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UNITED STATES DEPARTMENT OF THE INTERIOR

THE FLOODS OF MARCH 1936

Part 2. HUDSON RIVER TO SUSQUEHANNA RIVER REGION

Prepared in cooperation with the
FEDERAL EMERGENCY ADMINISTRATION
OF PUBLIC WORKS

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 799

UNITED STATES DEPARTMENT OF THE INTERIOR
Harold L. Ickes, Secretary

GEOLOGICAL SURVEY
W. C. Mendenhall, Director

Water-Supply Paper 799

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NATHAN C. GROVER, Chief Hydraulic Engineer

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FEDERAL EMERGENCY ADMINISTRATION
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THE FLOODS OF MARCH 1936

PART 2. HUDSON RIVER TO SUSQUEHANNA RIVER REGION

ABSTRACT

During the period March 9-22, 1936, there occurred in close succession over the northeastern United States from the James and upper Ohio River basins in Virginia and Pennsylvania to the river basins of Maine, two extraordinarily heavy storms, in which the precipitation was almost entirely in the form of rain. The depths of rainfall mark this period as one of the greatest concentrations of precipitation, in respect to time and magnitude of the area covered, of which there is record in this country.

At the time of the rain there were also accumulations of snow on the ground over much of the storm-affected region that were large for the season. The comparatively warm temperatures associated with the storms thawed the snow and added materially to the quantities of water to be disposed of by drainage into the waterways, by surface storage in lakes, ponds, and reservoirs, by absorption in the ground, and, probably in comparatively negligible degree, by evaporation.

The total quantity of water that had to be disposed of in these ways ranged between 10 and 30 inches in depth over much of the region. The water disposed of by natural storage, absorption, and evaporation amounted in the aggregate, to average depths over the many river basins generally within the range of 1½ to 3 inches, with a significant degree of uniformity and systematic areal distribution. The remainder of the rain and snow water, generally much larger or even several times larger in amount than surface storage, absorption, and evaporation, required accommodation by the channels of the brooks, creeks, and rivers.

There were generally two distinct flood peaks, and in many of the basins the destruction was seriously aggravated, especially during the first flood, by the break-up of thick ice cover accumulated through a winter of exceptionally continuous and severe cold weather. The resulting floods were extraordinarily severe, and records of river stages, extending on some streams back to or nearly to the time of settlement by white men, were broken, many of them by wide margins. The peak of the Connecticut River at Hartford, Conn., was 8.6 feet higher than had been experienced since the settlement by white men, 300 years ago. The Susquehanna River at Harrisburg, Pa., was 3.5 feet higher than had been known in a period of record covering about 200 years. The Ohio River at Pittsburgh, Pa., was 6.1 feet higher than had been known in the period beginning 1762.

This volume presents many of the facts of these notable floods with respect to the region from the Hudson River to the Susquehanna River, for permanent record and for study and reference by engineers concerned with the building of highways, bridges, and industrial plants, planners of river development, and others. Similar volumes for the New England rivers and for the Potomac, James, and upper Ohio Rivers are presented in companion Water-Supply Papers 798 and 800 respectively.

In this volume records of stage and discharge for the period including the floods are presented for about 180 measurement stations; peak discharges with comparative data for other floods at 243 measurement points are summarized; crest stages along an aggregate length of stream channel of about 1,700 miles are tabulated; and results of detailed studies of the rainfall and run-off and many other kinds of flood information are presented.

INTRODUCTION

Extraordinary floods occurred during March 1936 in the north Atlantic slope drainage basins from the Kennebec River Basin in Maine to the James River Basin in Virginia, also in the upper Ohio River Basin in Pennsylvania and in some parts of the St. Lawrence River Basin in New York and Vermont. The loss of life and property damage caused by these floods constituted a major catastrophe. Between 150 and 200 lives were lost, and damage amounting to hundreds of millions of dollars was inflicted upon many cities and towns, railroads, highways, and other improvements. Many bridges were seriously damaged or washed away, and normal transportation was seriously disrupted and impeded. Erosion and deposition of debris also caused much damage.

The stages and discharges of these great floods were notable, not only because they equaled or exceeded those of all previously recorded floods in many of the river basins but also because the floods occurred simultaneously over an extent of area that was unprecedented in the records or traditions of floods of the region, covering many years and even centuries.

In each of the following primary drainage basins the flood discharges of the main river and most of the tributaries closely approached or exceeded, some of them by large amounts, any records of floods previously known in those areas:

Kennebec River	Thames River	Susquehanna River
Androscoggin River	Connecticut River	Potomac River
Saco River	Housatonic River	James River
Merrimack River	Delaware River	Upper Ohio River

The discharge of the Hudson River below the outlet of Sacandaga Reservoir would have exceeded all records except for the regulation afforded by storage reservoirs, of which the Sacandaga Reservoir itself was the most outstanding example. The large area included within these primary drainage basins and the nearby lesser basins or parts of basins that suffered similarly from these floods is shown in figure 1. Tributaries of the upper Ohio River that were not in extreme flood are not included in this area.

The floods of March 1936 impressed upon the inhabitants of the flooded regions as never before the magnitude of the problem of carrying flood waters down long reaches of river channel through thickly settled valleys to the ocean. The people are stimulated to search for solutions of the

problem and for ways to protect themselves against flood catastrophes in the future. It is becoming increasingly recognized and accepted that such measures must be adopted and planned on sound and adequate basic information and that one of the most essential items of such basic information consists of reliable records of floods of the past. Thus the stages,

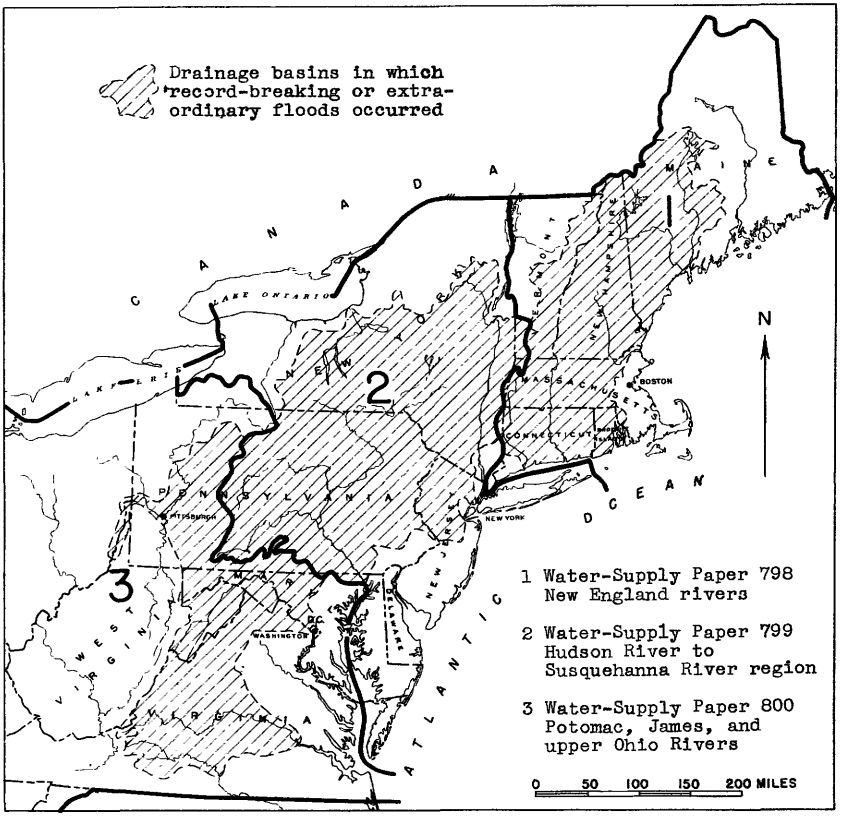

Figure 1.--Areas covered by the reports on the floods of March 1936 in the northeastern United States.

discharges, and other characteristics of these floods are of interest and importance as criteria in the design and construction of hydraulic works and should be given full consideration in plans for all future developments, so as to avoid the recurrence of loss of life and human suffering and the serious economic damages attendant upon floods for which the works of man have made inadequate allowance.

The United States Geological Survey, operating through several local district offices, maintains as a part of its regular nation-wide stream-gaging program about 400 river-measurement stations within the area ravaged by the floods of March 1936. These stations have been maintained by

the Geological Survey largely in cooperation with States and municipalities and generally for periods beginning many years prior to the March floods. By this program the Survey has obtained continuous records of stages and rates and volumes of flow of the streams, covering the range from drought to extraordinary flood.

When the record-breaking characteristics of the floods of March 1936 became known, it was recognized that the collection and compilation of data related to them were of special importance and that the information should be published in a form best suited for use in studies and designs for flood protection and flood control. Necessarily, much of this essential information had to be collected before the evidences of the floods were obliterated by normal weathering or by vegetal growth. It was recognized also that the processes of clearing away the flood debris would be undertaken promptly in every city, town, hamlet, and farm in the region, thereby destroying in many places the best evidence of flood heights. It was therefore apparent that immediate steps should be taken to collect the information regarding the floods while the evidences of them were yet discernible, in order that the essential records might be preserved and published for use in future hydraulic developments. The work that was involved went far beyond the scope of the ordinary river-measurement program, especially as it was desirable that the information should not be limited to the regular river-measurement stations but should also relate to other rivers or places not included in the routine program. The critical situation demanded prompt and energetic efforts to obtain and publish the essential stage and discharge information regarding these record-breaking floods.

Accordingly, the Public Works Administration, acting in accordance with the National Industrial Recovery Act of 1933, allotted to the Geological Survey, late in March 1936, $125,000 for surveys of stages and discharges of the floods and for the preparation and printing of reports thereon.

This volume is one of a series of three regional reports presenting the records of stages and discharges of rivers in the northeastern United States during the great floods of March 1936, also a summary of the meteorologic and hydrologic aspects and interpretative studies of rainfall and run-off relations and other information related to the floods. The three reports are published as water-supply papers under the general title "The floods of March 1936", with the following serial numbers and distinguishing subtitles pertinent to the contents of the respective volumes:

Part 1, New England rivers (Water-Supply Paper 798).
Part 2, Hudson River to Susquehanna River region (covered in this volume, Water-Supply Paper 799).
Part 3, Potomac, James, and upper Ohio Rivers (Water-Supply Paper 800).

The areas treated in the respective volumes are shown in figure 1.

AUTHORIZATION

The data contained in this series of reports were collected by the United States Geological Survey under the following authority contained in the organic law (20 Stat. L., p. 394):

> Provided, That this officer [the director] shall have the direction of the Geological Survey and the classification of public lands and examination of the geological structure, mineral resources, and products of the national domain.

Under this law, river measurements were begun by the Geological Survey in 1888 in connection with special studies relating to irrigation. Since the fiscal year ending June 30, 1895, successive annual appropriations by the Congress have included items for this work, and for many years such items have been enacted in the following language:

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

ADMINISTRATION AND PERSONNEL

The field and office work incident to the preparation of this report were performed by the water-resources branch of the Geological Survey under the general administrative direction of N. C. Grover, chief hydraulic engineer. The actual field work and the collection and tabulation of the basic information with respect to stages and discharges were done by the district engineers and their staffs in the division of surface water, C. G. Paulsen, chief. The district engineers participating in the collection and preparation of the information in this volume relating to the Hudson River to Susquehanna River region were A. W. Harrington, Albany, N. Y.; O. W. Hartwell, Trenton, N. J.; A. H. Horton, Washington, D. C.; H. B. Kinnison, Boston, Mass.; and J. W. Mangan, Harrisburg, Pa. The direct supervision and coordination of the collection of data and the final assembling of the reports were carried on in the division of water utilization, R. W. Davenport, chief. W. G. Hoyt, consulting engineer, conservation branch, has directed and prepared the presentation of information on rainfall and other climatologic features and the section on rainfall

and run-off studies. In carrying on all this work the permanent field and office staffs were assisted by temporary employees appointed by the Secretary of the Interior under the provisions of the National Industrial Recovery Act.

ACKNOWLEDGMENTS

The Geological Survey, acting through its district field offices in the region, cooperates with State and municipal agencies in the several districts. Acknowledgment is made to these cooperating agencies for participation in the collection of the systematic records of river discharge that form the broad base on which the specific flood information has been placed, also for cooperation in the establishment and operation of many river-measurement stations essential to the study and in the maintenance of field organizations in which engineers trained for investigations of this kind were available for the special duties related to the collection of the field data and the preparation of the reports.

Information appearing in this series of reports has been obtained from many sources, including individuals, corporations, and governmental organizations, local, State, and Federal. Financial cooperation in connection with the regular river-measurement program of the Geological Survey in the areas covered by this report has been received from the following agencies: In Maryland, the State Geological Survey and the City of Baltimore; in Massachusetts, the Department of Public Works; in New Jersey, the State Water Policy Commission, the North Jersey District Water Supply Commission, and the Delaware River Joint Toll Bridge Commission; in New York, the State Water Power and Control Commission, the State Department of Public Works, the State Department of Conservation, the Hudson River Regulating District, the New York City Board of Water Supply, the City of Albany Bureau of Water, and the Village of Ossining Board of Water Commissioners; in Pennsylvania, the Department of Forests and Waters; and in Vermont, the State through its executive department.

Federal agencies to which acknowledgments are made for services rendered or data furnished include the United States Weather Bureau; the Corps of Engineers, United States Army; the Public Works Administration; the National Resources Committee; and the Works Progress Administration.

Assistance in collecting records was also rendered by various individuals, corporations, organizations, and municipalities. Acknowledgments for individual contributions of data and information are given at appropriate places in the report, so far as practicable.

GENERAL FEATURES OF THE STORMS

During the period March 9 to 22, 1936, four distinct storm centers passed over the northeastern part of the United States. The first disturbance, that of March 9 and 10, passed north of Lake Ontario and was accompanied by fairly general rains in western Pennsylvania and western and central New York and by snow in northern New England. On March 10 a Gulf disturbance was centered off the Georgia coast and moving northeastward with increasing intensity. By March 12 this disturbance had

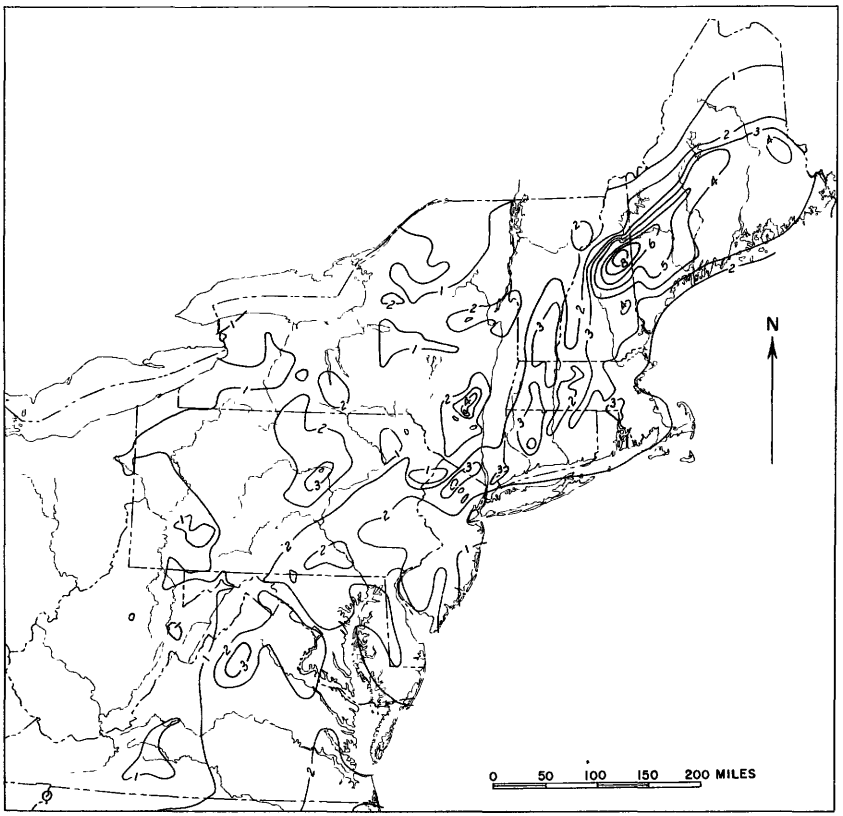

Figure 2.--Isohyetal map of the northeastern United States showing total precipitation, in inches, March 9-13, 1936.

crossed Virginia, Maryland, Pennsylvania, and New York. On the 13th the storm center had merged over western Quebec into a disturbance that had passed over the Great Lakes region on the preceding day. These disturbances were accompanied by heavy precipitation over the entire northeastern part of the United States. (See isohyetal map, fig. 2.) In this

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report the precipitation accompanying the general disturbances of March 9-10 and of March 11-12 has been treated as one general storm. Over the area as a whole, the greater part of the precipitation is recorded as having occurred on March 11 and 12. The center of maximum rainfall was in the White Mountain area in New Hampshire, with secondary centers in southern Vermont, in the Berkshire Hills in western Massachusetts and Connecticut, in the Catskill Mountains in southeastern New York, the

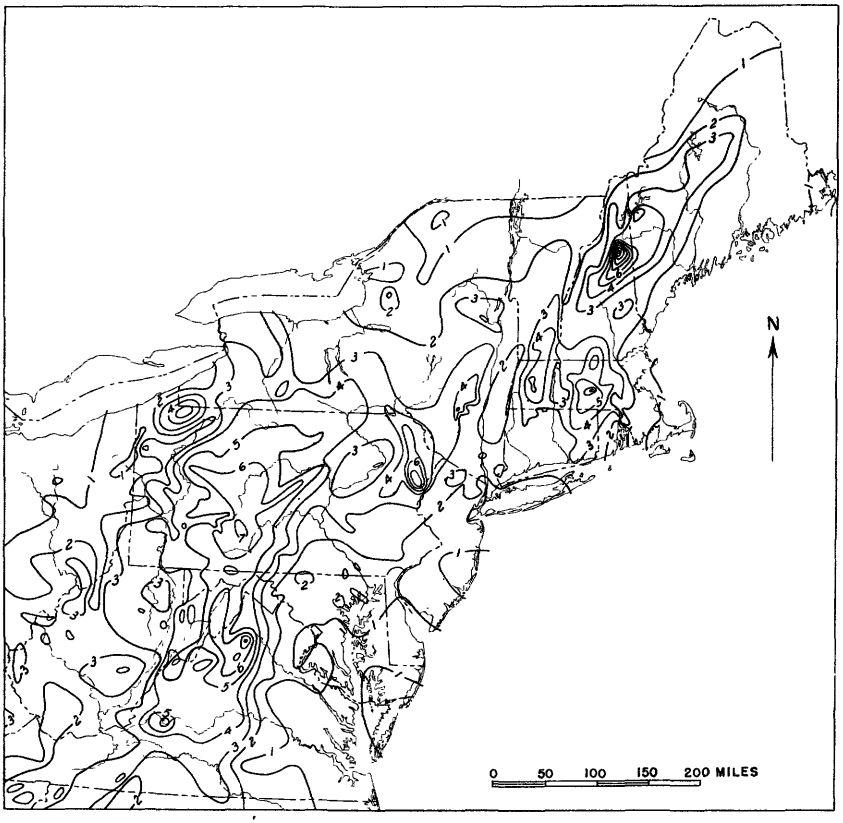

Figure 3.--Isohyetal map of the northeastern United States showing total precipitation, in inches, March 16-19, 1936.

Pocono Mountains in Pennsylvania, and the Blue Ridge in Maryland and Virginia. Precipitation over the Northeastern States was generally light on March 14 and 15 and accompanied a minor disturbance that passed over the Great Lakes and into Canada. On the 15th and 16th there was an area of outstanding low barometric pressure over the Gulf States. By the morning of the 18th this disturbance was over Virginia, and it passed over New Jersey and Connecticut on the 19th and over Quebec on the 20th. This

disturbance was accompanied by general heavy precipitation over all the areas affected by the floods. The major part of the rainfall was recorded on March 17 and 18. (See fig. 3.) Although this heavy rainfall centered in the White Mountain area, it reached very considerable magnitude (exceeding 4 or 5 inches) over most of central New England, southern New York, most of Pennsylvania, western Maryland, northern Virginia, and the northeastern part of West Virginia. On the 20th, 21st, and 22d

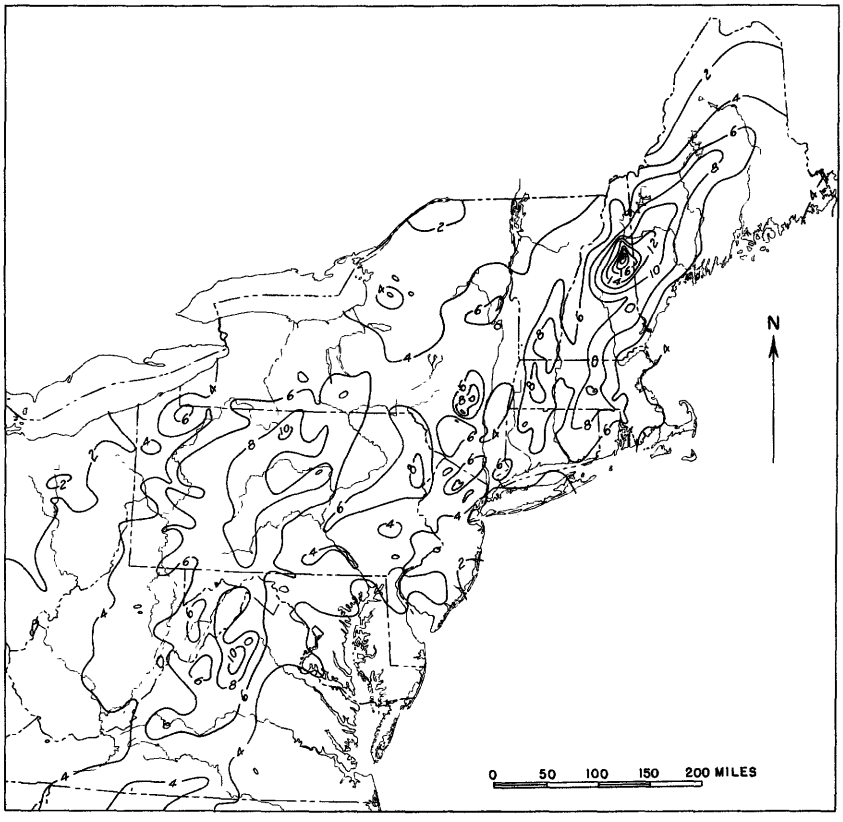

Figure 4.--Isohyetal map of the northeastern United States showing total precipitation, in inches, March 9-22, 1936.

another disturbance crossed the area, accompanied by heavy snowfalls in western Pennsylvania and western New York and by minor rains elsewhere.

Again on the 27th and 28th there was a minor storm which caused heavy precipitation in parts of the region, which however was not of sufficient magnitude to create an independent flood and was sufficiently delayed not to contribute to the major floods. The rainfall associated with the major floods is that in the period March 9 to 22. Therefore,

the analysis of rainfall in this report is applied to the two major storms in that period. Figure 4 shows the precipitation for the entire storm period, March 9 to 22.

The areal extent of the two storms in respect to depth of rainfall was approximately as follows:

Precipitation (inches)	Area covered (square miles)	
	First storm March 9-13	Second storm March 16-19
More than 8	170	150
6	1,300	6,700
4	7,900	43,500
2	76,000	163,000

The areal extent of the total storm period, March 9 to 22, in respect to depth of rainfall was approximately as follows:

Precipitation (inches)	Area covered (square miles)	Precipitation (inches)	Area covered (square miles)
More than 18	120	More than 10	4,000
16	300	8	19,000
14	800	6	66,000
12	1,500	4	168,000

In connection with the magnitude of the precipitation recorded for this storm, consideration should be given to the fact that the first heavy rain fell on a snow cover that had a water content of 1 to 2 inches in headwater areas in northern Virginia and Maryland; 2 to 4 inches over most of Pennsylvania, New Jersey, southern New York, and Connecticut; and 5 to 10 inches or more in northern New York, most of Massachusetts, Vermont, New Hampshire, and Maine. Figure 5 presents a map of the northeastern United States showing lines of estimated water content of snow on the ground March 9.

In respect to the amount and extent of precipitation, the first storm was notable but not extraordinary. In certain areas it produced larger floods than the second storm, but in general it stands out only as a major contributing factor to the catastrophe that was to follow. The second storm was of sufficient magnitude and extent to rank with the great northern storms, although it was apparently exceeded in amount of

heavy precipitation by seven outstanding northern storms which have been analyzed by the engineering staff of the Miami Conservancy District. (See Storm rainfall of eastern United States: Miami Cons. Dist. Tech. Rept., pt. 5, revised, Dayton, Ohio, 1936.) These seven storms occurred

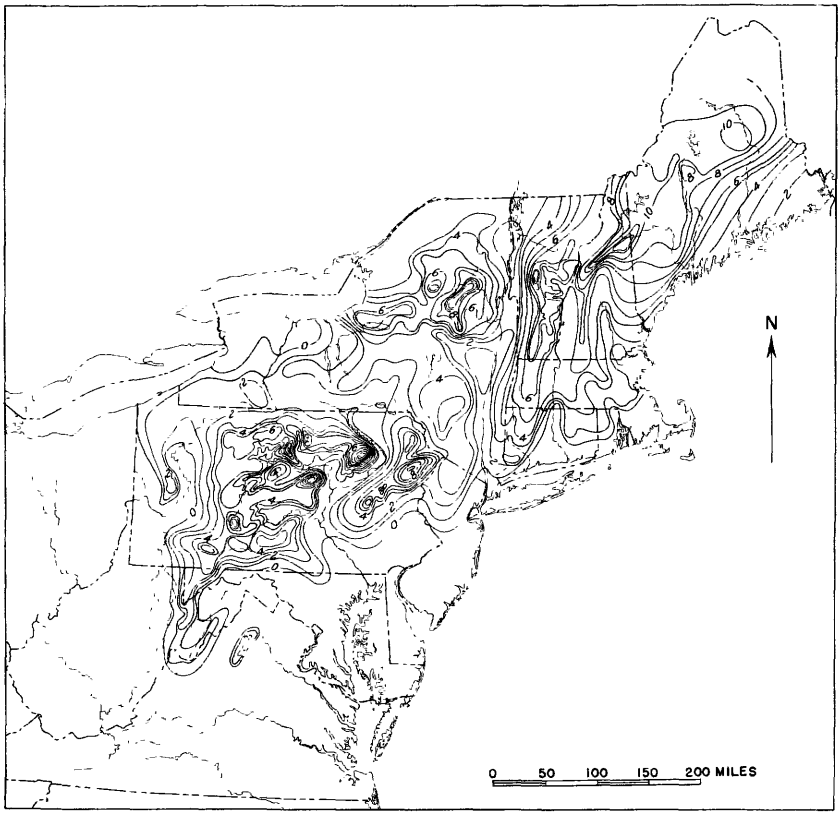

Figure 5.--Map of the northeastern United States showing the depth, in inches, of the water content of snow on the ground, March 9, 1936.

on October 3-4, 1869; May 31 to June 1, 1889; May 19-21, 1894; July 12-14, 1897; March 24-25, 1913; November 3-4, 1927; and August 23-24, 1933. The storms of March 1936 occurred earlier in the year than any of the outstanding northern storms of record prior to that time. However, if the water content of the snow on the ground March 9, 1936, is taken into account, as well as the total rainfall for the period March 9 to 22, there appears to have been a greater aggregate amount of water over the area than had occurred at any previous time covered by the record, probably exceeding that in the Miami Basin during the storm of March 1913,

which caused the Miami flood. (The rainfall of January 1937 in the Ohio River and Mississippi River Valleys has not yet been analyzed to determine its relation to the storms under consideration.)

In the companion Water-Supply Paper 800, "Floods of March 1936, The Potomac, James, and upper Ohio Rivers", there is presented a section entitled "Weather associated with the floods of March 1936" by Stephen Lichtblau, of the United States Weather Bureau, which describes and analyzes the air movements and other meteorologic phenomena incident to the floods. The section includes 12 explanatory charts and a bibliography of pertinent literature.

FLOODS OF THE HUDSON RIVER TO SUSQUEHANNA RIVER REGION

The area covered in this volume of the reports on the floods of March 1936 embraces the rivers flowing into the Atlantic Ocean from the Hudson River to the Susquehanna River and includes the Passaic, Raritan, and Delaware River Basins and minor coastal basins in New Jersey and Delaware, also rivers in the St. Lawrence River drainage basin in New York. The accompanying map (fig. 6) shows the region covered and the principal drainage basins.

The extraordinary stages and discharges of the rivers in these drainage basins during the floods of March 1936 were produced by a series of unusual meteorologic events beginning as early as December 1935. The temperatures during that month were in general lower than for any previous December since 1929, the mean temperature for the month being about 5° below the normal. The snowfall during late December was heavy over the greater part of the area, and at the end of the month a common condition was that of frozen ground covered with a heavy mantle of snow. January and February, like December, were characterized by low temperatures and heavy snows, the snowfall over some parts of the area being as much as twice the normal. The Weather Bureau reported at the end of February that a combination of sleet and snow covering the ground in northern New Jersey constituted a grave potential flood danger and that in Pennsylvania the heavy snow and ice cover, with its large water content, was regarded as an unusual flood menace.* At the beginning of March the streams in New York were still generally ice-bound, although in Pennsylvania and New Jersey the ice had gradually gone out of the streams during the moderate rises caused by the warm period near the end of February. Several small

* U. S. Weather Bureau, Climatological data, vol. 23, no. 2, February 1936.

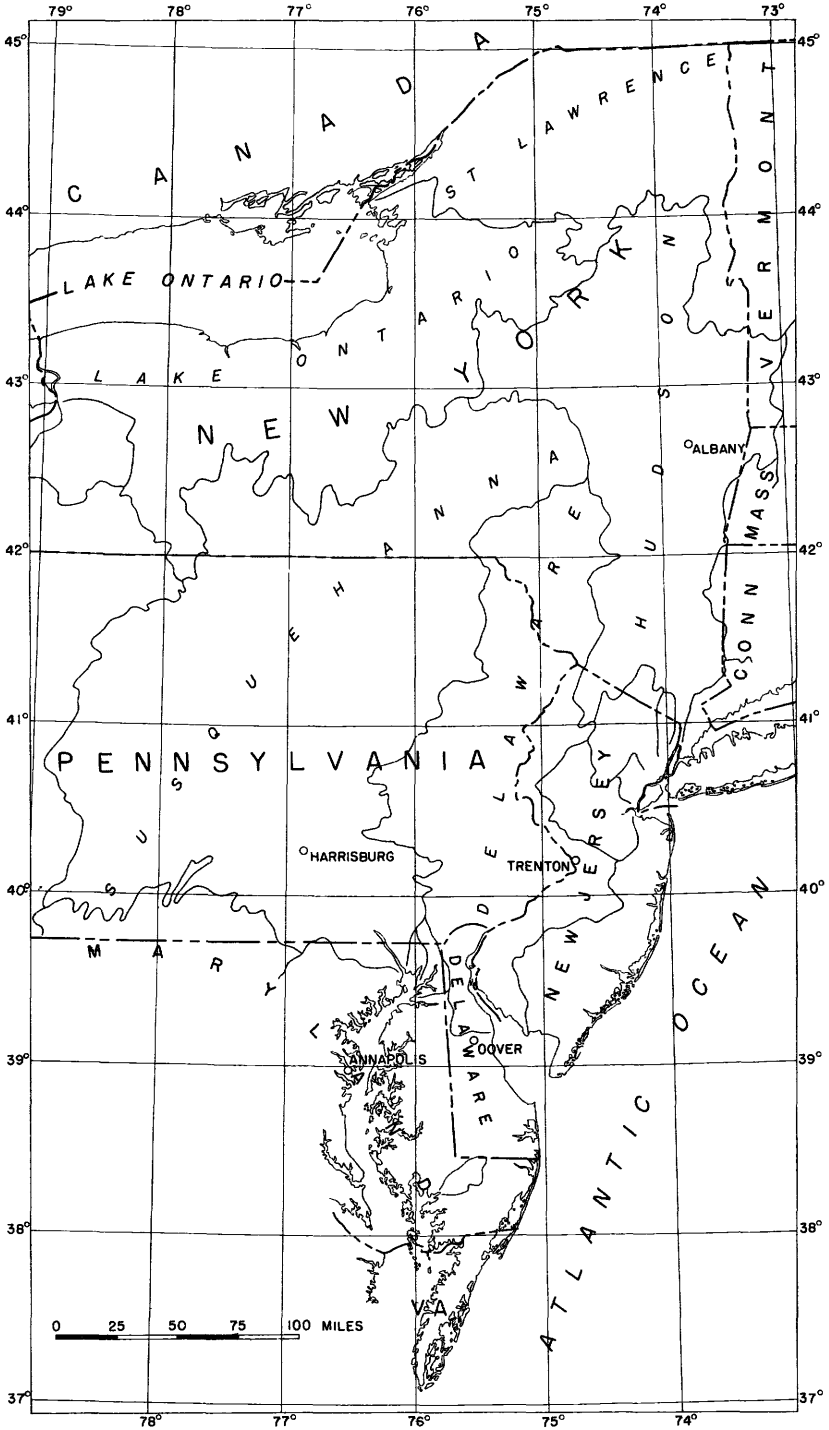

Figure 6.--Drainage basins of the Hudson River to Susquehanna River region.

streams in southern Pennsylvania were at flood stages at this time, these stages being higher than those reached in March.

High temperatures during the first 10 days in March were followed by the rains of March 11-12. The maximum precipitation during this storm, slightly exceeding 4 inches over small areas in central Pennsylvania, northern New Jersey, and in the Catskill Mountains in New York, was not unusual but in combination with the melting snow supplied sufficient water to produce flood stages and discharges in the river basins described in this report. This first flood was not of unusual magnitude and was, in most of the rivers, greatly exceeded by the flood that occurred during the following week, which was especially severe in the central and lower parts of the Susquehanna River Basin. However, stages reached during the first flood were generally the highest of the flood period on the Chemung River and its tributaries, the lower Hudson River tributaries, streams in New Jersey except the Delaware River, tributaries to the Delaware River in Pennsylvania, and small streams tributary to the lower Susquehanna River. The discharges on March 12 were the maximum of record for the Chemung River at Chemung, N. Y., the Tioga River at Lindley, N. Y., and the Tioga River near Erwins, N. Y. The total precipitation during the storm of March 17 to 19, although not abnormal in amount, exceeded that of March 11 and 12 over the greater part of the area and removed large amounts of snow and ice not carried off during the lesser storm of the preceding week. In the second storm 6 inches or more of precipitation was recorded over a large area in Pennsylvania tributary to the Susquehanna and Ohio Rivers and over a small area in the Delaware River Basin north of Easton, Pa. A considerable amount of the precipitation in the second storm in the western and central part of New York and the northwestern part of Pennsylvania was in the form of snow and sleet, thereby materially reducing the run-off that might have occurred in those areas if this precipitation had been in the form of rain.

For the area covered by this report the heaviest precipitation of both storms occurred in a zone extending in a general northeasterly direction from western Maryland through central Pennsylvania and southeastern New York. The precipitation was heavy over the entire area except in northern New York and southeastern New Jersey, where the total precipitation for the period was about 2 inches and where no noteworthy floods were recorded.

Although the waters of the first flood had receded to a considerable extent before the arrival of the second flood, many of the rivers were

A. ICE LEFT AFTER THE FLOOD IN THE DELAWARE RIVER ON STACY PARK IN THE REAR OF THE STATE HOUSE, TRENTON, N. J.

Courtesy of the Trenton Times.

B. DUCK ISLAND IN THE DELAWARE RIVER NEAR TRENTON, N. J., AFTER THE FLOOD.

Courtesy of the Trenton Times.

A. VIEW ON MARCH 20, 1936, LOOKING DOWN THE SUSQUEHANNA RIVER AT CLARKS FERRY, PA., WHICH WAS COMPLETELY INUNDATED BY THE FLOOD.

The Juniata River is shown entering the Susquehanna River at the right of the picture. Courtesy of 28th Division Aviation, Pennsylvania National Guard.

B. VIEW ON MARCH 20, 1936, LOOKING UP THE SUSQUEHANNA RIVER AT HARRISBURG, PA., OF WHICH OVER ONE-QUARTER WAS INUNDATED BY THE FLOOD.

Courtesy of 28th Division Aviation, Pennsylvania National Guard.

still high, and the flood run-off from the second storm began before the rivers had fully recovered from the effects of the first storm. This condition produced rapidly rising stages and flood discharges that exceeded any records previously obtained on many of these rivers, notably those in the Susquehanna River Basin. Not only were new records established for individual rivers, but the areal extent of such high rates of run-off, both instantaneous and total, was unusually great. In that respect the floods of March 1936 differed in characteristics from local floods produced by storms of the cloudburst type.

The loss of life and property damage were undoubtedly greater in the Susquehanna River Basin than in any of the other river basins in the region covered by this report. The complete figures showing losses and damages in the Hudson River to Susquehanna River region are not available for publication at this time.

Maximum discharges in the upper Hudson and Mohawk River Basins were materially affected by storage in reservoirs. The most striking example of the effect of storage was that afforded by the Sacandaga Reservoir on the Sacandaga River, a tributary of the Hudson River, where the run-off from 1,044 square miles was entirely controlled. Storage in the Sacandaga Reservoir undoubtedly prevented greater losses downstream along the Hudson River, especially at Albany, and it is estimated that the stage at Albany would have been higher by about 3 feet, exceeding the stages reached during March 1913, if it had not been for the effects of this storage.

Stages and discharges reached by the floods of March 1936 in the Delaware River Basin and in the Passaic, Raritan, and other streams in northern New Jersey exceeded those of other recorded floods except those of October 1903.

In the Susquehanna River Basin, except in the area of the New York State flood of July 1935 on the Chemung River and on the lower tributaries of the Susquehanna River, the stages and discharges recorded in March 1936 exceeded anything of previous record.

The highest stages on streams in the St. Lawrence Basin in western and central New York were generally not record-breaking and were not reached until about March 25-26, after the snow and sleet of the storm of March 17 had melted.

Transportation routes and means of communication were seriously crippled as the river valleys were filled and extensive overflow areas were

covered by flood water. The advance forecasts were surprisingly accurate, thus aiding materially in keeping the loss of life relatively low and in the removal to safe places of many valuable commodities.

Plates 1 to 4 and 7 to 14 illustrate conditions experienced in the Hudson River to Susquehanna River region in the floods of March 1936.

Figure 7 shows a comparison of the stages reached by the floods of March 1936 and other floods during the periods of record at four river-measurement stations in the Susquehanna River Basin. The comparison of the highest flood stages in each year from 1874 to 1936 and the highest flood stages in years previous to 1874 from which records are available on the Susquehanna River at Harrisburg, Pa., shows the manner in which the flood of March 1936 at Harrisburg exceeded in size all previous floods recorded at that place. This comparison is typical of many of the rivers covered by this report, especially in the Susquehanna River Basin.

Basic information regarding this unprecedented flood is recorded in this report for future reference and study. The adopted method of presentation has been to assemble pertinent facts and statistics in sections under subject headings such as "Meteorologic and hydrologic conditions" and "Stages and discharges at river-measurement stations during the flood period", as indicated in the contents. Under these headings the data are generally arranged by drainage basins, it being assumed that they will be most commonly used in relation to drainage-basin subdivisions and river systems. There would be some advantage in presenting the different kinds of data together as a unit for each major drainage basin, but considerations of economy and efficiency in the complete presentation of the detailed information and the desirability of avoiding unessential duplication of discussion of given subjects led to the selection of the adopted form.

Succeeding discussions of precipitation and flood discharge are related to subdivisions of the area covered by this report to show groups of major river basins as follows:

Hudson River Basin. (See fig. 8.)

Delaware River Basin and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware streams. (See fig. 9.)

Susquehanna River Basin. (See fig. 10.)

Rivers in New York tributary to Lake Ontario. (See fig. 11.)

Rivers in New York tributary to the St. Lawrence River. (See fig. 12.)

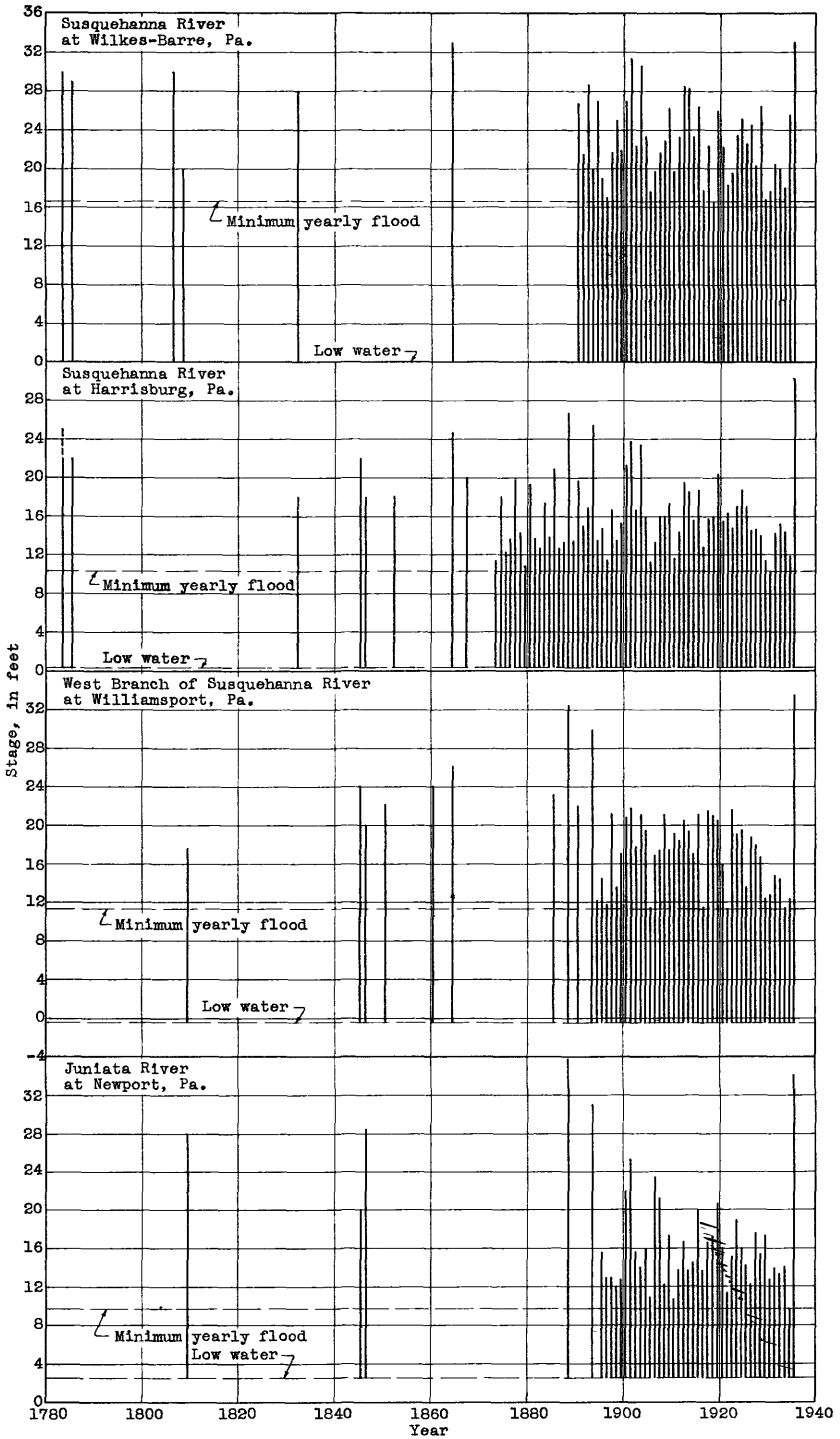

Figure 7.--Stages reached by the flood of March 1936 and previous known floods at various river-measurement stations in the Susquehanna River Basin.

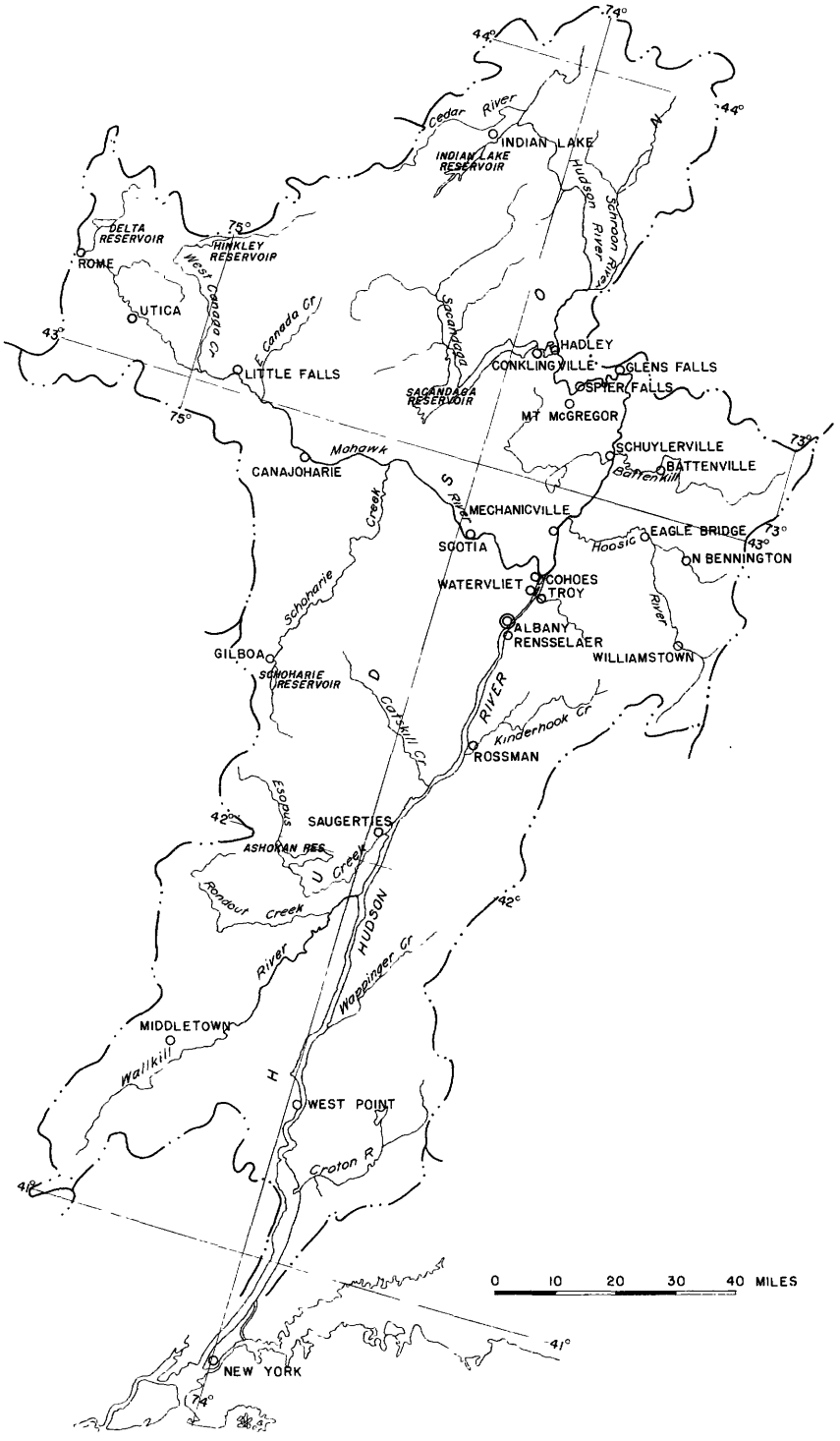

Figure 8.--Drainage basin of the Hudson River.

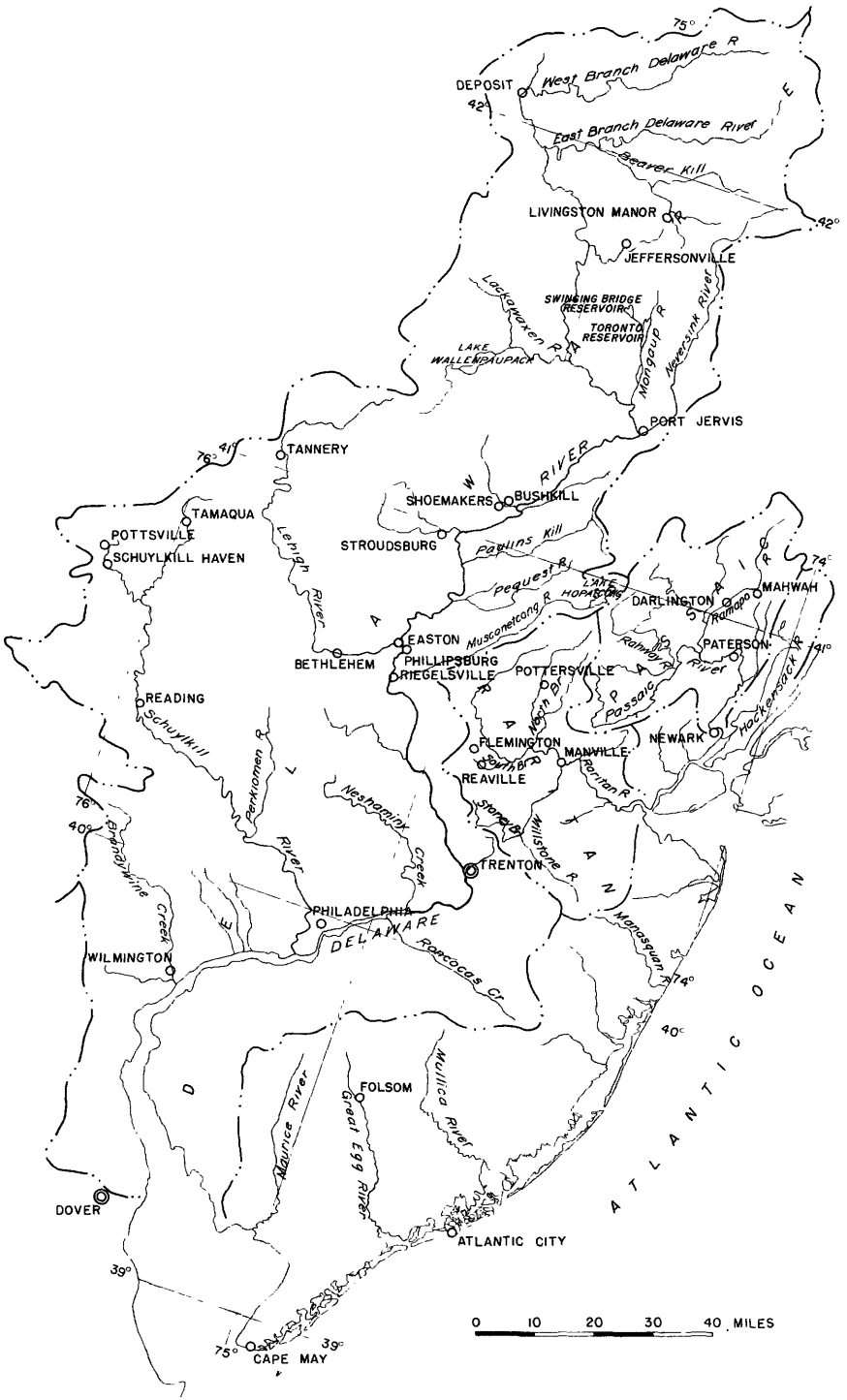

Figure 9.--Drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware.

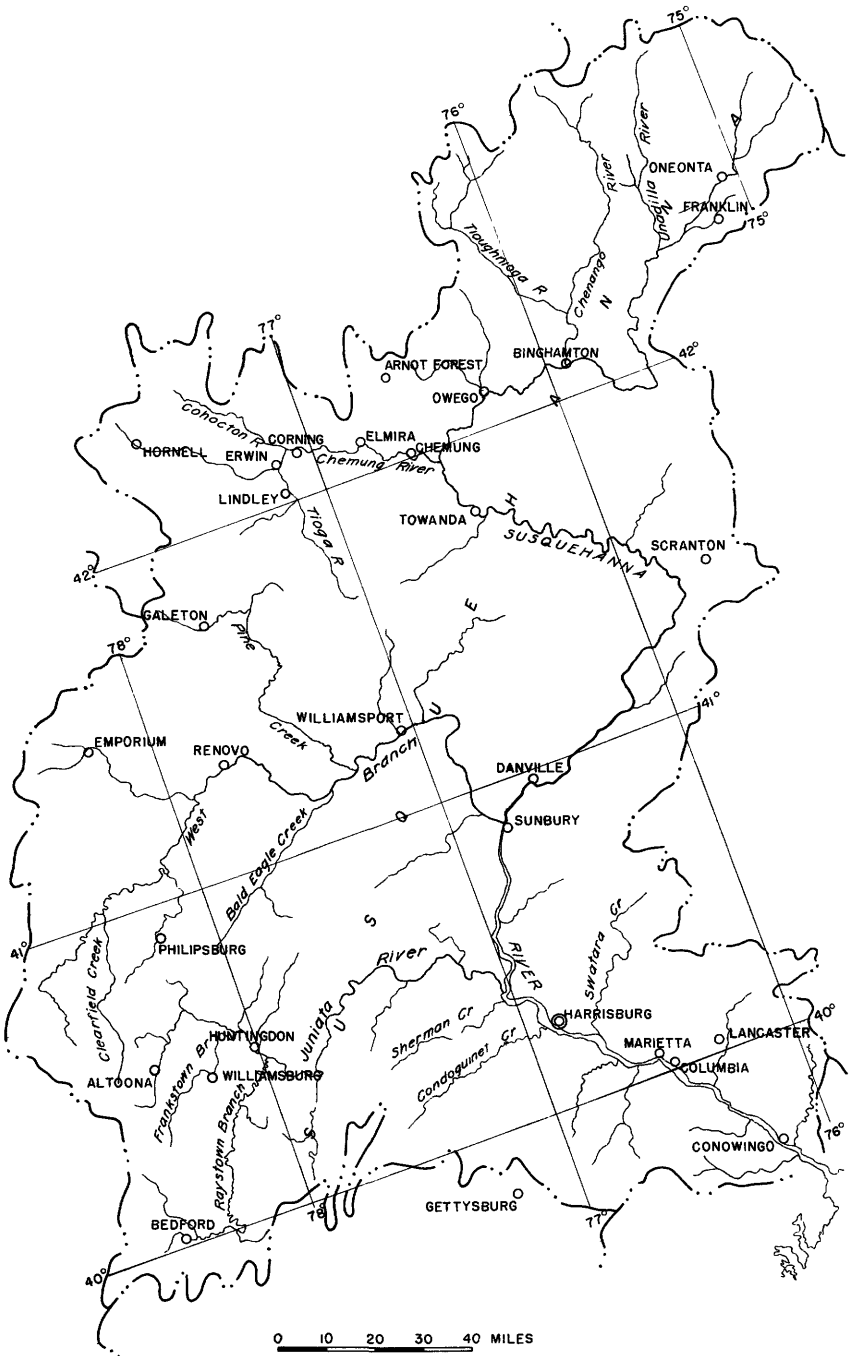

Figure 10.--Drainage basin of the Susquehanna River.

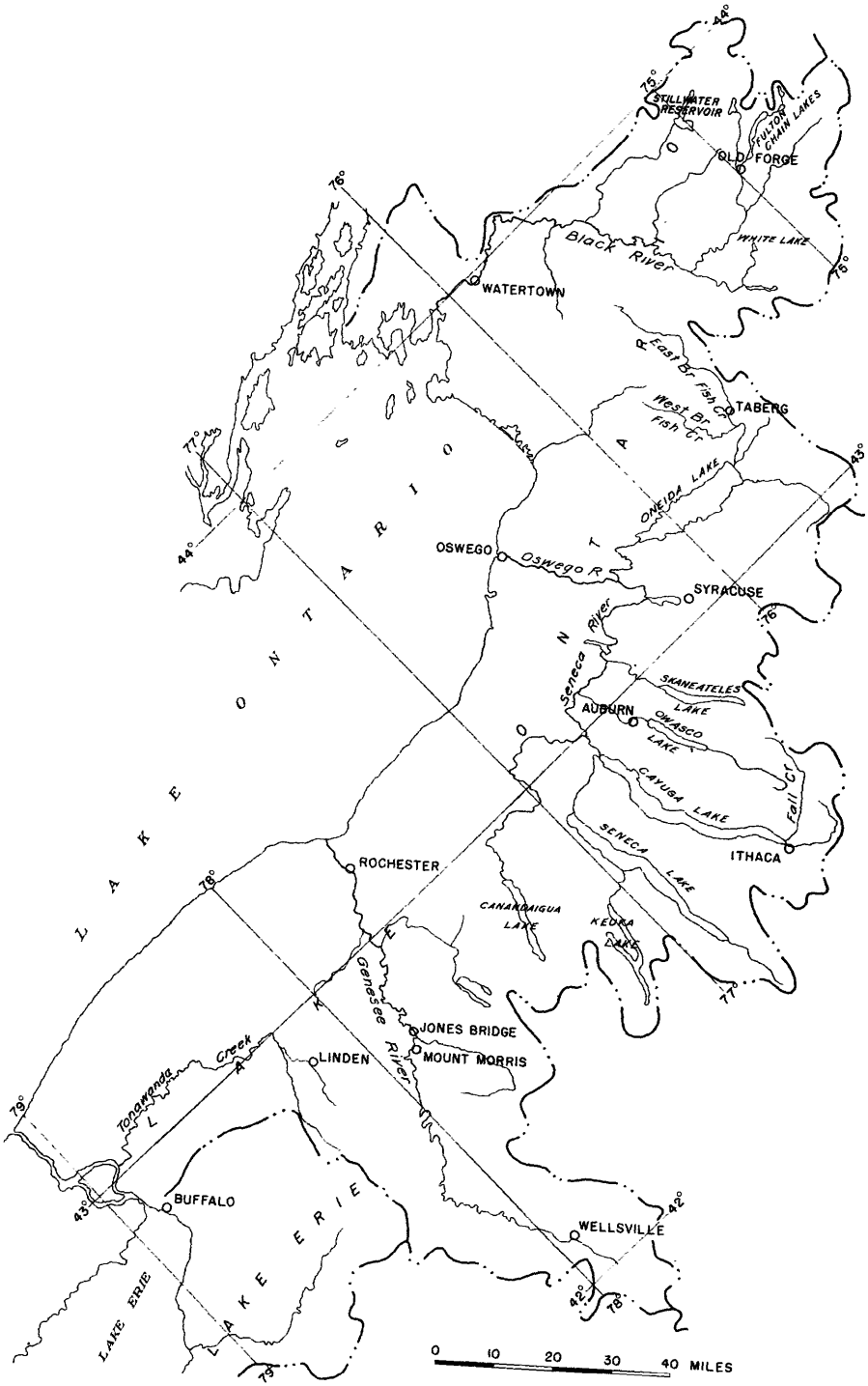

Figure 11.--Drainage basins of rivers in New York tributary to Lake Ontario.

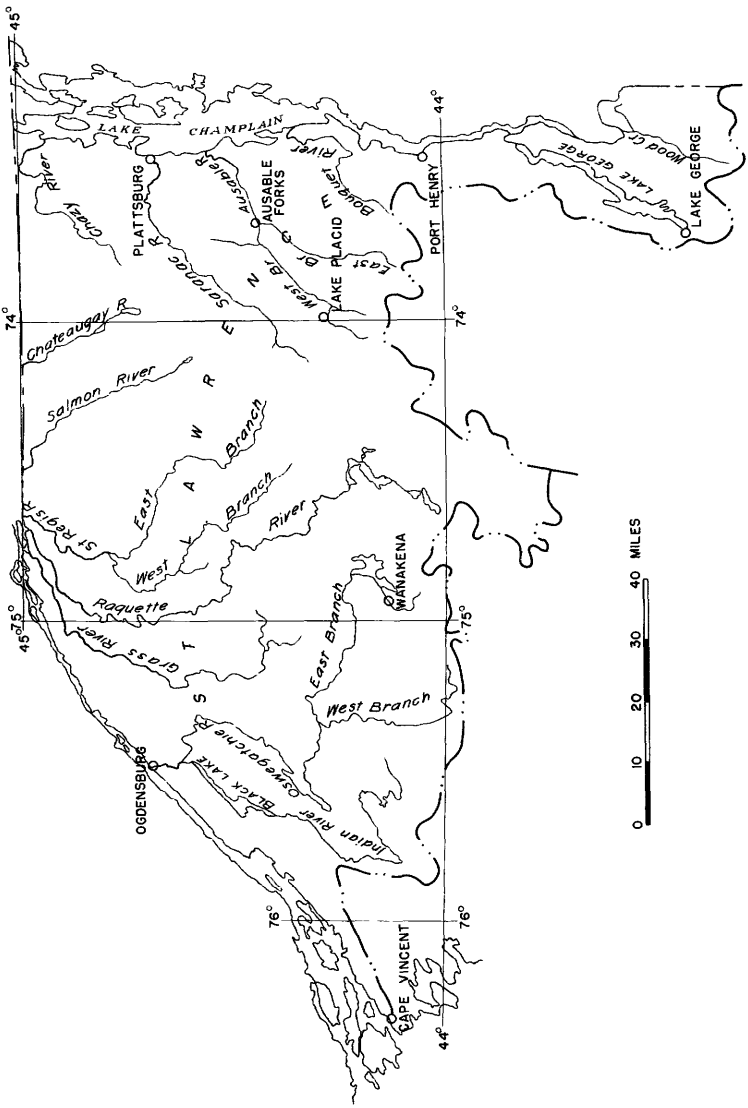

Figure 12.--Drainage basins of rivers in New York tributary to the St. Lawrence River.

METEOROLOGIC AND HYDROLOGIC CONDITIONS

In view of the exceptional magnitude of the flood flows in many areas a special effort has been made to collect, compile, and present in this report all available basic information relating to rainfall, to snowfall and its water content, and to temperature and frost conditions that may have had a bearing on the characteristics of the floods of March 1936. The information has been analyzed to a moderate extent, and the effects of meteorologic conditions on flood run-off are discussed in this report.

If each of the meteorologic phenomena over the area is considered separately, no departures from the normal that are sufficient to have caused so unusual a flood are disclosed. There have been colder winters with more snow, individual storms with precipitation exceeding that of the March storms, and higher temperatures in the early spring. However, consideration of the magnitude and favorable timing of the events as a whole discloses extremely unusual conditions. It is also evident that with only slightly different timing or combination of events and conditions the flood run-off in many areas might have been much greater. The meteorologic and related data are here presented in detail, with a view to their usefulness to engineers and others who are studying the basic causes of floods and remedial measures for protection therefrom.

Precipitation records

General

All available records of precipitation for the period March 9-22, which embraced the storms primarily causing the flood, are published in the three volumes of the flood report, each volume containing the records directly relating to the group of drainage basins treated therein. In addition there has been included a brief summary of precipitation for the months December, January, and February preceding the flood. (See table 2.) The records compiled in table 1 relate to the Hudson, Passaic, Delaware, Susquehanna, St. Lawrence, and minor coastal drainage basins. In general the records are grouped by major basins and subdivided by States. Records in adjoining minor basins are listed under the heading "Minor basins."

Records of precipitation have been obtained chiefly from the United States Weather Bureau. Records were also obtained from numerous other sources, as indicated in the tables, and these additional records have

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Table 1.-Daily precipitation, in inches, March 1936
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Hudson River Basin														
New York:														
Albany ***	0.10	Tr.	0.31	1.05	0.05	0.09	-	0.40	0.11	1.51	0.41	0.01	0.42	Tr.
Bedford Hills	-	-	.70	2.10	-	-	-	-	.30	2.10	.70	-	.50	-
Big Indian ** (a)	.01	0.32	2.47	.46	-	-	-	1.22	2.45	.80	.11	1.00	.16	-
Blue Ridge ** (b)	.17	.05	-	.63	.90	.12	-	.11	.92	.79	.06	.29	.47	-
Brown Station ** (a)	.06	.05	2.56	.42	.02	.01	-	.15	1.33	.71	.12	.67	.15	-
Cairo	-	-	.70	1.91	.13	-	0.05	-	.63	2.24	-	.03	.71	-
Canajoharie ** (c)	.23	.41	Tr.	.11	.09	Tr.	-	.28	1.04	1.00	.55	.30	Tr.	Tr.
Carmel **	.01	.01	1.81	.21	-	-	-	-	1.67	.96	.04	.47	.04	-
Cold Brook ** (a)	.01	.12	3.46	.34	.01	.01	-	.25	1.72	.58	.02	.65	.20	-
Conklingville	.39	-	1.28	.39	.09	-	-	1.51	1.45	.68	.53	-	.66	Tr.
Delta ** (c)	.35	-	-	.20	.52	.10	.04	.35	.82	.46	.20	.15	.13	0.12
Dolgeville **	.62	.34	-	.22	.32	.15	.07	.29	1.04	.35	.32	.25	.17	.15
East Jewett ** (a)	.02	.05	3.65	.42	.01	-	-	.38	3.62	.62	.15	1.01	.04	-
Edgewood ** (a)	.01	.10	3.69	.49	.02	-	-	.16	2.95	.66	.26	.63	.14	-
Elka Park **	.01	.30	3.96	.39	.04	-	.01	.44	3.42	.85	.27	1.15	.14	-
Ephratah ** (b)	.36	.39	-	.19	.17	.12	.04	.20	1.20	.47	.47	.24	.16	.13
Feeder Dam ** (b)	.18	.21	-	1.39	.41	.10	-	.14	1.33	.67	.70	.29	.08	.25
Frankfort ** (c)	.42	.05	-	.25	.25	.22	-	.32	.36	.37	-	-	.13	.10
Glenham **	Tr.	.06	.01	1.74	.20	.03	-	-	.09	1.32	.80	.12	.46	.01
Gloversville	.85	Tr.	Tr.	.55	.11	.15	-	.83	.50	1.01	.28	-	.27	.03
Grahamsville ** (a)	.19	.10	2.27	.03	.03	.28	-	.41	2.26	.68	.28	.80	.27	-
Grand Gorge ** (a)	.07	.05	.53	.21	.20	-	.09	1.31	1.62	.39	.01	.58	.09	-
Greenfield Center	.65	-	.10	.75	.25	.10	-	.65	1.00	1.00	.30	.25	.35	-
High Falls	.30	-	1.75	.20	-	-	-	.08	.65	1.45	.30	-	.62	-
Hinckley ** (c)	.42	-	-	.28	.35	.24	-	.28	.88	.34	.20	.18	.12	.17
Hoffmeister **	.30	Tr.	Tr.	.75	.36	.40	-	.44	.76	.76	.09	.06	.31	Tr.
Honk Falls	.10	*	1.65	.72	.01	-	-	.10	.57	1.41	.68	-	1.00	-
Hope	.34	1.10	-	1.13	.20	.26	.05	.10	1.10	1.02	.39	.22	.11	.30
Indian Lake										.80	.35	.19	.11	.22
Ingham Mills ** (b)	.50	.28	-	.20	.31	.14	.05	.22	1.17	.36	.20	.20	.23	.07
Jacksonburg ** (c)	.41	.12	-	.18	.09	.06	.06	.38	.63	.43	.21	.12	.24	.20
Johsonville ** (b)	.10	.21	-	.62	.47	.02	-	.05	.80	.42	.92	.25	.10	.32
Lackawack ** (a)	.07	.14	2.52	-	-	-	-	.54	1.72	.83	.22	.73	.04	-
Lake Hill ** (a)	.01	.07	2.67	.38	-	.01	.01	.22	1.95	.80	.24	.77	.05	-
Lexington ** (a)	.01	.11	1.75	.31	.01	.01	-	1.08	3.08	.43	.09	.67	.14	-
Little Falls No. 1	.62	.04	.03	.23	.25	.10	.05	.70	.20	.74	.15	-	.32	Tr.
Little Falls No. 2 **	.60	.26	-	.23	.30	.09	.02	.30	1.21	.57	.35	.16	.30	.31
Manorkill ** (a)	.01	.01	1.05	.35	.01	-	.01	1.40	2.03	.35	.10	1.00	.10	-
Mechanicville **	.14	.21	-	.59	.44	.01	.02	.02	1.25	.45	.82	.24	.08	.32
Mohonk Lake	.18	.05	1.26	1.56	.36	-	.07	.02	.66	.93	.92	.04	1.06	.02
Mount McGregor	.60	.13	.20	1.21	.31	.25	Tr.	.73	.97	1.10	.47	.24	.49	Tr.
Newcomb ** (b)	-	-	-	.48	.57	-	-	.17	.77	.49	.36	.66	.50	-
North Creek ** (b)	.08	-	-	.80	.30	.10	-	.12	1.02	1.00	.56	.33	.08	.45
North Settlement ** (a)	.01	.06	1.13	.32	.01	.01	.05	1.15	2.35	.37	.10	.72	.12	-
Oak Hill ** (a)	-	.05	2.40	.21	-	-	-	.72	3.05	.67	.15	.75	.23	-
Pecks Pond ** (b)	.56	.24	-	.57	.18	.22	-	.36	.89	.87	.37	.08	.16	-
Peekamoose ** (a)	-	.09	2.32	.28	-	-	-	.13	1.34	.76	.12	.65	.07	-
Phoenicia ** (a)	.02	.14	3.65	.43	.01	.01	-	.48	2.41	.70	.13	.69	.12	-
Pine Hill ** (a)	.02	.22	2.10	.50	.03	.06	-	1.42	1.84	.65	.10	.78	.21	-
Poughkeepsie **	Tr.	-	.80	.48	Tr.	-	-	.25	.05	1.38	.28	-	.51	.05
Prattsville ** (a)	.01	.03	.70	.31	.01	.04	.04	1.56	1.85	.38	.08	.71	.14	-
Preston Hollow ** (a)	.03	.03	1.94	.27	-	-	.04	1.17	2.42	.47	.13	.85	.35	-
Rifton	-	1.03	.66	Tr.	-	.02	.20	-	.21	1.20	.37	-	.52	-
Salisbury	.38	-	.16	.36	.46	.28	.07	.81	.14	.41	.18	.09	.16	.16
Schaghticoke ** (b)	.13	.21	-	.48	.47	.01	.02	.04	1.09	.38	.78	.15	.09	.38
Schenectady (d)	-	-	.83	-	-	-	-	*	1.76	1.39	.38	-	.54	-
Schuylerville ** (c)	.44	.12	.40	.73	-	.24	-	1.00	.67	.78	.31	-	.30	-
Scotia ** (c)	.29	.23	.11	.73	.08	Tr.	-	.36	1.23	1.40	.33	.23	.49	-
Sharon Springs No. 1	.30	-	.28	.35	.20	.18	.20	.62	.68	1.10	.10	.08	.50	.22
Sharon Springs No. 2	.80	.10	.05	.12	.06	Tr.	-	.95	.61	1.07	.14	-	.51	-

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(a) Data furnished by New York City Board of Water Supply.
(b) Data furnished by New York Power & Light Corporation.
(c) Data furnished by New York State Department of Public Works.
(d) Data furnished by City of Schenectady, Department of Public Works.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Hudson River Basin-Continued														
New York-Continued														
Slide Mountain ** (a)	0.03	0.25	3.00	0.35	0.08	0.01	-	1.08	2.86	0.86	0.38	0.97	0.18	-
Speculator ** (b)	-	-	-	1.23	-	.32	-	.22	1.25	1.30	.42	-	.50	-
Spier Falls	.20	.07	.19	1.20	.18	.03	-	.77	.84	1.15	.45	.15	.50	-
Spier Falls ** (b)	.14	.18	-	1.18	.32	.07	-	.16	1.32	.54	.69	.39	.16	0.29
Stewart Landing ** (b)	.67	.28	-	.37	.32	.31	0.09	.20	1.15	.37	.45	.19	.10	.16
Sundown ** (a)	.16	.25	2.47	-	.04	-	-	.44	2.55	.82	.39	.74	.13	-
Tannersville ** (a)	.01	.26	3.65	.42	.02	.01	-	.41	3.25	.77	.20	.85	.13	-
Trenton Falls	Tr.	-	.25	.32	.25	-	.34	.92	.43	.19	.17	.15	.10	-
Tribes Hill **	.28	.54	-	.27	.14	.07	-	.30	1.00	.74	.40	.13	.28	.02
Utica	-	-	.66	.23	-	.06	-	.49	.58					
Vooreesville **	.02	.09	-	1.27	-	.05	.02	-	.73	1.21	.97	.26	.29	.28
Walden	.07	-	.87	.39	-	-	-	.08	.16	1.49	.74	-	.62	-
Wappinger Falls	.04	.03	.33	.90	.10	Tr.	-	-	.12	1.35	.35	Tr.	.43	.02
Warrensburg ** (b)	.15	.10	-	1.40	.50	-	-	.30	1.40	1.00	.60	.45	.40	.40
Westerlo ** (a)	.09	.01	1.76	.22	-	-	.03	1.64	1.81	.12	.43	.08	-	-
West Hurley ** (a)	.04	.03	1.84	.32	-	-	-	.20	1.50	.68	.40	.76	.11	-
West Kill ** (a)	.02	.22	1.75	.36	.02	.04	.02	1.09	3.14	.39	.14	.76	.05	-
West Point	-	.05	1.07	1.32	.01	-	-	.04	.15	1.86	.99	-	.41	.09
West Shokan ** (a)	.04	.09	4.70	.58	.04	.01	.01	.22	2.07	1.12	.27	1.10	.17	-
Windham ** (a)	.01	.13	1.70	.35	.02	.03	.03	.67	3.15	.53	.08	.72	.05	-
Vermont:														
Bennington	.36	-	-	1.23	.28	.07	-	-	-	1.47	.18	-	.35	.39
Massachusetts:														
Adams **	.35	.20	-	1.19	.52	.05	.05	.02	.19	1.28	1.55	.04	.35	.53
Williamstown	.17	-	.02	1.26	.20	1.00	-	.13	.16	2.13	.25	-	.58	.25
Passaic River Basin														
New Jersey:														
Boonton **	-	Tr.	.14	1.76	.01	Tr.	-	-	Tr.	.93	.52	.05	.73	.01
Canister Reservoir (e)	.15	-	1.60	1.10	.30	-	-	-	.50	2.40	.90	.10	.80	.10
Canoe Brook **	-	-	.38	1.89	.07	Tr.	-	-	Tr.	1.02	.67	.07	.86	.05
Charlotteburg (e)	-	-	1.74	1.78	.03	.09	-	-	.17	1.75	1.35	.10	.92	.03
Chatham **	-	Tr.	.37	2.70	.04	.07	-	-	.04	1.07	.74	.13	.92	.09
Dover	-	*	2.58	.68	Tr.	-	-	.08	.20	1.53	.68	-	.90	-
Dover ** (f)	-	Tr.	.27	3.83	.13	.02	-	-	.06	1.69	.94	.17	.79	.14
Greenwood Lake (g)	-	-	.18	2.75	.17	.02	-	-	.05	1.97	.73	.12	.85	-
Little Falls **	-	-	.23	2.61	.04	.01	-	-	.01	1.67	1.01	.11	.95	.01
Milton ** (f)	-	-	.19	3.86	.22	.02	-	-	.10	2.16	.96	.35	.94	.17
Newark ***	Tr.	.01	1.17	.04	.02	-	-	Tr.	.09	1.13	.22	.25	.45	Tr.
Oak Ridge Reservoir (e)	-	-	1.56	1.98	.09	-	-	-	.26	2.00	1.06	.11	.86	.10
Paterson	Tr.	.02	1.33	.83	Tr.	.01	-	-	.14	1.03	.91	.08	.79	.01
Ringwood (g)	-	-	.39	3.21	.13	.02	-	-	.04	1.84	.69	.10	.83	-
Wanaque (g)	-	-	.85	2.18	.08	-	-	-	.03	1.43	.80	.06	.66	.01
Delaware River Basin														
New York														
China *** (h)	.36	.07	.06	.70	.06	-	-	.74	.47	1.01	.44	.06	1.18	.05
Delhi	.25	.07	Tr.	.52	.28	Tr.	-	.38	1.00	.90	.24	.06	.46	.03
Jeffersonville	.07	-	.21	.71	.10	-	-	.07	1.37	1.42	.87	.07	.78	-
Port Jervis	.02	Tr.	1.20	.95	Tr.	-	-	.15	.45	2.10	.95	-	1.10	-
Roxbury	.18	-	.40	.59	.25	.10	.02	.30	1.45	1.42	.25	.05	.65	.15
Pennsylvania:														
Allentown **	-	-	.16	1.30	.45	.02	-	-	.52	1.33	.21	.22	.36	.22
Ardmore	-	-	1.55	.22	Tr.	-	-	-	1.00	.59	.15	.12	.68	.01
Bethlehem	-	-	.70	.76	.15	Tr.	-	-	.79	1.55	.45	.11	.56	.01
Coatesville	-	.03	1.70	.80	-	-	-	-	.41	1.55	.18	-	1.05	-
Conshohocken	-	.01	.68	.49	Tr.	-	-	-	.06	.74	.11	.03	.63	.03

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(a) Data furnished by New York City Board of Water Supply.
(b) Data furnished by New York Power & Light Corporation.
(e) Data furnished by Department of Public Affairs, City of Newark.
(f) Data furnished by Sanitary Engineer, City of Jersey City.
(g) Data furnished by North Jersey District Water Supply Commission.
(h) Data furnished by U. S. Geological Survey.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Delaware River Basin-Continued														
Pennsylvania-**Continued**														
Doylestown	Tr.	-	1.06	0.50	0.03	-	-	-	0.13	1.32	0.16	0.02	0.60	0.02
Effort	-	-	2.40	-	-	-	-	-	1.92	.73	.38	.62	-	-
Freeland **	Tr.	0.02	.19	1.69	.63	0.05	-	-	.81	1.78	.52	.48	.47	.39
George School	-	.02	.80	.69	.01	-	-	-	.08	.79	.11	.04	.32	.07
Gouldsboro **	-	-	.50	2.00	.10	.10	-	-	1.50	2.55	.40	.25	-	.10
Graterford	-	-	1.12	.33	-	-	-	-	.19	1.39	.62	.07	.37	.04
Hamburg	-	-	.81	1.25	Tr.	-	-	-	.83	1.15	-	-	.44	-
Hawley **	Tr.	Tr.	.09	.97	.35	.04	0.03	-	1.41	1.61	.93	.62	.54	.15
Hollisterville	-	.02	.04	1.20	.36	.05	Tr.	-	1.44	2.00	.70	.66	.31	.56
Lakeville **	Tr.	.10	1.32	.33	.08	-	-	1.60	1.76	.78	.67	.53	.26	-
Lansford **	-	-	.26	2.04	.45	.04	Tr.	-	.87	2.39	.71	.42	.47	.10
Lehighton **	-	-	.26	.46	-	-	-	-	.96	2.11	.57	.50	.47	.16
Marcus Hook	-	*	*	1.20	.23	-	-	-	.05	1.01	.26	.05	.43	-
Matamoras **	-	-	.26	.98	.16	-	-	-	.29	1.65	.73	.30	.84	-
Mauch Chunk	-	-	1.22	1.01	-	.05	-	.08	1.61	1.51	.94	-	.54	-
Mount Pocono	0.10	.16	.26	.04	Tr.	-	.10	.10	2.60	2.60	.90	1.10	-	.10
Neshaminy **	-	.10	1.31	.35	Tr.	-	-	-	.59	.73	.13	.10	.53	-
Palmerton ***	-	.03	1.41	.60	-	-	-	.57	1.30	.90	.77	Tr.	.54	-
Paupack **	-	-	.15	1.35	.38	.04	-	*	1.75	1.92	.95	.72	.70	.16
Philadelphia ***	-	.01	.80	.35	Tr.	-	-	-	.22	.57	.13	.15	.49	.01
Philadelphia Navy Yard **	-	-	.25	.73	.34	Tr.	-	-	.01	1.04	.04	.06	.06	.61
Philadelphia (Point Breeze) ***	-	.01	.76	.40	Tr.	Tr.	Tr.	Tr.	.05	1.11	.10	.05	.47	-
Phoenixville	-	.01	1.38	.83	Tr.	Tr.	-	-	.48	1.62	.20	Tr.	.70	.08
Pleasant Mountain **	-	-	1.24	.47	.30	.07	.10	-	*	3.21	1.44	.63	.56	-
Pottstown	-	.02	.90	.35	.02	-	-	.35	.55	.38	.74	.10	.43	-
Pottsville	-	Tr.	.88	1.48	.04	.03	-	-	1.10	2.00	.56	.12	.84	.08
Quakertown	-	-	1.31	.62	.06	Tr.	-	-	.55	1.89	.12	.06	.92	.09
Reading ***	Tr.	.01	.86	.38	.03	-	-	.32	.61	.35	.73	.11	.42	-
Shawmont	-	.03	1.20	.48	Tr.	-	-	-	.07	1.06	.11	.04	.60	.02
Stroudsburg **	-	.08	.32	.56	-	-	-	.35	2.25	2.84	1.83	.31	.16	-
Tamaqua (Still Creek Dam) (i)	-	-	1.04	1.33	.11	.04	-	-	.75	2.40	.64	.05	.75	.11
West Chester	-	.01	1.50	1.37	.03	-	-	-	.35	1.64	.19	.02	.86	.03
West Grove **	-	-	.16	1.68	.25	-	-	-	.13	1.36	.14	.13	.70	.24
Zionsville	-	-	.24	.22	.15	-	-	-	.21	2.06	.24	.06	.82	.02
New Jersey:														
Belvidere	-	-	1.83	.77	.06	-	-	Tr.	.43	1.60	.56	.06	.78	-
Bridgeton	-	.52	.76	.45	Tr.	-	-	.10	.97	.15	.12	.63	.23	-
Burlington	-	-	.79	1.15	.05	-	-	-	.07	1.00	.30	.07	.35	.50
Camden ***	-	Tr.	1.02	.32	Tr.	-	-	Tr.	.25	.65	.18	.15	.45	-
Culvers Lake	Tr.	.05	.10	-	.03	-	-	-	.25	1.23	1.15	.33	.68	-
Lambertville	-	-	Tr.	1.13	.82	.04	.03	-	-	.24	1.13	.20	.04	.55
Layton	-	-	.15	.92	.06	-	-	-	.52	1.77	.97	.03	.78	-
Maple Shade	-	.03	1.05	.66	Tr.	Tr.	-	-	.10	1.07	.13	.02	.53	.01
Moorestown **	Tr.	.39	.93	.32	Tr.	-	-	Tr.	1.06	.05	.10	.33	.17	-
Newton	Tr.	-	.60	-	.02	Tr.	-	Tr.	.40	1.40	.87	.05	.75	.01
Pemberton	-	Tr.	.70	.51	Tr.	Tr.	-	-	.06	.89	.01	.05	.37	-
Phillipsburg	Tr.	Tr.	.81	.35	Tr.	-	-	Tr.	.80	1.42	1.06	Tr.	.75	-
Trenton ***	-	Tr.	1.02	.30	Tr.	-	Tr.	Tr.	.17	.72	.09	.03	.40	Tr.
Trenton No. 2 **	-	-	.16	1.14	Tr.	Tr.	-	-	-	1.13	.05	.05	.37	.04
Delaware:														
Delaware City	Tr.	Tr.	1.50	.80	.05	-	-	-	.10	.81	.15	Tr.	.75	Tr.
Wilmington	Tr.	Tr.	1.05	.96	.03	-	-	-	.10	1.07	.13	.03	.81	Tr.
Wilmington (Porter Res.)	Tr.	Tr.	.90	1.05	.05	-	-	-	.13	1.05	.11	Tr.	.71	Tr.
Susquehanna River Basin														
New York:														
Alfred	.12	-	.15	.41	.23	.14	-	.19	1.44	.68	.31	.11	.39	Tr.
Arnot (j) **	-	.18	-	1.68	.30	.22	.04	.60	.84	1.58	.91	.14	.70	.06
Bainbridge **	.13	.43	Tr.	.25	.51	.12	.05	.08	.92	.86	.31	.31	.37	.23
Binghamton ***	.34	.03	.17	.48	.04	.02	-	1.13	.40	1.38	.95	-	.63	Tr.
Cohocton (j)	.08	Tr.	Tr.	1.69	.44	.20	.10	.20	.74	1.05	.58	.82	.27	.22

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(i) Data furnished by Pennsylvania Department of Forests and Waters.
(j) Data furnished by U. S. Soil Conservation Service.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Susquehanna River Basin-Continued														
New York-Continued														
Cooperstown	0.70	0.13	-	0.30	0.30	0.17	-	0.71	0.90	0.84	0.19	0.21	0.18	0.04
Cortland	.34	Tr.	0.02	.77	.40	.22	Tr.	.55	.70	1.77	.65	-	.60	-
De Ruyter ** (c)	.30	.27	-	-	-	.12	-	.61	.81	1.20	.24	.29	.21	.04
Elmira ***	.22	-	1.05	.50	.37	Tr.	Tr.	.80	2.25	1.03	.04	-	1.31	-
Franklin (k)	.13	.44	.01	.44	.40	.02	0.04	.08	1.02	.82	.52	.17	.37	.45
Haskinville	.12	-	-	.60	.12	.33	-	.80	1.26	.58	1.30	Tr.	.33	-
Morrisville	.14	.03	.05	.39	.13	.15	-	.02	.70	1.03	.39	-	.24	.11
Norwich	.71	.04	.03	.47	.22	.18	.07	1.08	.56	.83	.37	.01	.35	-
Oneonta	.55	.08	Tr.	.44	.15	.08	.01	.48	.51	.77	.55	Tr.	.58	.06
Sherburne **	.31	.35	-	.34	.34	.11	.04	.39	.91	.74	.28	.27	.29	Tr.
South New Berlin *** (h)	.75	.02	.16	.40	.27	.03	.08	1.54	.15	.74	.25	.02	.47	.01
Truxton *** (h)	.13	-	.26	.70	.28	.11	.02	.95	.61	1.20	.58	.03	.64	.08
Woodhull	.10	.02	.70	1.20	.18	.16	-	.95	1.65	.63	1.45	.10	.26	-
Pennsylvania:														
Altoona	Tr.	.11	.47	.39	.25	.10	Tr.	.65	4.10	1.18	.65	-	.58	-
Ansonia **	Tr.	.07	Tr.	1.53	.57	.01	Tr.	.54	1.21	2.23	.65	.31	-	Tr.
Arendtsville	-	-	-	1.41	.68	-	-	-	.15	.50	.46	.23	.47	-
Baker's Summit	-	.05	.67	.60	-	-	.14	.25	4.04	2.24	.72	-	.43	-
Bear Gap (i)	-	-	1.03	.74	-	-	-	.34	1.20	.77	.61	-	.72	-
Bedford	Tr.	.50	.40	.53	Tr.	Tr.	-	.17	4.00	2.10	.33	-	.39	-
Bellefonte	Tr.	Tr.	.95	.58	Tr.	Tr.	Tr.	.55	1.52	1.43	1.37	-	.57	-
Bloserville	-	-	*	2.22	-	-	-	-	1.65	.40	.65	-	-	-
Brush Valley (i)	-	.14	1.62	.78	.11	-	-	.69	1.34	.71	.25	.38	.50	-
Buffalo Mills **	-	.10	.35	.45	.30	-	-	-	1.00	4.50	.60	-	.56	-
Carlisle	-	Tr.	1.02	1.06	.02	-	-	-	.56	1.01	.63	-	.73	-
Catawissa ***	-	-	1.08	.81	.04	-	-	.20	1.25	.28	.58	-	.65	-
Cedar Run (i)	.04	.09	.12	1.60	.82	.04	.08	.54	1.08	2.54	.70	.45	.68	.06
Center Hall	.18	.02	.36	1.50	-	-	-	.40	2.75	.75	2.25	-	.65	.02
Clearfield	.17	.05	.60	.43	.16	.17	-	.90	2.40	1.60	1.60	Tr.	.20	-
Colebrook	-	.08	1.23	.97	Tr.	Tr.	-	.12	.53	1.27	.33	.02	.69	-
Elizabethtown (i)	-	-	.10	1.04	.55	-	-	-	.26	.77	.46	.31	.56	.13
Ephrata	-	-	.76	1.23	.02	-	-	Tr.	.50	1.23	.45	Tr.	.83	-
Forest City	-	.02	.20	.86	.04	.12	-	-	.20	3.01	.50	.77	.52	.41
Galeton (i)	.16	-	1.50	.53	.08	.15	-	.92	2.10	1.04	1.18	-	2:84	-
Girardville **	-	.10	1.53	.38	.17	.02	-	.80	1.71	.68	.12	.43	.56	-
Gordon	-	.02	.85	1.85	-	.02	Tr.	.05	.66	1.90	.60	.08	.89	.09
Hanover	-	-	.81	1.17	.05	-	Tr.	-	.13	.77	.43	-	1.20	-
Harrisburg	Tr.	.11	1.65	.59	Tr.	Tr.	-	.29	1.24	.33	.53	.18	.48	-
Holtwood **	-	-	1.40	.40	.37	-	-	-	.34	.48	.13	-	.82	.03
Huntingdon	Tr.	.04	.60	.75	-	.09	-	.54	2.87	.98	1.17	-	-	-
Kylertown ***	.07	-	.66	.56	.11	.17	Tr.	1.01	4.47	.60	.51	-	.35	-
Lancaster	-	-	.86	1.88	.12	-	-	-	.35	1.45	.22	.01	.60	-
Lawrenceville	Tr.	-	.18	1.00	.10	.05	-	.85	1.40	1.10	.73	.25	.45	-
Lebanon	Tr.	.10	1.58	.48	-	-	-	.50	1.27	.48	.20	.67	.05	-
Loyalsock (i)	.05	-	-	2.46	-	-	-	-	-	3.20	.75	-	.80	-
Montrose	Tr.	-	.19	.64	.20	.10	.02	.03	.94	1.56	.61	.09	.41	-
Morris Run	.09	.04	.84	1.41	.10	Tr.	-	1.18	1.34	1.73	.78	.08	.66	-
Muncy Valley	Tr.	-	.41	1.51	.22	Tr.	.09	.18	.87	1.46	.27	.15	.76	Tr.
New Park	-	.03	1.93	.52	.03	-	-	.06	.87	.43	.77	-	-	-
Newport **	-	.02	.20	1.00	.70	-	.12	-	.80	1.15	-	-	.82	.10
North Harrisburg (i)	-	-	.19	1.68	.69	-	-	-	.77	.80	.60	.33	.45	.15
Pine Grove	.01	.02	1.96	.60	Tr.	-	-	.50	1.18	.50	.20	.20	.68	-
Renovo **	-	.12	.15	.55	.64	.04	.04	.23	1.02	3.27	-	.20	.18	-
Reservoir No. 6 (i)	-	-	1.35	-	.82	.05	-	.55	1.17	.90	.30	.43	.42	-
Retreat	-	-	.25	.98	.25	.21	.13	-	.30	1.07	.68	-	.31	-
Scranton ***	.01	Tr.	.26	.40	.05	.05	Tr.	.66	.74	.75	.65	Tr.	.91	Tr.
Selinsgrove	-	-	.21	1.15	.12	.05	-	.03	1.36	1.70	.63	-	.85	-
Shamokin (i)	-	-	1.00	.80	.05	-	-	.73	1.10	1.00	.20	.48	.35	-
Shippensburg	-	.01	.88	1.15	Tr.	-	.04	-	1.50	1.60	.75	-	Tr.	Tr.
Spring Grove (i)	-	-	.90	1.13	.10	-	-	.21	.69	.58	.45	.05	1.15	-
State College	Tr.	.05	.95	.69	Tr.	.05	Tr.	.43	2.10	1.65	1.32	Tr.	.64	-
Summerdale (i)	Tr.	Tr.	1.25	1.58	.01	Tr.	Tr.	Tr.	.96	1.09	.56	-	.65	Tr.
Towanda	.08	.05	.47	.94	.08	Tr.	Tr.	.86	.97	1.79	.61	.03	.64	Tr.
Weikert	.10	-	2.10	.65	-	-	-	-	1.36	2.00	.60	.60	-	-

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(c) Data furnished by New York State Department of Public Works.
(h) Data furnished by U. S. Geological Survey.
(i) Data furnished by Pennsylvania Department of Forests and Waters.
(k) Data furnished by Arthur Bennett.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Susquehanna River Basin-Continued														
Pennsylvania-**Continued**														
Wellsboro	0.02	0.05	0.73	0.95	0.15	Tr.	-	1.05	1.38	0.93	0.87	0.07	0.30	Tr.
Wilkes-Barre **	Tr.	Tr.	.05	.59	.38	0.02	0.03	-	.56	.92	.69	.36	.23	0.02
Wilkes-Barre (Water Co.) (i)	-	-	-	.68	.42	-	-	-	.76	.99	-	1.29	-	-
Williamsport **	Tr.	.05	.10	1.87	.79	-	.12	.15	1.53	1.62	.50	.30	.74	.15
Williams ort (Hageman Run) (i)	.30	.50	2.35	.80	-	.10	-	1.80	1.86	.53	.31	.78	.24	-
Williamsport (Mosquito Cr.) (i)	.40	.50	2.65	.55	-	.12	.60	1.65	2.12	.14	.37	.90	.28	-
Williamstown	-	Tr.	.68	1.58	-	-	Tr.	-	.45	2.10	.66	.10	1.03	-
York	-	Tr.	.79	.92	.02	-	-	-	.18	1.00	.38	-	1.00	-
York Haven **	-	-	.14	.86	.63	-	-	-	.22	.58	.39	.28	.70	.19
Maryland:														
Conowingo (o)	-	Tr.	.30	1.98	.44	.01	-	-	.06	.66	.29	.31	.16	-
Darlington	Tr.	Tr.	1.86	.32	Tr.	-	-	-	*	.90	.33	-	.58	-
Maryland Line	Tr.	Tr.	1.53	.75	.03	-	-	Tr.	.34	.90	.32	-	.82	-
St. Lawrence River Basin														
Lake Erie Basin														
New York:														
Buffalo ***	-	-	.79	.11	.42	.03	-	-	2.62	.07	.47	Tr.	.77	-
Fredonia	.03	-	.18	.24	.05	.04	-	-	.75	.22	.27	.05	.60	-
South Wales **	.08	Tr.	.25	.35	.40	.03	-	.90	1.77	.18	.78	.25	.70	-
Pennsylvania:														
Erie ***	-	-	.24	.04	.08	-	.06	-	1.58	.14	.06	Tr.	.26	-
Ohio:														
Jefferson	.04	-	.22	Tr.	.28	.06	.15	-	1.05	.43	.15	Tr.	-	.05
Willoughby	-	-	-	.02	.08	.13	-	-	.55	Tr.	.04	.23	-	-
Lake Ontario Basin														
New York:														
Andover	.39	.04	.19	.87	.20	.07	.04	.51	1.43	.91	1.01	.15	.37	-
Angelica	.22	-	.18	.46	.22	Tr.	.04	.11	1.76	.90	.60	.20	.32	Tr.
Auburn	-	-	.07	-	1.34	.36	-	.48	.74	1.03	.36	.03	.39	-
Avon	.03	-	.50	1.08	.11	.05	-	-	.80	.90	.95	.40	.50	.30
Baldwinsville ** (c)	.22	-	.02	.43	.36	.16	.02	.16	.35	-	-	.12	.30	.25
Beaver Falls	.06	-	-	.16	.36	.34	-	-	.66	.34	.10	.09	.09	.26
Bennetts Bridge (m)	.25	-	.21	.51	.54	.46	-	.03	.50	.69	.19	.08	.10	.18
Big Moose	-	-	-	.20	-	.62	.70	-	-	-	.12	-	-	.60
Boonville	.20	-	-	.50	.30	.14	-	.14	.79	.43	.14	.12	.28	.07
Brewerton ** (c)	.20	-	-	.50	.79	.15	-	.15	.64	.80	.31	-	.30	.14
Bristol Springs ** (n)	-	-	-	.65	.55	.20	.08	.11	.62	.90	.78	.40	.20	.72
Brockport	.17	-	.19	.56	.17	Tr.	-	-	1.40	1.49	.40	.08	.98	.18
Burdett ** (n)	.10	.03	.35	1.70	.60	-	-	1.60	.62	.90	.38	-	.65	-
Canadea Dam	.05	-	.17	.34	.05	.02	.03	.02	1.71	.72	.65	.04	.15	.06
Canastota ** (n)	-	-	.12	.34	.14	.06	.42	.26	1.46	.32	.15	.12	.07	-
Cayuga ** (c)	.11	-	-	.77	.29	.10	.05	.09	.66	.91	.32	.07	.33	.10
Cleveland ** (c)	.27	-	.11	-	.41	Tr.	-	-	.65	.84	.29	.15	.12	.10
Clyde ** (c)	.05	-	-	1.41	.40	.13	-	-	.83	1.32	.52	.18	.38	.30
Copenhagen	-	-	-	.22	.28	.14	-	.08	.43	.35	.07	-	.30	-
Dansville	Tr.	-	.10	.60	Tr.	.10	-	.12	1.10	.52	1.24	.23	.40	-
Eagle Falls **	.13	-	-	.18	.40	.30	Tr.	.03	.63	.26	.08	.07	.10	.50
Forestport ** (c)	.21	-	-	.34	.37	.23	-	.30	.70	.45	.15	.19	.18	.07
Fulton ** (c)	.32	-	-	.70	.42	.04	-	-	.60	.98	.34	.05	.18	.23
Geneva	Tr.	-	.36	.67	.26	.11	.10	.18	1.15	.77	.52	.15	.56	.10
Hammondsport ** (n)	.16	-	Tr.	.82	.47	.15	.06	.28	.96	1.04	.70	.62	.28	.03

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(c) Data furnished by New York State Department of Public Works.
(i) Data furnished by Pennsylvania Department of Forests and Waters.
(m) Data furnished by Niagara, Lockport & Ontario Power Co.
(n) Data furnished by Oswego River Watershed Corporation.
(o) Data furnished by Susquehanna Electric Co.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
St. Lawrence River Basin-Continued														
Lake Ontario Basin-Continued														
New York-Continued														
Hemlock	-	0.13	0.67	-	0.05	0.05	-	-	1.26	0.55	1.03	0.07	0.59	0.18
Herrings	-	-	.20	0.37	.15	-	Tr.	0.48	.24	.04	.07	.03	.55	-
High Market **	0.34	-	.03	.68	.50	.75	-	.12	.80	.52	.10	.17	.26	.30
Hooker ** (p)	-	-	1.00	1.00	-	-	1.00	1.80	1.00	.15	-	.25	.25	-
Ithaca ***	.16	Tr.	.57	.54	.15	.06	Tr.	1.00	1.18	1.02	.85	.05	.68	-
Letchworth Park	-	-	Tr.	.33	.15	-	-	-	.45	-	.12	-	.24	-
Lewiston	.03	-	.41	.32	.15	Tr.	-	-	1.63	.80	.15	.06	1.20	-
Linden ** (c)	.08	-	Tr.	.36	.33	.29	.05	-	.50	1.58	.16	.59	.15	.81
Locke (n)	.07	-	-	1.10	-	-	.09	-	1.32	-	2.03	.13	.57	-
Lockport	-	-	.78	.21	.10	Tr.	-	-	1.00	.40	.72	.03	1.05	-
Lowville **	.20	-	.30	.09	.31	.02	-	Tr.	.62	.32	.17	Tr.	.25	.04
Lyons Falls **	.11	-	-	-	.29	.17	-	.22	.34	.38	-	.07	.24	-
Macedon ** (c)	.11	-	-	.70	.32	-	.03	-	.70	1.03	.54	.23	.15	.28
McKeever **	.16	-	-	.33	.40	.28	-	.16	.68	.33	.21	.12	.10	.44
Mays Point ** (c)	.19	-	-	1.25	.31	.10	.05	.09	.73	1.12	.38	.13	.29	.20
Newark ** (c)	.18	-	-	1.18	.43	.08	.04	-	.84	1.02	.41	.30	.23	.21
New London ** (c)	.29	-	-	.19	.40	.17	-	.45	.60	.63	.17	.14	.13	-
North Lake	.10	-	Tr.	.53	.59	.29	Tr.	.57	.38	.53	.04	-	.17	.17
Oswego ***	-	-	.39	.65	.38	-	-	.02	.99	.54	.28	-	.34	-
Ovid (n)	-	-	-	.72	.28	.16	.03	.27	1.03	1.17	.33	.45	.36	.17
Penn Yan	-	-	.17	.99	.15	.06	-	.44	.96	.34	.66	-	.86	-
Rochester ***	-	-	.92	.52	.23	.01	-	-	1.15	.37	.96	Tr.	.77	Tr.
Scio	.48	-	.46	.46	.05	-	-	.30	.82	.90	1.10	-	1.00	-
Shortsville	-	-	.30	.71	-	.75	-	-	.85	1.10	.82	-	-	-
Skaneateles **	-	-	.49	.46	.30	.02	.19	.54	.82	.49	.27	.38	.24	-
Sperryville	.09	-	-	.24	.23	.20	-	-	.96	.35	.15	.08	.10	.19
Stafford	.03	-	.12	.40	.20	.02	-	-	1.35	.72	.46	.10	.80	.40
Stillwater Reservoir **	.18	-	-	.28	.60	.27	-	.08	.61	.28	-	-	.29	.52
Syracuse ***	.09	-	.17	.71	.31	.04	Tr.	.71	.69	.79	.43	.01	.58	.04
Waterloo ** (c)	.08	-	-	.95	.37	.06	.07	.14	.87	1.25	.46	.16	.27	.13
Watertown	.11	-	.03	.50	.57	.21	Tr.	-	.37	.33	.12	.01	.18	.17
Williamstown (n)	.40	-	-	.30	.46	.17	-	.13	.82	.75	.14	.19	.03	.20
Woodgate ** (p)	.36	-	-	.10	.31	.49	-	.49	.51	.62	.08	-	.10	-
St. Lawrence River Basin proper														
New York:														
Alexandria Bay	.09	-	.45	.97	.46	.06	.06	-	.78	.50	.14	.03	.43	.05
Bonaparte	.12	-	-	-	.53	.51	-	-	.42	.54	-	.13	-	-
Canton ***	.02	-	.08	.18	.36	.06	.03	-	.44	.21	.10	Tr.	.17	.29
Chasm Falls	-	-	Tr.	.29	.13	.04	Tr.	.16	.11	.20	.19	-	.26	.67
Colton	.08	-	-	.08	.40	.25	-	.53	.12	-	-	.33	.09	.33
Gabriels	-	-	-	.08	.18	.66	-	.08						
Lawrenceville	.06	-	Tr.	.11	.04	.05	Tr.	Tr.	.53	.11	.18	.25	.11	.11
Ogdensburg	.06	-	.14	.40	.21	Tr.	-	-	1.00	Tr.	-	-	.18	.22
Raquette Lake	.03	-	-	.40	.40	-	-	.70	-	.50	.20	-	.10	.08
Sabattis	.18	-	-	.24	.44	.26	-	.07	.40	.38	.08	.20	.18	.29
South Edwards	-	-	.08	.64	.86	-	-	.74	.22	.19	.11	.09	.35	.07
Tupper Lake **	.05	-	-	.19	.36	.05	.03	.24	.24	.23	.33	Tr.	.36	.17
Wanakena	-	-	.09	.41	.33	Tr.	.05	.43	.24	.06	.10	.18	.33	.13
Lake Champlain Basin														
New York:														
Ashley ** (b)	*	.47	-	*	1.69	-	*	*	1.70	-	*	1.14	*	.13
Chazy	Tr.	-	-	.59	.13	.33	-	-	.33	.15	.10	.15	.51	.10
Dannemora	.20	-	-	.45	.35	.15	-	.05	.30	.25	-	.45	.45	.35
Lake Placid Club	-	-	.10	.26	.15	-	.30	.45	.85	.22	.12	.10	.32	.30
Port Henry ** (b)	-	.06	-	.38	.93	.06	-	.07	1.12	.20	.44	-	.41	.28
Smiths Basin ** (c)	.16	.28	-	1.38	-	.38	-	.67	1.07	.61	-	.52	.30	-
Whitehall ** (c)	.28	-	.24	1.62	.18	Tr.	-	1.60	.18	.71	.36	-	.33	Tr.
Willsboro	Tr.	-	.02	.96	.49	.02	-	.54	.48	.39	.07	.16	.49	-

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(b) Data furnished by New York Power & Light Corporation.
(c) Data furnished by New York State Department of Public Works.
(n) Data furnished by Oswego River Watershed Corporation.
(p) Data furnished by Black River Regulating District.

Table 1.-Daily precipitation, in inches, March 1936--Continued
(Measured in the afternoon except as noted)

Station	9	10	11	12	13	14	15	16	17	18	19	20	21	22
St. Lawrence River Basin-Continued														
Lake Champlain Basin-Continued														
Vermont:														
Burlington ***	0.03	Tr.	0.03	0.99	0.46	0.04	-	0.78	0.14	0.31	0.10	-	0.32	0.03
Cornwall	.03	Tr.	-	1.55	-	-	-	.68	.75	-	-	0.32	.45	-
Enosburg Falls	.15	-	-	.78	.45	-	-	.37	-	.45	-	-	.54	.86
Northfield ***	.16	-	.09	1.12	.09	.01	-	1.34	.29	.59	.18	-	.90	.10
Rutland	.36	0.19	.01	.77	.28	.11	-	.63	1.07	.33	.16	.14	.32	.02
Minor basins														
New York:														
Mount Vernon ***	Tr.	.09	1.33	.49	.02	-	-	-	Tr.	1.26	.26	.21	.25	-
New York City ***	-	.01	1.09	.28	.01	-	-	-	.06	.97	.16	.11	.37	Tr.
Scarsdale	-	-	1.00	2.30	.05	Tr.	-	-	Tr.	1.17	.53	.24	.51	.04
Sparkill ** (e)	-	-	.12	2.50	.10	-	-	-	.04	1.00	.60	.07	.55	.05
Spring Valley ** (e)	-	-	.15	2.55	.05	-	-	-	.02	1.27	.78	.15	.74	.05
New Jersey:														
Atlantic City ***	.03	.09	.78	.07	Tr.	-	-	Tr.	.29	.66	.09	.03	.15	.01
Belleplain	-	.55	1.10	.45	.05	-	-	-	-	1.05	Tr.	.05	.50	.20
Elizabeth	-	.03	.94	.58	Tr.	.01	-	-	.07	.86	.45	.20	.60	.06
Flemington	Tr.	-	.98	.67	.03	Tr.	-	-	.19	1.18	.33	-	.52	.11
Freehold	-	-	1.20	.58	.03	Tr.	-	-	.03	.96	.23	-	.58	.05
Hammonton	Tr.	Tr.	1.42	.69	Tr.	-	-	-	.07	.98	.11	.02	1.10	.13
Hightstown	-	Tr.	.94	.41	.02	.01	-	-	.01	1.00	.07	.07	.45	.03
Indian Mills	-	-	1.00	1.27	-	-	-	-	.04	.66	.14	.10	.58	-
Jersey City	-	.01	1.00	.45	.01	-	-	-	.02	.70	.56	-	.48	.01
Lakewood	Tr.	Tr.	.30	.40	.02	-	-	-	Tr.	.92	.08	.09	.45	.05
Long Branch ***	Tr.	-	1.20	.28	Tr.	-	-	-	.06	.86	.08	.16	.36	Tr.
New Brunswick	-	-	.85	.47	Tr.	Tr.	-	-	.06	.87	.25	.09	.51	.05
New Milford **	-	-	.19	2.79	-	-	-	-	-	1.01	.53	.11	.83	-
Northfield	-	.02	.93	.23	-	-	-	-	.01	.93	.04	Tr.	.26	.09
Plainfield	-	-	*	2.02	.02	.02	-	Tr.	*	1.43	.13	.02	.72	.01
Pleasantville **	-	.02	.64	.36	.12	Tr.	-	-	-	.97	.03	.08	.12	.26
Ridgefield ***	Tr.	Tr.	2.00	.29	Tr.	.05	-	Tr.	.03	.97	.89	.12	.83	-
Runyon	-	-	1.12	.65	-	-	-	-	-	.95	.22	.06	.41	.07
Sandy Hook ***	Tr.	.02	.96	.19	.03	-	-	-	.06	.86	.08	.12	.44	-
Somerville	Tr.	Tr.	1.36	.87	.02	-	-	-	.06	1.36	.36	.09	.62	.03
Tuckerton	-	.10	.24	.19	.03	-	-	-	-	.34	.14	.06	.14	.06
Woodcliff Lake **	-	-	.14	2.50	-	-	-	-	-	1.01	.73	.09	.82	.02
Delaware:														
Bridgeville	Tr.	.01	1.36	.41	.05	-	-	-	.10	.72	.02	-	.48	Tr.
Dover	Tr.	.02	1.76	.65	.02	-	-	-	.03	.80	.08	Tr.	.60	.05
Milford	Tr.	.15	1.61	.53	.08	-	-	-	.07	.81	.05	-	.51	.03
Millsboro	Tr.	.13	1.93	.25	Tr.	-	-	-	*	.83	Tr.	-	.50	Tr.
Maryland:														
Aberdeen ***	Tr.	Tr.	1.23	.26	Tr.	-	-	Tr.	.50	.11	.28	.36	.06	-
Annapolis ***	Tr.	.03	1.35	.47	Tr.	-	-	Tr.	.57	.06	.18	.19	.37	-
Baltimore ***	Tr.	.01	2.10	.55	.01	-	-	.22	.81	.18	.38	.59	.30	-
Cecilton	Tr.	Tr.	1.30	.30	Tr.	-	-	-	.25	.75	.70	-	.80	-
Coleman	Tr.	Tr.	1.10	.70	Tr.	-	-	-	.07	.56	.33	-	.44	-
Dundalk ***	Tr.	.01	1.91	.48	Tr.	-	-	*	.65	.47	.46	.41	.23	-
Easton	Tr.	Tr.	1.60	.63	.04	-	-	Tr.	.04	.75	.15	-	.72	-
Elkton	Tr.	.02	1.88	.62	Tr.	-	-	-	.11	1.10	.14	-	.82	-
Fallston	Tr.	Tr.	1.38	.54	Tr.	-	-	-	.02	.63	.28	-	.51	-
Lutherville	Tr.	Tr.	1.75	.90	Tr.	-	-	Tr.	.40	1.15	.30	-	.85	-
Maryland Line	Tr.	Tr.	1.53	.75	.03	-	-	Tr.	.34	.90	.32	-	.82	-
Millington	Tr.	.02	.88	.61	Tr.	-	-	-	.05	.82	.18	-	.68	-
Parkton	Tr.	Tr.	*	2.92	Tr.	-	-	Tr.	.28	1.20	.39	-	1.06	-
Pleasant Hill	Tr.	Tr.	1.55	.85	Tr.	-	-	Tr.	.10	.90	.45	-	.75	-
Ridgely	Tr.	Tr.	1.42	.52	Tr.	-	-	-	.08	.58	.06	-	.50	-
Rock Hall	Tr.	.02	1.42	.50	.02	-	-	-	.05	.65	.53	-	.64	-
Stevensville	Tr.	Tr.	1.40	.60	.02	-	-	.02	.02	.70	.40	-	.72	-
Towson	Tr.	Tr.	1.80	.90	Tr.	-	-	Tr.	.58	1.20	.42	-	.92	-
Woodstock	Tr.	.02	1.16	.90	Tr.	-	-	.10	.50	.81	.41	-	.68	-

* Included in next measurement.
** Measured in the morning.
*** Measured at midnight.
(e) Data furnished by Hackensack Water Co., Weehawken, N. J.

been of great value in supplementing the Weather Bureau data. By their collection and inclusion in this report they are made available for future reference.

The figures represent the amounts of precipitation as reported by observers and are not strictly comparable on individual days, as the observations at the various stations were not always made simultaneously. The amount as recorded usually represents the rainfall for the 24-hour period preceding the time of observation. Rainfall occurring during the daylight hours may be recorded under the date of occurrence when observations are made in the late afternoon or under the date of the following day when the observations are made in the early morning.

Distribution of rainfall

In general throughout the area from Maine to Virginia all of the precipitation relating to the floods, except as occurred in the form of snow prior to March 9, occurred during the 14-day period March 9-22.

Fortunately the meteorologic conditions during the storm period were so similar over the entire area that the record in each basin could be treated uniformly as follows:

1. Throughout the area light precipitation in the form of either rain or snow occurred on March 9 and 10. Beginning about March 11 the intensity of the precipitation increased, and heavy rains continued through the 12th and in the northern areas on the 13th. This so-called first storm has therefore been treated as a unit. The recorded precipitation from March 9 to 13 was plotted on Geological Survey base maps (scale 1:500,000) and an isohyetal map prepared showing total rainfall for the first general storm. This base map has been reduced to appropriate scales for publication and shows the isohyetals of the first storm for the major drainage basins. (See figures 13, 14, 15, 16, and 17.)

The areas between the isohyetal lines on the original base map were measured by planimeter for the drainage basin above each gaging station, and the average total precipitation for each basin was determined. The results of these determinations are shown under "Rainfall and run-off studies" in column 5, table 9.

2. Beginning about March 16 and continuing through the 19th heavy precipitation occurred throughout the area, with major portions occurring on March 17 and 18. In some areas part of this precipitation occurred as snow. The period March 16-19 constitutes the so-called second storm. The

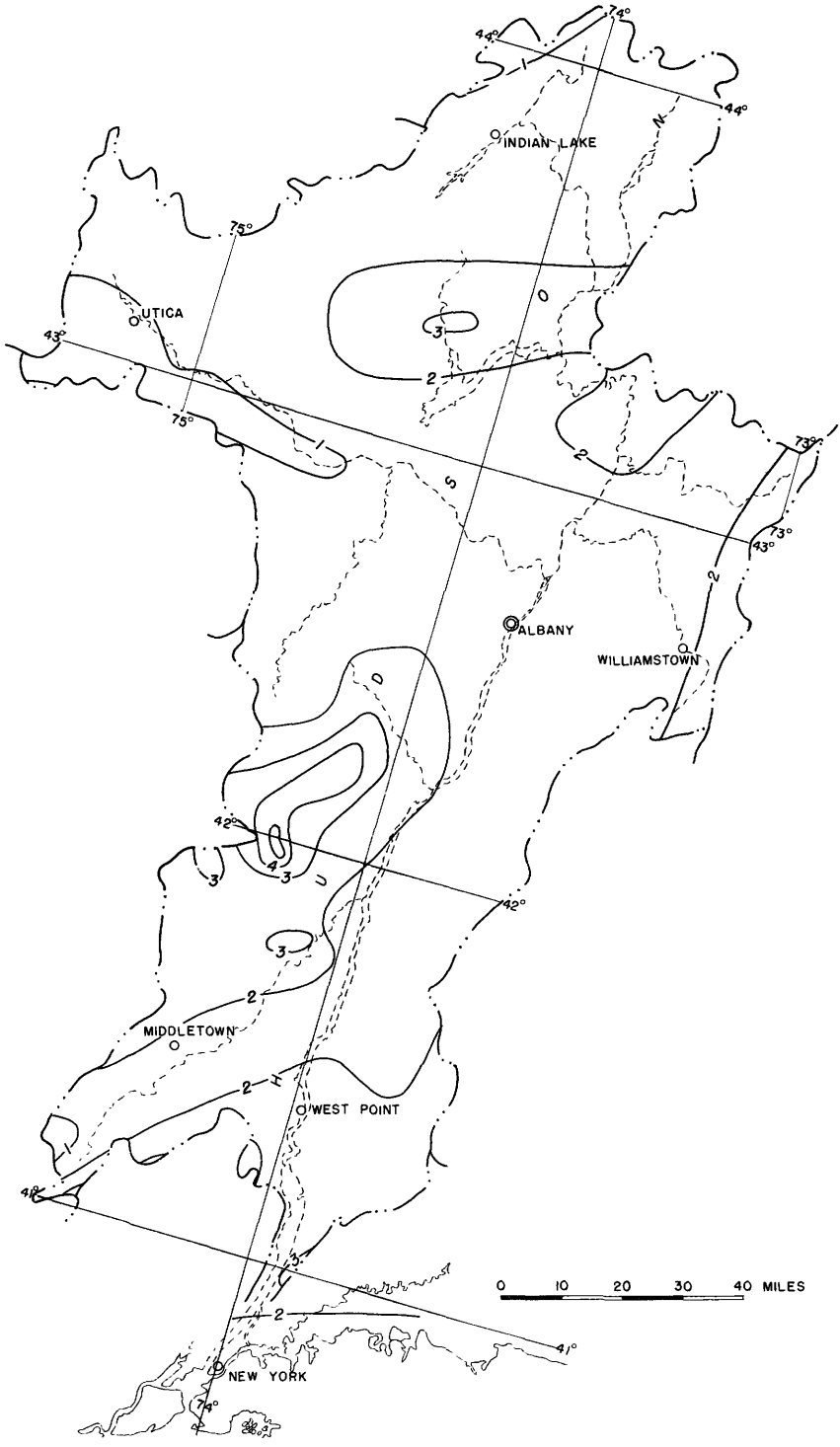

Figure 13.--Isohyetal map of the Hudson River drainage basin, showing the total precipitation, in inches, March 9-13, 1936.

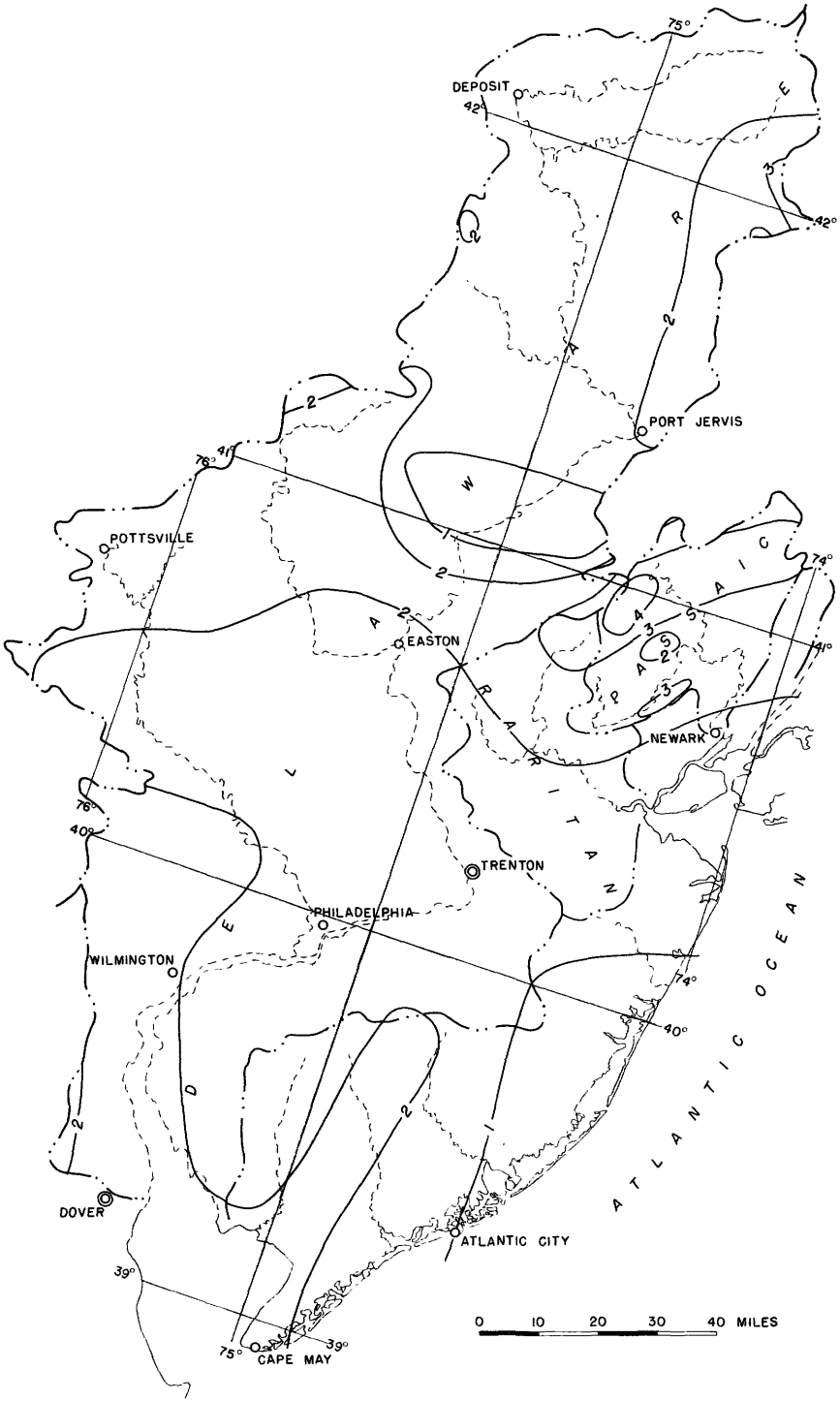

Figure 14.--Isohyetal map of the drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware, showing the total precipitation, in inches, March 9-13, 1936.

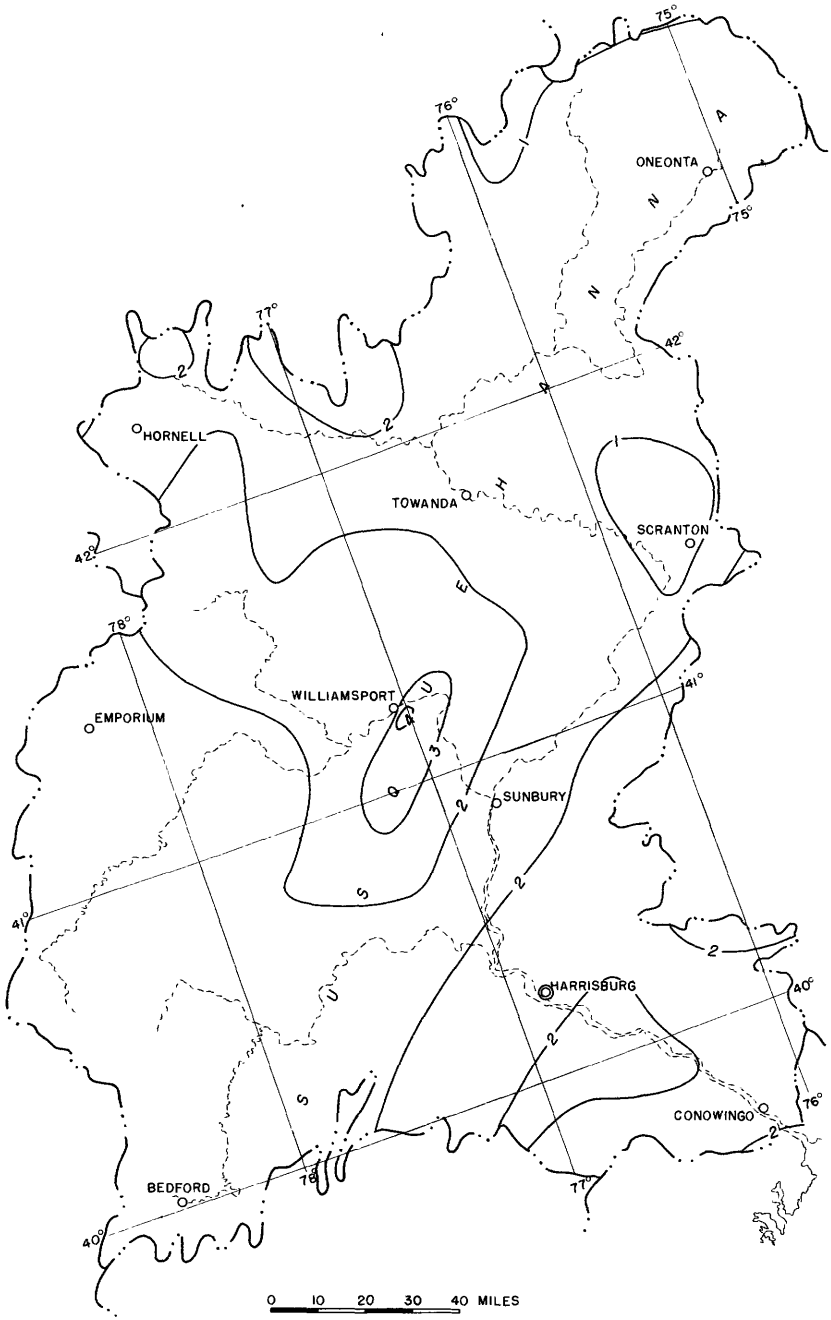

Figure 15.--Isohyetal map of the Susquehanna River drainage basin, showing the total precipitation, in inches, March 9-13, 1936.

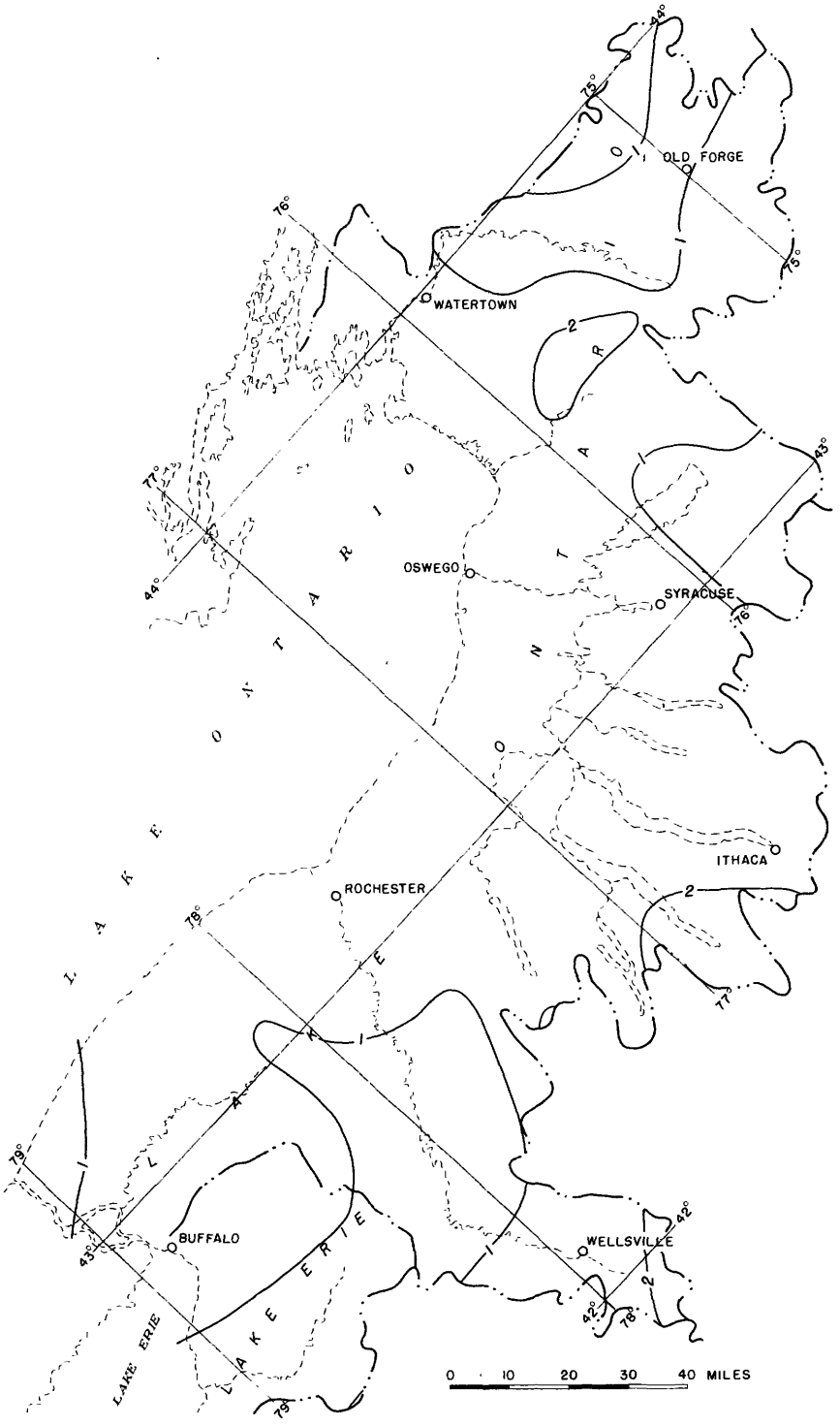

Figure 16.--Isohyetal map of the drainage basins of the rivers in New York tributary to Lake Ontario, showing the total precipitation, in inches, March 9-13, 1936.

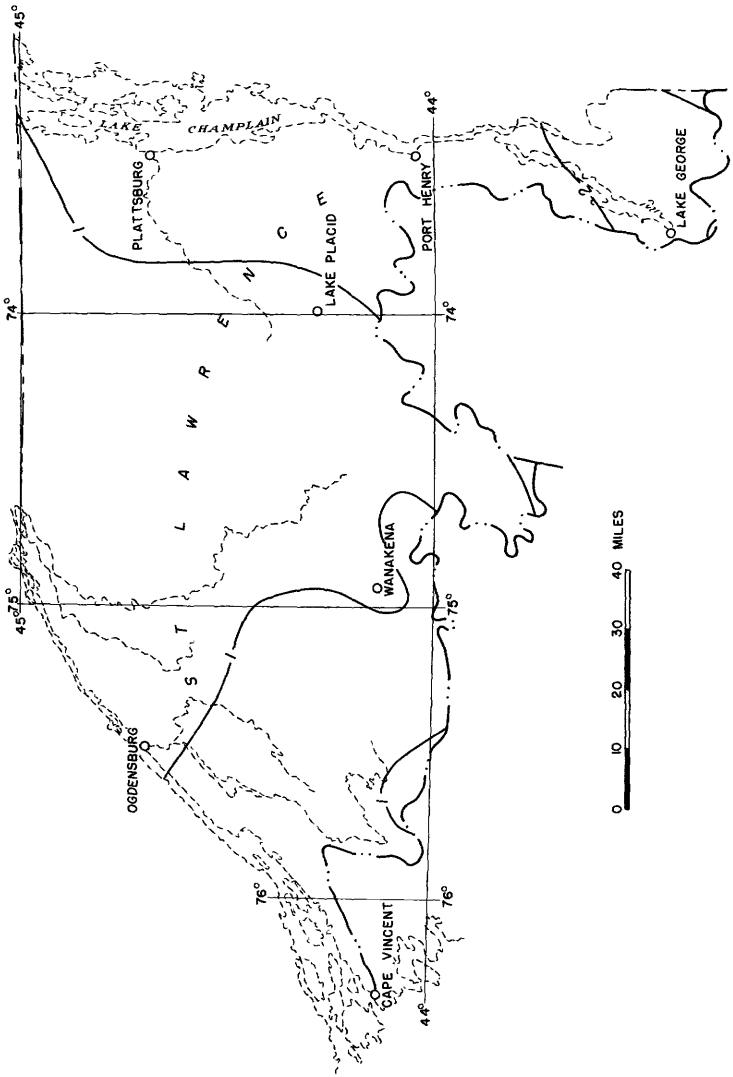

Figure 17.--Isohyetal map of the drainage basins of the rivers in New York tributary to the St. Lawrence River, showing the total precipitation, in inches, March 9-13, 1936.

recorded precipitation for these dates was totaled, an isohyetal map prepared, and total precipitation for each basin determined in the same manner as for the first storm. (See figures 18, 19, 20, 21, and 22 and column 6, table 9.)

3. The total precipitation during the period March 9-22 is shown in figures 23, 24, 25, 26, and 27 and column 7, table 9. These data include also minor amounts of precipitation that were recorded in some areas on March 14 and 15 and the precipitation that occurred on March 20 and 21, part of which fell as rain and part as snow.

In drawing the isohyetals little weight was given to the influence of topography, as time did not permit a thorough analysis of the recorded data with respect to altitude. The basic data included in this report will enable the users to undertake more refined and detailed studies in a particular region. These data will also enable an investigator to make a different time-period analysis of the storm precipitation from that herein contained, if he desires.

As shown in table 2, the antecedent precipitation throughout the area partly embraced in this section of the flood report was below normal during December and February and considerably above normal during January. The total precipitation for the three months was slightly below normal in all States except New Jersey and Delaware. No special abnormality is disclosed in these records.

Table 2.- Monthly precipitation and departure from normal, in inches, December 1935 to February 1936

State	December 1935		January 1936		February 1936		December to February	
	Total	Departure	Total	Departure	Total	Departure	Total	Departure
Massachusetts	1.25	-2.28	6.78	+3.06	2.95	-0.53	10.98	-0.25
Connecticut	1.05	-2.68	7.01	+3.15	2.70	-.90	10.76	-.43
New York	1.85	-1.05	3.55	+.62	2.18	-.50	7.58	-.93
Pennsylvania	2.62	-.54	4.21	+.99	2.33	-.53	9.16	-.08
New Jersey	1.67	-1.98	6.34	+2.77	3.10	-.51	11.11	+.28
Delaware	2.61	-.89	7.23	+3.85	2.72	-.39	12.56	+2.57

Extreme abnormality prevailed, however, in the total precipitation for March, of which that recorded from the 9th to the 22d constitutes the major part. Prior to March 9 there were light rains in the southern part

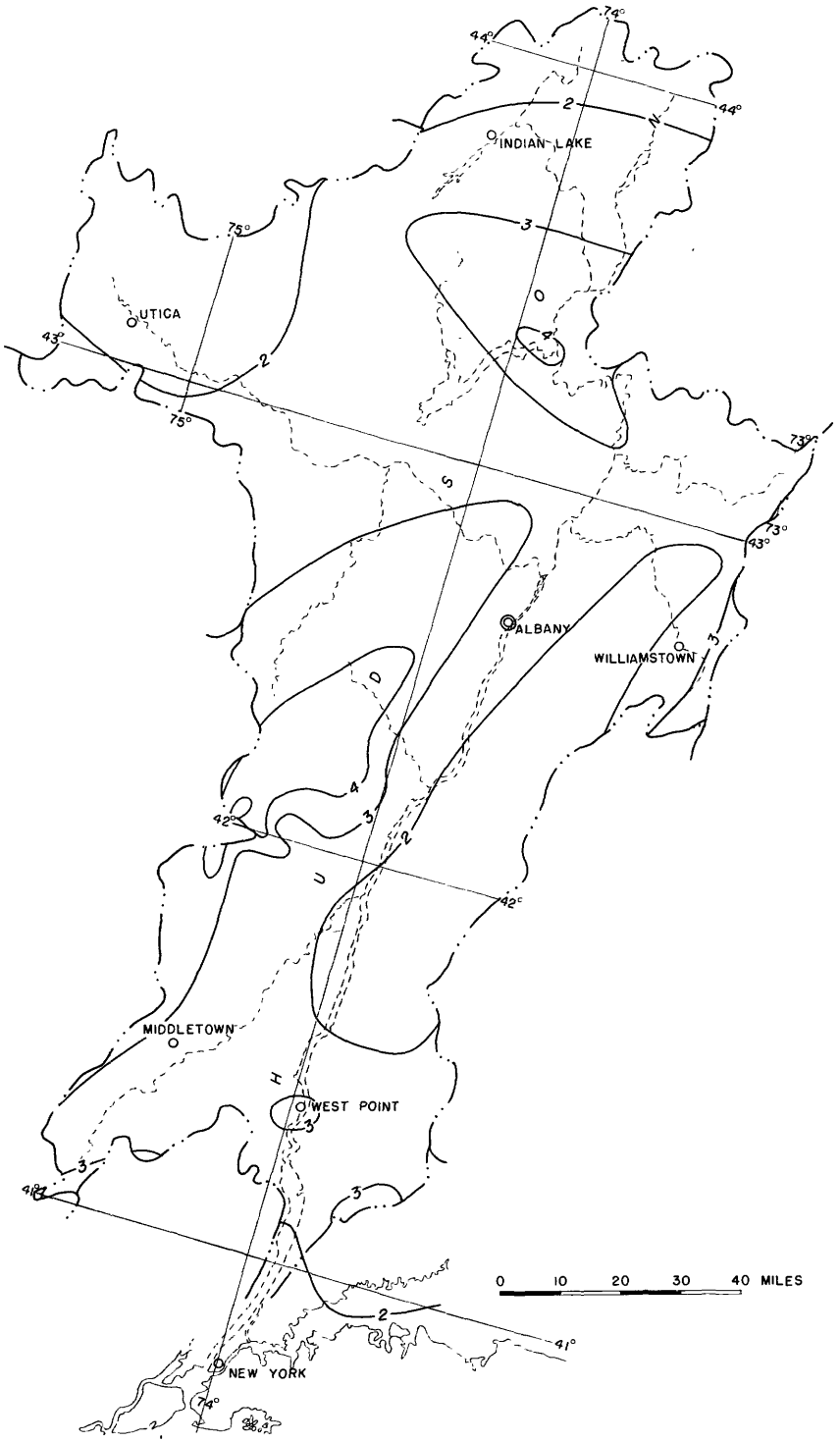

Figure 18.--Isohyetal map of the Hudson River drainage basin, showing the total precipitation, in inches, March 16-19, 1936.

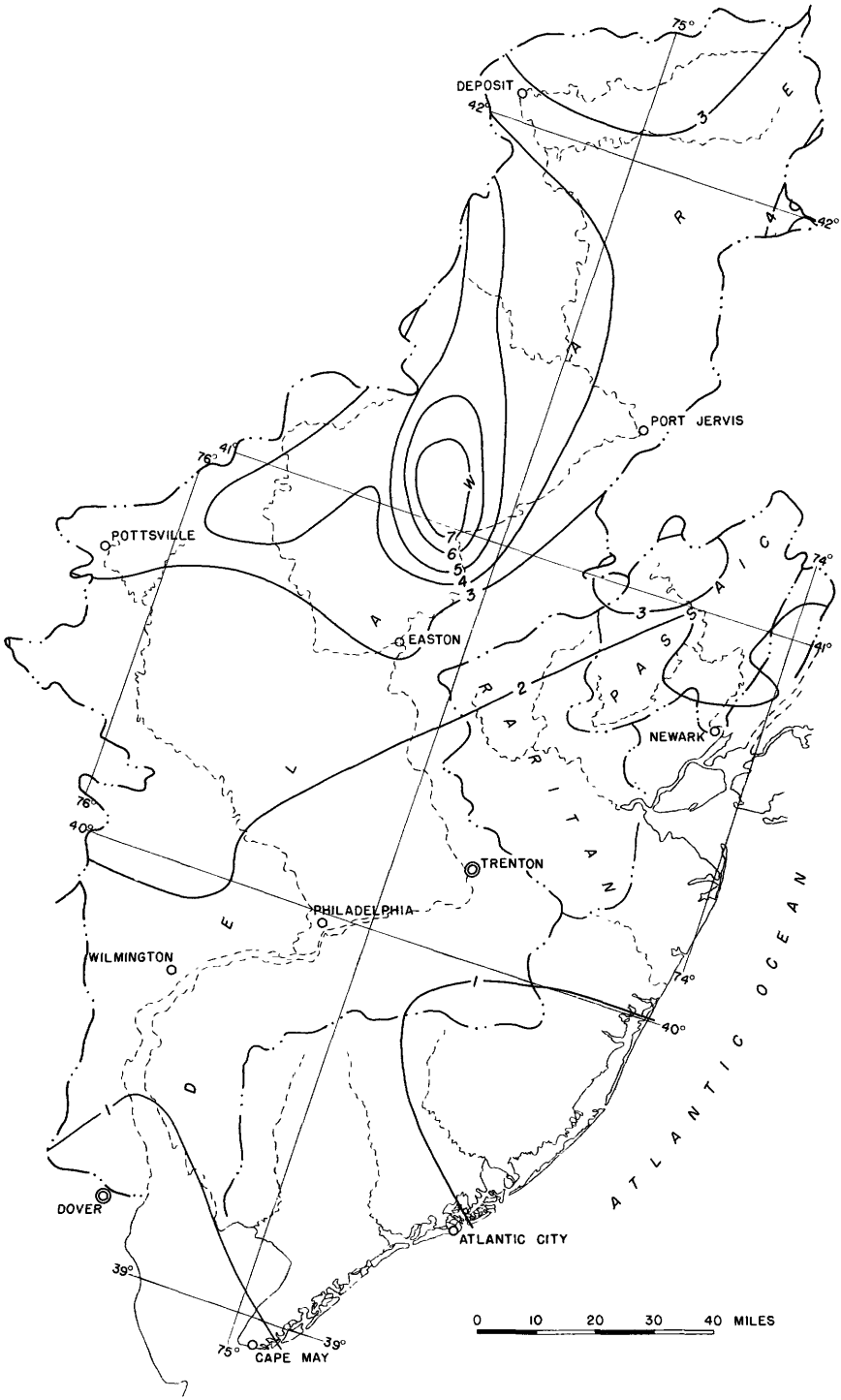

Figure 19.--Isohyetal map of the drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware, showing the total precipitation, in inches, March 16-19, 1936.

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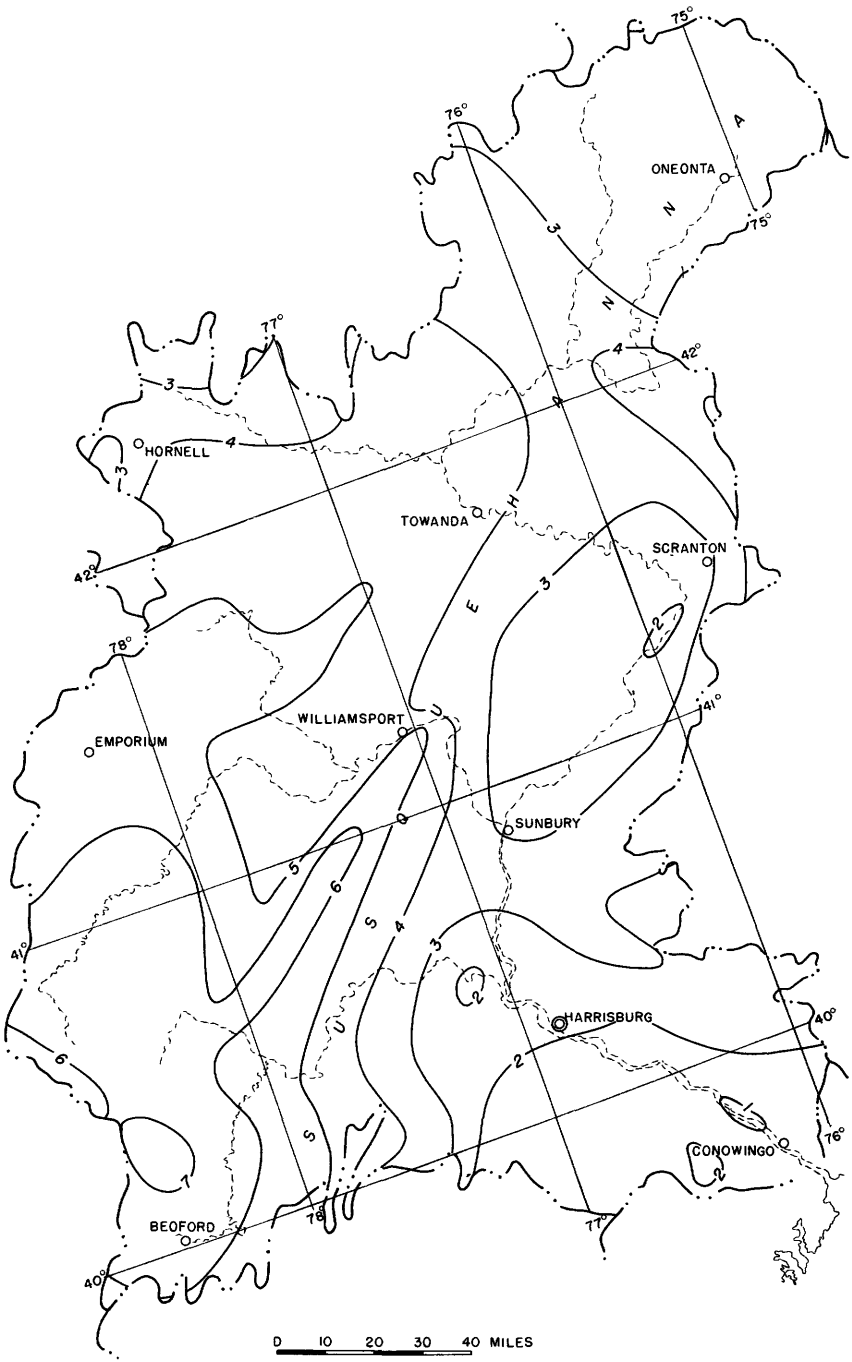

Figure 20.--Isohyetal map of the Susquehanna River drainage basin, showing the total precipitation, in inches, March 16-19, 1936.

