 309 | 200 | 190 | 416 | 228 | 107 | 817 | 1,255 | 282 | 144 | 131 | 79.7 | 348 |
| 1938 | 274 | 391 | 158 | 169 | 320 | 616 | 620 | 413 | 105 | 175 | 177 | 627 | 336 |
| 1939 | 152 | 156 | 363 | 219 | 172 | 383 | 955 | 734 | 214 | 81.8 | 69.6 | 40.5 | 295 |
| 1940 | 88.6 | 91.1 | 74.1 | 45.0 | 38.1 | 59.9 | 581 | 1,341 | 285 | 122 | 59.8 | 83.7 | 240 |
| 1941 | 73.3 | 165 | 242 | 148 | 102 | 70.6 | 858 | 162 | 59.7 | 72.8 | 36.5 | 50.2 | 169 |
| 1942 | 142 | 205 | 184 | 124 | 54.8 | 271 | 1,099 | 457 | 318 | 55.2 | 74.6 | 324 | 275 |
| 1943 | 209 | 250 | 150 | 172 | 199 | 477 | 506 | 1,258 | 477 | 243 | 358 | 132 | 371 |
| 1944 | 237 | 355 | 144 | 120 | 116 | 228 | 850 | 984 | 415 | 97.7 | 48.6 | 93.4 | 307 |
| 1945 | 122 | 92.1 | 75.1 | 112 | 86.6 | 957 | 652 | 1,019 | 202 | 448 | 75.4 | 405 | 356 |
| 1946 | 704 | 350 | 169 | 234 | 98.6 | 702 | 368 | 533 | 217 | 106 | 86.7 | 62.1 | 305 |
| 1947 | 276 | 296 | 251 | 202 | 214 | 316 | 1,091 | 1,511 | 811 | 607 | 120 | 84.8 | 483 |
| 1948 | 62.1 | 154 | 91.6 | 63.0 | 76.3 | 678 | 692 | 639 | 231 | 112 | 97.7 | 43.7 | 246 |
| 1949 | 93.1 | 400 | 428 | 483 | 232 | 517 | 728 | 407 | 78.4 | 43.7 | 76.1 | 126 | 501 |
| 1950 | 104 | 163 | 278 | 362 | 114 | 214 | 807 | 506 | 135 | 43.8 | 81.5 | 167 | 248 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1925 | 2.41 | 1.45 | 1.03 | 0.42 | 2.56 | 4.76 | 3.49 | 2.74 | 1.74 | 1.41 | 1.29 | 1.75 | 25.05 |
| 1926 | 2.49 | 3.05 | 1.94 | 1.22 | .47 | .68 | 4.33 | 4.74 | 2.54 | .69 | .72 | .70 | 23.57 |
| 1927 | 1.32 | 3.18 | .78 | .88 | .62 | 2.84 | 2.51 | 3.82 | 1.11 | .92 | .71 | .67 | 19.16 |
| 1928 | 1.65 | 4.93 | 4.03 | 1.42 | .97 | 3.01 | 5.17 | 4.79 | 1.93 | 1.21 | .84 | .87 | 30.82 |
| 1929 | 1.05 | 1.50 | .97 | 1.56 | .49 | 3.97 | 5.97 | 4.84 | 1.62 | 1.46 | .51 | .38 | 24.32 |
| 1930 | 1.11 | 1.23 | 1.12 | 2.82 | 1.11 | 1.68 | 5.73 | 4.84 | 2.37 | .69 | .36 | .27 | 23.33 |
| 1931 | .31 | .53 | .38 | .26 | .19 | .43 | 4.83 | 3.05 | 1.03 | .90 | .38 | .66 | 12.95 |
| 1932 | .49 | 1.16 | .78 | 1.87 | .78 | .51 | 4.79 | 3.84 | 1.07 | 1.40 | .74 | .32 | 17.75 |
| 1933 | 2.80 | 2.61 | .98 | 1.15 | .65 | .67 | 8.34 | 4.02 | .66 | .25 | 1.02 | .50 | 23.65 |
| 1934 | .55 | .66 | .75 | .61 | .23 | 2.04 | 5.53 | 2.74 | 1.41 | .24 | .16 | .37 | 15.29 |
| 1935 | .53 | 1.25 | 1.01 | 1.51 | .35 | 1.53 | 2.84 | 3.30 | 3.12 | 2.10 | .65 | .68 | 18.87 |
| 1936 | .82 | 1.08 | .56 | .42 | .31 | 7.01 | 3.58 | 3.69 | .46 | .33 | .48 | .92 | 19.65 |
| 1937 | 1.80 | 1.13 | 1.11 | 2.42 | 1.20 | .62 | 4.61 | 7.31 | 1.58 | .84 | .76 | .45 | 23.83 |
| 1938 | 1.59 | 2.20 | .92 | .98 | 1.69 | 3.58 | 3.49 | 2.41 | .59 | 1.02 | 1.03 | 3.54 | 23.04 |
| 1939 | .89 | .88 | 2.11 | 1.28 | .90 | 2.22 | 5.38 | 4.28 | 1.20 | .49 | .41 | .23 | 20.26 |
| 1940 | .52 | .51 | .43 | .26 | .21 | .35 | 3.27 | 7.80 | 1.61 | .71 | .35 | .47 | 16.49 |
| 1941 | .43 | .93 | 1.41 | .86 | .54 | .41 | 4.83 | .94 | .34 | .42 | .21 | .28 | 11.60 |
| 1942 | .83 | 1.16 | 1.07 | .72 | .29 | 1.58 | 6.19 | 2.66 | 1.80 | .32 | .43 | 1.83 | 18.88 |
| 1943 | 1.22 | 1.41 | .88 | 1.00 | 1.04 | 2.78 | 2.85 | 7.33 | 2.69 | 1.41 | 2.07 | .75 | 25.43 |
| 1944 | 1.38 | 2.00 | .84 | .70 | .63 | 1.33 | 4.79 | 5.73 | 2.34 | .57 | .39 | .53 | 21.12 |
| 1945 | .71 | .52 | .44 | .65 | .46 | 5.57 | 3.68 | 5.94 | 1.14 | 2.61 | .44 | 2.28 | 24.44 |
| 1946 | 4.10 | 1.97 | .99 | 1.36 | .52 | 4.09 | 2.07 | 3.11 | 1.23 | .62 | .51 | .35 | 20.92 |
| 1947 | 1.61 | 1.67 | 1.46 | 1.18 | 1.13 | 1.84 | 6.15 | 8.80 | 4.57 | 3.53 | .70 | .48 | 33.12 |
| 1948 | .36 | .87 | .53 | .37 | .42 | 3.95 | 3.90 | 3.72 | 1.30 | .65 | .57 | .25 | 16.89 |
| 1949 | .54 | 2.26 | 2.49 | 2.81 | 1.22 | 3.01 | 4.10 | 2.37 | .44 | .25 | .44 | .71 | 20.64 |
| 1950 | .61 | .92 | 1.61 | 2.11 | .60 | 1.25 | 4.55 | 2.94 | .76 | .26 | .47 | .94 | 17.02 |

Yearly discharge, in cubic feet per second, of East Branch Ausable River at Au Sable Forks, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1925 | 604 | - | - | 41 | 365 | 1.84 | 25.05 | 403 | 27.64 |
| 1926 | 624 | 6,730 | Apr. 25, 1926 | 41 | 344 | 1.73 | 23.49 | 312 | 21.37 |
| 1927 | 644 | 6,510 | Nov. 17, 1926 | 46 | 280 | 1.41 | 19.16 | 357 | 24.49 |
| 1928 | 664 | 7,370 | Nov. 18, 1927 | 41 | 448 | 2.26 | 30.82 | 345 | 23.73 |
| 1929 | 684 | 5,500 | May 3, 1929 | 40 | 355 | 1.79 | 24.32 | 354 | 24.26 |
| 1930 | 699 | 9,030 | Apr. 7, 1930 | 37 | 340 | 1.72 | 23.34 | 308 | 21.09 |
| 1931 | 714 | 3,340 | Apr. 11, 1931 | 34 | 189 | .955 | 12.94 | 206 | 14.16 |
| 1932 | 729 | 2,470 | Apr. 12, 1932 | 38 | 258 | 1.30 | 17.76 | 316 | 21.71 |
| 1933 | 744 | 8,550 | Oct. 6, 1932 | 26 | 345 | 1.74 | 23.66 | 280 | 19.22 |
| 1934 | 759 | 5,700 | Mar. 27, 1934 | 20 | 223 | 1.13 | 15.29 | 235 | 16.12 |
| 1935 | 784 | 3,040 | July 9, 1935 | 34 | 276 | 1.39 | 18.87 | 271 | 18.54 |
| 1936 | 804 | 10,800 | Mar. 18, 1936 | 27 | 286 | 1.44 | 19.65 | 309 | 21.23 |
| 1937 | 824 | 7,610 | May 15, 1937 | 42 | 348 | 1.76 | 23.83 | 358 | 24.50 |
| 1938 | 854 | 20,100 | Sept. 22, 1938 | 47 | 336 | 1.70 | 23.04 | 324 | 22.21 |
| 1939 | 874 | 10,600 | Mar. 27, 1939 | 32 | 295 | 1.49 | 20.26 | 260 | 17.84 |
| 1940 | 894 | 4,920 | May 29, 1940 | 32 | 240 | 1.21 | 16.49 | 259 | 17.80 |
| 1941 | 924 | 4,460 | Apr. 15, 1941 | 22 | 169 | .854 | 11.60 | 173 | 11.89 |
| 1942 | 954 | 7,900 | Sept. 27, 1942 | 29 | 275 | 1.39 | 18.88 | 282 | 19.33 |
| 1943 | 974 | 4,650 | May 12, 1943 | 62 | 371 | 1.87 | 25.43 | 381 | 26.14 |
| 1944 | 1004 | 9,420 | June 24, 1944 | 34 | 307 | 1.55 | 21.12 | 270 | 18.57 |
| 1945 | 1034 | 6,950 | May 18, 1945 | 41 | 356 | 1.80 | 24.44 | 435 | 29.83 |
| 1946 | 1054 | 4,370 | Oct. 2, 1945 | 34 | 305 | 1.54 | 20.92 | 271 | 18.60 |
| 1947 | 1084 | 7,590 | June 3, 1947 | 61 | 463 | 2.44 | 33.12 | 459 | 30.14 |
| 1948 | 1114 | 4,740 | Mar. 28, 1948 | 32 | 246 | 1.24 | 16.89 | 297 | 20.42 |
| 1949 | 1144 | 16,500 | Dec. 31, 1948 | 27 | 301 | 1.52 | 20.64 | 270 | 18.49 |
| 1950 | 1174 | 5,420 | Apr. 20, 1950 | 31 | 248 | 1.25 | 17.02 | - | - |

393. Ausable River near Au Sable Forks, N. Y.^{1/}

Location.--Lat 44°27'05", long. 73°38'35", on left bank 1 3/4 miles downstream from confluence of East and West Branches at Au Sable Forks, Clinton County.

Drainage area.--448 sq mi. Prior to Sept. 1, 1924, 445 sq mi.

Gage.--Water-stage recorder. Datum of gage is 505.65 ft above mean sea level, datum of 1929. August 1910 to September 1924, chain gage at site 1 1/2 miles upstream at different datum.

Average discharge.--40 years (1910-50), 685 cfs.

Extremes.--1910-50: Maximum discharge, 24,200 cfs Sept. 22, 1938, from rating curve extended above 9,100 cfs by logarithmic plotting; maximum gage height, about 14.0 ft Mar. 27, 1934 (ice jam); practically no flow July 21, 1912, result of unusual regulation.

Remarks.--Flow partly regulated since 1905, principally by Taylor Pond and Fern Lake. Diurnal fluctuation at low and medium flow caused by powerplants above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|--------|-------|-------|-------|-------|-------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | - | 271 | - |
| 1911 | 351 | 383 | 423 | *700 | *360 | 510 | 1,720 | 1,340 | 470 | 182 | 164 | 256 | 572 |
| 1912 | 437 | 421 | 902 | 401 | 176 | 410 | 2,490 | 1,690 | 489 | 224 | 273 | 649 | 713 |
| 1913 | 780 | 934 | 679 | *2,000 | *800 | 2,640 | 1,790 | 821 | †456 | 250 | 182 | †235 | 964 |
| 1914 | 604 | 813 | 469 | 337 | 332 | 426 | 2,610 | 1,350 | 225 | 197 | 141 | 182 | 638 |
| 1915 | 175 | 256 | 294 | 368 | 681 | 269 | 1,320 | 586 | 380 | 591 | 456 | 161 | 459 |
| 1916 | 299 | 331 | 326 | 904 | 849 | 552 | 1,890 | 1,830 | 1,010 | 672 | 214 | 278 | 762 |
| 1917 | 354 | 402 | 473 | 282 | 218 | 663 | 2,080 | 1,350 | 1,610 | 279 | 679 | 313 | 724 |
| 1918 | 800 | 388 | 201 | 132 | 691 | 904 | 2,210 | 1,580 | 616 | 358 | 612 | 798 | 772 |
| 1919 | 1,640 | 1,130 | 961 | 489 | 306 | 1,360 | 1,830 | 1,680 | 555 | 225 | 196 | 392 | 901 |
| 1920 | 609 | 622 | 669 | 202 | 197 | 1,230 | 1,760 | 1,130 | 325 | 494 | 191 | 416 | 657 |
| 1921 | 479 | 574 | 1,660 | 543 | 454 | 3,290 | 1,080 | 359 | 221 | 185 | 128 | 96.5 | 761 |
| 1922 | 267 | 626 | 381 | 149 | 312 | 1,290 | 2,470 | 1,110 | 1,110 | 389 | 242 | 157 | 707 |
| 1923 | 225 | 268 | 169 | 175 | 137 | 445 | 2,000 | 1,230 | 833 | 154 | 99.4 | 193 | 493 |
| 1924 | 265 | 233 | 644 | 728 | 198 | 268 | 1,560 | 2,840 | 554 | 236 | 215 | 600 | 697 |
| 1925 | 786 | 496 | 420 | 180 | 1,010 | 1,650 | 1,290 | 1,040 | 729 | 549 | 474 | 666 | 772 |
| 1926 | 974 | 1,100 | 770 | 491 | 250 | 302 | 1,840 | 1,840 | 1,030 | 339 | 401 | 322 | 806 |
| 1927 | 559 | 1,140 | 298 | 269 | 337 | 1,130 | 925 | 1,330 | 413 | 391 | 301 | 296 | 616 |
| 1928 | 660 | 1,729 | 1,347 | 550 | 390 | 1,010 | 2,056 | 1,846 | 734 | 403 | 383 | 369 | 940 |
| 1929 | 457 | 584 | 394 | 608 | 281 | 1,418 | 2,260 | 1,736 | 722 | 543 | 275 | 271 | 798 |
| 1930 | 447 | 495 | 493 | 966 | 485 | 565 | 2,069 | 1,807 | 855 | 318 | 224 | 208 | 745 |

† Corrected.

* Not previously published; estimated on basis of records for St. Regis River at Brasher Center.

^{1/} Published as "at Au Sable Forks" prior to September 1924.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly mean discharge, in cubic feet per second,
of Ausable River near Au Sable Forks, N. Y.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|-------|------|-------|-------|-------|-------|-------|------|-------|----------|
| 1931 | 215 | 265 | 203 | 141 | 118 | 199 | 1,876 | 1,084 | 375 | 372 | 160 | 280 | 440 |
| 1932 | 214 | 456 | 313 | 758 | 378 | 220 | 1,948 | 1,500 | 465 | 612 | 292 | 188 | 612 |
| 1933 | 1,024 | 921 | 385 | 444 | 288 | 346 | 3,104 | 1,517 | 344 | 190 | 347 | 247 | 763 |
| 1934 | 222 | 264 | 304 | 271 | 162 | 717 | 2,215 | 1,057 | 591 | 153 | 122 | 173 | 521 |
| 1935 | 243 | 486 | 398 | 570 | 188 | 587 | 1,121 | 1,271 | 1,247 | 626 | 296 | 296 | 612 |
| 1936 | 300 | 430 | 249 | 208 | 186 | 2,259 | 1,323 | 1,349 | 245 | 189 | 210 | 395 | 615 |
| 1937 | 725 | 492 | 469 | 902 | 528 | 277 | 1,700 | 2,405 | 631 | 317 | 375 | 238 | 773 |
| 1938 | 536 | 686 | 315 | 419 | 666 | 1,516 | 1,336 | 907 | 301 | 439 | 452 | 1,255 | 717 |
| 1939 | 363 | 393 | 720 | 457 | 438 | 779 | 1,934 | 1,524 | 492 | 233 | 206 | 162 | 642 |
| 1940 | 245 | 229 | 204 | 153 | 124 | 167 | 1,244 | 2,572 | 717 | 326 | 196 | 225 | 535 |
| 1941 | 224 | 372 | 551 | 352 | 259 | 186 | 1,754 | 424 | 182 | 225 | 135 | 129 | 397 |
| 1942 | 287 | 386 | 365 | 239 | 152 | 561 | 2,210 | 942 | 738 | 185 | 200 | 565 | 568 |
| 1943 | 428 | 510 | 300 | 335 | 395 | 876 | 1,029 | 2,530 | 980 | 497 | 718 | 328 | 746 |
| 1944 | 523 | 754 | 309 | 273 | 269 | 496 | 1,857 | 2,060 | 749 | 279 | 192 | 285 | 667 |
| 1945 | 318 | 243 | 194 | 278 | 232 | 1,895 | 1,376 | 2,062 | 482 | 919 | 277 | 882 | 776 |
| 1946 | 1,459 | 751 | 389 | 504 | 246 | 1,526 | 788 | 1,107 | 512 | 287 | 241 | 215 | 673 |
| 1947 | 633 | 746 | 597 | 475 | 499 | 632 | 2,396 | 3,101 | 1,851 | 1,444 | 362 | 299 | 1,087 |
| 1948 | 224 | 369 | 248 | 178 | 199 | 1,449 | 1,399 | 1,329 | 536 | 300 | 273 | 179 | 558 |
| 1949 | 252 | 832 | 764 | 1,075 | 534 | 1,131 | 1,482 | 893 | 226 | 174 | 251 | 334 | 663 |
| 1950 | 295 | 410 | 618 | 785 | 260 | 448 | 1,627 | 1,020 | 324 | 166 | 275 | 428 | 555 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | - | 0.68 | - |
| 1911 | 0.91 | 0.96 | 1.10 | 1.81 | 0.84 | 1.32 | 4.31 | 3.48 | 1.18 | 0.47 | 0.42 | .64 | 17.44 |
| 1912 | 1.13 | 1.05 | 2.34 | 1.04 | .43 | 1.06 | 6.24 | 4.38 | 1.23 | .58 | .71 | 1.63 | 21.82 |
| 1913 | 2.02 | 2.34 | 1.76 | 5.18 | 1.87 | 6.84 | 4.48 | 2.13 | 1.09 | .65 | .47 | 1.59 | 29.42 |
| 1914 | 1.56 | 2.04 | 1.22 | .87 | .78 | 1.10 | 6.55 | 3.44 | .56 | .51 | .36 | .48 | 19.45 |
| 1915 | .45 | .84 | .76 | .95 | 1.59 | .70 | 3.32 | 1.52 | .95 | 1.53 | 1.18 | .40 | 13.99 |
| 1916 | .77 | .83 | .85 | 2.34 | 2.06 | 1.43 | 4.75 | 4.76 | 2.54 | 1.74 | .55 | .70 | 23.32 |
| 1917 | .87 | 1.01 | 1.23 | .73 | .51 | 1.72 | 5.23 | 3.49 | 4.04 | .72 | 1.76 | .78 | 22.09 |
| 1918 | 2.07 | .97 | .52 | .34 | 1.62 | 2.34 | 5.54 | 4.09 | 1.54 | .93 | 1.59 | 2.00 | 23.55 |
| 1919 | 4.24 | 2.84 | 2.49 | 1.27 | .72 | 3.53 | 4.58 | 4.34 | 1.39 | .58 | .51 | .98 | 27.47 |
| 1920 | 1.58 | 1.56 | 1.78 | .52 | .48 | 3.18 | 4.42 | 2.93 | .81 | 1.28 | .50 | 1.04 | 20.08 |
| 1921 | 1.24 | 1.44 | 4.30 | 1.41 | 1.06 | 8.52 | 2.70 | .93 | .56 | .48 | .33 | .24 | 23.21 |
| 1922 | .69 | 1.57 | .99 | .38 | .73 | 3.35 | 6.18 | 2.87 | 2.78 | 1.01 | .63 | .39 | 21.57 |
| 1923 | .58 | .67 | .44 | .45 | .32 | 1.15 | 5.01 | 3.18 | 2.09 | .40 | .26 | .48 | 15.03 |
| 1924 | .69 | .58 | 1.67 | 1.89 | .48 | .70 | 3.92 | 7.35 | 1.39 | .61 | .56 | 1.50 | 21.34 |
| 1925 | 2.02 | 1.24 | 1.08 | .46 | 2.35 | 4.24 | 3.21 | 2.68 | 1.82 | 1.41 | 1.22 | 1.66 | 23.39 |
| 1926 | 2.51 | 2.74 | 1.98 | 1.26 | .58 | .78 | 4.58 | 4.73 | 2.55 | .87 | 1.03 | .80 | 24.41 |
| 1927 | 1.44 | 2.84 | .77 | .69 | .78 | 2.91 | 2.30 | 3.41 | 1.03 | .98 | .77 | .74 | 18.66 |
| 1928 | 1.70 | 4.31 | 3.47 | 1.42 | .94 | 2.59 | 5.12 | 4.24 | 1.83 | 1.04 | .99 | .92 | 28.57 |
| 1929 | 1.18 | 1.45 | 1.01 | 1.57 | .65 | 3.65 | 5.63 | 4.47 | 1.80 | 1.40 | .71 | .68 | 24.20 |
| 1930 | 1.15 | 1.23 | 1.27 | 2.49 | 1.12 | 1.45 | 5.15 | 4.65 | 2.13 | .82 | .58 | .52 | 22.56 |
| 1931 | .55 | .66 | .52 | .36 | .27 | .51 | 4.67 | 2.79 | .95 | .96 | .41 | .70 | 13.33 |
| 1932 | .55 | 1.14 | .81 | 1.95 | .91 | .57 | 4.95 | 3.86 | 1.16 | 1.58 | .75 | .47 | 16.60 |
| 1933 | 2.84 | 2.30 | .99 | 1.14 | .67 | .89 | 7.73 | 3.90 | .86 | .49 | .89 | .61 | 23.11 |
| 1934 | .57 | .66 | .78 | .70 | .38 | 1.84 | 5.51 | 2.72 | 1.47 | .39 | .31 | .43 | 15.76 |
| 1935 | .62 | 1.20 | 1.02 | 1.46 | .44 | 1.51 | 2.79 | 3.27 | 3.10 | 1.61 | .76 | .74 | 18.52 |
| 1936 | .77 | 1.07 | .64 | .53 | .45 | 5.81 | 3.29 | 3.47 | .61 | .49 | .54 | .98 | 18.65 |
| 1937 | 1.87 | 1.23 | 1.21 | 2.32 | 1.22 | .71 | 4.23 | 6.70 | 1.57 | .82 | .96 | .59 | 23.43 |
| 1938 | 1.38 | 1.71 | .81 | 1.08 | 1.54 | 3.39 | 3.32 | 2.33 | .75 | 1.13 | 1.16 | 3.12 | 21.72 |
| 1939 | .93 | .98 | 1.86 | 1.18 | 1.02 | 2.01 | 4.82 | 3.92 | 1.23 | .60 | .53 | .40 | 19.48 |
| 1940 | .63 | .57 | .52 | .39 | .30 | .43 | 3.10 | 6.62 | 1.78 | .84 | .50 | .56 | 16.24 |
| 1941 | .58 | .93 | 1.37 | .91 | .60 | .48 | 4.37 | 1.09 | .45 | .58 | .35 | .32 | 12.03 |
| 1942 | .74 | .96 | .94 | .61 | .35 | 1.44 | 5.50 | 2.42 | 1.84 | .48 | .51 | .41 | 17.20 |
| 1943 | 1.10 | 1.27 | .77 | .86 | .92 | 2.25 | 2.56 | 6.48 | 2.44 | 1.28 | 1.85 | .82 | 22.60 |
| 1944 | 1.34 | 1.83 | .79 | .70 | .65 | 1.25 | 4.62 | 5.30 | 1.86 | .72 | .49 | .71 | 20.26 |
| 1945 | .82 | .61 | .50 | .72 | .54 | 5.13 | 3.43 | 5.31 | 1.20 | 2.36 | .71 | 2.20 | 23.53 |
| 1946 | 3.75 | 1.87 | 1.00 | 1.30 | .57 | 3.93 | 1.96 | 2.85 | 1.28 | .74 | .62 | .53 | 20.40 |
| 1947 | 1.63 | 1.86 | 1.54 | 1.22 | 1.16 | 1.63 | 5.97 | 7.98 | 4.56 | 3.71 | .93 | .74 | 32.93 |
| 1948 | .58 | .92 | .64 | .46 | .48 | 3.73 | 3.48 | 3.42 | 1.34 | .77 | .70 | .45 | 16.97 |
| 1949 | .65 | 2.07 | 1.97 | 2.77 | 1.24 | 2.91 | 3.69 | 2.30 | .56 | .45 | .65 | .83 | 20.09 |
| 1950 | .76 | 1.02 | 1.59 | 2.02 | .60 | 1.15 | 4.05 | 2.62 | .81 | .43 | .71 | 1.07 | 16.83 |

† Corrected.

‡ Not previously published; estimated on basis of records for St. Regis River at Brasher Center.

Yearly discharge, in cubic feet per second, of Ausable River near Au Sable Forks, N. Y.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|-------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1911 | 324 | *10,100 | May 2, 1911* | 117 | 572 | 1.29 | 17.44 | 623 | 18.99 |
| 1912 | 324 | *12,200 | Apr. 7, 1912* | 51 | 713 | 1.60 | 21.82 | 765 | 23.42 |
| 1913 | 354 | *21,200 | Mar. 27, 1913 | 9 | 964 | 2.17 | 29.42 | 922 | 28.12 |
| 1914 | 384 | *16,500 | Apr. 20, 1914 | †70 | 638 | 1.43 | 19.45 | 541 | 16.48 |
| 1915 | 404 | *6,800 | Apr. 11, 1915* | 83 | 459 | 1.03 | 13.99 | 479 | 14.59 |
| 1916 | 454 | *9,430 | May 17, 1916 | 137 | 762 | 1.71 | 23.32 | 783 | 23.98 |
| 1917 | 454 | *8,740 | Apr. 2, 1917 | 100 | 724 | 1.63 | 22.09 | 739 | 22.54 |
| 1918 | 474 | *7,420 | Apr. 1, 1918 | 80 | 772 | 1.73 | 23.55 | 969 | 29.56 |
| 1919 | 504 | *16,600 | Oct. 6, 1918 | 121 | 901 | 2.02 | 27.47 | 748 | 22.82 |
| 1920 | 504 | *7,260 | Apr. 13, 1920 | 132 | 657 | 1.48 | 20.08 | 724 | 22.14 |
| 1921 | 524 | 13,800 | Mar. 21, 1921 | 82 | 761 | 1.71 | 23.21 | 638 | 19.48 |
| 1922 | 544 | *11,800 | Apr. 12, 1922 | 85 | 707 | 1.59 | 21.57 | 656 | 20.01 |
| 1923 | 564 | *7,110 | Apr. 29, 1923 | 28 | 493 | 1.11 | 15.03 | 534 | 16.28 |
| 1924 | 584 | a10,500 | May 4, 1924 | 86 | 697 | 1.57 | 21.34 | 744 | 22.74 |
| 1925 | 604 | 21,200 | Oct. 1, 1924 | 150 | 772 | 1.72 | 23.39 | 867 | 26.28 |
| 1926 | 624 | 11,200 | Apr. 25, 1926 | 153 | 806 | 1.80 | 24.41 | 734 | 22.23 |
| 1927 | 644 | 13,300 | Nov. 17, 1926 | 156 | 616 | 1.38 | 18.66 | 762 | 23.09 |
| 1928 | 664 | 11,500 | Nov. 18, 1927 | 175 | 940 | 2.10 | 28.57 | 748 | 22.73 |
| 1929 | 684 | 8,690 | May 3, 1929 | 194 | 798 | 1.78 | 24.20 | 798 | 24.21 |
| 1930 | 699 | 12,100 | Apr. 7, 1930 | 178 | 745 | 1.66 | 22.56 | 681 | 20.64 |
| 1931 | 714 | 6,420 | Apr. 11, 1931 | 110 | 440 | .982 | 13.33 | 465 | 14.10 |
| 1932 | 729 | 5,580 | Jan. 15, 1932 | 124 | 612 | 1.37 | 18.60 | 725 | 22.03 |
| 1933 | 744 | 14,800 | Oct. 7, 1932 | 120 | 763 | 1.70 | 23.11 | 634 | 19.19 |
| 1934 | 759 | 6,110 | Apr. 17, 1934 | 82 | 521 | 1.16 | 15.76 | 549 | 16.59 |
| 1935 | 784 | 5,500 | June 18, 1935 | 140 | 612 | 1.37 | 18.52 | 600 | 18.16 |
| 1936 | 804 | 16,700 | Mar. 18, 1936 | 117 | 615 | 1.37 | 18.65 | 674 | 20.48 |
| 1937 | 824 | 12,300 | May 15, 1937 | 142 | 773 | 1.73 | 23.43 | 760 | 23.02 |
| 1938 | 854 | 24,200 | Sept. 22, 1938 | 142 | 717 | 1.60 | 21.72 | 713 | 21.59 |
| 1939 | 874 | 6,440 | Apr. 27, 1939 | 140 | 642 | 1.43 | 19.48 | 575 | 17.43 |
| 1940 | 894 | 7,330 | May 2, 1940 | 110 | 535 | 1.19 | 16.24 | 573 | 17.40 |
| 1941 | 924 | 8,010 | Apr. 15, 1941 | 77 | 397 | .886 | 12.03 | 389 | 11.79 |
| 1942 | 954 | 10,600 | Sept. 28, 1942 | 96 | 568 | 1.27 | 17.20 | 585 | 17.70 |
| 1943 | 974 | 8,570 | May 12, 1943 | 130 | 746 | 1.67 | 22.60 | 773 | 23.42 |
| 1944 | 1004 | 11,400 | June 24, 1944 | 162 | 667 | 1.49 | 20.26 | 600 | 18.23 |
| 1945 | 1034 | 10,900 | July 15, 1945 | 138 | 776 | 1.73 | 23.53 | 931 | 28.22 |
| 1946 | 1054 | 8,010 | Oct. 2, 1946 | 155 | 673 | 1.50 | 20.40 | 620 | 18.81 |
| 1947 | 1084 | 12,900 | June 3, 1947 | 230 | 1,087 | 2.43 | 32.93 | 991 | 30.04 |
| 1948 | 1114 | 9,220 | Mar. 22, 1948 | 135 | 558 | 1.25 | 16.97 | 642 | 19.52 |
| 1949 | 1144 | 23,200 | Dec. 31, 1948 | 132 | 663 | 1.48 | 20.09 | 619 | 18.77 |
| 1950 | 1174 | 8,660 | Apr. 20, 1950 | 132 | 555 | 1.24 | 16.83 | - | - |

* Revised.

† Corrected.

* Not previously published.

a Maximum peak discharge; maximum discharge during year, 17,100 cfs (revised) at 12 p.m. Sept. 30, 1924, stage rising.

394. Bouquet River at Willsboro, N. Y.

Location.--Lat 44°21'30", long. 73°23'50", on right bank at Willsboro, Essex County, 2½ miles downstream from North Branch Bouquet River and 3 miles upstream from mouth.Drainage area.--275 sq mi.Supplemental records available.--August and September 1904, gage heights and discharge measurements only.Gage.--Water-stage recorder. Datum of gage is 150.88 ft above mean sea level, datum of 1929. Prior to November 1908, staff gages at site three-quarters of a mile downstream at various datums. July 23 to Aug. 28, 1923, staff gage 600 ft downstream at same datum.Average discharge.--27 years (1923-50), 298 cfs.Extremes.--1923-50: Maximum discharge, about 11,800 cfs Oct. 1, 1924 (gage height, 10.85 ft), from rating curve extended above 4,600 cfs by logarithmic plotting; minimum, 10 cfs Nov. 26, 1941 (gage height, 1.87 ft).Remarks.--Occasional slight diurnal fluctuation at low flow caused by powerplants above station.

| Monthly and yearly mean discharge, in cubic feet per second, of Bouquet River at Willsboro, N. Y. | | | | | | | | | | | | | |
|---|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1907 | - | - | - | - | - | - | - | - | - | - | - | 42.5 | - |
| 1908 | 38.5 | 34.1 | - | - | - | - | - | - | - | - | - | - | - |
| 1924 | 88.2 | 105 | 288 | 339 | 107 | 245 | 1,225 | 1,130 | 180 | 91.5 | 66.5 | 109 | 332 |
| 1925 | 503 | 244 | 236 | 100 | 627 | 1,050 | 708 | 453 | 232 | 207 | 190 | 231 | 397 |
| 1926 | 377 | 437 | 360 | 254 | 121 | 165 | 1,053 | 593 | 343 | 126 | 100 | 89.1 | 335 |
| 1927 | 177 | 544 | 154 | 150 | 150 | 601 | 384 | 469 | 170 | 136 | 138 | 112 | 266 |
| 1928 | 215 | 892 | 755 | 261 | 208 | 591 | 1,121 | 661 | 363 | 271 | 144 | 139 | 468 |
| 1929 | 139 | 201 | 187 | 288 | 118 | 705 | 1,035 | 727 | 375 | 280 | 94.9 | 74.8 | 353 |
| 1930 | 136 | 155 | 171 | 387 | 242 | 315 | 866 | 738 | 448 | 138 | 87.8 | 66.1 | 312 |
| 1931 | 71.6 | 83.4 | 79.4 | 67.7 | 49.4 | 156 | 822 | 314 | 154 | 112 | 49.6 | 80.6 | 170 |
| 1932 | 66.8 | 117 | 109 | 249 | 126 | 99.7 | 1,078 | 419 | 159 | 114 | 68.6 | 41.9 | 220 |
| 1933 | 382 | 505 | 179 | 222 | 151 | 168 | 1,648 | 553 | 120 | 69.3 | 102 | 55.1 | 345 |
| 1934 | 78.6 | 99.0 | 123 | 86.5 | 52.4 | 305 | 1,244 | 285 | 151 | 53.4 | 37.8 | 65.8 | 215 |
| 1935 | 71.2 | 146 | 146 | 240 | 78.8 | 391 | 611 | 478 | 379 | 327 | 117 | 117 | 259 |
| 1936 | 129 | 184 | 125 | 92.9 | 79.5 | 1,375 | 660 | 389 | 102 | 70.5 | 68.0 | 94.0 | 282 |
| 1937 | 239 | 207 | 238 | 484 | 293 | 132 | 963 | 1,046 | 267 | 120 | 87.1 | 67.3 | 345 |
| 1938 | 150 | 301 | 157 | 195 | 288 | 664 | 557 | 384 | 121 | 153 | 120 | 483 | 297 |
| 1939 | 175 | 165 | 440 | 257 | 183 | 412 | 1,186 | 587 | 234 | 111 | 81.5 | 58.2 | 324 |
| 1940 | 83.2 | 102 | 89 | 53.6 | 45.1 | 73.4 | 831 | 966 | 320 | 132 | 71.8 | 82.8 | 237 |
| 1941 | 83.7 | 133 | 204 | 155 | 123 | 93.8 | 638 | 149 | 71.2 | 53.8 | 28.6 | 26.9 | 146 |
| 1942 | 51.3 | 110 | 103 | 100 | 49.9 | 532 | 905 | 295 | 345 | 81.9 | 70.1 | 163 | 234 |
| 1943 | 189 | 182 | 139 | 183 | 214 | 581 | 953 | 877 | 355 | 195 | 293 | 125 | 327 |
| 1944 | 217 | 380 | 208 | 164 | 161 | 420 | 1,141 | 641 | 303 | 126 | 75.8 | 74.7 | 325 |
| 1945 | 110 | 110 | 96.6 | 128 | 107 | 975 | 580 | 1,140 | 271 | 301 | 93.6 | 242 | 349 |
| 1946 | 543 | 386 | 183 | 238 | 143 | 830 | 364 | 391 | 236 | 94.9 | 91.6 | 69.2 | 299 |
| 1947 | 192 | 235 | 212 | 216 | 285 | 420 | 1,161 | 1,044 | 918 | 582 | 143 | 104 | 459 |
| 1948 | 94.7 | 187 | 126 | 93.4 | 102 | 697 | 651 | 558 | 228 | 126 | 115 | 56.4 | 253 |
| 1949 | 103 | 329 | 284 | 561 | 286 | 527 | 681 | 310 | 89.6 | 58.5 | 76.3 | 79.1 | 282 |
| 1950 | 81.5 | 134 | 220 | 298 | 145 | 293 | 876 | 349 | 119 | 51.5 | 59.5 | 84.3 | 226 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 0.17 | - |
| 1909 | 0.16 | 0.14 | - | - | - | - | - | - | - | - | - | - | - |
| 1924 | .37 | .43 | 1.21 | 1.42 | 0.42 | 1.03 | 4.97 | 4.74 | 0.73 | 0.38 | 0.28 | .44 | 16.42 |
| 1925 | 2.11 | .99 | .99 | .42 | 2.38 | 4.40 | 2.87 | 1.90 | .94 | .87 | .80 | .94 | 19.61 |
| 1926 | 1.58 | 1.77 | 1.51 | 1.07 | .46 | .69 | 4.27 | 2.48 | 1.39 | .53 | .42 | .36 | 16.53 |
| 1927 | .74 | 2.20 | .65 | .83 | .57 | 2.52 | 1.56 | 1.97 | .69 | .57 | .58 | .45 | 13.13 |
| 1928 | .90 | 3.62 | 3.16 | 1.09 | .81 | 2.48 | 4.55 | 2.77 | 1.47 | 1.13 | .60 | .56 | 23.14 |
| 1929 | .58 | .82 | .79 | 1.21 | .44 | 2.96 | 4.20 | 3.05 | 1.52 | 1.17 | .40 | .30 | 17.44 |
| 1930 | .57 | .63 | .72 | 1.62 | .92 | 1.32 | 3.52 | 3.10 | 1.82 | .58 | .37 | .27 | 15.44 |
| 1931 | .30 | .34 | .33 | .28 | .19 | .65 | 3.34 | 1.32 | .62 | .47 | .21 | .33 | 8.38 |
| 1932 | .28 | .47 | .46 | 1.05 | .49 | .42 | 4.37 | 1.76 | .64 | .48 | .29 | .17 | 10.88 |
| 1933 | 1.60 | 2.05 | .75 | .93 | .57 | .70 | 6.68 | 2.32 | .49 | .29 | .43 | .22 | 17.03 |
| 1934 | .33 | .40 | .52 | .36 | .20 | 1.28 | 5.05 | 1.19 | .61 | .22 | .16 | .27 | 10.59 |
| 1935 | .30 | .59 | .61 | 1.01 | .50 | 1.64 | 2.48 | 2.01 | 1.54 | 1.37 | .49 | .47 | 12.91 |
| 1936 | .54 | .75 | .52 | .39 | .31 | 5.76 | 2.68 | 1.63 | .41 | .30 | .28 | .38 | 13.95 |
| 1937 | 1.00 | .84 | 1.00 | 2.03 | 1.11 | .55 | 3.90 | 4.38 | 1.08 | .50 | .37 | .27 | 17.03 |
| 1938 | .63 | 1.22 | .66 | .82 | 1.09 | 2.78 | 2.26 | 1.61 | .49 | .64 | .50 | 1.96 | 14.66 |
| 1939 | .73 | .67 | 1.84 | 1.08 | .69 | 1.73 | 4.81 | 2.46 | .95 | .47 | .34 | .24 | 16.01 |
| 1940 | .35 | .41 | .37 | .22 | .18 | .31 | 3.37 | 4.05 | 1.29 | .55 | .30 | .34 | 11.74 |
| 1941 | .35 | .54 | .86 | .65 | .47 | .39 | 2.59 | .62 | .29 | .23 | .12 | .11 | 7.22 |
| 1942 | .22 | .45 | .43 | .42 | .19 | 2.22 | 3.67 | 1.23 | 1.40 | .34 | .29 | .66 | 11.52 |
| 1943 | .79 | .74 | .58 | .77 | .81 | 2.43 | 2.36 | 3.68 | 1.44 | .82 | 1.23 | .51 | 16.16 |
| 1944 | .91 | 1.54 | .87 | .69 | .63 | 1.76 | 4.63 | 2.69 | 1.23 | .53 | .32 | .30 | 16.10 |
| 1945 | .46 | .45 | .40 | .54 | .40 | 4.09 | 2.35 | 4.78 | 1.10 | 1.26 | .39 | .98 | 17.20 |
| 1946 | 2.28 | 1.57 | .77 | 1.00 | .54 | 3.48 | 1.48 | 1.64 | .96 | .40 | .38 | .28 | 14.78 |
| 1947 | .80 | .95 | .83 | .91 | 1.08 | 1.76 | 4.71 | 4.38 | 3.75 | 2.44 | .60 | .42 | 22.67 |
| 1948 | .40 | .76 | .53 | .39 | .40 | 2.92 | 2.64 | 2.34 | .92 | .53 | .48 | .23 | 12.54 |
| 1949 | .43 | 1.34 | 1.19 | 2.35 | 1.08 | 2.21 | 2.76 | 1.30 | .36 | .25 | .32 | .32 | 13.91 |
| 1950 | .34 | .54 | .92 | 1.25 | .55 | 1.23 | 3.55 | 1.46 | .48 | .22 | .25 | .34 | 11.13 |

| Yearly discharge, in cubic feet per second | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|-----------------|------------------|------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean |
| | | Discharge | Date | | | | | |
| 1924 | | 83,980 | May 5, 1924 | 40 | 332 | 1.21 | 16.42 | 374 |
| 1925 | 604 | 11,800 | Oct. 1, 1924 | 61 | 397 | 1.44 | 19.61 | 413 |
| 1926 | 624 | 5,600 | Apr. 25, 1926 | 58 | 335 | 1.22 | 16.53 | 309 |
| 1927 | 644 | 7,690 | Nov. 17, 1926 | 73 | 266 | .967 | 13.13 | 349 |
| 1928 | 664 | 4,650 | Nov. 18, 1928 | 70 | 468 | 1.70 | 23.14 | 357 |
| 1929 | 684 | 3,480 | Jan. 19, 1929 | 65 | 353 | 1.28 | 17.44 | 348 |
| 1930 | 699 | 5,940 | Apr. 7, 1930 | 54 | 312 | 1.13 | 15.44 | 293 |

a Maximum peak discharge; maximum discharge during year, 4,540 cfs at 12 p.m. Sept. 30, 1924, stage rising.