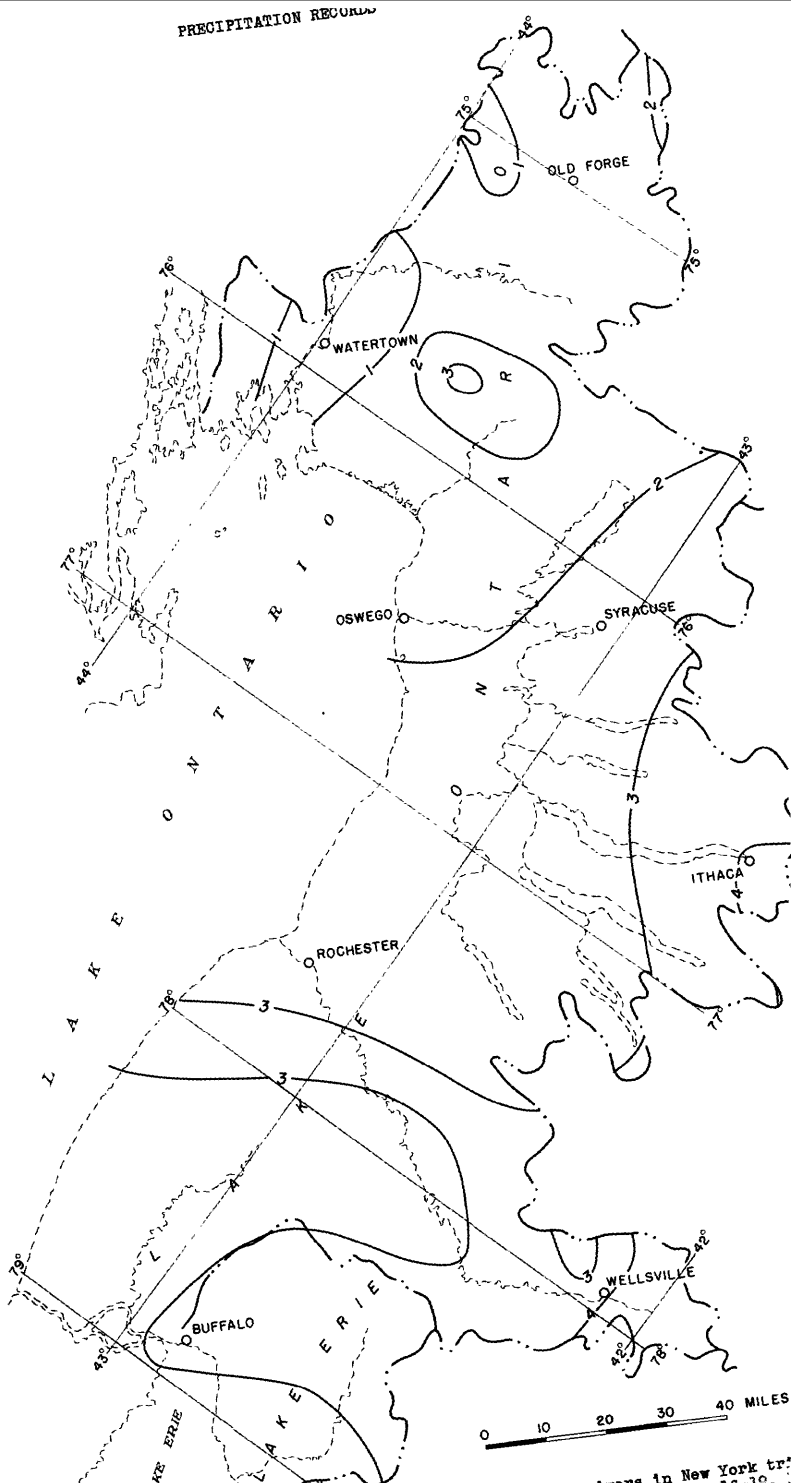

Figure 21.--Isohyetal map of the drainage basins of the rivers in New York tr
to Lake Ontario, showing the total precipitation, in inches, March 16-19,

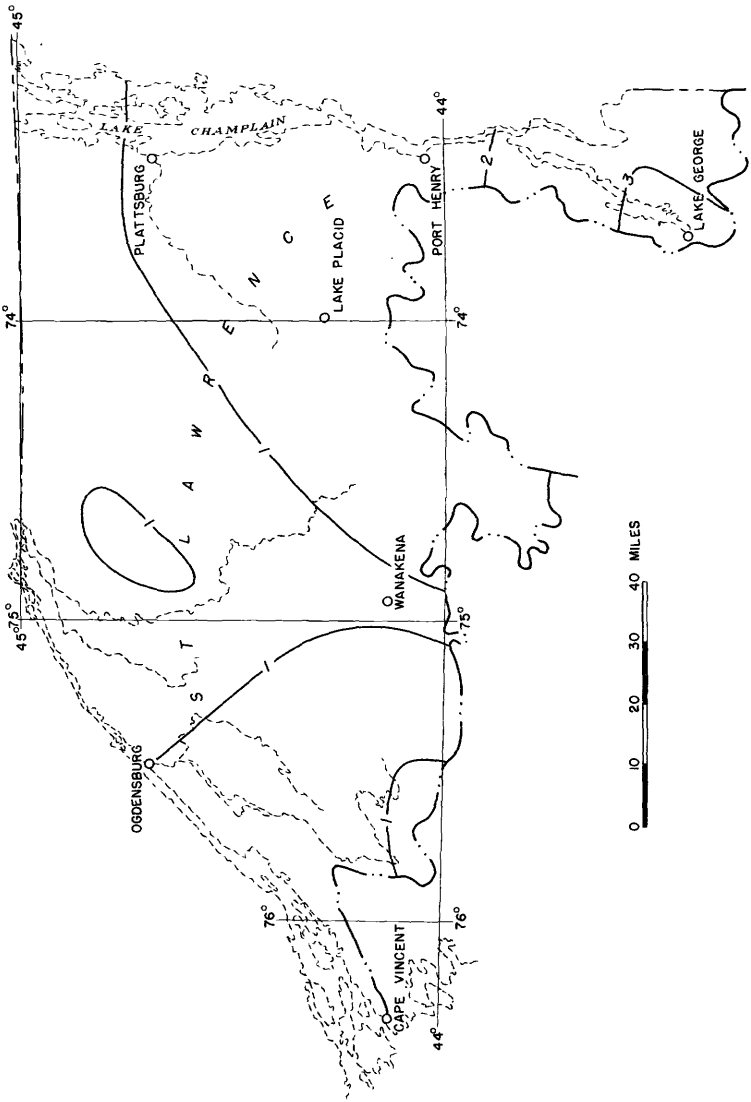

Figure 22.--Isohyetal map of the drainage basins of the rivers in New York tributary to the St. Lawrence River, showing the total precipitation, in inches, March 16-19, 1936.

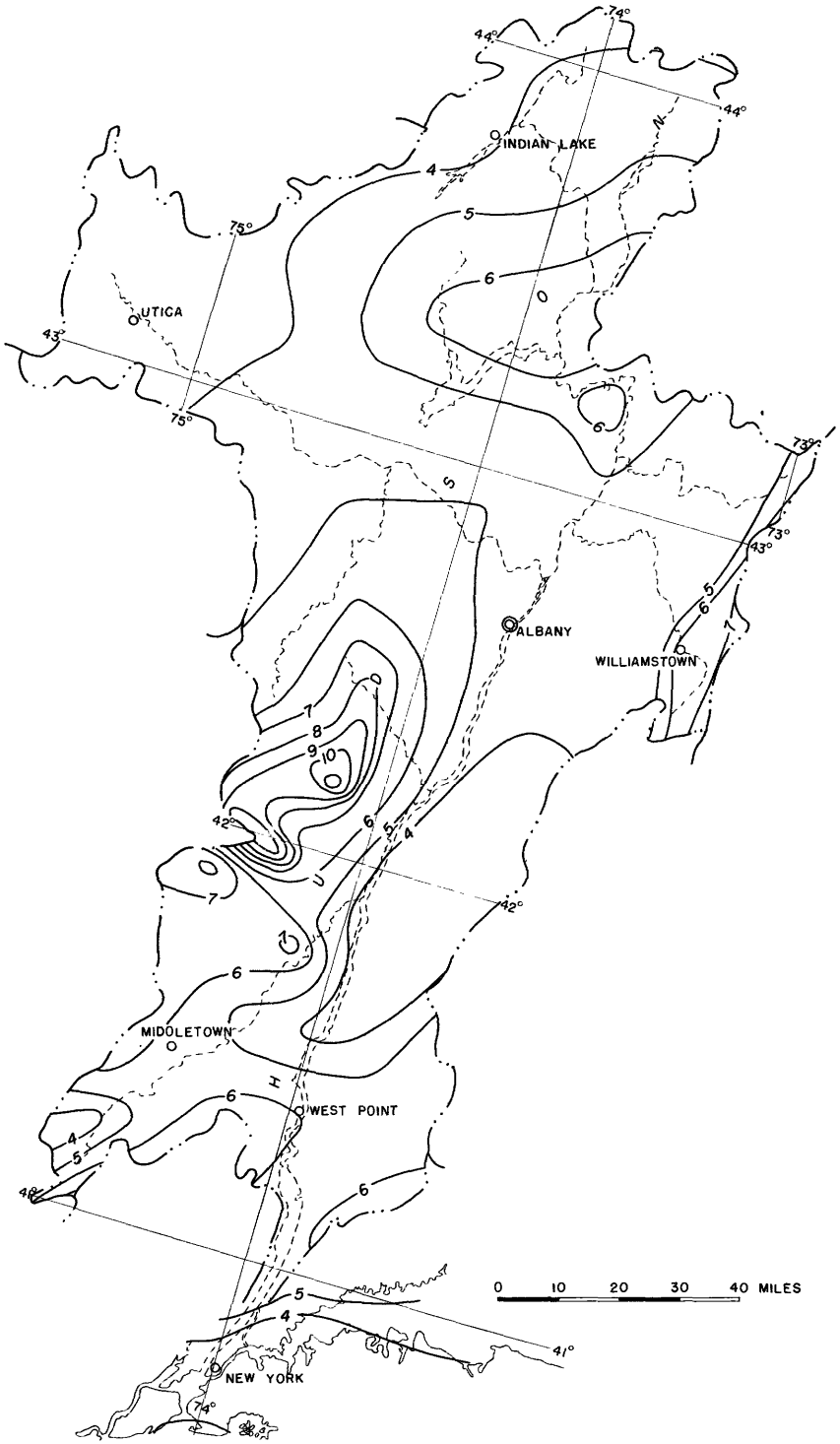

Figure 23.--Isohyetal map of the Hudson River drainage basin, showing the total precipitation, in inches, March 9-22, 1936.

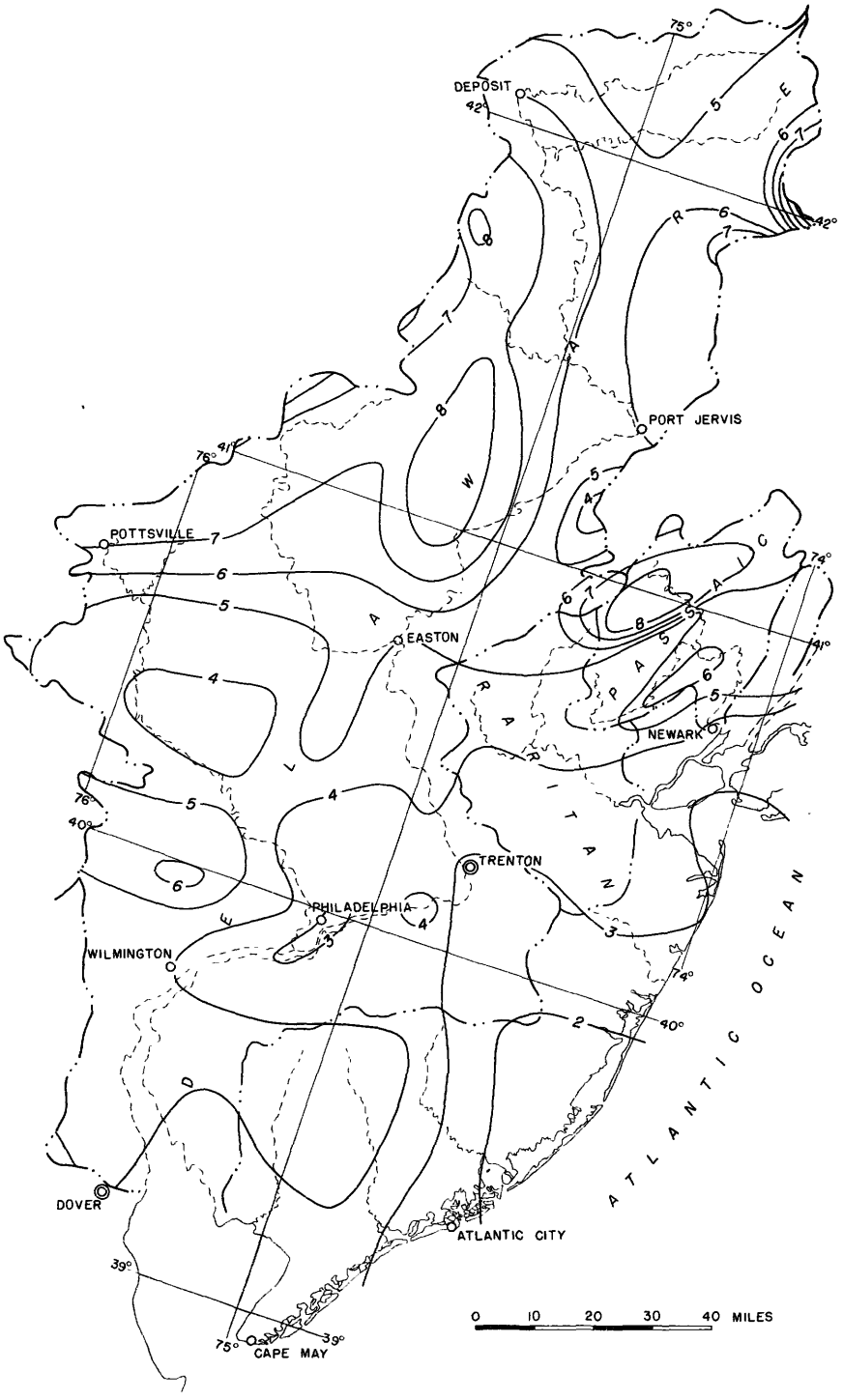

Figure 24.--Isohyetal map of the drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware, showing the total precipitation, in inches, March 9-22, 1936.

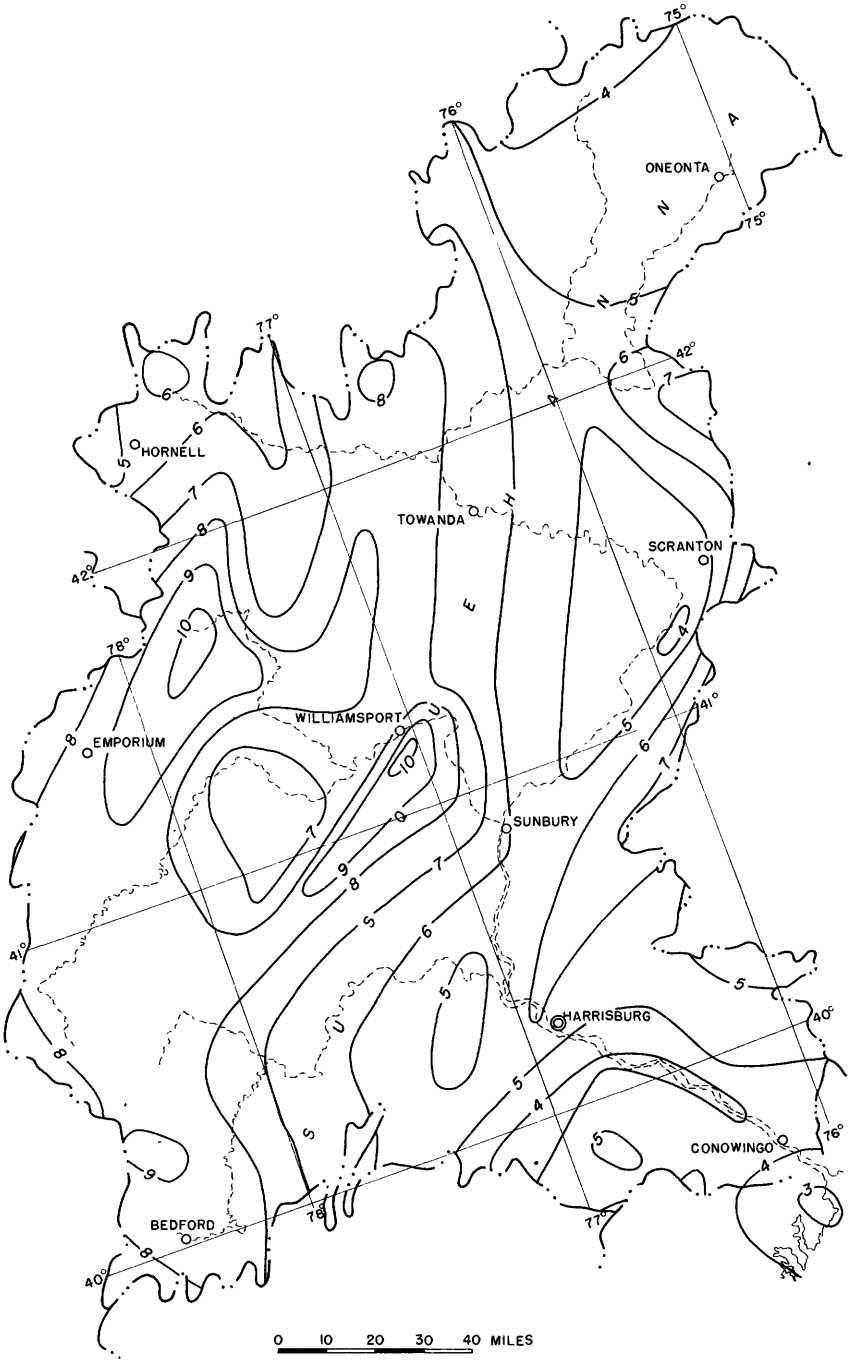

Figure 25.--Isohyetal map of the Susquehanna River drainage basin, showing the total precipitation, in inches, March 9-22, 1936.

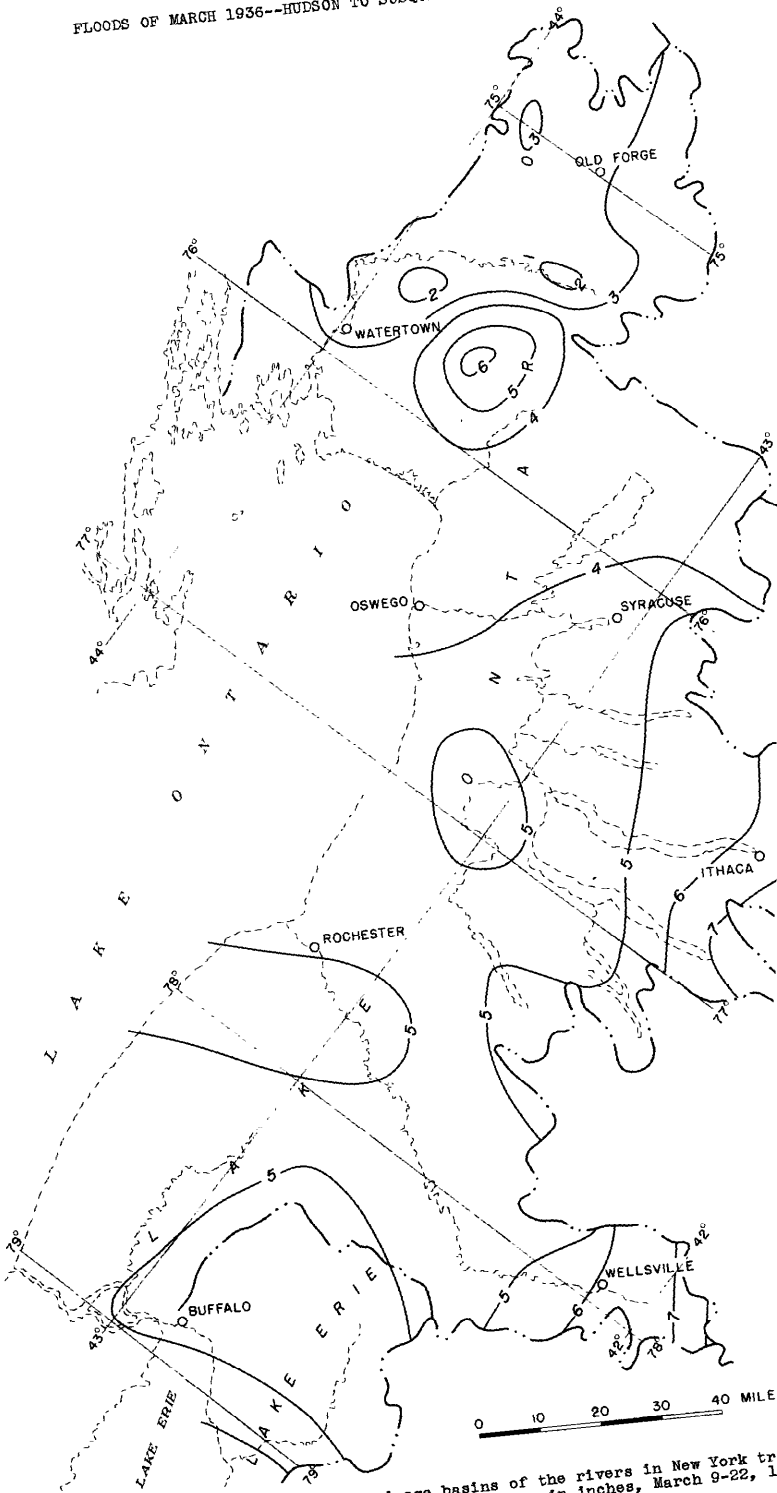

Figure 26.--Isohyetal map of the drainage basins of the rivers in New York tr
to Lake Ontario, showing the total precipitation, in inches, March 9-22, 1

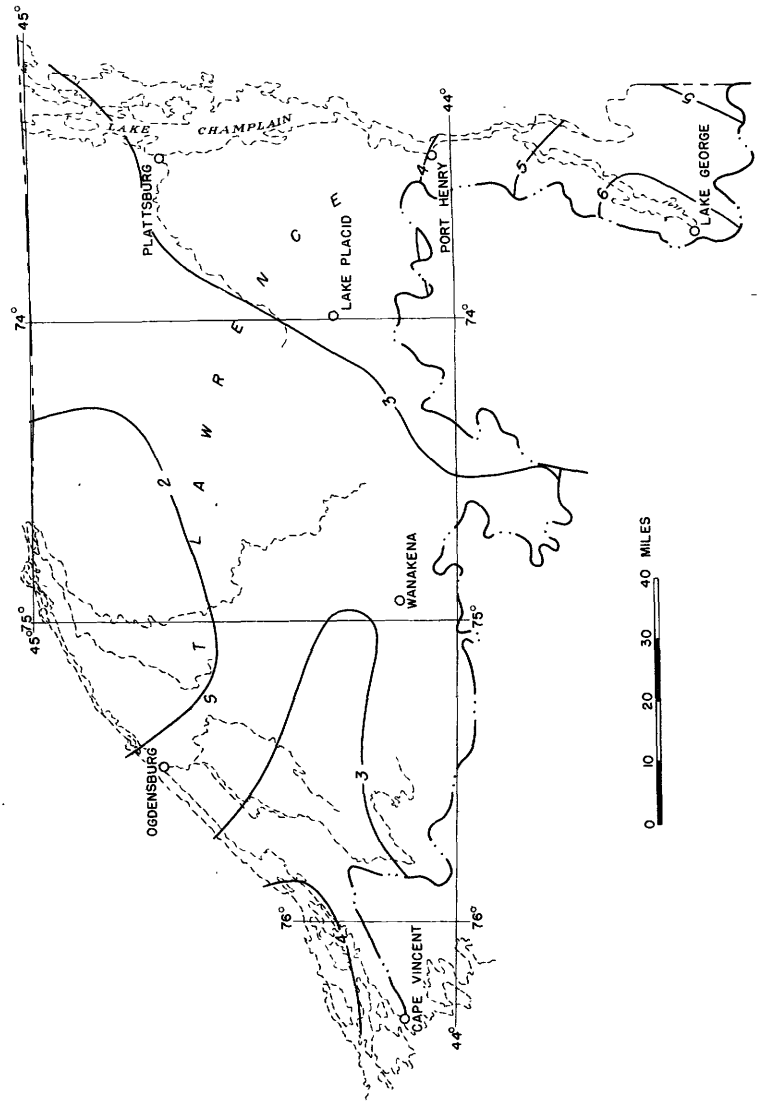

Figure 27.--Isohyetal map of the drainage basins of the rivers in New York tributary to the St. Lawrence River, showing the total precipitation, in inches, March 9-22, 1936.

of the area and rain and snow in the northern part of the area on March 3, 4, and 5. The total amount recorded rarely exceeded 1 inch. After March 22 there were scattered rains, including one fairly heavy rainfall on March 27 and 28, which brought the total precipitation for March to the largest on record in parts of New England, New York, and Pennsylvania and to one of the largest on record in New Jersey and Delaware.

The first storm, so far as it relates to the area covered by this section of the report, had three major centers of precipitation - in the Catskill Mountain region in New York, where the precipitation exceeded 5 inches, and in the Highlands of New Jersey and the Allegheny Mountains in Pennsylvania, where the precipitation exceeded 4 inches. Recording rain gages at various United States Weather Bureau stations (see fig. 28) indicate that most of the precipitation occurred during the 48-hour period ending at midnight March 12. The graph indicates apparently that there were two disturbances about 8 to 12 hours apart. The greatest intensities were confined to the southern part of the area.

The second storm had two major centers in which the precipitation exceeded 7 inches, one in south-central Pennsylvania, the other in northeastern Pennsylvania, and two minor centers in the Catskill and Adirondack region in New York, where the precipitation exceeded 4 inches. Recording rain gages (see fig. 28) indicate that the precipitation fell intermittently from the afternoon of March 16 to the afternoon of March 19, with the heaviest intensity between noon on March 17 and noon on March 18. Except in the southern part of the area the precipitation during the third storm occurred on March 21. During the whole storm period March 9-22 (fig. 25), the maximum recorded precipitation was 10.50 inches at Galeton, Pa.

Snow

General

For the area as a whole there was more snowfall than normal during the winter, the excess being particularly large during January. The monthly totals as compiled from records of the United States Weather Bureau are shown in table 3.

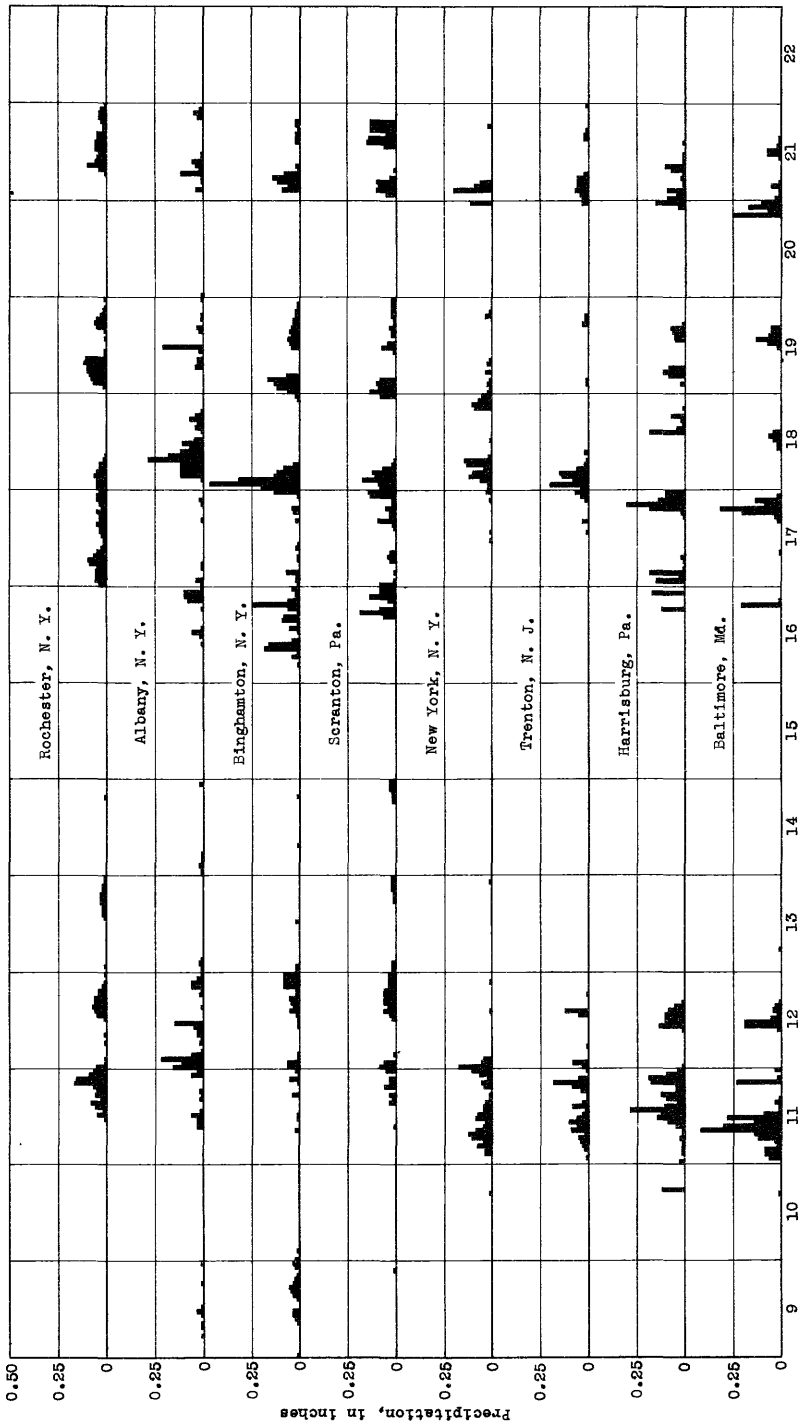

Figure 28.--Hourly precipitation at various United States Weather Bureau precipitation stations, March 9-22, 1936.

Table 3.- Monthly snowfall, in inches, December 1935 to February 1936

State	December	January	February	Total
Massachusetts	3.1	18.0	14.9	36.0
Connecticut	4.4	17.4	13.4	35.2
New York	13.6	21.8	17.1	52.5
Pennsylvania	13.5	19.4	12.3	45.2
New Jersey	9.7	9.1	9.6	28.4
Delaware	17.1	2.3	13.6	33.0

Although the winter was characterized by more snowfall than usual, abnormality was shown in the extent to which the snow accumulated on the ground during the winter, on account of the long cold periods during which there was little thawing. On March 9 all of the area described in this section of the flood report was covered with snow except the southern part of New Jersey and the extreme southeastern part of Pennsylvania and Delaware.

From records collected by the Weather Bureau, regulating districts, power companies, State and municipal organizations, the Civilian Conservation Corps, the Soil Conservation Service, the Geological Survey, and others, the maps in figures 29, 30, 31, 32, and 33 were prepared to show an estimate of the water content of the snow cover on or about March 9. All of the basic information used in the preparation of these figures is given hereinafter. In areas where actual observations of snow depth and water content were available for the later part of February or the first part of March the results should be fairly accurate. In areas where only depth of snow was available, the indicated water content may be considerably in error, as it was necessary to use an assumed ratio for the water content (generally 25 to 30 percent for snow on the ground on March 9, the greater ratios being used for shallow depths).

Unfortunately for the purpose of the best representation of general conditions, most of the cooperative Weather Bureau Stations are situated in urban or rural communities. Reported snow depths at such locations are generally less than those in adjacent rural areas, especially if these areas are hilly, mountainous, or timbered, and such records must be used with caution in determining basin averages. In compiling the maps showing the water content of the snow on the ground on March 9 the original data were first plotted on standard Geological Survey base maps (scale

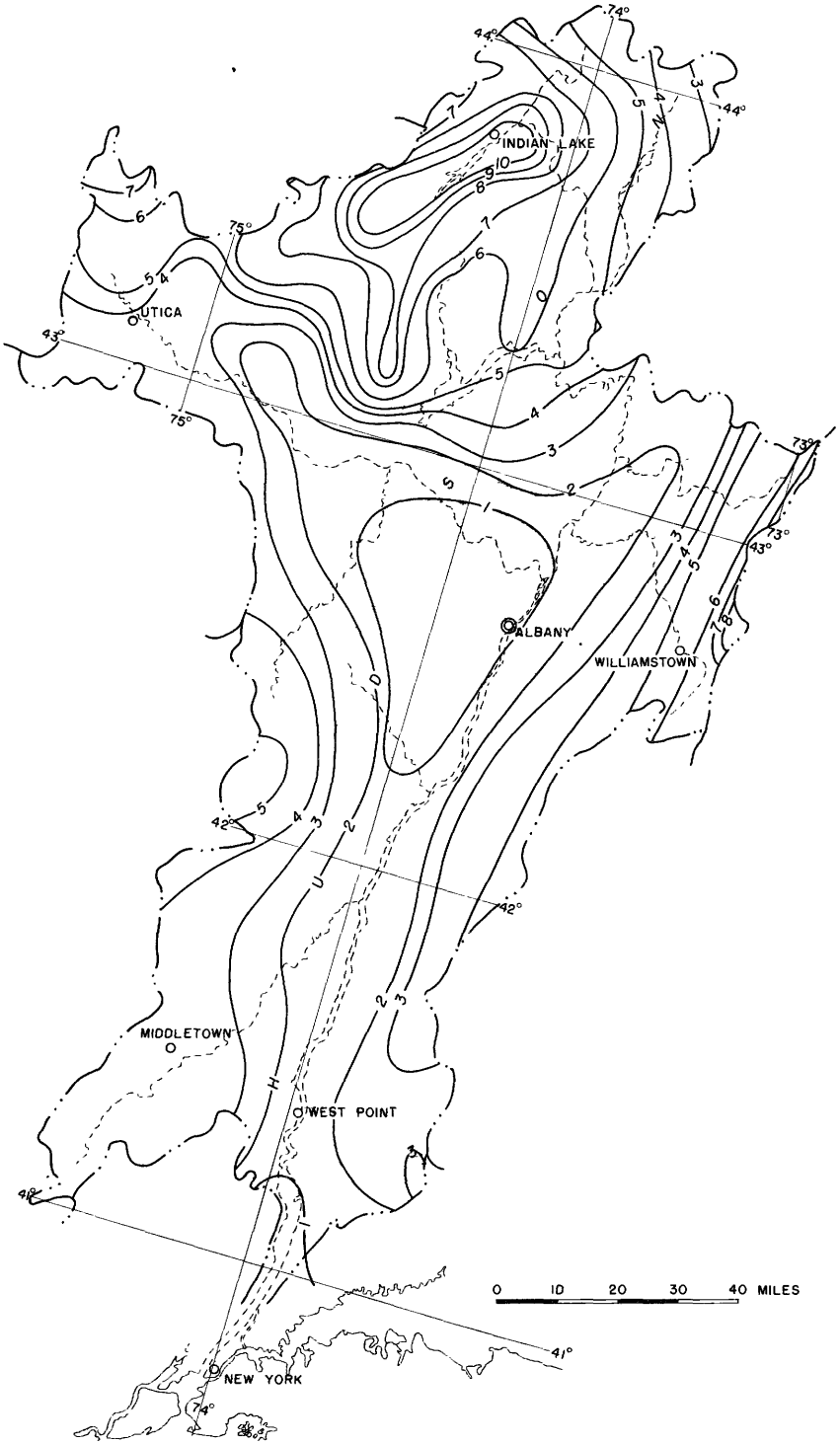

Figure 29.--Map of the Hudson River drainage basin, showing the depth, in inches, of the water content of snow on the ground March 9, 1936.

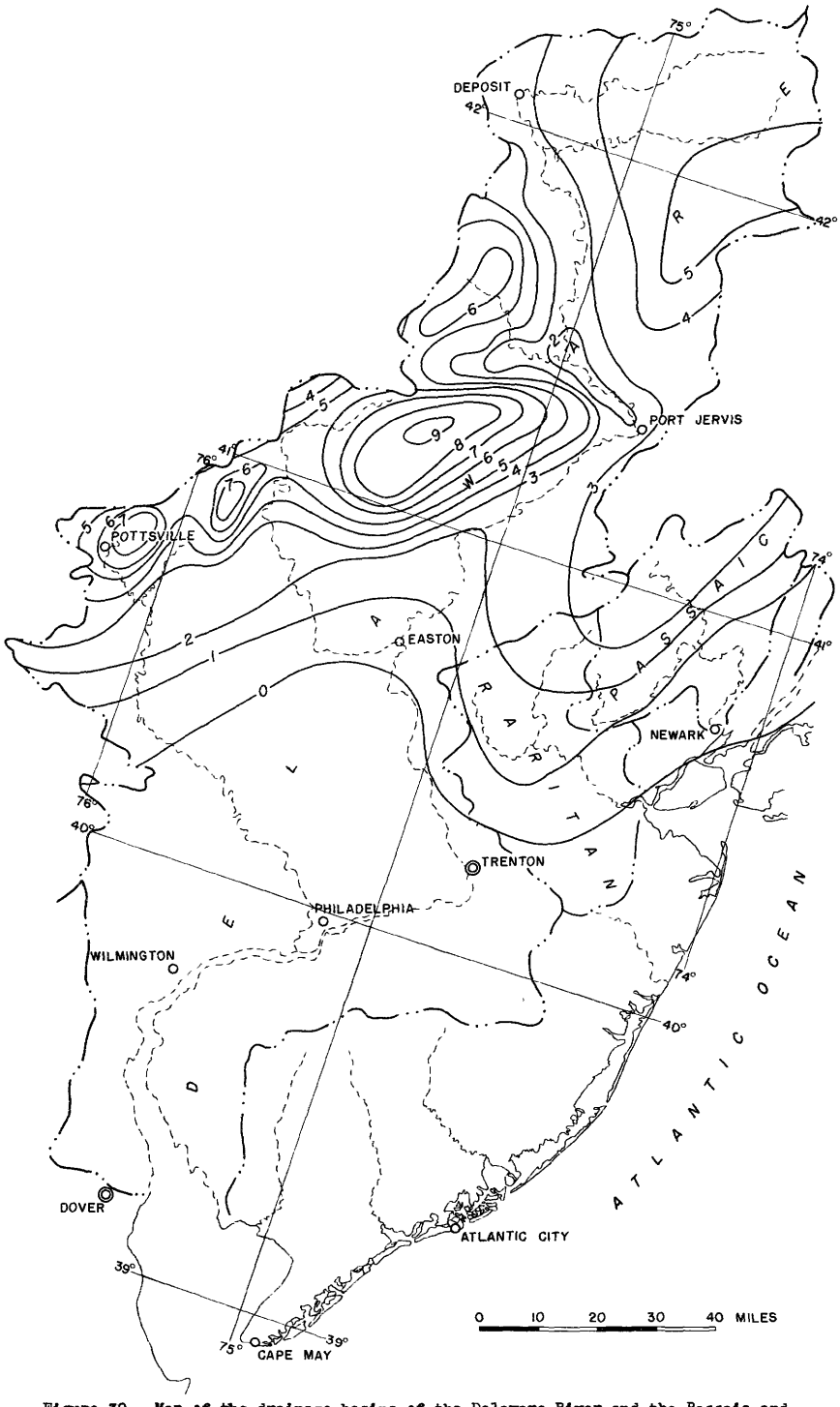

Figure 30.--Map of the drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware, showing the depth, in inches, of the water content of snow on the ground March 9, 1936.

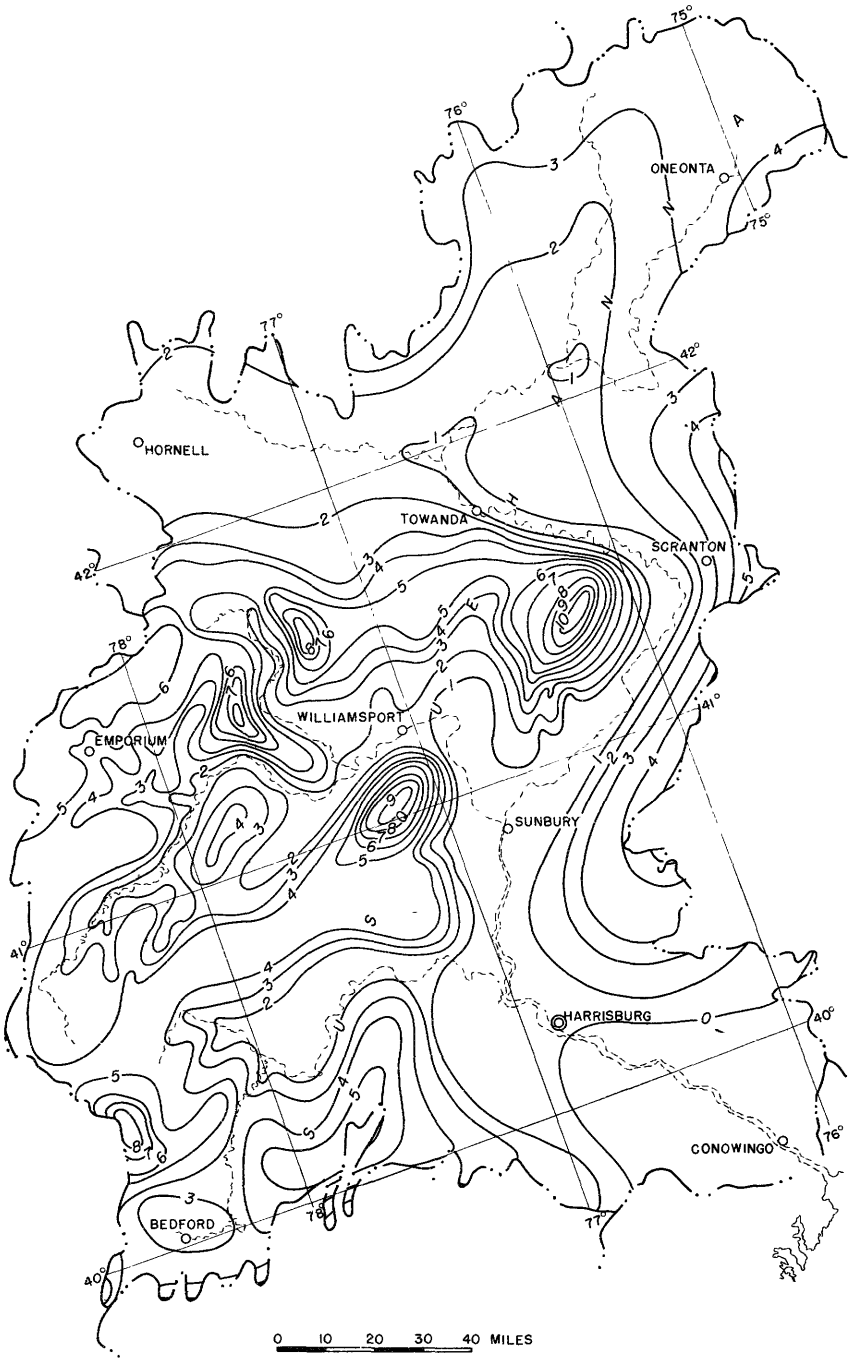

Figure 31.--Map of the Susquehanna River drainage basin, showing the depth, in inches, of the water content of snow on the ground March 9, 1936.

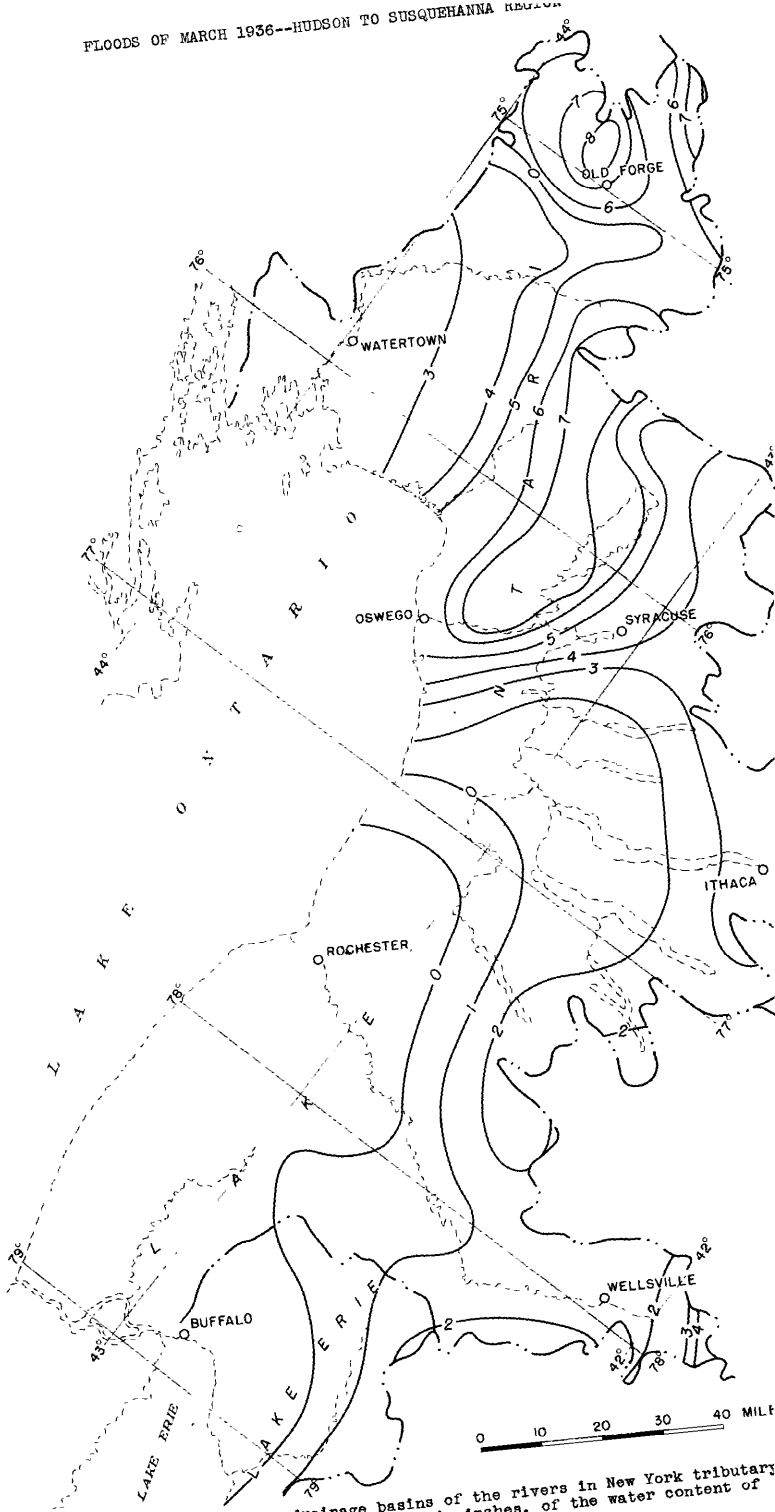

Figure 32.--Map of the drainage basins of the rivers in New York tributary Lake Ontario showing the depth, in inches, of the water content of snow on the ground March 9, 1936.

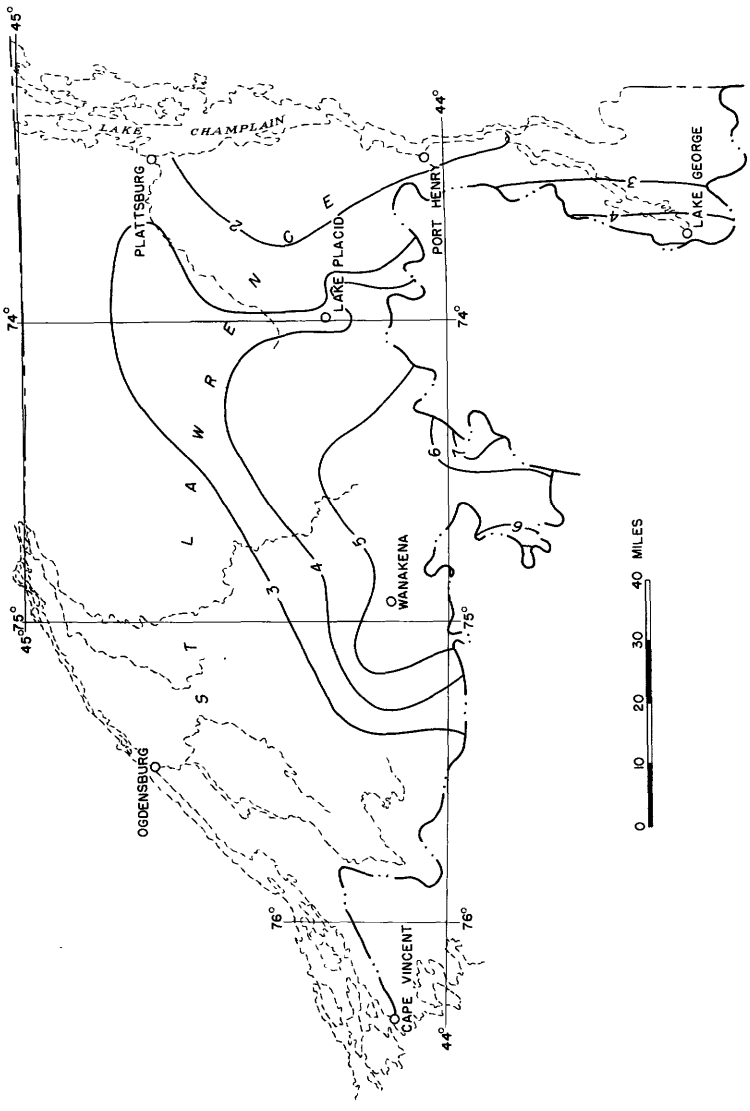

Figure 33.--Map of drainage basins of the rivers in New York tributary to the St. Lawrence River, showing the depth, in inches, of the water content of snow on the ground March 9, 1936.

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1:500,000), and some weight was given to topography in the construction of the lines of equal water content. The base data are shown in tables 4, 5, 6, and 7 to aid those who may wish to make a more refined study of snow conditions than was possible in the time available for this report. The areas between isopleths of water content on the original base maps have been measured by planimeter, and the average content of the snow, in depth in inches for the drainage basins above the principal river-measurement stations, was determined. These data are shown under "Rainfall and run-off studies" in column 4, table 9.

The snow data presented in figures 29, 30, 31, 32, and 33 and in table 9 represent estimates of water content on March 9 and correspond to total snow depletion in areas where all the snow disappeared by March 22. In areas where snow remained on the ground after the floods the data represent a figure somewhat greater than the total depletion during the flood.

Considerable amounts of snow remained on the ground on March 22 in the Adirondack region in New York and in headwater areas in Pennsylvania. Outside of these headwater areas the snow had disappeared in general by March 22 or very soon thereafter appeared in large part as stream flow. The rainfall and run-off studies show the important part played by run-off from melting snow in the flood situation, and it is unfortunate that more plentiful snow data, especially data relating to water content, are not available. This condition illustrates a serious deficiency in basic meteorologic data, which must be remedied if satisfactory analyses are to be made of floods and flood causes in areas where run-off from melting snow contributes largely to the flood discharge.

Depth observations

The measurements of snow depth given in tables 4 and 5 were furnished by the United States Weather Bureau from original records obtained by co-operative observers. At some of the stations daily records were available throughout the winter. Only a part of the period covered by the daily records is incorporated in the table.

In addition to the snow depths recorded at Weather Bureau stations the following information regarding snow conditions in Pennsylvania prior to the floods was reported to the Pennsylvania Department of Forest and Water by public-utility companies and others.

Table 4.- Snow depth, in inches, on ground at indicated dates, 1936*
(Dashes indicate no observation)

Station	February				March				
	10	15	25	29	9	12	15	18	22
Hudson River Basin									
New York:									
Albany	12	14	7	Tr.	Tr.	Tr.	Tr.	0	0
Cairo	22	29	21	9	5	0	0	0	0
Glenham	18	23	15	11	6	0	0	0	0
Hoffmeister	34	-	38	-	38	-	31	-	25
Little Falls No. 1	22	27	27	18	15	6	4	3	0
Little Falls No. 2	14	18	18	14	11	1	1	0	0
Mount McGregor	17	21	17	12	12	5	6	Tr.	0
Rifton	22	37	19	12	3	0	0	0	0
Salisbury	28	35	34	28	16	10	14	6	0
Utica	7	9	6	2	0	0	Tr.	0	0
Walden	17	20	12	9	5	1	0	0	0
West Point	12	17	8	4	3	2	Tr.	0	0
Massachusetts:									
Adams	15	11	7	6	3	1	0	0	0
Williamstown	12	14	9	6	1	Tr.	Tr.	0	0
Passaic River Basin									
New Jersey:									
Newark	9	13	4	2	0	0	0	0	0
Paterson	13	16	13	6	0	0	0	0	0
Delaware River Basin									
New York:									
Delhi	17	16	8	6	4	2	2	0	0
Jeffersonville	20	20	14	14	8	3	0	0	0
Port Jervis	19	20	14	12	0	0	0	0	0
Roxbury	15	16	12	8	4	Tr.	Tr.	Tr.	0
Pennsylvania:									
Allentown	11	15	5	2	0	0	0	0	0
Ardmore	9	8	2	Tr.	0	0	0	0	0
Bethlehem	18	20	10	3	Tr.	0	0	0	0
Ooatesville	9	10	3	1	0	0	0	0	0
Freeland	26	25	20	17	11	Tr.	Tr.	0	3
George School	9	10	7	3	0	0	0	0	0
Hamburg	10	7	3	1	0	0	0	0	0
Hawley	19	20	15	12	6	2	1	0	0
Mauch Chunk	13	16	9	3	0	0	0	0	0
Mount Pocono	19	23	15	10	5	Tr.	0	0	0
Neshaminy Falls	7	8	5	3	0	0	0	0	0
Palmerton	18	17	11	7	4	Tr.	Tr.	0	0
Philadelphia	5	3	Tr.	0	0	0	0	0	0
Quakertown	16	16	12	8	0	0	0	0	0
Reading	12	11	4	2	Tr.	Tr.	0	0	0
Shawmont	9	6	2	Tr.	0	0	0	0	0
West Chester	13	8	0	0	0	0	0	0	0
West Grove	8	7	3	Tr.	0	0	0	0	0
Zionsville	16	18	10	7	3	0	0	0	0
New Jersey:									
Bridgeton	3	1	0	0	0	0	0	0	0
Burlington	5	3	1	Tr.	0	0	0	0	0
Camden	6	4	1	0	0	0	0	0	0
Layton	28	28	22	18	15	Tr.	0	0	0
Moorestown	5	4	1	Tr.	0	0	0	0	0
Newton	14	20	17	6	4	0	0	0	0
North Merchantville	6	6	1	Tr.	0	0	0	0	0
Pemberton	2	1	0	0	0	0	0	0	0
Phillipsburg	8	7	3	2	0	0	0	0	0
Trenton No. 1	6	4	2	Tr.	0	0	0	0	0
Trenton No. 2	8	11	8	1	0	0	0	0	0

* Data furnished by U. S. Weather Bureau.
Note.- Snow depth given to nearest inch.

Table 4.- Snow depth, in inches, on ground at indicated dates, 1936--Continued
(Dashes indicate no observation)

Station	February				March				
	10	15	25	29	9	12	15	18	22
Delaware River Basin--Continued									
Delaware:									
Wilmington (Porter Reservoir)	6	3	0	0	0	0	0	0	0
Susquehanna River Basin									
New York:									
Alfred	13	13	10	7	2	7	Tr.	7	4
Binghamton	8	11	4	1	0	1	0	0	0
Cooperstown	20	25	20	17	10	2	2	Tr.	0
Elmira	4	4	5	0	0	0	Tr.	1	3
Morrisville	18	22	19	15	9	4	3	Tr.	0
Pennsylvania:									
Altoona	20	27	17	7	0	1	0	0	0
Arendtsville	-	7	-	3	-	-	Tr.	0	0
Bellefonte	16	18	14	8	4	3	2	0	0
Carlisle	20	15	-	8	-	Tr.	0	0	0
Catawissa	10	8	6	4	0	3	-	-	0
Clearfield	10	13	7	4	1	Tr.	Tr.	0	Tr.
Colebrook	12	14	-	6	Tr.	2	0	0	0
Emporium	6	6	5	2	-	-	-	-	-
Ephrata	11	13	6	2	0	0	0	0	0
Hanover	9	8	5	2	0	Tr.	0	0	0
Harrisburg	12	13	7	2	Tr.	Tr.	0	0	0
Holtwood	12	10	-	2	-	-	-	-	-
Huntingdon	15	12	-	4	Tr.	1	0	0	0
Kylertown	18	22	12	6	1	6	0	0	Tr.
Lawrenceville	11	14	10	3	Tr.	3	Tr.	Tr.	Tr.
Montrose	20	23	22	20	20	8	4	0	0
Morris Run	16	15	16	11	5	5	2	0	2
Retreat	21	24	14	7	2	1	0	0	0
Scranton	9	9	4	Tr.	Tr.	Tr.	0	0	0
Selinsgrove	18	24	15	5	Tr.	3	Tr.	0	0
Shippensburg	14	18	11	2	Tr.	Tr.	Tr.	0	0
Towanda	10	12	5	1	Tr.	2	0	0	0
Wellsboro	9	13	12	4	2	6	Tr.	Tr.	Tr.
Williamsport	15	16	13	5	0	0	0	0	0
Williamstown	16	18	12	5	1	4	Tr.	0	0
York	11	8	3	Tr.	0	0	0	0	0
York Haven	-	14	6	1	0	0	0	0	0
St. Lawrence River Basin									
Lake Erie Basin									
New York:									
Buffalo	7	7	3	1	Tr.	Tr.	1	17	18
Fredonia	4	4	Tr.	Tr.	0	0	0	16	17
South Wales	9	5	4	2	Tr.	1	0	8	10
Ohio:									
Jefferson	3	2	0	0	0	0	0	12	5
Lake Ontario Basin									
New York:									
Andover	12	9	4	2	0	7	0	6	7
Auburn	12	13	6	7	0	3	0	0	0
Beaver Falls	24	24	30	20	-	-	4	-	-
Brockport	18	18	9	Tr.	Tr.	3	-	3	12
Dansville	4	3	-	-	0	6	-	-	2
Ithaca	5	4	2	0	0	1	0	1	0
Letchworth Park	10	10	4	-	0	3	0	-	-
Lewiston	6	7	2	Tr.	0	0	0	19	14
Lockport	6	6	Tr.	Tr.	0	Tr.	0	12	15
Oswego	20	21	15	12	8	1	2	Tr.	Tr.

Note.- Snow depth given to nearest inch.

Table 4.- Snow depth, in inches, on ground at indicated dates, 1936--Continued
(Dashes indicate no observation)

Station	February				March				
	10	15	25	29	9	12	15	18	22
St. Lawrence River Basin--Contd.									
Lake Ontario Basin--Continued									
New York--Continued:									
Rochester	8	9	7	4	Tr.	4	1	1	2
Skaneateles	10	14	10	5	3	4	0	0	0
Stafford	16	18	1	1	0	2	-	4	14
Syracuse	9	14	8	4	Tr.	1	Tr.	Tr.	0
St. Lawrence Basin proper									
New York:									
Alexandria Bay	6	11	11	9	2	1	3	0	0
Canton	6	9	5	4	1	0	1	Tr.	Tr.
Chasm Falls	16	18	16	15	12	4	3	1	6
Gabriels	27	27	30	34	22	15	18	-	-
Lawrenceville	13	15	8	3	0	0	0	0	3
Tupper Lane	30	36	34	27	16	3	3	0	3
Wanakena	20	20	18	20	16	10	8	Tr.	4
Lake Champlain									
New York:									
Dannemora	27	30	26	23	12	4	4	1	4
Willsboro	25	13	9	6	-	0	-	-	-
Vermont:									
Burlington	9	11	10	7	3	Tr.	Tr.	0	0
Enosburg Falls	19	20	22	19	6	Tr.	Tr.	Tr.	2
Northfield	23	26	22	22	17	8	7	1	Tr.
Minor basins									
New York:									
Bridgehampton	Tr.	3	1	Tr.	0	0	0	0	0
Cutchogue	2	6	2	Tr.	0	0	0	0	0
Flushing	2	4	2	1	0	0	0	0	0
Mount Vernon	10	13	9	6	2	0	0	0	0
New York City	2	4	3	1	0	0	0	0	0
Scarsdale	6	10	4	2	Tr.	0	0	0	0
New Jersey:									
Atlantic City	2	Tr.	0	0	0	0	0	0	0
Elizabeth	9	12	6	2	0	0	0	0	0
Flemington	10	12	5	Tr.	Tr.	Tr.	Tr.	0	0
Hammonton	2	1	0	0	0	0	0	0	0
Hightstown	5	6	5	1	Tr.	0	0	0	0
Indian Mills	1	-	0	0	0	0	0	0	0
Jersey City	4	6	3	1	0	0	0	0	0
Lakewood	2	2	Tr.	Tr.	0	0	0	0	0
Long Branch	3	2	1	Tr.	0	0	0	0	0
Newark	9	13	4	2	0	0	0	0	0
New Brunswick	8	11	8	3	0	0	0	0	0
Plainfield	10	10	6	3	0	0	0	0	0
Ridgefield	10	11	7	3	Tr.	0	0	0	0
Sandy Hook	2	3	1	Tr.	0	0	0	0	0
Somerville	12	19	10	5	0	0	0	0	0
Maryland:									
Aberdeen	6	4	1	0	0	0	0	0	0
Dundalk	6	3	0	0	0	0	0	0	0
Easton	10	1	0	0	0	0	0	0	0
Elkton	6	5	Tr.	Tr.	0	0	0	0	0
Fallston	9	4	0	0	0	Tr.	0	0	0
Lutherville	11	8	2	0	0	0	0	0	0

Note.- Snow depth given to nearest inch.

Table 5.-Snow depth, in inches, on ground at indicated dates, 1936*
(Dashes indicate no observation)

Station	February			March			
	10	17	24	2	9	16	23
Susquehanna River Basin							
New York:							
Bainbridge	12	13	13	6	2	Tr.	0
Binghamton	8	10	7	2	Tr.	0	0
Bridgewater	28	24	-	14	10	6	0
Brisben	11	11	12	8	4	Tr.	-
Cincinnatus	24	27	-	15	-	5	0
Cooperstown	21	24	24	17	10	2	0
Cortland	10	-	12	6	3	0	Tr.
Earlville	18	-	22	12	10	0	-
Edmeston	22	22	21	18	10	Tr.	Tr.
Foster Valley	10	14	12	9	9	Tr.	0
Franklin	-	15	14	8	6	Tr.	Tr.
Garrattsville	24	20	19	15	12	2	0
Gee Brook Hills	16	13	13	10	8	-	Tr.
Green	12	14	14	10	5	Tr.	0
Hamilton	20	24	20	16	12	4	-
Hartwick	-	-	26	20	-	8	-
Homer	13	13	12	6	4	Tr.	Tr.
Leonardsville	23	26	30	16	-	-	0
Lisle	12	10	10	-	4	-	-
Little York	10	12	12	-	7	2	-
Morris	19	21	20	12	8	2	-
Mount Upton	13	14	-	-	-	-	-
New Berlin	-	18	20	12	5	0	0
Norwich	17	17	14	6	5	-	-
Oneonta	10	12	12	6	2	0	0
Otselic	30	26	24	20	15	10	Tr.
Port Crane	12	11	11	2	1	0	0
Portlandville	15	12	10	6	6	0	0
Richfield Springs	23	24	23	14	-	4	Tr.
Sanitaria Springs	12	14	12	4	2	Tr.	0
Schenevus	20	18	18	10	3	-	0
Sherburne	12	14	15	10	9	6	2
Sidney	-	10	11	5	Tr.	-	-
Truxton	10	11	10	6	4	1	0
Tully	10	10	10	6	6	1	0
Unadilla	11	10	11	7	6	Tr.	0
Waterville	20	24	-	10	4	2	-
Whitney Point	13	17	11	6	-	Tr.	Tr.
Windsor	12	11	-	10	6	0	-
Worcester	20	18	18	15	-	4	0
Pennsylvania:							
Alford	12	13	12	-	Tr.	0	0
Great Bend	14	-	12	2	-	-	0
Lanesboro	-	-	-	-	1	-	-
New Milford	12	12	10	4	1	0	0
Starrucca	13	20	18	15	12	Tr.	0
Susquehanna	9	-	6	Tr.	0	0	-

* Data obtained from Snowfall Bulletins issued by U. S. Weather Bureau, Binghamton, N. Y.

Note.- Snow depth given to nearest inch.

Little or no snow was reported by the York Water Co. at York, in the lower Susquehanna River Basin. Elsewhere in the Susquehanna River Basin snow on the ground prior to the floods was reported as follows:

Northern Pennsylvania Power Co., 24 inches at Towanda

Roaring Creek Water Co., 4 inches at Shamokin

Western State Penitentiary, 24 inches at Rockview

Tyrone Borough Water Co., 36 inches at Tyrone

Spring Brook Water Service Co., 16 to 18 inches at Scranton, Elmhurst, Carbondale, and Forest City

In the Delaware River Basin no snow prior to the floods was reported by the Philadelphia Suburban Water Co. in Springfield Township, Delaware County; Schuylkill Township, Chester County; and Middletown Township, Bucks County. The Reading Bureau of Water, Reading, Berks County, reported that there was no appreciable amount of snow. Elsewhere in the Delaware River Basin the snow reports were as follows:

Honesdale Consolidated Water Co., 30 inches at Honesdale

Panther Valley Water Co., 12 inches at Lansford

Mahanoy City Water Co., 30 inches at Mahanoy City

Wyoming Valley Water Co., 18 inches at Hudsondale

Silver Creek Water Co., 42 inches at Pottsville

Canawacta Water Supply Co., 14 inches on the East Branch of Canawacta Creek, Susquehanna County

In Pennsylvania information regarding depth of snow prior to and during the flood period was collected from a large number of Civilian Conservation Corps camps by the State Planning Board. These data are given in table 6. In translating these snow depths into equivalent water depths a coefficient of about 25 percent was used.

Information on snow cover at the Arnot Forest of Cornell University, in the upper Susquehanna River Basin in New York, was reported in detail (unpublished manuscript) by C. H. Diebold and is summarized as follows: On March 11 the upland stations, situated in the open fields and on an exposed ridge top and on south slopes, were bare. A cover of snow that averaged more than a foot in depth was recorded at most of the forest stations. Most of the valley stations showed that the ground had a thin cover or was bare. On March 16, just before the period of heaviest precipitation, all the valley stations; most of the upland stations in the open fields, and stations in the chestnut, oak, and aspen-birch forests on the south slope were bare. At the valley and upland stations that

Table 6.-Snow depth, in inches, on ground at indicated dates. March 1936*
(Dashes indicate no observation)

Point of measurement	12	19	After flood period
Delaware River Basin			
Camp 139, on East Branch of Wallenpaupack Creek, 8 miles east of Greentown, Pike County, Pa.	38.5	-	0
Camp 94, on Little Bushkill Creek, 8 miles northwest of Dingmans Ferry, Pike County, Pa.	34	27	0
Camp 153, on Nesquehoning Creek (tributary to Lehigh River), 1 mile east of Nesquehoning, Carbon County, Pa.	44	-	0
Camp SP7, on Hay Creek (tributary to Schuylkill River), near Birdsboro, Berks County, Pa.	0	0	0
Camp SP17, on French Creek (tributary to Schuylkill River), 6½ miles south of Birdsboro, Berks County, Pa.	0	0	0
Susquehanna River Basin			
Camp 103, on Schrader Creek (tributary to Towanda Creek), 19 miles southwest of Towanda, Bradford County, Pa.	33	5	0
Camp 102, on West Branch of Mehoopany Creek, 10 miles west of Mehoopany, Wyoming County, Pa.	46	30	9
Camp 104, on West Branch of Fishing Creek, at Emmons, Sullivan County, Pa.	49	33	9
Camp 116, on Anderson Creek (tributary to West Branch of Susquehanna River), 8½ miles northwest of Clearfield, Clearfield County, Pa.	47	15	0
Camp 74, on headwaters of Deer Creek and Trout Run (tributaries to West Branch of Susquehanna River), near Shawville, Clearfield County, Pa.	27	6	6
Camp 71, on Black Moshannon Creek (tributary to Moshannon Creek), 9 miles east of Phillipsburg, Centre County, Pa.	26.5	23	3.5
Camp 143, on Upper Three Run (tributary to West Branch of Susquehanna River), 8 miles north of Karthaus, Clearfield County, Pa.	18	10.5	6
Camp 117, on Bennett Branch of Sinnemahoning Creek, 13 miles northeast of Du Bois, Clearfield County, Pa.	7.5	5	0
Camp 84, on Dents Run (tributary to Bennett Branch of Sinnemahoning Creek), 5 miles northwest of Dents Run, Elk County, Pa.	22	14	5
Camp 147, on North Creek (tributary to Driftwood Branch of Sinnemahoning Creek), 8 miles northwest of Emporium, Cameron County, Pa.	27	21	15
Camp 132, on Hunts Run (tributary to Sinnemahoning Creek), seven-tenths of a mile north of Cameron, Cameron County, Pa.	16	8	5
Camp 146, on Barkshanty Branch of Freemans Fork of Sinnemahoning Creek, 5 miles north of Austin, Potter County, Pa.	17.5	5	1
Camp 134, on Moores Run (tributary to First Fork of Sinnemahoning Creek), near Coudersport, Potter County, Pa.	26	22	19
Camp 86, on Wykoff Run (tributary to Sinnemahoning Creek), 1.8 miles southwest of Sinnemahoning, Cameron County, Pa.	44	-	19.5
Camp 78, near mouth of Cooks Run (tributary to West Branch of Susquehanna River), 8 miles west of Renovo, Clinton County, Pa.	10	-	0
Camp 87, in Potter County, on Kettle Creek (tributary to West Branch of Susquehanna River), 15 miles north of Renovo, Clinton County, Pa.	14	7	2
Camp 135, in Potter County, on Dyer Branch of Young Womans Creek (tributary to West Branch of Susquehanna River), 15 miles north of North Bend, Clinton County, Pa.	-	44	6
Camp 75, on Hyner Creek (tributary to West Branch of Susquehanna River), 2 miles north of Hyner, Clinton County, Pa.	42	37	10
Camp 120, on Lick Run (tributary to West Branch of Susquehanna River), 7 miles northwest of Lock Haven, Clinton County, Pa.	32	11	3
Camp 79, on Wolf Run (tributary to Beech Creek), at Kato, Centre County, Pa.	48	8	3
Camp 76, on Middle Branch of Big Run (tributary to Beech Creek), 10 miles south of Renovo, Clinton County, Pa.	22.5	7.5	1

*Data obtained by Pennsylvania State Planning Board from camps of the U. S. Civilian Conservation Corps.

Table 6.-Snow depth, in inches, on ground at indicated dates, March 1936--Continued
(Dashes indicate no observation)

Point of measurement	12	19	After flood period
Susquehanna River Basin--Continued			
Camp 66, on Long Run (tributary to Fishing Creek), 3½ miles northwest of Loganton, Clinton County, Pa.	41	30	7
Camp 136, on West Branch of Pine Creek, near Corbett, Potter County, Pa.	17	9	0
Camp 88, on Lyman Run (tributary to West Branch of Pine Creek), 9 miles west of Galeton, Potter County, Pa.	33	16	7
Camp 155, on Darling Run (tributary to Pine Creek), about 13 miles west of Wellsboro, Tioga County, Pa.	30	9	6
Camp 138, on Dixie Run (tributary to Babb Creek), 3 miles southwest of Morris, Tioga County, Pa.	42	30	6
Camp 90, in Tioga County, on Cedar Run (tributary to Pine Creek), 8 miles northwest of Cedar Run, Lycoming County, Pa.	36	-	5
Camp 81, in Tioga County, on State Run (tributary to Pine Creek), 5½ miles northwest of State Run, Lycoming County, Pa.	25	14	6
Camp 82, near Pine Creek, 5 miles west of Waterville, Lycoming County, Pa.	21	3	3
Camp 127, in Clinton County, on headwaters of Nippenose Creek (tributary to West Branch of Susquehanna River), 12 miles south of Jersey Shore, Lycoming County, Pa.	15	6.5	0
Camp 80, on Pleasant Stream (tributary to Lycoming Creek), at Masten, Lycoming County, Pa.	29	29	10
Camp 95, on Loyalsock Creek, 2 miles northwest of Laporte, Sullivan County, Pa.	15	0	0
Camp 96, on Dry Run (tributary to Loyalsock Creek), 1¼ miles south of Hillsgrove, Sullivan County, Pa.	15	7	-
Camp 125, on White Deer Hole Creek (tributary to West Branch of Susquehanna River), 5 miles west of Elimsport, Lycoming County, Pa.	45	33	0
Camp 67, on Rapid Run (tributary to Buffalo Creek), 14 miles northwest of Mifflinburg, Union County. Pa.	35	22	9
Camp 68, on Penn Creek (tributary to Susquehanna River), half a mile east of Weikert, Union County, Pa.	24	7.5	2
Camp 65, on Sinking Creek (tributary to Penn Creek), 7 miles southwest of Centre Hall, Centre County, Pa.	30	-	0
Camp 148, on Laurel Run (tributary to Penn Creek), 12 miles west of Mifflinburg, Union County, Pa.	24	2.5	0
Camp 69, on Middle Creek (tributary to Penn Creek), near Beaver Springs, Snyder County, Pa.	42	0	0
Camp 123, on headwaters of Armstrong Creek (tributary to Susquehanna River), near Elizabethville, Dauphin County, Pa.	22	-	-
Camp 58, on Juniata River, near Mt. Union, Huntingdon County, Pa.	27	17	0
Camp 61, on Globe Run (tributary to Little Juniata River), 6 miles northeast of Petersburg, Huntingdon County, Pa.	36	-	-
Camp 60, in Huntingdon County, on Laurel Run (tributary to Standing Stone Creek), 4 miles east of Pine Grove Mills, Centre County, Pa.	18	6	0
Camp 112, on East Branch of Standing Stone Creek, 5 miles south of McAlevys Fort, Huntingdon County, Pa.	28	13	0
Camp 154, on Cove Creek (tributary to Raystown Branch of Juniata River), 3½ miles southwest of Rainsburg, Bedford County, Pa.	13.5	6.5	1.5
Camp 57, on Great Trough Creek (tributary to Raystown Branch of Juniata River), 9 miles southeast of Marklesburg, Huntingdon County, Pa.	-	14.5	-
Camp 52, on headwaters of Sideling Hill Creek (tributary to Great Aughwick Creek), near Wells Tannery, Fulton County, Pa.	20	2	0
Camp 113, on headwaters of Honey Creek (tributary to Juniata River), Mifflin County, Pa.	36	16	0
Camp 64, on Treaster Run (tributary to Honey Creek), 3 miles east of Siglerville, Mifflin County, Pa.	1.5	-	0

Table 6.-Snow depth, in inches, on ground at indicated dates, March 1936--Continued
(Dashes indicate no observation)

Point of measurement	12	19	After flood period
Susquehanna River Basin--Continued			
Camp 111, on headwaters of Sherman Creek (tributary to Susquehanna River), 4 miles south of New Germantown, Perry County, Pa.	18	6	-
Camp 55, on Laurel Run (tributary to Sherman Creek), 7 miles southwest of Landisburg, Perry County, Pa.	13	4	0
Camp 108, on Big Pond Run (tributary to Yellow Breeches Creek), 5 miles east of Shippensburg, Cumberland County, Pa.	21	11	2
Camp 51, on Mountain Creek (tributary to Yellow Breeches Creek), near Pine Grove Furnace, Cumberland County, Pa.	19	13.5	0
Camp 141, on headwaters of Indiantown Creek (tributary to Swatara Creek), 10 miles northwest of Lebanon, Lebanon County, Pa.	33	-	22

were situated in sugar-maple, beech, and yellow-birch forests on north and east slopes the snow ranged in depth from 8 to 17 inches. The snow-depth readings for March 20, after the peak of the flood, were almost identical with those of March 16. The data showed that part of the precipitation on March 17, 20, 21, and 22 occurred as snow. The ground at most of the stations in the sugar-maple, beech, and yellow-birch forests was not bare until March 27.

Snow surveys

The results of extensive surveys of snow depth and water content in New York were made available to the Geological Survey through the cooperation of the Black River Regulating District, Hudson River Regulating District, New York State Department of Public Works, New York Power & Light Corporation, Niagara-Hudson Power Corporation, New York State Electric & Gas Corporation, and United States Soil Conservation Service. These data are given in table 7. As some of the areas overlap, credit for the individual records has not been given.

Snow surveys in the Adirondack Mountain region, especially in the Sacandaga River and Black River Basins, are perhaps more plentiful than in any other basins in the eastern United States. The courses are in general laid out in second-growth woodlands, typical of this region, where the measurements will not be affected by drifts or by heavy interception. The snow observations as listed in table 7 indicate that in the upper Sacandaga River Basin there was, on February 1, a snow cover of at least 21 inches, with a water content of 4.3 inches. On March 1 the snow cover had increased to at least 26 inches, with a water content of 6.1 inches. On March 16 to 17 an average depth of snow of about 18 inches was reported, with a water content of 6.1 inches. By March 25 two stations reported appreciable amounts of snow; the remaining stations reported very little or no snow. The records of snow depths at Cedar River and at Mount McGregor show that the results in the Sacandaga River Basin apply generally to the upper Hudson River region. The measurements made at Schuylerville indicate, however, that in the southern part of the basin there was appreciably less snow and less water content.

Snow surveys made near the headwaters of the Mohawk River, West Canada Creek, and East Canada Creek show that there was about 27 inches of snow, with a water content of 5 inches, on February 5-7 and about 20 inches of snow, with a water content of 6 inches, on March 19-20.

Table 7.-Snow depth, in inches, and water content, in inches, in New York, at indicated dates, 1936

Point of measurement	Date	Snow depth	Water content
Hudson River Basin			
Newcomb (near Lake Harris, tributary to Hudson River)	Mar. 3	28	-
Near village of Indian Lake on Cedar River (tributary to Hudson River)	Jan. 6	6	-
	Jan. 13	13	-
	Jan. 20	24	-
	Jan. 27	18	-
	Feb. 3	23	-
	Feb. 10	26	-
	Feb. 17	25	-
	Feb. 24	23	-
	Mar. 2	23	-
	Mar. 9	17	-
	Mar. 16	18	-
	Mar. 23	0	-
	Mar. 30	2	-
Indian Lake (tributary to Hudson River)	Jan. 13	18	-
	Jan. 20	22	-
	Jan. 27	26	-
	Feb. 3	25	-
	Feb. 3	24	4.9
	Feb. 10	28	-
	Feb. 17	39	-
	Feb. 24	38	-
	Mar. 2	34	-
	Mar. 9	34	-
	Mar. 16	27	-
	Mar. 23	15	-
	Mar. 30	0	-
Lake Pleasant (near Lake Pleasant, tributary to Sacandaga River)	Jan. 27-29	22	4.4
	Feb. 28 to Mar. 2	33.3	8.20
	Mar. 16-17	24.0	8.20
Speculator (near outlet to Lake Pleasant, tributary to Sacandaga River)	Jan. 27-29	24	4.7
	Mar. 1	42	-
	Mar. 3	40	-
	Mar. 4	36	-
	Mar. 12	18	-
	Mar. 14	20	-
	Mar. 16	12	-
	Mar. 17	10	-
	Mar. 18	6	-
	Mar. 19	a0	-
Elm Lake (tributary to Sacandaga River)	Jan. 27-29	22	3.9
	Feb. 28 to Mar. 2	34.2	8.43
	Mar. 16-17	23.3	6.67
Oregon (on East Branch of Sacandaga River)	Jan. 6	13	-
	Jan. 13	12	-
	Jan. 20	23	-
	Jan. 27	b23	bc4.60
	Feb. 3	25	-
	Feb. 10	30	-
	Feb. 17	30	-
	Feb. 24	b27	-
	Mar. 2	b24	bc5.75
	Mar. 9	20	-
Griffin (on East Branch of Sacandaga River)	Jan. 27-29	21	4.3
	Feb. 28 to Mar. 2	25.3	5.80
	Mar. 16-17	13.0	4.67
Wells (on Sacandaga River)	Jan. 27-29	18	3.6
	Feb. 28 to Mar. 2	25.8	5.40
	Mar. 16-17	14.3	5.80
Piseco (near Piseco Lake, tributary to West Branch of Sacandaga River)	Jan. 27-29	21	4.4
	Feb. 28 to Mar. 2	31.2	7.77
	Mar. 16-17	28.8	9.50
Morgan Mills (at outlet of Piseco Lake, tributary to West Branch of Sacandaga River)	Jan. 27-29	24	5.1
	Feb. 28 to Mar. 2	33.3	8.17
	Mar. 16-17	23.7	7.50
Arietta (on West Branch of Sacandaga River)	Jan. 27-29	20	4.0
	Feb. 28 to Mar. 2	31	7.77
	Mar. 25	d12.0	4.0

a 6 to 12 inches of snow in woods.
b Estimated.
c Computed from observations made at nearby points.
d 80 percent of ground covered.

Table 7.-Snow depth, in inches, and water content. in inches, in New York, at indicated dates, 1936--Continued

Point of measurement	Date	Snow depth	Water content
Hudson River Basin--Continued			
Hope (on Sacandaga River)	Jan. 27-29	21	4.0
	Feb. 28 to Mar. 2	25.2	5.27
	Mar. 16-17	14.3	5.50
Peters Corners (on headwaters of West Stony Creek, tributary to Sacandaga River)	Jan. 27-29	28	5.8
	Feb. 28 to Mar. 2	33	9.13
	Mar. 25	e10	3.4
Benson Center (on West Stony Creek)	Jan. 13	15.5	-
	Jan. 20	26	-
	Jan. 27	25	c5.25
	Feb. 3	25	-
	Feb. 10	27.5	-
	Feb. 17	33	-
	Feb. 24	31.5	-
	Mar. 2	26.5	c6.62
	Mar. 9	23	-
	Mar. 16	18.5	-
	Mar. 23	1	-
	Mar. 30	0	-
Harrisburg Lake (on headwaters of East Stony Creek, tributary to Sacandaga River)	Jan. 6	10	-
	Jan. 13	19	-
	Jan. 20	23	-
	Jan. 27	26	c5.72
	Feb. 3	27	-
	Feb. 10	29	-
	Feb. 17	35	-
	Feb. 24	32	-
	Mar. 2	28	c5.60
	Mar. 9	25	-
	Mar. 16	14	-
	Mar. 23	10	-
	Mar. 30	0	-
Barton Mines (on headwaters of East Stony Creek)	Jan. 27	20	c4.00
	Feb. 3	19	-
	Feb. 10	28	-
	Feb. 17	32	-
	Feb. 24	29.5	-
	Mar. 2	27	c6.21
	Mar. 16	12	-
Hope Falls (on East Stony Creek, tributary to Sacandaga River)	Jan. 27-29	18.0	4.0
	Feb. 28 to Mar. 2	22.5	4.45
	Mar. 16-17	14.3	5.80
Sacandaga Park (on Sacandaga Reservoir)	Jan. 27-29	19	4.0
	Feb. 28 to Mar. 2	24.0	5.23
	Mar. 16-17	16.0	4.9
Saratoga County Sanatorium (on headwaters of Kennyetto Creek, tributary to Sacandaga Reservoir)	Jan. 6	10.5	-
	Jan. 13	15.5	-
	Jan. 20	27	-
	Jan. 27	32.5	c6.50
	Feb. 3	29.5	-
	Feb. 10	32	-
	Feb. 17	33	-
	Feb. 24	34.5	-
	Mar. 2	30.5	c6.10
	Mar. 9	34.5	-
	Mar. 16	19.5	-
	Mar. 23	3	-
	Mar. 30	0	-
Broadalbin (on Kennyetto Creek)	Jan. 27-29	18	2.9
	Feb. 28 to Mar. 2	18.8	2.97
	Mar. 25	Tr.	-
Edinburg (on Sacandaga Reservoir)	Jan. 27-29	17	3.4
	Feb. 28 to Mar. 2	21.7	5.23
Edinburg Hill (on Sacandaga Reservoir)	Jan. 27-29	22	4.6
	Feb. 28 to Mar. 2	25.8	5.84
	Mar. 16-17	18.5	5.36
	Mar. 25	Tr.	-
Batchellerville (on Sacandaga Reservoir)	Jan. 27-29	17	3.3
	Feb. 28 to Mar. 2	21.0	4.17
	Mar. 25	Tr.	-
West Day (on Sacandaga Reservoir)	Jan. 27-29	22	4.3
	Feb. 28 to Mar. 2	25.0	6.28
	Mar. 16-17	17.9	5.58

c Computed from observations made at nearby points.
e 10 percent of ground covered.

Table 7.-Snow depth, in inches, and water content, in inches, in New York, at indicated dates, 1936--Continued

Point of measurement	Date	Snow depth	Water content
Hudson River Basin--Continued			
Daily Creek (tributary to Sacandaga Reservoir)	Jan. 27-29	19	3.7
	Feb. 28 to	26.8	5.83
	Mar. 2		
Efner Lake (tributary to Sacandaga Reservoir)	Jan. 13	12	-
	Jan. 20	23	-
	Jan. 27	15	c3.0
	Feb. 3	15	-
	Feb. 10	20.5	-
	Feb. 17	25	-
	Feb. 24	25	-
	Mar. 2	21	c4.62
	Mar. 9	23	-
	Mar. 16	11	-
	Mar. 23	0	-
Conklingville (on Sacandaga River at outlet to Sacandaga Reservoir)	Jan. 27-29	20	4.0
	Feb. 28 to	25.8	5.79
	Mar. 2		
Schuylerville (on Hudson River)	Mar. 2	6.5	1.52
	Mar. 9	4.0	1.27
	Mar. 16	Tr.	-
Ava (on headwaters of West Branch of Mohawk River)	Feb. 7	28	6.3
	Mar. 19-20	19	7.6
North Western (on headwaters of Mohawk River)	Feb. 7	23	5.2
	Mar. 19-20	14	5.6
Delta Reservoir (on Mohawk River near Delta Dam)	Feb. 7	22	5.2
	Mar. 19-20	16	5.8
Delta (at Delta Reservoir, on Mohawk River)	Mar. 2	24	7.50
	Mar. 9	22	7.45
	Mar. 16	17	6.15
	Mar. 24	8	2.85
Swanson Dam (on West Canada Creek)	Mar. 19-20	44	12.6
Indian River (on West Canada Creek midway between mouth of Indian River and Swanson Dam)	Mar. 19-20	41	10.1
Indian River near confluence with West Canada Creek	Feb. 7	31	6.9
	Mar. 19-20	32	9.1
Honnedaga outlet (near Honnedaga Lake, tributary to West Canada Creek)	Feb. 7	31	6.7
	Mar. 19-20	34	8.8
Wilmurt Lake (on headwaters of Metcalf Brook, tributary to West Canada Creek)	Mar. 19-20	30	11.7
Mountain House (on South Branch of West Canada Creek)	Feb. 7	31	4.9
	Mar. 19-20	24	7.4
Hoffmeister (on South Branch of West Canada Creek)	Feb. 7	34	6.6
	Mar. 19-20	28	8.5
Branch Road Branch	Feb. 7	30	6.3
Tarnesda (on Wilmurt Lake, tributary to South Branch of West Canada Creek)	Feb. 7	33	6.6
Nobleboro (near confluence of South Branch of West Canada Creek and West Canada Creek)	Feb. 7	29	6.5
	Mar. 19-20	20	6.1
Three miles east of Gray (on Black Creek, tributary to Hinckley Reservoir)	Feb. 7	29	6.5
Gravesville (on Mill Creek, tributary to West Canada Creek)	Feb. 5	20	2.1
	Mar. 19-20	10	1.9
Cold Brook (on Cold Brook, tributary to West Canada Creek)	Feb. 7	28	3.2
	Mar. 19-20	0	0
Fairfield (on Maltanner Creek, tributary to West Canada Creek)	Feb. 5	19	2.2
Little Falls (on Mohawk River)	Feb. 5	12	1.6
	Mar. 19-20	0	0
Barto Hill (near divide between East and West Canada Creek Basins)	Feb. 5	26	3.6
	Mar. 19-20	20	4.0
Stratford (near confluence of Ayers Creek and East Canada Creek)	Feb. 5	20	2.3
	Mar. 19-20	0	0
Jacksonburgh (on Mohawk River)	Mar. 2	16	3.62
	Mar. 9	11	4.00
	Mar. 16	Tr.	-
	Mar. 23	Tr.	-
Frankfort (on Mohawk River)	Mar. 2	16	-
	Mar. 9	5	-
Canajoharie (on Mohawk River)	Mar. 2	bd2	.18
	Mar. 9	.5	.02
	Mar. 16	Tr.	-
Scotia (on Mohawk River)	Mar. 2	5.5	.39
	Mar. 9	2.75	.23
	Mar. 16	0	-

b Estimated.
c Computed from observations made at nearby points.
d 80 percent of ground covered.

Table 7.-Snow depth, in inches, and water content, in inches, in New York, at indicated dates, 1936--Continued

Point of measurement	Date	Snow depth	Water content
Susquehanna River Basin			
Franklin (on Ouleout Creek, tributary to Susquehanna River)	Mar. 1-2	8.5	-
	Mar. 3	11.5	1.94
	Mar. 4	8	-
	Mar. 5	8.5	-
	Mar. 6-8	8	-
	Mar. 9	7	-
	Mar. 10	6	1.98
	Mar. 11	4	-
	Mar. 12	7	-
	Mar. 13	6	-
	Mar. 14	7	-
	Mar. 15	3	-
	Mar. 16	1	-
	Mar. 17-20	Tr.	-
	Mar. 21	1	-
	Mar. 22-24	Tr.	-
St. Lawrence River Basin			
Newark (on Barge Canal)	Mar. 2	3.5	1.39
	Mar. 9	0	-
Waterloo (on Seneca River between Seneca and Cayuga Lakes)	Mar. 2	3	.92
	Mar. 9	(f)	-
	Mar. 16	Tr.	-
	Mar. 23	Tr.	-
Cayuga (foot of Cayuga Lake)	Mar. 2	Tr.	-
	Mar. 9	0	-
Mays Point (at confluence of Clyde and Seneca Rivers)	Mar. 2	9	2.78
	Mar. 9	4.5	.96
Locke (on Owasco Lake inlet)	Mar. 2	8	.93
Fish Creek (on headwaters of East Branch of Fish Creek)	Feb. 7	47	-
Williamstown (on West Branch of Fish Creek)	Mar. 2	40	-
	Mar. 9	36	-
	Mar. 16	24	-
	Mar. 20	Tr.	-
	Mar. 23	Tr.	-
New London (on Barge Canal, near divide between Mohawk and Oswego River Basins)	Mar. 2	16	5.85
	Mar. 9	10	4.43
	Mar. 16	2	.89
	Mar. 23	Tr.	-
Cleveland (on Oneida Lake)	Mar. 2	24	7.87
	Mar. 9	18	6.85
	Mar. 16	8	3.9
	Mar. 23	1.5	.6
Brewerton (on Oneida River, foot of Oneida Lake)	Mar. 2	19	6.10
	Mar. 9	20	7.69
	Mar. 16	9	3.74
	Mar. 22	4	.72
Fulton (on Oswego River)	Mar. 2	21	8.82
	Mar. 9	19	8.69
	Mar. 16	8.5	3.78
Bennetts Bridge (on Salmon River)	Mar. 27	16	-
	Mar. 28	12 to 15	-
	Mar. 30	12	-
	Mar. 31	8 to 10	-
North Lake (on headwaters of Black River)	Mar. 19-20	21	6.4
White Lake (near Bear Creek, tributary to Woodhull Creek, tributary to Black River)	Feb. 11	27	4.7
	Mar. 16-17	20	6.4
Forestport (6 miles east of village, on Black River)	Feb. 7	26	6.2
	Mar. 19-20	17	5.6
Forestport Station (near Black River)	Feb. 7	23	4.7
	Mar. 19-20	15	5.1
Forestport (on Black River)	Mar. 2	32	3.67
	Mar. 9	30	4.07
	Mar. 16-17	19	3.97
	Mar. 23	12	2.87
Boonville (on Mill Creek, tributary to Black River)	Feb. 7	25	5.7
	Mar. 19-20	17	6.1
Seventh Lake (on Seventh Lake of Fulton Chain Lakes, tributaries to Moose River)	Feb. 11	30	4.8
Sixth Lake (on Sixth Lake of Fulton Chain Lakes)	Mar. 16-17	21	5.4
Old Forge (near outlet of Fulton Chain Lakes)	Feb. 11	27	5.2
	Mar. 16-17	22	6.8
Big Moose (on North Branch of Moose River)	Mar. 16-17	23	7.3
Carter (on tributary to North Branch of Moose River)	Mar. 16-17	27	8.4
McKeever (on Moose River, tributary to Black River)	Feb. 11	29	4.4
	Mar. 16-17	18	6.4
Stillwater (at outlet to Beaver River Flow, on Beaver River, tributary to Black River)	Mar. 16-17	19	6.0
Number Four (near Beaver River)	Mar. 16-17	13	3.4

f 30 percent of ground covered.

Table 7.- Snow depth, in inches, and water content, in inches, in New York, at indicated dates, 1936--Continued

Point of measurement	Date	Snow depth	Water content
St. Lawrence River Basin--Continued			
Wanakena (on Cranberry Lake, tributary to East Branch of Oswegatchie River)	Feb. 1	18	3.6
	Feb. 10	22	4.7
	Mar. 16-17	18	5.4
Cranberry Lake (on Cranberry Lake)	Feb. 10	21	4.4
	Mar. 16-17	18	4.7
Star Lake (tributary to East Branch of Oswegatchie River)	Feb. 10	21	4.5
	Mar. 16-17	16	5.3
Raquette Lake (on Raquette Lake, headwaters of Raquette River)	Jan. 7	10.6	1.68
	Feb. 11	25	3.9
	Mar. 16-17	19	5.4
Blue Mountain Lake (on Blue Mountain Lake, tributary to Raquette Lake)	Feb. 11	23	4.3
	Mar. 16-17	21	5.1
South Pond (on South Pond, tributary to Long Lake)	Mar. 16-17	17	4.8
Long Lake (on Long Lake, on Raquette River)	Feb. 11	23	4.2
	Mar. 16-17	23	7.6
Little Tupper Lake (on Little Tupper Lake, tributary to Tupper Lake, tributary to Raquette River)	Feb. 11	26	5.1
	Mar. 16-17	18	5.0
Tupper Lake (near inlet to Big Tupper Lake)	Jan. 11	15.4	2.77
Big Tupper Lake (on Big Tupper Lake, tributary to Raquette River)	Feb. 10	25	4.5
	Mar. 16-17	19	5.6
Near Childwold (near divide between Grass and Raquette River Basins)	Jan. 11	14.6	2.51
Gale (near divide between Grass and Raquette River Basins)	Feb. 10	24	4.4
	Mar. 16-17	19	5.0
Upper Saranac (on Upper Saranac Lake, tributary to Saranac River)	Feb. 3	19	3.1
	Mar. 16-17	16	4.6
Wawbeck (on Upper Saranac Lake)	Mar. 16-17	15	4.7
Gabriels (on divide between St. Regis and Saranac River Basins)	Feb. 3	19	2.8
	Mar. 16-17	15	4.1
Union Falls (on Saranac River)	Feb. 3	18	3.1
	Mar. 16-17	9	2.4
Loon Lake (on Loon Lake, tributary to North Branch of Saranac River)	Feb. 3	20	3.8
	Mar. 16-17	13	3.9
North Elba (near West Branch of Ausable River)	Feb. 4	20	4.1
	Mar. 16-17	10	3.5
Lake Placid (near West Branch of Ausable River)	Feb. 3	20	3.4
	Mar. 16-17	10	3.1
Newman (on outlet from Lake Placid, tributary to West Branch of Ausable River)	Feb. 8	16	2.3
Near Newman (3 miles from U. S. Geological Survey river-measurement station on West Branch of Ausable River)	Jan. 15	7.2	1.19
Taylor Pond (headwaters of Little Black Brook, tributary to West Branch of Ausable River)	Feb. 4	18	2.2
	Mar. 16-17	9	2.8
St. Huberts (near confluence of Beede Brook and East Branch of Ausable River)	Feb. 4	13	2.7
Keene Valley (on East Branch of Ausable River)	Mar. 16-17	6	2.5
Stickney Bridge (on East Branch of Ausable River)	Feb. 4	10	1.4
	Mar. 16-17	1	.3

A. HALEDON, OPPOSITE PATERSON, N. J., MARCH 14, 1936, INUNDATED BY PASSAIC RIVER.

Courtesy of Aerial Explorations, Inc.

B. A CARBIDE EXPLOSION BROUGHT THE THREAT OF FIRE TO A FLOODED AREA ON CAMERON STREET, HARRISBURG, PA.

Courtesy of C. Fred Germeyer.

A. HEAVY ICE ON THE SUSQUEHANNA RIVER AT OVERVIEW, DAUPHIN COUNTY, PA.

Similar conditions existed on many other streams during the spring break-up. Courtesy of the Harrisburg Telegraph.

B. VIEW ON MARCH 20, 1936, LOOKING UP THE SUSQUEHANNA RIVER AT MIDDLETOWN, PA.

The steam plant of the Metropolitan Edison Co. is shown in the upper center and the Army air depot at the upper right. Courtesy of 28th Division Aviation, Pennsylvania National Guard.

However, measurements made in the Mohawk Valley at Canajoharie, Little Falls, and Scotia show less than half an inch of water content on March 2 and no snow by the middle of March.

No observations of water content of the snow are available in the lower Hudson River Basin, and only one observation in the Delaware River Basin, on Wallenpaupack Creek, Wayne County, Pa., where the Pennsylvania Power & Light Co. reported the average depth of snow just previous to the flood as 10.4 inches, with a water content of 3.5 inches. In the Susquehanna River Basin in New York observations made by Arthur Bennett at Franklin showed 11½ inches of snow, with a water content of 1.94 inches, on March 3, and 6 inches of snow, with a water content of 1.98 inches, on March 10. The Research Division of the Soil Conservation Service made available the following information for the Cohocton River drainage basin, in the Chemung River Basin:

A snow survey made on March 6 showed that 12.8 inches of snow with a density of 27 percent, or a water equivalent of 3.5 inches, still remained on timber lands. Most of the snow had disappeared in the open, but it was estimated that an average of 3 inches still remained. At the same density, the water equivalent would be 0.73 inches. Timber covers about 20 percent of the drainage basin, as found by a cover survey of 70,000 acres. The weighted average water equivalent of the snow stored in the entire Cohocton River drainage basin, based on the percentages of timber and open land, was 1.28 inches. A similar study in the Switzer Creek drainage basin on March 6 showed an average depth of snow in the woodland of 12.8 inches, with a water content of 3.5 inches. The weighted average water content was 1.37 inches for the drainage basin.

Snow surveys made early in February in the Adirondack Mountain region of the St. Lawrence River Basin showed an approximate snow cover of about 22 inches, with a water content of 4 inches. During February there was additional snowfall, together with normal winter compaction and sublimation, followed by possibly slight depletion during the first half of March. The snow survey of March 16-17 showed an average water content of 4.9 inches and an average cover of about 17 inches.

Temperature

Temperature played a very important part in the development of the floods of March 1936. Figure 34 shows the daily maximum, the daily minimum, and the accumulated departure of mean monthly temperature from the

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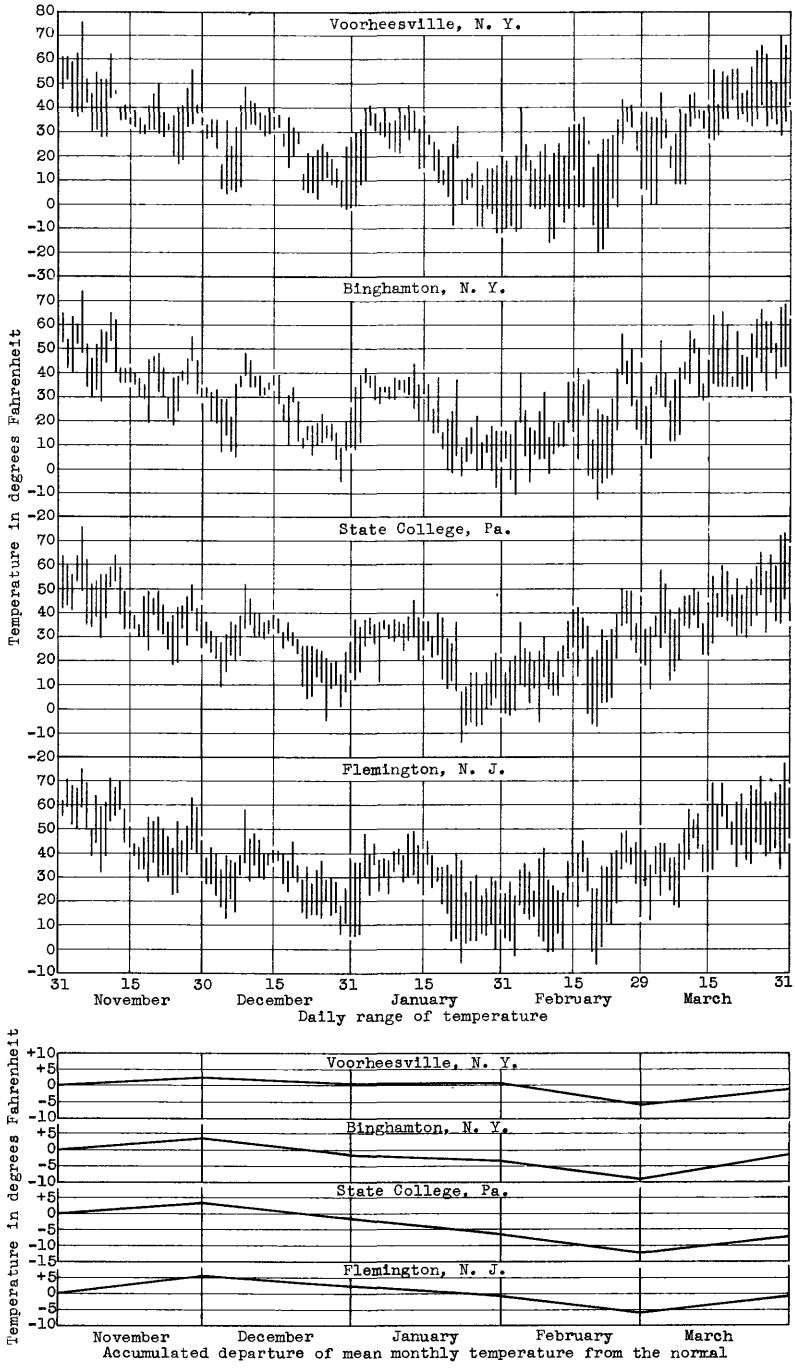


Figure 34.--Daily range of temperatures and accumulated departure of mean monthly temperature from the normal at various places in the Hudson River to Susquehanna River region for the period November 1, 1935, to March 31, 1936.

normal at four Weather Bureau stations - Voorheesville and Binghamton, N. Y.; State College, Pa.; and Flemington, N. J. Several facts having a bearing on the floods are noticeable from these records. First, beginning with December and continuing through February the temperatures, in general, were below normal; second, during the later half of January and most of February there was little thawing; and third, there was no considerable thawing weather prior to the first storm. With the exception of a "January thaw" during the first half of January and a short warm period the last few days in February, minimum temperatures were below freezing from about December 15 to March 10. Fortunately the increase in temperature during the last few days of February was sufficient in the southern part of the area to cause a break-up of some of the ice which had covered the river channels up to that time and to remove some of the snow cover before the first storm. Except for this run-off at least a considerable part of the precipitation that fell in the form of snow during the period from January 15 to March 9 was on the surface of the ground at the beginning of the widespread storm period. Temperatures were so low that in areas where there was moisture in the soil not protected by a layer of snow, frost eventually formed to considerable depths. These conditions were conducive to high rates of run-off when followed by unusually high temperatures accompanied by heavy rains. To some extent, therefore, the ground work for the March flood is seen to have been laid as early as December. In streams where the thaw beginning in the later part of February was not sufficient to break up and carry away the channel ice, ice jams and gorges raised flood stages above those needed for the passage of water down channels unobstructed by ice. This condition was prevalent during the flood of March 11-12 in the Delaware, Susquehanna, Mohawk, and lower Hudson River Basins.

Frost in the ground

As the temperatures were in general below normal throughout the area during the greater part of December, January, and February and remained so until about the beginning of the storm period, it would seem that, other things being equal, conditions for producing frozen ground prior to the floods were more than normally severe. The protection from freezing that the ground may have derived from snow was so variable that definite conclusions as to frost cannot be made for large areas.

From the frost observations collected the general conclusion may be drawn that where heavy snow cover came early in the season and persisted throughout the winter there was little frost, at least near the ground surface, but that in areas where snow cover was light or where the heavy snow came late frost was present to a large degree, especially on northern slopes. So far as the presence of frost affects infiltration rates and run-off, consideration should be given to the possibility that in some areas, at least, a thin impervious stratum of earth and frozen moisture may have effectively retarded infiltration and increased surface run-off. There are few actual observations of depth of frost in the area, and, as discussed under "Rainfall and run-off studies", the relatively high amount of run-off as compared with the total water available may indicate that, although the surface of the ground was free from frost in some areas at the time of the flood, the underlying strata were frozen, thus increasing rates of surface run-off and correspondingly diminishing recharge to the ground-water table. The absence of frost data constitutes a serious deficiency in meteorologic information in studying in detail the causes of floods in these drainage basins. The following observations and estimates of frost condition, by States, are submitted in order that they may be available for use in more complete analyses of the floods.

New York

Data on the depth of frost in the ground in New York are meager. From the few available reports there was evidently no frost in the ground where snow depths were more than 8 inches. Where the snow depths were less than about 8 inches there probably was some frost, and several reports indicate large frost depths in the ground under exposed areas.

Soil temperatures recorded at Wanakena show that there was no frost in the ground there throughout the winter. C. H. Diebold, of Cornell University, reports in connection with soil temperatures recorded in the Arnot Forest area: "The unusual depth and continuity of the snow cover from December 13, 1935, was reflected in the fact that only one out of eight open field stations and none of the forest ones were frozen." One station froze to a depth of 30 inches on February 13, despite a thin snow coverage. The surface had thawed out by March 11, but the subsoil at a depth of 12 inches was frozen throughout the March flood period. The Research Division of the Soil Conservation Service reported no frost at the Arnot Erosion Experiment Station, either in the sugar-maple, beech,

and yellow-birch forest or in bare fields having eastern exposure. In fields with a northern exposure the ground was frozen hard through March 11.

Observations made at the time of the snow surveys in the Adirondacks show that, in general, there was no frost in the ground there at any time. E. S. Cullings reports some frost in pine plantations near White Lake. Arthur Bennett at Franklin reported frost 41 inches deep during the first 10 days of March. After March 18 the frost ranged from a few inches to 2 feet. Although the information is generally applicable only to urban areas, the following data were furnished by various engineers.

City engineer, Binghamton: "About 5 inches of frost on one construction job prior to the flood, and none after March 12."

Superintendent, city waterworks, Ithaca: "About 4 feet of frost prior to the floods. After the floods some excavating in the area that had been flooded for a week showed 2 feet of frost."

Superintendent, Finger Lakes State Park: "There was 3 or 4 feet of frost prior to the flood, and some after."

Resident engineer, State Department of Public Works, Owego: "There was much frost in the ground prior to March 12 and still considerable after the flood. Just prior to the flood water mains that were 4 feet underground were frozen. These mains had been in service many years and had not heretofore been frozen."

City engineer, Hornell: "Prior to the flood there was 4 feet of frost in the ground. After the flood the top 6 to 8 inches was thawed, but at least 2 feet of frost remained."

City engineer, Corning: "About 3 feet of frost in the ground prior to the first flood, and some remained thereafter."

R. O. Hayt, consulting engineer, Corning: "The frost remained in the ground after the flood period. Frost condition contributed largely to flood run-off."

Pennsylvania

The district engineer, United States Geological Survey, sent a questionnaire to several superintendents of cemeteries throughout the State asking two questions - (a) How did the frost in the ground compare with that of previous years? and (b) Was there frost in the ground just prior to the great flood of March 18-19? With respect to the first question, superintendents at Altoona, Gettysburg, Phillipsburg, Reading, Sunbury,

and Union City reported less frost than usual, while those at Clarion, Lancaster, and Pittsburgh reported more. With respect to the second question, little if any frost was reported at Altoona, Gettysburg, Harrisburg, Huntington, Reading, and Sunbury, but frost was reported at Clarion, Lancaster, Phillipsburg, Pittsburgh, and Union City. The superintendent at Union City reported 8 inches of frost in a grave dug on April 22.

New Jersey

Observations at Darlington, N. J., indicate that frost may not have been deep, because of the snow cover, and that after the first storm it had disappeared. At Boonton 30 inches of frost was reported March 1-11, and at Flemington an observer reported the deepest frost in years, up to 5 and 6 feet in certain sections, with frost in the ground before and after the first storm period.

DETERMINATION OF FLOOD DISCHARGES

General discussion

The general method employed by the Geological Survey in the determination of river discharge and the collection of records of stream flow consists of the determination of a stage-discharge rating by means of current-meter measurements of discharge at various stages from low water to high water and the application of this rating to the records of stage. If the stage-discharge relation for a station throughout the range of flow has been determined, it is evident that if the stage at any time is known and normal flow conditions prevail, the rate of discharge past the station at that time may be ascertained by application of the rating curve. Obviously the stage-discharge relation can be determined most successfully for the ranges of stage and flow that are of ordinary occurrence. The difficulties of determination increase for conditions of extraordinary occurrence. The determination of flood discharges, especially those of unusually great magnitude, may in most situations be very difficult, and their accuracy may depend upon scanty information as to actual conditions at the time of the flood, and upon surveys, analyses, and computations by various more or less indirect methods for extending the curve of stage-discharge relation beyond the range covered by current-meter measurements.

The ideal definition of the curve of stage-discharge relation for extreme floods would be obtained only by an adequate number of field determinations of discharge and by the observation and recording of critical features of flow during the flood at these places of determination. Floods rise and recede on many streams within a relatively short period of time. Moreover, headwater streams within an area of moderate size may for obvious reasons have their flood peaks rather closely in unison. Usual methods and routes of travel are often seriously disrupted in times of extreme flood. Owing to these and other practical difficulties the obtaining of sufficient information for determining flood discharges is a problem requiring not only special experience and ingenuity but also physical energy. However, with watchful attention to forecasts and reports of the Weather Bureau related to the approach and occurrence of major storms, field parties can often be assigned in the drainage area affected by the storm with such timeliness that highly effective use can be made of available personnel and facilities in obtaining critically important information. The

adaptation and improvement of equipment both for recording stages and for measuring discharges have also contributed greatly to the collection of adequate and reliable data regarding floods.

The determinations of flow in floods so unprecedented as those of March 1936 are particularly complex and difficult, because they are unique. They therefore involve increasing resort to auxiliarv methods and increasing exercise of expert knowledge.

In general, four different methods are employed in determining the maximum discharge of a flood at a given site, and the method used depends on the conditions at the site and the availability of information for its application. Whenever possible the results obtained by one method are verified by a determination by one of the other methods. The methods are (1) extension of rating curves for river-measurement stations, (2) computation of flow over dams, (3) computation of flow from slope-area observations, and (4) computation of flow through contracted openings. These methods are described in engineering textbooks and manuals. General information in regard to their use, with special reference to the conditions pertaining to the floods of 1936, is contained in the following descriptions:

Extension of rating curves for river-measurement stations

Under favorable circumstances the rating curve showing the relations of stage to discharge may be extended to stages and discharges higher than the range defined by current-meter measurements and thus may afford a means of determining the discharge. The successful application of this method requires a thorough analysis and careful appraisal of fundamental flow factors and a knowledge of the channel conditions at the river-measurement stations, especially in regard to the manner in which the width and depth of the channel vary with changes in stage, also the conditions affecting changes of velocity with changes of stage, such as rapids or falls, which may tend to increase velocities, or contractions of channel downstream from the gage, which may tend to decrease velocities. The cross section of the channel at the flood stage, including all overflow and by-pass channels, should be determined by instrumental surveys. Pertinent conditions, such as backwater from lower tributaries and changing influences of contracted sections of the channel below, must be visualized and their effects appraised as accurately as possible from available information.

The conditions most favorable for the accurate extension of a rating curve consist of well-defined rapids or riffles below the station at all stages and a uniform increase of channel cross section as the stage increases, without abrupt changes in area or addition of overflow channels - in other words, a general uniformity of those channel conditions which control the stage and discharge relations at the gage. In the extension of rating curves the construction and study, in connection with other data, of a curve showing the relation of a product of the cross-sectional area of the channel multiplied by the square root of the mean depth ($A\sqrt{d}$) to the corresponding stage has often proved helpful. The logarithmic plotting of stage and discharge also may be helpful in making the extension. In this method stage and discharge are both plotted on logarithmic scales. The observed stages, or gage heights, are adjusted to conform to the physical conditions of the site, usually by the addition or subtraction of some constant amount determined by study of such conditions. For example, at a river-measurement station with a riffle control of uniform elevation across the channel the gage height of zero flow should be subtracted from each observed gage reading. The graph of the relation thus developed usually tends to be a straight line or a very flat curve and therefore may be extended without danger of great error. Studies of the areas and mean velocities of flow at the measuring section may also be helpful in making the extension of the rating. In these studies the discharge for higher stages is computed from separate determinations of the cross-sectional area of the channel and of the mean velocity. The cross-sectional area of the channel is determined from field observations, and the mean velocity is obtained by extending the curve drawn through the values of mean velocity as determined from current-meter measurements, plotted against corresponding stages.

Radical changes in downstream conditions controlling the velocity or stages, or abrupt increases in the area of channel cross section, such as result from overflowed banks, may interfere seriously with the reliable application of these methods of analysis. In general, it has been found that the results thus obtained are about as likely to be too large as too small. Notwithstanding the application of the best available knowledge and experience, the results obtained by extension of the rating curve may be subject to considerable error, especially if the extension is carried considerably beyond the range defined by current-meter measurements. Results obtained by this method should therefore be used with appropriate caution.

Computation of flow over dams

The computation of flow over dams often affords a helpful and reliable means of determining flood peak discharges. Under favorable conditions the flow over a dam may be computed by a weir formula in which the principal factors are the length of crest between abutments, the head on the crest and a coefficient (C) based on experiment and varying with the shape of the crest and the head. The basic formula for such use is commonly expressed as $Q = CLH^n$, where Q = discharge in second-feet, C = coefficient for the dam, L = effective length of crest in feet, H = head in feet on the crest measured far enough above the dam to avoid the surface draw-down curve, and n = the exponent of H.

The exponent n may be assumed as 1.5, in which case the coefficient C will ordinarily vary with the head as well as with differences in the shapes of crest. For a dam for which adequate basic observations under heads of varying magnitude are available, it is possible to select constant values of both n and C that will represent satisfactorily the general equation of discharge at the dam, in which case n will usually be somewhat more than 1.5.

The velocity of approach in the channel above the dam affects the discharge over the dam and virtually increases the head on the crest by an amount equivalent to the corresponding velocity head. Thus at most dams the areas of cross sections of the approach channels should be obtained either from soundings above the dam after the flood has passed or from maps based on previous surveys, thereby making it possible to take the velocity of approach into account. This procedure has been followed in the surveys of the floods of March 1936. The head over the dam was generally obtained from gage readings made during the flood or from marks made at the time of the flood or from other high-water marks. Whenever the crest of a dam was submerged from backwater below the dam, the effect of such submergence was taken into consideration in computing the discharge over the dam.

The standard procedure in applying this method included a survey of the dam and surrounding features adequate for the preparation of a map showing all information that would guide the judgment of the engineer in computing the discharge. Information as to the shape and profile of the crest and other essential features of the dam was obtained from plans of the dam or by measurement of the dam itself. Profiles of the high-water marks above and below the dam were obtained by surveys. Conditions with respect to submergence, flood plains, overflow channels or other by passes,

and diversions through flood gates and water wheels were observed and recorded. The observations and records of these surveys are available for examination in the district offices of the Geological Survey for those States in which the dams are situated.

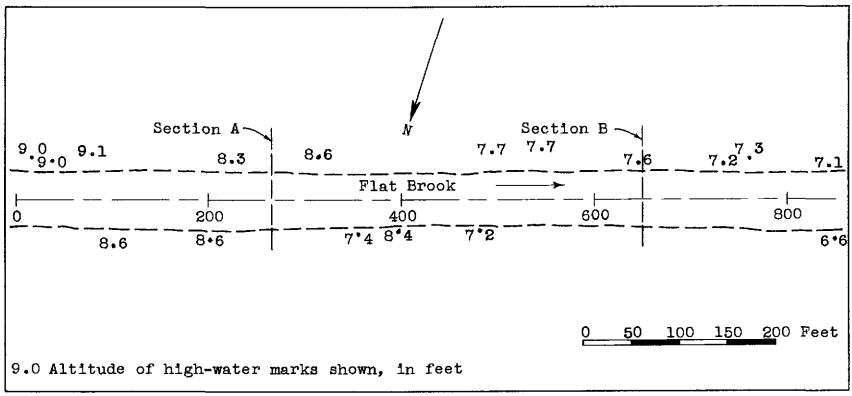
In the formula for discharge over dams, $Q = CLH^n$, the exponent n was in general taken as 1.5 and values of the coefficient C were selected from data summarized in Water-Supply Paper 200* or from those contained in modern handbooks, modified in some instances as a result of the experience of engineers of the Geological Survey in the use of such coefficients. The selection of coefficients by the different district offices was unified and coordinated with a view to utilizing the combined experience of the organization, thereby reducing errors of individual judgment. It is believed that the results obtained by this method are reliable, although many of the determinations were made for heads considerably greater than those for which the coefficients are well established by experience and practice. For the depths of flow over dams that occurred in the flood of March 1936, coefficients in general not exceeding 3.80 were used for ogee-shaped crests.

Computation of flow from slope-area observations

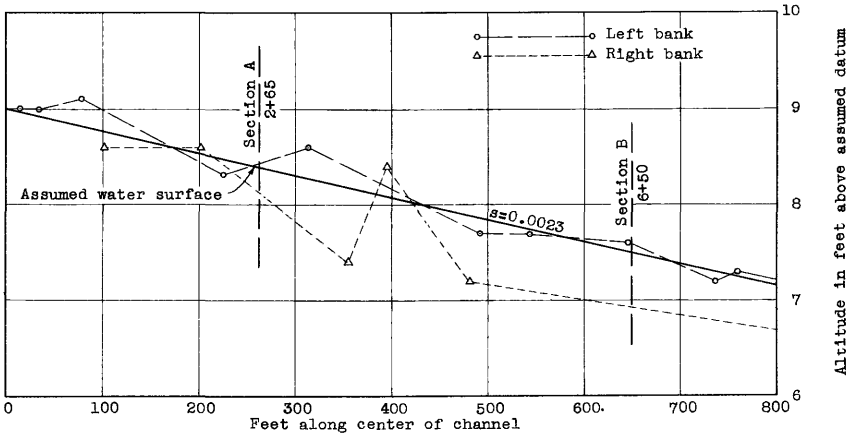
In the slope-area method the discharge is determined from measurements of the slope and the cross-sectional area of a suitable reach of channel and the use of formulas that have been subjected to extensive practical application. The basic formula is that of Chezy for the mean velocity of a stream, $V = C\sqrt{RS}$, in which R is the hydraulic radius, S the slope (energy gradient), and C a coefficient whose value depends on the degree of roughness of the bed of the channel and the hydraulic radius. This coefficient may be determined by either of two well-known formulas, Kutter's or Manning's. Both of these formulas include the roughness factor and the hydraulic radius, and Kutter's formula includes also the slope.

These formulas apply most satisfactorily to channels that have uniform beds and cross sections and that are free from bends or other characteristics which would tend to cause irregular and turbulent flows. Natural streams in flood rarely, if ever, have these ideal characteristics in full, and for the determination of discharge by the slope-area method those reaches of channel are selected which conform as closely as possible to the ideal conditions. On many streams the reaches of available channel are

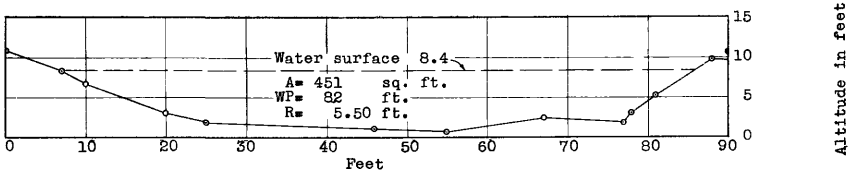
* Horton, R. E., Weir experiments, coefficients, and formulas: U. S. Geol. Survey Water-Supply Paper 200, 1907.



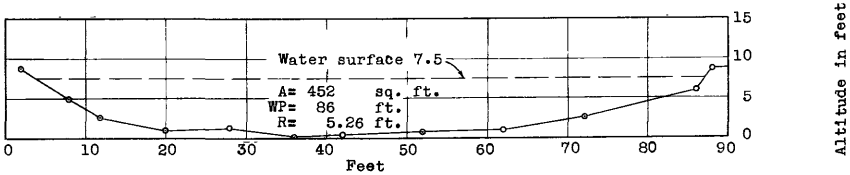
Sketch Map



Profile of high-water marks



Section A



Section B

Figure 35.--Map, profile of high-water marks, and sections of the slope-area reach for Flat Brook near Flatbrookville, N. J.

A. LOOKING UPSTREAM FROM BRIDGE ABOUT 1,400 FEET BELOW THE REACH.

Channel shown is similar to that in the reach. Banks are steep and are covered with thin brush, which was not in foliage at the time of the flood. Channel has a uniform cross section and a sand and gravel bottom.

B. LOOKING DOWNSTREAM FROM A POINT ABOVE THE REACH.

The tree and obstructions shown in the left foreground are not typical of the channel in the reach.

SLOPE-AREA REACH ON FLAT BROOK NEAR FLATBROOKVILLE, N. J.

A. ARTIFICIAL CONTROL, RECORDER HOUSE, AND MEASURING CABLE ON OLENTANGY RIVER, DELAWARE, OHIO.

B. RECORDER HOUSE AND MEASURING CABLE ON KAWEAH RIVER, THREE RIVERS, CALIF.

TYPICAL RIVER-MEASUREMENT STATIONS.

characterized by lack of uniformity in the bed, variations of cross-sectional area, bends, and other disturbing elements that make the application of the method difficult or impracticable.

The coefficient n, which is expected to express the degree of roughness of the channel and which is closely related to the coefficient C, has embodied in it when applied to a natural stream channel various elements beside the resistance to flow afforded by the bed. Among these elements are adverse bottom slope and irregularities of alinement and shape and of material in the bed and banks of the channel that cause cross currents, eddies, and other turbulence, which absorb the energy of the flowing water.

For the hydraulic radius and slope generally found in flooded streams in northeastern United States, the values of n used in the Kutter formula differ little, if any, from those used in the Manning formula. Because of this situation and the uncertainties in selection of values of n introduced by the disturbing elements mentioned above, any differences in the values of n that are caused by the use of one or the other of these two formulas are regarded as having no practical significance.

In some of the Survey districts within the area of the floods of March 1936 the Manning formula was used in the determination of discharge; in others the Kutter formula was used without detracting from the probable comparability of the results. The values of n chosen and used by engineers of the Geological Survey were checked by comparisons with available data, special consideration being given to results of actual determinations of coefficients of roughness by Ramser.* So far as possible, the determinations of discharge made by the slope-area method in the Survey's district offices were intercompared and centrally supervised or reviewed.

A channel for which the flow was determined by the slope-area method is illustrated in plate 5. The basic data used in the determination of discharge in the reach of channel shown in plate 5 are shown in figure 35. Similar basic data for all slope-area determinations were collected and are filed in the district offices.

There may have been no previous application of the slope-area method to the determination of flood discharges that was as comprehensive as that in connection with the determination of discharges for the floods of March 1936. Where there were opportunities to compare the results obtained by this method under reasonably favorable conditions with those obtained by

* Ramser, C. E., Flow of water in drainage channels; the results of experiments to determine the roughness coefficient n in Kutter's formula: U. S. Dept. Agr. Tech. Bull. 129, November 1929.

other methods, the comparisons indicate that reliable results were obtained. Where the conditions were generally unsuitable for the use of the slope-area method the comparisons have given rather erratic results. The slope-area method has generally been found to be useful as a means for checking determinations of discharges of extreme floods made by other methods and for making determinations where the application of other methods was impracticable.

Computation of flow through contracted openings

The method of computing flow through a contracted opening was applied where a stream passes through a constriction, such as the space between bridge abutments. In such a situation the area of cross section is much less than that of the channel above the opening, resulting in an increase in velocity through the contracted section. Such an increase in velocity can be produced only by converting head into velocity, and the head so used shows as a sharp drop in the water surface beginning near the entrance to the contracted section. The flow through the opening is the product of the area of the contracted cross section and the velocity through it, the velocity being computed from the velocity head corresponding to the drop in water surface through the contracted section plus the head due to velocity of approach minus the head lost by friction. (For a detailed description of this method see Houk, I. E., Calculation of flow in open channels: Miami Conservancy Dist. Tech. Repts., pt. 4, 1918.)

STAGES AND DISCHARGES AT RIVER-MEASUREMENT STATIONS DURING THE FLOOD PERIOD

One of the foremost purposes of this series of reports is the publication of useful detailed information regarding the stages and discharges of streams during the floods of March 1936 that will not be available in the summarized records of river discharge published annually in the water-supply papers of the Geological Survey. The justification for making available such detailed information rests upon the recognized need for records of flood behavior that will show not only the mean daily discharge and the maximum rates of discharge during a flood as usually published for a gaging station but also the stages and rates of discharge continuously throughout the flood period and will make possible a definition of conditions of stage and discharge at all stations in a basin at a given time during the progress of the flood. This detail is essential for intensive and comprehensive studies of the characteristics of floods and promotes

the formulation of appropriate plans for flood protection and control. It furnishes basic information for studying the behavior of flood crests, including the incidence of crests from different tributaries of a stream, the progress of flood crests throughout a river system, and other features useful in deriving the elements necessary for forecasting flood heights and for appraising the characteristics of different basins in the shedding of flood waters. It furnishes basic information for the consideration of the practical feasibility of detention reservoirs, channel improvement, forest management, soil treatment, and other measures with respect to their merits for ameliorating damage and losses caused by great floods. Moreover, in view of the exceptional record-setting character of the floods of March 1936, it is important that full and authentic information concerning them be available for reference and guidance in connection with future urban and industrial development, with highway and bridge construction, and especially with the design of hydraulic structures in their relation to flood channels of streams.

In general, records of gaging stations publisned in this report relate to streams on which floods occurred or which are situated adjacent to the margins of the flooded regions and so serve to define the areal extent of the floods.

Explanation of data

The basic data systematically collected at river-measurement stations consist of records of stage, measurements of discharge, and general information useful in determining the daily flow from the records of gage heights and discharge measurements. The records of stage are obtained either by direct readings on a nonrecording gage or by a water-stage recorder. Measurements of discharge are generally made by a current meter, the methods of use of which are outlined in standard textbooks. Typical river-measurement stations, equipped with water-stage recorder and measuring cable and car are shown in plate 6. Rating tables showing the discharges for indicated stages are prepared from the results of discharge measurements. At some river stations other or auxiliary devices are used in the determination of discharge, such as turbines, venturi meters, and gates, so calibrated as to indicate the quantity of water passing through them.

The data presented in the following tables comprise for each river-measurement station a description of the station, a table showing the daily discharges throughout the 3-month period February, March and April,

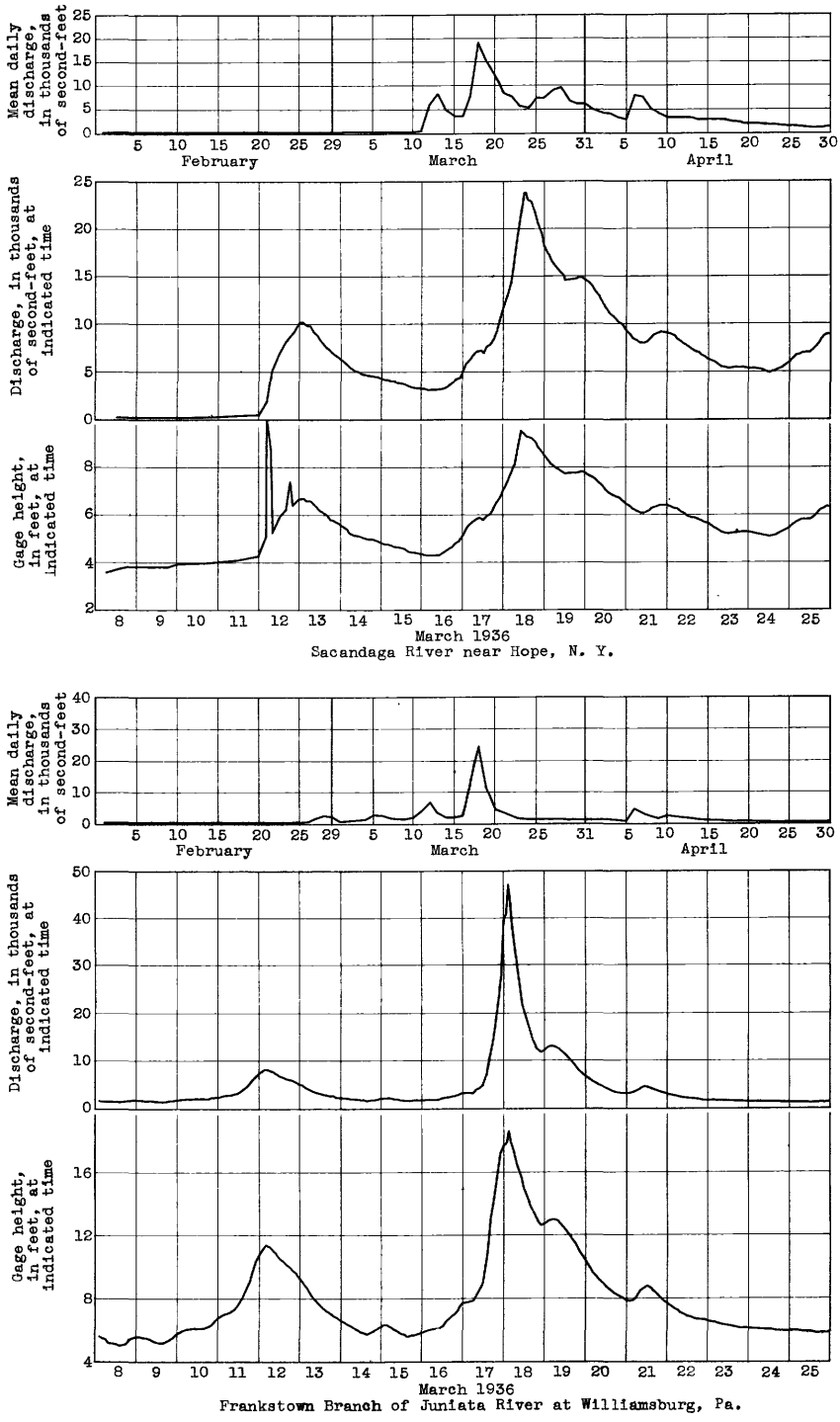


Figure 36.--Typical graphs of stages and discharges at river-measurement stations plotted from records in this report.

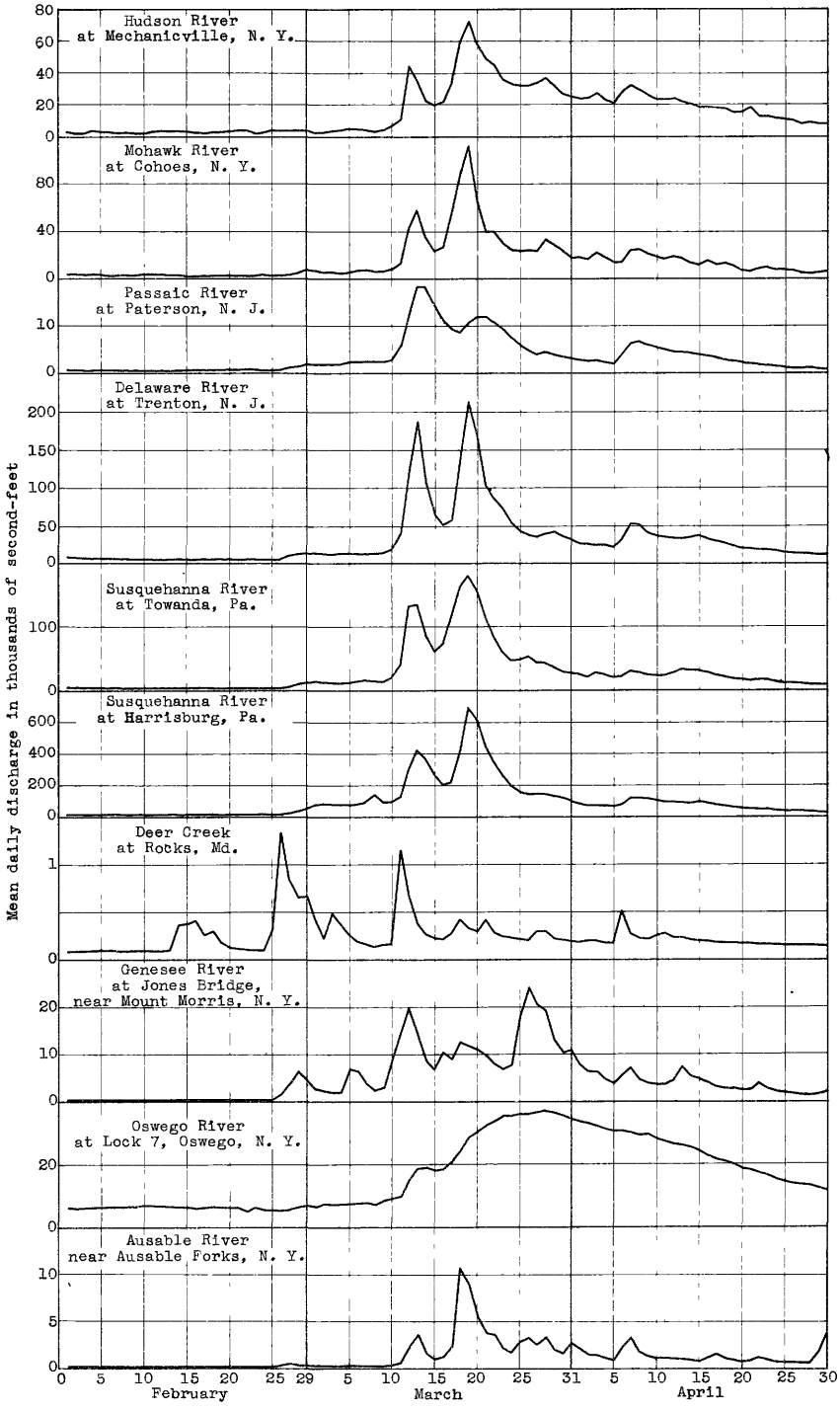


Figure 37.--Graphs of mean daily discharge at various river-measurement stations in the Hudson River to Susquehanna River region for the period February 1 to April 30, 1936.

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1936, and a table showing the stage and discharge at the times indicated during a period including the major flood flows, generally March 8 to 25 inclusive, in sufficient detail for the delineation of hydrographs to show with reasonable accuracy the stage and discharge at any instant throughout the flood period. The data are intended to be reasonably complete and explicit with respect to essential information, although they are presented in abbreviated and concentrated form. Figure 36 gives two examples of graphs of stage and discharge plotted from these data.

The description of the station gives information with respect to the location and type of gage, the area of the drainage basin, and the record of gage height. The information regarding gage heights describes the method of determining the stage during the flood and is of special technical significance, because the flood conditions at some localities prevented the use of the usual method of obtaining records of stage and discharge. A statement regarding the stage-discharge relation covers fundamentally a brief reference to methods used in the definition of the rating curve over the ranges of stage occurring in the floods. The description also includes information with respect to any other auxiliary methods used in obtaining the discharge, such as by flow through turbines, venturi meters, or gates. The maximum stage and discharge at the gaging station are given for the floods of 1936 and for the period of continuous record prior thereto, also at some stations for floods antedating such period of record. Miscellaneous notes and comments essential or helpful to understanding the record are included as remarks.

The table showing mean daily discharge presents the data generally for February, March, and April and covers the period of the floods and a time of sufficient length before and after to show the relation of the flood discharges to the prevalent discharges of the late winter and early spring. These data make possible a general perspective of the rises of the March floods and the related stream-flow conditions prior and subsequent thereto. The table shows the mean monthly discharge for the 3 months and the volume of run-off expressed in depth in inches over the drainage area, corrected for artificial storage if the information needed therefor was available. Figure 37 shows hydrographs of mean daily discharge at ten selected river-measurement stations for this 3-month period.

The tables showing stage and discharge at indicated times are designed to present the rise and recession of the flood in detail. In general each table begins on March 8, 3 or 4 days before the beginning of the rise of the first major flood, and continues through March 25, when

the flood had largely passed out of the river systems. The period of time covered by this table has been varied under special conditions to include stages and discharges for a longer or different period where it seemed desirable. This table is accompanied by supplemental records of stage and discharge to afford a more detailed record of these items at the given river-measurement station continuously throughout the flood period.

Hydrographs of discharge showing characteristics of the flood peaks and conditions of stream flow during the floods are shown in figure 38 for river-measurement stations in the Delaware River Basin. Similar information with respect to stages during the floods is shown in figure 39 for river-stage stations on the Delaware River. Figures 40 and 41 show discharge hydrographs during the floods for stations in the Susquehanna River Basin.

The stages at the indicated times were obtained from the records of continuous water-stage recorders, so far as such records were available. For stations at which the records of stage were intermittent, consisting of a small number of gage readings per day, or for which the records were broken because of some failure in the recording system, stage hydrographs have been developed on the basis of the available information, and the stages at indicated times have been obtained from those hydrographs. The stage records in this table are given to hundredths of a foot or to other limits of refinement, such as half-tenths or tenths of a foot, as explained in the notes accompanying the records.

The discharge at indicated times is related in general to the corresponding stage in accordance with the stage-discharge relation as discussed in the preceding paragraph. Where the normal stage-discharge relation was affected by ice or by backwater from tributaries, these conditions were taken into consideration in the determination of discharge. In some instances the stage in its application to the stage-discharge relation for determination of discharge has been used to the nearest half-tenth or tenth in accordance with certain established limits of refinement.

Descriptions and records of stages and storage content through the flood period are presented for several reservoirs in a form similar to that used for the river-measurement stations. These records are of special value for distinguishing the influence of storage regulation on flood flows in relation both to the appraisal of their effect on flood flows and to the extension of information on the natural characteristics of drainage basins in the shedding of flood waters.

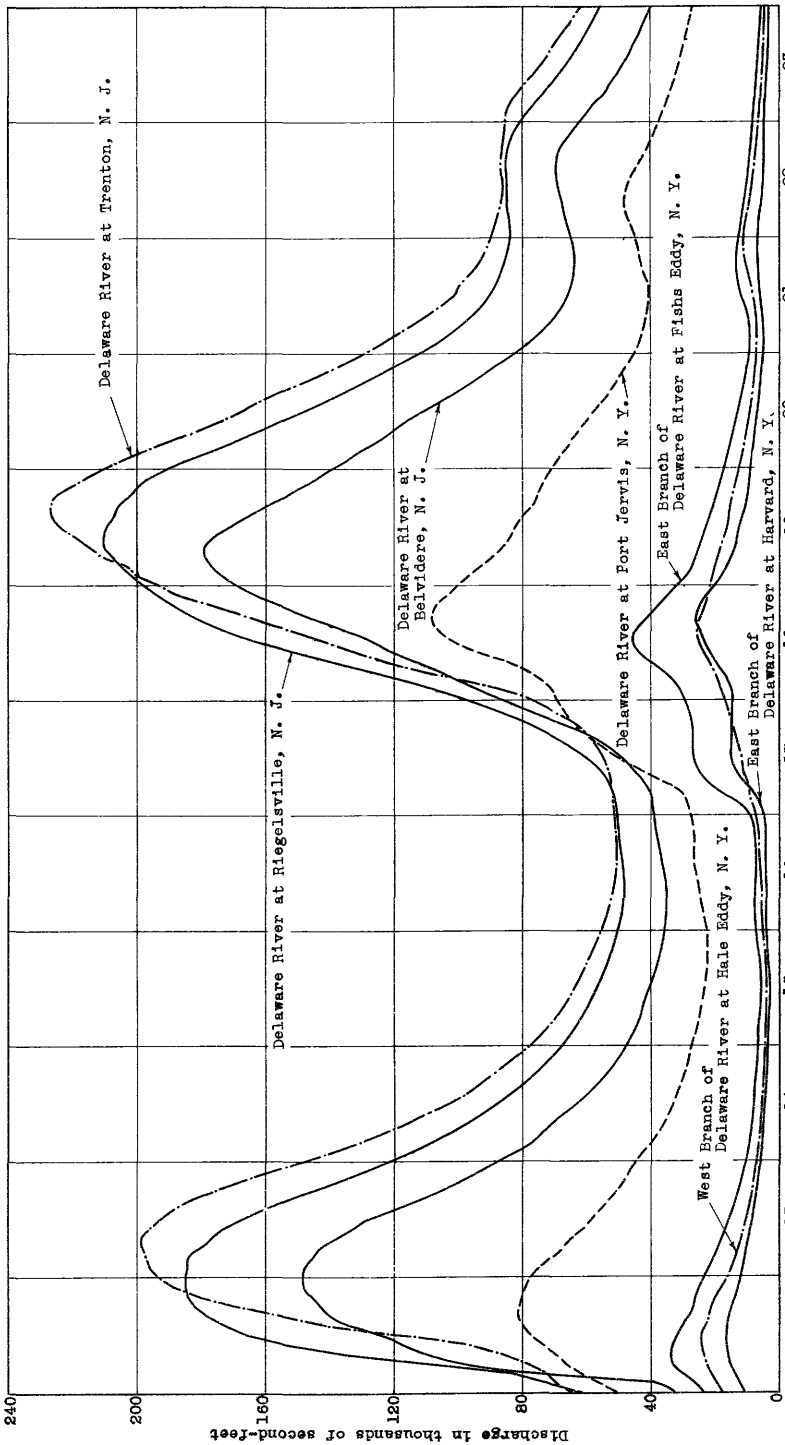

Figure 38.--Graphs of discharge at various river-measurement stations in the Delaware River Basin, March 12-23, 1936.

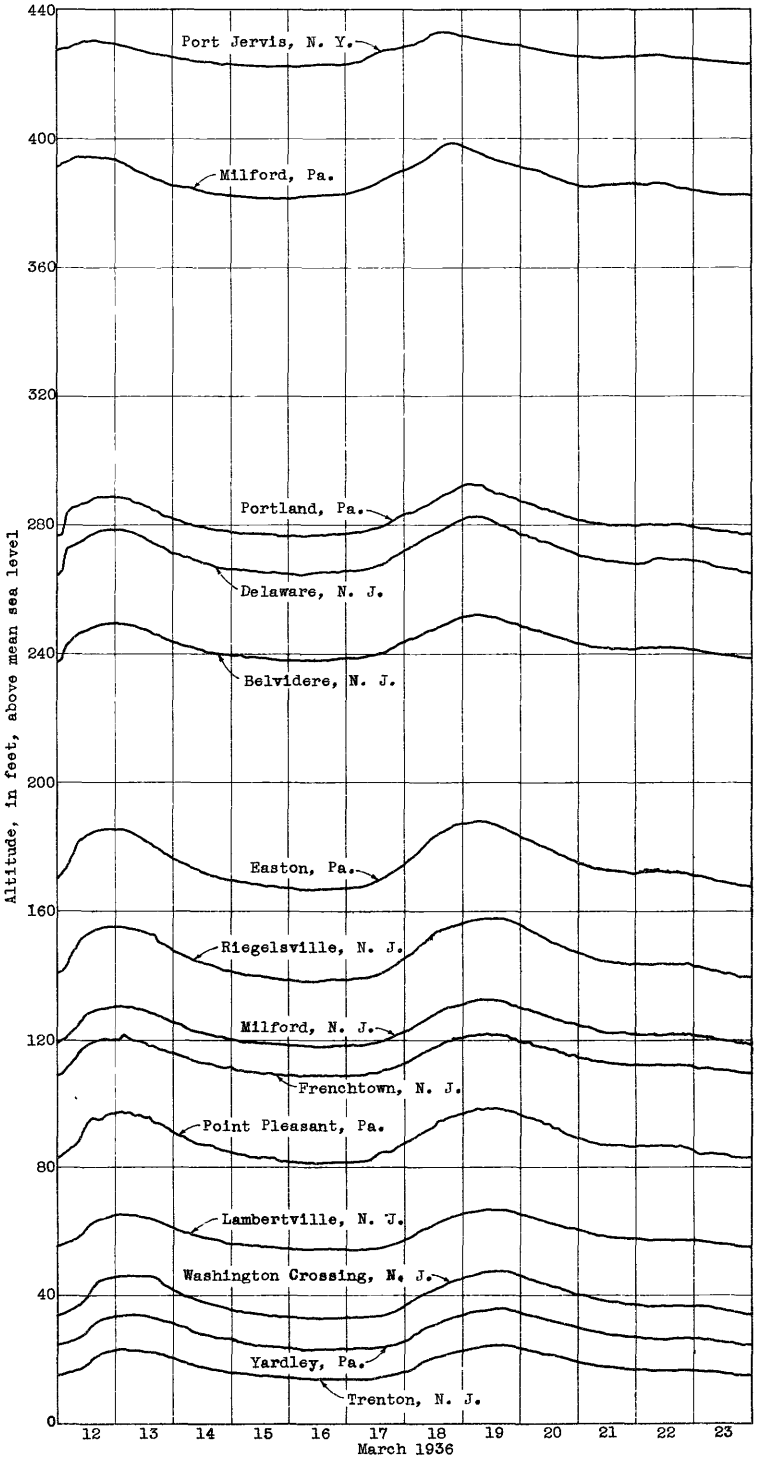

Figure 39.--Graphs of stage at various river-stage stations on the Delaware River, March 12-23, 1936.

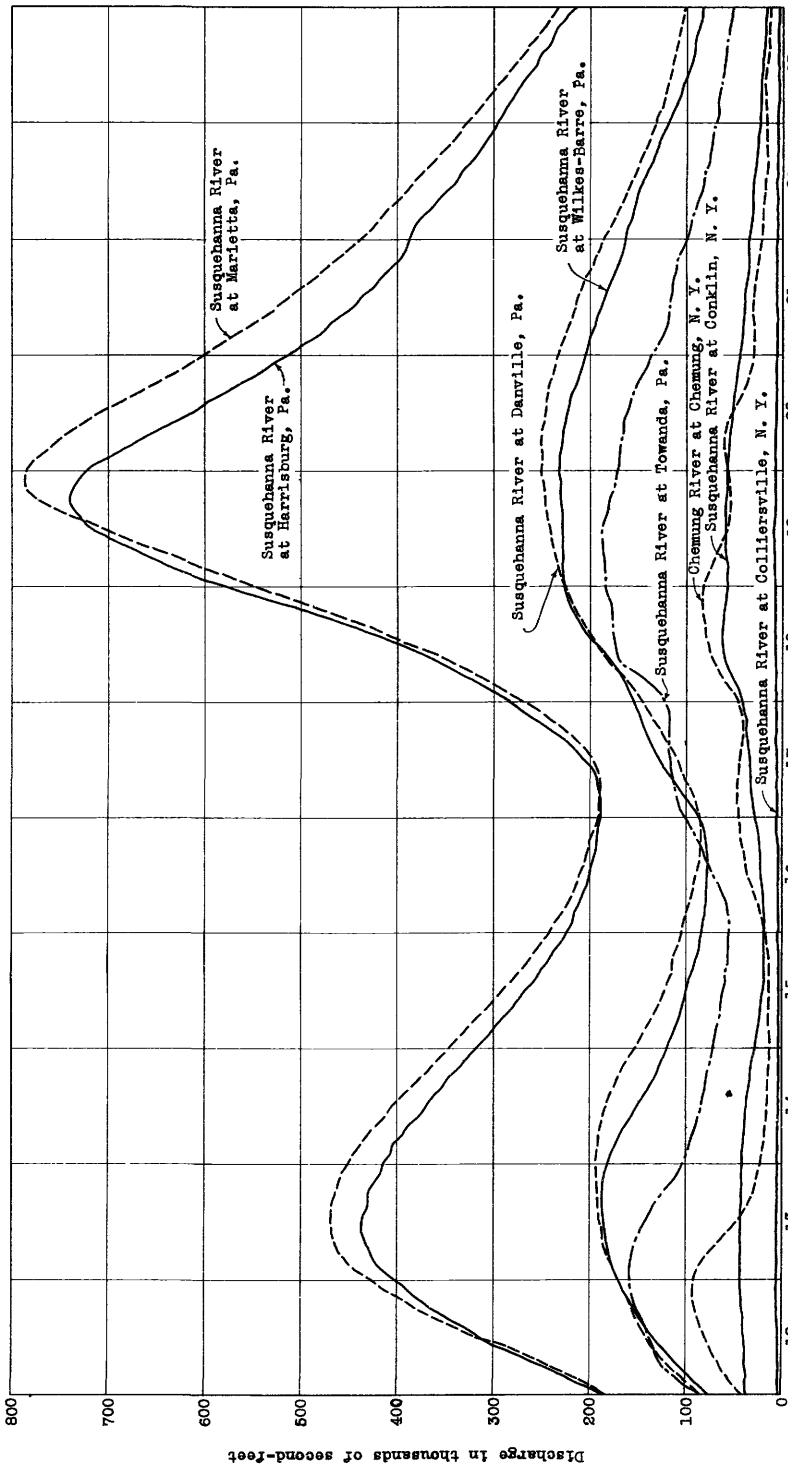

Figure 40.--Graphs of discharge at various river-measurement stations in the Susquehanna River Basin, March 12-23, 1936.

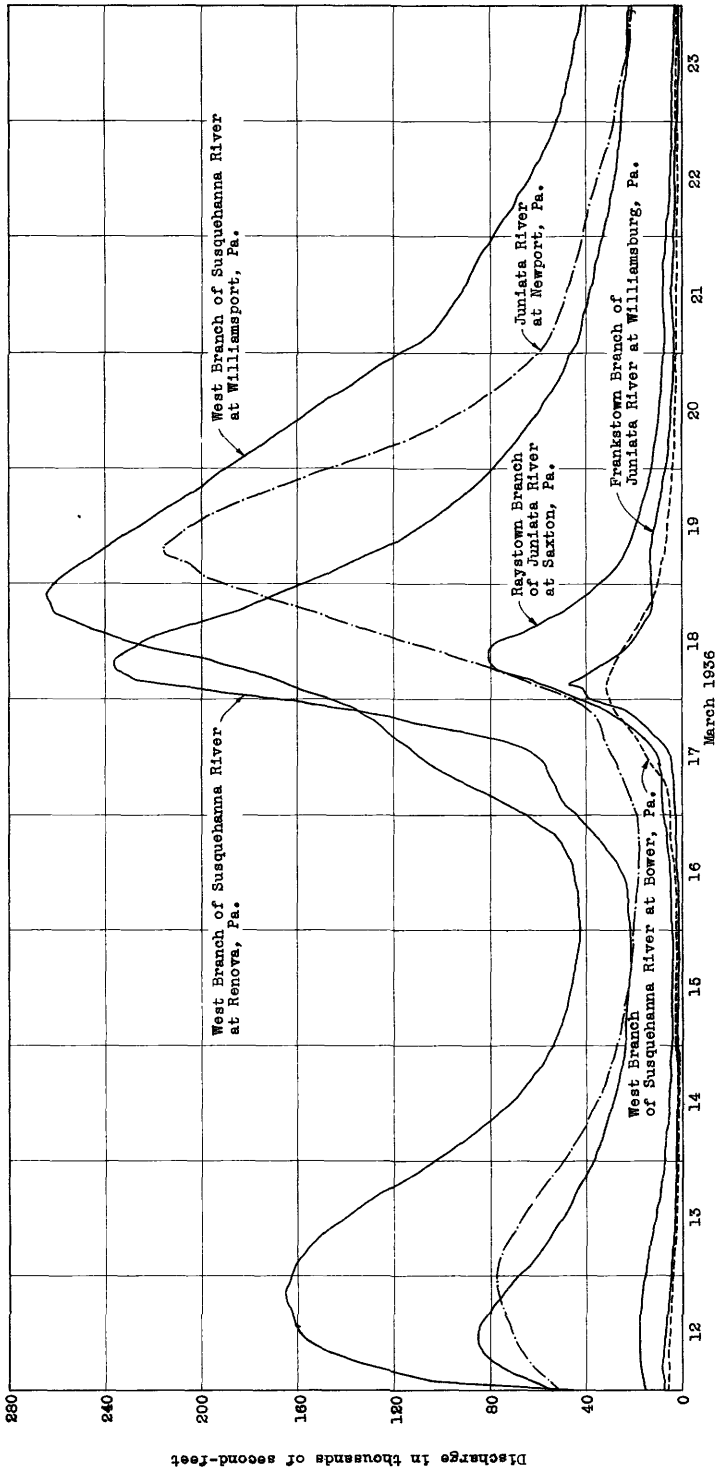

Figure 41.--Graphs of discharge at various river-measurement stations in the Susquehanna River Basin, March 12-23, 1936.

The records are presented in accordance with the regular arrangement used by the Geological Survey in its water-supply papers. The drainage basins are treated from north to south in order of their discharge into the Atlantic Ocean. In this volume records of streams in the St. Lawrence River Basin follow those for the Susquehanna River Basin.

In each of the major drainage basins gaging stations on the main streams are treated first, in downstream order, and then stations on tributaries in similar order beginning with the uppermost. The table of contents presents the stations in the order in which they appear herein; the index shows the stations alphabetically according to stream names and place names.

The maximum discharges at these river-measurement stations and at other places on these streams, with other related information, are listed in table 8, pages 282 to 304, in the order above described. The locations of the stations are shown on the maps accompanying table 8 (see figs. 42 to 46) by means of index numbers listed in the first column of the table.

Reference should be made to the water-supply papers of the Geological Survey for other available published records of flow of the streams discussed in this report. The records of flow published here are based on all information available at this time. Accelerated erosion and deposition in the river channels due to the floods may have changed the stage-discharge relation at some river-measurement stations at medium and low discharges, but all these changes may not have been fully defined in the period available for observations since the floods. Any revisions found necessary in the light of further information will be published in subsequent water-supply papers.

Hudson River at North Creek, N. Y.

Location.- Lat. 43°42'0", long. 73°59'0", just above highway bridge in North Creek, Warren County, 500 feet above mouth of North Creek.
Drainage area.- 792 square miles; 131 square miles affected by storage in Indian Lake Reservoir.
Gage-height record.- Water-stage recorder graph except for period 10 a.m. Mar. 18 to 7 a.m. Mar. 20, when graph was based on flood marks, shape of the preceding and following graph, and records of other stations in the upper Hudson Basin. Graph corrected for effect of obstructed well-intake pipe Mar. 20 to Apr. 24, on basis of twice-daily outside-gage readings.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 18; based on current-meter measurements below 20,600 second-feet, extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 23,000 second-feet 7 p.m. Mar. 19 (gage height, 10.8 feet). Maximum gage height 12.10 feet 6 a.m. Mar. 19, from flood marks (backwater from ice).
1907-35: Discharge, 27,400 second-feet Mar. 27, 1913 (gage height, 11.5 feet).
Remarks.- Flood discharge not corrected for storage in Indian Lake Reservoir and other small reservoirs.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,000	750	5,830	11	850	800	3,110	21	750	14,300	2,940
2	1,000	750	4,670	12	800	1,300	3,470	22	750	11,200	3,200
3	950	700	3,760	13	800	2,200	3,290	23	700	7,830	2,770
4	950	700	3,110	14	800	2,600	2,940	24	700	6,220	2,770
5	950	750	2,530	15	850	2,400	2,610	25	700	7,620	2,530
6	900	750	4,200	16	850	2,200	2,770	26	750	8,740	1,870
7	900	700	5,710	17	800	2,800	3,290	27	800	8,440	1,600
8	900	700	4,560	18	750	9,000	3,470	28	850	9,290	1,460
9	850	650	3,470	19	750	21,400	3,380	29	800	7,270	1,610
10	850	700	3,020	20	750	19,400	2,940	30		6,220	2,820
								31		6,610	
Mean monthly discharge, in second-feet									829	5,322	3,190
Run-off, in inches									1.13	7.75	4.50

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	4.70	*700	4.71	*650	4.71	*700	4.75	*800	5.38	*1,300	6.13	*2,200
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	4.89	-	5.76	-	6.26	-
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	5.54	-	-	20,600
4	-	-	-	-	-	-	-	-	6.24	3,560	-	19,500
6	-	-	-	-	-	-	-	-	7.58	-	-	20,100
8	-	-	-	-	-	-	-	-	7.44	5,470	10.29	20,600
10	-	-	-	-	-	-	-	-	8.04	-	10.43	21,300
N	6.23	*2,600	6.25	*2,400	5.95	*2,200	6.10	*2,800	-	8,200	10.54	21,800
2	-	-	-	-	-	-	-	-	-	-	10.65	22,300
4	-	-	-	-	-	-	-	-	-	12,700	10.74	22,800
6	-	-	-	-	-	-	-	-	-	-	10.79	23,000
8	-	-	-	-	-	-	-	-	-	15,800	10.78	23,000
10	-	-	-	-	-	-	-	-	-	-	10.73	22,700
M	6.24	-	6.05	-	6.22	-	6.88	3,110	9.82	18,500	10.63	22,200
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	10.44	21,300	9.06	15,300	8.41	12,800	7.09	8,320	6.38	6,300	-	-
6	-	-	-	-	-	-	-	-	-	-	6.66	7,060
8	10.26	20,500	8.81	14,300	8.20	12,000	6.90	7,750	6.27	6,010	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	10.01	19,300	8.73	14,000	8.00	11,300	6.97	7,960	6.23	5,910	6.83	7,540
2	-	-	-	-	-	-	7.02	8,110	-	-	-	-
4	9.82	18,500	8.76	14,100	7.75	10,400	6.90	7,750	6.30	6,090	-	-
6	-	-	-	-	-	-	-	-	-	-	7.06	8,230
8	9.54	17,300	8.68	13,800	7.52	9,670	6.67	7,090	6.41	6,380	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	9.32	16,400	8.56	13,300	7.30	8,970	6.53	6,690	6.54	6,720	7.31	9,000

Supplemental records.- Mar. 18, 1:10 a.m., 8.34 ft. (backwater from ice); 1:45 a.m., 5.45 ft., 4,150 sec.-ft.; 5:40 a.m., 8.94 ft. (backwater from ice); 6:20 a.m., 7.20 ft. (backwater from ice). Mar. 19, 6 a.m., 12.10 ft., from flood marks (backwater from ice); 7 p.m., 10.80 ft., 23,000 sec.-ft.
*Mean for the day.

Hudson River at Hadley, N. Y.

Location.- Lat. 43°19'10", long. 73°50'40", at Hadley, Saratoga County, a quarter of a mile above mouth of Sacandaga River and 400 feet below mouth of Lake Luzerne outlet.
Drainage area.- 1,664 square miles; 131 square miles affected by storage in Indian Lake Reservoir.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 9 and for parts of a day Mar. 17, 18; defined by current-meter measurements below 27,200 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 41,200 second-feet 6:15 p.m. Mar. 18 (gage height, 19.59 feet).
1921-35: Discharge, 33,100 second-feet Apr. 12, 1922 (gage height, 19.71 feet).
Remarks.- Flood discharge materially affected by storage in Indian Lake Reservoir and other small reservoirs and by ice jams upstream.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,600	1,200	12,500	11	1,400	1,410	8,290	21	1,200	31,600	6,080
2	1,600	1,200	11,000	12	1,400	2,940	8,680	22	1,200	28,500	6,150
3	1,600	1,200	10,200	13	1,400	5,660	8,270	23	1,200	22,100	5,790
4	1,500	1,200	8,760	14	1,300	5,280	7,660	24	1,200	18,200	5,290
5	1,500	1,300	7,480	15	1,400	4,790	7,050	25	1,200	17,500	5,250
6	1,500	1,300	10,200	16	1,400	5,620	6,880	26	1,300	18,300	4,520
7	1,500	1,300	13,100	17	1,300	9,020	7,250	27	1,300	18,000	3,980
8	1,500	1,200	11,200	18	1,300	24,800	7,150	28	1,300	19,600	3,650
9	1,400	1,200	9,710	19	1,300	35,700	7,030	29	1,300	16,500	3,530
10	1,400	1,280	8,680	20	1,200	36,600	6,500	30		14,200	4,100
								31		13,100	
Mean monthly discharge, in second-feet									1,369	11,670	7,531
Run-off, in inches									0.89	8.08	5.05

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	3.36	1,880	-	-
6	-	-	-	-	-	-	-	-	3.47	2,000	5.67	5,530
8	-	-	-	-	-	-	-	-	3.32	1,830	-	-
10	-	-	-	-	-	-	-	-	3.65	2,220	-	-
N	2.75	*1,200	2.77	*1,200	2.76	1,280	2.90	1,410	4.17	2,940	5.83	5,850
2	-	-	-	-	-	-	-	-	4.50	3,450	-	-
4	-	-	-	-	-	-	-	-	4.68	3,740	-	-
6	-	-	-	-	-	-	-	-	4.81	3,960	5.86	5,910
8	-	-	-	-	-	-	2.97	1,470	-	-	-	-
10	-	-	-	-	-	-	3.01	1,510	-	-	-	-
M	-	-	-	-	2.80	1,320	3.10	1,600	5.21	4,660	5.76	5,710
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	8.91	13,000	17.55	35,400
4	-	-	-	-	-	-	6.76	7,820	9.52	14,500	17.40	35,000
6	5.65	5,490	5.30	4,820	5.45	5,100	6.73	7,760	9.63	14,800	17.30	34,700
8	-	-	-	-	5.50	5,200	-	-	10.04	15,800	17.21	34,500
10	-	-	-	-	5.48	5,160	-	-	12.30	18,700	17.10	34,200
N	5.50	5,200	5.21	4,660	5.54	5,280	7.33	9,040	12.75	22,600	17.00	33,900
2	-	-	-	-	-	-	-	-	14.71	27,700	17.30	34,700
4	5.41	5,030	-	-	-	-	-	-	14.72	27,800	16.73	33,100
6	5.42	5,050	5.25	4,730	5.98	6,150	7.47	9,340	19.58	41,100	19.24	40,200
8	5.45	5,100	-	-	-	-	8.35	10,400	18.60	38,400	18.95	39,400
10	-	-	-	-	-	-	-	-	18.16	37,100	18.54	38,200
M	5.40	5,010	5.35	4,920	6.34	6,900	8.42	11,200	17.96	36,600	18.42	37,900
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	18.38	37,800	16.32	32,000	15.70	30,300	13.06	23,500	11.37	19,100	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	18.07	36,900	15.85	30,700	15.03	28,600	12.43	21,800	10.93	18,000	10.66	17,400
2	-	-	15.82	30,600	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	17.62	35,600	15.99	31,100	14.32	26,700	11.96	20,600	10.58	17,200	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	16.18	31,600	-	-	-	-	-	-	-	-
M	17.03	34,000	16.15	31,500	13.67	25,000	11.72	20,000	10.50	17,000	11.09	18,400

Supplemental records.- Mar. 17, 5:50 p.m., 7.39 ft., 9,170 sec.-ft.; 6:30 p.m., 8.86 ft., 10,100 sec.-ft. Mar. 18, 3 p.m., 15.06 ft., 28,700 sec.-ft.; 5 p.m., 19.10 ft., 39,800 sec.-ft.; 6:15 p.m., 19.59 ft., 41,200 sec.-ft. Mar. 19, 12:40 p.m., 16.96 ft., 33,800 sec.-ft.; 1:15 p.m., 17.61 ft., 35,600 sec.-ft.; 5:25 p.m., 16.67 ft., 33,000 sec.-ft.; 5:50 p.m., 19.30 ft., 40,300 sec.-ft.; 6:30 p.m., 19.44 ft., 40,700 sec.-ft.
*Mean for the day.

Hudson River at Mechanicville, N. Y.

Location.- Lat. 42°54'45", long. 73°40'45", at dam of West Virginia Pulp & Paper Co. in Mechanicville, Saratoga County.
Drainage area.- 4,500 square miles; 1,175 square miles affected by storage in Sacandaga and Indian Lake reservoirs.
Gage-height record.- Water-stage recorder graph used in computing flow over dam and through wheels.
Stage-discharge relation.- Spillway rating affected by ice Feb. 1 to Mar. 12. Discharge computed from flow over spillway, through wheels, and through lock of Champlain Canal. Flashboards on dam carried away Mar. 12; not replaced until May 25.
Maxima.- 1936: Discharge, 86,100 second-feet 10 a.m. Mar. 19 (gage height, 9.42 feet). 1887-1935: Discharge, 120,000 second-feet Mar. 28, 1913.
Remarks.- For storage figures see record for Sacandaga Reservoir at Conklingville and Indian Lake Reservoir near Indian Lake. Slight additional regulation from other small reservoirs. No correction is made for diversion through Glens Falls Feeder into Champlain Canal. Records of discharge over spillway and through wheels furnished by West Virginia Pulp & Paper Co. Daily discharges are for period 7 a.m. to 7 a.m. Hourly discharges do not include flow (about 22 second-feet) through lock of Champlain Canal.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,710	2,420	23,400	11	2,820	10,700	23,100	21	3,400	49,000	13,100
2	2,020	2,510	24,100	12	3,190	44,700	23,600	22	3,470	44,200	12,500
3	2,060	3,370	27,000	13	3,130	34,500	21,800	23	1,820	35,500	12,200
4	3,470	3,680	22,700	14	3,350	21,800	20,300	24	2,020	32,500	10,900
5	2,860	4,880	20,900	15	3,040	19,200	18,200	25	3,510	32,300	10,300
6	2,730	4,650	28,300	16	1,890	21,900	18,300	26	3,720	31,600	9,620
7	2,420	3,970	32,400	17	2,190	33,200	17,900	27	4,310	33,500	7,710
8	2,480	2,850	29,400	18	2,810	59,800	17,100	28	4,170	36,900	8,270
9	1,580	4,060	25,300	19	2,920	72,700	14,800	29	3,810	31,200	7,830
10	2,040	6,580	23,100	20	2,970	57,800	15,400	30		26,800	7,810
								31		24,900	
Mean monthly discharge, in second-feet									2,859	25,600	18,240
Run-off, in inches									0.68	6.56	4.52

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	3.04	6,330	4.50	11,280	6.12	46,600
4	-	-	-	-	-	-	2.58	6,100	4.45	18,000	6.54	51,100
6	-	-	-	-	-	-	2.58	6,100	4.80	27,000	6.08	46,200
8	-	-	-	-	-	-	2.58	6,100	5.00	35,000	5.88	44,100
10	-	-	-	-	-	-	2.58	6,100	5.30	37,500	5.96	45,100
N	-	*2,850	-	*4,060	-	*6,580	2.58	6,100	5.33	37,500	5.38	39,100
2	-	-	-	-	-	-	2.75	6,100	5.75	41,600	5.25	37,600
4	-	-	-	-	-	-	2.91	6,150	6.04	44,100	4.96	35,300
6	-	-	-	-	-	-	3.37	7,080	6.33	47,600	4.75	33,400
8	-	-	-	-	-	-	3.58	7,730	6.71	51,000	4.58	31,800
10	-	-	-	-	-	-	3.62	7,870	6.58	52,000	4.46	30,700
M	-	-	-	-	2.96	6,200	4.00	9,700	6.00	50,000	4.33	29,600
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.21	28,500	3.17	20,200	2.92	16,500	4.00	27,000	4.96	35,700	8.66	76,500
4	4.08	27,500	3.12	19,900	3.00	17,100	4.17	28,400	5.08	36,900	8.96	80,200
6	3.92	26,100	3.17	20,200	3.08	17,700	4.33	29,900	5.21	38,100	9.33	85,000
8	3.75	24,700	3.58	21,000	2.71	17,200	4.33	30,000	5.33	39,300	9.38	85,600
10	3.67	24,000	3.58	21,000	2.71	17,200	4.33	30,000	5.46	40,600	9.42	86,100
N	3.46	22,400	3.67	21,700	2.71	17,200	4.42	30,700	5.71	43,000	9.16	82,600
2	3.33	21,500	3.46	20,000	2.79	17,500	4.38	30,400	6.00	45,700	8.83	78,100
4	3.25	20,800	3.37	19,400	2.87	18,300	4.46	31,100	6.33	49,200	8.58	74,800
6	3.21	20,500	3.33	19,100	3.00	19,200	4.50	31,500	6.67	52,800	8.33	71,600
8	3.21	20,500	3.25	18,500	3.12	20,100	4.58	32,200	7.16	58,400	8.17	69,500
10	3.17	20,200	3.17	17,800	3.37	22,000	4.71	33,400	7.66	64,300	7.96	66,500
M	3.21	20,500	3.00	17,100	3.71	24,600	4.83	34,500	8.16	70,400	7.83	64,900
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.83	64,900	6.75	53,700	6.21	47,800	5.58	41,600	4.67	33,000	4.46	31,200
4	7.75	63,900	6.71	53,200	6.21	47,800	5.46	40,500	4.75	33,800	4.46	31,200
6	7.71	63,300	6.58	51,800	6.21	47,800	5.38	39,600	4.75	33,800	4.46	31,200
8	7.61	62,400	6.50	50,900	6.21	47,800	5.33	39,200	4.75	33,800	4.50	31,600
10	7.54	62,000	6.46	50,500	6.17	47,400	5.21	38,000	4.75	33,800	4.50	31,600
N	7.42	60,700	6.42	50,000	6.12	47,000	5.12	37,200	4.75	33,800	4.58	32,200
2	7.34	59,900	6.33	49,100	6.12	47,000	5.08	36,800	4.75	33,800	4.63	32,600
4	7.29	59,400	6.29	48,700	6.08	46,600	5.00	36,100	4.71	33,400	4.67	33,000
6	7.17	58,000	6.29	48,700	5.96	45,400	4.88	34,900	4.67	33,000	4.67	33,000
8	7.08	57,100	6.25	48,300	5.88	44,500	4.75	33,800	4.63	32,600	4.67	33,000
10	6.96	55,800	6.25	48,300	5.79	43,800	4.67	33,000	4.54	32,000	4.54	32,000
M	6.92	55,400	6.25	48,300	5.67	42,500	4.67	33,000	4.50	31,600	4.58	32,200

*Mean for the 24-hour period 7 a.m. to 7 a.m.

Indian Lake Reservoir near Indian Lake, N. Y.

Location.- Lat. 43°45'20", long. 74°16'35", at Indian Lake Dam, 2 miles south of Indian Lake Village, Hamilton County. Zero of gage is 1,617.95 feet above mean sea level.
Drainage area.- 131 square miles.
Gage-height record.- Gage read about 4 p.m. daily to tenths.
Maxima.- 1936: Gage height observed, 34.8 feet May 3, 4, 14-17, 27-29.
1900-35: Gage height observed, 38.8 feet Mar. 28, 1913.
Remarks.- Flow from reservoir normally completely regulated by operation of sluice gates. Usable storage capacity about 4,700,000,000 cubic feet. Because of wave action, gage readings and daily capacities are approximate.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet
1	19.1	2,264	10.7	1,052	27.7	3,659
2	18.8	2,218	10.4	1,013	28.2	3,744
3	18.4	2,157	10.3	1,000	28.7	3,830
4	18.1	2,111	10.0	960	28.9	3,864
5	17.8	2,066	9.8	934	29.2	3,915
6	17.5	2,021	9.6	909	29.6	3,984
7	17.2	1,975	9.3	870	30.8	4,192
8	16.9	1,930	9.1	845	31.6	4,332
9	16.6	1,886	8.8	807	32.1	4,421
10	16.3	1,841	8.6	782	32.4	4,479
11	15.9	1,782	8.4	758	32.7	4,536
12	15.6	1,739	8.3	745	32.9	4,575
13	15.4	1,709	8.8	807	33.3	4,653
14	15.1	1,666	9.3	870	33.5	4,692
15	14.8	1,622	9.8	934	33.8	4,751
16	14.5	1,580	10.1	973	34.2	4,830
17	14.2	1,537	10.8	1,066	34.5	4,890
18	14.0	1,508	12.0	1,228	34.5	4,890
19	13.8	1,480	14.9	1,637	34.4	4,870
20	13.4	1,423	17.0	1,945	34.2	4,830
21	13.1	1,381	18.3	2,142	34.1	4,810
22	12.8	1,339	19.0	2,249	34.0	4,790
23	12.5	1,297	19.8	2,372	33.9	4,770
24	12.2	1,256	20.3	2,450	33.9	4,770
25	12.0	1,228	20.9	2,544	33.9	4,770
26	11.7	1,187	21.8	2,687	34.0	4,790
27	11.6	1,174	22.8	2,848	34.1	4,810
28	11.3	1,133	24.3	3,091	34.3	4,850
29	11.0	1,092	25.4	3,273	34.5	4,890
30			26.2	3,407	34.6	4,910
31			26.9	3,524		

	February	March	April
Gain or loss in storage, in equivalent mean second-feet	-485	+930	+519

Indian River near Indian Lake, N. Y.

Location.- Lat. 43°45'30", long. 74°16'5", three quarters of a mile below Indian Lake Dam and 2 miles south of Indian Lake village, Hamilton County.
Drainage area.- 132 square miles. 131 square miles affected by storage in Indian Lake Reservoir.
Gage-height record.- Water-stage recorder graph except for periods Feb. 26 to Mar. 20 and Apr. 27-30, when it was based on known limits of stage fluctuation and record of gate operation.
Stage-discharge relation.- Defined by current-meter measurements.
Maxima.- 1936: Discharge, 1,220 second-feet 7 p.m. May 4 (gage height, 4.26 feet).
1912-14, 1915-35: Discharge, about 3,460 second-feet Mar. 28, 1913 (gage height, 7.8 feet).
Remarks.- For information on storage see record for Indian Lake Reservoir near Indian Lake, N. Y. Monthly-discharge table corrected for storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	708	488	8	11	644	385	17	21	545	11	1,020
2	708	488	9	12	624	221	18	22	545	9	936
3	708	470	11	13	624	14	17	23	526	6	737
4	686	452	10	14	604	11	16	24	526	7	421
5	665	452	10	15	604	10	17	25	526	12	178
6	665	434	27	16	604	9	124	26	507	9	10
7	665	434	18	17	584	8	737	27	507	13	9
8	665	416	16	18	584	7	1,100	28	507	10	8
9	644	406	16	19	564	30	1,080	29	507	7	200
10	644	396	16	20	564	15	1,020	30		6	565
								31		9	
Mean monthly discharge, in second-feet (observed).....									602	169	279
Mean monthly discharge, in second-feet (corrected).....									117	1,099	798
Run-off, in inches (corrected).....									0.96	9.60	6.75

Schroon River at Riverbank, N. Y.

Location.- Lat. 43°36'40", long. 73°44'10", at highway bridge at Riverbank, Warren County, 9 miles below Sohroon Lake Reservoir.
Drainage area.- 527 square miles.
Gage-height record.- Water-stage recorder graph except for periods Mar. 20-22, Mar. 24-30, when it was based on flood marks, known extremes in stage, and daily gage readings.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 10; based on current-meter measurements below 11,200 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 12,100 second-feet 9 a.m. Mar. 21 (gage height, 12.18 feet, from flood marks).
1907-35: Discharge, 10,400 second-feet Mar. 28, 1913 (gage height, 10.7 feet).
Remarks.- Discharge affected by storage in Schroon Lake, Brant Lake, and other lakes and reservoirs.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	360	340	4,220	11	320	363	3,220	21	300	12,000	2,090
2	340	320	3,870	12	320	464	3,120	22	300	11,100	2,000
3	340	320	3,650	13	320	635	3,020	23	300	9,400	1,880
4	340	340	3,320	14	320	735	2,920	24	300	7,800	1,800
5	340	360	3,020	15	320	930	2,720	25	300	7,100	1,680
6	340	380	3,020	16	320	1,210	2,630	26	320	6,680	1,560
7	340	380	3,430	17	320	1,940	2,540	27	340	6,400	1,480
8	340	360	3,540	18	320	3,550	2,450	28	380	6,130	1,400
9	340	340	3,540	19	300	7,240	2,360	29	360	5,610	1,320
10	320	340	3,320	20	300	10,600	2,180	30		5,090	1,320
								31		4,700	
Mean monthly discharge, in second-feet									326	3,650	2,621
Run-off, in inches									0.67	7.99	5.54

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	2.12	382	2.64	608
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	2.22	*360	2.30	*340	2.17	*340	2.06	*363	2.32	464	2.69	630
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	2.51	550	2.73	650
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	2.04	352	2.58	581	2.78	675
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	4.30	1,650	5.32	2,530	7.90	5,610
4	-	-	-	-	-	-	4.35	1,690	5.38	2,580	8.13	5,910
6	2.81	690	3.13	862	3.52	1,090	4.43	1,750	5.52	2,720	8.35	6,200
8	-	-	-	-	-	-	4.42	1,750	5.77	2,970	8.57	6,500
10	-	-	-	-	-	-	4.52	1,830	6.09	3,290	8.83	6,860
N	2.83	700	3.24	924	3.62	1,160	4.62	1,910	6.42	3,620	9.20	7,380
2	-	-	-	-	-	-	4.70	1,970	6.64	3,850	9.40	7,660
4	-	-	-	-	-	-	4.79	2,050	6.81	4,040	9.63	7,980
6	2.96	768	3.40	1,020	3.92	1,370	4.88	2,130	7.00	4,250	9.84	8,280
8	-	-	-	-	-	-	5.02	2,260	7.23	4,500	10.05	8,580
10	-	-	-	-	-	-	5.13	2,360	7.48	4,780	10.33	9,000
M	3.02	801	3.41	1,030	4.19	1,560	5.23	2,450	7.64	4,970	10.48	9,220
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	11.02	10,000	12.16	12,000	11.90	11,500	10.89	9,840	9.75	8,150	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	11.43	10,600	12.17	12,000	11.72	11,100	10.61	9,420	9.49	7,790	9.00	7,100
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	11.77	11,200	12.13	12,000	11.43	10,600	10.35	9,020	9.28	7,490	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	12.07	11,800	12.06	11,800	11.13	10,200	10.05	8,580	9.18	7,350	8.80	6,820

Supplemental records.- Mar. 21, 9 a.m., 12.18 ft., 12,100 sec.-ft.
*Mean for the day.

Sacandaga River near Hope, N. Y.

Location.- Lat. 43°21'10", long. 74°16'15", 1½ miles below junction of East and West Branches of Sacandaga River and 4½ miles above Hope, Hamilton County.
Drainage area.- 491 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12; defined by current-meter measurements below 15,000 second-feet; extended logarithmically to peak stage; verified by comparison of flood discharges with determinations for other stations in the Sacandaga River Basin.
Maxima.- 1936: Discharge, 23,900 second-feet 12:30 p.m. Mar. 18 (gage height, 9.40 feet).
1911-35: Discharge, 32,000 second-feet Mar. 27, 1913 (gage height, 11.0 feet, from flood marks).
Remarks.- Flood discharge not affected by artificial storage or diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	260	300	4,970	11	220	460	3,340	21	180	8,720	2,170
2	260	260	4,200	12	200	6,000	3,500	22	180	7,690	2,190
3	240	260	4,080	13	200	8,420	3,270	23	170	5,620	1,960
4	240	280	3,340	14	200	5,000	2,960	24	170	5,250	1,780
5	260	340	2,920	15	240	3,720	2,960	25	160	7,470	1,600
6	240	420	8,020	16	220	3,550	3,150	26	220	7,480	1,500
7	240	360	7,630	17	200	7,840	3,060	27	300	8,960	1,400
8	240	320	5,300	18	200	19,400	2,670	28	380	9,620	1,300
9	220	300	4,080	19	190	15,400	2,380	29	340	6,930	1,260
10	220	340	3,480	20	190	11,800	2,110	30		6,120	1,400
								31		6,120	
Mean monthly discharge, in second-feet									227	5,315	3,133
Run-off, in inches									0.50	12.47	7.12

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	6.67	10,200
4	-	-	-	-	-	-	-	-	5.11	1,870	6.60	9,900
6	3.56	-	-	-	-	-	-	-	-	-	6.57	9,790
8	-	-	-	-	-	-	-	-	5.20	5,250	6.45	9,330
10	-	-	-	-	-	-	-	-	-	-	6.32	8,850
N	3.73	*320	3.81	*300	3.96	*340	4.07	*460	5.86	6,990	6.19	8,380
2	-	-	-	-	-	-	-	-	-	-	6.05	7,900
4	-	-	-	-	-	-	-	-	6.20	8,180	5.96	7,580
6	3.81	-	-	-	-	-	-	-	-	-	5.84	7,180
8	-	-	-	-	-	-	-	-	6.39	9,100	5.76	6,920
10	-	-	-	-	-	-	-	-	-	-	5.66	6,610
M	-	-	-	-	-	-	4.30	819	6.68	10,200	5.59	6,390
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.47	6,030	4.79	4,180	4.32	3,190	5.42	5,880	7.39	13,100	8.29	17,400
4	5.36	5,700	4.76	4,110	4.29	3,130	5.58	6,360	7.69	14,400	8.13	16,600
6	5.24	5,360	4.71	3,990	4.29	3,130	5.72	6,790	8.10	16,500	8.00	16,000
8	5.15	5,110	4.69	3,950	4.29	3,130	5.82	7,120	8.70	19,700	7.91	15,600
10	5.11	5,000	4.62	3,790	4.32	3,190	5.87	7,280	9.53	22,100	7.80	15,000
N	5.06	4,860	4.60	3,750	4.39	3,320	5.78	6,990	9.38	23,800	7.72	14,600
2	5.04	4,810	4.56	3,670	4.48	3,500	5.95	7,550	9.27	23,100	7.72	14,600
4	4.98	4,650	4.48	3,500	4.58	3,710	6.05	7,900	9.23	22,900	7.73	14,600
6	4.94	4,540	4.42	3,380	4.66	3,880	6.25	8,600	9.07	21,900	7.74	14,700
8	4.91	4,470	4.40	3,340	4.78	4,150	6.53	9,520	8.85	20,600	7.78	14,900
10	4.87	4,370	4.38	3,300	4.90	4,440	6.79	10,700	8.66	19,500	7.77	14,800
M	4.83	4,270	4.36	3,260	5.12	5,030	7.10	11,900	8.45	18,200	7.73	14,600
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.66	14,300	6.33	8,890	6.33	8,890	-	-	-	-	5.59	6,390
4	7.58	13,900	6.22	8,490	6.27	8,670	5.45	5,970	5.20	5,250	5.68	6,670
6	7.47	13,400	6.15	8,240	6.20	8,420	-	-	-	-	5.72	6,790
8	7.32	12,800	6.07	7,960	6.12	8,140	5.30	5,530	5.14	5,080	5.76	6,920
10	7.16	12,100	6.08	8,000	6.01	7,760	-	-	-	-	5.77	6,950
N	7.02	11,600	6.14	8,210	5.95	7,550	5.24	5,360	5.07	4,890	5.79	7,020
2	6.88	11,000	6.23	8,530	5.90	7,380	-	-	-	-	5.89	7,350
4	6.80	10,700	6.32	8,850	5.84	7,180	5.28	5,470	5.16	5,140	6.03	7,820
6	6.73	10,400	6.37	9,030	5.80	7,050	-	-	-	-	6.20	8,420
8	6.66	10,100	6.39	9,100	5.73	6,830	5.29	5,500	5.30	5,530	6.28	8,710
10	6.57	9,790	6.39	9,100	5.67	6,640	-	-	-	-	6.32	8,850
M	6.45	9,330	6.37	9,030	5.60	6,420	5.26	5,420	5.45	5,970	6.30	8,780

Supplemental records.- Mar. 12, 5 a.m., 10.08 ft. (backwater from ice). Mar. 12, 6:50 a.m., 8.74 ft. (backwater from ice). Mar. 12, 6:20 p.m., 7.40 ft. (backwater from ice). Mar. 18, 12:30 p.m., 9.40 ft., 23,900 sec.-ft.
*Mean for the day.

Sacandaga Reservoir at Conklingville, N. Y.

Location.- Lat. 43°18'50", long. 73°54'55", 800 feet above right end of Conklingville Dam at Conklingville, Saratoga County.
Drainage area.- 1,044 square miles.
Gage-height record.- Mean daily gage heights computed from water-stage recorder record.
Remarks.- Flow of Sacandaga River completely regulated at Conklingville by this reservoir. Capacity of reservoir at elevation of spillway crest (771 feet) is 37,720,000,000 cubic feet. Available capacity (above 735 feet) is 33,120,000,000 cubic feet. Area of water surface of full reservoir is 41.7 square miles. Records furnished by Board of Hudson River Regulating District.

Elevation, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	741.66	9,020	737.24	5,940	762.97	28,740
2	741.59	8,960	737.18	5,910	763.08	28,860
3	741.51	8,900	736.98	5,780	763.30	29,090
4	741.40	8,820	736.74	5,630	763.19	28,980
5	741.26	8,720	736.53	5,500	762.95	28,720
6	741.08	8,580	736.34	5,390	763.26	29,050
7	740.85	8,410	736.27	5,340	764.20	30,070
8	740.62	8,250	736.33	5,380	764.59	30,490
9	740.70	8,300	736.19	5,300	764.57	30,470
10	740.55	8,200	735.94	5,150	764.48	30,370
11	740.40	8,090	735.76	5,040	764.40	30,290
12	740.21	7,950	736.23	5,320	764.35	30,230
13	739.98	7,790	737.47	6,090	764.25	30,120
14	739.83	7,680	738.53	6,790	764.14	30,000
15	739.65	7,560	739.25	7,280	764.09	29,950
16	739.59	7,510	740.02	7,810	764.25	30,120
17	739.52	7,460	741.38	8,800	764.21	30,080
18	739.38	7,370	745.09	11,710	764.06	29,920
19	739.17	7,220	749.80	15,760	764.07	29,930
20	738.95	7,070	752.68	18,400	763.98	29,830
21	738.69	6,890	754.49	20,120	764.04	29,890
22	738.43	6,720	756.09	21,670	764.14	30,000
23	738.38	6,680	757.06	22,630	764.13	29,990
24	738.27	6,610	757.50	23,070	764.09	29,950
25	738.07	6,480	758.11	23,680	764.08	29,940
26	737.86	6,340	758.96	24,540	764.16	30,020
27	737.67	6,220	759.74	25,340	764.18	30,050
28	737.50	6,110	761.17	26,830	764.13	29,990
29	737.27	5,960	761.89	27,580	764.06	29,920
30	-	-	762.31	28,030	764.02	29,870
31	-	-	762.76	28,510	-	-

	February	March	April
Gain or loss in storage in equivalent mean second-feet	-1,281	+8,486	+467

Sacandaga River at Conklingville, N. Y.

Location.- Lat. 43°18'50", long. 73°54'55", about half a mile below Conklingville, Saratoga County, and about 5 miles above mouth.
Drainage area.- 1,044 square miles. Flow completely regulated by Sacandaga Reservoir.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 7,480 second-feet.
Maxima.- 1936: Discharge, 7,350 second-feet 6:45 p.m. Apr. 2 (gage height, 7.05 feet).
1932-35: Discharge, 7,650 second-feet July 12, 1935 (gage height, 7.15 feet).
Remarks.- For information of storage see record for Sacandaga Reservoir at Conklingville, N. Y. Records furnished by Board of Hudson River Regulating District.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,030	9	5,130	11	2,010	2,040	7,020	21	1,990	11	2,570
2	10	2,090	6,110	12	2,020	2,060	7,000	22	2,000	9	2,540
3	2,010	2,040	6,990	13	2,010	2,130	7,030	23	9	2,730	2,580
4	2,010	2,010	6,980	14	2,030	1,770	6,260	24	2,000	4,790	2,560
5	2,000	2,050	6,940	15	2,020	10	5,130	25	1,980	4,820	2,580
6	2,010	2,010	6,950	16	9	1,730	5,150	26	1,980	4,840	16
7	2,000	1,840	6,990	17	2,030	1,640	5,160	27	1,960	4,870	2,590
8	2,030	40	7,010	18	1,980	434	5,170	28	1,990	4,890	2,610
9	10	1,470	6,990	19	2,020	16	2,560	29	1,970	4,890	2,580
10	2,010	2,050	7,010	20	2,000	11	4,130	30		4,930	2,610
								31		5,060	
Mean monthly discharge, in second-feet (observed).....									1,729	2,235	4,832
Mean monthly discharge, in second-feet (corrected).....									448	10,720	5,299
Run-off, in inches (corrected).....									0.46	11.84	5.67

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec-.ft
	March 7	
midnight	4.30	2,050
	March 8	
12:05am	4.30	2,050
12:15am	2.80	691
12:30am	1.60	189
1am	0.80	40
2am	0.44	15
3am	0.35	10
6am	0.32	9
	March 9	
7am	0.31	8
7:05am	3.00	820
7:10am	4.10	1,810
7:15am	4.22	1,950
8am	4.22	1,950
8:20am	4.30	2,050
9:40am	4.30	2,050
9:45am	4.10	1,810
10am	4.98	2,990
10:15am	4.98	2,990
10:30am	4.77	2,680
10:40am	4.18	1,910
10:50am	4.30	2,050
	March 12	
3pm	4.30	2,050
4pm	4.31	2,060
6pm	4.32	2,070
11pm	4.32	2,070
	March 13	
4:15am	4.32	2,070
4:20am	4.29	2,040
8:30am	4.29	2,040
8:35am	4.18	1,910
8:45am	5.13	3,230
9am	5.07	3,130
1pm	5.07	3,130
2pm	5.08	3,150
4pm	5.08	3,150
4:30pm	5.10	3,180
7pm	5.10	3,180
7:15pm	2.90	753
7:30pm	1.60	189
7:45pm	1.10	79
8:30pm	0.60	24
9pm	0.49	18
10pm	0.43	14
midnight	0.40	13
	March 14	
12:05am	3.50	1,200
12:15am	3.90	1,580
12:25am	3.90	1,580
12:30am	3.20	965
12:45am	1.80	249
1am	1.20	96
	March 14--Continued	
1:30am	0.70	31
2am	0.52	19
3am	0.43	14
4am	0.40	13
7am	0.40	13
7:15am	5.10	3,180
8am	5.08	3,150
3:45pm	5.08	3,150
3:50pm	5.50	3,860
4pm	5.58	4,000
7:10pm	5.58	4,000
7:15pm	4.00	1,690
7:30pm	2.30	438
7:45pm	1.40	138
8pm	0.98	61
8:30pm	0.64	27
9pm	0.49	18
10pm	0.41	14
11pm	0.40	13
	March 15	
1am	0.38	12
2am	0.37	11
5am	0.35	10
	March 16	
7:10am	0.35	10
7:15am	5.60	4,040
7:30am	5.62	4,080
9:50am	5.61	4,060
10am	5.20	3,340
10:15am	5.12	3,210
1pm	5.13	3,230
3pm	5.15	3,260
7:05pm	5.15	3,260
7:15pm	3.30	1,040
7:30pm	1.80	249
7:45pm	1.16	89
8pm	0.87	48
8:30pm	0.62	25
9pm	0.52	19
9:30pm	0.50	18
	March 17	
5am	0.49	18
7:05am	0.48	17
7:15am	5.10	3,180
7:20am	5.15	3,260
8am	5.17	3,290
10am	5.13	3,230
7:05pm	5.15	3,260
7:15pm	3.30	1,040
7:30pm	1.80	249
7:45pm	1.20	96
8pm	0.90	51
8:30pm	0.67	29
9pm	0.58	23
	March 17--Continued	
9:30pm	0.56	22
	March 18	
4am	0.55	21
5am	0.60	24
6am	0.63	26
7:10am	0.70	31
7:15am	5.18	3,310
7:30am	5.28	3,480
8am	5.27	3,460
8:15am	5.15	3,260
10am	5.15	3,260
10:15am	2.90	753
10:30am	1.60	189
10:45am	1.17	91
11am	0.93	55
noon	0.78	38
2:20pm	0.83	43
3pm	0.68	30
4pm	0.60	24
midnight	0.50	18
	March 19	
noon	0.43	14
midnight	0.43	14
	March 20	
7:55am	0.38	12
8am	0.35	10
	March 21	
3am	0.33	9
10am	0.33	9
noon	0.37	11
4pm	0.38	12
midnight	0.38	12
	March 22	
3am	0.35	10
5am	0.33	9
midnight	0.30	8
	March 23	
10:15am	0.30	8
10:20am	5.80	4,410
10:30am	5.91	4,620
11am	5.95	4,700
noon	5.98	4,760
midnight	6.00	4,800
	March 25	
noon	6.02	4,840
midnight	6.03	4,860

155158 O—37——8

East Branch of Sacandaga River at Griffin, N. Y.

Location.- Lat. 43°28'25", long. 74°13'25", about 300 feet above highway bridge at Griffin, Hamilton County, and about 7 miles above Wells, N. Y.
Drainage area.- 114 square miles.
Gage-height record.- Graph based on twice-daily gage readings and flood marks.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12; defined by current-meter measurements below 4,400 second-feet; extended logarithmically to peak stage; verified by comparison of flood discharges with determinations for other stations in the Sacandaga River Basin.
Maxima.- 1936: Discharge, 8,830 second-feet 4 p.m. Mar. 18 (gage height, 12.6 feet, from flood marks).
1933-35: Discharge, 3,800 second-feet July 9, 1935 (gage height, 9.2 feet, from graph based on gage readings).
Remarks.- Discharge not affected by artificial storage or diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	M.^	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	46	46	822	11	36	65	601	21	30	1,960	351
2	44	42	620	12	36	900	635	22	30	1,700	380
3	44	38	656	13	34	1,360	613	23	28	962	298
4	42	40	480	14	34	935	524	24	28	919	255
5	44	44	398	15	38	584	471	25	28	1,710	226
6	44	60	1,770	16	36	501	616	26	30	1,720	216
7	42	50	1,850	17	34	1,940	594	27	40	2,090	190
8	40	46	972	18	32	6,610	471	28	50	2,290	173
9	40	44	667	19	32	4,930	379	29	50	1,280	189
10	38	44	567	20	32	3,190	310	30		1,080	274
								31		1,170	
Mean monthly discharge, in second-feet									37.3	1,237	552
Run-off, in inches									0.35	12.51	5.40

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	6.22	1,460
6	-	-	-	-	-	-	2.07	-	4.50	-	-	-
8	-	-	-	-	-	-	-	-	-	-	6.15	1,420
10	-	-	-	-	-	-	-	-	-	-	-	-
N	1.89	*46	1.83	*44	1.87	*44	2.30	*65	5.10	*900	6.07	1,370
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	5.96	1,310
6	-	-	-	-	-	-	2.73	-	5.68	1,170	-	-
8	-	-	-	-	-	-	-	-	-	-	5.83	1,240
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	3.60	-	6.22	1,460	5.67	1,160
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	5.35	1,000	8.40	3,130	-	-
4	5.50	1,080	4.56	691	3.66	398	5.90	1,280	8.80	3,530	10.65	5,760
6	-	-	-	-	3.65	396	6.50	1,630	9.50	4,300	-	-
8	5.35	1,000	4.41	638	3.67	401	6.80	1,810	10.80	5,970	10.17	5,120
10	-	-	-	-	-	-	7.00	1,950	11.85	7,560	-	-
N	5.16	924	4.26	587	3.83	449	7.14	2,050	12.30	8,310	9.86	4,730
2	-	-	-	-	-	-	7.26	2,130	12.53	8,700	-	-
4	5.00	860	4.10	534	4.06	521	7.37	2,210	12.60	8,830	9.63	4,460
6	-	-	-	-	-	-	7.50	2,300	12.52	8,690	-	-
8	4.84	796	3.90	471	4.40	635	7.70	2,460	12.26	8,240	9.45	4,240
10	-	-	-	-	-	-	7.90	2,620	11.76	7,420	-	-
M	4.69	736	3.73	419	4.96	844	8.12	2,810	11.30	6,700	9.24	4,010
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	9.09	2,850	6.80	1,810	7.10	2,020	5.38	1,020	5.06	884	5.90	1,280
6	-	-	-	-	-	-	-	-	-	-	-	-
8	8.88	3,620	6.70	1,750	6.89	1,870	5.27	968	5.03	872	6.38	1,560
10	-	-	-	-	-	-	-	-	-	-	-	-
N	8.62	3,350	6.82	1,820	6.70	1,750	5.20	940	5.05	880	6.74	1,770
2	-	-	-	-	-	-	-	-	-	-	-	-
4	8.20	2,930	7.10	2,020	6.43	1,590	5.16	924	5.14	916	7.04	1,980
6	-	-	-	-	-	-	-	-	-	-	-	-
8	7.62	2,420	7.37	2,220	6.03	1,350	5.14	916	5.28	972	7.17	2,070
10	-	-	7.37	2,220	-	-	-	-	-	-	7.19	2,080
M	7.17	2,070	7.33	2,180	5.65	1,160	5.10	900	5.53	1,100	7.17	2,070

Supplemental records.- Mar. 13, 2 a.m., 6.24 ft., 1,470 sec.-ft.
*Mean for the day.

West Stony Creek near Northville, N. Y.

Location.- Lat. 43°15'10", long. 74°13'30", in Hamilton County at highway bridge on the Northville-Benson road about 1,000 feet above the mouth of West Stony Creek and about 3 miles northwest of Northville.
Drainage area.- 88 square miles.
Gage-height record.- Graph based on twice-daily gage readings and flood marks.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12; defined by current-meter measurements; verified by comparison of flood discharges with determinations for other stations in the Sacandaga River Basin.
Maxima.- 1936: Discharge, 8,470 second-feet 12:30 p.m. Mar. 18 (gage height, 8.40 feet, from flood marks).
1933-35: Discharge, 3,900 second-feet July 8, 1935 (gage height, 5.90 feet, from graph based on gage readings); maximum stage, 7.90 feet Mar. 18, 1935 (backwater from ice).
Remarks.- Discharge not affected by artificial storage or diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	40	60	700	11	32	280	625	21	26	1,570	272
2	40	48	590	12	30	1,100	740	22	24	1,360	272
3	38	42	780	13	28	1,520	662	23	24	865	196
4	38	40	590	14	28	970	490	24	24	910	164
5	40	50	436	15	32	750	555	25	24	1,690	147
6	38	65	2,680	16	32	885	625	26	28	1,460	128
7	36	50	1,480	17	30	2,550	472	27	50	2,490	118
8	34	48	780	18	28	6,290	365	28	85	1,900	110
9	34	48	555	19	26	3,490	289	29	80	1,000	108
10	32	90	522	20	26	2,120	233	30		955	141
								31		1,000	
Mean monthly discharge, in second-feet									35.4	1,151	528
Run-off, in inches									0.43	15.08	6.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	5.80	540	4.25	1,740
6	-	-	-	-	2.02	-	3.10	205	-	-	-	-
8	-	-	-	-	-	-	-	-	3.40	774	4.10	1,580
10	-	-	-	-	-	-	-	-	-	-	-	-
N	1.84	*48	1.85	*48	2.08	*90	3.50	270	3.70	1,160	4.02	1,490
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	4.35	1,860	3.96	1,430
6	-	-	-	-	2.22	-	3.70	348	-	-	-	-
8	-	-	-	-	-	-	-	-	4.50	2,040	3.84	1,300
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	2.56	150	4.30	453	4.40	1,920	3.71	1,170
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	6.35	4,560	-	-
4	3.60	1,060	3.29	782	3.16	678	4.05	1,520	6.58	4,950	6.00	3,990
6	-	-	-	-	-	-	-	-	6.85	5,420	-	-
8	3.52	988	3.24	742	3.20	710	4.40	1,920	7.15	5,960	5.60	3,390
10	-	-	-	-	-	-	-	-	7.67	6,970	-	-
N	3.47	943	3.22	726	3.33	817	4.85	2,480	8.35	8,360	5.36	3,040
2	-	-	-	-	-	-	-	-	8.38	8,430	-	-
4	3.45	925	3.24	742	3.50	970	5.30	3,060	8.00	7,630	5.59	3,380
6	-	-	-	-	-	-	-	-	7.65	6,930	5.61	3,400
8	3.42	898	3.26	758	3.64	1,100	5.72	3,650	7.25	6,160	5.60	3,390
10	-	-	-	-	-	-	-	-	6.88	5,470	-	-
M	3.37	853	3.20	710	3.83	1,290	6.13	4,220	6.56	4,910	5.42	3,130
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	5.12	2,710	4.02	1,370	4.18	1,550	3.46	831	3.43	806	4.00	1,350
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.80	2,290	4.00	1,350	4.10	1,460	3.45	822	3.44	814	4.15	1,520
10	-	-	-	-	-	-	-	-	-	-	-	-
N	4.60	2,040	4.16	1,530	4.03	1,380	3.51	874	3.50	865	4.38	1,780
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.43	1,840	4.39	1,790	3.94	1,290	3.54	901	3.60	955	4.51	1,930
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.25	1,620	4.38	1,780	3.79	1,140	3.52	883	3.73	1,080	4.50	1,920
10	-	-	-	-	-	-	-	-	-	-	-	-
M	4.12	1,480	4.30	1,680	3.59	946	3.47	840	3.85	1,200	4.43	1,840

Supplemental records.- Mar. 12, 5:30 a.m., 6.80 ft. (backwater from ice). Mar. 18, 12:30 p.m., 8.40 ft., 8,470 sec.-ft.
*Mean for the day.

East Stony Creek near Northville, N. Y.

Location.- Lat. 43°17'50", long. 74°11'40", at highway bridge about 0.7 mile west of Hope Falls, Hamilton County, and about 5 miles north of Northville. Zero of gage is 812.71 feet above mean sea level.

Drainage area.- 89 square miles.

Gage-height record.- Graph based on twice-daily gage readings.

Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12; defined by current-meter measurements below 3,180 second-feet; extended logarithmically to peak stage on basis of a study of overflow conditions and contracted-opening determination of flood flow; verified by comparison with flood discharges for other streams in the Sacandaga River Basin.

Maxima.- 1936: Discharge, 10,400 second-feet 7 p.m. Mar. 18 (gage height, 5.8 feet, from graph based on gage readings).
1933-35: Discharge, 2,230 second-feet July 8, 1935 (gage height, 3.9 feet); maximum gage height recorded, 4.5 feet Jan. 10, 1935 (backwater from ice).

Remarks.- Discharge not affected by artificial storage or diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	55	55	460	11	40	85	435	21	32	1,880	213
2	55	44	410	12	38	600	490	22	32	1,750	226
3	50	40	520	13	36	1,420	460	23	30	985	200
4	50	42	390	14	36	937	390	24	28	785	176
5	55	50	496	15	40	613	352	25	30	1,240	154
6	50	60	1,580	16	42	634	360	26	36	1,240	144
7	48	55	1,460	17	40	1,910	360	27	48	1,110	134
8	46	46	795	18	38	6,750	303	28	65	1,640	125
9	44	42	490	19	36	3,870	255	29	60	880	134
10	42	48	435	20	34	2,610	226	30		660	144
								31		585	
Mean monthly discharge, in second-feet									42.6	1,054	411
Run-off, in inches									0.52	13.65	5.16

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	3.41	1,360
6	-	-	-	-	-	-	1.80	-	2.83	-	-	-
8	-	-	-	-	-	-	-	-	-	-	3.41	1,360
10	-	-	-	-	-	-	-	-	-	-	-	-
N	1.60	*46	1.47	*42	1.71	*48	2.02	*85	3.18	*600	3.44	1,410
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	3.50	1,490
6	-	-	-	-	-	-	2.29	-	3.43	-	-	-
8	-	-	-	-	-	-	-	-	-	-	3.46	1,430
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	2.54	-	3.44	1,410	3.37	1,310
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	3.24	1,150	2.73	669	2.53	535	3.23	1,140	4.41	3,300	4.92	5,120
6	-	-	-	-	-	-	-	-	-	-	-	-
8	3.10	990	2.69	640	2.55	548	3.50	1,490	4.70	4,240	4.56	3,760
10	-	-	-	-	-	-	-	-	-	-	-	-
N	3.00	891	2.64	606	2.59	573	3.70	1,830	5.30	7,000	4.42	3,330
2	-	-	-	-	-	-	-	-	-	-	-	-
4	2.93	829	2.60	579	2.68	633	3.90	2,230	5.68	9,460	4.33	3,070
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.85	762	2.57	560	2.85	762	4.09	2,680	5.78	10,200	4.29	2,960
10	-	-	-	-	-	-	-	-	-	-	-	-
M	2.79	714	2.54	541	3.03	921	4.24	3,090	5.53	8,420	4.28	2,940
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.28	2,940	3.76	1,750	3.93	2,100	3.34	1,090	3.04	776	3.26	996
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.27	2,910	3.73	1,700	3.87	1,970	3.26	996	3.03	767	3.38	1,140
10	-	-	-	-	-	-	-	-	-	-	-	-
N	4.24	2,830	3.81	1,850	3.76	1,750	3.22	952	3.04	776	3.47	1,270
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.12	2,530	3.87	1,970	3.67	1,590	3.19	920	3.05	785	3.54	1,370
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.00	2,250	3.94	2,120	3.55	1,390	3.14	870	3.10	830	3.56	1,410
10	-	-	-	-	-	-	-	-	-	-	-	-
M	3.87	1,970	3.95	2,140	3.45	1,240	3.08	812	3.16	890	3.56	1,410

Supplemental records.- Mar. 12, 9 p.m., 3.46 ft., 1,430 sec.-ft. Mar. 18, 7 p.m., 5.80 ft., 10,400 sec.-ft.

*Mean for the day.

Batten Kill at Arlington, Vt.

Location.- Lat. 43°4'40", long. 73°9'30", at Arlington, Bennington County, 0.9 mile below mouth of Warm Brook. Zero of gage is 597.68 feet above mean sea level.
Drainage area.- 152 square miles.
Gage-height record.- Graph constructed from two gage readings daily, flood marks, and shape of stage graphs at nearby streams. Gage heights given to half tenths between 3.8 and 8.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-3, 6-12, 17-23. Defined by current-meter measurements below 5,160 second-feet; extended to peak stage by determination of flood flow over dam (head, 5.11 feet; C, 2.66 and 3.50); verified by comparison of peak discharge and total run-off of flood with records for nearby streams.
Maxima.- 1936: Discharge, 11,100 second-feet 4 p.m. Mar. 18 (gage height, 11.33 feet).
1928-35: Discharge, 6,410 second-feet (revised) July 7, 1935 (gage height, 8.4 feet).
Remarks.- Flood run-off not materially affected by artificial or natural storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	220	171	1,080	11	182	642	905	21	175	2,330	624
2	211	158	886	12	177	2,890	859	22	164	2,180	726
3	201	165	1,020	13	175	2,980	737	23	155	1,440	563
4	192	180	846	14	185	1,520	690	24	146	1,090	518
5	197	245	670	15	175	1,110	781	25	148	1,390	477
6	195	218	1,680	16	195	1,110	905	26	179	1,360	413
7	192	180	2,180	17	215	1,650	795	27	218	1,590	429
8	189	178	1,450	18	225	7,280	630	28	220	1,850	445
9	188	213	1,060	19	215	5,080	502	29	216	1,350	473
10	185	313	932	20	193	2,520	500	30		1,110	360
								31		1,170	
Mean monthly discharge, in second-feet									191	1,473	804
Run-off, in inches									1.36	11.17	5.90

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.52	156	2.80	223	2.79	220	3.42	440	5.0	1,260	7.2	3,720
4	2.51	154	2.81	226	2.85	237	3.48	465	5.35	1,490	7.3	3,950
6	2.50	152	2.82	229	2.93	261	3.54	490	5.85	1,830	7.25	3,840
8	2.50	152	2.83	231	3.00	283	3.60	516	6.5	2,400	7.2	3,720
10	2.55	162	2.81	226	3.08	310	3.66	542	6.95	3,150	7.05	3,380
N	2.60	173	2.78	218	3.11	321	3.77	592	7.3	3,950	6.9	3,040
2	2.64	183	2.72	202	3.15	336	3.85	628	7.45	4,310	6.75	2,760
4	2.69	195	2.69	195	3.17	343	4.0	698	7.35	4,070	6.6	2,530
6	2.72	202	2.68	192	3.20	354	4.1	745	7.25	3,840	6.45	2,340
8	2.75	210	2.69	195	3.28	384	4.35	878	7.1	3,490	6.3	2,190
10	2.77	215	2.70	197	3.33	403	4.5	960	6.9	3,040	6.15	2,060
M	2.79	220	2.73	205	3.38	424	4.7	1,080	7.0	3,260	6.0	1,940
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.9	1,860	4.9	1,200	4.7	1,080	4.95	1,230	6.7	2,680	9.4	8,260
4	5.75	1,760	4.85	1,170	4.7	1,080	5.05	1,290	6.9	3,040	9.0	7,550
6	5.6	1,650	4.8	1,140	4.7	1,080	5.1	1,320	7.1	3,490	8.4	6,410
8	5.5	1,580	4.75	1,110	4.7	1,080	5.2	1,390	7.35	4,070	8.0	5,600
10	5.4	1,520	4.7	1,080	4.65	1,050	5.3	1,460	8.0	5,600	7.8	5,150
N	5.35	1,490	4.7	1,080	4.7	1,080	5.45	1,550	10.0	8,240	7.55	4,560
2	5.25	1,420	4.7	1,080	4.7	1,080	5.65	1,680	11.1	10,800	7.35	4,070
4	5.2	1,390	4.65	1,050	4.7	1,080	5.85	1,830	11.3	11,100	7.2	3,720
6	5.15	1,360	4.7	1,080	4.75	1,110	6.0	1,940	11.2	11,000	7.1	3,490
8	5.1	1,320	4.7	1,080	4.8	1,140	6.15	2,060	10.8	10,400	7.0	3,260
10	5.05	1,290	4.7	1,080	4.85	1,170	6.35	2,240	10.3	9,690	6.95	3,150
M	4.95	1,230	4.7	1,080	4.9	1,200	6.5	2,400	9.9	9,080	6.9	3,040
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.9	3,040	6.0	1,940	6.75	2,760	5.7	1,720	4.8	1,140	5.05	1,290
4	6.85	2,940	5.9	1,860	6.65	2,600	5.6	1,650	4.75	1,110	5.1	1,320
6	6.8	2,850	5.9	1,860	6.45	2,340	5.5	1,580	4.7	1,080	5.2	1,390
8	6.75	2,760	5.85	1,830	6.25	2,140	5.4	1,520	4.7	1,080	5.2	1,390
10	6.7	2,680	5.95	1,900	6.2	2,100	5.3	1,460	4.65	1,050	5.15	1,360
N	6.6	2,530	6.25	2,140	6.15	2,060	5.25	1,420	4.6	1,020	5.1	1,320
2	6.5	2,400	6.7	2,680	6.15	2,060	5.2	1,390	4.6	1,020	5.15	1,360
4	6.4	2,290	6.9	3,040	6.1	2,020	5.1	1,320	4.6	1,020	5.2	1,390
6	6.3	2,190	6.9	3,040	6.05	1,980	5.05	1,290	4.65	1,050	5.25	1,420
8	6.2	2,100	6.8	2,850	6.0	1,940	5.0	1,260	4.75	1,110	5.25	1,420
10	6.1	2,020	6.7	2,680	5.9	1,860	4.95	1,230	4.8	1,140	5.25	1,420
M	6.05	1,980	6.75	2,760	5.8	1,790	4.9	1,200	4.9	1,200	5.3	1,460

Batten Kill at Battenville, N. Y.

Location.- Lat. 43°6'5", long. 73°25'55", 1 mile southwest of Battenville, Washington County.
Drainage area.- 394 square miles.
Gage-height record.- Water-stage recorder graph except for period 4 a.m. Mar. 17 to 3 p.m. Mar. 20, when record was based on flood marks and shape of stage graphs at nearby stations.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 9,200 second-feet; extended logarithmically to peak stage; verified by comparing flood flow with that of Batten Kill at Arlington, Vt.
Maxima.- 1936: Discharge, 14,400 second-feet 4:30 p.m. Mar. 18 (gage height, 14.0 feet, from flood marks).
1922-35: Discharge, 21,300 second-feet Nov. 4, 1927 (gage height, 17.7 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	460	700	2,200	11	400	2,400	2,500	21	360	5,120	1,230
2	460	600	2,000	12	400	8,860	2,400	22	360	4,790	1,380
3	460	550	2,540	13	400	9,170	2,140	23	340	3,740	1,200
4	460	550	2,130	14	400	5,080	1,870	24	340	2,870	1,070
5	460	850	1,780	15	440	3,440	1,780	25	400	2,840	980
6	460	700	2,900	16	440	3,410	1,920	26	500	2,800	912
7	440	550	4,530	17	420	6,920	1,780	27	750	2,800	875
8	440	500	4,000	18	400	13,100	1,560	28	900	3,610	846
9	420	700	3,120	19	380	11,700	1,380	29	850	3,150	839
10	420	1,100	2,740	20	380	7,660	1,250	30		2,580	1,110
								31		2,420	
Mean monthly discharge, in second-feet									460	3,718	1,899
Run-off, in inches									1.26	10.88	5.38

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.95	-	-	-	-	-	5.97	-	7.50	5,010	12.00	11,200
4	-	-	-	-	4.79	-	5.99	-	7.88	5,500	11.76	10,900
6	-	-	-	-	-	-	6.08	-	8.31	6,060	11.49	10,500
8	-	-	-	-	4.85	-	5.95	-	9.36	7,450	11.15	9,980
10	-	-	-	-	-	-	6.31	-	9.95	8,280	10.86	9,550
N	3.70	*500	3.92	*700	4.86	*1,100	6.42	*2,400	10.35	8,840	10.55	9,120
2	-	-	-	-	-	-	7.16	-	11.15	9,980	10.29	8,760
4	-	-	-	-	5.05	-	8.55	-	11.98	11,200	9.98	8,320
6	-	-	4.17	-	-	-	8.00	-	12.51	12,000	9.68	7,900
8	-	-	-	-	5.46	-	6.15	-	12.58	12,100	9.39	7,500
10	-	-	-	-	-	-	7.05	-	12.45	11,900	9.12	7,120
M	3.94	-	4.63	-	5.99	-	7.23	4,510	12.23	11,600	8.87	6,790
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.53	6,350	6.55	3,870	6.02	3,260	7.22	4,670	11.65	10,700	13.31	13,300
4	8.26	6,000	6.45	3,750	6.02	3,260	7.52	5,040	12.06	11,300	13.11	13,000
6	7.96	5,610	6.35	3,630	6.02	3,260	7.72	5,300	12.50	12,000	12.90	12,600
8	7.75	5,340	6.24	3,500	6.00	3,240	8.14	5,840	12.90	12,600	12.70	12,300
10	7.54	5,060	6.14	3,390	5.99	3,230	8.50	6,310	13.29	13,300	12.50	12,000
N	7.42	4,910	6.07	3,320	6.00	3,240	8.90	6,830	13.67	13,900	12.30	11,700
2	7.26	4,720	6.00	3,240	6.04	3,280	9.25	7,300	13.90	14,200	12.10	11,400
4	7.19	4,640	5.97	3,210	6.10	3,350	9.62	7,820	13.99	14,400	11.89	11,100
6	7.05	4,470	5.97	3,210	6.22	3,480	9.94	8,270	13.97	14,400	11.65	10,700
8	6.93	4,330	6.02	3,260	6.36	3,640	10.42	8,940	13.87	14,200	11.48	10,500
10	6.80	4,170	6.05	3,300	6.54	3,860	10.82	9,500	13.70	13,900	11.22	10,100
M	6.69	4,040	6.04	3,280	6.87	4,250	11.24	10,100	13.49	13,600	11.00	9,750
	March 20		March 21		March 22		March 23		March 24		March 25	
2	10.75	9,400	8.02	5,690	7.45	4,950	6.86	4,240	5.92	3,150	5.46	2,650
4	10.52	9,080	7.87	5,490	7.47	4,970	6.77	4,130	5.86	3,090	5.48	2,670
6	10.26	8,710	7.73	5,310	7.46	4,960	6.67	4,010	5.80	3,020	5.54	2,730
8	10.00	8,350	7.61	5,150	7.44	4,940	6.60	3,930	5.75	2,960	5.59	2,790
10	9.70	7,930	7.50	5,010	7.42	4,910	6.49	3,800	5.70	2,910	5.65	2,860
N	9.40	7,510	7.45	4,950	7.39	4,880	6.41	3,700	5.64	2,840	5.70	2,910
2	9.13	7,130	7.40	4,890	7.34	4,820	6.34	3,620	5.60	2,800	5.73	2,940
4	8.95	6,900	7.39	4,880	7.28	4,750	6.27	3,540	5.55	2,740	5.73	2,940
6	8.73	6,610	7.38	4,870	7.20	4,650	6.18	3,440	5.51	2,700	5.72	2,930
8	8.55	6,380	7.38	4,870	7.13	4,570	6.11	3,360	5.47	2,660	5.72	2,930
10	8.35	6,120	7.39	4,880	7.04	4,460	6.04	3,280	5.44	2,620	5.70	2,910
M	8.19	5,910	7.43	4,930	6.96	4,360	5.98	3,220	5.45	2,640	5.70	2,910

Supplemental records.- Mar. 11, 4:30 p.m., 8.87 ft (backwater from ice). Mar. 18, 4:30 p.m., 14.0 ft., 14,400 sec.-ft.
*Mean for the day.

Kayaderosseras Creek near West Milton, N. Y.

Location.- Lat. 43°2'25", long. 73°54'30", 500 feet below mouth of Glowegee Creek and 1 mile east of West Milton, Saratoga County.
Drainage area.- 90 square miles.
Gage-height record.- Water-stage recorder graph except for period 11 a.m. to 11 p.m. Mar. 18, when a graph was used based on a flood mark.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11, Mar. 14-17. Defined by current-meter measurements below 2,050 second-feet; extended logarithmically to peak stage. Flood discharge compared with those of other streams in upper Hudson River Basin.
Maxima.- 1936: Discharge, 3,590 second-feet 5 p.m. Mar. 18 (gage height, 10.78 feet).
1927-35: Discharge, 2,750 second-feet July 8, 1935 (gage height, 8.92 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	75	95	338	11	65	460	462	21	55	1,200	230
2	75	80	425	12	65	1,600	486	22	55	1,040	210
3	70	75	662	13	65	1,690	402	23	55	668	190
4	70	80	403	14	60	1,200	356	24	55	578	177
5	75	100	308	15	70	850	397	25	55	770	164
6	75	90	829	16	65	1,000	396	26	70	612	160
7	70	80	835	17	60	1,700	317	27	100	865	152
8	70	70	578	18	60	2,910	267	28	130	1,060	150
9	70	80	497	19	60	2,220	244	29	120	600	152
10	65	140	472	20	60	1,630	228	30		458	229
								31		410	
Mean monthly discharge, in second-feet									70.3	787	357
Run-off, in inches									0.84	10.08	4.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	4.36	826	7.30	2,020
4	-	-	-	-	-	-	-	-	4.76	984	7.07	1,920
6	-	-	-	-	-	-	-	-	5.14	1,140	6.81	1,800
8	-	-	-	-	-	-	-	-	5.64	1,340	6.66	1,740
10	-	-	-	-	-	-	-	-	6.16	1,540	6.54	1,700
N	2.64	*70	2.74	*80	3.13	*140	3.44	*460	6.62	1,730	6.41	1,640
2	-	-	-	-	-	-	-	-	6.84	1,820	6.33	1,610
4	-	-	-	-	-	-	-	-	7.10	1,940	6.16	1,540
6	-	-	-	-	-	-	3.62	567	7.60	2,160	6.14	1,540
8	-	-	-	-	-	-	-	-	7.65	2,180	6.09	1,520
10	-	-	-	-	-	-	-	-	7.65	2,180	5.99	1,480
M	-	-	-	-	-	-	4.16	756	7.52	2,120	5.81	1,400
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	6.26	1,570	7.43	2,080	-	-
4	-	-	-	-	-	-	6.40	1,640	7.46	2,100	8.73	2,670
6	-	-	4.60	920	4.45	860	6.59	1,720	7.60	2,160	-	-
8	5.47	-	-	-	-	-	6.58	1,710	8.10	2,380	7.94	2,310
10	-	-	-	-	-	-	6.48	1,670	9.17	2,870	-	-
N	-	*1,200	4.38	833	4.55	900	6.44	1,660	9.80	3,150	7.23	1,990
2	-	-	-	-	-	-	6.54	1,700	10.56	3,490	-	-
4	4.94	-	4.12	742	5.22	1,170	6.59	1,720	10.76	3,580	7.00	1,890
6	-	-	4.15	752	6.21	1,280	6.70	1,760	10.76	3,580	-	-
8	-	-	-	-	6.20	1,360	7.17	1,970	10.56	3,490	7.15	1,960
10	-	-	-	-	6.33	1,420	7.37	2,060	10.16	3,310	-	-
M	4.92	-	4.52	802	6.72	1,500	7.47	2,100	9.56	3,040	7.22	1,990
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.25	2,000	5.37	1,230	-	-	-	-	-	-	3.98	693
4	7.19	1,980	5.25	1,180	5.50	1,280	4.08	728	-	-	4.15	752
6	-	-	5.14	1,140	-	-	-	-	3.70	595	4.26	791
8	6.76	1,780	5.10	1,120	5.18	1,150	3.96	686	-	-	4.29	802
10	-	-	5.17	1,150	-	-	-	-	-	-	4.28	798
N	6.26	1,580	5.36	1,220	4.83	1,010	3.84	644	3.60	560	4.27	794
2	-	-	5.65	1,340	-	-	-	-	-	-	-	-
4	5.85	1,420	5.88	1,430	4.55	900	3.79	626	3.58	553	-	-
6	-	-	5.93	1,450	-	-	-	-	3.60	560	4.22	777
8	5.68	1,350	5.90	1,440	4.38	833	3.78	623	3.64	574	-	-
10	-	-	5.85	1,420	-	-	-	-	3.70	595	-	-
M	5.50	1,280	5.78	1,390	4.25	788	3.77	620	3.83	640	4.13	746

Supplemental records.- Mar. 12, 9 p.m., 7.66 ft., 2,190 sec.-ft. Mar. 17, 1:30 a.m., 6.86 ft. Mar. 18, 5 p.m., 10.78 ft., 3,590 sec.-ft.
*Mean for the day.

Hoosic River at Adams, Mass.

Location.- Lat. 42°36'45", long. 73°7'25", at Adams, Berkshire County, just below mouth of Dry Brook and 0.3 mile above Pecks Brook.
Drainage area.- 46.3 square miles.
Gage-height record.- Water-stage recorder graph except for period 4 a.m. Mar. 13 to 1 p.m. Mar. 14, when it was based on flood marks and shape of available water-stage recorder graph. Gage heights given to half tenths between 2.60 and 4.80 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements below 2,680 second-feet; extended to peak stage by study of flow characteristics at control section; verified by drainage-area comparison of instantaneous and total yield of flood with records for nearby streams.
Maxima.- 1936: Discharge, 3,670 second-feet 1 p.m. Mar. 18 (gage height, 6.33 feet).
1931-35: Discharge, 1,110 second-feet Jan. 9, 1935 (gage height, 3.35 feet).
Remarks.- Flood run-off not materially affected by storage or diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	49	46	180	11	45	376	224	21	45	676	147
2	47	46	218	12	42	1,790	214	22	44	513	147
3	47	46	266	13	42	1,750	185	23	43	368	130
4	48	53	192	14	45	387	167	24	42	315	119
5	47	64	171	15	49	336	185	25	43	372	109
6	46	52	408	16	43	367	214	26	60	288	113
7	47	47	300	17	42	635	195	27	59	419	102
8	45	46	227	18	54	2,410	169	28	56	472	95
9	46	53	195	19	52	1,270	158	29	49	292	108
10	44	100	205	20	47	670	147	30		242	98
								31		208	
Mean monthly discharge, in second-feet									47.2	474	180
Run-off, in inches									1.10	11.76	4.34

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	0.74	48	0.75	49	0.89	71	1.40	194	3.6	1,320	4.9	2,360
4	.72	45	.75	49	.90	73	1.43	204	3.85	1,500	5.1	2,540
6	.70	42	.75	49	.91	75	1.45	212	4.3	1,850	5.2	2,630
8	.72	45	.76	50	.92	77	1.46	215	4.4	1,930	5.2	2,630
10	.74	48	.75	49	.91	75	1.50	229	4.1	1,690	4.75	2,220
N	.74	48	.70	42	.91	75	1.60	266	4.0	1,610	4.15	1,730
2	.74	48	.78	53	.98	88	1.82	354	4.15	1,730	3.8	1,460
4	.75	49	.78	53	1.05	102	1.98	422	4.3	1,850	3.5	1,250
6	.75	49	.82	59	1.12	117	2.20	521	4.45	1,970	3.2	1,060
8	.75	49	.84	63	1.27	154	2.36	595	4.65	2,130	2.95	904
10	.75	49	.85	64	1.33	172	2.7	759	4.75	2,220	2.7	759
M	.75	49	.88	70	1.36	181	3.05	964	4.8	2,270	2.5	660
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.33	581	1.68	297	1.89	384	2.07	462	3.0	934	4.05	1,650
4	2.18	512	1.67	293	1.86	371	2.10	475	3.35	1,160	3.8	1,450
6	2.02	440	1.65	286	1.83	359	2.15	498	4.35	1,890	3.65	1,330
8	1.90	388	1.64	282	1.81	350	2.22	530	5.2	2,630	3.7	1,370
10	1.82	354	1.63	278	1.80	346	2.30	567	6.1	3,470	3.75	1,410
N	1.79	342	1.65	286	1.79	342	2.40	613	6.2	3,570	3.65	1,330
2	1.78	338	1.80	346	1.82	354	2.55	684	6.1	3,470	3.5	1,210
4	1.77	334	1.92	397	1.83	359	2.65	734	5.7	3,080	3.4	1,140
6	1.76	330	1.92	397	1.88	380	2.75	786	5.4	2,810	3.3	1,070
8	1.74	321	1.92	397	1.90	388	2.75	786	5.1	2,540	3.2	1,000
10	1.72	313	1.92	397	1.90	388	2.8	814	4.7	2,180	3.1	930
M	1.70	305	1.91	392	1.96	414	2.9	874	4.4	1,930	3.0	860
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.9	790	2.50	555	2.6	610	2.22	410	2.05	332	2.11	359
4	2.85	760	2.50	555	2.57	594	2.19	395	2.03	324	2.17	386
6	2.8	730	2.51	560	2.53	572	2.17	386	2.02	320	2.17	386
8	2.75	700	2.56	588	2.49	550	2.15	377	2.01	315	2.18	391
10	2.7	670	2.80	730	2.44	523	2.13	368	1.99	307	2.19	395
N	2.65	640	3.05	895	2.40	502	2.12	363	1.99	307	2.18	391
2	2.6	610	2.95	825	2.36	481	2.11	359	1.99	307	2.17	386
4	2.6	610	2.9	790	2.32	460	2.10	354	2.00	311	2.16	382
6	2.59	604	2.85	760	2.30	450	2.09	350	1.99	307	2.14	372
8	2.57	594	2.75	700	2.27	435	2.07	341	1.99	307	2.11	359
10	2.54	577	2.65	640	2.26	430	2.06	337	1.98	303	2.08	345
M	2.51	560	2.65	640	2.24	420	2.05	332	2.00	311	2.06	337

Supplemental records.- Mar. 18, 1 p.m., 6.33 ft., 3,670 sec.ft.

Hoosic River near Eagle Bridge, N. Y.

Location.- Lat. 42°56'0", long. 73°22'20", half a mile below mouth of Walloomsac River and 1½ miles southeast of Eagle Bridge, Rensselaer County.
Drainage area.- 510 square miles.
Gage-height record.- Water-stage recorder graph through Mar. 7; Mar. 8-19, graph based on a study of records of the Hoosic River at Adams, Mass., North Branch of Hoosic River at North Adams, Mass., Walloomsac River near North Bennington, Vt., and gage height and discharge records furnished by New York Power & Light Corporation for hydroelectric plants on the Hoosic River at Johnsonville and Schaghticoke; Mar. 20 to April 3, graph based on twice-daily gage readings; from April 4, water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 10. Defined by current-meter measurements below 420 second-feet; extension to peak stage based on a study of the five other Hoosic River Basin records noted above.
Maxima.- 1936: Discharge, 23,500 second-feet 6 p.m. Mar. 18 (gage height, 14.4 feet, from flood marks).
1910-22, 1923-35: Discharge, 29,800 second-feet Nov. 4, 1927 (gage height, 18.8 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	500	800	2,030	11	460	3,460	2,380	21	420	6,340	1,540
2	500	700	2,170	12	440	14,000	2,320	22	400	6,400	1,540
3	500	600	3,310	13	440	12,000	2,050	23	400	3,800	1,340
4	500	700	2,320	14	440	5,000	1,840	24	380	2,990	1,250
5	550	1,200	2,000	15	500	3,600	2,000	25	480	3,700	1,170
6	500	900	3,690	16	500	3,800	2,250	26	650	3,160	1,100
7	500	750	4,190	17	480	7,000	2,020	27	900	3,120	1,050
8	480	650	3,000	18	460	20,000	1,770	28	1,100	4,870	962
9	480	900	2,440	19	440	15,000	1,660	29	1,000	2,960	962
10	460	1,400	2,450	20	440	7,840	1,520	30		2,490	986
								31		2,370	
Mean monthly discharge, in second-feet									528	4,595	1,977
Run-off, in inches									1.12	10.39	4.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	5.60	1,460	11.20	9,590	12.85	15,900
4	-	-	-	-	-	-	5.60	1,460	11.75	10,600	12.70	15,300
6	-	-	-	-	-	-	5.60	1,460	12.30	11,800	12.55	14,700
8	-	-	-	-	-	-	5.70	1,550	12.75	12,800	12.35	13,900
10	-	-	-	-	-	-	6.30	2,120	13.15	13,800	12.12	13,000
N	5.12	*650	-	*900	5.50	*1,400	6.80	2,640	13.30	14,200	11.90	12,100
2	-	-	-	-	-	-	7.40	3,340	13.35	15,600	11.67	11,300
4	-	-	-	-	-	-	8.05	4,220	13.35	16,900	11.40	10,500
6	-	-	-	-	-	-	8.60	5,060	13.30	18,000	11.13	9,750
8	-	-	-	-	-	-	9.25	6,100	13.25	17,800	10.85	9,010
10	-	-	-	-	-	-	9.90	7,210	13.15	17,200	10.60	8,380
M	-	-	-	-	-	-	10.55	8,380	13.00	16,500	10.30	7,670
	March 14		March 15		March 16		March 17		March 18		March 19	
2	10.05	7,110	-	-	-	-	8.90	4,820	12.25	13,500	13.90	21,000
4	9.75	6,480	8.17	3,640	8.23	3,720	9.08	5,150	12.75	15,500	13.65	19,800
6	9.45	5,870	-	-	-	-	9.22	5,420	13.25	17,800	13.35	18,200
8	9.22	5,420	8.15	3,610	8.23	3,720	9.40	5,770	13.70	20,000	13.10	17,000
10	9.00	5,000	-	-	-	-	9.58	6,130	14.00	21,500	12.85	15,900
N	8.80	4,640	8.14	3,600	8.24	3,740	9.78	6,540	14.20	22,500	12.60	14,900
2	8.66	4,400	-	-	-	-	9.99	6,980	14.30	23,000	12.40	14,100
4	8.55	4,220	8.15	3,610	8.30	3,830	10.25	7,560	14.35	23,200	12.15	13,100
6	8.45	4,060	-	-	-	-	10.55	8,260	14.4	23,500	11.90	12,100
8	8.36	3,920	8.16	3,620	8.50	4,140	10.88	9,090	14.35	23,200	11.70	11,400
10	8.30	3,830	-	-	-	-	11.25	10,100	14.25	22,800	11.50	10,800
M	8.25	3,760	8.19	3,670	8.75	4,560	11.71	11,400	14.10	22,000	11.30	10,200
	March 20		March 21		March 22		March 23		March 24		March 25	
2	11.13	9,750	9.35	5,670	10.33	7,740	8.70	4,470	7.82	3,170	7.80	3,140
4	10.95	9,270	9.26	5,490	10.25	7,560	8.60	4,300	7.77	3,100	7.89	3,260
6	10.78	8,830	9.20	5,380	10.16	7,350	8.48	4,110	7.73	3,050	8.01	3,410
8	10.63	8,460	9.17	5,320	10.05	7,110	8.38	3,950	7.70	3,010	8.16	3,620
10	10.48	8,090	9.20	5,380	9.90	6,790	8.29	3,820	7.67	2,970	8.34	3,890
N	10.32	7,720	9.40	5,770	9.72	6,410	8.23	3,720	7.64	2,940	8.46	4,080
2	10.16	7,350	9.70	6,370	9.55	6,070	8.16	3,620	7.62	2,910	8.48	4,110
4	10.05	7,110	10.00	7,000	9.40	5,770	8.10	3,540	7.60	2,890	8.42	4,010
6	9.88	6,750	10.18	7,400	9.25	5,480	8.04	3,460	7.60	2,890	8.36	3,920
8	9.75	6,480	10.29	7,650	9.12	5,230	7.98	3,370	7.62	2,910	8.30	3,830
10	9.62	6,210	10.36	7,810	8.99	4,980	7.92	3,300	7.66	2,960	8.25	3,760
M	9.48	5,930	10.37	7,830	8.85	4,730	7.87	3,230	7.72	3,040	8.19	3,670

*Mean for the day.

North Branch of Hoosic River at North Adams, Mass.

Location.- Lat. 42°42'10", long. 73°5'25", at North Adams, Berkshire County, 0.2 mile below Hudson Brook and 1½ miles above mouth.
Drainage area.- 39.0 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights given to half tenths between 4.30 and 6.10 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-4, 21-23, 29, Mar. 2, 7, 8. Defined by current-meter measurements below 5,100 second-feet; extended to peak stage by determination of flood flow over dam (head, 6.57 feet; C, 3.1); verified by drainage-area comparison of instantaneous and total yield of flood with records for nearby streams.
Maxima.- 1936: Discharge, 6,100 second-feet 1 p.m. Mar. 18 (gage height, 9.25 feet).
1931-35: Discharge, 3,150 second-feet (revised), Nov. 19, 1932 (gage height, 6.69 feet).
Discharge, 9,980 second-feet (revised) November 1927 (head, 7.7 feet; C, 3.1).
Remarks.- Flood run-off not materially affected by artificial or natural storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	36	35	180	11	24	408	290	21	26	1,090	160
2	35	33	230	12	23	2,180	248	22	25	690	144
3	34	32	330	13	22	1,020	191	23	23	380	110
4	33	34	191	14	23	447	160	24	23	350	100
5	31	42	163	15	24	360	257	25	22	647	89
6	30	33	950	16	21	435	285	26	45	443	82
7	27	33	534	17	24	980	210	27	46	585	73
8	26	34	315	18	31	3,860	160	28	42	734	69
9	23	34	239	19	36	1,800	144	29	40	390	67
10	27	71	262	20	30	810	129	30		300	64
								31		250	
Mean monthly discharge, in second-feet									29.4	598	214
Run-off, in inches									0.81	17.64	6.12

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.81	-	1.74	29	1.97	52	2.44	138	5.0	1,540	5.05	1,580
4	1.66	-	1.74	29	1.93	47	2.50	156	5.4	1,870	4.8	1,380
6	1.90	-	1.75	30	1.99	54	2.55	174	5.8	2,230	4.6	1,240
8	1.91	-	1.83	37	2.00	55	2.58	185	6.2	2,630	4.4	1,100
10	1.68	-	1.78	32	1.96	51	2.68	223	6.3	2,730	4.25	1,020
N	1.96	*34	1.77	31	2.00	55	2.78	263	6.1	2,530	4.15	955
2	1.98	-	1.77	31	2.02	58	2.90	313	6.2	2,630	4.04	889
4	1.87	-	1.84	38	2.13	74	3.10	402	6.0	2,430	3.93	826
6	1.83	-	1.81	35	2.25	94	3.43	560	5.8	2,230	3.82	766
8	1.71	-	1.90	44	2.35	115	3.78	744	5.65	2,100	3.72	711
10	1.78	-	1.88	42	2.36	117	4.25	1,020	5.45	1,920	3.62	656
M	1.71	-	1.97	52	2.37	119	4.65	1,270	5.3	1,780	3.53	610
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.46	575	2.95	335	3.15	425	3.57	630	5.35	1,820	5.95	2,380
4	3.37	530	2.93	326	3.12	411	3.66	678	5.7	2,140	5.75	2,180
6	3.31	500	2.90	313	3.10	402	3.70	700	6.4	2,830	5.6	2,030
8	3.27	481	2.87	300	3.09	398	3.75	728	7.2	3,700	5.5	1,930
10	3.23	462	2.84	288	3.07	388	3.90	810	8.4	5,100	5.45	1,880
N	3.19	443	2.84	288	3.08	393	4.10	925	9.0	5,840	5.35	1,800
2	3.15	425	2.93	326	3.11	407	4.30	1,040	8.7	5,460	5.25	1,700
4	3.12	411	3.05	380	3.16	430	4.5	1,170	8.3	4,980	5.15	1,620
6	3.08	393	3.16	430	3.23	462	4.7	1,300	7.5	4,030	5.0	1,480
8	3.04	375	3.20	448	3.28	486	4.8	1,380	7.3	3,810	4.8	1,320
10	3.00	357	3.20	448	3.32	505	4.9	1,460	6.9	3,370	4.7	1,240
M	2.98	348	3.18	439	3.43	560	5.15	1,660	6.3	2,730	4.55	1,120
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.4	1,010	3.86	632	4.30	940	3.53	440	3.33	340	3.74	554
4	4.29	933	3.90	660	4.22	884	3.50	425	3.30	325	4.00	730
6	4.20	870	3.96	702	4.13	821	3.47	410	3.28	315	4.04	758
8	4.12	814	4.25	905	4.05	765	3.42	385	3.30	325	3.97	709
10	4.04	758	5.05	1,520	3.96	702	3.39	370	3.25	300	3.90	660
N	3.98	716	5.3	1,750	3.90	660	3.39	370	3.25	300	3.83	611
2	3.94	688	5.1	1,570	3.84	618	3.37	360	3.26	305	3.79	584
4	3.98	716	4.75	1,280	3.79	584	3.38	365	3.35	350	3.87	639
6	4.04	758	4.6	1,160	3.74	554	3.40	375	3.47	410	3.96	702
8	4.02	744	4.5	1,080	3.69	524	3.40	375	3.50	425	3.94	688
10	3.96	702	4.4	1,010	3.63	492	3.37	360	3.52	435	3.85	625
M	3.89	653	4.35	975	3.58	465	3.35	350	3.58	465	3.78	578

Supplemental records.- Mar. 18, 1 p.m., 9.25 ft., 6,100 sec.-ft.
*Mean for the day.

Walloomsac River near North Bennington, Vt.

Location.- Lat. 42°54'45", long. 73°15'25", three-fifths of a mile below Paran Creek and 1.4 miles south of North Bennington, Bennington County.
Drainage area.- 111 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights given to half tenths between 3.60 and 6.50 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 9. Defined by current-meter measurements below 2,610 second-feet; extended to peak stage by velocity-area study near control section; verified by drainage-area comparison of instantaneous and total yield of flood with records for nearby streams.
Maxima.- 1936: Discharge, 6,600 second-feet 2 p.m. Mar. 18 (gage height, 11.44 feet).
1931-35: Discharge, 3,820 second-feet Nov. 19, 1932 (gage height, 8.25 feet).
Remarks.- Flood run-off not materially affected by artificial or natural storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	125	130	494	11	118	684	550	21	120	1,440	360
2	120	130	530	12	110	3,280	512	22	118	1,300	370
3	120	135	698	13	110	1,730	452	23	112	759	340
4	125	150	483	14	120	829	415	24	110	648	320
5	120	190	413	15	135	662	501	25	110	1,060	290
6	115	155	1,090	16	125	725	552	26	160	838	320
7	120	135	908	17	120	1,280	456	27	180	818	300
8	115	135	630	18	150	4,660	390	28	175	1,020	280
9	120	190	525	19	145	2,980	350	29	145	668	254
10	115	327	556	20	125	1,410	340	30		617	298
								31		624	
Mean monthly discharge, in second-feet									127	958	466
Run-off, in inches									1.23	9.95	4.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.45	-	2.51	-	2.77	260	3.23	461	5.15	1,560	6.8	2,740
4	2.38	-	2.49	-	2.75	252	3.22	456	5.9	2,080	6.5	2,520
6	2.12	-	2.48	-	2.74	249	3.21	452	6.8	2,740	6.1	2,220
8	2.32	-	2.49	-	2.76	256	3.25	470	8.1	3,740	5.7	1,940
10	2.31	-	2.52	-	2.73	245	3.31	499	8.6	4,140	5.45	1,760
N	2.31	*135	2.56	*190	2.72	241	3.44	561	8.5	4,060	5.25	1,630
2	2.46	-	2.68	-	2.77	260	3.65	644	8.3	3,900	5.1	1,530
4	2.56	-	2.80	-	2.98	347	3.85	769	8.3	3,900	5.0	1,460
6	2.58	-	2.80	-	3.22	456	4.1	910	8.1	3,740	4.85	1,370
8	2.51	-	2.81	-	3.28	485	4.3	1,030	7.7	3,420	4.7	1,270
10	2.53	-	2.80	-	3.27	480	4.5	1,150	7.3	3,120	4.55	1,180
M	2.53	-	2.79	-	3.24	466	4.85	1,370	7.0	2,900	4.4	1,090
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.3	1,030	3.65	664	3.8	742	4.05	881	6.0	2,150	8.8	4,300
4	4.2	970	3.65	664	3.8	742	4.15	940	6.3	2,370	8.3	3,900
6	4.1	910	3.60	639	3.75	716	4.2	970	6.9	2,820	7.9	3,580
8	4.05	881	3.57	624	3.75	716	4.25	1,000	7.8	3,500	7.7	3,420
10	4.0	852	3.55	614	3.75	716	4.3	1,030	9.0	4,460	7.2	3,040
N	3.95	824	3.54	610	3.75	716	4.4	1,090	10.7	5,900	6.9	2,820
2	3.9	796	3.58	629	3.75	716	4.55	1,180	11.4	6,600	6.7	2,670
4	3.85	769	3.65	664	3.75	716	4.75	1,300	11.3	6,490	6.6	2,600
6	3.85	769	3.7	690	3.75	716	5.05	1,500	10.8	6,000	6.5	2,520
8	3.8	742	3.75	716	3.8	742	5.35	1,700	10.4	5,630	6.4	2,440
10	3.75	716	3.8	742	3.85	769	5.5	1,800	9.9	5,200	6.2	2,300
M	3.7	690	3.8	742	3.95	824	5.7	1,940	9.4	4,780	6.0	2,150
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.7	1,940	4.4	1,090	5.45	1,760	4.05	881	3.65	664	3.95	824
4	5.5	1,800	4.3	1,030	5.4	1,730	4.0	852	3.65	664	4.25	1,000
6	5.3	1,660	4.3	1,030	5.25	1,630	3.9	796	3.60	639	4.5	1,150
8	5.15	1,560	4.3	1,030	5.0	1,460	3.9	796	3.6	639	4.55	1,180
10	5.0	1,460	4.55	1,180	4.85	1,370	3.85	769	3.6	639	4.5	1,150
N	4.85	1,370	5.0	1,460	4.7	1,270	3.8	742	3.55	614	4.45	1,120
2	4.7	1,270	5.5	1,800	4.6	1,210	3.8	742	3.54	610	4.35	1,060
4	4.6	1,210	5.6	1,870	4.5	1,150	3.8	742	3.55	614	4.35	1,060
6	4.55	1,180	5.5	1,800	4.4	1,090	3.75	716	3.6	639	4.4	1,090
8	4.55	1,180	5.4	1,730	4.3	1,030	3.75	716	3.7	690	4.5	1,150
10	4.5	1,150	5.25	1,630	4.25	1,000	3.75	716	3.75	716	4.5	1,150
M	4.45	1,120	5.25	1,630	4.15	940	3.7	690	3.85	769	4.4	1,090

*Mean for the day.

Delta Reservoir at Delta Dam, near Rome, N. Y.

Location.- Lat. 43°16'25", long. 75°25'50", at Delta Dam, 5 miles north of Rome, Oneida County.
Drainage area.- 145 square miles.
Gage-height record.- Mean of two readings daily to tenths.
Remarks.- Usable storage capacity 2,800,000,000 cubic feet. Records furnished by New York State Department of Public Works.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	534.95	1,326	521.95	568	551.15	2,938
2	534.2	1,266	522.15	576	550.85	2,902
3	533.3	1,201	522.35	584	550.90	2,908
4	532.55	1,148	522.55	592	550.6	2,872
5	531.75	1,092	522.75	600	550.25	2,830
6	530.8	1,028	522.95	608	551.25	2,950
7	529.95	977	523.15	616	551.35	2,962
8	529.1	926	523.35	624	550.8	2,896
9	528.1	866	523.55	632	550.45	2,854
10	527.25	815	523.75	640	550.4	2,848
11	526.80	790	524.0	650	550.55	2,866
12	526.25	762	528.65	899	550.65	2,878
13	525.6	730	533.4	1,208	550.45	2,854
14	525.25	712	535.15	1,342	550.6	2,872
15	524.9	695	536.15	1,422	550.7	2,884
16	524.5	675	537.4	1,522	550.75	2,890
17	524.15	658	539.25	1,682	550.9	2,908
18	523.8	642	544.75	2,215	550.8	2,896
19	523.4	626	548.75	2,652	550.8	2,896
20	523.0	610	550.4	2,848	550.75	2,890
21	522.6	594	551.4	2,968	550.75	2,890
22	522.2	578	551.7	3,004	550.8	2,896
23	521.85	564	551.65	2,998	550.7	2,884
24	521.5	550	551.45	2,974	550.6	2,872
25	521.1	534	551.5	2,980	550.6	2,872
26	520.85	524	551.45	2,974	550.5	2,860
27	520.8	522	551.7	3,004	550.5	2,860
28	521.2	538	552.05	3,046	550.5	2,860
29	521.6	554	551.45	2,974	550.5	2,860
30			551.25	2,950	550.6	2,872
31			551.2	2,944		

	February	March	April
Gain or loss in storage, in equivalent mean second-feet	-316	+889	-27.8

Mohawk River below Delta Dam, near Rome, N. Y.

Location.- Lat. 43°15'50", long. 75°26'10", at Spring Brook fish hatchery, 1 mile below Delta Dam and 4 miles north of Rome, Oneida County.

Drainage area.- 151 square miles; 145 square miles affected by storage in Delta Reservoir.

Gage-height record.- Graph based on one reading daily except Feb. 2, 9, 16, 23, Mar. 8, 15, 29, Apr. 5, 12, 19, 26, when the record was faulty or missing, and on operating records of Delta Reservoir.

Stage-discharge relation.- Defined by current-meter measurements below 2,210 second-feet; logarithmic extension to peak stage.

Maxima.- 1936: Discharge, 3,610 second-feet about 8:30 p.m. Mar. 27 (gage height, 7.6 feet, from graph based on gage readings).

1927-35: Discharge, 4,060 second-feet July 9, 1935 (gage height, 8.1 feet, from flood marks).

Reports of the State Engineer and Surveyor record a maximum discharge of 4,210 second-feet Mar. 9, 1921.

Remarks.- For information of storage see record for Delta Reservoir near Rome, N. Y. Mean monthly discharge and run-off, in inches, corrected for storage. No diversion into Delta Reservoir from Black River during period Feb. 1 to Apr. 30, 1936.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	820	170	1,180	11	430	225	1,100	21	330	1,350	520
2	820	170	940	12	540	250	1,160	22	320	1,900	580
3	820	170	1,100	13	410	180	700	23	310	1,750	490
4	820	170	1,120	14	350	180	380	24	300	1,800	420
5	800	175	1,080	15	340	190	480	25	300	2,200	330
6	800	185	2,100	16	340	200	580	26	300	2,150	300
7	800	185	2,300	17	340	230	640	27	240	2,450	270
8	800	180	1,450	18	340	220	600	28	145	2,700	260
9	780	180	1,080	19	340	114	540	29	170	1,700	300
10	560	180	1,040	20	340	270	520	30		1,400	390
								31		1,450	
Mean monthly discharge, in second-feet (observed).....									483	796	798
Mean monthly discharge, in second-feet (corrected).....									167	1,685	770
Run-off, in inches (corrected).....									1.20	12.87	5.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 19		March 20		March 21		March 22		March 23		March 24	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	1.46	132	1.13	80	3.90	1,000	5.33	1,860	5.28	1,830	4.86	1,570
6	-	-	-	-	-	-	-	-	-	-	-	-
8	1.40	122	1.10	76	4.28	1,220	5.43	1,930	5.20	1,770	4.80	1,530
10	-	-	-	-	-	-	-	-	-	-	-	-
N	1.33	111	1.74	184	4.53	1,370	5.47	1,960	5.13	1,730	5.49	1,970
2	-	-	-	-	-	-	-	-	-	-	-	-
4	1.28	103	2.36	340	4.76	1,510	5.47	1,960	5.06	1,690	5.43	1,930
6	-	-	-	-	-	-	-	-	-	-	-	-
8	1.23	96	2.92	545	4.99	1,640	5.43	1,930	4.99	1,640	5.42	1,920
10	-	-	-	-	-	-	-	-	-	-	-	-
M	1.18	88	3.44	773	5.18	1,760	5.36	1,880	4.93	1,610	5.52	1,990
	March 25		March 26		March 27		March 28		March 29		March 30	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	5.66	2,090	5.91	2,270	5.08	1,700	7.11	3,190	5.50	1,980	4.40	1,290
6	-	-	-	-	-	-	-	-	-	-	-	-
8	5.80	2,190	5.86	2,230	5.07	1,690	6.83	2,960	5.26	1,810	4.35	1,260
10	-	-	-	-	-	-	-	-	-	-	-	-
N	5.90	2,260	5.77	2,170	5.53	2,000	6.54	2,730	5.06	1,690	4.75	1,500
2	-	-	-	-	-	-	-	-	-	-	-	-
4	5.96	2,300	5.64	2,080	6.85	2,980	6.25	2,500	4.85	1,560	4.75	1,500
6	-	-	-	-	-	-	-	-	-	-	-	-
8	5.97	2,310	5.46	1,950	7.60	3,610	5.98	2,320	4.67	1,450	4.74	1,490
10	-	-	-	-	-	-	-	-	-	-	-	-
M	5.95	2,300	5.26	1,810	7.41	3,440	5.74	2,150	4.52	1,360	4.73	1,490
	March 31		April 1		April 2		April 3		April 4		April 5	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.73	1,490	4.34	1,250	3.84	970	3.88	990	3.99	1,040	4.05	1,080
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.72	1,480	4.22	1,180	3.75	925	3.97	1,040	3.78	940	4.00	1,050
10	-	-	-	-	-	-	-	-	-	-	-	-
N	4.69	1,460	4.34	1,250	3.72	910	4.01	1,060	4.36	1,270	3.99	1,040
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.63	1,430	4.20	1,170	3.72	910	4.32	1,240	4.26	1,210	4.01	1,060
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.55	1,380	4.07	1,090	3.76	930	4.27	1,210	4.18	1,160	4.08	1,100
10	-	-	-	-	-	-	-	-	-	-	-	-
M	4.45	1,320	3.96	1,030	3.81	955	4.15	1,140	4.11	1,120	4.20	1,170

Supplemental records.- Mar. 27, 8:30 p.m., 7.6 ft., 3,610 sec.-ft.

Mohawk River near Little Falls, New York

Location.- Lat. 43°0'50", long. 74°46'40", 1,800 feet below Rocky Rift Dam, 2 miles above mouth of East Canada Creek, and 4½ miles southeast of Little Falls, Herkimer County. Elevation of gage zero is 310.0 feet, Barge Canal datum.

Drainage area.- 1,348 square miles. 518 square miles affected by storage in Delta and Hinckley reservoirs.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 17. Defined by current-meter measurements below 13,600 second-feet; extended logarithmically to peak stage. Discharge record compared with other records in the Mohawk River basin.

Maxima.- 1936: Discharge, 23,200 second-feet (diversion not included; see remarks) 6 p.m. Mar. 18 (gage height, 17.24 feet).
1927-35: Discharge, 21,300 second-feet (diversion negligible and not included) Mar. 15, 1929 (gage height, 16.4 feet).

Remarks.- Records of mean daily discharge include diversion at Rocky Rift Dam of water into the Barge Canal. Bi-hourly discharges do not include this diversion. Mean daily diversions in second-feet were: Mar. 8 to Mar.11, 10 to 14 second-feet, Mar. 12, 1,409 second-feet; Mar. 13, 476 second-feet; Mar. 14, 616 second-feet; Mar. 15, 194 second-feet; Mar. 16, 22 second-feet; Mar. 17, 98 second-feet; Mar. 18, 821 second-feet; Mar. 19, 114 second-feet; Mar. 20, 73 second-feet; Mar. 21 to 28, 10 to 14 second-feet. For information of storage see records for Delta Reservoir at Delta Dam, near Rome, N. Y., and Hinckley Reservoir at Hinckley, N. Y.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,200	1,400	9,700	11	1,800	2,600	8,000	21	1,800	12,200	4,450
2	2,200	1,300	8,300	12	1,600	5,000	8,300	22	1,800	13,200	5,200
3	2,200	1,200	9,000	13	1,600	5,500	8,000	23	1,700	12,200	5,000
4	2,200	1,200	8,000	14	1,500	4,600	6,100	24	1,700	10,600	4,000
5	2,200	1,400	6,400	15	1,400	4,400	6,300	25	1,600	11,000	3,650
6	2,200	1,400	8,600	16	1,400	7,000	7,300	26	1,700	11,200	3,050
7	2,200	1,300	12,200	17	1,400	13,000	7,400	27	1,900	12,600	2,850
8	2,000	1,300	11,800	18	1,400	22,400	6,100	28	1,800	14,000	2,800
9	2,000	1,300	9,400	19	1,600	20,400	4,700	29	1,600	13,000	2,950
10	1,900	1,500	8,200	20	1,800	14,400	4,400	30		11,000	3,850
								31		10,400	
Mean monthly discharge, in second-feet									1,807	7,871	6,533
Run-off, in inches									1.44	6.73	5.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	7.21	-	-	-	10.72	-	16.64	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	7.37	*1,300	7.44	*1,300	8.48	*1,500	11.57	*2,600	16.82	*5,000	13.76	*5,500
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	16.75	-	-	-
6	-	-	7.59	-	-	-	12.75	-	15.32	-	13.30	-
8	-	-	-	-	-	-	-	-	14.86	-	12.89	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	7.44	-	7.82	-	9.67	-	14.58	-	14.44	-	13.09	-
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	15.50	19,200	16.91	22,500
4	-	-	-	-	-	-	-	-	15.58	19,400	16.75	22,100
6	-	-	-	-	10.61	-	12.84	10,900	15.86	20,100	16.60	21,800
8	-	-	-	-	-	-	-	-	16.24	20,900	16.38	21,300
10	-	-	-	-	-	-	-	-	16.54	21,600	16.11	20,600
N	12.25	*4,600	10.42	*4,400	11.30	*7,000	12.52	12,700	16.86	22,400	15.86	20,100
2	-	-	-	-	-	-	12.72	13,200	17.02	22,700	15.63	19,500
4	-	-	-	-	-	-	13.44	14,700	17.17	23,100	15.43	19,100
6	-	-	10.08	-	12.47	-	14.17	16,300	17.24	23,200	15.29	18,800
8	-	-	-	-	-	-	14.70	17,500	17.20	23,200	15.13	18,400
10	-	-	-	-	-	-	14.94	18,000	17.13	23,000	14.96	18,100
M	11.22	-	10.40	-	13.30	9,640	15.29	18,800	17.01	22,700	14.73	17,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	14.44	16,900	12.19	12,000	12.77	13,300	12.74	13,200	11.72	11,100	11.66	10,900
4	14.17	16,300	12.21	12,100	12.72	13,200	12.64	13,000	11.65	10,900	11.69	11,000
6	13.93	15,800	12.09	11,800	12.67	13,000	12.55	12,800	11.60	10,800	11.69	11,000
8	13.61	15,100	12.05	11,700	12.72	13,200	12.48	12,700	11.49	10,600	11.71	11,000
10	13.29	14,400	12.09	11,800	12.80	13,300	12.33	12,300	11.35	10,300	11.68	11,000
N	12.99	13,700	12.23	12,100	12.84	13,400	12.23	12,100	11.27	10,100	11.62	10,800
2	12.80	13,300	12.28	12,200	12.84	13,400	12.16	12,000	11.24	10,000	11.55	10,700
4	12.67	13,000	12.32	12,300	12.84	13,400	12.09	11,800	11.23	10,000	11.55	10,700
6	12.58	12,900	12.33	12,300	12.84	13,400	12.05	11,700	11.30	10,200	11.67	10,900
8	12.54	12,800	12.36	12,400	12.83	13,400	11.96	11,600	11.45	10,500	11.75	11,100
10	12.45	12,600	12.56	12,800	12.83	13,400	11.88	11,400	11.49	10,600	11.80	11,200
M	12.33	12,300	12.72	13,200	12.81	13,300	11.82	11,300	11.59	10,800	11.81	11.200

Supplemental records.- Mar. 12, 7 a.m., 16.82 ft.; 7:30 a.m., 16.52 ft.; 1 p.m., 16.83 ft. Mar. 16, 10:40 p.m. 13.56 ft.

*Mean for the day (diversions included).

Mohawk River at Cohoes, N. Y.

Location.- Lat. 42°47'5", long. 73°42'25", at School Street plant of New York Power & Light Corporation in Cohoes, Albany County.

Drainage area.- 3,456 square miles; 832 square miles affected by storage in Schoharie, Delta, and Hinckley Reservoirs.

Gage-height record.- Water-stage recorder graph except for period 4 p.m. Mar. 28 to 10 a.m. Mar. 30, when it was based on known limits of stage. Record unreliable for periods Feb. 1,3,29, Mar. 31 to Apr. 30, when intake to well was not operating properly.

Stage-discharge relation.- Affected by ice Mar. 12; defined by current-meter measurements below 34,500 second-feet; extended logarithmically to peak stage.

Maxima.- 1936: Discharge, 130,000 second-feet 6:30 a.m. Mar. 19 (gage height, 22.57 feet).

1917-35: Discharge, 72,000 second-feet Mar. 16, 1929 (gage height, 18.3 feet).

Remarks.- Daily discharges compared with records for discharge at power plant and adjusted therewith during periods of missing or unreliable gage-height records. Records include small diversion for Cohoes water supply, but not diversion through Lock No. 6 at Crescent Dam for operation of Barge Canal. This diversion was negligible until Apr. 3 and did not exceed 222 second-feet thereafter. Daily and monthly discharges not corrected for diversions from Schoharie Reservoir and storage in Schoharie, Delta, and Hinckley Reservoirs. For daily changes in storage and daily diversions see records for Delta Reservoir at Delta Dam near Rome, N. Y.; Hinckley Reservoir at Hinckley, N. Y.; Schoharie Reservoir at Gilboa Dam, at Gilboa, N. Y.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	4,000	6,700	17,500	11	3,900	12,700	16,500	21	2,280	40,900	6,200
2	3,600	5,200	16,000	12	3,550	42,800	18,000	22	1,920	40,000	8,200
3	3,400	5,200	21,000	13	3,350	58,900	17,000	23	1,760	30,000	9,200
4	3,300	4,600	17,500	14	2,650	33,700	13,500	24	3,000	23,900	7,200
5	3,200	5,000	14,000	15	1,900	23,200	11,600	25	2,600	22,900	7,400
6	2,460	6,600	13,500	16	2,100	26,500	15,000	26	2,750	23,700	7,400
7	2,900	7,000	23,500	17	2,480	55,500	12,000	27	3,450	23,200	4,500
8	2,650	5,780	24,000	18	2,550	88,900	13,500	28	4,350	32,800	4,200
9	2,750	5,600	20,500	19	2,420	112,000	11,000	29	7.500	28,400	4,700
10	3,900	7,820	18,500	20	2,420	66,000	6,800	30		23,500	5,800
								31		17,000	
Mean monthly discharge, in second-feet									3,072	28,580	12,860
Run-off, in inches									0.96	9.53	4.15

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	10.85	-	10.69	-	10.84	-	11.61	9,650	14.68	23,700	18.00	66,500
4	10.82	6,140	10.68	5,640	10.72	5,780	11.61	9,650	14.47	27,000	17.94	65,700
6	10.80	-	10.66	-	10.94	-	11.70	10,100	15.24	30,800	17.90	65,200
8	10.74	5,850	10.62	5,440	11.05	7,040	11.63	9,750	15.43	35,200	17.91	65,300
10	10.72	-	10.61	-	11.12	-	11.77	10,400	15.89	39,400	17.98	66,200
N	10.65	5,540	10.62	5,440	11.14	7,410	11.97	11,500	17.15	43,900	17.79	63,800
2	10.63	-	10.62	-	11.22	-	12.00	11,700	17.49	48,200	17.55	60,600
4	10.63	5,470	10.62	5,440	11.30	8,120	12.24	13,100	17.38	51,700	17.14	55,300
6	10.64	-	10.64	-	11.90	-	12.54	14,900	17.76	54,500	16.90	52,300
8	10.67	5,610	10.70	5,710	11.79	10,600	12.80	16,600	17.56	57,100	16.65	49,300
10	10.69	-	10.84	-	11.70	-	13.06	18,400	17.65	59,600	16.28	44,900
M	10.69	5,680	10.82	6,140	11.64	9,800	13.63	22,700	17.64	61,800	16.08	42,700
	March 14		March 15		March 16		March 17		March 18		March 19	
2	15.94	41,100	-	-	-	-	15.70	38,600	18.39	71,600	22.10	123,000
4	15.78	39,400	14.24	25,500	13.81	22,400	16.15	43,400	18.57	73,900	22.31	126,000
6	15.60	37,600	-	-	-	-	16.36	45,800	18.59	74,200	22.38	127,000
8	15.42	35,800	14.01	23,800	14.02	23,800	16.51	47,600	19.07	80,400	22.16	124,000
10	15.28	34,400	-	-	-	-	16.80	51,100	19.35	84,100	22.10	123,000
N	15.17	33,400	13.89	22,900	14.21	25,300	16.96	53,000	19.48	85,900	21.76	118,000
2	14.98	31,700	-	-	-	-	17.38	58,400	19.88	91,500	21.40	113,000
4	14.83	30,400	13.71	21,700	14.50	27,600	18.03	66,900	20.45	99,500	21.06	108,000
6	14.74	29,600	-	-	-	-	18.09	67,700	20.51	100,000	20.63	102,000
8	14.60	28,400	13.62	21,000	14.90	31,000	18.26	69,900	20.87	105,000	20.20	96,000
10	14.51	27,700	-	-	15.44	36,000	18.26	69,900	21.24	111,000	19.88	91,500
M	14.40	26,800	13.69	21,500	15.52	36,800	18.26	69,900	21.10	109,000	19.48	85,900
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	18.89	78,100	16.16	43,600	-	-	-	-	-	-	-	-
6	-	-	-	-	16.03	42,100	14.99	31,800	14.18	25,000	13.73	21,800
8	18.47	72,600	15.89	40,600	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	17.99	66,400	15.71	38,700	16.02	42,000	14.75	29,600	14.01	23,800	13.89	22,900
2	-	-	-	-	15.94	41,100	-	-	-	-	-	-
4	17.44	59,200	15.70	38,600	15.86	40,300	-	-	-	-	-	-
6	-	-	-	-	15.65	38,100	14.56	28,100	13.85	22,600	14.02	23,800
8	16.93	52,700	15.76	39,200	15.55	37,100	-	-	-	-	-	-
10	-	-	-	-	15.38	35,400	-	-	-	-	-	-
M	16.51	47,600	15.96	41,400	15.27	34,300	14.36	26,500	13.77	22,100	14.04	24,000

Supplemental records.- Mar. 12, 7 p.m., 18.31 ft. (backwater from ice). Mar. 13, 5 a.m., 17.66 ft., 62,100 sec.-ft. Mar. 17, 3 p.m., 15.56 ft., 37,200 sec.-ft. Mar. 18, 11 p.m., 21.34 ft., 112,000 sec.-ft. Mar. 19, 1 a.m., 20.98 ft., 107,000 sec.-ft.; 2:30 a.m., 22.40 ft., 127,000 sec.-ft.; 6:30 a.m., 22.57 ft., 130,000 sec.-ft.

Hinckley Reservoir at Hinckley, N. Y.

Location.- Lat. 43°18'25", long. 75°6'25", at Hinckley Dam, at Hinckley, Oneida County, 2 3/4 miles east of Prospect.
Drainage area.- 373 square miles.
Gage-height record.- Gage read to tenths at 8 a.m. daily.
Remarks.- Usable storage capacity 3,320,000,000 cubic feet. Records furnished by New York State Department of Public Works.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet
1	1,198.4	993	1,177.7	84	1,227.4	3,639
2	1,197.8	955	1,177.9	90	1,226.9	3,571
3	1,197.2	917	1,178.0	92	1,226.7	3,544
4	1,196.6	881	1,177.9	90	1,226.0	3,450
5	1,195.8	834	1,177.6	82	1,225.3	3,359
6	1,195.0	787	1,177.9	90	1,225.05	3,326
7	1,194.4	754	1,178.2	96	1,227.5	3,652
8	1,193.5	704	1,178.2	96	1,226.8	3,558
9	1,192.7	661	1,178.0	92	1,226.0	3,450
10	1,191.8	615	1,178.1	94	1,225.4	3,372
11	1,191.3	590	1,178.3	99	1,225.1	3,333
12	1,190.8	565	1,180.6	161	1,225.2	3,346
13	1,190.4	545	1,185.9	340	1,225.2	3,346
14	1,189.9	520	1,190.2	535	1,225.5	3,385
15	1,189.4	495	1,192.6	656	1,225.6	3,398
16	1,189.0	476	1,195.0	787	1,226.0	3,450
17	1,188.6	457	1,197.3	924	1,226.3	3,490
18	1,188.1	434	1,203.3	1,319	1,226.0	3,450
19	1,187.0	385	1,215.1	2,269	1,226.2	3,477
20	1,185.5	324	1,222.6	3,039	1,226.1	3,463
21	1,183.8	263	1,226.4	3,504	1,226.0	3,450
22	1,182.2	210	1,227.4	3,639	1,226.5	3,517
23	1,180.3	152	1,227.0	3,585	1,226.4	3,504
24	1,179.0	117	1,226.6	3,531	1,226.2	3,477
25	1,177.8	87	1,226.2	3,477	1,226.1	3,463
26	1,176.7	62	1,226.8	3,558	1,226.0	3,450
27	1,176.3	54	1,226.7	3,544	1,226.0	3,450
28	1,176.8	65	1,227.8	3,693	1,226.0	3,450
29	1,177.1	71	1,227.7	3,679	1,226.1	3,463
30			1,227.3	3,625	1,226.5	3,517
31			1,227.4	3,639		

	February	March	April
Gain or loss in storage, in equivalent mean second-feet	-369	+1,329	-47

West Canada Creek at Hinckley, N. Y.

Location.- Lat. 43°18'20", long. 75°7'10", 1 mile below Hinckley Dam, at Hinckley, Oneida County, 1¾ miles east of Prospect.
Drainage area.- 375 square miles; 373 square miles affected by storage in Hinckley Reservoir.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 22-24, 27-29, Mar. 1, 2, 5-8, 13, 14. Defined by current-meter measurements below 5,530 second-feet; logarithmic extension to peak stage.
Maxima.- 1936: Discharge, 8,040 second-feet 7 a.m. Mar. 28 (gage height, 8.02 feet).
1919-35: Discharge, 10,800 second-feet Apr. 12, 1922 (gage height, 8.93 feet).
Remarks.- For information on storage see record for Hinckley Reservoir at Hinckley. Mean monthly discharge corrected for storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	753	430	4,930	11	576	379	2,380	21	950	2,380	1,670
2	753	406	3,530	12	533	430	2,430	22	903	4,850	2,380
3	753	395	3,330	13	533	487	2,100	23	833	3,960	2,170
4	762	395	3,040	14	526	562	2,000	24	815	3,630	1,800
5	753	378	2,540	15	520	605	2,260	25	770	3,960	1,560
6	753	368	3,400	16	513	637	2,920	26	702	5,100	1,440
7	744	363	7,180	17	520	685	3,250	27	610	5,340	1,390
8	753	357	5,100	18	646	626	2,100	28	476	7,310	1,410
9	753	363	3,330	19	1,000	576	1,680	29	448	5,990	1,640
10	701	363	2,610	20	971	623	1,570	30		4,790	2,450
								31		5,420	
Mean monthly discharge, in second-feet (observed).....									701	2,005	2,653
Mean monthly discharge, in second-feet (corrected).....									332	3,334	2,611
Run-off, in inches (corrected).....									0.96	10.25	7.76

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	4.27	744	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	4.28	753	-	-
10	-	-	-	-	-	-	-	-	4.27	744	-	-
N	*4.04	*562	*4.10	*605	*4.14	*637	*4.20	*685	4.00	533	*4.06	*576
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	4.00	533	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	4.01	540	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	-	-	4.02	547	-	-
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	4.83	1,350	6.69	4,680	6.62	4,520	5.97	3,190	6.26	3,770
4	4.07	583	4.85	1,380	6.79	4,900	6.57	4,420	5.97	3,190	6.14	3,530
6	-	-	5.05	1,640	6.82	4,970	6.50	4,270	5.97	3,190	6.10	3,450
8	4.08	591	5.18	1,830	6.82	4,970	6.44	4,140	5.96	3,170	6.12	3,490
10	-	-	5.33	2,060	6.78	4,880	6.38	4,020	6.26	3,770	6.23	3,710
N	4.08	591	5.42	2,200	6.77	4,850	6.33	3,910	6.25	3,750	6.31	3,870
2	-	-	5.58	2,480	6.83	4,990	6.28	3,810	6.24	3,730	6.41	4,080
4	4.09	598	5.77	2,820	6.90	5,150	6.24	3,730	6.41	4,080	6.46	4,190
6	-	-	5.94	3,140	6.82	4,970	6.19	3,630	6.36	3,980	6.52	4,310
8	4.10	605	5.99	3,230	6.76	4,830	6.15	3,550	6.30	3,850	6.57	4,420
10	4.28	753	6.13	3,510	6.73	4,770	6.12	3,490	6.25	3,750	6.64	4,570
M	4.59	1,060	6.42	4,100	6.68	4,660	6.02	3,290	6.25	3,750	6.72	4,740
	March 26		March 27		March 28		March 29		March 30		March 31	
2	6.78	4,880	6.89	5,130	7.63	6,960	7.61	6,910	6.85	5,040	6.75	4,810
4	6.83	4,990	6.88	5,100	7.80	7,420	7.57	6,800	6.82	4,970	6.82	4,970
6	6.88	5,100	6.87	5,080	7.94	7,810	7.50	6,620	6.81	4,940	6.87	5,080
8	6.89	5,130	6.88	5,100	7.56	6,780	7.42	6,410	6.79	4,900	6.95	5,260
10	6.91	5,170	6.89	5,130	7.69	7,120	7.32	6,160	6.76	4,830	7.01	5,400
N	6.91	5,170	6.94	5,240	7.77	7,340	7.22	5,910	6.73	4,770	7.05	5,500
2	6.90	5,150	6.94	5,240	7.84	7,530	7.14	5,720	6.71	4,720	7.11	5,640
4	6.89	5,130	6.98	5,330	7.83	7,500	7.06	5,520	6.68	4,660	7.15	5,740
6	6.90	5,150	7.11	5,640	7.82	7,480	6.99	5,360	6.67	4,630	7.19	5,840
8	6.90	5,150	6.98	5,330	7.79	7,390	6.95	5,260	6.67	4,630	7.19	5,840
10	6.90	5,150	7.22	5,910	7.74	7,260	6.91	5,170	6.70	4,700	7.18	5,810
M	6.89	5,130	7.43	6,440	7.69	7,120	6.88	5,100	6.71	4,720	7.17	5,790

Supplemental records.- Mar. 21, 3:20 a.m., 5.00 ft., 1,570 sec.-ft.; 6:45 p.m., 5.87 ft., 3,000 sec.-ft. Mar. 24, 10:30 a.m., 6.42 ft., 4,100 sec.-ft.; 3 p.m., 6.42 ft., 4,100 sec.-ft. Mar. 27, 7 p.m., 7.20 ft., 5,360 sec.-ft. Mar. 28, 7 a.m., 8.02 ft., 8,040 sec.-ft.
*Mean for the day.

155158 O—37——9

West Canada Creek at East Bridge, N. Y.

Location.- Lat. 43°4'15", long. 74°59'25", 600 feet below highway bridge at East Bridge, Herkimer County, and 4 miles above mouth at Herkimer.
Drainage area.- 556 square miles. 373 square miles affected by storage in Hinckley Reservoir.
Gage-height record.- Water-stage recorder graph Mar. 18,19, Mar. 29 to Apr. 3, Apr. 5, 18-30; other records missing or faulty.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 17. Defined by current-meter measurements below 9,000 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 10,900 second-feet 8 a.m. Mar. 18 (gage height, 5.86 feet); maximum stage, 6.12 feet 9:30 p.m. Mar. 17 (backwater from ice).
1920-35: Discharge, about 16,500 second-feet June 21, 1922 (gage height, 7.3 feet).
1905-9, 1912-13: Discharge, 23,300 second-feet Mar. 26, 1913 (Records of New York State engineer and surveyor).
Remarks.- For information of storage see record for Hinckley Reservoir at Hinckley, N. Y. Discharge during periods of missing gage-height record computed on basis of studies of other records in the Mohawk River Basin.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	900	650	6,300	11	750	900	3,800	21	1,100	4,200	2,440
2	900	600	5,300	12	700	1,600	4,000	22	1,000	8,000	2,950
3	900	550	4,550	13	700	1,800	3,800	23	1,000	5,500	2,900
4	900	550	4,000	14	650	1,600	3,200	24	950	4,000	2,440
5	900	600	3,500	15	650	1,500	3,400	25	950	5,720	2,080
6	850	600	4,400	16	650	1,700	4,200	26	1,000	6,360	1,820
7	850	550	8,500	17	650	3,200	4,400	27	1,000	7,360	1,780
8	850	550	7,000	18	700	8,680	3,200	28	900	8,770	1,740
9	850	550	5,000	19	1,000	4,080	2,360	29	750	7,600	1,980
10	850	600	4,200	20	1,100	3,600	2,360	30		6,200	2,750
								31		6,500	
Mean monthly discharge, in second-feet									860	3,376	3,678
Run-off, in inches									1.67	7.00	7.39

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2												
4												
6												
8												
10												
N												
2												
4												
6												
8												
10												
M												
	March 14		March 15		March 16		March 17		March 18		March 19	
2							-	-	5.42	7,530	4.53	6,140
4							-	-	5.60	8,770	4.20	5,100
6							-	-	5.66	10,100	3.98	4,450
8							-	-	5.86	10,900	3.82	4,010
10							-	-	5.71	10,300	3.68	3,650
N							-	-	5.60	9,900	3.63	3,520
2							-	-	5.49	9,480	3.52	3,260
4							-	-	5.17	8,300	3.67	3,620
6							5.13	-	5.00	7,700	3.64	3,550
8							5.25	-	4.88	7,290	3.64	3,550
10							5.50	-	4.73	6,790	3.52	3,260
M							5.43	6,490	4.70	6,690	3.44	3,070
	March 20		March 21		March 22		March 23		March 24		March 25	
2												
4												
6												
8												
10												
N												
2												
4												
6												
8												
10												
M												

Supplemental records.- Mar. 17, 9:30 p.m., 6.12 ft. Mar. 18, 3 a.m., 5.98 ft.; 4:45 p.m., 5.27 ft., 8,660 sec.-ft.; 11:15 p.m., 4.78 ft., 6,950 sec.-ft. Mar. 19, 4:30 p.m., 3.68 ft., 3,650 sec.-ft.; 7 p.m., 3.70 ft., 3,700 sec.-ft.

East Canada Creek at Dolgeville, N. Y.

Location.- Lat. 43°6'5", long. 74°46'15", at Dolgeville, Herkimer County, 100 feet below lower highway bridge and 1 mile below Spruce Creek.
Drainage area.- 261 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 14. Several ice jams of short duration Mar. 15-18. Based on current-meter measurements below 3,600 second-feet, and above this discharge on a study of determinations of peak flows at the Inghams and Beardslee hydroelectric plants of the New York Power & Light Corporation. Flood discharge compared with reoords at these hydroelectric plants.
Maxima.- 1936: Discharge, 13,100 second-feet 6:15 p.m. Mar. 18 (gage height, 11.81 feet).
1927-35: Discharge, 8,500 second-feet Apr. 8, 1928 (gage height, 11.2 feet).
1898-1926: Comparable records of New York State engineer and surveyor, at High Falls, 1 mile downstream. Discharge, 14,500 second-feet Mar. 26, 1913.
Remarks.- Discharge affected by 441,000,000 cubic feet of storage capacity in Canada Lakes.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	240	300	2,240	11	180	650	1,480	21	130	5,040	1,140
2	220	280	1,750	12	170	2,800	1,800	22	120	3,970	1,300
3	220	300	1,920	13	170	4,000	1,660	23	120	2,780	1,020
4	200	360	1,460	14	160	2,600	1,480	24	140	2,340	870
5	200	420	1,280	15	160	2,060	1,640	25	180	3,470	750
6	200	380	3,990	16	160	2,460	1,970	26	260	3,960	710
7	190	340	4,850	17	160	4,980	1,930	27	440	5,420	740
8	190	300	2,620	18	170	9,220	1,400	28	400	6,410	760
9	180	360	1,780	19	160	7,640	1,060	29	340	3,640	790
10	180	500	1,360	20	150	6,710	960	30		2,680	1,040
								31		3,000	
Mean monthly discharge, in second-feet									200	2,883	1,592
Run-off, in inches									0.83	12.74	6.81

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	7.37	-	-	-	-	-	-	-	8.51	-	-	-
4	-	-	-	-	-	-	-	-	8.59	-	-	-
6	7.26	-	6.74	-	7.00	-	7.27	-	8.11	-	9.25	-
8	-	-	-	-	-	-	-	-	8.56	-	-	-
10	-	-	-	-	-	-	-	-	9.15	-	-	-
N	7.03	*300	6.73	*360	7.08	*500	7.58	*650	10.02	*2,800	8.96	*4,000
2	-	-	-	-	-	-	-	-	11.03	-	-	-
4	-	-	-	-	-	-	-	-	9.55	-	-	-
6	7.19	-	6.74	-	7.17	-	7.82	-	9.50	-	9.02	-
8	-	-	-	-	-	-	-	-	9.46	-	-	-
10	-	-	-	-	-	-	-	-	9.43	-	-	-
M	7.20	-	6.85	-	7.20	-	8.41	-	9.43	-	9.06	-
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	7.85	2,200	7.75	2,040	8.60	3,510	10.13	7,440	10.70	9,250
4	-	-	7.82	2,150	7.78	2,080	8.69	3,680	10.45	8,400	10.52	8,620
6	8.87	-	7.80	2,120	7.81	2,140	8.72	3,740	10.42	8,310	10.38	8,190
8	-	-	7.76	2,060	7.85	2,200	9.08	4,490	10.50	8,550	10.35	8,100
10	-	-	7.75	2,040	7.85	2,200	9.05	4,420	10.74	9,390	10.20	7,650
N	8.81	*2,600	7.73	2,020	7.95	2,360	9.48	5,490	10.73	9,360	9.93	6,840
2	-	-	7.72	2,000	8.00	2,440	9.51	5,580	10.92	10,000	9.76	6,330
4	-	-	7.65	1,900	8.05	2,520	9.62	5,910	11.05	10,500	9.73	6,240
6	8.78	-	7.68	1,940	8.13	2,660	9.51	5,580	10.95	10,100	10.03	7,140
8	-	-	7.73	2,020	8.27	2,910	9.60	5,850	11.02	10,400	10.03	7,140
10	-	-	7.76	2,060	8.48	3,280	9.79	6,420	10.90	9,950	10.15	7,500
M	8.70	2,250	7.76	2,060	8.52	3,360	9.93	6,960	10.80	9,600	10.27	7,860
	March 20		March 21		March 22		March 23		March 24		March 25	
2	10.29	7,920	9.53	5,640	9.16	4,670	8.46	3,250	8.05	2,520	8.23	2,830
4	10.27	7,860	9.43	5,350	9.09	4,510	8.37	3,090	8.00	2,440	8.32	3,000
6	10.20	7,650	9.35	5,140	9.03	4,380	8.30	2,960	7.97	2,390	8.39	3,120
8	10.15	7,400	9.30	5,010	8.95	4,200	8.21	2,800	7.93	2,330	8.47	3,270
10	10.08	7,290	9.26	4,910	8.81	3,920	8.14	2,680	7.90	2,280	8.51	3,340
N	10.00	7,050	9.24	4,860	8.75	3,800	8.06	2,540	7.87	2,230	8.58	3,470
2	9.93	6,960	9.21	4,780	8.71	3,720	8.05	2,520	7.74	2,030	8.51	3,340
4	9.89	6,720	9.25	4,880	8.68	3,660	8.09	2,590	7.80	2,120	8.58	3,470
6	9.88	6,690	9.25	4,880	8.65	3,600	8.11	2,630	7.82	2,150	8.75	3,800
8	9.85	6,600	9.24	4,860	8.63	3,570	8.12	2,640	7.95	2,360	8.91	4,120
10	9.78	6,390	9.23	4,840	8.60	3,510	8.11	2,630	8.10	2,610	9.01	4,330
M	9.65	6,000	9.22	4,810	8.54	3,400	8.09	2,590	8.16	2,710	9.03	4,380

Supplemental records.-Mar. 12, 5:30 a.m., 9.00 ft. (ice); 5:40 a.m., 7.88 ft. (ice); 4 p.m., 8.66 ft. (ice). Mar. 13, 2 p.m., 9.54 ft. (ice). Mar. 14, 2:25 p.m., 9.32 ft. (ice). Mar. 15, 12:20 a.m., 8.71 ft. (ice); 12:25 a.m., 7.88 ft., 2,250 sec.-ft. Mar. 16, 6:05 p.m., 9.16 ft. (ice); midnight, 9.75 ft. (ice). Mar. 17, 7:20 a.m., 10.73 ft. (ice). Mar. 18, 3:10 a.m., 11.11 ft. (ice); 6:15 p.m., 11.81 ft., 13,100 sec.-ft.
*Mean for the day.