Yearly discharge, in cubic feet per second, of Bouquet River at Willsboro, N. Y.--Continued

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1931 | 714 | 3,230 | Apr. 11, 1931 | 38 | 170 | 0.618 | 8.38 | 175 | 8.62 |
| 1932 | 729 | 3,830 | Apr. 13, 1932 | 29 | 220 | .80 | 10.88 | 284 | 14.07 |
| 1933 | 744 | 5,450 | Apr. 18, 1933 | 38 | 345 | 1.25 | 17.03 | 281 | 13.88 |
| 1934 | 759 | 4,350 | Apr. 12, 1934 | 31 | 215 | .782 | 10.59 | 220 | 10.84 |
| 1935 | 784 | 2,170 | May 8, 1935 | 50 | 259 | .942 | 12.81 | 266 | 13.12 |
| 1936 | 804 | 8,310 | Mar. 19, 1936 | 41 | 282 | 1.03 | 13.95 | 303 | 14.98 |
| 1937 | 824 | 6,260 | Apr. 6, 1937 | 44 | 345 | 1.25 | 17.03 | 359 | 16.70 |
| 1938 | 854 | 7,640 | Sept. 22, 1938 | 50 | 297 | 1.08 | 14.66 | 312 | 15.39 |
| 1939 | 874 | 3,760 | Apr. 23, 1939 | 50 | 324 | 1.18 | 16.01 | 282 | 13.90 |
| 1940 | 894 | 3,210 | May 29, 1940 | 40 | 237 | .862 | 11.74 | 250 | 12.36 |
| 1941 | 924 | 2,750 | Apr. 15, 1941 | 17 | 146 | .531 | 7.22 | 133 | 6.57 |
| 1942 | 954 | 3,380 | Apr. 16, 1942 | 21 | 234 | .851 | 11.52 | 254 | 12.53 |
| 1943 | 974 | 2,630 | May 12, 1943 | 72 | 327 | 1.19 | 16.16 | 352 | 17.37 |
| 1944 | 1004 | 3,450 | June 25, 1944 | 51 | 325 | 1.18 | 16.10 | 285 | 14.09 |
| 1945 | 1034 | 5,230 | May 19, 1945 | 64 | 349 | 1.27 | 17.20 | 435 | 20.51 |
| 1946 | 1054 | 2,970 | Mar. 15, 1946 | 50 | 299 | 1.09 | 14.78 | 259 | 12.80 |
| 1947 | 1084 | 5,420 | Apr. 13, 1947 | 86 | 459 | 1.67 | 22.67 | 440 | 21.72 |
| 1948 | 1114 | 3,730 | Mar. 23, 1948 | 48 | 253 | .920 | 12.54 | 279 | 13.81 |
| 1949 | 1144 | 7,790 | Dec. 31, 1949 | 46 | 282 | 1.03 | 13.91 | 259 | 12.75 |
| 1950 | 1174 | 3,730 | Apr. 25, 1950 | 38 | 226 | .822 | 11.13 | - | - |

395. Lake George Outlet at Ticonderoga, N. Y.

Location.--Lat 43°50'35", long. 73°26'00", at Ticonderoga, Essex County. River channel gage on right bank 250 ft downstream from "c" Mill dam of International Paper Co., 250 ft upstream from Trout Brook, and half a mile downstream from upper dam ("A" Mill dam) of International Paper Co. Turbine gate-opening gage in powerhouse at "c" Mill dam.

Drainage area.--234 sq mi. Prior to Dec. 31, 1905, 233 sq mi.

Gage.--Water-stage recorder and concrete control on river channel. Datum of gage is 190.41 ft above mean sea level, datum of 1929. Turbine gate-opening recorder in powerhouse. Prior to Dec. 31, 1905, staff gages at site 2,000 ft upstream at different datum.

Average discharge.--8 years (1942-50), 315 cfs.

Extremes.--1942-50: Maximum daily discharge, 1,290 cfs June 5, 6, 1947; minimum daily, 7.2 cfs Dec. 25, 1946.

Remarks.--Records represent total discharge from Lake George and include flow in river channel and in tailrace. Flow regulated by Lake George and three powerplants.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|-------|-------|-------|------|------|-------|----------|
| 1905 | - | 233 | †180 | - | - | 174 | 377 | 396 | 370 | 336 | 338 | - | - |
| 1906 | 281 | 246 | 202 | - | - | - | - | - | - | - | - | - | - |
| 1943 | 185 | 182 | 168 | 196 | 267 | 388 | 540 | 778 | 333 | 222 | 293 | 227 | 315 |
| 1944 | 206 | 218 | 242 | 241 | 254 | 247 | 609 | 595 | 329 | 263 | 261 | 225 | 307 |
| 1945 | 227 | 235 | 204 | 217 | 277 | 354 | 530 | 1,022 | 336 | 474 | 250 | 198 | 361 |
| 1946 | 264 | 478 | 303 | 310 | 338 | 726 | 322 | 281 | 400 | 233 | 244 | 227 | 344 |
| 1947 | 238 | 234 | 195 | 185 | 216 | 236 | 592 | 704 | 1,133 | 285 | 242 | 239 | 374 |
| 1948 | 184 | 133 | 122 | 91.9 | 180 | 269 | 471 | 422 | 550 | 264 | 209 | 189 | 257 |
| 1949 | 164 | 163 | 200 | 583 | 445 | 523 | 551 | 321 | 215 | 82.9 | 42.1 | 127 | 284 |
| 1950 | 197 | 183 | 152 | 216 | 239 | 381 | 1,006 | 329 | 308 | 148 | 111 | 112 | 281 |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | Calendar year | |
|------|------------|----------------------------|------------------|-------------|------|-----------------|------------------|
| | | Maximum day | | Minimum day | Mean | Per square mile | Runoff in inches |
| | | Discharge | Date | | | | |
| 1905 | 170 | - | - | 0 | - | - | - |
| 1943 | 974 | 1,100 | May 13, 14, 1943 | 61 | 315 | 1.35 | 18.30 |
| 1944 | 1004 | 1,140 | Apr. 29, 1944 | 43 | 307 | 1.31 | 17.88 |
| 1945 | 1034 | 1,100 | Apr. 7, May 23 | 18 | 361 | 1.54 | 20.95 |
| 1946 | 1054 | 1,030 | Nov. 24, 1945 | 12 | 344 | 1.47 | 19.92 |
| 1947 | 1084 | 1,290 | June 5, 6, 1947 | 7.2 | 374 | 1.60 | 21.69 |
| 1948 | 1114 | 881 | June 13, 1948 | 27 | 257 | 1.10 | 14.92 |
| 1949 | 1144 | 1,060 | Jan. 12, 1949 | 24 | 284 | 1.21 | 16.48 |
| 1950 | 1174 | 1,090 | Apr. 6, 7, 1950 | 26 | 281 | 1.20 | 16.30 |

396. Poultney River near Fair Haven, Vt.

Location.--Lat 43°35'20", long. 73°17'45", at the Delaware and Hudson Railroad bridge, about half a mile above Castleton River, and $\frac{1}{2}$ miles west of Fair Haven, Rutland County.

Drainage area.--74 sq mi, approximately.

Gage.--Vertical staff. Altitude of gage is 300 ft (from topographic map).

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 1.6 | - |
| 1909 | 3.8 | 6.1 | - | - | - | - | - | - | - | - | - | - | - |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|-----|------|------|------|-------|----------|
| 1908 | - | - | - | - | - | - | - | - | - | - | - | 0.24 | - |
| 1909 | 0.59 | 0.92 | - | - | - | - | - | - | - | - | - | - | - |

397. Poultney River below Fair Haven, Vt.

Location.--Lat 43°37'40", long. 73°18'50", on right bank a third of a mile downstream from Carver Falls, 1.9 miles upstream from Hubbardton River, and $\frac{3}{4}$ miles northwest of Fair Haven, Rutland County.

Drainage area.--187 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 155 ft (from topographic map).

Average discharge.--22 years (1928-50), 244 cfs.

Extremes.--1928-50: Maximum discharge, 14,800 cfs July 20, 1945 (gage height, 24.36 ft, from high-water mark in gage well), from rating curve extended above 1,900 cfs on basis of computations of flow over dam at gage heights 16.10, 21.40, and 24.36 ft; minimum 2.3 cfs July 18, 1937; minimum daily, 2.9 cfs Oct. 13, 1935.

Remarks.--Flow regulated by powerplant above station and by Lake Bomoseen.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1929 | 49.3 | 35.2 | 63.7 | 145 | 72.8 | 602 | 728 | 596 | 301 | 172 | 68.9 | 205 | 254 |
| 1930 | 133 | 120 | 106 | 325 | 350 | 456 | 552 | 224 | 321 | 122 | 42.2 | 59.7 | 217 |
| 1931 | 83.4 | 87.0 | 94.1 | 42.0 | 64.3 | 346 | 469 | 227 | 165 | 280 | 123 | 90.1 | 173 |
| 1932 | 94.4 | 112 | 231 | 419 | 233 | 185 | 1,050 | 173 | 84.8 | 99.2 | 114 | 88.0 | 239 |
| 1933 | 157 | 514 | 182 | 174 | 173 | 266 | 1,100 | 212 | 66.0 | 26.2 | 24.5 | 29.3 | 242 |
| 1934 | 57.5 | 108 | 152 | 167 | 91.4 | 311 | 928 | 178 | 255 | 55.6 | 23.9 | 20.6 | 195 |
| 1935 | 65.3 | 124 | 183 | 325 | 124 | 424 | 578 | 394 | 205 | 468 | 97.1 | 75.3 | 256 |
| 1936 | 68.0 | 285 | 223 | 210 | 122 | 1,478 | 642 | 252 | 67.0 | 47.0 | 44.8 | 92.2 | 296 |
| 1937 | 160 | 274 | 258 | 496 | 334 | 179 | 834 | 748 | 318 | 129 | 70.8 | 87.4 | 323 |
| 1938 | 52.6 | 90.0 | 123 | 222 | 459 | 423 | 351 | 119 | 33.2 | 24.5 | 42.7 | 66.6 | 214 |
| 1939 | 219 | 225 | 661 | 170 | 239 | 444 | 1,300 | 233 | 97.7 | 70.9 | 58.4 | 76.9 | 316 |
| 1940 | 95.8 | 198 | 126 | 77.4 | 37.4 | 113 | 1,215 | 892 | 258 | 84.7 | 47.1 | 65.4 | 267 |
| 1941 | 71.0 | 175 | 358 | 271 | 258 | 197 | 297 | 71.5 | 21.5 | 181 | 33.8 | 62.6 | 166 |
| 1942 | 62.5 | 105 | 148 | 136 | 83.1 | 561 | 522 | 142 | 109 | 43.8 | 26.6 | 44.1 | 168 |
| 1943 | 80.6 | 196 | 252 | 174 | 266 | 583 | 421 | 575 | 160 | 86.0 | 46.8 | 165 | 286 |
| 1944 | 108 | 280 | 230 | 110 | 74.7 | 615 | 1,029 | 214 | 101 | 82.6 | 66.2 | 37.8 | 245 |
| 1945 | 83.1 | 130 | 135 | 283 | 198 | 956 | 551 | 595 | 175 | 589 | 92.6 | 130 | 328 |
| 1946 | 505 | 461 | 277 | 278 | 189. | 621 | 240 | 254 | 225 | 63.5 | 51.7 | 44.4 | 269 |
| 1947 | 117 | 129 | 114 | 242 | 339 | 576 | 534 | 441 | 776 | 162 | 78.3 | 52.5 | 296 |
| 1948 | 51.3 | 58.1 | 55.6 | 49.3 | 164 | 757 | 403 | 413 | 183 | 111 | 55.0 | 53.5 | 197 |
| 1949 | 54.9 | 129 | 308 | 537 | 376 | 372 | 252 | 211 | 42.1 | 20.0 | 32.9 | 57.5 | 199 |
| 1950 | 72.6 | 152 | 281 | 391 | 292 | 550 | 655 | 157 | 106 | 46.8 | 44.2 | 74.8 | 236 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1929 | 0.30 | 0.21 | 0.39 | 0.89 | 0.41 | 3.71 | 4.34 | 3.68 | 1.80 | 1.06 | 0.42 | 1.23 | 18.44 |
| 1930 | .82 | .72 | .65 | 2.01 | 1.95 | 2.81 | 2.10 | 1.38 | 1.92 | .75 | .26 | .36 | 15.73 |
| 1931 | .51 | .52 | .58 | .26 | .36 | 2.13 | 2.80 | 1.40 | .98 | 1.73 | .76 | .54 | 12.57 |
| 1932 | .58 | .67 | 1.43 | 2.58 | 1.35 | 1.14 | 6.26 | 1.07 | .51 | .61 | .70 | .53 | 17.43 |
| 1933 | .97 | 3.07 | 1.12 | 1.07 | .96 | 1.64 | 6.56 | 1.30 | .39 | .16 | .15 | .18 | 17.57 |
| 1934 | .35 | .64 | .94 | 1.03 | .51 | 1.91 | 5.53 | 1.10 | 1.52 | .33 | .15 | .12 | 14.13 |
| 1935 | .40 | .74 | 1.13 | 2.01 | .69 | 2.62 | 3.45 | 2.43 | 1.23 | 2.88 | .60 | .45 | 18.63 |
| 1936 | .42 | 1.70 | 1.37 | 1.29 | .70 | 9.11 | 3.83 | 1.56 | .40 | .29 | .28 | .55 | 21.50 |
| 1937 | .99 | 1.64 | 1.59 | 3.06 | 1.86 | 1.10 | 4.98 | 4.81 | 1.90 | .80 | .44 | .52 | 23.49 |
| 1938 | .32 | .54 | .76 | 1.37 | 2.55 | 2.61 | 2.10 | .73 | .20 | .15 | .26 | 3.97 | 15.56 |
| 1939 | 1.35 | 1.34 | 4.07 | 1.05 | 1.33 | 2.73 | 7.75 | 1.44 | .58 | .44 | .56 | .46 | 22.90 |
| 1940 | .59 | 1.18 | .78 | .48 | .22 | .70 | 7.25 | 5.50 | 1.54 | .52 | .29 | .39 | 19.44 |

Monthly and yearly runoff, in inches, of Poultney River below Fair Haven, Vt.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 0.44 | 1.04 | 2.20 | 1.67 | 1.44 | 1.21 | 1.77 | 0.44 | 0.13 | 1.12 | 0.21 | 0.37 | 12.04 |
| 1942 | .39 | .63 | .91 | .84 | .46 | 3.46 | 3.11 | .88 | .65 | .27 | .16 | .26 | 12.02 |
| 1943 | .50 | 1.17 | 1.56 | 1.07 | 1.48 | 3.59 | 2.51 | 3.54 | .95 | .53 | 2.89 | .98 | 20.77 |
| 1944 | .67 | 1.67 | 1.42 | .68 | .43 | 3.79 | 6.14 | 1.32 | .61 | .51 | .41 | .23 | 17.88 |
| 1945 | .51 | .77 | .85 | 1.75 | 1.10 | 5.89 | 3.29 | 3.67 | 1.05 | 3.63 | .57 | .78 | 23.84 |
| 1946 | 3.11 | 2.75 | 1.71 | 1.71 | 1.06 | 3.83 | 1.43 | 1.57 | 1.34 | .39 | .32 | .26 | 19.48 |
| 1947 | .72 | .77 | .70 | 1.49 | 1.89 | 3.55 | 3.19 | 2.72 | 4.63 | 1.00 | .48 | .31 | 21.45 |
| 1948 | .32 | .35 | .34 | .30 | .95 | 4.67 | 2.40 | 2.55 | 1.09 | .68 | .34 | .32 | 14.31 |
| 1949 | .54 | .77 | 1.90 | 3.31 | 2.09 | 2.29 | 1.51 | 1.30 | .25 | .12 | .20 | .34 | 14.42 |
| 1950 | .45 | .91 | 1.73 | 2.41 | 1.63 | 3.39 | 3.91 | .97 | .63 | .29 | .27 | .45 | 17.04 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1929 | 684,1114 | 3,900 | Mar. 16, 1929 | 14 | 254 | 1.36 | 18.44 | 272 | 19.73 |
| 1930 | 699 | 2,500 | Feb. 24, 1930 | 23 | 217 | 1.16 | 15.73 | 209 | 15.15 |
| 1931 | 714 | 2,140 | July 22, 1931 | 20 | 173 | .925 | 12.57 | 188 | 13.64 |
| 1932 | 729,1114 | 5,390 | Apr. 1, 1932 | 17 | 239 | 1.28 | 17.43 | 273 | 19.91 |
| 1933 | 744,1114 | 6,030 | Nov. 20, 1932 | 16 | 242 | 1.29 | 17.57 | 198 | 14.34 |
| 1934 | 759,1114 | 2,680 | Apr. 3, 1934 | 4.7 | 195 | 1.04 | 14.13 | 199 | 14.47 |
| 1935 | 784,1114 | 4,250 | July 8, 1935 | 28 | 256 | 1.37 | 18.63 | 273 | 19.85 |
| 1936 | 804 | 6,190 | Mar. 18, 1936 | 2.9 | 296 | 1.58 | 21.50 | 305 | 22.23 |
| 1937 | 824 | 5,870 | Apr. 6, 1937 | 5.2 | 323 | 1.73 | 23.49 | 288 | 20.89 |
| 1938 | 854 | 10,300 | Sept. 22, 1938 | 9.2 | 214 | 1.14 | 15.56 | 285 | 20.70 |
| 1939 | 874 | 5,760 | Apr. 20, 1939 | 6.2 | 316 | 1.69 | 22.90 | 258 | 18.69 |
| 1940 | 894 | 8,840 | May 21, 1940 | 4.6 | 267 | 1.43 | 19.44 | 283 | 20.57 |
| 1941 | 924 | 4,380 | Dec. 29, 1940 | 8.2 | 166 | .888 | 12.04 | 142 | 10.29 |
| 1942 | 954 | \$5,800 | Mar. 10, 1942* | 11 | 166 | .888 | 12.02 | 183 | 13.52 |
| 1943 | 974 | 5,000 | Aug. 5, 1943 | 12 | 286 | 1.53 | 20.77 | 294 | 21.30 |
| 1944 | 1004 | 5,370 | Apr. 10, 1944 | 11 | 245 | 1.31 | 17.88 | 223 | 16.23 |
| 1945 | 1034 | 14,800 | July 20, 1945 | 16 | 328 | 1.75 | 23.84 | 404 | 29.30 |
| 1946 | 1054 | \$4,500 | Mar. 9, 1946* | 16 | 269 | 1.44 | 19.48 | 194 | 14.10 |
| 1947 | 1084 | 6,190 | June 3, 1947 | 17 | 296 | 1.58 | 21.45 | 279 | 20.27 |
| 1948 | 1114 | 4,530 | Mar. 22, 1948 | 11 | 197 | 1.05 | 14.31 | 224 | 16.31 |
| 1949 | 1144 | 6,920 | Dec. 31, 1948 | 16 | 199 | 1.06 | 14.42 | 200 | 14.50 |
| 1950 | 1174 | 5,380 | Mar. 28, 1950 | 14 | 235 | 1.26 | 17.04 | - | - |

* Not previously published; peak estimated.

398. East Creek at Rutland, Vt.

Location.--Lat 43°37'40", long. 72°59'20", on left bank at Rutland, Rutland County, on grounds of Rutland Country Club, 280 ft downstream from Grove Street Bridge, and 2 miles upstream from mouth.

Drainage area.--51.1 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 570 ft (from topographic map).

Average discharge.--10 years (1940-50), 98.4 cfs (adjusted for storage and diversion).

Extremes.--1940-50: Maximum discharge, 36,500 cfs June 3, 1947 (gage height, 20.3 ft, from high-water mark in gage house), mean of two slope-area determinations, caused by failure of East Pittsford Dam 5.8 miles upstream; minimum daily, 3.1 cfs Nov. 8, 1947.

Remarks.--Runoff adjusted for diversion from Mendon Brook for municipal supply of Rutland and for change in contents in Chittenden and East Pittsford Reservoirs.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1940 | - | - | - | - | - | - | - | - | - | - | - | 103 | - |
| 1941 | 73.2 | 105 | 115 | 104 | 109 | 91.8 | 113 | 46.5 | 32.9 | 47.7 | 41.3 | 44.6 | 76.8 |
| 1942 | 59.8 | 51.2 | 62.5 | 48.0 | 51.1 | 109 | 155 | 53.4 | 75.0 | 42.9 | 52.1 | 49.7 | 67.2 |
| 1943 | 68.2 | 85.3 | 95.6 | 61.7 | 104 | 150 | 109 | 197 | 84.2 | 72.3 | 152 | 106.6 | 109 |
| 1944 | 97.3 | 122 | 96.6 | 93.1 | 90.9 | 127 | 182 | 84.4 | 61.9 | 46.2 | 67.7 | 60.6 | 94.1 |
| 1945 | 82.8 | 78.2 | 68.0 | 96.7 | 75.1 | 183 | 144 | 201 | 185 | 165 | 66.0 | 73.4 | 119 |
| 1946 | 172 | 160 | 120 | 125 | 109 | 186 | 82.5 | 98.6 | 90.6 | 68.3 | 84.5 | 76.7 | 115 |
| 1947 | 97.0 | 89.8 | 89.5 | 106 | 112 | 152 | 170 | 153 | 611 | 93.5 | 43.3 | 28.4 | 145 |
| 1948 | 33.1 | 24.2 | 25.4 | 17.4 | 42.1 | 157 | 118 | 119 | 50.6 | 43.2 | 43.0 | 32.2 | 58.9 |
| 1949 | 63.8 | 69.5 | 95.6 | 182 | 105 | 96.9 | 87.1 | 73.8 | 25.5 | 29.3 | 38.5 | 35.9 | 70.9 |
| 1950 | 64.6 | 64.5 | 91.5 | 110 | 85.1 | 122 | 189 | 81.6 | 35.3 | 64.3 | 78.6 | 70.5 | 93.0 |

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

| Monthly and yearly runoff, in inches (adjusted), of East Creek at Rutland, Vt. | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1940 | - | - | - | - | - | - | - | - | - | - | - | 1.82 | - |
| 1941 | 0.80 | 3.04 | 2.76 | 1.79 | 1.58 | 1.05 | 4.65 | 1.31 | 0.63 | 1.74 | 0.56 | .72 | 20.63 |
| 1942 | .89 | 1.58 | 1.38 | 1.29 | .64 | 3.10 | 6.36 | 1.94 | 1.81 | .66 | .36 | .78 | 20.59 |
| 1943 | 1.36 | 2.45 | 1.52 | 1.05 | 1.66 | 3.44 | 4.55 | 6.41 | 1.78 | 1.87 | 3.32 | 1.58 | 30.99 |
| 1944 | 1.90 | 3.20 | 1.57 | .73 | .98 | 2.77 | 6.85 | 3.01 | 1.63 | .94 | .34 | .72 | 24.64 |
| 1945 | 1.58 | 1.28 | 1.61 | 2.20 | 1.30 | 6.66 | 5.06 | 4.43 | 4.14 | 3.77 | .75 | 1.65 | 34.63 |
| 1946 | 4.40 | 3.42 | 1.78 | 2.19 | 1.54 | 5.49 | 2.49 | 3.41 | 2.10 | 1.06 | 1.54 | 1.17 | 30.39 |
| 1947 | 2.10 | 1.98 | 1.72 | 2.10 | 1.99 | 3.34 | 6.14 | 5.43 | 6.42 | 1.83 | .48 | .30 | 33.83 |
| 1948 | .34 | .99 | .62 | .50 | 1.18 | 5.94 | 4.11 | 4.03 | 1.60 | 1.25 | .60 | .20 | 21.36 |
| 1949 | .57 | 1.67 | 2.47 | 2.86 | 1.24 | 3.27 | 3.04 | 2.50 | .52 | .46 | .66 | .82 | 20.08 |
| 1950 | .98 | 1.46 | 2.51 | 2.71 | 1.35 | 2.94 | 6.10 | 2.13 | 1.80 | .83 | .76 | 1.03 | 24.60 |

| Yearly discharge, in cubic feet per second | | | | | | | | | | | |
|--|---------------|----------------------------|---------------|----------------|------|----------|-----------------------|------------------------|------|----------|------------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Observed | | | | Adjusted | | Observed | | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1941 | 924 | *1,160 | July 8, 1941 | 15 | 76.8 | 77.6 | 1.52 | 20.63 | 66.7 | 66.5 | 17.68 |
| 1942 | 954 | *758 | Apr. 8, 1942 | 14 | 67.2 | 77.4 | 1.51 | 20.59 | 73.4 | 83.7 | 22.27 |
| 1943 | 974 | 975 | Aug. 4, 1943 | 13 | 109 | 117.4 | 2.29 | 30.99 | 115 | 122 | 32.33 |
| 1944 | 1004 | 1,020 | Apr. 10, 1944 | 10 | 94.1 | 92.5 | 1.81 | 24.64 | 86.8 | 84.3 | 22.44 |
| 1945 | 1034 | 3,450 | June 25, 1945 | 9.6 | 119 | 130 | 2.54 | 34.63 | 137 | 150 | 39.76 |
| 1946 | 1054 | 1,220 | Mar. 9, 1946 | 14 | 115 | 114 | 2.23 | 30.39 | 99.8 | 100 | 26.59 |
| 1947 | 1084 | 36,500 | June 3, 1947 | 12 | 145 | 127 | 2.49 | 33.83 | 129 | 113 | 29.98 |
| 1948 | 1114 | - | Mar. 22, 1948 | 3.1 | 58.9 | 80.1 | 1.57 | 21.36 | 71.0 | 90.5 | 24.12 |
| 1949 | 1144 | 1,450 | Dec. 31, 1948 | 5.2 | 70.9 | 75.6 | 1.48 | 20.08 | 70.4 | 76.5 | 20.32 |
| 1950 | 1174 | 1,120 | Apr. 5, 1950 | 8.4 | 93.0 | 92.6 | 1.81 | 24.60 | - | - | - |

* Revised.

399. Otter Creek at Center Rutland, Vt.

Location.--Lat 43°36'15", long. 73°00'50", on right bank at downstream side of bridge on U. S. Highway 4 at Center Rutland, Rutland County, 200 ft downstream from dam, 1.2 miles downstream from East Creek, and $\frac{1}{2}$ miles west of Rutland.

Drainage area.--307 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 500 ft (from topographic map). Prior to July 23, 1929, chain gage at site 100 ft upstream at same datum.

Average discharge.--22 years (1928-50), 541 cfs.

Extremes.--1928-50: Maximum discharge, 13,700 cfs Sept. 22, 1938 (gage height, 12.45 ft), by computation of flow over dam; minimum daily, 45 cfs Sept. 21, 1947.

Remarks.--Flow regulated by powerplants and by Chittenden Reservoir on East Creek.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|-------|------|-------|-------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1928 | - | - | - | - | - | - | - | - | 687 | 373 | 363 | 316 | - |
| 1929 | 362 | 424 | 467 | 437 | 276 | 1,380 | 1,970 | 1,460 | 416 | 266 | 218 | 413 | 676 |
| 1930 | 290 | 380 | 469 | 761 | 689 | 1,000 | 942 | 723 | 504 | 236 | 195 | 184 | 530 |
| 1931 | 179 | 281 | 269 | 160 | 214 | 477 | 1,640 | 793 | 558 | 717 | 257 | 312 | 488 |
| 1932 | 251 | 326 | 496 | 819 | 459 | 352 | 1,820 | 640 | 239 | 281 | 274 | 193 | 512 |
| 1933 | 392 | 771 | 316 | 384 | 369 | 341 | 2,270 | 592 | 254 | 187 | 236 | 254 | 528 |
| 1934 | 294 | 334 | 408 | 460 | 197 | 849 | 1,938 | 583 | 565 | 209 | 94.1 | 149 | 507 |
| 1935 | 259 | 380 | 335 | 816 | 295 | 854 | 872 | 656 | 456 | 543 | 241 | 226 | 496 |
| 1936 | 231 | 563 | 427 | 420 | 245 | 2,376 | 1,267 | 499 | 184 | 152 | 160 | 182 | 561 |
| 1937 | 459 | 601 | 706 | 1,087 | 736 | 297 | 1,552 | 1,514 | 750 | 305 | 265 | 188 | 704 |
| 1938 | 245 | 504 | 372 | 476 | 890 | 883 | 808 | 640 | 220 | 344 | 389 | 1,585 | 592 |
| 1939 | 451 | 504 | 966 | 357 | 574 | 722 | 2,078 | 776 | 275 | 182 | 197 | 140 | 600 |
| 1940 | 235 | 371 | 283 | 153 | 147 | 262 | 2,006 | 2,120 | 632 | 297 | 145 | 427 | 589 |
| 1941 | 194 | 662 | 630 | 454 | 484 | 311 | 885 | 271 | 156 | 316 | 129 | 180 | 388 |
| 1942 | 200 | 313 | 353 | 375 | 186 | 888 | 1,555 | 516 | 422 | 164 | 117 | 163 | 438 |
| 1943 | 242 | 439 | 335 | 230 | 466 | 933 | 1,081 | 1,521 | 451 | 311 | 664 | 329 | 586 |
| 1944 | 357 | 694 | 339 | 222 | 214 | 682 | 1,572 | 672 | 375 | 194 | 132 | 191 | 469 |
| 1945 | 517 | 298 | 307 | 522 | 334 | 1,476 | 982 | 1,196 | 590 | 706 | 217 | 451 | 619 |
| 1946 | 865 | 874 | 500 | 571 | 415 | 1,273 | 554 | 692 | 504 | 203 | 176 | 164 | 568 |
| 1947 | 384 | 335 | 309 | 504 | 534 | 980 | 1,672 | 1,159 | 1,565 | 405 | 145 | 85.6 | 672 |
| 1948 | 88.2 | 166 | 128 | 100 | 256 | 1,440 | 976 | 951 | 465 | 275 | 140 | 87.8 | 424 |
| 1949 | 132 | 315 | 530 | 1,094 | 562 | 795 | 871 | 528 | 150 | 116 | 140 | 249 | 457 |
| 1950 | 241 | 350 | 528 | 680 | 398 | 765 | 1,619 | 552 | 425 | 152 | 144 | 198 | 504 |

Monthly and yearly runoff, in inches, of Otter Creek at Center Rutland, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1928 | - | - | - | - | - | - | - | - | 2.50 | 1.40 | 1.36 | 1.15 | - |
| 1929 | 1.36 | 1.54 | 1.75 | 1.64 | 0.94 | 5.19 | 7.16 | 5.49 | 1.52 | 1.00 | .82 | 1.51 | 29.92 |
| 1930 | 1.09 | 1.38 | 1.76 | 2.86 | 2.33 | 3.76 | 3.42 | 2.72 | 1.83 | .89 | .73 | .67 | 23.44 |
| 1931 | .67 | 1.02 | 1.01 | .60 | .73 | 1.79 | 5.96 | 2.97 | 2.03 | 2.70 | .96 | 1.14 | 21.58 |
| 1932 | .94 | 1.18 | 1.87 | 3.08 | 1.62 | 1.33 | 6.62 | 2.40 | .87 | 1.05 | 1.03 | .70 | 22.69 |
| 1933 | 1.48 | 2.80 | 1.19 | 1.44 | 1.25 | 1.28 | 8.24 | 2.22 | .92 | .70 | .89 | .92 | +23.33 |
| 1934 | 1.10 | 1.22 | 1.53 | 1.73 | .87 | 3.19 | 7.04 | 2.22 | 2.19 | .205 | .79 | .55 | .54 |
| 1935 | .97 | 1.38 | 1.26 | 3.06 | 1.00 | 3.20 | 3.17 | 2.47 | 1.66 | 2.04 | .90 | .82 | 21.93 |
| 1936 | .87 | 2.04 | 1.60 | 1.58 | .86 | 8.92 | 4.61 | 1.88 | .67 | .57 | .60 | .66 | 24.86 |
| 1937 | 1.73 | 2.19 | 2.65 | 4.08 | 2.50 | 1.11 | 5.64 | 5.68 | 2.72 | 1.14 | .99 | .68 | 31.11 |
| 1938 | .91 | 1.83 | 1.40 | 1.79 | 3.02 | 3.32 | 2.94 | 2.40 | .80 | 1.29 | 1.46 | 5.03 | 26.19 |
| 1939 | 1.61 | 1.83 | 3.63 | 1.34 | 1.95 | 2.71 | 7.55 | 2.92 | 1.00 | .72 | .74 | .51 | 26.51 |
| 1940 | .88 | 1.35 | 1.06 | .57 | .52 | .98 | 7.29 | 7.96 | 2.29 | 1.12 | .54 | 1.55 | 26.11 |
| 1941 | .73 | 2.40 | 2.37 | 1.70 | 1.64 | 1.17 | 3.22 | 1.02 | .57 | 1.18 | .49 | .65 | 17.14 |
| 1942 | .75 | 1.14 | 1.33 | 1.41 | .63 | 3.33 | 5.65 | 1.94 | 1.54 | .61 | .44 | .59 | 19.36 |
| 1943 | .91 | 1.60 | 1.26 | .86 | 1.65 | 3.50 | 3.93 | 5.71 | 1.64 | 1.17 | 2.49 | 1.19 | 25.91 |
| 1944 | 1.34 | 2.52 | 1.27 | .83 | .75 | 2.56 | 5.71 | 2.53 | 1.36 | .73 | .50 | .69 | 20.79 |
| 1945 | 1.19 | 1.08 | 1.15 | 1.96 | 1.13 | 5.54 | 3.57 | 4.49 | 2.14 | 2.65 | .82 | 1.64 | 27.36 |
| 1946 | 3.25 | 3.18 | 1.88 | 2.15 | 1.41 | 4.78 | 2.01 | 2.60 | 1.83 | .76 | .66 | .60 | 25.11 |
| 1947 | 1.44 | 1.22 | 1.16 | 1.89 | 1.81 | 3.68 | 6.08 | 4.35 | 5.69 | 1.52 | .54 | .31 | 29.69 |
| 1948 | .33 | .60 | .47 | .38 | .90 | 5.41 | 3.55 | 3.57 | 1.69 | 1.03 | .53 | .32 | 18.78 |
| 1949 | .50 | 1.14 | 1.99 | 4.11 | 1.91 | 2.98 | 3.16 | 1.98 | .55 | .44 | .53 | .91 | 20.20 |
| 1950 | .91 | 1.27 | 1.98 | 2.55 | 1.35 | 2.87 | 5.88 | 2.07 | 1.54 | .57 | .54 | .72 | 22.25 |

† Corrected.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|-------------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1928 | 664 | - | - | - | - | - | - | - | - |
| 1929 | 684, 1084 | 5,630 | Apr. 26, 1929 | 62 | 676 | 2.20 | 29.92 | 668 | 29.50 |
| 1930 | 699 | 2,700 | Mar. 8, 1930 | 82 | 530 | 1.73 | 23.44 | 496 | 21.91 |
| 1931 | 714 | 4,520 | July 23, 1931 | 86 | 488 | 1.59 | 21.58 | 517 | 22.87 |
| 1932 | 729 | 3,350 | Apr. 13, 1932 | 100 | 512 | 1.67 | 22.69 | 545 | 24.17 |
| 1933 | 744 | 6,470 | Apr. 18, 1933 | 96 | 528 | 1.72 | +23.33 | 491 | 21.71 |
| 1934 | 759 | 5,990 | Apr. 13, 1934 | 61 | 507 | 1.65 | 22.40 | 501 | 22.16 |
| 1935 | 784 | 6,350 | Jan. 10, 1935 | 102 | 496 | 1.62 | 21.93 | 517 | 22.83 |
| 1936 | 804 | 8,580 | Mar. 18, 19, 1936 | 85 | 561 | 1.83 | 24.86 | 607 | 26.92 |
| 1937 | 824 | 4,800 | May 15, 1937 | 67 | 704 | 2.29 | 31.11 | 649 | 28.68 |
| 1938 | 854 | 13,700 | Sept. 22, 1938 | 64 | 592 | 1.93 | 26.19 | 659 | 29.12 |
| 1939 | 874 | 6,250 | Apr. 20, 1939 | 66 | 600 | 1.95 | 26.51 | 514 | 22.73 |
| 1940 | 894 | 6,760 | May 3, 1940 | 57 | 589 | 1.92 | 26.11 | 639 | 28.32 |
| 1941 | 924 | 4,220 | July 8, 1941 | 55 | 388 | 1.26 | 17.14 | 336 | 14.86 |
| 1942 | 954 | 5,620 | Apr. 8, 1942 | 65 | 438 | 1.43 | 19.36 | 450 | 19.91 |
| 1943 | 974 | 3,400 | Apr. 29, 1943 | 106 | 586 | 1.91 | 25.94 | 617 | 27.27 |
| 1944 | 1004 | 4,250 | Apr. 11, 1944 | 62 | 469 | 1.53 | 20.79 | 431 | 19.08 |
| 1945 | 1034 | 6,030 | July 20, 1945 | 101 | 619 | 2.02 | 27.36 | 729 | 32.25 |
| 1946 | 1054 | 4,920 | Mar. 9, 1946 | 70 | 568 | 1.85 | 25.11 | 466 | 20.62 |
| 1947 | 1084 | 10,100 | June 3, 1947 | 45 | 672 | 2.19 | 29.69 | 617 | 27.27 |
| 1948 | 1114 | 7,590 | Mar. 22, 1948 | 59 | 424 | 1.38 | 18.78 | 474 | 21.01 |
| 1949 | 1144 | 10,000 | Dec. 31, 1948 | 57 | 457 | 1.49 | 20.20 | 469 | 20.73 |
| 1950 | 1174 | 5,790 | Apr. 5, 1950 | 58 | 504 | 1.64 | 22.25 | - | - |

† Corrected.

400. Otter Creek at Middlebury, Vt.

Location.--Lat 44°00'45", long. 73°10'05", on right bank 150 ft upstream from highway bridge in Middlebury, Addison County, and 3½ miles downstream from Middlebury River.

Drainage area.--628 sq mi.

Gage.--Water-stage recorder since Oct. 18, 1933. Altitude of gage is 330 ft (from topographic map). Apr. 1, 1903, to Apr. 30, 1907, and Oct. 5, 1910, to Jan. 31, 1920, chain gage at site 1,800 ft upstream at datum 10 ft lower, and Oct. 1, 1928, to Oct. 17, 1933, at present datum.

Average discharge.--34 years (1903-6, 1910-19, 1928-50), 970 cfs (revised).