Schoharie Creek at Prattsville, N. Y.

Location.- Lat. 42°19'10", long. 74°26'10", just above highway bridge in Prattsville, Greene County.
Drainage area.- 236 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11.
Maxima.- 1936: Discharge, 38,500 second-feet 9 a.m. Mar. 18 (gage height, 17.44 feet).
1902-35: Discharge, 42,300 second-feet Nov. 16, 1926.
Remarks.- Flood run-off not affected by storage or diversion. Records furnished by New York City Board of Water Supply.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	176	225	724	11	54	6,886	971	21	51	3,712	671
2	141	204	724	12	49	14,898	945	22	59	2,375	724
3	120	211	880	13	44	3,882	1,031	23	81	1,544	587
4	112	260	704	14	41	1,930	1,038	24	89	1,222	524
5	104	433	615	15	37	1,562	1,073	25	127	1,122	461
6	89	361	1,860	16	41	1,830	1,052	26	148	1,004	433
7	81	332	1,650	17	49	6,500	932	27	183	1,080	405
8	74	376	1,270	18	56	20,482	834	28	204	1,436	376
9	67	475	1,038	19	46	5,956	776	29	246	1,004	347
10	59	880	1,017	20	41	3,085	698	30		867	332
								31		802	
Mean monthly discharge, in second-feet									92.0	2,804	823
Run-off, in inches									0.42	13.70	3.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	15.30	26,400	9.73	5,932
4	-	-	-	-	-	-	-	-	15.65	28,850	9.44	5,262
6	-	-	-	-	-	-	-	-	15.35	26,650	9.20	4,750
8	-	-	-	-	-	-	-	-	14.25	21,375	9.00	4,370
10	-	-	-	-	-	-	-	-	13.00	16,000	8.80	3,950
N	-	*376	-	*475	-	*880	-	*6,886	12.00	12,400	8.65	3,965
2	-	-	-	-	-	-	9.90	6,350	11.25	10,050	8.52	3,482
4	-	-	-	-	-	-	10.90	9,020	11.03	9,390	8.40	3,290
6	-	-	-	-	-	-	12.10	12,740	10.86	8,908	8.26	3,070
8	-	-	-	-	-	-	13.35	17,470	10.70	8,460	8.15	2,910
10	-	-	-	-	-	-	14.55	22,785	10.45	7,770	8.01	2,714
M	-	-	-	-	-	-	14.95	24,665	10.09	6,834	7.88	2,544
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.76	2,388	7.07	1,650	7.23	1,810	9.53	5,469	12.72	14,932	10.44	7,784
4	7.66	2,266	7.01	1,590	7.20	1,780	9.47	5,331	13.70	18,800	10.16	7,036
6	7.55	2,145	6.96	1,544	7.15	1,730	9.36	5,082	15.50	27,400	9.92	6,400
8	7.40	1,980	6.90	1,490	7.09	1,670	9.10	4,560	17.25	37,400	9.80	6,100
10	7.31	1,890	6.86	1,454	7.06	1,640	8.93	4,202	17.32	37,820	9.77	6,028
N	7.25	1,830	6.82	1,418	7.04	1,620	8.86	4,058	16.25	31,450	9.77	6,028
2	7.20	1,780	6.82	1,418	7.04	1,620	8.86	4,058	15.10	25,400	9.74	5,956
4	7.16	1,740	6.85	1,445	7.04	1,620	9.07	4,503	13.75	19,150	9.63	5,699
6	7.14	1,720	6.96	1,544	7.04	1,620	10.25	7,250	12.60	14,480	9.49	5,377
8	7.13	1,710	7.09	1,670	7.20	1,780	12.25	13,250	11.78	11,696	9.32	4,944
10	7.13	1,710	7.20	1,780	8.05	2,770	12.80	15,240	11.20	9,900	9.14	4,636
M	7.11	1,690	7.23	1,810	8.90	4,130	12.64	14,632	10.80	8,740	9.00	4,370
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.89	4,112	7.63	2,233	8.29	3,115	7.18	1,760	6.72	1,328	6.48	1,136
4	8.76	3,882	7.60	2,200	8.16	2,924	7.13	1,710	6.69	1,302	6.50	1,150
6	8.62	3,644	7.75	2,375	8.05	2,770	7.08	1,660	6.67	1,286	6.51	1,158
8	8.45	3,370	8.50	3,450	7.92	2,596	7.02	1,600	6.65	1,270	6.51	1,158
10	8.35	3,210	9.15	4,655	7.81	2,453	6.97	1,553	6.63	1,254	6.51	1,158
N	8.22	3,010	9.65	5,745	7.71	2,323	6.94	1,526	6.60	1,230	6.50	1,150
2	8.11	2,854	9.68	5,814	7.63	2,233	6.92	1,508	6.57	1,206	6.47	1,129
4	8.01	2,714	9.41	5,193	7.54	2,134	6.89	1,481	6.54	1,182	6.45	1,115
6	7.92	2,596	9.10	4,560	7.45	2,035	6.85	1,445	6.51	1,158	6.42	1,094
8	7.83	2,479	8.84	4,022	7.38	1,960	6.82	1,418	6.49	1,143	6.40	1,080
10	7.76	2,388	8.60	3,610	7.31	1,890	6.78	1,382	6.48	1,136	6.39	1,073
M	7.70	2,310	8.44	3,354	7.25	1,830	6.75	1,355	6.47	1,129	6.38	1,066

Supplemental records.- Mar. 18, 9 a.m., 17.44 ft., 38,500 sec.-ft.
*Mean for the day.

Schoharie Reservoir at Gilboa Dam, at Gilboa, N. Y.

Location.- Lat. 42°23'29", long. 74°27'5", at Gilboa Dam, 6 miles south of North Blenheim, Schoharie County.
Drainage area.- 314 square miles.
Gage-height record.- One reading daily at 9 a.m.
Remarks.- Total capacity, 2,881,000,000 cubic feet. Total available storage at elevation 1,130 feet (crest of spillway) is 2,618,000,000 cubic feet. Total flow, except for periods of spilling, is diverted through Shandaken Tunnel into Esopus Creek above Ashokan Reservoir for New York City water supply. Records furnished by New York City Board of Water Supply.

Elevation, in feet, contents, in millions of cubic feet, and diversions, in second-feet, 1936

Day	February			March			April		
	Feet	Millions of cu. ft.	Second-feet	Feet	Millions of cu. ft.	Second-feet	Feet	Millions of cu. ft.	Second-feet
1	1,081.88	724	418	1,082.97	759	0	1,131.20	2,680	0
2	1,081.74	719	433	1,084.02	792	0	1,131.17	2,679	0
3	1,080.58	683	507	1,084.98	822	0	1,131.42	2,692	0
4	1,079.68	655	602	1,085.92	854	80	1,131.30	2,685	0
5	1,078.50	620	681	1,087.98	923	166	1,131.13	2,677	0
6	1,077.03	576	712	1,089.61	977	255	1,131.13	2,677	0
7	1,075.30	525	727	1,090.23	998	429	1,131.42	2,692	0
8	1,073.39	472	727	1,090.22	998	430	1,131.24	2,682	0
9	1,071.44	420	712	1,090.43	1,005	591	1,131.04	2,672	0
10	1,069.20	362	201	1,091.25	1,034	727	1,131.02	2,671	0
11	1,068.91	355	0	1,095.27	1,175	232	1,130.98	2,669	0
12	1,069.44	368	0	1,129.50	2,594	0	1,131.01	2,670	0
13	1,069.87	378	0	1,131.20	2,680	0	1,131.00	2,670	0
14	1,070.32	390	0	1,130.74	2,656	0	1,131.25	2,683	0
15	1,070.73	401	0	1,130.60	2,649	0	1,131.09	2,674	0
16	1,071.24	414	0	1,130.73	2,656	0	1,131.19	2,680	0
17	1,071.55	423	0	1,131.42	2,692	0	1,131.14	2,677	0
18	1,072.00	435	0	1,134.33	2,843	0	1,131.00	2,670	0
19	1,072.51	448	0	1,131.53	2,697	0	1,130.92	2,666	0
20	1,073.09	464	0	1,131.06	2,673	0	1,130.83	2,661	0
21	1,073.67	480	0	1,130.97	2,668	0	1,130.75	2,657	0
22	1,074.15	493	0	1,130.98	2,669	0	1,130.82	2,660	0
23	1,074.69	507	0	1,130.70	2,654	0	1,130.73	2,656	0
24	1,074.97	515	0	1,130.61	2,650	0	1,130.66	2,652	0
25	1,075.35	526	0	1,130.59	2,648	0	1,130.60	2,649	0
26	1,076.50	560	0	1,130.69	2,654	0	1,130.57	2,647	0
27	1,078.08	605	0	1,130.77	2,658	0	1,130.56	2,647	0
28	1,080.00	667	0	1,130.90	2,665	0	1,130.46	2,642	0
29	1,081.61	715	0	1,130.95	2,667	0	1,130.41	2,639	149
30	-	-	-	1,130.96	2,668	0	1,130.22	2,629	149
31	-	-	-	1,131.00	2,670	0	-	-	-

Schoharie Creek at Gilboa Dam, at Gilboa, N. Y.

Location.- Lat. 42°23'29", long. 74°27'5", at Gilboa Dam, 6 miles south of North Blenheim, Schoharie County.
Drainage area.- 314 square miles.
Gage-height record.- Water-stage recorder graph.
Remarks.- Discharge is that passing Gilboa Dam. At times total flow is diverted through Shandaken Tunnel into Esopus Creek above Ashokan Reservoir for New York City water supply. Mean monthly discharge corrected for storage in Schoharie Reservoir and diversions (see record for Schoharie Reservoir at Gilboa Dam, at Gilboa, N. Y.). Records furnished by New York City Board of Water Supply.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	0	0	2,939	11	0	0	1,207	21	0	4,409	789
2	0	0	1,655	12	0	7,224	774	22	0	2,460	1,006
3	0	0	1,160	13	0	3,176	1,207	23	0	1,578	650
4	0	0	1,238	14	0	1,849	1,392	24	0	1,392	557
5	0	0	820	15	0	1,841	1,470	25	0	1,578	650
6	0	0	1,934	16	0	4,093	1,501	26	0	1,856	526
7	0	0	1,702	17	0	13,120	1,238	27	0	1,969	464
8	0	0	1,392	18	0	15,800	1,083	28	0	2,475	526
9	0	0	1,145	19	0	5,303	928	29	0	2,614	371
10	0	0	1,129	20	0	3,134	743	30		2,645	201
								31		3,280	
Mean monthly discharge, in second-feet (observed).....									0	2,639	1,079
Mean monthly discharge, in second-feet (corrected).....									210	3,450	1,069
Run-off, in inches (corrected).....									0.72	12.67	3.79

Schoharie Creek at Middleburg, N. Y.

Location.- Lat. 42°36'0", long. 74°20'15", at highway bridge in Middleburg, Schoharie County.

Drainage area.- 532 square miles; 314 square miles affected by storage and diversions at Schoharie Reservoir.

Gage-height record.- Graph based on twice-daily gage readings and flood marks. Records unreliable for periods Feb. 9, 16-26.

Stage-discharge relation.- Affected by ice Feb. 11 to Mar. 11; defined by current-meter measurements below 3,010 second-feet; extended logarithmically to peak stage on basis of study of flow over Gilboa Dam, a slope-area determination of flood flow, and determinations of flood discharge of stations on adjacent streams.

Maxima.- 1936: Discharge, 47,800 second-feet 12:30 p.m. on Mar. 18 (gage height, 16.8 feet, from flood marks).
1927-35: Discharge, 17,000 second-feet Nov. 4, 1927 (gage height, 10.5 feet).
1906-27: Discharge, 31,600 second-feet Feb. 20, 1909 (records of New York State Engineer and Surveyor).

Remarks.- Daily discharge for periods of unreliable gage-height record and periods of ice effect based on study of precipitation and temperature records and comparison with discharge records for adjacent streams. For daily changes in storage and daily diversions see records for Schoharie Reservoir at Gilboa Dam, at Gilboa, N. Y. Mean monthly discharge corrected for storage in and diversions from Schoharie Reservoir.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	37	320	1,300	11	26	2,200	2,240	21	24	8,040	1,170
2	36	280	1,360	12	24	9,770	2,170	22	24	6,270	1,210
3	33	240	1,960	13	24	9,220	2,170	23	22	3,770	1,050
4	31	340	1,550	14	22	4,420	2,560	24	22	2,830	914
5	29	550	1,250	15	22	3,370	2,690	25	34	2,300	788
6	30	400	3,340	16	24	5,140	2,560	26	140	2,110	670
7	31	320	4,090	17	26	12,900	2,170	27	360	1,950	642
8	29	300	2,820	18	30	32,500	1,780	28	420	3,170	587
9	28	400	2,360	19	28	13,700	1,510	29	380	2,210	534
10	27	650	2,430	20	26	7,610	1,300	30		1,550	410
								31		1,440	
Mean monthly discharge, in second-feet (observed).....									68.6	4,525	1,720
Mean monthly discharge, in second-feet (corrected).....									279	5,336	1,709
Run-off, in inches (corrected).....									0.57	11.56	3.58

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.10	-	1.86	-	2.60	-	3.50	1,020	6.00	4,860	9.30	13,000
4	2.11	-	1.90	-	2.70	-	3.55	1,120	6.30	5,450	9.05	12,200
6	2.10	-	1.92	-	2.75	-	3.60	1,260	6.60	6,070	8.75	11,400
8	2.05	-	1.97	-	2.82	-	3.70	1,420	7.00	6,930	8.45	10,400
10	2.02	-	2.00	-	2.90	-	3.80	1,640	7.50	8,070	8.15	9,680
N	1.98	*300	2.06	*400	3.00	*650	4.00	1,920	8.00	9,300	7.80	8,800
2	1.94	-	2.16	-	3.08	-	4.25	2,260	8.50	10,600	7.55	8,190
4	1.92	-	2.25	-	3.15	-	4.65	2,760	9.00	12,100	7.25	7,480
6	1.88	-	2.31	-	3.22	-	5.05	3,280	9.85	14,700	7.00	6,930
8	1.85	-	2.40	-	3.30	-	5.25	3,580	10.00	15,200	6.80	6,490
10	1.84	-	2.48	-	3.38	-	5.50	3,970	9.90	14,800	6.65	6,180
M	1.85	-	2.52	-	3.43	-	5.70	4,310	9.65	14,000	6.50	5,860
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.30	5,450	5.12	3,380	5.35	3,730	8.70	11,200	11.60	20,800	10.80	18,000
4	6.20	5,250	5.09	3,340	5.45	3,890	9.80	14,500	12.50	24,700	10.40	16,600
6	6.05	4,960	5.05	3,280	5.55	4,060	10.00	15,200	13.40	29,200	10.05	15,400
8	5.95	4,760	5.05	3,280	5.65	4,220	9.60	13,900	14.40	34,200	9.80	14,500
10	5.80	4,490	5.05	3,280	5.75	4,400	9.20	12,700	15.50	40,000	9.60	13,900
N	5.70	4,310	5.06	3,290	5.90	4,670	9.05	12,200	16.75	47,500	9.35	13,200
2	5.60	4,140	5.07	3,310	6.05	4,960	8.90	11,800	16.75	47,500	9.15	12,600
4	5.50	3,970	5.10	3,350	6.20	5,250	8.82	11,600	16.20	44,200	9.00	12,100
6	5.40	3,810	5.12	3,380	6.50	5,860	8.80	11,500	14.50	34,700	8.80	11,500
8	5.30	3,650	5.18	3,470	6.80	6,490	8.95	12,000	12.80	26,200	8.65	11,000
10	5.25	3,580	5.23	3,540	7.35	7,720	10.00	15,200	11.90	22,000	8.50	10,600
M	5.18	3,470	5.30	3,650	7.95	9,180	10.70	17,600	11.25	19,600	8.35	10,180
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.15	9,680	6.35	5,550	7.60	8,310	5.75	4,400	4.95	3,140	4.37	2,390
4	7.95	9,180	6.30	5,450	7.40	7,830	5.68	4,280	4.92	3,110	4.34	2,350
6	7.80	8,800	6.27	5,390	7.20	7,370	5.60	4,140	4.89	3,070	4.31	2,310
8	7.60	8,310	6.27	5,390	7.00	6,930	5.52	4,000	4.85	3,020	4.30	2,300
10	7.45	7,950	6.80	6,490	6.80	6,490	5.44	3,870	4.80	2,950	4.29	2,290
N	7.25	7,480	8.25	9,920	6.60	6,070	5.36	3,750	4.72	2,860	4.29	2,290
2	7.05	7,040	8.60	10,900	6.40	5,650	5.28	3,620	4.65	2,760	4.28	2,270
4	6.90	6,710	8.55	10,800	6.25	5,350	5.20	3,500	4.59	2,680	4.28	2,270
6	6.75	6,380	8.40	10,300	6.11	5,070	5.12	3,380	4.52	2,590	4.28	2,270
8	6.60	6,070	8.20	9,800	6.00	4,860	5.05	3,280	4.48	2,530	4.27	2,260
10	6.50	5,860	8.00	9,300	5.90	4,670	5.00	3,210	4.43	2,470	4.27	2,260
M	6.40	5,650	7.80	8,800	5.80	4,490	4.98	3,180	4.40	2,430	4.26	2,250

Supplemental records.- Mar. 18, 12:30 p.m., 16.8 ft., 47,800 sec.-ft.
*Mean for the day.

Poesten Kill near Troy, N. Y.

Location.- Lat. 42°44'0", long. 73°38'0", 500 feet below bridge on Troy-Eagle Mills road, 1½ miles west of Eagle Mills, and 3 miles east of Troy, Rensselaer County.
Drainage area.- 89 square miles.
Gage-height record.- Water-stage recorder graph except Feb. 1-5.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 10. Defined by current-meter measurements below 1,940 second-feet; extended logarithmically to peak stage. Flood discharge compared with those of nearby stations.
Maxima.- 1936: Discharge, 4,750 second-feet 12:30 p.m. Mar. 12 (gage height, 7.45 feet).
1923-35: Discharge, about 7,030 second-feet Nov. 4, 1927 (gage height, 8.4 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	42	170	201	11	34	864	330	21	30	705	168
2	40	120	277	12	32	3,800	281	22	30	675	158
3	40	100	584	13	32	2,120	239	23	30	502	138
4	42	140	419	14	32	947	206	24	28	407	121
5	42	280	305	15	34	680	224	25	28	427	105
6	40	140	391	16	32	735	275	26	55	364	99
7	40	110	468	17	34	1,090	255	27	200	326	86
8	38	85	411	18	32	3,020	215	28	340	454	78
9	36	130	337	19	32	2,330	209	29	260	330	75
10	36	300	345	20	30	1,020	181	30		258	78
								31		230	
Mean monthly discharge, in second-feet									59.3	737	242
Run-off, in inches									0.72	9.55	3.04

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	3.21	594	5.58	2,380	6.36	3,270
4	-	-	-	-	-	-	3.16	572	5.93	2,760	6.05	2,900
6	-	-	-	-	-	-	3.11	550	6.24	3,130	5.69	2,500
8	2.35	-	2.32	-	2.83	-	3.10	545	6.62	3,610	5.40	2,200
10	-	-	-	-	-	-	3.13	558	7.15	4,330	5.22	2,020
N	-	*85	-	*130	-	*300	3.09	541	7.42	4,710	5.05	1,860
2	-	-	-	-	-	-	3.32	645	7.42	4,710	4.96	1,780
4	2.56	-	2.98	-	3.03	-	3.80	905	7.34	4,600	4.90	1,730
6	-	-	-	-	-	-	4.14	1,130	7.24	4,460	4.80	1,640
8	-	-	-	-	-	-	4.47	1,380	7.06	4,200	4.69	1,550
10	-	-	-	-	-	-	4.86	1,690	6.85	3,910	4.55	1,440
M	2.34	-	3.43	-	3.23	-	5.23	2,030	6.60	3,580	4.42	1,340
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	4.69	1,550	-	-
4	4.13	1,120	-	-	-	-	3.79	899	4.72	1,580	6.36	3,270
6	-	-	3.38	675	-	-	-	-	4.73	1,580	-	-
8	3.91	972	-	-	-	-	3.90	965	4.87	1,700	5.79	2,610
10	-	-	-	-	-	-	-	-	5.37	2,170	-	-
N	3.81	911	3.26	617	3.47	720	3.93	984	6.16	3,030	5.32	2,120
2	-	-	-	-	-	-	-	-	6.87	3,940	-	-
4	3.72	857	-	-	-	-	4.16	1,140	7.29	4,530	5.00	1,820
6	-	-	3.39	680	-	-	-	-	7.37	4,640	-	-
8	3.62	801	-	-	3.50	735	4.47	1,380	7.21	4,410	4.73	1,580
10	-	-	-	-	-	-	-	-	7.09	4,250	-	-
M	3.50	735	3.54	757	3.57	774	4.70	1,560	6.81	3,850	4.50	1,400
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	3.55	762	-	-	-	-	-	-
6	4.20	1,170	3.43	700	-	-	-	-	-	-	2.85	440
8	-	-	3.40	685	3.47	720	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	3.93	984	3.44	705	3.38	675	3.00	502	2.77	407	2.87	448
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	3.47	720	3.30	635	-	-	-	-	-	-
6	3.69	840	3.45	710	-	-	-	-	-	-	-	-
8	-	-	-	-	3.24	608	-	-	2.70	379	-	-
10	-	-	3.39	680	-	-	-	-	-	-	-	-
M	3.54	757	3.41	690	3.16	572	2.87	448	2.73	391	2.77	407

Supplemental records.- Mar. 11, 11:15 a.m., 5.12 ft. Mar. 12, 12:30 p.m., 7.45 ft., 4,750 sec.-ft.
*Mean for the day.

Kinderhook Creek at Rossman, N. Y.

Location.- Lat. 42°19'50", long. 73°44'40", at highway bridge in Rossman, Columbia County, 1 mile above confluence with Claverack Creek.
Drainage area.- 329 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 5, Mar. 10, 11. Defined by current-meter measurements below 9,440 second-feet; extended logarithmically to peak stage. Flood discharge checked by computations of flow at Stuyvesant Falls hydroelectric plant.
Maxima.- 1936: Discharge, 12,900 second-feet 11:45 p.m. Mar. 12 (gage height, 10.25 feet).
1906-14, 1928-35: Discharge, 11,000 second-feet Jan. 22, 1910 (gage height, 34.56 feet, old datum).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	140	600	976	11	130	2,200	1,200	21	120	3,100	750
2	140	550	958	12	120	8,650	1,100	22	110	2,780	797
3	130	550	1,740	13	120	8,880	1,040	23	110	2,090	669
4	140	650	1,470	14	120	3,840	976	24	110	1,720	593
5	140	1,400	1,210	15	140	2,530	1,040	25	110	1,760	516
6	140	1,180	1,710	16	130	2,360	1,180	26	240	1,530	474
7	130	920	1,840	17	130	2,720	1,100	27	440	1,370	474
8	130	850	1,650	18	130	6,210	993	28	650	2,080	422
9	130	910	1,340	19	120	9,380	976	29	650	1,630	413
10	130	1,100	1,290	20	120	4,410	837	30		1,330	510
								31		1,120	
Mean monthly discharge, in second-feet									178	2,594	1,008
Run-off, in inches									0.58	9.08	3.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	2.64	912	2.76	1,010	3.89	-	6.22	4,820	9.95	12,400
4	-	-	2.65	920	2.82	1,060	3.90	-	6.31	5,660	9.49	11,800
6	2.60	880	2.67	936	2.83	1,070	3.73	1,700	6.46	5,930	9.13	11,300
8	-	-	2.59	872	2.85	1,080	3.69	-	6.74	6,460	8.75	10,600
10	-	-	2.55	842	2.86	1,090	3.85	-	7.09	7,150	8.33	9,850
N	2.50	805	2.57	858	2.87	1,100	3.99	2,140	7.54	8,100	7.81	8,690
2	-	-	2.69	952	2.89	1,120	4.22	-	8.23	9,650	7.43	7,860
4	-	-	2.67	936	2.96	1,180	4.25	-	8.80	10,700	7.04	7,050
6	2.51	812	2.62	896	3.05	1,260	4.45	2,760	9.19	11,400	6.70	6,380
8	-	-	2.64	912	3.12	1,290	4.78	-	9.85	12,300	6.43	5,870
10	-	-	2.65	920	3.48	1,360	5.07	-	10.10	12,700	6.23	5,510
M	2.60	880	2.67	936	3.62	1,430	5.63	3,430	10.21	12,800	6.07	5,240
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.89	4,930	-	-	4.12	2,410	4.02	2,290	4.89	3,420	9.68	12,100
4	5.68	4,600	4.43	2,800	4.17	2,470	4.09	2,380	5.01	3,580	9.67	12,000
6	5.52	4,340	-	-	4.17	2,470	4.20	2,510	5.11	3,720	9.43	11,700
8	5.35	4,080	4.31	2,640	4.14	2,440	4.31	2,640	5.34	4,070	9.12	11,300
10	5.24	3,920	-	-	4.16	2,460	4.43	2,800	5.47	4,260	8.66	10,500
N	5.10	3,710	4.19	2,500	4.11	2,400	4.50	2,890	5.78	4,760	8.19	9,550
2	4.99	3,560	-	-	4.04	2,320	4.51	2,900	6.22	5,500	7.77	8,600
4	4.88	3,400	4.09	2,380	4.00	2,270	4.50	2,890	6.96	6,890	7.39	7,780
6	4.79	3,280	-	-	3.98	2,250	4.50	2,890	7.91	8,910	7.09	7,150
8	4.70	3,150	4.00	2,270	3.96	2,220	4.53	2,930	8.62	10,400	6.85	6,670
10	4.62	3,050	4.01	2,280	3.96	2,220	4.59	3,010	9.23	11,400	6.63	6,250
M	4.56	2,970	4.06	2,340	3.97	2,230	4.72	3,180	9.50	11,800	6.43	5,870
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	6.04	5,190	4.71	3,160	4.50	2,890	-	-	-	-	3.37	1,580
6	-	-	-	-	4.47	2,850	3.95	2,210	3.54	1,750	-	-
8	5.73	4,680	4.59	3,010	4.50	2,890	-	-	-	-	3.44	1,650
10	-	-	-	-	4.53	2,930	-	-	-	-	3.52	1,730
N	5.50	4,310	4.52	2,920	4.49	2,880	3.84	2,080	3.48	1,690	3.66	1,890
2	-	-	-	-	-	-	-	-	-	-	3.63	1,850
4	5.25	3,940	4.61	3,030	4.35	2,700	-	-	-	-	3.66	1,890
6	-	-	4.70	3,150	-	-	3.70	1,930	3.40	1,610	3.61	1,830
8	5.04	3,630	4.73	3,190	4.22	2,530	-	-	3.38	1,590	3.56	1,780
10	-	-	4.70	3,150	-	-	-	-	3.35	1,560	3.51	1,720
M	4.87	3,390	4.65	3,080	4.10	2,390	3.62	1,840	3.35	1,560	3.47	1,680

Supplemental records.- Mar. 11, 2:50 p.m., 4.70 ft. Mar. 12, 1 a.m., 8.45 ft. 11:45 p.m., 10.25 ft., 12,900 sec.-ft. Mar. 19, 3 a.m., 9.72 ft., 12,100 sec.-ft.

Catskill Creek at Oak Hill, N. Y.

Location.- Lat. 42°24'20", long. 74°9'5", just below highway bridge in southern most part of Oak Hill, Greene County.
Drainage area.- 98 square miles.
Gage-height record.- Water-stage recorder graph. No record for periods Feb. 1-3, 15-18. Based on flood marks in gage shelter 4 to 8 a.m. Mar. 18.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 631 second-feet; extended on basis of slope-area determination of flood flow. Shape of rating curve determined from previous curves, one of which was defined by current-meter measurements below 3,410 second-feet.
Maxima.- 1936: Discharge, 8,880 second-feet 6 a.m. Mar. 18 (gage height 12.83 feet, from flood mark in shelter).
1929-35: Discharge, 6,720 second-feet Oct. 6, 1932 (gage height 11.38 feet).
1910-28: Discharge, 12,300 second-feet Nov. 9, 1913 (from records of New York City Board of Water Supply).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	26	160	203	11	17	2,400	421	21	16	1,420	179
2	26	140	242	12	16	3,050	414	22	15	832	169
3	24	120	334	13	15	1,090	450	23	14	493	141
4	24	160	235	14	14	550	421	24	14	386	124
5	22	240	203	15	14	543	487	25	20	379	106
6	22	160	395	16	15	1,040	445	26	65	296	94
7	20	130	366	17	15	3,850	326	27	160	339	82
8	20	110	340	18	17	5,330	264	28	220	490	74
9	18	140	305	19	18	1,680	225	29	200	292	66
10	17	240	356	20	17	927	192	30		240	67
								31		245	
Mean monthly discharge, in second-feet									38.0	886	258
Run-off, in inches									0.42	10.42	2.93

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	5.59	356	10.00	4,540	6.81	1,450
4	-	-	-	-	-	-	5.58	435	9.36	4,200	6.66	1,330
6	-	-	-	-	-	-	5.59	545	8.36	2,940	6.50	1,210
8	-	-	-	-	-	-	5.65	634	7.46	2,000	6.39	1,130
10	-	-	-	-	-	-	6.03	881	8.77	3,430	6.32	1,080
N	4.70	*110	4.69	*140	4.89	*240	6.40	1,140	8.62	3,240	6.30	1,070
2	-	-	-	-	-	-	7.90	2,440	8.48	3,080	6.29	1,060
4	-	-	-	-	-	-	8.96	3,680	8.37	2,950	6.24	1,030
6	-	-	-	-	6.03	-	9.90	4,900	8.11	2,660	6.13	951
8	-	-	-	-	-	-	10.66	5,890	7.77	2,310	6.00	860
10	-	-	-	-	-	-	10.52	5,710	7.36	1,910	5.89	784
M	-	-	-	-	5.67	286	10.06	4,900	7.08	1,660	5.80	725
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.72	675	5.28	440	5.76	700	9.81	4,780	11.25	6,900	6.37	1,890
4	5.64	628	5.25	426	5.72	675	9.38	4,220	12.25	8,120	6.36	1,880
6	5.56	583	5.20	403	5.67	646	8.76	3,420	12.83	8,880	6.23	1,780
8	5.50	550	5.15	382	5.64	628	8.25	2,820	12.24	8,110	6.18	1,750
10	5.46	529	5.14	377	5.64	628	7.94	2,480	11.24	6,890	6.16	1,730
N	5.42	508	5.13	373	5.71	669	8.02	2,560	10.04	5,450	6.19	1,750
2	5.41	503	5.19	399	5.92	804	8.32	2,890	9.04	4,340	6.14	1,720
4	5.42	508	5.55	578	6.09	923	8.80	3,470	8.09	3,390	6.03	1,640
6	5.44	519	5.93	811	6.09	923	9.37	4,210	7.70	3,030	5.91	1,560
8	5.44	519	6.03	881	6.41	1,150	9.44	4,780	7.33	2,700	5.79	1,470
10	5.39	493	5.97	839	7.55	2,090	9.62	4,980	6.91	2,320	5.62	1,350
M	5.34	469	5.86	764	10.05	5,100	10.15	5,580	6.60	2,070	5.51	1,290
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	4.44	679	-	-	-	-	-	-	-	-
4	5.24	1,120	4.54	730	5.08	1,030	-	-	-	-	-	-
6	-	-	5.00	980	-	-	4.11	528	3.79	407	3.78	403
8	5.02	992	6.50	1,990	4.86	903	-	-	-	-	-	-
10	-	-	6.96	2,360	-	-	-	-	-	-	-	-
N	4.83	886	6.49	1,980	4.66	804	3.99	480	3.71	379	3.71	379
2	-	-	6.14	1,720	-	-	-	-	-	-	-	-
4	4.70	815	5.93	1,570	4.53	725	-	-	-	-	-	-
6	-	-	5.71	1,420	-	-	3.93	457	3.66	363	3.65	360
8	4.60	761	5.57	1,320	4.39	654	-	-	-	-	-	-
10	-	-	5.40	1,220	-	-	-	-	-	-	-	-
M	4.49	704	5.32	1,170	4.28	602	3.86	432	3.66	363	3.60	343

Supplemental records.- Mar. 11, 8:30 p.m., 10.77 ft., 6,030 sec.-ft. Mar. 17, 12:30 a.m., 10.16 ft., 5,240 sec.-ft. Mar. 21, 9:30 a.m., 7.03 ft., 2,430 sec.-ft.
*Mean for the day.

Esopus Creek at Coldbrook, N. Y.

Location.- Lat. 42°0'50", long. 74°16'10", at highway bridge at Coldbrook, Ulster County, 1½ miles above Ashokan Reservoir.
Drainage area.- 192 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 10.
Maxima.- 1936: Discharge, 38,500 second-feet 2:30 a.m. Mar. 12 (gage height, 17.90 feet).
1914-35: Discharge, 55,000 second-feet Aug. 24, 1933 (gage height, 20.40 feet).
Remarks.- Water diverted from Schoharie Creek through Shandaken Tunnel enters Esopus Creek about 6 miles above this station. Mean monthly discharge corrected for diversions. For information of diversions see record for Schoharie Creek at Gilboa Dam. Records furnished by New York City Board of Water Supply.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	648	152	760	11	179	6,130	991	21	179	3,690	568
2	772	152	784	12	160	17,028	934	22	176	2,477	530
3	856	179	784	13	150	4,464	1,005	23	173	1,670	466
4	928	234	631	14	145	2,202	952	24	173	1,264	432
5	922	320	578	15	155	1,598	934	25	179	1,131	398
6	910	419	3,795	16	208	1,625	916	26	199	970	379
7	898	436	2,400	17	234	5,313	826	27	221	1,400	341
8	874	449	1,589	18	211	17,214	754	28	193	1,580	323
9	850	766	1,222	19	199	6,530	664	29	171	1,208	375
10	316	1,328	1,075	20	182	3,330	594	30		1,019	520
								31		880	
Mean monthly discharge, in second-feet (observed).....									395	2,812	884
Mean monthly discharge, in second-feet (corrected).....									198	2,718	874
Run-off, in inches (corrected).....									1.11	16.32	5.08

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2		-		-		-	6.91	1,870	17.90	38,500	9.85	6,450
4		-		-		-	7.06	2,026	17.05	33,250	9.50	5,750
6		-		-		-	7.25	2,235	15.80	27,000	9.32	5,408
8		-		-		-	7.46	2,466	14.75	22,000	9.11	5,009
10		-		-		-	7.78	2,902	13.70	17,860	8.90	4,632
N		*449		*766		*1,328	8.40	3,810	12.80	14,620	8.71	4,303
2		-		-		-	9.25	5,275	12.25	12,800	8.55	4,044
4		-		-		-	10.60	8,200	11.65	10,950	8.38	3,780
6		-		-		-	11.95	11,850	11.25	9,850	8.23	3,555
8		-		-		-	13.35	16,560	10.85	8,825	8.10	3,360
10		-		-		-	14.85	22,400	10.51	7,975	7.96	3,154
M		-		-		-	16.20	29,000	10.20	7,230	7.84	2,986
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.70	2,790	6.74	1,706	6.68	1,652	7.67	2,748	12.75	14,450	10.81	8,725
4	7.58	2,622	6.67	1,643	6.65	1,625	7.90	3,070	14.00	19,000	10.61	8,225
6	7.46	2,466	6.61	1,589	6.63	1,607	8.06	3,300	16.00	28,000	10.42	7,830
8	7.35	2,345	6.56	1,544	6.61	1,589	8.14	3,420	16.75	31,750	10.25	7,350
10	7.23	2,213	6.51	1,499	6.61	1,589	8.20	3,510	16.60	31,000	10.05	6,870
N	7.13	2,103	6.47	1,463	6.61	1,589	8.32	3,690	15.00	23,000	9.90	6,550
2	7.05	2,015	6.46	1,454	6.61	1,589	8.60	4,128	13.90	18,620	9.73	6,210
4	6.98	1,940	6.52	1,508	6.62	1,598	9.50	5,750	12.90	14,960	9.59	5,930
6	6.95	1,910	6.65	1,625	6.64	1,616	10.95	9,075	12.05	12,160	9.43	5,617
8	6.91	1,870	6.74	1,706	6.65	1,625	12.20	12,640	11.61	10,830	9.18	5,042
10	6.85	1,810	6.74	1,706	6.65	1,625	12.55	13,770	11.30	9,980	8.96	4,733
M	6.79	1,751	6.73	1,697	6.95	1,910	12.40	13,280	11.03	9,278	8.79	4,435
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.62	4,161	7.62	2,678	7.95	3,140	6.95	1,910	6.39	1,392	6.05	1,145
4	8.48	3,930	7.62	2,678	7.84	2,986	6.89	1,850	6.35	1,360	6.05	1,145
6	8.35	3,735	8.05	3,285	7.74	2,846	6.84	1,800	6.31	1,328	6.06	1,152
8	8.23	3,555	8.65	4,212	7.64	2,706	6.79	1,751	6.27	1,299	6.07	1,159
10	8.12	3,390	8.93	4,682	7.55	2,580	6.74	1,706	6.24	1,278	6.08	1,166
N	8.02	3,240	8.85	4,548	7.45	2,455	6.69	1,661	6.20	1,250	6.08	1,166
2	7.94	3,126	8.73	4,346	7.35	2,345	6.64	1,616	6.18	1,236	6.07	1,159
4	7.85	3,000	8.63	4,178	7.27	2,257	6.60	1,580	6.15	1,215	6.04	1,138
6	7.78	2,902	8.44	3,870	7.19	2,169	6.56	1,544	6.12	1,194	6.01	1,117
8	7.71	2,804	8.30	3,660	7.12	2,092	6.52	1,508	6.09	1,173	5.98	1,096
10	7.67	2,748	8.18	3,480	7.06	2,026	6.47	1,463	6.07	1,159	5.95	1,075
M	7.64	2,706	8.08	3,330	7.00	1,960	6.44	1,436	6.05	1,145	5.92	1,054

Supplemental records.- Mar. 12, 2:30 a.m., 17.90 ft., 38,500 sec.-ft. Mar. 18, 9 a.m., 16.80 ft., 32,000 sec.-ft.
*Mean for the day.

Rondout Creek near Lackawack, N. Y.

Location.- Lat. 41°46'30", long. 74°24'10", a quarter of a mile below highway bridge 2½ miles southeast of Lackawack, Ulster County.
Drainage area.- 100 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11.
Maxima.- 1936: Discharge, 9,600 second-feet 8 a.m. Mar. 18 (gage height, 9.15 feet).
1906-35: Discharge, 26,715 second-feet Aug. 26, 1928.
Remarks.- Flood run-off not affected by storage or diversion. Records furnished by New York City Board of Water Supply.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	155	185	482	11	129	925	611	21	129	2,004	421
2	150	194	533	12	125	5,856	587	22	125	1,261	400
3	146	203	593	13	125	2,270	689	23	129	823	369
4	142	217	454	14	117	1,177	791	24	138	659	338
5	142	226	405	15	113	918	714	25	142	611	308
6	138	236	2,380	16	129	981	671	26	146	499	279
7	138	245	1,486	17	142	2,052	617	27	150	1,093	255
8	134	260	1,016	18	172	5,791	605	28	159	1,289	231
9	134	279	721	19	142	3,342	505	29	176	836	212
10	134	298	617	20	134	2,105	460	30		665	221
								31		563	
Mean monthly discharge, in second-feet									139	1,228	599
Run-off, in inches									1.50	14.16	6.68

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	1.66	-	8.53	8,545	4.45	3,200
4	-	-	-	-	-	-	1.65	-	8.30	8,200	4.18	2,930
6	-	-	-	-	-	-	1.66	-	8.12	7,930	4.10	2,850
8	-	-	-	-	-	-	1.74	-	7.60	7,150	3.85	2,600
10	-	-	-	-	-	-	2.00	-	6.80	6,090	3.62	2,370
N	-	*260	-	*279	-	*288	2.45	*925	6.15	5,245	3.41	2,160
2	-	-	-	-	-	-	3.20	-	5.75	4,725	3.25	2,020
4	-	-	-	-	-	-	4.05	-	5.51	4,413	3.12	1,916
6	-	-	-	-	-	-	5.10	-	5.37	4,250	2.98	1,816
8	-	-	-	-	-	-	6.70	-	5.34	4,216	2.85	1,725
10	-	-	-	-	-	-	7.75	-	5.20	4,055	2.74	1,636
M	-	-	-	-	-	-	8.57	-	4.93	3,744	2.63	1,537
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.52	1,446	1.80	925	1.95	1,030	2.03	1,086	5.60	4,530	4.43	3,180
4	2.43	1,374	1.77	904	1.92	1,009	2.22	1,219	6.50	5,700	5.10	3,940
6	2.35	1,310	1.74	883	1.90	995	2.36	1,318	8.00	7,750	5.15	3,998
8	2.31	1,282	1.70	855	1.88	981	2.46	1,398	9.15	9,600	4.90	3,710
10	2.19	1,198	1.67	836	1.87	974	2.45	1,390	8.65	8,725	4.66	3,434
N	2.12	1,149	1.65	823	1.88	981	2.45	1,390	7.90	7,600	4.55	3,308
2	2.06	1,107	1.66	829	1.85	960	2.52	1,446	7.05	6,415	4.50	3,250
4	2.00	1,065	1.75	890	1.85	960	2.75	1,645	6.15	5,245	4.41	3,160
6	1.95	1,030	1.87	974	1.85	960	4.10	2,850	5.55	4,465	4.30	3,050
8	1.93	1,016	1.97	1,044	1.86	967	5.15	3,998	5.08	3,917	4.15	2,900
10	1.89	988	2.00	1,065	1.86	967	5.45	4,343	4.74	3,526	4.09	2,840
M	1.84	953	2.00	1,065	1.88	981	5.43	4,319	4.50	3,250	4.00	2,750
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.90	2,650	2.80	1,690	2.75	1,645	1.85	960	1.48	714	1.40	665
4	3.78	2,530	2.75	1,645	2.63	1,537	1.81	932	1.46	701	1.40	665
6	3.64	2,390	2.75	1,645	2.51	1,438	1.76	897	1.44	689	1.38	653
8	3.50	2,250	2.97	1,809	2.41	1,358	1.71	862	1.42	677	1.35	635
10	3.40	2,150	3.75	2,500	2.33	1,296	1.67	836	1.40	665	1.33	623
N	3.28	2,044	3.88	2,630	2.25	1,240	1.63	810	1.38	653	1.31	611
2	3.21	1,988	3.73	2,480	2.17	1,184	1.61	797	1.37	647	1.28	593
4	3.15	1,940	3.57	2,320	2.08	1,121	1.59	785	1.35	635	1.26	581
6	3.05	1,865	3.44	2,190	2.04	1,093	1.56	765	1.33	623	1.24	569
8	2.99	1,823	3.20	1,980	1.97	1,044	1.55	759	1.33	623	1.23	563
10	2.92	1,774	3.03	1,851	1.93	1,016	1.53	746	1.33	623	1.22	557
M	2.86	1,732	2.88	1,746	1.90	995	1.51	733	1.36	641	1.21	551

*Mean for the day.

Rondout Creek at Rosendale, N. Y.

Location.- Lat. 41°50'35", long. 74°5'10", 150 feet above highway bridge in Rosendale, Ulster County.
Drainage area.- 386 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 14,600 second-feet; extended to peak stage logarithmically.
Maxima.- 1936: Discharge, 21,100 second-feet 10:30 a.m. Mar. 12 (gage height 18.21 feet).
1901-03, 1906-13, 1926-35: Discharge, 27,300 second-feet Aug. 27, 1928 (gage height, 21.9 feet).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	320	550	1,260	11	280	7,000	1,920	21	300	5,450	950
2	320	460	1,250	12	280	19,000	1,820	22	300	4,450	917
3	320	440	1,630	13	280	9,730	2,280	23	300	2,830	790
4	300	420	1,320	14	280	4,550	2,520	24	300	2,130	672
5	300	600	1,080	15	300	3,400	2,200	25	320	1,870	618
6	300	550	5,020	16	320	3,540	1,970	26	380	1,580	550
7	300	460	4,440	17	360	4,580	1,610	27	700	1,960	580
8	300	400	2,900	18	400	13,600	1,260	28	600	3,800	520
9	280	380	1,960	19	380	11,200	1,120	29	700	2,520	490
10	280	1,300	1,970	20	320	6,140	1,030	30		1,960	495
								31		1,610	
Mean monthly discharge, in second-feet									356	3,821	1,571
Run-off, in inches									.99	11.41	4.54

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	7.20	-	16.40	18,100	13.99	14,300
4	-	-	-	-	5.01	-	7.58	3,360	16.97	19,100	13.30	13,200
6	-	-	-	-	-	-	8.09	-	17.43	19,800	12.59	12,200
8	-	-	-	-	5.13	1,020	8.10	4,190	17.83	20,400	11.82	11,000
10	-	-	-	-	-	-	8.37	-	18.15	21,000	11.03	9,840
N	4.46	*360	4.53	*480	5.20	-	8.45	5,290	18.02	20,700	10.42	8,930
2	-	-	-	-	-	-	8.70	-	17.70	20,200	9.99	8,280
4	-	-	-	-	5.44	1,440	10.12	6,490	17.25	19,500	9.60	7,700
6	-	-	-	-	-	-	13.35	-	16.68	18,600	9.29	7,240
8	-	-	-	-	6.07	-	12.63	12,200	16.02	17,500	9.01	6,840
10	-	-	-	-	-	-	14.59	-	15.30	16,400	8.72	6,440
M	-	-	-	-	6.92	2,340	15.36	16,500	14.64	15,300	8.45	6,060
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	10.18	8,570	13.92	14,200
4	7.90	5,330	6.45	3,600	6.61	3,770	6.64	3,800	10.66	9,290	13.05	12,900
6	-	-	-	-	-	-	-	-	11.30	10,200	12.40	11,900
8	7.43	4,730	6.23	3,350	6.45	3,600	6.81	3,990	12.17	11,600	12.03	11,300
10	-	-	-	-	-	-	-	-	13.27	13,200	11.90	11,200
N	7.06	4,280	6.04	3,160	6.30	3,430	7.01	4,220	14.20	14,600	11.85	11,100
2	-	-	-	-	-	-	-	-	15.00	15,900	11.69	10,800
4	6.84	4,020	6.05	3,170	6.26	3,390	7.21	4,460	15.46	16,600	11.40	10,400
6	-	-	-	-	-	-	7.49	4,800	15.76	17,100	11.04	9,860
8	6.74	3,910	6.23	3,350	6.33	3,460	8.00	5,460	15.76	17,100	10.74	9,410
10	-	-	-	-	-	-	8.77	6,510	15.45	16,600	10.44	8,960
M	6.64	3,800	6.54	3,690	6.44	3,580	9.56	7,640	14.82	15,600	10.14	8,510
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	9.59	7,680	6.92	4,110	7.91	5,340	-	-	-	-	-	-
6	-	-	-	-	-	-	5.93	3,050	5.14	2,270	4.69	1,660
8	8.96	6,770	7.07	4,290	7.46	4,760	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	8.37	5,950	8.07	5,550	7.09	4,320	5.72	2,840	5.02	2,160	4.76	1,920
2	-	-	-	-	-	-	-	-	-	-	-	-
4	7.86	5,280	8.94	6,740	6.76	3,940	-	-	-	-	-	-
6	-	-	-	-	-	-	5.46	2,580	4.83	1,990	4.70	1,870
8	7.49	4,800	8.90	6,690	6.47	3,620	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	7.14	4,380	8.45	6,060	6.20	3,320	5.28	2,410	4.73	1,900	4.56	1,750

Supplemental records.- Mar. 11, 6:30 p.m., 14.98 ft. Mar. 12, 10:30 a.m., 18.21 ft., 21,100 sec.-ft. Mar. 15, 2:30 p.m., 6.02 ft., 3,140 sec-ft. Mar. 16, 2:30 a.m., 6.63 ft., 3,790 sec.-ft.; 3:30 p.m., 6.26 ft., 3,390 sec.-ft. Mar. 18, 6:30 p.m., 15.82 ft., 17,200 sec.-ft. Mar. 21, 5 a.m., 6.89 ft., 4,080 sec.-ft. Mar. 21, 5:30 p.m., 9.02 ft., 6,860 sec.-ft.

*Mean for the day.

Wallkill River at Pellets Island Mountain, N. Y.

Location.- Lat. 41°22'50", long. 74°24'50", at highway bridge at Pellets Island Mountain, Orange County, 4½ miles south of Middletown.
Drainage area.- 385 square miles.
Gage-height record.- Graph based on twice-daily gage readings and occasional additional readings during flood periods.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 8,970 second-feet; extended logarithmically based on comparison with discharge record at Phillipsburg.
Maxima.- 1936: Discharge, 12,400 second-feet 1 a.m. Mar. 14 (gage height, 15.0 feet, from graph based on gage readings).
1919-35: Discharge, 8,350 second-feet Mar. 16, 1920 (gage height, 20.7 feet, former datum).
Remarks.- Discharge not affected by artificial storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	340	600	1,420	11	240	1,300	1,970	21	300	6,320	990
2	320	550	1,320	12	240	5,910	1,900	22	300	5,500	950
3	300	500	1,270	13	220	9,630	1,840	23	280	4,650	870
4	280	480	1,220	14	220	9,820	1,900	24	280	3,620	750
5	280	500	1,120	15	220	7,060	1,780	25	260	2,770	640
6	260	550	1,690	16	240	5,300	1,660	26	280	2,280	550
7	260	550	2,320	17	260	4,550	1,480	27	400	2,000	490
8	260	500	2,320	18	280	4,830	1,320	28	460	2,030	460
9	240	480	2,320	19	300	6,140	1,170	29	550	1,920	420
10	240	600	2,180	20	300	6,830	1,070	30		1,730	400
								31		1,640	
Mean monthly discharge, in second-feet									290	3,263	1,326
Run-off, in inches									0.81	9.78	3.84

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	7.90	4,010	12.06	8,170
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	5.18	-	6.18	-	8.48	4,710	12.13	8,260
10	-	-	-	-	-	-	-	-	-	-	-	-
N	5.09	*500	5.05	*480	-	*600	-	*1,300	10.00	5,980	13.13	9,560
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	5.45	-	7.10	-	11.00	6,930	14.40	11,400
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	12.00	8,090	14.50	11,600
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	5.80	-	7.65	-	12.20	8,350	14.75	12,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	14.40	11,400	11.85	7,900	9.70	5,710	8.56	4,780	8.32	4,590	9.59	5,610
6	-	-	-	-	-	-	-	-	-	-	-	-
8	13.00	9,390	11.50	7,470	9.48	5,510	8.33	4,590	8.46	4,700	9.93	5,920
10	-	-	-	-	-	-	-	-	-	-	-	-
N	12.70	9,000	11.10	7,030	9.32	5,390	8.15	4,450	8.59	4,800	10.18	6,140
2	-	-	-	-	-	-	-	-	-	-	-	-
4	12.98	9,360	10.72	6,650	9.17	5,270	8.08	4,390	8.69	4,890	10.50	6,430
6	-	-	-	-	-	-	-	-	-	-	-	-
8	12.77	9,090	10.38	6,320	8.98	5,110	8.13	4,430	8.93	5,070	10.73	6,660
10	-	-	-	-	-	-	-	-	-	-	-	-
M	12.20	8,350	10.03	6,010	8.78	4,950	8.21	4,500	9.25	5,330	10.90	6,830
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	11.01	6,940	10.60	6,530	9.84	5,840	8.90	4,970	7.53	3,950	6.25	3,000
6	-	-	-	-	-	-	-	-	-	-	-	-
8	11.06	6,990	10.50	6,430	9.68	5,690	8.64	4,840	7.34	3,800	6.05	2,860
10	-	-	-	-	-	-	-	-	-	-	-	-
N	10.92	6,850	10.41	6,350	9.47	5,510	8.40	4,650	7.10	3,610	5.87	2,750
2	-	-	-	-	-	-	-	-	-	-	-	-
4	10.86	6,790	10.28	6,230	9.21	5,300	8.20	4,490	6.88	3,450	5.70	2,650
6	-	-	-	-	-	-	-	-	-	-	-	-
8	10.77	6,700	10.13	6,100	9.00	5,130	7.96	4,300	6.66	3,290	5.57	2,570
10	-	-	-	-	-	-	-	-	-	-	-	-
M	10.69	6,620	10.00	5,980	8.91	5,060	7.76	4,140	6.47	3,160	5.43	2,490

Supplemental records.- Mar. 13, 6 p.m., 14.85 ft., 12,100 sec.-ft. Mar. 14, 1 a.m., 15.0 ft., 12,400 sec.-ft. Mar. 14, 10 a.m., 12.60 ft., 8,870 sec.-ft.
*Mean for the day.

Wallkill River at Gardiner, N. Y.

Location.- Lat. 41°41'10", long. 74°9'55", at highway bridge 500 feet below mouth of Shawangunk Kill and three-quarters of a mile northwest of Gardiner, Ulster County.
Drainage area.- 711 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 1-15 and 3 p.m. Mar. 21 to 11 a.m. Mar. 28.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 15. Defined by current-meter measurements below 11,200 second-feet; extended to peak stage logarithmically.
Maxima.- 1936: Discharge, 18,000 second-feet 6:45 a.m. Mar. 12 (gage height, 15.16 feet); maximum gage height, 16.42 feet 1:30 a.m. Mar. 12 (backwater from ice).
1924-35: Discharge, 12,900 second-feet Sept. 2, 1927 (gage height, 12.6 feet).
Remarks.- Flood discharge not affected by storage or diversion. Mean daily discharges for period Mar. 21-28 computed on basis of comparative studies of stations on the Wallkill River at Pellets Island Mountain and Wappinger Creek near Wappinger Falls.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	600	1,100	2,050	11	400	6,000	3,400	21	440	10,000	1,380
2	550	1,000	1,940	12	380	17,000	3,330	22	420	9,000	1,280
3	550	900	2,150	13	380	16,000	3,760	23	400	8,000	1,170
4	500	850	1,800	14	360	14,000	3,850	24	400	6,500	1,050
5	500	1,000	1,520	15	360	11,000	3,330	25	400	5,000	908
6	480	1,100	4,890	16	380	8,900	2,930	26	420	4,200	814
7	460	950	4,900	17	400	8,090	2,370	27	700	4,000	730
8	440	800	3,970	18	440	11,100	2,000	28	850	5,160	670
9	420	850	3,410	19	500	11,300	1,740	29	1,000	3,580	639
10	400	1,800	3,730	20	480	9,790	1,540	30		2,930	592
								31		2,450	
Mean monthly discharge, in second-feet									483	5,947	2,261
Run-off, in inches									0.73	9.64	3.55

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	14.31	16,600	14.88	17,500
4	-	-	-	-	6.87	-	9.99	-	14.71	17,300	14.83	17,500
6	-	-	-	-	-	-	-	-	15.13	18,000	14.73	17,300
8	-	-	-	-	6.93	-	10.29	-	15.08	17,900	14.62	17,100
10	-	-	-	-	-	-	-	-	15.01	17,800	14.42	16,800
N	6.66	*800	6.78	*850	7.10	*1,800	10.71	*6,000	14.98	17,700	14.35	16,600
2	-	-	-	-	-	-	-	-	15.38	17,600	14.17	16,300
4	-	-	-	-	7.46	-	11.46	-	15.14	17,500	14.26	16,200
6	-	-	-	-	-	-	-	-	14.84	17,500	14.38	16,000
8	-	-	-	-	8.90	-	14.35	-	14.93	17,600	14.31	15,800
10	-	-	-	-	-	-	-	-	14.85	17,500	14.39	15,500
M	-	-	-	-	9.41	-	15.96	-	14.94	17,600	14.34	15,300
	March 14		March 15		March 16		March 17		March 18		March 19	
2	14.32	-	14.30	-	10.17	10,000	8.95	8,180	9.21	8,560	11.03	11,300
4	14.28	14,900	14.27	12,400	10.01	9,760	8.96	8,190	9.52	9,030	11.03	11,300
6	14.21	-	14.31	-	9.81	9,460	8.94	8,160	10.25	10,100	10.98	11,200
8	14.18	14,500	14.32	12,100	9.61	9,160	8.87	8,060	10.80	11,000	10.95	11,200
10	14.06	-	14.28	-	9.45	8,920	8.83	8,000	11.18	11,500	11.08	11,400
N	14.01	14,100	14.21	11,900	9.30	8,700	8.79	7,940	11.50	12,000	11.18	11,500
2	14.21	-	13.80	-	9.20	8,550	8.78	7,920	11.66	12,300	11.18	11,500
4	13.71	13,400	11.90	11,200	9.13	8,440	8.81	7,960	11.78	12,500	11.17	11,500
6	14.34	-	10.90	-	9.07	8,360	8.84	8,010	11.73	12,400	11.06	11,300
8	14.28	13,100	10.67	10,800	9.02	8,280	8.91	8,120	11.50	12,000	10.91	11,100
10	14.25	-	10.51	-	8.95	8,180	9.07	8,360	11.21	11,600	10.78	10,900
M	14.31	12,800	10.33	10,200	8.92	8,130	9.11	8,420	11.05	11,300	10.64	10,700
	March 20		March 21		March 22		March 23		March 24		March 25	
2	10.51	10,500	9.49	8,980	-	-	-	-	-	-	-	-
4	10.39	10,300	9.45	8,920	-	-	-	-	-	-	-	-
6	10.25	10,100	9.49	8,980	-	-	-	-	-	-	-	-
8	10.17	10,000	9.66	9,240	-	-	-	-	-	-	-	-
10	10.08	9,870	9.90	9,600	-	-	-	-	-	-	-	-
N	9.99	9,740	10.06	9,840	-	*9,000	-	*8,000	-	*6,500	-	*5,000
2	9.91	9,620	10.26	10,100	-	-	-	-	-	-	-	-
4	9.83	9,500	-	-	-	-	-	-	-	-	-	-
6	9.75	9,380	-	*10,000	-	-	-	-	-	-	-	-
8	9.69	9,280	-	-	-	-	-	-	-	-	-	-
10	9.62	9,180	-	-	-	-	-	-	-	-	-	-
M	9.57	9,100	-	-	-	-	-	-	-	-	-	-

Supplemental records.- Mar. 11, 7:30 p.m., 15.36 ft. Mar. 12, 1:30 a.m., 16.42 ft.; 6:45 a.m., 15.16 ft., 18,000 sec.-ft.; 1:45 p.m., 15.38 ft. Mar. 14, 1:30 p.m., 14.69 ft.

*Mean for the day.

Wappinger Creek near Wappinger Falls, N. Y.

Location.- Lat. 41°39'5", long. 73°52'20", 4½ miles northeast of Wappinger Falls, Dutchess County.
Drainage area.- 182 square miles.
Gage-height record.- Water-stage recorder graph except Feb. 13, 14, when float was frozen in.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 2,850 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 6,880 second-feet 12:10 p.m. Mar. 12 (gage height, 12.13 feet).
1928-35: Discharge, 5,950 second-feet Mar. 5, 1934 (gage height, 11.20 feet); maximum gage height, 11.78 feet (backwater from ice) Mar. 5, 1934.
Remarks.- Flood run-off not materially affected by storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	80	240	535	11	65	1,600	660	21	85	1,610	360
2	80	220	515	12	65	5,700	630	22	75	1,420	389
3	75	200	620	13	65	3,960	585	23	70	1,060	337
4	75	200	525	14	60	2,310	641	24	65	900	304
5	75	320	442	15	65	1,620	590	25	70	870	273
6	70	280	832	16	70	1,320	550	26	100	738	256
7	70	220	1,100	17	80	1,190	486	27	180	690	240
8	70	180	921	18	90	1,900	446	28	300	964	224
9	70	190	722	19	110	2,780	419	29	300	810	218
10	65	380	712	20	100	1,890	385	30		680	218
								31		605	
Mean monthly discharge, in second-feet									94.7	1,195	504
Run-off, in inches									0.56	7.57	3.09

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	[illegible]	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	6.38	670	9.10	3,920	10.08	4,830
4	-	-	-	-	-	-	6.35	782	9.90	4,650	9.88	4,630
6	-	-	-	-	-	-	6.32	906	10.52	5,270	9.70	4,460
8	-	-	-	-	-	-	6.34	1,060	11.20	5,950	9.56	4,330
10	-	-	-	-	-	-	6.39	1,240	11.79	6,540	9.44	4,230
N	4.67	*180	4.74	*190	5.01	*380	6.41	1,390	12.08	6,830	9.24	4,050
2	-	-	-	-	-	-	6.50	1,600	12.04	6,790	9.00	3,830
4	-	-	-	-	5.12	-	6.78	1,810	11.80	6,550	8.78	3,630
6	-	-	-	-	-	-	7.05	2,120	11.54	6,290	8.52	3,400
8	-	-	-	-	5.41	-	7.40	2,440	11.10	5,850	8.34	3,240
10	-	-	-	-	-	-	8.00	2,930	10.70	5,450	8.16	3,070
M	-	-	-	-	6.00	580	8.30	3,200	10.35	5,100	8.00	2,930
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.87	2,820	6.63	1,830	6.05	1,420	5.77	1,230	5.69	1,170	8.30	3,200
4	7.72	2,700	6.58	1,800	6.02	1,400	5.75	1,220	5.71	1,190	8.24	3,150
6	7.60	2,600	6.51	1,750	6.00	1,390	5.74	1,210	5.80	1,250	8.15	3,060
8	7.46	2,490	6.44	1,700	5.98	1,380	5.74	1,210	5.95	1,360	8.01	2,940
10	7.33	2,380	6.38	1,660	5.95	1,360	5.73	1,200	6.20	1,530	7.90	2,840
N	7.20	2,280	6.30	1,600	5.92	1,330	5.72	1,190	6.50	1,740	7.80	2,760
2	7.08	2,180	6.26	1,570	5.88	1,310	5.70	1,180	6.81	1,970	7.70	2,680
4	6.98	2,100	6.20	1,530	5.87	1,300	5.69	1,170	7.10	2,200	7.62	2,620
6	6.87	2,020	6.16	1,500	5.84	1,280	5.69	1,170	7.40	2,440	7.54	2,550
8	6.79	1,950	6.12	1,470	5.80	1,250	5.68	1,170	7.75	2,720	7.44	2,470
10	6.74	1,910	6.10	1,460	5.79	1,240	5.66	1,150	8.01	2,940	7.36	2,410
M	6.68	1,870	6.07	1,440	5.77	1,230	5.68	1,170	8.21	3,120	7.26	2,330
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.15	2,240	6.19	1,520	-	-	-	-	-	-	-	-
4	7.04	2,150	6.15	1,500	-	-	-	-	-	-	-	-
6	6.94	2,070	6.16	1,500	6.19	1,520	5.58	1,100	5.29	924	5.19	864
8	6.85	2,000	6.18	1,520	-	-	-	-	-	-	-	-
10	6.77	1,940	6.20	1,530	-	-	-	-	-	-	-	-
N	6.69	1,870	6.26	1,570	6.01	1,400	5.49	1,040	5.24	894	5.24	894
2	6.60	1,810	6.30	1,600	-	-	-	-	-	-	-	-
4	6.53	1,760	6.40	1,670	-	-	-	-	-	-	-	-
6	6.44	1,700	6.44	1,700	5.88	1,310	5.42	1,000	5.19	864	5.19	864
8	6.38	1,660	6.49	1,730	-	-	-	-	-	-	-	-
10	6.30	1,600	6.48	1,730	-	-	-	-	-	-	-	-
M	6.24	1,560	6.41	1,680	5.71	1,190	5.36	966	5.18	858	5.10	810

Supplemental records.- Mar. 12, 12.10 p.m., 12.13 ft., 6,880 sec.-ft.
*Mean for the day.

Oradell Reservoir at Oradell, N. J.

Location.- Lat. 40°57'24", long. 74°1'43", at Oradell Dam, Oradell, Bergen County. Zero of gage is at mean sea level.
Drainage area.- 113 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights shown in table are 8 a.m. readings.
Remarks.- Storage capacity 381,000,000 cubic feet. Records furnished by Hackensack Water Co.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	21.92	360	18.58	272	22.00	362
2	21.87	359	18.62	273	22.00	362
3	21.80	357	18.66	274	22.19	367
4	21.74	355	18.62	273	22.10	365
5	21.69	353	18.79	276	22.08	364
6	21.64	352	18.60	272	22.28	370
7	21.57	350	18.50	270	22.18	367
8	21.54	349	18.52	270	22.07	364
9	21.58	350	18.86	278	22.01	362
10	21.65	352	19.39	292	22.17	367
11	21.68	353	19.26	288	22.14	366
12	21.71	354	20.42	319	22.08	364
13	21.74	355	21.37	345	22.10	365
14	21.68	353	19.60	297	22.26	369
15	21.26	342	18.55	271	22.33	371
16	20.30	316	18.53	270	22.34	372
17	19.33	290	18.54	271	22.28	370
18	18.61	272	18.68	274	22.33	371
19	18.61	272	18.69	274	22.34	372
20	18.56	271	18.51	270	22.41	374
21	18.53	270	18.59	272	22.43	374
22	18.53	270	18.50	270	22.42	374
23	18.50	270	18.54	271	22.39	373
24	18.52	270	19.97	307	22.50	376
25	18.56	271	21.18	340	22.63	380
26	18.53	270	21.34	344	22.66	381
27	18.54	271	21.83	357	22.64	380
28	18.53	270	21.90	359	22.59	379
29	18.60	272	22.00	362	22.71	382
30			21.98	361	22.68	382
31			22.00	362		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-88	+90	+19
Gain or loss in storage, in equivalent mean second-feet...	-35.1	+33.6	+7.33

Hackensack River at New Milford, N. J.

Location.- Lat. 40°56'52", long. 74°1'34", at pumping plant of Hackensack Water Co., New Milford, Bergen County, 3½ miles below mouth of Dwars Kill. Zero of gage is 6.25 feet above mean sea level.
Drainage area.- 113 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 2,800 second-feet.
Maxima.- 1936: Discharge, 2,800 second-feet 10 p.m. Mar. 12 to 2 a.m. Mar 13 (gage height, 5.08 feet).
1921-35: Discharge, about 2,500 second-feet Sept. 2, 1927, and July 6, 1928; maximum gage height, 4.58 feet Sept. 2, 1927.
Remarks.- Run-off affected by storage and diversions. Mean monthly discharge corrected for diversions and storage in Woodcliff Lake and Oradell Reservoir. Mean monthly diversions at West Nyack, N. Y.: February, 0.9 second-foot; March, 0.9 second-foot; April, 0.9 second-foot. Mean monthly diversions at New Milford, N. J.: February, 54.0 second-feet; March, 52.6 second-feet; April, 49.0 second-feet. For daily changes in storage see records for Woodcliff Lake at Hillsdale, N. J. and Oradell Reservoir at Oradell, N. J. Records of diversions and storage and part of equipment furnished by Hackensack Water Co.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	35	158	248	11	14.2	1,060	580	21	56	1,150	199
2	41	172	195	12	15.6	2,270	507	22	43	872	195
3	41	209	322	13	42	2,610	444	23	33	319	141
4	48	224	298	14	166	1,900	444	24	28	43	104
5	50	284	204	15	303	1,080	413	25	45	227	108
6	50	284	982	16	314	680	366	26	71	241	150
7	37	224	1,160	17	298	491	310	27	115	292	141
8	19.4	152	810	18	82	871	253	28	133	430	89
9	10.5	78	540	19	96	1,320	209	29	137	425	102
10	8.8	390	553	20	78	1,110	199	30		338	129
								31		263	
Mean monthly discharge, in second-feet (observed).....									83.1	651	346
Mean monthly discharge, in second-feet (corrected).....									99.7	741	403
Run-off, in inches (corrected).....									0.95	7.56	3.98

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.70	204	1.40	78	1.41	81	1.95	332	3.89	1,820	5.08	2,800
4	1.70	204	1.41	81	1.41	81	2.14	444	3.91	1,840	5.07	2,800
6	1.70	204	1.41	81	1.41	81	2.20	481	3.93	1,860	5.06	2,790
8	1.69	199	1.38	71	1.39	74	2.18	469	3.95	1,880	5.00	2,740
10	1.69	199	1.38	71	2.74	863	3.00	1,070	4.41	2,270	4.96	2,710
N	1.68	195	1.38	71	2.74	863	3.02	1,090	4.46	2,310	4.94	2,690
2	1.68	195	1.39	74	2.57	735	3.50	1,490	4.64	2,450	4.93	2,680
4	1.38	71	1.40	78	2.52	699	3.66	1,630	4.67	2,480	4.91	2,670
6	1.38	71	1.39	74	1.95	332	3.65	1,620	5.00	2,740	4.48	2,320
8	1.38	71	1.39	74	1.95	332	3.65	1,620	5.02	2,760	4.39	2,250
10	1.38	71	1.39	74	1.94	327	3.68	1,640	5.07	2,800	4.37	2,230
M	1.38	71	1.39	74	1.94	327	3.85	1,790	5.08	2,800	4.36	2,220
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.35	2,220	3.35	1,360	2.63	790	2.33	566	2.33	566	3.22	1,260
4	4.34	2,210	3.34	1,360	2.62	772	2.33	566	2.45	649	3.25	1,280
6	4.33	2,110	3.33	1,350	2.62	772	2.33	566	2.51	691	3.25	1,280
8	4.31	2,160	3.32	1,350	2.61	764	2.32	560	2.68	817	3.25	1,280
10	4.28	2,150	3.07	1,130	2.43	635	2.31	553	2.73	855	3.39	1,400
N	4.23	2,110	2.76	879	2.43	635	2.13	438	2.73	855	3.39	1,400
2	4.21	2,100	2.76	879	2.43	635	2.13	438	2.92	1,010	3.39	1,400
4	3.50	1,490	2.77	887	2.43	635	2.11	425	2.93	1,010	3.35	1,360
6	3.34	1,360	2.77	887	2.44	642	2.12	431	2.93	1,010	3.30	1,320
8	3.34	1,360	2.77	887	2.43	635	2.11	425	2.98	1,050	3.30	1,320
10	3.34	1,360	2.77	887	2.33	566	2.18	469	3.03	1,090	3.30	1,320
M	3.35	1,360	2.77	887	2.33	566	2.20	481	3.19	1,230	3.31	1,330
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.24	1,270	2.97	1,050	3.07	1,130	2.44	642	1.30	48	1.30	48
4	3.24	1,270	3.03	1,090	2.91	998	2.44	642	1.30	48	1.31	50
6	3.15	1,200	3.05	1,110	2.73	855	2.43	635	1.29	45	1.30	48
8	3.15	1,200	3.18	1,220	2.74	863	2.42	628	1.28	43	1.28	43
10	3.08	1,130	3.23	1,260	2.74	863	2.19	475	1.27	41	1.80	253
N	3.09	1,140	3.20	1,240	2.73	855	1.70	204	1.27	41	1.98	349
2	2.97	1,050	3.19	1,230	2.73	855	1.27	41	1.27	41	1.98	349
4	2.95	1,030	3.20	1,240	2.73	855	1.26	38	1.27	41	1.98	349
6	2.91	998	3.10	1,150	2.63	780	1.26	38	1.28	43	1.98	349
8	2.91	998	3.07	1,130	2.63	780	1.26	38	1.28	43	1.98	349
10	2.92	1,010	3.06	1,120	2.45	649	1.26	38	1.29	45	1.98	349
M	2.96	1,040	3.07	1,130	2.44	642	1.28	43	1.30	48	1.99	354

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Woodcliff Lake at Hillsdale, N. J.

Location.- Lat. 41°0'42", long. 74°2'55", at Woodcliff Lake Dam, at Hillsdale, Bergen County. Zero of gage is at mean sea level.
Drainage area.- 20.2 square miles.
Gage-height record.- Gage read twice daily to hundredths. Gage heights shown in table are 8 a.m. readings.
Remarks.- Storage capacity 112,000,000 cubic feet. Records furnished by Hackensack Water Co.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	94.53	113	93.43	105	94.73	114
2	94.53	113	93.43	105	94.73	114
3	94.53	113	93.43	105	94.83	115
4	94.53	113	93.53	106	94.73	114
5	94.53	113	93.63	106	94.73	114
6	94.53	113	93.93	109	95.23	118
7	94.53	113	93.93	109	95.33	119
8	94.53	113	93.93	109	94.93	116
9	94.53	113	93.93	109	94.83	115
10	94.53	113	94.03	109	94.93	116
11	94.53	113	94.83	115	94.93	116
12	94.53	113	96.73	129	94.93	116
13	94.53	113	95.43	120	94.83	115
14	94.53	113	94.98	116	94.93	116
15	94.53	113	94.88	116	94.83	115
16	94.53	113	94.83	115	94.83	115
17	94.53	113	94.78	115	94.83	115
18	94.33	112	95.03	117	94.73	114
19	94.23	111	95.43	120	94.73	114
20	94.03	109	95.13	117	94.73	114
21	93.93	109	95.13	117	94.73	114
22	93.73	107	95.13	117	94.73	114
23	93.53	106	94.83	115	94.73	114
24	93.33	105	94.73	114	94.73	114
25	93.13	103	94.73	114	94.63	114
26	93.03	102	94.73	114	94.63	114
27	93.03	102	94.73	114	94.63	114
28	93.23	104	95.03	117	94.63	114
29	93.33	105	94.93	116	94.63	114
30			94.83	115	94.63	114
31			94.73	114		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-8	+9	0
Gain or loss in storage, in equivalent mean second-feet..	-3.19	+3.36	0

Pascack Brook at Westwood, N. J.

Location.- Lat. 40°59'33", long. 74°1'19", 75 feet above Sand Road, Westwood, Bergen County, 500 feet below Musquapsink Creek. Zero of gage is 28.62 feet above mean sea level.
Drainage area.- 29.6 square miles; 20.2 square miles affected by storage in Woodcliff Lake.
Gage-height record.- Water-stage recorder graph, except for period 9 p.m. Mar. 11 to 10 a.m. Mar. 13, when graph was based on flood mark and shape of graphs at nearby stations.
Stage-discharge relation.- Defined by current-meter measurements below 500 second-feet; extended to peak stage by study of run-off of nearby streams.
Maxima.- 1936: Discharge, 1,190 second-feet 9 to 10 a.m. Mar. 12 (gage height, 5.53 feet, from flood marks).
1934-35: Discharge, 330 second-feet Sept. 30, 1934 (gage height, 3.21 feet).
Remarks.- Mean monthly discharge corrected for storage in Woodcliff Lake. For daily changes in storage see records for Woodcliff Lake at Hillsdale, N. J. Recorder operated and storage data furnished by Hackensack Water Co.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	21	51	83	11	21	249	148	21	42	263	72
2	21	50	88	12	21	951	127	22	41	227	68
3	20	51	120	13	22	463	125	23	41	137	63
4	20	56	95	14	29	205	139	24	40	116	60
5	23	59	76	15	26	150	110	25	42	114	55
6	22	54	298	16	24	135	102	26	47	102	55
7	18.8	50	307	17	33	120	90	27	54	105	54
8	18.0	49	159	18	46	257	81	28	54	174	50
9	22	51	114	19	44	392	78	29	51	135	51
10	21	68	142	20	43	242	73	30		99	51
								31		90	
Mean monthly discharge, in second-feet (observed)									32.0	170	104
Mean monthly discharge, in second-feet (corrected)									28.9	173	104
Run-off, in inches (corrected)									1.05	6.73	3.92

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.88	49	1.88	49	1.93	55	2.16	89	4.42	739	4.25	674
4	1.88	49	1.88	49	1.93	55	2.24	102	4.74	865	4.11	622
6	1.86	47	1.88	49	1.93	55	2.35	122	5.10	1,010	3.97	572
8	1.85	46	1.88	49	1.93	55	2.44	139	5.52	1,190	3.85	530
10	1.85	46	1.88	49	1.93	55	2.54	161	5.53	1,190	3.72	487
N	1.88	49	1.88	49	1.99	63	2.66	188	5.37	1,120	3.60	448
2	1.89	50	1.89	50	2.03	68	2.86	236	5.18	1,040	3.47	408
4	1.89	50	1.90	51	2.10	79	3.11	302	5.00	970	3.34	368
6	1.89	50	1.91	52	2.15	87	3.27	347	4.88	922	3.25	342
8	1.89	50	1.92	54	2.14	85	3.54	429	4.72	857	3.15	313
10	1.89	50	1.92	54	2.13	84	3.79	510	4.56	793	3.06	288
M	1.89	50	1.93	55	2.12	82	4.06	604	4.40	731	3.01	275
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.94	256	2.54	161	2.42	135	2.40	131	2.38	127	3.46	405
4	2.89	244	2.53	159	2.42	135	2.38	127	2.46	144	3.47	408
6	2.83	228	2.52	156	2.41	133	2.36	123	2.60	174	3.48	411
8	2.79	219	2.51	154	2.41	133	2.35	122	2.71	199	3.49	414
10	2.75	209	2.50	152	2.40	131	2.34	120	2.87	238	3.49	414
N	2.71	199	2.49	150	2.40	131	2.33	118	3.00	272	3.48	411
2	2.68	192	2.48	148	2.39	129	2.32	116	3.09	296	3.45	402
4	2.64	183	2.47	146	2.46	144	2.31	114	3.20	327	3.42	392
6	2.62	179	2.46	144	2.47	146	2.31	114	3.23	336	3.38	380
8	2.60	174	2.45	142	2.43	137	2.31	114	3.27	347	3.34	368
10	2.58	170	2.44	139	2.42	135	2.31	114	3.34	368	3.29	353
M	2.56	165	2.43	137	2.41	133	2.32	116	3.42	392	3.23	336
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.17	319	2.72	202	3.05	286	2.52	156	2.36	123	2.30	112
4	3.10	299	2.77	214	3.02	277	2.50	152	2.35	122	2.30	112
6	3.04	283	2.85	234	2.97	264	2.47	146	2.35	122	2.30	112
8	2.96	262	2.92	251	2.93	254	2.45	142	2.34	120	2.30	112
10	2.91	249	2.97	264	2.87	238	2.44	139	2.34	120	2.30	112
N	2.85	234	3.01	275	2.83	228	2.42	135	2.33	118	2.34	120
2	2.80	221	3.05	286	2.78	216	2.40	131	2.33	118	2.38	127
4	2.75	209	3.07	291	2.73	204	2.40	131	2.32	116	2.40	131
6	2.71	199	3.09	296	2.68	192	2.38	127	2.23	100	2.34	120
8	2.67	190	3.09	296	2.63	181	2.37	125	2.25	104	2.29	110
10	2.64	183	3.09	296	2.58	170	2.36	123	2.28	109	2.28	109
M	2.61	176	3.08	294	2.55	163	2.36	123	2.29	110	2.27	107

Passaic River near Millington, N. J.

Location.- Lat. 40°40'48", long. 74°31'40", at Davis Bridge, 1 mile upstream from Millington, Somerset County, and 1½ miles below mouth of Black Brook.
Drainage area.- 55.4 square miles; about one-fourth of area is swamp land which is overflowed at medium and high stages.
Gage-height record.- Water-stage recorder graph. Gage-height record missing Feb. 1, 9-14, 20-22, Mar. 1-6.
Stage-discharge relation.- Affected by ice Feb. 18, 19, 23-29. Defined by current-meter measurements below 1,000 second-feet; extended to peak stage using discharge obtained by slope-area determination of flood flow.
Maxima.- 1936: Discharge, 1,480 second-feet 3 to 9 p.m. Mar. 12 (gage height, 9.18 feet).
1903-6, 1921-35: Discharge, about 2,000 second-feet Mar. 8, 1904 (gage height, 7.50 feet, former site and datum).
Remarks.- Discharge during periods of ice effect or missing gage-height record determined by one current-meter measurement, study of available recorder graph and weather records, and by graphic comparison with records of other streams in Passaic River Basin.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	35	180	136	11	30	820	287	21	40	504	94
2	35	175	125	12	30	1,450	267	22	40	489	86
3	34	160	142	13	32	1,370	250	23	41	383	78
4	34	200	129	14	40	1,040	227	24	42	282	74
5	34	350	111	15	67	669	183	25	45	234	67
6	33	330	454	16	68	413	170	26	50	198	64
7	33	260	602	17	64	311	151	27	70	202	63
8	33	215	474	18	52	498	129	28	100	295	59
9	33	206	328	19	45	634	113	29	180	248	58
10	31	280	290	20	40	568	102	30		198	55
								31		163	
Mean monthly discharge, in second-feet									48.7	430	179
Run-off, in inches									0.95	8.95	3.60

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.50	240	5.28	198	5.40	221	6.23	437	8.88	1,360	9.13	1,460
4	5.47	234	5.28	198	5.42	225	6.34	470	8.96	1,390	9.10	1,450
6	5.45	230	5.28	198	5.43	227	6.48	514	9.02	1,420	9.05	1,430
8	5.40	221	5.28	198	5.45	230	6.63	562	9.06	1,430	9.00	1,410
10	5.37	215	5.28	198	5.48	236	7.05	702	9.10	1,450	8.95	1,390
N	5.33	208	5.28	198	5.60	260	7.42	831	9.13	1,460	8.90	1,370
2	5.32	206	5.30	202	5.73	290	7.62	903	9.16	1,470	8.84	1,350
4	5.32	206	5.33	208	5.83	316	7.88	994	9.17	1,480	8.77	1,320
6	5.32	206	5.36	213	5.90	338	8.14	1,090	9.17	1,480	8.70	1,300
8	5.30	202	5.37	215	5.95	353	8.40	1,180	9.18	1,480	8.63	1,270
10	5.30	202	5.38	217	6.02	374	8.66	1,280	9.16	1,470	8.55	1,240
M	5.29	200	5.39	219	6.11	401	8.80	1,330	9.15	1,470	8.48	1,210
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.40	1,180	7.40	824	6.43	498	5.93	347	5.93	347	6.82	625
4	8.31	1,150	7.30	788	6.37	480	5.90	338	6.05	383	6.83	628
6	8.23	1,120	7.21	756	6.30	458	5.87	328	6.17	419	6.83	628
8	8.16	1,100	7.12	726	6.25	443	5.84	319	6.25	443	6.84	631
10	8.10	1,080	7.03	695	6.20	428	5.81	311	6.31	461	6.84	631
N	8.05	1,060	6.95	668	6.15	413	5.78	303	6.42	495	6.84	631
2	7.95	1,020	6.87	641	6.11	401	5.78	303	6.55	536	6.84	631
4	7.85	984	6.79	615	6.09	395	5.76	298	6.67	575	6.84	631
6	7.76	954	6.72	592	6.07	389	5.75	295	6.74	598	6.84	631
8	7.67	921	6.64	565	6.03	377	5.74	292	6.78	611	6.84	631
10	7.57	885	6.56	539	5.99	365	5.74	292	6.81	621	6.83	628
M	7.49	856	6.49	517	5.96	356	5.78	303	6.82	625	6.81	621
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.78	611	6.44	501	6.50	520	6.20	428	5.84	319	5.56	252
4	6.75	602	6.48	514	6.50	520	6.17	419	5.80	308	5.54	248
6	6.73	595	6.48	514	6.49	517	6.14	410	5.77	300	5.52	244
8	6.70	585	6.48	514	6.46	508	6.11	401	5.75	295	5.50	240
10	6.67	575	6.47	511	6.45	504	6.08	392	5.73	290	5.49	238
N	6.64	565	6.43	498	6.42	495	6.05	383	5.70	282	5.47	234
2	6.60	552	6.43	498	6.40	489	6.03	377	5.68	278	5.45	230
4	6.56	539	6.45	504	6.37	480	6.00	368	5.65	271	5.43	227
6	6.53	530	6.48	514	6.34	470	5.97	359	5.63	267	5.42	225
8	6.49	517	6.50	520	6.30	458	5.93	347	5.61	262	5.40	221
10	6.45	504	6.50	520	6.27	449	5.89	333	5.60	260	5.39	219
M	6.44	501	6.50	520	6.24	440	5.87	328	5.57	254	5.37	215

Supplemental records.- Mar. 12, 3 to 9 p.m., 9.18 ft., 1,480 sec.-ft.

Passaic River at Paterson, N. J.

Location.- Lat. 40°54'50", long. 74°10'51", at hydroelectric plant of the Society for Establishing Useful Manufactures, Paterson, Passaic County. Zero of gage is at mean sea level.

Drainage area.- 785 square miles; materially affected by diversions, by storage in large swamp areas, and by storage in large reservoirs for water supply.

Gage-height record.- Water-stage recorder graph. Add 100.00 feet to gage heights published in this report to convert to observed gage heights or to mean sea level.

Stage-discharge relation.- Affected by ice or debris Feb. 28 to midnight Mar. 10. Defined by current-meter measurements for flow over spillway below 18,000 second-feet.

Maxima.- 1936: Discharge, 19,400 second-feet 11 to 12 p.m. Mar. 13 (gage height, 21.04 feet).

1898-1935: Maximum mean daily discharge, 28,000 second-feet Oct. 10, 1903.

Remarks.- Tables of daily and bihourly discharges indicate total flow over spillway and through power plant and raceway. Discharge for period Feb. 28 to midnight Mar. 10 determined by study of recorder graph and weather records, and comparison with records of other streams in Passaic River Basin. Monthly discharge corrected for diversions and storage in Boonton, Wanaque, and Pequannock River Reservoirs and Greenwood Lake. Mean monthly diversions were: February, 283 second-feet; March, 274 second-feet; April, 257 second-feet.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	691	1,720	2,750	11	503	5,720	4,850	21	664	11,800	1,920
2	619	1,760	2,510	12	509	11,800	4,540	22	622	10,700	1,730
3	558	1,800	2,460	13	454	18,200	4,400	23	565	9,310	1,570
4	589	1,840	2,290	14	493	18,200	4,330	24	476	7,410	1,370
5	576	2,370	2,020	15	582	14,500	3,940	25	535	5,850	1,170
6	522	2,330	4,060	16	617	11,300	3,600	26	681	4,690	1,020
7	509	2,380	6,220	17	650	9,180	3,150	27	1,060	3,870	1,050
8	513	2,350	6,600	18	678	8,630	2,760	28	1,450	4,240	982
9	486	2,350	5,930	19	569	10,400	2,420	29	1,580	3,730	985
10	430	2,660	5,270	20	685	11,900	2,160	30		3,310	937
								31		3,090	
Mean monthly discharge, in second-feet (observed)									651	6,755	2,966
Mean monthly discharge, in second-feet (corrected)									874	7,297	3,212
Run-off, in inches (corrected)									1.20	10.72	4.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	15.81	2,400	15.78	2,360	15.85	2,440	16.41	3,380	18.88	9,890	20.35	16,000
4	15.80	2,380	15.77	2,350	15.88	2,480	16.47	3,500	18.99	10,300	20.49	16,600
6	15.76	2,330	15.74	2,310	15.85	2,440	16.55	3,670	19.00	10,300	20.61	17,200
8	15.73	2,290	15.72	2,280	16.00	2,350	16.76	3,830	19.09	10,700	20.73	17,800
10	15.76	2,330	15.70	2,250	15.84	2,420	16.86	4,320	19.25	11,200	20.80	18,200
N	15.75	2,320	15.69	2,240	15.83	2,400	17.10	4,850	19.35	11,600	20.86	18,500
2	15.75	2,320	15.70	2,250	15.91	2,530	17.65	6,170	19.50	12,200	20.91	18,800
4	15.77	2,350	15.74	2,310	16.15	2,910	18.10	7,400	19.64	12,800	20.97	19,000
6	15.78	2,360	15.78	2,360	16.19	2,970	18.28	7,950	19.80	13,400	21.00	19,200
8	15.78	2,360	15.82	2,420	16.25	3,080	18.32	8,070	19.95	14,100	21.02	19,300
10	15.78	2,360	15.89	2,520	16.30	3,160	18.46	8,520	20.08	14,700	21.02	19,300
M	15.78	2,360	15.90	2,530	16.35	3,260	18.65	9,150	20.23	15,500	21.03	19,400
	March 14		March 15		March 16		March 17		March 18		March 19	
2	21.02	19,300	20.42	16,300	19.60	12,500	18.93	10,100	18.34	8,160	18.88	9,970
4	20.99	19,200	20.36	16,000	19.55	12,300	18.87	9,850	18.38	8,290	18.90	10,000
6	20.95	19,000	20.29	15,600	19.49	12,100	18.82	9,680	18.47	8,570	18.91	10,100
8	20.92	18,800	20.29	15,400	19.48	11,800	18.76	9,180	18.50	8,670	18.95	10,200
10	20.86	18,500	20.22	15,100	19.44	11,700	18.82	9,390	18.59	8,740	18.99	10,400
N	20.82	18,300	20.15	14,800	19.38	11,400	18.74	9,130	18.58	8,700	19.03	10,500
2	20.76	18,000	20.09	14,400	19.21	11,000	18.70	8,990	18.47	8,570	19.08	10,700
4	20.71	17,800	20.02	14,100	19.15	10,800	18.57	8,820	18.46	8,540	19.13	10,900
6	20.66	17,500	19.95	13,800	19.09	10,600	18.48	8,530	18.46	8,540	19.19	11,100
8	20.60	17,200	19.80	13,200	19.04	10,400	18.44	8,400	18.50	8,670	19.24	11,300
10	20.55	17,000	19.73	12,900	19.00	10,200	18.40	8,270	18.57	8,900	19.30	11,500
M	20.49	16,600	19.67	12,700	18.98	10,200	18.35	8,110	18.76	9,550	19.35	11,700
	March 20		March 21		March 22		March 23		March 24		March 25	
2	19.39	11,900	19.42	11,900	19.20	11,100	18.88	9,960	18.33	8,160	17.75	6,490
4	19.42	12,000	19.46	12,000	19.18	11,000	18.85	9,860	18.27	7,970	17.70	6,360
6	19.44	12,100	19.53	12,300	19.16	11,000	18.81	9,720	18.21	7,780	17.65	6,230
8	19.44	12,100	19.50	12,200	19.13	10,800	18.78	9,610	18.24	7,570	17.61	6,130
10	19.44	12,100	19.42	11,900	19.11	10,800	18.84	9,540	18.26	7,640	17.55	5,970
N	19.44	12,100	19.35	11,600	19.08	10,700	18.68	9,260	18.10	7,450	17.52	5,900
2	19.44	12,100	19.31	11,400	19.06	10,600	18.63	9,090	18.03	7,250	17.48	5,800
4	19.44	12,100	19.28	11,300	19.03	10,500	18.58	8,920	17.99	7,130	17.43	5,680
6	19.44	12,100	19.27	11,300	19.00	10,400	18.53	8,760	17.94	6,990	17.38	5,560
8	19.43	12,000	19.25	11,200	18.97	10,300	18.48	8,600	17.89	6,850	17.34	5,470
10	19.43	12,000	19.24	11,200	18.95	10,200	18.43	8,440	17.84	6,720	17.30	5,360
M	19.42	12,000	19.21	11,100	18.91	10,000	18.37	8,240	17.79	6,580	17.25	5,240

Supplemental records.- Mar. 13, 11 to 12 p.m., 21.04 ft., 19,400 sec.-ft.

Boonton Reservoir at Boonton, N. J.

Location.- Lat. 40°53'35", long. 74°23'55", at Boonton Reservoir dam, Boonton, Morris County.
Drainage area.- 119 square miles.
Gage-height record.- One gage reading daily, usually about 8 a.m.
Remarks.- Usable storage capacity 870,000,000 cubic feet. Elevation of crest of spillway is zero gage height. Records furnished by Department of Streets and Public Improvements, Bureau of Water, Jersey City.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	0.24	1,027	0.43	1,034	0.46	1,035
2	.22	1,026	.41	1,033	.40	1,033
3	.19	1,025	.38	1,032	.42	1,033
4	.14	1,024	.36	1,031	.39	1,032
5	.17	1,025	.48	1,035	.35	1,031
6	.15	1,024	.50	1,036	.59	1,039
7	.16	1,024	.45	1,034	1.38	1,067
8	.20	1,026	.39	1,032	1.04	1,055
9	.21	1,026	.38	1,032	.85	1,048
10	.23	1,027	.43	1,034	.74	1,044
11	.23	1,027	.76	1,045	.75	1,045
12	.20	1,026	2.51	1,106	.75	1,045
13	.20	1,026	2.45	1,104	.76	1,045
14	.20	1,026	1.84	1,083	.67	1,042
15	.30	1,029	1.38	1,067	.61	1,040
16	.31	1,029	1.12	1,058	.52	1,037
17	.27	1,028	.92	1,051	.48	1,035
18	.27	1,028	.94	1,051	.27	1,028
19	.26	1,028	1.50	1,071	.17	1,025
20	.26	1,028	1.53	1,072	.09	1,022
21	.27	1,028	1.38	1,067	.02	1,019
22	.22	1,026	1.39	1,067	.17	1,025
23	.17	1,025	1.12	1,058	.16	1,024
24	.17	1,025	.94	1,051	.73	1,044
25	.16	1,024	.83	1,047	1.18	1,060
26	.20	1,026	.74	1,044	1.36	1,066
27	.32	1,030	.67	1,042	1.46	1,069
28	.44	1,034	.76	1,045	1.47	1,070
29	.46	1,035	.75	1,045	1.43	1,068
30			.62	1,040	1.38	1,067
31			.55	1,038		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	+7	+1	+30
Gain or loss in storage, in equivalent mean second-feet..	+2.8	+0.4	+11.6

Rockaway River at Boonton, N. J.

Location.- Lat. 40°53'47", long. 74°23'36", below dam of the Jersey City waterworks at Boonton, Morris County.
Drainage area.- 119 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 1-3, 9-14, 18-22, when record was missing.
Stage-discharge relation.- Defined by current-meter measurements below 1,200 second-feet; extended to peak stage by using discharge over Boonton Reservoir dam, obtained by weir formula; verified by comparison of total run-off of flood with that computed by weir formula for Boonton Reservoir dam.
Maxima.- 1936: Discharge, 3,770 second-feet 8 to 9:30 p.m. Mar. 12 (gage height, 8.03 feet).
1903-4, 1906-35: Maximum known daily discharge, 7,560 second-feet Oct. 10, 1903, at site a quarter of a mile below present gage.
Remarks.- Discharge is total flow over reservoir dam, through waste gate, and effluent from sewage disposal plant. Mean monthly discharge and run-off, in inches, are shown adjusted for diversion from and effect of storage in Boonton Reservoir. Mean monthly diversions were: February, 87 second-feet; March, 81 second-feet; April, 73 second-feet. For storage figures see daily record for Boonton Reservoir at Boonton, N. J. Discharge during periods of missing gage-height record determined by comparison with records for other streams in Passaic River Basin. Water-stage recorder owned and operated by Department of Streets and Public Improvements, Bureau of Water, Jersey City.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	50	212	407	11	40	1,130	755	21	50	1,640	301
2	49	192	361	12	40	3,500	733	22	50	1,530	187
3	50	176	401	13	45	3,320	690	23	50	1,200	7.3
4	60	180	367	14	65	2,210	648	24	49	981	7.0
5	53	252	324	15	95	1,580	565	25	40	844	78
6	47	258	847	16	104	1,230	506	26	72	733	140
7	52	236	1,470	17	95	1,030	469	27	164	690	153
8	36	212	1,050	18	72	1,270	404	28	221	777	164
9	45	208	821	19	56	1,810	341	29	218	733	164
10	42	297	733	20	50	1,750	319	30		587	149
								31		507	
Mean monthly discharge, in second-feet (observed)									71.0	1,009	452
Run-off, in inches, (observed)									0.64	9.78	4.24
Mean monthly discharge, in second-feet (adjusted)									161	1,091	536
Run-off, in inches (adjusted)									1.46	10.57	5.02

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.95	226	1.88	205	2.00	242	2.70	508	6.80	2,980	7.78	3,610
4	1.93	220	1.88	205	2.03	252	2.82	566	7.25	3,270	7.75	3,590
6	1.93	220	1.88	205	2.04	255	2.90	608	7.55	3,460	7.66	3,540
8	1.92	218	1.88	205	2.05	258	3.01	668	7.93	3,710	7.58	3,490
10	1.92	218	1.88	205	2.05	258	3.25	806	7.90	3,690	7.53	3,450
N	1.90	212	1.88	205	2.06	261	3.53	974	7.73	3,580	7.46	3,410
2	1.90	212	1.88	205	2.10	274	3.78	1,130	7.88	3,680	7.37	3,320
4	1.89	208	1.88	205	2.18	300	4.00	1,260	7.85	3,660	7.25	3,220
6	1.87	204	1.89	208	2.27	331	4.30	1,440	7.93	3,710	7.15	3,120
8	1.87	204	1.91	214	2.38	372	5.05	1,890	8.03	3,770	7.05	3,010
10	1.87	204	1.94	223	2.48	412	5.42	2,110	7.95	3,720	6.95	2,890
M	1.87	204	1.97	232	2.59	459	6.05	2,500	7.86	3,660	6.85	2,750
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.73	2,640	5.80	1,750	5.05	1,330	4.57	1,090	4.52	1,060	5.77	1,730
4	6.60	2,530	5.72	1,700	5.00	1,300	4.53	1,070	4.56	1,080	5.80	1,750
6	6.61	2,420	5.65	1,670	4.96	1,280	4.48	1,040	4.62	1,110	5.85	1,780
8	6.52	2,330	5.58	1,630	4.92	1,260	4.45	1,030	4.70	1,150	5.88	1,800
10	6.40	2,250	5.52	1,590	4.88	1,240	4.42	1,010	4.81	1,210	5.95	1,840
N	6.31	2,180	5.47	1,570	4.84	1,230	4.42	1,010	4.94	1,270	5.96	1,850
2	6.25	2,100	5.42	1,540	4.81	1,210	4.40	1,000	5.00	1,300	5.95	1,840
4	6.15	2,030	5.34	1,490	4.78	1,190	4.39	999	5.12	1,360	5.98	1,860
6	6.08	1,960	5.28	1,460	4.73	1,170	4.37	990	5.26	1,450	6.02	1,880
8	6.00	1,910	5.23	1,430	4.69	1,150	4.33	972	5.41	1,530	6.03	1,890
10	5.94	1,840	5.15	1,380	4.65	1,130	4.36	986	5.62	1,650	6.00	1,870
M	5.85	1,800	5.10	1,350	4.60	1,100	4.42	1,010	5.68	1,680	6.97	1,850
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.93	1,830	5.60	1,640	5.62	1,650	5.08	1,340	4.53	1,070	4.19	908
4	5.90	1,810	5.62	1,650	5.62	1,650	5.03	1,310	4.48	1,040	4.17	898
6	5.87	1,790	5.58	1,630	5.57	1,620	4.96	1,270	4.45	1,030	4.15	890
8	5.85	1,780	5.55	1,610	5.56	1,620	4.91	1,250	4.41	1,010	4.12	876
10	5.80	1,750	5.53	1,600	5.49	1,570	4.84	1,220	4.38	995	4.09	862
N	5.76	1,730	5.50	1,580	5.44	1,550	4.78	1,190	4.35	981	4.07	854
2	5.72	1,700	5.46	1,560	5.37	1,510	4.72	1,160	4.32	967	4.05	844
4	5.70	1,690	5.48	1,570	5.34	1,490	4.70	1,150	4.30	958	4.04	840
6	5.65	1,670	5.51	1,590	5.27	1,450	4.66	1,130	4.27	944	4.00	822
8	5.60	1,640	5.57	1,620	5.23	1,430	4.63	1,110	4.25	935	3.98	813
10	5.57	1,620	5.59	1,630	5.19	1,400	4.60	1,100	4.23	926	3.96	804
M	5.57	1,620	5.63	1,650	5.12	1,360	4.55	1,070	4.21	917	3.94	796

Supplemental records.- Mar. 12, 8 to 9:30 p.m., 8.03 ft., 3,770 sec.-ft.

Beaver Brook at outlet of Splitrock Pond, N. J.

Location.- Lat. 40°57'38", long. 74°27'43", 50 feet below Splitrock Pond, 2 miles northeast of Hibernia, Morris County, and 3½ miles above mouth of Hibernia Brook.
Drainage area.- 5.50 square miles; affected by storage in Splitrock Pond.
Gage-height record.- Water-stage recorder graph except for period 8 a.m. Mar. 12 to 10 a.m. Mar. 14, when it is based on shape of stage graphs at nearby stations.
Stage-discharge relation.- Based on Francis formula for sharp-crested weir; verified by current-meter measurements below 40 second-feet.
Maxima.- 1936: Discharge, 126 second-feet 8 to 10 a.m. Mar. 12 (gage height, 2.70 feet).
1925-35: Discharge, 107 second-feet Nov. 20, 1932 (gage height, 2.50 feet).
Remarks.- Discharge regulated by operation of gates in Splitrock Pond dam. Water-stage recorder owned and operated by Department of Streets and Public Improvements, Bureau of Water, Jersey City.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	8.4	9.1	27	11	6.2	33	42	21	7.0	62	21
2	7.8	9.4	25	12	6.2	115	41	22	6.9	54	19.4
3	7.4	10.0	23	13	6.2	102	40	23	6.6	47	18.1
4	7.3	10.0	22	14	7.1	83	38	24	6.4	40	16.4
5	7.0	10.6	21	15	7.5	68	35	25	6.2	35	14.8
6	6.8	11.1	32	16	7.3	57	32	26	6.5	32	13.3
7	6.5	11.4	46	17	7.0	50	29	27	7.4	30	12.7
8	6.4	11.7	47	18	7.1	52	27	28	8.4	30	11.7
9	6.5	11.7	45	19	7.0	67	25	29	8.8	30	10.6
10	6.5	13.0	43	20	7.0	68	22	30		29	9.7
								31		28	
Mean monthly discharge, in second-feet									7.01	32.4	27.0
Run-off, in inches									1.37	8.26	5.48

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.07	11.7	1.07	11.7	1.08	12.0	1.19	16.0	2.35	94	2.55	112
4	1.07	11.7	1.07	11.7	1.08	12.0	1.20	16.4	2.46	103	2.53	110
6	1.07	11.7	1.07	11.7	1.08	12.0	1.23	17.6	2.58	114	2.51	108
8	1.07	11.7	1.07	11.7	1.08	12.0	1.25	18.6	2.70	126	2.49	106
10	1.07	11.7	1.07	11.7	1.09	12.4	1.29	20	2.70	126	2.47	104
N	1.07	11.7	1.07	11.7	1.09	12.4	1.35	23	2.69	125	2.45	102
2	1.07	11.7	1.07	11.7	1.10	12.7	1.46	29	2.67	123	2.43	101
4	1.07	11.7	1.07	11.7	1.12	13.3	1.60	37	2.65	121	2.41	99
6	1.07	11.7	1.07	11.7	1.13	13.7	1.74	46	2.63	119	2.39	97
8	1.07	11.7	1.07	11.7	1.15	14.4	1.92	59	2.61	117	2.38	96
10	1.07	11.7	1.07	11.7	1.16	14.8	2.02	67	2.59	115	2.36	94
M	1.07	11.7	1.08	12.0	1.17	15.2	2.21	82	2.57	113	2.34	93
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.32	91	2.13	75	1.94	60	1.83	52	1.76	47	1.95	61
4	2.30	89	2.11	74	1.92	59	1.83	52	1.78	49	1.98	63
6	2.28	87	2.09	72	1.91	58	1.82	52	1.79	50	1.99	64
8	2.27	87	2.07	71	1.90	57	1.81	51	1.80	50	2.01	66
10	2.25	85	2.06	70	1.90	57	1.80	50	1.82	52	2.02	67
N	2.24	84	2.05	69	1.89	57	1.80	50	1.83	52	2.03	67
2	2.23	83	2.04	68	1.88	56	1.79	50	1.84	53	2.03	67
4	2.22	83	2.01	66	1.87	56	1.78	49	1.85	54	2.04	68
6	2.21	82	2.00	65	1.87	56	1.77	48	1.86	55	2.04	68
8	2.19	80	1.98	63	1.86	55	1.76	47	1.87	56	2.04	68
10	2.17	79	1.97	62	1.85	54	1.75	47	1.89	57	2.05	69
M	2.14	76	1.95	61	1.84	53	1.75	47	1.92	59	2.05	69
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.05	69	2.00	65	1.91	58	1.79	50	1.67	42	1.59	36
4	2.06	70	2.01	66	1.90	57	1.78	49	1.67	42	1.59	36
6	2.06	70	1.97	62	1.89	57	1.77	48	1.66	41	1.58	36
8	2.05	69	1.97	62	1.85	54	1.76	47	1.66	41	1.57	35
10	2.05	69	1.97	62	1.85	54	1.75	47	1.65	40	1.57	35
N	2.05	69	1.97	62	1.85	54	1.75	47	1.64	40	1.56	35
2	2.04	68	1.97	62	1.83	52	1.74	46	1.63	39	1.56	35
4	2.03	67	1.95	61	1.83	52	1.73	45	1.63	39	1.55	34
6	2.02	67	1.95	61	1.82	52	1.72	45	1.62	39	1.55	34
8	2.01	66	1.94	60	1.81	51	1.71	44	1.61	38	1.54	34
10	2.00	65	1.93	60	1.80	50	1.70	43	1.61	38	1.54	34
M	2.00	65	1.92	59	1.80	50	1.70	43	1.60	37	1.53	33

Whippany River at Morristown, N. J.

Location.- Lat. 40°48'21", long. 74°27'22", at Morristown sewage disposal plant, three-quarters of a mile below Morristown, Morris County, and 8 miles above mouth of river. Zero of gage is 260.01 feet above mean sea level.
Drainage area.- 29.4 square miles; not materially affected by artificial storage.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 220 second-feet; extended to peak stage by averaging discharges obtained from slope-area method for 2 reaches and computation by formulas of flow over 2 dams.
Maxima.- 1936: Discharge, 1,500 second-feet 1:30 to 2 a.m. Mar. 12 (gage height, 6.29 feet).
1921-35: Discharge, about 1,500 second-feet Aug. 26, 1928 (gage height, 7.30 feet).
Remarks.- Stage-discharge relation affected by ice Feb. 1 to Mar. 1.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	27	70	90	11	23	765	176	21	37	322	78
2	26	68	98	12	23	1,010	154	22	37	238	72
3	26	70	108	13	23	378	153	23	37	172	68
4	30	103	86	14	27	248	125	24	38	164	66
5	27	119	81	15	50	205	112	25	40	145	63
6	26	81	686	16	44	172	115	26	43	126	62
7	25	67	250	17	50	164	95	27	50	176	60
8	24	67	176	18	42	398	90	28	53	201	60
9	24	78	146	19	38	351	85	29	60	125	58
10	23	159	184	20	37	228	81	30		111	54
								31		95	
Mean monthly discharge, in second-feet									34.8	215	124
Run-off, in inches									1.27	8.43	4.71

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.55	67	1.63	75	1.88	105	2.90	277	6.29	1,500	3.81	499
4	1.53	65	1.60	72	1.85	102	2.92	281	6.10	1,400	3.67	459
6	1.44	56	1.58	70	1.82	98	2.96	289	5.94	1,320	3.56	428
8	1.35	48	1.55	67	1.80	95	3.02	301	5.77	1,240	3.46	402
10	1.34	47	1.55	67	1.80	95	3.15	329	5.58	1,150	3.38	381
N	1.48	60	1.55	67	1.85	102	4.08	583	5.30	1,040	3.25	351
2	1.65	78	1.56	68	2.13	140	5.17	983	4.90	873	3.21	342
4	1.62	74	1.61	73	2.51	203	5.66	1,190	4.64	774	3.15	329
6	1.61	73	1.70	83	2.74	246	6.00	1,350	4.40	688	3.10	318
8	1.63	75	1.80	95	2.79	255	6.10	1,400	4.21	624	3.05	308
10	1.65	78	1.88	105	2.86	269	6.24	1,470	4.03	567	3.00	297
M	1.65	78	1.90	108	2.91	279	6.27	1,480	3.91	529	2.95	287
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.92	281	2.60	219	2.40	184	2.24	157	2.71	240	3.57	431
4	2.87	271	2.58	215	2.38	181	2.24	157	3.05	308	3.55	426
6	2.83	263	2.56	212	2.36	177	2.24	157	3.25	351	3.50	412
8	2.79	255	2.55	210	2.35	176	2.24	157	3.52	417	3.45	399
10	2.76	249	2.53	206	2.34	174	2.24	157	3.74	479	3.40	386
N	2.73	244	2.50	201	2.33	172	2.23	156	3.78	490	3.30	362
2	2.71	240	2.48	198	2.32	170	2.26	161	3.73	476	3.21	342
4	2.69	236	2.45	192	2.31	169	2.30	167	3.72	473	3.10	318
6	2.67	232	2.45	192	2.30	167	2.29	165	3.65	453	3.03	303
8	2.65	228	2.45	192	2.29	165	2.30	167	3.53	420	2.99	295
10	2.63	225	2.43	189	2.27	162	2.32	170	3.42	391	2.92	281
M	2.62	223	2.41	186	2.25	159	2.50	201	3.53	420	2.85	267
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.82	261	2.57	214	2.95	287	2.37	179	2.29	165	2.20	151
4	2.79	255	2.89	275	2.90	277	2.35	176	2.29	165	2.19	150
6	2.76	249	3.10	318	2.83	263	2.35	176	2.29	165	2.19	150
8	2.72	242	3.20	340	2.78	253	2.34	174	2.30	167	2.18	148
10	2.69	236	3.30	362	2.73	244	2.33	172	2.30	167	2.18	148
N	2.65	228	3.41	389	2.68	234	2.33	172	2.29	165	2.18	148
2	2.61	221	3.38	381	2.61	221	2.32	170	2.28	164	2.16	145
4	2.58	215	3.30	362	2.58	215	2.31	169	2.27	162	2.15	144
6	2.55	210	3.20	340	2.52	205	2.30	167	2.25	159	2.14	142
8	2.52	205	3.10	318	2.49	199	2.30	167	2.23	156	2.13	140
10	2.50	201	3.03	303	2.44	191	2.29	165	2.22	154	2.10	136
M	2.49	199	2.99	295	2.41	186	2.29	165	2.21	153	2.09	135

Ramapo River near Mahwah, N. J.

Location.- Lat. 41°5'53", long. 74°9'47", 400 feet below State Highway 2, three-quarters of a mile below mouth of Mahwah River, and 1 mile west of Mahwah, Bergen County.

Drainage area.- 118 square miles; not materially affected by artificial storage.

Gage-height record.- Water-stage recorder graph. Record missing Feb. 19 to 3 p.m. Mar. 9

Stage-discharge relation.- Affected by ice Feb. 1-3, 8-16. Defined by current-meter measurements below 1,200 second-feet; extended to peak stage on basis of study of discharges obtained by computations of peak flows over 3 nearby dams and study of yield of Ramapo River at Pompton Lakes.

Maxima.- 1936: Discharge, 7,710 second-feet 8 a.m. Mar. 12 (gage height, 8.98 feet).
1903-6, 1922-35: Discharge, about 12,400 second-feet (revised) Oct. 9, 1903 (gage height, 9.8 feet, former datum).

Remarks.- Discharge for periods of ice effect or missing gage-height record determined by study of available recorder graph and weather records and by graphic comparison with records of Ramapo River at Pompton Lakes and Saddle River near Lodi.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	125	225	358	11	91	2,010	648	21	96	1,840	283
2	120	210	345	12	90	6,630	580	22	98	1,530	265
3	118	208	399	13	90	3,340	613	23	100	1,030	238
4	122	225	345	14	100	1,770	665	24	102	800	214
5	124	290	305	15	145	1,210	596	25	106	665	193
6	122	275	1,320	16	130	975	547	26	122	563	191
7	111	250	1,480	17	117	939	470	27	175	531	183
8	102	250	943	18	122	2,340	385	28	240	684	167
9	97	280	684	19	110	3,080	332	29	230	547	161
10	93	421	702	20	100	1,980	307	30		456	155
								31		413	
Mean monthly discharge, in second-feet									121	1,160	469
Run-off, in inches									1.11	11.33	4.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	3.41	288	4.97	816	8.60	6,470	8.07	4,550
4	-	-	-	-	3.45	298	5.12	877	8.85	7,280	7.98	4,280
6	-	-	-	-	3.50	311	5.30	953	8.92	7,520	7.88	3,990
8	-	-	-	†290	3.52	316	5.50	1,040	8.98	7,710	7.80	3,760
10	-	-	-	-	3.55	324	5.74	1,140	8.96	7,650	7.72	3,540
N	-	*102	-	-	3.61	341	6.00	1,280	8.85	7,280	7.65	3,340
2	-	-	-	-	3.77	386	6.38	1,530	8.72	6,860	7.58	3,160
4	-	-	3.26	250	3.99	453	6.98	2,150	8.60	6,470	7.52	2,990
6	-	-	3.15	224	4.25	538	7.42	3,000	8.50	6,150	7.45	2,810
8	-	-	3.26	250	4.56	652	7.76	3,920	8.38	5,770	7.39	2,660
10	-	-	3.32	265	4.65	686	8.04	4,730	8.28	5,460	7.33	2,500
M	-	-	3.37	278	4.80	746	8.28	5,460	8.17	5,120	7.27	2,370
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.21	2,250	6.55	1,400	6.04	1,040	5.76	897	6.27	1,190	7.62	3,260
4	7.15	2,140	6.50	1,360	6.03	1,040	5.75	892	6.54	1,390	7.64	3,320
6	7.09	2,040	6.45	1,320	6.02	1,030	5.75	892	6.85	1,700	7.64	3,320
8	7.03	1,960	6.39	1,270	5.97	1,000	5.75	892	7.13	2,110	7.63	3,290
10	6.96	1,850	6.33	1,230	5.94	990	5.72	877	7.30	2,430	7.61	3,240
N	6.90	1,770	6.26	1,180	5.90	970	5.73	882	7.40	2,680	7.60	3,210
2	6.83	1,680	6.20	1,140	5.85	944	5.77	902	7.47	2,860	7.57	3,130
4	6.80	1,640	6.17	1,120	5.84	938	5.85	944	7.52	2,990	7.54	3,050
6	6.74	1,570	6.15	1,110	5.82	928	5.94	990	7.55	3,080	7.50	2,940
8	6.70	1,530	6.11	1,090	5.80	917	6.00	1,020	7.56	3,100	7.46	2,840
10	6.65	1,480	6.08	1,070	5.78	907	6.06	1,060	7.57	3,130	7.43	2,760
M	6.60	1,440	6.06	1,060	5.76	897	6.13	1,100	7.58	3,160	7.39	2,660
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.35	2,560	6.72	1,550	6.96	1,850	6.25	1,180	5.73	882	5.35	721
4	7.30	2,430	6.80	1,640	6.94	1,830	6.20	1,140	5.70	867	5.32	710
6	7.25	2,330	6.91	1,780	6.89	1,760	6.15	1,110	5.66	849	5.30	702
8	7.20	2,230	7.00	1,910	6.85	1,700	6.11	1,090	5.62	830	5.28	695
10	7.15	2,140	7.04	1,970	6.79	1,630	6.05	1,050	5.60	821	5.25	684
N	7.09	2,040	7.05	1,980	6.73	1,560	6.00	1,020	5.56	804	5.22	672
2	7.03	1,960	7.05	1,980	6.67	1,500	5.95	995	5.52	787	5.19	662
4	6.97	1,870	7.05	1,980	6.60	1,440	5.90	970	5.50	779	5.17	654
6	6.91	1,780	7.04	1,970	6.53	1,380	5.85	944	5.46	763	5.13	640
8	6.85	1,700	7.03	1,960	6.45	1,320	5.82	928	5.43	752	5.13	640
10	6.78	1,620	7.01	1,920	6.39	1,270	5.79	912	5.40	740	5.11	634
M	6.72	1,550	6.98	1,880	6.32	1,220	5.76	897	5.37	729	5.07	620

*Mean for the day.
†Mean for 16-hour period.

Ramapo River at Pompton Lakes, N. J.

Location.- Lat. 40°59'20", long. 74°16'48", at hydroelectric plant in Pompton Lakes, Passaic County, 1½ miles above mouth of river. Zero of gage is 200.93 feet above mean sea level.
Drainage area.- 160 square miles; not materially affected by artificial storage.
Gage-height record.- Water-stage recorder graph of head on spillway of dam. Record missing Feb. 11-14, Mar. 8 to noon Mar. 11. Power-house record of periods turbine was operating and of periods waste gate was open furnished by Jersey Central Power and Light Company.
Stage-discharge relation.- Defined by current-meter measurements below 2,000 second-feet; extended to peak stage by weir formula.
Maxima.- 1936: Discharge, about 12,300 second-feet 12:30 to 2 p.m. Mar. 12 (gage height, 3.56 feet).
1921-35: Discharge, about 7,220 second-feet, flow through turbines and waste gate not included, Sept. 2, 1927 (gage height, 2.68 feet).
Remarks.- Discharge is total flow over spillway, through turbines, and through waste gate in dam. Discharge over spillway for periods of missing gage-height record determined by graphic comparison with records of other streams in Passaic River Basin.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	162	306	465	11	123	2,700	940	21	175	2,450	387
2	161	274	478	12	126	10,400	826	22	127	2,190	356
3	154	285	520	13	130	5,450	857	23	135	1,430	324
4	163	301	453	14	141	2,600	916	24	115	1,070	288
5	161	393	410	15	154	1,790	815	25	133	924	266
6	151	386	2,000	16	200	1,370	743	26	187	774	255
7	148	334	2,390	17	142	1,290	625	27	247	754	257
8	146	330	1,510	18	71	2,800	519	28	329	959	225
9	142	400	1,010	19	159	4,300	448	29	311	774	226
10	123	600	1,010	20	193	2,950	417	30		634	213
								31		546	
Mean monthly discharge, in second-feet									162	1,670	672
Run-off, in inches									1.09	12.04	4.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	1,000	2.88	8,470	2.76	7,850
4	-	-	-	-	-	-	-	1,100	3.05	9,350	2.63	7,240
6	-	-	-	-	-	-	-	1,190	3.19	10,100	2.48	6,570
8	-	-	-	-	-	-	-	1,270	3.35	11,000	2.38	6,140
10	-	-	-	-	-	-	-	1,370	3.43	11,500	2.27	5,670
N	-	*330	-	*400	-	*600	1.00	1,500	3.55	12,200	2.17	5,260
2	-	-	-	-	-	-	1.17	1,910	3.56	12,300	2.06	4,810
4	-	-	-	-	-	-	1.42	2,590	3.48	11,800	1.95	4,370
6	-	-	-	-	-	-	1.76	3,680	3.38	11,200	1.87	4,070
8	-	-	-	-	-	-	2.02	4,650	3.27	10,500	1.82	3,890
10	-	-	-	-	-	-	2.26	5,630	3.12	9,730	1.74	3,620
M	-	-	-	-	-	-	2.60	7,100	2.92	8,670	1.68	3,410
	March 14		March 15		March 16		March 17		March 18		March 19	
2	1.62	3,220	1.21	2,020	1.00	1,500	0.90	1,290	1.02	1,550	1.94	4,340
4	1.56	3,020	1.18	1,940	.99	1,480	.90	1,290	1.11	1,770	1.95	4,370
6	1.51	2,860	1.16	1,890	.97	1,440	.90	1,290	1.22	2,040	1.97	4,450
8	1.47	2,740	1.14	1,840	.95	1,390	.89	1,270	1.31	2,280	1.98	4,490
10	1.42	2,590	1.13	1,810	.94	1,370	.89	1,270	1.41	2,560	1.98	4,490
N	1.40	2,530	1.11	1,770	.93	1,350	.89	1,270	1.50	2,830	1.97	4,450
2	1.37	2,450	1.10	1,740	.92	1,330	.89	1,270	1.59	3,120	1.95	4,370
4	1.33	2,330	1.08	1,690	.92	1,330	.90	1,290	1.66	3,350	1.94	4,340
6	1.30	2,250	1.07	1,670	.92	1,330	.90	1,290	1.72	3,550	1.91	4,220
8	1.28	2,200	1.06	1,640	.91	1,310	.91	1,310	1.79	3,790	1.86	4,040
10	1.26	2,160	1.04	1,600	.91	1,310	.92	1,330	1.85	4,000	1.82	3,890
M	1.23	2,070	1.02	1,550	.91	1,310	.98	1,460	1.90	4,180	1.79	3,790
	March 20		March 21		March 22		March 23		March 24		March 25	
2	1.75	3,650	1.30	2,250	1.39	2,500	1.08	1,690	0.84	1,160	0.79	979
4	1.71	3,510	1.30	2,250	1.37	2,450	1.06	1,640	.82	1,120	.79	979
6	1.67	3,380	1.32	2,310	1.35	2,390	1.02	1,550	.81	1,100	.78	959
8	1.62	3,220	1.34	2,360	1.34	2,360	1.00	1,500	.80	1,090	.77	944
10	1.57	3,050	1.37	2,450	1.32	2,310	.98	1,460	.79	1,070	.76	924
N	1.53	2,930	1.39	2,500	1.29	2,220	.96	1,420	.78	1,050	.75	909
2	1.49	2,800	1.41	2,560	1.26	2,150	.94	1,370	.80	999	.75	909
4	1.45	2,680	1.42	2,590	1.23	2,070	.92	1,330	.82	1,030	.74	889
6	1.41	2,560	1.42	2,590	1.20	1,990	.90	1,290	.82	1,030	.73	874
8	1.37	2,450	1.42	2,590	1.17	1,910	.88	1,250	.82	1,030	.72	854
10	1.33	2,330	1.42	2,590	1.14	1,840	.86	1,200	.81	1,010	.72	854
M	1.31	2,280	1.41	2,560	1.11	1,770	.85	1,180	.80	999	.72	854

*Mean for the day.

Greenwood Lake at The Glens, N. J.

Location.- Lat. 41°9'36", long. 74°20'3", in gate house above dam at The Glens, Passaic County. Zero of gage is 608.86 feet above mean sea level.
Drainage area.- 27.1 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 1 to Mar. 17 and Mar. 21-25, when it was based on daily or more frequent gage readings and study of recorder graph of river below dam. Gage heights given are for midnight.
Remarks.- Storage capacity above sill of blow-off gate (gage height, -4.00 feet) is 919,000,000 cubic feet. Contents shown in table are contents above gage height -0.8 foot. Gage-height records furnished by Morris Canal & Banking Co.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet	Feet	Millions of Cubic feet
1	10.22	788	10.25	791	10.34	798
2	10.24	790	10.27	792	10.34	798
3	10.23	789	10.29	794	10.34	798
4	10.20	787	10.31	796	10.34	798
5	10.15	782	10.32	796	10.32	796
6	10.14	782	10.33	797	10.69	827
7	10.14	782	10.34	798	10.68	826
8	10.14	782	10.36	800	10.62	821
9	10.14	782	10.43	806	10.59	819
10	10.13	781	10.53	814	10.58	818
11	10.12	780	11.42	888	10.56	816
12	10.12	780	11.85	925	10.55	816
13	10.13	781	11.55	899	10.60	820
14	10.16	783	11.14	865	10.57	817
15	10.16	783	10.92	846	10.53	814
16	10.16	783	10.84	840	10.49	811
17	10.17	784	10.84	840	10.44	806
18	10.18	785	11.27	876	10.40	803
19	10.18	785	11.30	878	10.36	800
20	10.17	784	11.15	865	10.34	798
21	10.15	782	11.12	863	10.33	797
22	10.14	782	10.72	830	10.28	793
23	10.14	782	10.62	821	10.25	791
24	10.15	782	10.60	820	10.23	789
25	10.16	783	10.60	820	10.22	788
26	10.17	784	10.58	818	10.22	788
27	10.19	786	10.60	820	10.18	785
28	10.19	786	10.55	816	10.18	785
29	10.22	788	10.50	811	10.18	785
30			10.44	806	10.17	784
31			10.39	802		

	February	March	April
Gain or loss in storage, in millions of cubic feet.	0	+14	-18
Gain or loss in storage, in equivalent mean second-feet	0	+5.23	-6.94

Wanaque River at Greenwood Lake, N. J.

Location.- Lat. 41°9'33", long. 74°20'3", 600 feet downstream from dam at outlet of Greenwood Lake at The Glens, Passaic County. Zero of gage is 601.32 feet above mean sea level.
Drainage area.- 27.1 square miles.
Gage-height record.- Water-stage recorder graph. No record Feb. 1-4, Feb. 19 to 9:40 a.m. Mar. 10.
Stage-discharge relation.- Defined by current-meter measurements below 300 second-feet; extended to peak stage on basis of determination of flow over spillway and through gate of Greenwood Lake dam.
Maxima.- 1936: Discharge, 914 second-feet 4:30 to 7 p.m. Mar. 12 (gage height, 4.82 feet).
1919-35: Discharge, 851 second-feet Aug. 24, 1933 (gage height, 4.45 feet).
Remarks.- Discharge for periods of missing record determined by study of flow over spillway and through gate of Greenwood Lake dam, and graphic comparison with records of Ramapo River near Mahwah and other nearby streams. Flow regulated by storage in Greenwood Lake (see record of Greenwood Lake at The Glens, N. J.). Monthly discharge corrected for storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	39	42	90	11	21	236	145	21	26	454	73
2	36	47	83	12	19.8	841	139	22	23	401	66
3	32	51	84	13	19.8	777	147	23	23	314	56
4	30	54	78	14	35	580	151	24	25	246	53
5	26	55	63	15	36	427	144	25	26	199	42
6	23	56	138	16	31	338	133	26	26	166	40
7	21	56	195	17	28	284	113	27	30	150	37
8	18.8	58	184	18	29	427	101	28	30	165	34
9	22	62	158	19	30	523	89	29	36	144	32
10	24	70	153	20	30	481	76	30		126	33
								31		108	
Mean monthly discharge, in second-feet (observed).....									27.5	256	97.7
Mean monthly discharge, in second-feet (corrected).....									27.5	261	90.6
Run-off, in inches (corrected).....									1.09	11.10	3.73

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	1.15	58	1.55	97	4.28	740	4.68	867
4	-	-	-	-	1.17	59	1.60	103	4.40	777	4.63	851
6	-	-	-	-	1.19	60	1.67	112	4.55	825	4.58	835
8	-	-	-	-	1.22	63	1.75	123	4.66	861	4.52	815
10	-	-	-	-	1.25	66	1.82	133	4.73	884	4.47	799
N	-	*58	-	*62	1.29	69	1.93	150	4.78	900	4.41	780
2	-	-	-	-	1.32	72	2.17	192	4.80	907	4.35	762
4	-	-	-	-	1.35	75	2.47	251	4.81	910	4.29	743
6	-	-	-	-	1.38	78	2.85	338	4.82	914	4.23	724
8	-	-	-	-	1.42	82	3.22	432	4.81	910	4.18	709
10	-	-	-	-	1.47	88	3.60	537	4.79	904	4.13	693
M	-	-	-	-	1.52	93	3.95	639	4.70	874	4.07	675
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.02	660	3.40	481	2.97	368	2.65	290	2.75	314	3.52	515
4	3.94	636	3.37	473	2.95	362	2.63	286	2.87	343	3.54	520
6	3.87	615	3.33	462	2.91	352	2.51	281	2.98	370	3.56	526
8	3.82	601	3.32	459	2.88	345	2.60	279	3.10	401	3.57	529
10	3.77	586	3.24	438	2.85	338	2.58	275	3.23	435	3.59	534
N	3.72	572	3.21	430	2.82	331	2.56	270	3.27	446	3.59	534
2	3.67	557	3.17	419	2.80	326	2.60	279	3.34	465	3.59	534
4	3.63	546	3.14	411	2.77	319	2.61	281	3.38	476	3.58	531
6	3.58	531	3.10	401	2.74	312	2.62	284	3.40	481	3.57	529
8	3.54	520	3.07	393	2.71	304	2.61	281	3.42	487	3.57	529
10	3.49	506	3.03	383	2.70	302	2.61	281	3.43	489	3.56	526
M	3.45	495	3.00	375	2.68	297	2.65	290	3.48	503	3.53	517
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.51	512	3.25	440	3.23	435	2.87	343	2.56	270	2.30	216
4	3.49	506	3.28	449	3.20	427	2.80	326	2.53	264	2.28	212
6	3.46	498	3.30	454	3.20	427	2.80	326	2.50	257	2.26	208
8	3.45	495	3.31	457	3.18	422	2.77	319	2.49	255	2.25	206
10	3.43	489	3.31	457	3.16	417	2.77	319	2.46	249	2.23	203
N	3.40	481	3.31	457	3.13	409	2.75	314	2.45	246	2.21	199
2	3.38	476	3.30	454	3.10	401	2.72	307	2.42	240	2.18	193
4	3.35	468	3.29	451	3.05	388	2.68	297	2.39	234	2.17	192
6	3.34	465	3.28	449	3.00	375	2.65	290	2.37	230	2.15	188
8	3.30	454	3.28	449	2.96	365	2.62	284	2.36	228	2.14	186
10	3.25	440	3.27	446	2.97	368	2.59	277	2.34	224	2.13	184
M	3.22	432	3.26	443	2.93	358	2.58	275	2.32	220	2.12	183

Supplemental records.- Mar. 12, 4:30 to 7 p.m., 4.82 ft., 914 sec.-ft.
* Mean for the day.

Wanaque Reservoir at Wanaque, N. J.

Location.- Lat. 41°2'30", long. 74°17'35", at Raymond Dam, Wanaque, Passaic County. Zero of gage is at mean sea level.
Drainage area.- 90.4 square miles (not including portion of Post Brook area diverted into reservoir).
Gage-height record.- Water-stage recorder graph for gage heights above 300.00 feet; gage read to hundredths once daily at 8 a.m. for lower gage heights. Table indicates gage heights at 8 a.m.
Remarks.- Usable storage capacity 3,476,000,000 cubic feet. Crest of spillway at gage height 300.00 feet. Records furnished by North Jersey District Water Supply Commission.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	296.34	3,356	295.48	3,276	301.84	3,903
2	296.27	3,350	295.52	3,280	301.83	3,902
3	296.20	3,343	295.58	3,285	301.84	3,903
4	296.19	3,342	295.63	3,290	301.82	3,901
5	296.15	3,339	295.72	3,298	301.79	3,898
6	296.11	3,335	295.84	3,310	302.14	3,934
7	296.06	3,330	295.91	3,316	302.10	3,930
8	296.00	3,325	295.99	3,324	301.88	3,907
9	295.97	3,322	296.07	3,331	301.78	3,897
10	295.94	3,319	296.16	3,340	301.94	3,913
11	295.89	3,314	296.59	3,381	301.99	3,918
12	295.83	3,309	300.90	3,806	301.99	3,918
13	295.77	3,303	302.19	3,939	301.99	3,918
14	295.81	3,307	302.01	3,921	302.00	3,920
15	295.82	3,308	301.81	3,900	301.99	3,918
16	295.78	3,304	301.68	3,887	301.97	3,916
17	295.75	3,301	301.55	3,873	301.91	3,910
18	295.74	3,300	301.95	3,914	301.89	3,908
19	295.70	3,297	302.25	3,945	301.85	3,904
20	295.66	3,293	302.07	3,927	301.82	3,901
21	295.61	3,288	302.00	3,920	301.78	3,897
22	295.53	3,281	301.85	3,904	301.74	3,893
23	295.48	3,276	301.70	3,889	301.72	3,891
24	295.43	3,271	301.59	3,877	301.69	3,888
25	295.36	3,265	301.46	3,864	301.65	3,883
26	295.32	3,261	301.37	3,855	301.66	3,885
27	295.35	3,264	301.53	3,872	301.66	3,885
28	295.42	3,270	301.61	3,879	301.65	3,883
29	295.45	3,273	301.78	3,897	301.65	3,883
30			301.87	3,906	301.65	3,883
31			301.88	3,907		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-80	+627	-21
Gain or loss in storage, in equivalent mean second-feet...	-31.9	+234	-8.10

Wanaque River at Wanaque, N. J.

Location.- Lat. 41°2'33", long. 74°17'36", above weir which is 50 feet above highway bridge in Wanaque, Passaic County. Zero of gage is 210.00 feet above mean sea level.
Drainage area.- 90.4 square miles (not including Post Brook).
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 1,700 second-feet.
Maxima.- 1936: Discharge, 1,940 second-feet 9 a.m. Mar. 19 (gage height, 6.07 feet).
1903-5, 1912-15, 1919-35: Gage height, 8.35 feet, former site and datum, from high-water marks, June 22 or 23, 1919 (discharge not determined).
Remarks.- Monthly discharge corrected for diversions from Post Brook into Wanaque Reservoir, diversions from Wanaque Reservoir, and storage in Wanaque Reservoir and Greenwood Lake (see records for Wanaque Reservoir at Wanaque, N. J., and Greenwood Lake at The Glens, N. J.). Mean monthly diversions from Post Brook into Wanaque Reservoir were: February, 1.2 second-feet; March, 14.0 second-feet; April, 5.8 second-feet. Mean monthly diversions from Wanaque Reservoir were: February, 116 second-feet; March, 106 second-feet; April, 102 second-feet. Base data furnished by North Jersey District Water Supply Commission.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	16.3	16.9	179	11	16.9	27	390	21	16.9	1,320	162
2	16.3	16.9	169	12	16.9	569	376	22	16.9	1,170	112
3	16.3	16.9	190	13	16.9	1,840	405	23	16.9	818	80
4	16.3	16.9	172	14	16.9	1,510	415	24	16.9	687	105
5	16.3	16.9	130	15	16.9	1,080	362	25	16.9	524	33
6	16.3	16.9	947	16	16.9	882	335	26	16.9	271	44
7	16.3	16.9	1,010	17	16.9	740	266	27	16.9	242	22
8	16.3	16.9	709	18	16.9	1,370	235	28	16.9	275	18.2
9	16.9	16.9	338	19	16.9	1,840	201	29	16.9	143	17.5
10	16.9	18.2	313	20	16.9	1,400	160	30		216	16.9
								31		235	
Mean monthly discharge, in second-feet (observed).....									16.7	559	264
Mean monthly discharge, in second-feet (corrected).....									99.0	891	345
Run-off, in inches (corrected).....									1.19	11.37	4.26

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.28	16.9	1.28	16.9	1.28	16.9	1.31	18.8	1.53	35	5.79	1,780
4	1.28	16.9	1.28	16.9	1.28	16.9	1.31	18.8	1.48	31	5.91	1,850
6	1.28	16.9	1.28	16.9	1.28	16.9	1.32	19.6	1.45	29	5.96	1,880
8	1.28	16.9	1.28	16.9	1.28	16.9	1.32	19.6	1.42	27	6.02	1,910
10	1.28	16.9	1.28	16.9	1.28	16.9	1.33	20	2.65	283	6.02	1,910
N	1.28	16.9	1.28	16.9	1.29	17.5	1.40	25	3.01	450	6.01	1,910
2	1.28	16.9	1.28	16.9	1.31	18.8	1.49	32	3.38	653	6.00	1,900
4	1.28	16.9	1.28	16.9	1.31	18.8	1.49	32	3.78	823	5.96	1,880
6	1.28	16.9	1.28	16.9	1.31	18.8	1.52	35	4.23	992	5.93	1,860
8	1.28	16.9	1.28	16.9	1.31	18.8	1.52	35	4.77	1,240	5.87	1,820
10	1.28	16.9	1.28	16.9	1.31	18.8	1.52	35	5.16	1,440	5.82	1,800
M	1.28	16.9	1.28	16.9	1.31	18.8	1.62	43	5.55	1,640	5.78	1,780
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.72	1,740	4.78	1,240	4.12	948	3.71	798	3.65	778	5.90	1,840
4	5.64	1,690	4.71	1,200	4.10	940	3.70	795	3.86	851	5.99	1,890
6	5.54	1,640	4.65	1,180	4.06	924	3.68	788	4.20	980	6.02	1,910
8	5.46	1,600	4.60	1,150	4.01	904	3.65	778	4.70	1,200	6.05	1,930
10	5.38	1,550	4.52	1,110	3.96	886	3.64	774	4.94	1,320	6.05	1,930
N	5.27	1,550	4.45	1,080	3.92	872	3.41	670	5.26	1,490	6.02	1,910
2	5.17	1,440	4.39	1,060	3.88	858	3.42	676	5.48	1,610	5.97	1,880
4	5.08	1,390	4.33	1,030	3.86	851	3.42	676	5.59	1,660	5.90	1,840
6	5.00	1,350	4.28	1,010	3.80	830	3.44	687	5.63	1,690	5.83	1,800
8	4.95	1,320	4.24	996	3.78	823	3.44	687	5.68	1,720	5.80	1,790
10	4.89	1,300	4.21	984	3.75	818	3.45	692	5.73	1,750	5.72	1,740
M	4.83	1,260	4.17	968	3.73	806	3.52	728	5.84	1,810	5.66	1,710
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.58	1,660	4.70	1,200	5.02	1,360	3.95	882	3.54	736	3.30	607
4	5.51	1,620	4.79	1,240	4.90	1,300	3.88	858	3.53	732	3.29	601
6	5.44	1,580	4.88	1,290	4.69	1,200	3.84	844	3.50	720	3.27	590
8	5.33	1,520	4.94	1,320	4.69	1,200	3.85	848	3.48	709	3.25	579
10	5.24	1,480	5.01	1,360	5.04	1,370	3.75	818	3.47	704	3.23	568
N	5.13	1,420	5.03	1,360	4.95	1,320	3.72	802	3.44	687	3.08	487
2	5.04	1,370	5.02	1,360	4.77	1,240	3.69	792	3.41	670	3.07	481
4	4.94	1,320	5.00	1,350	4.49	1,100	3.65	778	3.39	659	3.07	481
6	4.85	1,280	4.97	1,340	4.20	980	3.63	770	3.37	648	3.06	476
8	4.79	1,240	5.05	1,380	4.07	928	3.60	760	3.34	630	3.05	471
10	4.71	1,200	5.06	1,380	4.08	932	3.58	752	3.33	624	3.04	466
M	4.62	1,160	4.92	1,310	4.00	900	3.56	744	3.32	619	3.04	466

Supplemental records.- Mar. 12, 8:30 a.m., 1.41 ft., 26 sec.-ft. Mar. 19, 9 a.m., 6.07 ft., 1,940 sec.-ft.

Oak Ridge Reservoir at Oak Ridge, N. J.

Location.- Lat. 41°2'20", long. 74°30'5", at Oak Ridge Dam, 1 mile southwest of Oak Ridge, Passaic County. Zero of gage is at mean sea level.
Drainage area.- 33.7 square miles.
Gage-height record.- Gage read twice daily at 6 a.m. and 6 p.m. Gage heights at 6 a.m. shown in table.
Remarks.- Usable storage capacity 532,000,000 cubic feet. Records furnished by Department of Public Affairs, Division of Water, Newark, N. J.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	845.91	519	843.62	476	846.00	521
2	845.87	518	843.62	476	845.98	520
3	845.81	517	843.60	476	846.00	521
4	845.75	516	843.57	475	845.98	520
5	845.75	516	843.54	475	845.90	519
6	845.70	515	843.57	475	846.09	522
7	845.64	514	843.58	475	846.32	527
8	845.58	513	843.56	475	846.20	525
9	845.49	511	843.54	475	846.13	523
10	845.41	509	843.55	475	846.13	523
11	845.34	508	843.99	483	846.13	523
12	845.22	506	847.03	540	846.13	523
13	845.08	503	846.73	535	846.13	523
14	845.01	502	846.45	529	846.14	523
15	844.93	500	846.35	527	846.11	523
16	844.83	498	846.30	526	846.08	522
17	844.73	497	846.27	526	846.04	521
18	844.63	495	846.56	532	846.01	521
19	844.53	493	846.77	536	845.97	520
20	844.43	491	846.53	531	845.93	519
21	844.32	489	846.46	530	845.89	519
22	844.21	487	846.40	528	845.93	519
23	844.08	484	846.28	526	845.99	521
24	843.90	481	846.22	525	846.02	521
25	843.71	478	846.17	524	845.98	520
26	843.55	475	846.15	524	845.96	520
27	843.52	474	846.11	523	845.95	520
28	843.61	476	846.17	524	845.99	521
29	843.63	476	846.12	523	846.02	521
30			846.08	522	846.02	521
31			846.04	521		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-43	+45	0
Gain or loss in storage, in equivalent mean second-feet.	-17.2	+16.8	0

Canistear Reservoir near Stockholm, N. J.

Location.- Lat. 41°6'35", long. 74°29'40", at Canistear Reservoir dam, 2 miles north of Stockholm, Sussex County. Zero of gage is at mean sea level.
Drainage area.- 5.59 square miles.
Gage-height record.- One gage reading daily at noon.
Remarks.- Usable storage capacity, 322,000,000 cubic feet. Records furnished by Department of Public Affairs, Division of Water, Newark, N. J.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	1,086.18	324	1,086.12	324	1,086.17	324
2	1,086.18	324	1,086.12	324	1,086.17	324
3	1,086.18	324	1,086.12	324	1,086.16	324
4	1,086.17	324	1,086.12	324	1,086.16	324
5	1,086.17	324	1,086.12	324	1,086.16	324
6	1,086.17	324	1,086.12	324	1,086.16	324
7	1,086.17	324	1,086.12	324	1,086.25	325
8	1,086.17	324	1,086.12	324	1,086.20	325
9	1,086.17	324	1,086.12	324	1,086.17	324
10	1,086.17	324	1,086.12	324	1,086.18	324
11	1,086.17	324	1,086.14	324	1,086.18	324
12	1,086.17	324	1,086.20	325	1,086.19	325
13	1,086.16	324	1,086.45	328	1,086.19	325
14	1,086.16	324	1,086.30	326	1,086.19	325
15	1,086.16	324	1,086.26	326	1,086.19	325
16	1,086.16	324	1,086.22	325	1,086.19	325
17	1,086.16	324	1,086.20	325	1,086.19	325
18	1,086.16	324	1,086.30	326	1,086.19	325
19	1,086.15	324	1,086.50	329	1,086.19	325
20	1,086.15	324	1,086.45	328	1,086.18	324
21	1,086.17	324	1,086.40	328	1,086.17	324
22	1,086.17	324	1,086.30	326	1,086.17	324
23	1,086.17	324	1,086.30	326	1,086.16	324
24	1,086.17	324	1,086.25	325	1,086.16	324
25	1,086.13	324	1,086.22	325	1,086.16	324
26	1,086.12	324	1,086.19	325	1,086.15	324
27	1,086.12	324	1,086.17	324	1,086.15	324
28	1,086.12	324	1,086.17	324	1,086.15	324
29	1,086.12	324	1,086.17	324	1,086.15	324
30			1,086.17	324	1,086.15	324
31			1,086.17	324		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	0	0	0
Gain or loss in storage, in equivalent mean second-feet.	0	0	0

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Clinton Reservoir near Newfoundland, N. J.