Extremes.--1903-7, 1910-20, 1928-50: Maximum discharge, 11,000 cfs Mar. 20, 21, 1936 (gage height, 10.3 ft); minimum daily, 100 cfs Dec. 28, 1914.
Maximum discharge known, 13,600 cfs Nov. 4, 1927 (gage height, 13.3 ft, present datum, at chain-gage site 1,800 ft upstream), from rating curve extended above 9,000 cfs by logarithmic plotting.

Remarks.--Some regulation by Chittenden Reservoir on East Creek.

Cooperation.--Records for 1911 and 1912 and gage readings for 1913-15 furnished by H. K. Barrows, consulting engineer, Boston, Mass.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

| Monthly and yearly mean discharge, in cubic feet per second, of Otter Creek at Middlebury, Vt. | | | | | | | | | | | | | | The year |
|--|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|--------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | | |
| 1903 | - | - | - | - | - | - | 1,970 | 370 | 570 | 446 | 417 | 304 | - | |
| 1904 | 541 | 431 | 385 | 370 | 400 | 1,700 | 2,200 | 1,590 | 471 | 396 | 598 | 661 | 796 | |
| 1905 | 1,230 | 545 | 300 | 240 | 230 | 1,070 | 2,950 | 871 | 1,210 | 904 | 951 | 1,570 | 1,010 | |
| 1906 | 590 | 625 | 969 | 1,400 | 714 | 900 | 3,130 | 1,870 | 1,710 | 881 | 738 | 421 | 1,160 | |
| 1907 | 498 | 869 | 487 | 960 | 350 | 1,040 | 2,320 | - | - | - | - | - | - | |
| 1911 | *401 | 572 | 500 | 1,200 | 500 | 900 | 2,400 | 875 | 387 | 286 | 405 | 490 | *743 | |
| 1912 | 963 | 876 | 1,240 | 600 | 550 | 1,600 | 3,630 | 1,550 | 1,220 | 318 | 376 | 634 | 1,130 | |
| 1913 | 1,010 | 1,340 | 985 | 2,130 | 973 | 2,700 | 2,440 | 1,000 | 653 | 312 | 256 | 355 | 1,170 | |
| 1914 | 543 | 559 | 582 | 444 | 654 | 1,550 | 4,100 | 1,790 | 387 | 348 | 371 | 372 | 957 | |
| 1915 | 302 | 385 | 257 | 810 | 1,170 | 1,210 | 1,170 | 437 | 245 | 589 | 348 | 252 | 594 | |
| 1916 | 314 | 368 | 651 | 1,210 | 1,070 | 970 | 3,060 | 1,240 | 656 | 688 | 341 | 291 | 901 | |
| 1917 | 346 | 493 | 778 | 619 | 444 | 1,250 | 2,420 | 1,140 | 1,260 | 332 | 317 | 283 | 807 | |
| 1918 | 525 | 807 | 339 | 263 | 958 | 1,810 | 2,350 | 1,250 | 644 | 399 | 284 | 665 | 854 | |
| 1919 | 897 | 1,220 | 1,090 | 1,210 | 574 | 1,710 | 2,100 | 1,210 | 462 | 370 | 389 | 863 | 1,010 | |
| 1920 | 795 | 1,510 | 1,060 | 273 | - | - | - | - | - | - | - | - | - | |
| 1929 | 511 | 595 | 579 | *489 | 323 | *1,980 | 2,650 | 2,900 | *653 | *517 | *334 | *608 | *1,020 | |
| 1930 | 479 | 558 | 579 | 1,220 | 1,120 | 2,070 | 1,740 | 1,100 | 1,380 | 536 | 480 | 453 | 975 | |
| 1931 | 352 | 553 | 431 | *299 | *431 | *967 | 2,850 | 1,380 | 1,010 | 1,190 | 540 | 568 | *881 | |
| 1932 | 406 | 562 | 870 | 1,370 | 991 | 615 | 3,240 | 1,080 | 511 | 668 | 560 | 382 | 955 | |
| 1933 | 815 | 1,710 | 615 | 752 | 747 | 813 | 3,980 | 1,280 | 493 | 351 | 447 | 476 | 1,040 | |
| 1934 | 492 | 604 | 746 | 866 | 369 | 1,562 | 3,460 | 1,136 | 1,019 | 386 | 203 | 269 | 926 | |
| 1935 | 371 | 605 | 554 | 1,435 | 629 | 1,643 | 1,805 | 1,528 | 948 | 1,273 | 603 | 492 | 994 | |
| 1936 | 466 | 983 | 1,114 | 806 | 468 | 4,538 | 2,331 | 1,183 | 409 | 363 | 284 | 473 | 1,122 | |
| 1937 | 902 | 1,188 | 1,090 | 1,903 | 1,396 | 621 | 2,709 | 2,893 | 1,380 | 650 | 496 | 337 | 1,295 | |
| 1938 | 389 | 729 | 669 | 837 | 1,652 | 1,664 | 1,555 | 1,071 | 404 | 593 | 876 | 2,411 | 1,064 | |
| 1939 | 1,249 | 901 | 1,895 | 667 | 1,009 | 1,457 | 3,428 | 1,999 | 615 | 402 | 339 | 267 | 1,186 | |
| 1940 | 380 | 625 | 505 | 247 | 248 | 384 | 3,720 | 3,580 | 1,188 | 525 | 268 | 580 | 1,020 | |
| 1941 | 336 | 1,024 | 865 | 1,065 | 907 | 630 | 1,663 | 461 | 283 | 547 | 206 | 265 | 686 | |
| 1942 | 306 | 498 | 523 | 638 | 352 | 1,620 | 2,509 | 849 | 689 | 268 | 196 | 245 | 725 | |
| 1943 | 419 | 755 | 594 | 447 | 783 | 1,826 | 1,533 | 2,661 | 904 | 564 | 1,115 | 601 | 1,019 | |
| 1944 | 668 | 1,338 | 667 | 398 | 406 | 1,361 | 3,097 | 1,432 | 623 | 353 | 219 | 301 | 903 | |
| 1945 | 524 | 524 | 892 | 892 | 580 | 2,801 | 1,842 | 2,489 | 1,126 | 1,303 | 466 | 948 | 1,174 | |
| 1946 | 1,983 | 1,722 | 1,032 | 1,083 | 773 | 2,586 | 1,034 | 1,200 | 997 | 414 | 411 | 321 | 1,134 | |
| 1947 | 857 | 717 | 802 | 940 | 1,151 | 1,843 | 2,663 | 1,873 | 3,025 | 992 | 311 | 193 | 1,261 | |
| 1948 | 207 | 339 | 246 | 205 | 424 | 2,207 | 2,076 | 1,520 | 838 | 608 | 437 | 185 | 775 | |
| 1949 | 263 | 748 | 408 | 2,509 | 1,045 | 1,229 | 1,578 | 905 | 307 | 185 | 250 | 368 | 815 | |
| 1950 | 364 | 594 | 959 | 1,313 | 796 | 1,174 | 2,937 | 957 | 654 | 259 | 238 | 349 | 881 | |

* Revised.

* Not previously published; records partly estimated on basis of hydrographic comparison with Winoski River at Richmond.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | | The year |
|--------------------------------------|------|------|------|------|------|-------|------|------|-------|------|------|-------|--------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | | |
| 1903 | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 1904 | 0.99 | 0.77 | 0.71 | 0.68 | 0.69 | 3.12 | 3.91 | 2.92 | .84 | .73 | .73 | 1.17 | - | |
| 1905 | 2.25 | .97 | .55 | .44 | .38 | 1.96 | 5.24 | 1.60 | 2.14 | 1.66 | 1.75 | 2.80 | 17.26 | |
| 1906 | 1.08 | 1.11 | 1.78 | 2.57 | 1.18 | 1.65 | 5.55 | 3.43 | 3.04 | 1.62 | 1.35 | .75 | 25.74 | |
| 1907 | .91 | 1.54 | .89 | 1.76 | .58 | 1.91 | 4.11 | - | - | - | - | - | - | |
| 1911 | *.74 | 1.02 | .92 | 2.20 | .83 | 1.65 | 4.27 | 1.61 | .69 | .52 | .74 | .87 | *16.06 | |
| 1912 | 1.77 | 1.56 | 2.28 | 1.10 | .94 | 2.94 | 6.45 | 2.84 | 2.17 | .58 | .69 | 1.13 | 24.45 | |
| 1913 | 1.86 | 2.38 | 1.83 | 3.90 | 1.61 | 4.96 | 4.34 | 1.84 | 1.17 | .57 | .47 | .45 | 25.38 | |
| 1914 | 1.00 | .99 | 1.07 | .81 | 1.08 | 2.48 | 7.29 | 3.29 | .69 | .64 | .68 | .66 | 20.68 | |
| 1915 | .55 | .68 | .47 | 1.49 | 1.94 | 2.21 | 2.08 | .80 | .44 | 1.08 | .64 | .45 | 12.83 | |
| 1916 | .58 | .65 | 1.20 | 2.23 | 1.83 | 1.78 | 5.43 | 2.27 | 1.16 | 1.26 | .63 | .52 | 19.54 | |
| 1917 | .64 | .88 | 1.43 | 1.14 | .74 | 2.29 | 4.31 | 2.10 | 2.24 | .61 | .58 | .50 | 17.46 | |
| 1918 | .96 | 1.43 | .62 | .48 | 1.59 | 3.32 | 4.17 | 2.30 | 1.14 | .73 | .52 | 1.18 | 18.44 | |
| 1919 | 1.65 | 2.17 | 2.00 | 2.22 | .95 | 3.15 | 3.72 | 2.21 | .82 | .68 | .71 | 1.53 | 21.81 | |
| 1920 | 1.46 | 2.68 | 1.95 | .50 | - | - | - | - | - | - | - | - | - | |
| 1929 | .94 | 1.06 | 1.06 | *.90 | .54 | *3.63 | 4.71 | 5.33 | *1.16 | *.95 | *.61 | *1.08 | *21.97 | |
| 1930 | .88 | .99 | 1.06 | 2.24 | 1.85 | 3.80 | 3.09 | 2.02 | 2.46 | .98 | .88 | .80 | 21.05 | |
| 1931 | .65 | .98 | .79 | *.55 | *.71 | *1.78 | 5.06 | 2.54 | 1.80 | 2.18 | .99 | 1.01 | *19.04 | |
| 1932 | .74 | 1.00 | 1.60 | 2.51 | 1.70 | 1.13 | 5.76 | 1.98 | .91 | 1.22 | 1.03 | .68 | 20.26 | |
| 1933 | 1.50 | 3.04 | 1.13 | 1.38 | 1.24 | 1.49 | 7.07 | 2.35 | .88 | .64 | .82 | .85 | *22.39 | |
| 1934 | .90 | 1.07 | 1.37 | 1.59 | .61 | 2.87 | 6.15 | 2.09 | 1.81 | .71 | .37 | .48 | 20.02 | |
| 1935 | .68 | 1.07 | 1.02 | 2.64 | 1.04 | 3.02 | 3.20 | 2.80 | 1.68 | 2.34 | 1.11 | .87 | 21.47 | |
| 1936 | .86 | 1.75 | 2.04 | 1.48 | .80 | 8.34 | 4.14 | 2.17 | .73 | .67 | .52 | .84 | 24.34 | |
| 1937 | 1.66 | 2.11 | 2.01 | 3.49 | 2.31 | 1.14 | 4.81 | 5.32 | 2.46 | 1.20 | .91 | .60 | 28.02 | |
| 1938 | .71 | 1.29 | 1.23 | 1.53 | 2.74 | 3.06 | 2.77 | 1.97 | .72 | 1.09 | 1.60 | 4.28 | 22.99 | |
| 1939 | 2.29 | 1.60 | 3.48 | 1.22 | 1.68 | 2.68 | 6.09 | 3.67 | 1.09 | .74 | .62 | .47 | 25.63 | |
| 1940 | .70 | 1.11 | .93 | .45 | .43 | .71 | 6.61 | 6.57 | 2.11 | .96 | .49 | 1.03 | 22.10 | |
| 1941 | .62 | 1.82 | 1.59 | 1.99 | 1.50 | 1.16 | 2.96 | .85 | .50 | 1.00 | .38 | .47 | 14.84 | |
| 1942 | .56 | .89 | .96 | 1.17 | .58 | 2.97 | 4.46 | 1.56 | 1.22 | .49 | .36 | .44 | 15.66 | |
| 1943 | .77 | 1.34 | 1.09 | .82 | 1.30 | 3.35 | 2.72 | 4.88 | 1.61 | 1.04 | 2.05 | 1.07 | 22.04 | |
| 1944 | 1.23 | 2.38 | 1.22 | .73 | .70 | 2.50 | 5.50 | 2.63 | 1.11 | .65 | .40 | .53 | 19.58 | |
| 1945 | .96 | .93 | .97 | 1.64 | .96 | 5.14 | 3.27 | 4.57 | 2.00 | 2.39 | .85 | 1.68 | 25.36 | |
| 1946 | 3.64 | 3.06 | 1.89 | 1.99 | 1.28 | 4.75 | 1.84 | 2.20 | 1.77 | .76 | .75 | .57 | 24.50 | |
| 1947 | 1.57 | 1.27 | 1.10 | 1.73 | 1.91 | 3.38 | 4.73 | 3.44 | 5.37 | 1.82 | .57 | .34 | 27.23 | |
| 1948 | .38 | .60 | .45 | .38 | .73 | 4.05 | 3.69 | 2.79 | 1.49 | 1.12 | .80 | .33 | 16.81 | |
| 1949 | .48 | 1.33 | .75 | 4.61 | 1.73 | 2.26 | 2.80 | 1.66 | .54 | .34 | .46 | .65 | 17.61 | |
| 1950 | .67 | 1.05 | 1.76 | 2.41 | 1.32 | 2.16 | 5.22 | 1.76 | 1.16 | .48 | .44 | .62 | 19.05 | |

* Revised.

† Corrected.

* Not previously published; see footnote to preceding table.

Yearly discharge, in cubic feet per second, of Otter Creek at Middlebury, Vt.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|--------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1903 | 434 | - | - | - | - | - | - | - | - |
| 1904 | 434 | \$4,260 | Mar. 31, 1904* | - | 796 | 1.27 | 17.26 | 856 | 18.56 |
| 1905 | 434 | \$5,750 | Apr. 3, 1905* | - | 1,011 | 1.61 | 21.74 | 1,020 | 21.94 |
| 1906 | 434 | \$4,670 | Apr. 22, 1906* | 220 | 1,160 | 1.85 | 25.11 | 1,130 | 24.48 |
| 1907 | 434 | - | - | - | - | - | - | - | - |
| 1911 | 434 | a3,160 | Apr. 9, 1911 | 110 | \$743 | \$1.18 | \$16.06 | 879 | 18.99 |
| 1912 | 434 | a4,950 | Apr. 11, 1912 | 175 | 1,130 | 1.80 | 24.45 | 1,150 | 24.31 |
| 1913 | 434, 1114 | a9,950 | Mar. 30, 1913 | 138 | 1,170 | 1.86 | 25.38 | 1,040 | 22.37 |
| 1914 | 434 | a5,540 | Apr. 24, 1914 | 155 | 957 | 1.52 | 20.68 | 895 | 19.32 |
| 1915 | 434 | a3,410 | Mar. 3, 1915 | 100 | 594 | .946 | 12.83 | 627 | 13.56 |
| 1916 | 434 | a4,850 | Apr. 5, 1916 | 217 | 901 | 1.43 | 19.54 | 925 | 20.06 |
| 1917 | 454 | a5,680 | Apr. 2, 1917 | 175 | 807 | 1.29 | 17.46 | 811 | 17.52 |
| 1918 | 474 | a3,500 | Mar. 30, 1918 | 202 | 854 | 1.36 | 18.44 | 983 | 21.25 |
| 1919 | 504 | a3,050 | Apr. 12, 1919 | 224 | 1,010 | 1.61 | 21.81 | 1,020 | 22.08 |
| 1920 | 504 | - | - | - | - | - | - | - | - |
| 1929 | 684, 1207 | 4,700 | May 3, 1929 | 219 | *1,020 | *1.62 | *21.97 | *1,010 | *21.84 |
| 1930 | 699 | 3,080 | Apr. 8, 1930 | 272 | 975 | 1.55 | 21.05 | 951 | 20.54 |
| 1931 | 714, 1207 | 3,410 | Apr. 18, 1931 | *200 | *881 | *1.40 | *19.04 | *923 | *19.96 |
| 1932 | 729 | a2,210 | Apr. 16, 1932 | 220 | 935 | 1.49 | 20.26 | 1,040 | 22.59 |
| 1933 | 744 | 6,450 | Apr. 21, 1933 | 220 | 1,040 | 1.66 | 22.39 | 929 | 20.06 |
| 1934 | 759 | 4,300 | Apr. 18, 1934 | 138 | 926 | 1.47 | 20.02 | 897 | 19.39 |
| 1935 | 784 | 3,520 | Jan. 15, 1935 | 246 | 994 | 1.58 | 21.47 | 1,080 | 23.35 |
| 1936 | 804 | 11,000 | Mar. 21, 1936 | 185 | 1,122 | 1.79 | 24.34 | 1,174 | 25.47 |
| 1937 | 824 | 4,370 | May 21, 1937 | 225 | 1,295 | 2.06 | 28.02 | 1,178 | 25.47 |
| 1938 | 854 | 6,830 | Sept. 25, 1938 | 178 | 1,064 | 1.69 | 22.99 | 1,255 | 27.13 |
| 1939 | 874 | 5,860 | Apr. 26, 1939 | 180 | 1,186 | 1.89 | 25.63 | 971 | 21.00 |
| 1940 | 894 | 5,730 | May 7, 1940 | 150 | 1,020 | 1.62 | 22.10 | 1,079 | 23.39 |
| 1941 | 924 | 2,840 | Dec. 31, 1940 | 152 | 686 | 1.09 | 14.84 | 611 | 13.22 |
| 1942 | 954 | 3,020 | Apr. 14, 1942 | 130 | 725 | 1.15 | 15.66 | 761 | 16.45 |
| 1943 | 974 | 3,290 | May 13, 1943 | 205 | 1,019 | 1.62 | 22.04 | 1,095 | 23.67 |
| 1944 | 1004 | 3,830 | Apr. 17, 1944 | 146 | 903 | 1.44 | 19.58 | 813 | 17.61 |
| 1945 | 1034 | 4,660 | Mar. 25, 1945 | 249 | 1,174 | 1.87 | 25.36 | 1,439 | 31.09 |
| 1946 | 1054 | 4,750 | Mar. 13, 1946 | 195 | 1,134 | 1.81 | 24.50 | 919 | 19.85 |
| 1947 | 1084 | 4,770 | June 8, 1947 | 156 | 1,261 | 2.01 | 27.23 | 1,144 | 24.72 |
| 1948 | 1114 | 6,690 | Mar. 25, 1948 | 128 | 775 | 1.23 | 16.81 | 827 | 17.94 |
| 1949 | 1144 | 6,220 | Jan. 4, 1949 | 141 | 815 | 1.30 | 17.61 | 858 | 18.53 |
| 1950 | 1174 | 4,080 | Apr. 10, 1950 | 156 | 881 | 1.40 | 19.05 | - | - |

* Revised.

† Corrected.

* Not previously published.

a Maximum observed.

401. Mollis Brook near Marshfield, Vt.

Location.--Lat 44°21'25", long. 72°19'55", on right bank at head of Mollis Falls, 0.3 mile above mouth, and 1 mile northeast of Marshfield, Washington County.

Drainage area.--24 sq mi, approximately.

Gage.--Staff gage. Altitude of gage is 1,050 ft (from topographic map).

Extremes.--1920-23: Maximum discharge, 840 cfs Oct. 1, 1920 (gage height, 6.80 ft, from graph based on gage readings), from rating curve extended above 250 cfs; minimum observed, 2.2 cfs Sept. 15, 1921.

Remarks.--Flow regulated by Peacham Pond.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | - | 63.1 | - |
| 1921 | 53.0 | 31.9 | 62.8 | 28.5 | 18.4 | 138 | 65.6 | 20.7 | 13.6 | 11.3 | 9.84 | 3.44 | 38.3 |
| 1922 | 11.3 | 23.4 | 24.1 | 11.2 | 9.25 | 75.6 | 188 | 46.3 | 67.6 | 37.7 | 18.4 | 19.2 | 44.5 |
| 1923 | 17.5 | 16.3 | 13.4 | 22.7 | 14.6 | 21.0 | 147 | 69.5 | 26.0 | 16.2 | 16.1 | 11.7 | 32.6 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | - | 2.93 | - |
| 1921 | 2.55 | 1.48 | 3.02 | 1.37 | 0.80 | 6.63 | 3.05 | 0.99 | 0.63 | 0.54 | 0.47 | .16 | 21.69 |
| 1922 | .54 | 1.09 | 1.15 | .54 | .40 | 3.63 | 8.74 | 2.32 | 3.15 | 1.81 | .88 | .89 | 25.14 |
| 1923 | .84 | .78 | .64 | 1.09 | .63 | 1.01 | 6.83 | 3.34 | 1.20 | .78 | .77 | .54 | 18.43 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|---------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1920 | 524 | - | - | - | - | - | - | - | - |
| 1921 | 524 | *840 | Oct. 1, 1920* | 2.4 | 38.3 | 1.60 | 21.69 | 30.8 | 17.42 |
| 1922 | 544 | *720 | Apr. 12, 1922 | 2.9 | 44.5 | 1.85 | 25.14 | 43.5 | 24.60 |
| 1923 | 564 | *540 | Apr. 30, 1923 | 4.9 | 32.6 | 1.36 | 18.43 | - | - |

* Revised.

402. East Barre Detention Reservoir at East Barre, Vt.

Location.--Lat 44°09'20", long. 72°26'40", at reservoir on Jail Branch at East Barre, Washington County, 4½ miles upstream from mouth of Jail Branch.

Drainage area.--38.8 sq mi.

Gage.--Staff gage read daily. Datum of gage is 1,127.9 ft above mean sea level (levels by Corps of Engineers).

Extremes.--1936-50: Maximum gage height, 36.0 ft Mar. 22, 1936 (contents, 474.7 mcf); minimum observed, 0.1 ft several days in August and September 1939 (contents, 0.05 mcf).

Remarks.--Reservoir is formed by earth-fill dam completed by Corps of Engineers in 1935 for flood control. Capacity of reservoir, 506,000,000 cu ft between gage heights 0.0 ft (bottom of outlet opening) and 37.1 ft (crest of spillway). Dam has no gates; below gage height 37.1 ft, outflow from reservoir is dependent on capacity of outlet opening, 4 ft square, near base of dam.

Month-end contents, in millions of cubic feet

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|------|------|-------|------|------|--------|------|-------|------|------|------|-------|
| 1936 | - | - | - | - | 0 | 307.04 | 4.17 | 0.3 | 0.4 | 0.15 | 0.69 | 0.4 |
| 1937 | 1.11 | 0.87 | 5.06 | 0.74 | .90 | .5 | 13.8 | 1.48 | 9.2 | .87 | .2 | .15 |
| 1938 | .87 | 1.71 | .68 | 2.48 | .93 | 4.93 | 2.3 | .56 | .25 | .62 | .4 | 1.64 |
| 1939 | .74 | 1.18 | .99 | .56 | 1.48 | 2.04 | 224 | 1.18 | 2.2 | 1.41 | .05 | 1.11 |
| 1940 | 7.58 | .3 | .5 | .2 | .25 | 3.8 | 54.8 | 13.25 | .74 | .8 | .15 | .35 |
| 1941 | .62 | .87 | 15.75 | .56 | .4 | .87 | 1.26 | .74 | 1.18 | .62 | .45 | .15 |
| 1942 | .74 | .62 | .68 | .5 | .35 | 2.04 | 4.16 | .74 | .62 | .25 | .1 | .62 |
| 1943 | .87 | .87 | 2.3 | .4 | 1.18 | 2.2 | 34.2 | 2.12 | 1.26 | 1.64 | 1.41 | .2 |
| 1944 | 47.0 | 22.9 | .56 | .8 | .45 | 3.26 | 22.5 | .93 | .8 | .87 | .1 | .74 |
| 1945 | 1.41 | 9.7 | 1.11 | .56 | 1.34 | 70.7 | 29.9 | 3.26 | .62 | 1.78 | .5 | 5.22 |
| 1946 | 2.12 | 2.21 | .45 | .45 | .62 | 2.84 | 2.39 | .99 | .5 | .2 | 1.56 | 26.4 |
| 1947 | 1.56 | 1.86 | 1.48 | 3.58 | 1.05 | 1.86 | 7.57 | 8.33 | .93 | .45 | .3 | .35 |
| 1948 | .25 | .62 | .4 | .45 | .5 | 39.7 | 8.75 | 2.95 | .8 | .4 | .2 | .15 |
| 1949 | 1.11 | 1.71 | 57.1 | .93 | .93 | 29.9 | 2.21 | 1.26 | .4 | .8 | .62 | 1.18 |
| 1950 | 1.86 | 1.48 | 1.95 | 3.06 | 1.86 | 7.0 | 24.3 | 1.18 | 1.78 | .15 | .99 | .25 |

403. Jail Branch at East Barre, Vt. 1/

Location.--Lat 44°09'40", long. 72°27'00", on right bank at East Barre, Washington County, just downstream from highway bridge, 0.6 mile downstream from East Barre Detention Reservoir, and 3.9 miles upstream from mouth.

Drainage area.--40.4 sq mi since November 1933. August 1920 to September 1923, 39.0 sq mi (revised).

Gage.--Water-stage recorder. Datum of gage is 1,071.59 ft above mean sea level (levels by Corps of Engineers). Nov. 4, 1933, to Jan. 26, 1935, staff gage at same site and datum. August 1920 to September 1923, staff gage a quarter of a mile upstream at different datum.

Average discharge.--20 years (1920-23, 1933-50), 56.4 cfs (adjusted for storage).

Extremes.--1920-23, 1933-50: Maximum discharge, 1,820 cfs (revised) Oct. 1, 1920 (gage height, 9.50 ft, site and datum then in use, from graph based on gage readings), from rating curve extended above 900 cfs; minimum, 0.1 cfs Aug. 18, 1950.

Remarks.--Discharge affected by East Barre Detention Reservoir (see above). Diurnal fluctuation at low flow caused by mill above station. Diversion from reservoir on Orange Brook, a tributary above station, for city of Barre. Runoff adjusted for change in contents in East Barre Detention Reservoir since March 1936.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | - | 22.6 | - |
| 1921 | 51.3 | 54.6 | 132 | 30.5 | 15.9 | 412 | 120 | 20.3 | 5.59 | 10.7 | 12.0 | 1.54 | 72.9 |
| 1922 | 13.0 | 72.8 | 96.3 | 11.5 | 10.0 | 216 | 308 | 71.0 | 58.0 | 29.9 | 27.4 | 13.7 | 77.5 |
| 1923 | 14.1 | 22.4 | 17.6 | 48.4 | 15.2 | 60.4 | 278 | 98.2 | 27.3 | 10.1 | 4.05 | 5.78 | 50.1 |
| 1934 | 19.4 | 26.3 | 29.6 | 22.9 | 10.6 | 68.8 | 288 | 56.5 | 21.6 | 4.23 | 2.68 | 17.6 | 47.2 |
| 1935 | 18.9 | 56.1 | 38.2 | 94.9 | 22.3 | 88.5 | 155 | 76.6 | 54.2 | 17.6 | 11.5 | 11.3 | 53.9 |
| 1936 | 12.0 | 56.4 | 24.5 | 17.1 | 12.0 | 246 | 238 | 63.4 | 12.0 | 10.2 | 8.18 | 20.2 | 60.0 |
| 1937 | 50.8 | 60.1 | 60.2 | 86.3 | 47.5 | 14.2 | 203 | 204 | 44.8 | 28.6 | 18.0 | 3.24 | 68.3 |
| 1938 | 30.9 | 58.4 | 31.6 | 36.3 | 57.1 | 113 | 105 | 43.8 | 11.2 | 22.7 | 18.1 | 102 | 52.3 |
| 1939 | 34.4 | 36.8 | 113 | 24.0 | 32.0 | 52.5 | 190 | 130 | 33.4 | 13.8 | 6.77 | 4.42 | 61.8 |
| 1940 | 13.8 | 24.0 | 19.7 | 5.60 | 5.07 | 8.23 | 225 | 282 | 46.6 | 17.2 | 4.45 | 21.1 | 56.1 |

* Not previously published; estimated on basis of records for nearby streams.

1/ Published as Jail Brook prior to 1923.

Monthly and yearly mean discharge, in cubic feet per second (observed), of Jail Branch
at East Barre, Vt.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1941 | 15.3 | 65.5 | 43.2 | 31.3 | 24.4 | 13.6 | 142 | 32.1 | 27.2 | 30.1 | 17.9 | 9.30 | 37.5 |
| 1942 | 17.9 | 34.4 | 27.8 | 27.6 | 9.27 | 88.6 | 261 | 88.3 | 56.2 | 69.5 | 2.96 | 13.0 | 52.7 |
| 1943 | 29.9 | 54.1 | 28.6 | 19.0 | 26.6 | 73.9 | 136 | 167 | 42.1 | 17.9 | 28.4 | 14.0 | 53.3 |
| 1944 | 44.8 | 89.0 | 38.7 | 18.2 | 15.3 | 33.2 | 200 | 120 | 35.5 | 14.4 | 3.75 | 11.1 | 51.8 |
| 1945 | 32.3 | 39.5 | 31.0 | 47.5 | 18.2 | 193 | 162 | 198 | 56.8 | 35.9 | 8.94 | 39.0 | 72.2 |
| 1946 | 109 | 87.0 | 59.1 | 40.3 | 23.4 | 175 | 75.4 | 66.1 | 41.0 | 8.58 | 53.0 | 23.1 | 63.8 |
| 1947 | 80.1 | 58.3 | 52.8 | 54.3 | 50.1 | 88.3 | 233 | 151 | 139 | 26.2 | 5.02 | 5.19 | 78.5 |
| 1948 | 5.27 | 22.1 | 11.3 | 5.18 | 8.67 | 122 | 136 | 102 | 38.2 | 11.3 | 13.1 | 5.05 | 39.7 |
| 1949 | 8.15 | 41.6 | 29.6 | 68.2 | 25.6 | 96.5 | 127 | 60.7 | 8.37 | 3.18 | 4.88 | 7.95 | 40.2 |
| 1950 | 7.59 | 23.3 | 33.4 | 35.5 | 19.1 | 37.2 | 213 | 60.1 | 22.7 | 3.72 | 3.05 | 5.62 | 38.5 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1920 | - | - | - | - | - | - | - | - | - | - | - | 0.65 | - |
| 1921 | 1.52 | 1.56 | 3.89 | 0.90 | 0.42 | 12.18 | 3.43 | 0.60 | 0.16 | 0.32 | 0.35 | .04 | 25.37 |
| 1922 | .38 | 2.08 | 2.85 | .34 | .27 | 6.39 | 8.81 | 2.10 | 1.66 | .88 | .81 | .39 | 26.96 |
| 1923 | .42 | .64 | .52 | 1.43 | .41 | 1.79 | 7.96 | 2.90 | .78 | .30 | .12 | .17 | 17.44 |
| 1934 | *.55 | .73 | .85 | .65 | .27 | 1.96 | 7.96 | 1.61 | .60 | .12 | .08 | .49 | *15.87 |
| 1935 | .54 | 1.55 | 1.09 | 2.71 | .57 | 2.53 | 4.29 | 2.19 | 1.50 | .50 | .33 | .31 | 18.11 |
| 1936 | .34 | 1.56 | .70 | .49 | .32 | 10.29 | 3.34 | 1.77 | .33 | .29 | .24 | .56 | 20.23 |
| 1937 | 1.46 | 1.66 | 1.76 | 2.42 | 1.22 | .40 | 5.74 | 5.68 | 1.32 | .67 | .51 | .09 | 22.93 |
| 1938 | .89 | 1.62 | .89 | 1.05 | 1.46 | 3.26 | 2.86 | 1.23 | .31 | .65 | .51 | 2.84 | 17.57 |
| 1939 | .97 | 1.02 | 3.23 | .68 | .83 | 1.50 | 7.63 | 3.05 | .93 | .39 | .18 | .13 | 20.54 |
| 1940 | .46 | .58 | .56 | .16 | .14 | .27 | 6.77 | 7.60 | 1.15 | .49 | .12 | .58 | 18.88 |
| 1941 | .44 | 1.81 | 1.39 | .73 | .63 | .39 | 3.91 | .91 | .78 | .85 | .51 | .25 | 12.58 |
| 1942 | .52 | .95 | .79 | .79 | .24 | 2.55 | 7.22 | 2.48 | 1.55 | .19 | .08 | .36 | 17.72 |
| 1943 | .86 | 1.49 | .83 | .52 | .69 | 2.12 | 4.11 | 4.41 | 1.15 | .52 | .81 | .37 | 17.88 |
| 1944 | 1.78 | 2.20 | .87 | .52 | .41 | .98 | 5.72 | 3.20 | .98 | .41 | .10 | .31 | 17.48 |
| 1945 | .93 | 1.18 | .79 | 1.35 | .48 | 6.23 | 4.04 | 5.36 | 1.54 | 1.04 | .24 | 1.13 | 24.31 |
| 1946 | 3.09 | 2.40 | 1.67 | 1.15 | .60 | 5.02 | 2.08 | 1.87 | 1.13 | .24 | 1.53 | .90 | 21.68 |
| 1947 | 2.02 | 1.61 | 1.50 | 1.57 | 1.26 | 2.53 | 6.51 | 4.31 | 3.77 | .74 | .14 | .14 | 26.10 |
| 1948 | .09 | .61 | .32 | .15 | .23 | 3.69 | 3.44 | 2.84 | 1.03 | .32 | .37 | .06 | 13.37 |
| 1949 | .24 | 1.16 | 1.44 | 1.35 | .66 | 3.06 | 3.21 | 1.72 | .22 | .09 | .14 | .23 | 13.52 |
| 1950 | .22 | .61 | .96 | 1.02 | .48 | 1.12 | 6.07 | 1.47 | .63 | .09 | .10 | .15 | 12.92 |

* Not previously published; estimated on basis of records for nearby streams.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | | | | Calendar year | | |
|------|------------|----------------------------|------------------|---------|--|------|----------|--|-----------------|------------------|--------|---------------|------|------------------|
| | | Observed | | | | | Adjusted | | | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum | | Mean | Mean | | Per square mile | Runoff in inches | | Mean | Mean | Runoff in inches |
| | | Discharge | Date | day | | | | | | | | | | |
| 1921 | 524,1237 | *1,820 | Oct. 1, 1920 | | | 0.5 | 72.9 | | - | 1.87 | 25.37 | 68.2 | - | 23.71 |
| 1922 | 564 | *1,530 | Apr. 11, 1922* | | | 3.0 | 77.5 | | - | 1.99 | 26.96 | 66.7 | - | 23.23 |
| 1923 | 564 | *1,250 | Apr. 28, 1923* | | | .6 | 50.1 | | - | 1.28 | 17.44 | - | - | - |
| 1934 | 804 | 1,280 | Jan. 12, 1934 | | | - | *47.2 | | - | *1.17 | *15.87 | 50.3 | - | 16.92 |
| 1935 | 804 | 821 | Jan. 10, 1935 | | | 1.7 | 53.9 | | - | 1.33 | 18.11 | 52.2 | - | 17.53 |
| 1936 | 804 | 461 | Mar. 18, 1936 | | | 1.0 | 60.0 | | - | 1.49 | 20.23 | 66.6 | 66.8 | 22.51 |
| 1937 | 824 | 317 | Apr. 7, 1937 | | | 1.4 | 68.3 | | 66.2 | 1.69 | 22.93 | 64.0 | 63.9 | 21.45 |
| 1938 | 854 | 455 | Sept. 21, 1938 | | | 1.9 | 52.3 | | 52.3 | 1.30 | 17.57 | 57.7 | 57.7 | 19.39 |
| 1939 | 874 | 417 | Apr. 28, 1939 | | | 2.3 | 61.2 | | 61.2 | 1.51 | 20.54 | 50.4 | 50.4 | 16.92 |
| 1940 | 894 | 418 | May 3, 1940 | | | 2.1 | 56.1 | | 56.1 | 1.39 | 18.88 | 61.6 | 62.1 | 20.92 |
| 1941 | 924 | 295 | Apr. 16, 1941 | | | 2.5 | 37.5 | | 37.5 | .928 | 12.58 | 33.8 | 33.3 | 11.20 |
| 1942 | 954 | 319 | Apr. 17-20, 1942 | | | 2.5 | 52.7 | | 52.7 | 1.30 | 17.72 | 55.4 | 55.5 | 18.64 |
| 1943 | 974 | 299 | Apr. 28, 1943 | | | 3.3 | 53.3 | | 53.2 | 1.32 | 17.88 | 58.2 | 58.2 | 19.55 |
| 1944 | 1004 | Not determined | | | | 1.3 | 51.8 | | 51.9 | 1.28 | 17.48 | 46.1 | 46.1 | *15.53 |
| 1945 | 1034 | 415 | May 1945 | | | 2.4 | 72.2 | | 72.4 | 1.79 | 24.31 | 85.0 | 85.0 | 28.57 |
| 1946 | 1054 | Not determined | | | | 2.3 | 63.8 | | 64.5 | 1.60 | 21.68 | 58.5 | 58.5 | 19.65 |
| 1947 | 1084 | 394 | Apr. 12, 1947 | | | 1.8 | 78.5 | | 77.7 | 1.82 | 20.10 | 65.5 | 65.5 | 21.99 |
| 1948 | 1114 | 338 | Apr. 2, 1948 | | | 2.0 | 39.7 | | 39.7 | .983 | 13.37 | 43.3 | 45.1 | 15.19 |
| 1949 | 1144 | 309 | | | | .4 | 40.2 | | 40.2 | .995 | 13.52 | 38.9 | 37.1 | 12.47 |
| 1950 | 1174 | 348 | Apr. 5, 1950 | | | .4 | 38.5 | | 38.5 | .953 | 12.92 | - | - | - |

* Revised.

† Corrected.

* Not previously published.

a Dec. 31, 1948, Jan. 1, Mar. 28, 1949.

404. Wrightsville Detention Reservoir at Wrightsville, Vt.

Location.--Lat 44°18'35", long. 72°34'30", at reservoir on North Branch Winooski River at Wrightsville, Washington County, a third of a mile downstream from Long Meadow Brook, and 4½ miles upstream from mouth.

Drainage area.--66.5 sq mi.

Gage.--Staff gage read daily. Datum of gage is 612.75 ft above mean sea level (levels by Corps of Engineers).

Extremes.--1936-50: Maximum gage height, 63.7 ft Mar. 22, 1936 (contents, 675.0 mcf), from graph based on gage readings; minimum observed, 0.2 ft Aug. 17, 1949, and Aug. 17-19, 1950 (contents, 0.45 mcf).

Remarks.--Reservoir is formed by earth-fill dam completed by Corps of Engineers in 1935 for flood control. Capacity of reservoir, 873,500,000 cu ft between gage heights 0.0 ft (bottom of outlet opening) and 72.25 ft (crest of spillway). Dam has no gates; below gage height 72.25 ft, outflow from reservoir is dependent on capacity of outlet opening, 5½ ft square, near base of dam. Contents shown in table below are usable contents.