Location.- Lat. 41°4'20", long. 74°27'0", at Clinton Reservoir dam, 2 miles north of Newfoundland, Passaic County. Zero of gage is at mean sea level.
Drainage area.- 10.5 square miles.
Gage-height record.- One gage reading daily at 9 a.m.
Remarks.- Usable storage capacity, 470,000,000 cubic feet. Records furnished by Department of Public Affairs, Division of Water, Newark, N. J.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	992.15	473	990.56	446	992.22	474
2	992.14	473	990.49	444	992.22	474
3	992.13	473	990.42	443	992.22	474
4	992.10	472	990.36	442	992.22	474
5	992.07	471	990.30	441	992.22	474
6	991.99	470	990.29	441	992.27	475
7	991.92	469	990.28	441	992.32	476
8	991.84	468	990.28	441	992.34	476
9	991.77	466	990.29	441	992.30	475
10	991.72	465	990.29	441	992.30	475
11	991.64	464	990.38	443	992.30	475
12	991.56	463	993.19	491	992.30	475
13	991.50	462	992.83	485	992.33	476
14	991.46	461	992.70	482	992.33	476
15	991.40	460	992.53	480	992.31	476
16	991.35	459	992.48	479	992.29	475
17	991.27	458	992.44	478	992.26	475
18	991.20	457	993.03	488	992.23	474
19	991.13	455	993.08	489	992.20	474
20	991.10	455	992.75	483	992.16	473
21	991.05	454	992.67	482	992.11	472
22	991.01	453	992.50	479	992.11	472
23	990.97	453	992.45	478	992.10	472
24	990.92	452	992.37	477	992.10	472
25	990.86	451	992.32	476	992.10	472
26	990.82	450	992.27	475	991.98	470
27	990.76	449	992.22	474	991.93	469
28	990.70	448	992.22	474	991.88	468
29	990.63	447	992.22	474	991.80	467
30			992.22	474	991.72	465
31			992.22	474		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-27	+28	-10
Gain or loss in storage, in equivalent mean second-feet.	-10.8	+10.5	-3.86

Echo Lake Reservoir near Charlotteburg, N. J.

Location.- Lat. 41°2'55", long. 74°24'25", 1½ miles northeast of Charlotteburg, Passaic County. Zero of gage is at mean sea level.
Drainage area.- 2.51 square miles.
Gage-height record.- One gage reading daily at noon.
Remarks.- Usable storage capacity 225,000,000 cubic feet. Records furnished by Department of Public Affairs, Division of Water, Newark, N. J.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	893.19	214	892.90	210	893.09	213
2	893.18	214	892.85	210	893.03	212
3	893.17	214	892.80	209	893.03	212
4	893.18	214	892.72	208	893.00	212
5	893.19	214	892.80	209	892.97	211
6	893.19	214	892.84	210	893.40	217
7	893.20	214	892.90	210	893.42	217
8	893.20	214	892.50	205	893.30	215
9	893.21	214	892.39	204	893.18	214
10	893.23	214	892.43	205	893.06	212
11	893.23	214	892.50	205	893.09	213
12	893.22	214	894.25	228	893.15	213
13	893.21	214	893.90	223	893.18	214
14	893.22	214	893.75	221	893.20	214
15	893.23	214	893.51	218	893.17	214
16	893.23	214	893.49	218	893.20	214
17	893.24	215	893.36	216	893.23	214
18	893.25	215	893.87	223	893.01	212
19	893.26	215	894.04	225	892.98	211
20	893.26	215	893.87	223	892.95	211
21	893.25	215	893.71	220	892.87	210
22	893.24	215	893.62	219	892.30	203
23	893.23	214	893.47	218	892.77	209
24	893.22	214	893.38	216	-	208
25	893.22	214	893.32	216	892.62	207
26	893.22	214	893.22	214	892.57	206
27	893.02	212	893.34	216	892.51	206
28	893.00	212	893.38	216	892.45	205
29	892.95	211	893.30	215	892.32	203
30			893.21	214	892.32	203
31			893.18	214		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-4	+3	-10
Gain or loss in storage, in equivalent mean second-feet.	-1.60	+1.12	-3.86

Pequannock River at Macopin intake dam, N. J.

Location.- Lat. 41°1'0", long. 74°23'47", at Macopin intake dam of Newark water works, 3 miles above Butler, Morris County. Zero of gage is 583.74 feet above mean sea level.
Drainage area.- 63.7 square miles.
Gage-height record.- Two gage readings daily.
Stage-discharge relation.- Discharge is flow over dam.
Maxima.- 1936: Discharge observed, 2,600 second-feet noon to 6 p.m. Mar. 12 (gage height, 2.20 feet).
1892-1935: Discharge observed, about 6,100 second-feet Oct. 10, 1903 (gage height, 3.85 feet).
Remarks.- Run-off affected by storage and diversion. Mean monthly discharge corrected for diversions and storage in Oak Ridge, Canistear, Clinton, and Echo Lake reservoirs. Mean monthly diversions: February, 54.0 second-feet; March, 59.8 second-feet; April, 57.1 second-feet. For daily changes in storage see records for Oak Ridge Reservoir at Oak Ridge, N. J.; Canistear Reservoir near Stockholm, N. J.; Clinton Reservoir near New Foundland, N. J.; and Echo Lake Reservoir near Charlotteburg, N. J. Records furnished by Department of Public Affairs, Division of Water, Newark, N. J.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	49	73	172	11	49	822	340	21	49	1,050	128
2	49	61	165	12	49	2,070	355	22	49	777	114
3	49	57	203	13	49	1,870	333	23	49	559	99
4	49	57	189	14	49	988	290	24	46	424	99
5	49	69	165	15	49	695	270	25	35	333	99
6	49	73	479	16	49	586	244	26	53	250	99
7	49	86	641	17	49	596	194	27	61	284	86
8	49	99	455	18	49	1,440	165	28	57	333	61
9	49	114	340	19	49	1,790	144	29	69	244	49
10	49	182	340	20	49	1,310	128	30		231	49
								31		218	
Mean monthly discharge, in second-feet (observed)									49.9	572	216
Mean monthly discharge, in second-feet (corrected)									74.2	661	266
Run-off, in inches (corrected)									1.25	11.97	4.66

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	0.25	99	0.25	99	0.30	128	0.50	270	1.80	1,900	1.90	2,070
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	-	-	-	-	-	-	-	-	2.20	2,600	-	-
2	-	-	-	-	-	-	-	-	2.20	2,600	-	-
4	-	-	-	-	-	-	-	-	2.20	2,600	-	-
6	.25	99	.30	128	.45	231	1.50	1,440	2.20	2,600	1.50	1,440
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	-	-	-	-	-	-
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	1.25	1,090	.95	714	.85	605	.65	401	1.40	1,300	1.90	2,070
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	1.05	835	.90	659	.80	551	.75	497	1.75	1,830	1.70	1,750
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	-	-	-	-	-	-
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	1.45	1,370	1.25	1,090	1.05	835	.80	551	.70	447	.60	355
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-
6	1.25	1,090	1.15	962	1.05	835	.75	497	.65	401	.55	312
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	-	-	-	-	-	-

Saddle River at Lodi, N. J.

Location.- Lat. 40°53'24", long. 74°4'50", at highway bridge 1 mile above Lodi, Bergen County, and 2 3/4 miles above mouth of river. Zero of gage is 22.45 feet above mean sea level.
Drainage area.- 54.6 square miles (revised).
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 4. Defined by current-meter measurements below 700 second-feet; extension to peak stage based on study of peak discharge of Pascack Brook.
Maxima.- 1936: Discharge, 2,200 second-feet 6 to 7 p.m. Mar. 12 (gage height, 6.27 feet).
1923-35: Discharge, about 1,630 second-feet Sept. 2, 1927 (gage height, 6.82 feet).
Remarks.- Run-off not materially affected by artificial storage. Discharge for period of ice effect determined by study of recorder charts, one discharge measurement, weather records, and comparison with records of Ramapo River and Pascack Brook.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	47	94	162	11	36	339	284	21	58	421	132
2	45	90	151	12	36	1,580	255	22	58	548	128
3	44	94	189	13	36	987	235	23	59	310	117
4	42	110	196	14	39	421	269	24	60	240	114
5	40	170	155	15	50	291	235	25	62	219	108
6	39	143	354	16	66	246	204	26	66	206	107
7	38	109	908	17	60	216	184	27	77	201	108
8	37	101	370	18	66	292	160	28	95	300	102
9	36	106	249	19	60	757	147	29	94	323	97
10	36	147	240	20	58	548	136	30		219	96
								31		182	
Mean monthly discharge, in second-feet									53.1	323	206
Run-off, in inches									1.05	6.82	4.21

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.30	109	2.29	107	2.37	122	2.75	204	4.06	689	5.55	1,590
4	2.29	107	2.29	107	2.40	127	2.79	214	4.32	818	5.28	1,400
6	2.28	106	2.28	106	2.42	131	2.83	224	4.68	1,020	5.03	1,230
8	2.25	101	2.26	103	2.44	135	2.87	235	5.16	1,310	4.81	1,100
10	2.23	98	2.25	101	2.45	137	2.95	258	5.52	1,570	4.61	976
N	2.21	95	2.25	101	2.46	139	3.04	284	5.81	1,800	4.43	876
2	2.19	92	2.25	101	2.49	145	3.16	323	6.03	1,990	4.27	793
4	2.19	92	2.25	101	2.55	158	3.33	381	6.19	2,130	4.14	728
6	2.20	93	2.28	106	2.61	170	3.49	440	6.27	2,200	4.05	684
8	2.23	98	2.30	109	2.65	180	3.63	497	6.23	2,170	3.95	637
10	2.27	104	2.32	113	2.69	189	3.75	548	6.03	1,990	3.86	596
M	2.28	106	2.35	118	2.72	196	3.96	642	5.82	1,810	3.78	560
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.71	530	3.16	323	2.96	260	2.84	227	2.75	204	4.19	752
4	3.63	497	3.12	310	2.94	255	2.84	227	2.79	214	4.29	803
6	3.57	472	3.09	300	2.93	252	2.83	224	2.83	224	4.31	813
8	3.51	448	3.07	294	2.91	246	2.81	219	2.88	238	4.29	803
10	3.45	425	3.05	288	2.89	240	2.80	216	2.93	252	4.24	777
N	3.40	406	3.04	284	2.88	238	2.79	214	2.97	263	4.19	752
2	3.36	392	3.02	278	2.87	235	2.78	211	3.01	275	4.14	728
4	3.32	377	3.01	275	2.87	235	2.77	208	3.05	288	4.14	728
6	3.28	363	3.00	272	2.86	232	2.77	208	3.12	310	4.14	728
8	3.25	353	2.99	269	2.86	232	2.76	206	3.25	353	4.15	732
10	3.22	343	2.98	266	2.85	230	2.75	204	3.59	480	4.15	732
M	3.18	329	2.97	263	2.85	230	2.75	204	3.95	637	4.14	728
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.09	703	3.37	395	4.02	670	3.31	374	2.94	255	2.84	227
4	4.02	670	3.36	392	4.05	684	3.26	356	2.93	252	2.83	224
6	3.94	632	3.37	395	4.04	679	3.22	343	2.92	249	2.83	224
8	3.85	592	3.37	395	3.96	642	3.18	329	2.91	246	2.82	221
10	3.78	560	3.37	395	3.86	596	3.14	316	2.89	240	2.81	219
N	3.70	526	3.36	392	3.77	556	3.11	306	2.88	238	2.81	219
2	3.64	501	3.36	392	3.69	522	3.07	294	2.87	235	2.80	216
4	3.58	476	3.37	395	3.61	488	3.04	284	2.87	235	2.79	214
6	3.53	456	3.42	414	3.54	460	3.02	278	2.86	232	2.79	214
8	3.48	436	3.54	460	3.47	433	2.99	269	2.85	230	2.79	214
10	3.44	421	3.69	522	3.41	410	2.98	266	2.85	230	2.79	214
M	3.39	402	3.92	623	3.36	392	2.96	260	2.84	227	2.78	211

Elizabeth River at Elizabeth, N. J.

Location.- Lat. 40°40'3", long. 74°13'9", at dam just above Westfield Avenue Bridge, Elizabeth, Union County, and 2½ miles above mouth.
Drainage area.- 20.2 square miles; affected by diversions for municipal use.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 180 second-feet; extended to peak stage by logarithmic plotting and computation of effect of vertical abutments above gage height 5.0 feet.
Maxima.- 1936: Discharge during year, 722 second-feet Jan. 3 (gage height, 6.04 feet); during March, 462 second-feet 1:30 a.m. Mar. 12.
1921-35: Discharge, about 2,640 second-feet Sept. 1, 1927, and Nov. 19, 1933 (gage height, 9.73 feet).
Remarks.- Mean monthly discharge and run-off, in inches, corrected for diversions. Mean monthly diversions were: Feb., 3.9 second-feet; Mar., 3.8 second-feet; Apr., 2.9 second-feet.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	6.3	46	14.0	11	6.0	210	53	21	6.3	119	12.7
2	6.0	35	24	12	5.8	146	34	22	6.7	31	6.3
3	6.0	53	29	13	6.0	46	39	23	7.3	23	3.2
4	6.5	63	14.0	14	6.5	32	23	24	6.8	20	5.0
5	6.4	49	18.0	15	6.5	24	20	25	27	18.0	9.3
6	6.2	32	313	16	6.5	19.5	23	26	36	16.1	9.0
7	6.0	22	22	17	11.8	21	15.7	27	44	51	8.7
8	5.8	18.4	7.9	18	20	122	14.8	28	43	51	9.0
9	6.3	22	33	19	9.6	87	13.1	29	47	19.5	9.0
10	6.1	32	44	20	7.4	36	12.7	30		17.0	9.0
								31		15.7	
Mean monthly discharge, in second-feet (observed).....									12.8	48.3	28.3
Mean monthly discharge, in second-feet (corrected).....									16.7	52.1	31.2
Run-off, in inches (corrected).....									0.89	2.97	1.72

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.04	19.0	3.04	19.0	3.17	26	3.28	34	5.35	448	3.55	56
4	3.02	18.0	3.02	18.0	3.15	25	3.37	41	4.65	237	3.52	53
6	2.99	16.6	3.00	17.0	3.13	24	3.72	74	4.24	150	3.48	49
8	2.97	15.7	3.00	17.0	3.12	23	4.08	123	4.04	117	3.45	47
10	2.97	15.7	2.99	16.6	3.10	22	4.49	200	3.94	103	3.44	46
N	2.97	15.7	2.99	16.6	3.10	22	4.94	315	3.88	94	3.41	44
2	2.97	15.7	3.02	18.0	3.20	28	5.26	416	3.81	85	3.41	44
4	3.01	17.5	3.12	23	3.38	41	5.20	396	3.75	78	3.39	42
6	3.09	22	3.22	29	3.47	49	4.83	283	3.73	76	3.37	41
8	3.13	24	3.23	30	3.48	49	4.46	194	3.67	69	3.36	40
10	3.12	23	3.22	29	3.42	45	4.76	265	3.62	63	3.34	38
M	3.07	20	3.20	28	3.34	38	5.21	399	3.58	59	3.32	37
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.31	36	3.17	26	3.08	21	3.02	18.0	3.45	47	4.40	181
4	3.30	35	3.16	26	3.07	20	3.02	18.0	4.45	192	4.13	131
6	3.28	34	3.15	25	3.06	20	3.01	17.5	4.68	244	3.94	103
8	3.26	32	3.14	24	3.06	20	3.01	17.5	4.55	214	3.73	76
10	3.26	32	3.13	24	3.05	19.5	3.00	17.0	4.60	225	3.70	72
N	3.24	31	3.12	23	3.05	19.5	3.00	17.0	4.06	120	3.74	77
2	3.23	30	3.12	23	3.04	19.0	3.06	20	3.76	79	3.61	62
4	3.22	29	3.11	23	3.04	19.0	3.16	26	3.62	63	3.52	53
6	3.22	29	3.10	22	3.04	19.0	3.27	33	3.60	61	3.46	48
8	3.20	28	3.09	22	3.04	19.0	3.17	26	3.55	56	3.44	46
10	3.19	27	3.09	22	3.04	19.0	3.08	21	3.57	58	3.49	50
M	3.18	27	3.08	21	3.04	19.0	3.07	20	4.50	202	3.56	57
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.45	47	4.47	196	3.38	41	3.12	23	3.08	21	3.03	18.5
4	3.38	41	4.93	312	3.36	40	3.12	23	3.09	22	3.02	18.0
6	3.34	38	4.93	312	3.29	34	3.12	23	3.12	23	3.02	18.0
8	3.32	37	4.28	157	3.29	34	3.12	23	3.12	23	3.02	18.0
10	3.30	35	3.90	97	3.33	37	3.11	23	3.08	21	3.01	17.5
N	3.28	34	3.74	77	3.26	32	3.11	23	3.06	20	3.01	17.5
2	3.27	33	3.63	64	3.18	27	3.11	23	3.06	20	3.01	17.5
4	3.26	32	3.54	55	3.21	29	3.11	23	3.06	20	3.02	18.0
6	3.24	31	3.49	50	3.08	21	3.10	22	3.06	20	3.02	18.0
8	3.23	30	3.47	49	3.10	22	3.10	22	3.06	20	3.02	18.0
10	3.22	29	3.42	45	3.12	23	3.09	22	3.04	19.0	3.01	17.5
M	3.32	37	3.42	45	3.12	23	3.08	21	3.04	19.0	3.01	17.5

Rahway River at Rahway, N. J.

Location.- Lat. 40°37'5", long. 74°17'0", 100 feet above St. George Avenue Bridge, Rahway, Union County, 1 mile above mouth of Robinsons Branch of Rahway River. Zero of gage is 8.63 feet above mean sea level.
Drainage area.- 40.9 square miles; affected by diversions for municipal use.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 500 second-feet; extended to peak stage by logarithmic plotting and study of laboratory rating of control having similar cross section.
Maxima.- 1936: Discharge, 1,120 second-feet 10 a.m. Mar. 12 (gage height, 4.12 feet).
1908-15, 1921-35: Discharge, about 1,740 second-feet Aug. 2, 1927 (gage height, 6.0 feet, former site and datum).
Remarks.- Monthly discharge and run-off, in inches, corrected for diversions. Mean monthly diversions were: Feb., 17.9 second-feet; Mar., 18.3 second-feet; Apr., 17.6 second-feet.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	17.4	121	44	11	15.0	400	116	21	20	272	38
2	17.2	105	46	12	14.2	978	103	22	19.2	202	35
3	17.5	111	66	13	13.7	412	107	23	18.1	94	34
4	18.0	157	53	14	15.4	129	88	24	19.2	77	34
5	19.1	186	43	15	16.5	90	69	25	23	68	31
6	17.6	116	395	16	18.7	73	64	26	60	56	31
7	17.3	79	452	17	18.3	66	56	27	98	69	30
8	16.0	62	129	18	29	258	48	28	105	159	28
9	15.6	61	79	19	31	363	44	29	110	88	28
10	17.3	116	118	20	24	182	41	30		60	27
								31		53	
Mean monthly discharge, in second-feet (observed).....									29.0	170	82.6
Mean monthly discharge, in second-feet (corrected)									46.9	188	100
Run-off, in inches (corrected).....									1.24	5.30	2.72

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.76	69	1.79	75	1.92	103	2.30	208	3.90	980	3.30	640
4	1.76	69	1.76	69	1.93	105	2.33	218	3.99	1,030	3.20	589
6	1.75	68	1.75	68	1.94	107	2.39	240	3.98	1,030	3.10	541
8	1.73	64	1.75	68	1.94	107	2.50	281	4.04	1,070	3.00	495
10	1.71	60	1.74	66	2.02	126	2.60	321	4.12	1,120	2.91	454
N	1.70	58	1.74	66	1.94	107	2.75	384	4.08	1,100	2.79	402
2	1.70	58	1.69	56	1.92	103	2.91	454	4.04	1,070	2.69	359
4	1.69	56	1.58	38	1.92	103	3.06	523	3.98	1,030	2.59	317
6	1.69	56	1.59	40	1.95	110	3.09	536	3.87	962	2.48	273
8	1.69	56	1.65	50	2.01	124	3.12	551	3.76	896	2.40	243
10	1.70	58	1.76	69	2.12	153	3.27	625	3.58	794	2.32	215
M	1.71	60	1.87	92	2.22	182	3.63	822	3.42	706	2.24	189
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.17	167	1.90	98	1.82	81	1.76	69	1.80	77	2.84	424
4	2.12	153	1.88	94	1.81	79	1.75	68	1.87	92	2.82	415
6	2.09	144	1.88	94	1.80	77	1.75	68	2.12	153	2.77	393
8	2.05	134	1.87	92	1.79	75	1.74	66	2.34	222	2.73	376
10	2.03	129	1.86	90	1.78	73	1.73	64	2.55	301	2.71	367
N	2.01	124	1.85	88	1.78	73	1.73	64	2.57	309	2.70	363
2	1.98	116	1.85	88	1.78	73	1.73	64	2.57	309	2.70	363
4	1.96	112	1.85	88	1.78	73	1.73	64	2.64	338	2.68	355
6	1.95	110	1.84	85	1.77	71	1.73	64	2.74	380	2.65	342
8	1.94	107	1.83	83	1.77	71	1.73	64	2.74	380	2.62	329
10	1.93	105	1.83	83	1.76	69	1.74	66	2.73	376	2.59	317
M	1.91	100	1.82	81	1.75	68	1.75	68	2.76	389	2.54	297
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.48	273	2.01	124	2.59	317	1.92	103	1.82	81	1.78	73
4	2.41	247	2.18	170	2.54	297	1.90	98	1.81	79	1.78	73
6	2.34	222	2.40	243	2.47	270	1.89	96	1.80	77	1.76	69
8	2.29	205	2.51	285	2.40	243	1.87	92	1.79	75	1.75	68
10	2.24	189	2.51	285	2.32	215	1.86	90	1.79	75	1.75	68
N	2.18	170	2.54	297	2.24	189	1.86	90	1.79	75	1.74	66
2	2.14	159	2.58	313	2.17	167	1.85	88	1.79	75	1.74	66
4	2.09	144	2.61	325	2.10	147	1.86	90	1.79	75	1.73	64
6	2.05	134	2.63	334	2.04	131	1.86	90	1.79	75	1.73	64
8	2.02	126	2.65	342	2.00	121	1.85	88	1.78	73	1.73	64
10	2.00	121	2.65	342	1.98	116	1.83	83	1.78	73	1.72	62
M	1.99	119	2.63	334	1.95	110	1.83	83	1.78	73	1.72	62

South Branch of Raritan River near High Bridge, N. J.

Location.- Lat. 40°40'40", long. 74°52'51", 1 mile above High Bridge, Hunterdon County, and 4 miles above mouth of Spruce Run. Zero of gage is 282.10 feet above mean sea level.

Drainage area.- 65.3 square miles; not affected by storage.

Gage-height record.- Water-stage recorder graph except for the period Feb. 1-3, when there was no record.

Stage-discharge relation.- Affected by ice Feb. 4-28. Defined by current-meter measurements below 1,600 second-feet; extended to peak stage by logarithmic plotting; verified by comparison of flood run-off with records for other streams in Raritan River Basin.

Maxima.- 1936: Discharge, 3,080 second-feet midnight Mar. 11 (gage height, 10.51 feet).
1919-35: Discharge, about 3,600 second-feet Feb. 2, 1922 (gage height, 10.97 feet).

Remarks.- During periods of ice effect or missing gage-height records, discharge determined by study of available recorder graph, observer's notes, and weather records, and comparison with records of South Branch of Raritan River at Stanton and other nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	54	161	221	11	47	1,510	391	21	70	700	173
2	53	148	229	12	47	1,960	336	22	70	517	173
3	52	137	253	13	48	782	339	23	70	383	159
4	58	162	201	14	60	522	286	24	70	355	152
5	70	256	188	15	90	443	250	25	70	321	146
6	67	204	1,160	16	85	387	241	26	100	282	143
7	63	152	517	17	85	375	215	27	120	428	137
8	60	143	375	18	95	973	204	28	200	468	131
9	53	172	317	19	80	714	193	29	180	303	129
10	48	455	387	20	74	532	183	30		266	125
								31		238	
Mean monthly discharge, in second-feet									77.2	466	265
Run-off, in inches									1.27	8.23	4.53

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	6.55	150	6.59	159	7.03	282	8.38	950	10.46	3,020	8.51	1,040
4	6.53	146	6.59	159	7.04	286	8.32	912	10.33	2,850	8.40	962
6	6.51	141	6.58	157	7.00	272	8.25	870	10.10	2,570	8.28	888
8	6.49	137	6.57	154	6.97	263	8.19	834	9.86	2,300	8.18	828
10	6.46	131	6.56	152	6.95	256	8.20	840	9.66	2,080	8.08	771
N	6.44	127	6.54	148	7.02	279	8.61	1,110	9.45	1,860	8.01	731
2	6.45	129	6.54	148	7.36	408	9.10	1,520	9.25	1,660	7.93	686
4	6.45	129	6.61	163	7.74	586	9.35	1,760	9.10	1,520	7.91	676
6	6.52	143	6.70	185	8.02	736	9.57	1,980	8.93	1,370	7.86	649
8	6.59	159	6.77	204	8.19	834	9.99	2,440	8.79	1,250	7.82	628
10	6.63	168	6.85	226	8.29	894	10.36	2,890	8.70	1,180	7.80	617
M	6.61	163	6.96	260	8.35	931	10.51	3,080	8.61	1,110	7.78	607
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.74	586	7.53	484	7.40	425	7.26	367	7.86	649	8.11	788
4	7.71	571	7.51	475	7.39	421	7.27	371	8.23	858	8.05	754
6	7.66	546	7.48	461	7.36	408	7.27	371	8.47	1,010	8.04	748
8	7.63	532	7.45	448	7.33	396	7.27	371	8.71	1,190	8.03	742
10	7.59	512	7.42	434	7.33	396	7.28	375	8.86	1,310	8.03	742
N	7.56	498	7.41	430	7.28	375	7.26	367	8.84	1,290	8.02	736
2	7.56	498	7.38	417	7.28	375	7.26	367	8.73	1,200	8.00	725
4	7.54	489	7.37	412	7.27	371	7.29	379	8.58	1,090	7.98	714
6	7.53	484	7.37	412	7.27	371	7.26	367	8.36	937	7.92	681
8	7.53	484	7.37	412	7.24	359	7.28	375	8.18	828	7.87	654
10	7.53	484	7.38	417	7.26	367	7.32	391	8.14	805	7.83	633
M	7.53	484	7.40	425	7.26	367	7.48	461	8.12	794	7.80	617
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.79	612	7.49	466	7.86	649	7.35	404	7.24	359	7.19	339
4	7.79	612	7.63	532	7.83	633	7.34	400	7.24	359	7.16	328
6	7.77	602	7.81	622	7.77	602	7.32	391	7.24	359	7.16	328
8	7.72	576	7.96	703	7.70	566	7.31	387	7.24	359	7.16	328
10	7.66	546	8.14	805	7.63	532	7.30	383	7.26	367	7.16	328
N	7.61	522	8.27	882	7.57	503	7.29	379	7.25	363	7.15	324
2	7.58	508	8.26	876	7.53	484	7.28	375	7.22	351	7.14	321
4	7.53	484	8.14	805	7.48	461	7.28	375	7.23	355	7.13	317
6	7.52	479	8.02	736	7.45	448	7.27	371	7.22	351	7.12	313
8	7.49	466	7.91	676	7.41	430	7.23	355	7.18	336	7.10	306
10	7.48	461	7.88	659	7.39	421	7.23	355	7.19	339	7.10	306
M	7.46	452	7.87	654	7.37	412	7.23	355	7.19	339	7.09	303

South Branch of Raritan River at Stanton, N. J.

Location.- Lat. 40°34'21", long. 74°52'10", at highway bridge near Stanton railroad station, Reading Township, Hunterdon County, and half a mile above mouth of Prescott Brook.

Drainage area.- 147 square miles; not materially affected by artificial storage.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 2. Defined by current-meter measurements below 1,200 second-feet; extended to peak stage by averaging discharges obtained from slope-area method and computation of flow over dams; verified by comparison of peak discharge and total run-off of flood with records on nearby streams in Raritan River Basin.

Maxima.- 1936: Discharge, 5,800 second-feet 2 a.m. Mar. 12 (gage height, 9.37 feet).
1903-6, 1919-35: Discharge, 7,070 second-feet July 9, 1935 (gage height, 10.80 feet).

Remarks.- Discharge for period of ice effect based on one current-meter measurement, study of observer's notes and weather records, and comparison with records of South Branch of Raritan River near High Bridge and other nearby rivers.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	127	470	470	11	108	3,280	882	21	165	1,520	373
2	124	450	488	12	107	3,960	759	22	160	1,140	364
3	120	438	537	13	108	1,660	820	23	160	851	328
4	135	589	420	14	150	1,100	666	24	160	790	309
5	160	759	385	15	220	914	573	25	160	700	294
6	150	568	2,580	16	200	790	563	26	250	605	280
7	145	433	1,210	17	200	759	488	27	350	970	273
8	140	424	820	18	240	2,420	451	28	600	1,040	257
9	120	488	689	19	200	1,690	429	29	500	643	257
10	110	994	914	20	180	1,210	398	30		579	247
								31		527	
Mean monthly discharge, in second-feet									191	1,057	584
Run-off, in inches									1.40	8.29	4.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.52	451	3.60	488	3.88	632	5.45	1,660	9.37	5,800	6.16	2,190
4	3.46	424	3.55	465	3.86	621	5.52	1,700	9.26	5,640	5.95	2,020
6	3.40	398	3.49	438	3.87	627	5.67	1,820	8.93	5,170	5.78	1,900
8	3.35	377	3.45	420	3.87	627	5.84	1,940	8.59	4,710	5.61	1,770
10	3.30	356	3.44	416	3.84	611	6.16	2,190	8.23	4,240	5.47	1,670
N	3.28	348	3.43	411	3.83	605	6.86	2,760	7.86	3,790	5.35	1,580
2	3.30	356	3.45	420	4.07	741	7.72	3,630	7.49	3,380	5.24	1,510
4	3.38	390	3.47	429	4.82	1,220	8.47	4,550	7.18	3,070	5.16	1,460
6	3.51	447	3.63	503	5.41	1,630	9.00	5,270	6.93	2,830	5.08	1,410
8	3.66	517	3.92	654	5.53	1,710	9.14	5,470	6.75	2,660	5.01	1,360
10	3.68	527	4.03	718	5.53	1,710	9.03	5,310	6.53	2,480	4.96	1,320
M	3.65	512	3.95	672	5.49	1,680	9.25	5,620	6.35	2,340	4.90	1,280
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.87	1,260	4.45	978	4.21	826	4.03	718	4.95	1,320	5.78	1,900
4	4.81	1,220	4.44	971	4.21	826	4.03	718	6.15	2,180	5.78	1,900
6	4.75	1,180	4.43	964	4.20	820	4.05	730	7.16	3,050	5.68	1,820
8	4.70	1,140	4.40	945	4.18	808	4.06	735	7.62	3,520	5.59	1,750
10	4.65	1,100	4.37	926	4.15	790	4.06	735	7.53	3,420	5.58	1,750
N	4.60	1,070	4.33	901	4.13	777	4.06	735	7.16	3,050	5.54	1,720
2	4.57	1,050	4.30	882	4.11	765	4.05	730	6.76	2,670	5.46	1,660
4	4.55	1,040	4.27	863	4.08	747	4.05	730	6.50	2,460	5.39	1,610
6	4.52	1,020	4.25	851	4.07	741	4.08	747	6.26	2,270	5.30	1,550
8	4.51	1,020	4.23	839	4.06	735	4.17	802	6.00	2,060	5.23	1,500
10	4.48	997	4.21	826	4.05	730	4.28	870	5.79	1,900	5.19	1,470
M	4.46	984	4.21	826	4.04	724	4.43	964	5.78	1,900	5.17	1,460
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.10	1,420	4.53	1,030	5.12	1,430	4.33	901	4.16	796	4.05	730
4	5.03	1,370	4.71	1,150	5.01	1,360	4.31	888	4.16	796	4.05	730
6	4.97	1,330	5.12	1,430	4.93	1,300	4.29	876	4.16	796	4.04	724
8	4.93	1,300	5.46	1,660	4.83	1,230	4.28	870	4.16	796	4.03	718
10	4.88	1,270	5.50	1,690	4.75	1,180	4.27	863	4.16	796	4.02	712
N	4.80	1,210	5.45	1,660	4.68	1,130	4.25	851	4.15	790	4.01	706
2	4.75	1,180	5.53	1,710	4.59	1,060	4.23	839	4.15	790	4.01	706
4	4.68	1,130	5.65	1,800	4.53	1,030	4.21	826	4.13	778	3.98	689
6	4.64	1,100	5.60	1,760	4.47	990	4.20	820	4.12	771	3.96	677
8	4.59	1,060	5.47	1,670	4.41	951	4.19	814	4.10	759	3.95	672
10	4.55	1,040	5.35	1,580	4.38	932	4.17	802	4.08	747	3.91	649
M	4.53	1,030	5.25	1,520	4.35	914	4.15	790	4.05	730	3.90	643

Raritan River at Manville, N. J.

Location.- Lat. 40°33'18", long. 74°35'2", at highway bridge at Manville, Somerset County, 1¼ miles above mouth of Millstone River. Zero of gage is 20.57 feet above mean sea level.

Drainage area.- 490 square miles.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 3. Defined by current-meter measurements below 14,000 second-feet; extended to peak stage by averaging discharges obtained by slope-area determinations of flood flow.

Maxima.- 1936: Discharge during year, 20,600 second-feet 8:30 p.m. Jan. 3 (gage height, 16.10 feet); during March, 17,300 second-feet 6-6:30 a.m. Mar. 12.
1903-7, 1921-35: Discharge, about 25,000 second-feet Oct. 10, 1903, and Aug. 24, 1933.

Remarks.- Run-off not materially affected by storage. Discharge for period of ice effect determined by study of recorder charts, current-meter measurement, weather records, and comparison with records at nearby stations.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	350	2,300	1,210	11	300	8,130	2,520	21	500	4,120	893
2	330	2,200	1,210	12	300	14,200	2,060	22	480	3,330	839
3	320	2,170	1,360	13	320	5,920	2,260	23	480	2,190	785
4	335	2,560	1,100	14	380	3,290	1,800	24	480	1,930	732
5	420	3,150	860	15	450	2,380	1,510	25	500	1,740	671
6	410	2,360	7,580	16	520	2,000	1,130	26	750	1,490	650
7	395	1,570	4,570	17	540	1,740	1,230	27	1,500	2,350	640
8	380	1,320	2,580	18	620	6,920	1,110	28	2,800	3,270	590
9	350	1,570	2,000	19	700	5,700	1,020	29	2,600	1,930	580
10	300	2,690	2,580	20	560	3,600	959	30		1,550	550
								31		1,380	
Mean monthly discharge, in second-feet									633	3,260	1,596
Run-off, in inches									1.39	7.67	3.64

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.50	1,420	5.83	1,750	6.23	2,210	8.62	5,150	14.43	16,400	10.79	8,570
4	5.48	1,400	5.72	1,640	6.15	2,110	8.35	4,800	14.78	16,900	10.43	7,960
6	5.41	1,330	5.59	1,510	6.02	1,960	8.20	4,610	14.90	17,300	10.05	7,330
8	5.31	1,240	5.49	1,410	5.90	1,830	8.50	4,990	14.84	17,100	9.65	6,690
10	5.20	1,140	5.40	1,320	5.82	1,740	9.10	5,850	14.52	16,600	9.21	6,020
N	5.12	1,070	5.34	1,270	5.78	1,700	9.82	6,960	14.15	15,700	8.84	5,460
2	5.13	1,080	5.30	1,230	5.87	1,800	10.58	8,220	13.63	14,400	8.52	5,020
4	5.15	1,100	5.34	1,270	6.34	2,340	11.27	9,430	13.00	13,000	8.22	4,630
6	5.24	1,180	5.54	1,460	7.30	3,610	12.04	10,900	12.40	11,700	8.00	4,400
8	5.48	1,400	5.93	1,860	8.18	4,590	12.72	12,300	11.93	10,700	7.85	4,250
10	5.71	1,630	6.24	2,220	8.62	5,150	13.50	14,100	11.52	9,870	7.67	4,070
M	5.85	1,780	6.30	2,290	8.76	5,340	14.07	15,500	11.15	9,210	7.50	3,900
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.34	3,760	6.27	2,680	5.82	2,090	5.61	1,810	5.80	2,060	9.87	7,040
4	7.21	3,650	6.23	2,620	5.80	2,060	5.59	1,790	6.40	2,850	9.63	6,660
6	7.09	3,550	6.20	2,580	5.77	2,020	5.57	1,760	8.00	4,400	9.53	6,500
8	6.96	3,440	6.15	2,520	5.75	2,000	5.57	1,760	9.66	6,710	9.50	6,450
10	6.84	3,330	6.12	2,480	5.74	1,980	5.57	1,760	10.43	7,960	9.43	6,340
N	6.74	3,230	6.08	2,420	5.72	1,960	5.57	1,760	11.07	9,070	9.27	6,100
2	6.64	3,120	6.04	2,370	5.70	1,930	5.58	1,770	11.50	9,840	9.05	5,780
4	6.55	3,020	5.99	2,310	5.68	1,900	5.57	1,760	11.58	9,970	8.75	5,330
6	6.47	2,930	5.95	2,260	5.66	1,880	5.56	1,750	11.30	9,480	8.45	4,920
8	6.41	2,860	5.91	2,200	5.65	1,860	5.56	1,750	10.83	8,640	8.16	4,570
10	6.35	2,780	5.86	2,140	5.63	1,840	5.57	1,760	10.47	8,030	7.92	4,320
M	6.32	2,750	5.84	2,110	5.61	1,810	5.62	1,830	10.17	7,520	7.78	4,180
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.70	4,100	6.45	2,910	7.70	4,100	6.04	2,370	5.75	2,000	5.61	1,810
4	7.62	4,020	6.56	3,040	7.60	4,000	5.99	2,310	5.74	1,980	5.60	1,800
6	7.51	3,910	6.99	3,470	7.42	3,830	5.95	2,260	5.73	1,970	5.58	1,770
8	7.35	3,760	7.64	4,040	7.18	3,620	5.92	2,220	5.73	1,970	5.56	1,750
10	7.20	3,640	8.29	4,720	6.99	3,470	5.90	2,190	5.73	1,970	5.55	1,740
N	7.04	3,510	8.59	5,110	6.80	3,290	5.89	2,180	5.72	1,960	5.55	1,740
2	6.93	3,420	8.55	5,060	6.65	3,140	5.86	2,140	5.71	1,940	5.53	1,710
4	6.83	3,320	8.25	4,670	6.50	2,970	5.84	2,110	5.70	1,930	5.51	1,680
6	6.74	3,230	7.92	4,320	6.37	2,810	5.82	2,090	5.68	1,900	5.50	1,670
8	6.64	3,120	7.72	4,120	6.25	2,650	5.79	2,050	5.66	1,880	5.49	1,660
10	6.55	3,020	7.67	4,070	6.16	2,530	5.78	2,030	5.65	1,860	5.46	1,620
M	6.47	2,930	7.70	4,100	6.10	2,450	5.76	2,010	5.63	1,840	5.44	1,600

Neshanic River at Reaville, N. J.

Location.- Lat. 40°28'18", long. 74°49'42", at highway bridge half a mile southwest of Reaville, Hunterdon County.
Drainage area.- 25.7 square miles.
Gage-height record.- Water-stage recorder graph. No record Feb. 19-25.
Stage-discharge relation.- Affected by ice Feb. 1, 26-29, Mar. 1-4. Defined by current-meter measurements below 1,700 second-feet; extended to peak stage by logarithmic plotting.
Maxima.- 1936: Discharge during year, 2,940 second-feet 9 a.m. Jan. 3 (gage height, 9.12 feet); during March, 2,110 second-feet 11:30 p.m. Mar. 11.
1930-35: Discharge, about 4,370 second-feet Aug. 23, 1933 (gage height, 10.80 feet).
Remarks.- Discharge for periods of ice effect or missing gage-height record determined by study of available recorder graph, observer's notes, and weather records, and comparison with records of South Branch of Raritan River at High Bridge and other nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	11.0	130	37	11	10.9	1,130	132	21	18.5	203	22
2	10.9	102	42	12	10.5	518	82	22	18.0	108	19.2
3	10.9	95	40	13	10.1	163	102	23	18.0	70	16.7
4	11.8	250	28	14	12.8	99	66	24	18.0	61	15.0
5	13.9	199	26	15	14.4	77	55	25	22	52	13.9
6	10.9	116	623	16	16.7	66	46	26	60	43	13.3
7	9.7	80	145	17	16.1	68	37	27	150	138	12.3
8	10.1	104	87	18	53	593	33	28	200	153	11.4
9	9.7	131	75	19	26	232	28	29	160	71	11.4
10	10.9	264	110	20	20	127	25	30		56	10.5
								31		46	
Mean monthly discharge, in second-feet									33.3	179	65.5
Run-off, in inches									1.40	8.02	2.84

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.29	73	3.44	97	3.55	118	4.02	245	6.00	1,060	3.96	226
4	3.21	61	3.37	85	3.50	108	4.24	325	5.15	692	3.87	198
6	3.12	50	3.33	79	3.49	106	5.09	668	4.74	528	3.80	178
8	3.09	47	3.30	74	3.49	106	5.28	744	4.54	447	3.76	168
10	3.17	56	3.27	70	3.49	106	5.52	846	4.40	389	3.73	160
N	3.25	67	3.29	73	3.67	145	6.80	1,460	4.30	348	3.72	157
2	3.28	71	3.49	106	4.54	447	7.22	1,690	4.24	325	3.70	152
4	3.64	138	3.81	181	4.93	604	7.20	1,680	4.39	385	3.65	140
6	3.96	226	4.08	265	4.71	516	7.36	1,780	4.36	373	3.62	134
8	3.87	198	4.03	248	4.42	397	6.42	1,260	4.19	305	3.58	125
10	3.68	147	3.80	178	4.21	313	7.12	1,630	4.13	283	3.56	121
M	3.53	114	3.64	138	4.09	269	7.73	2,000	4.06	258	3.54	116
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.52	112	3.38	87	3.27	70	3.21	61	4.62	480	4.09	269
4	3.50	108	3.36	84	3.26	68	3.21	61	6.00	1,060	4.14	287
6	3.47	103	3.35	82	3.26	68	3.21	61	6.43	1,260	4.10	272
8	3.45	99	3.34	80	3.25	67	3.22	63	6.21	1,160	4.06	258
10	3.44	97	3.33	79	3.23	64	3.22	63	5.33	765	4.05	255
N	3.44	97	3.32	77	3.23	64	3.21	61	4.73	524	4.00	238
2	3.44	97	3.32	77	3.22	63	3.20	60	4.46	414	3.89	204
4	3.44	97	3.31	76	3.22	63	3.20	60	4.37	377	3.82	184
6	3.42	94	3.31	76	3.22	63	3.25	67	4.29	344	3.80	178
8	3.42	94	3.30	74	3.22	63	3.38	87	4.13	283	3.80	178
10	3.40	90	3.29	73	3.21	61	3.47	103	4.03	248	3.87	198
M	3.39	88	3.28	71	3.21	61	3.56	121	3.97	229	3.89	204
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.79	175	3.47	103	3.75	165	3.32	77	3.23	64	3.17	56
4	3.72	157	3.78	173	3.65	140	3.31	76	3.23	64	3.17	56
6	3.67	145	4.40	389	3.59	127	3.31	76	3.23	64	3.16	55
8	3.63	136	4.24	325	3.54	116	3.30	74	3.23	64	3.15	54
10	3.60	129	3.94	219	3.51	110	3.29	73	3.22	63	3.15	54
N	3.57	123	3.79	175	3.47	103	3.28	71	3.22	63	3.14	53
2	3.55	118	3.72	157	3.43	95	3.27	70	3.21	61	3.13	52
4	3.53	114	3.71	155	3.39	88	3.26	68	3.20	60	3.13	52
6	3.49	106	3.71	155	3.35	82	3.25	67	3.19	59	3.11	49
8	3.48	104	3.88	201	3.34	80	3.23	64	3.19	59	3.10	48
10	3.46	101	3.98	232	3.33	79	3.23	64	3.18	58	3.09	47
M	3.46	101	3.88	201	3.32	77	3.23	64	3.17	56	3.08	46

Supplemental records.- Mar. 9, 7 p.m., 4.10 ft., 272 sec.-ft. Mar. 11, 1 p.m., 7.27 ft., 1,720 sec.-ft.; 3 p.m., 6.98 ft., 1,550 sec.-ft.; 5:20 p.m., 7.66 ft., 1,960 sec.-ft.; 11:30 p.m., 7.91 ft., 2,110 sec.-ft. Mar. 12, 5 p.m., 4.43 ft., 402 sec.-ft. Mar. 18, 6:45 a.m., 6.66 ft., 1,380 sec.-ft. Mar. 21, 6:45 a.m., 4.45 ft., 410 sec.-ft.

North Branch of Raritan River near Far Hills, N. J.

Location.- Lat. 40°42'27", long. 74°38'20", at dam of Somerset Lake & Game Club, 2 miles north of Far Hills, Somerset County, and 2 miles above mouth of Peapack Brook.
Drainage area.- 26.2 square miles; not materially affected by storage.
Gage-height record.- Water-stage recorder graph. Record missing Feb. 1-5, 10-24.
Stage-discharge relation.- Affected by ice Feb. 6-9, 25-28; by debris on control 5 p.m. Mar. 12 to Apr. 30. Defined by current-meter measurements below 500 second-feet; extended to peak stage by weir formula based on current-meter measurements.
Maxima.- 1936: Discharge, 1,860 second-feet 5:30 p.m. Mar. 11 (gage height, 4.60 feet). Maximum stage, 4.81 feet Jan. 3, caused by ice on dam.
1922-35: Discharge, about 2,630 second-feet Sept. 30, 1934 (gage height, 5.24 feet).
Stage of 7.6 feet, from flood marks, reached on July 23, 1919 (discharge, about 7,000 second-feet).
Remarks.- Discharge for periods of ice effect or missing gage-height record determined by study of available recorder graph, observer's notes, and weather records, and comparison with records of nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	23	71	122	11	20	843	213	21	27	312	74
2	22	67	131	12	20	760	167	22	28	214	71
3	22	67	149	13	20	318	144	23	30	167	67
4	24	93	114	14	26	229	131	24	31	167	61
5	35	118	106	15	46	192	114	25	35	149	58
6	34	85	609	16	42	162	106	26	58	131	58
7	31	67	235	17	40	154	93	27	76	208	58
8	29	64	187	18	47	381	89	28	74	198	55
9	22	81	177	19	35	293	81	29	71	154	55
10	20	197	224	20	27	213	78	30		140	52
								31		131	
Mean monthly discharge, in second-feet									35.0	207	129
Run-off, in inches									1.44	9.11	5.49

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.36	67	2.38	74	2.49	118	2.75	246	4.31	1,540	3.01	389
4	2.36	67	2.38	74	2.48	114	2.72	229	4.03	1,250	2.98	369
6	2.34	61	2.38	74	2.47	110	2.72	229	3.78	1,020	2.95	349
8	2.32	55	2.38	74	2.46	106	2.82	287	3.51	780	2.92	330
10	2.32	55	2.38	74	2.46	106	2.93	356	3.31	623	2.89	312
N	2.32	55	2.38	74	2.46	106	3.21	548	3.22	556	2.87	299
2	2.36	67	2.38	74	2.58	158	3.98	1,200	3.17	520	2.86	293
4	2.36	67	2.38	74	2.83	293	4.56	1,820	3.15	506	2.86	293
6	2.37	71	2.39	78	2.94	362	4.56	1,820	3.15	484	2.85	287
8	2.38	74	2.46	106	2.94	362	4.21	1,430	3.12	463	2.84	281
10	2.38	74	2.49	118	2.87	318	4.00	1,220	3.08	436	2.82	269
M	2.38	74	2.49	118	2.80	275	4.19	1,410	3.04	409	2.81	264
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.80	258	2.71	208	2.64	172	2.61	158	2.74	224	2.92	330
4	2.78	246	2.70	203	2.63	167	2.61	158	3.00	382	2.94	343
6	2.77	241	2.69	198	2.63	167	2.61	158	3.21	527	2.94	343
8	2.76	235	2.68	192	2.62	162	2.60	154	3.23	541	2.94	343
10	2.75	229	2.68	192	2.62	162	2.60	154	3.20	520	2.88	306
N	2.74	224	2.67	187	2.62	162	2.59	149	3.08	436	2.86	293
2	2.74	224	2.66	182	2.62	162	2.59	149	2.98	369	2.84	281
4	2.74	224	2.66	182	2.61	158	2.59	149	2.90	318	2.82	269
6	2.74	224	2.66	182	2.61	158	2.59	149	2.89	312	2.80	258
8	2.73	218	2.66	182	2.61	158	2.60	154	2.94	343	2.78	246
10	2.72	213	2.65	177	2.61	158	2.62	162	2.94	343	2.78	246
M	2.72	213	2.64	172	2.61	158	2.64	172	2.93	336	2.78	246
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.78	246	2.68	192	2.81	264	2.81	172	2.84	167	2.83	162
4	2.77	241	2.78	246	2.78	246	2.82	167	2.84	167	2.83	162
6	2.75	229	2.96	356	2.76	235	2.82	162	2.84	167	2.82	158
8	2.74	224	3.10	450	2.74	224	2.82	162	2.85	172	2.81	154
10	2.72	213	3.09	443	2.73	218	2.84	167	2.85	172	2.80	149
N	2.71	208	2.99	376	2.75	208	2.84	167	2.85	172	2.80	149
2	2.70	203	2.90	318	2.75	203	2.84	167	2.85	172	2.79	144
4	2.69	198	2.83	275	2.75	198	2.84	167	2.85	172	2.79	144
6	2.69	198	2.83	275	2.74	187	2.84	167	2.84	167	2.78	140
8	2.68	192	2.84	281	2.75	182	2.84	167	2.84	167	2.78	140
10	2.68	192	2.85	287	2.77	177	2.84	167	2.84	167	2.77	136
M	2.68	192	2.84	281	2.80	177	2.84	167	2.83	162	2.76	131

Supplemental records.- Mar. 11, 5:30 p.m., 4.60 ft., 1,860 sec.-ft. Mar. 12, 1:30 a.m., 4.34 ft., 1,570 sec.-ft.

Black River near Pottersville, N. J.

Location.- Lat. 40°43'39", long. 74°43'50", 1 mile above highway bridge at Pottersville, Somerset County, and 8 miles above mouth of Rockaway Creek. Zero of gage is 284.14 feet above mean sea level.
Drainage area.- 32.8 square miles.
Gage-height record.- Water-stage recorder graph. Record missing Feb. 1-6.
Stage-discharge relation.- Affected by ice Feb. 7-15, 18-23. Defined by current-meter measurements below 800 second-feet.
Maxima.- 1936: Discharge, 818 second-feet 4:30 to 9 p.m. Mar. 12 (gage height, 3.55 feet). Maximum stage, 4.19 feet Jan. 3, caused by ice jam.
1921-35: Discharge, about 1,600 second-feet Nov. 17, 1927 (gage height, 4.75 feet).
Remarks.- Discharge for periods of ice effect or missing gage-height record determined by study of recorder graph, observer's notes, and weather records, and comparison with records of North Branch of Raritan River near Far Hills and other nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	30	95	132	11	27	460	206	21	39	318	101
2	30	94	129	12	27	763	191	22	40	256	98
3	29	83	127	13	27	648	186	23	43	222	92
4	32	104	117	14	35	413	170	24	48	201	88
5	39	124	114	15	56	281	151	25	50	174	83
6	38	101	409	16	54	212	142	26	91	137	82
7	37	89	312	17	51	186	129	27	107	208	79
8	36	88	285	18	59	317	120	28	95	209	75
9	32	100	225	19	41	288	114	29	90	176	73
10	27	166	212	20	38	280	107	30		166	71
								31		149	
Mean monthly discharge, in second-feet									46.5	230	147
Run-off, in inches									1.53	8.08	5.00

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.70	86	1.74	92	1.88	114	2.42	231	3.36	692	3.50	783
4	1.63	76	1.73	90	1.88	114	2.42	231	3.40	717	3.47	763
6	1.60	72	1.72	89	1.88	114	2.44	237	3.38	704	3.43	737
8	1.60	72	1.72	89	1.88	114	2.46	244	3.42	730	3.36	692
10	1.73	90	1.71	88	1.87	112	2.50	256	3.43	737	3.29	648
N	1.82	104	1.71	88	1.96	127	2.84	399	3.46	757	3.24	617
2	1.73	90	1.71	88	2.38	220	3.54	811	3.48	770	3.22	605
4	1.76	95	1.80	101	2.43	234	3.32	667	3.53	804	3.21	599
6	1.77	96	1.90	117	2.42	231	3.31	660	3.55	818	3.19	587
8	1.77	96	1.92	120	2.39	222	3.20	593	3.55	818	3.17	576
10	1.76	95	1.90	117	2.39	222	3.35	686	3.54	811	3.14	558
M	1.74	92	1.88	114	2.38	220	3.48	770	3.52	797	3.09	530
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.05	508	2.68	325	2.42	231	2.27	191	2.50	256	2.58	285
4	3.01	486	2.66	317	2.40	225	2.27	191	2.86	408	2.58	285
6	2.98	470	2.63	304	2.38	220	2.26	188	2.78	370	2.61	296
8	2.94	449	2.60	292	2.36	214	2.25	186	2.78	370	2.60	292
10	2.88	418	2.58	285	2.35	212	2.24	184	2.70	333	2.59	288
N	2.83	394	2.56	278	2.34	209	2.23	181	2.66	317	2.59	288
2	2.82	389	2.54	270	2.33	206	2.22	179	2.64	308	2.59	288
4	2.80	379	2.52	263	2.32	203	2.22	179	2.64	308	2.59	288
6	2.79	374	2.50	256	2.31	201	2.22	179	2.64	308	2.59	288
8	2.77	365	2.48	250	2.30	198	2.22	179	2.62	300	2.59	288
10	2.74	351	2.46	244	2.28	193	2.22	179	2.60	292	2.60	292
M	2.71	338	2.44	237	2.28	193	2.26	188	2.59	288	2.60	292
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.60	292	2.55	274	2.60	292	2.42	231	2.36	214	2.25	186
4	2.60	292	2.68	325	2.56	278	2.41	228	2.35	212	2.24	184
6	2.60	292	2.80	379	2.55	274	2.41	228	2.34	209	2.24	184
8	2.60	292	2.74	351	2.53	267	2.40	225	2.33	206	2.22	179
10	2.59	288	2.68	325	2.51	260	2.40	225	2.32	203	2.21	176
N	2.58	285	2.67	321	2.49	253	2.39	222	2.31	201	2.21	176
2	2.56	278	2.66	317	2.47	247	2.38	220	2.30	198	2.19	172
4	2.54	270	2.65	312	2.45	240	2.38	220	2.29	196	2.18	170
6	2.54	270	2.65	312	2.44	237	2.37	217	2.28	193	2.18	170
8	2.54	270	2.65	312	2.43	234	2.36	214	2.27	191	2.17	168
10	2.53	267	2.65	312	2.42	231	2.36	214	2.26	188	2.16	166
M	2.53	267	2.63	304	2.42	231	2.36	214	2.26	188	2.15	164

Supplemental records.- Mar. 11, 3 p.m., 3.28 ft., 642 sec.-ft.; 7 p.m., 3.20 ft., 593 sec.-ft.; 11 p.m., 3.54 ft., 811 sec.-ft. Mar. 12, 4:30 to 9 p.m., 3.55 ft., 818 sec.-ft.

Lake Carnegie at Princeton, N. J.

Location.- Lat. 40°22'10", long. 74°37'20", at Kingston Dam, 2 miles northeast of Princeton, Mercer County.
Drainage area.- 159 square miles.
Gage-height record.- One gage reading daily at about 8 a.m.
Remarks.- Only contents above crest of spillway are given in table. Elevation of crest of lower spillway is zero gage height. Records furnished by Princeton University.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	0.26	2.73	0.90	9.44	0.48	5.03
2	.26	2.73	1.00	10.48	.50	5.24
3	.28	2.94	.94	9.86	.50	5.24
4	.28	2.94	.94	9.86	.52	5.45
5	.28	2.94	1.00	10.48	.52	5.45
6	.28	2.94	.98	10.28	.54	5.66
7	.28	2.94	.80	8.39	.86	9.02
8	.26	2.73	.68	7.13	.78	8.18
9	.26	2.73	.68	7.13	.68	7.13
10	.26	2.73	.74	7.76	.68	7.13
11	.26	2.73	.92	9.65	.72	7.55
12	.26	2.73	1.60	16.78	.70	7.34
13	.26	2.73	1.00	10.48	.74	7.76
14	.26	2.73	.84	8.81	.68	7.13
15	.30	3.15	.64	6.71	.62	6.50
16	.30	3.15	.64	6.71	.56	5.87
17	.38	3.98	.68	7.13	.54	5.66
18	.40	4.19	.98	10.28	.52	5.45
19	.48	5.03	.90	9.44	.50	5.24
20	.48	5.03	.86	9.02	.48	5.03
21	.50	5.24	.80	8.39	.48	5.03
22	.48	5.03	.70	7.34	.46	4.82
23	.38	3.98	.68	7.13	.44	4.61
24	.38	3.98	.58	6.08	.42	4.40
25	.50	5.24	.54	5.66	.40	4.19
26	.94	9.86	.50	5.24	.40	4.19
27	.98	10.28	.54	5.66	.38	3.98
28	.98	10.28	.80	8.39	.38	3.98
29	.86	9.02	.64	6.71	.38	3.98
30			.64	6.71	.35	3.67
31			.54	5.66		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	+6.71	-4.41	-.84
Gain or loss in storage, in equivalent mean second-feet.	+2.68	-1.65	-.32

Millstone River near Kingston, N. J.

Location.- Lat. 40°23'5", long. 74°37'29", at Princeton sewage disposal plant, 1 mile downstream from Heathcots Brook, Kingston, Middlesex County. Zero of gage is 38.00 feet above mean sea level.

Drainage area.- 171 square miles; 159 square miles slightly affected by storage in Lake Carnegie.

Gage-height record.- Water-stage recorder graph except for period Feb. 21-24, when there was no record.

Stage-discharge relation.- Affected by ice Feb. 19, 20. Defined by current-meter measurements below 2,000 second-feet; extended to peak stage by study of run-off of Millstone River at Blackwells Mills, N. J.

Maxima.- 1936: Discharge during year, about 4,500 second-feet Jan. 3 (gage height not determined); during March, 3,710 second-feet 8 a.m. Mar. 12.
1933-35: Discharge, about 4,950 second feet Aug. 24, 1933 (gage height, 10.60 feet).

Remarks.- Discharge for periods of ice effect and missing gage-height record determined by study of recorder charts, weather records, and graphic comparison with records of Millstone River at Blackwells Mills, N. J. and other nearby streams. Mean monthly discharge corrected for storage in Lake Carnegie. For daily changes in storage see record for Lake Carnegie at Princeton, N. J.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	99	1,110	243	11	95	1,530	521	21	110	781	214
2	80	1,110	225	12	86	3,080	508	22	103	643	190
3	77	977	278	13	77	1,580	521	23	100	468	184
4	96	1,040	268	14	91	837	455	24	100	359	163
5	106	1,340	243	15	88	565	370	25	130	307	160
6	100	1,110	1,020	16	86	430	338	26	258	268	133
7	98	710	812	17	109	359	287	27	948	310	138
8	91	494	580	18	161	1,230	255	28	1,090	643	142
9	84	508	442	19	160	998	232	29	915	468	144
10	91	673	468	20	145	818	225	30		382	130
								31		297	
Mean monthly discharge, in second-feet (observed).....									199	820	330
Mean monthly discharge, in second-feet (corrected).....									202	819	329
Run-off, in inches (corrected).....									1.27	5.52	2.14

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.95	565	3.93	559	4.30	676	5.25	1,040	8.75	3,400	7.20	2,150
4	3.85	536	3.96	568	4.31	679	5.20	1,020	8.80	3,440	7.03	2,030
6	3.76	510	3.90	550	4.21	646	5.15	998	8.98	3,600	6.82	1,900
8	3.67	486	3.80	521	4.07	602	5.19	1,020	9.09	3,710	6.63	1,780
10	3.63	476	3.66	484	3.95	565	5.30	1,070	8.99	3,610	6.47	1,680
N	3.60	468	3.58	463	3.89	547	5.65	1,240	8.71	3,360	6.25	1,560
2	3.58	463	3.56	458	3.90	550	6.15	1,500	8.36	3,040	6.08	1,460
4	3.57	460	3.59	465	4.00	580	6.51	1,710	8.04	2,780	5.88	1,350
6	3.58	463	3.65	481	4.20	643	6.85	1,920	7.75	2,560	5.70	1,260
8	3.59	465	3.75	508	4.55	763	7.26	2,190	7.55	2,400	5.55	1,180
10	3.68	489	3.91	553	4.98	927	7.90	2,670	7.44	2,330	5.48	1,150
M	3.80	521	4.13	621	5.22	1,030	8.54	3,210	7.33	2,240	5.34	1,090
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.20	1,020	4.22	650	3.58	463	3.23	377	3.33	400	5.50	1,160
4	5.09	973	4.17	633	3.54	452	3.24	379	3.47	434	5.30	1,070
6	4.99	931	4.11	614	3.50	442	3.19	368	4.00	580	5.18	1,010
8	4.90	895	4.03	589	3.47	434	3.23	377	4.93	907	5.15	998
10	4.82	864	3.98	574	3.48	437	3.36	407	5.61	1,220	5.14	994
N	4.74	833	3.94	562	3.45	430	3.10	348	6.06	1,450	5.12	986
2	4.63	792	3.87	541	3.47	434	3.11	350	6.58	1,750	5.11	981
4	4.56	767	3.83	530	3.47	434	3.10	348	6.82	1,900	5.05	956
6	4.49	742	3.78	516	3.44	427	3.03	333	6.85	1,920	5.03	948
8	4.42	717	3.68	489	3.38	412	2.97	321	6.60	1,760	5.00	935
10	4.33	686	3.63	476	3.30	393	3.01	329	6.21	1,540	4.94	911
M	4.28	669	3.60	468	3.23	377	3.16	361	5.78	1,300	4.92	903
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.89	891	4.36	696	4.43	720	3.78	516	3.29	391	2.95	317
4	4.85	876	4.46	731	4.42	717	3.74	505	3.25	382	2.95	317
6	4.84	872	4.47	734	4.45	728	3.69	491	3.20	370	2.93	313
8	4.83	868	4.48	738	4.37	700	3.66	484	3.17	363	2.90	307
10	4.80	856	4.62	788	4.22	650	3.63	476	3.15	359	2.89	305
N	4.74	833	4.79	852	4.10	611	3.61	471	3.12	352	2.88	303
2	4.68	811	4.91	899	4.11	614	3.54	452	3.12	352	2.88	303
4	4.62	788	4.86	879	4.07	602	3.48	437	3.08	344	2.86	299
6	4.53	756	4.72	826	4.00	580	3.48	437	3.08	344	2.85	297
8	4.45	728	4.62	788	3.98	574	3.42	422	3.05	338	2.82	291
10	4.35	693	4.54	759	3.91	553	3.38	412	3.02	331	2.80	287
M	4.29	673	4.48	738	3.83	530	3.35	405	2.98	323	2.78	283

Millstone River at Blackwells Mills, N. J.

Location.- Lat. 40°28'30", long. 74°34'34", at highway bridge in Blackwells Mills, Somerset County, a quarter of a mile below mouth of Middlebrush Brook.
Drainage area.- 258 square miles; 159 square miles affected by storage in Lake Carnegie.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 20-23, 26-29, and Mar. 1-4. Defined by current-meter measurements below 4,000 second-feet; extended to peak stage logarithmically; verified by comparison with run-off of Millstone River at Kingston, N. J.
Maxima.- 1936: Discharge during year, 6,330 second-feet 10:30 p.m. Jan. 3 (gage height, 10.05 feet); during March, 5,260 second-feet 9 a.m. Mar. 12.
1921-35: Discharge, about 7,000 second-feet Oct. 18, 1927; maximum gage height, about 11.0 feet Apr. 7, 1924, and Sept. 7, 1926.
Remarks.- Discharge for period of ice effect determined by study of recorder graph, weather records, and comparison with records of Millstone River near Kingston, N. J., and other nearby streams. Mean monthly discharge corrected for storage in Lake Carnegie. For daily changes in storage see record for Lake Carnegie at Princeton, N. J.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	149	1,750	373	11	132	2,500	942	21	170	1,430	302
2	125	1,750	352	12	135	4,750	855	22	170	1,130	266
3	119	1,710	415	13	145	2,860	915	23	170	765	254
4	136	1,630	373	14	171	1,490	763	24	171	567	231
5	160	1,950	337	15	168	942	600	25	175	493	217
6	149	1,810	1,660	16	153	702	535	26	468	415	196
7	145	1,260	1,780	17	156	594	445	27	1,590	572	163
8	132	970	970	18	217	1,740	368	28	1,750	1,200	188
9	122	1,050	716	19	240	2,200	337	29	1,710	763	192
10	126	1,360	855	20	190	1,390	327	30		567	175
								31		457	
Mean monthly discharge, in second-feet (observed).....									326	1,363	539
Mean monthly discharge, in second-feet (corrected).....									329	1,381	538
Run-off, in inches (corrected).....									1.36	6.17	2.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.46	1,060	3.44	1,040	3.88	1,260	5.15	1,780	8.70	4,540	7.90	3,700
4	3.35	995	3.35	995	3.80	1,230	5.18	1,790	9.00	4,910	7.70	3,500
6	3.20	915	3.31	975	3.77	1,220	5.30	1,850	9.18	5,140	7.49	3,310
8	3.06	831	3.27	954	3.73	1,200	5.50	1,950	9.26	5,250	7.29	3,130
10	3.01	801	3.21	920	3.68	1,170	5.75	2,080	9.26	5,250	7.11	2,960
N	2.97	777	3.15	865	3.64	1,150	6.00	2,200	9.19	5,160	6.90	2,810
2	2.98	763	3.17	897	3.80	1,230	6.32	2,390	9.07	5,000	6.69	2,640
4	3.14	879	3.31	975	4.24	1,410	6.70	2,650	8.93	4,820	6.52	2,520
6	3.37	1,000	3.63	1,140	4.70	1,590	7.16	3,020	8.73	4,580	6.35	2,410
8	3.58	1,120	3.90	1,270	4.95	1,690	7.65	3,460	8.55	4,380	6.16	2,300
10	3.64	1,150	4.01	1,310	5.07	1,740	8.00	3,800	8.35	4,160	5.98	2,190
M	3.55	1,100	3.98	1,300	5.12	1,760	8.35	4,160	8.13	3,930	5.75	2,080
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.50	1,950	3.47	1,060	2.94	759	2.74	628	2.72	614	6.53	2,530
4	5.25	1,820	3.40	1,020	2.92	747	2.72	614	3.00	795	6.53	2,530
6	4.97	1,700	3.35	995	2.90	735	2.71	607	3.65	1,160	6.48	2,500
8	4.70	1,590	3.30	970	2.87	716	2.70	600	4.78	1,620	6.39	2,430
10	4.47	1,500	3.25	942	2.85	702	2.69	594	5.36	1,880	6.26	2,360
N	4.29	1,430	3.20	915	2.84	696	2.70	600	5.66	2,030	6.11	2,270
2	4.12	1,360	3.16	891	2.82	683	2.70	600	5.83	2,120	5.95	2,180
4	3.98	1,300	3.12	867	2.82	683	2.67	580	5.97	2,180	5.75	2,080
6	3.85	1,250	3.08	843	2.81	676	2.66	574	6.08	2,250	5.55	1,980
8	3.75	1,200	3.05	825	2.80	670	2.65	568	6.20	2,320	5.34	1,870
10	3.65	1,160	3.01	801	2.80	670	2.63	554	6.35	2,410	5.14	1,770
M	3.55	1,100	2.97	777	2.77	649	2.62	548	6.47	2,490	4.95	1,690
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.78	1,620	3.67	1,160	4.14	1,370	3.08	843	2.77	649	2.58	523
4	4.64	1,570	3.90	1,270	4.02	1,320	3.04	819	2.75	635	2.56	511
6	4.50	1,510	4.30	1,430	3.90	1,270	3.00	795	2.73	621	2.55	505
8	4.38	1,460	4.58	1,540	3.81	1,230	2.98	783	2.70	600	2.54	499
10	4.27	1,420	4.69	1,590	3.77	1,220	2.95	765	2.69	594	2.53	493
N	4.18	1,380	4.64	1,570	3.67	1,160	2.93	753	2.68	587	2.52	487
2	4.10	1,350	4.54	1,530	3.54	1,100	2.91	741	2.67	580	2.51	481
4	4.02	1,320	4.46	1,490	3.42	1,030	2.89	728	2.65	568	2.51	481
6	3.94	1,290	4.42	1,480	3.32	980	2.86	709	2.63	554	2.50	475
8	3.85	1,250	4.38	1,460	3.24	937	2.83	690	2.62	548	2.49	469
10	3.75	1,200	4.30	1,430	3.18	903	2.81	676	2.61	542	2.48	463
M	3.67	1,160	4.24	1,410	3.13	873	2.79	663	2.60	535	2.46	451

Supplemental records.- Mar. 12, 9 a.m., 9.27 ft., 5,260 sec.-ft.; Mar. 19, 3 a.m., 6.54 ft., 2,540 sec.-ft.

Great Egg River at Folsom, N. J.

Location.- Lat. 39°35'42", long. 74°51'5", at highway bridge 1 mile south of Folsom, Atlantic County, and 2 miles above mouth of Pennypot Stream.
Drainage area.- 56.3 sqaure miles (revised).
Gage-height record.- Water-stage recorder graph except for periods Feb. 1, 2, 16-23, when there was no record.
Stage-discharge relation.- Defined by current-meter measurements below 570 second-feet.
Maxima.- 1936: Discharge during year, 368 second-feet 8 a.m. to noon Jan. 6 (gage height, 5.30 feet); during March, 280 second-feet 8-12 p.m. Mar. 14.
1925-35: Discharge, 599 second-feet Sept. 8, 1935 (gage height, 6.18 feet).
Remarks.- Discharge for period of missing gage height record determined by comparison with record of North Branch of Rancocas Creek at Pemberton, N. J.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	93	175	171	11	108	133	195	21	170	219	115
2	93	164	156	12	108	201	199	22	145	229	110
3	93	152	147	13	108	256	195	23	135	223	106
4	95	145	140	14	115	278	185	24	131	207	105
5	101	143	138	15	152	267	171	25	127	191	101
6	105	145	142	16	200	239	156	26	129	173	100
7	103	142	152	17	250	207	143	27	145	162	98
8	108	134	167	18	250	201	133	28	166	181	97
9	108	129	175	19	240	207	125	29	179	201	97
10	108	124	185	20	220	209	118	30		197	95
								31		189	
Mean monthly discharge, in second-feet									141	188	141
Run-off, in inches									2.70	3.85	2.79

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.20	138	4.17	133	4.13	125	4.11	122	4.33	162	4.78	252
4	4.20	138	4.17	133	4.13	125	4.11	122	4.37	169	4.79	254
6	4.19	136	4.16	131	4.13	125	4.12	124	4.40	175	4.81	258
8	4.19	136	4.16	131	4.12	124	4.13	125	4.45	185	4.82	260
10	4.18	134	4.15	129	4.12	124	4.14	127	4.50	195	4.82	260
N	4.18	134	4.15	129	4.12	124	4.16	131	4.54	203	4.83	263
2	4.18	134	4.15	129	4.12	124	4.17	133	4.60	215	4.83	263
4	4.18	134	4.15	129	4.12	124	4.18	134	4.64	223	4.84	265
6	4.17	133	4.14	127	4.12	124	4.20	138	4.68	231	4.85	267
8	4.17	133	4.14	127	4.12	124	4.23	143	4.71	237	4.86	269
10	4.17	133	4.13	125	4.12	124	4.26	149	4.73	241	4.86	269
M	4.17	133	4.13	125	4.12	124	4.29	154	4.76	248	4.87	271
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.87	271	4.90	278	4.79	254	4.63	221	4.52	199	4.55	205
4	4.88	274	4.90	278	4.78	252	4.61	217	4.54	203	4.55	205
6	4.88	274	4.89	276	4.76	248	4.60	215	4.54	203	4.55	205
8	4.89	276	4.88	274	4.75	246	4.59	213	4.54	203	4.55	205
10	4.90	278	4.88	274	4.73	241	4.58	211	4.53	201	4.56	207
N	4.90	278	4.87	271	4.71	237	4.56	207	4.53	201	4.56	207
2	4.90	278	4.85	267	4.70	235	4.55	205	4.53	201	4.56	207
4	4.90	278	4.84	265	4.69	233	4.54	203	4.53	201	4.57	209
6	4.90	278	4.84	265	4.68	231	4.53	201	4.53	201	4.57	209
8	4.91	280	4.83	263	4.66	227	4.52	199	4.53	201	4.57	209
10	4.91	280	4.82	260	4.65	225	4.51	197	4.53	201	4.57	209
M	4.91	280	4.80	256	4.64	223	4.51	197	4.54	203	4.57	209
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.57	209	4.60	215	4.66	227	4.68	231	4.59	213	4.51	197
4	4.57	209	4.60	215	4.67	229	4.67	229	4.58	211	4.50	195
6	4.57	209	4.60	215	4.67	229	4.66	227	4.58	211	4.50	195
8	4.57	209	4.60	215	4.68	231	4.65	225	4.57	209	4.49	193
10	4.57	209	4.60	215	4.68	231	4.64	223	4.56	207	4.48	191
N	4.57	209	4.60	215	4.68	231	4.64	223	4.55	205	4.48	191
2	4.57	209	4.61	217	4.69	233	4.63	221	4.55	205	4.47	189
4	4.57	209	4.62	219	4.69	233	4.63	221	4.54	203	4.47	189
6	4.57	209	4.63	221	4.69	233	4.62	219	4.53	201	4.46	187
8	4.57	209	4.64	223	4.69	233	4.61	217	4.53	201	4.45	185
10	4.57	209	4.65	225	4.68	231	4.60	215	4.52	199	4.45	185
M	4.59	213	4.66	227	4.68	231	4.60	215	4.52	199	4.44	183

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East Branch of Delaware River at Harvard, N. Y.

Location.- Lat. 42°1'15", long. 75°7'15", at highway bridge at Harvard, Delaware County, about 400 feet above Baxter Brook.
Drainage area.- 443 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 5,000 second-feet; extended to peak stage by averaging discharges obtained from slope-area and contracted-opening determinations of flood flow; verified by comparison of peak discharge and total run-off of flood with records for other streams in Delaware River Basin.
Maxima.- 1936: Discharge, 26,200 second-feet 5 p.m. Mar. 18 (gage height, 15.58 feet).
1935: Discharge, 10,400 second-feet 11 p.m. Dec. 1 (gage height, 11.16 feet); maximum gage height, 12.25 feet, 8:50 p.m. Mar. 6 (backwater from ice jam).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	260	550	1,550	11	200	5,000	2,240	21	200	5,900	1,420
2	260	500	1,490	12	200	14,700	2,270	22	190	5,330	1,680
3	240	460	1,730	13	200	8,630	3,180	23	190	3,700	1,340
4	260	460	1,410	14	220	4,470	3,430	24	190	2,820	1,240
5	240	600	1,270	15	220	3,480	3,080	25	220	2,440	1,100
6	240	500	3,090	16	240	3,960	2,710	26	280	2,040	1,010
7	220	440	3,950	17	240	12,200	2,340	27	440	2,060	910
8	220	420	3,140	18	220	21,200	1,980	28	600	2,810	808
9	220	550	2,510	19	200	12,800	1,730	29	650	2,240	740
10	220	950	2,390	20	200	6,750	1,490	30		1,910	677
								31		1,780	
Mean monthly discharge, in second-feet									258	4,247	1,930
Run-off, in inches									0.63	11.06	4.86

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	6.40	2,510	11.93	12,700	-	-
4	-	-	-	-	-	-	7.11	2,750	12.49	14,300	11.33	11,200
6	-	-	-	-	5.00	-	7.50	2,950	12.93	15,600	-	-
8	-	-	-	-	-	-	8.07	3,390	13.19	16,400	10.78	9,820
10	-	-	-	-	-	-	8.03	3,930	13.29	16,700	-	-
N	4.25	*420	4.40	*550	5.32	*950	8.05	4,520	13.23	16,500	10.07	8,270
2	-	-	-	-	-	-	8.57	5,010	13.11	16,100	-	-
4	-	-	-	-	-	-	8.85	5,590	12.93	15,600	9.52	7,180
6	-	-	-	-	5.65	-	12.08	6,740	12.65	14,800	-	-
8	-	-	-	-	-	-	11.21	8,320	12.32	13,800	9.10	6,410
10	-	-	-	-	-	-	10.95	9,880	11.99	12,800	-	-
M	-	-	-	-	6.24	-	11.39	11,000	11.78	12,300	8.72	5,760
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	8.80	5,900	12.66	14,800	-	-
4	8.38	5,220	7.24	3,590	7.56	4,010	9.80	7,720	13.00	15,800	13.12	16,200
6	-	-	-	-	-	-	10.81	9,890	13.58	17,800	-	-
8	8.06	4,730	7.11	3,420	7.46	3,880	11.78	12,300	14.12	20,000	12.31	13,700
10	-	-	-	-	-	-	12.42	14,100	14.55	21,700	-	-
N	7.80	4,350	6.95	3,230	7.41	3,810	12.77	15,100	14.86	22,900	11.71	12,100
2	-	-	-	-	-	-	12.78	15,100	15.24	24,500	-	-
4	7.58	4,040	6.92	3,190	7.46	3,880	12.67	14,800	15.54	26,000	11.22	10,900
6	-	-	-	-	-	-	12.53	14,400	15.54	26,000	-	-
8	7.43	3,840	7.26	3,620	7.55	4,000	12.46	14,200	15.27	24,600	10.79	9,850
10	-	-	-	-	7.69	4,200	12.45	14,200	14.83	22,800	-	-
M	7.34	3,720	7.52	3,960	8.08	4,760	12.51	14,300	14.25	20,500	10.40	8,970
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	9.98	8,080	8.17	4,900	8.93	6,120	-	-	-	-	-	-
6	-	-	-	-	-	-	7.53	3,970	6.76	3,000	6.31	2,500
8	9.57	7,270	8.42	5,280	8.67	5,680	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	9.20	6,590	8.82	5,930	8.41	5,270	7.30	3,670	6.62	2,840	6.28	2,470
2	-	-	-	-	-	-	-	-	-	-	-	-
4	8.87	6,020	9.18	6,550	8.18	4,910	-	-	-	-	-	-
6	-	-	-	-	-	-	7.11	3,420	6.48	2,690	6.18	2,370
8	8.58	5,540	9.44	7,030	7.99	4,620	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	8.32	5,120	9.21	6,610	7.80	4,350	6.92	3,190	6.36	2,560	6.04	2,230

Supplemental records.- Mar. 11, 12:30 p.m., 9.55 ft., 4,740 sec.-ft.; 5:30 p.m., 12.95 ft., 6,520 sec.-ft.; 9:30 p.m., 10.84 ft., 9,290 sec.-ft. Mar. 15, 2:30 p.m., 6.90 ft., 3,170 sec.-ft. Mar. 16, 11:30 a.m., 7.40 ft., 3,800 sec.-ft. Mar. 17, 1 p.m., 12.83 ft., 15,300 sec.-ft.; 9:30 p.m., 12.45 ft., 14,200 sec.-ft. Mar. 18, 5 p.m., 15.58 ft., 26,200 sec.-ft.

*Mean for the day.

East Branch of Delaware River at Fishs Eddy, N. Y.

Location.- Lat. 41°58'0", long. 75°10'50", at railroad bridge in Fishs Eddy, Delaware County, 4½ miles below mouth of Beaver Kill. Zero of gage is 950.84 feet above mean sea level.
Drainage area.- 783 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 2-4, 10-14, when the discharge was computed by usual winter computation methods.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 19,400 second-feet; extended to peak stage by logarithmic plotting; verified by drainage-area comparison of peak discharge and total run-off of flood with records for other streams in Delaware River Basin.
Maxima.- 1936: Discharge, 46,000 second-feet, 12:30 p.m. Mar. 18 (gage height, 19.21 feet).
1912-35: Discharge, 53,300 second-feet Aug. 24, 1933 (gage height, 20.60 feet).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	550	1,100	3,570	11	460	9,000	4,220	21	460	11,100	2,850
2	500	1,000	3,500	12	440	29,000	4,240	22	440	9,740	3,310
3	500	900	3,970	13	440	15,800	5,880	23	440	6,600	2,660
4	500	900	3,500	14	460	7,890	6,490	24	440	5,100	2,410
5	480	1,100	3,240	15	500	6,020	6,270	25	460	4,350	2,210
6	480	1,300	7,930	16	550	7,090	5,650	26	550	3,660	2,050
7	460	1,000	8,110	17	550	23,200	4,820	27	850	3,950	1,890
8	460	800	5,870	18	550	38,600	4,050	28	1,100	6,300	1,690
9	460	850	4,570	19	500	23,100	3,520	29	1,200	5,090	1,590
10	460	1,700	4,300	20	480	12,800	3,030	30		4,350	1,480
								31		3,970	
Mean monthly discharge, in second-feet									542	7,979	3,962
Run-off, in inches									0.75	11.75	5.64

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	8.16	3,310	14.89	27,100	-	-
4	-	-	-	-	-	-	8.67	3,770	15.90	31,100	13.01	20,400
6	-	-	-	-	6.82	1,220	8.92	4,260	16.59	33,900	-	-
8	-	-	-	-	-	-	9.18	4,820	16.61	33,900	12.20	18,000
10	-	-	-	-	-	-	9.89	5,520	16.46	33,300	-	-
N	*6.53	*800	*6.54	*850	7.10	1,550	14.30	6,270	16.01	31,500	11.31	15,300
2	-	-	-	-	-	-	16.25	7,420	15.57	29,800	-	-
4	-	-	-	-	-	-	9.98	8,790	15.13	28,000	10.59	13,100
6	-	-	-	-	7.43	2,090	11.37	13,400	14.86	26,900	-	-
8	-	-	-	-	-	-	13.64	18,300	14.63	26,100	10.00	11,500
10	-	-	-	-	-	-	13.60	21,600	14.31	24,900	-	-
M	-	-	-	-	7.96	2,920	13.94	23,600	13.90	23,500	9.49	10,200
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	9.76	10,900	15.88	31,000	-	-
4	9.04	9,140	7.54	6,240	8.01	7,090	11.40	15,600	16.31	32,700	14.90	27,100
6	-	-	-	-	-	-	12.94	20,200	17.17	36,300	-	-
8	8.67	8,340	7.37	5,940	7.92	6,930	14.04	24,000	18.13	40,600	14.28	24,800
10	-	-	-	-	-	-	14.59	25,900	18.84	44,200	-	-
N	8.37	7,750	7.18	5,620	7.85	6,800	14.83	26,800	19.19	46,000	13.65	22,600
2	-	-	-	-	-	-	14.85	26,900	19.07	45,400	-	-
4	8.07	7,200	7.13	5,530	7.88	6,850	14.79	26,700	18.61	43,000	13.12	20,800
6	-	-	-	-	-	-	14.78	26,600	18.10	40,500	-	-
8	7.86	6,820	7.48	6,130	8.01	7,090	14.98	27,400	17.51	37,800	12.53	19,000
10	-	-	-	-	8.32	7,660	15.28	28,600	16.86	34,900	-	-
M	7.71	6,550	7.96	7,000	8.82	8,650	15.55	29,700	16.13	32,000	11.96	17,200
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	11.40	15,600	8.97	8,980	9.96	11,400	-	-	-	-	-	-
6	-	-	-	-	-	-	8.01	7,090	7.03	5,360	6.46	4,440
8	10.84	13,900	9.26	9,660	9.57	10,400	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	10.32	12,300	10.04	11,600	9.24	9,620	7.72	6,570	6.86	5,080	6.41	4,360
2	-	-	-	-	-	-	-	-	-	-	-	-
4	9.87	11,200	10.45	12,700	8.91	8,850	-	-	-	-	-	-
6	-	-	-	-	-	-	7.46	6,100	6.68	4,790	6.31	4,220
8	9.50	10,200	10.62	13,200	8.60	8.200	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	9.16	9,420	10.36	12,400	8.36	7,730	7.23	5,700	6.55	4,580	6.15	3,980

Supplemental records.- Mar. 11, 3 p.m., 16.61 ft., 8,090 sec.-ft.; 5 p.m., 9.44 ft., 10,100 sec.-ft.; 7 p.m., 14.96 ft., 16,300 sec.-ft. Mar. 12, 7:30 a.m., 16.62 ft., 34,000 sec.-ft. Mar. 15, 3 p.m., 7.11 ft., 55,000 sec.-ft. Mar. 18, 12:30 p.m., 19.21 ft., 46,000 sec.-ft.
*Mean for the day.

Delaware River at Port Jervis, N. Y.

Location.- Lat. 41°22'20", long. 74°41'50", near highway bridge at Port Jervis, Orange County, 1 1/2 miles above mouth of Neversink River. Zero of gage is 415.35 feet above mean sea level.
Drainage area.- 3,076 square miles; 369 square miles affected by storage in Lake Wallenpaupack and Toronto and Swinging Bridge reservoirs.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined by current-meter measurements below 32,300 second-feet, extended logarithmically to peak stage; checked by comparison with record at Belvidere.
Maxima.- 1936: Discharge, 108,000 second-feet 5 p.m. Mar. 18 (gage height, 17.55 feet).
1904-35: Discharge, 92,700 second-feet Mar. 28, 1914 (gage height, 16.0 feet). Maximum discharge known, about 155,000 second-feet Oct. 10, 11, 1903 (gage height, 23.3 feet); maximum known stage, 25.5 feet Mar. 8, 1904 (ice gorge).
Remarks.- For information of storage see records for Toronto Reservoir at Toronto, N. Y., Swinging Bridge Reservoir at Swinging Bridge Dam, N. Y., and Wallenpaupack Reservoir at Wilsonville, Pa. Storage corrections applied to part of monthly discharge table.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,800	4,600	12,800	11	2,200	15,000	15,600	21	2,400	42,400	8,800
2	2,600	4,400	11,800	12	2,400	72,700	15,400	22	2,200	44,300	9,300
3	2,400	4,800	12,800	13	2,200	59,500	17,300	23	1,200	31,400	9,100
4	2,400	4,400	11,600	14	2,200	34,200	21,700	24	1,400	23,800	7,700
5	2,600	4,600	9,100	15	2,400	23,800	19,200	25	2,400	19,900	6,880
6	2,600	5,000	12,200	16	2,200	25,400	17,700	26	2,600	17,300	6,120
7	2,400	5,000	24,400	17	2,200	48,300	15,000	27	3,200	15,800	5,940
8	2,400	5,000	19,700	18	2,400	93,100	13,000	28	4,600	21,600	5,760
9	2,200	4,800	16,300	19	2,600	82,800	11,000	29	5,000	19,600	5,250
10	2,000	5,500	14,800	20	2,400	57,700	9,800	30		16,000	5,080
								31		14,000	
Mean monthly discharge, in second-feet (observed)									2,503	26,670	12,370
Run-off, in inches (observed)									0.88	10.00	4.48
Mean monthly discharge, in second-feet (corrected)									2,189	29,025	12,063
Run-off, in inches (corrected)									0.77	10.18	4.23

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	7.58	-	12.54	-	-	-
4	-	-	-	-	-	-	7.64	-	12.31	62,500	13.31	71,000
6	7.34	-	6.81	-	7.01	-	8.74	7,390	13.33	-	-	-
8	-	-	-	-	-	-	8.72	-	13.41	70,500	12.59	65,200
10	-	-	-	-	-	-	9.04	-	14.51	-	-	-
N	6.96	*5,000	6.92	*4,800	7.12	*5,500	9.77	9,740	14.64	77,700	11.81	59,000
2	-	-	-	-	-	-	11.04	-	14.53	-	-	-
4	-	-	-	-	-	-	11.28	-	14.54	81,200	11.10	53,300
6	7.04	-	7.03	-	7.33	-	6.40	16,800	-	-	-	-
8	-	-	-	-	-	-	9.00	-	14.42	80,100	10.49	48,400
10	-	-	-	-	-	-	9.00	-	-	-	-	-
M	7.30	-	7.34	-	7.73	-	11.92	50,900	14.19	78,000	10.06	45,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	7.94	28,700	13.23	70,300	-	-
4	9.43	39,900	7.52	25,700	7.23	23,700	8.12	29,900	13.67	73,900	15.81	92,600
6	-	-	-	-	-	-	8.61	33,400	14.22	78,300	-	-
8	8.94	36,000	7.34	24,500	7.40	24,900	9.30	38,900	14.91	84,500	15.07	85,900
10	-	-	-	-	-	-	10.07	45,100	16.03	94,600	-	-
N	8.57	33,100	7.18	23,400	7.53	25,800	10.64	49,600	16.76	101,000	14.66	82,200
2	-	-	-	-	7.66	26,700	11.22	54,300	17.16	105,000	-	-
4	8.24	30,800	7.05	22,400	7.65	26,600	11.67	57,900	17.50	108,000	14.05	76,900
6	-	-	-	-	7.63	26,500	12.20	62,100	17.51	108,000	-	-
8	7.94	28,700	7.00	22,100	7.63	26,500	12.54	64,800	17.42	107,000	13.68	73,900
10	-	-	-	-	7.63	26,500	12.81	67,000	17.02	103,000	-	-
M	7.75	27,400	7.05	22,400	7.79	27,600	13.09	69,200	16.64	100,000	13.25	70,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	12.75	66,500	9.79	42,800	10.34	47,200	8.83	35,100	-	-	-	-
6	-	-	-	-	10.46	48,200	-	-	7.46	25,300	-	-
8	12.22	62,300	9.60	41,300	10.47	48,300	8.59	33,200	-	-	-	-
10	-	-	-	-	10.41	47,800	-	-	-	-	-	-
N	11.62	57,500	9.52	40,700	10.25	46,500	8.30	31,200	7.23	23,700	6.66	19,900
2	-	-	-	-	-	-	-	-	-	-	-	-
4	11.05	52,900	9.69	42,000	9.89	43,600	8.08	29,700	-	-	-	-
6	-	-	-	-	-	-	-	-	7.06	22,500	-	-
8	10.56	49,000	9.86	43,400	9.49	40,400	7.87	28,200	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	10.09	45,200	10.06	45,000	9.13	37,500	7.67	26,800	6.87	21,200	6.43	18,500

Supplemental records.- Mar. 11, 4:50 p.m., 14.40 ft.; 9 p.m., 8.20 ft. Mar. 12, 3 a.m., 13.00 ft.; 11 a.m., 16.00 ft. Mar. 18, 5 p.m., 17.55 ft., 108,000 sec.-ft.
*Mean for the day.

Delaware River at Milford, Pa.

Location.- Lat. 41°18'30", long. 74°47'50", on bridge at Milford, Pike County. Zero of gage is at mean sea level.
Gage-height record.- Based on two gage readings daily and graphic comparison with records of stage at Port Jervis, N. Y., and at Belvidere, N. J.
Maxima.- 1936: Gage height observed, 398.45 feet 9 p.m. Mar. 18.
Stage of 405.8 feet reached Oct. 10, 1903.
Remarks.- Observations began 8 a.m. Mar. 5. No record Mar. 25 to Apr. 1. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	March	April	Day	March	April	Day	March	April
1	-	-	11	382.91	379.94	21	385.38	377.85
2	-	378.55	12	393.59	379.72	22	385.45	377.87
3	-	379.02	13	389.39	380.00	23	382.92	378.00
4	-	378.78	14	383.97	381.15	24	381.47	377.55
5	379.00	378.35	15	381.78	380.60	25	-	377.25
6	379.35	379.05	16	382.08	380.35	26	-	376.95
7	379.15	382.20	17	386.06	379.55	27	-	376.75
8	379.45	380.95	18	394.98	379.04	28	-	376.70
9	379.75	380.00	19	394.04	378.55	29	-	376.50
10	379.22	379.55	20	388.57	378.20	30	-	376.50
						31		

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	379.08	379.79	379.40	379.60	392.10	393.00
4	379.06	379.78	379.28	379.72	392.70	392.40
6	379.04	379.76	379.12	379.86	393.30	391.50
8	379.05	379.75	379.02	380.02	394.00	390.55
10	379.15	379.76	379.04	380.40	394.15	389.90
N	379.45	379.78	379.06	381.00	394.20	389.10
2	379.75	379.80	379.10	382.00	394.10	388.50
4	379.85	379.83	379.15	382.50	394.05	387.70
6	379.86	379.80	379.21	384.50	394.00	387.20
8	379.84	379.70	379.30	389.00	393.95	386.70
10	379.82	379.60	379.40	390.80	393.90	386.30
M	379.80	379.50	379.50	391.50	393.70	385.90

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	385.60	382.30	381.50	383.00	390.70	397.20
4	385.20	382.20	381.70	383.35	391.40	396.60
6	384.90	382.10	381.80	383.80	392.20	395.80
8	384.65	382.05	381.94	384.25	393.00	394.90
10	384.30	381.90	382.05	385.00	394.00	394.10
N	384.00	381.70	382.15	385.70	395.30	393.70
2	383.50	381.60	382.25	386.60	396.50	393.40
4	383.14	381.45	382.35	387.65	397.70	392.85
6	382.90	381.40	382.35	388.40	398.30	392.10
8	382.70	381.36	382.35	389.00	398.40	391.80
10	382.60	381.35	382.45	389.60	398.30	391.55
M	382.50	381.37	382.65	390.10	397.80	391.25

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	391.00	385.55	385.90	383.75	382.10	-
4	390.70	385.30	386.00	383.55	381.90	-
6	390.30	385.10	386.10	383.35	381.70	-
8	389.95	385.04	386.15	383.15	381.56	-
10	389.30	385.05	386.10	382.95	381.45	-
N	388.60	385.10	386.00	382.80	381.35	-
2	387.90	385.25	385.60	382.65	381.30	-
4	387.25	385.42	385.14	382.55	381.25	-
6	386.80	385.55	384.80	382.45	381.20	-
8	386.40	385.65	384.50	382.40	381.15	-
10	386.10	385.75	384.25	382.30	381.10	-
M	385.80	385.80	384.00	382.20	381.05	-

Supplemental records.- Mar. 18, 9 p.m., 398.45 ft.

Delaware River at Portland, Pa.

Location.- Lat. 40°55'30", long. 75°5'55", on bridge at Portland, Northampton County. Zero of gage is at mean sea level.
Gage-height record.- Graph based on hourly gage readings 8 a.m. Mar. 11 to midnight Mar. 24, twice-daily readings during other periods, and comparison with recorder graph at Belvidere.
Maxima.- 1936: Gage height observed, 292.90 feet 2 a.m. Mar. 19.
Stage of 297.0 feet reached on Oct. 10, 1903.
Remarks.- Observations began 8 a.m. Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1	-	273.96	11	273.43	274.81	21	280.24	273.06
2	-	273.72	12	285.78	274.77	22	280.20	272.98
3	-	273.74	13	286.03	274.80	23	278.21	273.20
4	-	273.80	14	279.86	275.60	24	276.58	272.66
5	271.60	273.25	15	277.30	275.36	25	275.78	272.38
6	271.60	274.30	16	276.94	275.09	26	275.31	272.09
7	271.74	276.80	17	279.39	274.58	27	274.80	271.95
8	271.76	276.15	18	287.43	274.14	28	275.75	271.94
9	271.66	275.15	19	290.69	273.72	29	275.76	271.85
10	271.80	274.78	20	284.58	273.27	30	274.88	271.60
						31	274.33	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	271.72	271.68	271.66	272.29	276.71	288.78
4	271.74	271.65	271.66	272.39	283.69	288.30
6	271.76	271.62	271.66	272.50	285.23	288.22
8	271.78	271.61	271.66	272.64	285.83	287.40
10	271.79	271.62	271.69	272.75	286.25	287.00
N	271.80	271.64	271.73	272.93	287.05	286.30
2	271.79	271.66	271.79	273.21	287.55	285.57
4	271.78	271.69	271.86	273.65	288.55	284.65
6	271.77	271.69	271.92	274.10	288.55	284.25
8	271.75	271.69	272.00	274.65	288.43	283.38
10	271.72	271.68	272.09	275.61	288.75	282.88
M	271.70	271.67	272.19	276.59	289.05	282.28

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	281.69	277.89	276.79	277.28	283.59	292.90
4	281.39	277.69	276.69	277.49	284.39	292.60
6	280.89	277.69	276.69	277.69	285.18	292.35
8	280.30	277.53	276.75	278.05	286.00	292.35
10	280.05	277.37	276.84	278.47	286.44	291.43
N	279.67	277.22	276.92	278.87	287.14	290.93
2	279.39	277.12	277.00	279.29	287.95	289.93
4	279.05	277.00	277.06	280.06	289.00	289.60
6	278.79	277.00	277.10	280.90	289.65	289.27
8	278.59	276.88	277.18	281.59	290.53	288.77
10	278.28	276.79	277.19	282.49	291.34	288.27
M	278.08	276.79	277.28	283.78	292.10	287.60

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	287.10	281.27	280.02	279.18	276.93	275.90
4	286.60	280.93	280.27	278.93	276.85	275.89
6	286.10	280.60	280.27	278.85	276.85	275.87
8	285.60	280.27	280.35	278.60	276.77	275.85
10	285.02	280.27	280.43	278.35	276.68	275.81
N	284.60	280.02	280.52	278.18	276.68	275.78
2	284.10	279.85	280.43	278.02	276.60	275.76
4	283.60	279.77	280.35	277.77	276.52	275.73
6	283.02	279.68	280.27	277.60	276.43	275.70
8	282.52	279.68	280.02	277.43	276.18	275.67
10	282.02	279.77	279.77	277.27	276.02	275.65
M	281.68	279.77	279.60	277.10	275.93	275.62

Supplemental records.- Mar. 12, 11 p.m., 289.51 ft.

Delaware River at Delaware, N. J.

Location.- Lat. 40°53'55", long. 75°4'40", on bridge at Delaware, Warren County. Zero of gage is at mean sea level.
Gage-height record.- Based on hourly gage readings 7 a.m. Mar. 11 to midnight Mar. 24 (except for short periods Mar. 17, 18, 22), and comparison with recorder graph at Belvidere.
Maxima.- 1936: Gage height observed, 282.61 feet 2 and 6 a.m. Mar. 19.
Remarks.- Observations started Mar. 11. No record after Mar. 24. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1			11	261.90		21	269.25	
2			12	275.02		22	269.14	
3			13	275.92		23	267.01	
4			14	268.81		24	264.75	
5			15	265.60		25		
6			16	265.04		26		
7			17	267.78		27		
8			18	276.94		28		
9			19	280.86		29		
10			20	274.26		30		
						31		

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2				261.05	265.74	278.65
4				261.10	272.86	278.49
6				261.20	273.36	278.36
8				261.28	274.61	277.69
10				261.36	275.28	277.11
N				261.49	276.28	276.28
2				261.69	277.11	275.36
4				262.11	277.69	274.44
6				262.36	278.19	273.69
8				262.86	278.69	273.28
10				263.78	278.86	272.53
M				264.44	278.74	271.53

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	271.36	266.36	264.53	265.78	272.80	282.61
4	270.44	266.19	264.44	265.86	273.70	282.53
6	270.11	265.86	264.44	266.11	274.50	282.61
8	269.53	265.78	264.86	266.28	275.36	282.53
10	269.19	265.69	265.11	266.61	276.11	282.19
N	268.69	265.57	265.15	267.11	276.78	281.44
2	268.28	265.44	265.19	267.61	277.61	280.65
4	267.78	265.32	265.28	268.44	278.44	279.86
6	267.53	265.28	265.28	269.36	279.36	279.36
8	267.11	265.19	265.36	270.25	280.44	278.78
10	266.69	264.86	265.61	271.15	281.28	278.11
M	266.53	264.74	265.69	272.00	281.78	277.44

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	277.11	270.53	268.15	268.86	264.86	
4	276.44	270.11	268.30	268.53	264.86	
6	276.11	269.78	268.80	268.28	264.86	
8	275.44	269.61	269.69	267.28	265.19	
10	274.78	269.36	269.61	267.11	265.11	
N	274.36	269.28	269.61	266.69	264.86	
2	273.61	269.11	269.53	266.53	264.78	
4	273.11	268.86	269.44	266.36	264.67	
6	272.53	268.61	269.44	266.19	264.59	
8	272.11	268.28	269.35	265.69	264.28	
10	271.44	268.11	269.20	265.53	264.28	
M	270.78	268.03	269.05	265.11	264.19	

Delaware River at Belvidere, N. J.

Location.- Lat. 40°49'36", long. 75°5'2", at Belvidere, Warren County, just below mouth of Pequest River. Zero of gage is 227.18 feet above mean sea level.

Drainage area.- 4,542 square miles; 369 square miles affected by storage in Lake Wallenpaupack and Toronto and Swinging Bridge reservoirs.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Affected by ice Feb. 1-3, 5-13, 19-23. Defined by current-meter measurements below 170,000 second-feet; extension to peak stage verified by comparison of total run-off of flood with records at other stations on Delaware River.

Maxima.- 1936: Discharge, 179,000 second-feet 6 to 7 a.m. Mar. 19 (gage height, 25.0 feet).

1922-35: Discharge, 122,000 second-feet (revised) Aug. 25, 1933 (gage height, 19.90 feet).

Maximum known discharge, 220,000 second-feet October 1903 (gage height, 28.6 feet, from authentic high-water mark).

Remarks.- Discharge during period of ice effect determined by study of recorder graph, weather records, observer's notes, and comparison with record of Delaware River at Riegelsville. Monthly table gives discharge and run-off, in inches, adjusted for effect of storage on Wallenpaupack Creek and in Toronto and Swinging Bridge reservoirs on Mongaup River.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	5,000	7,030	17,600	11	3,700	16,400	22,400	21	3,500	68,200	12,800
2	4,700	6,860	16,100	12	3,700	114,000	22,400	22	3,500	67,200	11,900
3	4,700	6,860	16,600	13	3,900	123,000	21,800	23	3,500	49,000	12,800
4	4,580	7,200	16,600	14	4,060	64,200	26,600	24	3,250	34,500	11,000
5	4,600	7,380	13,700	15	4,060	41,000	26,000	25	3,140	28,400	9,600
6	4,450	7,550	19,100	16	4,190	35,900	23,600	26	4,060	24,200	8,640
7	4,200	7,550	36,600	17	4,060	53,500	21,200	27	5,290	22,400	8,090
8	4,000	7,550	32,400	18	3,820	126,000	18,100	28	6,700	27,800	7,910
9	4,200	7,380	25,400	19	3,600	166,000	15,600	29	7,200	29,000	7,550
10	4,100	8,460	23,000	20	3,500	111,000	13,700	30		23,000	7,030
								31		19,600	
Mean monthly discharge, in second feet (observed).....									4,250	42,520	17,530
Mean monthly discharge, in second-feet (corrected).....									3,936	44,880	17,220
Run-off, in inches (corrected).....									0.94	11.39	4.23

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.49	7,520	5.54	7,690	5.49	7,520	6.34	10,800	11.28	39,300	22.18	148,000
4	5.46	7,410	5.48	7,480	5.48	7,480	6.52	11,600	15.90	81,000	22.00	145,000
6	5.41	7,240	5.42	7,270	5.48	7,480	6.58	11,800	17.82	100,000	21.78	143,000
8	5.40	7,200	5.40	7,200	5.50	7,550	6.70	12,300	18.88	111,000	21.35	138,000
10	5.46	7,410	5.40	7,200	5.58	7,840	6.82	12,900	19.44	117,000	20.90	133,000
N	5.42	7,270	5.43	7,300	5.59	7,870	7.04	13,900	20.15	125,000	20.36	128,000
2	5.45	7,380	5.46	7,410	5.69	8,230	7.38	15,500	20.90	133,000	19.68	120,000
4	5.48	7,480	5.47	7,440	5.84	8,790	7.75	17,400	21.51	140,000	18.89	112,000
6	5.51	7,590	5.48	7,480	5.95	9,220	8.20	19,600	21.80	143,000	18.22	104,000
8	5.57	7,800	5.51	7,590	6.06	9,640	8.79	22,900	22.01	145,000	17.71	99,100
10	5.58	7,840	5.51	7,590	6.18	10,100	9.60	27,800	22.21	148,000	17.02	92,200
M	5.58	7,840	5.50	7,550	6.32	10,700	10.35	32,800	22.22	148,000	16.53	87,300
	March 14		March 15		March 16		March 17		March 18		March 19	
2	16.00	82,000	12.15	46,200	10.72	35,300	11.28	39,300	17.13	93,300	24.54	173,000
4	15.51	77,100	11.97	44,800	10.69	35,100	11.36	39,900	17.81	100,000	24.83	177,000
6	15.14	73,400	11.81	43,500	10.68	35,100	11.52	41,200	18.42	106,000	25.00	179,000
8	14.85	70,600	11.67	42,400	10.68	35,100	11.75	43,000	19.06	113,000	24.96	179,000
10	14.52	67,400	11.54	41,300	10.72	35,300	12.13	46,000	19.69	120,000	24.73	176,000
N	14.06	63,000	11.40	40,200	10.79	35,800	12.55	49,400	20.23	126,000	24.31	171,000
2	13.68	59,600	11.25	39,000	10.86	36,300	12.96	53,100	20.85	132,000	23.82	166,000
4	13.34	56,600	11.12	38,100	10.92	36,700	13.47	57,700	21.54	140,000	23.30	160,000
6	13.07	54,100	11.00	37,300	11.05	37,600	14.18	64,200	22.20	148,000	22.85	154,000
8	12.80	51,700	10.88	36,500	11.10	38,000	14.97	71,700	22.87	155,000	22.36	150,000
10	12.57	49,600	10.82	36,000	11.17	38,500	15.70	79,000	23.52	162,000	21.91	144,000
M	12.35	47,800	10.78	35,800	11.22	38,800	16.42	86,200	24.07	169,000	21.50	140,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	21.00	134,000	15.62	78,200	14.37	66,000	13.65	59,400	11.21	38,800	10.02	30,400
4	20.55	130,000	15.27	74,700	14.45	66,800	13.42	57,300	11.09	37,900	9.94	29,900
6	20.12	124,000	14.91	71,100	14.50	67,200	13.05	54,000	10.96	37,000	9.88	29,500
8	19.70	120,000	14.68	68,900	14.58	68,000	12.86	52,200	10.86	36,300	9.80	29,000
10	19.28	116,000	14.51	67,300	14.62	68,400	12.60	49,900	10.75	35,600	9.72	28,500
N	18.78	110,000	14.35	65,800	14.70	69,100	12.45	48,600	10.65	34,800	9.66	28,200
2	18.32	105,000	14.22	64,600	14.72	69,300	12.20	46,600	10.55	34,200	9.60	27,800
4	17.77	99,700	14.15	63,900	14.71	69,200	12.02	45,200	10.46	33,500	9.56	27,600
6	17.28	94,800	14.15	63,900	14.61	68,300	11.81	43,500	10.36	32,800	9.51	27,300
8	16.80	90,000	14.13	63,700	14.47	66,900	11.66	42,300	10.27	32,200	9.48	27,100
10	16.41	86,100	14.16	64,000	14.20	64,400	11.50	41,000	10.18	31,600	9.41	26,700
M	16.00	82,000	14.27	65,000	13.98	62,300	11.36	39,900	10.10	31,000	9.38	26,500

Supplemental records.- Mar. 19, 6 to 7 a.m., 25.0 ft., 179,000 sec.-ft.

Delaware River at Easton, Pa.

Location.- Lat. 40°41'30", long. 75°12'15", on highway bridge at Easton, Northampton County. Zero of gage is at mean sea level.
Gage-height record.- Based on bihourly readings 2 to 10 a.m. Mar. 11, hourly readings 10 a.m. Mar. 11 to midnight Mar. 24 (except for short periods Mar. 14-17), two readings daily during other periods, and comparison with recorder graphs at Belvidere and Riegelsville.
Maxima.- 1936: Gage height observed, 187.95 feet 7 a.m. Mar. 19.
Stage of 193.3 feet reached Oct. 10, 1903.
Remarks.- Observations began 8 a.m. Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1	-	162.40	11	164.40	164.00	21	173.02	160.84
2	-	162.14	12	180.90	163.92	22	172.04	160.39
3	-	162.00	13	181.76	163.42	23	169.37	160.91
4	-	162.08	14	172.55	164.56	24	166.76	160.33
5	159.48	161.32	15	168.16	164.43	25	165.33	159.82
6	159.40	164.15	16	166.94	163.52	26	164.36	159.46
7	159.34	167.58	17	169.78	163.07	27	163.98	159.32
8	159.23	166.38	18	182.00	162.39	28	164.95	159.26
9	159.39	164.58	19	186.52	161.50	29	165.12	159.11
10	160.31	164.10	20	179.23	161.19	30	163.86	158.91
						31	163.07	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	159.25	159.35	159.60	162.34	171.24	185.21
4	159.25	159.38	159.70	162.56	172.70	185.01
6	159.24	159.41	159.79	162.75	177.20	184.48
8	159.22	159.42	159.89	162.93	181.00	183.75
10	159.21	159.41	160.00	163.25	182.50	183.00
N	159.20	159.40	160.12	163.57	183.56	182.30
2	159.20	159.38	160.25	164.00	184.21	181.28
4	159.20	159.34	160.41	164.75	184.86	180.30
6	159.21	159.35	160.70	165.63	185.11	179.36
8	159.24	159.40	161.10	166.91	185.41	178.19
10	159.28	159.45	161.50	168.24	185.46	177.30
M	159.31	159.51	161.90	169.70	185.36	176.50

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	175.60	169.25	167.00	167.35	175.89	187.40
4	174.85	168.95	166.90	167.45	177.10	187.65
6	174.30	168.72	166.82	167.60	178.52	187.80
8	173.46	168.51	166.79	168.00	179.94	187.85
10	172.94	168.35	166.80	168.52	181.45	187.85
N	172.22	168.14	166.85	169.20	182.77	187.35
2	171.85	167.89	166.86	169.90	184.00	186.90
4	171.33	167.70	166.90	170.59	184.87	186.20
6	170.77	167.50	167.00	171.50	185.64	185.40
8	170.30	167.35	167.05	172.50	186.20	184.65
10	169.90	167.20	167.14	173.70	186.62	183.95
M	169.55	167.10	167.25	174.79	187.18	183.32

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	182.55	174.62	172.00	171.05	167.48	165.80
4	181.81	174.10	172.10	170.67	167.30	165.70
6	181.22	173.67	172.15	170.29	167.15	165.60
8	180.65	173.22	172.22	169.95	167.00	165.53
10	180.00	172.95	172.18	169.57	166.89	165.40
N	179.25	172.85	172.20	169.27	166.74	165.30
2	178.63	172.58	172.22	168.95	166.62	165.20
4	177.95	172.44	172.21	168.70	166.52	165.13
6	177.20	172.28	172.10	168.40	166.35	165.05
8	176.50	172.12	171.90	168.10	166.18	164.95
10	175.70	171.90	171.65	167.95	166.05	164.90
M	175.20	171.85	171.35	167.65	165.90	164.80

Supplemental records.- Mar. 12, 9 p.m., 185.46 ft. Mar. 19, 7 a.m., 187.95 ft.

Delaware River at Riegelsville, N. J.

Location.- Lat. 40°35'36", long. 75°11'17", at suspension bridge at Riegelsville, Warren County, 600 feet above mouth of Musconetcong River, flow of which is included in records subsequent to Oct. 1, 1931. Zero of gage is 125.29 feet above mean sea level.

Drainage area.- 6,344 square miles (including drainage area of Musconetcong River); 395 square miles affected by storage in Lake Wallenpaupack, Toronto and Swinging Bridge reservoirs, and Lake Hopatcong.

Gage-height record.- Water-stage recorder graph except for period 2 a.m. Mar. 19 to 6 p.m. Mar. 20, when it was based on flood marks and hourly gage readings.

Stage-discharge relation.- Defined by current-meter measurements below 25,000 second-feet; extended to peak stage by averaging discharges obtained from slope-area determination and from a curve based on shape of former curve, which was defined by current-meter measurements to 95,000 second-feet; verified by comparison of peak discharge and total run-off of flood with records at other gaging stations on Delaware River.

Maxima.- 1936: Discharge, 210,000 second-feet 8 to 10 a.m. Mar. 19 (gage height, 32.45 feet).

1906-35: Discharge, about 144,000 second-feet Mar. 28, 1913 (gage height, 25 feet).

Maximum known stage, 35.9 feet Oct. 10, 1903, from authentic high-water marks (discharge, about 275,000 second-feet).

Remarks.- Discharge includes flow in Delaware Division Canal. Monthly discharge and run-off, in inches, adjusted for effect of storage in Wallenpaupack Reservoir on Wallenpaupack Creek, Toronto and Swinging Bridge Reservoirs on Mongaup River, and Lake Hopatcong on Musconetcong River.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	7,490	12,700	25,000	11	5,460	34,500	32,600	21	5,610	92,600	17,500
2	7,010	12,000	23,500	12	5,460	143,000	32,000	22	5,610	84,100	16,700
3	7,010	11,200	23,000	13	6,080	163,000	31,000	23	5,460	66,600	16,700
4	6,700	11,600	22,600	14	5,920	91,600	34,100	24	5,160	49,400	15,400
5	6,850	12,700	19,700	15	6,080	57,600	34,700	25	5,010	41,100	13,500
6	6,700	12,700	30,400	16	6,230	49,400	31,500	26	5,920	35,700	12,400
7	6,380	12,400	51,200	17	6,230	64,800	28,500	27	9,840	33,100	11,600
8	5,920	12,000	46,900	18	6,080	155,000	25,000	28	12,400	37,300	10,900
9	6,230	12,400	37,300	19	5,760	204,000	21,600	29	12,700	39,500	10,900
10	6,080	15,800	33,600	20	5,610	148,000	18,800	30		37,800	10,200
								31		28,000	
Mean monthly discharge, in second-feet (observed).....									6,655	57,470	24,630
Run-off, in inches (observed).....									1.13	10.44	4.33
Mean monthly discharge, in second-feet (adjusted).....									6,324	59,930	24,310
Run-off, in inches (adjusted).....									1.08	10.90	4.27

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.72	12,100	5.84	12,500	6.24	14,000	8.59	24,400	16.58	72,100	29.75	184,000
4	5.75	12,200	5.90	12,700	6.30	14,200	8.87	25,800	18.16	83,800	29.65	184,000
6	5.74	12,200	5.90	12,700	6.32	14,300	9.06	26,800	21.15	108,000	29.40	181,000
8	5.68	11,900	5.86	12,600	6.31	14,200	9.22	27,600	24.30	135,000	29.04	177,000
10	5.61	11,600	5.80	12,400	6.30	14,200	9.44	28,700	26.52	154,000	28.60	174,000
N	5.61	11,600	5.74	12,200	6.29	14,200	9.76	30,300	27.68	165,000	27.98	168,000
2	5.63	11,700	5.71	12,000	6.36	14,400	10.15	32,300	28.45	172,000	27.26	162,000
4	5.63	11,700	5.72	12,100	6.60	15,400	10.72	35,300	29.10	178,000	26.45	154,000
6	5.63	11,700	5.79	12,400	7.02	17,200	11.67	40,400	29.50	182,000	25.44	145,000
8	5.64	11,800	5.88	12,600	7.48	19,200	12.67	46,100	29.70	184,000	24.52	137,000
10	5.69	12,000	6.00	13,100	7.93	21,200	13.79	53,000	29.78	185,000	23.60	129,000
M	5.76	12,200	6.12	13,600	8.29	23,000	15.10	61,700	29.79	185,000	22.78	122,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	21.96	115,000	15.62	65,300	13.22	49,500	13.42	50,700	20.95	106,000	31.46	201,000
4	21.18	108,000	15.35	63,400	13.12	48,900	13.52	51,300	22.14	116,000	31.88	205,000
6	20.46	102,000	15.08	61,600	13.09	48,700	13.68	52,400	23.45	128,000	32.22	207,000
8	19.86	97,000	14.82	59,800	13.04	48,400	13.92	53,900	24.75	138,000	32.45	210,000
10	19.28	92,400	14.60	58,300	13.02	48,300	14.35	56,600	25.96	150,000	32.45	210,000
N	18.78	88,500	14.40	57,000	13.03	48,400	14.88	60,200	27.15	160,000	32.40	209,000
2	18.28	84,700	14.20	55,700	13.06	48,600	15.55	64,800	28.20	170,000	32.20	207,000
4	17.70	80,400	13.98	54,300	13.13	49,000	16.16	69,100	29.00	177,000	32.00	206,000
6	17.20	76,500	13.80	53,100	13.21	49,500	16.84	73,900	29.60	183,000	31.70	203,000
8	16.72	73,000	13.62	52,000	13.24	49,600	17.80	81,100	30.12	188,000	31.44	200,000
10	16.32	70,200	13.48	51,100	13.28	49,900	18.90	89,400	30.64	192,000	31.07	197,000
M	15.96	67,700	13.33	50,200	13.36	50,400	19.92	97,500	31.06	197,000	30.40	190,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	29.60	183,000	21.00	106,000	18.14	83,700	17.40	78,000	13.98	54,300	12.26	43,700
4	28.80	175,000	20.48	102,000	18.17	83,900	17.07	75,500	13.82	53,200	12.18	43,200
6	28.00	168,000	20.00	98,100	18.23	84,300	16.72	73,000	13.60	51,900	12.08	42,600
8	27.20	161,000	19.58	94,800	18.25	84,500	16.39	70,700	13.48	51,100	11.96	42,000
10	26.42	154,000	19.25	92,200	18.27	84,700	16.02	68,100	13.35	50,300	11.83	41,300
N	25.70	147,000	19.00	90,200	18.26	84,600	15.74	66,200	13.20	49,400	11.75	40,800
2	24.96	141,000	18.80	88,700	18.29	84,800	15.40	63,800	13.08	48,700	11.64	40,200
4	24.30	135,000	18.59	87,100	18.32	85,000	15.15	62,000	12.93	47,800	11.55	39,800
6	23.60	129,000	18.45	86,000	18.25	84,500	14.90	60,300	12.80	46,900	11.47	39,300
8	22.86	123,000	18.31	85,000	18.16	83,800	14.63	58,500	12.65	46,000	11.40	38,900
10	22.24	117,000	18.19	84,000	17.98	82,500	14.40	57,000	12.52	45,200	11.32	38,500
M	21.60	112,000	18.13	83,600	17.70	80,400	14.18	55,600	12.40	44,500	11.25	38,100

Delaware River at Milford, N. J.

Location.- Lat. 40°34'0", long. 75°5'55", on bridge at Milford, Hunterdon County. Zero of gage is at mean sea level.
Gage-height record.- Based on hourly gage readings 7 a.m. Mar. 11 to midnight Mar. 24 (except for short periods Mar. 14, 15, 19), and comparison with recorder graph at Riegelsville.
Maxima.- 1936: Gage height observed, 132.57 feet 9 to 11 a.m. Mar. 19.
Stage of 136.2 feet reached Oct. 10, 1903.
Remarks.- Observations started Mar. 11. No record after Mar. 24. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1			11	116.15		21	122.86	
2			12	126.35		22	121.90	
3			13	128.82		23	120.22	
4			14	122.68		24	118.20	
5			15	119.28		25		
6			16	118.18		26		
7			17	119.66		27		
8			18	127.54		28		
9			19	131.86		29		
10			20	127.34		30		
						31		

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2				114.85	120.18	130.40
4				114.95	121.26	130.32
6				115.10	122.18	130.15
8				115.26	124.92	129.98
10				115.43	126.50	129.69
N				115.68	128.09	129.23
2				116.01	128.92	128.67
4				116.35	129.25	128.25
6				116.85	129.84	127.67
8				117.81	129.94	127.09
10				118.35	130.23	126.34
M				119.26	130.52	125.59
Hour	**March 14**	**March 15**	**March 16**	**March 17**	**March 18**	**March 19**
2	125.09	120.20	118.31	118.35	123.50	131.82
4	124.50	120.00	118.26	118.39	124.43	132.15
6	123.67	119.76	118.18	118.43	125.17	132.36
8	123.17	119.51	118.10	118.60	125.84	132.48
10	123.01	119.35	118.10	118.94	126.92	132.57
N	122.60	119.10	118.10	119.18	127.84	132.48
2	122.18	119.01	118.10	119.68	128.84	132.40
4	121.76	118.93	118.10	120.10	129.42	131.98
6	121.35	118.85	118.18	120.60	130.09	131.65
8	121.05	118.68	118.18	121.26	130.48	131.07
10	120.75	118.51	118.18	122.01	130.90	130.57
M	120.45	118.39	118.26	122.60	131.40	130.07
Hour	**March 20**	**March 21**	**March 22**	**March 23**	**March 24**	**March 25**
2	129.61	124.25	121.85	121.51	118.85	
4	129.07	124.01	121.85	121.36	118.68	
6	128.59	123.59	121.85	121.02	118.51	
8	128.25	123.02	121.85	120.60	118.34	
10	127.75	122.76	121.93	120.43	118.26	
N	127.42	122.51	122.02	120.02	118.18	
2	126.92	122.34	121.93	119.85	118.02	
4	126.42	122.18	121.93	119.69	117.93	
6	125.92	122.10	121.93	119.51	117.89	
8	125.59	122.18	121.93	119.26	117.76	
10	125.17	122.10	121.85	119.10	117.68	
M	124.59	121.93	121.76	118.93	117.60	

Delaware River at Frenchtown, N. J.

Location.- Lat. 40°31'40", long. 75°4'0", on bridge at Frenchtown, Hunterdon County. Zero of gage is at mean sea level.

Gage-height record.- Based on hourly gage readings 8 a.m. Mar. 11 to midnight Mar. 24 (except for short periods Mar. 11, 14, 16), two readings a day during other periods, and comparison with recorder graph at Riegelsville.

Maxima.- 1936: Gage height observed, 121.93 feet 10 to 11 a.m. Mar. 19.
Stage of 124.3 feet reached Oct. 10, 1903.

Remarks.- Observations began 8 a.m. Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1	-	105.97	11	106.88	106.98	21	113.21	104.79
2	-	105.72	12	116.40	106.90	22	112.32	104.64
3	-	105.66	13	118.84	106.78	23	110.76	104.68
4	-	105.68	14	113.22	107.21	24	109.05	104.42
5	104.02	105.18	15	109.96	107.29	25	108.04	104.07
6	103.99	106.70	16	108.89	106.88	26	107.36	103.86
7	103.90	109.15	17	110.21	106.43	27	106.96	103.66
8	103.80	108.80	18	117.32	105.94	28	107.56	103.56
9	103.90	107.58	19	121.26	105.46	29	107.93	103.45
10	104.36	107.13	20	117.32	105.01	30	107.02	103.35
						31	106.42	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	103.84	103.87	104.06	105.15	109.43	120.30
4	103.84	103.90	104.13	105.55	111.16	121.62
6	103.83	103.92	104.20	106.00	112.87	120.41
8	103.81	103.95	104.28	106.32	114.20	119.91
10	103.80	103.93	104.31	106.52	116.85	119.55
N	103.79	103.90	104.35	106.72	118.40	119.20
2	103.77	103.87	104.38	107.05	119.15	118.12
4	103.75	103.83	104.43	107.37	119.70	118.20
6	103.75	103.84	104.49	107.80	119.96	117.10
8	103.77	103.89	104.56	108.45	120.41	117.02
10	103.80	103.94	104.70	108.75	120.13	116.33
M	103.83	104.00	104.85	109.00	120.21	116.53

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	115.30	110.72	108.95	109.03	113.68	121.11
4	114.80	110.56	108.91	109.10	114.49	121.48
6	114.30	110.40	108.87	109.14	115.16	121.57
8	113.79	110.21	108.85	109.34	115.95	121.80
10	113.35	110.02	108.85	109.63	116.72	121.93
N	113.00	109.86	108.85	109.90	117.57	121.72
2	112.63	109.76	108.85	110.22	118.30	121.67
4	112.28	109.65	108.85	110.60	119.05	121.55
6	112.00	109.52	108.90	110.99	119.55	121.20
8	111.61	109.31	108.90	111.40	120.02	120.64
10	111.46	109.21	108.90	112.20	120.50	120.14
M	111.66	109.00	109.00	112.90	120.75	119.78

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	119.16	114.48	112.27	111.18	109.57	108.40
4	119.51	114.06	112.29	111.35	109.47	108.30
6	118.49	113.76	112.31	111.51	109.35	108.25
8	118.16	113.48	112.37	111.26	109.21	108.17
10	117.81	113.30	112.40	111.03	109.12	108.10
N	117.33	112.99	112.40	110.80	109.02	108.00
2	116.95	112.80	112.40	110.58	108.93	107.95
4	116.58	112.72	112.40	110.43	108.85	107.90
6	116.17	112.62	112.35	110.18	108.77	107.85
8	115.11	112.43	112.32	110.06	108.64	107.80
10	115.27	112.36	112.18	109.85	108.53	107.70
M	114.80	112.24	112.01	109.69	108.49	107.65

Supplemental records.- Mar. 19, 10 to 11 a.m., 121.93 ft.

Delaware River at Point Pleasant, Pa.

Location.- Lat. 40°25'25", long. 75°3'50", on bridge at Point Pleasant, Bucks County. Zero of gage is at mean sea level.
Gage-height record.- Based on hourly gage readings during the day Mar. 5 to Mar. 25, two readings a day thereafter, and comparison with recorder graphs at Riegelsville and Trenton.
Maxima.- 1936: Gage height observed, 98.64 feet 3 p.m. Mar. 19.
Stage of 101.40 feet reached Oct. 10-11, 1903.
Remarks.- Observations started Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1		78.92	11	80.68	79.24	21	87.56	76.34
2		77.58	12	91.43	79.18	22	86.75	76.66
3		77.54	13	95.44	79.02	23	84.01	76.64
4		77.58	14	87.66	79.90	24	82.42	75.77
5	76.90	77.85	15	83.38	79.69	25	80.34	75.38
6	76.85	79.70	16	81.68	79.20	26	79.78	75.06
7	75.78	82.10	17	83.71	78.90	27	79.45	74.64
8	75.38	81.62	18	92.92	78.45	28	80.58	74.54
9	75.58	80.14	19	98.01	77.35	29	80.30	74.46
10	76.99	78.65	20	93.31	76.66	30	79.13	74.28
						31	78.96	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	75.40	75.45	76.35	79.20	84.20	97.45
4	75.40	75.50	76.70	79.70	85.20	97.45
6	75.35	75.55	76.90	79.90	86.30	97.30
8	75.36	75.54	76.95	79.94	87.72	96.40
10	75.36	75.54	76.95	79.96	90.05	96.87
N	75.36	75.54	76.95	79.98	94.00	95.55
2	75.37	75.55	76.96	80.22	95.65	95.95
4	75.37	75.55	76.96	81.74	95.00	94.28
6	75.38	75.55	76.96	81.97	95.00	94.10
8	75.40	75.65	77.20	82.17	96.50	93.30
10	75.40	75.80	77.80	82.49	97.20	92.30
M	75.40	76.00	78.50	83.20	97.40	91.30

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	90.50	84.50	81.85	81.75	88.50	97.60
4	89.70	84.20	81.75	81.85	89.40	97.90
6	89.00	83.90	81.65	82.00	90.35	98.15
8	88.47	83.38	81.63	82.10	91.30	98.35
10	87.48	83.36	81.62	82.11	91.90	98.55
N	87.43	83.34	81.62	83.00	92.89	98.63
2	87.37	83.33	81.62	84.62	94.92	98.63
4	87.09	83.31	81.61	84.95	94.64	98.35
6	86.00	83.30	81.61	84.98	95.68	98.00
8	85.60	82.40	81.65	85.80	96.25	97.65
10	85.20	82.15	81.65	86.70	96.80	97.25
M	84.90	82.00	81.70	87.60	97.20	96.85

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	96.40	88.95	86.85	84.43	83.15	80.55
4	95.90	88.45	86.85	84.41	83.10	80.40
6	95.40	88.00	86.90	84.41	83.00	80.35
8	94.90	87.55	86.99	84.43	82.99	80.13
10	93.56	87.28	86.99	84.41	82.98	80.12
N	93.98	87.18	86.90	84.34	82.94	80.10
2	92.38	87.06	86.90	84.24	82.82	80.39
4	92.31	87.06	86.84	83.29	82.47	80.38
6	91.20	87.10	86.93	83.29	81.46	80.37
8	90.50	87.00	86.60	83.28	81.25	80.37
10	90.00	86.90	86.10	83.25	80.95	80.35
M	89.45	86.85	85.50	83.20	80.70	80.35

Supplemental records.- Mar. 13, 11 a.m., 96.88 ft. Mar. 19, 3 p.m., 98.64 ft.

Delaware River at Lambertville, N. J.

Location.- Lat. 40°21'50", long. 74°56'55", on bridge at Lambertville, Hunterdon County. Zero of gage is at mean sea level.
Gage-height record.- Based on hourly gage readings 1 a.m. Mar. 5 to midnight Mar. 25 (except Mar. 8, and short periods Mar. 9-12, 14-18, 21-25), two readings daily thereafter, and comparison with recorder graphs at Riegelsville and Trenton.
Maxima.- 1936: Gage height observed, 67.00 feet 1 to 2 p.m. Mar. 19.
Stage of 70.00 feet reached Oct. 11, 1903.
Remarks.- Observations started Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1		51.92	11	53.31	52.83	21	58.57	50.94
2		51.68	12	60.58	52.74	22	57.47	50.80
3		51.64	13	64.08	52.65	23	56.32	50.78
4		51.64	14	58.51	52.85	24	54.65	50.67
5	50.45	51.28	15	55.47	53.04	25	53.74	50.38
6	50.40	52.70	16	54.42	52.66	26	53.12	50.24
7	50.20	54.60	17	55.21	52.30	27	52.86	50.06
8	50.15	54.48	18	61.78	51.88	28	53.34	49.96
9	50.25	53.34	19	66.42	51.48	29	53.62	49.90
10	50.75	52.96	20	62.78	51.14	30	52.88	49.80
						31	52.30	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	50.15	50.30	50.50	51.60	56.25	65.11
4	50.15	50.35	50.55	51.85	56.70	65.15
6	50.15	50.30	50.55	52.15	57.10	65.08
8	50.15	50.20	50.55	52.40	57.96	65.05
10	50.15	50.20	50.55	52.75	59.44	64.85
N	50.15	50.20	50.55	52.98	61.10	64.60
2	50.15	50.20	50.70	53.62	62.35	64.20
4	50.15	50.20	50.85	54.10	63.19	63.80
6	50.15	50.20	50.95	54.51	63.84	63.27
8	50.15	50.20	51.10	54.89	64.20	62.70
10	50.15	50.30	51.25	55.29	64.46	62.01
M	50.15	50.40	51.40	55.76	64.95	61.38
Hour	**March 14**	**March 15**	**March 16**	**March 17**	**March 18**	**March 19**
2	60.38	56.26	54.63	54.42	58.08	65.75
4	59.90	56.05	54.55	54.45	58.90	66.05
6	59.55	55.85	54.45	54.50	59.80	66.39
8	59.23	55.69	54.38	54.59	60.65	66.69
10	58.79	55.55	54.35	54.73	61.20	66.81
N	58.40	55.40	54.35	54.90	61.85	66.90
2	58.00	55.25	54.35	55.10	62.65	67.00
4	57.70	55.15	54.35	55.40	63.20	66.87
6	57.40	55.05	54.35	55.76	64.00	66.72
8	57.11	54.93	54.35	56.12	64.57	66.41
10	56.76	54.82	54.35	56.65	65.03	65.99
M	56.47	54.72	54.35	57.36	65.38	65.45
Hour	**March 20**	**March 21**	**March 22**	**March 23**	**March 24**	**March 25**
2	64.99	59.82	57.60	57.22	55.16	54.09
4	64.55	59.50	57.50	57.05	55.00	54.00
6	64.04	59.20	57.45	56.90	54.90	53.90
8	63.58	58.90	57.45	56.69	54.80	53.84
10	63.18	58.60	57.45	56.48	54.69	53.76
N	62.74	58.38	57.45	56.29	54.60	53.71
2	62.32	58.10	57.40	56.05	54.53	53.65
4	61.87	57.98	57.40	55.91	54.45	53.60
6	61.52	57.87	57.45	55.76	54.37	53.57
8	61.07	57.82	57.45	55.58	54.30	53.51
10	60.65	57.75	57.44	55.46	54.22	53.46
M	60.25	57.66	57.44	55.36	54.15	53.42

Supplemental records.- Mar. 13, 5 a.m., 65.17 ft. Mar. 19, 1 to 2 p.m., 67.00 ft.

Delaware River at Washington Crossing, N. J.

Location.- Lat. 40°17'40", long. 74°52'10", on bridge at Washington Crossing, Mercer County. Zero of gage, mean sea level.
Gage-height record.- Based on hourly gage readings during the day Mar. 6-25, two readings daily thereafter, and comparison with recorder graph at Trenton.
Maxima.- 1936: Stage observed, 47.30 feet 4 p.m. Mar. 19.
Remarks.- Observations started Mar. 6. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1	-	29.87	11	31.44	30.95	21	38.35	28.58
2	-	29.56	12	40.12	30.82	22	36.82	28.30
3	-	29.47	13	45.46	30.72	23	35.59	28.30
4	-	29.49	14	38.36	30.90	24	33.29	28.22
5	-	29.00	15	34.36	31.20	25	32.12	27.83
6	30.33	30.60	16	32.94	30.76	26	31.36	27.62
7	29.00	33.15	17	33.91	30.30	27	30.98	27.38
8	27.78	33.05	18	41.39	29.78	28	31.60	27.24
9	27.71	31.60	19	46.71	29.28	29	31.96	27.16
10	28.39	31.10	20	43.24	28.82	30	31.06	27.05
						31	30.36	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	27.90	27.70	28.00	29.60	34.60	46.20
4	27.90	27.75	28.10	29.80	35.20	46.35
6	27.90	27.70	28.10	30.00	35.90	46.40
8	27.85	27.67	28.06	30.32	36.70	46.40
10	27.85	27.68	28.09	30.63	37.90	46.30
N	27.85	27.68	28.11	31.21	39.78	46.21
2	27.80	27.68	28.23	31.85	42.00	46.08
4	27.75	27.63	28.47	32.50	43.78	46.00
6	27.70	27.63	28.70	32.84	44.70	45.02
8	27.70	27.70	29.00	33.20	45.25	43.80
10	27.70	27.80	29.20	33.60	45.65	42.80
M	27.70	27.90	29.45	34.10	45.95	41.90

Hour	March 14	March 15	March 16	March 17	March 18	March 19
2	41.10	35.45	33.25	33.00	37.30	45.65
4	40.30	35.15	33.10	33.05	38.60	46.05
6	39.70	34.90	33.00	33.05	39.50	46.40
8	39.15	34.65	32.91	33.11	40.24	46.75
10	38.61	34.43	32.87	33.48	40.82	47.04
N	38.17	34.26	32.82	33.52	41.55	47.20
2	37.68	34.08	32.79	33.84	42.29	47.26
4	37.32	33.91	32.81	34.10	42.93	47.30
6	36.91	33.80	32.80	34.54	43.68	47.25
8	36.50	33.65	32.85	35.05	44.25	47.05
10	36.10	33.50	32.90	35.60	44.80	46.80
M	35.75	33.35	32.95	36.30	45.20	46.40

Hour	March 20	March 21	March 22	March 23	March 24	March 25
2	45.90	40.00	37.00	36.75	33.95	32.55
4	45.20	39.55	36.83	36.65	33.75	32.45
6	44.60	39.15	36.77	36.45	33.60	32.35
8	44.05	38.80	36.82	36.18	33.47	32.28
10	43.60	38.45	36.79	35.90	33.35	32.19
N	43.17	38.10	36.74	35.76	33.24	32.11
2	42.75	37.80	36.75	35.17	33.13	32.05
4	42.25	37.65	36.80	34.98	33.05	31.98
6	41.80	37.45	36.80	34.84	32.94	31.89
8	41.30	37.35	36.80	34.60	32.85	31.80
10	40.80	37.20	36.80	34.35	32.75	31.70
M	40.40	37.10	36.80	34.15	32.65	31.65

Delaware River at Yardley, Pa.

Location.- Lat. 40°14'45", long. 74°50'10", on bridge at Yardley, Bucks County. Zero of gage is at mean sea level.
Gage-height record.- Based on hourly gage readings during the day for period Mar. 8-17, hourly readings day and night Mar. 18-25 (except for short periods Mar. 19, 20, 22), and two readings daily thereafter; and comparison with recorder graph at Trenton.
Maxima.- 1936: Gage height, 35.90 feet 2 to 3 p.m. Mar. 19, from graph based on gage readings.
Stage of 38.80 feet reached Oct. 11, 1903.
Remarks.- Observations started Mar. 5. Record furnished by Delaware River Joint Toll Bridge Commission.

Mean gage height, in feet, 1936

Day	Mar.	Apr.	Day	Mar.	Apr.	Day	Mar.	Apr.
1		20.46	11	21.95	21.48	21	28.12	19.21
2		20.15	12	29.12	21.39	22	26.77	18.93
3		20.07	13	33.25	21.30	23	25.66	18.96
4		20.10	14	28.36	21.44	24	23.73	18.95
5	22.00	19.66	15	24.76	21.72	25	22.64	18.58
6	21.92	21.20	16	23.33	21.18	26	21.90	18.30
7	21.35	23.60	17	24.04	20.86	27	21.50	18.09
8	19.79	23.51	18	30.42	20.30	28	22.14	17.94
9	18.44	22.20	19	35.21	19.86	29	22.48	17.88
10	18.94	21.66	20	35.31	19.46	30	21.62	17.77
						31	20.94	

Gage height, in feet, at indicated time, 1936

Hour	March 8	March 9	March 10	March 11	March 12	March 13
2	20.65	18.60	18.70	19.90	25.15	33.71
4	20.40	18.50	18.75	20.10	25.60	33.90
6	20.20	18.40	18.75	20.35	26.10	34.05
8	20.09	18.38	18.70	20.67	26.67	34.05
10	20.08	18.37	18.75	21.21	27.48	33.95
N	20.06	18.39	18.78	21.70	29.00	33.75
2	19.83	18.38	18.86	22.35	30.52	33.53
4	19.22	18.34	19.00	22.97	31.60	33.10
6	19.17	18.32	19.11	23.56	32.42	32.62
8	19.05	18.40	19.25	24.00	32.66	32.20
10	18.90	18.50	19.45	24.40	33.10	31.80
M	18.80	18.65	19.65	24.80	33.45	31.30
Hour	**March 14**	**March 15**	**March 16**	**March 17**	**March 18**	**March 19**
2	30.80	26.00	23.60	23.35	26.66	34.29
4	30.20	25.75	23.50	23.45	27.64	34.61
6	29.65	25.40	23.40	23.55	28.13	34.93
8	29.15	25.06	23.33	23.57	29.57	35.19
10	28.44	24.76	23.28	23.60	30.17	35.40
N	27.97	24.55	23.25	23.70	30.66	35.70
2	27.59	24.41	23.21	23.93	31.25	35.90
4	27.26	24.27	23.20	24.20	31.83	35.87
6	27.00	24.10	23.20	24.37	32.50	35.87
8	26.85	24.00	23.20	24.80	33.09	35.52
10	26.60	23.85	23.25	25.40	33.59	35.14
M	26.35	23.70	23.30	25.90	33.93	34.76
Hour	**March 20**	**March 21**	**March 22**	**March 23**	**March 24**	**March 25**
2	34.30	29.53	26.92	26.57	24.35	23.02
4	33.90	29.17	26.84	26.43	24.20	22.93
6	33.45	28.78	26.77	26.28	24.05	22.85
8	33.02	28.55	26.73	26.11	23.92	22.77
10	32.67	28.25	26.76	25.90	23.80	22.67
N	32.31	27.90	26.74	25.67	23.69	22.61
2	31.90	27.68	26.74	25.45	23.57	22.55
4	31.54	27.45	26.76	25.28	23.46	22.48
6	31.14	27.34	26.72	25.10	23.39	22.43
8	30.77	27.21	26.70	24.83	23.30	22.36
10	30.37	27.10	26.71	24.67	23.21	22.30
M	29.92	27.01	26.68	24.51	23.12	22.25

Supplemental records.- Mar. 13, 5 a.m., 34.03 ft. Mar. 19, 2 to 3 p.m., 35.90 ft.

Delaware River at Trenton, N. J.

Location.- Lat. 40°13'18", long. 74°46'38", 200 feet above Calhoun Street Bridge, Trenton, Mercer County, half a mile above mouth of Assunpink Creek. Zero of gage is 7.77 feet above mean sea level.

Drainage area.- 6,796 square miles; 395 square miles affected by storage in Lake Wallenpaupack, Toronto and Swinging Bridge reservoirs, and Lake Hopatcong.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Affected by ice Dec. 23 to Jan. 6, Jan. 20 to 4 p.m. Mar. 10. Defined by current-meter measurements below 225,000 second-feet.

Maxima.- 1936: Discharge, 227,000 second-feet 3 to 4 p.m. Mar. 19 (gage height, 16.66 feet).

1913-35: Discharge, about 160,000 second-feet Mar. 28-29, 1913 (gage height, 13.3 feet); maximum stage, 14.2 feet Mar. 5, 1934, due to ice jam.

Remarks.- Discharge during period of ice effect determined by comparison with record of Delaware River at Riegelsville. Monthly table gives discharge and run-off, in inches, corrected for storage on Wallenpaupack Creek, Toronto and Swinging Bridge reservoirs on Mongaup River in Lake Hopatcong. No diversion during February, March, and April.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	8,800	14,500	27,500	11	6,300	39,600	35,500	21	6,400	104,000	19,500
2	8,000	13,500	25,700	12	6,300	124,000	34,500	22	6,400	86,000	18,300
3	8,000	12,800	24,800	13	6,900	187,000	33,500	23	6,300	74,200	17,900
4	7,600	13,400	24,800	14	6,700	107,000	34,500	24	5,900	54,500	17,500
5	7,800	14,500	22,100	15	6,900	64,800	36,600	25	5,700	44,100	15,200
6	7,600	14,500	32,800	16	7,100	52,000	33,500	26	6,800	38,700	14,200
7	7,200	14,000	52,000	17	7,100	58,400	30,500	27	11,200	35,500	12,800
8	6,700	14,000	50,800	18	6,800	139,000	27,500	28	14,100	39,700	12,500
9	7,100	14,700	40,800	19	6,500	214,000	23,900	29	14,400	43,000	11,900
10	6,900	18,400	36,600	20	6,400	168,000	21,200	30		36,600	11,600
								31		31,500	
Mean monthly discharge, in second-feet (observed).....									7,583	60,840	26,680
Mean monthly discharge, in second-feet (corrected).....									7,251	63,290	26,370
Run-off, in inches (corrected).....									1.15	10.73	4.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	6.22	14,000	5.58	14,000	3.35	15,600	3.92	25,000	7.85	69,400	15.22	196,000
4	6.19	14,200	5.16	14,200	3.32	16,200	4.10	26,600	8.11	72,900	15.28	197,000
6	6.07	14,200	4.62	14,500	3.30	17,000	4.31	28,600	8.50	78,500	15.31	198,000
8	6.02	14,200	4.42	14,800	3.32	17,500	4.57	31,200	8.97	85,600	15.34	199,000
10	5.96	14,200	4.18	15,000	3.34	18,000	4.81	33,600	9.68	96,200	15.25	196,000
N	5.96	14,100	3.92	15,200	3.33	18,000	5.13	36,900	10.97	116,000	15.10	193,000
2	5.90	13,900	3.85	15,200	3.30	18,000	5.55	41,400	12.40	141,000	14.88	189,000
4	6.06	13,700	3.96	15,000	3.25	18,500	6.03	46,600	13.25	157,000	14.58	183,000
6	5.91	13,700	3.67	14,700	3.31	19,600	6.47	51,600	13.85	168,000	14.23	176,000
8	5.79	13,600	3.43	14,500	3.47	20,900	6.77	55,400	14.46	180,000	13.78	167,000
10	5.83	13,700	3.38	14,500	3.62	22,300	6.97	58,000	14.90	189,000	13.34	159,000
M	5.90	13,900	3.40	15,000	3.78	22,700	7.49	64,700	15.12	193,000	12.80	148,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	12.29	139,000	8.24	74,800	6.67	54,100	6.44	51,300	8.97	85,600	15.41	200,000
4	11.75	130,000	8.02	71,700	6.58	53,000	6.47	51,600	9.83	98,400	15.57	203,000
6	11.36	123,000	7.85	69,400	6.52	52,200	6.50	52,000	10.67	112,000	15.88	210,000
8	10.97	116,000	7.71	67,500	6.48	51,800	6.55	52,600	11.37	123,000	16.09	215,000
10	10.53	110,000	7.55	65,400	6.44	51,300	6.62	53,500	11.92	132,000	16.30	219,000
N	10.14	103,000	7.41	63,600	6.40	50,800	6.69	54,400	12.41	141,000	16.50	224,000
2	9.80	98,000	7.27	61,800	6.37	50,400	6.82	56,100	12.87	149,000	16.60	226,000
4	9.50	93,500	7.16	60,400	6.36	50,300	7.02	58,600	13.38	160,000	16.65	227,000
6	9.25	89,800	7.07	59,200	6.36	50,300	7.28	61,900	13.87	168,000	16.58	226,000
8	9.00	86,000	6.98	58,100	6.38	50,600	7.62	66,400	14.32	177,000	16.40	221,000
10	8.73	82,000	6.88	56,800	6.40	50,800	7.99	71,300	14.80	187,000	16.16	216,000
M	8.47	78,000	6.77	55,400	6.42	51,000	8.43	77,400	15.07	192,000	15.90	210,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	15.58	204,000	11.42	124,000	9.17	88,600	8.89	84,400	7.12	59,900	6.12	47,600
4	15.24	196,000	11.10	119,000	9.10	87,500	8.82	83,300	7.04	58,900	6.08	47,200
6	14.90	189,000	10.80	114,000	9.04	86,600	8.67	81,000	6.93	57,500	6.02	46,500
8	14.50	181,000	10.51	109,000	9.01	86,200	8.50	78,500	6.81	55,900	5.94	45,600
10	13.10	173,000	10.24	105,000	8.99	85,800	8.33	76,000	6.71	54,600	5.88	45,000
N	13.79	167,000	10.02	101,000	8.98	85,700	8.14	73,400	6.61	53,300	5.83	44,400
2	13.50	162,000	9.88	99,200	9.01	86,200	7.99	71,300	6.53	52,400	5.78	43,900
4	13.19	156,000	9.68	96,200	9.01	86,200	7.86	69,500	6.49	51,900	5.73	43,300
6	12.82	148,000	9.52	93,800	9.00	86,000	7.70	67,400	6.42	51,000	5.70	43,000
8	12.42	141,000	9.41	92,200	8.98	85,700	7.53	65,200	6.33	50,000	5.63	42,200
10	12.04	135,000	9.32	90,800	8.95	85,200	7.38	63,200	6.25	49,000	5.58	41,700
M	11.69	129,000	9.23	89,400	8.92	84,800	7.23	61,300	6.19	48,400	5.53	41,100

Supplemental records.- Mar. 19, 3 to 4 p.m., 16.66 ft., 227,000 sec.-ft.

155158 O—37——13

Beaver Kill at Cooks Falls, N. Y.

Location.- Lat. 41°56'50", long. 74°58'45", about 125 feet below highway bridge in Cooks Falls, Delaware County, 5 1/2 miles below mouth of Willowemoc Creek.
Drainage area.- 241 square miles.
Gage-height record.- Water-stage recorder graph, except for period Feb. 1-8.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 1,600 second-feet; extended to peak stage on basis of slope-area determination of flood flow.
Maxima.- 1936: Discharge, 18,600 second-feet, about 11 a.m. Mar. 18 (gage height, 14.89 feet).
1913-35: Discharge, 19,000 second-feet (revised) Aug. 24, 1933 (gage height, 17.8 feet, former site, from flood marks).
Remarks.- Flood run-off not materially affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	240	380	890	11	200	3,600	1,440	21	200	3,660	910
2	240	340	935	12	200	9,140	1,440	22	200	2,770	935
3	220	320	1,050	13	200	4,060	2,110	23	190	1,900	760
4	220	300	813	14	220	2,120	2,040	24	190	1,510	670
5	220	360	692	15	220	1,720	2,170	25	190	1,350	606
6	220	300	4,150	16	240	2,090	1,410	26	200	1,140	585
7	220	280	2,880	17	260	7,800	1,410	27	300	1,640	524
8	220	260	1,970	18	260	12,700	1,200	28	380	2,370	471
9	220	260	1,480	19	220	6,110	1,020	29	420	1,570	448
10	200	480	1,440	20	220	3,490	860	30		1,260	445
								31		1,050	
Mean monthly discharge, in second-feet									232	2,462	1,258
Run-off, in inches									1.04	11.78	5.82

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	12.75	12,500	8.70	5,250
6	-	-	-	-	3.54	424	12.10	920	-	-	-	-
8	-	-	-	-	-	-	-	-	12.00	11,000	8.00	4,340
10	-	-	-	-	-	-	-	-	-	-	-	-
N	3.20	*260	3.31	*260	3.55	441	6.12	2,450	10.70	8,430	7.50	3,790
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	10.30	7,710	7.13	3,390
6	-	-	-	-	4.51	522	9.22	5,990	-	-	-	-
8	-	-	-	-	-	-	-	-	10.00	7,200	6.77	3,030
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	11.80	658	12.00	11,000	9.15	5,880	6.40	2,700
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	8.50	4,970	12.07	11,100	9.75	6,800
4	6.18	2,500	-	-	-	-	10.00	7,200	12.30	11,600	9.70	6,720
6	-	-	4.97	1,560	5.51	1,940	10.43	7,940	13.15	13,300	9.90	7,040
8	5.92	2,270	-	-	-	-	10.45	7,980	14.15	16,000	9.80	6,880
10	-	-	-	-	-	-	10.25	7,620	14.80	17,900	9.55	6,480
N	5.63	2,030	4.87	1,490	5.43	1,880	10.03	7,250	14.70	17,600	9.35	6,180
2	-	-	-	-	-	-	10.00	7,200	13.90	15,200	-	-
4	-	-	5.10	1,650	-	-	10.30	7,710	12.90	12,800	9.15	5,880
6	5.37	1,840	-	-	5.45	1,900	10.65	8,340	11.90	10,800	-	-
8	-	-	5.73	2,110	5.85	2,210	11.30	9,600	11.10	9,200	8.60	5,110
10	-	-	-	-	6.50	2,790	11.70	10,400	10.60	8,250	-	-
M	5.15	1,680	5.69	2,080	7.55	3,840	11.85	10,700	10.10	7,370	8.25	4,640
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	6.43	2,730	-	-	-	-	-	-	-	-
6	7.70	4,010	-	-	6.85	3,110	-	-	-	-	-	-
8	-	-	7.10	3,360	-	-	5.54	1,960	5.00	1,580	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	7.13	3,390	8.08	4,440	6.40	2,700	-	-	-	-	4.67	1,360
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	5.31	1,800	4.82	1,450	-	-
6	6.73	3,000	7.75	4,060	6.08	2,410	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	6.50	2,790	7.30	3,570	5.84	2,200	5.12	1,660	4.77	1,420	4.52	1,270

Supplemental records.- Mar. 11, 8 a.m., 12.90 ft., 1,200 sec.-ft. Mar. 17, 7 a.m., 10.50 ft., 8,070 sec.-ft. Mar. 18, 11 a.m., 14.89 ft., 18,600 sec.-ft.
*Mean for the day.

Little Beaver Kill near Livingston Manor, N. Y.

Location.- Lat. 41°52'20", long. 74°47'55", 2½ miles southeast of Livingston Manor, Sullivan County, and 3 miles above mouth of Cattail Brook.
Drainage area.- 19.8 square miles.
Gage-height record.- From graph based on twice-daily gage readings, flood mark, and comparison with Beaver Kill water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1-26, Mar. 2, 6-8. Defined by current-meter measurements below 460 second-feet; extended to peak stage on basis of slope-area determination of flood flow.
Maxima.- 1936: Discharge, 2,440 second-feet about 10 a.m. Mar. 18 (gage height, 8.49 feet, from flood marks).
1924-35: Discharge, 2,500 second-feet Aug. 26, 1928 (gage height, 8.7 feet, from flood marks).
Remarks.- Flood run-off not materially affected by artificial storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	15	27	52	11	9	735	115	21	9	526	56
2	14	26	74	12	9	1,220	133	22	8.5	220	61
3	14	24	90	13	8.5	470	270	23	8.5	125	46
4	14	23	56	14	10	227	166	24	10	94	36
5	13	30	106	15	11	212	196	25	12	88	31
6	12	22	800	16	12	230	125	26	24	67	34
7	12	20	234	17	12	1,100	83	27	34	203	28
8	11	22	176	18	11	1,480	67	28	32	254	27
9	10	28	94	19	10	650	61	29	30	106	28
10	10	139	119	20	10	297	50	30		80	28
								31		67	
Mean monthly discharge, in second-feet									13.6	284	115
Run-off, in inches									0.74	16.53	6.48

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	2.96	296	6.20	1,590	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.10	-	1.68	24	1.85	42	3.17	378	5.55	1,330	3.57	538
10	-	-	-	-	-	-	-	-	-	-	-	-
N	-	*22	-	-	2.00	64	3.59	546	5.08	1,140	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	2.60	182	4.34	846	4.95	1,090	3.18	382
6	1.70	-	1.76	32	-	-	-	-	-	-	-	-
8	-	-	-	-	3.03	322	5.55	1,330	4.50	910	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	3.98	303	6.75	1,810	4.10	750	2.94	289
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	4.87	1,060	6.32	1,640	4.00	710
6	2.83	250	2.46	148	-	-	-	-	-	-	-	-
8	-	-	-	-	2.60	182	4.47	898	7.80	2,230	3.86	654
10	-	-	2.47	150	-	-	-	-	8.49	2,440	-	-
N	2.73	219	-	-	-	-	4.36	854	7.40	2,070	4.15	770
2	-	-	3.05	330	2.60	182	-	-	-	-	-	-
4	-	-	-	-	-	-	4.70	990	5.00	1,110	3.90	670
6	2.63	190	2.90	275	-	-	-	-	-	-	-	-
8	-	-	-	-	2.85	258	5.90	1,470	4.05	730	3.63	562
10	-	-	-	-	-	-	-	-	-	-	-	-
M	2.54	167	2.66	199	4.10	750	6.50	1,710	3.74	606	3.40	470
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	2.90	275	-	-	-	-	-	-	-	-
6	3.13	362	-	-	2.83	250	-	-	-	-	-	-
8	-	-	3.95	690	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	2.91	278	4.20	790	2.71	213	2.35	*125	2.18	*94	2.15	*88
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	3.76	614	-	-	-	-	-	-	-	-
6	2.78	234	-	-	2.61	185	-	-	-	-	-	-
8	-	-	3.40	470	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	2.67	202	3.05	330	2.50	157	-	-	-	-	-	-

*Mean for the day.

West Branch of Delaware River at Hale Eddy, N. Y.

Location.- Lat. 42°0'10", long. 75°23'15", at highway bridge in Hale Eddy, Delaware County, 9 miles above confluence with East Branch of Delaware River. Zero of gage is 946.34 feet above mean sea level.
Drainage area.- 593 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 5,260 second-feet; extended to peak stage on basis of logarithmic plotting and shape of outside staff-gage rating, which was defined by current-meter measurements below 23,000 second-feet; verified by comparison of peak discharge and total run-off of flood with records for other streams in Delaware River Basin.
Maxima.- 1936: Discharge, 25,900 second-feet 4:20 p.m. Mar. 18 (gage height, 14.22 feet).
1912-35: Discharge, about 26,500 second-feet Sept. 30, 1924 (gage height, about 15.8 feet, from graph based on gage readings).
Maximum known discharge, about 46,000 second-feet Oct. 10, 1903 (gage height, 20.3 feet).
Remarks.- Flood run-off not affected by artificial storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	500	800	1,740	11	420	8,500	2,740	21	420	8,400	1,690
2	500	700	1,720	12	400	21,700	3,100	22	400	8,470	2,070
3	480	650	2,160	13	400	10,700	4,400	23	380	5,090	1,600
4	480	650	1,760	14	420	5,170	4,490	24	380	3,690	1,400
5	480	800	1,560	15	440	4,090	3,900	25	440	3,070	1,280
6	460	950	2,050	16	440	5,930	3,360	26	500	2,470	1,180
7	460	800	3,290	17	440	12,100	2,820	27	650	2,380	1,060
8	440	700	2,910	18	440	22,300	2,390	28	850	2,960	939
9	440	750	2,600	19	420	17,000	2,120	29	900	2,340	864
10	420	1,300	2,680	20	420	9,480	1,820	30		2,010	786
								31		1,940	
Mean monthly discharge, in second-feet									477	5,416	2,216
Run-off, in inches									0.87	10.53	4.17

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	8.78	3,360	13.10	20,200	-	-
4	-	-	-	-	-	-	8.98	3,860	13.47	22,400	11.19	14,100
6	-	-	-	-	6.59	-	9.21	4,480	13.68	23,200	-	-
8	-	-	-	-	-	-	9.61	5,290	13.81	23,800	10.47	11,900
10	-	-	-	-	-	-	9.91	6,230	13.89	24,200	-	-
N	5.85	*700	5.89	*750	6.79	*1,300	9.58	7,380	13.97	24,600	9.80	10,200
2	-	-	-	-	-	-	9.40	8,570	13.71	23,400	-	-
4	-	-	-	-	-	-	9.90	10,300	13.45	22,300	9.24	8,880
6	-	-	-	-	7.42	-	10.65	12,400	13.15	21,100	-	-
8	-	-	-	-	-	-	12.63	14,100	12.79	19,700	8.71	7,720
10	-	-	-	-	-	-	12.80	15,900	12.41	18,100	-	-
M	-	-	6.37	-	8.56	-	12.94	17,900	11.98	16,400	8.26	6,790
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	8.96	8,260	12.34	17,900	-	-
4	7.91	6,100	6.73	4,080	7.52	5,380	9.37	9,180	12.59	18,900	12.95	20,300
6	-	-	-	-	-	-	9.64	9,820	12.96	20,300	-	-
8	7.59	5,500	6.59	3,890	7.63	5,570	9.92	10,500	13.34	21,900	12.54	18,700
10	-	-	-	-	-	-	10.20	11,200	13.74	23,500	-	-
N	7.29	4,970	6.45	3,690	7.70	5,700	10.45	11,800	14.01	24,800	11.95	16,400
2	-	-	-	-	-	-	10.73	12,700	14.17	25,600	-	-
4	7.06	4,600	6.54	3,820	7.96	6,190	10.98	13,400	14.21	25,800	11.73	15,700
6	-	-	-	-	-	-	11.25	14,200	13.92	24,400	-	-
8	6.94	4,400	6.95	4,420	8.15	6,570	11.57	15,200	13.66	23,100	11.21	14,100
10	-	-	-	-	8.27	6,810	11.85	16,000	13.45	22,300	-	-
M	6.85	4,260	7.33	5,040	8.54	7,360	12.10	16,900	13.25	21,500	10.66	12,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	10.29	11,400	8.15	6,570	9.83	10,300	-	-	-	-	-	-
6	-	-	-	-	-	-	7.64	5,590	6.62	3,930	6.07	3,200
8	9.86	10,400	8.35	6,970	9.38	9,200	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
N	9.46	9,390	8.85	8,020	8.95	8,240	7.32	5,020	6.44	3,680	5.95	3,060
2	-	-	-	-	-	-	-	-	-	-	-	-
4	9.07	8,500	9.33	9,090	8.62	7,530	-	-	-	-	-	-
6	-	-	-	-	-	-	7.03	4,550	6.26	3,440	5.85	2,940
8	8.71	7,720	9.95	10,600	8.30	6,870	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	8.38	7,030	10.27	11,400	8.00	6,270	6.81	4,200	6.14	3,290	5.71	2,790

Supplemental records.- Mar. 18, 4:20 p.m., 14.22 ft., 25,900 sec.-ft. Mar. 22, 12:30 a.m., 10.28 ft., 11,400 sec.-ft.
*Mean for the day.

Lackawaxen River at West Hawley, Pa.

Location.- Lat. 41°28'10", long. 75°11'15", at Riverside Bridge, at West Hawley, Wayne County, half a mile above mouth of Middle Creek. Zero of gage is 885.50 feet above mean sea level.
Drainage area.- 206 square miles.
Gage-height record.- Graph based upon two or more chain-gage readings daily except for period Mar. 18-30, when record was computed by comparison with records for nearby stations. Gage heights used to half tenths between 2.0 and 3.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 4,000 second-feet by current-meter measurements; logarithmic extension to crest discharge. Affected by ice Feb. 1-11.
Maxima.- 1936: Discharge, 14,000 second-feet 11:15 a.m. Mar. 18 (gage height, 15.32 feet, from flood marks).
1921-35: Discharge, 8,180 second-feet (revised) Aug. 24, 1933 (gage height, 11.0 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	135	150	592	11	135	2,930	1,080	21	131	2,870	465
2	133	145	702	12	135	7,100	1,140	22	135	2,820	592
3	135	135	840	13	138	3,370	1,020	23	143	1,880	465
4	139	145	565	14	145	1,860	840	24	149	1,340	373
5	137	175	490	15	153	1,720	840	25	153	1,140	330
6	135	160	1,270	16	148	2,830	785	26	158	1,010	290
7	135	145	1,200	17	142	6,000	620	27	160	1,060	252
8	135	130	1,020	18	137	10,900	565	28	158	1,510	238
9	135	175	840	19	130	5,730	515	29	155	1,040	224
10	135	380	900	20	129	3,890	442	30		969	217
								31		1,300	
Mean monthly discharge, in second-feet									141	2,097	657
Run-off, in inches									0.74	11.76	3.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.96	-	-	-	-	-	4.20	-	9.65	6,540	8.30	5,130
4	-	-	-	-	-	-	4.50	-	10.20	7,220	7.90	4,730
6	2.94	-	-	-	-	-	4.80	-	10.80	7,940	7.50	4,330
8	-	-	3.03	-	3.32	-	5.25	-	11.25	8,420	7.10	3,930
10	2.94	-	-	-	-	-	5.60	-	11.40	8,660	6.70	3,560
N	-	*130	3.08	*175	3.44	*380	6.00	*2,930	10.87	8,060	6.20	3,110
2	-	-	-	-	-	-	6.50	-	10.55	7,700	5.80	2,750
4	2.96	-	-	-	3.56	-	7.00	-	10.14	7,100	5.40	2,410
6	-	-	-	-	3.60	-	7.50	-	9.85	6,760	5.10	2,170
8	-	-	-	-	3.70	-	8.00	-	9.44	6,320	4.95	2,090
10	-	-	-	-	3.82	-	8.55	-	9.08	5,990	4.93	2,010
M	2.99	-	3.20	-	4.00	-	9.10	-	8.70	5,550	4.90	2,010
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.89	2,010	4.38	1,620	4.95	2,090	7.60	4,430	11.70	9,040	10.30	7,340
4	4.88	2,010	4.34	1,550	5.10	2,170	8.00	4,830	12.50	10,080	9.80	6,760
6	4.87	2,010	4.34	1,550	5.25	2,250	8.50	5,330	13.40	11,290	9.40	6,320
8	4.85	1,930	4.36	1,620	5.40	2,410	8.92	5,770	14.40	12,690	9.00	5,880
10	4.79	1,930	4.40	1,620	5.55	2,570	9.15	6,100	15.20	13,880	8.76	5,660
N	4.73	1,850	4.46	1,690	5.75	2,750	9.32	6,210	15.30	14,030	8.54	5,330
2	4.67	1,850	4.53	1,690	5.95	2,930	9.42	6,320	14.80	13,280	8.35	5,230
4	4.61	1,770	4.61	1,770	6.15	3,110	9.50	6,430	13.90	11,990	8.20	5,030
6	4.55	1,770	4.71	1,850	6.38	3,290	9.56	6,540	13.00	10,730	8.10	4,930
8	4.50	1,690	4.74	1,850	6.60	3,470	9.70	6,650	12.20	9,690	7.96	4,830
10	4.46	1,690	4.76	1,930	6.90	3,740	10.20	7,220	11.50	8,780	7.83	4,630
M	4.40	1,620	4.80	1,930	7.20	4,030	11.00	8,180	10.90	8,060	7.70	4,530
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.60	4,430	6.08	3,020	6.24	3,110	5.20	2,250	4.23	1,480	3.77	1,200
4	7.50	4,330	5.98	2,930	6.28	3,200	5.10	2,170	4.18	1,480	3.76	1,200
6	7.40	4,230	5.90	2,840	6.24	3,110	5.00	2,090	4.13	1,410	3.75	1,200
8	7.30	4,130	5.82	2,750	6.18	3,110	4.90	2,010	4.08	1,410	3.74	1,140
10	7.20	4,030	5.74	2,660	6.06	3,020	4.80	1,930	4.03	1,340	3.73	1,140
N	7.10	3,930	5.72	2,660	5.94	2,840	4.70	1,850	3.98	1,340	3.72	1,140
2	7.00	3,830	5.74	2,660	5.80	2,750	4.62	1,770	3.94	1,270	3.70	1,140
4	6.90	3,740	5.80	2,750	5.70	2,660	4.54	1,690	3.90	1,270	3.68	1,140
6	6.73	3,560	5.90	2,840	5.60	2,570	4.47	1,690	3.86	1,270	3.66	1,140
8	6.56	3,470	6.00	2,930	5.50	2,490	4.40	1,620	3.83	1,200	3.64	1,080
10	6.38	3,290	6.10	3,020	5.40	2,410	4.34	1,550	3.80	1,200	3.62	1,080
M	6.20	3,110	6.20	3,110	5.30	2,330	4.28	1,550	3.78	1,200	3.60	1,080

Supplemental records.- Mar. 18, 11:15 a.m., 15.32 ft., 14,000 sec.-ft.
*Mean for the day.

Lake Wallenpaupack at Wilsonville, Pa.

Location.- Lat. 41°27'35", long. 75°11'5", at Wilsonville Dam at Wilsonville, Wayne County, 1½ miles south of Hawley.
Drainage area.- 228 square miles.
Gage-height record.- Gage read at midnight to half-tenths.
Remarks.- Contents given in the table show the usable storage. Records furnished by Pennsylvania Power & Light Co.

Elevation, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Elevation	Contents	Elevation	Contents	Elevation	Contents
1	1,173.25	5,036	1,171.20	4,575	1,188.20	8,865
2	1,173.25	5,036	1,171.15	4,563	1,187.80	8,751
3	1,173.20	5,025	1,171.00	4,530	1,187.45	8,652
4	1,173.15	5,014	1,170.95	4,519	1,187.30	8,610
5	1,173.15	5,014	1,171.00	4,530	1,187.25	8,595
6	1,173.10	5,002	1,171.10	4,552	1,187.40	8,638
7	1,173.00	4,979	1,171.25	4,586	1,187.25	8,595
8	1,172.95	4,968	1,171.35	4,608	1,187.25	8,595
9	1,172.90	4,956	1,171.60	4,664	1,187.10	8,553
10	1,172.85	4,945	1,171.95	4,741	1,187.00	8,525
11	1,172.75	4,922	1,173.40	5,071	1,186.85	8,483
12	1,172.60	4,888	1,177.35	6,005	1,186.90	8,497
13	1,172.50	4,866	1,178.55	6,301	1,186.85	8,483
14	1,172.45	4,854	1,179.30	6,488	1,186.75	8,455
15	1,172.40	4,843	1,180.00	6,665	1,186.50	8,385
16	1,172.35	4,832	1,180.75	6,854	1,186.35	8,343
17	1,172.25	4,809	1,183.60	7,595	1,186.15	8,288
18	1,172.30	4,820	1,187.75	8,737	1,185.95	8,232
19	1,172.10	4,775	1,189.45	9,227	1,186.05	8,260
20	1,171.95	4,741	1,190.15	9,432	1,185.95	8,232
21	1,171.75	4,697	1,190.80	9,624	1,185.90	8,218
22	1,171.70	4,686	1,191.00	9,683	1,185.70	8,164
23	1,171.70	4,686	1,190.90	9,654	1,185.65	8,150
24	1,171.65	4,675	1,190.75	9,609	1,185.60	8,136
25	1,171.50	4,641	1,190.50	9,535	1,185.65	8,150
26	1,171.25	4,586	1,190.20	9,446	1,185.70	8,164
27	1,171.15	4,563	1,189.95	9,372	1,185.65	8,150
28	1,171.05	4,542	1,189.70	9,300	1,185.55	8,122
29	1,171.05	4,542	1,189.35	9,197	1,185.55	8,122
30			1,189.00	9,095	1,185.55	8,122
31			1,188.60	8,980		

	February	March	April
Gain or loss in storage, in millions of cubic feet	-494	+4,438	-858

Wallenpaupack Creek at Wilsonville, Pa.

Location.- Lat. 41°27'35", long. 75°11'5", at hydroelectric plant of Pennsylvania Power & Light Co. with dam at Wilsonville, Wayne County, 1½ miles south of Hawley.
Drainage area.- 228 square miles.
Remarks.- Flow computed from output of generators. No discharge over spillway during year, except 38,000,000 cubic feet for period Mar. 20-26, which is included in daily and monthly discharges. Daily discharge not corrected for storage. No corrections made for evaporation from Lake Wallenpaupack. Records furnished by Pennsylvania Power & Light Co.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	235	44	1,710	11	515	350	1,040	21	515	1,790	640
2	56	734	1,740	12	506	418	350	22	97	1,790	708
3	429	432	1,670	13	508	213	989	23	6.5	1,800	383
4	324	492	692	14	460	42	1,120	24	518	1,820	329
5	313	591	260	15	332	0	1,100	25	511	1,820	124
6	155	156	1,180	16	57	194	954	26	882	1,820	20
7	467	80	1,600	17	420	367	876	27	856	1,750	388
8	357	6.2	987	18	558	1,090	1,010	28	497	1,740	459
9	125	21	1,100	19	488	1,680	184	29	182	1,680	212
10	489	168	1,110	20	501	1,780	261	30		1,720	532
								31		1,720	

Mean monthly discharge, in second-feet (observed)	392	913	791
Run-off, in inches (observed)	1.86	4.61	3.74
Mean monthly discharge, in second-feet (corrected)	194	2,570	460
Run-off, in inches (corrected)	0.92	13.03	2.25

Swinging Bridge Reservoir at Swinging Bridge Dam, N. Y.

Location.- Lat. 41°34'20", long. 74°47'0", at Swinging Bridge Dam, on Mongaup River, 1½ miles northwest of Fowlersville, Sullivan County.
Drainage area.- 118 square miles.
Gage-height record.- Gage read about noon daily.
Remarks.- Usable storage capacity 1,387,000,000 cubic feet. No record of flow of Mongaup River is available. Spillage at Swinging Bridge Dam was equivalent to a mean monthly discharge of 404 second-feet for March, and 31.6 second-feet for April. There was no spillage in February. Records furnished by Charles H. Tenney & Company.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	1,036.3	576.3	-	-	1,069.5	1,595.0
2	-	-	1,015.4	263.9	1,069.3	1,587.1
3	1,034.8	547.3	1,015.0	259.8	1,069.2	1,583.1
4	1,034.2	536.0	1,014.7	256.8	1,068.9	1,571.1
5	1,032.8	510.1	1,014.6	255.8	-	-
6	1,031.8	492.2	1,014.9	258.8	1,068.7	1,563.2
7	1,031.1	479.9	1,015.2	261.9	1,069.5	1,595.0
8	1,030.3	466.1	-	-	1,070.0	1,615.0
9	-	-	1,016.0	270.1	1,069.8	1,607.0
10	1,028.8	441.2	1,016.8	278.7	1,069.7	1,603.0
11	1,027.6	421.9	1,021.1	329.0	1,069.5	1,595.0
12	1,026.8	409.4	1,044.9	763.9	-	-
13	1,025.5	389.8	1,055.7	1,071.9	1,069.9	1,611.0
14	1,024.2	370.8	1,059.9	1,220.3	1,069.8	1,607.0
15	1,022.9	352.7	-	-	1,069.8	1,607.0
16	-	-	1,063.4	1,353.8	1,069.7	1,603.0
17	1,022.1	341.9	1,065.8	1,448.1	1,069.3	1,587.1
18	1,020.9	326.5	1,072.4	1,711.2	1,069.5	1,595.0
19	1,019.7	311.7	1,070.6	1,639.0	-	-
20	1,018.7	300.0	1,068.4	1,551.2	1,069.3	1,587.1
21	1,017.7	288.6	1,069.6	1,599.0	1,068.9	1,571.1
22	1,017.4	285.2	-	-	1,068.8	1,567.1
23	-	-	1,069.7	1,603.0	1,068.7	1,563.1
24	1,015.8	268.0	1,070.0	1,615.0	1,068.6	1,559.2
25	1,015.0	259.8	1,069.8	1,607.0	1,068.5	1,555.2
26	1,014.4	253.8	1,069.7	1,603.0	-	-
27	1,013.9	248.8	1,069.5	1,595.0	1,068.3	1,547.2
28	1,014.3	252.8	1,069.6	1,599.0	1,067.9	1,531.3
29	1,015.2	261.9	-	-	1,067.7	1,523.4
30			1,069.3	1,587.1	1,067.5	1,515.4
31			1,069.4	1,591.1		

	February	March	April
Gain or loss in storage, in equivalent mean second-feet	-131	+497	-29.3

Toronto Reservoir at Toronto Dam, N. Y.

Location.- Lat. 41°37'15", long. 74°49'55", at Toronto Dam, on Toronto Brook, 3½ miles south of White Lake, Sullivan County.
Drainage area.- 23.2 square miles.
Gage-height record.- Gage read about 7:30 a.m. daily.
Remarks.- Usable storage capacity 1,108,000,000 cubic feet. No record of flow of Toronto Brook is available. Spillage at Toronto Dam was equivalent to a mean monthly discharge of 27.5 second-feet for April; no spillage in February or March. Records furnished by Charles H. Tenney & Company.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	1,194.8	422.6	-	-	-	
2	-	-	1,196.6	463.1	1,216.9	1,018.0
3	1,194.9	424.8	1,196.8	467.6	1,217.1	1,024.5
4	1,194.9	424.8	1,197.0	472.2	1,217.3	1,031.2
5	1,195.0	427.0	1,197.2	476.8	-	-
6	1,195.0	427.0	1,197.3	479.2	1,217.7	1,044.4
7	1,195.1	429.2	-	-	1,217.8	1,047.8
8	1,195.1	429.2	-	-	1,217.9	1,051.1
9	-	-	1,197.5	483.8	1,218.1	1,057.8
10	1,195.2	431.5	1,197.8	490.8	1,218.2	1,061.2
11	1,195.2	431.5	1,197.9	493.1	1,218.4	1,068.0
12	1,195.3	433.7	1,198.9	516.6	-	-
13	1,195.3	433.7	1,200.0	543.0	1,218.9	1,085.0
14	1,195.4	436.0	1,201.6	582.9	1,219.2	1,095.3
15	1,195.4	436.0	-	-	1,219.4	1,102.2
16	-	-	1,203.6	634.6	1,219.8	1,116.1
17	1,195.6	440.4	1,204.2	650.6	1,220.1	1,126.5
18	1,195.7	442.7	1,206.4	709.9	1,220.3	1,133.6
19	1,195.7	442.7	1,209.2	786.8	-	-
20	1,195.8	444.9	1,210.9	834.4	1,220.4	1,137.2
21	1,195.8	444.9	1,211.8	860.2	1,220.5	1,140.7
22	1,195.9	447.2	-	-	1,220.5	1,140.7
23	-	-	-	-	1,220.5	1,140.7
24	1,196.0	449.4	-	-	1,220.5	1,140.7
25	1,196.0	449.4	-	-	1,220.5	1,140.7
26	1,196.1	451.7	1,214.9	953.9	-	-
27	1,196.2	454.0	1,215.0	957.0	1,220.5	1,140.7
28	1,196.3	456.2	1,215.4	969.7	1,220.4	1,137.2
29	1,196.4	458.5	-	-	1,220.4	1,137.2
30			1,216.0	988.8	1,220.4	1,137.2
31			1,216.3	998.5		

	February	March	April
Gain or loss in storage, in equivalent mean second-feet	+14.4	+203	+53.6

Neversink River at Oakland Valley, N. Y.

Location.- Lat. 41°29'45", long. 74°38'45", 250 feet below highway bridge known as Paradise Bridge, Orange County, and three-quarters of a mile south of Oakland Valley, Sullivan County.
Drainage area.- 222 square miles.
Gage-height record.- Water-stage recorder graph except for period 9 a.m. Mar. 12 to 9:30 a.m. Mar. 14, when graph was based on record before and after missing period and comparison with graphs of nearby streams.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 4,100 second-feet; extended to peak stage by logarithmic plotting; verified by drainage-area comparison of peak discharge and total run-off of flood with other records in Delaware River Basin.
Maxima.- 1936: Discharge, 16,200 second-feet 2:30 p.m. Mar. 18 (gage height 11.48 feet).
1928-35: Discharge, 20,000 second-feet Aug. 24, 1933 (gage height, 12.61 feet).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	260	440	854	11	240	2,600	1,260	21	240	3,830	639
2	260	380	868	12	240	10,000	1,220	22	220	2,780	681
3	260	360	1,100	13	240	4,200	1,360	23	220	1,710	585
4	260	340	826	14	240	2,250	1,460	24	220	1,340	525
5	260	380	705	15	260	1,780	1,340	25	240	1,300	480
6	240	340	3,650	16	280	1,930	1,260	26	300	1,180	460
7	240	300	2,580	17	300	4,370	1,020	27	440	1,490	430
8	240	280	1,560	18	280	12,000	882	28	600	2,840	392
9	240	260	1,180	19	260	6,260	784	29	550	1,630	377
10	240	300	1,180	20	240	3,530	687	30		1,220	373
								31		980	
Mean monthly discharge, in second-feet									280	2,342	1,024
Run-off, in inches									1.36	12.16	5.14

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	3.62	387	10.48	13,300	-	-
4	-	-	-	-	-	-	3.74	435	10.21	12,500	7.05	5,290
6	3.26	-	3.26	-	3.19	-	4.10	568	10.28	12,700	-	-
8	-	-	-	-	-	-	4.90	720	10.19	12,500	6.66	4,620
10	-	-	-	-	-	-	5.50	920	-	-	-	-
N	3.54	*280	3.28	*260	3.22	*260	4.40	1,140	9.45	10,600	6.30	4,030
2	-	-	-	-	-	-	4.65	1,380	-	-	-	-
4	-	-	-	-	-	-	5.30	1,780	8.73	8,830	6.00	3,570
6	3.40	-	3.27	-	3.29	-	6.90	2,800	-	-	-	-
8	-	-	-	-	-	-	7.05	4,190	8.07	7,310	5.71	3,150
10	-	-	-	-	-	-	9.80	11,500	-	-	-	-
M	3.21	-	3.19	-	3.59	-	9.96	11,700	7.54	6,200	5.49	2,850
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	4.73	1,960	9.19	9,940	-	-
4	5.29	2,590	4.59	1,820	-	-	4.82	2,050	9.82	11,500	7.80	6,720
6	-	-	-	-	4.79	2,020	5.39	2,720	10.21	12,500	-	-
8	5.08	2,340	4.48	1,720	-	-	6.07	3,680	10.48	13,300	7.79	6,700
10	-	-	-	-	-	-	6.39	4,170	10.76	14,100	7.79	6,700
N	4.91	2,150	4.39	1,640	4.68	1,910	6.56	4,450	11.27	15,600	7.68	6,480
2	-	-	-	-	-	-	6.66	4,620	11.37	15,900	-	-
4	4.82	2,050	4.41	1,660	-	-	6.90	5,030	10.86	14,400	7.47	6,060
6	-	-	-	-	4.68	1,910	7.17	5,510	9.64	11,000	-	-
8	4.79	2,020	4.64	1,870	-	-	7.48	6,080	8.81	9,020	7.12	5,420
10	-	-	-	-	-	-	8.00	7,160	8.21	7,620	-	-
M	4.69	1,920	4.76	1,990	4.71	1,940	8.57	8,450	7.96	7,070	6.81	4,880
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	5.33	2,640	-	-	-	-	-	-	-	-
4	6.48	4,320	5.46	2,810	5.91	3,440	-	-	-	-	-	-
6	-	-	5.68	3,110	-	-	4.60	1,830	4.13	1,410	4.01	1,310
8	6.16	3,810	5.98	3,540	5.63	3,040	-	-	-	-	-	-
10	-	-	6.08	3,690	-	-	-	-	-	-	-	-
N	5.89	3,410	6.38	4,160	5.37	2,690	4.43	1,680	4.07	1,360	4.01	1,310
2	-	-	6.57	4,470	-	-	-	-	-	-	-	-
4	5.67	3,100	6.73	4,740	5.13	2,400	-	-	-	-	-	-
6	-	-	6.76	4,790	-	-	4.32	1,580	3.99	1,290	3.98	1,280
8	5.46	2,810	6.60	4,520	4.96	2,210	-	-	-	-	-	-
10	-	-	6.43	4,240	-	-	-	-	-	-	-	-
M	5.31	2,610	6.28	4,000	4.79	2,020	4.21	1,480	3.98	1,280	3.90	1,220

Supplemental records.- Mar. 18, 2:30 p.m., 11.48 ft., 16,200 sec.-ft.
*Mean for the day.

Bushkill Creek at Shoemakers, Pa.

Location.- Lat. 41°5'15", long. 75°2'20", at highway bridge three-quarters of a mile northwest of Shoemakers, Monroe County, and 2 miles southwest of Bushkill. Zero of gage is 421.13 feet above mean sea level.
Drainage area.- 117 square miles.
Gage-height record.- Graph based upon two or more readings daily. Gage heights used to half tenths between 2.5 and 3.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 1,800 second-feet by current-meter measurements. Affected by ice Feb. 1 to Mar. 11.
Maxima.- 1936: Discharge, 3,630 second-feet 4 p.m. Mar. 18 (gage height, 6.92 feet, from graphs based on gage readings).
1908-35: Discharge, 3,910 second-feet July 24, 1920 (gage height, 7.2 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	168	138	510	11	170	500	720	21	140	1,840	291
2	165	140	480	12	165	2,580	660	22	135	1,550	291
3	164	142	452	13	160	1,980	630	23	130	1,210	268
4	165	143	400	14	155	1,460	540	24	130	1,030	252
5	167	145	392	15	155	1,310	480	25	130	877	230
6	168	150	1,020	16	160	1,430	452	26	132	752	216
7	170	155	975	17	160	2,000	400	27	133	852	197
8	175	165	845	18	160	3,230	366	28	134	860	187
9	177	185	720	19	155	2,720	339	29	136	713	181
10	175	250	720	20	145	2,000	308	30		623	169
								31		600	
Mean monthly discharge, in second-feet									154	1,024	456
Run-off, in inches									1.42	10.09	4.35

Flat Brook near Flatbrookville, N. J.

Location.- Lat. 41°6'24", long. 74°57'9", 1 mile above Flatbrookville, Sussex County, and 1½ miles above mouth. Zero of gage is 347.73 feet above mean sea level.
Drainage area.- 65.1 square miles; not materially affected by artificial storage.
Gage-height record.- Water-stage recorder graph except for period Mar. 29 to Apr. 9, when record was missing.
Stage-discharge relation.- Affected by ice Feb. 1-7, 10-14, 19-23. Defined by current-meter measurements below 900 second-feet; extended to peak stage by averaging discharges obtained from slope-area determinations of flood flow. Verified by drainage-area comparison of yield of flood with yield of other streams in Delaware River Basin.
Maxima.- 1936: Discharge, 2,780 second-feet 11:15 a.m. Mar. 12 (gage height, 6.50 feet).
1923-35: Discharge, about 3,470 second-feet (revised) Apr. 7, 1924, and Feb. 11, 1925 (gage height, 7.1 feet, from high water marks).
Remarks.- Discharge during period of missing record determined by study of available recorder graph and weather records, and graphic comparison with records of Paulins Kill at Blairstown and other nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	77	164	200	11	78	623	324	21	78	800	148
2	76	142	220	12	77	2,220	307	22	78	698	161
3	75	126	200	13	80	1,220	290	23	78	472	142
4	75	117	170	14	90	691	273	24	78	381	128
5	76	151	160	15	100	523	241	25	78	324	117
6	77	136	700	16	90	547	230	26	115	277	115
7	79	123	1,000	17	88	585	201	27	161	281	110
8	80	117	700	18	95	1,230	177	28	204	450	102
9	82	120	500	19	80	1,300	167	29	173	470	98
10	79	178	333	20	78	875	154	30		325	98
								31		240	
Mean monthly discharge, in second-feet									92.2	513	259
Run-off, in inches									1.53	9.08	4.44

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.57	131	2.55	126	2.55	126	3.20	371	5.39	1,710	5.44	1,750
4	2.55	126	2.55	126	2.57	131	3.24	391	5.69	1,970	5.33	1,660
6	2.53	120	2.54	123	2.58	134	3.27	407	6.00	2,260	5.17	1,540
8	2.47	105	2.53	120	2.60	139	3.30	422	6.32	2,580	4.98	1,400
10	2.45	100	2.52	117	2.61	142	3.35	450	6.46	2,740	4.80	1,270
N	2.47	105	2.52	117	2.62	145	3.43	494	6.45	2,720	4.63	1,160
2	2.48	107	2.52	117	2.65	154	3.57	578	6.28	2,540	4.49	1,070
4	2.49	110	2.52	117	2.69	167	3.72	674	6.11	2,370	4.33	978
6	2.55	126	2.52	117	2.80	204	3.95	780	5.92	2,180	4.22	912
8	2.58	134	2.53	120	2.95	261	4.20	900	5.73	2,010	4.14	870
10	2.58	134	2.54	123	3.07	311	4.58	1,130	5.59	1,880	4.07	835
M	2.57	131	2.55	126	3.15	348	5.01	1,420	5.53	1,830	4.02	810
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.96	784	3.53	554	3.50	535	3.50	535	3.76	697	4.97	1,390
4	3.90	760	3.53	554	3.54	560	3.51	541	3.86	744	4.85	1,300
6	3.85	740	3.52	547	3.56	572	3.53	554	3.97	788	4.77	1,250
8	3.79	714	3.51	541	3.57	578	3.55	566	4.13	865	4.79	1,260
10	3.74	685	3.50	535	3.56	572	3.58	585	4.37	1,000	4.90	1,340
N	3.69	656	3.47	518	3.55	566	3.59	591	4.77	1,250	4.97	1,390
2	3.65	630	3.45	506	3.54	560	3.59	591	5.22	1,580	4.97	1,390
4	3.61	604	3.44	500	3.52	547	3.61	604	5.43	1,740	4.90	1,340
6	3.58	585	3.43	494	3.51	541	3.63	616	5.46	1,770	4.84	1,300
8	3.56	572	3.43	494	3.50	535	3.64	623	5.39	1,710	4.78	1,260
10	3.55	566	3.44	500	3.47	518	3.65	630	5.24	1,590	4.69	1,190
M	3.54	560	3.47	518	3.47	518	3.69	656	5.11	1,490	4.59	1,130
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.50	1,080	3.78	708	4.06	830	3.49	529	3.27	407	3.13	338
4	4.42	1,030	3.78	708	3.99	796	3.46	512	3.26	402	3.13	338
6	4.34	984	3.79	714	3.92	768	3.44	500	3.25	396	3.12	333
8	4.28	948	3.82	728	3.87	748	3.42	489	3.25	396	3.12	333
10	4.20	900	3.90	760	3.82	728	3.40	477	3.23	386	3.11	329
N	4.14	870	4.01	805	3.76	697	3.38	466	3.22	381	3.11	329
2	4.07	835	4.15	875	3.70	662	3.36	455	3.21	376	3.10	324
4	4.01	805	4.25	930	3.65	630	3.34	444	3.20	371	3.09	320
6	3.95	780	4.29	954	3.62	610	3.32	433	3.18	362	3.07	311
8	3.90	760	4.26	936	3.60	597	3.31	428	3.17	357	3.06	307
10	3.85	740	4.20	900	3.56	572	3.29	417	3.16	352	3.05	302
M	3.80	720	4.13	865	3.52	547	3.28	412	3.14	343	3.04	298

Supplemental records.- Mar. 12, 11:15 a.m., 6.50 ft., 2,780 sec.-ft.

McMichaels Creek at Stroudsburg, Pa.

Location.- Lat. 40°58'40", long. 75°12'30", at railroad bridge at Wilkes-Barre and Eastern Railroad car shops, three-quarters of a mile southwest of Stroudsburg, Monroe County. Zero of gage is 403.92 feet above mean sea level.

Drainage area.- 64.4 square miles.

Gage-height record.- Graph based upon two or more readings daily. Gage heights used to half tenths between 4.0 and 5.0 feet; hundredths below and tenths above these limits.

Stage-discharge relation.- Defined by current-meter measurements to 1,000 second-feet. Affected by ice Feb. 1 to Mar. 8.

Maxima.- 1936: Discharge, about 4,670 second-feet 3 a.m. Mar. 12 (gage height, 10.5 feet, from flood marks).

1911-35: Discharge, 3,640 second-feet Sept. 4, 1933 (gage height, 9.4 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	90	64	258	11	85	1,590	407	21	55	1,230	158
2	90	70	265	12	83	3,430	354	22	52	793	158
3	91	77	246	13	82	1,500	354	23	48	598	139
4	92	83	200	14	83	832	287	24	51	523	128
5	93	90	212	15	82	638	265	25	52	449	117
6	94	100	1,110	16	80	607	261	26	53	369	115
7	96	110	631	17	73	1,570	221	27	54	481	106
8	97	125	481	18	67	2,740	200	28	56	437	100
9	92	147	389	19	62	2,050	186	29	58	346	100
10	88	233	462	20	58	1,320	172	30		323	111
								31		294	
Mean monthly discharge, in second-feet									74.4	749	273
Run-off, in inches									1.24	13.41	4.73

Paulins Kill at Blairstown, N. J.

Location.- Lat. 40°58'44", long. 74°57'15", 1,200 feet above highway bridge in Blairstown, Warren County, 1,400 feet above mouth of Blairs Creek, and 9 miles above mouth.
Drainage area.- 126 square miles; affected by natural storage in Culver Lake, Lake Owassa, and Swartswood Lake; not materially affected by artificial storage.
Gage-height record.- Water-stage recorder graph except for period Feb. 2-5, when record was missing.
Stage-discharge relation.- Affected by ice Feb. 1, 6-29. Defined by current-meter measurements below 1,500 second-feet; extended to peak stage by averaging discharges obtained by slope-area determination of flood flow and computation of flow over dam.
Maxima.- 1936: Discharge, 3,480 second-feet 8:30 a.m. Mar. 12 (gage height, 6.92 feet).
1921-35: Discharge, about 2,300 second-feet Aug. 24, 1933.
Remarks.- Discharge during period of missing record determined by study of available recorder graph, weather records, and observer's notes, and graphic comparison with records of Flat Brook near Flatbrookville and other nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	149	329	433	11	150	1,490	770	21	148	1,560	318
2	148	297	410	12	150	3,240	770	22	145	1,350	331
3	147	278	422	13	155	2,440	720	23	145	1,000	292
4	146	280	367	14	180	1,570	674	24	145	834	266
5	146	369	328	15	200	1,180	576	25	148	737	238
6	147	347	1,200	16	178	1,010	538	26	220	628	225
7	150	316	1,410	17	170	956	457	27	330	693	216
8	160	300	1,020	18	185	1,520	402	28	400	884	201
9	165	312	786	19	160	1,920	362	29	350	703	192
10	160	536	770	20	150	1,700	334	30		576	192
								31		503	
Mean monthly discharge, in second-feet									180	963	507
Run-off, in inches									1.54	8.81	4.48

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.95	304	1.94	300	2.11	367	3.74	952	6.66	3,130	6.53	2,970
4	1.95	304	1.94	300	2.16	386	3.86	994	6.86	3,390	6.46	2,880
6	1.95	304	1.96	308	2.21	406	4.01	1,050	6.89	3,440	6.38	2,790
8	1.95	304	1.96	308	2.22	410	4.14	1,110	6.91	3,460	6.27	2,660
10	1.95	304	1.95	304	2.26	425	4.31	1,180	6.91	3,460	6.14	2,510
N	1.95	304	1.91	288	2.28	433	4.51	1,280	6.84	3,370	5.99	2,360
2	1.90	284	1.97	312	2.49	515	4.89	1,490	6.73	3,220	5.90	2,270
4	1.93	296	1.92	292	2.69	591	5.25	1,740	6.67	3,140	5.80	2,180
6	1.96	308	1.97	312	2.92	675	5.57	1,980	6.63	3,090	5.70	2,090
8	1.92	292	2.01	328	3.17	760	5.87	2,240	6.60	3,050	5.63	2,030
10	1.93	296	2.02	332	3.34	815	6.16	2,540	6.59	3,040	5.56	1,970
M	1.93	296	2.06	347	3.55	884	6.41	2,820	6.56	3,000	5.48	1,900
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.40	1,840	4.60	1,320	4.06	1,070	3.70	937	3.99	1,050	5.32	1,780
4	5.31	1,780	4.56	1,300	4.06	1,070	3.72	945	4.22	1,140	5.33	1,790
6	5.22	1,710	4.49	1,260	4.04	1,070	3.76	960	4.43	1,240	5.37	1,820
8	5.14	1,660	4.44	1,240	3.98	1,040	3.74	952	4.64	1,340	5.42	1,860
10	5.06	1,600	4.36	1,200	3.95	1,030	3.71	941	4.78	1,430	5.54	1,950
N	4.97	1,540	4.29	1,170	3.90	1,010	3.70	937	4.96	1,540	5.58	1,980
2	4.92	1,510	4.24	1,150	3.85	992	3.71	941	5.16	1,670	5.60	2,000
4	4.86	1,480	4.18	1,120	3.78	967	3.66	923	5.31	1,780	5.60	2,000
6	4.78	1,430	4.13	1,100	3.78	967	3.75	956	5.37	1,820	5.58	1,980
8	4.73	1,400	4.06	1,070	3.70	937	3.82	983	5.36	1,810	5.57	1,980
10	4.68	1,370	4.06	1,070	3.70	937	3.80	975	5.32	1,780	5.54	1,950
M	4.64	1,340	4.06	1,070	3.70	937	3.88	1,000	5.32	1,780	5.49	1,910
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.43	1,860	4.86	1,480	4.94	1,520	4.20	1,130	3.58	894	3.24	783
4	5.38	1,830	4.88	1,490	4.87	1,480	4.14	1,110	3.56	887	3.22	776
6	5.34	1,800	4.95	1,530	4.82	1,450	4.07	1,080	3.53	877	3.19	767
8	5.30	1,770	4.97	1,540	4.78	1,430	4.00	1,050	3.48	860	3.15	754
10	5.25	1,740	4.98	1,550	4.73	1,400	3.94	1,030	3.45	850	3.14	750
N	5.20	1,700	5.01	1,570	4.67	1,360	3.86	998	3.38	828	3.07	727
2	5.14	1,660	5.03	1,580	4.64	1,340	3.82	983	3.40	834	3.09	734
4	5.08	1,620	5.10	1,630	4.56	1,300	3.71	941	3.36	821	3.06	723
6	5.03	1,580	5.14	1,660	4.49	1,260	3.71	941	3.32	808	3.02	710
8	4.96	1,540	5.12	1,640	4.38	1,210	3.66	923	3.27	792	2.95	686
10	4.90	1,500	5.07	1,610	4.32	1,180	3.63	912	3.27	792	2.96	689
M	4.87	1,480	5.02	1,570	4.26	1,150	3.60	901	3.26	789	2.95	686

Supplemental records.- Mar. 12, 8:30 a.m., 6.92 ft., 3,480 sec.-ft.

Pequest River at Pequest, N. J.

Location.- Lat. 40°49'43", long. 74°58'45", at Pequest, Warren County, 100 feet above Lehigh & Hudson River Railway bridge and 300 feet below mouth of Furnace Brook. Zero of gage is 398.78 feet above mean sea level.
Drainage area.- 108 square miles; materially affected by natural storage in swamps.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 19-23. Defined by current-meter measurements below 1,100 second-feet.
Maxima.- 1936: Discharge, 1,810 second-feet 5:30 a.m., Mar. 14 (gage height, 4.97 feet).
1921-35: Discharge, 830 second-feet July 10, 1931 (gage height, 3.59 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	136	269	395	11	110	876	620	21	100	1,040	280
2	126	263	376	12	110	1,240	568	22	102	1,040	283
3	122	250	376	13	110	1,610	545	23	105	979	269
4	122	263	350	14	106	1,740	507	24	110	890	250
5	122	339	321	15	102	1,490	421	25	112	780	230
6	120	314	600	16	110	1,160	383	26	147	678	221
7	112	273	754	17	114	948	357	27	211	629	214
8	112	259	703	18	122	979	332	28	246	654	205
9	112	290	678	19	110	979	310	29	253	591	205
10	112	461	654	20	100	979	293	30		527	196
								31		450	
Mean monthly discharge, in second-feet									127	750	397
Run-off, in inches									1.27	8.00	4.11

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.30	266	2.29	263	2.61	376	3.31	683	4.19	1,190	4.64	1,520
4	2.30	266	2.29	263	2.62	380	3.32	688	4.20	1,200	4.68	1,550
6	2.28	259	2.29	263	2.62	380	3.34	698	4.20	1,200	4.72	1,590
8	2.27	256	2.29	263	2.62	380	3.39	723	4.19	1,190	4.73	1,590
10	2.26	253	2.29	263	2.62	380	3.43	744	4.18	1,190	4.75	1,610
N	2.26	253	2.29	263	2.64	387	3.52	791	4.17	1,180	4.76	1,620
2	2.26	253	2.29	263	2.81	454	3.75	919	4.17	1,180	4.78	1,630
4	2.26	253	2.33	276	3.04	554	3.90	1,010	4.21	1,210	4.79	1,640
6	2.26	253	2.44	314	3.11	587	4.02	1,080	4.27	1,250	4.80	1,650
8	2.28	259	2.54	350	3.19	624	4.15	1,160	4.32	1,280	4.80	1,650
10	2.28	259	2.59	368	3.29	673	4.16	1,170	4.53	1,430	4.80	1,650
M	2.28	259	2.60	372	3.30	678	4.18	1,190	4.58	1,470	4.81	1,660
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.82	1,670	4.77	1,630	4.32	1,280	3.92	1,020	3.74	913	3.86	985
4	4.82	1,670	4.74	1,600	4.28	1,260	3.90	1,010	3.79	942	3.86	985
6	4.96	1,800	4.70	1,570	4.24	1,230	3.88	998	3.83	967	3.86	985
8	4.94	1,780	4.66	1,540	4.20	1,200	3.86	985	3.87	991	3.86	985
10	4.94	1,780	4.62	1,510	4.16	1,170	3.83	967	3.90	1,010	3.86	985
N	4.94	1,780	4.58	1,470	4.13	1,150	3.81	954	3.92	1,020	3.86	985
2	4.93	1,770	4.53	1,430	4.10	1,130	3.78	936	3.93	1,030	3.86	985
4	4.91	1,750	4.49	1,400	4.07	1,110	3.75	919	3.93	1,030	3.86	985
6	4.89	1,730	4.45	1,380	4.03	1,090	3.74	913	3.92	1,020	3.86	985
8	4.86	1,700	4.42	1,350	4.01	1,080	3.74	913	3.90	1,010	3.86	985
10	4.84	1,690	4.38	1,330	3.98	1,060	3.73	907	3.88	998	3.86	985
M	4.81	1,660	4.35	1,300	3.94	1,030	3.73	907	3.87	991	3.86	985
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.86	985	3.87	991	3.99	1,060	3.91	1,020	3.76	925	3.57	818
4	3.86	985	3.88	998	3.98	1,060	3.89	1,000	3.75	919	3.56	812
6	3.86	985	3.92	1,020	3.96	1,050	3.88	998	3.74	913	3.54	802
8	3.86	985	3.95	1,040	3.95	1,040	3.86	985	3.72	902	3.52	791
10	3.86	985	3.97	1,050	3.94	1,030	3.85	979	3.71	896	3.50	780
N	3.86	985	3.98	1,060	3.94	1,030	3.84	973	3.69	884	3.48	770
2	3.86	985	3.99	1,060	3.93	1,030	3.83	967	3.68	879	3.47	764
4	3.87	991	3.99	1,060	3.92	1,020	3.81	954	3.66	868	3.45	754
6	3.87	991	3.99	1,060	3.91	1,020	3.80	948	3.64	856	3.44	749
8	3.87	991	3.99	1,060	3.94	1,030	3.78	936	3.62	845	3.42	738
10	3.87	991	3.99	1,060	3.94	1,030	3.77	931	3.60	834	3.40	728
M	3.87	991	3.99	1,060	3.93	1,030	3.76	925	3.58	823	3.39	723

Supplemental records.- Mar. 14, 5:30 a.m., 4.97 ft., 1,810 sec.-ft.

Beaver Brook near Belvidere, N. J.

Location.- Lat. 40°50'40", long. 75°2'48", 500 feet above mouth and 2 miles east of Belvidere, Warren County. Zero of gage is 303.36 feet above mean sea level.
Drainage area.- 36.2 square miles; not materially affected by artificial storage.
Gage-height record.- Water-stage recorder graph except 11 a.m. Mar. 10 to 7 a.m. Mar. 11 and 9 p.m. Mar. 11 to 5 a.m. Mar. 13, when a graph was drawn based on marks made on recorder sheet at foot marks and at peak stage; peak stage verified by flood marks near recorder.
Stage-discharge relation.- Affected by ice Feb. 1-3, 6, 8-13, 19-23, 28, 29, Mar. 1, 2. Defined by current-meter measurements below 300 second-feet; extended to peak stage by averaging discharges obtained from slope-area and contracted-opening determinations of flood flow.
Maxima.- 1936: Discharge, 1,510 second-feet 6 a.m. Mar. 12 (gage height, 5.76 feet).
1922-35: Discharge, about 826 second-feet July 15, 1928 (gage height, 3.92 feet); maximum gage height, 4.20 feet July 10, 1935.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	45	66	121	11	27	857	211	21	24	379	84
2	42	70	115	12	27	1,370	189	22	24	334	88
3	39	64	117	13	28	714	177	23	25	266	76
4	38	72	100	14	29	450	163	24	26	234	70
5	39	82	91	15	28	349	140	25	29	204	63
6	37	81	249	16	28	276	130	26	40	158	59
7	36	84	395	17	28	248	115	27	59	189	56
8	40	98	308	18	29	366	106	28	60	214	52
9	39	108	238	19	24	422	98	29	61	180	51
10	30	175	227	20	24	383	91	30		155	48
								31		137	
Mean monthly discharge, in second-feet									34.7	283	134
Run-off, in inches									1.03	9.02	4.13

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.34	91	2.36	95	2.46	115	3.52	470	5.58	1,420	4.69	980
4	2.33	89	2.35	93	2.44	110	3.71	548	5.74	1,500	4.51	900
6	2.32	88	2.34	91	2.44	110	3.89	625	5.76	1,510	4.34	823
8	2.29	82	2.33	89	2.43	108	4.05	694	5.74	1,500	4.18	751
10	2.29	82	2.33	89	2.44	110	4.26	787	5.68	1,470	4.05	694
N	2.29	82	2.33	89	2.55	135	4.41	854	5.61	1,440	3.98	663
2	2.37	97	2.41	104	2.66	163	4.62	949	5.49	1,380	3.91	633
4	2.54	133	2.59	145	2.77	195	4.75	1,010	5.37	1,320	3.84	603
6	2.52	128	2.58	142	2.86	224	4.89	1,080	5.26	1,260	3.80	586
8	2.45	112	2.52	128	2.98	265	5.07	1,160	5.16	1,210	3.76	569
10	2.41	104	2.48	119	3.12	315	5.24	1,250	5.04	1,150	3.75	565
M	2.38	98	2.47	117	3.32	391	5.41	1,340	4.86	1,060	3.73	557
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.69	540	3.31	387	3.07	297	2.95	254	3.04	286	3.41	426
4	3.59	499	3.28	375	3.06	294	2.94	251	3.10	308	3.40	422
6	3.54	478	3.26	368	3.05	290	2.94	251	3.13	319	3.40	422
8	3.51	466	3.24	360	3.03	283	2.92	244	3.17	334	3.39	418
10	3.48	454	3.22	353	3.02	279	2.92	244	3.21	349	3.39	418
N	3.45	442	3.20	345	3.01	276	2.91	240	3.26	368	3.40	422
2	3.42	430	3.18	338	3.01	276	2.90	237	3.31	387	3.40	422
4	3.40	422	3.16	330	3.00	272	2.91	240	3.36	406	3.40	422
6	3.39	418	3.14	323	2.99	268	2.94	251	3.40	422	3.40	422
8	3.37	410	3.12	315	2.97	262	2.95	254	3.42	430	3.40	422
10	3.35	402	3.10	308	2.96	258	2.94	251	3.44	438	3.39	418
M	3.33	395	3.08	301	2.95	254	2.96	258	3.43	434	3.38	414
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.38	414	3.22	353	3.28	375	3.04	286	2.93	248	2.84	217
4	3.37	410	3.26	368	3.27	372	3.03	283	2.92	244	2.83	214
6	3.35	402	3.27	372	3.24	360	3.02	279	2.91	240	2.82	211
8	3.34	399	3.27	372	3.22	353	3.01	276	2.90	237	2.82	211
10	3.33	395	3.29	379	3.20	345	3.00	272	2.90	237	2.81	207
N	3.31	387	3.34	399	3.18	338	2.98	265	2.89	234	2.80	204
2	3.30	383	3.35	402	3.15	326	2.97	262	2.89	234	2.80	204
4	3.29	379	3.36	406	3.13	319	2.96	258	2.88	230	2.79	201
6	3.27	372	3.35	402	3.11	312	2.95	254	2.87	227	2.78	198
8	3.25	364	3.34	399	3.09	304	2.95	254	2.86	224	2.78	198
10	3.23	356	3.32	391	3.07	297	2.95	254	2.86	224	2.77	195
M	3.21	349	3.30	383	3.05	290	2.94	251	2.85	220	2.76	192

Lehigh River at Tannery, Pa.

Location.- Lat. 41°2'25", long. 75°45'50", 600 feet above highway bridge at Tannery, Carbon County. Zero of gage is 1,041.98 feet above mean sea level.
Drainage area.- 322 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 5.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Mar. 1-10. Defined to 19,300 second-feet by current-meter measurements (surface velocities).
Maxima.- 1936: Discharge, 21,800 second-feet 5 to 8 a.m. Mar. 12 (gage height, 13.34 feet).
1914-35: Discharge, 21,000 second-feet July 10, 1935 (gage height, 13.12 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	360	800	1,050	11	290	6,220	1,200	21	260	4,350	660
2	350	700	1,160	12	280	17,200	1,100	22	250	3,600	640
3	350	700	1,000	13	280	6,950	1,000	23	250	2,620	610
4	340	750	900	14	280	3,790	950	24	250	2,160	580
5	340	800	1,100	15	290	2,840	900	25	270	1,860	540
6	330	650	2,000	16	290	2,770	860	26	350	1,590	521
7	320	600	1,590	17	300	6,540	820	27	800	1,580	484
8	320	565	1,400	18	310	16,200	780	28	1,000	1,730	454
9	310	539	1,300	19	280	9,060	740	29	900	1,460	436
10	300	892	1,200	20	270	5,560	700	30		1,260	502
								31		1,130	
Mean monthly discharge, in second-feet									363	3,467	906
Run-off, in inches									1.22	12.45	3.14

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.20	-	3.16	-	3.21	582	4.80	1,850	12.92	20,200	9.60	9,500
4	3.15	-	3.10	-	3.28	596	4.95	2,100	13.30	21,800	9.25	8,700
6	3.11	-	3.10	-	3.31	629	5.00	2,420	13.34	21,800	8.87	8,100
8	3.10	-	3.11	-	3.28	664	5.35	2,760	13.32	21,800	8.55	7,500
10	3.00	-	3.05	-	3.22	700	5.61	3,150	12.87	20,200	8.25	6,800
N	2.87	*565	3.00	*539	3.25	760	6.07	3,870	12.52	18,600	8.00	6,500
2	2.85	-	2.93	-	3.20	840	6.60	4,520	12.12	17,000	7.77	6,200
4	2.95	-	2.94	-	3.65	938	7.65	5,900	11.67	15,400	7.57	5,900
6	3.03	-	3.15	-	3.70	1,070	8.95	8,300	11.29	14,200	7.38	5,620
8	3.23	-	3.14	-	4.00	1,240	10.40	11,500	10.82	12,700	7.20	5,340
10	3.26	-	3.14	-	4.38	1,420	11.57	15,100	10.40	11,500	7.03	5,060
M	3.23	-	3.15	-	4.62	1,600	12.27	17,800	10.00	10,300	6.85	4,780
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.65	4,520	5.44	3,060	5.20	2,840	5.68	3,400	11.00	13,300	10.27	11,200
4	6.50	4,390	5.37	3,060	5.19	2,840	6.17	4,000	12.04	16,600	10.21	10,900
6	6.35	4,260	5.31	2,950	5.17	2,840	6.50	4,390	12.57	19,000	9.97	10,300
8	6.21	4,000	5.23	2,840	5.16	2,840	6.96	5,060	12.84	19,800	9.70	9,700
10	6.01	3,760	5.16	2,840	5.13	2,730	7.57	5,900	13.01	20,600	9.45	9,100
N	5.86	3,640	5.08	2,730	5.08	2,730	8.25	6,800	12.82	19,800	9.17	8,700
2	5.77	3,520	5.02	2,630	5.06	2,730	8.62	7,500	12.64	19,000	9.02	8,300
4	5.69	3,400	5.01	2,630	5.04	2,630	8.82	7,900	12.25	17,400	8.88	8,100
6	5.65	3,280	5.03	2,630	5.03	2,630	8.98	8,300	11.77	15,800	8.77	7,900
8	5.60	3,280	5.09	2,730	5.04	2,630	9.25	8,700	11.27	14,200	8.67	7,700
10	5.56	3,280	5.15	2,840	5.08	2,730	9.60	9,500	10.77	12,700	8.52	7,300
M	5.50	3,170	5.18	2,840	5.26	2,950	10.10	10,600	10.40	11,500	8.37	7,100
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.18	6,800	6.36	4,260	6.35	4,260	5.32	2,950	4.65	2,280	4.33	2,000
4	7.98	6,500	6.30	4,130	6.28	4,130	5.24	2,840	4.63	2,280	4.30	1,950
6	7.78	6,200	6.32	4,130	6.09	3,880	5.19	2,840	4.61	2,230	4.28	1,950
8	7.61	5,900	6.43	4,260	5.99	3,760	5.12	2,730	4.59	2,230	4.25	1,900
10	7.44	5,620	6.50	4,390	5.89	3,640	5.04	2,630	4.57	2,180	4.22	1,860
N	7.28	5,480	6.53	4,390	5.77	3,520	4.99	2,630	4.54	2,180	4.19	1,860
2	7.12	5,200	6.53	4,390	5.69	3,400	4.92	2,530	4.51	2,130	4.17	1,820
4	6.98	5,060	6.55	4,520	5.61	3,280	4.86	2,480	4.48	2,130	4.14	1,820
6	6.83	4,780	6.54	4,390	5.56	3,280	4.79	2,430	4.44	2,080	4.12	1,770
8	6.70	4,650	6.56	4,520	5.50	3,170	4.74	2,380	4.41	2,040	4.10	1,770
10	6.58	4,520	6.53	4,390	5.45	3,060	4.70	2,330	4.39	2,040	4.07	1,720
M	6.46	4,390	6.49	4,390	5.40	3,060	4.67	2,280	4.36	2,000	4.04	1,720

*Mean for the day.

Lehigh River at Bethlehem, Pa.

Location.- Lat. 40°22'5", long. 75°21'55", 1,500 feet above Minsi Trail Bridge, at Bethlehem, Northampton County, and 2,000 feet below Monocacy Creek. Zero of gage is 208.50 feet above mean sea level.
Drainage area.- 1,280 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 4.0 and 6.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements to 50,000 second-feet (surface velocities); logarithmic extension to crest discharge.
Maxima.- 1936: Discharge, 55,700 second-feet 1:30 p.m. Mar. 12 (gage height, 17.04 feet).
1902-5, 1909-35: Discharge, 64,800 second-feet Aug. 24, 1933 (gage height, 18.70 feet).
1786-1935: Maximum known discharge, 92,000 second-feet Feb. 28, 1902 (gage height, 23.5 feet, deduced after comparison with old gage at New Street).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,640	4,310	4,590	11	1,290	16,100	7,470	21	1,180	17,500	3,150
2	1,520	3,910	4,740	12	1,270	43,500	6,950	22	1,200	15,200	3,170
3	1,570	3,290	4,590	13	1,280	26,700	6,450	23	1,180	11,800	2,890
4	1,570	3,110	4,040	14	1,300	15,500	5,640	24	1,150	9,760	2,620
5	1,610	3,910	3,660	15	1,410	11,600	5,030	25	1,230	8,390	2,470
6	1,510	3,910	10,600	16	1,430	10,200	4,740	26	1,760	6,880	2,330
7	1,450	3,410	13,200	17	1,410	15,500	4,310	27	3,870	7,090	2,230
8	1,370	3,360	9,750	18	1,470	38,000	3,910	28	4,590	7,640	2,150
9	1,370	3,870	8,000	19	1,360	30,000	3,660	29	4,180	6,390	2,040
10	1,370	6,270	7,470	20	1,230	21,500	3,410	30		5,740	2,020
								31		5,160	
Mean monthly discharge, in second-feet									1,682	11,920	4,909
Run-off, in inches									1.41	10.73	4.28

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.06	3,410	4.19	3,780	4.65	5,030	6.59	12,000	11.90	31,200	13.12	36,400
4	4.06	3,410	4.18	3,780	4.67	5,030	6.70	12,400	12.96	35,900	12.53	33,800
6	4.05	3,410	4.16	3,660	4.66	5,030	6.73	12,400	14.08	41,000	11.99	31,600
8	4.03	3,410	4.17	3,660	4.66	5,030	6.84	12,800	15.17	46,400	11.33	28,800
10	4.00	3,290	4.17	3,660	4.64	5,030	6.96	13,600	16.11	51,000	10.70	26,600
N	3.99	3,270	4.16	3,660	4.62	4,880	7.19	14,300	16.86	55,200	10.20	24,800
2	3.98	3,240	4.15	3,660	4.63	5,030	7.39	15,100	16.64	53,600	9.76	23,300
4	3.98	3,240	4.15	3,660	4.77	5,340	7.91	16,900	16.26	52,100	9.50	22,300
6	3.99	3,270	4.18	3,780	5.16	6,620	8.52	18,900	15.57	48,500	9.18	21,300
8	4.00	3,290	4.30	4,040	5.65	8,360	9.20	21,300	14.91	44,900	8.92	20,200
10	4.07	3,410	4.46	4,450	6.12	10,000	9.94	23,700	14.28	42,000	8.74	19,600
M	4.15	3,660	4.62	4,880	6.40	11,200	10.26	25,100	13.71	39,100	8.48	18,900
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.28	18,300	6.80	12,800	6.20	10,400	6.16	10,400	9.62	22,600	13.12	36,400
4	8.08	17,600	6.76	12,800	6.20	10,400	6.39	11,200	10.55	26,200	12.56	34,200
6	7.90	16,900	6.71	12,400	6.20	10,400	6.60	12,000	11.59	30,000	12.04	31,600
8	7.73	16,200	6.64	12,000	6.20	10,400	6.93	13,200	13.06	36,400	11.69	30,400
10	7.56	15,800	6.59	12,000	6.18	10,400	7.24	14,300	14.14	41,000	11.54	29,600
N	7.42	15,100	6.52	11,600	6.17	10,400	7.55	15,800	15.06	45,900	11.41	29,200
2	7.30	14,700	6.45	11,200	6.13	10,000	7.77	16,600	15.59	48,500	11.23	28,400
4	7.18	14,300	6.38	11,200	6.10	10,000	8.06	17,600	15.68	49,000	10.95	27,700
6	7.06	13,900	6.31	10,800	6.08	10,000	8.45	18,600	15.34	46,900	10.76	26,900
8	6.98	13,600	6.25	10,400	6.06	10,000	8.74	19,600	14.86	44,900	10.62	26,200
10	6.90	13,200	6.22	10,400	6.04	9,650	8.96	20,600	14.29	42,000	10.46	25,800
M	6.85	12,800	6.21	10,400	6.06	10,000	9.23	21,300	13.74	39,100	10.32	25,100
	March 20		March 21		March 22		March 23		March 24		March 25	
2	10.15	24,800	8.19	17,900	7.87	16,900	6.85	12,800	6.20	10,400	5.79	8,910
4	9.98	24,000	8.11	17,600	7.79	16,600	6.78	12,800	6.17	10,400	5.77	8,720
6	9.80	23,300	8.04	17,200	7.71	16,200	6.72	12,400	6.13	10,000	5.74	8,720
8	9.60	22,600	8.02	17,200	7.62	15,800	6.66	12,400	6.10	10,000	5.72	8,540
10	9.40	21,900	8.03	17,200	7.55	15,800	6.61	12,000	6.07	10,000	5.69	8,540
N	9.23	21,300	8.07	17,600	7.46	15,500	6.55	12,000	6.04	9,650	5.67	8,360
2	9.04	20,600	8.12	17,600	7.36	15,100	6.50	11,600	6.00	9,650	5.64	8,360
4	8.87	20,200	8.12	17,600	7.25	14,300	6.44	11,200	5.97	9,460	5.61	8,180
6	8.71	19,600	8.08	17,600	7.15	14,300	6.39	11,200	5.93	9,460	5.58	8,180
8	8.56	19,300	8.03	17,200	7.04	13,600	6.33	10,800	5.89	9,280	5.53	8,000
10	8.44	18,600	7.98	17,200	6.96	13,600	6.28	10,800	5.85	9,100	5.50	7,820
M	8.28	18,300	7.92	16,900	6.91	13,200	6.24	10,400	5.83	9,100	5.47	7,640

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Lake Hopatcong at Landing, N. J.

Location.- Lat. 40°55'0", long. 74°39'50", at Lake Hopatcong Dam, Landing, Morris County.

Drainage area.- 25.6 square miles.

Gage-height record.- Water-stage recorder graph except for period Feb. 1 to 11 a.m. Mar. 23, when graph was based on gage readings at 8 a.m. daily and study of recorder graph for station in river below dam. Gage heights shown in table are for midnights.

Remarks.- Storage capacity above sill of lowest gate (gage height, -3.1 feet) is about 800,000,000 cubic feet. Crest of spillway is at gage height 8.89 feet. Table indicates volume above gage height of 4.12 feet. Record furnished by Morris Canal & Banking Co.

Gage height, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	6.96	262	6.59	226	9.25	496
2	6.87	253	6.63	230	9.25	496
3	6.82	248	6.68	235	9.24	495
4	6.76	243	6.70	237	9.23	494
5	6.73	240	6.73	240	9.22	493
6	6.65	232	6.77	244	9.55	529
7	6.62	229	6.78	244	9.57	531
8	6.62	229	6.80	246	9.58	532
9	6.60	227	6.85	251	9.58	532
10	6.56	223	6.92	258	9.58	532
11	6.52	220	7.76	342	9.58	532
12	6.48	216	8.85	454	9.56	530
13	6.58	225	9.19	490	9.54	528
14	6.59	226	9.37	509	9.50	523
15	6.56	223	9.49	522	9.47	520
16	6.54	221	9.55	529	9.43	516
17	6.53	221	9.68	543	9.40	513
18	6.52	220	9.93	570	9.35	507
19	6.49	217	10.00	577	9.32	504
20	6.47	215	10.00	577	9.28	500
21	6.46	214	9.96	573	9.28	500
22	6.44	212	9.86	562	9.27	499
23	6.42	210	9.75	550	9.25	496
24	6.40	208	9.68	543	9.22	493
25	6.41	209	9.57	531	9.18	489
26	6.45	213	9.49	522	9.18	489
27	6.52	220	9.50	523	9.16	487
28	6.55	222	9.43	516	9.15	486
29	6.57	224	9.36	508	9.13	483
30			9.33	505	9.13	483
31			9.30	502		

	February	March	April
Gain or loss in storage, in millions of cubic feet.....	-42	+278	-19
Gain or loss in storage, in equivalent mean second-feet...	-16.8	+104	-7.3

Musconetcong River at outlet of Lake Hopatcong, N. J.

Location.- Lat. 40°55'0", long. 74°39'55", at highway bridge 300 feet downstream from Lake Hopatcong Dam, in Landing, Morris County. Zero of gage is 904.99 feet above mean sea level.
Drainage area.- 25.6 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 350 second-feet; extended to peak stage by determination of flow over spillway and through gates of Lake Hopatcong Dam.
Maxima.- 1936: Discharge, 534 second-feet 7 p.m. Mar. 19 (gage height, 3.17 feet).
1928-35: Discharge, 362 second-feet (revised) Aug. 27, 1928 (gage height, 2.61 feet).
Remarks.- Flow regulated by storage in Lake Hopatcong. For daily changes in storage see record for Lake Hopatcong at Landing, N. J. Monthly discharge and run-off, in inches, corrected for storage. Recorder operated by Morris Canal & Banking Co.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	103	11.6	129	11	55	12.0	188	21	29	496	52
2	103	11.6	105	12	48	12.9	174	22	29	434	48
3	90	11.6	79	13	41	21	166	23	29	376	44
4	82	11.6	70	14	41	59	153	24	28	349	40
5	82	11.6	60	15	41	91	140	25	16.4	320	32
6	75	11.6	124	16	41	131	129	26	12.0	284	31
7	61	11.6	181	17	41	215	114	27	11.6	252	27
8	56	11.6	181	18	41	362	101	28	11.6	252	25
9	56	11.6	184	19	41	496	90	29	11.6	224	24
10	55	12.0	196	20	33	496	61	30		199	25
								31		162	
Mean monthly discharge, in second-feet (observed).....									47.0	173	99.1
Mean monthly discharge, in second-feet (corrected).....									30.6	277	92.0
Run-off, in inches (corrected).....									1.29	12.47	4.02

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	0.61	11.6	0.61	11.6	0.62	12.0	0.62	12.0	0.64	12.9	0.64	12.9
4	.61	11.6	.61	11.6	.62	12.0	.62	12.0	.64	12.9	.64	12.9
6	.61	11.6	.61	11.6	.62	12.0	.62	12.0	.64	12.9	.64	12.9
8	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.64	12.9
10	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.69	15.1
N	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.76	18.3
2	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.82	21
4	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.88	25
6	.61	11.6	.62	12.0	.62	12.0	.62	12.0	.63	12.5	.93	28
8	.61	11.6	.62	12.0	.62	12.0	.63	12.5	.64	12.9	1.00	33
10	.61	11.6	.62	12.0	.62	12.0	.64	12.9	.64	12.9	1.04	37
M	.61	11.6	.62	12.0	.62	12.0	.64	12.9	.64	12.9	1.08	40
	March 14		March 15		March 16		March 17		March 18		March 19	
2	1.10	42	1.45	84	1.65	118	1.82	153	2.37	302	2.85	434
4	1.14	46	1.36	71	1.67	121	1.83	155	2.48	331	2.89	446
6	1.18	50	1.39	75	1.68	123	1.84	157	2.54	346	2.93	458
8	1.19	51	1.42	79	1.68	123	1.85	160	2.55	349	2.94	461
10	1.21	53	1.41	78	1.69	125	2.08	218	2.56	352	2.99	477
N	1.26	58	1.44	82	1.70	127	2.09	221	2.58	357	3.01	483
2	1.28	61	1.51	93	1.71	129	2.13	233	2.60	362	3.04	493
4	1.31	64	1.58	105	1.72	131	2.15	240	2.61	365	3.05	496
6	1.34	68	1.60	108	1.77	142	2.18	249	2.72	396	3.06	499
8	1.36	71	1.61	110	1.79	146	2.20	255	2.73	399	3.16	531
10	1.40	76	1.62	112	1.80	148	2.21	258	2.76	407	3.12	518
M	1.41	78	1.64	116	1.81	150	2.31	287	2.79	416	3.16	531
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.14	525	3.04	493	2.96	468	2.71	393	2.63	370	2.49	333
4	3.13	522	3.04	493	2.95	464	2.69	387	2.62	368	2.47	328
6	3.11	515	3.04	493	2.93	458	2.68	384	2.61	365	2.47	328
8	3.10	512	3.05	496	2.92	455	2.67	382	2.60	362	2.46	326
10	3.08	506	3.04	493	2.93	458	2.66	379	2.59	359	2.45	323
N	3.07	502	3.03	490	2.90	449	2.66	379	2.57	354	2.44	320
2	3.07	502	3.02	486	2.88	443	2.66	379	2.54	346	2.43	318
4	3.06	499	3.02	486	2.87	440	2.65	376	2.53	344	2.42	315
*6	3.07	502	3.02	486	2.80	419	2.65	376	2.53	344	2.42	315
8	3.06	499	3.02	486	2.78	413	2.65	376	2.52	341	2.42	315
10	3.05	496	3.02	486	2.75	404	2.64	373	2.52	341	2.41	313
M	3.03	490	2.99	477	2.75	404	2.64	373	2.50	336	2.40	310

Supplemental records.- Mar. 19, 7 p.m., 3.17 ft., 534 sec.-ft.

Musconetcong River near Bloomsbury, N. J.

Location.- Lat. 40°40'20", long. 75°3'40", at highway bridge 1½ miles above Bloomsbury, Hunterdon County, and 9 miles above mouth.
Drainage area.- 143 square miles; affected by storage in Lake Hopatcong, Lake Musconetcong, Cranberry Lake, and a number of small ponds.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1, 2, 10-12, 19-21. Defined by current-meter measurements below 1,700 second-feet.
Maxima.- 1936: Discharge, 2,270 second-feet 11:30 to 12 p.m. Mar. 11 (gage height, 5.67 feet).
1903-7, 1921-35: Maximum stage, 8.0 feet (former datum) Oct. 10 or 11, 1903 (discharge not determined).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	260	297	600	11	195	1,340	810	21	185	1,590	416
2	255	278	600	12	195	2,080	746	22	176	1,530	396
3	250	262	574	13	196	1,950	746	23	171	1,290	373
4	239	314	482	14	202	1,350	705	24	162	1,150	346
5	232	385	468	15	208	1,020	643	25	170	1,020	324
6	235	318	1,130	16	207	900	622	26	223	900	303
7	219	278	1,020	17	224	883	569	27	323	900	291
8	206	276	923	18	250	1,470	533	28	335	900	280
9	203	350	810	19	215	1,590	496	29	294	788	276
10	200	646	831	20	195	1,530	468	30		726	264
								31		664	
Mean monthly discharge, in second feet									222	935	568
Mean monthly discharge, in second-feet, adjusted for storage									205	1,038	561
Run-off, in inches, adjusted for storage									1.54	8.37	4.37

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.95	284	2.04	320	2.29	435	3.02	754	5.53	2,170	5.47	2,130
4	1.94	280	1.99	299	2.24	411	2.99	742	5.42	2,090	5.43	2,100
6	1.92	272	1.97	291	2.21	396	3.06	771	5.38	2,070	5.40	2,080
8	1.89	260	1.95	284	2.20	391	3.11	792	5.36	2,050	5.34	2,040
10	1.85	246	1.95	284	2.20	391	3.36	904	5.32	2,020	5.28	2,000
N	1.85	246	1.97	291	2.33	454	4.21	1,360	5.28	2,000	5.19	1,940
2	1.96	287	2.01	307	2.70	622	4.59	1,580	5.29	2,000	5.13	1,910
4	1.95	284	2.21	396	3.27	862	4.66	1,630	5.32	2,020	5.06	1,870
6	2.02	312	2.27	425	3.68	1,060	5.12	1,900	5.37	2,060	4.99	1,820
8	2.01	307	2.37	473	3.71	1,080	5.32	2,020	5.42	2,090	4.91	1,780
10	2.01	307	2.40	487	3.51	977	5.56	2,190	5.47	2,130	4.86	1,750
M	2.02	312	2.37	473	3.21	836	5.67	2,270	5.50	2,150	4.75	1,680
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.65	1,620	3.78	1,110	3.40	923	3.28	867	4.12	1,300	4.46	1,510
4	4.57	1,570	3.72	1,080	3.39	918	3.28	867	4.36	1,450	4.52	1,540
6	4.49	1,520	3.68	1,060	3.38	914	3.27	862	4.55	1,560	4.56	1,570
8	4.39	1,460	3.64	1,040	3.36	904	3.29	872	4.66	1,630	4.58	1,580
10	4.31	1,420	3.60	1,020	3.37	909	3.30	876	4.67	1,630	4.61	1,600
N	4.21	1,360	3.56	1,000	3.34	895	3.29	872	4.64	1,610	4.63	1,610
2	4.13	1,310	3.54	991	3.30	876	3.24	849	4.58	1,580	4.63	1,610
4	4.05	1,260	3.52	982	3.31	881	3.29	872	4.49	1,520	4.64	1,610
6	3.99	1,220	3.48	962	3.31	881	3.35	900	4.40	1,470	4.63	1,610
8	3.93	1,200	3.45	948	3.30	876	3.38	914	4.30	1,410	4.62	1,600
10	3.89	1,170	3.43	938	3.28	867	3.39	918	4.33	1,430	4.61	1,600
M	3.83	1,140	3.41	928	3.27	862	3.69	1,060	4.42	1,480	4.60	1,590
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.60	1,590	4.45	1,500	4.65	1,620	4.20	1,350	3.90	1,180	3.68	1,060
4	4.60	1,590	4.50	1,530	4.65	1,620	4.18	1,340	3.89	1,170	3.67	1,060
6	4.59	1,580	4.58	1,580	4.61	1,600	4.15	1,320	3.88	1,170	3.66	1,050
8	4.57	1,570	4.63	1,610	4.57	1,570	4.16	1,330	3.90	1,180	3.63	1,040
10	4.54	1,550	4.72	1,660	4.54	1,550	4.14	1,310	3.87	1,160	3.63	1,040
N	4.52	1,540	4.79	1,700	4.50	1,530	4.10	1,290	3.86	1,160	3.60	1,020
2	4.51	1,540	4.80	1,710	4.45	1,500	4.05	1,260	3.84	1,140	3.58	1,010
4	4.49	1,520	4.75	1,680	4.39	1,460	4.05	1,260	3.82	1,130	3.55	996
6	4.47	1,510	4.69	1,640	4.35	1,440	4.00	1,230	3.77	1,100	3.51	977
8	4.45	1,500	4.66	1,630	4.30	1,410	3.96	1,210	3.78	1,110	3.48	962
10	4.43	1,490	4.65	1,620	4.26	1,390	3.93	1,200	3.70	1,070	3.45	948
M	4.43	1,490	4.65	1,620	4.22	1,360	3.92	1,190	3.71	1,080	3.43	938

Assunpink Creek at Trenton, N. J.

Location.- Lat. 40°13'29", long. 74°45'2", at Chambers Street Bridge in Trenton, Mercer County, 1½ miles above mouth. Zero of gage is 24.76 feet above mean sea level.
Drainage area.- 89.4 square miles; not materially affected by storage during high water.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 19-23. Defined by current-meter measurements below 1,800 second-feet.
Maxima.- 1936: Discharge during year, 1,890 second-feet 4 p.m. Jan 3 (gage height, 7.30 feet); during March, 1,080 second-feet 6:40 a.m. Mar. 12.
1923-35: Discharge, 2,400 second-feet Apr. 7, 1924 (gage height, 7.85 feet).
Remarks.- Discharge for period of ice-affected record determined by comparison with records of nearby streams.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	66	680	170	11	62	580	338	21	98	435	106
2	62	610	160	12	57	940	303	22	96	355	99
3	66	590	176	13	59	730	309	23	96	276	91
4	61	560	155	14	63	475	261	24	96	243	87
5	67	645	145	15	64	358	212	25	119	209	81
6	67	531	475	16	70	285	187	26	237	178	77
7	67	396	409	17	88	252	152	27	513	241	77
8	59	297	341	18	132	580	135	28	610	396	73
9	62	303	282	19	130	489	124	29	575	315	72
10	63	326	315	20	104	435	113	30		267	70
								31		221	
Mean monthly discharge, in second-feet									135	426	186
Run-off, in inches									1.63	5.50	2.32

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.42	347	3.40	341	3.45	355	3.62	401	5.36	984	5.09	876
4	3.32	318	3.33	321	3.38	335	3.58	391	5.45	1,020	5.03	852
6	3.22	288	3.26	300	3.32	318	3.57	388	5.55	1,070	4.96	824
8	3.11	255	3.21	285	3.26	300	3.58	391	5.50	1,050	4.88	794
10	3.07	243	3.17	273	3.23	291	3.73	430	5.35	980	4.80	770
N	3.10	252	3.16	270	3.20	282	3.92	481	5.17	908	4.72	738
2	3.13	261	3.15	267	3.18	276	4.17	551	5.13	892	4.63	709
4	3.17	273	3.15	267	3.23	291	4.48	654	5.00	840	4.57	688
6	3.24	294	3.17	273	3.35	326	4.76	754	4.97	828	4.50	660
8	3.34	324	3.30	312	3.50	369	5.09	876	5.04	856	4.42	636
10	3.43	349	3.43	349	3.60	396	5.27	948	5.13	892	4.35	610
M	3.45	355	3.47	361	3.63	404	5.27	948	5.14	896	4.27	581
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.20	560	3.60	396	3.28	309	3.13	261	3.45	355	3.98	497
4	4.12	537	3.57	388	3.26	300	3.12	258	3.54	380	3.94	486
6	4.06	520	3.54	380	3.24	294	3.11	255	3.74	432	3.91	478
8	4.00	503	3.50	369	3.23	291	3.10	252	4.08	525	3.91	478
10	3.94	486	3.48	363	3.22	288	3.09	249	4.57	688	3.93	483
N	3.89	472	3.45	355	3.20	282	3.09	249	4.92	808	3.95	489
2	3.84	459	3.42	347	3.19	279	3.09	249	4.99	836	3.95	489
4	3.79	445	3.39	338	3.19	279	3.09	249	4.78	762	3.94	486
6	3.75	435	3.38	335	3.17	273	3.09	249	4.54	676	3.92	481
8	3.70	422	3.35	326	3.15	267	3.08	246	4.34	606	3.90	475
10	3.67	414	3.33	321	3.15	267	3.08	246	4.18	554	3.87	467
M	3.63	404	3.31	315	3.14	264	3.18	276	4.06	520	3.85	462
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.84	459	3.68	417	3.61	399	3.24	294	3.11	255	3.00	221
4	3.84	459	3.69	419	3.59	393	3.23	291	3.10	252	3.00	221
6	3.84	459	3.68	417	3.56	385	3.21	285	3.10	252	2.99	218
8	3.82	453	3.78	443	3.52	374	3.19	279	3.09	249	2.98	215
10	3.80	448	3.92	481	3.48	363	3.18	276	3.09	249	2.98	215
N	3.77	440	3.99	500	3.45	355	3.18	276	3.08	246	2.96	209
2	3.75	435	3.95	489	3.41	344	3.17	273	3.08	246	2.96	209
4	3.72	427	3.86	464	3.38	335	3.16	270	3.08	246	2.95	206
6	3.69	419	3.78	443	3.36	329	3.15	267	3.06	240	2.94	204
8	3.67	414	3.72	427	3.33	321	3.14	264	3.05	236	2.93	201
10	3.64	406	3.67	414	3.29	309	3.13	261	3.03	230	2.91	195
M	3.62	401	3.64	406	3.26	300	3.12	258	3.00	221	2.90	192

Supplemental records.- Mar. 12, 7 a.m., 5.55 feet, 1,070 sec.-ft. Mar. 18, 3 a.m., 3.38 feet, 335 sec.-ft.

Schuylkill River at Pottstown, Pa.

Location.- Lat. 40°14'30", long. 75°39'5", at Hanover Street Bridge at Pottstown, Montgomery County, one-third of a mile below mouth of Manatawny Creek. Zero of gage is 117.81 feet above mean sea level.
Drainage area.- 1,147 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 2.5 and 4.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 20,000 second-feet by current-meter measurements; extended logarithmically to crest discharge. Affected by ice Feb. 1-26.
Maxima.- 1936: Discharge, 31,800 second-feet 8:30 p.m. Mar. 12 (gage height, 15.13 feet, from flood mark).
1927-35: Discharge, 44,200 second-feet Aug. 24, 1933 (gage height, 19.2 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,950	5,270	3,630	11	1,420	13,000	5,310	21	1,800	12,500	2,600
2	1,850	4,720	3,550	12	1,300	27,700	4,720	22	1,680	10,800	2,600
3	1,750	4,120	3,630	13	1,300	23,900	4,720	23	1,560	8,170	2,390
4	1,750	4,370	3,020	14	1,390	12,600	4,200	24	1,550	6,920	2,260
5	1,820	5,080	2,740	15	1,500	8,670	3,870	25	1,650	5,880	2,130
6	1,790	4,900	9,350	16	1,750	6,980	3,710	26	3,000	4,920	2,060
7	1,780	4,280	11,900	17	2,100	8,290	3,400	27	8,210	5,360	2,060
8	1,600	4,000	7,690	18	2,350	20,100	3,100	28	5,650	6,300	2,000
9	1,500	4,420	5,840	19	2,400	20,400	2,880	29	4,900	4,750	1,940
10	1,450	6,180	5,840	20	2,100	14,400	2,740	30		4,350	1,940
								31		4,070	
Mean monthly discharge, in second-feet									2,236	8,948	3,927
Run-off, in inches									2.10	8.99	3.82

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.30	4,030	4.35	4,120	5.05	5,270	6.62	8,560	11.92	22,300	14.58	30,400
4	4.30	4,030	4.39	4,200	5.17	5,650	6.95	9,460	12.45	23,800	14.25	29,200
6	4.29	4,030	4.44	4,280	5.26	5,840	7.33	10,200	12.83	25,000	13.90	28,200
8	4.28	4,030	4.46	4,280	5.31	5,840	7.65	10,900	13.20	26,200	13.50	27,000
10	4.26	3,950	4.47	4,280	5.36	6,040	7.87	11,600	13.61	27,400	13.05	25,600
N	4.26	3,950	4.47	4,280	5.41	6,040	8.13	12,100	13.98	28,600	12.55	24,400
2	4.25	3,950	4.48	4,370	5.46	6,240	8.48	13,100	14.43	29,800	12.03	22,600
4	4.24	3,950	4.54	4,370	5.51	6,240	8.82	13,800	14.70	30,600	11.47	21,200
6	4.27	3,950	4.65	4,540	5.57	6,440	9.35	15,400	14.95	31,600	10.90	19,500
8	4.30	4,030	4.72	4,720	5.66	6,640	10.08	17,300	15.10	31,800	10.40	18,100
10	4.31	4,030	4.76	4,900	5.93	7,060	10.54	18,400	15.06	31,800	10.05	17,000
M	4.32	4,030	4.88	5,080	6.29	7,900	11.20	20,300	14.85	31,000	9.74	16,200
	March 14		March 15		March 16		March 17		March 18		March 19	
2	9.42	15,400	7.11	9,690	6.08	7,480	5.59	6,440	9.05	14,400	12.35	23,800
4	9.13	14,600	6.99	9,460	6.02	7,270	5.63	6,440	9.43	15,400	12.15	23,200
6	8.87	14,100	6.90	9,230	5.98	7,270	5.75	6,850	9.77	16,500	11.89	22,300
8	8.60	13,300	6.82	9,000	5.95	7,270	6.07	7,480	10.60	18,600	11.60	21,400
10	8.34	12,600	6.74	8,780	5.89	7,060	6.38	8,120	11.25	20,300	11.28	20,600
N	8.13	12,100	6.65	8,560	5.86	7,060	6.57	8,560	11.68	21,700	10.99	19,800
2	7.95	11,800	6.57	8,560	5.82	6,850	6.68	8,780	11.97	22,600	10.76	19,200
4	7.78	11,300	6.48	8,340	5.78	6,850	6.75	9,000	12.22	23,200	10.67	18,900
6	7.63	10,900	6.40	8,120	5.72	6,640	6.86	9,230	12.38	23,800	10.60	18,600
8	7.50	10,600	6.31	7,900	5.69	6,640	6.92	9,230	12.50	24,000	10.48	18,400
10	7.37	10,400	6.22	7,690	5.64	6,440	7.05	9,460	12.55	24,400	10.34	17,800
M	7.24	9,920	6.14	7,480	5.60	6,440	8.00	11,800	12.50	24,000	10.13	17,300
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.95	17,000	7.95	11,800	8.31	12,600	6.73	8,780	6.07	7,480	5.51	6,240
4	9.76	16,500	8.05	11,800	8.19	12,300	6.65	8,560	6.01	7,270	5.47	6,240
6	9.56	15,900	8.16	12,300	8.01	11,800	6.59	8,560	5.96	7,270	5.44	6,040
8	9.36	15,400	8.17	12,300	7.85	11,300	6.53	8,340	5.90	7,060	5.39	6,040
10	9.17	14,900	8.20	12,300	7.67	11,100	6.47	8,340	5.87	7,060	5.34	5,840
N	8.98	14,400	8.24	12,300	7.50	10,600	6.42	8,120	5.83	6,850	5.32	5,840
2	8.77	13,800	8.35	12,800	7.38	10,400	6.37	8,120	5.78	6,850	5.28	5,840
4	8.60	13,300	8.42	12,800	7.25	9,920	6.31	7,900	5.74	6,640	5.23	5,650
6	8.43	12,800	8.47	13,100	7.15	9,920	6.25	7,690	5.69	6,640	5.20	5,650
8	8.28	12,600	8.48	13,100	7.04	9,460	6.20	7,690	5.64	6,440	5.17	5,650
10	8.13	12,100	8.45	12,800	6.93	9,230	6.17	7,690	5.60	6,440	5.13	5,460
M	8.00	11,800	8.38	12,800	6.81	9,000	6.12	7,480	5.55	6,440	5.09	5,460

Supplemental records.- Mar. 12, 8:30 p.m., 15.13 ft., 31,800 sec.-ft.

Schuylkill River at Philadelphia, Pa.

Location.- Lat. 39°58'0", long. 75°11'20", just above Fairmount Dam, at Philadelphia, Philadelphia County. Zero of gage is at 0.00 foot elevation, city of Philadelphia datum, or 5.23 feet above mean sea level, Sandy Hook datum.
Drainage area.- 1,893 square miles.
Gage-height record.- Water-stage recorder graph except for period 3 a.m. to 2 p.m. Mar. 12, when graph was estimated. Gage heights used to half tenths between 7.5 and 10 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 25,000 second-feet by current-meter measurements; logarithmic extension to crest discharge.
Maxima.- 1936: Discharge, 48,400 second-feet 7 a.m. Mar. 12 (gage height, 11.62 feet).
1898-1912, 1931-35: Gage height, about 14.8 feet Mar. 1, 1902 (discharge not determined).
1869-1935: Maximum known stage, 17.0 feet Oct. 4, 1869 (discharge not determined).
Remarks.- Records do not include an average daily diversion of 232 second-feet used to supply water for city of Philadelphia.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,970	11,200	5,590	11	1,430	19,100	8,440	21	1,830	17,000	3,600
2	1,870	10,300	5,240	12	1,300	40,300	7,660	22	1,690	16,900	3,440
3	1,730	7,940	5,580	13	1,300	34,200	7,240	23	1,560	11,600	3,320
4	1,730	8,080	4,950	14	1,390	17,300	6,580	24	1,560	9,690	3,000
5	1,780	9,280	4,160	15	1,470	11,600	5,760	25	1,620	8,430	2,840
6	1,760	9,030	13,100	16	1,920	9,330	5,410	26	3,550	7,280	2,630
7	1,780	7,360	17,600	17	2,310	9,250	5,010	27	7,690	8,180	2,630
8	1,600	6,240	11,200	18	2,380	28,200	4,490	28	10,200	12,200	2,420
9	1,520	6,570	8,350	19	2,460	26,900	4,160	29	9,800	8,170	2,420
10	1,470	8,710	8,700	20	2,140	19,500	3,880	30		6,820	2,310
								31		6,260	
Mean monthly discharge, in second-feet									2,580	13,320	5,724
Run-off, in inches									1.47	8.12	3.37

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	7.08	6,580	7.02	6,230	7.23	7,480	7.82	11,200	10.80	38,800	10.81	38,800
4	7.08	6,580	7.04	6,350	7.34	8,140	7.96	12,200	11.06	42,400	10.86	40,000
6	7.06	6,460	7.06	6,460	7.44	8,740	8.05	13,000	11.50	47,200	10.85	38,800
8	7.04	6,350	7.08	6,580	7.49	9,040	8.09	13,300	11.57	48,400	10.80	38,800
10	7.02	6,230	7.09	6,640	7.50	9,100	8.18	14,000	11.29	44,800	10.70	37,700
N	7.00	6,110	7.10	6,700	7.49	9,040	8.37	15,100	10.95	41,200	10.56	36,600
2	6.99	6,050	7.11	6,760	7.47	8,920	8.53	16,700	10.78	38,800	10.40	34,400
4	6.99	6,050	7.10	6,700	7.46	8,860	8.80	18,700	10.64	36,600	10.22	32,200
6	6.98	5,990	7.10	6,700	7.45	8,800	9.30	23,200	10.58	36,600	10.01	30,100
8	6.98	5,990	7.10	6,700	7.47	8,920	9.98	30,100	10.57	36,600	9.81	28,100
10	6.98	5,990	7.10	6,700	7.52	9,100	10.36	34,400	10.64	36,600	9.59	26,100
M	6.99	6,050	7.13	6,880	7.65	10,200	10.60	36,600	10.75	38,800	9.36	23,600
	March 14		March 15		March 16		March 17		March 18		March 19	
2	9.16	21,800	8.06	13,000	7.64	10,200	7.39	8,440	8.01	12,600	9.93	29,600
4	9.00	20,500	8.01	12,600	7.61	9,800	7.39	8,440	8.26	14,400	9.92	29,100
6	8.86	19,200	7.97	12,200	7.59	9,800	7.38	8,380	9.06	21,000	9.91	29,100
8	8.77	18,300	7.93	12,200	7.56	9,450	7.38	8,380	10.22	32,200	9.86	28,600
10	8.66	17,500	7.89	11,900	7.54	9,450	7.38	8,380	10.76	38,800	9.82	28,100
N	8.56	16,700	7.85	11,600	7.52	9,100	7.38	8,380	10.83	38,800	9.76	27,600
2	8.47	15,900	7.81	11,200	7.51	9,100	7.41	8,560	10.73	37,700	9.66	26,600
4	8.39	15,500	7.78	11,200	7.49	9,040	7.48	8,980	10.54	35,500	9.59	26,100
6	8.31	14,700	7.76	10,800	7.48	8,980	7.60	9,800	10.31	33,300	9.48	25,100
8	8.24	14,400	7.72	10,500	7.46	8,860	7.73	10,800	10.10	31,100	9.38	24,100
10	8.17	13,600	7.70	10,500	7.44	8,740	7.82	11,200	9.97	29,600	9.28	23,200
M	8.11	13,300	7.67	10,200	7.42	8,620	7.92	11,900	9.93	29,600	9.22	22,300
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.18	22,300	8.42	15,500	9.00	20,500	8.04	13,000	7.67	10,200	7.46	8,860
4	9.15	21,800	8.38	15,500	8.92	19,600	7.99	12,600	7.65	10,200	7.44	8,740
6	9.11	21,400	8.34	15,100	8.85	19,200	7.94	12,200	7.63	10,200	7.43	8,680
8	9.04	21,000	8.34	15,100	8.76	18,300	7.90	11,900	7.62	9,800	7.42	8,620
10	9.00	20,500	8.39	15,500	8.67	17,500	7.87	11,600	7.60	9,800	7.40	8,500
N	8.90	19,600	8.48	16,300	8.58	17,100	7.84	11,600	7.58	9,800	7.39	8,440
2	8.82	18,700	8.58	17,100	8.47	15,900	7.80	11,200	7.57	9,450	7.39	8,440
4	8.75	18,300	8.65	17,500	8.39	15,500	7.77	10,800	7.56	9,450	7.37	8,320
6	8.68	17,900	8.71	17,900	8.30	14,700	7.76	10,800	7.54	9,450	7.36	8,260
8	8.61	17,100	8.81	18,700	8.21	14,000	7.75	10,800	7.52	9,100	7.33	8,080
10	8.53	16,700	8.94	20,000	8.14	13,600	7.72	10,500	7.50	9,100	7.30	7,900
M	8.46	15,900	9.02	20,500	8.09	13,300	7.69	10,500	7.48	8,980	7.28	7,780

Supplemental records.- Mar. 12, 7 a.m., 11.62 ft., 48,400 sec.-ft.

Little Schuylkill River at Tamaqua, Pa.

Location.- Lat. 40°48'20", long. 75°58'20", at Panther Valley Water Co. pumping plant, 0.6 mile above Tamaqua, Schuylkill County, and 0.8 mile above mouth of Panther Creek. Zero of gage is 817.46 feet above mean sea level.
Drainage area.- 42.9 square miles.
Gage-height record.- Water-stage recorder graph except for period Feb. 12 to Mar. 11, when it was determined from one gage reading daily and comparison with records of nearby stations. Gage heights used to half tenths between 4.5 and 6.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements. Affected by ice Feb. 1-26.
Maxima.- 1936: Discharge, 1,940 second-feet 4:15 a.m. Mar. 18 (gage height, 5.65 feet).
1916-35: Discharge, 3,740 second-feet Aug. 24, 1933 (gage height, 7.50 feet).
Remarks.- Regulation from storage in Still Creek Reservoir. Water diverted above station not included in records, except in monthly table, which has been corrected for diversions.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	38	120	114	11	30	885	196	21	34	524	82
2	36	115	116	12	30	1,370	174	22	35	415	80
3	34	115	105	13	30	682	174	23	37	331	71
4	33	122	87	14	31	425	149	24	40	275	65
5	32	125	83	15	33	334	141	25	46	219	62
6	31	120	460	16	37	294	123	26	70	185	58
7	30	115	351	17	39	520	116	27	160	201	52
8	30	114	254	18	35	1,340	101	28	140	178	49
9	30	130	209	19	34	893	95	29	120	145	52
10	30	197	212	20	34	580	89	30		135	50
								31		126	
Mean monthly discharge, in second-feet (observed).....									46.2	365	132
Mean monthly discharge, in second-feet (corrected).....									61.4	371	147
Run-off, in inches (corrected).....									1.54	9.97	3.83

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.57	99	2.68	123	2.78	149	3.27	317	5.59	1,890	4.26	872
4	2.61	107	2.68	123	2.80	154	3.36	355	5.46	1,760	4.18	817
6	2.64	114	2.69	126	2.82	160	3.45	396	5.25	1,600	4.10	765
8	2.65	116	2.69	126	2.85	168	3.57	455	5.05	1,440	4.04	726
10	2.65	116	2.69	126	2.88	177	3.71	530	4.92	1,320	3.98	688
N	2.66	119	2.70	128	2.90	183	3.90	640	4.82	1,250	3.93	658
2	2.66	119	2.70	128	2.94	196	4.17	810	4.75	1,220	3.88	628
4	2.66	119	2.71	131	2.99	212	4.47	1,020	4.74	1,220	3.84	604
6	2.67	121	2.72	133	3.02	222	4.90	1,320	4.68	1,180	3.79	574
8	2.67	121	2.73	136	3.08	243	5.30	1,640	4.58	1,110	3.75	552
10	2.67	121	2.75	141	3.13	261	5.53	1,840	4.48	1,030	3.71	530
M	2.67	121	2.77	146	3.20	288	5.58	1,890	4.36	942	3.67	508
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.63	486	3.40	373	3.26	313	3.44	392	5.30	1,640	4.40	970
4	3.59	465	3.37	360	3.24	304	3.66	503	5.64	1,940	4.34	928
6	3.55	445	3.34	347	3.22	296	3.63	486	5.50	1,800	4.46	1,010
8	3.52	430	3.31	333	3.21	292	3.57	455	5.20	1,560	4.53	1,080
10	3.48	411	3.29	325	3.19	284	3.58	460	4.94	1,360	4.43	991
N	3.46	401	3.27	317	3.15	269	3.66	503	4.80	1,250	4.30	900
2	3.45	396	3.25	308	3.16	273	3.65	498	4.72	1,180	4.21	837
4	3.45	396	3.26	313	3.17	277	3.62	481	4.69	1,180	4.16	804
6	3.46	401	3.28	321	3.15	269	3.69	520	4.75	1,220	4.14	791
8	3.47	406	3.29	325	3.17	277	3.80	580	4.77	1,220	4.12	778
10	3.45	396	3.28	321	3.23	300	3.90	640	4.65	1,140	4.09	758
M	3.43	387	3.27	317	3.34	347	4.30	900	4.50	1,040	4.04	726
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.99	694	3.59	465	3.58	460	3.37	360	3.24	304	3.08	243
4	3.94	664	3.64	440	3.55	445	3.36	355	3.23	300	3.07	240
6	3.90	640	3.77	564	3.63	435	3.35	351	3.21	292	3.06	236
8	3.85	610	3.84	604	3.50	420	3.33	342	3.20	288	3.05	232
10	3.81	586	3.78	569	3.48	411	3.32	338	3.18	280	3.03	226
N	3.78	569	3.72	536	3.47	406	3.30	329	3.16	273	2.99	212
2	3.75	552	3.71	530	3.47	406	3.28	321	3.15	269	2.97	205
4	3.71	530	3.72	536	3.47	406	3.27	317	3.13	261	2.96	202
6	3.68	514	3.78	569	3.45	396	3.25	308	3.12	258	2.95	199
8	3.65	498	3.72	536	3.43	387	3.25	308	3.11	254	2.95	199
10	3.62	481	3.67	508	3.41	378	3.24	304	3.10	250	2.97	205
M	3.60	470	3.62	481	3.39	369	3.24	304	3.09	246	2.96	202

Supplemental records.- Mar. 18, 4:15 a.m., 5.65 ft., 1,940 sec.-ft.

Susquehanna River at Colliersville, N. Y.

Location.- Lat. 42°29'55", long. 74°58'55", a quarter of a mile below plant of Associated Gas & Electric System and half a mile north of Colliersville, Otsego County.
Drainage area.- 351 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 5,010 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 8,740 second-feet 8:30 a.m. Mar. 19 (gage height, 8.13 feet).
1924-35: Discharge, 5,190 second-feet Mar. 16, 1929 (gage height, 7.1 feet).
Remarks.- Slight storage effect from pond at power plant just above station.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	315	330	2,020	11	340	1,840	1,720	21	210	5,010	1,270
2	285	430	1,880	12	124	4,110	1,720	22	250	4,770	1,410
3	228	335	2,260	13	214	4,870	1,780	23	280	4,180	1,260
4	315	365	2,160	14	224	3,230	1,880	24	285	3,540	1,180
5	248	560	1,890	15	238	2,480	1,890	25	280	3,190	850
6	315	620	1,890	16	188	3,120	1,850	26	184	2,900	740
7	204	500	2,340	17	255	5,110	1,650	27	370	2,630	690
8	280	454	2,010	18	236	6,700	1,600	28	325	2,780	710
9	102	673	1,660	19	140	7,540	1,530	29	465	2,490	610
10	280	1,220	1,730	20	116	6,200	1,440	30		2,170	660
								31		2,060	
Mean monthly discharge, in second-feet									252	2,787	1,543
Run-off, in inches									0.77	9.15	4.91

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.67	488	2.68	494	3.23	831	4.04	1,470	5.24	2,730	6.79	5,400
4	2.67	488	2.68	494	3.23	831	4.10	1,520	5.42	2,980	6.76	5,340
6	2.67	488	2.68	494	3.80	1,260	4.14	1,560	5.67	3,360	6.74	5,290
8	2.67	488	2.68	494	3.80	1,260	4.20	1,610	5.88	3,700	6.66	5,130
10	2.67	488	2.60	450	3.67	1,160	4.24	1,650	6.04	3,970	6.66	5,130
N	2.62	461	3.19	804	3.83	1,280	4.48	1,880	6.16	4,180	6.60	5,010
2	2.42	361	3.19	804	3.93	1,370	4.50	1,900	6.28	4,390	6.50	4,810
4	2.42	361	3.23	831	3.93	1,370	4.54	1,940	6.40	4,620	6.40	4,620
6	2.42	361	3.23	831	3.93	1,370	4.64	2,040	6.50	4,810	6.30	4,430
8	2.68	494	3.23	831	3.94	1,380	4.82	2,220	6.62	5,050	6.25	4,340
10	2.68	494	3.23	831	3.95	1,380	4.92	2,330	6.76	5,340	6.18	4,210
M	2.68	494	3.23	831	3.98	1,410	5.08	2,510	6.79	5,400	6.09	4,050
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.97	3,850	5.16	2,610	5.16	2,610	6.18	4,210	7.08	6,030	7.59	7,260
4	5.88	3,700	5.13	2,570	5.21	2,680	6.28	4,390	7.12	6,120	7.70	7,550
6	5.79	3,550	5.10	2,530	5.27	2,770	6.38	4,580	7.22	6,350	7.70	7,550
8	5.69	3,390	5.06	2,480	5.31	2,820	6.48	4,770	7.22	6,350	7.94	8,200
10	5.62	3,280	5.04	2,450	5.38	2,920	6.56	4,930	7.30	6,540	7.82	7,870
N	5.54	3,160	5.00	2,400	5.44	3,010	6.62	5,050	7.40	6,780	7.82	7,870
2	5.47	3,060	4.98	2,370	5.54	3,160	6.70	5,210	7.52	7,080	7.76	7,710
4	5.41	2,960	4.98	2,370	5.64	3,310	6.86	5,550	7.40	6,780	7.70	7,550
6	5.37	2,910	5.01	2,410	5.69	3,390	6.90	5,630	7.55	7,160	7.65	7,420
8	5.32	2,840	5.04	2,450	5.82	3,600	7.10	6,070	7.50	7,030	7.65	7,420
10	5.26	2,750	5.08	2,500	5.92	3,760	7.05	5,960	7.50	7,030	7.56	7,190
M	5.20	2,670	5.12	2,560	6.06	4,000	7.06	5,980	7.56	7,190	7.48	6,980
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.44	6,880	6.74	5,290	6.52	4,850	6.34	4,510	5.92	3,760	5.64	3,310
4	7.42	6,830	6.70	5,210	6.52	4,850	6.29	4,410	5.88	3,700	5.62	3,280
6	7.40	6,780	6.68	5,170	6.52	4,850	6.26	4,360	5.85	3,650	5.60	3,250
8	7.28	6,490	6.66	5,130	6.51	4,830	6.23	4,300	5.82	3,600	5.59	3,240
10	7.21	6,320	6.56	4,930	6.51	4,830	6.10	4,070	5.80	3,570	5.57	3,200
N	7.17	6,230	6.56	4,930	6.52	4,850	6.18	4,210	5.78	3,540	5.56	3,190
2	7.10	6,070	6.57	4,950	6.50	4,810	6.15	4,160	5.76	3,510	5.55	3,180
4	7.04	5,940	6.60	5,010	6.47	4,750	6.25	4,340	5.79	3,550	5.53	3,140
6	6.98	5,810	6.60	5,010	6.45	4,720	6.14	4,140	5.75	3,490	5.52	3,130
8	6.90	5,630	6.55	4,910	6.42	4,660	6.08	4,040	5.71	3,430	5.50	3,100
10	6.86	5,550	6.54	4,890	6.39	4,600	6.03	3,950	5.68	3,380	5.49	3,080
M	6.78	5,380	6.54	4,890	6.37	4,560	5.98	3,870	5.66	3,350	5.47	3,060

Supplemental records.- Mar. 19, 8:30 a.m., 8.13 ft., 8,740 sec.-ft. Mar. 23, 2:45 p.m., 5.40 ft., 2,950 sec.-ft. Mar. 24, 2:30 p.m., 4.90 ft., 2,270 sec.-ft.

Susquehanna River at Conklin, N. Y.

Location.- Lat. 42°2'10", long. 75°48'10", at highway bridge just below Conklin, Broome County, 3½ miles below Pennsylvania State line.
Drainage area.- 2,240 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 21,400 second-feet; extended logarithmically to peak stage guided by a previous curve which was defined by current-meter measurements below 51,400 second-feet.
Maxima.- 1936: Discharge, 61,600 second-feet 1 p.m. Mar. 18 (gage height, 20.14 feet).
1912-35: Discharge, 52,000 second-feet Mar. 28, 1913 (gage height, 18.3 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,000	2,600	7,610	11	1,800	16,000	9,160	21	1,800	38,200	6,070
2	1,900	2,400	7,400	12	1,800	38,100	9,390	22	1,700	29,000	6,370
3	1,900	2,400	8,700	13	1,800	41,200	13,300	23	1,700	20,500	5,970
4	1,900	2,200	9,160	14	1,800	35,100	13,100	24	1,700	14,800	5,200
5	1,900	2,800	7,820	15	1,800	20,200	11,300	25	1,700	12,400	4,550
6	1,900	3,400	7,820	16	1,900	20,800	10,300	26	2,000	10,800	4,020
7	1,900	3,600	10,100	17	1,900	34,400	9,040	27	3,000	10,100	3,590
8	1,900	3,000	10,300	18	2,000	56,500	7,820	28	3,400	10,600	3,260
9	1,900	2,800	9,020	19	1,900	57,800	7,190	29	3,200	10,100	3,100
10	1,900	6,000	8,480	20	1,900	51,000	6,570	30		8,480	2,940
								31		7,610	
Mean monthly discharge, in second-feet									1,997	18,540	7,622
Run-off, in inches									0.96	9.55	3.79

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	7.20	-	12.36	-	15.71	35,800	-	-
4	-	-	-	-	7.30	-	12.37	10,100	15.80	36,200	16.94	41,900
6	-	-	-	-	7.41	4,460	12.67	-	16.00	37,200	-	-
8	-	-	-	-	7.50	-	13.25	12,200	16.03	37,300	16.90	41,600
10	-	-	-	-	7.57	-	13.55	-	16.06	37,400	-	-
N	6.88	*3,000	6.60	*2,800	7.73	5,680	12.50	14,800	16.08	37,600	16.84	41,400
2	-	-	-	-	8.62	-	11.60	16,400	16.15	37,900	-	-
4	-	-	-	-	8.67	-	11.33	18,900	16.30	38,600	-	-
6	-	-	-	-	9.10	7,080	11.65	20,000	16.52	39,800	16.75	40,900
8	-	-	-	-	9.80	-	12.60	23,300	16.68	40,600	-	-
10	-	-	-	-	10.47	-	13.30	25,800	16.80	41,200	-	-
M	-	-	-	-	12.30	9,040	15.60	34,900	16.87	41,500	16.60	40,200
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	10.98	17,600	13.99	28,500	17.40	44,400	19.44	56,700
4	16.40	39,200	12.83	24,100	11.07	17,900	14.32	29,800	18.31	49,900	19.50	57,100
6	-	-	-	-	11.17	18,300	14.66	31,100	19.15	54,900	19.67	58,300
8	16.10	37,600	11.98	21,100	11.30	18,800	14.94	32,400	19.74	58,800	19.81	59,300
10	-	-	-	-	11.47	19,300	15.14	33,300	20.02	60,700	19.82	59,300
N	15.65	35,600	11.31	18,800	11.80	20,500	15.34	34,200	20.13	61,500	19.76	58,900
2	-	-	11.18	18,300	12.13	21,700	15.56	35,200	20.11	61,400	-	-
4	15.12	33,200	10.97	17,600	12.31	22,300	15.80	36,200	19.99	60,500	19.68	58,400
6	-	-	-	-	12.41	22,600	16.00	37,200	19.85	59,600	-	-
8	14.51	30,500	10.95	17,500	12.59	23,300	16.29	38,600	19.71	58,600	19.64	58,100
10	-	-	-	-	13.04	24,800	16.61	40,200	19.60	57,800	-	-
M	13.71	27,300	10.95	17,500	13.62	27,000	16.93	41,800	19.49	57,000	19.48	57,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	19.21	55,300	16.81	41,200	14.93	32,300	12.52	23,000	10.52	16,100	9.38	12,800
6	-	-	-	-	-	-	-	-	-	-	-	-
8	18.88	53,300	16.51	39,700	14.51	30,500	12.14	21,700	10.25	15,300	9.26	12,500
10	-	-	-	-	-	-	-	-	-	-	-	-
N	18.49	50,900	16.30	38,600	14.11	28,900	11.80	20,500	9.99	14,500	9.16	12,300
2	-	-	-	-	-	-	-	-	-	-	-	-
4	18.16	49,000	15.82	36,300	13.73	27,400	11.45	19,300	9.81	14,000	9.07	12,000
6	-	-	-	-	-	-	-	-	-	-	-	-
8	17.77	46,600	15.47	34,800	13.30	25,800	11.12	18,100	9.62	13,500	8.98	11,800
10	-	-	-	-	-	-	-	-	-	-	-	-
M	17.31	43,900	15.23	33,700	12.84	24,100	10.81	17,100	9.49	13,100	8.89	11,600

Supplemental records.- Mar. 11, 10:30 a.m., 13.68 ft. Mar. 13, 5 a.m., 16.95 ft., 41,900 sec.-ft. Mar. 18, 1 p.m., 20.14 ft., 61,600 sec.-ft. Mar. 19, 9 a.m., 19.82 ft., 59,300 sec.-ft.

*Mean for the day.

Susquehanna River at Binghamton, N. Y.

Location.- Lat. 42°5'30", long. 75°54'55", at Washington Street Bridge, at Binghamton, Broome County, 500 feet upstream from mouth of Chenango River. Zero of gage is 821.49 feet above mean sea level.
Drainage area.- 2,290 square miles.
Gage-height record.- Graph based on two or more gage readings daily.
Maxima.- 1936: Gage height, 22.85 feet 3 p.m. Mar. 18.
1901-35: Gage height, 19.74 feet Mar. 2, 1902.
1865-1935: Maximum known stage, 23.5 feet Mar. 17, 1865.
Remarks.- Gage heights obtained for flood-warning purposes. Discharge not determined. Gage height record furnished by U. S. Weather Bureau since 1913.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.78		3.48		3.83		6.18		13.90		17.38	
4	3.78		3.48		3.90		6.50		14.45		17.45	
6	3.77		3.47		4.02		6.83		14.85		17.42	
8	3.75		3.48		4.17		7.18		15.25		17.30	
10	3.68		3.49		4.28		7.53		15.57		17.15	
N	3.65		3.50		4.43		8.00		15.82		16.92	
2	3.61		3.53		4.63		8.55		16.04		16.70	
4	3.58		3.55		4.87		9.25		16.20		16.45	
6	3.54		3.58		5.10		10.00		16.35		16.23	
8	3.52		3.62		5.35		11.05		16.58		15.96	
10	3.51		3.70		5.60		12.10		16.97		15.68	
M	3.50		3.75		5.90		13.05		17.25		15.40	
	March 14		March 15		March 16		March 17		March 18		March 19	
2	15.15		11.00		9.65		14.52		17.45		22.70	
4	14.85		10.73		9.80		14.85		18.15		22.65	
6	14.55		10.47		10.03		15.09		19.00		22.55	
8	14.20		10.25		10.36		15.25		20.05		22.37	
10	13.80		10.00		10.78		15.40		21.75		22.20	
N	13.40		9.85		11.27		15.55		22.55		22.00	
2	12.97		9.70		11.73		15.65		22.75		21.77	
4	12.55		9.55		12.15		15.72		22.83		21.53	
6	12.20		9.46		12.56		15.77		22.82		21.23	
8	11.90		9.41		13.15		15.95		22.81		21.01	
10	11.57		9.45		13.67		16.20		22.80		20.83	
M	11.30		9.50		14.14		16.80		22.79		20.60	
	March 20		March 21		March 22		March 23		March 24		March 25	
2	20.44		15.85		13.80		11.43		9.12		8.11	
4	20.23		15.55		13.63		11.24		8.92		8.08	
6	20.01		15.33		13.46		11.03		8.80		8.06	
8	19.70		15.11		13.33		10.82		8.70		8.04	
10	19.35		14.87		13.07		10.58		8.60		8.01	
N	19.01		14.70		12.89		10.42		8.50		7.98	
2	18.52		14.55		12.67		10.20		8.40		7.94	
4	18.05		14.43		12.48		10.02		8.34		7.93	
6	17.53		14.35		12.27		9.87		8.27		7.91	
8	17.05		14.23		12.05		9.70		8.20		7.89	
10	16.55		14.08		11.75		9.50		8.17		7.87	
M	16.17		13.95		11.65		9.30		8.14		7.85	

Susquehanna River at Towanda, Pa.

Location.- Lat. 41°45'55", long. 76°26'25", at Bridge Street Bridge at Towanda, Bradford County. Zero of gage is 693.85 feet above mean sea level.
Drainage area.- 7,797 square miles.
Gage-height record.- Graph based on two or more chain-gage readings daily. Gage heights used to half tenths below and tenths above 2.0 feet.
Stage-discharge relation.- Defined to 178,000 second-feet by current-meter measurements (surface velocities); logarithmic extension to peak discharge. Affected by ice Feb. 1 to Mar. 6.
Maxima.- 1936: Discharge, 188,000 second-feet 9 a.m. Mar. 19 (gage height, 25.03 feet).
1892-1935: Discharge, 182,000 second-feet Mar. 2, 1902 (gage height, 24.5 feet, from flood marks).
1865-1935: Maximum discharge known, 188,000 second-feet Mar. 17, 1865 (gage height, 25.0 feet, from flood marks).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	4,200	14,000	26,000	11	3,400	44,000	23,600	21	3,400	116,000	15,700
2	4,000	12,300	22,400	12	3,400	133,000	27,200	22	3,300	83,300	15,700
3	3,900	11,600	28,400	13	3,400	137,000	32,600	23	3,200	61,300	15,700
4	3,850	11,500	25,400	14	3,400	85,900	36,200	24	3,100	47,400	13,700
5	3,800	11,700	21,800	15	3,500	61,900	31,400	25	3,100	49,100	11,700
6	3,700	13,000	21,200	16	3,350	73,800	28,400	26	3,500	53,600	10,700
7	3,650	15,700	30,800	17	3,250	115,000	24,200	27	5,500	43,400	9,800
8	3,600	14,600	29,000	18	3,750	164,000	20,700	28	10,000	43,100	9,000
9	3,550	13,700	25,400	19	3,600	182,000	18,700	29	12,000	36,900	8,200
10	3,500	19,700	23,000	20	3,500	158,000	17,200	30		29,700	8,200
								31		27,900	
Mean monthly discharge, in second-feet									4,117	60,780	21,070
Run-off, in inches									.57	8.99	3.01

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.54	15,200	4.20	13,700	4.42	14,700	6.80	27,800	16.80	102,000	22.34	157,000
4	4.54	15,200	4.20	13,700	4.60	15,700	7.04	29,000	18.06	114,000	22.22	156,000
6	4.56	15,700	4.20	13,700	4.78	16,700	7.32	30,800	19.25	125,000	21.96	154,000
8	4.50	15,200	4.20	13,700	4.93	17,200	7.68	33,200	19.71	130,000	21.70	151,000
10	4.48	15,200	4.20	13,700	5.10	18,200	8.10	35,600	19.98	133,000	21.40	147,000
N	4.40	14,700	4.20	13,700	5.20	18,700	8.52	38,000	20.48	138,000	20.89	142,000
2	4.34	14,200	4.20	13,700	5.35	19,700	9.10	41,700	20.80	141,000	20.40	137,000
4	4.30	14,200	4.19	13,700	5.70	21,200	9.62	45,200	21.27	146,000	19.79	131,000
6	4.23	13,700	4.18	13,700	6.09	23,600	10.50	51,500	21.74	151,000	19.02	123,000
8	4.21	13,700	4.19	13,700	6.30	24,800	11.48	58,500	22.06	155,000	18.22	115,000
10	4.20	13,700	4.21	13,700	6.44	25,400	12.84	68,400	22.22	156,000	17.42	108,000
M	4.20	13,700	4.30	14,200	6.60	26,600	14.94	85,200	22.30	157,000	16.90	103,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	16.47	99,500	12.98	70,000	11.20	56,400	17.29	107,000	19.70	130,000	24.73	184,000
4	16.12	95,900	12.72	67,600	11.35	57,800	17.61	109,000	20.58	140,000	24.85	186,000
6	15.80	93,200	12.51	66,000	11.63	59,200	17.89	112,000	22.00	154,000	24.90	187,000
8	15.48	90,500	12.30	64,400	11.98	62,000	18.09	114,000	23.26	168,000	24.97	188,000
10	15.17	87,800	12.09	62,800	12.52	66,000	18.30	116,000	23.65	172,000	24.95	188,000
N	14.84	84,400	11.86	61,300	13.15	71,600	18.44	117,000	23.85	174,000	24.88	187,000
2	14.55	82,800	11.65	59,200	13.75	76,400	18.50	118,000	23.98	176,000	24.56	183,000
4	14.27	80,400	11.45	57,800	14.35	81,200	18.50	118,000	24.08	177,000	24.45	181,000
6	13.97	78,000	11.25	56,400	14.90	85,200	18.50	118,000	24.12	177,000	24.30	180,000
8	13.70	75,600	11.12	55,700	15.50	90,500	18.50	118,000	24.13	177,000	23.92	175,000
10	13.46	74,000	11.07	55,700	16.08	95,900	18.54	118,000	24.35	181,000	23.72	173,000
M	13.20	71,600	11.10	55,700	16.85	102,000	18.86	122,000	24.61	183,000	23.60	172,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	23.50	170,000	19.61	129,000	16.21	96,800	12.85	68,400	10.45	50,800	9.60	45,200
4	23.37	169,000	19.10	124,000	15.86	94,100	12.68	67,600	10.30	50,100	9.65	45,200
6	23.20	167,000	18.66	120,000	15.50	90,500	12.50	66,000	10.11	48,700	9.72	45,900
8	23.00	165,000	18.50	118,000	15.16	87,800	12.32	64,400	10.00	48,000	9.81	46,600
10	22.87	164,000	18.38	117,000	14.83	84,400	12.14	62,800	9.88	47,300	9.97	48,000
N	22.65	161,000	18.28	116,000	14.52	82,000	11.94	61,300	9.76	46,600	10.18	49,400
2	22.36	158,000	18.12	114,000	14.22	79,600	11.72	59,900	9.69	45,900	10.39	50,800
4	22.08	155,000	17.90	112,000	13.92	77,200	11.50	58,500	9.62	45,200	10.51	51,500
6	21.70	151,000	17.65	109,000	13.68	75,600	11.30	57,100	9.60	45,200	10.60	52,200
8	21.25	145,000	17.39	108,000	13.44	73,200	11.06	55,700	9.58	45,200	10.68	52,900
10	20.72	140,000	17.00	104,000	13.20	71,600	10.84	53,600	9.58	45,200	10.71	52,900
M	20.15	135,000	16.60	100,000	13.00	70,000	10.61	52,200	9.59	45,200	10.73	52,900

Supplemental records.- Mar. 19, 9 a.m., 25.03 ft., 188,000 sec.-ft. (flood crest).

Susquehanna River at Wilkes-Barre, Pa.

Location.- Lat. 41°15'0", long. 75°53'10", at Market Street Bridge at Wilkes-Barre, Luzerne County. Zero of gage is 511.94 feet (revised) above mean sea level.
Drainage area.- 9,960 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths below and tenths above 4.0 feet.
Stage-discharge relation.- Defined to 214,000 second-feet by current-meter measurements (surface velocities); logarithmic extension to crest stage. Affected by ice Feb. 1-29.
Maxima.- 1936: Discharge, 232,000 second-feet 2 a.m. Mar. 20 (gage height, 33.07 feet).
1890-1935: Discharge, 213,000 second-feet (revised) Mar. 2, 1902 (gage height, 31.4 feet).
1865-1935: Maximum discharge known, 232,000 second-feet Mar. 18, 1865 (gage height, 33.1 feet, from flood marks).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	5,700	17,700	33,000	11	4,600	48,800	29,200	21	3,900	184,000	19,700
2	5,600	16,100	29,200	12	4,500	129,000	31,400	22	4,100	144,000	18,900
3	5,400	14,300	29,800	13	4,400	182,000	34,700	23	3,900	99,000	18,500
4	5,300	12,900	32,500	14	4,300	150,000	45,200	24	3,800	72,300	17,700
5	5,200	14,000	28,200	15	4,500	99,400	41,300	25	3,700	59,000	15,700
6	5,100	17,600	28,200	16	4,200	80,200	37,100	26	4,200	63,500	14,000
7	5,000	30,100	32,000	17	4,400	125,000	32,000	27	6,000	62,200	12,600
8	4,900	17,700	37,100	18	4,400	192,000	27,200	28	12,000	52,800	11,600
9	4,750	17,100	33,600	19	4,200	229,000	23,800	29	15,000	51,700	10,700
10	4,700	19,900	30,300	20	4,000	221,000	21,500	30	-	41,200	10,100
								31	-	33,900	-
Mean monthly discharge, in second-feet									5,233	80,560	26,230
Run-off, in inches									0.57	9.33	2.93

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	7.84	18,900	7.40	17,300	7.47	17,700	9.96	29,200	18.27	86,100	27.68	174,000
4	7.78	18,900	7.45	17,300	7.55	18,100	10.64	32,500	19.55	96,900	27.98	178,000
6	7.68	18,500	7.43	17,300	7.62	18,100	11.13	35,300	20.65	106,000	28.20	180,000
8	7.55	18,100	7.42	17,300	7.69	18,500	11.56	38,300	21.73	115,000	28.35	182,000
10	7.48	17,700	7.40	17,300	7.74	18,500	11.93	40,100	22.72	125,000	28.52	183,000
N	7.48	17,700	7.38	17,300	7.80	18,900	12.55	44,500	23.56	133,000	28.66	185,000
2	7.40	17,300	7.34	16,900	7.90	19,300	13.72	51,800	24.35	141,000	28.75	186,000
4	7.30	16,900	7.30	16,900	8.03	19,700	14.70	58,700	25.08	148,000	28.80	186,000
6	7.24	16,500	7.29	16,900	8.24	20,600	15.35	63,700	25.74	154,000	28.80	186,000
8	7.24	16,500	7.30	16,900	8.55	22,400	15.78	66,600	26.30	160,000	28.73	185,000
10	7.26	16,900	7.33	16,900	8.94	23,750	16.29	70,400	26.78	165,000	28.58	184,000
M	7.32	16,900	7.40	17,300	9.38	26,200	17.12	76,500	27.24	169,000	28.35	182,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	28.02	178,000	21.61	115,000	17.78	82,000	19.13	92,600	26.16	159,000	32.75	228,000
4	27.62	173,000	21.20	111,000	17.59	80,400	20.08	101,000	26.59	163,000	32.78	228,000
6	27.13	168,000	20.84	107,000	17.45	78,900	20.91	108,000	27.19	169,000	32.77	228,000
8	26.55	163,000	20.48	105,000	17.35	78,900	21.74	115,000	27.95	178,000	32.77	228,000
10	25.92	156,000	20.11	101,000	17.30	78,100	22.48	123,000	28.78	186,000	32.78	228,000
N	25.30	150,000	19.78	98,600	17.25	77,300	23.09	129,000	29.54	193,000	32.80	228,000
2	24.68	144,000	19.47	96,000	17.25	77,300	23.64	133,000	30.36	203,000	32.85	228,000
4	24.09	138,000	19.16	93,500	17.26	78,100	24.17	139,000	31.00	209,000	32.90	229,000
6	23.52	132,000	18.82	90,200	17.33	78,100	24.65	143,000	31.54	214,000	32.97	230,000
8	23.00	128,000	18.52	87,700	17.52	79,600	25.03	147,000	32.10	221,000	33.00	230,000
10	22.50	123,000	18.23	85,200	17.88	82,800	25.32	150,000	32.42	224,000	33.05	230,000
M	22.06	119,000	17.98	83,600	18.40	86,900	25.67	154,000	32.62	226,000	33.06	232,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	33.07	232,000	30.28	202,000	26.35	161,000	21.70	115,000	17.78	82,000	15.04	60,800
4	33.00	230,000	30.03	198,000	26.08	158,000	21.23	111,000	17.54	79,600	14.91	60,100
6	32.90	229,000	29.73	195,000	25.80	155,000	20.77	107,000	17.29	78,100	14.81	59,400
8	32.75	228,000	29.38	192,000	25.51	152,000	20.35	104,000	17.04	75,700	14.74	58,700
10	32.57	226,000	28.95	188,000	25.20	149,000	20.00	100,000	16.76	74,200	14.66	58,700
N	32.34	223,000	28.63	184,000	24.84	145,000	19.61	96,900	16.52	71,900	14.61	58,000
2	32.10	221,000	28.25	180,000	24.45	141,000	19.31	94,400	16.24	69,600	14.56	58,000
4	31.81	218,000	27.86	176,000	24.04	137,000	19.03	91,800	15.98	68,100	14.53	57,300
6	31.44	213,000	27.52	172,000	23.59	133,000	18.75	90,200	15.75	66,600	14.53	57,300
8	31.12	210,000	27.18	169,000	23.09	129,000	18.48	87,700	15.54	64,400	14.57	58,000
10	30.85	207,000	26.89	166,000	22.62	124,000	18.24	85,200	15.35	63,700	14.68	58,700
M	30.55	205,000	26.61	163,000	22.15	120,000	18.01	83,600	15.17	62,300	14.83	59,400

Susquehanna River at Danville, Pa.