Month-end contents, in millions of cubic feet

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|-------|------|-------|------|-------|-------|-------|-------|------|------|------|-------|
| 1936 | - | 0 | 3.0 | 4.0 | 2.25 | 449.5 | 97.3 | 7.55 | 3.0 | 2.75 | 9.95 | 7.55 |
| 1937 | 17.0 | 10.6 | 28.6 | 8.15 | 10.3 | 6.7 | 171.6 | 2.25 | 3.5 | 2.0 | .7 | 12.45 |
| 1938 | 18.45 | 25.0 | 2.50 | 10.6 | 5.9 | 120.7 | 12.85 | 4.3 | 2.25 | 4.25 | 3.52 | 12.54 |
| 1939 | 5.06 | 8.15 | 5.05 | 2.75 | 8.15 | 15.25 | 460.4 | 11.9 | 8.75 | 4.8 | 1.35 | 4.8 |
| 1940 | 18.5 | 3.25 | 5.55 | 3.0 | 3.0 | 18.85 | 193.5 | 54.9 | 7.55 | 9.65 | 3.0 | 4.55 |
| 1941 | 1.1 | 7.25 | 93.4 | 2.75 | 2.25 | 5.9 | 6.45 | 7.85 | 7.0 | 8.15 | 2.25 | 1.35 |
| 1942 | 7.85 | 6.45 | 7.0 | 4.8 | 3.75 | 14.9 | 121.6 | 4.55 | 3.25 | 1.35 | .7 | 5.35 |
| 1943 | 8.15 | 9.35 | 9.65 | 3.25 | 11.25 | 40.2 | 299.5 | 11.55 | 5.35 | 4.0 | 4.0 | 2.25 |
| 1944 | 26.2 | 7.55 | 3.5 | 6.45 | 3.5 | 11.9 | 199.7 | 2.25 | 3.75 | 5.05 | 9.05 | |
| 1945 | 4.5 | 4.5 | 3.0 | 3.25 | 5.35 | 328.6 | 125.8 | 20.7 | 2.75 | 27.8 | 1.6 | 30.3 |
| 1946 | 12.5 | 8.75 | 4.25 | 4.0 | 3.75 | 48.5 | 11.2 | 8.15 | 1.6 | 1.6 | 2.0 | 18.1 |
| 1947 | 11.9 | 10.9 | 5.05 | 23.4 | 4.8 | 12.9 | 79.5 | 163.9 | 4.8 | 8.75 | 2.0 | 1.35 |
| 1948 | 2.75 | 2.25 | 2.75 | 1.8 | 2.75 | 177.4 | 15.6 | 7.25 | 6.45 | 2.25 | 1.8 | 1.35 |
| 1949 | 2.25 | 11.2 | 185.4 | 4.25 | 4.8 | 214.6 | 13.8 | 5.05 | 1.10 | 2.25 | 5.9 | 4.0 |
| 1950 | 3.75 | 4.8 | 9.95 | 9.95 | 4.55 | 29.0 | 73.3 | 4.25 | 3.25 | 1.8 | 7.0 | 2.0 |

405. North Branch Winooski River at Wrightsville, Vt.

Location.--Lat 44°18'00", long. 72°34'45", on right bank at Wrightsville, Washington County, three-quarters of a mile downstream from Wrightsville Detention Reservoir, and 3½ miles upstream from mouth.

Drainage area.--69.2 sq mi.

Gage.--Water-stage recorder and concrete control. Prior to Nov. 21, 1934, staff gage at same site and datum. Datum of gage is 550.53 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--17 years (1933-50), 131 cfs (adjusted for storage).

Extremes.--1933-50: Maximum discharge, 2,170 cfs Apr. 12, 1934 (gage height, 6.53 ft), from rating curve extended above 920 cfs; minimum daily, 0.2 cfs Aug. 13, 1941. Maximum discharge known, 17,200 cfs Nov. 3, 1927, by computation of flow over dam three-quarters of a mile above gage.

Remarks.--Discharge affected since November 1935 by Wrightsville Detention Reservoir (see above). Diurnal fluctuation at low flow caused by small mill above station. Runoff adjusted for change in contents in Wrightsville Detention Reservoir since November 1935.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|------|------|------|-------|-------|-------|-------|----------|
| 1934 | 46.4 | 59.4 | 53.5 | 42.9 | 24.4 | 125 | 668 | 91.7 | 41.4 | 30.1 | *11.0 | 44.7 | 103 |
| 1935 | 53.1 | 169 | 97.0 | 212 | 46.6 | 154 | 437 | 192 | 150 | 36.4 | *25.5 | 68.0 | 137 |
| 1936 | 57.4 | 127 | 74.5 | 41.5 | 32.1 | 556 | 583 | 276 | *22.2 | *25.4 | *14.0 | 53.0 | *155 |
| 1937 | 171 | 145 | 135 | 184 | 92.7 | 44.2 | 466 | 507 | 69.8 | 23.6 | *26.8 | *9.76 | *156 |
| 1938 | *66.8 | 150 | 72.3 | 75.9 | 120 | 254 | 369 | 81.0 | *16.8 | 21.4 | 52.8 | 230 | 125 |
| 1939 | 51.7 | 91.5 | 256 | 49.7 | 79.0 | 118 | 417 | 467 | 56.3 | 32.4 | *11.0 | *9.22 | 137 |
| 1940 | 52.7 | 76.2 | 54.0 | 17.5 | 15.3 | 21.4 | 438 | 552 | 81.0 | 42.3 | 14.7 | 34.7 | 117 |
| 1941 | 25.9 | 161 | 99.9 | 118 | 41.9 | 29.3 | 427 | 47.3 | 23.7 | 31.8 | 17.2 | 13.5 | 86.0 |
| 1942 | 69.3 | 148 | 77.8 | 67.2 | 21.1 | 140 | 601 | 139 | 143 | 16.7 | 8.47 | 27.2 | 121 |
| 1943 | 68.1 | 190 | 67.8 | 43.9 | 58.7 | 178 | 324 | 532 | 147 | 85.7 | 75.3 | 67.3 | 153 |
| 1944 | 136 | 218 | 54.9 | 34.6 | 34.9 | 80.3 | 432 | 318 | 61.6 | 21.3 | 11.4 | 30.6 | 119 |
| 1945 | 76.7 | 58.0 | 39.2 | 76.9 | 30.4 | 364 | 419 | 390 | 96.9 | 165 | 32.6 | 140 | 157 |
| 1946 | 406 | 222 | 82.2 | 86.2 | 46.6 | 439 | 161 | 252 | 60.8 | 23.2 | 40.7 | 23.3 | 155 |
| 1947 | 132 | 208 | 161 | 102 | 120 | 163 | 545 | 396 | 377 | 59.1 | 20.0 | 11.2 | 191 |
| 1948 | 10.2 | 36.0 | 28.0 | 19.7 | 27.1 | 252 | 326 | 225 | 115 | 47.6 | 76.7 | 9.91 | 97.9 |
| 1949 | 33.2 | 211 | 88.3 | 200 | 62.5 | 188 | 357 | 95.8 | 15.8 | 13.1 | 11.1 | 14.6 | 107 |
| 1950 | 21.7 | 56.7 | 153 | 133 | 67.0 | 110 | 485 | 139 | 49.9 | 16.0 | 19.9 | 34.2 | 107 |

* Revised.

Monthly and yearly runoff, in inches (adjusted), of North Branch Winooski River at Wrightsville, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|-------|-------|------|------|------|-------|-------|----------|
| 1934 | 0.77 | 0.96 | 0.89 | 0.71 | 0.37 | 2.09 | 10.77 | 1.53 | 0.67 | 0.50 | *0.18 | 0.72 | *20.16 |
| 1935 | .88 | 2.72 | 1.61 | 3.53 | .70 | 2.57 | 7.05 | 3.19 | 2.42 | .61 | *.42 | 1.10 | *26.80 |
| 1936 | .96 | 2.05 | 1.26 | .70 | .49 | 12.05 | 7.20 | 4.04 | *.33 | *.42 | *.28 | .84 | *30.62 |
| 1937 | 2.91 | 2.30 | 2.33 | 2.93 | 1.41 | .71 | 8.54 | 7.39 | 1.13 | .38 | *.43 | *.16 | *30.62 |
| 1938 | *1.22 | 2.46 | 1.06 | 1.32 | 1.78 | 4.94 | 5.27 | 1.30 | *.26 | .37 | .98 | 3.76 | *24.62 |
| 1939 | .82 | 1.50 | 4.24 | .31 | 1.22 | 2.02 | 9.50 | 5.00 | .69 | .52 | *.16 | *.17 | *26.85 |
| 1940 | .96 | 1.13 | .91 | .28 | .24 | .45 | 8.14 | 8.33 | 1.01 | .72 | .20 | .57 | 22.94 |
| 1941 | .41 | 2.63 | 2.20 | 1.41 | .63 | .51 | 6.89 | .80 | .38 | .54 | .25 | .21 | 16.86 |
| 1942 | 1.19 | 2.38 | 1.30 | 1.11 | .31 | 2.39 | 10.35 | 1.58 | 2.29 | .27 | .14 | .47 | 23.78 |
| 1943 | 1.12 | 3.07 | 1.13 | .69 | .93 | 3.15 | 6.83 | 7.07 | 2.33 | 1.42 | 1.25 | 1.07 | 30.06 |
| 1944 | 2.42 | 3.39 | .89 | .59 | .53 | 1.39 | 8.14 | 4.08 | 1.00 | .36 | .16 | .54 | 23.49 |
| 1945 | 1.25 | .94 | .64 | 1.28 | .47 | 8.08 | 5.49 | 5.68 | 1.45 | 2.91 | .38 | 2.44 | 31.01 |
| 1946 | 6.66 | 3.55 | 1.34 | 1.43 | .70 | 7.59 | 2.36 | 4.18 | .94 | .39 | .68 | .48 | 30.30 |
| 1947 | 2.17 | 3.36 | 2.64 | 1.82 | 1.69 | 2.76 | 9.21 | 7.12 | 5.09 | 1.01 | .29 | .18 | 37.34 |
| 1948 | .18 | .58 | .47 | .32 | .43 | 5.28 | 4.25 | 3.70 | 1.86 | .77 | 1.27 | .16 | 19.27 |
| 1949 | .56 | 3.46 | 2.55 | 2.20 | .94 | 4.44 | 4.50 | 1.54 | .23 | .23 | .21 | .22 | 21.08 |
| 1950 | .36 | .92 | 2.59 | 2.21 | .97 | 1.99 | 8.10 | 1.88 | .80 | .26 | .36 | .52 | 20.96 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|------------------|-------------|------|----------|-----------------|------------------|------|----------|------------------|
| | | Observed | | | | Adjusted | | Observed | | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1934 | 804,1237 | 2,170 | Apr. 12, 1934 | *3.1 | 103 | - | 1.49 | *20.16 | 116 | - | *22.75 |
| 1935 | 804,1237 | 1,470 | Jan. 10, 1935 | .5 | 137 | - | 1.98 | *26.80 | 132 | - | *25.84 |
| 1936 | 804,1237 | 1,040 | Mar. 21, 1936 | 3.4 | *155 | *155 | *2.24 | *30.62 | *171 | *172 | *33.89 |
| 1937 | 824,1237 | 710 | (a) | 1.4 | *156 | *156 | *2.25 | *30.62 | 143 | 142 | *27.82 |
| 1938 | 854,1237 | 790 | Sept. 21, 1938 | 4.2 | 125 | 125 | 1.81 | *24.62 | *135 | *135 | *26.44 |
| 1939 | 874,1237 | 890 | Apr. 28-30, 1939 | 1.6 | 137 | 137 | 1.98 | *26.85 | 119 | 119 | *23.29 |
| 1940 | 894 | 875 | May 4, 1940 | 1.9 | 117 | 117 | 1.69 | 22.94 | 125 | 128 | 25.18 |
| 1941 | 924 | 775 | Apr. 17, 1941 | .2 | 86.0 | 85.9 | 1.24 | 16.86 | 86.8 | 84.1 | 16.49 |
| 1942 | 954 | 795 | Apr. 19, 1942 | 3.0 | 121 | 121 | 1.75 | 23.78 | 125 | 124 | 24.23 |
| 1943 | 974 | 745 | Apr. 28 to May 2 | 15 | 153 | 153 | 2.21 | 30.06 | 161 | 160 | 31.44 |
| 1944 | 1004 | 677 | May 2, 1944 | 3.9 | 119 | 119 | 1.72 | 23.49 | 99.8 | 99.8 | 19.62 |
| 1945 | 1034 | 780 | Mar. 30, 1945 | 8.9 | 157 | 158 | 2.28 | 31.01 | 203 | 203 | 39.75 |
| 1946 | 1054 | 700 | Mar. 16, 1946 | 8.9 | 155 | 154 | 2.23 | 30.30 | 137 | 137 | 26.92 |
| 1947 | 1084 | 833 | Apr. 13, 1947 | 5.4 | 191 | 190 | 2.75 | 37.34 | 155 | 155 | 30.40 |
| 1948 | 1114 | 696 | Apr. 2, 3, 1948 | 5.9 | 97.9 | 97.9 | 1.41 | 19.27 | 119 | 125 | 24.61 |
| 1949 | 1144 | 663 | Mar. 30, 1949 | 2.3 | 107 | 107 | 1.55 | 21.06 | 99.3 | 95.7 | 16.38 |
| 1950 | 1174 | 669 | Apr. 22, 1950 | 3.6 | 107 | 107 | 1.55 | 20.96 | - | - | - |

* Revised.

† Apr. 20-22, May 16, 1937.

406. Winooski River at Montpelier, Vt.

Location.--Lat 44°15'25", long. 72°35'35", on right bank 0.4 mile upstream from Dog River and 1 mile downstream from depot at Montpelier, Washington County.

Drainage area.--397 sq mi.

Supplemental records available.--Twice-daily chain gage readings with corresponding discharges at site 0.9 mile upstream from May 1909 to June 1914 (fragmentary).

Gage.--Water-stage recorder since July 4, 1915. Datum of gage is 499.99 ft above mean sea level, datum of 1929. Prior to June 16, 1914, chain gage 0.9 mile upstream at different datum. June 16 to July 3, 1914, staff gage at present site and datum.

Average discharge.--31 years (1914-23, 1928-50), 582 cfs (adjusted for storage since October 1935).

Extremes.--1909-23, 1928-50: Maximum discharge, 17,200 cfs Apr. 7, 1912 (gage height, 17.31 ft, present datum), from rating curve extended above 6,900 cfs on basis of logarithmic plotting; minimum daily, 17 cfs Sept. 3, 1933. Maximum discharge known, 57,000 cfs Nov. 3, 1927 (gage height, 27.1 ft), from rating curve extended above 6,900 cfs on basis of logarithmic plotting.

Remarks.--Flow regulated by several small powerplants above station, by Peacham Pond and Mollys Falls Reservoir (combined usable capacity, 492,000,000 cu ft), which regulate runoff from 24 sq mi, and since 1935 by East Barre and Wrightsville Detention Reservoirs (combined usable capacity, 1,379,500,000 cu ft; see p. 366, 368).

Monthly and yearly mean discharge, in cubic feet per second (observed), of Winooski River at Montpelier, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|------|--------|--------|-------|-------|------|------|-------|----------|
| 1914 | - | - | - | - | - | - | - | - | - | 147 | 97.2 | 126 | - |
| 1915 | 154 | 225 | 126 | *188 | *463 | 463 | 923 | 397 | 208 | 382 | 295 | 129 | *326 |
| 1916 | 141 | 188 | 406 | *793 | 534 | *553 | 1,780 | 844 | 733 | 231 | 180 | 161 | *544 |
| 1917 | 232 | 367 | 467 | 275 | 184 | *773 | 2,130 | 793 | 1,230 | 318 | 303 | 179 | *604 |
| 1918 | 657 | 423 | 237 | 157 | 343 | *970 | 1,930 | 773 | 435 | 193 | 321 | 525 | *579 |
| 1919 | 1,320 | 1,070 | 751 | 524 | 246 | 1,560 | 1,740 | 1,030 | 313 | 139 | 112 | 293 | 761 |
| 1920 | 625 | 815 | 574 | 252 | 219 | *1,480 | 2,760 | 831 | 221 | 290 | 259 | 392 | *725 |
| 1921 | 656 | 463 | 1,070 | 468 | 329 | 2,410 | 905 | 254 | 160 | 139 | 157 | 60.1 | 594 |
| 1922 | 162 | 440 | 492 | 280 | 194 | 1,520 | *2,780 | 647 | 988 | 424 | 235 | 178 | *693 |
| 1923 | 174 | 203 | 204 | 396 | 224 | 488 | *2,470 | 942 | 408 | *153 | *116 | *136 | *491 |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | 292 | - |
| 1929 | 271 | 364 | 242 | 383 | 159 | *1,400 | 2,120 | 1,160 | 453 | 256 | 197 | 172 | *600 |
| 1930 | 165 | 298 | 202 | 573 | 514 | 885 | 1,490 | 809 | 630 | 312 | 211 | 215 | 524 |
| 1931 | 145 | 325 | 220 | 155 | 184 | 505 | 1,500 | 719 | 495 | 367 | 152 | 253 | 416 |
| 1932 | 201 | 366 | 421 | 652 | 371 | 289 | 2,230 | 426 | 233 | 328 | 282 | 227 | 496 |
| 1933 | 301 | 949 | 390 | 443 | 311 | 312 | *3,270 | 729 | 260 | 182 | 151 | 105 | *614 |
| 1934 | 154 | 185 | 224 | 208 | 127 | 660 | 2,801 | 528 | 236 | 188 | 121 | 162 | 465 |
| 1935 | 189 | 476 | 342 | 1,226 | 291 | 1,000 | 1,762 | 943 | 664 | 290 | 238 | 255 | 641 |
| 1936 | 256 | 566 | 361 | 297 | 230 | *3,442 | 2,146 | 927 | 213 | 202 | 139 | 207 | *751 |
| 1937 | 456 | 527 | 634 | 807 | 612 | 270 | 2,145 | 1,934 | 598 | 293 | 289 | 94.2 | 720 |
| 1938 | 274 | 597 | 425 | 473 | 751 | 1,308 | 1,247 | 442 | 186 | 247 | 274 | *934 | *592 |
| 1939 | 338 | 423 | 1,098 | 367 | 480 | 826 | 2,560 | 1,441 | 414 | 224 | 146 | 111 | 667 |
| 1940 | 226 | 317 | 251 | 109 | 91.6 | 153 | 1,992 | 1,984 | 524 | 261 | 159 | 236 | 525 |
| 1941 | 200 | 616 | 458 | 445 | 319 | 223 | 1,499 | 309 | 198 | 287 | 210 | 133 | 407 |
| 1942 | 224 | 446 | 327 | 344 | 182 | 858 | 2,289 | 645 | 575 | 156 | 89.5 | 148 | 523 |
| 1943 | 287 | 563 | 409 | 287 | 374 | 813 | 1,400 | 1,685 | 606 | 321 | 350 | 304 | 617 |
| 1944 | 464 | 802 | 373 | 234 | 225 | 448 | 2,018 | 1,095 | 351 | 164 | 115 | 182 | 538 |
| 1945 | 542 | 354 | 268 | 421 | 240 | 1,787 | 1,465 | 1,791 | 589 | 573 | 196 | 511 | 715 |
| 1946 | 1,432 | 974 | 544 | 571 | 388 | 2,039 | 742 | 918 | 447 | 175 | 362 | 224 | 739 |
| 1947 | 546 | 700 | 596 | 582 | 621 | 942 | 2,131 | 1,390 | 1,785 | 429 | 183 | 136 | 835 |
| 1948 | 89.5 | 190 | 148 | 136 | 167 | 1,107 | 1,039 | 924 | 491 | 227 | 283 | 105 | 410 |
| 1949 | 156 | 631 | 530 | 755 | 418 | 970 | 1,264 | 542 | 136 | 94.4 | 95.6 | 99.9 | 474 |
| 1950 | 126 | 211 | 406 | 549 | 339 | 604 | 1,954 | 606 | 305 | 125 | 119 | 145 | 456 |

* Revised.

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|--------|-------|------|------|------|------|-------|----------|
| 1914 | - | - | - | - | - | - | - | - | - | 0.43 | 0.28 | 0.35 | - |
| 1915 | 0.39 | 0.63 | 0.36 | *0.55 | *1.21 | 1.34 | 2.59 | 1.15 | 0.59 | 1.11 | .86 | .36 | *11.14 |
| 1916 | .41 | .53 | 1.18 | *2.30 | 1.45 | 1.61 | 5.00 | 2.45 | 2.06 | .67 | .52 | .45 | *18.63 |
| 1917 | .67 | 1.03 | 1.36 | .80 | .48 | *2.24 | 5.99 | 2.50 | 3.45 | .92 | .88 | .50 | *20.62 |
| 1918 | 1.91 | 1.19 | .69 | .45 | .90 | *2.82 | 5.42 | 2.25 | 1.22 | .56 | .93 | 1.48 | *19.82 |
| 1919 | 3.84 | 3.01 | 2.18 | 1.52 | .64 | 4.53 | 4.88 | 3.00 | .88 | .40 | .32 | .82 | 26.02 |
| 1920 | 1.82 | 2.29 | 1.67 | .73 | .60 | *4.29 | 7.75 | 2.41 | .62 | .84 | .75 | 1.10 | *24.87 |
| 1921 | 1.90 | 1.30 | 3.11 | 1.36 | .86 | 7.01 | 2.54 | .74 | .45 | .40 | .46 | .17 | 20.30 |
| 1922 | .47 | 1.24 | 1.43 | .76 | .51 | 4.41 | *7.81 | 1.88 | 2.78 | 1.23 | .88 | .50 | *23.70 |
| 1923 | .51 | .57 | .59 | 1.15 | .59 | 1.42 | 6.94 | 2.74 | 1.15 | *.44 | *.34 | *.38 | *16.82 |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | .82 | - |
| 1929 | .79 | 1.02 | .70 | 1.11 | .42 | *4.08 | 5.96 | 3.37 | 1.27 | .74 | .57 | .48 | *20.51 |
| 1930 | .48 | .84 | .59 | 1.66 | 1.35 | 2.57 | 4.19 | 2.35 | 1.77 | .91 | .61 | .60 | 17.92 |
| 1931 | .42 | .91 | .64 | .45 | .43 | 1.47 | 4.23 | 2.09 | 1.39 | 1.06 | .44 | .71 | 14.24 |
| 1932 | .58 | 1.03 | 1.22 | 1.89 | 1.01 | .78 | 6.26 | 1.24 | .66 | .95 | .76 | .64 | 17.02 |
| 1933 | .88 | 2.67 | 1.13 | 1.29 | .82 | .91 | *9.20 | 2.12 | .73 | .53 | .44 | .29 | *21.01 |
| 1934 | .45 | .52 | .65 | .60 | .33 | 1.92 | 7.87 | 1.53 | .66 | .55 | .35 | .45 | 15.88 |
| 1935 | .55 | 1.34 | .99 | 3.56 | .76 | 2.90 | 4.95 | 2.74 | 1.87 | .84 | .69 | .72 | 21.91 |
| 1936 | .74 | 1.76 | 1.03 | .84 | .54 | *11.56 | 5.45 | 2.67 | .46 | .20 | .15 | .57 | *25.97 |
| 1937 | 1.36 | 1.51 | 1.93 | 2.29 | 1.47 | .70 | 6.67 | 5.85 | 1.65 | .57 | .53 | .10 | 24.62 |
| 1938 | .87 | 1.73 | 1.39 | 1.37 | .82 | 3.97 | 3.82 | 1.45 | .43 | .55 | .70 | *2.61 | *20.54 |
| 1939 | .95 | 1.16 | 3.24 | .95 | 1.15 | 1.73 | 7.70 | 3.56 | 1.12 | .56 | .32 | .19 | 22.62 |
| 1940 | .63 | .84 | .73 | .31 | .26 | .47 | 6.04 | 5.80 | 1.35 | .71 | .30 | .68 | 18.12 |
| 1941 | .50 | 1.84 | 1.44 | 1.11 | .74 | .57 | 4.38 | .95 | .58 | .88 | .51 | .33 | 13.83 |
| 1942 | .69 | 1.32 | .93 | .91 | .40 | 2.57 | 6.83 | 1.78 | 1.62 | .38 | .22 | .39 | 18.04 |
| 1943 | .61 | 1.61 | 1.13 | .72 | .94 | 2.34 | 4.44 | 4.75 | 1.69 | .92 | .99 | .74 | 21.08 |
| 1944 | 1.41 | 2.25 | .98 | .61 | .52 | 1.28 | 6.15 | 3.06 | 1.01 | .44 | .23 | .47 | 18.41 |
| 1945 | .97 | .96 | .73 | 1.26 | .55 | 5.70 | 4.02 | 5.09 | 1.60 | 1.61 | .46 | 1.49 | 24.44 |
| 1946 | 4.14 | 2.82 | 1.65 | 1.52 | .85 | 6.19 | 2.15 | 2.72 | 1.22 | .45 | 1.03 | .64 | 25.38 |
| 1947 | 1.58 | 1.99 | 1.69 | 1.64 | 1.47 | 2.66 | 6.30 | 4.31 | 4.80 | 1.23 | .42 | .28 | 28.37 |
| 1948 | .23 | .56 | .41 | .33 | .43 | 3.58 | 2.86 | 2.70 | 1.39 | .65 | .81 | .20 | 14.15 |
| 1949 | .43 | 1.83 | 1.72 | 1.95 | .99 | 3.09 | 3.44 | 1.62 | .36 | .26 | .23 | .23 | 16.15 |
| 1950 | .30 | .62 | 1.24 | 1.56 | .80 | 1.79 | 5.77 | 1.64 | .89 | .35 | .32 | .38 | 15.65 |

* Revised.

Yearly discharge, in cubic feet per second, of Winooski River at Montpelier, Vt.

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | |
|------|---------------|----------------------------|----------------|----------------|------|----------|-----------------------|------------------------|---------------|------|------------------------|
| | | Observed | | | | Adjusted | | | Observed | | Adjusted |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1912 | 424 | *17,200 | Apr. 7, 1912 | - | - | - | - | - | - | - | - |
| 1913 | 354 | *11,500 | Mar. 27, 1913 | - | - | - | - | - | - | - | - |
| 1914 | 424 | *10,600 | Mar. 20, 1914 | - | - | - | - | - | - | - | - |
| 1915 | 424,1437 | *6,500 | Feb. 25, 1915* | 21 | *326 | - | *0.821 | *11.14 | *348 | - | *11.88 |
| 1916 | 434,1437 | *6,770 | May 17, 1916* | 42 | *544 | - | *1.37 | *18.65 | *571 | - | *19.57 |
| 1917 | 454,1437 | *8,200 | Mar. 28, 1917 | 68 | *604 | - | *1.52 | *20.62 | *525 | - | *21.35 |
| 1918 | 474,1437 | *8,120 | Oct. 30, 1917 | 60 | *579 | - | *1.45 | *19.82 | *733 | - | *25.06 |
| 1919 | 504 | *12,300 | Mar. 28, 1919 | 54 | 761 | - | 1.92 | 26.02 | 666 | - | 22.77 |
| 1920 | 504,1437 | *10,000 | Apr. 13, 1920* | 49 | *725 | - | *1.83 | *24.87 | *741 | - | *25.40 |
| 1921 | 524 | *11,300 | Oct. 1, 1920 | 21 | 594 | - | 1.50 | 20.30 | 501 | - | 17.13 |
| 1922 | 544,1437 | *12,500 | Apr. 12, 1922 | 53 | *693 | - | *1.75 | *23.70 | *650 | - | *22.23 |
| 1923 | 564,1437 | *8,120 | Apr. 30, 1923 | *48 | *491 | - | *1.24 | *16.82 | - | - | - |
| 1928 | 664 | - | - | - | - | - | - | - | - | - | - |
| 1929 | 684,1437 | *6,100 | Mar. 16, 1929 | 84 | *600 | - | *1.51 | *20.51 | *582 | - | *19.91 |
| 1930 | 699 | 6,500 | Apr. 7, 1930 | 94 | 524 | - | 1.32 | 17.92 | 526 | - | 17.98 |
| 1931 | 714 | 6,550 | Apr. 11, 1931 | 62 | 416 | - | 1.05 | 14.24 | 442 | - | 15.10 |
| 1932 | 729 | 10,100 | Apr. 12, 1932 | 114 | 496 | - | 1.25 | 17.02 | 550 | - | 18.87 |
| 1933 | 744,1437 | *11,700 | Apr. 18, 1933 | 17 | *614 | - | *1.55 | *21.01 | *525 | - | *17.95 |
| 1934 | 759 | *11,800 | Apr. 12, 1934 | 47 | 465 | - | 1.17 | 15.88 | 502 | - | 17.14 |
| 1935 | 784 | 13,500 | Jan. 10, 1935 | 80 | 641 | - | 1.61 | 21.91 | 656 | - | 22.41 |
| 1936 | 804,1437 | *15,600 | Mar. 18, 1936 | 61 | *751 | 757 | 1.91 | 25.97 | *788 | 795 | 27.24 |
| 1937 | 824 | *8,370 | May 15, 1937 | 24 | 720 | 720 | 1.81 | 24.62 | 693 | 690 | 23.60 |
| 1938 | 854,1437 | *11,500 | Sept. 22, 1938 | 28 | *592 | 601 | 1.51 | 20.54 | *640 | 646 | 22.11 |
| 1939 | 874 | 7,340 | Apr. 22, 1939 | 27 | 667 | 661 | 1.66 | 22.62 | 577 | 570 | 19.47 |
| 1940 | 894 | 6,490 | May 3, 1940 | 48 | 525 | 529 | 1.33 | 18.12 | 565 | 575 | 19.70 |
| 1941 | 924 | 2,800 | Apr. 16, 1941 | 43 | 407 | 404 | 1.02 | 13.83 | 383 | 380 | 12.99 |
| 1942 | 954 | 6,440 | Apr. 16, 1942 | 30 | 523 | 527 | 1.33 | 18.04 | 545 | 545 | 18.65 |
| 1943 | 974 | 4,160 | May 12, 1943 | 85 | 617 | 617 | 1.55 | 21.08 | 649 | 649 | 22.17 |
| 1944 | 1004 | 6,260 | Apr. 10, 1944 | 47 | 538 | 537 | 1.35 | 18.41 | 482 | 479 | 16.43 |
| 1945 | 1034 | 6,600 | May 18, 1945 | 65 | 715 | 715 | 1.80 | 24.44 | 882 | 889 | 30.39 |
| 1946 | 1054 | *9,000 | Mar. 9, 1946 | 98 | 739 | 742 | 1.87 | 25.38 | 646 | 644 | 22.03 |
| 1947 | 1084 | 11,300 | June 3, 1947 | 47 | 835 | 830 | 2.09 | 28.37 | 716 | 711 | 24.31 |
| 1948 | 1114 | 4,400 | Mar. 22, 1948 | 56 | 410 | 413 | 1.04 | 14.15 | 484 | 494 | 16.93 |
| 1949 | 1144 | 6,950 | Dec. 31, 1948 | 39 | 474 | 472 | 1.19 | 16.15 | 426 | 419 | 14.33 |
| 1950 | 1174 | 5,180 | Apr. 21, 1950 | 59 | 456 | 457 | 1.15 | 15.65 | - | - | - |

* Revised.

† Not previously published; peak estimated.

407. Dog River at Northfield, Vt.

Location.--Lat 44°08'20", long. 72°40'00", on left bank at downstream side of highway bridge at Norwich University, Northfield, Washington County, 1 mile upstream from Union Brook.

Drainage area.--52 sq mi. Prior to Aug. 22, 1910, 57 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 730 ft (from topographic map). Prior to

Aug. 23, 1910, staff gage at site $\frac{1}{2}$ miles downstream at different datum. Aug. 24, 1910, to Oct. 7, 1914, staff gage, Oct. 8, 1914, to Sept. 21, 1918, water-stage recorder, and Sept. 22, 1918, to Oct. 31, 1920, staff gage at present site and datum.

Average discharge.--15 years (1911-20, 1928-34), 77.9 cfs (revised).

Extremes.--1909-20, 1928-34: Maximum discharge, 3,820 cfs (revised) Apr. 13, 1920 (gage height, 8.6 ft, from graph based on gage readings); no flow Aug. 15, 1909.

Maximum discharge known, 8,000 cfs Nov. 3, 1927 (gage height, 10.9 ft, from flood-marks), by computation of peak flow over dam.

Remarks.--Some diurnal fluctuation at low flow caused by powerplant upstream.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|-------|-------|-------|-------|-------|------|------|------|------|------|-------|----------|
| 1909 | - | - | - | - | - | - | - | - | 82.2 | 14.6 | 11.1 | 11.5 | - |
| 1910 | 11.8 | 19.7 | 20.0 | - | - | - | - | 99.3 | 98.6 | - | - | 25.9 | - |
| 1911 | 28.0 | 42.3 | - | - | - | - | 219 | 67.1 | 23.5 | 9.50 | 9.30 | 18.1 | - |
| 1912 | 32.1 | 56.7 | 80.3 | 45.0 | 37.5 | 58.6 | 345 | 151 | 85.5 | 12.7 | 11.5 | 25.3 | 80.8 |
| 1913 | 72.6 | 105 | 72.5 | 115 | 32.5 | 311 | 155 | 81.5 | 41.8 | 11.6 | 5.48 | 6.43 | 96.0 |
| 1914 | 41.4 | 69.9 | 64.7 | 25.3 | 23.2 | 97.1 | 480 | 149 | 25.7 | 23.8 | 12.7 | 12.3 | 85.4 |
| 1915 | 14.1 | 30.5 | *19.2 | *40.5 | *66.4 | *67.3 | 164 | 49.5 | 23.9 | 68.4 | 44.5 | 16.3 | *50.2 |
| 1916 | 18.8 | 22.9 | 36.5 | 115 | 90.9 | 92.2 | 235 | 107 | 96.9 | 42.4 | 18.3 | 14.7 | 73.9 |
| 1917 | 20.8 | 42.0 | 53.0 | 44.0 | 33.0 | 100 | 321 | 132 | 146 | 36.8 | 29.3 | 15.9 | *81.0 |
| 1918 | 63.3 | 61.0 | 28.0 | 17.5 | 42.5 | 138 | 285 | 99.2 | 39.5 | 16.7 | 25.3 | 53.7 | 72.3 |
| 1919 | 128 | 155 | *111 | *73.1 | *32.2 | *263 | 258 | 160 | 54.1 | 15.5 | 11.7 | 27.9 | *108 |
| 1920 | 62.9 | 109 | 87.9 | 29.0 | *66.4 | *198 | 420 | 126 | 42.4 | 32.8 | 18.2 | 28.6 | *97.9 |
| 1929 | 29.0 | 48.7 | 54.9 | 86.8 | 38.2 | 254 | 351 | 157 | 42.7 | 23.3 | 8.90 | 7.80 | 92.0 |
| 1930 | 21.6 | 25.1 | 24.4 | 113 | 93.0 | 129 | 228 | 107 | 141 | 40.5 | 19.8 | 16.8 | 79.6 |
| 1931 | 14.8 | 38.1 | 32.9 | 20.4 | 21.8 | 61.4 | 279 | 109 | 58.6 | 48.5 | 16.4 | 19.0 | 59.9 |
| 1932 | 18.2 | 34.6 | 52.4 | 112 | 48.6 | 38.4 | 379 | 59.1 | 24.5 | 29.8 | 13.1 | 8.19 | 67.8 |
| 1933 | 22.6 | 135 | 46.7 | 53.5 | 35.1 | 25.8 | 446 | 113 | 25.7 | 8.98 | 9.45 | 6.98 | 76.9 |
| 1934 | 11.2 | 20.9 | 25.9 | 28.1 | 17.8 | 77.5 | 416 | 58.5 | 21.9 | 6.69 | 4.02 | 7.60 | 57.7 |
| 1935 | 8.71 | *27.2 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

† Corrected.

* Not previously published; estimated on basis of records for Northfield Falls and Winooski River at Montpelier.

Monthly and yearly runoff, in inches, of Dog River at Northfield, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|-------|-------|-------|-------|-------|------|------|------|------|-------|----------|
| 1909 | - | - | - | - | - | - | - | - | 1.61 | 0.30 | 0.22 | 0.23 | - |
| 1910 | 0.24 | 0.39 | 0.40 | - | - | - | - | 2.01 | 1.93 | - | - | 0.56 | - |
| 1911 | .62 | .91 | - | - | - | - | 4.70 | 1.49 | .50 | .21 | .21 | .39 | - |
| 1912 | 1.58 | 1.26 | 1.78 | 1.00 | 0.78 | 1.30 | 7.41 | 3.34 | 1.83 | .28 | .25 | .54 | 21.15 |
| 1913 | 1.61 | 2.21 | 1.68 | 2.57 | .71 | 6.88 | 3.57 | 1.81 | .90 | .26 | .12 | .14 | 22.46 |
| 1914 | .92 | 1.50 | 1.43 | .57 | .46 | 2.15 | 10.30 | 3.31 | .57 | .53 | .28 | .26 | 22.28 |
| 1915 | .51 | .65 | *.42 | *.90 | *1.33 | *1.49 | 3.53 | 1.10 | .51 | 1.52 | .99 | .35 | *13.10 |
| 1916 | .42 | .49 | .81 | 2.55 | 1.89 | 2.04 | 5.05 | 2.36 | 2.08 | .94 | .40 | .32 | 19.35 |
| 1917 | .46 | .90 | 1.19 | .98 | .66 | 2.22 | 6.89 | 2.92 | 3.13 | .82 | .65 | .34 | 21.14 |
| 1918 | 1.40 | 1.31 | .62 | .39 | .85 | 3.05 | 6.11 | 2.20 | .85 | .37 | .56 | 1.15 | 18.86 |
| 1919 | 2.85 | 3.33 | *2.45 | *1.62 | *.65 | *5.83 | 5.53 | 3.56 | 1.16 | .34 | .28 | .60 | *28.18 |
| 1920 | 1.40 | 2.35 | 1.95 | .64 | .47 | *4.39 | 9.01 | 2.78 | .91 | .73 | .40 | .61 | *25.64 |
| 1929 | .64 | 1.05 | 1.22 | 1.92 | .77 | 5.63 | 7.53 | 3.48 | .92 | .52 | .20 | .17 | 24.05 |
| 1930 | .48 | .54 | .54 | 2.50 | 1.86 | 2.86 | 4.89 | 2.38 | 3.02 | .90 | .44 | .36 | 20.77 |
| 1931 | .33 | .82 | .73 | .45 | .44 | 1.36 | 5.99 | 2.42 | 1.26 | 1.08 | .36 | .41 | 15.65 |
| 1932 | .40 | .74 | 1.16 | 2.48 | 1.01 | .85 | 8.13 | 1.31 | .53 | .66 | .29 | .18 | 17.74 |
| 1933 | .50 | 2.90 | 1.04 | 1.19 | .70 | .57 | 9.57 | 2.50 | .55 | .20 | .21 | .15 | 20.08 |
| 1934 | .25 | .45 | .57 | .62 | .36 | 1.72 | 8.93 | 1.29 | .47 | .15 | .09 | .16 | 15.06 |
| 1935 | .19 | *.58 | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

† Not previously published; estimated on basis of records for Northfield Falls and Winooski River at Montpelier.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|----------------|-------------|-------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1912 | 424 | *2,550 | Apr. 7, 1912* | 6.0 | 80.8 | 1.55 | 21.15 | 85.0 | 22.23 | | |
| 1913 | 354, 424 | *3,690 | Mar. 25, 1913 | 3.0 | 86.0 | 1.65 | 22.46 | 79.7 | 20.81 | | |
| 1914 | 384, 424 | *2,880 | Apr. 19, 1914 | 4.0 | 85.4 | 1.64 | 22.28 | *76.0 | *19.81 | | |
| 1915 | 424, 1237 | *1,270 | Apr. 11, 1915* | 8.1 | *50.2 | *.965 | *13.10 | *51.4 | *13.44 | | |
| 1916 | 424 | *1,160 | May 17, 1916* | 9 | 73.9 | 1.42 | 19.35 | 77.1 | 20.17 | | |
| 1917 | 454 | *1,140 | Mar. 28, 1917 | - | †81.0 | †1.56 | †21.14 | 84.0 | 21.93 | | |
| 1918 | 474 | *1,140 | Oct. 30, 1918* | - | 72.3 | 1.39 | 18.86 | *92.6 | *24.16 | | |
| 1919 | 504, 1237 | *3,100 | Mar. 28, 1919* | 7 | *108 | *2.08 | *28.18 | *98.7 | *25.25 | | |
| 1920 | 504, 1237 | *3,820 | Apr. 13, 1920* | 4 | *97.9 | *1.88 | *25.64 | - | - | | |
| 1929 | 684 | *1,100 | Mar. 24, 1929 | 2 | 92.0 | 1.77 | 24.05 | 86.8 | 22.70 | | |
| 1930 | 699 | *1,220 | Apr. 7, 1930 | 4 | 79.6 | 1.53 | 20.77 | 80.8 | 21.09 | | |
| 1931 | 714 | *1,590 | Apr. 11, 1931 | 8.0 | 58.9 | 1.15 | 15.65 | 61.5 | 16.07 | | |
| 1932 | 729 | *1,910 | Apr. 12, 1932 | 4.8 | 67.8 | 1.30 | 17.74 | 75.9 | 19.88 | | |
| 1933 | 744 | *2,220 | Apr. 18, 1933 | 4.4 | 76.9 | 1.48 | 20.08 | 64.8 | 16.91 | | |
| 1934 | 759 | *2,730 | Apr. 12, 1934 | 2.3 | 57.7 | 1.11 | 15.06 | - | - | | |
| 1935 | 784 | - | - | - | - | - | - | - | - | | |

* Revised.

† Corrected.

‡ Not previously published.

408. Dog River at Northfield Falls, Vt.

Location.--Lat 44°10'55", long. 72°38'30", on right bank 1 mile downstream from Northfield Falls, Washington County, and 1½ miles downstream from Cox Branch.

Drainage area.--76.1 sq mi.

Gage.--Water-stage recorder. Datum of gage is 603.00 ft above mean sea level (levels by Corps of Engineers).

Average discharge.--16 years (1934-50), 122 cfs.

Extremes.--1934-50: Maximum discharge, 9,750 cfs Sept. 21, 1938 (gage height, 11.53 ft),

by slope-area method; minimum, 4.3 cfs Aug. 31, Sept. 7, 1942.

Remarks.--Some regulation at low flow by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|------|------|------|-------|-------|-------|-------|----------|
| 1935 | *13.4 | *45.0 | 63.5 | 241 | 52.1 | 214 | 320 | 170 | 91.4 | *40.9 | *28.9 | *29.0 | *110 |
| 1936 | *28.3 | *106 | 69.8 | 45.5 | 34.9 | 831 | 365 | 108 | *27.8 | *23.3 | *25.4 | 57.3 | *144 |
| 1937 | 106 | 149 | 151 | 202 | 117 | 54.6 | 498 | 407 | 89.5 | 55.1 | *34.3 | *15.3 | *156 |
| 1938 | 37.5 | 140 | 83.1 | 90.5 | 144 | 295 | 222 | 79.4 | 24.8 | 28.8 | 39.0 | 259 | 120 |
| 1939 | 64.6 | 77.3 | 262 | 70.5 | 107 | 164 | 666 | 257 | 58.1 | 26.5 | 13.8 | 11.2 | 148 |
| 1940 | 20.7 | 38.4 | 41.1 | 21.5 | 18.6 | 37.0 | 518 | 451 | 97.0 | 29.0 | 13.5 | 27.0 | 109 |
| 1941 | 20.7 | 76.3 | 103 | 82.6 | 65.5 | 47.1 | 327 | 57.5 | 25.8 | 31.2 | 19.7 | 12.4 | 72.1 |
| 1942 | 19.8 | 61.4 | 51.3 | 68.4 | 32.5 | 192 | 592 | 81.5 | 91.6 | 23.0 | 10.9 | 23.4 | 104 |
| 1943 | 51.8 | 122 | 72.0 | 46.8 | 81.4 | 238 | 361 | 338 | 86.6 | 44.5 | 64.4 | 48.6 | 130 |
| 1944 | 89.5 | 197 | 78.4 | 46.4 | 41.0 | 97.9 | 537 | 198 | 60.7 | 65.5 | 21.0 | 24.7 | 121 |
| 1945 | 58.9 | 68.0 | 80.5 | 97.8 | 54.0 | 472 | 230 | 352 | 94.5 | 52.4 | 26.0 | 114 | 141 |
| 1946 | 284 | 168 | 100 | 127 | 71.9 | 376 | 132 | 164 | 92.6 | 21.4 | 37.2 | 28.3 | 134 |
| 1947 | 92.3 | 134 | 109 | 128 | 124 | 199 | 478 | 241 | 35 | 110 | 34.8 | 16.7 | 168 |
| 1948 | 13.0 | 30.6 | 28.7 | 25.5 | 51.9 | 350 | 197 | 175 | 87.0 | 34.3 | 40.9 | 17.4 | 87.9 |
| 1949 | 20.9 | 111 | 185 | 168 | 89.8 | 241 | 241 | 105 | 22.9 | 16.0 | 14.8 | 15.4 | 103 |
| 1950 | 17.4 | 37.2 | 101 | 133 | 77.6 | 133 | 486 | 125 | 51.2 | 18.7 | 12.6 | 19.4 | 101 |

* Revised.

† Not previously published; partly estimated on basis of records for station at Northfield and Mad River near Moretown.

Monthly and yearly runoff, in inches, of Dog River at Northfield Falls, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|------|------|------|-------|------|------|------|-------|-------|-------|----------|
| 1935 | *0.20 | *0.66 | 0.96 | 3.66 | 0.71 | 3.24 | 4.89 | 2.57 | 1.34 | *0.62 | *0.44 | *0.43 | *19.52 |
| 1936 | *.43 | *1.56 | 1.06 | .69 | .50 | 12.57 | 5.36 | 1.64 | *.41 | *.35 | *.39 | .84 | *25.80 |
| 1937 | 1.60 | 2.19 | 2.29 | 3.06 | 1.60 | .83 | 7.30 | 6.17 | 1.32 | .80 | *.52 | *.22 | *27.89 |
| 1938 | .57 | 2.05 | 1.26 | 1.37 | 1.97 | 4.47 | 3.26 | 1.20 | .36 | .44 | .59 | 3.79 | 21.33 |
| 1939 | .98 | 1.14 | 3.97 | 1.07 | 1.47 | 2.49 | 9.76 | 3.90 | .85 | .40 | .21 | .16 | 26.40 |
| 1940 | .31 | .56 | .62 | .33 | .26 | .56 | 7.59 | 6.83 | 1.42 | .44 | .20 | .40 | 19.52 |
| 1941 | .31 | 1.12 | 1.56 | 1.25 | .90 | .71 | 4.80 | .87 | .38 | .47 | .30 | .18 | 12.85 |
| 1942 | .30 | .90 | .78 | 1.04 | .45 | 2.91 | 8.68 | 1.23 | 1.54 | .35 | .17 | .34 | 18.49 |
| 1943 | .78 | 1.78 | 1.08 | .71 | 1.11 | 5.61 | 5.30 | 5.12 | 1.27 | .67 | .97 | .71 | 23.12 |
| 1944 | 1.36 | 2.69 | 1.19 | .70 | .58 | 1.48 | 7.87 | 2.99 | .89 | .99 | .32 | .36 | 21.62 |
| 1945 | .89 | 1.00 | .92 | 1.48 | .74 | 7.15 | 3.37 | 5.34 | 1.39 | .79 | .39 | 1.67 | 25.13 |
| 1946 | 4.30 | 2.47 | 1.52 | 1.92 | .98 | 5.70 | 1.93 | 2.49 | 1.36 | .32 | .56 | .41 | 23.96 |
| 1947 | 1.40 | 1.97 | 1.64 | 1.94 | 1.70 | 3.02 | 7.01 | 3.65 | 5.23 | 1.67 | .53 | .24 | 30.00 |
| 1948 | .20 | .45 | .44 | .39 | .74 | 5.30 | 2.89 | 2.66 | 1.28 | .52 | .62 | .26 | 15.75 |
| 1949 | .32 | 1.62 | 2.80 | 2.54 | 1.23 | 3.65 | 3.53 | 1.60 | .34 | .24 | .22 | .23 | 19.32 |
| 1950 | .26 | .54 | 1.54 | 2.02 | 1.06 | 2.01 | 7.13 | 1.90 | .75 | .28 | .19 | .28 | 17.96 |

* Revised.

* Not previously published; partly estimated on basis of records for station at Northfield and Mad River near Moretown.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1935 | 804,1237 | 3,800 | Jan. 10, 1935 | - | *110 | *1.45 | *19.52 | *116 | *20.75 |
| 1936 | 804,1237 | 5,700 | Mar. 18, 1936 | *7.5 | *144 | *1.89 | *25.80 | *161 | *28.82 |
| 1937 | 824,1237 | 4,460 | May 15, 1937 | *8.8 | *156 | *2.05 | *27.89 | 144 | *25.70 |
| 1938 | 854 | 9,750 | Sept. 21, 1938 | 7.4 | 120 | 1.58 | 21.33 | 132 | 23.54 |
| 1939 | 874 | 2,740 | Apr. 22, 1939 | 5.1 | 148 | 1.94 | 26.40 | 122 | 21.80 |
| 1940 | 894 | 3,600 | May 3, 1940 | 7.3 | 109 | 1.43 | 19.52 | 118 | 21.02 |
| 1941 | 924 | 1,210 | Dec. 29, 1940 | 5.2 | 72.1 | .947 | 12.85 | 66.4 | 11.84 |
| 1942 | 954 | 3,620 | Apr. 15, 1942 | 4.3 | 104 | 1.37 | 18.49 | 113 | 20.16 |
| 1943 | 974 | 1,560 | May 12, 1943 | 15 | 130 | 1.71 | 23.12 | 140 | 24.91 |
| 1944 | 1004 | 3,290 | Apr. 10, 1944 | 8.2 | 121 | 1.59 | 21.62 | 106 | 18.99 |
| 1945 | 1034 | 1,730 | Mar. 18, 1945 | 8.5 | 141 | 1.85 | 25.13 | 172 | 30.61 |
| 1946 | 1054 | 2,150 | Mar. 9, 1946 | 9.0 | 134 | 1.76 | 23.96 | 116 | 20.68 |
| 1947 | 1084 | 5,450 | June 3, 1947 | 7.8 | 166 | 2.21 | 30.00 | 146 | 26.08 |
| 1948 | 1114 | 2,660 | Mar. 22, 1948 | 7.8 | 87.9 | 1.16 | 15.75 | 108 | 19.40 |
| 1949 | 1144 | 6,150 | Dec. 31, 1948 | 6.1 | 103 | 1.35 | 18.32 | 89.2 | 15.92 |
| 1950 | 1174 | 1,980 | Apr. 5, 1950 | 6.1 | 101 | 1.33 | 17.96 | - | - |

* Revised.

* Not previously published.

409. Mad River near Moretown, Vt.

Location.--Lat 44°16'40", long. 72°44'35", on left bank at downstream side of highway bridge, 2.4 miles downstream from Moretown, Washington County, and 3.8 miles upstream from mouth.

Drainage area.--139 sq mi.

Supplemental records available.--July to November 1910, gage heights and discharges for stated time only.

Gage.--Water-stage recorder. Concrete control since Oct. 13, 1933. Altitude of gage is 545 ft (from topographic map). July 6 to Nov. 4, 1910, staff gage at same site and different datum. Nov. 20, 1928, to Sept. 27, 1930, chain gage at same site and present datum.

Average discharge.--22 years (1928-50), 247 cfs.

Extremes.--1928-50: Maximum discharge, 18,400 cfs Sept. 22, 1938 (gage height, 16.34 ft, from floodmarks), from rating curve extended above 2,500 cfs on basis of computations of flow over dam at gage heights 9.98, 11.51, 16.34, and 19.4 ft; minimum, 1.4 cfs Oct. 1, 1930.

Maximum discharge known, 23,000 cfs Nov. 3, 1927 (gage height, 19.4 ft, from floodmarks), by computation of flow over dam.

Remarks.--Regulation at low flow by mill in Moretown.

| Monthly and yearly mean discharge, in cubic feet per second, of Mad River near Moretown, Vt. | | | | | | | | | | | | | |
|--|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1929 | 94.0 | 167 | 230 | 267 | 94.4 | 663 | 867 | 485 | 137 | 77.0 | 28.3 | 39.4 | 263 |
| 1930 | 142 | 151 | 84.0 | 348 | 311 | 319 | 545 | 455 | 564 | 117 | 70.3 | 36.6 | 261 |
| 1931 | 40.0 | 117 | 82.8 | 51.8 | 40.8 | 134 | 905 | 376 | 169 | 162 | 46.0 | 64.0 | 182 |
| 1932 | 78.3 | 161 | 215 | 360 | 179 | 136 | 871 | 302 | 112 | 233 | 93.0 | 28.3 | 230 |
| 1933 | 148 | 428 | 155 | 176 | 122 | 107 | 1,280 | 385 | 60.7 | 22.8 | 67.0 | 47.5 | 249 |
| 1934 | 77.0 | 148 | 130 | 120 | 80.0 | 344 | 1,150 | 234 | 96.5 | 29.0 | 24.7 | 56.0 | 207 |
| 1935 | 59.0 | 187 | 153 | 393 | 106 | 328 | 538 | 375 | 256 | 125 | 61.6 | 78.4 | 222 |
| 1936 | 72.9 | 278 | 147 | 96.1 | 66.2 | 324 | 643 | 361 | 64.1 | 73.1 | 82.6 | 182 | 284 |
| 1937 | 321 | 323 | 384 | 435 | 210 | 81.5 | 799 | 858 | 180 | 94.5 | 79.8 | 35.7 | 316 |
| 1938 | 116 | 322 | 157 | 203 | 311 | 498 | 465 | 201 | 48.8 | 89.7 | 152 | 588 | 261 |
| 1939 | 133 | 185 | 486 | 142 | 228 | 311 | 1,022 | 555 | 139 | 57.1 | 26.5 | 26.7 | 276 |
| 1940 | 64.2 | 120 | 111 | 52.4 | 45.2 | 78.9 | 964 | 1,114 | 190 | 91.1 | 34.1 | 71.0 | 246 |
| 1941 | 57.5 | 235 | 243 | 144 | 118 | 80.5 | 805 | 142 | 59.0 | 85.8 | 45.6 | 32.0 | 170 |
| 1942 | 83.7 | 193 | 137 | 173 | 65.2 | 333 | 1,121 | 213 | 175 | 46.6 | 22.9 | 70.9 | 219 |
| 1943 | 121 | 236 | 128 | 70.9 | 140 | 382 | 598 | 946 | 173 | 97.1 | 162 | 162 | 260 |
| 1944 | 260 | 405 | 144 | 85.4 | 75.7 | 176 | 854 | 493 | 183 | 146 | 37.9 | 75.2 | 244 |
| 1945 | 173 | 128 | 109 | 180 | 96.5 | 825 | 458 | 663 | 199 | 165 | 48.9 | 302 | 281 |
| 1946 | 666 | 390 | 195 | 261 | 145 | 720 | 318 | 462 | 188 | 55.5 | 97.8 | 64.7 | 299 |
| 1947 | 247 | 355 | 256 | 247 | 222 | 350 | 915 | 712 | 840 | 247 | 62.1 | 37.3 | 372 |
| 1948 | 34.3 | 88.8 | 73.0 | 48.8 | 97.1 | 686 | 416 | 405 | 163 | 101 | 141 | 31.2 | 191 |
| 1949 | 60.4 | 317 | 391 | 341 | 168 | 421 | 516 | 187 | 49.4 | 33.2 | 38.9 | 40.2 | 214 |
| 1950 | 59.4 | 109 | 193 | 245 | 136 | 243 | 739 | 246 | 98.8 | 42.6 | 45.5 | 91.6 | 187 |

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1929 | 0.78 | 1.34 | 1.90 | 2.22 | 0.71 | 5.50 | 6.96 | 4.02 | 1.10 | 0.64 | 0.23 | 0.32 | 25.72 |
| 1930 | 1.18 | 1.22 | .70 | 2.88 | 2.33 | 2.64 | 4.38 | 3.77 | 4.53 | .97 | .58 | .29 | 25.47 |
| 1931 | .33 | .94 | .69 | .43 | .31 | 1.11 | 7.26 | 3.12 | 1.36 | 1.34 | .38 | .51 | 17.78 |
| 1932 | .65 | 1.29 | 1.78 | 2.98 | 1.39 | 1.13 | 6.99 | 2.51 | .89 | 1.95 | .77 | .23 | 22.54 |
| 1933 | 1.22 | 3.44 | 1.29 | 1.46 | .91 | .89 | 10.28 | 3.19 | .49 | .19 | .56 | .38 | 24.30 |
| 1934 | .64 | 1.18 | 1.08 | .99 | .60 | 2.85 | 9.23 | 1.94 | .77 | .24 | .21 | .45 | 20.18 |
| 1935 | .49 | 1.51 | 1.27 | 3.26 | .79 | 2.72 | 4.32 | 3.11 | 2.05 | 1.04 | .51 | .63 | 21.70 |
| 1936 | .60 | 2.23 | 1.22 | .80 | .51 | 10.98 | 5.17 | 3.00 | .51 | .61 | .68 | 1.46 | 27.77 |
| 1937 | 2.66 | 2.59 | 3.18 | 3.61 | 1.57 | .68 | 6.42 | 6.95 | 1.44 | .78 | .66 | .29 | 30.83 |
| 1938 | .96 | 2.59 | 1.30 | 1.68 | 2.33 | 4.13 | 3.74 | 1.67 | .39 | .74 | 1.26 | 4.72 | 25.51 |
| 1939 | 1.10 | 1.48 | 4.04 | 1.18 | 1.71 | 2.58 | 8.20 | 4.60 | 1.12 | .47 | .22 | .21 | 26.91 |
| 1940 | .70 | .96 | .92 | .43 | .35 | .65 | 7.74 | 9.24 | 1.53 | .76 | .28 | .57 | 24.13 |
| 1941 | .48 | 1.88 | 2.02 | 1.19 | .89 | .67 | 6.46 | 1.18 | .47 | .71 | .38 | .26 | 16.59 |
| 1942 | .69 | 1.55 | 1.13 | 1.43 | .49 | 2.77 | 9.00 | 1.77 | 1.40 | .39 | .19 | .57 | 21.38 |
| 1943 | 1.00 | 1.89 | 1.06 | .59 | 1.05 | 3.17 | 4.80 | 7.01 | 1.39 | .81 | 1.34 | 1.30 | 25.41 |
| 1944 | 2.15 | 3.25 | 1.19 | .71 | .59 | 1.46 | 6.86 | 4.09 | 1.47 | 1.21 | .31 | .60 | 23.89 |
| 1945 | 1.44 | 1.03 | .90 | 1.49 | .72 | 6.84 | 3.67 | 5.50 | 1.59 | 1.37 | .41 | 2.43 | 27.39 |
| 1946 | 5.52 | 3.13 | 1.62 | 2.17 | 1.08 | 5.97 | 2.56 | 3.83 | 1.51 | .46 | .81 | .52 | 29.18 |
| 1947 | 2.05 | 2.85 | 1.96 | 2.05 | 1.66 | 2.91 | 7.34 | 5.90 | 6.75 | 2.05 | .52 | .30 | 36.34 |
| 1948 | .28 | .71 | .61 | .41 | .75 | 5.65 | 3.34 | 3.36 | 1.31 | .84 | 1.17 | .25 | 18.72 |
| 1949 | .50 | 2.54 | 3.24 | 2.83 | 1.26 | 3.49 | 4.14 | 1.55 | .40 | .28 | .32 | .32 | 20.87 |
| 1950 | .49 | .87 | 1.60 | 2.03 | 1.02 | 2.02 | 5.93 | 2.04 | .79 | .35 | .38 | .74 | 18.26 |

| Yearly discharge, in cubic feet per second | | | | | | | | | |
|--|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1929 | 684,1114 | 3,200 | Apr. 6, 1929 | 2.9 | 263 | 1.89 | 25.72 | 254 | 24.80 |
| 1930 | 699,1114 | 3,390 | June 19, 1930 | 12 | 261 | 1.88 | 25.47 | 249 | 24.33 |
| 1931 | 714 | 7,030 | Apr. 11, 1931 | 11 | 182 | 1.31 | 17.78 | 200 | 19.54 |
| 1932 | 729 | 3,940 | Apr. 12, 1932 | 8.1 | 230 | 1.65 | 22.54 | 253 | 24.77 |
| 1933 | 744 | 7,360 | Apr. 18, 1933 | 4.5 | 249 | 1.79 | 24.30 | 217 | 21.25 |
| 1934 | 759, 854 | 8,120 | Apr. 12, 1934 | 7.0 | 207 | 1.49 | 20.18 | 210 | 20.55 |
| 1935 | 784 | 4,500 | Jan. 9, 1935 | 27 | 222 | 1.60 | 21.70 | 230 | 22.48 |
| 1936 | 804,1114 | 7,770 | Mar. 18, 1936 | 13 | 284 | 2.04 | 27.77 | 328 | 32.15 |
| 1937 | 824,1114 | 6,070 | May 15, 1937 | 12 | 316 | 2.27 | 30.83 | 279 | 27.25 |
| 1938 | 854,1114 | 18,400 | Sept. 22, 1938 | 10 | 261 | 1.88 | 25.51 | 279 | 27.28 |
| 1939 | 874 | 4,520 | Dec. 6, 1938 | 12 | 276 | 1.99 | 26.91 | 234 | 22.87 |
| 1940 | 894 | 6,850 | May 3, 1940 | 11 | 246 | 1.77 | 24.13 | 255 | 25.93 |
| 1941 | 924 | 3,780 | Apr. 15, 1941 | 12 | 170 | 1.22 | 16.59 | 160 | 15.58 |
| 1942 | 954 | 6,070 | Apr. 16, 1942 | 5.6 | 219 | 1.58 | 21.38 | 225 | 21.96 |
| 1943 | 974 | 2,830 | May 12, 1943 | 35 | 260 | 1.87 | 25.41 | 287 | 28.05 |
| 1944 | 1004 | 5,700 | Nov. 9, 1944 | 12 | 244 | 1.76 | 23.89 | 211 | 20.67 |
| 1945 | 1034 | 6,270 | Sept. 19, 1945 | 19 | 281 | 2.02 | 27.39 | 351 | 34.29 |
| 1946 | 1054 | 6,070 | Mar. 9, 1946 | 17 | 299 | 2.15 | 29.18 | 264 | 25.77 |
| 1947 | 1084 | 10,100 | June 3, 1947 | 15 | 372 | 2.68 | 36.34 | 318 | 31.08 |
| 1948 | 1114 | 4,640 | Mar. 22, 1948 | 16 | 191 | 1.37 | 18.72 | 239 | 23.40 |
| 1949 | 1144 | 8,780 | Dec. 31, 1948 | 9.5 | 214 | 1.54 | 20.87 | 180 | 17.55 |
| 1950 | 1174 | 4,380 | Apr. 5, 1950 | 12 | 187 | 1.35 | 18.26 | - | - |

410. Waterbury Reservoir near Waterbury, Vt.

Location.--Lat 44°22'55", long. 72°46'15", at dam on Waterbury River 2 2/3 miles upstream from mouth and 3½ miles north of Waterbury, Washington County.

Drainage area.--109 sq mi.

Gage.--Water-stage recorder. Prior to Dec. 10, 1938, staff gage at same site and datum. Datum of gage is at mean sea level (levels by Corps of Engineers).

Extremes.--1937-50: Maximum contents, 2,584.3 mcf May 4, 1940 (elevation, 613.45 ft); minimum observed, 0.4 mcf Oct. 16, 1938 (elevation, 501.3 ft).

Remarks.--Reservoir is formed by earth-fill dam completed by Corps of Engineers during summer of 1937 for conservation and flood control. Total usable capacity for flood control, 2,812,300,000 cu ft between elevations 500.0 ft (bottom of lowest outlet), and 617.5 ft (crest of spillway) above mean sea level. Usable capacity for conservation, 1,582,700,000 cu ft between elevations 500.0 and 592.0 ft (sill of tainter gate) above mean sea level.

Month-end contents, in millions of cubic feet

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|------------|---------|---------|---------|---------|-------|---------|---------|---------|---------|---------|---------|---------|
| 1937 | - | - | - | - | - | - | - | - | - | - | - | #5.3 |
| 1938 | #11.2 | #345.5 | #10.1 | #343.3 | #17.1 | #1239.4 | #19.2 | #597.5 | #731.9 | #120.0 | #29.2 | #19.9 |
| 1939 | 38.2 | 35.3 | 891.2 | 442.1 | 257.9 | 290.4 | 1,703.9 | 1,577.6 | 1,606.5 | 1,066.7 | 470.5 | 422.8 |
| 1940 | 561.8 | 638.1 | 637.0 | 360.8 | 225.0 | 147.3 | 1,806.8 | 1,668.1 | 1,565.9 | 1,573.3 | 862.8 | 627.4 |
| 1941 | 497.6 | 1,155.2 | 1,553.1 | 961.1 | 378.3 | 69.9 | 1,570.2 | 1,574.5 | 1,480.4 | 1,503.2 | 1,199.7 | 658.2 |
| 1942 | 962.9 | 1,457.5 | 1,440.2 | 1,214.4 | 468.1 | 697.1 | 1,974.2 | 2,050.6 | 2,106.5 | 1,626.0 | 1,190.7 | 1,142.4 |
| 1943 | 1,378.6 | 1,580.1 | 1,149.1 | 932.1 | 775.4 | 965.3 | 1,911.7 | 1,872.7 | 1,596.4 | 1,597.1 | 1,524.0 | 1,551.8 |
| 1944 | 1,659.5 | 1,456.4 | 941.8 | 751.5 | 497.6 | 602.2 | 2,036.6 | 1,554.6 | 1,511.3 | 1,450.1 | 1,016.5 | 990.1 |
| 1945 | 1,319.3 | 1,261.4 | 1,050.5 | 1,071.6 | 647.1 | 1,663.8 | 1,725.2 | 1,618.6 | 1,505.0 | 1,576.8 | 1,200.9 | 1,692.3 |
| 1946 | 1,513.5 | 1,494.0 | 1,373.0 | 1,109.3 | 575.9 | 1,549.6 | 1,552.7 | 1,538.0 | 1,395.6 | 1,178.8 | 1,191.7 | 1,008.6 |
| 1947 | 1,572.6 | 1,516.2 | 1,339.5 | 1,490.1 | 626.8 | 195.5 | 1,573.0 | 1,677.1 | 1,538.7 | 1,530.2 | 800.6 | 467.1 |
| 1948 | 436.6 | 619.9 | 766.6 | 702.6 | 651.4 | 1,359.6 | 1,548.8 | 1,546.5 | 1,565.2 | 1,543.0 | 1,480.3 | 1,093.7 |
| 1949 | 1,076.9 | 1,572.2 | 1,808.9 | 1,391.6 | 890.3 | 1,228.8 | 1,481.8 | 1,548.8 | 1,437.4 | 1,366.3 | 1,205.7 | 1,176.4 |
| 1950 | 1,052.2 | 1,330.8 | 1,539.1 | 1,551.9 | 572.1 | 515.1 | 1,523.2 | 1,480.8 | 1,440.8 | 1,242.9 | 1,241.9 | 1,191.7 |

* Not previously published.

411. Waterbury River near Waterbury, Vt. 1/

Location.--Lat 44°22'10", long. 72°46'10", on right bank 1 mile downstream from Waterbury Reservoir, 1 2/3 miles upstream from mouth, and 2½ miles north of Waterbury, Washington County.

Drainage area.--111 sq mi.

Supplemental records available.--July to October 1910, gage heights only.

Gage.--Water-stage recorder. Concrete control since Dec. 8, 1937. Datum of gage is 428.00 ft above mean sea level (levels by Corps of Engineers). July 7 to Oct. 31, 1910, staff gage 2 miles upstream from present site, at different datum.

Average discharge.--15 years (1935-50), 230 cfs (adjusted for storage).

Extremes.--1935-50: Maximum discharge, 6,520 cfs Mar. 18, 1936 (gage height, 19.38 ft); minimum daily, 0.6 cfs several times during summers of 1938, 1939, 1941, 1944.

Remarks.--Flow completely regulated by Waterbury Reservoir since 1937 (see above). Runoff adjusted for change in contents in Waterbury Reservoir since October 1937.

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1936 | #100 | #211 | 175 | 67.9 | 53.3 | 121 | 781 | 466 | 61.2 | 76.8 | 49.3 | 141 | #271 |
| 1937 | 339 | 261 | 255 | 297 | 154 | 62.4 | 700 | 796 | 142 | 68.3 | 58.2 | 26.0 | 264 |
| 1938 | 102 | 110 | 238 | 16.8 | 330 | 12.0 | 973 | 28.8 | 1.31 | 288 | 116 | 375 | 213 |
| 1939 | 103 | 153 | 9.39 | 248 | 188 | 192 | 243 | 615 | 178 | 270 | 265 | 75.9 | 213 |
| 1940 | 88.8 | 92.8 | 106 | 155 | 101 | 109 | 72.4 | 954 | 196 | 112 | 291 | 165 | 205 |
| 1941 | 116 | 10.4 | 91.2 | 333 | 326 | 179 | 129 | 115 | 91.2 | 55.8 | 143 | 235 | 151 |
| 1942 | 18.9 | 10.6 | 132 | 208 | 358 | 165 | 452 | 181 | 336 | 230 | 214 | 108 | 199 |
| 1943 | 52.5 | 228 | 276 | 155 | 211 | 207 | 157 | 822 | 390 | 201 | 210 | 184 | 258 |
| 1944 | 131 | 435 | 313 | 182 | 182 | 138 | 96.9 | 679 | 164 | 93.0 | 200 | 155 | 231 |
| 1945 | 72.1 | 144 | 164 | 127 | 250 | 303 | 460 | 550 | 257 | 240 | 194 | 177 | 245 |
| 1946 | 749 | 364 | 200 | 307 | 334 | 262 | 301 | 401 | 169 | 137 | 98.9 | 135 | 288 |
| 1947 | 69.1 | 397 | 357 | 150 | 527 | 421 | 304 | 705 | 509 | 209 | 332 | 174 | 345 |
| 1948 | 62.6 | 26.1 | 21.1 | 72.7 | 77.9 | 247 | 360 | 397 | 176 | 96.6 | 185 | 173 | 158 |
| 1949 | 86.1 | 157 | 221 | 372 | 321 | 286 | 393 | 164 | 94.7 | 69.7 | 114 | 74.5 | 195 |
| 1950 | 117 | 11.1 | 175 | 222 | 489 | 206 | 207 | 235 | 97.0 | 105 | 90.2 | 154 | 172 |

* Not previously published; estimated on basis of runoff relation with nearby stations.

1/ Published as Little River in 1910.

| Monthly and yearly runoff, in inches (adjusted), of Waterbury River near Waterbury, Vt. | | | | | | | | | | | | | |
|---|-------|-------|------|------|------|-------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1936 | *1.04 | *2.12 | 1.20 | 0.71 | 0.52 | 11.64 | 7.86 | 4.84 | 0.61 | 0.80 | 0.51 | 1.42 | *33.27 |
| 1937 | 3.52 | 2.62 | 2.65 | 3.09 | 1.45 | .65 | 7.04 | 8.27 | 1.43 | .71 | .60 | .26 | 32.29 |
| 1938 | 1.08 | 2.40 | 1.18 | 1.46 | 1.83 | 4.86 | 5.04 | 2.55 | .53 | .62 | .85 | 3.73 | 26.13 |
| 1939 | 1.14 | 1.53 | 3.41 | .83 | 1.06 | 2.12 | 7.92 | 5.90 | 1.90 | .79 | .36 | .58 | 27.53 |
| 1940 | 1.46 | 1.23 | 1.10 | .54 | .46 | .83 | 7.16 | 9.37 | 1.58 | 1.19 | .27 | .76 | 25.95 |
| 1941 | .71 | 2.65 | 2.49 | 1.16 | .80 | .66 | 7.12 | 1.21 | .55 | .67 | .30 | .26 | 18.58 |
| 1942 | 1.38 | 2.02 | 1.31 | 1.28 | .47 | 2.60 | 9.50 | 2.17 | 3.53 | .52 | .42 | 1.02 | 26.22 |
| 1943 | 1.46 | 3.00 | 1.28 | .77 | 1.37 | 2.90 | 5.24 | 8.38 | 2.85 | 2.09 | 1.89 | 1.18 | 32.41 |
| 1944 | 2.56 | 3.59 | 1.26 | 1.15 | .79 | 1.84 | 6.56 | 5.19 | 1.48 | .73 | .39 | 1.46 | 27.00 |
| 1945 | 2.03 | 1.23 | .88 | 1.40 | .70 | 7.09 | 4.87 | 5.30 | 2.14 | 2.77 | .55 | 3.69 | 32.65 |
| 1946 | 7.09 | 3.58 | 1.61 | 2.16 | 1.07 | 6.49 | 3.04 | 4.11 | 1.15 | .59 | 1.08 | .65 | 32.62 |
| 1947 | 2.90 | 3.77 | 3.02 | 2.15 | 1.60 | 2.70 | 8.39 | 7.73 | 4.58 | 2.14 | .61 | .45 | 40.04 |
| 1948 | .53 | .97 | .79 | .51 | .56 | 5.31 | 4.35 | 4.11 | 1.85 | .92 | 1.60 | .31 | 21.81 |
| 1949 | .83 | 3.50 | 3.21 | 2.24 | 1.02 | 4.32 | 4.94 | 1.96 | .52 | .45 | .56 | .64 | 24.19 |
| 1950 | .73 | 1.19 | 2.62 | 2.36 | .78 | 1.92 | 5.99 | 2.28 | .82 | .32 | .93 | 1.15 | 21.09 |

* Not previously published; estimated on basis of runoff relation with nearby stations.

| Yearly discharge, in cubic feet per second | | | | | | | | | | | | |
|--|------------|----------------------------|---------------|-------------|------|----------|-----------------|------------------|---------------|------|------------------|-------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | | Calendar year | | | |
| | | Observed | | | | Adjusted | | | Observed | | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches | |
| | | Discharge | Date | | | | | | | | | |
| 1936 | 804, 824 | 6,520 | Mar. 18, 1936 | - | *271 | - | *2.44 | *33.27 | 307 | - | - | 37.70 |
| 1937 | 824 | 3,740 | May 15, 1937 | - | 264 | - | 2.38 | 32.29 | 230 | 231 | 28.16 | |
| 1938 | 854 | 4,080 | Dec. 9, 1937 | 0.6 | 213 | 214 | 1.93 | 26.13 | 197 | 225 | 27.55 | |
| 1939 | 874 | 2,010 | May 5, 1939 | .6 | 213 | 226 | 2.04 | 27.53 | 215 | 207 | 25.24 | |
| 1940 | 894 | 1,500 | May 3, 1940 | .9 | 205 | 212 | 1.91 | 25.95 | 199 | 228 | 28.01 | |
| 1941 | 924 | 880 | Apr. 4, 1941 | .6 | 151 | 152 | 1.37 | 18.58 | 146 | 143 | 17.44 | |
| 1942 | 954 | 1,550 | June 14, 1942 | .7 | 199 | 214 | 1.93 | 26.22 | 232 | 223 | 27.25 | |
| 1943 | 974 | 1,500 | May 3, 1943 | .7 | 258 | 265 | 2.39 | 32.41 | 285 | 279 | 34.08 | |
| 1944 | 1004 | 1,430 | May 18, 1944 | .6 | 231 | 220 | 1.98 | 27.00 | 190 | 193 | 25.73 | |
| 1945 | 1034 | 1,420 | Apr. 5, 1945 | 1.1 | 245 | 267 | 2.41 | 32.65 | 323 | 334 | 40.79 | |
| 1946 | 1054 | 1,460 | Oct. 2, 1945 | .9 | 288 | 267 | 2.41 | 32.62 | 247 | 246 | 30.03 | |
| 1947 | 1084 | 1,580 | May 1, 1947 | 1.4 | 345 | 328 | 2.35 | 40.04 | 285 | 287 | 32.64 | |
| 1948 | 1114 | 1,530 | Aug. 14, 1948 | 1.3 | 158 | 178 | 1.60 | 21.81 | 188 | 221 | 27.06 | |
| 1949 | 1144 | 1,400 | Jan. 1, 1949 | 2.1 | 195 | 198 | 1.78 | 24.19 | 182 | 173 | 21.19 | |
| 1950 | 1174 | 1,380 | Dec. 23, 1949 | 2.3 | 172 | 173 | 1.56 | 21.09 | - | - | - | - |

* Not previously published.

412. Winooski River at Richmond, Vt.

Location.--Lat 44°24'05", long. 72°59'50", on downstream side of steel highway bridge at Richmond, Chittenden County, 0.7 mile upstream from Johnnie Brook, and 2.4 miles downstream from Snipe Island Brook.

Drainage area.--985 sq mi.

Gage.--Chain gage read twice daily. Datum of gage is 288.18 ft above mean sea level, datum of 1929.

Extremes.--1903-6: Maximum discharge, 21,900 cfs Jan. 24, 1906 (gage height, 14.9 ft, from graph based on gage readings), from rating curve extended above 9,200 cfs by logarithmic plotting; minimum daily, 140 cfs Sept. 25, 1903, but may have been less during periods of ice effect.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|--------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1903 | - | - | - | - | - | - | - | - | - | 684 | 406 | 194 | - |
| 1904 | 517 | 617 | 670 | 720 | 500 | 1,970 | 4,230 | *2,560 | *582 | *448 | *514 | *1,140 | *1,200 |
| 1905 | *2,170 | *715 | *463 | 375 | 350 | 4,140 | 3,170 | 1,600 | 1,520 | 1,620 | 1,230 | 2,340 | *1,650 |
| 1906 | 910 | 1,220 | 1,270 | 2,250 | 1,180 | 985 | 5,000 | 3,230 | 1,700 | 960 | 756 | 615 | 1,670 |
| 1907 | 831 | 1,400 | 872 | 1,370 | 490 | 1,600 | 5,010 | - | - | - | - | - | - |
| 1910 | - | - | - | - | - | - | - | - | - | - | 442 | 641 | - |
| 1911 | 730 | - | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|-------|------|------|------|------|------|------|-------|-------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1903 | - | - | - | - | - | - | - | - | - | 0.80 | 0.48 | 0.22 | - |
| 1904 | 0.61 | 0.70 | 0.78 | 0.84 | 0.55 | 2.31 | 4.80 | *3.00 | *0.66 | *.52 | *.60 | *1.29 | *16.66 |
| 1905 | *2.54 | *.81 | *.54 | .44 | .37 | 4.84 | 3.59 | 1.87 | 1.72 | 1.89 | 1.44 | 2.66 | *22.71 |
| 1906 | 1.07 | 1.38 | 1.49 | 2.64 | 1.25 | 1.15 | 5.67 | 3.78 | 1.93 | 1.12 | .89 | .70 | 23.07 |
| 1907 | .97 | 1.58 | 1.02 | 1.60 | .52 | 1.87 | 5.68 | - | - | - | - | - | - |
| 1910 | - | - | - | - | - | - | - | - | - | - | .52 | .73 | - |
| 1911 | .85 | - | - | - | - | - | - | - | - | - | - | - | - |

* Revised.

Yearly discharge, in cubic feet per second, of Winooski River at Richmond, Vt.

| Water year ending Sept. 30 | | | | | | | | | | Calendar year | |
|----------------------------|------------|-------------------|----------------|-------------|--------|-----------------|------------------|--------|------------------|---------------|--|
| Year | W.S.P. no. | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1903 | 424 | - | - | - | - | - | - | - | - | | |
| 1904 | 424,1437 | *21,500 | Mar. 25, 1904* | - | *1,200 | *1.22 | *16.66 | *1,340 | *18.46 | | |
| 1905 | 424,1437 | *16,400 | Mar. 31, 1905* | - | *1,650 | *1.68 | *22.71 | 1,660 | 22.76 | | |
| 1906 | 424 | *21,900 | Jan. 24, 1906* | - | 1,670 | 1.70 | 23.07 | 1,650 | 22.70 | | |

* Revised.

* Not previously published.

413. Winooski River near Essex Junction, Vt.

Location.--Lat 44°28'40", long. 73°08'20", on right bank half a mile downstream from Muddy Brook and 2 miles southwest of Essex Junction, Chittenden County.

Drainage area.--1,044 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 185 ft (from topographic map).

Average discharge.--22 years (1928-50), 1,637 cfs (adjusted for change in reservoir contents since October 1936).

Extremes.--1928-50: Maximum discharge, 45,300 cfs Mar. 19, 1936 (gage height, 23.54 ft), from rating curve extended above 25,000 cfs on basis of slope-area determination and computations of flow over dam at gage heights 18.72, 23.54, and 50.4 ft; minimum daily, 70 cfs Sept. 25, 1937.

Maximum discharge known, 113,000 cfs Nov. 4, 1927 (gage height, 50.4 ft, from flood-marks), by slope-area determination and computation of flow over dam.

Remarks.--Flow regulated by powerplants above station, by Peacham Pond and Mollys Falls Reservoir (combined usable capacity, 492,000,000 cu ft), by Waterbury Reservoir since 1937 (see p. 375), and by East Barre and Wrightsville Detention Reservoirs since 1935 (see p. 366, 368).