Location.- Lat. 40°57'25", long. 76°37'20", at highway bridge at Danville, Montour County. Zero of gage is 431.07 feet (revised) above mean sea level.
Drainage area.- 11,220 square miles.
Gage-height record.- Graph based on two or more chain-gage readings daily. No record Apr. 3, 16, 18. Gage heights used to half tenths below and tenths above 3.0 feet.
Stage-discharge relation.- Defined to 250,000 second-feet by current-meter measurements (surface velocities). Affected by ice Feb. 1 to Mar. 6 and by backwater from West Branch 6 p.m. Mar. 18 to midnight Mar. 19.
Maxima.- 1936: Discharge, 250,000 second-feet midnight to 8 a.m. Mar. 20. Gage height, 28.0 feet 4 p.m. Mar. 19 (backwater from West Branch of Susquehanna River).
1899-1935: Discharge, 242,000 second-feet (revised) Mar. 3, 1902 (gage height, 26.8 feet (revised), from flood marks). Maximum gage height, 30.7 feet Mar. 9, 1904, from flood marks (affected by ice).
1865-1935: Maximum known discharge, 258,000 second-feet Mar. 18, 1865 (gage height, 28 feet, from flood mark).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	6,400	27,000	33,900	11	5,100	52,600	35,400	21	4,300	210,000	23,600
2	6,300	30,000	34,600	12	5,000	134,000	36,100	22	4,300	157,000	21,200
3	6,100	25,000	37,000	13	4,800	186,000	38,400	23	4,200	116,000	20,600
4	6,000	22,000	34,600	14	4,700	179,000	39,200	24	4,200	88,500	20,600
5	5,800	30,000	33,200	15	4,800	125,000	50,100	25	4,200	67,900	18,300
6	5,700	42,000	33,900	16	4,500	91,200	44,000	26	4,700	66,200	16,100
7	5,600	54,500	40,800	17	4,700	113,000	40,000	27	6,800	70,400	14,600
8	5,400	26,500	43,300	18	4,800	190,000	32,000	28	15,000	61,200	13,100
9	5,300	23,500	40,800	19	4,600	241,000	26,200	29	21,500	58,200	12,100
10	5,200	26,500	37,700	20	4,400	245,000	25,500	30		49,500	11,600
								31		40,100	
Mean monthly discharge, in second-feet									6,014	91,900	30,280
Run-off, in inches									0.58	9.44	3.01

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	7.84	28,900	7.03	23,600	7.14	24,200	8.60	34,600	15.00	95,100	21.70	174,000
4	7.70	28,200	7.00	23,600	7.18	24,900	8.90	36,900	16.00	106,000	22.02	178,000
6	7.55	27,500	6.96	23,600	7.20	24,900	9.25	39,200	17.00	117,000	22.32	182,000
8	7.50	26,900	6.93	23,000	7.22	24,900	9.62	42,500	17.70	126,000	22.57	186,000
10	7.43	26,200	6.91	23,000	7.27	25,500	10.02	45,800	18.35	134,000	22.72	187,000
N	7.39	26,200	6.90	23,000	7.30	25,500	10.50	50,100	18.79	139,000	22.86	189,000
2	7.34	25,500	6.91	23,000	7.37	26,200	10.98	54,500	19.32	145,000	22.99	191,000
4	7.30	25,500	6.93	23,000	7.43	26,200	11.39	58,100	19.74	150,000	23.09	192,000
6	7.25	24,900	6.99	23,600	7.55	27,500	11.88	62,600	20.20	156,000	23.12	192,000
8	7.18	24,900	7.03	23,600	7.70	28,200	12.50	68,400	20.55	160,000	23.15	193,000
10	7.14	24,200	7.08	24,200	7.98	30,300	13.20	75,400	20.98	165,000	23.19	193,000
M	7.05	23,600	7.10	24,200	8.21	31,700	14.00	84,100	21.35	170,000	23.17	193,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	23.12	192,000	19.48	147,000	15.58	102,000	14.40	88,500	20.08	154,000	26.75	229,000
4	23.05	191,000	19.00	141,000	15.38	99,500	14.72	91,800	20.72	162,000	27.15	233,000
6	22.95	191,000	18.60	136,000	15.14	96,200	15.12	96,200	21.44	170,000	27.50	236,000
8	22.78	188,000	18.10	130,000	14.90	94,000	15.60	102,000	22.10	179,000	27.70	238,000
10	22.55	186,000	17.70	126,000	14.63	90,700	16.00	106,000	22.67	187,000	27.85	240,000
N	22.34	182,000	17.40	122,000	14.40	88,500	16.45	110,000	23.18	193,000	27.90	242,000
2	22.10	179,000	17.10	118,000	14.23	86,300	16.93	116,000	23.75	201,000	27.95	244,000
4	21.80	175,000	16.80	115,000	14.10	85,200	17.35	122,000	24.22	206,000	28.00	246,000
6	21.41	170,000	16.60	113,000	14.04	84,100	17.80	127,000	24.80	212,000	27.95	247,000
8	21.00	165,000	16.35	110,000	14.00	84,100	18.39	134,000	25.27	217,000	27.87	247,000
10	20.51	159,000	16.10	107,000	14.02	84,100	18.90	140,000	25.80	222,000	27.67	249,000
M	20.00	153,000	15.80	104,000	14.15	86,300	19.40	146,000	26.25	226,000	27.48	250,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	27.40	250,000	25.95	230,000	22.19	180,000	17.95	129,000	15.38	99,500	13.02	73,400
4	27.40	250,000	25.70	226,000	21.80	175,000	17.65	124,000	15.18	97,300	12.85	71,400
6	27.40	250,000	25.40	222,000	21.40	170,000	17.42	122,000	14.98	95,100	12.70	70,400
8	27.35	250,000	25.10	218,000	21.03	165,000	17.20	120,000	14.78	92,900	12.58	69,400
10	27.25	247,000	24.85	214,000	20.65	160,000	16.98	117,000	14.55	90,700	12.48	68,400
N	27.18	247,000	24.57	212,000	20.26	157,000	16.75	115,000	14.38	88,500	12.33	66,500
2	27.08	246,000	24.30	208,000	19.90	152,000	16.57	113,000	14.20	86,300	12.25	65,500
4	26.94	243,000	23.97	204,000	19.57	148,000	16.38	110,000	14.02	84,100	12.18	65,500
6	26.80	242,000	23.63	198,000	19.22	144,000	16.20	108,000	13.80	81,900	12.10	64,600
8	26.60	239,000	23.30	195,000	18.90	140,000	16.00	106,000	13.60	79,700	12.07	64,600
10	26.40	236,000	22.92	189,000	18.60	136,000	15.75	104,000	13.40	77,500	12.02	63,600
M	26.20	233,000	22.58	186,000	18.25	132,000	15.57	102,000	13.21	75,400	12.00	63,600

Susquehanna River at Sunbury, Pa.

Location.- Lat. 41°50'55", long. 76°48'20", at highway bridge at Sunbury, Northumberland County, 3,700 feet below Philadelphia & Reading Railroad bridge. Zero of gage is 419.00 feet above mean sea level.
Drainage area.- 18,300 square miles.
Gage-height record.- Graph based on two or more gage readings daily except for period Mar. 19-23, when it was determined by a flood mark and comparison with stage graphs of nearby stations.
Maxima.- 1936: Gage height, 26.85 feet 2 p.m. Mar. 19, from flood mark.
1916-35: Gage height observed, 18.0 feet Mar. 14, 1920.
1865-1935: Maximum known stage, 22.5 feet March 1865.
Remarks.- Station maintained for flood-warning purposes. Discharge not determined.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	6.50		5.24		4.98		5.67		10.38		19.27	
4	6.10		5.20		5.00		5.82		11.52		19.39	
6	5.80		5.17		5.05		6.02		12.97		19.46	
8	5.51		5.12		5.12		6.26		14.60		19.48	
10	5.50		5.10		5.16		6.48		15.66		19.47	
N	5.49		5.06		5.16		6.72		16.46		19.45	
2	5.46		5.02		5.16		7.01		17.19		19.40	
4	5.41		4.99		5.17		7.31		17.78		19.30	
6	5.39		4.98		5.18		7.70		18.23		19.16	
8	5.36		4.97		5.22		8.20		18.60		18.95	
10	5.30		4.97		5.37		8.80		18.90		18.73	
M	5.28		4.97		5.50		9.50		19.12		18.50	
	March 14		March 15		March 16		March 17		March 18		March 19	
2	18.22		13.83		10.73		10.23		17.10		24.80	
4	17.93		13.48		10.59		10.51		17.60		25.40	
6	17.62		13.07		10.45		10.90		18.10		25.97	
8	17.31		12.66		10.32		11.46		18.60		26.42	
10	17.00		12.40		10.21		11.99		19.20		26.70	
N	16.69		12.12		10.10		12.60		19.90		26.80	
2	16.31		11.89		10.05		13.28		20.63		26.85	
4	15.99		11.64		10.00		14.00		21.49		26.66	
6	15.52		11.42		9.99		14.74		22.31		26.33	
8	15.11		11.21		9.99		15.36		23.05		25.97	
10	14.70		11.05		10.00		16.00		23.70		25.50	
M	14.30		10.89		10.10		16.56		24.20		25.06	
	March 20		March 21		March 22		March 23		March 24		March 25	
2	24.62		19.90		15.85		12.90		10.60		8.82	
4	24.30		19.56		15.57		12.70		10.40		8.72	
6	23.92		19.20		15.30		12.50		10.25		8.68	
8	23.40		18.85		15.08		12.30		10.05		8.60	
10	23.00		18.51		14.80		12.10		9.88		8.51	
N	22.65		18.20		14.51		11.88		9.73		8.46	
2	22.30		17.86		14.27		11.70		9.59		8.40	
4	21.88		17.53		14.00		11.50		9.42		8.31	
6	21.50		17.13		13.79		11.30		9.29		8.28	
8	21.10		16.83		13.58		11.10		9.15		8.21	
10	20.68		16.49		13.35		10.92		9.03		8.20	
M	20.30		16.12		13.10		10.74		8.91		8.19	

Susquehanna River at Harrisburg, Pa.

Location.- Lat. 40°15'35", long. 76°53'5", at Walnut Street Bridge, Harrisburg, Dauphin County. Zero of gage is 290.04 feet above mean sea level.
Drainage area.- 24,100 square miles.
Gage-height record.- Graph at Walnut Street based on numerous chain-gage readings daily. Gage heights used to tenths.
Stage-discharge relation.- Defined to 650,000 second-feet by current-meter measurements (surface velocities) and study of channel conditions. Affected by ice Feb. 1 to Mar. 9.
Maxima.- 1936: Discharge, 740,000 second-feet 6 p.m. Mar. 19 (gage height at Walnut Street, 30.33 feet; at Nagle Street, 29.23 feet).
1890-1935: Maximum discharge known, 699,000 second-feet June 2, 1889 (gage height, 26.8 feet, from flood marks at Walnut Street).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	18,000	75,000	84,000	11	13,000	130,000	94,500	21	15,000	440,000	47,600
2	18,000	81,000	75,800	12	12,500	304,000	91,900	22	14,000	342,000	43,300
3	17,000	78,000	71,600	13	12,000	424,000	89,300	23	13,500	258,000	40,600
4	16,000	78,000	68,800	14	12,000	368,000	86,700	24	13,000	193,000	39,200
5	16,000	78,000	67,300	15	12,500	267,000	91,900	25	13,000	157,000	36,600
6	15,500	82,000	80,200	16	13,000	203,000	86,700	26	15,000	138,000	34,000
7	15,000	95,000	114,000	17	14,000	219,000	75,800	27	23,000	146,000	31,600
8	14,500	140,000	119,000	18	15,000	414,000	65,800	28	38,000	146,000	28,400
9	14,000	91,000	112,000	19	16,000	691,000	58,300	29	53,000	132,000	26,700
10	13,500	93,200	101,000	20	15,500	614,000	52,000	30		121,000	25,300
								31		99,600	
Mean monthly discharge, in second-feet									16,910	216,100	68,000
Run-off, in inches									0.76	10.34	3.15

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	14.30	-	8.90	-	8.12	98,300	8.10	98,300	12.70	204,000	21.08	414,000
4	13.05	-	8.87	-	8.00	96,000	8.22	101,000	13.60	225,000	21.38	423,000
6	12.20	-	8.83	-	7.90	93,700	8.38	105,000	14.62	248,000	21.58	429,000
8	11.50	-	8.78	-	7.80	91,400	8.58	110,000	15.60	271,000	21.70	432,000
10	11.00	-	8.70	-	7.76	91,400	8.77	115,000	16.55	294,000	21.76	436,000
N	10.40	*140,000	8.65	*91,000	7.73	89,100	9.00	119,000	17.35	314,000	21.76	436,000
2	9.94	-	8.60	-	7.72	89,100	9.24	124,000	18.05	329,000	21.71	432,000
4	9.52	-	8.57	-	7.74	89,100	9.58	133,000	18.70	347,000	21.65	429,000
6	9.25	-	8.50	-	7.78	91,400	10.00	143,000	19.30	363,000	21.56	429,000
8	9.10	-	8.45	-	7.82	91,400	10.60	156,000	19.78	377,000	21.38	423,000
10	9.00	-	8.38	-	7.90	93,700	11.20	170,000	20.20	388,000	21.22	417,000
M	8.95	-	8.25	-	7.98	96,000	11.90	186,000	20.65	400,000	21.08	414,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	20.85	406,000	17.17	309,000	13.32	218,000	12.02	189,000	16.90	302,000	26.95	614,000
4	20.68	403,000	16.80	299,000	13.15	216,000	12.04	189,000	17.60	319,000	27.50	637,000
6	20.44	394,000	16.43	290,000	12.95	211,000	12.08	191,000	18.30	337,000	28.20	659,000
8	20.15	388,000	16.05	280,000	12.78	207,000	12.20	193,000	19.00	355,000	28.70	678,000
10	19.85	377,000	15.70	273,000	12.64	202,000	12.40	198,000	19.78	377,000	29.30	701,000
N	19.52	369,000	15.36	266,000	12.50	200,000	12.78	207,000	20.60	400,000	29.75	721,000
2	19.20	361,000	15.00	257,000	12.40	198,000	13.18	216,000	21.50	426,000	30.05	729,000
4	18.87	352,000	14.70	250,000	12.30	195,000	13.70	227,000	22.40	454,000	30.25	736,000
6	18.56	345,000	14.35	243,000	12.20	193,000	14.30	241,000	23.28	484,000	30.33	740,000
8	18.18	334,000	14.10	236,000	12.15	193,000	14.90	255,000	24.20	514,000	30.20	736,000
10	17.87	326,000	13.78	229,000	12.10	191,000	15.55	271,000	25.15	549,000	30.00	729,000
M	17.50	316,000	13.50	223,000	12.05	189,000	16.25	285,000	26.00	578,000	29.75	721,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	29.40	705,000	23.70	497,000	20.05	383,000	16.40	290,000	12.96	211,000	11.22	170,000
4	28.90	686,000	23.25	480,000	19.80	377,000	16.17	285,000	12.82	207,000	11.10	168,000
6	28.40	667,000	22.90	470,000	19.45	366,000	15.90	278,000	12.70	204,000	10.96	166,000
8	27.90	648,000	22.50	458,000	19.10	358,000	15.65	271,000	12.50	200,000	10.80	161,000
10	27.38	629,000	22.10	445,000	18.75	350,000	15.30	264,000	12.30	195,000	10.68	159,000
N	26.90	611,000	21.75	436,000	18.42	339,000	15.00	256,000	12.10	191,000	10.56	156,000
2	26.50	596,000	21.40	423,000	18.18	334,000	14.78	252,000	11.96	189,000	10.44	152,000
4	25.95	578,000	21.15	417,000	17.80	324,000	14.43	243,000	11.80	184,000	10.35	152,000
6	25.50	560,000	20.80	406,000	17.50	316,000	14.18	238,000	11.70	182,000	10.25	147,000
8	25.00	542,000	20.50	397,000	17.23	309,000	13.95	234,000	11.60	180,000	10.18	147,000
10	24.55	528,000	20.30	391,000	16.92	302,000	13.62	225,000	11.45	175,000	10.10	145,000
M	24.10	510,000	20.20	388,000	16.70	297,000	13.18	216,000	11.38	175,000	10.00	143,000

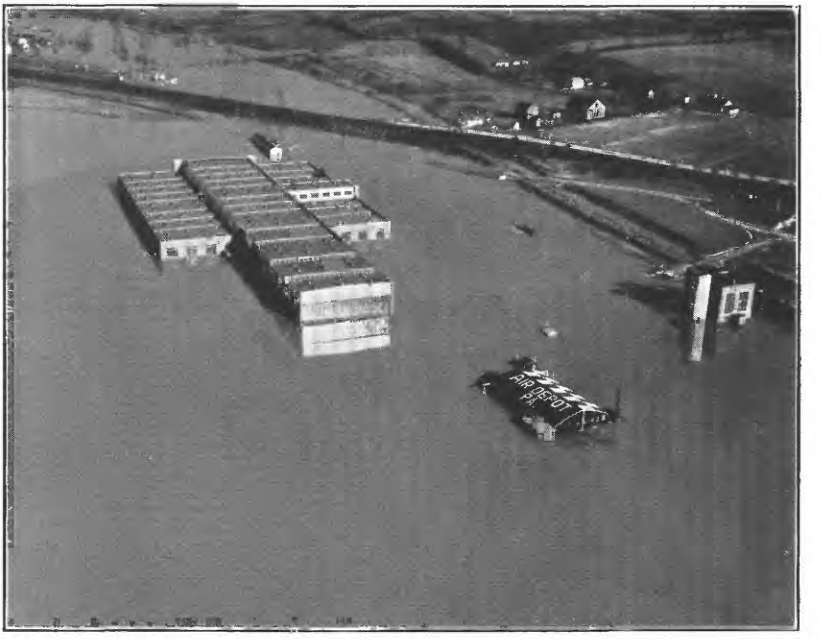
*Mean for the day.

A. VIEW ON MARCH 20, 1936, LOOKING DOWN THE SUSQUEHANNA RIVER AT SUNBURY, PA.

At the time of the crest of the flood the water was about 4 feet higher than shown and inundated over three-quarters of the city. Courtesy of 28th Division Aviation, Pennsylvania National Guard.

B. VIEW ON MARCH 20, 1936, LOOKING DOWN THE SUSQUEHANNA RIVER AT MONTGOMERY, PA.

The approach and six of the nine spans of the highway bridge had to be replaced. Courtesy of 28th Division Aviation, Pennsylvania National Guard,



A. VIEW ON MARCH 20, 1936, OF ARMY AIR DEPOT AT MIDDLETOWN, PA., INUNDATED BY FLOOD WATER FROM THE SUSQUEHANNA RIVER.

Courtesy of 28th Division Aviation, Pennsylvania National Guard.

B. VIEW ON MARCH 18, 1936, OF A PART OF CLEARFIELD, PA., ON THE WEST BRANCH OF THE SUSQUEHANNA RIVER.

Courtesy of the Clearfield Progress.

Susquehanna River at Marietta, Pa.

Location.- Lat. 40°3'15", long. 76°31'50", 420 feet above mouth of Chickies Creek and 1 mile downstream from Marietta, Lancaster County. Zero of gage is 200.00 feet above mean sea level.
Drainage area.- 25,990 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 32.5 and 35.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 500,000 second-feet by current-meter measurements (surface velocities); extended on basis of channel studies. Affected by ice Feb. 1 to Mar. 6.
Maxima.- 1936: Discharge, 787,000 second-feet 10 p.m. Mar. 19 (gage height, 60.73 feet).
1931-35: Discharge, 296,000 second-feet (revised) Aug. 25, 1933 (gage height, 49.44 feet).
1889-1935: Maximum discharge known, 700,000 second-feet June 2, 1889 (gage height, 58.3 feet, revised, from flood mark).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	19,000	78,000	90,200	11	13,500	132,000	103,000	21	16,000	514,000	51,500
2	20,000	87,500	81,300	12	12,500	308,000	99,500	22	14,500	382,000	47,400
3	17,000	84,500	68,800	13	13,500	457,000	95,700	23	14,000	280,000	43,500
4	17,500	88,500	73,700	14	13,000	402,000	93,800	24	14,000	203,000	41,000
5	17,000	85,500	72,900	15	13,000	292,000	95,700	25	13,500	162,000	39,200
6	16,500	86,500	92,600	16	14,500	212,000	92,000	26	17,500	140,000	36,200
7	15,500	100,000	125,000	17	15,500	211,000	81,300	27	25,000	144,000	32,900
8	15,000	148,000	126,000	18	16,500	396,000	73,300	28	38,000	150,000	30,900
9	15,000	97,900	120,000	19	17,000	693,000	64,900	29	54,500	135,000	29,000
10	14,000	101,000	109,000	20	17,500	700,000	57,300	30		126,000	27,100
								31		107,000	
Mean monthly discharge, in second-feet									17,930	229,100	73,160
Run-off, in inches									0.74	10.16	3.14

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	43.15	139,000	41.48	103,000	41.11	95,700	41.90	111,000	45.66	198,000	53.95	443,000
4	46.60	220,000	41.35	101,000	41.12	95,700	42.00	113,000	46.51	218,000	54.30	453,000
6	46.55	220,000	41.27	99,500	41.18	97,600	42.07	116,000	47.38	241,000	54.47	460,000
8	45.73	198,000	41.16	97,600	41.20	97,600	42.14	116,000	48.10	260,000	54.60	464,000
10	44.65	171,000	41.12	95,700	41.23	97,600	42.27	120,000	48.95	284,000	54.70	468,000
N	43.88	155,000	41.11	95,700	41.30	99,500	42.42	122,000	50.11	316,000	54.74	468,000
2	43.20	139,000	41.10	95,700	41.37	101,000	42.70	128,000	50.82	337,000	54.72	468,000
4	42.73	128,000	41.10	95,700	41.41	101,000	43.02	135,000	51.54	359,000	54.69	468,000
6	42.37	122,000	41.07	95,700	41.50	103,000	43.65	148,000	52.14	378,000	54.60	464,000
8	42.04	113,000	41.07	95,700	41.61	105,000	43.94	155,000	52.60	395,000	54.50	460,000
10	41.82	109,000	41.09	95,700	41.67	107,000	44.40	166,000	53.12	412,000	54.37	457,000
M	41.61	105,000	41.10	95,700	41.79	109,000	45.08	183,000	53.52	425,000	54.25	450,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	54.08	446,000	50.79	337,000	47.15	236,000	45.38	190,000	49.08	287,000	57.53	575,000
4	53.89	439,000	50.47	328,000	46.90	228,000	45.35	190,000	49.70	304,000	58.22	603,000
6	53.67	432,000	50.17	319,000	46.71	223,000	45.34	188,000	50.34	322,000	58.78	628,000
8	53.42	422,000	49.85	307,000	46.51	218,000	45.40	190,000	51.00	343,000	59.38	654,000
10	53.13	412,000	49.52	299,000	46.34	213,000	45.52	193,000	51.65	362,000	59.83	680,000
N	52.86	405,000	49.20	290,000	46.18	210,000	45.74	198,000	52.32	385,000	60.28	705,000
2	52.59	395,000	48.86	282,000	46.04	205,000	46.03	205,000	53.06	412,000	60.50	732,000
4	52.32	385,000	48.56	273,000	45.89	203,000	46.37	215,000	53.80	436,000	60.68	757,000
6	52.02	375,000	48.25	262,000	45.77	200,000	46.80	225,000	54.61	464,000	60.70	775,000
8	51.70	365,000	47.97	257,000	45.67	198,000	47.27	238,000	55.33	490,000	60.70	785,000
10	51.40	356,000	47.66	249,000	45.55	195,000	47.85	252,000	56.09	520,000	60.73	787,000
M	51.10	346,000	47.38	241,000	45.45	190,000	48.46	270,000	56.77	547,000	60.68	785,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	60.50	778,000	56.28	582,000	52.65	426,000	49.69	319,000	46.74	226,000	44.74	174,000
4	60.22	763,000	55.95	568,000	52.40	418,000	49.47	312,000	46.51	221,000	44.62	172,000
6	60.00	754,000	55.55	551,000	52.19	410,000	49.23	302,000	46.31	215,000	44.52	169,000
8	59.72	739,000	55.30	538,000	51.91	398,000	49.01	296,000	46.11	210,000	44.39	167,000
10	59.45	725,000	55.01	525,000	51.70	391,000	48.70	286,000	45.91	205,000	44.29	165,000
N	58.98	706,000	54.69	512,000	51.47	383,000	48.46	280,000	45.75	202,000	44.19	162,000
2	58.58	687,000	54.37	499,000	51.23	372,000	48.21	270,000	45.57	197,000	44.09	160,000
4	58.18	668,000	54.07	487,000	50.99	365,000	47.99	264,000	45.40	192,000	43.98	158,000
6	57.80	650,000	53.79	474,000	50.73	354,000	47.71	255,000	45.27	189,000	43.90	155,000
8	57.45	631,000	53.50	462,000	50.43	343,000	47.45	246,000	45.14	184,000	43.79	153,000
10	57.02	613,000	53.23	450,000	50.20	336,000	47.20	240,000	44.97	182,000	43.69	151,000
M	56.68	600,000	52.94	438,000	49.95	329,000	46.99	235,000	44.85	177,000	43.60	148,000

155158 O—37——15

Unadilla River near New Berlin, N. Y.

Location.- Lat. 42°38'35", long. 75°19'25", above highway bridge a quarter of a mile below mouth of Shawler Brook and 1½ miles north of New Berlin, Chenango County.
Drainage area.- 196 square miles.
Gage-height record.- Water-stage recorder graph except for periods 1 p.m. Mar. 12 to 11:30 a.m. Mar. 15 and 11 p.m. Mar. 21 to 10:30 a.m. Mar. 23, when a graph was used based on occasional gage readings, peak-stage observations, and shape of water-stage recorder graph before and after missing periods.
Stage-discharge relation.- Affected by ice Feb. 1-11, 18-23, Mar. 1, 2, 6-8. Defined by current-meter measurements below 2,310 second-feet; extended to peak stage logarithmically based on slope-area determination made downstream and adjusted on drainage-area basis.
Maxima.- 1936: Discharge, 6,320 second-feet 11 a.m. Mar. 18 (gage height, 9.80 feet).
1924-35: Discharge, 5,590 second-feet Mar. 15, 1929 (gage height, 8.8 feet, former site).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	130	220	655	11	110	931	808	21	95	2,290	557
2	130	200	678	12	113	3,660	855	22	95	2,070	596
3	120	195	1,060	13	115	4,130	1,130	23	95	1,670	470
4	130	193	785	14	113	2,530	955	24	96	1,340	411
5	130	279	655	15	109	1,900	930	25	96	1,280	361
6	130	300	1,080	16	109	3,080	880	26	105	1,190	332
7	120	260	1,160	17	100	4,700	740	27	190	1,150	298
8	120	240	905	18	100	5,980	695	28	220	1,310	274
9	110	296	808	19	100	4,560	635	29	237	930	274
10	110	490	905	20	100	2,880	557	30		740	292
								31		762	
Mean monthly discharge, in second-feet									122	1,670	691
Run-off, in inches									0.67	9.82	3.94

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.66	-	-	-	-	-	-	-	6.66	2,340	-	-
4	2.68	-	-	-	-	-	3.81	633	7.05	2,650	8.75	4,600
6	2.74	-	2.65	259	3.30	454	-	-	7.37	2,940	-	-
8	2.78	-	-	-	-	-	3.88	659	7.55	3,120	8.60	4,390
10	2.69	-	-	-	-	-	-	-	7.89	3,490	-	-
N	2.61	*240	2.70	273	3.37	477	3.99	702	8.21	3,870	8.43	4,160
2	-	-	-	-	-	-	4.16	771	8.41	4,130	-	-
4	-	-	-	-	-	-	4.54	930	8.55	4,320	8.25	3,920
6	2.61	-	2.90	331	3.52	528	5.07	1,180	8.65	4,460	-	-
8	-	-	-	-	-	-	5.55	1,420	8.74	4,590	8.05	3,680
10	-	-	-	-	-	-	6.00	1,650	8.78	4,640	-	-
M	2.61	-	3.15	406	3.74	606	6.47	1,920	8.80	4,670	7.82	3,410
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	6.78	2,430	8.39	4,110	9.41	5,640	9.27	5,400
4	7.55	3,120	5.82	1,740	6.82	2,470	8.35	4,060	9.41	5,640	9.17	5,240
6	-	-	-	-	6.86	2,500	8.30	3,990	9.62	6,000	9.04	5,030
8	7.25	2,840	5.69	1,660	6.96	2,580	8.26	3,940	9.73	6,190	8.97	4,920
10	-	-	5.66	1,650	7.15	2,740	8.32	4,020	9.78	6,280	8.82	4,700
N	6.86	2,500	5.72	1,680	7.44	3,010	8.43	4,160	9.78	6,280	8.72	4,560
2	-	-	5.82	1,740	7.65	3,220	8.77	4,630	9.76	6,250	8.64	4,450
4	6.47	2,190	6.04	1,890	7.80	3,390	9.12	5,160	9.71	6,160	8.52	4,280
6	-	-	6.35	2,100	7.98	3,600	9.41	5,640	9.63	6,010	8.39	4,110
8	6.19	1,990	6.63	2,310	8.12	3,760	9.52	5,820	9.55	5,880	8.26	3,940
10	-	-	6.71	2,380	8.29	3,980	9.53	5,840	9.46	5,720	8.10	3,740
M	5.96	1,830	6.76	2,420	8.41	4,130	9.47	5,740	9.34	5,520	7.95	3,560
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	7.70	3,280	6.65	2,330	-	-	-	-	-	-	-	-
6	-	-	6.64	2,320	6.42	2,150	5.88	1,780	5.23	1,390	5.04	1,270
8	7.43	3,000	6.64	2,320	-	-	-	-	-	-	-	-
10	-	-	6.66	2,340	-	-	-	-	-	-	-	-
N	7.22	2,810	6.66	2,340	6.30	2,070	5.72	1,680	5.12	1,320	5.07	1,290
2	-	-	6.65	2,330	-	-	-	-	-	-	-	-
4	7.06	2,660	6.62	2,310	-	-	-	-	-	-	-	-
6	-	-	6.61	2,300	6.19	1,990	5.54	1,570	5.06	1,290	5.09	1,300
8	6.91	2,540	6.58	2,270	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-
M	6.76	2,420	6.52	2,230	6.06	1,900	5.37	1,470	5.03	1,270	5.10	1,310

Supplemental records.- Mar. 17, 12:30 a.m., 8.42 ft., 4,150 sec.-ft. Mar. 17, 9:30 p.m., 9.54 ft., 5,860 sec.-ft. Mar. 18, 3:30 a.m., 9.39 ft., 5,600 sec.-ft.; 11 a.m., 9.80 ft., 6,320 sec.-ft.

*Mean for the day.

Chenango River near Chenango Forks, N. Y.

Location.- Lat. 42°13'5", long. 75°50'55", 1½ miles below Chenango Forks, Broome County, and confluence with Tioughnioga River.
Drainage area.- 1,492 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined by current-meter measurements below 31,500 second-feet; extended on basis of slope-area determination of peak discharge.
Maxima.- 1936: Discharge, 44,100 second-feet 1 p.m. Mar. 18 (gage height, 15.26 feet).
1912-35: Discharge, 82,800 second-feet July 8, 1935, from extension of rating curve (gage height, 20.3 feet, from graph based on gage readings).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	950	1,800	5,460	11	850	12,000	5,960	21	800	19,400	3,950
2	950	1,500	5,270	12	850	28,000	5,830	22	750	16,900	4,560
3	900	1,400	7,400	13	850	26,200	8,140	23	750	12,500	3,700
4	950	1,300	5,490	14	850	15,000	7,060	24	750	9,900	3,170
5	950	1,900	4,500	15	800	12,300	7,060	25	750	10,500	2,800
6	950	2,400	6,570	16	850	20,500	6,220	26	900	10,000	2,560
7	900	2,000	8,850	17	900	28,100	5,330	27	1,400	9,300	2,320
8	900	1,900	7,060	18	900	40,700	4,890	28	2,000	9,820	2,080
9	900	2,000	6,220	19	850	35,800	4,590	29	2,000	7,500	2,030
10	900	3,600	6,360	20	800	25,400	4,060	30		6,090	2,240
								31		6,220	
Mean monthly discharge, in second-feet									960	12,320	5,058
Run-off, in inches									0.69	9.52	3.78

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	5.52		-	-	7.59	-	11.11	22,800	12.81	30,900
4	-	-	-		-	-	7.71	-	11.58	24,300	12.68	30,400
6	5.55	-	-		6.55	-	7.89	8,560	12.22	25,600	12.44	29,500
8	-	-	-		-	-	7.99	-	12.53	26,800	12.16	28,300
10	-	-	-	-	-	-	8.13	-	12.77	27,900	11.90	27,300
N	5.42	*1,900	5.52	*2,000	6.87	*3,600	8.23	11,300	12.37	28,900	11.61	26,100
2	-	-	-	-	-	-	8.28	-	12.54	29,900	11.35	25,100
4	-	-	-	-	-	-	8.76	-	12.65	30,300	11.10	24,100
6	-	-	5.71	-	7.18	-	12.49	15,100	12.78	30,800	10.94	23,500
8	5.42	-	-	-	-	-	11.03	-	12.89	31,300	10.66	22,300
10	-	-	-	-	-	-	10.16	-	12.94	31,500	10.28	20,800
M	5.50	-	6.12	-	7.54	-	10.48	20,800	12.91	31,300	9.98	19,600
	March 14		March 15		March 16		March 17		March 18		March 19	
2	9.71	18,500	8.25	12,700	9.06	15,900	11.80	26,900	13.36	33,500	14.59	40,000
4	9.53	17,800	8.14	12,300	9.19	16,500	11.86	27,100	13.78	35,600	14.42	39,000
6	9.28	16,800	8.00	11,700	9.29	16,900	11.87	27,200	14.38	38,800	14.27	38,100
8	9.01	15,700	7.95	11,600	9.47	17,600	11.85	27,100	14.90	41,900	14.11	37,200
10	8.78	14,800	7.90	11,400	9.86	19,100	11.81	26,900	15.14	43,300	13.98	36,600
N	8.57	14,000	7.70	10,800	10.16	20,300	11.80	26,900	15.22	43,800	13.84	35,900
2	8.45	13,500	7.68	10,700	10.47	21,600	11.83	27,000	15.24	43,900	13.67	35,000
4	8.41	13,300	8.17	12,400	10.72	22,600	11.97	27,600	15.18	43,600	13.48	34,100
6	8.37	13,200	8.18	12,400	11.00	23,700	12.20	28,500	15.13	43,300	13.30	33,200
8	8.34	13,100	8.38	13,200	11.31	24,900	12.50	29,700	15.05	42,800	13.10	32,200
10	8.40	13,300	8.64	14,300	11.57	26,000	12.80	30,900	14.95	42,200	12.92	31,400
M	8.32	13,000	8.85	15,100	11.74	26,700	13.10	32,200	14.78	41,200	12.70	30,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	12.50	29,700	10.07	20,000	9.86	19,100	8.68	14,400	-	-	7.38	9,840
4	12.29	28,900	9.88	19,200	9.72	18,600	8.58	14,000	7.58	10,400	7.50	10,200
6	12.07	28,000	9.77	18,800	9.60	18,100	8.47	13,600	-	-	7.59	10,500
8	11.85	27,100	9.72	18,600	9.49	17,700	8.33	13,000	7.47	10,100	7.63	10,600
10	11.60	26,100	9.76	18,700	9.39	17,300	8.23	12,600	-	-	7.66	10,700
N	11.37	25,200	9.88	19,200	9.29	16,900	8.12	12,200	7.36	9,780	7.66	10,700
2	11.15	24,300	9.98	19,600	9.18	16,400	8.04	11,900	-	-	-	-
4	10.96	23,500	10.04	19,900	9.05	15,900	7.94	11,500	7.27	9,510	-	-
6	10.77	22,800	10.04	19,900	8.97	15,600	7.88	11,300	-	-	7.62	10,600
8	10.59	22,100	10.02	19,800	8.89	15,300	7.81	11,100	7.24	9,420	-	-
10	10.41	21,300	9.98	19,600	8.85	15,100	7.76	11,000	-	-	-	-
M	10.25	20,700	9.93	19,400	8.78	14,800	7.68	10,700	7.27	9,510	7.62	10,600

Supplemental records.- Mar. 11, 6:40 p.m., 9.27 ft.; 9 p.m., 10.11 ft. Mar. 12, 11:30 a.m., 13.03 ft.
*Mean for the day.

Tioughnioga River at Itaska, N. Y.

Location.- Lat. 42°17'55", long. 75°54'30", at Itaska, Broome County, 3 3/4 miles below Whitney Point and mouth of Otselic River and 6 miles above confluence with Chenango River.
Drainage area.- 735 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 8,310 second-feet; extended logarithmically; verified by comparing flood flow with that of Chenango River near Chenango Forks, where slope-area determination was made.
Maxima.- 1936: Discharge, 23,500 second-feet 11:30 a.m. Mar. 18 (gage height, 11.91 feet).
1929-35: Discharge, 44,700 second-feet July 8, 1935, from extension of rating curve (gage height, 16.61 feet, from graph based on gage readings).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	650	950	2,810	11	600	5,000	2,830	21	500	10,200	2,000
2	650	850	2,960	12	550	17,200	2,780	22	500	8,880	2,300
3	650	800	3,880	13	550	14,300	3,960	23	500	6,460	1,810
4	650	750	2,650	14	550	6,940	3,240	24	500	5,050	1,580
5	650	1,000	2,260	15	600	5,760	3,490	25	500	6,340	1,370
6	600	1,200	3,550	16	650	11,500	2,910	26	600	5,890	1,270
7	600	1,000	4,220	17	650	14,500	2,580	27	900	5,290	1,150
8	600	900	3,340	18	600	22,100	2,370	28	1,100	5,670	1,040
9	600	950	2,980	19	550	18,700	2,190	29	1,000	3,960	1,100
10	600	1,600	3,050	20	550	12,600	1,960	30		3,190	1,280
								31		3,340	
Mean monthly discharge, in second-feet									628	6,544	2,497
Run-off, in inches									0.92	10.26	3.79

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.84	-	3.78	-	4.42	1,110	5.38	-	8.90	13,900	10.28	18,000
4	-	-	-	-	4.53	-	5.58	-	9.62	16,000	10.09	17,500
6	3.74	-	3.76	-	4.55	-	5.70	2,900	9.80	16,600	9.85	16,700
8	-	-	3.75	-	4.80	-	5.79	-	9.95	17,000	9.56	15,800
10	3.71	-	-	-	4.86	-	5.98	-	10.23	17,900	9.30	15,100
N	3.69	*850	3.78	*950	4.89	1,520	6.02	3,700	10.25	18,000	9.03	14,300
2	-	-	3.80	-	4.95	-	6.40	-	10.23	17,900	8.76	13,500
4	3.59	-	3.87	-	4.98	-	8.11	-	10.30	18,100	8.57	13,000
6	3.60	-	-	-	5.02	-	9.61	6,120	10.40	18,400	8.39	12,500
8	-	-	-	-	5.21	-	7.64	10,400	10.43	18,500	7.93	11,200
10	3.75	-	-	-	5.22	-	7.85	10,900	10.42	18,500	7.61	10,300
M	3.78	-	4.27	-	5.28	2,280	8.35	12,300	10.38	18,400	7.40	9,690
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.22	9,200	-	-	7.09	8,850	8.98	14,200	10.18	17,700	11.36	21,600
4	7.06	8,770	5.77	5,610	7.23	9,200	8.90	13,900	10.70	19,400	11.15	20,900
6	6.80	8,070	5.72	5,500	7.37	9,610	8.83	13,700	11.42	21,800	11.00	20,400
8	6.52	7,350	5.65	5,360	7.52	10,000	8.76	13,500	11.83	23,200	10.84	19,900
10	6.23	6,640	5.53	5,110	7.81	10,800	8.72	13,400	11.89	23,500	10.70	19,400
N	6.03	6,180	5.50	5,050	8.09	11,600	8.72	13,400	11.91	23,500	10.48	18,700
2	5.92	5,930	5.48	5,010	8.30	12,200	8.80	13,600	11.87	23,400	10.31	18,100
4	5.87	5,820	5.68	5,420	8.50	12,800	9.01	14,200	11.83	23,200	10.12	17,600
6	5.84	5,760	5.90	5,890	8.71	13,400	9.33	15,200	11.83	23,200	9.94	17,000
8	6.03	6,180	6.22	6,620	8.89	13,900	9.71	16,300	11.81	23,200	9.77	16,500
10	5.87	5,820	6.55	7,420	9.01	14,200	9.93	17,000	11.71	22,800	9.58	15,900
M	5.77	5,610	6.84	8,180	9.04	14,300	10.00	17,200	11.54	22,200	9.42	15,400
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	6.66	7,710	-	-	5.83	5,740
4	9.08	14,400	7.33	9,500	7.47	9,880	-	-	5.63	5,310	6.00	6,110
6	-	-	7.25	9,280	-	-	6.43	7,120	-	-	6.10	6,340
8	8.72	13,400	7.31	9,450	7.24	9,260	-	-	5.52	5,090	6.16	6,480
10	-	-	7.54	10,100	-	-	6.18	6,520	-	-	6.17	6,500
N	8.36	12,400	7.78	10,700	7.03	8,690	6.08	6,290	5.44	4,930	6.15	6,460
2	-	-	7.86	11,000	-	-	-	-	5.40	4,850	6.12	6,390
4	8.07	11,600	7.83	10,900	6.85	8,200	5.93	5,960	5.38	4,810	6.10	6,340
6	-	-	7.83	10,900	6.79	8,040	-	-	5.38	4,810	6.12	6,390
8	7.84	10,900	7.84	10,900	6.78	8,020	5.82	5,710	5.40	4,850	6.16	6,480
10	-	-	7.81	10,800	6.78	8,020	-	-	5.45	4,950	6.19	6,550
M	7.59	10,200	7.72	10,600	6.74	7,910	5.73	5,520	5.60	5,250	6.20	6,570

Supplemental records.- Mar. 10, 5 a.m., 4.45 ft.; 5 p.m., 4.86 ft. Mar. 11, 1 p.m., 6.05 ft.; 1:40 p.m., 5.16 ft.; 6:40 p.m., 10.01 ft.; 7:10 p.m., 6.78 ft.; 8:10 p.m., 7.72 ft. Mar. 13, 5 p.m., 8.54 ft., 12,900 sec.-ft. Mar. 14, 7 p.m., 5.84 ft., 5,760 sec.-ft.; 8:30 p.m., 6.09 ft., 6,320 sec.-ft.; 11 p.m., 5.78 ft., 5,630 sec.-ft. Mar. 18, 11:30 a.m., 11.91 ft., 23,500 sec.-ft. Mar. 26, noon, 5.94 ft., 5,980 sec.-ft.
*Mean for the day.

Owego Creek near Owego, N. Y.

Location.- Lat. 42°7'40", long. 76°16'15", at highway bridge half a mile above confluence with Catatonk Creek and 1½ miles north of Owego, Tioga County.
Drainage area.- 186 square miles.
Gage-height record.- Graph based on twice-daily readings and flood mark.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 10. Defined by current-meter measurements below 2,100 second-feet; extended logarithmically to peak stage on basis of slope-area determinations of peak flow of July 1935 and March 1936 floods.
Maxima.- 1936: Discharge, 12,200 second-feet 4 a.m. Mar. 18, by slope-area determination (gage height, 9.0 feet, from flood marks).
1930-35: Discharge, 23,500 second-feet July 8, 1935, by slope-area determination (gage height, 10.50 feet).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	70	280	571	11	60	2,940	520	21	60	1,880	440
2	70	240	770	12	60	6,820	910	22	55	1,680	710
3	70	220	710	13	60	2,200	1,900	23	55	1,160	520
4	70	220	500	14	60	1,520	1,590	24	55	1,020	367
5	70	280	460	15	65	1,320	1,160	25	70	1,460	296
6	65	320	624	16	70	3,080	800	26	140	1,320	237
7	65	280	624	17	70	3,970	624	27	280	1,240	211
8	65	260	597	18	70	9,130	500	28	360	988	187
9	65	280	545	19	65	4,290	460	29	340	710	220
10	60	650	473	20	60	1,970	420	30		681	280
								31		830	
Mean monthly discharge, in second-feet									94.0	1,717	608
Run-off, in inches									0.54	10.64	3.65

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	3.99	1,520	7.01	6,010	-	-
4	-	-	-	-	3.30	350	4.18	1,730	7.47	7,190	5.13	2,610
6	-	-	-	-	-	-	4.37	1,940	7.89	8,390	-	-
8	2.37	-	2.33	-	3.44	438	4.57	2,190	8.18	9,280	4.87	2,280
10	-	-	-	-	-	-	4.76	2,440	8.25	9,500	-	-
N	-	*280	-	*260	3.49	579	4.95	2,720	8.08	8,970	4.69	2,080
2	-	-	-	-	-	-	5.17	3,050	7.70	7,830	-	-
4	-	-	-	-	3.52	775	5.39	3,400	7.18	6,430	4.59	1,970
6	2.36	-	2.29	-	-	-	5.61	3,760	6.75	5,420	-	-
8	-	-	-	-	3.64	990	5.90	4,230	6.27	4,410	4.50	1,880
10	-	-	-	-	-	-	6.28	4,880	5.88	3,710	-	-
M	-	-	-	-	3.83	1,330	6.69	5,610	5.56	3,200	4.47	1,850
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	4.42	1,800	5.39	2,960	8.58	10,600	7.00	5,990
4	4.43	1,810	-	-	4.76	2,160	5.31	2,840	9.00	12,200	6.88	5,710
6	-	-	3.83	1,260	5.00	2,440	5.27	2,790	8.78	11,300	6.73	5,380
8	4.36	1,740	-	-	5.30	2,830	5.25	2,760	8.55	10,500	6.59	5,070
10	4.25	1,640	-	-	5.59	3,240	5.27	2,790	8.35	9,820	6.40	4,670
N	4.06	1,460	3.82	1,260	5.87	3,690	5.35	2,900	8.18	9,280	6.19	4,260
2	3.95	1,360	-	-	6.02	3,950	5.67	3,360	7.98	8,660	5.97	3,860
4	3.90	1,320	3.81	1,250	5.98	3,880	6.00	3,910	7.79	8,090	5.75	3,490
6	3.87	1,300	-	-	5.87	3,690	6.39	4,650	7.62	7,610	5.54	3,170
8	3.86	1,290	3.83	1,260	5.75	3,490	6.91	5,780	7.48	7,220	5.38	2,940
10	-	-	-	-	5.62	3,290	7.40	7,000	7.31	6,770	5.20	2,700
M	3.84	1,270	4.00	1,410	5.50	3,110	7.89	8,390	7.16	6,380	5.09	2,560
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	3.78	1,220
4	4.84	2,250	4.42	1,800	-	-	-	-	-	-	3.92	1,340
6	-	-	-	-	4.40	1,780	3.86	1,290	3.53	1,040	4.09	1,490
8	4.64	2,020	4.49	1,870	-	-	-	-	-	-	4.17	1,560
10	-	-	-	-	-	-	-	-	-	-	4.18	1,570
N	4.49	1,870	4.54	1,920	4.27	1,650	3.70	1,160	3.50	1,020	4.17	1,560
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.41	1,790	4.58	1,960	-	-	-	-	-	-	-	-
6	-	-	-	-	4.12	1,520	3.57	1,070	3.44	981	4.10	1,500
8	4.37	1,750	4.59	1,970	-	-	-	-	3.45	988	-	-
10	-	-	-	-	-	-	-	-	3.52	1,030	-	-
M	4.37	1,750	4.57	1,950	3.99	1,400	3.52	1,030	3.63	1,110	4.02	1,430

*Mean for the day.

Tioga River at Lindley, N. Y.

Location.- Lat. 42°1'45", long. 77°7'55", on highway bridge at Lindley, Steuben County, about 6 miles above mouth of Canisteo River.
Drainage area.- 770 square miles.
Gage-height record.- Graph based on gage readings, flood marks, and comparison with record at Erwins. Gage read twice daily except Mar. 11, 16, 17, 19, when it was read more often. Observer not able to reach gage Mar. 12, 18, but high-water marks were noted.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 5. Defined by current-meter measurements below 6,580 second-feet; extended logarithmically to peak stage. Flood discharge compared with records at Erwins and at other stations in Chemung Basin.
Maxima.- 1936: Discharge, 41,200 second-feet about 7:30 a.m. Mar. 12 (gage height, 19.2 feet, from flood marks).
1930-35: Discharge, about 15,800 second-feet Apr. 1, 1932, and Aug. 24, 1933 (gage height, 13.8 feet).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	140	1,500	2,220	11	110	8,310	2,220	21	90	6,970	870
2	140	1,100	3,030	12	100	30,000	2,240	22	85	4,940	1,020
3	130	950	2,480	13	100	7,700	3,280	23	80	4,320	770
4	130	900	1,660	14	110	3,900	2,100	24	80	5,570	695
5	130	4,400	1,540	15	120	4,970	1,900	25	85	7,040	550
6	120	2,370	2,650	16	130	12,800	1,520	26	500	6,450	515
7	120	1,420	2,230	17	130	18,700	1,250	27	1,300	5,480	480
8	120	1,400	1,710	18	120	32,700	1,130	28	2,400	5,120	415
9	120	1,320	1,610	19	110	19,100	1,050	29	1,800	3,240	506
10	110	2,660	1,740	20	95	10,400	930	30		2,800	480
								31		3,330	
Mean monthly discharge, in second-feet									304	7,157	1,493
Run-off, in inches									0.43	10.71	2.16

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 9		March 10		March 11		March 12		March 13		March 14	
2	4.94	1,290	6.10	2,460	8.30	5,470	16.00	24,400	11.70	11,600	7.67	4,520
4	4.92	1,270	6.38	2,800	8.50	5,790	18.40	36,400	11.00	10,200	7.47	4,240
6	4.90	1,250	6.43	2,860	8.43	5,680	19.00	40,000	10.50	9,290	7.29	3,990
8	4.87	1,230	6.29	2,690	8.40	5,630	19.18	41,100	10.00	8,340	7.16	3,800
10	4.87	1,230	6.12	2,480	8.55	5,870	19.00	40,000	9.60	7,620	7.07	3,680
N	4.86	1,220	6.03	2,380	8.78	6,240	18.70	38,200	9.15	6,840	6.99	3,580
2	4.86	1,220	5.99	2,340	9.24	7,000	18.10	34,600	8.93	6,480	6.97	3,580
4	4.87	1,230	6.00	2,350	10.05	8,440	17.20	29,700	8.77	6,220	6.98	3,560
6	4.92	1,270	6.10	2,460	10.95	10,100	16.15	25,000	8.64	6,010	7.04	3,640
8	5.00	1,340	6.30	2,700	12.10	12,400	14.70	19,300	8.40	5,630	7.17	3,820
10	5.30	1,620	6.75	3,260	13.35	15,400	13.40	15,500	8.15	5,240	7.28	3,970
M	5.70	2,020	7.55	4,350	14.60	19,000	12.45	13,100	7.87	4,820	7.39	4,130
	March 15		March 16		March 17		March 18		March 19		March 20	
2	7.44	4,200	11.09	10,400	13.00	14,500	18.40	36,400	13.80	16,600	13.50	15,800
4	7.43	4,180	10.98	10,200	12.74	13,800	18.70	38,200	13.20	15,000	12.60	13,500
6	7.32	4,030	10.79	9,840	12.66	13,600	18.85	39,100	12.97	14,400	11.70	11,600
8	7.19	3,850	10.87	9,990	12.70	13,800	18.83	39,000	13.13	14,800	11.06	10,400
10	7.07	3,680	11.23	10,700	12.80	14,000	18.70	38,200	13.40	15,500	10.50	9,290
N	7.02	3,620	11.83	11,900	13.18	15,000	18.40	36,400	14.13	17,600	9.90	8,160
2	7.20	3,860	12.60	13,500	14.00	17,200	18.05	34,300	15.05	20,600	9.80	7,980
4	7.73	4,600	13.20	15,000	14.90	20,000	17.50	31,200	15.90	24,000	9.94	8,230
6	8.38	5,600	13.62	16,100	15.70	23,200	16.90	28,200	16.30	25,600	10.09	8,510
8	9.05	6,680	13.98	17,100	16.40	26,000	16.00	24,400	16.10	24,800	10.29	8,890
10	10.00	8,340	13.85	16,800	17.05	29,000	15.15	21,000	15.35	21,800	10.43	9,160
M	10.78	9,820	13.40	15,500	17.80	32,800	14.40	18,400	14.55	18,600	10.23	8,780
	March 21		March 22		March 23		March 24		March 25		March 26	
2	10.00	8,340	8.30	5,470	8.18	5,280	7.50	4,280	9.44	7,340	9.88	8,120
4	9.80	7,980	8.05	5,080	8.02	5,040	7.76	4,650	9.47	7,390	9.80	7,980
6	9.63	7,670	7.82	4,740	7.86	4,800	8.00	5,010	9.35	7,180	9.58	7,580
8	9.50	7,440	7.67	4,520	7.70	4,560	8.28	5,440	9.23	6,980	9.30	7,100
10	9.30	7,100	7.55	4,350	7.56	4,360	8.35	5,550	9.13	6,810	9.07	6,710
N	9.10	6,760	7.55	4,350	7.40	4,140	8.40	5,630	9.07	6,710	8.86	6,370
2	8.86	6,370	7.66	4,500	7.27	3,960	8.43	5,680	9.04	6,660	8.65	6,030
4	8.70	6,110	7.84	4,770	7.15	3,790	8.50	5,790	9.08	6,730	8.43	5,680
6	8.70	6,110	8.00	5,010	7.09	3,710	8.68	6,080	9.14	6,830	8.23	5,360
8	8.77	6,220	8.20	5,310	7.10	3,720	8.88	6,400	9.26	7,030	8.09	5,140
10	8.75	6,190	8.29	5,450	7.16	3,800	9.10	6,760	9.42	7,300	7.99	5,000
M	8.59	5,930	8.29	5,450	7.30	4,000	9.28	7,070	9.75	7,890	7.90	4,860

Supplemental records.- Mar. 12, about 7:30 a.m., 19.2 ft., 41,200 sec.-ft.

Tioga River near Erwins, N. Y.

Location.- Lat. 42°7'15", long. 77°7'45", at highway bridge half a mile below Erwins, Steuben County, and 3 miles above confluence with Cohocton River.
Drainage area.- 1,370 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 6. Defined by current-meter measurements below 13,600 second-feet; extended logarithmically to peak stage; verified by comparing peak discharge with determinations at other stations in Chemung River Basin.
Maxima.- 1936: Discharge, 60,000 second-feet 8:30 a.m. Mar. 12 (gage height, 18.66 feet).
1918-35: Discharge, 46,900 second-feet July 8, 1935 (gage height, 16.44 feet).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	240	2,400	3,970	11	190	17,900	3,700	21	170	11,700	1,420
2	240	1,800	4,530	12	190	49,000	3,940	22	160	7,440	1,890
3	220	1,500	4,320	13	180	13,700	6,120	23	160	7,050	1,390
4	220	1,400	2,840	14	190	6,170	3,910	24	160	9,300	1,150
5	220	7,000	2,550	15	200	8,190	3,620	25	190	17,400	994
6	220	3,800	4,590	16	200	21,500	2,850	26	700	15,300	900
7	200	2,480	4,430	17	220	26,700	2,360	27	2,200	9,470	813
8	200	2,290	3,110	18	200	45,300	1,980	28	4,400	9,080	736
9	200	2,450	2,830	19	190	30,800	1,800	29	3,400	5,870	884
10	190	5,350	2,900	20	180	19,600	1,520	30		4,980	1,010
								31		6,040	
Mean monthly discharge, in second-feet									539	12,030	2,635
Run-off, in inches									0.42	10.12	2.14

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 9		March 10		March 11		March 12		March 13		March 14	
2	3.74	2,210	5.24	4,480	8.20	11,300	16.43	46,900	11.67	23,700	6.80	7,720
4	-	-	5.58	5,100	8.37	11,800	17.57	53,400	10.74	20,000	6.59	7,230
6	3.78	2,260	5.80	5,530	8.58	12,400	18.21	57,300	9.84	16,400	6.35	6,680
8	-	-	5.88	5,690	8.56	12,400	18.64	59,800	9.22	14,300	6.14	6,220
10	-	-	5.83	5,590	8.63	12,600	18.56	59,400	8.72	12,800	5.97	5,870
N	3.72	2,190	5.68	5,290	8.85	13,200	18.18	57,100	8.30	11,600	5.85	5,630
2	3.70	2,160	5.54	5,030	9.17	14,200	17.58	53,500	7.90	10,500	5.77	5,470
4	-	-	5.42	4,810	10.06	17,200	16.85	49,200	7.63	9,800	5.73	5,390
6	3.87	2,380	5.53	5,010	11.72	23,900	16.06	44,800	7.45	9,330	5.75	5,430
8	4.16	2,770	5.81	5,550	12.77	28,400	15.00	39,100	7.30	8,950	5.80	5,530
10	4.57	3,380	6.16	6,270	13.83	33,200	13.90	33,600	7.14	8,550	5.93	5,790
M	4.94	3,970	6.84	7,820	15.07	39,400	12.71	28,100	6.95	8,080	6.07	6,080
	March 15		March 16		March 17		March 18		March 19		March 20	
2	6.21	6,370	10.42	18,700	11.80	24,200	16.00	44,500	12.92	29,100	13.35	31,000
4	6.31	6,590	10.40	18,600	11.50	23,000	16.70	48,400	12.51	27,200	12.46	27,000
6	6.35	6,680	10.28	18,100	11.20	21,800	17.35	52,100	12.17	25,700	11.70	23,800
8	6.31	6,590	10.39	18,600	11.04	21,200	17.49	52,900	11.94	24,800	11.00	21,000
10	6.20	6,350	10.63	19,500	11.07	21,300	17.49	52,900	12.20	25,800	10.35	18,400
N	6.07	6,080	11.03	21,100	11.29	22,200	17.33	52,000	12.68	28,000	9.83	16,400
2	5.94	5,810	11.36	22,400	11.72	23,900	16.80	48,900	13.29	30,800	9.52	15,300
4	6.30	6,570	11.72	23,900	12.45	27,000	16.04	44,700	13.86	33,400	9.15	14,100
6	7.15	8,580	12.00	25,000	13.34	31,000	15.26	40,400	14.30	35,600	9.03	13,700
8	8.40	11,900	12.17	25,700	14.10	34,600	14.62	37,200	14.72	37,700	9.21	14,300
10	9.45	15,100	12.15	25,600	14.68	37,500	13.90	33,600	14.80	38,100	9.40	14,900
M	10.05	17,200	12.03	25,100	15.21	40,200	13.30	30,800	14.32	35,700	9.51	15,300
	March 21		March 22		March 23		March 24		March 25		March 26	
2	9.49	15,200	7.14	8,550	7.38	9,150	6.33	6,640	9.82	16,400	10.90	20,600
4	9.35	14,700	6.95	8,080	7.22	8,750	6.51	7,040	9.92	16,700	10.80	20,200
6	9.13	14,000	6.76	7,620	6.99	8,180	6.68	7,430	9.92	16,700	10.49	19,000
8	8.84	13,200	6.54	7,110	6.70	7,480	6.83	7,790	9.93	16,800	10.10	17,400
10	8.52	12,200	6.40	6,790	6.48	6,970	6.99	8,180	9.94	16,800	9.73	16,100
N	8.20	11,300	6.28	6,530	6.28	6,530	7.11	8,480	9.97	16,900	9.39	14,900
2	7.92	10,600	6.19	6,330	6.11	6,160	7.23	8,780	9.99	17,000	9.03	13,700
4	7.67	9,900	6.23	6,420	6.01	5,950	7.48	9,410	10.06	17,200	8.72	12,800
6	7.50	9,460	6.45	6,900	5.96	5,850	7.91	10,500	10.21	17,800	8.48	12,100
8	7.41	9,230	6.74	7,580	5.97	5,870	8.52	12,200	10.46	18,800	8.20	11,300
10	7.35	9,080	7.10	8,450	6.06	6,060	9.15	14,100	10.70	19,800	7.90	10,500
M	7.28	8,900	7.32	9,000	6.18	6,310	9.62	15,700	10.88	20,500	7.60	9,720

Supplemental records.- Mar. 12, 8:30 a.m., 18.66 ft., 60,000 sec.-ft. Mar. 16, 3 a.m., 10.45 ft., 18,800 sec.-ft.; 9 p.m., 12.18 ft., 25,800 sec.-ft. Mar. 17, 8:30 a.m., 10.99 ft., 21,000 sec.-ft. Mar. 20, 5 p.m., 9.01 ft., 13,700 sec.-ft.

Chemung River at Corning, N. Y.

Location.- Lat. 42°8'50", long. 77°3'40", at Bridge Street Bridge, at Corning, Steuben County. Zero of gage is 912.82 feet above mean sea level.
Drainage area.- 2,010 square miles.
Gage-height record.- Graph based on one or more gage readings daily.
Maxima.- 1936: Gage height, 19.3 feet 10 to 12 a.m. Mar. 12.
1909-35: Gage height, 20.15 feet July 8, 1935.
1889-1935: Maximum known stage, that of July 8, 1935.
Remarks.- Gage heights obtained for flood-warning purposes. Discharge not determined.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.18		4.86		6.70		7.20		16.90		14.00	
4	5.16		4.93		6.80		7.77		17.60		13.20	
6	5.13		5.00		6.78		8.40		18.20		12.30	
8	5.10		5.10		6.70		9.20		18.80		11.30	
10	5.05		5.25		6.65		10.10		19.30		10.80	
N	5.00		5.40		6.58		11.00		19.30		10.30	
2	4.95		5.60		6.55		11.90		18.70		9.90	
4	4.90		5.80		6.50		12.70		18.00		9.60	
6	4.85		6.00		6.45		13.60		17.20		9.30	
8	4.80		6.20		6.48		14.50		16.40		9.00	
10	4.78		6.40		6.58		15.40		15.60		8.75	
M	4.80		6.60		6.90		16.20		14.80		8.50	
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.35		7.40		10.40		12.45		15.90		13.60	
4	8.20		7.45		10.80		12.30		16.50		13.00	
6	8.00		7.50		11.10		12.10		17.20		12.85	
8	7.90		7.60		11.50		12.00		17.80		13.10	
10	7.80		7.80		11.90		12.05		17.84		13.40	
N	7.70		8.00		12.20		12.20		17.80		13.80	
2	7.60		8.40		12.45		12.40		17.40		14.30	
4	7.55		8.70		12.60		12.80		16.80		14.60	
6	7.50		9.00		12.75		13.40		16.20		14.90	
8	7.45		9.40		12.80		14.00		15.60		15.20	
10	7.42		9.70		12.75		14.60		14.90		15.40	
M	7.40		10.10		12.60		15.30		14.20		15.00	
	March 20		March 21		March 22		March 23		March 24		March 25	
2	14.20		10.52		8.88		8.23		7.75		10.36	
4	13.50		10.40		8.76		8.26		7.80		10.64	
6	13.00		10.30		8.64		8.30		7.85		10.92	
8	12.60		10.20		8.50		8.30		8.00		11.20	
10	12.20		10.10		8.40		8.28		8.20		11.50	
N	11.90		10.00		8.34		8.22		8.46		11.80	
2	11.65		9.90		8.27		8.18		8.72		12.05	
4	11.40		9.80		8.20		8.09		9.00		12.30	
6	11.20		9.60		8.15		8.00		9.26		12.50	
8	11.00		9.40		8.14		7.90		9.52		12.60	
10	10.80		9.20		8.15		7.80		9.80		12.64	
M	10.65		9.00		8.20		7.75		10.08		12.64	

Chemung River at Chemung, N. Y.

Location.- Lat. 42°0'10", long. 76°38'0", just below highway bridge three-quarters of a mile southwest of Chemung, Chemung County.
Drainage area.- 2,530 square miles.
Gage-height record.- Water-stage recorder graph except for period 1 to 9 a.m. Mar. 12.
Stage-discharge relation.- Affected by ice Feb. 1-28. Defined by current-meter measurements below 42,000 second-feet; extended logarithmically using slope-area determination of discharge of July 1935 flood.
Maxima.- 1936: Discharge, 92,300 second-feet 10 p.m. Mar. 12 (gage height, 19.57 feet).
1903-35: Discharge, 91,000 second-feet July 9, 1935 (gage height, 19.45 feet).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	440	4,660	8,930	11	380	19,400	5,830	21	320	27,400	3,140
2	440	3,800	8,130	12	380	74,900	7,580	22	320	17,200	3,420
3	420	2,970	9,710	13	360	51,200	10,700	23	300	15,200	3,140
4	420	2,830	6,290	14	360	15,700	8,930	24	300	14,200	2,560
5	440	10,500	5,070	15	360	13,300	7,630	25	400	26,000	2,200
6	420	10,000	6,000	16	380	32,000	6,390	26	950	30,500	2,000
7	420	5,570	9,580	17	380	43,200	5,070	27	2,600	19,400	1,860
8	400	4,560	6,550	18	380	72,200	4,360	28	10,000	21,100	1,680
9	380	4,560	5,490	19	380	61,900	3,890	29	6,360	13,400	1,680
10	380	7,740	5,280	20	340	48,100	3,510	30		10,000	2,000
								31		11,300	
Mean monthly discharge, in second-feet									1,014	22,410	5,287
Run-off, in inches									0.43	10.22	2.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	7.80	10,700	15.00	48,500	19.10	87,100
4	-	-	-	-	5.94	5,800	7.95	11,200	16.00	57,000	18.50	81,000
6	5.38	-	5.33	-	-	-	8.33	12,300	16.75	63,800	17.70	73,000
8	-	-	-	-	6.37	6,800	8.60	13,100	17.30	69,000	16.80	64,200
10	-	-	-	-	-	-	9.25	15,600	17.77	73,700	15.80	55,200
N	5.17	*4,560	5.23	*4,560	6.73	7,710	9.87	18,100	18.20	78,000	14.70	46,100
2	-	-	-	-	-	-	10.25	19,600	18.65	82,500	13.75	38,800
4	-	-	-	-	7.04	8,540	10.73	21,600	19.00	86,000	12.90	33,400
6	5.31	-	5.24	-	-	-	11.25	24,200	19.30	89,300	12.20	29,200
8	-	-	-	-	7.40	9,530	11.90	27,500	19.50	91,500	11.63	26,200
10	-	-	-	-	-	-	12.80	32,800	19.57	92,300	11.15	23,800
M	5.41	-	5.62	-	7.66	10,300	14.10	41,300	19.43	90,700	10.75	21,800
	March 14		March 15		March 16		March 17		March 18		March 19	
2	10.40	20,200	8.38	12,400	10.00	18,600	14.58	45,100	15.30	50,900	18.23	78,300
4	10.13	19,100	8.40	12,500	10.55	20,800	14.63	45,500	16.20	58,800	17.77	73,700
6	9.90	18,200	8.42	12,600	11.20	24,000	14.64	45,600	16.90	65,100	17.26	68,600
8	9.60	17,000	8.46	12,700	11.80	27,000	14.60	45,300	17.48	70,800	16.77	63,900
10	9.43	16,300	8.51	12,800	12.43	30,600	14.53	44,700	17.86	74,600	16.41	60,700
N	9.18	15,300	8.53	12,900	12.95	33,700	14.40	43,700	18.10	77,000	16.05	57,400
2	8.93	14,300	8.53	12,900	13.42	36,500	14.20	42,100	18.28	78,800	15.80	55,200
4	8.70	13,400	8.53	12,900	13.66	38,100	13.99	40,400	18.43	80,300	15.66	53,900
6	8.52	12,900	8.67	13,300	13.88	39,700	13.86	39,500	18.55	81,500	15.60	53,400
8	8.43	12,600	8.90	14,200	14.12	41,500	13.92	39,900	18.70	83,000	15.64	53,800
10	8.38	12,400	9.28	15,700	14.33	43,100	14.17	41,900	18.69	82,900	15.76	54,800
M	8.37	12,400	9.56	16,800	14.49	44,400	14.60	45,300	18.53	81,300	15.94	56,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	16.13	58,200	12.15	28,900	10.40	20,200	9.35	16,000	8.39	12,500	10.31	19,800
4	16.27	59,400	12.13	28,800	10.20	19,400	9.46	16,400	8.42	12,600	10.75	21,800
6	16.32	59,900	12.21	29,300	10.04	18,800	9.57	16,900	8.46	12,700	11.22	24,100
8	16.24	59,200	12.28	29,700	9.89	18,200	9.61	17,000	8.54	12,900	11.52	25,600
10	15.96	56,600	12.29	29,700	9.70	17,400	9.55	16,800	8.65	13,200	11.77	26,800
N	15.43	51,900	12.18	29,100	9.47	16,500	9.39	16,200	8.77	13,700	11.94	27,700
2	14.70	46,100	12.02	28,100	9.26	15,600	9.15	15,200	8.90	14,200	12.02	28,100
4	14.05	40,900	11.81	27,000	9.17	15,300	8.92	14,300	9.04	14,800	12.05	28,300
6	13.45	36,700	11.56	25,800	9.16	15,200	8.68	13,300	9.19	15,400	12.09	28,500
8	12.95	33,700	11.27	24,400	9.18	15,300	8.55	13,000	9.36	16,000	12.12	28,700
10	12.57	31,400	10.97	22,800	9.24	15,600	8.48	12,700	9.60	17,000	12.19	29,100
M	12.28	29,700	10.65	21,200	9.29	15,800	8.41	12,500	9.95	18,400	12.28	29,700
	March 26		March 27		March 28		March 29		March 30		March 31	
2	12.37	30,200	10.68	21,400	10.42	20,300	-	-	-	-	7.51	9,840
4	12.50	31,000	10.42	20,300	10.64	21,200	9.23	15,500	7.69	10,400	7.63	10,200
6	12.67	32,000	10.28	19,700	10.82	22,100	-	-	-	-	7.75	10,600
8	12.81	32,900	10.20	19,400	10.95	22,800	8.87	14,100	7.57	10,000	7.89	11,000
10	12.90	33,400	10.15	19,200	11.00	23,000	-	-	-	-	8.09	11,600
N	12.91	33,500	10.09	19,000	11.01	23,000	8.61	13,100	7.53	9,900	8.25	12,000
2	12.82	32,900	10.02	18,700	10.92	22,600	-	-	-	-	8.32	12,300
4	12.60	31,600	9.93	18,300	10.73	21,600	8.34	12,300	7.52	9,870	8.30	12,200
6	12.28	29,700	9.92	18,300	10.51	20,600	-	-	-	-	8.21	11,900
8	11.87	27,400	9.97	18,500	10.25	19,600	8.08	11,500	7.50	9,810	8.13	11,700
10	11.42	25,100	10.02	18,700	9.93	18,300	-	-	-	-	8.03	11,400
M	11.02	23,100	10.22	19,500	9.68	17,300	7.86	10,900	7.47	9,730	7.90	11,000

*Mean for the day.

Cohocton River near Campbell, N. Y.

Location.- Lat. 42°15'10", long. 77°13'0", at highway bridge 2 miles above Campbell, Steuben County.

Drainage area.- 472 square miles; 45 square miles affected by diversion from Mud Creek and Lamoka Lake.

Gage-height record.- Graph based on twice-daily or more frequent readings and comparison with record of Tioga River near Erwins, New York.

Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 9. Defined by current-meter measurements below 6,600 second-feet; extended to peak stage on basis of peak-flow determination of July 1935 flood by Soil Conservation Service.

Maxima.- 1936: Discharge, 16,200 second-feet 9 a.m. Mar. 12 (gage height, 8.8 feet).
1918-35: Discharge, 45,400 second-feet July 8, 1935, from slope-area determination (gage height, 11.6 feet, from flood marks).

Remarks.- A diversion from Mud Creek, a tributary above this station, for power development on Keuka Lake, probably takes all the ordinary flow from the 45 square miles above Lamoka Lake outlet. Some gage heights and discharge determinations furnished by the Soil Conservation Service, U. S. Department of Agriculture.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	80	800	1,930	11	55	5,320	1,600	21	46	4,380	862
2	80	700	2,170	12	50	11,400	1,900	22	42	3,220	825
3	75	600	1,790	13	50	5,450	2,600	23	40	2,670	924
4	75	550	1,340	14	55	2,900	1,900	24	38	3,380	942
5	75	1,600	1,060	15	65	3,100	1,800	25	55	6,080	755
6	70	1,500	2,260	16	70	5,230	1,420	26	240	6,030	606
7	70	1,100	1,860	17	65	5,900	1,240	27	600	4,940	478
8	65	950	1,350	18	60	7,460	1,060	28	1,400	4,650	478
9	60	1,600	1,240	19	50	8,540	980	29	950	3,060	505
10	60	2,880	1,060	20	50	6,060	900	30		2,880	532
								31		2,650	
Mean monthly discharge, in second-feet									162	3,793	1,279
Run-off, in inches									0.37	9.27	3.02

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	4.51	3,140	5.46	4,640	6.74	7,250	6.88	7,690
4	-	-	-	960	4.43	3,030	5.76	5,180	7.38	9,180	6.67	7,200
6	-	-	-	-	4.23	2,760	6.05	5,720	8.10	12,300	6.44	6,700
8	-	-	3.22	1,060	4.07	2,550	6.21	6,040	8.70	15,600	6.24	6,290
10	3.32	-	-	-	3.92	2,360	6.16	5,940	8.74	15,800	5.97	5,750
N	-	*950	-	1,470	3.86	2,290	5.92	5,480	8.51	14,500	5.71	5,260
2	-	-	-	-	3.91	2,350	5.75	5,160	8.29	13,200	5.48	4,830
4	3.35	-	3.72	1,880	4.12	2,620	5.68	5,030	8.03	12,000	5.25	4,420
6	-	-	-	-	4.38	2,960	5.67	5,020	7.82	10,900	5.05	4,090
8	-	-	-	2,460	4.60	3,270	5.73	5,120	7.59	10,000	4.86	3,790
10	-	-	-	-	4.89	3,700	5.90	5,440	7.35	9,080	4.71	3,550
M	-	-	4.40	2,990	5.16	4,140	6.25	6,120	7.13	8,340	4.58	3,350
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.48	3,200	4.22	2,830	5.76	5,350	5.61	5,070	7.46	9,460	6.00	5,810
4	4.37	3,040	4.13	2,710	5.68	5,200	5.38	4,650	7.31	8,940	6.28	6,370
6	4.27	2,900	4.04	2,590	5.57	5,000	5.19	4,320	7.17	8,460	6.68	7,230
8	4.18	2,770	3.99	2,530	5.48	4,830	5.11	4,190	6.99	7,960	7.17	8,460
10	4.11	2,680	3.96	2,490	5.43	4,740	5.13	4,220	6.83	7,570	7.58	9,920
N	4.06	2,620	3.95	2,480	5.42	4,730	5.30	4,510	6.70	7,270	7.80	10,800
2	4.07	2,630	3.99	2,530	5.46	4,790	5.76	5,350	6.55	6,940	7.78	10,700
4	4.13	2,710	4.17	2,760	5.62	5,090	6.18	6,170	6.42	6,660	7.64	10,200
6	4.28	2,910	4.56	3,320	5.90	5,620	6.62	7,090	6.29	6,390	7.44	9,390
8	4.43	3,120	4.97	3,960	6.10	6,010	7.08	8,200	6.18	6,170	7.25	8,720
10	4.43	3,120	5.48	4,830	6.10	6,010	7.45	9,420	6.07	5,950	7.07	8,170
M	4.32	2,970	5.73	5,300	5.88	5,580	7.53	9,720	6.00	5,810	6.88	7,690
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.70	7,270	5.64	5,130	4.61	3,400	4.42	3,110	4.01	2,550	6.20	6,210
4	6.54	6,920	5.54	4,940	4.52	3,260	4.34	3,000	4.02	2,570	6.18	6,170
6	6.37	6,560	5.46	4,790	4.46	3,170	4.27	2,900	4.04	2,590	6.07	5,950
8	6.23	6,270	5.38	4,650	4.40	3,080	4.22	2,830	4.08	2,640	6.00	5,810
10	6.07	5,950	5.30	4,510	4.36	3,020	4.16	2,750	4.15	2,740	5.94	5,700
N	5.92	5,660	5.22	4,370	4.36	3,020	4.11	2,680	4.25	2,870	5.90	5,620
2	5.80	5,430	5.13	4,220	4.37	3,040	4.07	2,630	4.40	3,080	5.88	5,580
4	5.76	5,350	5.05	4,090	4.43	3,120	4.03	2,580	4.67	3,480	5.89	5,600
6	5.87	5,560	4.96	3,950	4.53	3,280	4.02	2,570	5.00	4,010	5.98	5,770
8	5.96	5,730	4.89	3,830	4.67	3,480	4.01	2,550	5.37	4,640	6.32	6,450
10	5.85	5,520	4.80	3,690	4.61	3,400	4.00	2,540	5.68	5,200	6.70	7,270
M	5.74	5,320	4.71	3,550	4.51	3,240	4.00	2,540	6.03	5,870	6.88	7,690

Supplemental records.- Mar. 12, 9 a.m., 8.8 ft., 16,200 sec.-ft.
*Mean for the day.

Towanda Creek near Monroeton, Pa.

Location.- Lat. 41°42'35", long. 76°29'0", at highway bridge 1¼ miles above mouth of South Branch of Towanda Creek and 1½ miles southwest of Monroeton, Bradford County. Zero of gage is 774.14 feet above mean sea level.

Drainage area.- 214 square miles.

Gage-height record.- Graph based on two or more chain-gage readings daily. Gage heights used to half tenths between 2.5 and 4.0 feet; hundredths below and tenths above these limits.

Stage-discharge relation.- Defined to 12,000 second-feet by current-meter measurements; logarithmic extension to crest discharge. Affected by ice Feb. 1-27.

Maxima.- 1936: Discharge, 15,200 second-feet 3 a.m. Mar. 18 (gage height, 10.78 feet, from flood mark).

1914-35: Discharge, 15,800 second-feet (revised) Nov. 16, 1926 (gage height, 11.0 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	59	905	360	11	55	4,080	450	21	55	2,330	239
2	58	415	370	12	54	8,710	420	22	56	1,300	257
3	58	318	370	13	54	3,040	705	23	57	955	214
4	57	318	302	14	54	2,040	510	24	60	915	194
5	56	905	280	15	54	2,120	420	25	65	927	176
6	56	530	548	16	54	3,740	370	26	100	872	166
7	55	415	510	17	54	7,440	330	27	460	789	152
8	55	412	420	18	54	9,530	293	28	1,040	642	143
9	55	383	370	19	55	4,170	270	29	740	512	137
10	55	964	420	20	55	2,060	248	30		432	134
								31		443	
Mean monthly discharge, in second-feet									129	2,018	326
Run-off, in inches									0.65	10.87	1.70

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.93	470	2.71	340	3.10	560	4.15	1,560	10.11	13,100	5.85	3,870
4	2.91	440	2.70	340	3.20	630	4.20	1,560	10.00	12,800	5.65	3,540
6	2.89	440	2.69	340	3.32	700	4.25	1,560	9.75	12,200	5.40	3,220
8	2.87	415	2.71	340	3.42	780	4.35	1,800	9.27	10,900	5.30	3,060
10	2.85	415	2.73	365	3.50	860	4.45	1,800	8.63	9,280	5.25	2,910
N	2.84	415	2.75	365	3.60	950	4.80	2,330	8.08	8,210	5.20	2,910
2	2.83	415	2.77	365	3.70	1,040	5.15	2,910	7.62	7,160	5.16	2,910
4	2.81	390	2.79	390	3.80	1,140	5.65	3,540	7.22	6,390	5.12	2,760
6	2.79	390	2.81	390	3.90	1,240	6.36	4,910	6.90	5,820	5.08	2,760
8	2.77	365	2.86	415	3.98	1,340	7.30	6,580	6.60	5,270	5.00	2,610
10	2.75	365	2.93	470	4.04	1,340	8.90	9,970	6.30	4,730	4.92	2,470
M	2.73	365	3.00	500	4.10	1,450	10.10	13,100	6.05	4,210	4.84	2,330
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.75	2,330	4.51	1,930	4.94	2,470	7.10	6,200	10.65	14,600	7.05	4,790
4	4.66	2,190	4.50	1,930	4.96	2,610	7.20	6,390	10.76	15,200	7.03	4,790
6	4.57	2,060	4.48	1,930	4.98	2,610	7.50	6,960	10.66	14,800	7.01	4,790
8	4.53	1,930	4.48	1,930	5.02	2,610	7.70	7,370	10.40	13,900	6.99	4,790
10	4.52	1,930	4.50	1,930	5.08	2,760	7.69	7,370	9.40	10,800	6.88	4,590
N	4.53	1,930	4.54	1,930	5.20	2,910	7.60	7,160	8.70	8,790	6.75	4,390
2	4.54	1,930	4.64	2,060	5.60	3,540	7.50	6,960	8.05	7,010	6.65	4,010
4	4.55	2,060	4.74	2,190	6.00	4,210	7.48	6,960	7.60	6,070	6.55	4,010
6	4.55	2,060	4.84	2,330	6.50	5,090	7.52	6,960	7.36	5,630	6.45	3,630
8	4.54	1,930	4.88	2,470	6.70	5,450	7.70	7,370	7.23	5,190	6.30	3,460
10	4.53	1,930	4.90	2,470	6.90	5,820	8.60	9,280	7.15	5,190	6.10	3,120
M	4.52	1,930	4.92	2,470	7.00	6,010	9.60	11,700	7.10	4,990	5.90	2,800
	March 20		March 21		March 22		March 23		March 24		March 25	
2	5.70	2,500	5.60	2,350	5.11	1,690	4.54	1,100	4.32	890	4.33	930
4	5.55	2,350	5.65	2,350	4.96	1,520	4.50	1,060	4.37	930	4.34	930
6	5.40	2,070	5.70	2,500	4.78	1,350	4.46	1,020	4.39	970	4.35	930
8	5.36	2,070	5.70	2,500	4.66	1,200	4.42	970	4.41	970	4.35	930
10	5.26	1,940	5.68	2,500	4.64	1,200	4.38	970	4.38	970	4.35	930
N	5.16	1,810	5.66	2,500	4.62	1,150	4.35	930	4.35	930	4.35	930
2	5.10	1,690	5.64	2,350	4.61	1,150	4.32	890	4.32	890	4.36	930
4	5.04	1,570	5.60	2,350	4.60	1,150	4.29	890	4.30	890	4.36	930
6	5.06	1,690	5.56	2,350	4.60	1,150	4.27	850	4.30	890	4.36	930
8	5.20	1,810	5.46	2,210	4.60	1,150	4.26	850	4.30	890	4.36	930
10	5.40	2,070	5.36	2,070	4.59	1,150	4.26	850	4.31	890	4.35	930
M	5.55	2,350	5.26	1,940	4.58	1,150	4.28	890	4.32	890	4.35	930

Supplemental records.- Mar. 18, 3 a.m., 10.78 ft., 15,200 sec.-ft.

Tunkhannock Creek at Dixon, Pa.

Location.- Lat. 41°33'30", long. 75°53'40", at highway bridge at Dixon, Wyoming County, 3 miles northeast of Tunkhannock. Zero of gage is 610.50 feet above mean sea level.
Drainage area.- 383 square miles.
Gage-height record.- Graph based on two or more chain-gage readings daily. Gage heights used to half tenths between 2.0 and 3.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements to 7,000 second-feet; logarithmic extension to crest discharge. Affected by ice Feb. 1 to Mar. 10.
Maxima.- 1936: Discharge, 14,900 second-feet 11:30 a.m. Mar. 18 (gage height, 11.36 feet, from flood marks).
1914-35: Discharge, 19,100 second-feet Sept. 30, 1924 (gage height, 13.1 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	225	715	820	11	195	6,040	1,400	21	200	4,430	610
2	220	580	970	12	195	8,740	1,500	22	205	3,730	970
3	215	480	1,310	13	195	4,490	1,600	23	210	2,370	645
4	210	450	820	14	195	2,700	1,500	24	215	1,830	545
5	205	450	750	15	195	2,440	1,310	25	220	1,670	455
6	205	545	1,500	16	195	2,590	1,130	26	235	1,300	425
7	200	480	1,220	17	195	5,560	970	27	330	1,480	370
8	200	480	1,130	18	195	11,400	820	28	400	1,830	320
9	200	680	970	19	195	8,060	750	29	500	1,220	320
10	200	1,500	1,220	20	200	5,220	680	30		1,030	298
								31		964	
Mean monthly discharge, in second-feet									226	2,757	911
Run-off, in inches									0.59	8.30	2.38

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.16	-	-	-	-	-	5.75	3,930	9.06	9,740	6.99	5,790
4	-	-	-	-	-	-	6.00	4,220	9.33	10,200	6.78	5,460
6	3.20	-	-	-	-	-	6.25	4,520	9.60	10,800	6.57	5,140
8	-	-	3.15	-	-	-	6.50	4,980	9.55	10,800	6.36	4,820
10	-	-	-	-	4.08	-	6.75	5,460	9.30	10,200	6.20	4,520
N	-	*480	-	*680	-	*1,500	7.00	5,790	8.92	9,320	6.05	4,220
2	-	-	-	-	4.46	-	7.30	6,300	8.56	8,720	5.94	4,070
4	-	-	-	-	-	-	7.62	6,830	8.22	7,940	5.83	3,930
6	3.10	-	-	-	-	-	7.94	7,370	7.92	7,370	5.71	3,790
8	3.10	-	-	-	-	-	8.22	7,940	7.64	6,830	5.60	3,650
10	-	-	-	-	-	-	8.50	8,520	7.40	6,470	5.48	3,510
M	-	-	3.50	-	5.50	-	8.78	9,120	7.20	6,130	5.36	3,370
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.24	3,110	4.80	2,600	4.68	2,480	5.90	4,070	8.40	8,320	8.90	9,320
4	5.12	2,980	4.82	2,600	4.72	2,480	6.40	4,820	8.90	9,320	8.64	8,720
6	5.01	2,850	4.81	2,600	4.76	2,600	6.85	5,460	9.60	10,800	8.44	8,320
8	4.90	2,720	4.79	2,600	4.80	2,600	7.12	5,960	10.25	12,100	8.32	8,130
10	4.82	2,600	4.76	2,600	4.80	2,600	7.11	5,960	11.20	14,400	8.24	7,940
N	4.75	2,600	4.70	2,480	4.75	2,600	7.00	5,790	11.34	14,600	8.17	7,940
2	4.68	2,480	4.60	2,360	4.70	2,480	6.90	5,620	11.08	14,200	8.10	7,750
4	4.63	2,360	4.48	2,240	4.65	2,360	6.78	5,460	10.58	13,000	8.03	7,560
6	4.67	2,480	4.44	2,130	4.61	2,360	6.84	5,460	10.24	12,100	7.96	7,560
8	4.70	2,480	4.50	2,240	4.70	2,480	7.20	6,130	9.80	11,200	7.88	7,370
10	4.74	2,480	4.58	2,360	5.00	2,850	7.50	6,650	9.50	10,600	7.80	7,190
M	4.78	2,600	4.64	2,360	5.40	3,370	8.00	7,560	9.20	9,950	7.70	7,010
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.51	6,650	5.86	4,070	6.14	4,370	4.92	2,720	4.27	2,020	4.08	1,800
4	7.32	6,300	5.84	3,930	6.06	4,370	4.84	2,600	4.24	1,910	4.10	1,800
6	7.13	5,960	5.86	4,070	5.98	4,220	4.76	2,600	4.21	1,910	4.12	1,800
8	6.94	5,620	5.92	4,070	5.89	4,070	4.70	2,480	4.18	1,910	4.10	1,800
10	6.74	5,300	6.08	4,370	5.80	3,930	4.66	2,480	4.15	1,910	4.08	1,800
N	6.54	4,980	6.22	4,520	5.67	3,790	4.60	2,360	4.12	1,800	4.02	1,700
2	6.37	4,820	6.36	4,820	5.55	3,650	4.54	2,240	4.09	1,800	3.96	1,700
4	6.20	4,520	6.42	4,820	5.43	3,370	4.48	2,240	4.05	1,700	3.91	1,600
6	6.06	4,370	6.42	4,820	5.31	3,240	4.42	2,130	4.00	1,700	3.86	1,600
8	5.98	4,220	6.36	4,820	5.20	3,110	4.38	2,130	4.00	1,700	3.82	1,500
10	5.92	4,070	6.30	4,670	5.10	2,980	4.34	2,020	4.02	1,700	3.78	1,500
M	5.88	4,070	6.22	4,520	5.00	2,850	4.30	2,020	4.04	1,700	3.74	1,400

Supplemental records.- Mar. 18, 11:30 a.m., 11.36 ft., 14,900 sec.-ft.
*Mean for the day.

Wapwallopen Creek near Wapwallopen, Pa.

Location.- Lat. 41°3'35", long. 76°5'25", at Harts Bridge, 2½ miles southeast of Wapwallopen, Luzerne County, and 3½ miles upstream from mouth of creek. Zero of gage is 752.41 feet above mean sea level.
Drainage area.- 45.8 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.0 and 5.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 1,500 second-feet by current-meter measurements; logarithmic extension to crest discharge. Affected by ice Feb. 1 to Mar. 9.
Maxima.- 1936: Discharge, 1,540 second-feet 7 a.m. Mar. 18 (gage height, 6.58 feet).
1919-35: Discharge, 2,260 second-feet Sept. 30, 1924 (gage height, 7.9 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	43	90	88	11	37	784	166	21	35	509	73
2	42	80	107	12	37	1,110	141	22	34	374	78
3	42	80	103	13	37	556	153	23	34	279	64
4	41	90	80	14	38	383	134	24	35	241	56
5	41	110	72	15	40	344	117	25	38	195	51
6	40	90	231	16	39	313	110	26	55	161	50
7	40	75	177	17	38	618	97	27	100	164	46
8	39	66	157	18	38	1,150	87	28	130	159	42
9	39	80	136	19	37	821	79	29	120	124	45
10	38	311	178	20	36	581	73	30		109	52
								31		100	
Mean monthly discharge, in second-feet									47.0	327	101
Run-off, in inches									1.11	8.23	2.47

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.31	-	2.25	-	2.62	191	4.20	568	6.40	1,440	4.63	716
4	2.33	-	2.23	-	2.59	185	4.15	552	6.45	1,440	4.50	665
6	2.34	-	2.23	-	2.56	180	4.12	537	6.38	1,440	4.38	632
8	2.35	-	2.20	-	2.56	180	4.15	552	6.15	1,350	4.25	584
10	2.33	-	2.20	-	2.60	187	4.23	584	5.85	1,170	4.15	552
N	2.10	*36	2.20	*94	2.70	206	4.31	600	5.50	1,040	4.06	522
2	2.23	-	2.24	-	2.90	246	4.45	648	5.27	945	4.00	507
4	2.25	-	2.33	-	3.28	329	4.73	752	5.16	905	3.95	492
6	2.28	-	2.45	-	3.75	436	5.23	945	5.12	885	3.88	477
8	2.25	-	2.57	-	4.10	537	5.88	1,220	5.05	865	3.82	449
10	2.25	-	2.62	-	4.25	584	6.10	1,300	4.93	826	3.76	436
M	2.26	-	2.65	-	4.26	584	6.25	1,350	4.78	770	3.71	423
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.65	410	3.52	374	3.28	329	3.82	449	5.85	1,170	4.90	807
4	3.60	398	3.47	362	3.24	318	4.06	522	6.23	1,350	4.95	826
6	3.55	386	3.42	351	3.20	308	4.19	568	6.53	1,490	5.11	885
8	3.50	374	3.37	340	3.16	298	4.11	537	6.54	1,490	5.24	945
10	3.45	362	3.32	329	3.13	298	4.09	537	6.40	1,440	5.19	925
N	3.42	351	3.29	329	3.10	287	4.20	568	6.06	1,300	5.00	845
2	3.42	351	3.28	329	3.09	287	4.48	665	5.76	1,170	4.88	807
4	3.45	362	3.31	329	3.06	276	4.48	665	5.52	1,040	4.82	770
6	3.50	374	3.33	340	3.12	287	4.44	648	5.29	965	4.79	770
8	3.58	398	3.34	340	3.22	308	4.60	699	5.12	885	4.80	770
10	3.59	398	3.34	340	3.40	351	4.88	807	5.00	845	4.79	770
M	3.57	386	3.32	329	3.62	398	5.31	965	4.91	807	4.74	752
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.64	716	3.80	449	3.76	436	3.20	308	2.97	260	2.73	212
4	4.54	682	3.84	463	3.70	423	3.16	298	2.97	260	2.71	208
6	4.44	648	3.98	507	3.63	410	3.13	298	2.95	256	2.69	204
8	4.34	616	4.15	552	3.56	386	3.10	287	2.93	252	2.67	200
10	4.24	584	4.22	568	3.51	374	3.05	276	2.90	246	2.65	196
N	4.16	552	4.22	568	3.47	362	3.06	276	2.87	240	2.63	193
2	4.09	537	4.22	568	3.42	351	3.04	276	2.85	236	2.63	193
4	4.04	522	4.11	537	3.38	351	3.01	266	2.83	232	2.63	193
6	3.99	507	4.00	507	3.34	340	2.96	258	2.81	228	2.60	187
8	3.94	492	3.95	492	3.30	329	2.95	256	2.79	224	2.58	183
10	3.89	477	3.91	477	3.26	318	2.94	254	2.77	220	2.55	178
M	3.83	463	3.84	463	3.23	318	2.96	258	2.75	216	2.54	176

Supplemental records.- Mar. 18, 7 a.m., 6.58 ft., 1,540 sec.-ft.
*Mean for the day.

West Branch of Susquehanna River at Bower, Pa.

Location.- Lat. 40°53'50", long. 78°40'40", at highway bridge at Bower, Clearfield County, 4.8 miles downstream from Mahaffey and mouth of Chest Creek. Zero of gage is 1,206.39 feet (revised) above mean sea level.

Drainage area.- 315 square miles.

Gage-height record.- Water-stage recorder graph. No record Mar. 1-4, 7-9. Gage heights used to half tenths between 6.5 and 8.5 feet; hundredths below and tenths above these limits.

Stage-discharge relation.- Affected by ice Feb. 1-29. Defined by current-meter measurements below 3,500 second-feet; extended to peak stage using slope-area computation of flood flow.

Maxima.- 1936: Discharge, 31,500 second-feet 3 a.m. Mar. 18 (gage height, 19.74 feet, from flood mark in well).

1913-35: Discharge, 10,400 second-feet (revised) Sept. 5, 1926 (gage height, 13.10 feet); maximum gage height, 14.6 feet Mar. 12, 1920 (ice jam).

1889-1935: Maximum known discharge, about 27,000 second-feet (revised) May 31, 1889 (gage height, about 18.5 feet deduced from flood mark 4,000 feet above present gage).

Remarks.- Discharge Mar. 1-4, 7-9, based on comparisons with records for nearby stations.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	230	1,900	745	11	140	4,010	1,200	21	130	2,410	378
2	220	1,700	882	12	135	5,140	1,200	22	125	1,950	408
3	210	1,500	900	13	130	2,990	1,060	23	122	1,970	348
4	220	1,800	709	14	125	1,930	906	24	120	1,780	305
5	240	2,750	628	15	130	2,200	799	25	200	1,780	265
6	210	2,300	2,150	16	160	3,420	697	26	1,000	1,510	248
7	190	1,900	2,160	17	165	15,800	606	27	2,500	1,680	233
8	175	1,800	1,510	18	160	22,000	541	28	3,500	1,630	217
9	160	1,700	1,170	19	150	6,530	460	29	2,400	1,230	211
10	150	1,930	1,240	20	135	3,180	404	30		1,100	211
								31		921	
Mean monthly discharge, in second-feet									467	3,369	760
Run-off, in inches									1.60	12.34	2.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	7.25	1,510	8.77	2,960	10.98	6,010	9.53	3,760
4	-	-	-	-	7.31	1,550	8.79	2,960	10.94	5,840	9.36	3,640
6	-	-	-	-	7.36	1,590	8.80	2,960	10.89	5,840	9.20	3,400
8	-	-	-	-	7.40	1,630	8.84	2,960	10.78	5,670	9.04	3,180
10	-	-	-	-	7.43	1,670	8.97	3,180	10.64	5,340	8.90	3,070
N	-	*1,800	-	*1,700	7.44	1,670	9.22	3,400	10.51	5,180	8.77	2,960
2	-	-	-	-	7.51	1,710	9.59	3,890	10.36	5,020	8.64	2,750
4	-	-	-	-	7.69	1,890	10.01	4,430	10.23	4,720	8.52	2,650
6	-	-	-	-	8.08	2,250	10.41	5,020	10.11	4,570	8.40	2,550
8	-	-	-	-	8.41	2,550	10.77	5,670	9.98	4,430	8.27	2,400
10	-	-	-	-	8.58	2,750	10.93	5,840	9.83	4,150	8.16	2,300
M	-	-	-	-	8.69	2,850	10.99	6,010	9.68	4,020	8.06	2,200
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.97	2,120	8.29	2,450	8.07	2,200	10.68	5,500	19.67	31,500	12.64	9,220
4	7.88	2,070	8.33	2,500	8.14	2,300	10.99	6,010	19.69	31,500	12.28	8,560
6	7.80	1,980	8.27	2,400	8.27	2,400	11.23	6,370	19.22	29,600	11.93	7,720
8	7.73	1,940	8.17	2,300	8.45	2,600	12.47	9,000	18.69	27,700	11.63	7,120
10	7.65	1,840	8.07	2,200	8.62	2,750	13.87	12,400	18.02	25,200	11.31	6,550
N	7.59	1,800	7.97	2,120	8.84	2,960	14.97	15,500	17.27	22,800	11.07	6,190
2	7.53	1,760	7.90	2,070	9.22	3,400	15.47	17,000	16.52	20,100	10.83	5,670
4	7.51	1,710	7.85	2,020	9.72	4,020	16.27	19,500	15.72	17,600	10.61	5,340
6	7.53	1,760	7.85	2,020	10.12	4,570	17.42	23,100	14.87	15,200	10.39	5,020
8	7.63	1,840	7.89	2,070	10.32	4,870	18.27	26,200	14.12	13,000	10.18	4,720
10	7.82	1,890	7.95	2,120	10.43	5,020	19.02	28,800	13.45	11,100	9.98	4,430
M	8.06	2,200	8.00	2,160	10.49	5,180	19.40	30,300	13.05	10,200	9.79	4,150
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.62	3,890	8.40	2,550	7.93	2,120	8.06	2,200	7.61	1,800	7.62	1,800
4	9.44	3,640	8.37	2,500	7.86	2,020	8.03	2,200	7.61	1,800	7.61	1,800
6	9.28	3,520	8.34	2,500	7.78	1,980	7.96	2,120	7.60	1,800	7.60	1,800
8	9.13	3,290	8.33	2,500	7.71	1,890	7.88	2,070	7.58	1,800	7.59	1,800
10	9.00	3,180	8.32	2,450	7.65	1,840	7.80	1,980	7.56	1,760	7.58	1,800
N	8.88	3,070	8.31	2,450	7.60	1,800	7.73	1,940	7.55	1,760	7.57	1,760
2	8.78	2,960	8.29	2,450	7.56	1,760	7.68	1,890	7.54	1,760	7.57	1,760
4	8.70	2,850	8.24	2,400	7.56	1,760	7.63	1,840	7.55	1,760	7.58	1,800
6	8.63	2,750	8.18	2,350	7.64	1,840	7.59	1,800	7.57	1,760	7.59	1,800
8	8.55	2,750	8.12	2,250	7.78	1,980	7.58	1,800	7.58	1,800	7.56	1,760
10	8.50	2,650	8.06	2,200	7.90	2,070	7.59	1,800	7.60	1,800	7.52	1,710
M	8.45	2,600	7.99	2,160	8.01	2,160	7.60	1,800	7.61	1,800	7.48	1,710

Supplemental records.- Mar. 18, 3 a.m., 19.74 ft., 31,500 sec.-ft.

*Mean for the day.

West Branch of Susquehanna River at Renovo, Pa.

Location.- Lat. 41°18'50", long. 77°44'45", at highway bridge at Renovo, Clinton County. Zero of gage is 634.03 feet above mean sea level.
Drainage area.- 2,975 square miles.
Gage-height record.- Water-stage recorder graph. No record for period 4 p.m. Mar. 17 to 6 p.m. Mar. 19; gage heights determined from flood mark and comparison with stage graphs of nearby stations. Gage heights used to half tenths between 1.0 and 4.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 7. Defined by current-meter measurements below 80,000 second-feet; extended to peak stage using slope-area computation of flood flow.
Maxima.- 1936: Discharge, 236,000 second-feet 7 a.m. Mar. 18 (gage height, 29.39 feet, from flood mark).
1895-1903, 1905-35: Discharge, 84,300 second-feet (revised) Apr. 30, 1909 (gage height, 15.5 feet, from flood mark); maximum gage height, 25.0 feet Feb. 28, 1910 (ice jam).
1846-1935: Maximum known discharge, 211,000 second-feet June 1, 1889 (gage height, 27.3 feet, revised).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,300	13,000	10,700	11	1,150	25,400	11,700	21	1,200	39,000	4,700
2	1,300	12,000	9,750	12	1,100	74,800	12,500	22	1,150	28,300	4,570
3	1,300	10,000	10,500	13	1,100	50,700	12,500	23	1,100	23,000	4,100
4	1,250	9,000	9,750	14	1,100	29,200	11,300	24	1,100	20,800	3,770
5	1,250	11,000	8,530	15	1,150	22,300	9,750	25	1,200	22,300	3,350
6	1,200	17,000	10,600	16	1,200	28,600	8,530	26	1,500	27,000	3,160
7	1,200	14,000	19,700	17	1,300	80,300	7,370	27	3,000	24,000	2,960
8	1,200	12,500	17,700	18	1,400	201,000	6,450	28	7,000	25,500	2,870
9	1,200	10,900	13,900	19	1,400	112,000	5,740	29	14,000	20,400	2,960
10	1,150	11,700	12,100	20	1,250	60,700	5,070	30		15,600	2,960
								31		13,300	
Mean monthly discharge, in second-feet									1,922	34,360	8,318
Run-off, in inches									0.70	13.26	3.12

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.30	13,500	4.72	11,100	4.61	10,700	5.44	13,900	13.00	62,200	13.15	63,800
4	5.25	13,100	4.70	11,100	4.65	10,700	5.77	15,500	14.13	71,700	12.82	60,600
6	5.21	13,100	4.67	11,100	4.72	11,100	5.95	16,500	14.82	78,000	12.45	57,400
8	5.16	13,100	4.64	10,700	4.78	11,500	6.22	17,500	15.30	82,500	12.10	55,000
10	5.11	12,700	4.62	10,700	4.83	11,500	6.55	19,500	15.50	84,300	11.75	52,500
N	5.05	12,300	4.60	10,700	4.88	11,900	6.72	20,000	15.52	84,300	11.42	49,400
2	5.00	12,300	4.58	10,700	4.90	11,900	7.20	22,500	15.35	83,400	11.10	47,300
4	4.93	11,900	4.56	10,700	4.92	11,900	7.80	25,800	15.07	80,700	10.82	45,200
6	4.88	11,900	4.55	10,700	4.96	12,300	8.60	30,600	14.75	78,000	10.47	43,100
8	4.83	11,500	4.55	10,700	5.00	12,300	9.65	36,800	14.42	74,400	10.20	41,000
10	4.80	11,500	4.55	10,700	5.10	12,700	10.75	45,200	14.10	71,700	9.92	38,900
M	4.76	11,500	4.57	10,700	5.24	13,100	11.90	53,400	13.70	68,100	9.65	36,800
	March 14		March 15		March 16		March 17		March 18		March 19	
2	9.41	35,400	7.40	23,500	7.10	22,000	11.30	48,700	26.15	198,000	21.70	147,000
4	9.10	33,600	7.35	23,500	7.15	22,500	11.58	51,000	28.60	227,000	21.00	139,000
6	8.90	32,400	7.32	23,000	7.21	22,500	11.85	52,600	29.30	235,000	20.26	132,000
8	8.68	31,200	7.27	23,000	7.32	23,000	12.07	55,000	29.36	236,000	19.40	122,000
10	8.46	30,000	7.20	22,500	7.45	23,500	12.34	56,600	29.03	231,000	18.70	115,000
N	8.26	28,800	7.12	22,000	7.67	25,200	12.80	60,600	28.45	224,000	18.05	108,000
2	8.07	27,600	7.05	21,500	8.02	27,000	13.52	66,300	27.53	213,000	17.45	102,000
4	7.89	26,400	7.00	21,500	8.50	30,000	15.06	80,700	26.30	199,000	16.80	96,400
6	7.75	25,800	6.97	21,500	9.04	33,000	17.25	100,000	25.30	187,000	16.30	91,500
8	7.62	24,600	6.97	21,500	9.60	36,800	19.20	120,000	24.40	177,000	15.80	87,000
10	7.50	24,000	7.02	21,500	10.12	40,300	21.22	141,000	23.50	167,000	15.33	82,500
M	7.45	23,500	7.06	22,000	10.64	43,800	23.50	167,000	22.65	157,000	14.88	78,900
	March 20		March 21		March 22		March 23		March 24		March 25	
2	14.47	75,300	10.62	43,800	8.88	-	7.68	-	7.14	-	6.93	-
4	14.08	71,700	10.45	42,400	8.74	-	7.62	-	7.12	-	6.97	-
6	13.71	68,100	10.30	41,700	8.62	-	7.55	-	7.08	-	7.04	-
8	13.37	65,400	10.15	41,000	8.48	-	7.47	-	7.06	-	7.10	-
10	13.02	62,200	10.00	39,600	8.34	-	7.40	-	7.02	-	7.20	-
N	12.66	59,800	9.86	38,900	8.20	*28,300	7.33	*23,000	6.98	*20,800	7.27	*22,300
2	12.35	57,400	9.71	37,500	8.08	-	7.27	-	6.94	-	7.34	-
4	12.04	54,200	9.60	36,800	7.98	-	7.23	-	6.90	-	7.39	-
6	11.70	51,800	9.47	36,100	7.88	-	7.18	-	6.87	-	7.46	-
8	11.45	49,400	9.33	34,800	7.82	-	7.16	-	6.86	-	7.54	-
10	11.20	48,000	9.16	34,200	7.76	-	7.15	-	6.86	-	7.62	-
M	10.95	46,600	9.03	33,000	7.73	-	7.15	-	6.89	-	7.72	-

Supplemental records.- Mar. 18, 7 a.m., 29.39 ft., 236,000 sec.ft.
*Mean for the day.

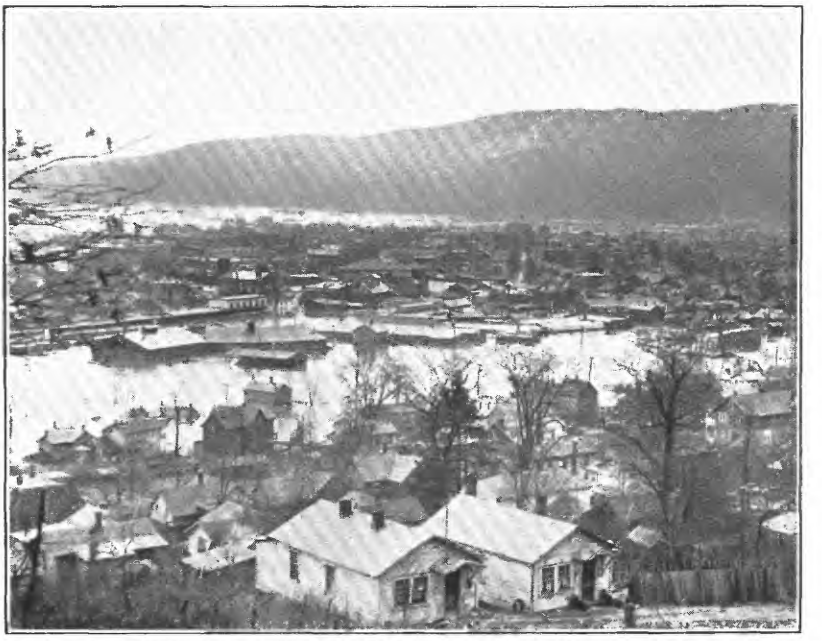
West Branch of Susquehanna River at Lock Haven, Pa.

Location.- Lat. 41°8'20", long. 77°26'30", at Jay Street Bridge in Lock Haven, Clinton County. Zero of gage is 535.00 feet above mean sea level.
Drainage area.- 3,338 square miles.
Gage-height record.- Graph based on two or more gage readings daily. No record Mar. 8 to 4 p.m. Mar. 11 because of ice jam at gage.
Maxima.- 1936: Gage height, 32.28 feet 11:30 a.m. Mar. 18, from flood mark.
1913-23, 1925-35: Gage height, 26.8 feet Feb. 21, 1918 (ice jam).
1846-1935: Maximum known stage, 29.8 feet May 31, 1889.
Remarks.- Station maintained for flood-warning purposes. Discharge not determined.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-		-		-		-		14.13		19.80	
4	-		-		-		-		15.66		19.20	
6	-		-		-		-		17.10		18.60	
8	-		-		-		-		18.48		17.84	
10	-		-		-		-		19.60		17.20	
N	-		-		-		-		20.47		16.60	
2	-		-		-		-		21.10		16.00	
4	-		-		-		9.30		21.16		15.38	
6	-		-		-		9.90		20.97		14.78	
8	-		-		-		10.70		20.70		14.22	
10	-		-		-		11.60		20.45		13.78	
M	-		-		-		12.75		20.18		13.30	
	March 14		March 15		March 16		March 17		March 18		March 19	
2	12.95		9.95		9.20		13.00		25.10		29.20	
4	12.50		9.82		9.25		13.90		26.66		28.58	
6	12.20		9.70		9.34		14.50		28.20		27.80	
8	11.84		9.58		9.43		14.85		29.93		27.20	
10	11.55		9.50		9.57		15.30		31.50		26.43	
N	11.30		9.40		9.71		15.70		32.28		25.78	
2	11.00		9.32		9.86		16.05		32.19		25.10	
4	10.80		9.25		10.09		16.60		31.81		24.50	
6	10.60		9.20		10.40		17.60		31.42		23.73	
8	10.42		9.18		10.78		19.80		31.00		23.08	
10	10.25		9.17		11.38		21.90		30.48		22.40	
M	10.10		9.19		12.17		23.50		29.90		21.70	
	March 20		March 21		March 22		March 23		March 24		March 25	
2	21.03		14.40		11.22		9.47		8.95		8.57	
4	20.36		14.05		11.04		9.39		8.93		8.57	
6	19.60		13.70		10.85		9.30		8.90		8.58	
8	18.95		13.39		10.70		9.22		8.86		8.60	
10	18.35		13.10		10.53		9.17		8.81		8.62	
N	17.70		12.80		10.38		9.10		8.77		8.70	
2	17.15		12.55		10.24		9.08		8.73		8.78	
4	16.65		12.31		10.05		9.04		8.69		8.81	
6	16.15		12.10		9.94		9.02		8.64		8.91	
8	15.68		11.87		9.80		9.00		8.60		9.01	
10	15.25		11.64		9.68		8.99		8.57		9.15	
M	14.80		11.41		9.57		8.97		8.57		9.27	

Supplemental records.- Mar. 18, 11:30 a.m., 32.28 ft.



A. VIEW ON MARCH 18, 1936, OF LOCK HAVEN, PA., ON THE WEST BRANCH OF THE SUSQUEHANNA RIVER.

The Pennsylvania Railroad freight station and yards are shown in the center of the picture. Courtesy of G. A. Brion.

B. BOATS NAVIGATING BUSINESS SECTION ON EAST MAIN STREET AT LOCK HAVEN, PA., WHERE THE WATER WAS 9 TO 10 FEET DEEP, MARCH 18, 1936.

Courtesy of John Davies.

A. VIEW SHOWING DESTRUCTION OF TRACKS OF PENNSYLVANIA RAILROAD BY FLOOD WATERS OF THE WEST BRANCH OF THE SUSQUEHANNA RIVER NEAR WILLIAMSPORT, PA.

Courtesy of 28th Division Aviation, Pennsylvania National Guard.

B. VIEW ON MARCH 20, 1936, OF WEST BRANCH OF SUSQUEHANNA RIVER AT LEWISBURG, PA.

Courtesy of 28th Division Aviation, Pennsylvania National Guard.

West Branch of Susquehanna River at Williamsport, Pa.

Location.- Lat. 41°14'15", long. 76°59'55", at highway bridge at Williamsport, Lycoming County. Zero of gage is 494.55 feet above mean sea level.
Drainage area.- 5,682 square miles.
Gage-height record.- Water-stage recorder graph except for period 4:30 p.m. Mar. 18 to 10 a.m. Mar. 19, when it was determined from a flood mark and comparison with stage graphs of nearby stations. Gage heights used to half tenths between 1.5 and 4.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 120,000 second-feet; extended to peak stage by slope-area determination of flood flow.
Maxima.- 1936: Discharge, 264,000 second-feet 9 p.m. Mar. 18 (gage height, 33.57 feet, from flood mark).
1895-1935: Discharge, 147,000 second-feet Mar. 5, 1923 (gage height, 21.6 feet, from graph based on gage readings); maximum gage height, 21.7 feet Mar. 1, 1902 (ice jam).
1846-1935: Maximum known discharge, 252,000 second-feet June 1, 1889 (gage height, 32.4 feet, from flood mark).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,500	23,000	23,900	11	1,800	45,000	21,900	21	1,900	94,200	10,000
2	2,400	24,000	20,900	12	1,750	145,000	22,400	22	1,850	64,600	9,500
3	2,300	19,000	20,400	13	1,750	137,000	22,900	23	1,750	46,500	8,980
4	2,200	17,000	19,000	14	1,700	74,600	21,400	24	1,700	40,100	7,970
5	2,100	22,000	17,100	15	1,700	47,100	19,000	25	1,650	39,100	7,320
6	2,050	31,000	19,800	16	1,650	48,400	17,100	26	1,700	45,500	6,690
7	2,000	32,000	30,200	17	1,700	107,000	15,300	27	3,000	44,900	6,230
8	1,950	23,000	32,300	18	1,800	218,000	13,600	28	8,000	44,500	5,930
9	1,900	20,000	26,400	19	2,100	225,000	11,900	29	15,000	40,000	5,640
10	1,850	22,000	23,400	20	2,000	153,000	11,200	30		31,900	5,780
								31		27,800	
Mean monthly discharge, in second-feet									2,612	62,970	16,140
Run-off, in inches									0.50	12.80	3.17

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	17.58	104,000	23.27	161,000
4	-	-	-	-	-	-	-	-	19.22	120,000	23.03	158,000
6	-	-	-	-	-	-	-	-	20.72	135,000	22.67	155,000
8	-	-	-	-	-	-	-	-	21.85	146,000	22.27	151,000
10	-	-	-	-	-	-	-	-	22.67	155,000	21.80	146,000
N	-	*23,000	-	*20,000	-	*22,000	-	*45,000	23.07	159,000	21.25	140,000
2	-	-	-	-	-	-	-	-	23.32	161,000	20.67	135,000
4	-	-	-	-	-	-	-	-	23.45	162,000	20.07	129,000
6	-	-	-	-	-	-	-	-	23.56	164,000	19.43	122,000
8	-	-	-	-	-	-	-	-	23.66	165,000	18.73	115,000
10	-	-	-	-	-	-	-	-	23.56	164,000	18.08	109,000
M	-	-	-	-	-	-	-	-	23.42	162,000	17.47	103,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	16.86	97,000	12.00	52,400	10.58	42,800	14.38	72,800	23.08	159,000	32.81	256,000
4	16.30	91,000	11.78	50,900	10.61	42,800	15.21	80,300	24.00	168,000	32.20	250,000
6	15.76	86,100	11.59	49,500	10.66	43,500	16.05	88,100	25.38	182,000	31.57	244,000
8	15.27	81,300	11.41	48,100	10.73	43,500	16.83	96,000	26.78	196,000	31.00	238,000
10	14.78	76,500	11.26	47,400	10.86	44,800	17.50	103,000	28.63	214,000	30.35	232,000
N	14.30	71,800	11.12	46,100	10.99	45,400	18.11	109,000	30.25	230,000	29.72	225,000
2	13.88	68,200	11.00	45,400	11.13	46,100	18.63	114,000	31.42	242,000	29.12	219,000
4	13.50	64,600	10.88	44,800	11.36	48,100	19.15	120,000	32.47	253,000	28.48	213,000
6	13.15	62,000	10.78	44,100	11.72	50,200	19.62	124,000	33.30	261,000	27.85	206,000
8	12.81	58,600	10.67	43,500	12.23	53,900	20.18	130,000	33.54	263,000	27.25	200,000
10	12.52	56,200	10.60	42,800	12.87	59,400	20.85	136,000	33.56	264,000	26.70	195,000
M	12.25	53,900	10.55	42,800	13.62	65,500	21.78	146,000	33.32	261,000	26.08	189,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	25.48	183,000	18.10	109,000	14.79	76,500	11.81	50,900	10.34	41,000	9.86	38,600
4	24.88	177,000	17.65	104,000	14.51	73,700	11.66	50,200	10.26	41,000	9.85	38,000
6	24.28	171,000	17.29	101,000	14.25	70,900	11.52	48,800	10.20	40,400	9.85	38,000
8	23.67	165,000	16.97	98,000	13.98	69,100	11.38	48,100	10.17	40,400	9.87	38,600
10	23.13	159,000	16.68	95,000	13.70	66,400	11.26	47,400	10.16	40,400	9.90	38,600
N	22.55	154,000	16.41	92,000	13.45	63,700	11.12	46,100	10.15	40,400	9.93	38,600
2	21.95	148,000	16.21	90,000	13.20	62,000	11.00	45,400	10.13	39,800	9.97	39,200
4	21.32	141,000	16.01	88,100	12.90	59,400	10.87	44,800	10.11	39,800	10.01	39,200
6	20.70	135,000	15.78	86,100	12.67	57,800	10.73	43,500	10.07	39,800	10.05	39,200
8	20.07	129,000	15.55	84,200	12.41	55,400	10.63	42,800	10.03	39,200	10.09	39,800
10	19.47	123,000	15.31	81,300	12.17	53,900	10.51	42,200	9.97	39,200	10.16	40,400
M	18.88	117,000	15.05	78,400	11.99	52,400	10.41	41,600	9.92	38,600	10.27	41,000

Supplemental records.- Mar. 18, 9 p.m., 33.57 ft., 264,000 sec.-ft.
*Mean for the day.

135158 O--37——16

Clearfield Creek at Dimeling, Pa.

Location.- Lat. 40°58'15", long. 78°24'25", at highway bridge at Dimeling, Clearfield County, 400 feet below mouth of Little Clearfield Creek. Zero of gage is 1,145.56 feet above mean sea level.
Drainage area.- 371 square miles.
Gage-height record.- Water-stage recorder graph. No record Apr. 1-3. Gage heights used to half tenths between 5.5 and 8.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-28. Defined by current-meter measurements below 6,000 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 37,600 second-feet 11 a.m. Mar. 18 (gage height, 18.49 feet, from flood mark in well).
1913-35: Discharge, 11,700 second-feet Mar. 13, 1920 (gage height, 12.8 feet, from graph based on gage readings); maximum gage height, 18.5 feet Mar. 11, 1920 (ice jam).
Remarks.- Discharge for period of missing record estimated by comparison with records at nearby stations.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	250	2,580	888	11	130	4,460	1,470	21	125	3,430	434
2	230	2,280	1,110	12	125	7,560	1,430	22	123	2,670	442
3	220	1,820	1,200	13	122	4,520	1,270	23	121	2,530	406
4	230	1,560	914	14	120	2,630	1,100	24	120	2,200	348
5	250	2,470	796	15	120	2,640	955	25	125	2,090	309
6	210	2,530	2,210	16	125	3,650	842	26	800	1,810	283
7	190	2,130	2,490	17	160	14,100	739	27	2,200	1,870	263
8	170	1,570	1,770	18	150	32,700	657	28	3,200	2,060	244
9	150	1,490	1,390	19	140	14,600	564	29	2,810	1,480	238
10	140	2,270	1,510	20	130	5,680	481	30		1,290	232
								31		1,080	
Mean monthly discharge, in second-feet									448	4,379	900
Run-off, in inches									1.30	13.60	2.71

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	6.98	1,770	6.60	1,430	6.95	1,720	8.30	3,080	10.90	7,650	10.17	6,090
4	6.93	1,720	6.59	1,430	7.04	1,820	8.40	3,200	10.97	7,890	9.98	5,690
6	6.87	1,640	6.59	1,430	7.13	1,900	8.53	3,320	11.00	7,890	9.77	5,310
8	6.84	1,640	6.60	1,430	7.26	2,000	8.64	3,450	11.02	7,890	9.59	4,950
10	6.78	1,590	6.61	1,430	7.38	2,130	8.77	3,710	11.03	7,890	9.40	4,610
N	6.74	1,550	6.65	1,470	7.46	2,180	8.91	3,850	11.04	7,890	9.20	4,290
2	6.70	1,510	6.66	1,470	7.56	2,280	9.09	4,140	11.01	7,890	9.05	3,990
4	6.67	1,470	6.68	1,510	7.70	2,430	9.37	4,610	10.95	7,890	8.89	3,850
6	6.64	1,470	6.72	1,510	7.92	2,630	9.75	5,310	10.85	7,410	8.74	3,580
8	6.62	1,430	6.77	1,550	8.08	2,850	10.20	6,090	10.72	7,180	8.60	3,450
*	6.61	1,430	6.83	1,640	8.17	2,900	10.53	6,730	10.57	6,950	8.47	3,320
M	6.60	1,430	6.90	1,680	8.25	3,020	10.77	7,410	10.41	6,510	8.35	3,140
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.26	3,020	7.93	2,680	7.83	2,580	10.19	6,090	17.63	32,600	15.57	23,000
4	8.16	2,900	7.99	2,740	7.86	2,580	10.26	6,300	17.53	32,100	15.00	20,600
6	8.05	2,800	8.01	2,740	7.96	2,680	10.33	6,300	17.66	33,100	14.42	18,200
8	7.96	2,680	8.00	2,740	8.13	2,900	10.55	6,950	18.08	35,200	13.83	16,000
10	7.86	2,580	7.99	2,740	8.31	3,080	10.60	6,950	18.40	37,000	13.31	14,500
N	7.76	2,480	7.96	2,680	8.47	3,260	10.97	7,890	18.44	37,000	12.74	12,700
2	7.68	2,430	7.91	2,630	8.64	3,450	12.41	11,800	18.27	36,400	12.41	11,800
4	7.63	2,380	7.83	2,630	8.90	3,850	14.28	17,800	17.96	34,600	12.14	10,900
6	7.62	2,330	7.85	2,580	9.30	4,450	15.19	21,400	17.58	32,600	11.93	10,300
8	7.66	2,380	7.83	2,580	9.64	4,950	15.97	24,600	17.12	30,100	11.75	10,000
10	7.74	2,480	7.82	2,530	9.77	5,310	16.85	28,600	16.62	27,600	11.54	9,180
M	7.83	2,580	7.81	2,530	10.07	5,890	17.53	32,100	16.05	24,600	11.31	8,650
	March 20		March 21		March 22		March 23		March 24		March 25	
2	11.02	7,890	8.82	3,710	8.20	2,960	7.88	2,630	7.54	2,280	7.39	2,130
4	10.73	7,180	8.76	3,710	8.13	2,900	7.88	2,630	7.50	2,230	7.38	2,130
6	10.50	6,730	8.71	3,580	8.06	2,800	7.88	2,630	7.49	2,230	7.38	2,130
8	10.24	6,090	8.67	3,580	7.96	2,680	7.89	2,630	7.48	2,230	7.38	2,130
10	10.00	5,690	8.59	3,450	7.88	2,630	7.90	2,630	7.47	2,180	7.38	2,130
N	9.80	5,310	8.56	3,450	7.80	2,530	7.88	2,630	7.47	2,180	7.38	2,130
2	9.62	4,950	8.52	3,320	7.74	2,480	7.83	2,580	7.45	2,180	7.37	2,080
4	9.47	4,780	8.50	3,320	7.72	2,430	7.77	2,480	7.44	2,180	7.35	2,080
6	9.31	4,450	8.46	3,260	7.76	2,480	7.71	2,430	7.43	2,180	7.34	2,080
8	9.18	4,290	8.40	3,200	7.82	2,530	7.66	2,380	7.42	2,130	7.30	2,040
10	9.05	3,990	8.35	3,140	7.85	2,580	7.61	2,330	7.40	2,130	7.27	2,000
M	8.91	3,850	8.28	3,080	7.87	2,580	7.57	2,280	7.39	2,130	7.25	2,000

Supplemental records.- Mar. 18, 11 a.m., 18.49 ft., 37,600 sec.-ft.

Driftwood Branch of Sinnemahoning Creek at Sterling Run, Pa.

Location.- Lat. 41°24'30", long. 78°11'25", 800 feet above highway bridge at Sterling Run, Cameron County, and 1,100 feet above mouth of Sterling Run. Zero of gage is 894.60 feet above mean sea level.
Drainage area.- 281 square miles.
Gage-height record.- Graph based on two or more readings daily and plotted to correspond to fluctuations shown by recorder graph at former site at highway bridge downstream. Gage heights used to half tenths between 2.4 and 4.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 3,000 second-feet by current-meter measurements; extended to peak stage on basis of slope-area determination of flood flow. Affected by ice Feb. 1 to Mar. 5.
Maxima.- 1936: Discharge, 28,400 second-feet 10:30 p.m. Mar. 17 (gage height, 12.0 feet, from graph based on gage readings).
1913-35: Discharge, 12,700 second-feet Feb. 12, 1925; maximum gage height, 10.4 feet (from graph based on gage readings affected by ice) Mar. 5, 1920, at former site.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	98	1,600	723	11	76	4,460	1,150	21	74	3,230	346
2	96	1,600	940	12	76	11,300	1,270	22	70	2,380	371
3	96	1,550	940	13	76	5,610	1,210	23	70	1,760	303
4	98	1,500	847	14	80	3,010	940	24	70	1,830	284
5	90	3,500	684	15	88	1,580	762	25	80	2,930	266
6	86	3,160	1,540	16	98	3,460	612	26	150	3,880	275
7	84	2,200	2,020	17	96	13,700	545	27	350	3,430	254
8	82	1,030	1,540	18	92	18,500	454	28	700	3,060	249
9	80	696	1,150	19	88	8,200	371	29	1,600	2,230	303
10	78	945	990	20	82	4,980	346	30		1,640	258
								31		1,310	
Mean monthly discharge, in second-feet									169	3,879	731
Run-off, in inches									0.65	15.91	2.90

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.74	1,340	3.18	762	3.16	723	3.87	1,470	8.08	12,500	6.45	7,080
4	3.68	1,270	3.16	723	3.20	762	4.00	1,690	8.36	13,500	6.20	6,520
6	3.62	1,150	3.14	723	3.24	804	4.16	2,020	8.35	13,500	5.95	5,980
8	3.56	1,100	3.12	684	3.28	847	4.33	2,200	8.25	12,800	5.80	5,460
10	3.50	1,040	3.10	684	3.32	847	4.50	2,570	8.10	12,500	5.77	5,460
N	3.45	990	3.08	684	3.36	894	4.70	2,960	7.94	11,800	5.74	5,210
2	3.40	940	3.06	648	3.40	940	5.00	3,580	7.78	11,400	5.71	5,210
4	3.36	894	3.07	648	3.46	990	5.43	4,480	7.58	10,800	5.68	5,210
6	3.32	847	3.08	684	3.53	1,100	6.12	6,250	7.38	10,100	5.60	4,960
8	3.28	847	3.09	684	3.60	1,150	6.80	8,260	7.18	9,490	5.52	4,720
10	3.24	804	3.10	684	3.67	1,210	7.30	9,810	6.94	8,560	5.46	4,720
M	3.20	762	3.12	684	3.75	1,340	7.80	11,400	6.70	7,960	5.40	4,480
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.28	4,250	4.15	2,020	3.90	1,540	6.00	5,980	11.60	26,600	7.20	9,490
4	5.16	4,020	4.10	1,850	4.00	1,690	6.20	6,520	11.20	24,800	7.00	8,870
6	5.04	3,580	4.05	1,690	4.10	1,850	6.40	7,080	10.80	23,000	6.85	8,260
8	4.90	3,370	4.00	1,690	4.30	2,200	6.67	7,960	10.40	21,300	6.70	7,960
10	4.76	3,160	3.90	1,540	4.50	2,570	7.06	9,180	9.95	19,600	6.70	7,960
N	4.65	2,760	3.85	1,470	4.80	3,160	7.50	10,400	9.50	17,600	6.70	7,960
2	4.54	2,570	3.80	1,400	5.40	4,480	8.10	12,500	9.10	16,100	6.69	7,960
4	4.43	2,380	3.77	1,340	5.54	4,720	8.60	14,200	8.80	15,000	6.69	7,960
6	4.37	2,380	3.74	1,340	5.65	4,960	9.50	17,600	8.45	13,500	6.68	7,960
8	4.31	2,200	3.77	1,340	5.70	5,210	10.80	23,000	8.15	12,800	6.60	7,660
10	4.25	2,020	3.80	1,400	5.80	5,460	11.90	28,000	7.75	11,400	6.48	7,370
M	4.19	2,020	3.85	1,470	5.90	5,720	11.95	28,400	7.45	10,100	6.38	7,080
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.20	6,520	5.08	3,830	4.60	2,870	3.97	1,840	3.83	1,700	4.18	2,210
4	6.00	5,980	5.02	3,630	4.58	2,870	3.97	1,840	3.86	1,700	4.26	2,370
6	5.80	5,460	4.96	3,630	4.56	2,870	3.96	1,840	3.90	1,770	4.38	2,530
8	5.60	4,960	4.88	3,430	4.50	2,700	3.96	1,840	3.94	1,840	4.46	2,700
10	5.50	4,720	4.80	3,240	4.42	2,530	3.93	1,840	3.95	1,840	4.51	2,700
N	5.46	4,720	4.74	3,050	4.30	2,370	3.90	1,770	3.95	1,840	4.56	2,870
2	5.44	4,490	4.69	3,050	4.18	2,210	3.87	1,700	3.96	1,840	4.60	2,870
4	5.42	4,490	4.64	2,870	4.06	2,060	3.84	1,700	3.96	1,840	4.64	2,870
6	5.34	4,260	4.63	2,870	4.02	1,910	3.83	1,700	3.98	1,910	4.80	3,240
8	5.27	4,260	4.62	2,870	4.00	1,910	3.82	1,630	4.00	1,910	4.96	3,630
10	5.20	4,040	4.61	2,870	3.98	1,910	3.81	1,630	4.05	1,910	5.13	3,830
M	5.14	3,830	4.60	2,870	3.98	1,910	3.80	1,630	4.10	2,060	5.30	4,260

Supplemental records.- Mar. 17, 10:30 p.m., 12.0 ft.

North Bald Eagle Creek at Beech Creek Station, Pa.

Location.- Lat. 41°3'55", long. 77°34'0", at highway bridge just below mouth of Beech Creek, at Beech Creek Station, Clinton County. Zero of gage is 571.79 feet above mean sea level.

Drainage area.- 559 square miles.

Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.0 and 5.0 feet; hundredths below and tenths above these limits.

Stage-discharge relation.- Affected by ice Feb. 1-29. Defined to 12,000 second-feet by current-meter measurements; logarithmic extension to crest discharge.

Maxima.- 1936: Discharge, 22,300 second-feet 5:30 a.m. Mar. 18 (gage height, 14.42 feet).

1910-35: Discharge, 17,900 second-feet (revised) June 17, 1916 (gage height, 12.5 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	285	2,300	1,540	11	265	6,000	2,030	21	250	7,130	900
2	280	2,030	1,780	12	260	13,100	1,960	22	245	5,170	837
3	280	1,660	1,780	13	260	8,020	1,900	23	240	3,920	734
4	290	1,420	1,480	14	265	4,590	1,660	24	235	3,350	701
5	310	2,700	1,420	15	310	3,910	1,540	25	240	3,040	653
6	290	3,240	3,570	16	340	5,410	1,420	26	350	2,760	630
7	285	2,680	3,240	17	320	10,800	1,260	27	1,000	2,870	600
8	280	2,360	2,550	18	300	18,200	1,150	28	2,500	2,700	570
9	275	2,210	2,100	19	280	13,300	1,040	29	2,800	2,270	563
10	270	2,850	2,220	20	260	9,880	957	30		2,040	549
								31		1,790	
Mean monthly discharge, in second-feet									468	4,958	1,444
Run-off, in inches									0.90	10.23	2.88

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.12	2,550	3.80	2,160	4.17	2,620	4.80	3,520	10.30	13,200	9.00	10,600
4	4.10	2,550	3.80	2,160	4.25	2,750	4.92	3,660	10.70	14,000	8.72	10,100
6	4.05	2,480	3.79	2,160	4.28	2,820	5.00	3,810	10.90	14,500	8.40	9,510
8	3.98	2,420	3.77	2,100	4.28	2,820	5.18	4,110	10.88	14,500	8.10	8,960
10	3.96	2,360	3.75	2,100	4.26	2,750	5.37	4,410	10.77	14,300	7.78	8,420
N	3.90	2,290	3.72	2,030	4.24	2,750	5.67	4,870	10.65	13,800	7.43	7,700
2	3.94	2,360	3.74	2,100	4.25	2,750	6.10	5,510	10.45	13,400	7.11	7,180
4	3.83	2,220	3.80	2,160	4.30	2,820	6.62	6,330	10.25	13,000	6.88	6,840
6	3.83	2,220	3.89	2,290	4.38	2,960	7.20	7,350	10.00	12,600	6.66	6,500
8	3.83	2,220	3.94	2,360	4.47	3,030	8.00	8,780	9.75	12,200	6.46	6,160
10	3.82	2,160	3.99	2,420	4.57	3,170	8.90	10,500	9.50	11,600	6.29	5,830
M	3.81	2,160	4.06	2,480	4.67	3,310	9.60	11,800	9.25	11,000	6.14	5,510
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.97	5,350	5.32	4,260	5.10	3,960	8.00	8,780	13.32	19,700	10.55	13,800
4	5.82	5,030	5.28	4,260	5.11	3,960	8.15	9,140	14.25	21,800	10.40	13,400
6	5.69	4,870	5.22	4,110	5.14	3,960	8.30	9,320	14.38	22,300	10.35	13,400
8	5.56	4,710	5.14	3,960	5.25	4,110	8.43	9,510	14.10	21,600	10.35	13,400
10	5.44	4,410	5.03	3,810	5.49	4,560	8.53	9,700	13.67	20,700	10.33	13,200
N	5.31	4,260	4.97	3,740	5.68	4,870	8.63	9,890	13.14	19,300	10.35	13,400
2	5.26	4,260	4.92	3,660	6.00	5,350	8.75	10,300	12.55	18,100	10.37	13,400
4	5.27	4,260	4.87	3,590	6.31	5,830	8.93	10,500	12.04	16,800	10.38	13,400
6	5.28	4,260	4.90	3,660	6.70	6,500	9.20	11,000	11.55	15,900	10.35	13,400
8	5.28	4,260	4.95	3,740	7.10	7,180	9.75	12,200	11.21	15,100	10.21	13,000
10	5.31	4,260	5.00	3,810	7.45	7,700	10.80	14,300	10.94	14,500	10.05	12,600
M	5.34	4,260	5.07	3,960	7.75	8,420	12.10	17,000	10.73	14,000	9.86	12,400
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.68	12,000	7.15	7,350	6.44	5,990	5.33	4,260	4.83	3,590	4.53	3,170
4	9.46	11,600	7.04	7,010	6.29	5,830	5.27	4,260	4.80	3,520	4.52	3,100
6	9.25	11,000	7.09	7,180	6.16	5,670	5.21	4,110	4.77	3,450	4.50	3,100
8	9.05	10,600	7.21	7,350	6.03	5,350	5.15	4,110	4.73	3,450	4.49	3,100
10	8.83	10,300	7.24	7,350	5.92	5,190	5.09	3,960	4.70	3,380	4.47	3,030
N	8.60	9,890	7.22	7,350	5.81	5,030	5.03	3,810	4.66	3,310	4.45	3,030
2	8.38	9,510	7.17	7,350	5.72	4,870	4.99	3,810	4.63	3,310	4.43	3,030
4	8.13	8,960	7.12	7,180	5.63	4,710	4.94	3,740	4.60	3,240	4.41	2,960
6	7.90	8,600	7.05	7,010	5.55	4,710	4.90	3,660	4.58	3,240	4.40	2,960
8	7.68	8,240	6.95	7,010	5.50	4,560	4.88	3,660	4.56	3,170	4.39	2,960
10	7.50	7,880	6.80	6,670	5.46	4,560	4.87	3,590	4.55	3,170	4.38	2,960
M	7.32	7,520	6.62	6,330	5.42	4,410	4.85	3,590	4.54	3,170	4.37	2,890

Supplemental records.- Mar. 18, 5:30 a.m., 14.42 ft., 22,300 sec.-ft.

Pine Creek at Cedar Run, Pa.

Location.- Lat. 41°31'20", long. 77°26'55", at highway bridge at Cedar Run, Lycoming County. Zero of gage is 781.96 feet above mean sea level.
Drainage area.- 604 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 5.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 12,000 second-feet by current-meter measurements; extended to crest discharge using slope-area determination of flood flow. Affected by ice Feb. 1 to 6 p.m. Mar. 11.
Maxima.- 1936: Discharge, 30,900 second-feet 3:30 a.m. Mar. 18 (gage height, 11.39 feet).
1918-35: Discharge, 17,500 second-feet (revised) Apr. 6, 7, 1924 (gage height, 8.6 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1		780	4,120	11		9,000	2,270	21		7,920	900
2		700	3,560	12		17,000	2,290	22		5,620	900
3		760	3,140	13		9,080	2,430	23		4,530	752
4		900	2,450	14		5,120	2,150	24		5,040	672
5		1,000	2,120	15		4,130	1,950	25		7,130	612
6		850	3,150	16		7,850	1,740	26		9,120	579
7		800	3,340	17		14,300	1,500	27		8,360	547
8		780	3,030	18		22,600	1,280	28		8,840	515
9		780	2,450	19		14,800	1,100	29		6,480	620
10		1,000	2,200	20		11,000	970	30		5,430	587
								31		5,510	
Mean monthly discharge, in second-feet										6,362	1,797
Run-off, in inches										12.11	3.32

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.62	-		-	3.33	-	4.85		9.39	20,700	6.99	11,700
4	3.63	-	3.48	-	3.50	-	4.55		9.40	20,700	6.78	11,100
6	-	-	3.43	-	3.39	-	4.50		9.24	19,900	6.59	10,500
8	-	-	-	-	3.51	-	3.85		9.08	19,500	6.39	9,900
10	-	-	-	-	3.60	-	5.39		8.79	18,300	6.22	9,300
N	3.58	*780	-	*780	3.58	*1,000	4.24	*9,000	8.68	17,900	6.05	8,700
2	-	-	-	-	3.45	-	4.72		8.41	16,700	5.89	8,400
4	-	-	-	-	3.57	-	5.59		8.14	15,500	5.76	8,100
6	-	-	3.28	-	3.60	-	6.79		7.84	14,300	5.65	7,520
8	-	-	-	-	3.70	-	7.65		7.59	13,500	5.54	7,230
10	-	-	-	-	3.38	-	8.54		7.34	12,600	5.42	6,950
M	3.50	-	3.37	-	4.25	-	9.15		7.11	12,000	5.29	6,670
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.17	6,260	4.36	4,260	4.74	5,200	6.69	10,800	11.26	30,300	7.89	14,700
4	5.01	5,850	4.32	4,150	4.71	5,080	6.63	10,500	11.34	30,300	7.67	13,900
6	4.90	5,590	4.26	4,040	4.74	5,200	6.62	10,500	11.03	28,700	7.56	13,500
8	4.79	5,330	4.20	3,940	4.98	5,850	6.74	10,800	10.61	26,700	7.68	13,900
10	4.71	5,080	4.14	3,840	5.39	6,950	6.97	11,700	10.14	24,200	7.99	15,100
N	4.63	4,960	4.07	3,630	5.77	8,100	7.14	12,000	9.64	21,700	8.16	15,900
2	4.54	4,720	4.01	3,530	5.98	8,700	7.37	12,900	9.24	19,900	8.20	15,900
4	4.47	4,480	4.00	3,530	6.19	9,300	7.62	13,500	8.92	18,700	8.19	15,900
6	4.44	4,480	4.22	3,940	6.49	10,200	8.14	15,500	8.70	17,900	8.08	15,500
8	4.42	4,370	4.47	4,480	6.68	10,800	8.86	18,700	8.50	17,100	7.93	14,700
10	4.41	4,370	4.64	4,960	6.73	10,800	9.54	21,200	8.29	16,300	7.76	14,300
M	4.39	4,370	4.72	5,080	6.74	10,800	10.64	26,700	8.09	15,500	7.59	13,500
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.40	12,900	6.13	9,000	5.19	6,390	4.72	5,080	4.54	4,710	5.06	5,980
4	7.23	12,300	6.04	8,700	5.11	6,120	4.64	4,960	4.61	4,830	5.14	6,260
6	7.06	12,000	5.98	8,700	5.01	5,850	4.56	4,710	4.63	4,960	5.15	6,260
8	6.88	11,400	5.87	8,400	4.94	5,720	4.50	4,590	4.63	4,960	5.17	6,260
10	6.77	11,100	5.77	8,100	4.87	5,460	4.44	4,470	4.62	4,830	5.19	6,390
N	6.64	10,500	5.71	7,810	4.81	5,330	4.40	4,350	4.59	4,830	5.21	6,390
2	6.51	10,200	5.65	7,520	4.77	5,200	4.37	4,240	4.58	4,830	5.30	6,670
4	6.44	9,900	5.59	7,520	4.75	5,200	4.34	4,240	4.65	4,960	5.56	7,520
6	6.42	9,900	5.54	7,230	4.76	5,200	4.33	4,240	4.76	5,200	5.80	8,100
8	6.39	9,900	5.46	7,090	4.80	5,330	4.32	4,120	4.85	5,460	5.98	8,700
10	6.32	9,600	5.38	6,950	4.82	5,330	4.36	4,240	4.94	5,720	6.11	9,000
M	6.23	9,300	5.29	6,670	4.79	5,330	4.40	4,350	5.01	5,850	6.22	9,300

Supplemental records.- Mar. 18, 3:30 a.m., 11.39 ft., 30,900 sec.-ft.

Lycoming Creek near Trout Run, Pa.

Location.- Lat. 41°25'5", long. 77°2'0", at highway bridge 2¾ miles upstream from Trout Run, Lycoming County. Zero of gage is 693.4 feet above mean sea level.
Drainage area.- 173 square miles.
Gage-height record.- Graph based on two or more readings daily. Gage heights used to half tenths between 3.0 and 4.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-29. Defined below 2,000 second-feet by current-meter measurements; extended to peak stage on basis of one slope-area determination.
Maxima.- 1936: Discharge, 17,000 second-feet 5 a.m. Mar. 18 (gage height, 17.34 feet, from flood marks).
1913-35: Discharge, 15,200 second-feet (revised) Nov. 16, 1926 (gage height, 16.3 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	79	253	507	11	76	2,880	585	21	74	1,620	267
2	78	183	526	12	75	6,590	585	22	73	1,270	267
3	80	224	488	13	76	2,250	585	23	73	1,100	228
4	82	212	397	14	78	1,300	507	24	74	1,130	208
5	81	367	363	15	80	1,120	450	25	78	1,140	194
6	80	318	835	16	79	2,180	432	26	85	1,160	180
7	79	284	745	17	78	5,550	380	27	110	1,170	169
8	78	285	625	18	77	8,320	346	28	150	1,020	161
9	78	262	546	19	76	3,380	330	29	210	828	158
10	77	324	546	20	75	2,310	298	30		696	161
								31		628	
Mean monthly discharge, in second-feet									85.8	1,620	402
Run-off, in inches									0.535	10.79	2.59

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.92	296	2.75	237	2.99	322	3.30	455	11.70	8,020	7.48	3,320
4	2.90	288	2.70	221	2.98	318	3.65	615	11.98	8,420	7.04	2,870
6	2.88	281	2.65	206	2.97	315	4.20	900	11.99	8,420	6.68	2,620
8	2.86	274	2.60	191	2.96	311	4.78	1,250	11.95	8,420	6.42	2,380
10	2.86	274	2.68	215	2.96	311	5.59	1,780	11.44	7,630	6.15	2,220
N	2.86	274	2.76	240	2.97	315	6.40	2,380	10.96	7,110	5.95	2,060
2	2.88	281	2.84	267	2.98	318	7.21	3,050	10.48	6,500	5.75	1,920
4	2.90	288	2.92	296	2.98	318	8.02	3,780	10.00	5,900	5.59	1,780
6	2.96	311	2.95	307	2.99	322	8.58	4,380	9.52	5,340	5.51	1,710
8	2.92	296	2.98	318	3.00	326	9.32	5,120	8.98	4,790	5.40	1,640
10	2.88	281	3.00	326	3.05	346	10.22	6,140	8.45	4,180	5.30	1,570
M	2.80	253	3.00	326	3.10	367	11.12	7,240	7.92	3,680	5.25	1,500
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.20	1,500	4.58	1,130	4.97	1,370	7.65	3,410	14.00	11,300	7.85	3,590
4	5.12	1,430	4.55	1,130	5.04	1,370	7.75	3,590	17.00	16,500	7.70	3,500
6	5.04	1,370	4.52	1,070	5.10	1,430	7.78	3,590	16.60	15,700	7.60	3,410
8	4.96	1,370	4.52	1,070	5.18	1,500	7.90	3,680	14.00	11,300	7.56	3,410
10	4.90	1,310	4.51	1,070	5.25	1,500	8.30	4,080	12.20	8,700	7.54	3,320
N	4.85	1,250	4.51	1,070	5.60	1,780	9.00	4,790	11.20	7,370	7.58	3,410
2	4.80	1,250	4.52	1,070	6.20	2,220	10.00	5,900	10.20	6,140	7.62	3,410
4	4.75	1,250	4.52	1,070	6.80	2,700	11.20	7,370	9.60	5,450	7.60	3,410
6	4.70	1,190	4.54	1,070	7.16	3,050	11.60	7,890	9.10	4,900	7.56	3,410
8	4.66	1,190	4.60	1,130	7.40	3,230	11.70	8,020	8.70	4,480	7.40	3,230
10	4.62	1,130	4.75	1,250	7.60	3,410	11.80	8,150	8.40	4,180	7.25	3,050
M	4.60	1,130	4.90	1,310	7.63	3,410	11.90	8,280	8.10	3,880	7.10	2,960
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.95	2,870	5.61	1,780	5.08	1,430	4.58	1,140	4.64	1,140	4.41	1,030
4	6.74	2,620	5.55	1,780	5.04	1,370	4.57	1,140	4.68	1,200	4.45	1,030
6	6.57	2,540	5.49	1,710	5.00	1,370	4.56	1,140	4.70	1,200	4.51	1,080
8	6.45	2,380	5.45	1,640	4.98	1,370	4.55	1,140	4.72	1,200	4.58	1,140
10	6.35	2,380	5.40	1,640	4.94	1,310	4.50	1,080	4.70	1,200	4.60	1,140
N	6.25	2,220	5.36	1,640	4.85	1,250	4.45	1,030	4.66	1,200	4.61	1,140
2	6.15	2,220	5.32	1,570	4.77	1,250	4.40	1,030	4.62	1,140	4.63	1,140
4	6.05	2,060	5.28	1,570	4.70	1,200	4.43	1,030	4.58	1,140	4.65	1,140
6	5.96	2,060	5.24	1,500	4.62	1,140	4.46	1,080	4.50	1,080	4.69	1,200
8	5.87	1,990	5.20	1,500	4.61	1,140	4.52	1,080	4.45	1,030	4.73	1,200
10	5.77	1,920	5.16	1,500	4.60	1,140	4.58	1,140	4.41	1,030	4.77	1,250
M	5.67	1,850	5.12	1,430	4.59	1,140	4.60	1,140	4.40	1,030	4.80	1,250

Supplemental records.- Mar. 18, 5 a.m., 17.34 ft., 17,000 sec.-ft.