Monthly and yearly mean discharge, in cubic feet per second (observed)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1929 | 846 | 1,180 | 1,100 | 1,130 | 654 | 4,590 | 5,760 | 3,470 | 1,170 | 785 | 438 | 393 | 1,800 |
| 1930 | 714 | 1,030 | 378 | 2,270 | 1,740 | 2,460 | 3,990 | 2,780 | 2,290 | 837 | 528 | 425 | 1,620 |
| 1931 | 349 | 734 | 541 | 350 | 380 | 1,440 | 4,830 | 2,110 | 1,290 | 950 | 395 | 644 | 1,170 |
| 1932 | 506 | 1,150 | 1,250 | 2,170 | 1,020 | 917 | 6,430 | 1,610 | 704 | 1,270 | 722 | 361 | 1,510 |
| 1933 | 1,170 | 2,800 | 1,160 | 1,290 | 875 | 867 | 9,260 | 2,400 | 543 | 3,000 | 427 | 302 | 1,770 |
| 1934 | 485 | 664 | 753 | 691 | 339 | 2,174 | 7,923 | 1,469 | 571 | 312 | 225 | 352 | 1,327 |
| 1935 | 431 | 1,210 | 915 | 2,793 | 671 | 2,239 | 3,785 | 2,477 | 1,789 | 701 | 574 | 672 | 1,525 |
| 1936 | 701 | 1,555 | 1,026 | 675 | 530 | 9,642 | 4,737 | 2,730 | 530 | 569 | 369 | 882 | 2,004 |
| 1937 | 1,615 | 1,984 | 2,086 | 2,321 | 1,654 | 696 | 5,417 | 5,484 | 1,404 | 677 | 642 | 282 | 2,039 |
| 1938 | 772 | 1,641 | 1,120 | 926 | 1,918 | 2,976 | 3,683 | 1,175 | 364 | 733 | 757 | 3,096 | 1,588 |
| 1939 | 835 | 1,134 | 2,718 | 1,004 | 1,252 | 1,696 | 6,424 | 5,636 | 1,071 | 714 | 526 | 300 | 1,801 |
| 1940 | 570 | 845 | 698 | 454 | 337 | 554 | 5,068 | 6,243 | 1,367 | 754 | 625 | 627 | 1,513 |
| 1941 | 552 | 1,503 | 1,251 | 1,375 | 1,225 | 695 | 4,092 | 889 | 473 | 586 | 475 | 453 | 1,124 |
| 1942 | 459 | 954 | 807 | 928 | 729 | 2,229 | 6,219 | 1,452 | 1,846 | 576 | 410 | 518 | 1,423 |
| 1943 | 761 | 1,650 | 1,146 | 793 | 1,203 | 2,330 | 3,444 | 4,974 | 1,851 | 892 | 1,029 | 918 | 1,735 |
| 1944 | 1,581 | 2,660 | 1,164 | 750 | 693 | 1,384 | 4,976 | 3,206 | 1,019 | 630 | 469 | 584 | 1,573 |
| 1945 | 938 | 998 | 615 | 1,167 | 890 | 4,804 | 3,579 | 4,768 | 1,656 | 1,385 | 573 | 1,760 | 1,952 |
| 1946 | 4,587 | 2,745 | 1,440 | 1,728 | 1,265 | 4,969 | 2,038 | 2,674 | 1,188 | 493 | 773 | 501 | 2,044 |
| 1947 | 1,577 | 2,327 | 1,814 | 1,647 | 2,095 | 2,867 | 5,360 | 4,385 | 5,027 | 1,474 | 803 | 485 | 2,483 |
| 1948 | 305 | 578 | 462 | 410 | 601 | 3,554 | 2,874 | 2,894 | 1,272 | 673 | 976 | 406 | 1,254 |
| 1949 | 467 | 1,888 | 1,628 | 2,621 | 1,295 | 2,700 | 3,534 | 1,384 | 428 | 312 | 372 | 331 | 1,413 |
| 1950 | 442 | 596 | 1,449 | 1,736 | 1,293 | 1,826 | 4,796 | 1,617 | 684 | 349 | 361 | 546 | 1,304 |

Monthly and yearly runoff, in inches (adjusted)

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|------|------|------|------|------|-------|----------|
| 1929 | 0.93 | 1.26 | 1.21 | 1.25 | 0.65 | 5.07 | 6.15 | 3.83 | 1.25 | 0.87 | 0.48 | 0.42 | 23.37 |
| 1930 | .79 | 1.10 | .42 | 2.50 | 1.74 | 2.72 | 4.26 | 3.07 | 2.45 | .92 | .58 | .45 | 21.00 |
| 1931 | .38 | .78 | .60 | .39 | .38 | 1.59 | 5.17 | 2.33 | 1.38 | 1.05 | .44 | .69 | 15.18 |
| 1932 | .56 | 1.21 | 1.30 | 2.40 | 1.06 | 1.01 | 6.95 | 1.77 | .75 | 1.41 | .80 | .41 | 19.69 |
| 1933 | 1.29 | 2.99 | 1.28 | 1.43 | .87 | .96 | 9.69 | 2.66 | .58 | .33 | .47 | .32 | 23.06 |
| 1934 | .54 | .71 | .83 | .76 | .34 | 2.40 | 8.47 | 1.62 | .81 | .54 | .25 | .36 | 17.25 |
| 1935 | .48 | 1.29 | 1.01 | 3.08 | .67 | 2.47 | 4.04 | 2.74 | 1.91 | .77 | .63 | .72 | 19.81 |
| 1936 | .77 | 1.73 | 1.13 | .74 | .52 | 11.24 | 4.84 | 3.01 | .52 | .48 | .31 | .94 | 26.23 |
| 1937 | 2.02 | 2.13 | 2.34 | 2.54 | 1.60 | .74 | 6.03 | 6.15 | 1.50 | .64 | .59 | .24 | 26.52 |
| 1938 | .88 | 1.91 | 1.08 | 1.16 | 1.76 | 3.86 | 3.55 | 1.60 | .41 | .49 | .76 | 3.30 | 20.76 |
| 1939 | .98 | 1.25 | 3.38 | .88 | 1.15 | 2.08 | 7.85 | 3.72 | 1.14 | .54 | .29 | .25 | 23.51 |
| 1940 | .66 | .91 | .77 | .39 | .30 | .59 | 6.29 | 6.85 | 1.37 | .80 | .34 | .58 | 19.87 |
| 1941 | .53 | 1.92 | 1.59 | 1.20 | .94 | .61 | 5.05 | 1.01 | .48 | .67 | .36 | .24 | 14.60 |
| 1942 | .65 | 1.25 | .88 | .90 | .39 | 2.59 | 7.32 | 1.60 | 2.00 | .41 | .24 | .54 | 18.77 |
| 1943 | .93 | 1.85 | 1.07 | .74 | 1.12 | 2.65 | 4.26 | 5.42 | 1.65 | .98 | 1.10 | .87 | 22.64 |
| 1944 | 1.67 | 2.76 | 1.03 | .72 | .57 | 1.56 | 6.09 | 3.30 | 1.08 | .66 | .30 | .60 | 20.34 |
| 1945 | 1.16 | 1.02 | .80 | 1.31 | .68 | 5.92 | 3.81 | 5.18 | 1.70 | 1.54 | .44 | 2.10 | 25.66 |
| 1946 | 4.98 | 2.96 | 1.57 | 1.75 | .98 | 5.99 | 2.21 | 2.97 | 1.20 | .43 | .85 | .46 | 26.35 |
| 1947 | 1.97 | 2.47 | 1.91 | 1.86 | 1.67 | 2.96 | 6.41 | 4.99 | 5.23 | 1.62 | .54 | .34 | 31.97 |
| 1948 | .31 | .71 | .66 | .40 | .59 | 4.36 | 3.13 | 3.20 | 1.37 | .73 | 1.04 | .25 | 16.65 |
| 1949 | .50 | 2.24 | 1.96 | 2.63 | 1.04 | 3.23 | 3.84 | 1.58 | .40 | .31 | .33 | .32 | 18.38 |
| 1950 | .41 | .76 | 1.71 | 1.91 | .85 | 2.01 | 5.65 | 1.72 | .72 | .30 | .39 | .55 | 16.98 |

| Yearly discharge, in cubic feet per second, of Winoski River near Essex Junction, Vt. | | | | | | | | | | | |
|---|------------|----------------------------|----------------|-------------|----------|-------|-----------------|------------------|-------|----------|------------------|
| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
| | | Observed | | | Adjusted | | | Observed | | Adjusted | |
| | | Momentary maximum | | Minimum day | Mean | Mean | Per square mile | Runoff in inches | Mean | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | | | |
| 1929 | 684 | *19,300 | Mar. 17, 1929 | 180 | 1,800 | - | 1.72 | 23.37 | 1,710 | - | 22.28 |
| 1930 | 699, 714 | 21,300 | Jan. 9, 1930 | 172 | 1,620 | - | 1.55 | 21.00 | 1,570 | - | 20.45 |
| 1931 | 714 | 22,600 | Apr. 11, 1931 | 136 | 1,170 | - | 1.12 | 15.18 | 1,270 | - | 16.57 |
| 1932 | 729 | 23,600 | Apr. 13, 1932 | 152 | 1,510 | - | 1.45 | 19.69 | 1,700 | - | 22.10 |
| 1933 | 744 | 34,600 | Apr. 19, 1933 | 124 | 1,770 | - | 1.70 | 23.06 | 1,510 | - | 19.58 |
| 1934 | 759 | 31,600 | Apr. 13, 1934 | 95 | 1,327 | - | 1.27 | 17.25 | 1,381 | - | 17.95 |
| 1935 | 784 | 30,900 | Jan. 10, 1935 | 140 | 1,525 | - | 1.46 | 19.81 | 1,585 | - | 20.59 |
| 1936 | 804 | 45,300 | Mar. 19, 1936 | 116 | 2,004 | 2,010 | 1.93 | 26.23 | 2,224 | 2,231 | 29.09 |
| 1937 | 824 | 26,400 | May 16, 1937 | 70 | 2,039 | 2,039 | 1.95 | 26.52 | 1,840 | 1,838 | 23.90 |
| 1938 | 854 | 34,500 | Sept. 22, 1938 | 130 | 1,586 | 1,597 | 1.53 | 20.76 | 1,696 | 1,705 | 22.50 |
| 1939 | 874 | 18,200 | Apr. 20, 1939 | 84 | 1,801 | 1,808 | 1.73 | 23.51 | 1,574 | 1,559 | 20.26 |
| 1940 | 894 | 22,800 | May 3, 1940 | 86 | 1,513 | 1,523 | 1.46 | 19.87 | 1,612 | 1,651 | 21.55 |
| 1941 | 924 | 11,900 | Apr. 14, 1941 | 73 | 1,124 | 1,123 | 1.08 | 14.60 | 1,034 | 1,027 | 13.34 |
| 1942 | 954 | 22,400 | Apr. 16, 1942 | 88 | 1,423 | 1,443 | 1.58 | 16.77 | 1,534 | 1,526 | 19.84 |
| 1943 | 974 | 12,900 | May 12, 1943 | 107 | 1,735 | 1,741 | 1.67 | 22.64 | 1,872 | 1,855 | 24.25 |
| 1944 | 1004 | 18,000 | Nov. 9, 1943 | 112 | 1,573 | 1,561 | 1.50 | 20.34 | 1,369 | 1,370 | 17.86 |
| 1945 | 1034 | *13,500 | Mar. 18, 1945* | 109 | 1,552 | 1,974 | 1.89 | 25.66 | 2,459 | 2,476 | 32.19 |
| 1946 | 1054 | 21,600 | Mar. 10, 1946 | 77 | 2,044 | 2,026 | 1.94 | 26.35 | 1,786 | 1,784 | 23.19 |
| 1947 | 1084 | 28,900 | June 4, 1947 | 130 | 2,483 | 2,461 | 2.36 | 31.97 | 2,116 | 2,093 | 27.20 |
| 1948 | 1114 | 16,200 | Mar. 22, 1948 | 99 | 1,254 | 1,277 | 1.22 | 16.65 | 1,474 | 1,517 | 19.77 |
| 1949 | 1144 | 28,500 | Dec. 31, 1948 | 82 | 1,413 | 1,413 | 1.35 | 18.38 | 1,289 | 1,273 | 16.56 |
| 1950 | 1174 | 16,600 | Apr. 5, 1950 | 89 | 1,304 | 1,306 | 1.25 | 16.99 | - | - | - |

* Revised.

* Not previously published; peak estimated.

414. Green River at Garfield, Vt.

Location.--Lat 44°36'10", long. 72°32'10", on left bank in pool of dam at Garfield, Lamolille County.

Drainage area.--18 sq mi, approximately.

Gage.--Staff gage and sharp-crested weir read twice daily. Datum of gage is 1,100.43 ft above mean sea level, datum of 1929.

Average discharge.--13 years (1915-20, 1923-31), 34.8 cfs.

Extremes.--1915-21, 1923-32: Maximum discharge, 2,000 cfs Nov. 3, 1927 (gage height, 7.6 ft, from graph based on gage readings), from rating curve extended above 130 cfs by logarithmic plotting; minimum, 2.2 cfs Aug. 11, 12, 1923, Sept. 6, 1925.

Remarks.--Gage heights Jan. 3, 1915, to Sept. 30, 1918, furnished by C. T. Middlebrook.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|-------|------|------|------|-------|------|-------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1915 | - | - | - | - | 22.4 | 24.0 | 68.8 | 22.6 | 13.1 | 27.8 | 15.4 | 11.9 | - |
| 1916 | 16.4 | 19.2 | 21.3 | 29.8 | 25.3 | 21.1 | 114 | 41.5 | 35.6 | 15.1 | 18.5 | 9.91 | 30.5 |
| 1917 | 14.8 | 24.3 | 31.8 | 13.6 | 10.4 | 23.0 | 123 | 47.5 | 54.4 | 44.6 | 46.3 | 20.5 | 37.9 |
| 1918 | 49.9 | 31.4 | 13.9 | 10.1 | 9.95 | 25.4 | 132 | 53.5 | 35.5 | 14.0 | 10.6 | 28.7 | 34.6 |
| 1919 | 61.7 | 50.4 | 34.4 | 18.7 | 11.7 | 41.7 | 109 | 53.5 | 27.8 | 9.84 | 6.25 | 14.2 | 36.7 |
| 1920 | 45.8 | 55.7 | 23.5 | 10.1 | 7.86 | 35.2 | 140 | 51.4 | 7.42 | 12.7 | 8.92 | 12.8 | 34.2 |
| 1921 | 28.2 | 25.5 | 44.1 | 13.6 | 8.85 | - | - | - | - | - | - | - | - |
| 1923 | - | - | - | 16.1 | 79.46 | 14.4 | 145 | 51.8 | 30.5 | 6.70 | 14.59 | 11.9 | - |
| 1924 | 22.6 | 24.8 | 50.8 | 31.5 | 10.6 | 13.6 | 131 | 77.5 | 79.43 | 17.6 | 15.7 | 36.1 | 36.8 |
| 1925 | 14.5 | 26.7 | 18.7 | 7.30 | 38.0 | 65.2 | 63.4 | 28.4 | 14.1 | 18.5 | 15.2 | 30.8 | 28.3 |
| 1926 | 66.8 | 64.8 | 26.6 | 19.2 | 8.94 | 7.53 | 92.6 | 79.9 | 42.5 | 25.3 | 16.0 | 11.4 | 38.6 |
| 1927 | 40.6 | 43.7 | 13.1 | 12.0 | 9.82 | 53.0 | 48.5 | 49.7 | 11.9 | 9.92 | 9.82 | 7.59 | 25.9 |
| 1928 | 32.2 | 139 | 57.9 | 33.9 | 17.1 | 30.6 | 141 | 115 | 36.3 | 11.3 | 10.7 | 12.2 | 53.0 |
| 1929 | 25.1 | 29.6 | 21.0 | 17.6 | 9.50 | 65.9 | 135 | 60.6 | 56.4 | 16.5 | 9.03 | 11.6 | 39.2 |
| 1930 | 15.7 | 34.3 | 3.16 | 31.7 | 26.0 | 27.5 | 113 | 57.6 | 40.8 | 12.4 | 6.45 | 21.9 | 32.9 |
| 1931 | 11.1 | 22.3 | 11.3 | 6.14 | 5.99 | 20.4 | 97.8 | 37.8 | 27.4 | 24.0 | 8.75 | 22.9 | 24.6 |
| 1932 | 16.7 | 32.4 | 32.3 | 37.8 | 12.3 | 8.67 | 113 | 27.4 | 14.5 | - | - | - | - |

† Corrected.

Monthly and yearly runoff, in inches, of Green River at Garfield, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1915 | - | - | - | - | 1.29 | 1.54 | 4.27 | 1.45 | 0.81 | 1.78 | 0.99 | 0.74 | - |
| 1916 | 1.05 | 1.19 | 1.36 | 1.91 | 1.52 | 1.35 | 7.04 | 2.66 | 2.21 | .97 | 1.18 | .61 | 23.05 |
| 1917 | .95 | 1.51 | 2.04 | .87 | .60 | 1.47 | 7.62 | 3.04 | 3.37 | 2.86 | 2.96 | 1.27 | 28.56 |
| 1918 | 3.20 | 1.95 | .89 | .64 | .58 | 1.63 | 8.19 | 3.43 | 2.20 | .90 | .68 | 1.78 | 26.07 |
| 1919 | 3.95 | 3.12 | 2.20 | 1.20 | .68 | 2.67 | 6.76 | 3.42 | 1.72 | .63 | .40 | .88 | 27.63 |
| 1920 | 2.93 | 3.45 | 1.50 | .65 | .47 | 2.26 | 8.70 | 3.29 | .46 | .81 | .57 | .79 | 25.88 |
| 1921 | 1.80 | 1.58 | 2.82 | .87 | .51 | - | - | - | - | - | - | - | - |
| 1923 | - | - | - | 1.03 | .55 | .93 | 9.01 | 3.31 | 1.89 | .43 | .29 | .74 | - |
| 1924 | 1.45 | 1.54 | 3.25 | 2.02 | .63 | .87 | 8.14 | 4.97 | .58 | 1.13 | 1.01 | 2.24 | 27.83 |
| 1925 | .93 | 1.66 | 1.20 | .47 | 2.20 | 4.18 | 3.93 | 1.82 | .87 | 1.18 | .97 | 1.91 | 21.32 |
| 1926 | 4.28 | 4.02 | 1.70 | 1.23 | .52 | .48 | 5.74 | 5.12 | 2.83 | 1.62 | 1.03 | .71 | 29.08 |
| 1927 | 2.61 | 2.71 | .84 | .77 | .57 | 3.39 | 3.00 | 3.18 | .74 | .64 | .63 | .47 | 19.55 |
| 1928 | 2.06 | 8.61 | 3.71 | 2.17 | 1.02 | 1.96 | 8.74 | 7.37 | 2.25 | .72 | .68 | .76 | 40.05 |
| 1929 | 1.60 | 1.83 | 1.35 | 1.13 | .55 | 4.22 | 8.37 | 3.88 | 3.49 | 1.06 | .58 | .72 | 28.78 |
| 1930 | 1.01 | 2.13 | .59 | 2.03 | 1.50 | 1.76 | 7.01 | 3.69 | 2.53 | .79 | .41 | 1.36 | 24.81 |
| 1931 | .71 | 1.38 | .72 | .39 | .35 | 1.30 | 6.06 | 2.42 | 1.70 | 1.53 | .56 | 1.42 | 18.54 |
| 1932 | 1.07 | 2.01 | 2.06 | 2.42 | .74 | .56 | 7.01 | 1.75 | .90 | - | - | - | - |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1915 | 424, 454 | a435 | Apr. 12, 1915 | - | - | - | - | - | - |
| 1916 | 434 | 236 | Apr. 18, 1916 | 7.8 | 30.5 | 1.69 | 23.05 | 31.7 | 23.95 |
| 1917 | 454 | 325 | Apr. 22, 1917 | 9.3 | 37.9 | 2.11 | 28.56 | 39.9 | 30.10 |
| 1918 | 474 | *385 | Oct. 31, 1918 | 4.7 | 34.6 | 1.92 | 26.07 | 38.9 | 29.30 |
| 1919 | 504 | 710 | Apr. 12, 1919 | 4.7 | 36.7 | 2.04 | 27.63 | 34.8 | 26.24 |
| 1920 | 504 | *320 | Apr. 24, 1920 | 2.7 | 34.2 | 1.90 | 25.88 | 32.0 | 24.20 |
| 1921 | 524 | - | - | - | - | - | - | - | - |
| 1923 | 564 | *655 | Apr. 22, 1923 | - | - | - | - | 32.4 | 24.42 |
| 1924 | 584 | *485 | May 2, 1924* | 3.7 | 36.8 | 2.04 | 27.83 | 33.5 | 25.38 |
| 1925 | 604 | *485 | Mar. 29, 1925 | 2.2 | 28.3 | 1.57 | 21.32 | 36.5 | 27.53 |
| 1926 | 624 | *498 | Apr. 25, 1926 | 3.7 | 38.6 | 2.14 | 29.08 | 33.5 | 25.24 |
| 1927 | 644 | *290 | Mar. 19, 1927 | 3.0 | 25.9 | 1.44 | 19.55 | 36.8 | 27.77 |
| 1928 | 664 | *2,000 | Nov. 3, 1927 | 3.0 | 53.0 | 2.94 | 40.05 | 40.3 | 30.45 |
| 1929 | 684 | *428 | June 24, 1929 | 6.5 | 38.2 | 2.12 | 28.78 | 36.7 | 27.73 |
| 1930 | 699 | *352 | Apr. 14, 1930 | 2.9 | 32.9 | 1.83 | 24.81 | 31.7 | 23.89 |
| 1931 | 714 | *490 | Apr. 11, 1931 | 3.3 | 24.6 | 1.37 | 18.54 | 27.7 | 20.87 |
| 1932 | 729 | *561 | Apr. 12, 1932* | - | - | - | - | - | - |

* Revised.

† Not previously published.

a Maximum observed.

415. Lamolille River at Cadys Falls, Vt.

Location (revised).--Lat 44°34'35", long. 72°37'00", on right bank a quarter of a mile downstream from powerplant of Morrisville Electric Light & Power Co. at Cadys Falls, Lamolille County, a third of a mile upstream from Kenfield Brook, and 1½ miles northwest of Morrisville.

Drainage area.--268 sq mi (revised).

Gage.--Water-stage recorder. Altitude of gage is 535 ft (from topographic map).

Average discharge.--10 years (1913-23), 430 cfs.

Extremes.--1913-23: Maximum discharge, 8,730 cfs Oct. 1, 1920 (gage height, 11.63 ft), from rating curve extended above 4,400 cfs by logarithmic plotting; minimum daily, 10 cfs Mar. 4, 1923.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|----------|
| 1914 | 188 | 211 | 213 | 124 | 112 | 365 | 1,700 | 558 | 104 | 168 | 112 | 143 | 333 |
| 1915 | 169 | 240 | 173 | 212 | *346 | 297 | *733 | 262 | 142 | 285 | 215 | 147 | *267 |
| 1916 | 198 | 243 | 289 | 528 | 400 | 430 | 1,260 | 473 | 475 | 210 | 183 | 166 | 403 |
| 1917 | 252 | 382 | 403 | 312 | 188 | 562 | 1,600 | 546 | 745 | 440 | 530 | 252 | 518 |
| 1918 | 791 | 440 | 212 | 179 | 305 | 629 | 1,510 | 604 | 432 | 167 | 144 | 394 | 493 |
| 1919 | 895 | 681 | 541 | 380 | 221 | 893 | 1,360 | 687 | 270 | 121 | 89.3 | 196 | *529 |
| 1920 | 586 | 736 | 360 | 173 | 145 | 942 | 1,900 | 562 | 143 | 155 | 191 | 284 | 514 |
| 1921 | 498 | 417 | 739 | 369 | 196 | 1,620 | 674 | 171 | 137 | 80.4 | 106 | 105 | 429 |
| 1922 | 130 | 375 | 342 | 145 | 110 | 1,020 | 1,820 | 350 | 779 | 249 | 141 | 109 | 464 |
| 1923 | 135 | 170 | 140 | 238 | 118 | 296 | 1,820 | 603 | 373 | 126 | 112 | 144 | 355 |

* Revised.

† Corrected.

STREAMS TRIBUTARY TO ST. LAWRENCE RIVER

Monthly and yearly runoff, in inches, of Lamaille River at Cadys Falls, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|-------|------|-------|------|------|------|------|-------|----------|
| 1914 | 0.81 | 0.88 | 0.92 | 0.53 | 0.44 | 1.57 | 7.07 | 2.39 | 0.43 | 0.72 | 0.48 | 0.62 | 16.86 |
| 1915 | .73 | 1.00 | .74 | .91 | *1.35 | 1.28 | *3.05 | 1.13 | .59 | 1.23 | .92 | .61 | *13.54 |
| 1916 | .85 | 1.01 | 1.24 | 2.27 | 1.61 | 1.85 | 5.24 | 2.03 | 1.98 | .90 | .79 | .69 | 20.46 |
| 1917 | 1.08 | 1.59 | 1.73 | 1.34 | .73 | 2.42 | 6.67 | 2.35 | 3.10 | 1.89 | 2.28 | 1.05 | 26.23 |
| 1918 | 3.40 | 1.83 | .91 | .77 | 1.18 | 2.70 | 6.29 | 2.60 | 1.80 | .72 | .62 | 1.64 | 24.46 |
| 1919 | 3.85 | 2.83 | 2.33 | 1.64 | .86 | 3.84 | 5.65 | 2.96 | 1.12 | .52 | .38 | .82 | 26.80 |
| 1920 | 2.52 | 3.06 | 1.55 | .74 | .58 | 4.05 | 7.92 | 2.42 | .60 | .67 | .82 | 1.18 | 26.11 |
| 1921 | 2.14 | 1.73 | 3.18 | 1.59 | .76 | 6.98 | 2.81 | .74 | .57 | .35 | .46 | .44 | 21.75 |
| 1922 | .56 | 1.56 | 1.47 | .62 | .43 | 4.40 | 7.58 | 1.51 | 3.24 | 1.07 | .61 | .45 | 23.50 |
| 1923 | .58 | .71 | .60 | 1.02 | .46 | 1.27 | 7.58 | 2.59 | 1.55 | .54 | .48 | .60 | 17.98 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1914 | 384, 424 | 7,250 | Apr. 20, 1914 | 50 | 333 | 1.24 | 16.86 | 330 | 16.72 |
| 1915 | 404, 1237 | *5,140 | Apr. 11, 1915* | 90 | *267 | *.996 | *13.54 | *280 | *14.17 |
| 1916 | 434 | 3,370 | Apr. 2, 1916 | 104 | 403 | 1.50 | 20.46 | 429 | 21.76 |
| 1917 | 454 | 4,520 | June 12, 1917 | 105 | 518 | 1.93 | 26.23 | 552 | 27.97 |
| 1918 | 474 | 7,430 | Oct. 30, 1917 | 85 | 483 | 1.80 | 24.46 | 540 | 27.33 |
| 1919 | 504 | 7,530 | Apr. 12, 1919 | 40 | *529 | 1.97 | 26.80 | 492 | 24.92 |
| 1920 | 504 | 5,140 | Mar. 26, 1920 | 33 | 514 | 1.92 | 26.11 | 513 | 26.03 |
| 1921 | 524 | 8,730 | Oct. 1, 1920 | 40 | 429 | 1.60 | 21.75 | 361 | 18.29 |
| 1922 | 544 | 7,360 | Apr. 12, 1922 | 16 | 484 | 1.73 | 23.50 | 450 | 21.80 |
| 1923 | 564 | 5,820 | Apr. 30, 1923 | 10 | 355 | 1.52 | 17.98 | - | - |

* Revised.
† Corrected.

416. Lamaille River at Johnson, Vt.

Location.--Lat 44°37'20", long. 72°40'50", on right bank at falls 0.9 mile upstream from bridge in Johnson, Lamaille County, and 1 1/8 miles upstream from Gihon River.

Drainage area.--310 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 495 ft (from topographic map). July 1910 to December 1913, chain gage at bridge 0.7 mile downstream at different datum.

Average discharge.--24 years (1911-13, 1928-50), 523 cfs.

Extremes.--1910-13, 1928-50: Maximum discharge, 13,000 cfs Mar. 18, 1936 (gage height, 16.48 ft), from rating curve extended above 8,500 cfs on basis of computation of peak flow over dam; minimum, 11 cfs Sept. 2, 1935; minimum daily, 16 cfs Oct. 26, 1947.

Remarks.--Flow regulated by powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | 159 | 187 | - |
| 1911 | 233 | 352 | - | - | - | - | - | - | - | 88.5 | 99.4 | 147 | - |
| 1912 | 311 | 409 | 844 | 400 | 150 | 500 | 2,800 | 954 | 693 | 115 | 172 | 294 | 634 |
| 1913 | 705 | 730 | 540 | 840 | 485 | 1,950 | 1,140 | 427 | 253 | 180 | 143 | 136 | 630 |
| 1914 | 228 | 297 | - | - | - | - | - | - | - | - | - | - | - |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | 238 | - |
| 1929 | 328 | 403 | 330 | 388 | 250 | 1,180 | 1,860 | 941 | 561 | 322 | 167 | 155 | 575 |
| 1930 | 209 | 371 | *168 | *583 | *468 | *505 | 1,480 | 756 | 434 | 213 | 172 | 174 | *459 |
| 1931 | 152 | 302 | 204 | 135 | 146 | 453 | 1,270 | 499 | 424 | 395 | 203 | 298 | 373 |
| 1932 | 218 | 438 | 410 | 578 | 312 | 312 | 1,860 | 364 | 222 | 553 | 308 | 223 | 482 |
| 1933 | 508 | 850 | 323 | 367 | 218 | 268 | 2,870 | 580 | 186 | 118 | 162 | 106 | 542 |
| 1934 | 160 | 221 | 226 | 181 | 114 | 490 | 2,640 | 384 | 217 | 170 | 122 | 162 | 414 |
| 1935 | 198 | 458 | 341 | 612 | 191 | 621 | 1,513 | 886 | 792 | 261 | 183 | 239 | 525 |
| 1936 | 283 | 486 | 262 | 171 | 148 | 2,711 | 1,642 | 1,020 | 187 | 185 | 136 | 255 | 626 |
| 1937 | 672 | 567 | 545 | 618 | 399 | 192 | 1,905 | 1,482 | 426 | 184 | 210 | 138 | 612 |
| 1938 | 358 | 507 | 377 | 435 | 679 | 1,153 | 1,230 | 487 | 200 | 145 | 212 | 655 | 534 |
| 1939 | 231 | 351 | 855 | 288 | 349 | 498 | 2,269 | 1,139 | 398 | 196 | 154 | 134 | 571 |
| 1940 | 278 | 358 | 245 | 150 | 119 | 157 | 1,922 | 1,821 | 295 | 216 | 106 | 183 | 486 |
| 1941 | 161 | 549 | 479 | 347 | 249 | 204 | 1,604 | 256 | 158 | 159 | 102 | 123 | 364 |
| 1942 | 239 | 433 | 341 | 330 | 148 | 785 | 2,226 | 455 | 808 | 155 | 116 | 217 | 520 |
| 1943 | 324 | 679 | 338 | 242 | 301 | 671 | 1,445 | 1,608 | 878 | 303 | 402 | 333 | 627 |
| 1944 | 476 | 685 | 305 | 208 | 195 | 385 | 1,709 | 918 | 325 | 161 | 127 | 264 | 478 |
| 1945 | 367 | 298 | 214 | 316 | 221 | 1,527 | 1,170 | 1,192 | 559 | 525 | 138 | 652 | 599 |
| 1946 | 1,270 | 784 | 408 | 398 | 223 | 1,542 | 674 | 726 | 297 | 181 | 242 | 159 | 579 |
| 1947 | 528 | 691 | 588 | 454 | 484 | 674 | 1,993 | 1,361 | 967 | 303 | 181 | 176 | 699 |
| 1948 | 110 | 197 | 162 | 35.0 | 131 | 984 | 850 | 788 | 389 | 245 | 326 | 188 | 373 |
| 1949 | 236 | 806 | 545 | 567 | 245 | 919 | 991 | 424 | 186 | 175 | 175 | 163 | 453 |
| 1950 | 161 | 237 | 480 | 417 | 203 | *391 | 1,640 | 412 | 220 | 167 | 299 | 265 | 407 |

* Revised.

Monthly and yearly runoff, in inches, of Lamaille River at Johnson, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|-------|-------|-------|-------|------|------|------|------|-------|----------|
| 1910 | - | - | - | - | - | - | - | - | - | - | 0.59 | 0.67 | - |
| 1911 | 0.87 | 1.27 | - | - | - | - | - | - | - | 0.33 | .37 | .53 | - |
| 1912 | 1.16 | 1.47 | 3.14 | 1.49 | 0.52 | 1.86 | 10.06 | 3.55 | 2.49 | .43 | .64 | 1.06 | 27.87 |
| 1913 | 2.62 | 2.63 | 2.01 | 3.12 | 1.65 | 7.25 | 4.12 | 1.59 | .91 | .67 | .53 | .49 | 27.57 |
| 1914 | .85 | 1.08 | - | - | - | - | - | - | - | - | - | - | - |
| 1928 | - | - | - | - | - | - | - | - | - | - | - | .86 | - |
| 1929 | 1.22 | 1.45 | 1.23 | 1.44 | .84 | 4.40 | 6.69 | 3.50 | 2.02 | 1.20 | .62 | .56 | 25.17 |
| 1930 | .78 | 1.34 | *.63 | *2.17 | *1.57 | *1.88 | 5.32 | 2.81 | 1.56 | .79 | .64 | .63 | *20.12 |
| 1931 | .57 | 1.09 | .76 | .50 | .49 | 1.68 | 4.58 | 1.85 | 1.52 | 1.47 | .75 | 1.07 | 16.33 |
| 1932 | .81 | 1.58 | 1.53 | 2.15 | 1.09 | 1.16 | 6.71 | 1.36 | .80 | 2.06 | 1.15 | .80 | 21.20 |
| 1933 | 1.89 | 2.99 | 1.20 | 1.37 | .73 | .96 | 10.32 | 2.16 | .67 | .44 | .60 | .38 | 23.71 |
| 1934 | .60 | .80 | .84 | .67 | .38 | 1.02 | 9.14 | 1.43 | .78 | .63 | .45 | .58 | 18.12 |
| 1935 | .74 | 1.65 | 1.27 | 2.28 | .64 | 2.31 | 5.45 | 3.29 | 2.85 | .97 | .68 | .86 | 22.99 |
| 1936 | 1.05 | 1.75 | .97 | .64 | .52 | 10.08 | 5.91 | 3.79 | .67 | .69 | .50 | .92 | 27.49 |
| 1937 | 2.50 | 2.04 | 2.63 | 2.30 | 1.34 | .72 | 6.86 | 5.51 | 1.53 | .89 | .78 | .50 | 26.79 |
| 1938 | 1.53 | 1.83 | 1.40 | 1.62 | 2.28 | 4.29 | 4.43 | 1.81 | .72 | .54 | .79 | .36 | 23.40 |
| 1939 | .86 | 1.26 | 3.18 | 1.07 | 1.17 | 1.85 | 8.17 | 4.24 | 1.43 | .73 | .57 | .48 | 25.01 |
| 1940 | 1.04 | 1.22 | .91 | .56 | .41 | .58 | 6.92 | 6.77 | 1.06 | .80 | .39 | .66 | 21.32 |
| 1941 | .60 | 1.98 | 1.78 | 1.29 | .84 | .76 | 5.77 | .95 | .57 | .59 | .38 | .44 | 15.95 |
| 1942 | .89 | 1.56 | 1.27 | 1.23 | .50 | 2.92 | 8.01 | 1.69 | 2.91 | .58 | .43 | .78 | 22.77 |
| 1943 | 1.20 | 2.44 | 1.26 | .90 | 1.01 | 2.50 | 5.20 | 5.98 | 3.15 | 1.13 | .49 | 1.20 | 27.46 |
| 1944 | 1.77 | 2.45 | 1.13 | .77 | .68 | 1.43 | 6.15 | 3.41 | 1.17 | .60 | .47 | .95 | 20.99 |
| 1945 | 1.37 | 1.03 | .79 | 1.17 | .74 | 5.68 | 4.21 | 4.43 | 2.01 | 1.95 | .51 | 2.34 | 26.23 |
| 1946 | 4.72 | 2.82 | 1.52 | 1.48 | .75 | 5.74 | 2.43 | 2.70 | 1.07 | .67 | .90 | .57 | 25.37 |
| 1947 | 1.96 | 2.49 | 2.19 | 1.69 | 1.63 | 2.51 | 7.17 | 5.06 | 3.48 | 1.13 | .67 | .63 | 30.61 |
| 1948 | .41 | .71 | .60 | .35 | .46 | 3.66 | 3.06 | 2.93 | 1.40 | .91 | 1.21 | .67 | 16.37 |
| 1949 | .88 | 2.90 | 2.03 | 2.11 | .82 | 3.41 | 3.57 | 1.58 | .67 | .65 | .65 | .59 | 19.86 |
| 1950 | .60 | .85 | 1.79 | 1.55 | .68 | 1.46 | 5.90 | 1.53 | .79 | .62 | 1.11 | .96 | 17.84 |

* Revised.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|----------------|-------------|------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 424 | *12,200 | Apr. 8, 1912 | - | 634 | 2.05 | 27.87 | 669 | 29.36 |
| 1913 | 354, 424 | 8,500 | Mar. 27, 1913 | - | 630 | 2.03 | 27.57 | - | - |
| 1929 | 684 | 4,640 | Apr. 6, 1929 | 49 | 575 | 1.85 | 25.17 | *548 | *24.02 |
| 1930 | 699, 1237 | 6,220 | Apr. 8, 1930 | 56 | *459 | *1.48 | *20.12 | *452 | *19.79 |
| 1931 | 714 | 6,880 | Apr. 11, 1931 | 36 | 373 | 1.20 | 16.33 | 407 | 17.83 |
| 1932 | 729 | *6,770 | Apr. 12, 1932 | 73 | 492 | 1.55 | 21.20 | 532 | 23.36 |
| 1933 | 744, 1114 | 8,990 | Apr. 18, 1933 | 30 | 542 | 1.75 | 23.71 | 454 | 19.87 |
| 1934 | 759, 1114 | 8,280 | Apr. 13, 1934 | 28 | 414 | 1.54 | 18.12 | 446 | 19.54 |
| 1935 | 784 | 5,240 | May 1, 1935 | 27 | 525 | 1.69 | 22.99 | 528 | 23.10 |
| 1936 | 804 | 13,000 | Mar. 18, 1936 | 90 | 626 | 2.02 | 27.49 | 690 | 30.29 |
| 1937 | 824 | 7,730 | May 15, 1937 | 43 | 612 | 1.97 | 26.79 | 566 | 24.78 |
| 1938 | 854 | 9,120 | Sept. 22, 1938 | 28 | 534 | 1.72 | 23.40 | 551 | 24.14 |
| 1939 | 874 | 7,490 | Apr. 22, 1939 | 42 | 571 | 1.84 | 25.01 | 523 | 22.68 |
| 1940 | 894 | 11,400 | May 3, 1940 | 20 | 486 | 1.57 | 21.32 | 513 | 22.51 |
| 1941 | 924 | 5,540 | Apr. 14, 1941 | 26 | 364 | 1.17 | 15.95 | 349 | 15.31 |
| 1942 | 954 | 10,600 | June 15, 1942 | 26 | 520 | 1.68 | 22.77 | 547 | 23.95 |
| 1943 | 974 | *8,700 | May 12, 1943* | 41 | 627 | 2.02 | 27.46 | 638 | 27.92 |
| 1944 | 1004 | *6,000 | Nov. 9, 1943* | 57 | 478 | 1.54 | 20.99 | 429 | 18.82 |
| 1945 | 1034 | 6,140 | Sept. 19, 1945 | 67 | 599 | 1.93 | 26.23 | 733 | 32.10 |
| 1946 | 1054 | 5,360 | Mar. 15, 1946 | 41 | 579 | 1.87 | 25.37 | 524 | 22.95 |
| 1947 | 1084 | 8,980 | Apr. 12, 1947 | 52 | 699 | 2.25 | 30.61 | 587 | 25.69 |
| 1948 | 1114 | 6,130 | Mar. 23, 1948 | 16 | 373 | 1.20 | 16.37 | 466 | 20.46 |
| 1949 | 1144 | 8,400 | Dec. 31, 1948 | 85 | 453 | 1.46 | 19.86 | 395 | 17.29 |
| 1950 | 1174 | 7,110 | Apr. 21, 1950 | 74 | 407 | 1.31 | 17.84 | - | - |

* Revised.

* Not previously published; partly estimated on basis of records for nearby stations.

417. Lamaille River at East Georgia, Vt.1/

Location.--Lat 44°40'45", long. 73°04'20", on right bank at East Georgia, Franklin County, 0.5 mile upstream from railroad bridge, and 1 mile downstream from Beaver Meadow Brook.

Drainage area.--686 sq mi. Prior to December 1937, 698 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 285 ft (from topographic map). Prior to December 1937, at site $3\frac{1}{2}$ miles downstream at different datum. No gage Dec. 4, 1937, to May 7, 1938.

Average discharge.--21 years (1929-50), 1,211 cfs, adjusted to present drainage area.

Extremes.--1929-50: Maximum discharge, 23,200 cfs Mar. 19, 1936 (gage height, 12.52 ft, site and datum then in use), by computation of flow over dam; maximum gage height, 15.86 ft Mar. 11, 1946 (ice jam); minimum discharge, 49 cfs July 30, 1933; minimum daily, 91 cfs July 30, 1933.

Remarks.--Low flow regulated by powerplants above station.

1/ Published as "near Milton" prior to December 1937.

Monthly and yearly mean discharge, in cubic feet per second, of Lamolle River at East Georgia, Vt.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|
| 1929 | - | - | - | - | - | - | - | - | - | - | - | 320 | - |
| 1930 | 667 | 1,110 | 416 | 1,580 | 1,420 | 1,690 | 3,160 | 2,320 | 1,420 | 585 | 378 | 404 | 1,260 |
| 1931 | 368 | 634 | 452 | 323 | 369 | 1,190 | 3,250 | 1,330 | 876 | 806 | 449 | 696 | 894 |
| 1932 | 635 | 1,360 | 1,040 | 1,840 | 846 | 669 | 4,620 | 1,130 | 611 | 1,670 | 971 | 445 | 1,320 |
| 1933 | 1,490 | 1,880 | 884 | 875 | 487 | 595 | 5,210 | 1,550 | 387 | 242 | 326 | 231 | 1,260 |
| 1934 | 383 | 522 | 601 | 619 | 325 | 1,204 | 5,421 | 975 | 556 | 275 | 198 | 323 | 847 |
| 1935 | 482 | 1,008 | 830 | 1,490 | 467 | 1,307 | 3,113 | 1,938 | 1,894 | 675 | 483 | 557 | 1,188 |
| 1936 | 714 | 1,098 | 695 | 385 | 308 | 5,622 | 3,514 | 2,523 | 381 | 542 | 342 | 905 | 1,424 |
| 1937 | 1,941 | 1,576 | 1,419 | 1,589 | 1,012 | 454 | 4,191 | 3,543 | 930 | 487 | 559 | 302 | 1,485 |
| 1938 | 830 | 1,188 | 914 | 1,087 | 1,648 | 2,733 | 2,870 | 1,218 | 448 | 492 | 619 | 1,987 | al,328 |
| 1939 | 715 | 926 | 1,998 | 621 | 870 | 1,168 | 4,918 | 2,604 | 1,064 | 584 | 581 | 417 | 1,371 |
| 1940 | 780 | 986 | 676 | 424 | 325 | 399 | 4,362 | 4,022 | 755 | 559 | 256 | 412 | 1,161 |
| 1941 | 456 | 1,497 | 1,214 | 885 | 626 | 479 | 3,568 | 705 | 373 | 345 | 211 | 300 | 884 |
| 1942 | 658 | 1,053 | 772 | 792 | 326 | 1,703 | 4,686 | 992 | 1,933 | 376 | 294 | 549 | 1,175 |
| 1943 | 845 | 1,477 | 825 | 500 | 554 | 1,334 | 2,709 | 3,696 | 1,791 | 764 | 1,077 | 816 | 1,369 |
| 1944 | 1,116 | 1,759 | 691 | 444 | 432 | 868 | 3,604 | 2,002 | 805 | 395 | 273 | 589 | 1,078 |
| 1945 | 979 | 812 | 515 | 639 | 439 | 3,381 | 2,697 | 2,787 | 1,226 | 1,123 | 318 | 1,840 | 1,401 |
| 1946 | 3,330 | 1,950 | 995 | 951 | 518 | 3,456 | 1,669 | 1,849 | 623 | 393 | 608 | 360 | 1,402 |
| 1947 | 1,782 | 2,003 | 1,542 | 980 | 1,022 | 1,672 | 4,097 | 3,465 | 2,408 | 921 | 430 | 391 | 1,726 |
| 1948 | 286 | 564 | 405 | 224 | 316 | 2,300 | 2,053 | 2,069 | 870 | 466 | 725 | 327 | 888 |
| 1949 | 472 | 1,958 | 1,248 | 1,580 | 587 | 2,108 | 2,503 | 939 | 377 | 288 | 359 | 354 | 1,066 |
| 1950 | 403 | 802 | 1,409 | 983 | 424 | 750 | 3,358 | 981 | 469 | 301 | 815 | 868 | 964 |

a Adjusted to present drainage area.

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1929 | - | - | - | - | - | - | - | - | - | - | - | 0.51 | - |
| 1930 | 1.10 | 1.77 | 0.69 | 2.62 | 2.13 | 2.79 | 5.04 | 3.84 | 2.27 | 0.97 | 0.62 | .65 | 24.49 |
| 1931 | .60 | 1.01 | .75 | .53 | .55 | 1.97 | 5.19 | 2.19 | 1.40 | 1.33 | .74 | 1.11 | 17.37 |
| 1932 | 1.05 | 2.17 | 1.72 | 3.05 | 1.31 | 1.10 | 7.38 | 1.67 | .98 | 2.75 | 1.60 | .71 | 25.69 |
| 1933 | 2.46 | 3.01 | 1.46 | 1.45 | .73 | .98 | 9.93 | 2.56 | .62 | .40 | .54 | .37 | 24.51 |
| 1934 | .63 | .83 | .99 | 1.02 | .48 | 1.99 | 8.67 | 1.61 | .89 | .46 | .33 | .52 | 18.42 |
| 1935 | .80 | 1.61 | 1.37 | 2.46 | .70 | 2.16 | 4.98 | 3.20 | 3.03 | 1.11 | .80 | .89 | 23.11 |
| 1936 | 1.18 | 1.75 | 1.15 | .63 | .48 | 9.29 | 5.62 | 4.17 | .61 | .90 | .56 | 1.45 | 27.79 |
| 1937 | 3.21 | 2.52 | 2.34 | 2.63 | 1.51 | .75 | 6.70 | 5.52 | 1.49 | .80 | .92 | .48 | 28.87 |
| 1938 | 1.37 | 1.93 | 1.54 | 1.83 | 2.50 | 4.59 | 4.87 | 2.05 | .73 | .83 | 1.04 | 3.23 | 26.28 |
| 1939 | 1.20 | 1.51 | 3.36 | 1.04 | 1.32 | 1.96 | 8.00 | 4.38 | 1.73 | .98 | .98 | .68 | 27.14 |
| 1940 | 1.31 | 1.60 | 1.14 | .71 | .51 | .67 | 7.09 | 6.76 | 1.23 | .94 | .40 | .67 | 23.03 |
| 1941 | .77 | 2.43 | 2.04 | 1.49 | .95 | .80 | 5.80 | 1.18 | .61 | .58 | .35 | .49 | 17.49 |
| 1942 | 1.11 | 1.71 | 1.30 | 1.33 | .49 | 2.86 | 7.62 | 1.67 | 3.14 | .63 | .49 | .89 | 23.24 |
| 1943 | 1.42 | 2.40 | 1.39 | .84 | .84 | 2.24 | 4.41 | 6.21 | 2.91 | 1.28 | 1.81 | 1.33 | 27.08 |
| 1944 | 1.86 | 2.86 | 1.16 | .75 | .69 | 1.46 | 5.96 | 3.36 | 1.31 | .66 | .46 | .96 | 21.40 |
| 1945 | 1.65 | 1.32 | .87 | 1.07 | .67 | 5.68 | 4.59 | 4.69 | 1.99 | 1.89 | .53 | 2.99 | 27.73 |
| 1946 | 5.60 | 3.17 | 1.67 | 1.60 | .79 | 5.81 | 2.71 | 3.11 | 1.01 | .66 | 1.02 | .59 | 27.74 |
| 1947 | 2.99 | 3.26 | 2.59 | 1.65 | 1.55 | 2.81 | 6.65 | 5.82 | 3.92 | 1.55 | .72 | .64 | 34.15 |
| 1948 | .48 | .92 | .68 | .38 | .50 | 3.86 | 3.34 | 3.48 | 1.42 | .82 | 1.22 | .53 | 17.63 |
| 1949 | .79 | 3.18 | 2.10 | 2.66 | .89 | 3.54 | 4.07 | 1.58 | .61 | .48 | .60 | .58 | 21.08 |
| 1950 | .68 | 1.30 | 2.37 | 1.65 | .64 | 1.26 | 5.46 | 1.65 | .76 | .51 | 1.37 | 1.41 | 19.06 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|------------|----------------------------|----------------|-------------|---------|-----------------|------------------|---------------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1930 | 699 | 10,400 | May 27, 1930 | 256 | 1,260 | 1.81 | 24.49 | 1,200 | 23.29 |
| 1931 | 714 | 12,800 | Apr. 12, 1931 | 214 | 894 | 1.28 | 17.37 | 1,030 | 19.95 |
| 1932 | 729 | 12,000 | Apr. 8, 1932 | 197 | 1,320 | 1.89 | 25.69 | 1,420 | 27.68 |
| 1933 | 744 | 16,300 | Apr. 19, 1933 | 91 | 1,260 | 1.81 | 24.51 | 1,030 | 20.03 |
| 1934 | 759 | 16,600 | Apr. 13, 1934 | 107 | 947 | 1.36 | 18.42 | 1,015 | 19.75 |
| 1935 | 784 | 12,700 | Jan. 11, 1935 | 160 | 1,188 | 1.70 | 23.11 | 1,204 | 25.41 |
| 1936 | 804 | 23,200 | Mar. 19, 1936 | 149 | 1,424 | 2.04 | 27.79 | 1,629 | 31.78 |
| 1937 | 824 | 13,500 | May 16, 1937 | 177 | 1,485 | 2.13 | 28.87 | al,315 | 25.61 |
| 1938 | 854 | 20,200 | Sept. 22, 1938 | 174 | b 1,328 | 1.94 | 26.28 | 1,391 | 27.54 |
| 1939 | 874 | 14,800 | Apr. 23, 1939 | 229 | 1,371 | 2.00 | 27.14 | 1,270 | 25.12 |
| 1940 | 894 | 22,300 | May 3, 1940 | 156 | 1,161 | 1.69 | 23.03 | 1,221 | 24.22 |
| 1941 | 924 | 10,600 | Apr. 15, 1941 | 130 | 884 | 1.29 | 17.49 | 828 | 16.37 |
| 1942 | 954 | 19,400 | June 15, 1942 | 144 | 1,175 | 1.71 | 23.24 | 1,230 | 24.33 |
| 1943 | 974 | 12,600 | May 13, 1943 | 262 | 1,369 | 2.00 | 27.08 | 1,403 | 27.77 |
| 1944 | 1004 | 11,300 | Nov. 10, 1943 | 160 | 1,078 | 1.57 | 21.40 | 974 | 19.34 |
| 1945 | 1034 | 10,300 | Mar. 19, 1945 | 166 | 1,401 | 2.04 | 27.73 | 1,735 | 34.33 |
| 1946 | 1054 | 11,900 | Oct. 3, 1945 | 173 | 1,402 | 2.04 | 27.74 | 1,321 | 26.14 |
| 1947 | 1084 | 16,100 | Apr. 13, 1947 | 252 | 1,726 | 2.52 | 34.15 | 1,384 | 27.39 |
| 1948 | 1114 | 9,300 | Mar. 22, 1948 | 126 | 869 | 1.29 | 17.63 | 1,089 | 21.62 |
| 1949 | 1144 | 17,200 | Dec. 31, 1948 | 145 | 1,066 | 1.55 | 21.08 | 979 | 19.36 |
| 1950 | 1174 | 10,600 | Apr. 6, 1950 | 174 | 964 | 1.41 | 19.06 | - | - |

a Adjusted to drainage area for Milton site.

b Adjusted to present drainage area.

418. Missisquoi River near North Troy, Vt.

Location.--Lat 44°58'20", long. 72°23'15", on right bank just upstream from Big Falls, 1½ miles downstream from Jay Branch, and 2¼ miles upstream from North Troy, Troy County

Drainage area.--131 sq mi.

Gage.--Water-stage recorder. Altitude of gage is 580 ft (from topographic map).

Average discharge.--19 years (1931-50), 267 cfs.

Extremes.--1931-50: Maximum discharge, 7,980 cfs May 3, 1940 (gage height, 12.87 ft), from rating curve extended above 3,600 cfs by logarithmic plotting, verified by computation of flow over dam at gage height 11.70 ft; minimum, 9.4 cfs Aug. 28, 1949 (gage height, 0.74 ft); minimum daily, 11 cfs Aug. 28, 1949.

Remarks.--Some regulation by small powerplant above station.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-----|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | - | - | - | - | 549 | - |
| 1932 | 178 | 334 | 244 | 382 | 156 | 112 | 1,010 | 301 | 159 | 259 | 187 | 76.8 | 281 |
| 1933 | 372 | 359 | 204 | 161 | 89.1 | 103 | 1,520 | 364 | 43.7 | 35.9 | 78.6 | 34.5 | 280 |
| 1934 | 89.1 | 166 | 167 | 127 | 71.4 | 346 | 1,076 | 264 | 84.6 | 120 | 19.7 | 47.5 | 207 |
| 1935 | 65.2 | 212 | 142 | 283 | 78.9 | 305 | 757 | 480 | 428 | 100 | 73.9 | 105 | 253 |
| 1936 | 154 | 253 | 124 | 76.0 | 53.4 | 1,225 | 853 | 565 | 73.8 | 116 | 62.4 | 196 | 314 |
| 1937 | 406 | 349 | 334 | 448 | 200 | 78.5 | 323 | 700 | 144 | 95.8 | 90.9 | 73.1 | 321 |
| 1938 | 244 | 282 | 140 | 168 | 252 | 499 | 600 | 222 | 77.7 | 113 | 106 | 280 | 248 |
| 1939 | 118 | 140 | 341 | 103 | 163 | 231 | 1,049 | 627 | 224 | 71.1 | 162 | 63.9 | 274 |
| 1940 | 186 | 203 | 122 | 53.9 | 44.3 | 70.9 | 1,012 | 991 | 114 | 91.9 | 28.4 | 66.0 | 249 |
| 1941 | 70.5 | 293 | 272 | 131 | 87.0 | 57.0 | 919 | 172 | 90.0 | 48.2 | 29.5 | 40.6 | 183 |
| 1942 | 216 | 342 | 194 | 175 | 64.0 | 585 | 1,283 | 214 | 349 | 72.3 | 54.0 | 149 | 291 |
| 1943 | 170 | 324 | 134 | 87.8 | 134 | 359 | 704 | 862 | 367 | 144 | 238 | 118 | 304 |
| 1944 | 196 | 354 | 136 | 84.7 | 80.3 | 184 | 789 | 452 | 140 | 86.9 | 48.8 | 215 | 228 |
| 1945 | 269 | 179 | 92.0 | 164 | 99.0 | 980 | 602 | 491 | 153 | 149 | 44.2 | 421 | 305 |
| 1946 | 653 | 350 | 160 | 212 | 97.4 | 807 | 438 | 421 | 129 | 56.5 | 83.0 | 62.6 | 291 |
| 1947 | 283 | 350 | 348 | 226 | 193 | 315 | 1,003 | 874 | 500 | 150 | 74.9 | 117 | 370 |
| 1948 | 82.3 | 144 | 112 | 60.9 | 101 | 700 | 552 | 386 | 120 | 64.3 | 82.4 | 36.0 | 204 |
| 1949 | 51.3 | 560 | 260 | 276 | 117 | 612 | 606 | 182 | 93.8 | 36.4 | 73.6 | 74.5 | 229 |
| 1950 | 91.5 | 194 | 377 | 276 | 95.4 | 193 | 868 | 214 | 104 | 48.6 | 182 | 143 | 232 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|------|------|------|------|-------|----------|
| 1931 | - | - | - | - | - | - | - | - | - | - | - | 2.97 | - |
| 1932 | 1.57 | 2.84 | 2.14 | 3.37 | 1.28 | 0.99 | 8.60 | 2.65 | 1.18 | 2.28 | 1.65 | .65 | 29.20 |
| 1933 | 3.27 | 3.06 | 1.80 | 1.42 | .71 | .91 | 12.94 | 3.20 | .37 | .32 | .69 | .29 | 28.58 |
| 1934 | .78 | 1.42 | 1.46 | 1.12 | .57 | 3.04 | 9.16 | 2.33 | .72 | .28 | .17 | .40 | 21.45 |
| 1935 | .57 | 1.91 | 1.24 | 2.49 | .63 | 2.69 | 6.45 | 4.22 | 3.65 | 1.88 | .65 | .89 | 26.17 |
| 1936 | 1.36 | 2.15 | 1.09 | .67 | .44 | 10.78 | 7.27 | 4.97 | .63 | 1.02 | .55 | 1.67 | 32.60 |
| 1937 | 3.57 | 2.97 | 3.03 | 3.94 | 1.59 | .69 | 7.87 | 6.16 | 1.23 | .84 | .80 | .62 | 33.31 |
| 1938 | 2.15 | 2.40 | 1.23 | 1.48 | 2.00 | 4.39 | 5.11 | 1.95 | .66 | .99 | .93 | 2.38 | 25.67 |
| 1939 | 1.04 | 1.19 | 3.00 | .91 | 1.29 | 2.03 | 8.94 | 5.52 | 1.91 | .63 | 1.43 | .54 | 28.43 |
| 1940 | 1.63 | 1.73 | 1.07 | .47 | .36 | .62 | 8.62 | 8.72 | .97 | .81 | .25 | .56 | 25.81 |
| 1941 | .62 | 2.49 | 2.40 | 1.15 | .69 | .50 | 7.83 | 1.51 | .77 | .42 | .26 | .35 | 18.99 |
| 1942 | 1.90 | 2.91 | 1.71 | 1.54 | .51 | 3.39 | 10.93 | 1.88 | 2.98 | .64 | .48 | 1.27 | 30.14 |
| 1943 | 1.50 | 2.76 | 1.18 | .77 | 1.07 | 3.16 | 5.99 | 7.59 | 3.13 | 1.27 | 2.10 | 1.00 | 31.52 |
| 1944 | 1.72 | 3.01 | 1.20 | .75 | .66 | 1.44 | 6.72 | 3.98 | 1.19 | .76 | .43 | 1.83 | 23.69 |
| 1945 | 2.37 | 1.52 | .81 | 1.44 | .79 | 8.63 | 5.13 | 4.32 | 1.50 | 1.31 | .39 | 3.58 | 31.59 |
| 1946 | 5.75 | 2.98 | 1.41 | 1.86 | .77 | 7.11 | 3.73 | 3.71 | 1.10 | .50 | .73 | .53 | 30.18 |
| 1947 | 2.49 | 2.98 | 3.07 | 1.99 | 1.53 | 2.78 | 8.54 | 7.69 | 4.25 | 1.32 | .66 | .99 | 38.29 |
| 1948 | .72 | 1.23 | .99 | .54 | .83 | 6.16 | 4.70 | 3.40 | 1.02 | .57 | .73 | .31 | 21.20 |
| 1949 | .45 | 3.06 | 2.29 | 2.43 | .93 | 5.38 | 5.16 | 1.60 | .80 | .32 | .65 | .63 | 23.70 |
| 1950 | .80 | 1.57 | 3.32 | 2.43 | .78 | 1.70 | 7.39 | 1.89 | .88 | .43 | 1.60 | 1.22 | 23.99 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | | | |
|------|------------|----------------------------|---------------|-------------|------|-----------------|------------------|---------------|------------------|--|--|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches | | |
| | | Discharge | Date | | | | | | | | |
| 1932 | 729 | 3,520 | Apr. 8, 1932* | 36 | 281 | 2.15 | 29.20 | 296 | 30.78 | | |
| 1933 | 744, 1114 | 7,240 | Oct. 7, 1932 | 20 | 280 | 2.14 | 28.98 | 237 | 24.51 | | |
| 1934 | 759 | 3,400 | Apr. 17, 1934 | 13 | 207 | 1.58 | 21.45 | 207 | 21.41 | | |
| 1935 | 784 | 3,830 | Apr. 30, 1935 | 23 | 253 | 1.93 | 26.17 | 262 | 27.15 | | |
| 1936 | 804, 1114 | 6,290 | Mar. 18, 1936 | 24 | 314 | 2.40 | 32.60 | 362 | 37.57 | | |
| 1937 | 824, 1114 | 3,380 | May 15, 1937 | 26 | 321 | 2.45 | 33.31 | 285 | 29.52 | | |
| 1938 | 854, 1114 | 4,500 | Mar. 24, 1938 | 26 | 249 | 1.89 | 25.67 | 243 | 25.12 | | |
| 1939 | 874, 1114 | 4,100 | Apr. 22, 1939 | 25 | 274 | 2.09 | 28.43 | 267 | 27.63 | | |
| 1940 | 894, 924 | 7,980 | May 3, 1940 | 20 | 249 | 1.90 | 25.81 | 252 | 26.13 | | |
| 1941 | 924 | 4,400 | Apr. 14, 1941 | 12 | 183 | 1.40 | 18.99 | 193 | 20.00 | | |
| 1942 | 954 | 6,620 | June 15, 1942 | 24 | 291 | 2.22 | 30.14 | 280 | 29.06 | | |
| 1943 | 974 | 5,650 | May 12, 1943 | 46 | 304 | 2.32 | 31.52 | 309 | 32.01 | | |
| 1944 | 1004 | 5,540 | Nov. 9, 1943 | 19 | 228 | 1.74 | 23.69 | 216 | 22.46 | | |
| 1945 | 1034 | 4,430 | Mar. 18, 1945 | 20 | 305 | 2.33 | 31.59 | 357 | 37.03 | | |
| 1946 | 1054 | 3,100 | Mar. 14, 1946 | 26 | 291 | 2.22 | 30.18 | 276 | 28.58 | | |
| 1947 | 1084 | 4,900 | Apr. 12, 1947 | 31 | 370 | 2.82 | 38.29 | 316 | 32.69 | | |
| 1948 | 1114 | 3,670 | Mar. 22, 1948 | 21 | 204 | 1.56 | 21.20 | 231 | 24.06 | | |
| 1949 | 1144 | 5,570 | Mar. 28, 1949 | 11 | 229 | 1.75 | 23.70 | 228 | 23.59 | | |
| 1950 | 1174 | 4,160 | Apr. 5, 1950 | 25 | 252 | 1.77 | 23.99 | - | - | | |

* Not previously published.

419. Missisquoi River near Richford, Vt.

Location.--Lat 44°57'30", long. 72°41'55", on left bank 1 2/3 miles upstream from Trout River, 3 miles south of Richford, Franklin County, and 3 1/2 miles downstream from North Branch.

Drainage area.--479 sq mi.

Supplemental records available.--May 24, 1909, to Dec. 3, 1910, gage heights only, at a site about 3 miles downstream. Due to extensive regulation and doubtful character of some of the gage-height data, discharges previously published for this period are not considered sufficiently accurate for publication in this report.

Gage.--Water-stage recorder. Altitude of gage is 410 ft (from topographic map). Prior to Aug. 1, 1915, chain gage at site a quarter of a mile downstream at datum 4.35 ft lower. Aug. 1, 1915, to Sept. 30, 1923, water-stage recorder at present site and datum. Oct. 1, 1928, to Sept. 30, 1929, chain gage at former site and datum 4.6 ft lower.

Average discharge.--34 years (1911-23, 1928-50), 912 cfs.

Extremes.--1911-23, 1928-50: Maximum discharge, 17,200 cfs May 4, 1940 (gage height, 15.15 ft), from rating curve extended above 9,300 cfs on basis of computation of flow over dam at gage height 14.70 ft, slope-area determination at gage height 12.90 ft, and study of discharge per foot of width at measuring section; maximum gage height, 18.92 ft Mar. 15, 1946 (ice jam); minimum discharge observed, 8 cfs July 14, 1911. Maximum discharge known, 45,000 cfs during flood of November 1927 (gage height, 23.1 ft, from floodmarks), from rating curve extended above 9,300 cfs by method explained above.

Remarks.--Slight diurnal fluctuation at low flow. Regulation greater prior to 1934.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|------|-------|----------|
| 1911 | - | - | - | - | - | - | - | - | - | 106 | 121 | 301 | - |
| 1912 | 524 | 1,030 | 1,980 | 650 | 250 | 750 | 4,320 | 1,480 | 1,510 | *86.2 | 316 | 1,090 | *1,150 |
| 1913 | 1,040 | 1,500 | 900 | 1,250 | 560 | 2,910 | 1,600 | 576 | 457 | 225 | 110 | 119 | 941 |
| 1914 | 300 | 485 | 550 | 225 | 180 | 1,000 | 3,000 | 787 | 86.6 | 123 | 107 | 273 | 592 |
| 1915 | 293 | 606 | 450 | 550 | 700 | 897 | 1,890 | 576 | 213 | 285 | 202 | 138 | 564 |
| 1916 | 405 | 849 | 672 | 1,130 | 1,020 | 916 | 3,010 | 1,230 | 1,170 | 561 | 283 | 220 | 951 |
| 1917 | 926 | 921 | 819 | 540 | 340 | 1,020 | 3,270 | 1,370 | 1,380 | 691 | 694 | 452 | 1,040 |
| 1918 | 1,580 | 893 | 287 | 157 | 415 | 1,080 | 3,060 | 947 | 713 | 363 | 294 | 1,120 | 906 |
| 1919 | 2,180 | 1,610 | 1,500 | 948 | 298 | 1,940 | 2,650 | 1,110 | 402 | 150 | 173 | 870 | 1,150 |
| 1920 | 1,450 | 2,020 | 1,070 | 210 | 154 | *2,040 | *4,070 | *1,210 | *333 | 854 | 215 | 377 | *1,170 |
| 1921 | 887 | 856 | 1,770 | 698 | 420 | *2,480 | *927 | *262 | *165 | 57.9 | 85.5 | 57.5 | *730 |
| 1922 | 314 | 906 | 622 | 224 | 200 | 1,720 | 2,950 | 606 | 1,130 | 518 | 414 | 135 | 893 |
| 1923 | 206 | 405 | 315 | 325 | 190 | 584 | *3,520 | 1,650 | 789 | 208 | 113 | 199 | *708 |
| 1929 | 1,430 | 1,140 | 794 | 454 | 296 | 2,000 | 3,050 | 1,790 | 656 | 561 | 198 | 210 | *1,050 |
| 1930 | 628 | 837 | 543 | 1,480 | 849 | *1,090 | 2,360 | 1,890 | 1,730 | 672 | 164 | 121 | *1,030 |
| 1931 | 149 | 345 | 296 | 195 | 180 | 894 | 2,880 | 928 | 681 | 824 | 289 | 868 | 709 |
| 1932 | 748 | 1,090 | 1,010 | 1,650 | 574 | 421 | 3,660 | 922 | 439 | 720 | 468 | 180 | 989 |
| 1933 | 1,090 | 1,176 | 889 | 711 | 336 | 599 | 4,870 | 1,170 | 192 | 319 | 319 | 109 | 947 |
| 1934 | 289 | 538 | 569 | 509 | 283 | 1,226 | 3,755 | 675 | 392 | 114 | 63.3 | 140 | 711 |
| 1935 | 193 | 699 | 638 | 1,088 | 314 | 1,086 | 2,338 | 1,528 | 1,517 | 366 | 203 | 295 | 840 |
| 1936 | 590 | 952 | 578 | 312 | 199 | 4,013 | 2,874 | 1,811 | 226 | 279 | 146 | 478 | 1,042 |
| 1937 | 1,431 | 1,441 | 1,233 | 1,573 | 818 | 303 | 3,341 | 2,067 | 411 | 344 | 325 | 221 | 1,126 |
| 1938 | 732 | 882 | 544 | 639 | 999 | 2,046 | 2,071 | 862 | 231 | 392 | 411 | 1,170 | 912 |
| 1939 | 430 | 505 | 1,299 | 347 | 559 | 850 | 3,947 | 1,927 | 835 | 333 | 592 | 251 | 989 |
| 1940 | 660 | 740 | 459 | 226 | 173 | 248 | 4,465 | 3,187 | 343 | 265 | 91.7 | 171 | 916 |
| 1941 | 238 | 1,076 | 1,095 | 641 | 341 | 240 | 3,149 | 523 | 502 | 170 | 73.8 | 107 | 660 |
| 1942 | 607 | 1,160 | 696 | 618 | 225 | 1,615 | 4,284 | 723 | 1,186 | 236 | 281 | 471 | 1,007 |
| 1943 | 651 | 1,155 | 495 | 321 | 460 | 1,423 | 2,466 | 2,417 | 1,679 | 581 | 587 | 395 | 1,053 |
| 1944 | 546 | 1,338 | 535 | 324 | 311 | 614 | 2,820 | 1,274 | 379 | 244 | 126 | 517 | 749 |
| 1945 | 832 | 582 | 281 | 571 | 341 | 3,172 | 1,966 | 1,631 | 487 | 394 | 112 | 1,118 | 961 |
| 1946 | 2,249 | 1,276 | 585 | 745 | 421 | 2,911 | 1,514 | 1,457 | 330 | 155 | 235 | 147 | 1,007 |
| 1947 | 1,078 | 1,424 | 1,291 | 791 | 744 | 1,188 | 3,531 | 2,961 | 2,051 | 668 | 220 | 322 | 1,355 |
| 1948 | 200 | 424 | 349 | 179 | 308 | 2,621 | 1,690 | 1,177 | 343 | 178 | 172 | 57.6 | 643 |
| 1949 | 87.4 | 1,024 | 736 | 1,215 | 403 | 2,136 | 1,931 | 625 | 375 | 130 | 146 | 187 | 751 |
| 1950 | 263 | 648 | 1,373 | 980 | 343 | 710 | 2,932 | 655 | 277 | 137 | 509 | 543 | 781 |

* Revised.

* Not previously published; estimated or partly estimated on basis of stage graph when available and hydrographic comparison with nearby stations.

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|------|------|------|-------|----------|
| 1911 | - | - | - | - | - | - | - | - | - | 0.25 | 0.29 | 0.70 | - |
| 1912 | 1.26 | 2.40 | 4.78 | 1.56 | 0.56 | 1.81 | 10.06 | 3.58 | 3.04 | *.21 | .78 | 2.53 | *32.55. |
| 1913 | 2.50 | 3.49 | 2.17 | 3.01 | 1.22 | 7.01 | 3.73 | 1.39 | 1.06 | .54 | .26 | .28 | 26.66 |
| 1914 | .72 | 1.15 | 1.32 | .54 | .39 | 2.41 | 6.99 | 1.89 | .20 | .30 | .26 | .64 | 16.79 |
| 1915 | .71 | 1.41 | 1.08 | 1.32 | 1.52 | 2.16 | 4.40 | 1.59 | .50 | .69 | .49 | .32 | 15.99 |
| 1916 | .97 | 1.98 | 1.62 | 2.72 | 2.30 | 2.21 | 7.01 | 2.96 | 2.71 | 1.35 | .68 | .51 | 27.02 |
| 1917 | 2.23 | 2.15 | 1.97 | 1.30 | .74 | 2.46 | 7.82 | 3.29 | 3.22 | 1.66 | 1.67 | 1.06 | 29.36 |
| 1918 | 3.79 | 2.08 | .69 | 1.38 | .90 | 2.59 | 7.12 | 2.28 | 1.66 | .87 | .71 | 2.61 | 25.68 |
| 1919 | 5.25 | 3.76 | 3.60 | 2.28 | .65 | 4.66 | 6.18 | 2.68 | .94 | .31 | .42 | 2.03 | 32.74 |
| 1920 | 3.49 | 4.71 | 2.58 | .51 | .35 | *4.91 | *9.47 | *2.90 | *.78 | 2.05 | .52 | .88 | *33.15 |

* Revised.

* Not previously published; see footnote to preceding table.

Monthly and yearly runoff, in inches, of Missisquoi River near Richford, Vt.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|-------|-------|-------|-------|------|------|-------|----------|
| 1921 | 2.14 | 1.99 | 4.25 | 1.68 | 0.91 | *5.97 | *2.16 | *0.63 | *0.38 | 0.24 | 0.21 | 0.13 | *20.69 |
| 1922 | .76 | 2.11 | 1.50 | .54 | .43 | 4.13 | 6.88 | 1.46 | 4.96 | 1.25 | 1.00 | .51 | 25.33 |
| 1923 | .50 | .94 | .76 | .78 | .41 | 1.41 | *8.20 | 3.98 | 1.84 | .50 | .27 | .46 | *20.05 |
| 1929 | 3.44 | 2.65 | 1.91 | 1.09 | .64 | *4.82 | 7.10 | 4.32 | 1.53 | 1.35 | .48 | .49 | *29.82 |
| 1930 | 1.51 | 1.95 | 1.31 | 3.57 | 1.85 | *2.61 | 5.50 | 4.55 | 4.02 | 1.62 | .39 | .28 | *29.16 |
| 1931 | .36 | .80 | .71 | .46 | .39 | 2.15 | 6.70 | 2.23 | 1.59 | 1.98 | .70 | 2.02 | 20.09 |
| 1932 | 1.80 | 2.54 | 2.43 | 3.96 | 1.29 | 1.01 | 8.53 | 2.22 | 1.02 | 1.73 | 1.17 | .57 | 28.07 |
| 1933 | 2.63 | 2.72 | 2.14 | 1.71 | .73 | .96 | 11.35 | 2.82 | .45 | .31 | .77 | .25 | 26.84 |
| 1934 | .70 | 1.25 | 1.37 | 1.23 | .61 | 2.95 | 8.75 | 1.62 | .91 | .28 | .15 | .33 | 20.15 |
| 1935 | .46 | 1.63 | 1.53 | 2.62 | .68 | 2.62 | 5.44 | 3.68 | 3.07 | .88 | .49 | .69 | 23.79 |
| 1936 | 1.42 | 2.22 | 1.40 | .75 | .45 | 9.66 | 6.69 | 4.36 | .53 | .67 | .35 | 1.11 | 29.61 |
| 1937 | 3.45 | 3.56 | 2.96 | 3.78 | 1.78 | .73 | 7.78 | 4.98 | .96 | .83 | .78 | .51 | 31.90 |
| 1938 | 1.76 | 2.05 | 1.31 | 1.53 | 2.16 | 4.92 | 4.82 | 2.08 | .54 | .94 | .99 | 2.72 | 25.84 |
| 1939 | 1.04 | 1.17 | 3.12 | .83 | 1.22 | 2.04 | 9.19 | 4.64 | 1.94 | .80 | 1.43 | .58 | 28.00 |
| 1940 | 1.59 | 1.72 | 1.06 | .54 | .39 | .60 | 10.40 | 7.67 | .80 | .64 | .22 | .40 | 26.03 |
| 1941 | .57 | 2.51 | 2.64 | 1.54 | .74 | .58 | 7.33 | 1.26 | .70 | .41 | .18 | .25 | 18.71 |
| 1942 | 1.46 | 2.70 | 1.68 | 1.49 | .49 | 3.89 | 9.98 | 1.74 | 2.76 | .57 | .68 | 1.10 | 28.54 |
| 1943 | 1.57 | 2.69 | 1.19 | .77 | 1.00 | 3.42 | 5.74 | 5.82 | 3.91 | 1.40 | 1.41 | .90 | 29.82 |
| 1944 | 1.32 | 3.12 | 1.29 | .78 | .70 | 1.48 | 6.57 | 3.07 | .88 | .59 | .30 | 1.20 | 21.30 |
| 1945 | 2.00 | 1.55 | .68 | 1.57 | .74 | 7.63 | 4.58 | 3.92 | 1.13 | .95 | .27 | 2.60 | 27.22 |
| 1946 | 5.41 | 2.97 | 1.41 | 1.79 | .91 | 7.01 | 3.53 | 3.51 | .77 | .32 | .57 | .54 | 28.54 |
| 1947 | 2.59 | 3.32 | 3.11 | 1.90 | 1.62 | 2.86 | 8.22 | 7.13 | 4.78 | 1.61 | .53 | .75 | 38.42 |
| 1948 | .48 | .99 | .84 | .43 | .69 | 6.31 | 3.94 | 2.83 | .80 | .43 | .41 | .13 | 18.28 |
| 1949 | .21 | 2.38 | 1.77 | 2.92 | .88 | 5.14 | 4.50 | 1.51 | .87 | .31 | .35 | .44 | 21.28 |
| 1950 | .63 | 1.51 | 3.30 | 2.36 | .75 | 1.71 | 6.83 | 1.58 | .65 | .33 | 1.22 | 1.26 | 22.13 |

* Revised.

† Not previously published; estimated or partly estimated on basis of stage graph when available and hydrographic comparison with nearby stations.

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|-------------------|-------------|--------|-----------------|------------------|--------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1912 | 424, 1437 | 9,250 | Apr. 17, 1912* | - | *1,150 | *2.40 | *32.55 | *1,140 | *32.27 |
| 1913 | 424 | *12,200 | Mar. 26, 1913 | - | 941 | 1.96 | 26.66 | 765 | 21.67 |
| 1914 | 384, 424 | *11,000 | Apr. 20, 1914 | - | 592 | 1.24 | 16.79 | 593 | 16.82 |
| 1915 | 404 | 5,550 | Apr. 13, 1915 | - | 564 | 1.18 | 15.99 | 612 | 17.36 |
| 1916 | 434 | *7,800 | Apr. 1, 1916* | - | 951 | 1.99 | 27.02 | 1,010 | 28.80 |
| 1917 | 454 | 8,690 | Apr. 3, 1917 | 200 | 1,040 | 2.17 | 29.36 | 1,040 | 29.57 |
| 1918 | 474 | - | - | 72 | 906 | 1.89 | 25.68 | 1,120 | 31.73 |
| 1919 | 504 | 9,580 | Apr. 12, 1919 | 28 | 1,150 | 2.40 | 32.74 | 1,090 | 30.91 |
| 1920 | 504 | - | - | - | *1,170 | *2.44 | *33.15 | 1,080 | 30.75 |
| 1921 | 524 | 8,170 | Oct. 1, 1920 | - | *730 | *1.52 | *20.69 | 588 | 16.49 |
| 1922 | 544 | *9,700 | Apr. 12, 1922 | 68 | 893 | 1.86 | 25.33 | 817 | 23.16 |
| 1923 | 564, 1237 | *9,170 | Apr. 30, 1923* | 50 | *708 | *1.48 | *20.05 | - | - |
| 1929 | 684, 1237 | 7,080 | Apr. 8, 1929* | 104 | *1,050 | *2.19 | *29.82 | *938 | *26.59 |
| 1930 | 699, 1237 | 14,300 | June 21, 1930 | 48 | *1,030 | *2.15 | *29.16 | *927 | *26.26 |
| 1931 | 714 | 10,800 | Apr. 11, 1931 | 65 | 709 | 1.48 | 20.09 | 882 | 24.99 |
| 1932 | 729 | 9,460 | Apr. 8, 1932 | 85 | 989 | 2.06 | 28.07 | 1,010 | 28.79 |
| 1933 | 744 | 10,300 | Apr. 18, 1933 | 58 | 947 | 1.98 | 26.84 | 800 | 22.67 |
| 1934 | 759 | 8,090 | Apr. 12, 13, 1934 | 58 | 711 | 1.48 | 20.15 | 722 | 20.45 |
| 1935 | 784 | 7,180 | May 1, 1935 | 59 | 840 | 1.75 | 23.79 | 689 | 25.21 |
| 1936 | 804, 874 | 16,000 | Mar. 19, 20, 1936 | 77 | 1,042 | 2.18 | 29.61 | 1,209 | 34.54 |
| 1937 | 824 | 6,640 | May 20, 1937 | 93 | 1,126 | 2.35 | 31.90 | 962 | 27.25 |
| 1938 | 854 | 12,200 | Sept. 21, 1938 | 90 | 912 | 1.90 | 25.84 | 920 | 26.05 |
| 1939 | 874 | 14,100 | Apr. 22, 1939 | 101 | 989 | 2.06 | 28.00 | 955 | 27.04 |
| 1940 | 894 | 17,200 | May 4, 1940 | 68 | 916 | 1.91 | 26.03 | 963 | 27.38 |
| 1941 | 924 | 11,300 | Apr. 15, 1941 | 38 | 660 | 1.38 | 18.71 | 665 | 18.83 |
| 1942 | 954 | 11,600 | Apr. 16, 1942 | 60 | 1,007 | 2.10 | 28.54 | 993 | 28.15 |
| 1943 | 974 | 8,950 | June 16, 1943 | 128 | 1,053 | 2.20 | 29.82 | 1,062 | 30.10 |
| 1944 | 1004 | 7,780 | Nov. 9, 1943 | 61 | 749 | 1.56 | 21.30 | 690 | 19.60 |
| 1945 | 1034 | 11,700 | Mar. 19, 1945 | 70 | 961 | 2.01 | 27.22 | 1,165 | 32.98 |
| 1946 | 1054 | *11,000 | Mar. 15, 1946* | 64 | 1,007 | 2.10 | 28.54 | 980 | 27.77 |
| 1947 | 1084 | 10,900 | June 3, 1947 | 87 | 1,355 | 2.85 | 39.42 | 1,119 | 31.71 |
| 1948 | 1114 | 10,500 | Mar. 2, 1948 | 44 | 643 | 1.34 | 18.28 | 716 | 20.33 |
| 1949 | 1144 | 10,400 | Mar. 29, 1949 | 40 | 751 | 1.57 | 21.28 | 789 | 22.36 |
| 1950 | 1174 | 7,980 | Apr. 5, 1950 | 65 | 781 | 1.63 | 22.13 | - | - |

* Revised.

† Not previously published.

‡ Not previously published; discharges at stated times on Apr. 7, 8, 1912, as published in W.S.P. 424, affected by ice and too high.

420. Richelieu River (Lake Champlain Outlet) at Chambly, Province of Quebec

Location.--At dam at Chambly, Province of Quebec.Drainage area.--8,440 sq mi above dam at Chambly, including 436 sq mi of water surface.Gage.--Reference point on scarp wall at Port Montgomery, N. Y., and in well within fort inclosure. Staff gage at dock of Champlain Transportation Co. at Burlington, Vt.
Datum of both gages is 92.5 ft above mean sea level (unadjusted).Remarks.--Rating curve computed on basis of observations made at Chambly dam referred to gages at Port Montgomery, N. Y., and Burlington, Vt.

Monthly and yearly mean discharge, in cubic feet per second

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|
| 1875 | - | - | - | 5,800 | 5,900 | 8,700 | 19,200 | 21,500 | 15,900 | 11,700 | 9,500 | 8,200 | - |
| 1876 | 9,300 | 12,300 | 11,300 | 14,400 | 13,900 | 16,100 | 22,700 | 30,400 | 20,700 | 13,900 | 9,400 | 6,600 | 15,100 |
| 1877 | 6,000 | 5,700 | 5,000 | 4,900 | 5,200 | 8,300 | 19,100 | 17,200 | 11,700 | 10,900 | 10,100 | 8,600 | 9,370 |
| 1878 | 8,100 | 10,900 | 12,300 | 10,400 | 8,700 | 12,000 | 19,300 | 21,200 | 13,800 | 10,100 | 13,100 | 12,700 | 12,700 |
| 1879 | 8,600 | 9,300 | 17,800 | 14,800 | 12,700 | 13,800 | 19,400 | 27,000 | 16,600 | 12,000 | 8,900 | 6,800 | 14,000 |
| 1880 | 5,600 | 6,100 | 11,000 | 11,300 | 14,000 | 15,900 | 17,100 | 15,800 | 11,400 | 8,500 | 6,300 | 4,400 | 10,600 |
| 1881 | 3,800 | 9,100 | 8,300 | 6,500 | 8,200 | 13,900 | 15,500 | 20,300 | 14,500 | 10,100 | 8,000 | 6,500 | 10,500 |
| 1882 | 5,400 | 6,900 | 8,500 | 12,100 | 11,500 | 16,800 | 15,600 | 14,700 | 17,200 | 13,800 | 9,700 | 7,600 | 11,600 |
| 1883 | 7,200 | 5,500 | 4,400 | 4,000 | 5,000 | 6,800 | 17,800 | 21,800 | 17,700 | 13,500 | 9,700 | 6,300 | 9,960 |
| 1884 | 4,700 | 4,700 | 4,900 | 5,300 | 8,700 | 14,900 | 25,300 | 23,400 | 16,100 | 10,300 | 8,900 | 5,500 | 11,000 |
| 1885 | 5,000 | 5,700 | 8,300 | 11,400 | 11,200 | 9,900 | 19,600 | 24,900 | 15,300 | 11,600 | 9,600 | 9,700 | 11,800 |
| 1886 | 6,000 | 16,800 | 16,700 | 17,000 | 16,000 | 15,400 | 22,900 | 19,200 | 13,900 | 10,300 | 8,100 | 6,200 | 14,000 |
| 1887 | 6,200 | 8,400 | 13,100 | 10,700 | 15,000 | 13,100 | 23,600 | 29,000 | 19,500 | 13,400 | 9,300 | 7,400 | 14,100 |
| 1888 | 5,300 | 5,000 | 9,700 | 10,600 | 16,900 | 12,900 | 23,900 | 30,200 | 19,700 | 12,900 | 9,200 | 9,900 | 13,300 |
| 1889 | 11,700 | 15,200 | 16,200 | 19,300 | 16,200 | 14,500 | 20,200 | 19,600 | 17,500 | 15,300 | 12,900 | 9,600 | 15,700 |
| 1890 | 11,400 | 12,000 | 14,900 | 13,900 | 16,000 | 18,800 | 20,800 | 25,500 | 26,200 | 14,000 | 9,700 | 14,200 | 16,400 |
| 1891 | 13,800 | 14,200 | 13,300 | 12,700 | 16,000 | 23,400 | 28,600 | 23,100 | 14,200 | 9,900 | 8,200 | 7,300 | 15,400 |
| 1892 | 5,400 | 5,000 | 7,200 | 13,400 | 12,700 | 11,300 | 20,000 | 17,300 | 19,100 | 23,900 | 18,700 | 15,300 | 14,100 |
| 1893 | 10,400 | 11,000 | 11,000 | 8,400 | 7,900 | 9,700 | 16,200 | 21,700 | 15,800 | 9,800 | 8,000 | 11,800 | 11,800 |
| 1894 | 8,500 | 6,600 | 6,700 | 9,900 | 10,100 | 16,200 | 17,300 | 14,900 | 12,800 | 9,600 | 6,800 | 5,300 | 10,400 |
| 1895 | 5,200 | 6,900 | 7,100 | 7,800 | 7,400 | 7,600 | 17,600 | 21,300 | 14,200 | 9,400 | 7,600 | 7,200 | 9,950 |
| 1896 | 5,400 | 6,700 | 12,500 | 14,800 | 11,800 | 18,000 | 30,500 | 24,900 | 14,100 | 10,300 | 7,900 | 6,100 | 13,600 |
| 1897 | 6,500 | 9,100 | 9,700 | 8,300 | 7,900 | 10,600 | 21,600 | 24,800 | 21,900 | 19,300 | 18,400 | 12,300 | 14,300 |
| 1898 | 8,500 | 9,800 | 15,400 | 14,400 | 14,900 | 22,900 | 24,500 | 18,600 | 13,800 | 9,800 | 7,400 | 6,500 | 13,800 |
| 1899 | 8,700 | 10,300 | 9,600 | 10,600 | 9,620 | 13,300 | 21,700 | 24,600 | 13,900 | 9,620 | 6,880 | 5,170 | 12,000 |
| 1900 | 4,530 | 8,950 | 11,400 | 10,900 | 14,500 | 16,000 | 22,200 | 18,000 | 18,000 | 12,000 | 9,300 | 7,180 | 12,900 |
| 1901 | 6,590 | 8,040 | 13,300 | 11,900 | 9,890 | 10,300 | 30,700 | 28,400 | 20,900 | 13,200 | 10,100 | 7,600 | 14,300 |
| 1902 | 6,380 | 6,080 | 10,500 | 12,300 | 10,900 | 28,700 | 31,300 | 22,000 | 20,500 | 16,300 | 13,300 | 10,200 | 15,700 |
| 1903 | 8,660 | 10,800 | 10,400 | 11,200 | 14,100 | 29,400 | 34,200 | 17,600 | 11,700 | 10,800 | 10,200 | 8,120 | 14,800 |
| 1904 | 6,850 | 6,670 | 6,240 | 6,840 | 7,310 | 11,600 | 23,100 | 22,300 | 15,600 | 10,900 | 8,060 | 7,740 | 11,100 |
| 1905 | 10,300 | 10,500 | 7,800 | 7,890 | 7,610 | 9,230 | 22,300 | 17,500 | 14,100 | 15,500 | 15,000 | 14,600 | 12,700 |
| 1906 | 12,400 | 10,100 | 10,200 | 12,000 | 14,300 | 13,200 | 17,500 | 19,600 | 17,200 | 14,000 | 10,400 | 8,070 | 13,200 |
| 1907 | 6,580 | 6,650 | 8,370 | 11,700 | 11,400 | 11,000 | 20,900 | 23,300 | 15,000 | 12,200 | 8,940 | 8,160 | 12,000 |
| 1908 | 10,100 | 14,400 | 15,500 | 17,900 | 17,100 | 18,800 | 25,600 | 27,000 | 17,800 | 11,000 | 7,790 | 5,340 | 15,700 |
| 1909 | 3,780 | 2,310 | 2,570 | 4,730 | 10,100 | 15,000 | 27,900 | 31,300 | 20,600 | 12,400 | 8,090 | 5,920 | 12,100 |
| 1910 | 5,440 | 4,590 | 5,070 | 5,540 | 8,710 | 18,300 | 21,500 | 17,400 | 15,700 | 11,500 | 8,840 | 7,380 | 10,800 |
| 1911 | 6,900 | 7,550 | 7,310 | 9,560 | 9,420 | 9,250 | 20,500 | 22,000 | 13,100 | 8,600 | 5,950 | 5,030 | 10,500 |
| 1912 | 5,650 | 6,970 | 10,100 | 11,300 | 9,350 | 10,200 | 27,300 | 25,700 | 22,800 | 12,700 | 8,770 | 8,470 | 13,300 |
| 1913 | 9,420 | 13,500 | 13,500 | 16,400 | 16,000 | 17,900 | 33,200 | 18,400 | 14,100 | 9,280 | 6,670 | 4,890 | 14,400 |
| 1914 | 4,650 | 5,750 | 6,770 | 6,700 | 8,090 | 9,730 | 23,000 | 26,900 | 14,400 | 9,450 | 6,770 | 5,990 | 10,700 |
| 1915 | 5,710 | 5,410 | 6,630 | 6,700 | 9,080 | 14,300 | 14,600 | 13,000 | 9,520 | 8,570 | 8,160 | 7,040 | 8,950 |
| 1916 | 5,950 | 5,680 | 7,710 | 10,100 | 14,700 | 13,900 | 22,800 | 21,300 | 17,600 | 14,100 | 10,000 | 7,580 | 12,600 |

Monthly and yearly runoff, in inches

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1875 | - | - | - | 0.79 | 0.73 | 1.19 | 2.53 | 2.94 | 2.10 | 1.60 | 1.30 | 1.08 | - |
| 1876 | 1.27 | 1.63 | 1.54 | 1.97 | 1.78 | 2.20 | 3.00 | 4.15 | 2.73 | 1.90 | 1.28 | .87 | 24.32 |
| 1877 | .82 | .75 | .68 | .67 | .64 | 1.13 | 2.52 | 2.35 | 1.55 | 1.49 | 1.38 | 1.14 | 15.12 |
| 1878 | 1.11 | 1.44 | 1.68 | 1.42 | 1.07 | 1.64 | 2.56 | 2.89 | 1.83 | 1.38 | 1.79 | 1.67 | 20.48 |
| 1879 | 1.18 | 1.23 | 2.43 | 2.02 | 1.56 | 1.89 | 2.57 | 3.69 | 2.20 | 1.64 | 1.21 | .90 | 22.52 |
| 1880 | .77 | .81 | 1.50 | 1.55 | 1.79 | 2.17 | 2.26 | 2.16 | 1.51 | 1.16 | .86 | .58 | 17.12 |
| 1881 | .52 | 1.20 | 1.13 | .94 | 1.01 | 1.90 | 2.05 | 2.78 | 1.92 | 1.38 | 1.09 | .86 | 16.78 |
| 1882 | .74 | .91 | 1.16 | 1.65 | 1.42 | 2.29 | 2.06 | 2.01 | 2.28 | 1.89 | 1.33 | 1.00 | 18.74 |
| 1883 | .98 | .73 | .60 | .55 | .62 | .93 | 2.35 | 2.97 | 2.34 | 1.84 | 1.33 | .83 | 16.07 |
| 1884 | .64 | .62 | .67 | .72 | 1.11 | 2.04 | 3.35 | 3.19 | 2.13 | 1.41 | 1.21 | .73 | 17.82 |
| 1885 | .68 | .75 | 1.13 | 1.56 | 1.38 | 1.36 | 2.59 | 3.40 | 2.02 | 1.58 | 1.31 | 1.28 | 19.04 |

Monthly and yearly runoff, in inches, of Richelieu River (Lake Champlain Outlet)
at Chambly, Province of Quebec--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1886 | 0.82 | 2.22 | 2.28 | 2.32 | 1.98 | 2.10 | 3.02 | 2.62 | 1.84 | 1.41 | 1.11 | 0.82 | 22.54 |
| 1887 | .85 | 1.12 | 1.79 | 1.46 | 1.85 | 1.79 | 3.12 | 3.97 | 2.58 | 1.83 | 1.35 | .98 | 22.69 |
| 1888 | .72 | .66 | 1.33 | 1.45 | 1.39 | 1.76 | 3.16 | 4.13 | 2.60 | 1.76 | 1.26 | 1.30 | 21.52 |
| 1889 | 1.60 | 2.01 | 2.21 | 2.64 | 2.00 | 1.95 | 2.67 | 2.68 | 2.31 | 2.09 | 1.76 | 1.27 | 25.19 |
| 1890 | 1.56 | 1.58 | 2.04 | 1.90 | 1.98 | 2.57 | 2.74 | 3.48 | 3.46 | 1.91 | 1.33 | 1.87 | 26.42 |
| 1891 | 1.89 | 1.87 | 1.82 | 1.73 | 1.98 | 3.19 | 3.78 | 3.16 | 1.87 | 1.35 | 1.12 | .97 | 24.73 |
| 1892 | .74 | .66 | .98 | 1.83 | 1.62 | 1.54 | 2.64 | 2.36 | 2.52 | 3.26 | 2.56 | 2.02 | 22.73 |
| 1893 | 1.42 | 1.45 | 1.50 | 1.15 | .97 | 1.33 | 2.14 | 2.96 | 2.09 | 1.34 | 1.09 | 1.56 | 19.00 |
| 1894 | 1.16 | .87 | .91 | 1.35 | 1.25 | 2.21 | 2.29 | 2.04 | 1.70 | 1.34 | .94 | .70 | 16.76 |
| 1895 | .71 | .91 | .97 | 1.07 | .91 | 1.04 | 2.33 | 2.90 | 1.87 | 1.28 | 1.04 | .95 | 15.98 |
| 1896 | .74 | .89 | 1.71 | 2.02 | 1.51 | 2.46 | 4.03 | 3.40 | 1.86 | 1.41 | 1.08 | .81 | 21.92 |
| 1897 | .89 | 1.20 | 1.33 | 1.13 | .97 | 1.45 | 2.86 | 3.39 | 2.89 | 2.64 | 2.51 | 1.63 | 22.89 |
| 1898 | 1.16 | 1.29 | 2.10 | 1.97 | 1.84 | 3.12 | 3.24 | 2.54 | 1.83 | 1.34 | 1.01 | .86 | 22.30 |
| 1899 | 1.19 | 1.36 | 1.31 | 1.45 | 1.19 | 1.82 | 2.87 | 3.36 | 1.84 | 1.31 | .94 | .68 | 19.32 |
| 1900 | .62 | 1.18 | 1.56 | 1.49 | 1.79 | 2.19 | 2.93 | 2.46 | 2.49 | 1.64 | 1.27 | .95 | 20.57 |
| 1901 | .90 | 1.06 | 1.62 | 1.63 | 1.22 | 1.41 | 4.06 | 3.87 | 2.77 | 1.80 | 1.38 | 1.00 | 22.92 |
| 1902 | .87 | .80 | 1.43 | 1.68 | 1.34 | 3.92 | 4.14 | 3.03 | 2.71 | 2.22 | 1.62 | 1.35 | 25.31 |
| 1903 | 1.19 | 1.43 | 1.42 | 1.53 | 1.74 | 4.01 | 4.52 | 2.41 | 1.55 | 1.46 | 1.40 | 1.07 | 23.76 |
| 1904 | .94 | .88 | .85 | .93 | .93 | 1.58 | 3.06 | 3.04 | 2.06 | 1.49 | 1.10 | 1.02 | 17.88 |
| 1905 | 1.41 | 1.38 | 1.07 | 1.08 | .94 | 1.26 | 2.94 | 2.39 | 1.86 | 2.12 | 2.05 | 1.93 | 20.43 |
| 1906 | 1.70 | 1.34 | 1.40 | 1.64 | 1.76 | 1.80 | 2.31 | 2.68 | 2.28 | 1.91 | 1.42 | 1.07 | 21.31 |
| 1907 | .90 | .88 | 1.14 | 1.60 | 1.41 | 1.50 | 2.77 | 3.18 | 1.99 | 1.67 | 1.22 | 1.08 | 19.34 |
| 1908 | 1.38 | 1.91 | 2.12 | 2.44 | 2.19 | 2.57 | 3.38 | 3.69 | 2.35 | 1.50 | 1.06 | .71 | 25.30 |
| 1909 | .52 | .31 | .35 | .65 | 1.25 | 2.05 | 3.69 | 4.28 | 2.72 | 1.70 | 1.11 | .78 | 19.41 |
| 1910 | .74 | .61 | .69 | .76 | 1.07 | 2.50 | 2.84 | 2.38 | 2.08 | 1.57 | 1.21 | .98 | 17.43 |
| 1911 | .94 | 1.00 | 1.00 | 1.30 | 1.17 | 1.27 | 2.71 | 3.01 | 1.73 | 1.18 | .81 | .66 | 16.78 |
| 1912 | .77 | .92 | 1.38 | 1.54 | 1.20 | 1.40 | 3.60 | 3.52 | 3.01 | 1.73 | 1.20 | 1.12 | 21.39 |
| 1913 | 1.29 | 1.78 | 1.84 | 2.24 | 1.98 | 2.44 | 4.40 | 2.51 | 1.86 | 1.27 | .91 | .62 | 23.14 |
| 1914 | .63 | .76 | .92 | .92 | 1.00 | 1.33 | 3.05 | 3.68 | 1.91 | 1.29 | .92 | .79 | 17.20 |
| 1915 | .78 | .72 | .91 | .92 | 1.12 | 1.90 | 1.82 | 1.78 | 1.26 | 1.18 | 1.11 | .93 | 14.43 |
| 1916 | .81 | .75 | .97 | 1.38 | 1.88 | 1.90 | 3.12 | 2.90 | 2.33 | 1.92 | 1.36 | 1.00 | 20.32 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | Calendar year | | |
|------|------------|----------------------------|------|-------------|--------|-----------------|------------------|------|------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1875 | 424 | - | - | - | - | - | - | - | 18.70 |
| 1876 | 424 | - | - | - | 15,100 | 1.79 | 24.32 | - | 22.13 |
| 1877 | 424 | - | - | - | 9,370 | 1.11 | 15.12 | - | 17.10 |
| 1878 | 424 | - | - | - | 12,700 | 1.51 | 20.48 | - | 21.09 |
| 1879 | 424 | - | - | - | 14,000 | 1.66 | 22.52 | - | 20.76 |
| 1880 | 424 | - | - | - | 10,600 | 1.26 | 17.12 | - | 16.89 |
| 1881 | 424 | - | - | - | 10,500 | 1.24 | 16.78 | - | 16.74 |
| 1882 | 424 | - | - | - | 11,600 | 1.38 | 18.74 | - | 18.24 |
| 1883 | 424 | - | - | - | 9,960 | 1.18 | 16.07 | - | 15.69 |
| 1884 | 424 | - | - | - | 11,000 | 1.31 | 17.82 | - | 18.45 |
| 1885 | 424 | - | - | - | 11,800 | 1.40 | 19.04 | - | 21.80 |
| 1886 | 424 | - | - | - | 14,000 | 1.66 | 22.54 | - | 20.98 |
| 1887 | 424 | - | - | - | 14,100 | 1.67 | 22.69 | - | 21.64 |
| 1888 | 424 | - | - | - | 13,300 | 1.58 | 21.52 | - | 24.63 |
| 1889 | 424 | - | - | - | 15,700 | 1.86 | 25.19 | - | 24.55 |
| 1890 | 424 | - | - | - | 16,400 | 1.95 | 26.42 | - | 26.82 |
| 1891 | 424 | - | - | - | 15,400 | 1.82 | 24.73 | - | 21.53 |
| 1892 | 424 | - | - | - | 14,100 | 1.67 | 22.73 | - | 24.72 |
| 1893 | 424 | - | - | - | 11,800 | 1.40 | 19.00 | - | 17.57 |
| 1894 | 424 | - | - | - | 10,400 | 1.23 | 16.76 | - | 16.41 |
| 1895 | 424 | - | - | - | 9,950 | 1.18 | 15.98 | - | 16.73 |
| 1896 | 424 | - | - | - | 13,600 | 1.61 | 21.92 | - | 22.00 |
| 1897 | 424 | - | - | - | 14,300 | 1.69 | 22.89 | - | 24.02 |
| 1898 | 424 | - | - | - | 13,800 | 1.64 | 22.30 | - | 21.61 |
| 1899 | 424 | - | - | - | 12,000 | 1.42 | 19.32 | - | 18.82 |
| 1900 | 424 | - | - | - | 12,800 | 1.52 | 20.57 | - | 20.99 |
| 1901 | 424 | - | - | - | 14,300 | 1.69 | 22.92 | - | 22.24 |
| 1902 | 424 | - | - | - | 15,700 | 1.86 | 25.31 | - | 26.25 |
| 1903 | 424 | - | - | - | 14,900 | 1.75 | 23.75 | - | 22.38 |
| 1904 | 424 | - | - | - | 11,100 | 1.31 | 17.88 | - | 19.07 |
| 1905 | 424 | - | - | - | 12,700 | 1.51 | 20.43 | - | 21.01 |
| 1906 | 424 | - | - | - | 13,200 | 1.57 | 21.31 | - | 19.79 |
| 1907 | 424 | - | - | - | 12,000 | 1.42 | 19.34 | - | 21.83 |
| 1908 | 424 | - | - | - | 15,700 | 1.86 | 25.30 | - | 21.07 |
| 1909 | 424 | - | - | - | 12,100 | 1.43 | 19.41 | - | 20.27 |
| 1910 | 424 | - | - | - | 10,800 | 1.28 | 17.43 | - | 18.33 |
| 1911 | 424 | - | - | - | 10,500 | 1.24 | 16.78 | - | 16.91 |
| 1912 | 424 | - | - | - | 13,300 | 1.57 | 21.39 | - | 23.23 |
| 1913 | 424 | - | - | - | 14,400 | 1.71 | 23.14 | - | 20.54 |
| 1914 | 424 | - | - | - | 10,700 | 1.27 | 17.20 | - | 17.30 |
| 1915 | 424 | - | - | - | 8,950 | 1.06 | 14.43 | - | 14.55 |
| 1916 | 424 | - | - | - | 12,600 | 1.49 | 20.32 | - | - |

421. Clyde River at Newport, Vt. 1/

Location.--Lat 44°56'20", long. 72°11'25", on right bank in Newport, Orleans County, just downstream from unnamed tributary entering from north, and 1 mile upstream from mouth.

Drainage area.--142 sq mi. Prior to Sept. 10, 1938, 140 sq mi.

Gage.--Water-stage recorder. Datum of gage is 682.36 ft above mean sea level, datum of 1929. May 25, 1909, to Sept. 20, 1915, staff or chain gage, and Sept. 21, 1915, to Sept. 30, 1924, Nov. 16, 1928, to May 4, 1936, water-stage recorder at site 0.65 mile upstream at different datum.

Average discharge.--31 years (1909-19, 1920-21, 1922-24, 1929-35, 1938-50), 249 cfs, adjusted to present drainage area.

Extremes.--1909-24, 1928-36, 1938-50: Maximum discharge, 3,900 cfs Mar. 20, 1936 (gage height, 5.76 ft, site and datum then in use), by computation of flow over dam; minimum daily, 3.0 cfs Oct. 27, 1930; practically no flow at times because of regulation.

Remarks.--Flow regulated by powerplant and reservoirs above station.

| Monthly and yearly mean discharge, in cubic feet per second | | | | | | | | | | | | | |
|---|------|------|------|------|------|------|-------|-------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1909 | - | - | - | - | - | - | - | - | 177 | 85.2 | 39.6 | 67.7 | - |
| 1910 | 159 | 134 | 125 | 169 | 131 | 450 | 694 | 364 | 305 | 96.8 | 66.8 | 56.2 | 228 |
| 1911 | 69.2 | 113 | 86.6 | 128 | 49.2 | 72.8 | 668 | 558 | 126 | 62.4 | 51.2 | 56.9 | 170 |
| 1912 | 130 | 147 | 319 | 195 | 90.0 | 210 | 980 | 451 | 418 | 90.1 | 116 | 187 | 278 |
| 1913 | 190 | 262 | 233 | 334 | 188 | 799 | 664 | 212 | 195 | 96.0 | 70.7 | 52.9 | 275 |
| 1914 | 126 | 150 | 126 | 92.7 | 90.1 | 137 | 764 | 555 | 108 | 78.8 | 56.1 | 62.5 | 196 |
| 1915 | 74.7 | 90.4 | 93.0 | 105 | 185 | 207 | 378 | 249 | 150 | 193 | 148 | 95.3 | 162 |
| 1916 | 110 | 134 | 147 | 259 | 239 | 160 | 652 | 420 | 396 | 195 | 177 | 94.1 | 248 |
| 1917 | 162 | 167 | 271 | 131 | 93.6 | 157 | 760 | 499 | 290 | 170 | 279 | 155 | 262 |
| 1918 | 359 | 416 | 128 | 76.7 | 118 | 221 | 824 | 514 | 247 | 189 | 184 | 198 | 290 |
| 1919 | 513 | 560 | 287 | 206 | 110 | 315 | 751 | 465 | 182 | 126 | 107 | 158 | 316 |
| 1920 | - | - | - | - | - | - | - | - | 157 | 202 | 134 | 158 | - |
| 1921 | 283 | 254 | 376 | 202 | 126 | 675 | 544 | 195 | 117 | 58.7 | 57.6 | 58.2 | 247 |
| 1922 | 81.1 | 184 | 197 | 106 | 74.5 | 332 | 1,140 | 356 | 328 | 260 | - | - | - |
| 1923 | 62.5 | 79.5 | 80.4 | 124 | 96.4 | 93.0 | 746 | 725 | 216 | 109 | 77.1 | 97.6 | 209 |
| 1924 | 149 | 252 | 331 | 293 | 157 | 182 | 709 | 813 | 120 | 127 | 148 | 523 | 317 |
| 1929 | - | - | 269 | 223 | 124 | 363 | 801 | 750 | 236 | 184 | 112 | 118 | - |
| 1930 | 151 | 181 | 117 | 272 | 208 | 307 | 693 | 418 | 319 | 169 | 109 | 114 | 253 |
| 1931 | 97.2 | 167 | 124 | 93.8 | 81.5 | 109 | 570 | 297 | 221 | 108 | 135 | 164 | 180 |
| 1932 | 150 | 240 | 186 | 290 | 199 | 121 | 811 | 399 | 155 | 287 | 195 | 110 | 261 |
| 1933 | 233 | 371 | 213 | 195 | 116 | 130 | 1,190 | 596 | 130 | 78.3 | 114 | 84.0 | 287 |
| 1934 | 97.5 | 112 | 127 | 104 | 85.6 | 179 | 1,021 | 384 | 113 | 86.6 | 79.0 | 80.5 | 205 |
| 1935 | 98.0 | 243 | 225 | 317 | 124 | 216 | 581 | 672 | 408 | 175 | 117 | 123 | 275 |
| 1936 | 136 | 181 | 166 | 95.5 | 81.8 | 136 | 729 | - | - | - | - | - | - |
| 1939 | 136 | 136 | 374 | 156 | 122 | 162 | 725 | 812 | 229 | 145 | 168 | 114 | 274 |
| 1940 | 158 | 254 | 142 | 121 | 92.1 | 92.7 | 546 | 1,040 | 212 | 138 | 101 | 107 | 251 |
| 1941 | 119 | 288 | 156 | 195 | 135 | 125 | 607 | 179 | 170 | 129 | 98.7 | 89.3 | 190 |
| 1942 | 96.1 | 211 | 136 | 143 | 117 | 240 | 930 | 498 | 437 | 140 | 120 | 97.2 | 263 |
| 1943 | 161 | 260 | 155 | 121 | 119 | 238 | 459 | 882 | 423 | 188 | 198 | 204 | 285 |
| 1944 | 150 | 289 | 175 | 105 | 107 | 138 | 539 | 647 | 130 | 95.4 | 87.6 | 115 | 215 |
| 1945 | 172 | 187 | 98.3 | 187 | 140 | 527 | 650 | 569 | 303 | 275 | 99.7 | 225 | 287 |
| 1946 | 576 | 543 | 244 | 211 | 141 | 507 | 473 | 427 | 159 | 79.1 | 116 | 107 | 283 |
| 1947 | 204 | 260 | 306 | 190 | 222 | 278 | 689 | 811 | 540 | 167 | 165 | 143 | 331 |
| 1948 | 92.4 | 126 | 123 | 62.9 | 76.2 | 314 | 550 | 495 | 178 | 105 | 69.5 | 51.3 | 187 |
| 1949 | 62.8 | 176 | 144 | 271 | 162 | 323 | 549 | 268 | 158 | 84.5 | 91.4 | 79.4 | 197 |
| 1950 | 103 | 159 | 210 | 257 | 188 | 206 | 696 | 339 | 178 | 99.8 | 108 | 157 | 225 |

† Corrected.

| Monthly and yearly runoff, in inches | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
| 1909 | - | - | - | - | - | - | - | - | 1.41 | 0.70 | 0.33 | 0.54 | - |
| 1910 | 1.31 | 1.07 | 1.03 | 1.39 | 0.98 | 3.70 | 5.45 | 2.99 | 2.43 | 1.80 | 1.55 | 1.45 | 22.15 |
| 1911 | .57 | .90 | .71 | 1.05 | .37 | .60 | 5.32 | 4.59 | 1.01 | .51 | .42 | .45 | 16.50 |
| 1912 | 1.07 | 1.17 | 2.62 | 1.61 | .69 | 1.73 | 7.81 | 3.71 | 3.33 | .74 | .95 | 1.49 | 26.92 |
| 1913 | 1.56 | 2.09 | 1.92 | 2.75 | 1.40 | 6.58 | 5.29 | 1.75 | 1.56 | .79 | .58 | .42 | 26.69 |
| 1914 | 1.03 | 1.20 | 1.03 | .78 | .67 | 1.13 | 6.09 | 4.57 | .86 | .65 | .46 | .50 | 18.95 |
| 1915 | .61 | .72 | .76 | .86 | 1.38 | 1.70 | 3.02 | 2.05 | 1.04 | 1.59 | 1.22 | .76 | 15.71 |
| 1916 | .91 | 1.06 | 1.21 | 2.13 | 1.84 | 1.32 | 5.20 | 3.46 | 3.16 | 1.61 | 1.46 | .75 | 24.11 |
| 1917 | 1.33 | 1.33 | 2.23 | 1.08 | .70 | 1.30 | 6.05 | 4.11 | 2.31 | 1.40 | 2.30 | 1.23 | 25.37 |
| 1918 | 2.95 | 3.31 | 1.05 | .63 | .88 | 1.82 | 6.57 | 4.23 | 1.97 | 1.56 | 1.52 | 1.58 | 28.07 |
| 1919 | 4.22 | 4.46 | 2.37 | 1.70 | .82 | 2.59 | 5.99 | 3.83 | 1.45 | 1.04 | .88 | 1.26 | 30.61 |
| 1920 | - | - | - | - | - | - | - | - | 1.25 | 1.67 | 1.10 | 1.26 | - |
| 1921 | 2.33 | 2.03 | 3.10 | 1.67 | .94 | 5.56 | 4.33 | 1.61 | .93 | .48 | .47 | .46 | 23.91 |
| 1922 | .67 | 1.47 | 1.62 | .87 | .55 | 2.74 | 9.06 | 2.93 | 2.61 | 2.15 | - | - | - |
| 1923 | .51 | .63 | .66 | 1.02 | .72 | .77 | 5.95 | 5.97 | 1.72 | .89 | .63 | .78 | 20.25 |
| 1924 | 1.22 | 2.01 | 2.72 | 2.41 | 1.21 | 1.50 | 5.65 | 6.69 | .95 | 1.05 | 1.22 | 1.17 | 30.80 |
| 1929 | - | - | 2.21 | 1.84 | .92 | 2.99 | 6.38 | 6.17 | 1.88 | 1.52 | .92 | .94 | - |
| 1930 | 1.08 | 1.45 | .97 | 2.24 | 1.54 | 2.53 | 5.53 | 3.45 | 2.54 | 1.39 | .89 | .91 | 24.52 |

1/ Published as "at West Derby" prior to 1929.

Monthly and yearly runoff, in inches, of Clyde River at Newport, Vt.--Continued

| Water year | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | The year |
|------------|------|------|------|------|------|------|------|------|------|------|------|-------|----------|
| 1931 | .80 | 1.33 | 1.02 | .77 | .61 | .89 | 4.54 | 2.44 | 1.76 | .89 | 1.11 | 1.31 | 17.47 |
| 1932 | 1.23 | 1.91 | 1.53 | 2.39 | 1.53 | 1.00 | 6.46 | 3.28 | 1.23 | 2.36 | 1.61 | .88 | 25.41 |
| 1933 | 1.91 | 2.96 | 1.75 | 1.60 | .86 | 1.07 | 9.48 | 4.91 | 1.04 | .64 | .94 | .67 | 27.83 |
| 1934 | .80 | .89 | 1.05 | .86 | .64 | 1.48 | 8.13 | 3.16 | .90 | .71 | .65 | .64 | 19.91 |
| 1935 | .61 | 1.94 | 1.86 | 2.61 | .92 | 1.78 | 4.63 | 5.53 | 3.25 | 1.44 | .96 | .98 | 26.71 |
| 1936 | 1.12 | 1.44 | 1.37 | .79 | .63 | 9.35 | 5.81 | - | - | - | - | - | - |
| 1939 | 1.10 | 1.07 | 3.03 | 1.27 | .89 | 1.31 | 5.70 | 6.60 | 1.80 | 1.18 | 1.36 | .90 | 26.21 |
| 1940 | 1.29 | 1.99 | 1.15 | .98 | .70 | .75 | 4.29 | 8.44 | 1.67 | 1.12 | .82 | .84 | 24.04 |
| 1941 | .97 | 2.27 | 1.27 | 1.59 | .99 | 1.02 | 4.77 | 1.45 | 1.33 | 1.05 | .80 | .70 | 18.21 |
| 1942 | .78 | 1.66 | 1.11 | 1.16 | .86 | 1.95 | 7.31 | 4.05 | 3.43 | 1.14 | .97 | .78 | 25.18 |
| 1943 | 1.31 | 2.04 | 1.26 | .99 | .87 | 1.93 | 3.60 | 7.16 | 3.32 | 1.53 | 1.61 | 1.60 | 27.22 |
| 1944 | 1.21 | 2.27 | 1.42 | .86 | .81 | 1.12 | 4.23 | 5.25 | 1.02 | .77 | .71 | .90 | 20.57 |
| 1945 | 1.39 | 1.47 | .80 | 1.52 | 1.03 | 4.28 | 5.11 | 4.62 | 2.38 | 2.23 | .81 | 1.77 | 27.41 |
| 1946 | 4.68 | 2.70 | 1.98 | 1.71 | 1.03 | 4.11 | 3.72 | 3.47 | 1.25 | .64 | .94 | .84 | 27.07 |
| 1947 | 1.66 | 2.04 | 2.49 | 1.54 | 1.63 | 2.26 | 5.41 | 6.58 | 4.24 | 1.36 | 1.34 | 1.13 | 31.68 |
| 1948 | .75 | .99 | 1.00 | .51 | .58 | 2.55 | 4.32 | 4.02 | 1.40 | .85 | .56 | .40 | 17.93 |
| 1949 | .51 | 1.38 | 1.17 | 2.28 | 1.19 | 2.62 | 4.31 | 2.18 | 1.24 | .69 | .74 | .62 | 16.85 |
| 1950 | .84 | 1.25 | 1.71 | 2.09 | 1.38 | 1.67 | 5.47 | 2.78 | 1.40 | .81 | .87 | 1.23 | 21.47 |

Yearly discharge, in cubic feet per second

| Year | W.S.P. no. | Water year ending Sept. 30 | | | | | | Calendar year | |
|------|---------------|----------------------------|----------------|----------------|------|-----------------------|------------------------|---------------|------------------------|
| | | Momentary maximum | | Minimum day | Mean | Per square mile | Runoff in inches | Mean | Runoff in inches |
| | | Discharge | Date | | | | | | |
| 1910 | 424 | *1,410 | Apr. 8, 1910* | 39 | 228 | 1.63 | 22.15 | 216 | 20.92 |
| 1911 | 424 | *1,680 | May 3, 1911* | 30 | 170 | 1.21 | 16.50 | 198 | 19.18 |
| 1912 | 424 | *2,080 | Apr. 18, 1912* | - | 278 | 1.99 | 26.92 | 284 | 27.63 |
| 1913 | 424 | *3,110 | Mar. 27, 1913* | 31 | 275 | 1.96 | 26.69 | 252 | 24.38 |
| 1914 | 384, 424 | *2,170 | Apr. 22, 1914 | 36 | 196 | 1.40 | 18.95 | 183 | 17.78 |
| 1915 | 404, 424 | *875 | Apr. 14, 1915 | 36 | 162 | 1.16 | 15.71 | 173 | 16.80 |
| 1916 | 434 | 928 | Apr. 24, 1916 | 70 | 248 | 1.77 | 24.11 | 265 | 25.82 |
| 1917 | 454 | 1,370 | Apr. 25, 1917 | 75 | 262 | 1.87 | 25.37 | 287 | 27.79 |
| 1918 | 474 | 1,280 | Apr. 3, 1918 | 52 | 290 | 2.07 | 26.07 | 328 | 31.81 |
| 1919 | 504 | 1,360 | Nov. 2, 1918 | 31 | 316 | 2.26 | 30.61 | - | - |
| 1920 | 504 | - | - | - | - | - | - | - | - |
| 1921 | 524 | 1,250 | Mar. 30, 1921 | 25 | 247 | 1.76 | 23.91 | 208 | 20.21 |
| 1922 | 544 | 2,350 | Apr. 13, 1922 | - | - | - | - | - | - |
| 1923 | 564 | 2,310 | May 1, 1923† | 17 | 209 | 1.49 | 20.25 | 252 | 24.40 |
| 1924 | 584 | 1,750 | May 3, 1924 | 40 | 317 | 2.26 | 30.80 | - | - |
| 1929 | 684 | 1,330 | Apr. 10, 1929 | - | - | - | - | 279 | 27.06 |
| 1930 | 699 | 964 | Apr. 16, 1930 | 63 | 253 | 1.81 | 24.52 | 249 | 24.17 |
| 1931 | 714 | 982 | Apr. 13, 1931 | 3.0 | 180 | 1.29 | 17.47 | 196 | 18.99 |
| 1932 | 729 | 1,660 | Apr. 12, 1932 | 73 | 261 | 1.86 | 25.41 | 282 | 27.36 |
| 1933 | 744 | 2,780 | Apr. 19, 1933 | 45 | 287 | 2.05 | 27.83 | 247 | 23.95 |
| 1934 | 759 | 1,500 | Apr. 19, 1934 | 50 | 205 | 1.46 | 19.91 | 225 | 21.78 |
| 1935 | 784 | 1,480 | May 1, 1935 | 79 | 275 | 1.96 | 26.71 | 269 | 26.03 |
| 1936 | 804 | 3,900 | Mar. 20, 1936 | - | - | - | - | - | - |
| 1939 | 874 | 2,110 | Apr. 23, 1939 | 67 | 274 | 1.93 | 26.21 | 266 | 25.44 |
| 1940 | 894, 924 | 2,740 | May 3, 1940 | 17 | 251 | 1.77 | 24.04 | 252 | 24.12 |
| 1941 | 924 | 1,420 | Apr. 18, 1941 | 33 | 190 | 1.34 | 18.21 | 180 | 17.25 |
| 1942 | 954 | 1,700 | Apr. 18, 1942 | 18 | 263 | 1.85 | 25.18 | 274 | 26.24 |
| 1943 | 974 | 1,720 | May 14, 1943 | 40 | 285 | 2.01 | 27.22 | 288 | 27.51 |
| 1944 | 1004 | 1,350 | May 8, 1944 | 29 | 215 | 1.51 | 20.57 | 202 | 19.33 |
| 1945 | 1034 | 1,590 | Mar. 31, 1945 | 30 | 287 | 2.02 | 27.41 | 346 | 33.11 |
| 1946 | 1054 | 876 | (a) | 30 | 283 | 1.99 | 27.07 | 250 | 23.90 |
| 1947 | 1084 | 1,510 | Apr. 14, 1947 | 63 | 331 | 2.33 | 31.68 | 295 | 28.23 |
| 1948 | 1114 | 1,070 | Apr. 4, 1948 | 15 | 187 | 1.32 | 17.93 | 191 | 18.25 |
| 1949 | 1144 | 1,220 | Mar. 30, 1949 | 27 | 197 | 1.39 | 18.85 | 205 | 19.59 |
| 1950 | 1174 | 1,610 | Apr. 22, 1950 | 41 | 225 | 1.58 | 21.47 | - | - |

* Revised.

† Corrected.

* Not previously published.

a Oct. 11, 1945, Mar. 17, 1946.

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