Loyalsock Creek at Loyalsock, Pa.

Location.- Lat. 41°19'25", long. 76°54'40", at highway bridge at Loyalsock, Lycoming County. Zero of gage is 585.63 feet above mean sea level.
Drainage area.- 443 square miles.
Gage-height record.- Water-stage recorder graph except for period Apr. 1-16, when daily readings were used. Gage heights used to half tenths 5.0 to 7.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined below 9,000 second-feet by current-meter measurements; extended logarithmically to peak gage height.
Maxima.- 1936: Discharge, 29,900 second-feet 9:45 a.m. Mar. 18 (gage height, 11.58 feet, from flood mark in well).
1925-35: Discharge, 34,000 second-feet Nov. 16, 1926 (gage height, 12.3 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	390	1,800	956	11	350	4,500	1,420	21	360	5,570	676
2	380	1,600	901	12	350	15,000	1,450	22	350	4,480	700
3	390	1,500	1,100	13	350	7,060	1,380	23	340	3,120	652
4	400	1,600	890	14	360	4,270	1,170	24	350	2,710	568
5	410	2,200	754	15	400	3,810	1,150	25	370	2,340	517
6	400	1,900	1,700	16	450	5,710	1,120	26	450	1,920	475
7	390	1,800	3,040	17	450	12,200	1,010	27	600	1,940	442
8	380	1,700	2,130	18	430	18,200	880	28	900	2,040	416
9	370	1,700	1,540	19	400	7,950	790	29	1,400	1,320	398
10	360	2,000	1,420	20	370	5,330	718	30		1,170	404
								31		954	
Mean monthly discharge, in second-feet									445	4,174	1,026
Run-off, in inches									1.08	10.86	2.59

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.02	2,780	4.83	2,430	4.90	2,570	6.05	5,210	10.45	23,100	7.28	9,150
4	4.96	2,700	4.97	2,720	5.11	3,000	7.04	8,280	10.75	25,500	7.11	8,450
6	4.90	2,570	4.91	2,590	5.13	3,110	5.84	4,710	10.78	25,500	6.98	8,100
8	4.87	2,510	4.91	2,590	5.25	3,330	5.77	4,470	10.58	24,300	6.83	7,600
10	4.95	2,680	4.93	2,630	5.20	3,220	5.75	4,470	9.95	20,700	6.70	7,150
N	4.97	2,720	4.92	2,610	5.25	3,330	5.82	4,590	9.35	17,700	6.58	6,850
2	5.00	2,780	4.92	2,610	5.22	3,220	5.97	4,950	8.88	15,400	6.46	6,400
4	4.95	2,680	4.89	2,550	5.25	3,330	6.34	6,100	8.52	13,600	6.36	6,100
6	4.96	2,700	4.92	2,610	5.29	3,440	7.15	8,620	8.20	12,400	6.28	5,950
8	4.92	2,610	4.92	2,610	5.20	3,220	8.15	12,400	7.94	11,200	6.20	5,650
10	4.90	2,570	4.96	2,700	5.45	3,780	9.15	16,700	7.70	10,600	6.12	5,350
M	4.94	2,650	5.00	2,780	5.60	4,120	9.80	19,700	7.48	9,850	6.04	5,210
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.96	4,950	5.47	3,780	6.06	5,210	7.16	8,620	9.45	17,700	7.80	8,800
4	5.87	4,710	5.46	3,780	6.05	5,210	7.47	9,680	10.10	21,300	7.64	8,000
6	5.79	4,590	5.44	3,780	6.01	5,070	7.73	10,600	10.65	24,300	7.56	8,000
8	5.72	4,350	5.41	3,660	5.97	4,950	7.95	11,600	11.15	28,100	7.63	8,000
10	5.65	4,240	5.38	3,660	5.97	4,950	8.30	12,800	11.50	29,200	7.72	8,400
N	5.60	4,120	5.34	3,550	6.02	5,070	8.50	13,600	10.85	24,300	7.85	8,800
2	5.56	4,000	5.31	3,440	6.10	5,350	8.50	13,600	9.90	18,800	7.70	8,400
4	5.52	3,890	5.29	3,440	6.28	5,950	8.55	14,000	9.19	15,000	7.52	7,630
6	5.50	3,890	5.32	3,440	6.41	6,250	8.60	14,000	8.75	13,000	7.39	7,330
8	5.48	3,890	5.42	3,660	6.51	6,550	8.60	14,000	8.45	11,200	7.30	7,040
10	5.48	3,890	5.74	4,470	6.63	7,000	8.60	14,000	8.19	10,400	7.20	6,750
M	5.47	3,780	5.99	5,070	6.85	7,600	8.70	14,400	8.00	9,600	7.13	6,610
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.04	6,330	6.32	4,390	6.72	5,390	5.95	3,580	5.57	2,730	5.43	2,490
4	6.98	6,190	6.30	4,390	6.61	5,130	5.90	3,470	5.57	2,730	5.42	2,470
6	6.88	5,920	6.34	4,510	6.52	4,880	5.85	3,360	5.58	2,830	5.41	2,450
8	6.78	5,650	6.46	4,760	6.43	4,760	5.80	3,250	5.58	2,830	5.39	2,410
10	6.68	5,390	6.61	5,130	6.35	4,510	5.75	3,140	5.59	2,830	5.37	2,370
N	6.58	5,130	6.88	5,920	6.27	4,270	5.71	3,040	5.58	2,830	5.35	2,340
2	6.50	4,880	7.17	6,610	6.20	4,150	5.67	2,940	5.57	2,730	5.33	2,300
4	6.44	4,760	7.25	6,900	6.13	4,040	5.63	2,940	5.53	2,730	5.31	2,260
6	6.41	4,630	7.19	6,750	6.09	3,920	5.60	2,830	5.51	2,630	5.30	2,240
8	6.38	4,630	7.09	6,470	6.07	3,800	5.58	2,830	5.48	2,590	5.28	2,200
10	6.38	4,630	7.01	6,190	6.04	3,800	5.57	2,730	5.47	2,570	5.27	2,180
M	6.36	4,510	6.89	5,920	6.00	3,690	5.57	2,730	5.44	2,510	5.26	2,160

Penn Creek at Penns Creek, Pa.

Location.- Lat. 40°51'35", long. 77°4'5", at bridge on State highway 104, three-quarters of a mile northeast of Penns Creek, Snyder County (formerly published as Union County). Zero of gage is 506.74 feet above mean sea level.
Drainage area.- 301 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths 3.0 to 5.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined below 6,000 second-feet by current-meter measurements; extended logarithmically to peak discharge. Affected by ice Feb. 1 to Mar. 6.
Maxima.- 1936: Discharge, 11,400 second-feet 8 a.m. Mar. 18 (gage height, 12.12 feet, from flood mark in well).
1929-35: Discharge, 12,900 second-feet Sept. 16, 1934 (gage height, 13.00 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	170	1,000	833	11	160	4,690	1,360	21	150	5,350	616
2	170	950	833	12	160	8,560	1,280	22	150	3,950	577
3	170	950	833	13	160	5,450	1,250	23	150	2,950	522
4	180	1,000	680	14	170	3,510	1,110	24	160	2,400	470
5	190	1,200	627	15	190	2,920	1,040	25	180	2,010	400
6	180	1,600	1,750	16	200	3,040	965	26	250	1,690	386
7	180	1,280	1,580	17	190	6,080	866	27	400	1,560	359
8	170	1,190	1,320	18	180	10,200	802	28	600	1,400	337
9	170	1,280	1,180	19	170	8,430	740	29	800	1,170	341
10	170	1,700	1,360	20	160	6,390	680	30		1,050	333
								31		939	
Mean monthly discharge, in second-feet									218	3,093	848
Run-off, in inches									0.78	11.87	3.15

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March		March 10		March 11		March 12		March 13	
2	3.87	1,220	3.79	1,180	4.44	1,660	4.77	1,900	10.98	9,580	9.03	6,680
4	3.84	1,220	3.81	1,180	4.57	1,740	4.91	2,020	10.93	9,430	8.88	6,540
6	3.86	1,220	3.78	1,180	4.52	1,700	5.03	2,100	10.81	9,280	8.61	6,140
8	3.83	1,220	3.77	1,140	4.47	1,660	5.26	2,360	10.66	9,130	8.37	5,880
10	3.74	1,140	3.79	1,180	4.37	1,580	5.73	2,740	10.56	8,980	8.15	5,620
N	3.74	1,140	3.77	1,140	4.44	1,660	6.49	3,560	10.42	8,680	7.95	5,360
2	3.76	1,140	3.84	1,220	4.49	1,700	7.76	5,100	10.32	8,530	7.77	5,100
4	3.78	1,180	3.93	1,280	4.46	1,660	9.01	6,680	10.23	8,380	7.62	4,850
6	3.70	1,110	4.11	1,400	4.63	1,820	9.43	7,240	10.00	8,080	7.47	4,730
8	3.80	1,180	4.24	1,510	4.60	1,780	9.79	7,800	9.75	7,800	7.33	4,490
10	3.83	1,220	4.27	1,510	4.61	1,780	10.29	8,530	9.47	7,380	7.18	4,370
M	3.81	1,180	4.29	1,540	4.66	1,820	10.74	9,130	9.18	6,960	7.04	4,130
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.91	4,010	6.13	3,140	5.80	2,840	7.41	4,610	11.19	9,900	10.61	8,980
4	6.77	3,890	6.08	3,140	5.82	2,840	7.65	4,850	11.54	10,400	10.57	8,980
6	6.64	3,670	6.01	3,040	5.81	2,840	7.84	5,100	11.85	10,900	10.55	8,980
8	6.52	3,560	5.93	2,940	5.78	2,840	8.05	5,360	12.12	11,400	10.50	8,830
10	6.42	3,450	5.85	2,840	5.77	2,840	8.30	5,730	12.06	11,400	10.42	8,680
N	6.32	3,340	5.78	2,840	5.77	2,840	8.39	5,880	11.92	11,000	10.25	8,380
2	6.26	3,340	5.75	2,840	5.80	2,840	8.49	6,010	11.68	10,700	10.09	8,230
4	6.23	3,240	5.75	2,840	5.83	2,840	8.75	6,400	11.45	10,200	10.00	8,080
6	6.22	3,240	5.75	2,840	5.90	2,940	9.07	6,820	11.23	9,900	10.00	8,080
8	6.19	3,240	5.73	2,740	6.10	3,140	9.27	7,100	10.95	9,580	9.92	7,940
10	6.16	3,240	5.73	2,740	6.58	3,670	9.88	7,940	10.72	9,130	9.81	7,800
M	6.15	3,240	5.77	2,840	7.08	4,250	10.65	8,980	10.64	8,980	9.68	7,660
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.52	7,380	7.82	5,100	7.40	4,610	6.21	3,240	5.56	2,640	5.07	2,180
4	9.36	7,240	7.82	5,100	7.25	4,370	6.14	3,140	5.51	2,540	5.03	2,100
6	9.19	6,960	7.98	5,360	7.12	4,250	6.07	3,140	5.47	2,540	4.98	2,100
8	9.04	6,680	8.20	5,620	7.00	4,130	6.01	3,040	5.43	2,450	4.95	2,060
10	9.01	6,680	8.25	5,620	6.89	4,010	5.95	3,040	5.38	2,450	4.92	2,020
N	8.84	6,400	8.23	5,620	6.79	3,890	5.89	2,940	5.34	2,360	4.89	2,020
2	8.65	6,140	8.24	5,620	6.68	3,780	5.84	2,840	5.30	2,360	4.86	1,980
4	8.48	6,010	8.26	5,750	6.58	3,670	5.77	2,840	5.26	2,360	4.83	1,980
6	8.32	5,750	8.10	5,490	6.52	3,560	5.72	2,740	5.22	2,270	4.79	1,940
8	8.18	5,620	7.90	5,230	6.45	3,450	5.68	2,740	5.18	2,270	4.75	1,900
10	8.05	5,360	7.74	4,970	6.37	3,450	5.64	2,640	5.14	2,180	4.72	1,860
M	7.92	5,230	7.56	4,850	6.29	3,340	5.61	2,640	5.10	2,180	4.68	1,860

Mahantango Creek East near Dalmatia, Pa.

Location.- Lat. 40°36'40", long. 76°54'45", at highway bridge 2 miles above mouth and 3¼ miles south of Dalmatia, Northumberland County. Zero of gage is 400.50 feet above mean sea level.
Drainage area.- 162 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 5.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 4. Affected by backwater from Susquehanna River 2 p.m. Mar. 18 to 2 a.m. Mar. 21. Defined by current-meter measurements below 3,000 second-feet; logarithmic extension to peak stage.
Maxima.- 1936: Discharge, 5,180 second-feet 1 p.m. Mar. 12 (gage height, 9.75 feet).
1929-35: Discharge, about 9,850 second-feet Aug. 24, 1933 (gage height, 13.66 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	220	450	297	11	215	2,410	700	21	215	1,780	234
2	220	400	293	12	210	4,570	640	22	210	1,580	237
3	220	450	287	13	210	2,640	612	23	210	1,060	203
4	230	600	240	14	215	1,380	524	24	215	809	182
5	240	962	217	15	240	1,060	472	25	240	650	164
6	235	828	813	16	250	928	432	26	300	524	160
7	230	680	940	17	250	1,380	369	27	400	516	146
8	225	623	740	18	240	3,420	321	28	600	496	137
9	220	733	624	19	230	2,720	284	29	550	396	132
10	220	1,140	700	20	220	1,680	252	30		365	122
								31		339	
Mean monthly discharge, in second-feet									258	1,212	382
Run-off, in inches									1.72	8.62	2.63

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.52	640	3.55	660	4.35	1,010	5.91	1,880	8.64	4,010	8.22	3,650
4	3.50	640	3.55	660	4.40	1,030	6.08	2,020	9.00	4,380	7.89	3,380
6	3.47	628	3.56	660	4.42	1,030	6.16	2,090	9.29	4,680	7.57	3,140
8	3.45	620	3.56	660	4.41	1,030	6.19	2,090	9.52	4,880	7.27	2,900
10	3.42	608	3.56	660	4.37	1,010	6.20	2,090	9.65	4,980	6.97	2,660
N	3.39	596	3.55	660	4.31	985	6.24	2,090	9.73	5,080	6.72	2,440
2	3.38	592	3.58	680	4.30	985	6.39	2,230	9.73	5,080	6.50	2,300
4	3.38	592	3.69	720	4.39	1,030	6.67	2,440	9.62	4,980	6.31	2,160
6	3.41	604	3.84	782	4.64	1,160	7.00	2,660	9.45	4,780	6.15	2,090
8	3.45	620	4.00	850	4.97	1,310	7.36	2,980	9.20	4,580	6.00	1,950
10	3.50	640	4.15	918	5.30	1,520	7.81	3,300	8.90	4,280	5.85	1,820
M	3.53	660	4.27	962	5.63	1,700	8.30	3,740	8.56	4,010	5.70	1,760
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.55	1,700	4.64	1,160	4.29	985	4.31	985	6.87	2,580	8.64	*3,470
4	5.42	1,580	4.60	1,130	4.28	985	4.54	1,100	7.58	3,140	8.72	*3,380
6	5.29	1,520	4.55	1,100	4.26	962	4.93	1,310	8.03	3,470	8.70	*3,220
8	5.17	1,430	4.50	1,080	4.23	962	5.12	1,400	8.30	3,740	8.64	*2,980
10	5.03	1,370	4.45	1,060	4.20	940	5.12	1,400	8.49	3,920	8.52	*2,820
N	4.94	1,310	4.41	1,030	4.17	918	5.13	1,430	8.57	4,010	8.38	*2,660
2	4.87	1,260	4.38	1,030	4.14	918	5.18	1,460	8.52	*3,920	8.23	*2,510
4	4.81	1,230	4.35	1,010	4.10	895	5.20	1,460	8.57	*3,740	8.08	*2,370
6	4.79	1,230	4.33	1,010	4.07	872	5.18	1,460	8.58	*3,560	7.93	*2,300
8	4.76	1,200	4.31	985	4.04	872	5.21	1,460	8.58	*3,470	7.75	*2,160
10	4.74	1,200	4.30	985	4.06	872	5.46	1,610	8.50	*3,470	7.56	*2,090
M	4.69	1,180	4.29	985	4.11	895	6.07	2,020	8.51	*3,470	7.37	*1,950
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.19	1,880	5.42	1,580	5.83	1,820	4.80	1,230	4.08	895	3.67	700
4	7.00	1,820	5.45	1,610	5.77	1,820	4.72	1,180	4.05	872	3.64	700
6	6.80	1,760	5.62	1,700	5.68	1,760	4.64	1,160	4.01	850	3.62	680
8	6.60	1,700	5.69	1,760	5.61	1,700	4.57	1,100	3.97	828	3.58	680
10	6.42	1,700	5.77	1,820	5.52	1,640	4.50	1,080	3.93	828	3.55	660
N	6.25	1,640	5.84	1,820	5.41	1,580	4.42	1,030	3.90	805	3.52	640
2	6.09	1,610	5.88	1,880	5.30	1,520	4.38	1,030	3.87	782	3.49	636
4	5.95	1,580	5.93	1,880	5.22	1,460	4.33	1,010	3.83	782	3.48	632
6	5.82	1,550	5.93	1,880	5.13	1,430	4.27	962	3.80	760	3.45	620
8	5.70	1,520	5.89	1,880	5.03	1,370	4.21	940	3.75	740	3.40	600
10	5.58	1,520	5.92	1,880	4.97	1,310	4.17	918	3.74	740	3.38	592
M	5.47	1,550	5.88	1,880	4.88	1,280	4.13	918	3.70	720	3.36	584

Supplemental records.- Mar. 12, 1 p.m., 9.75 ft., 5,180 sec.-ft.

Frankstown Branch of Juniata River at Williamsburg, Pa.

Location.- Lat. 40°27'45", long. 78°12'0", at highway bridge at Williamsburg, Blair County. Zero of gage is 831.78 feet above mean sea level.
Drainage area.- 291 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 6.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 7,000 second-feet by current-meter measurements (surface velocities); extended to crest discharge using slope-area determination of flood flow.
Maxima.- 1936: Discharge, 47,600 second-feet 3 a.m. Mar. 18 (gage height, 18.58 feet).
1916-35: Discharge, 13,100 second-feet (revised) Oct. 23, 1929 (gage height, 13.9 feet).
1810-1935: Maximum discharge known, 35,500 second-feet June 1, 1889 (gage height, 19.1 feet, from flood mark).
Remarks.- Discharge estimated midnight Mar. 17 to 1 a.m. Mar. 18, when control was eroding rapidly.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	191	2,350	884	11	142	3,960	1,390	21	181	3,800	583
2	183	1,790	1,020	12	140	6,780	1,280	22	172	2,350	564
3	168	1,170	958	13	142	3,400	1,120	23	162	1,750	506
4	172	1,200	816	14	144	1,970	1,000	24	162	1,540	458
5	176	2,900	749	15	164	1,830	954	25	172	1,460	378
6	157	2,650	3,180	16	191	2,290	856	26	581	1,400	297
7	155	1,790	2,120	17	204	11,600	771	27	1,770	1,750	288
8	149	1,450	1,450	18	207	25,000	706	28	2,430	1,550	277
9	149	1,490	1,270	19	178	10,900	664	29	2,120	1,280	268
10	145	2,040	1,730	20	187	4,810	623	30		1,120	260
								31		1,010	
Mean monthly discharge, in second-feet									383	3,561	914
Run-off, in inches									1.42	14.07	3.50

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.59	1,630	5.53	1,600	5.89	1,840	6.91	2,590	11.12	7,690	8.98	4,750
4	5.49	1,560	5.49	1,560	5.98	1,910	7.00	2,680	11.35	8,180	8.63	4,280
6	5.37	1,460	5.42	1,490	6.07	1,980	7.07	2,770	11.32	8,010	8.32	3,950
8	5.24	1,400	5.33	1,460	6.09	1,980	7.18	2,860	11.09	7,690	8.00	3,630
10	5.14	1,340	5.25	1,400	6.09	1,980	7.35	3,040	10.82	7,210	7.75	3,430
N	5.05	1,280	5.19	1,370	6.08	1,980	7.64	3,230	10.55	6,910	7.53	3,130
2	5.00	1,250	5.15	1,340	6.08	1,980	8.01	3,630	10.38	6,610	7.33	2,950
4	5.04	1,280	5.17	1,340	6.11	1,980	8.48	4,170	10.16	6,320	7.16	2,860
6	5.18	1,370	5.27	1,400	6.22	2,050	9.01	4,750	9.94	5,900	7.01	2,680
8	5.37	1,460	5.41	1,490	6.38	2,190	9.66	5,630	9.75	5,760	6.87	2,590
10	5.49	1,560	5.57	1,600	6.55	2,350	10.26	6,460	9.56	5,500	6.74	2,430
M	5.54	1,600	5.74	1,740	6.75	2,510	10.75	7,210	9.29	5,110	6.60	2,350
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.51	2,270	6.27	2,120	5.92	1,840	7.77	3,430	17.90	41,400	12.90	12,900
4	6.37	2,190	6.25	2,050	5.99	1,910	7.78	3,430	18.07	43,100	12.99	13,200
6	6.22	2,050	6.15	2,050	6.00	1,910	7.85	3,430	17.38	37,300	12.99	13,200
8	6.10	1,980	6.00	1,910	6.02	1,910	8.22	3,840	16.45	30,000	12.89	12,900
10	5.97	1,880	5.84	1,800	6.10	1,980	8.63	4,280	15.65	25,000	12.68	12,300
N	5.86	1,800	5.73	1,740	6.25	2,050	9.07	4,870	14.93	21,200	12.41	11,400
2	5.79	1,770	5.66	1,660	6.48	2,270	10.79	7,210	14.31	18,300	12.13	10,700
4	5.75	1,740	5.60	1,630	6.68	2,430	12.96	11,100	13.75	16,200	11.81	9,990
6	5.80	1,770	5.61	1,630	6.88	2,590	14.46	14,900	13.24	13,900	11.45	9,110
8	5.91	1,840	5.63	1,660	7.10	2,770	15.93	19,800	12.83	12,600	11.08	8,500
10	6.06	1,980	5.70	1,700	7.43	3,040	17.22	25,400	12.66	12,300	10.70	7,740
M	6.19	2,050	5.81	1,770	7.68	3,330	17.68	39,700	12.75	12,600	10.33	7,020
	March 20		March 21		March 22		March 23		March 24		March 25	
2	9.95	6,510	7.87	3,280	7.56	2,920	6.55	1,920	6.13	1,620	6.01	1,510
4	9.66	6,010	7.88	3,350	7.40	2,750	6.50	1,880	6.11	1,580	5.98	1,510
6	9.40	5,530	8.15	3,750	7.26	2,580	6.45	1,840	6.10	1,580	5.93	1,480
8	9.17	5,210	8.46	4,170	7.12	2,430	6.40	1,800	6.07	1,540	5.93	1,480
10	8.96	4,910	8.65	4,310	7.00	2,330	6.34	1,760	6.05	1,540	5.92	1,450
N	8.78	4,610	8.77	4,610	6.89	2,230	6.29	1,720	6.03	1,540	5.90	1,450
2	8.58	4,310	8.68	4,460	6.80	2,140	6.24	1,680	6.00	1,510	5.87	1,420
4	8.43	4,030	8.49	4,170	6.73	2,100	6.22	1,650	5.98	1,510	5.86	1,420
6	8.28	3,890	8.28	3,890	6.70	2,050	6.20	1,650	5.96	1,480	5.84	1,420
8	8.13	3,610	8.08	3,610	6.67	2,000	6.17	1,620	5.95	1,480	5.83	1,420
10	8.01	3,480	7.88	3,350	6.63	2,000	6.15	1,620	5.96	1,480	5.85	1,420
M	7.91	3,350	7.72	3,100	6.58	1,960	6.13	1,620	5.99	1,510	5.90	1,450

Supplemental records.- Mar. 18, 3 a.m., 18.58 ft., 47,600 sec.-ft.

Juniata River at Newport, Pa.

Location.- Lat. 40°28'45", long. 77°7'45", at highway bridge at Newport, Perry County, 1,000 feet above Little Buffalo Creek. Zero of gage is 363.16 feet above mean sea level.
Drainage area.- 3,354 square miles.
Gage-height record.- Water-stage recorder graph except for period 4 to 11 a.m. Mar. 19, when a graph was drawn based on a flood mark. Gage heights used to half tenths between 4.5 and 6.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-29. Defined below 80,000 second-feet by current-meter measurements; extended to peak discharge using slope-area determination of flood flow.
Maxima.- 1936: Discharge, 215,000 second-feet 7 a.m. Mar. 19 (gage height, 34.24 feet, from flood mark).
1899-1935: Discharge, 118,000 second-feet (revised) Mar. 1, 1902 (gage height, 25.3 feet).
1802-1935: Maximum known discharge, 237,000 second-feet June 1, 1889 (gage height, 35.9 feet, from flood marks).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2,150	21,700	8,460	11	1,720	28,800	16,800	21	2,200	49,300	5,680
2	2,100	19,600	7,860	12	1,710	69,000	15,100	22	2,150	35,500	5,250
3	2,050	17,000	8,160	13	1,700	66,300	13,400	23	2,100	24,500	4,970
4	2,000	13,200	7,560	14	1,700	37,100	11,500	24	2,050	18,400	4,610
5	1,950	15,300	6,690	15	1,800	23,100	10,300	25	2,000	15,500	4,300
6	1,900	24,900	12,700	16	2,000	19,100	9,060	26	4,000	13,700	4,000
7	1,860	21,300	24,900	17	2,300	30,000	8,160	27	12,000	12,500	3,810
8	1,820	16,400	22,900	18	2,600	116,000	7,420	28	30,000	13,200	3,670
9	1,780	14,000	16,200	19	2,500	191,000	6,690	29	25,000	12,200	3,480
10	1,740	16,400	15,400	20	2,300	95,700	6,260	30		10,700	3,430
								31		9,680	
Mean monthly discharge, in second-feet									4,179	34,550	9,291
Run-off, in inches									1.35	11.87	3.09

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	9.35	18,600	8.22	14,400	8.46	15,400	9.78	20,100	17.23	56,400	20.30	77,400
4	9.20	17,900	8.15	14,400	8.50	15,400	9.91	20,500	17.87	61,000	20.15	76,600
6	9.05	17,200	8.09	14,000	8.52	15,400	10.03	20,900	18.45	64,200	19.92	74,400
8	8.91	16,800	8.00	13,700	8.53	15,400	10.18	21,700	18.87	67,400	19.63	72,300
10	8.76	16,500	7.93	13,400	8.54	15,400	10.35	22,500	19.18	69,500	19.27	70,200
N	8.65	15,800	7.89	13,400	8.58	15,800	10.72	23,700	19.43	70,900	18.90	67,400
2	8.55	15,800	7.87	13,400	8.68	16,200	11.25	25,700	19.70	73,000	18.50	64,800
4	8.48	15,400	7.90	13,400	8.82	16,500	12.15	30,000	19.93	74,400	18.06	62,200
6	8.43	15,100	7.98	13,700	9.02	17,200	13.21	34,500	20.14	75,800	17.61	59,000
8	8.38	15,100	8.13	14,000	9.23	17,900	14.25	39,500	20.30	77,400	17.15	56,400
10	8.33	14,800	8.28	14,800	9.45	18,600	15.31	45,400	20.41	78,100	16.65	52,800
M	8.28	14,800	8.39	15,100	9.63	19,300	16.30	51,000	20.40	78,100	16.20	50,400
	March 14		March 15		March 16		March 17		March 18		March 19	
2	15.65	47,000	11.37	26,500	9.83	20,100	9.97	20,900	16.95	55,200	32.95	200,000
4	15.17	44,800	11.15	25,700	9.75	20,100	10.43	22,500	18.55	65,500	33.40	205,000
6	14.70	42,000	10.94	24,500	9.66	19,700	10.85	24,100	20.15	76,600	34.15	215,000
8	14.28	40,000	10.73	23,700	9.57	19,300	11.23	25,700	21.77	88,700	34.17	215,000
10	13.87	38,000	10.58	23,300	9.48	19,000	11.57	27,300	23.42	101,000	33.80	210,000
N	13.47	36,000	10.43	22,500	9.41	18,600	11.95	29,100	25.00	115,000	33.27	204,000
2	13.10	34,000	10.30	22,100	9.36	18,600	12.35	30,900	26.40	128,000	32.80	198,000
4	12.76	32,700	10.20	21,700	9.32	18,200	12.75	32,700	27.85	142,000	32.10	189,000
6	12.45	30,900	10.13	21,300	9.30	18,200	13.13	34,000	28.85	152,000	31.30	180,000
8	12.15	30,000	10.05	20,900	9.32	18,200	13.53	36,000	30.07	166,000	30.37	169,000
10	11.87	28,600	9.98	20,900	9.39	18,600	14.26	40,000	31.15	178,000	29.35	158,000
M	11.63	27,300	9.90	20,500	9.60	19,300	15.55	47,000	32.25	190,000	28.30	147,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	27.25	136,000	17.30	57,000	14.43	40,500	11.82	28,200	9.85	20,100	8.76	16,500
4	26.05	124,000	16.92	54,600	14.27	40,000	11.60	27,300	9.73	19,700	8.70	16,200
6	24.95	115,000	16.57	52,800	14.08	39,000	11.41	26,500	9.62	19,300	8.65	15,800
8	23.92	105,000	16.35	51,600	13.90	38,000	11.21	25,700	9.50	19,000	8.60	15,800
10	23.00	98,200	16.13	49,800	13.70	37,000	11.02	24,900	9.40	18,600	8.55	15,800
N	22.05	90,300	15.93	48,600	13.45	35,500	10.83	24,100	9.30	18,200	8.50	15,400
2	21.23	84,100	15.72	47,600	13.17	34,500	10.65	23,300	9.21	17,900	8.45	15,100
4	20.47	78,800	15.48	46,400	12.90	33,200	10.50	22,900	9.11	17,600	8.40	15,100
6	19.73	73,000	15.25	44,800	12.64	31,800	10.36	22,500	9.05	17,200	8.35	15,100
8	19.04	68,100	15.04	43,700	12.42	30,900	10.24	21,700	8.95	17,200	8.30	14,800
10	18.40	64,200	14.82	42,600	12.23	30,000	10.11	21,300	8.88	16,800	8.26	14,800
M	17.80	60,300	14.60	41,500	12.02	29,100	9.99	20,900	8.82	16,500	8.21	14,400

Supplemental records.- Mar. 19, 7 a.m., 34.24 ft., 215,000 sec.-ft.

Shaver Creek near Petersburg, Pa.

Location.- Lat. 40°36'40", long. 78°0'25", at highway bridge 3½ miles northeast of Petersburg, Huntingdon County, and 4½ miles above mouth. Zero of gage is 691.38 feet above mean sea level.
Drainage area.- 46.4 square miles.
Gage-height record.- Graph based on two or more readings daily. Gage heights used to half tenths between 1.5 and 3.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 900 second-feet by current-meter measurements; extended logarithmically to crest stage. Affected by ice Feb. 1 to Mar. 7.
Maxima.- 1936: Gage height, 9.32 feet, from flood marks, 3:15 a.m. Mar. 18 (discharge not determined).
1929-35: Discharge, 1,800 second-feet (revised) Apr. 7, 1933 (gage height, 7.0 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	18	500	76	11	24	1,080	210	21	41	714	58
2	17	410	114	12	29	1,350	176	22	42	306	50
3	16	380	86	13	37	554	146	23	44	208	44
4	15	400	71	14	47	324	126	24	47	165	38
5	15	600	70	15	60	317	102	25	55	138	38
6	15	500	698	16	52	361	91	26	80	113	37
7	16	400	257	17	47	1,480	76	27	185	216	35
8	17	215	168	18	44	2,040	66	28	210	149	33
9	18	294	146	19	42	1,360	62	29	340	113	33
10	20	380	257	20	41	695	62	30		99	28
								31		84	
Mean monthly discharge, in second-feet									56.3	514	115
Run-off, in inches									1.30	12.78	2.77

Standing Stone Creek near Huntingdon, Pa.

Location.- Lat. 40°31'25", long. 77°58'15", at bridge on State Highway 545, 3¼ miles northeast of Huntingdon, Huntingdon County, and 3½ miles above mouth. Zero of gage is 617.81 feet above mean sea level.
Drainage area.- 128 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.0 and 5.0 feet to March 17 and between 4.0 and 6.0 thereafter; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements to 1,500 second-feet; extended logarithmically to peak stage. Affected by ice Feb. 1 to Mar. 10.
Maxima.- 1936: Discharge, about 5,070 second-feet 9:30 a.m. Mar. 18 (gage height, 9.14 feet).
1929-35: Discharge, 2,730 second-feet May 8, 1931 (gage height, 6.75 feet).
Maximum known stage, 9.38 feet June 1, 1889 (discharge, about 5,430 second-feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	57	500	344	11	57	1,610	635	21	82	1,750	244
2	56	490	344	12	60	2,490	545	22	81	1,190	229
3	55	520	335	13	67	1,480	505	23	82	805	206
4	55	580	293	14	77	820	445	24	85	660	192
5	54	650	264	15	85	750	400	25	125	580	178
6	54	750	1,200	16	92	770	374	26	200	495	170
7	54	500	761	17	97	1,960	331	27	400	565	161
8	54	460	540	18	94	3,960	305	28	520	530	154
9	54	470	472	19	89	2,900	280	29	490	450	151
10	55	700	710	20	84	2,160	260	30		414	148
								31		383	
Mean monthly discharge, in second-feet									118	1,043	373
Run-off, in inches									0.99	9.40	3.24

Raystown Branch of Juniata River at Saxton, Pa.

Location.- Lat. 40°12'55", long. 78°15'55", at highway bridge half a mile west of Saxton, Bedford County. Zero of gage is 794.73 feet above mean sea level.
Drainage area.- 756 square miles.
Gage-height record.- Water-stage recorder graph. Missing gage-height record 6 p.m. Mar. 9 to 4 a.m. Mar. 10, 6 p.m. Mar. 11 to noon Mar. 12, 8 p.m. Mar. 15 to 6 p.m. Mar. 23, determined from comparative hydrographs. Gage heights used to half tenths between 3.0 and 5.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 7,000 second-feet by current-meter measurements; extended to crest stage by using determinations of flood flow over spillway and by slope-area method. Affected by ice Feb. 1-28.
Maxima.- 1936: Discharge, 80,500 second-feet 9 a.m. Mar. 18 (gage height, 24.54 feet, from levels).
1911-1935: Discharge, 29,000 second-feet May 12, 13, 1924 (gage height, 13.6 feet, from graph based on gage readings at former site 0.8 mile downstream).
1889-1935: Maximum known discharge, 71,300 second-feet June 1, 1889 (gage-height, 23.0 feet, from flood mark).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	470	6,180	1,640	11	390	9,070	3,140	21	560	7,580	898
2	450	5,270	1,530	12	380	16,900	2,860	22	540	5,250	831
3	420	3,560	1,480	13	370	11,300	2,460	23	520	3,850	789
4	460	3,070	1,280	14	400	5,660	1,970	24	510	3,200	707
5	450	6,770	1,150	15	460	4,310	1,740	25	540	3,470	651
6	440	6,950	4,480	16	650	5,660	1,530	26	1,000	2,860	612
7	430	5,100	7,490	17	700	16,500	1,300	27	6,000	2,760	596
8	420	3,730	4,430	18	660	58,600	1,180	28	9,000	3,210	573
9	410	3,680	3,140	19	620	20,700	1,070	29	6,760	2,520	573
10	400	5,100	3,650	20	580	9,860	976	30		2,190	558
								31		1,900	
Mean monthly discharge, in second-feet									1,207	7,960	1,843
Run-off, in inches									1.73	12.14	2.72

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.89	3,950	4.43	3,280	5.02	4,110	5.88	5,630	10.42	16,400	9.83	14,700
4	4.82	3,800	4.41	3,210	5.12	4,270	5.94	5,630	10.60	17,000	9.60	14,100
6	4.78	3,800	4.46	3,280	5.26	4,590	6.05	5,810	10.72	17,300	9.35	13,600
8	4.79	3,800	4.57	3,420	5.48	4,930	6.24	6,180	10.80	17,600	9.10	12,800
10	4.81	3,800	4.68	3,650	5.66	5,270	6.55	6,950	10.85	17,600	8.82	12,000
N	4.82	3,800	4.77	3,720	5.80	5,450	6.98	7,760	10.86	17,900	8.53	11,200
2	4.80	3,800	4.82	3,800	5.85	5,450	7.50	8,830	10.81	17,600	8.26	10,700
4	4.75	3,720	4.86	3,880	5.88	5,630	8.00	9,960	10.75	17,600	7.93	9,730
6	4.68	3,660	4.92	3,950	5.88	5,630	8.70	11,700	10.65	17,000	7.60	9,050
8	4.62	3,500	4.95	4,030	5.88	5,630	9.20	13,000	10.47	16,700	7.25	8,180
10	4.55	3,420	4.98	4,110	5.88	5,630	9.70	14,400	10.27	16,100	6.99	7,760
M	4.48	3,350	5.00	4,110	5.88	5,630	10.15	15,800	10.08	15,600	6.75	7,350
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.56	6,950	5.16	4,430	5.30	4,590	7.17	8,180	19.50	52,200	14.40	29,800
4	6.40	6,560	5.12	4,270	5.40	4,760	7.24	8,180	21.60	63,300	13.50	26,500
6	6.27	6,370	5.10	4,270	5.50	4,930	7.30	8,390	23.90	76,700	12.80	24,100
8	6.11	5,990	5.10	4,270	5.60	5,100	7.44	8,610	24.48	80,500	12.30	22,400
10	5.97	5,810	5.10	4,270	5.70	5,270	7.66	9,270	24.50	80,500	11.80	20,800
N	5.83	5,450	5.10	4,270	5.80	5,450	8.10	10,200	23.80	76,100	11.30	19,200
2	5.68	5,270	5.10	4,270	5.90	5,630	9.20	13,000	22.00	65,500	10.90	17,900
4	5.57	5,100	5.09	4,270	6.00	5,810	10.40	16,400	20.60	57,800	10.50	16,700
6	5.47	4,930	5.05	4,110	6.20	6,180	11.90	21,100	19.10	50,200	10.10	15,600
8	5.38	4,760	5.10	4,270	6.40	6,560	13.60	26,900	17.80	44,000	9.80	14,700
10	5.30	4,590	5.15	4,430	6.66	7,150	15.40	33,700	16.60	38,600	9.50	13,800
M	5.23	4,430	5.20	4,430	6.95	7,760	17.40	42,200	15.50	34,100	9.20	13,000
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.90	12,200	6.85	7,350	6.30	6,370	5.06	4,270	4.51	3,350	4.38	3,210
4	8.75	12,000	6.85	7,350	6.15	6,180	5.00	4,110	4.47	3,280	4.41	3,210
6	8.45	10,900	6.92	7,550	6.00	5,810	4.96	4,030	4.43	3,280	4.52	3,350
8	8.20	10,400	7.00	7,760	5.85	5,450	4.92	3,950	4.39	3,210	4.72	3,650
10	8.00	9,960	7.10	7,970	5.70	5,270	4.88	3,950	4.36	3,140	4.88	3,950
N	7.80	9,500	7.20	8,180	5.60	5,100	4.84	3,880	4.32	3,070	4.91	3,950
2	7.68	9,270	7.20	8,180	5.50	4,930	4.80	3,800	4.32	3,070	4.83	3,880
4	7.52	8,830	7.10	7,970	5.40	4,760	4.74	3,720	4.32	3,070	4.69	3,650
6	7.36	8,610	7.00	7,760	5.33	4,590	4.67	3,580	4.34	3,140	4.56	3,420
8	7.20	8,180	6.80	7,350	5.26	4,590	4.65	3,580	4.40	3,210	4.46	3,280
10	7.04	7,760	6.60	6,950	5.19	4,430	4.62	3,500	4.42	3,210	4.38	3,210
M	6.90	7,550	6.40	6,560	5.12	4,270	4.56	3,420	4.40	3,210	4.35	3,140

Dunning Creek at Yount, Pa.

Location.- Lat. 40°3'30", long. 78°28'30", at highway bridge at Yount, Bedford County, 3 miles above mouth and 3 1/4 miles northeast of Bedford. Zero of gage is 1,046.43 feet above mean sea level.
Drainage area.- 191 square miles.
Gage-height record.- Graph based on two or more readings daily. Gage heights used to half tenths between 1.5 and 2.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 1,700 second-feet by current-meter measurements; extended logarithmically to crest stage. Affected by ice Feb. 1-29 and by backwater from Raystown Branch of Juniata River noon Mar. 17 to 8 a.m. Mar. 19.
Maxima.- 1936: Discharge, about 17,900 second-feet 1 a.m. Mar. 18; maximum gage height, 18.08 feet 3 to 4 a.m. Mar. 18, from flood marks (affected by backwater from Raystown Branch of Juniata River).
1929-35: Discharge, about 4,400 second-feet (revised) Mar. 15, 1933 (gage height, 8.8 feet, from graph based on gage readings).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	127	2,090	370	11	109	2,910	890	21	150	1,960	190
2	125	1,220	370	12	108	3,810	770	22	145	1,180	179
3	123	800	326	13	107	2,000	585	23	143	866	156
4	121	820	273	14	125	1,170	480	24	145	868	140
5	119	1,900	248	15	150	1,030	445	25	170	826	130
6	117	1,740	2,700	16	170	1,360	355	26	700	779	123
7	115	1,170	1,680	17	190	6,760	312	27	2,000	1,030	117
8	113	982	935	18	180	8,980	273	28	3,000	901	117
9	111	1,120	692	19	160	5,300	236	29	2,300	707	115
10	110	1,570	1,060	20	155	2,600	212	30		569	108
								31		457	
Mean monthly discharge, in second-feet									393	1,919	486
Run-off, in inches									2.22	11.53	2.83

Brush Creek at Gapsville, Pa.

Location.- Lat. 39°57'20", long. 78°15'15", at highway bridge three-quarters of a mile northwest of Gapsville, Bedford County, and 5½ miles above confluence with Shaffer Creek. Zero of gage is 1,122.39 feet above mean sea level.
Drainage area.- 36.8 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 4.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements to 1,700 second-feet; logarithmic extension to crest discharge. Affected by ice Feb. 1-27.
Maxima.- 1936: Discharge, 3,520 second-feet 9:30 p.m. Mar. 17 (gage height, 9.81 feet).
1929-35: Discharge, 1,100 second-feet Dec. 1, 1934 (gage height, 4.76 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	18	269	58	11	14	646	192	21	31	375	50
2	17	207	58	12	14	855	169	22	30	241	47
3	18	171	55	13	14	519	144	23	29	171	41
4	21	266	46	14	20	297	125	24	32	149	38
5	19	314	41	15	50	242	116	25	45	127	34
6	18	301	375	16	45	232	96	26	300	103	33
7	17	237	368	17	41	1,630	84	27	550	105	31
8	16	195	285	18	37	1,780	72	28	402	93	28
9	15	218	233	19	34	828	62	29	291	81	27
10	15	285	212	20	32	442	55	30		73	26
								31		68	
Mean monthly discharge, in second-feet									75.3	372	107
Run-off, in inches									2.21	11.64	3.24

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.44	207	2.41	199	2.70	275	2.94	357	4.52	980	3.71	660
4	2.42	202	2.41	199	2.69	272	2.99	376	4.44	960	3.61	620
6	2.39	195	2.40	197	2.69	272	3.05	400	4.33	920	3.53	600
8	2.37	190	2.39	195	2.68	269	3.12	428	4.22	860	3.45	560
10	2.35	186	2.37	190	2.67	267	3.19	456	4.17	840	3.39	536
N	2.34	184	2.36	188	2.67	267	3.43	552	4.14	840	3.32	508
2	2.34	184	2.39	195	2.67	267	3.76	680	4.15	840	3.26	484
4	2.35	186	2.47	214	2.69	272	4.13	840	4.13	840	3.20	460
6	2.37	190	2.58	242	2.73	285	4.38	940	4.07	800	3.14	436
8	2.40	197	2.66	264	2.79	304	4.52	980	3.99	780	3.09	416
10	2.41	199	2.70	275	2.86	328	4.61	1,020	3.90	740	3.03	392
M	2.42	202	2.71	278	2.91	346	4.59	1,020	3.80	700	2.98	372
	March 14		March 15		March 16		March 17		March 18		March 19	
2	2.92	350	2.67	267	2.51	224	3.03	392	8.11	2,620	4.76	1,100
4	2.87	332	2.64	258	2.49	219	3.12	428	7.30	2,220	4.56	1,020
6	2.82	314	2.62	253	2.48	216	3.37	528	6.78	1,980	4.40	940
8	2.78	301	2.59	244	2.47	214	3.67	640	6.47	1,850	4.25	880
10	2.74	288	2.57	239	2.45	209	4.01	780	6.19	1,720	4.15	840
N	2.70	275	2.55	234	2.45	209	4.44	960	5.92	1,580	4.05	800
2	2.69	272	2.54	231	2.45	209	6.22	1,720	5.65	1,440	3.95	760
4	2.69	272	2.53	229	2.44	207	7.66	2,420	5.53	1,400	3.85	720
6	2.69	272	2.53	229	2.44	207	8.84	2,980	5.49	1,400	3.75	680
8	2.69	272	2.53	229	2.54	231	9.55	3,400	5.45	1,360	3.66	640
10	2.70	275	2.53	229	2.74	288	9.76	3,520	5.28	1,310	3.58	620
M	2.69	272	2.52	226	2.93	353	9.08	3,130	5.05	1,180	3.50	580
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.43	552	2.88	336	2.74	288	2.40	192	2.20	148	2.17	142
4	3.36	524	2.95	362	2.70	275	2.37	185	2.19	146	2.14	137
6	3.30	500	3.12	428	2.66	263	2.35	180	2.18	144	2.12	133
8	3.24	476	3.25	480	2.63	254	2.34	178	2.16	140	2.10	129
10	3.18	452	3.23	472	2.60	245	2.32	174	2.15	138	2.09	127
N	3.13	432	3.12	428	2.58	239	2.30	169	2.14	137	2.07	124
2	3.08	412	3.03	392	2.55	231	2.29	167	2.18	144	2.06	122
4	3.03	392	2.95	362	2.52	223	2.27	163	2.23	154	2.06	122
6	2.99	376	2.90	343	2.50	217	2.25	158	2.29	167	2.05	120
8	2.95	362	2.85	326	2.46	207	2.24	156	2.28	165	2.04	118
10	2.91	347	2.81	312	2.44	202	2.23	154	2.25	158	2.03	116
M	2.88	336	2.77	298	2.42	197	2.22	152	2.20	148	2.01	113

Supplemental records.- Mar. 17, 9:30 p.m., 9.81 ft., 3,520 sec.-ft.

Great Trough Creek near Marklesburg, Pa.

Location.- Lat. 40°21'0", long. 78°7'50", at highway bridge half a mile above mouth and 3 miles southeast of Marklesburg, Huntingdon County. Zero of gage is 714.48 feet above mean sea level.
Drainage area.- 84.6 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 4.0 and 6.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 600 second-feet by current-meter measurements; logarithmic extension to peak stage. Affected by ice Feb. 1-28.
Maxima.- 1936: Discharge, about 9,580 second-feet midnight Mar. 17-18 (gage height, 8.46 feet).
1930-35: Discharge, 2,180 second-feet May 23, 1931 (gage height, 4.80 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	31	670	190	11	24	1,410	448	21	60	879	105
2	30	520	190	12	23	2,730	381	22	55	625	97
3	29	375	182	13	23	1,150	326	23	50	483	82
4	29	430	144	14	27	676	273	24	48	412	77
5	30	656	131	15	40	595	238	25	46	383	71
6	29	602	588	16	80	637	203	26	70	302	67
7	28	470	583	17	70	3,800	174	27	300	342	63
8	27	389	454	18	69	6,450	167	28	1,000	328	59
9	26	454	381	19	74	2,380	127	29	774	266	54
10	25	682	537	20	67	1,020	115	30		240	52
								31		216	
Mean monthly discharge, in second-feet									110	986	219
Run-off, in inches									1.40	13.49	2.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.80	420	2.76	400	3.27	696	3.32	728	5.57	3,310	4.38	1,660
4	2.78	410	2.76	400	3.28	702	3.35	748	5.55	3,310	4.22	1,450
6	2.75	395	2.76	400	3.28	702	3.39	774	5.54	3,310	4.14	1,400
8	2.72	380	2.75	395	3.27	696	3.44	808	5.47	3,150	3.98	1,240
10	2.70	370	2.75	395	3.26	689	3.53	871	5.41	3,070	3.85	1,120
N	2.70	370	2.75	395	3.25	682	3.73	1,020	5.30	2,910	3.75	1,040
2	2.68	361	2.77	405	3.23	670	3.87	1,140	5.21	2,760	3.67	976
4	2.69	366	2.83	436	3.21	656	4.15	1,400	5.00	2,460	3.60	920
6	2.72	380	2.95	502	3.21	656	4.28	1,550	4.90	2,320	3.54	878
8	2.74	390	3.02	542	3.24	676	5.10	2,610	4.77	2,110	3.51	857
10	2.75	395	3.10	590	3.26	689	5.30	2,910	4.65	1,980	3.50	850
M	2.75	395	3.20	650	3.29	708	5.40	3,070	4.49	1,780	3.46	822
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.41	787	3.19	644	3.10	590	3.77	1,060	8.30	9,060	5.55	3,320
4	3.35	748	3.19	644	3.12	602	3.80	1,080	8.20	8,810	5.50	3,240
6	3.28	702	3.18	638	3.13	608	4.02	1,260	8.10	8,560	5.40	3,080
8	3.23	670	3.15	620	3.14	614	4.23	1,500	7.90	8,070	5.25	2,860
10	3.19	644	3.12	602	3.13	608	4.28	1,550	7.55	7,360	5.10	2,630
N	3.17	632	3.08	578	3.12	602	4.47	1,720	7.20	6,460	4.90	2,350
2	3.14	614	3.05	560	3.10	590	5.60	3,390	6.80	5,610	4.75	2,160
4	3.14	614	3.04	554	3.09	584	6.80	5,610	6.40	4,820	4.55	1,900
6	3.17	632	3.04	554	3.11	596	7.23	6,460	6.15	4,350	4.40	1,720
8	3.17	632	3.04	554	3.15	620	7.40	6,900	6.00	4,080	4.20	1,500
10	3.18	638	3.05	560	3.33	734	8.00	8,310	5.75	3,640	4.10	1,400
M	3.20	650	3.07	572	3.65	960	8.46	9,580	5.60	3,400	4.05	1,350
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.96	1,260	3.40	820	3.25	722	2.92	525	2.73	422	2.72	417
4	3.87	1,180	3.48	876	3.21	696	2.90	514	2.71	411	2.71	411
6	3.79	1,110	3.57	939	3.18	678	2.89	508	2.70	406	2.70	406
8	3.72	1,060	3.60	960	3.13	648	2.88	503	2.68	396	2.68	396
10	3.68	1,020	3.62	976	3.10	630	2.86	492	2.67	391	2.67	391
N	3.65	1,000	3.61	968	3.06	606	2.85	486	2.66	386	2.65	381
2	3.60	960	3.58	946	3.05	600	2.83	476	2.67	391	2.64	375
4	3.55	925	3.52	904	3.02	583	2.81	464	2.68	396	2.63	370
6	3.50	890	3.45	855	3.00	571	2.80	459	2.75	433	2.61	360
8	3.47	869	3.40	820	2.98	560	2.78	448	2.75	433	2.60	355
10	3.43	841	3.35	788	2.95	542	2.76	438	2.75	433	2.59	350
M	3.40	820	3.30	755	2.94	537	2.75	433	2.73	422	2.57	340

Aughwick Creek near Orbisonia, Pa.

Location.- Lat. 40°12'35", long. 77°55'20", at highway bridge 600 feet above East Broad Top Railroad bridge, 650 feet above mouth of Three Springs Creek, and 2¼ miles southwest of Orbisonia, Huntingdon County. Zero of gage is 619.04 feet above mean sea level.

Drainage area.- 174 square miles.

Gage-height record.- Graph based on two chain-gage readings daily. Gage heights used to half tenths between 2.5 and 4.0 feet; hundredths below and tenths above these limits.

Stage-discharge relation.- Defined to 11,000 second-feet by current-meter measurements; logarithmic extension to crest discharge. Affected by ice Feb. 1 to Mar. 4.

Maxima.- 1936: Discharge, 16,400 second-feet 3:30 a.m. Mar. 18 (gage height, 19.16 feet, from flood mark).

1915-16, 1930-35: Discharge, 6,790 second-feet 5 p.m. Dec. 1, 1934 (gage height, 12.01 feet).

1889-1936: Discharge, 18,400 second-feet June 1889 (gage height, 20.5 feet, from flood marks).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	111	950	317	11	89	2,900	810	21	127	1,900	199
2	108	950	346	12	88	4,650	652	22	125	1,220	187
3	105	750	361	13	90	2,380	541	23	124	849	164
4	102	900	262	14	100	1,320	439	24	128	714	151
5	100	1,710	249	15	120	1,000	407	25	140	637	138
6	98	2,110	2,250	16	160	930	346	26	600	486	132
7	96	1,030	1,470	17	150	5,570	303	27	2,000	561	127
8	94	809	985	18	140	10,600	276	28	2,700	518	119
9	92	907	810	19	135	4,210	249	29	1,400	447	113
10	90	1,360	940	20	130	2,020	224	30		410	109
								31		360	
Mean monthly discharge, in second-feet									329	1,779	456
Run-off, in inches									2.04	11.76	2.92

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.70	880	4.53	790	5.20	1,130	5.80	1,470	11.10	5,830	8.26	3,240
4	4.65	835	4.56	835	5.40	1,230	5.95	1,590	11.04	5,730	8.06	3,080
6	4.60	835	4.60	835	5.66	1,410	6.10	1,650	10.80	5,530	7.86	2,920
8	4.55	835	4.69	880	5.78	1,470	6.24	1,710	10.50	5,230	7.62	2,680
10	4.52	790	4.75	930	5.80	1,470	6.50	1,900	10.30	5,030	7.42	2,530
N	4.50	790	4.80	930	5.76	1,470	7.00	2,250	10.00	4,730	7.22	2,390
2	4.48	790	4.82	930	5.69	1,410	7.50	2,600	9.80	4,550	7.02	2,250
4	4.46	790	4.82	930	5.62	1,350	8.20	3,160	9.50	4,280	6.84	2,110
6	4.46	790	4.80	930	5.53	1,290	8.84	3,650	9.20	4,010	6.66	2,040
8	4.46	790	4.78	930	5.52	1,290	9.48	4,280	9.00	3,830	6.46	1,900
10	4.48	790	4.84	930	5.60	1,350	10.20	4,930	8.75	3,650	6.31	1,770
M	4.50	790	5.00	1,030	5.70	1,410	10.90	5,630	8.50	3,400	6.16	1,710
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.04	1,590	5.18	1,130	4.68	880	5.78	1,470	18.80	15,700	10.80	5,530
4	5.92	1,530	5.16	1,130	4.70	880	6.20	1,710	19.14	16,200	10.60	5,330
6	5.80	1,470	5.14	1,080	4.74	880	6.70	2,040	18.60	15,400	10.50	5,230
8	5.70	1,410	5.08	1,080	4.77	930	7.40	2,530	17.40	13,600	10.35	5,130
10	5.62	1,350	5.02	1,030	4.75	930	8.20	3,160	16.30	12,100	10.00	4,730
N	5.54	1,290	4.96	1,030	4.68	880	9.20	4,010	15.20	10,600	9.60	4,370
2	5.46	1,290	4.91	980	4.58	835	10.30	5,030	14.20	9,340	9.20	4,010
4	5.38	1,230	4.86	980	4.56	835	11.40	6,130	13.20	8,140	8.80	3,650
6	5.30	1,180	4.81	930	4.65	835	12.55	7,450	12.30	7,120	8.55	3,480
8	5.26	1,180	4.76	930	4.89	980	14.00	9,100	11.80	6,570	8.30	3,240
10	5.23	1,130	4.72	880	5.10	1,080	15.50	11,000	11.40	6,130	8.05	3,000
M	5.20	1,130	4.68	880	5.40	1,230	17.10	13,200	11.00	5,730	7.75	2,840
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.54	2,600	6.34	1,770	5.90	1,530	4.85	940	4.36	770	4.30	730
4	7.33	2,460	6.43	1,830	5.80	1,470	4.80	940	4.32	730	4.26	730
6	7.12	2,320	6.52	1,900	5.66	1,410	4.74	895	4.28	730	4.22	691
8	6.94	2,180	6.64	1,970	5.53	1,290	4.68	895	4.23	691	4.17	691
10	6.80	2,110	6.76	2,110	5.44	1,230	4.64	850	4.20	691	4.12	652
N	6.65	1,970	6.84	2,110	5.38	1,230	4.60	850	4.17	691	4.07	652
2	6.50	1,900	6.80	2,110	5.29	1,180	4.56	850	4.17	691	4.02	614
4	6.40	1,830	6.64	1,970	5.21	1,130	4.53	810	4.20	691	3.98	614
6	6.30	1,770	6.48	1,900	5.14	1,080	4.50	810	4.23	691	3.94	577
8	6.20	1,710	6.32	1,770	5.06	1,080	4.46	810	4.28	730	3.90	577
10	6.20	1,710	6.16	1,710	5.00	1,030	4.43	770	4.30	730	3.86	577
M	6.25	1,710	6.00	1,590	4.90	985	4.40	770	4.32	730	3.82	541

Supplemental records.- Mar. 18, 3:30 a.m., 19.16 ft., 16,400 sec.-ft. (flood crest).

155158 O—37——17

Tuscarora Creek near Port Royal, Pa.

Location.- Lat. 40°30'55", long. 77°25'10", at highway bridge 2 miles southwest of Port Royal, Juniata County. Zero of gage is 419.80 feet above mean sea level.
Drainage area.- 214 square miles.
Gage-height record.- Water-stage recorder graph except for period Mar. 18-30, when record was based on comparisons with records at nearby stations. Gage heights used to half tenths between 5.0 and 7.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements to 6,000 second-feet; logarithmic extension to crest stage. Affected by ice Feb. 1 to Mar. 5, and by backwater from Juniata River 8 a.m. Mar. 18 to noon Mar. 20.
Maxima.- 1936: Discharge, about 14,400 second-feet 2 p.m. Mar. 18; maximum gage height, 21.60 feet 2 a.m. Mar. 19 (affected by backwater from Juniata River).
1911-35: Discharge, about 13,000 second-feet Oct. 23, 1929 (gage height, 16.21 feet).
Maximum known stage, 20.5 feet June 1, 1889, affected by backwater from Juniata River (discharge not determined).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	170	1,800	366	11	150	4,030	1,000	21	190	2,850	279
2	165	1,500	407	12	145	9,160	830	22	190	2,280	255
3	160	1,100	467	13	150	3,450	710	23	185	1,280	235
4	165	1,000	348	14	190	1,740	582	24	185	890	218
5	165	1,400	315	15	240	1,330	526	25	180	788	200
6	160	1,450	1,930	16	260	1,210	462	26	500	522	190
7	160	1,060	1,570	17	270	3,420	398	27	1,500	608	185
8	155	860	1,040	18	250	12,000	359	28	2,200	635	176
9	155	960	800	19	220	8,300	324	29	2,100	503	170
10	150	1,330	1,220	20	200	4,450	300	30		452	166
								31		409	
Mean monthly discharge, in second-feet									376	2,347	534
Run-off, in inches									1.90	12.68	2.79

Cocolamus Creek near Millerstown, Pa.

Location.- Lat. 40°33'55", long. 77°7'5", at highway bridge 2.3 miles northeast of Millerstown, Perry County, and 3 miles above confluence with Juniata River. Zero of gage is 425.50 feet above mean sea level.
Drainage area.- 57.2 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half-tenths between 3.5 and 5.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 4. Defined by current-meter discharge measurements below 2,000 second-feet; logarithmic extension to peak stage.
Maxima.- 1936: Discharge, 2,370 second-feet 11 p.m. Mar. 11 (gage height, 7.18 feet).
1930-35: Discharge, 3,040 second-feet Aug. 24, 1933 (gage height, 8.20 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	49	200	87	11	47	1,350	365	21	51	810	67
2	48	180	133	12	46	1,720	286	22	50	517	63
3	48	180	132	13	46	744	239	23	50	318	55
4	56	230	108	14	48	425	178	24	52	233	50
5	55	363	98	15	53	381	150	25	65	185	46
6	53	378	948	16	60	438	132	26	90	142	42
7	51	274	527	17	58	1,210	110	27	180	173	40
8	50	220	316	18	56	1,410	96	28	250	140	37
9	49	292	250	19	54	1,030	85	29	230	115	34
10	48	500	345	20	52	679	74	30		105	34
								31		101	
Mean monthly discharge, in second-feet									70.5	485	171
Run-off, in inches									1.33	9.78	3.34

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.55	248	2.49	230	3.30	491	4.06	774	7.10	2,310	4.62	1,000
4	2.51	236	2.46	222	3.21	460	4.00	754	7.05	2,250	4.43	937
6	2.48	227	2.43	213	3.12	429	4.01	754	6.95	2,250	4.27	854
8	2.44	216	2.41	208	3.05	405	4.13	814	6.57	2,010	4.12	794
10	2.41	208	2.39	202	2.99	385	4.33	896	6.09	1,720	3.99	754
N	2.38	200	2.38	200	2.93	365	4.68	1,040	5.78	1,570	3.88	715
2	2.37	197	2.42	211	2.93	365	5.22	1,270	5.59	1,470	3.79	676
4	2.38	200	2.56	250	3.06	408	6.04	1,670	5.44	1,370	3.71	638
6	2.41	208	2.93	365	3.43	538	6.56	2,010	5.39	1,370	3.64	619
8	2.46	222	3.31	495	3.86	696	6.96	2,250	5.30	1,320	3.55	582
10	2.51	236	3.41	531	4.11	794	7.15	2,370	5.10	1,220	3.45	545
M	2.52	239	3.37	516	4.13	814	7.17	2,370	4.84	1,110	3.35	509
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.27	480	3.09	419	3.08	415	5.14	1,220	6.10	1,720	4.60	1,000
4	3.20	456	3.01	391	3.07	412	5.43	1,370	6.40	1,890	4.60	1,000
6	3.13	432	2.95	372	3.06	408	5.35	1,370	6.45	1,890	4.71	1,040
8	3.06	408	2.89	352	3.05	405	5.26	1,320	6.10	1,720	4.83	1,110
10	3.01	391	2.85	339	3.05	405	5.18	1,270	5.58	1,470	4.76	1,070
N	2.97	378	2.83	333	3.04	402	5.10	1,220	5.20	1,270	4.70	1,040
2	2.96	375	2.83	333	3.04	402	5.05	1,180	4.91	1,140	4.66	1,020
4	2.99	385	2.93	365	3.06	408	4.91	1,140	4.79	1,090	4.64	1,020
6	3.09	419	3.04	402	3.10	422	4.75	1,070	4.87	1,110	4.64	1,020
8	3.20	456	3.09	419	3.20	456	4.64	1,020	4.95	1,160	4.65	1,020
10	3.19	453	3.10	422	3.40	527	4.97	1,160	4.90	1,140	4.57	979
M	3.14	436	3.09	419	4.07	774	5.56	1,470	4.75	1,070	4.40	916
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.24	854	3.45	545	3.75	657	2.95	372	2.59	259	2.42	211
4	4.13	814	3.85	696	3.65	619	2.91	358	2.57	253	2.40	205
6	4.03	774	4.29	875	3.57	582	2.87	345	2.55	248	2.37	197
8	3.93	734	4.50	958	3.50	563	2.84	336	2.53	242	2.35	192
10	3.84	696	4.51	958	3.42	534	2.81	326	2.51	236	2.34	189
N	3.76	657	4.49	958	3.35	509	2.77	314	2.48	227	2.32	183
2	3.68	638	4.34	896	3.28	484	2.74	304	2.48	227	2.31	181
4	3.62	600	4.26	854	3.21	460	2.71	295	2.45	219	2.29	175
6	3.55	582	4.25	854	3.14	436	2.68	286	2.44	216	2.28	173
8	3.47	552	4.12	794	3.08	415	2.65	277	2.44	216	2.27	170
10	3.41	531	3.97	734	3.04	402	2.63	271	2.43	213	2.24	162
M	3.36	513	3.86	696	2.99	385	2.62	268	2.43	213	2.24	162

Supplemental records.- Mar. 11, 11 p.m., 7.18 ft., 2,370 sec.-ft.

Sherman Creek at Shermandale, Pa.

Location.- Lat. 40°19'25", long. 77°10'5", at highway bridge at Shermandale, Perry County, 1 1/4 miles above mouth of Fishing Run. Zero of gage is 421.90 feet above mean sea level.
Drainage area.- 200 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.0 and 5.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-29. Defined by current-meter measurements below 3,500 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 8,460 second-feet 4:40 a.m. Mar. 12 (gage height, 10.28 feet).
1929-35: Gage height, 14.05 feet Aug. 24, 1933 (discharge not determined).
1927-35: Maximum stage known, 20.34 feet July 22, 1927 (discharge not determined).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	220	1,400	411	11	190	3,880	1,120	21	420	2,780	337
2	215	1,060	497	12	185	7,020	1,000	22	400	1,780	312
3	210	850	548	13	185	3,230	910	23	380	1,330	282
4	220	1,000	388	14	240	1,840	742	24	360	1,110	267
5	210	1,400	366	15	500	1,550	670	25	450	970	245
6	205	1,400	2,820	16	600	1,510	605	26	600	796	238
7	205	1,090	1,790	17	560	3,230	506	27	1,200	820	224
8	200	938	1,340	18	520	5,640	435	28	1,300	748	214
9	195	1,100	1,120	19	480	3,820	393	29	1,400	583	207
10	190	1,410	1,270	20	450	2,700	362	30		528	201
								31		473	
Mean monthly discharge, in second-feet									431	1,871	661
Run-off, in inches									2.33	10.79	3.68

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	3.23	1,000	3.28	1,030	3.98	1,470	4.45	1,790	10.06	8,200	7.27	4,730
4	3.18	970	3.29	1,030	3.95	1,440	4.57	1,870	10.27	8,460	6.92	4,250
6	3.15	940	3.27	1,000	3.88	1,400	4.72	1,990	10.27	8,460	6.55	3,900
8	3.10	910	3.23	1,000	3.80	1,335	4.92	2,160	10.01	8,070	6.21	3,460
10	3.06	880	3.18	970	3.71	1,270	5.24	2,430	9.60	7,550	5.92	3,130
N	3.03	880	3.15	940	3.66	1,240	5.71	2,920	9.16	7,030	5.71	2,920
2	3.03	880	3.19	970	3.70	1,270	6.70	4,010	8.76	6,530	5.56	2,820
4	3.07	880	3.37	1,060	3.82	1,335	7.55	5,090	8.53	6,170	5.42	2,620
6	3.14	940	3.62	1,210	3.96	1,440	8.21	5,810	8.35	6,050	5.32	2,520
8	3.21	970	3.78	1,335	4.09	1,540	8.79	6,530	8.16	5,810	5.21	2,430
10	3.25	1,000	3.92	1,400	4.21	1,610	9.26	7,160	7.89	5,450	5.12	2,340
M	3.27	1,000	3.97	1,440	4.32	1,680	9.81	7,810	7.59	5,090	5.02	2,250
	March 14		March 15		March 16		March 17		March 18		March 19	
2	4.91	2,160	4.30	1,680	4.07	1,500	5.06	2,340	8.07	5,690	6.76	4,130
4	4.79	2,070	4.27	1,640	4.08	1,540	5.49	2,720	8.69	6,410	6.60	3,900
6	4.68	1,990	4.23	1,640	4.09	1,540	5.80	3,020	8.97	6,770	6.51	3,790
8	4.57	1,870	4.18	1,610	4.07	1,500	5.91	3,130	8.82	6,530	6.41	3,680
10	4.47	1,790	4.12	1,540	4.06	1,500	6.01	3,240	8.61	6,290	6.32	3,570
N	4.40	1,750	4.07	1,500	4.04	1,500	6.15	3,460	8.46	6,170	6.26	3,570
2	4.35	1,720	4.02	1,470	4.02	1,470	6.30	3,570	8.16	5,810	6.27	3,570
4	4.34	1,720	3.99	1,470	4.01	1,470	6.33	3,570	7.82	5,330	6.39	3,680
6	4.31	1,680	3.99	1,470	4.01	1,470	6.18	3,460	7.52	4,970	6.62	3,900
8	4.30	1,680	4.00	1,470	4.03	1,500	6.07	3,350	7.26	4,730	6.70	4,010
10	4.29	1,680	4.03	1,500	4.10	1,540	6.42	3,680	7.12	4,490	6.67	4,010
M	4.31	1,680	4.06	1,500	4.35	1,720	7.27	4,730	6.96	4,370	6.50	3,790
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.28	3,570	4.89	2,160	4.84	2,120	3.97	1,440	3.56	1,180	3.31	1,030
4	6.07	3,350	5.32	2,520	4.73	2,030	3.93	1,440	3.53	1,180	3.29	1,030
6	5.84	3,020	5.75	3,020	4.62	1,910	3.89	1,400	3.50	1,150	3.27	1,000
8	5.64	2,820	5.96	3,240	4.53	1,870	3.85	1,370	3.47	1,120	3.26	1,000
10	5.48	2,720	6.05	3,240	4.46	1,790	3.82	1,335	3.45	1,120	3.24	1,000
N	5.36	2,620	6.03	3,240	4.39	1,750	3.78	1,335	3.42	1,090	3.20	970
2	5.23	2,430	5.88	3,130	4.31	1,680	3.75	1,300	3.40	1,090	3.18	970
4	5.12	2,340	5.72	2,920	4.26	1,640	3.72	1,270	3.39	1,090	3.16	940
6	5.04	2,250	5.55	2,820	4.20	1,610	3.68	1,270	3.37	1,060	3.13	940
8	4.96	2,200	5.32	2,520	4.13	1,580	3.65	1,240	3.34	1,060	3.10	910
10	4.87	2,120	5.12	2,340	4.08	1,540	3.63	1,240	3.33	1,060	3.07	892
M	4.82	2,070	4.98	2,250	4.03	1,500	3.59	1,210	3.32	1,030	3.04	874

Supplemental records.- Mar. 12, 4:40 a.m., 10.28 ft., 8,460 sec.-ft.

Conodoguinet Creek near Hogestown, Pa.

Location.- Lat. 40°15'10", long. 77°1'15", 1,000 feet above highway bridge, three-eighths of a mile below mouth of Hogestown Run, and 1 mile northeast of Hogestown, Cumberland County. Zero of gage is 350.25 feet above mean sea level.
Drainage area.- 470 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 2.5 and 4.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-29. Defined by current-meter measurements below 12,000 second-feet.
Maxima.- 1936: Discharge, 11,100 second-feet 2 a.m. Mar. 13 (gage height, 10.37 feet).
1929-35: Discharge, 13,100 second-feet Dec. 2, 1934 (gage height, 11.32 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	410	2,850	1,000	11	315	4,230	2,180	21	580	4,560	750
2	390	2,180	970	12	310	7,960	1,900	22	540	3,730	714
3	380	1,690	1,170	13	315	8,990	1,740	23	500	2,530	678
4	400	2,080	938	14	370	4,260	1,420	24	480	2,070	632
5	380	2,780	840	15	700	2,720	1,280	25	470	1,860	600
6	360	2,900	3,640	16	1,200	2,190	1,150	26	900	1,540	583
7	350	2,400	4,970	17	1,050	3,050	1,000	27	2,500	1,500	566
8	340	1,940	3,120	18	900	5,610	920	28	2,800	1,660	550
9	330	2,070	2,220	19	750	7,700	860	29	3,000	1,310	528
10	320	2,770	2,400	20	650	6,100	800	30		1,170	522
								31		1,100	
Mean monthly discharge, in second-feet									758	3,210	1,355
Run-off, in inches									1.74	7.87	3.21

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.30	2,040	4.14	1,900	4.64	2,310	5.38	3,100	7.98	6,480	10.37	11,100
4	4.26	2,000	4.19	1,950	4.77	2,500	5.49	3,210	8.08	6,640	10.04	10,200
6	4.22	1,950	4.25	2,000	4.95	2,700	5.65	3,220	8.19	6,800	10.00	10,200
8	4.18	1,950	4.29	2,040	5.04	2,700	5.77	3,540	8.23	6,800	9.77	9,790
10	4.15	1,900	4.31	2,040	5.10	2,800	5.92	3,650	8.34	6,970	9.61	9,370
N	4.14	1,900	4.31	2,040	5.14	2,800	6.10	3,880	8.51	7,310	9.45	8,970
2	4.14	1,900	4.34	2,080	5.18	2,900	6.32	4,120	8.87	8,020	9.25	8,580
4	4.15	1,900	4.40	2,130	5.24	2,900	6.85	4,740	9.23	8,580	9.06	8,390
6	4.17	1,900	4.43	2,180	5.26	3,000	7.15	5,280	9.50	9,170	8.85	7,840
8	4.16	1,900	4.46	2,180	5.26	3,000	7.35	5,560	9.85	9,790	8.65	7,480
10	4.14	1,900	4.50	2,220	5.26	3,000	7.55	5,860	10.06	10,400	8.43	7,140
M	4.13	1,900	4.55	2,310	5.29	3,000	7.83	6,160	10.26	10,900	8.18	6,800
	March 14		March 15		March 16		March 17		March 18		March 19	
2	7.83	6,160	5.29	3,000	4.64	2,310	4.42	2,130	6.77	4,740	8.22	6,800
4	7.42	5,560	5.23	2,900	4.59	2,310	4.50	2,220	6.88	4,870	8.35	7,140
6	6.98	5,000	5.17	2,900	4.55	2,310	4.59	2,310	7.00	5,000	8.47	7,310
8	6.58	4,480	5.11	2,800	4.50	2,220	4.77	2,500	7.13	5,140	8.64	7,480
10	6.30	4,120	5.06	2,800	4.48	2,220	5.14	2,800	7.26	5,420	8.76	7,840
N	6.10	3,880	5.00	2,700	4.45	2,180	5.45	3,100	7.38	5,560	8.85	7,840
2	5.96	3,760	4.96	2,700	4.42	2,130	5.64	3,320	7.54	5,710	8.96	8,200
4	5.80	3,540	4.92	2,600	4.40	2,130	5.79	3,540	7.67	6,010	8.98	8,200
6	5.65	3,320	4.86	2,600	4.37	2,080	5.92	3,650	7.82	6,160	8.99	8,200
8	5.54	3,210	4.80	2,500	4.35	2,080	6.04	3,760	8.00	6,480	8.96	8,200
10	5.44	3,100	4.74	2,400	4.32	2,040	6.21	4,000	8.10	6,640	8.87	8,020
M	5.36	3,100	4.69	2,400	4.35	2,080	6.50	4,360	8.20	6,800	8.72	7,660
	March 20		March 21		March 22		March 23		March 24		March 25	
2	8.57	7,480	6.43	4,240	6.63	4,480	5.12	2,800	4.50	2,220	4.16	1,900
4	8.43	7,140	6.47	4,360	6.53	4,360	5.05	2,700	4.47	2,180	4.15	1,900
6	8.27	6,970	6.50	4,360	6.42	4,240	4.99	2,700	4.43	2,180	4.15	1,900
8	8.11	6,640	6.49	4,360	6.27	4,120	4.93	2,600	4.38	2,130	4.15	1,900
10	7.95	6,480	6.55	4,480	6.11	3,880	4.86	2,600	4.34	2,080	4.14	1,900
N	7.77	6,160	6.65	4,480	5.95	3,760	4.80	2,500	4.31	2,040	4.14	1,900
2	7.62	5,860	6.76	4,740	5.80	3,540	4.75	2,500	4.28	2,040	4.12	1,860
4	7.43	5,560	6.84	4,740	5.65	3,320	4.72	2,400	4.26	2,000	4.09	1,860
6	7.22	5,280	6.90	4,870	5.51	3,210	4.67	2,400	4.24	2,000	4.05	1,820
8	6.97	5,000	6.88	4,870	5.40	3,100	4.62	2,310	4.21	1,950	4.00	1,780
10	6.71	4,610	6.83	4,740	5.30	3,000	4.59	2,310	4.18	1,950	3.96	1,740
M	6.51	4,360	6.72	4,610	5.21	2,900	4.64	2,220	4.16	1,900	3.93	1,740

Swatara Creek at Harper Tavern, Pa.

Location.- Lat. 40°24'10", long. 76°34'35", at highway bridge at Harper Tavern, Lebanon County, 6 miles northwest of Annville and 8½ miles below mouth of Little Swatara Creek. Zero of gage is 355.53 feet above mean sea level.
Drainage area.- 333 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 2.0 and 3.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined to 25,000 second-feet by current-meter measurements.
Maxima.- 1936: Discharge, 15,800 second-feet 4 p.m. Mar. 12 (gage height, 13.75 feet).
1918-35: Discharge, 25,300 second-feet Aug. 24, 1933 (gage height, 17.53 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	380	900	990	11	360	5,420	1,800	21	370	3,870	576
2	380	800	1,020	12	360	13,300	1,560	22	360	3,380	587
3	380	800	990	13	370	8,300	1,450	23	350	2,470	488
4	390	1,100	763	14	390	3,570	1,230	24	360	2,040	440
5	400	1,870	690	15	450	2,660	1,080	25	400	1,710	408
6	390	1,680	5,570	16	550	2,300	990	26	500	1,380	388
7	380	1,420	4,540	17	480	2,960	840	27	650	2,060	367
8	370	1,340	2,420	18	440	6,570	763	28	900	2,060	343
9	370	1,750	1,870	19	410	5,860	692	29	1,000	1,480	314
10	370	2,790	2,010	20	390	3,820	631	30		1,290	314
								31		1,140	
Mean monthly discharge, in second-feet									445	2,971	1,204
Run-off, in inches									1.44	10.28	4.04

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.88	1,380	3.32	1,660	4.56	2,570	6.88	4,370	11.28	10,000	12.27	12,000
4	2.87	1,350	3.30	1,660	4.61	2,570	7.03	4,460	11.73	10,800	11.90	11,200
6	2.83	1,350	3.25	1,620	4.56	2,570	7.14	4,550	12.17	11,800	11.54	10,400
8	2.78	1,320	3.17	1,560	4.45	2,430	7.16	4,640	12.62	12,800	11.16	9,830
10	2.72	1,260	3.08	1,520	4.35	2,430	7.11	4,550	13.02	13,800	10.78	9,120
N	2.66	1,230	3.01	1,450	4.32	2,360	7.22	4,640	13.38	14,800	10.27	8,300
2	2.62	1,200	3.03	1,480	4.45	2,430	7.52	4,910	13.65	15,200	9.63	7,290
4	2.66	1,230	3.24	1,620	4.88	2,780	8.00	5,380	13.75	15,800	9.01	6,500
6	2.82	1,320	3.57	1,870	5.38	3,130	8.65	6,020	13.64	15,200	8.43	5,800
8	2.99	1,450	3.98	2,150	5.73	3,360	9.40	7,020	13.40	14,800	7.96	5,380
10	3.16	1,560	4.26	2,360	6.14	3,680	10.07	8,000	13.07	14,000	7.58	5,000
M	3.26	1,620	4.44	2,430	6.50	4,010	10.76	9,120	12.66	13,000	7.24	4,640
	March 14		March 15		March 16		March 17		March 18		March 19	
2	6.90	4,370	5.11	2,920	4.36	2,430	4.27	2,360	7.51	4,910	9.12	6,630
4	6.62	4,100	5.03	2,850	4.35	2,430	4.51	2,500	8.05	5,380	9.13	6,630
6	6.42	3,920	4.95	2,850	4.32	2,360	4.85	2,710	8.45	5,800	9.12	6,630
8	6.18	3,760	4.85	2,710	4.28	2,360	5.12	2,920	8.85	6,260	9.03	6,500
10	5.95	3,600	4.78	2,710	4.24	2,290	5.31	3,060	9.27	6,890	8.78	6,260
N	5.78	3,440	4.69	2,640	4.18	2,290	5.49	3,200	9.57	7,290	8.52	5,910
2	5.67	3,360	4.63	2,570	4.13	2,220	5.52	3,200	9.80	7,570	8.25	5,580
4	5.52	3,200	4.56	2,570	4.10	2,220	5.45	3,130	9.92	7,710	8.00	5,380
6	5.40	3,130	4.49	2,500	4.08	2,220	5.31	3,060	9.80	7,570	7.84	5,180
8	5.35	3,130	4.44	2,430	4.06	2,220	5.24	2,990	9.57	7,290	7.70	5,090
10	5.26	3,060	4.38	2,430	4.06	2,220	5.65	3,280	9.30	6,890	7.51	4,910
M	5.18	2,990	4.35	2,430	4.13	2,220	6.52	4,010	9.12	6,630	7.34	4,730
	March 20		March 21		March 22		March 23		March 24		March 25	
2	7.15	4,640	5.40	3,130	6.63	4,100	4.79	2,710	4.06	2,220	3.58	1,870
4	7.00	4,460	5.69	3,360	6.49	4,010	4.72	2,640	4.00	2,150	3.54	1,800
6	6.80	4,280	6.03	3,600	6.25	3,760	4.65	2,570	3.96	2,150	3.50	1,800
8	6.57	4,100	6.28	3,840	5.97	3,600	4.58	2,570	3.91	2,080	3.45	1,760
10	6.35	3,920	6.54	4,010	5.74	3,360	4.52	2,500	3.86	2,080	3.40	1,730
N	6.15	3,760	6.73	4,190	5.59	3,280	4.46	2,500	3.82	2,010	3.37	1,700
2	5.96	3,600	6.73	4,190	5.44	3,130	4.38	2,430	3.78	2,010	3.33	1,700
4	5.82	3,440	6.67	4,190	5.31	3,060	4.32	2,360	3.74	1,940	3.28	1,660
6	5.67	3,360	6.61	4,100	5.20	2,990	4.25	2,290	3.70	1,940	3.24	1,620
8	5.54	3,200	6.57	4,100	5.08	2,920	4.20	2,290	3.67	1,940	3.20	1,590
10	5.43	3,130	6.56	4,100	4.98	2,850	4.15	2,290	3.64	1,870	3.15	1,560
M	5.34	3,060	6.64	4,100	4.88	2,780	4.10	2,220	3.62	1,870	3.11	1,520

West Conewago Creek near Manchester, Pa.

Location.- Lat. 40°4'55", long. 76°43'10", 500 feet above Manchester-York Haven highway bridge and 1 1/2 miles north of Manchester, York County. Zero of gage is 263.045 feet above mean sea level.
Drainage area.- 510 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.5 and 6.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements below 50,000 second-feet. Affected by ice Feb. 1-28 and by backwater from Susquehanna River 2 p.m. Mar. 18 to 4 a.m. Mar. 21.
Maxima.- 1936: Discharge, 13,700 second-feet 9:30 a.m. Mar. 12 (gage height, 13.02 feet). Maximum gage height, 17.08 feet 11 p.m. Mar. 19 (backwater from Susquehanna River).
1928-35: Discharge, 47,600 second-feet Aug. 24, 1933 (gage height, 24.14 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	195	4,930	735	11	162	4,940	1,830	21	350	8,880	521
2	190	3,070	730	12	163	12,300	1,610	22	280	4,530	485
3	185	2,030	982	13	165	8,990	1,440	23	250	1,950	446
4	178	3,360	762	14	170	4,300	1,080	24	235	1,450	402
5	174	4,880	620	15	200	2,150	930	25	265	1,280	374
6	168	3,680	8,250	16	350	1,530	845	26	700	1,080	352
7	165	2,350	3,590	17	800	1,760	735	27	3,000	1,410	342
8	162	1,670	1,670	18	750	4,300	653	28	4,300	2,140	334
9	160	2,110	1,290	19	600	4,180	605	29	3,920	1,160	321
10	160	3,140	2,280	20	450	5,720	563	30		930	312
								31		818	
Mean monthly discharge, in second-feet									650	3,450	1,170
Run-off, in inches									1.37	7.79	2.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	5.08	1,760	5.38	2,000	6.52	3,050	7.02	3,600	11.76	11,200	12.19	12,000
4	5.10	1,760	5.56	2,120	6.86	3,490	7.27	3,960	12.41	12,400	12.16	12,000
6	5.10	1,760	5.66	2,220	7.04	3,600	7.40	4,080	12.75	13,300	11.96	11,600
8	5.09	1,760	5.74	2,300	7.06	3,720	7.42	4,080	12.96	13,700	11.59	10,800
10	5.08	1,760	5.74	2,300	6.93	3,490	7.36	4,080	13.01	13,700	10.99	9,660
N	5.05	1,720	5.66	2,220	6.69	3,270	7.29	3,960	12.89	13,500	10.43	8,580
2	4.89	1,610	5.50	2,080	6.48	3,050	7.30	3,960	12.70	13,000	9.88	7,720
4	4.81	1,540	5.37	1,960	6.29	2,840	7.66	4,460	12.44	12,400	9.56	7,220
6	4.77	1,500	5.29	1,920	6.18	2,740	8.50	5,540	12.05	11,600	9.32	6,740
8	4.77	1,500	5.33	1,960	6.15	2,740	9.36	6,900	11.83	11,200	9.12	6,430
10	4.85	1,580	5.52	2,080	6.27	2,840	10.19	8,230	11.89	11,400	8.97	6,280
M	5.13	1,800	6.04	2,540	6.62	3,160	10.96	9,660	12.07	11,800	8.77	5,980
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.59	5,680	6.15	2,740	4.94	1,640	4.59	1,400	5.98	2,540	12.65	3,380
4	8.39	5,400	5.99	2,540	4.89	1,610	4.57	1,360	6.49	3,050	13.32	3,600
6	8.17	5,120	5.84	2,400	4.85	1,580	4.57	1,360	7.11	3,720	13.97	4,590
8	7.95	4,850	5.70	2,260	4.82	1,540	4.65	1,440	7.91	4,720	14.57	5,400
10	7.74	4,460	5.58	2,170	4.79	1,540	4.80	1,540	8.31	5,260	15.17	5,400
N	7.51	4,200	5.47	2,040	4.77	1,500	5.06	1,720	8.56	5,680	15.65	4,590
2	7.30	3,960	5.38	2,000	4.75	1,500	5.29	1,920	8.71	5,680	16.15	4,080
4	7.09	3,720	5.31	1,920	4.73	1,500	5.49	2,080	8.83	5,680	16.52	3,840
6	6.90	3,490	5.24	1,880	4.73	1,500	5.59	2,170	9.05	5,260	16.80	3,600
8	6.70	3,270	5.17	1,800	4.70	1,470	5.59	2,170	9.51	4,590	16.97	3,600
10	6.50	3,050	5.11	1,760	4.71	1,470	5.58	2,170	10.75	3,960	17.06	3,840
M	6.33	2,840	5.05	1,720	4.62	1,400	5.66	2,220	11.82	3,490	17.06	4,980
	March 20		March 21		March 22		March 23		March 24		March 25	
2	16.92	6,430	10.94	8,580	9.30	6,740	5.92	2,440	4.82	1,540	4.50	1,330
4	16.66	6,740	10.59	8,760	8.92	6,130	5.75	2,300	4.79	1,540	4.47	1,300
6	16.25	6,580	10.32	8,400	8.52	5,540	5.59	2,170	4.76	1,500	4.46	1,300
8	15.80	6,130	10.19	8,230	8.16	5,120	5.47	2,040	4.73	1,500	4.46	1,300
10	15.19	5,540	10.37	8,580	7.85	4,590	5.36	1,960	4.69	1,470	4.45	1,300
N	14.54	5,120	10.77	9,300	7.54	4,200	5.26	1,880	4.66	1,440	4.44	1,300
2	13.94	4,850	11.13	9,850	7.27	3,960	5.17	1,800	4.64	1,440	4.43	1,300
4	13.31	4,850	11.35	10,400	7.00	3,600	5.10	1,760	4.60	1,400	4.41	1,260
6	12.80	4,850	11.26	10,200	6.78	3,380	5.06	1,720	4.58	1,400	4.39	1,260
8	12.32	5,120	10.87	9,480	6.55	3,160	4.95	1,640	4.56	1,360	4.36	1,230
10	11.77	5,680	10.40	8,580	6.31	2,840	4.90	1,610	4.54	1,360	4.32	1,200
M	11.35	7,550	9.79	7,550	6.10	2,640	4.85	1,580	4.52	1,330	4.29	1,200

Supplemental records.- Mar. 12, 9:30 a.m., 13.02 ft., 13,700 sec.-ft.

Codorus Creek at Spring Grove, Pa.

Location.- Lat. 39°52'10", long. 76°51'55", at highway bridge at Spring Grove, York County. Zero of gage is 436.22 feet above mean sea level.
Drainage area.- 74.3 square miles.
Gage-height record.- Water-stage recorder graph. Gage heights used to half tenths between 3.0 and 8.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter discharge measurements below 1,800 second-feet; extended on basis of two slope-area determinations of flood flow.
Maxima.- 1936: Discharge during year, 1,380 second-feet 9:30 p.m. Feb. 27 (gage height, 6.11 feet); during March, 1,200 second-feet 4:30 p.m. Mar. 21.
1929-35: Discharge, 11,200 second-feet Aug. 23, 1933 (gage height, 11.84 feet).

Mea.. discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	47	578	143	11	41	500	281	21	59	838	113
2	47	276	180	12	41	827	227	22	57	533	105
3	45	366	196	13	41	519	214	23	47	375	100
4	45	502	136	14	43	340	176	24	49	309	93
5	42	368	133	15	52	271	168	25	96	262	90
6	41	259	754	16	79	231	160	26	530	221	87
7	45	200	359	17	76	262	142	27	767	286	84
8	41	185	262	18	118	564	134	28	703	272	85
9	44	206	251	19	81	472	126	29	665	190	80
10	45	220	278	20	63	389	118	30		171	77
								31		157	
Mean monthly discharge, in second-feet									140	360	176
Run-off, in inches									2.03	5.59	2.68

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.19	183	2.24	192	2.41	223	2.45	230	4.87	855	4.27	680
4	2.16	178	2.21	187	2.37	216	2.45	230	4.86	855	3.99	609
6	2.12	171	2.19	183	2.34	210	2.49	238	4.46	738	3.81	553
8	2.09	166	2.14	175	2.34	210	2.53	246	4.03	623	3.70	526
10	2.07	163	2.14	175	2.27	198	2.61	262	3.81	553	3.61	499
N	2.06	162	2.14	175	2.27	198	2.82	306	4.14	651	3.57	486
2	2.08	165	2.17	180	2.27	198	3.68	526	4.76	825	3.51	472
4	2.19	183	2.36	214	2.38	217	4.56	766	5.22	960	3.49	472
6	2.35	212	2.55	250	2.48	236	4.96	885	5.52	1,070	3.45	459
8	2.42	225	2.65	270	2.53	246	5.11	930	5.43	1,050	3.40	446
10	2.37	216	2.58	256	2.52	244	4.84	855	5.11	930	3.32	420
M	2.29	201	2.49	238	2.49	238	4.76	825	4.68	810	3.24	408
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.16	383	2.76	294	2.52	244	2.43	227	4.55	766	3.38	446
4	3.11	371	2.74	289	2.51	242	2.42	225	4.57	766	3.27	408
6	3.05	359	2.72	285	2.47	234	2.45	230	4.08	637	3.20	395
8	2.97	340	2.70	281	2.46	232	2.50	240	3.56	486	3.15	383
10	2.95	336	2.67	275	2.46	232	2.59	258	3.28	420	3.10	371
N	2.92	329	2.65	270	2.44	229	2.61	262	3.11	371	3.05	359
2	2.93	331	2.63	266	2.44	229	2.57	254	3.15	383	3.06	359
4	2.90	324	2.61	262	2.41	223	2.51	242	3.76	540	3.36	433
6	2.89	322	2.59	258	2.41	223	2.46	232	4.15	651	4.11	637
8	2.86	315	2.56	252	2.43	227	2.49	238	4.09	637	4.33	708
10	2.82	306	2.55	250	2.42	225	2.87	317	3.82	553	4.18	665
M	2.79	300	2.53	246	2.42	225	4.06	623	3.55	486	3.81	553
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.52	472	3.70	526	4.23	680	3.27	408	2.93	331	2.69	279
4	3.37	433	4.39	723	4.07	623	3.25	408	2.91	326	2.68	277
6	3.27	408	4.56	766	3.95	595	3.21	395	2.88	320	2.66	273
8	3.20	395	4.46	738	3.86	567	3.19	395	2.87	317	2.65	270
10	3.14	383	4.32	694	3.76	540	3.17	383	2.87	317	2.62	264
N	3.12	371	4.89	870	3.70	526	3.12	371	2.83	309	2.61	262
2	3.09	371	5.42	1,030	3.62	499	3.10	371	2.80	302	2.60	260
4	3.05	359	5.77	1,180	3.52	472	3.04	359	2.79	300	2.58	256
6	3.03	359	5.69	1,150	3.46	459	3.01	347	2.76	294	2.59	258
8	2.99	345	5.30	990	3.37	433	3.00	347	2.75	292	2.54	248
10	2.97	340	4.83	855	3.33	433	2.97	340	2.73	287	2.51	242
M	3.07	359	4.42	723	3.30	420	2.95	336	2.71	283	2.49	238

South Branch of Codorus Creek near York, Pa.

Location.- Lat. 39°55'10", long. 76°45'0", just below dam of pumping station of York Water Co., half a mile above confluence with Codorus Creek, and 3 miles southwest of York, York County. Zero of gage is 373.03 feet above mean sea level.
Drainage area.- 117 square miles.
Gage-height record.- Water-stage recorder graph except for period Feb. 13-24, when there was no record. Gage heights used to half tenths between 3.0 and 7.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-27. Defined by current-meter measurements below 3,000 second-feet; extended to peak stage.
Maxima.- 1936: Discharge during year, 1,980 second-feet 1:30 a.m. Feb. 28 (gage height, 6.50 feet); maximum gage height, 6.85 feet 2 a.m. Feb. 27 (affected by ice). Discharge during March, 1,760 second-feet 12:30 a.m. Mar. 1.
1928-35: Discharge, 19,300 second-feet Aug. 23, 1933 (gage height, 17.97 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	80	826	235	11	72	663	379	21	86	920	185
2	78	414	269	12	75	995	339	22	86	709	175
3	76	481	301	13	80	681	328	23	88	546	164
4	73	922	223	14	90	499	289	24	98	479	156
5	72	478	218	15	105	408	268	25	120	423	149
6	71	356	741	16	120	352	260	26	600	370	149
7	70	282	472	17	140	370	234	27	1,000	416	141
8	70	253	353	18	160	677	222	28	949	399	141
9	70	264	363	19	90	650	209	29	792	316	144
10	71	283	394	20	88	530	195	30		283	129
								31		258	
Mean monthly discharge, in second-feet									206	513	274
Run-off, in inches									1.90	5.05	2.61

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.73	262	2.75	266	2.90	297	2.96	310	5.47	1,140	4.95	862
4	2.70	256	2.70	256	2.84	284	2.95	308	5.27	1,020	4.70	760
6	2.66	248	2.67	250	2.80	276	2.95	308	5.11	935	4.55	708
8	2.61	238	2.64	244	2.78	272	3.00	318	4.86	820	4.44	675
10	2.58	232	2.57	231	2.72	260	3.05	328	4.63	742	4.36	646
N	2.55	227	2.57	231	2.71	258	3.26	372	4.59	725	4.29	631
2	2.56	229	2.58	232	2.73	262	3.74	488	4.75	780	4.21	603
4	2.61	238	2.66	248	2.75	266	4.59	725	5.09	935	4.18	603
6	2.70	256	2.83	282	2.84	284	5.31	1,050	5.33	1,030	4.17	590
8	2.82	280	2.91	299	2.91	299	5.68	1,305	5.46	1,140	4.15	590
10	2.84	284	2.95	308	2.94	305	5.84	1,400	5.48	1,175	4.12	576
M	2.80	276	2.95	308	2.95	308	5.83	1,400	5.29	1,050	4.05	563
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.99	550	3.54	440	3.26	372	3.12	339	4.20	603	4.51	690
4	3.92	525	3.51	429	3.24	372	3.13	350	4.56	708	4.35	646
6	3.86	512	3.49	429	3.21	361	3.15	350	4.51	690	4.22	603
8	3.80	500	3.45	418	3.18	361	3.20	361	4.19	603	4.16	590
10	3.75	488	3.42	406	3.15	350	3.24	372	3.90	525	4.10	576
N	3.70	476	3.40	406	3.15	350	3.26	372	3.71	476	4.06	563
2	3.67	464	3.38	406	3.13	350	3.26	372	3.72	476	4.05	563
4	3.66	464	3.35	394	3.12	339	3.26	372	4.63	742	4.15	590
6	3.65	464	3.33	394	3.12	339	3.22	361	5.03	910	4.38	660
8	3.63	464	3.30	383	3.12	339	3.23	372	5.16	962	4.59	725
10	3.59	452	3.28	383	3.12	339	3.32	383	5.00	885	4.69	760
M	3.56	440	3.27	372	3.11	339	3.63	464	4.71	760	4.62	725
	March 20		March 21		March 22		March 23		March 24		March 25	
2	4.46	675	4.27	617	4.93	862	4.14	590	3.80	500	3.58	452
4	4.31	631	4.65	742	4.75	780	4.10	576	3.79	500	3.55	440
6	4.20	603	4.96	862	4.66	742	4.07	563	3.77	488	3.55	440
8	4.11	576	5.00	885	4.60	725	4.03	563	3.75	488	3.52	429
10	4.05	563	4.96	862	4.54	708	4.00	550	3.73	488	3.50	429
N	4.00	550	5.00	885	4.48	690	3.99	550	3.73	488	3.48	429
2	3.96	538	5.19	990	4.41	660	3.93	538	3.68	476	3.45	418
4	3.93	538	5.34	1,080	4.35	646	3.91	525	3.65	464	3.41	406
6	3.93	538	5.51	1,175	4.28	631	3.90	525	3.66	464	3.41	406
8	3.91	525	5.57	1,210	4.23	617	3.86	512	3.65	464	3.40	406
10	3.89	525	5.45	1,140	4.18	603	3.85	512	3.61	452	3.37	394
M	3.98	550	5.17	962	4.17	590	3.82	500	3.59	452	3.35	394

Conestoga Creek at Lancaster, Pa.

Location.- Lat. 40°3'0", long. 76°16'40", at Pennsylvania Railroad bridge 500 feet below diversion dam of city waterworks and three-quarters of a mile east of Lancaster, Lancaster County. Zero of gage is 244.74 feet above mean sea level.
Drainage area.- 322 square miles.
Gage-height record.- Water-stage recorder graph except for period Feb. 1-5, when there was no record. Gage heights used to half tenths between 4.0 and 6.0 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Defined by current-meter measurements below 3,000 second-feet; extended to 17.52 feet on basis of slope-area determinations of flood flow.
Maxima.- 1936: Discharge, 6,890 second-feet 11:50 a.m. Mar. 12 (gage height, 9.58 feet).
1928-35: Discharge, 22,800 second-feet Aug. 24, 1933 (gage height, 17.52 feet).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	350	1,580	908	11	240	1,940	1,250	21	293	2,620	625
2	340	1,180	940	12	240	5,420	1,140	22	264	2,210	615
3	330	1,100	1,070	13	233	3,010	1,070	23	233	1,560	570
4	320	1,540	815	14	245	1,830	908	24	248	1,410	532
5	310	1,580	738	15	331	1,480	845	25	254	1,270	509
6	296	1,260	2,760	16	423	1,260	815	26	594	1,180	500
7	280	1,000	1,800	17	399	1,590	755	27	1,400	1,670	491
8	254	880	1,250	18	407	3,460	706	28	1,560	1,840	464
9	260	971	1,100	19	349	3,040	684	29	1,330	1,210	460
10	254	1,240	1,420	20	331	2,310	656	30		1,070	443
								31		1,000	
Mean monthly discharge, in second-feet									426	1,765	895
Run-off, in inches									1.42	6.32	3.10

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	4.30	940	4.34	972	4.82	1,280	5.09	1,520	8.05	4,620	7.50	3,980
4	4.32	940	4.40	1,000	4.89	1,360	5.11	1,520	8.40	5,150	7.43	3,860
6	4.30	940	4.42	1,000	4.85	1,320	5.11	1,520	8.85	5,710	7.26	3,740
8	4.27	908	4.39	1,000	4.78	1,280	5.09	1,520	9.17	6,290	7.04	3,380
10	4.23	908	4.38	1,000	4.73	1,250	5.08	1,520	9.46	6,740	6.80	3,150
N	4.18	875	4.36	972	4.67	1,180	5.05	1,480	9.58	6,890	6.59	2,930
2	4.15	845	4.28	940	4.60	1,140	5.09	1,520	9.35	6,590	6.33	2,610
4	4.12	815	4.25	908	4.57	1,100	5.21	1,600	8.85	5,710	6.16	2,510
6	4.11	815	4.24	908	4.58	1,140	5.62	1,940	8.20	4,880	6.07	2,410
8	4.12	815	4.27	908	4.66	1,180	6.47	2,820	7.79	4,360	5.98	2,310
10	4.16	845	4.42	1,000	4.80	1,280	7.06	3,500	7.59	4,100	5.90	2,210
M	4.24	908	4.64	1,180	4.98	1,440	7.65	4,100	7.53	3,980	5.81	2,120
	March 14		March 15		March 16		March 17		March 18		March 19	
2	5.74	2,080	5.22	1,600	4.85	1,320	4.82	1,280	5.65	1,980	7.22	3,620
4	5.67	1,980	5.19	1,600	4.83	1,320	4.93	1,400	6.30	2,610	7.28	3,740
6	5.62	1,940	5.15	1,560	4.80	1,280	5.16	1,560	6.95	3,380	7.11	3,500
8	5.55	1,900	5.12	1,520	4.78	1,280	5.34	1,720	7.35	3,860	6.79	3,150
10	5.50	1,850	5.09	1,520	4.78	1,280	5.47	1,800	7.74	4,230	6.59	2,930
N	5.45	1,800	5.06	1,480	4.75	1,250	5.49	1,850	7.96	4,620	6.43	2,710
2	5.40	1,760	5.03	1,480	4.75	1,250	5.35	1,720	7.86	4,490	6.31	2,610
4	5.35	1,720	5.00	1,440	4.74	1,250	5.20	1,600	7.47	3,980	6.29	2,610
6	5.31	1,680	4.95	1,400	4.70	1,210	5.11	1,520	7.08	3,500	6.40	2,710
8	5.31	1,680	4.92	1,360	4.67	1,180	5.09	1,520	6.77	3,150	6.50	2,820
10	5.27	1,640	4.84	1,320	4.67	1,180	5.21	1,600	6.83	3,150	6.59	2,930
M	5.25	1,640	4.84	1,320	4.86	1,320	5.40	1,760	7.04	3,380	6.63	2,930
	March 20		March 21		March 22		March 23		March 24		March 25	
2	6.57	2,930	5.62	1,940	6.56	2,930	5.25	1,640	5.02	1,440	4.83	1,320
4	6.47	2,820	5.70	2,030	6.46	2,820	5.22	1,600	5.01	1,440	4.84	1,320
6	6.34	2,610	5.87	2,160	6.28	2,610	5.20	1,600	5.00	1,440	4.83	1,320
8	6.19	2,510	6.22	2,510	6.06	2,410	5.20	1,600	4.99	1,440	4.82	1,280
10	6.05	2,310	6.50	2,820	5.87	2,160	5.17	1,560	4.99	1,440	4.81	1,280
N	5.90	2,210	6.64	2,930	5.74	2,080	5.17	1,560	4.98	1,440	4.80	1,280
2	5.81	2,120	6.63	2,930	5.63	1,980	5.14	1,560	4.97	1,400	4.78	1,280
4	5.72	2,030	6.56	2,930	5.55	1,900	5.12	1,520	4.91	1,360	4.74	1,250
6	5.64	1,980	6.58	2,930	5.48	1,850	5.10	1,520	4.91	1,360	4.73	1,250
8	5.59	1,940	6.59	2,930	5.40	1,760	5.07	1,480	4.90	1,360	4.70	1,210
10	5.55	1,900	6.58	2,930	5.30	1,680	5.05	1,480	4.88	1,360	4.70	1,210
M	5.55	1,900	6.58	2,930	5.29	1,680	5.05	1,480	4.85	1,320	4.68	1,210

Supplemental records.- Mar. 12, 11:50 a.m., 9.58 ft., 6,890 sec.-ft.

Muddy Creek at Castle Fin, Pa.

Location.- Lat. 39°46'25", long. 76°19'0", 1 mile downstream from Castle Fin, York County, and 2 3/4 miles above mouth of creek. Zero of gage is 175.42 feet above mean sea level.
Drainage area.- 133 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 1, 21-23, when there was no record. Gage heights used to half tenths between 3.5 and 5.5 feet; hundredths below and tenths above these limits.
Stage-discharge relation.- Affected by ice Feb. 1-26. Defined by current meter measurements below 8,000 second-feet; extended to peak stage on basis of determination of flood flow over dam at Castle Fin.
Maxima.- 1936: Discharge during year, 3,700 second-feet Jan. 9 (gage height, 7.44 feet); maximum gage height, 7.88 feet Jan 3 (affected by ice). Discharge during March, 3,140 second-feet 6:30 p.m. Mar. 11.
1928-35: Discharge, 16,600 second-feet Aug. 23, 1933 (gage height, 21.11 feet, from flood marks).
Remarks.- Discharge regulated by hydro-electric plant upstream.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	140	722	294	11	140	1,270	408	21	150	734	248
2	135	382	308	12	140	1,180	361	22	140	554	242
3	130	730	315	13	145	710	353	23	140	463	233
4	130	664	271	14	155	499	322	24	135	420	227
5	130	471	259	15	220	410	312	25	135	386	218
6	130	353	874	16	245	360	309	26	1,700	350	218
7	125	291	462	17	240	434	287	27	1,300	444	207
8	130	261	374	18	250	748	276	28	990	430	209
9	130	288	355	19	180	623	265	29	1,060	350	209
10	135	317	394	20	160	547	257	30		330	203
								31		313	
Mean monthly discharge, in second-feet									308	517	309
Run-off, in inches									2.50	4.48	2.59

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	2.30	262	2.33	273	2.48	326	2.56	354	4.62	1,500	3.67	865
4	2.30	262	2.32	270	2.44	312	2.56	354	4.41	1,360	3.55	810
6	2.29	259	2.30	262	2.41	301	2.60	370	4.24	1,250	3.46	760
8	2.45	315	2.42	304	2.39	294	2.73	422	3.97	1,040	3.39	730
10	2.28	256	2.29	259	2.38	290	2.94	516	3.79	950	3.34	705
N	2.26	248	2.28	256	2.37	287	3.21	640	3.68	892	3.29	680
2	2.25	245	2.28	256	2.37	287	4.36	1,320	3.82	950	3.25	660
4	2.28	256	2.33	273	2.40	298	5.84	2,420	4.13	1,180	3.21	640
6	2.30	262	2.42	304	2.47	322	6.71	3,140	4.29	1,280	3.18	625
8	2.35	280	2.53	343	2.54	346	6.40	2,820	4.21	1,220	3.14	606
10	2.39	294	2.57	358	2.57	358	5.39	2,080	4.01	1,080	3.11	592
M	2.25	245	2.54	346	2.57	358	4.88	1,700	3.83	980	3.08	578
	March 14		March 15		March 16		March 17		March 18		March 19	
2	3.04	560	2.74	426	2.60	370	2.75	430	3.72	892	3.21	640
4	3.01	547	2.74	426	2.60	370	2.66	394	3.76	920	3.15	610
6	2.97	529	2.73	422	2.59	366	2.63	382	3.54	810	3.11	592
8	2.94	516	2.86	480	2.58	362	2.67	398	3.27	670	3.08	578
10	2.90	498	2.70	410	2.57	358	2.78	444	3.10	588	3.06	570
N	2.88	488	2.68	402	2.56	354	2.73	422	3.01	547	3.03	556
2	2.85	475	2.67	398	2.55	350	2.67	398	3.05	565	3.03	556
4	2.84	470	2.66	394	2.54	346	2.65	390	3.60	838	3.06	570
6	2.83	466	2.65	390	2.54	346	2.64	386	3.59	838	3.18	625
8	2.82	462	2.63	382	2.53	343	2.64	386	3.57	810	3.28	675
10	2.80	452	2.62	378	2.53	343	2.89	493	3.54	810	3.35	710
M	2.79	448	2.61	374	2.67	398	3.36	715	3.36	715	3.33	700
	March 20		March 21		March 22		March 23		March 24		March 25	
2	3.20	635	3.20	635	3.12	596	2.86	480	2.80	452	2.67	398
4	3.11	592	3.52	785	3.11	592	2.86	480	2.75	430	2.67	398
6	3.05	565	3.74	920	3.09	583	2.86	480	2.75	430	2.66	394
8	3.00	542	3.88	1,010	3.16	615	2.90	498	2.74	426	2.66	394
10	2.99	538	3.63	865	3.05	565	2.84	470	2.73	422	2.65	390
N	2.95	520	3.47	760	3.01	547	2.82	462	2.72	418	2.65	390
2	2.94	516	3.41	740	3.00	542	2.81	457	2.72	418	2.63	382
4	2.92	506	3.33	700	2.94	516	2.80	452	2.71	414	2.63	382
6	2.91	502	3.28	675	2.93	511	2.79	448	2.70	410	2.62	378
8	2.89	493	3.25	660	2.92	506	2.78	444	2.69	406	2.61	374
10	2.88	488	3.22	645	2.90	498	2.77	439	2.69	406	2.60	370
M	2.94	516	3.20	635	2.89	493	2.73	422	2.68	402	2.59	366

Octoraro Creek near Rising Sun, Md.

Location.- Lat. 39°41'27", long. 76,7'38", on Porter Bridge, below Love Run and below relocated U. S. Highway 1, 3½ miles above mouth and 3½ miles west of Rising Sun, Cecil County. Zero of gage is 73.772 feet above mean sea level.

Drainage area.- 191 square miles.

Gage-height record.- Wire-weight gage read twice daily to hundredths. Hydrograph drawn on basis of daily readings and comparisons with stage graphs of nearby stations.

Stage-discharge relation.- Defined by current-meter measurements below 4,940 second-feet; extended on basis of velocity-area study at control section. Affected by ice Feb. 1-13, 22, 23.

Maxima.- 1936: Discharge, 8,800 second-feet 2 a.m. Mar. 12 (gage height, 11.40 feet, from graph based on gage readings).

1932-35: Discharge, about 25,400 second-feet Aug. 24, 1933 (gage height, 17.5 feet, from flood marks).

1884-1936: Maximum known stage, 24.3 feet (from flood mark) in 1884 (discharge not determined).

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	230	845	458	11	240	2,760	665	21	288	1,050	390
2	220	557	482	12	230	2,910	584	22	270	845	412
3	220	532	584	13	240	910	557	23	260	532	368
4	240	665	458	14	440	638	506	24	270	584	368
5	260	610	435	15	435	557	482	25	482	557	348
6	260	458	1,280	16	308	506	482	26	2,780	506	348
7	240	368	665	17	390	634	435	27	1,540	722	327
8	210	348	557	18	722	1,620	435	28	1,360	845	327
9	220	327	532	19	482	782	412	29	1,050	584	348
10	230	390	694	20	327	722	412	30		532	308
								31		482	
Mean monthly discharge, in second-feet									498	786	489
Run-off, in inches									2.82	4.75	2.86

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	5.17	399	11.40	8,800	-	-
4	5.03	339	5.11	372	5.18	403	5.22	421	10.40	6,730	6.40	1,120
6	-	-	-	-	-	-	5.29	452	9.50	5,080	-	-
8	5.06	352	5.09	364	5.18	403	5.51	562	8.70	3,780	6.30	1,050
10	-	-	-	-	-	-	5.96	758	7.90	2,650	-	-
N	5.01	331	5.04	343	5.16	394	6.40	1,120	7.10	1,730	6.10	910
2	-	-	-	-	-	-	6.90	1,540	6.80	1,450	-	-
4	5.01	331	4.98	319	5.12	377	7.60	2,280	6.90	1,540	5.87	764
6	-	-	-	-	-	-	8.40	3,330	7.00	1,630	-	-
8	5.06	352	5.05	348	5.12	377	9.20	4,570	7.10	1,730	5.77	705
10	-	-	-	-	-	-	10.00	5,970	7.00	1,630	-	-
M	5.11	372	5.15	390	5.14	386	11.00	7,950	6.80	1,450	5.73	682
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	7.40	2,050	-	-
4	5.69	660	5.58	599	5.43	521	5.39	501	7.90	2,650	6.00	845
6	-	-	-	-	-	-	-	-	7.90	2,650	-	-
8	5.67	648	5.54	579	5.41	511	5.41	511	7.70	2,400	5.91	788
10	-	-	-	-	-	-	-	-	7.30	1,940	-	-
N	5.67	648	5.51	562	5.39	501	5.43	521	7.00	1,630	5.90	782
2	-	-	-	-	-	-	-	-	6.60	1,280	-	-
4	5.65	638	5.51	562	5.37	492	5.43	521	6.40	1,120	5.90	782
6	-	-	-	-	-	-	5.47	542	6.30	1,050	-	-
8	5.64	632	5.47	542	5.39	501	5.62	621	6.20	980	5.96	820
10	-	-	-	-	-	-	5.93	801	6.10	910	-	-
M	5.61	616	5.45	532	5.39	501	6.50	1,200	6.10	910	6.00	845
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	5.96	820	6.00	845	6.30	1,050	5.63	626	5.49	552	5.53	573
6	-	-	-	-	-	-	-	-	-	-	-	-
8	5.90	782	6.50	1,200	6.30	1,050	5.58	599	5.54	578	5.54	578
10	-	-	-	-	-	-	-	-	-	-	-	-
N	5.78	711	6.60	1,280	6.10	910	5.46	537	5.53	573	5.53	573
2	-	-	-	-	-	-	-	-	-	-	-	-
4	5.71	671	6.40	1,120	5.85	752	5.34	477	5.52	568	5.52	568
6	-	-	-	-	-	-	-	-	-	-	-	-
8	5.71	671	6.30	1,050	5.74	688	5.39	501	5.52	568	5.51	562
10	-	-	-	-	-	-	-	-	-	-	-	-
M	5.74	688	6.20	980	5.67	648	5.44	526	5.52	568	5.51	562

Deer Creek at Rocks, Md.

Location.- Lat. 39°37'49", long. 76°24'13", a quarter of a mile below Maryland & Pennsylvania Railroad bridge, three-quarters of a mile southeast of Rocks, and 7 miles northeast of Belair, Harford County.
Drainage area.- 94.4 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1-25. Defined by current-meter measurements below 2,910 second-feet; extended to peak discharge of the flood of Aug. 23, 1933, obtained by slope-area determination.
Maxima.- 1936: Discharge, 3,630 second-feet 4:30 p.m. Mar. 11 (gage height, 8.71 feet).
1926-35: Discharge, about 22,600 second-feet Aug. 23, 1933 (gage height, 17.7 feet, from flood marks).
1886-1936: Maximum known discharge and stage, that of Aug. 23, 1933.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	90	422	184	11	95	1,160	275	21	120	423	167
2	90	228	197	12	95	674	234	22	110	284	162
3	90	488	197	13	100	375	226	23	105	243	160
4	100	374	174	14	370	269	205	24	100	229	155
5	110	266	172	15	380	229	197	25	300	215	151
6	100	192	514	16	420	218	192	26	1,340	202	153
7	90	160	272	17	260	278	182	27	842	290	151
8	95	144	226	18	300	412	179	28	662	299	146
9	100	155	221	19	180	328	172	29	676	224	144
10	100	172	257	20	130	296	170	30		205	142
								31		194	
Mean monthly discharge, in second-feet									260	311	199
Run-off, in inches									2.97	3.79	2.35

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	2.44	194	4.40	910	-	-
4	2.25	148	2.28	155	2.38	179	2.45	197	4.05	742	3.22	437
6	-	-	-	-	-	-	2.52	215	3.78	642	-	-
8	2.22	142	2.24	146	2.32	165	2.66	254	3.59	566	3.06	381
10	-	-	-	-	-	-	3.08	388	3.40	500	-	-
N	2.21	139	2.25	148	2.30	160	4.05	742	3.32	472	2.98	354
2	-	-	-	-	-	-	7.20	2,480	3.49	532	-	-
4	2.21	139	2.22	142	2.30	160	8.64	3,570	4.19	816	2.93	338
6	-	-	-	-	-	-	7.44	2,650	4.16	802	-	-
8	2.25	148	2.34	170	2.39	182	5.90	1,680	4.05	742	2.87	318
10	-	-	-	-	-	-	4.80	1,100	3.79	646	-	-
M	2.28	155	2.40	184	2.43	192	4.36	892	3.54	549	2.83	306
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	2.78	290	2.62	243	2.52	215	2.76	284	3.53	546	2.88	322
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.73	275	2.60	237	2.51	213	2.71	269	3.16	416	2.80	296
10	-	-	-	-	-	-	-	-	-	-	-	-
N	2.70	266	2.57	229	2.50	210	2.69	263	2.91	331	2.75	281
2	-	-	-	-	-	-	-	-	-	-	-	-
4	2.67	257	2.55	224	2.48	205	2.64	249	2.92	335	2.81	299
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.64	249	2.54	221	2.51	213	2.63	246	3.14	409	3.14	409
10	-	-	-	-	-	-	-	-	-	-	-	-
M	2.64	249	2.53	218	2.87	318	3.16	416	3.05	378	3.11	398
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	2.94	341	3.54	549	2.85	312	2.65	252	2.58	232	2.54	221
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.81	299	3.48	528	2.79	293	2.64	249	2.58	232	2.53	218
10	-	-	-	-	-	-	-	-	-	-	-	-
N	2.76	284	3.21	434	2.75	281	2.63	246	2.57	229	2.52	215
2	-	-	-	-	-	-	-	-	-	-	-	-
4	2.72	272	3.04	375	2.70	266	2.60	237	2.57	229	2.52	215
6	-	-	-	-	-	-	-	-	-	-	-	-
8	2.68	260	2.94	341	2.67	257	2.60	237	2.55	224	2.49	207
10	-	-	-	-	-	-	-	-	-	-	-	-
M	2.85	312	2.94	341	2.65	252	2.59	234	2.54	221	2.50	210

Supplemental records.- Mar. 11, 4:30 p.m., 8.71 ft., 3,630 sec.-ft.

Little Tonawanda Creek at Linden, N. Y.

Location.- Lat. 42°52'35", long. 78°9'45", above concrete weir at highway bridge in Linden, Genesee County.
Drainage area.- 22 square miles.
Gage-height record.- Twice-daily readings.
Stage-discharge relation.- Affected by ice Feb. 6, 9, Feb. 25 to Mar. 3. Defined by current-meter measurements. Discharge compared with other records in the vicinity.
Maxima.- 1936: Discharge, 1,490 second-feet (discharge measurement) 6 p.m. Mar. 25 (gage height, 10.1 feet).
1912-35: Discharge, 2,400 second-feet Apr. 22, 1916 (gage height, 14.6 feet).
Remarks.- Discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	6.9	46	82	11	6.2	338	60	21	6.2	79	84
2	6.9	40	143	12	5.8	362	88	22	5.6	62	57
3	6.6	42	85	13	6.2	82	95	23	5.4	62	38
4	6.9	111	58	14	6.2	58	59	24	5.4	379	32
5	6.6	158	53	15	6.6	175	69	25	28	1,080	28
6	6.5	72	111	16	6.6	149	62	26	75	393	26
7	6.6	54	71	17	6.4	67	59	27	150	474	21
8	6.2	44	47	18	5.2	73	59	28	75	196	24
9	6.0	83	62	19	5.3	88	56	29	55	139	29
10	6.2	104	66	20	6.6	91	47	30		125	27
								31		294	
Mean monthly discharge, in second-feet									18.3	178	59.9
Run-off, in inches									0.90	9.33	3.04

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	1.66	48	1.87	60	2.16	80	2.82	137	6.60	692	2.58	114
4	1.63	46	1.95	66	2.15	80	2.79	134	6.15	610	2.43	101
6	1.60	44	2.04	72	2.15	80	2.80	135	5.60	516	2.28	89
8	1.58	43	2.18	82	2.16	80	2.84	139	5.06	430	2.18	82
10	1.58	43	2.33	93	2.17	81	2.95	150	4.63	364	2.09	75
N	1.59	43	2.40	99	2.55	112	3.13	169	4.27	312	2.01	70
2	1.60	44	2.39	98	3.01	156	3.55	217	3.90	261	1.96	66
4	1.62	45	2.36	96	3.13	169	4.75	382	3.60	223	1.99	68
6	1.64	46	2.31	92	3.08	164	5.80	550	3.32	190	2.13	78
8	1.68	49	2.26	88	2.98	153	6.90	750	3.10	166	2.06	73
10	1.73	52	2.22	85	2.94	149	7.20	810	2.92	147	1.97	67
M	1.80	56	2.17	81	2.87	142	6.95	760	2.76	131	1.88	61
	March 14		March 15		March 16		March 17		March 18		March 19	
2	1.78	55	2.17	81	3.15	172	2.30	91	1.62	45	2.08	75
4	1.70	50	2.10	76	3.04	159	2.22	85	1.66	48	2.08	75
6	1.60	44	2.07	74	2.96	151	2.15	80	1.80	56	2.08	75
8	1.54	40	2.10	76	2.89	144	2.08	75	2.30	91	2.07	74
10	1.48	37	2.70	125	2.81	136	2.00	69	2.32	93	2.07	74
N	1.46	36	3.90	261	2.75	130	1.94	65	2.27	89	2.07	74
2	1.50	38	4.20	302	2.68	123	1.88	61	2.23	85	2.09	75
4	1.82	57	4.07	284	2.62	118	1.83	58	2.18	82	2.40	99
6	2.26	88	3.85	254	2.56	112	1.77	54	2.14	79	2.69	124
8	2.29	90	3.63	227	2.49	106	1.72	51	2.11	77	2.60	116
10	2.27	89	3.45	205	2.43	101	1.68	49	2.10	76	2.50	107
M	2.23	85	3.30	188	2.37	97	1.63	46	2.09	75	2.41	100
	March 20		March 21		March 22		March 23		March 24		March 25	
2	2.34	94	2.30	91	1.93	64	1.98	68	1.94	65	8.62	1,100
4	2.28	89	2.24	86	1.86	60	1.94	65	2.04	72	8.25	1,020
6	2.23	85	2.19	82	1.80	56	1.90	62	2.25	87	7.96	962
8	2.17	81	2.14	79	1.76	54	1.88	61	2.63	119	7.73	916
10	2.12	77	2.11	77	1.71	51	1.88	61	3.03	158	7.76	922
N	2.09	75	2.10	76	1.68	49	1.87	60	3.54	216	8.14	998
2	2.10	76	2.10	76	1.70	50	1.87	60	4.18	299	8.80	1,150
4	2.26	88	2.12	77	1.99	68	1.87	60	4.97	416	9.85	1,410
6	2.57	113	2.11	77	2.16	80	1.88	61	5.95	576	10.10	1,490
8	2.60	116	2.09	75	2.13	78	1.89	61	7.25	820	8.70	1,120
10	2.47	105	2.04	72	2.06	73	1.90	62	8.70	1,120	7.50	870
M	2.38	97	1.99	68	2.02	70	1.91	63	8.92	1,180	6.50	673
	March 26		March 27		March 28		March 29		March 30		March 31	
2	5.65	524	4.35	323	4.35	323	2.61	117	2.70	125	3.33	191
4	4.85	398	4.15	295	3.90	261	2.56	112	2.67	122	3.84	253
6	4.15	295	3.93	265	3.60	223	2.53	110	2.66	121	4.45	338
8	3.92	264	3.92	264	3.40	199	2.53	110	2.66	121	5.10	436
10	3.90	261	4.25	309	3.28	186	2.69	124	2.67	122	5.17	447
N	4.10	288	5.10	436	3.17	174	3.15	172	2.69	124	4.96	414
2	4.55	352	6.15	610	3.08	164	3.37	196	2.71	126	4.60	360
4	5.30	468	7.30	830	2.99	154	3.10	166	2.73	128	4.20	302
6	5.50	500	7.10	790	2.90	145	2.98	153	2.77	132	3.77	244
8	5.32	471	6.40	655	2.83	138	2.89	144	2.83	138	3.40	199
10	4.94	411	5.60	516	2.74	129	2.80	135	2.91	146	3.15	172
M	4.65	368	4.85	398	2.67	122	2.74	129	3.05	160	2.89	144

Genesee River at Jones Bridge, near Mount Morris, N. Y.

Location.- Lat. 42°45'55", long. 77°50'25", at Jones Bridge, 3½ miles northeast of Mount Morris, Livingston County.
Drainage area.- 1,419 square miles; 62 square miles affected by storage in Caneadea Reservoir.
Gage-height record.- Water-stage recorder graph. Recorder not operating satisfactorily Feb. 1-7, 11-14, 19-24, Mar. 2-4.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined by current-meter measurements. Discharge record compared with other records in Genesee River Basin.
Maxima.- 1936: Discharge, 26,300 second-feet noon Mar. 26 (gage height, 24.03 feet).
1903-6, 1908-13, 1915-35: Discharge, 55,100 second-feet May 17, 1916 (gage height, 25.44 feet).
Remarks.- For information of storage see records for Caneadea Reservoir near Caneadea, N. Y.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	300	2,800	7,940	11	220	15,000	3,710	21	180	10,000	2,640
2	300	2,200	6,360	12	220	20,000	4,520	22	180	8,020	3,990
3	280	1,900	6,200	13	200	14,400	7,280	23	170	6,910	2,730
4	280	1,800	4,640	14	200	8,740	5,150	24	170	7,670	2,060
5	260	7,000	3,760	15	200	6,970	4,760	25	440	18,500	1,760
6	260	6,500	5,760	16	200	10,600	3,970	26	1,700	24,200	1,580
7	240	3,800	7,150	17	190	9,070	3,170	27	4,000	20,600	1,430
8	240	2,400	4,540	18	190	12,700	2,780	28	6,500	19,400	1,370
9	220	3,000	3,940	19	180	11,700	2,650	29	4,600	13,000	1,570
10	220	9,000	3,540	20	180	11,100	2,520	30		10,300	2,200
								31		10,900	
Mean monthly discharge, in second-feet									777	10,010	3,856
Run-off, in inches									0.59	8.13	3.04

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	23.56	19,900	22.72	17,500
4	-	-	-	-	14.97	-	16.68	-	22.87	20,200	22.57	16,900
6	-	-	-	-	-	-	-	-	22.87	20,300	22.36	16,100
8	-	-	-	-	15.77	-	17.82	-	22.97	20,400	22.10	15,200
10	-	-	-	-	16.00	-	-	-	23.06	20,200	21.76	14,500
N	11.53	*2,400	10.89	*3,000	17.64	*9,000	21.74	*15,000	23.07	20,000	21.36	14,100
2	-	-	-	-	-	-	-	-	23.08	19,800	20.91	13,700
4	-	-	-	-	17.49	-	22.48	-	23.07	19,400	20.44	13,300
6	-	-	-	-	-	-	-	-	23.04	18,800	19.97	12,800
8	-	-	-	-	17.08	-	23.22	-	23.00	18,600	19.46	12,400
10	-	-	-	-	-	-	-	-	22.93	18,300	18.95	12,000
M	-	-	13.42	-	17.45	-	23.50	19,500	22.83	17,900	18.32	11,500
	March 14		March 15		March 16		March 17		March 18		March 19	
2	17.67	11,000	11.49	6,690	13.76	9,080	15.52	9,490	14.96	10,200	19.05	13,500
4	16.97	10,500	11.32	6,580	14.84	10,100	15.36	9,380	15.52	10,700	18.99	12,300
6	16.23	9,990	11.20	6,500	15.86	11,000	15.22	9,280	16.22	11,300	18.90	11,900
8	15.46	9,450	11.10	6,500	16.62	11,700	15.08	9,190	16.90	12,000	18.82	11,900
10	14.73	8,940	11.04	6,600	16.99	11,800	14.90	9,060	17.56	12,700	18.75	11,800
N	14.07	8,480	11.03	6,600	17.09	11,600	14.70	8,920	18.12	13,300	18.68	11,800
2	13.46	8,050	11.09	6,800	17.00	11,100	14.45	8,740	18.50	13,800	18.59	11,700
4	13.08	7,790	11.28	6,980	16.86	10,700	14.19	8,600	18.78	14,100	18.52	11,600
6	12.66	7,490	11.64	7,270	16.63	10,300	14.02	8,700	18.93	14,200	18.42	11,600
8	12.23	7,190	12.10	7,640	16.39	10,100	13.97	8,800	19.03	14,000	18.30	11,500
10	11.90	6,960	12.44	7,910	16.07	9,880	14.04	9,100	19.07	13,900	18.23	11,400
M	11.65	6,790	12.85	8,260	15.78	9,680	14.40	9,660	19.09	13,800	18.20	11,400
	March 20		March 21		March 22		March 23		March 24		March 25	
2	18.20	11,400	16.97	10,500	14.83	9,010	12.31	7,250	10.45	6,100	18.20	13,400
4	18.22	11,400	16.84	10,400	14.50	8,780	12.25	7,200	10.43	6,200	19.26	14,800
6	18.25	11,400	16.69	10,300	14.11	8,510	12.18	7,160	10.43	6,200	20.20	16,100
8	18.20	11,400	16.56	10,200	13.75	8,260	12.11	7,110	10.46	6,300	20.90	17,200
10	18.09	11,300	16.46	10,200	13.44	8,040	12.00	7,030	10.64	6,470	21.51	18,100
N	17.97	11,200	16.34	10,100	13.17	7,850	11.92	6,970	11.00	6,760	21.96	18,800
2	17.78	11,100	16.22	9,980	13.02	7,740	11.85	6,920	11.68	7,300	22.37	19,600
4	17.58	10,900	16.07	9,880	12.83	7,610	11.77	6,870	12.55	8,000	22.77	20,400
6	17.38	10,800	15.89	9,750	12.65	7,480	11.66	6,800	13.63	8,970	23.07	21,100
8	17.19	10,700	15.67	9,600	12.54	7,410	11.41	6,640	14.73	9,960	23.29	21,800
10	17.04	10,600	15.43	9,430	12.45	7,340	11.00	6,370	15.88	11,000	23.47	22,600
M	17.02	10,500	15.14	9,230	12.39	7,300	10.55	6,100	17.06	12,200	23.62	23,300
	March 26		March 27		March 28		March 29		March 30		March 31	
2	23.76	24,200	23.36	20,600	23.51	22,300	21.68	14,400	17.86	11,[illegible]0	15.84	11,000
4	23.86	24,900	23.34	20,400	23.54	22,200	21.41	14,200	17.60	11,000	16.35	11,400
6	23.95	25,600	23.31	20,300	23.52	22,000	21.13	13,900	17.36	10,800	16.66	11,700
8	24.01	26,100	23.24	20,300	23.47	21,600	20.85	13,700	17.14	10,600	16.88	11,800
10	24.02	26,200	23.17	20,200	23.40	20,800	20.57	13,400	16.88	10,500	17.00	11,800
N	24.03	26,300	23.08	20,200	23.26	20,000	20.23	13,100	16.60	10,200	17.04	11,600
2	23.99	25,900	23.06	20,400	23.05	18,800	19.91	12,800	16.30	10,000	16.96	11,000
4	23.87	24,700	23.07	20,600	22.88	18,100	19.52	12,400	16.00	9,830	16.79	10,600
6	23.70	23,100	23.14	21,300	22.66	17,200	19.22	12,200	15.76	9,660	16.58	10,200
8	23.53	21,700	23.26	21,700	22.43	16,300	18.80	11,800	15.56	9,700	16.34	10,100
10	23.42	20,900	23.36	22,000	22.20	15,500	18.44	11,600	15.44	10,000	16.04	9,860
M	23.37	20,600	23.45	22,300	21.93	14,800	18.12	11,300	15.51	10,300	15.68	9,610

*Mean for the day.

Caneadea Reservoir near Caneadea, N. Y.

Location.- Lat. 42°22'50", long. 78°10'55", at Caneadea Dam on Caneadea Creek, 1½ miles west of Caneadea, Allegany County.
Drainage area.- 60.7 square miles.
Gage-height record.- Gage read daily at 5 p.m.
Remarks.- Usable storage capacity 1,106,000,000 cubic feet. Discharge from Caneadea Reservoir was equivalent to a mean monthly discharge of 223 second-feet in March, and 180 second-feet in April. There was no release during February. Records furnished by Rochester Gas and Electric Corporation.

Elevation, in feet, and contents, in millions of cubic feet, 1936

Day	February		March		April	
	Feet	Millions of cubic feet	Feet	Millions of cubic feet	Feet	Millions of cubic feet
1	1,386.00	239.4	1,389.50	274.0	1,439.38	1,091.1
2	1,386.10	240.4	1,389.75	276.5	1,438.25	1,064.1
3	1,386.21	241.5	1,389.95	278.4	1,437.50	1,046.1
4	1,386.37	243.0	1,390.50	284.3	1,436.00	1,010.2
5	1,386.48	244.2	1,391.00	289.7	1,436.40	1,019.7
6	1,386.54	244.7	1,392.50	305.9	1,438.20	1,062.9
7	1,386.62	245.5	1,393.50	316.6	1,439.10	1,084.4
8	1,386.70	246.3	1,394.00	322.0	1,439.55	1,095.1
9	1,386.80	247.3	1,395.00	332.8	1,440.00	1,105.9
10	1,386.82	247.4	1,397.00	356.5	1,440.30	1,113.1
11	1,386.84	247.7	1,414.00	589.0	1,439.75	1,100.0
12	1,386.84	247.7	1,422.00	723.3	1,439.70	1,098.7
13	1,386.85	247.8	1,424.00	759.7	1,439.66	1,097.8
14	1,386.85	247.8	1,426.00	797.8	1,439.12	1,084.9
15	1,386.85	247.8	1,427.25	822.7	1,438.55	1,071.3
16	1,386.85	247.8	1,429.50	867.5	1,439.20	1,086.8
17	1,386.85	247.8	1,430.50	888.4	1,439.54	1,094.9
18	1,386.85	247.8	1,431.50	910.1	1,439.80	1,101.2
19	1,386.85	247.8	1,432.00	921.0	1,439.60	1,096.3
20	1,386.85	247.8	1,431.50	910.1	1,439.00	1,082.0
21	1,386.85	247.8	1,428.50	847.6	1,439.10	1.084.4
22	1,386.85	247.8	1,426.50	807.8	1,439.00	1,082.0
23	1,386.85	247.8	1,424.50	768.8	1,439.18	1,086.3
24	1,388.05	259.7	1,425.50	787.9	1,439.40	1,091.6
25	1,388.05	259.7	1,431.50	910.1	1,439.70	1,098.7
26	1,388.25	261.6	1,434.50	975.4	1,439.95	1,104.7
27	1,388.50	264.1	1,439.00	1,082.0	1,440.10	1,108.3
28	1,389.00	269.0	1,440.50	1,117.8	1,439.95	1,104.7
29	1,389.25	271.5	1,439.87	1,102.8	1,439.98	1,105.4
30	-	-	1,439.75	1,100.0	1,439.75	1,100.0
31	-	-	1,440.28	1,112.7	-	-

	February	March	April
Gain or loss in storage in equivalent mean second-feet	+13.1	+311	-2.5

Seneca River (Cayuga Lake outlet) above Lock 1, near Cayuga, N. Y.

Location.- Lat. 42°56'45", long. 76°44'5", above Lock 1 (Mudlock) and about 2 miles north of Cayuga, Cayuga County.
Drainage area.- 780 square miles.
Gage-height record.- Three gage readings daily. Gage heights give elevation of water surface at north end of Cayuga Lake and refer to Barge Canal datum; subtract 0.87 to convert to mean sea level.
Maxima.- 1936: Gage height recorded, 386.7 feet noon Mar. 27.
1905-35: Gage height recorded, 386.6 feet Apr. 3, 1916.
Remarks.- Barge Canal pool elevation, 381.5 feet. Area of water surface of Cayuga Lake is 66.4 square miles. Records furnished by New York State Department of Public Works.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	381.9	380.7	385.8	11	381.2	381.3	384.3	21	380.5	386.5	384.2
2	381.8	380.8	385.7	12	381.1	382.8	384.1	22	380.4	386.6	384.2
3	381.8	380.8	385.6	13	381.0	383.3	384.2	23	380.3	386.6	384.1
4	381.8	380.8	385.4	14	381.0	383.4	384.3	24	380.4	386.5	384.0
5	381.6	380.9	385.3	15	380.9	383.6	384.4	25	380.3	386.5	384.0
6	381.6	381.0	385.1	16	380.8	384.0	384.3	26	380.3	386.5	383.7
7	381.5	381.1	384.9	17	380.8	384.4	384.4	27	380.5	386.6	383.9
8	381.5	381.0	384.7	18	380.7	385.6	384.3	28	380.6	386.4	383.9
9	381.3	381.2	384.6	19	380.6	386.3	384.3	29	380.7	386.2	383.8
10	381.3	381.3	384.4	20	380.5	386.4	384.3	30		386.1	383.9
								31		385.9	

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Oswego River at Lock 7, Oswego, N. Y.

Location.- Lat. 43°27'0", long. 76°30'25", at Lock 7, in Oswego, Oswego County, three-quarters of a mile above mouth. Elevation of zero of gage is 246.0 feet (Barge Canal datum).

Drainage area.- 5,121 square miles.

Gage-height record.- Water-stage recorder graph.

Stage-discharge relation.- Rating of river station defined by current-meter measurements below 36,000 second-feet.

Maxima.- 1936: Discharge, 37,500 second-feet 3:35 p.m. Mar. 28 (gage height, 13.10 feet).

1933-35: Discharge, 16,900 second-feet July 14, 1935 (gage height, 8.32 feet).

Remarks.- This record represents the total discharge at Oswego. The maxima and the bi-hourly discharges are the sums of the instantaneous river discharges and the total mean daily diversions through the Barge Canal and the Hydraulic Canal. A large amount of natural storage and some artificial regulation is afforded by the many large lakes and the Barge Canal system in the river basin. For lake stages and storage information see records for Seneca Lake at Watkins Glen, N. Y., Seneca River (Cayuga Lake outlet) above Lock 1, near Cayuga, N. Y., Oneida Lake at Sylvan Beach, N. Y., and Owasco Lake outlet near Auburn, N. Y.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	6,000	6,400	33,500	11	6,800	9,800	27,500	21	6,100	32,500	18,000
2	5,900	7,500	33,000	12	6,800	15,200	26,500	22	5,100	34,000	17,000
3	6,100	7,200	32,000	13	6,500	18,600	26,000	23	6,300	35,500	16,400
4	6,300	7,100	31,000	14	6,400	19,000	25,500	24	5,500	35,500	15,000
5	6,300	7,400	30,500	15	6,400	18,000	24,400	25	5,500	36,000	14,200
6	6,500	7,700	30,500	16	6,000	18,400	22,600	26	5,400	36,000	13,600
7	6,300	7,900	30,000	17	6,100	21,000	21,400	27	5,600	36,500	13,200
8	6,500	7,200	29,000	18	6,500	24,200	20,600	28	6,300	37,000	13,000
9	6,400	8,500	29,500	19	6,200	28,500	19,600	29	6,900	36,500	12,400
10	7,100	9,100	28,000	20	6,200	30,500	18,200	30		35,500	11,400
								31		34,500	
Mean monthly discharge, in second-feet									6,207	21,570	22,780
Run-off, in inches									1.30	4.85	4.96

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	6.70	11,900	8.68	18,700
4	-	-	-	-	-	-	-	-	6.90	12,500	8.67	18,600
6	-	-	-	-	-	-	-	-	7.14	13,200	8.64	18,500
8	-	-	-	-	-	-	-	-	7.19	13,400	8.62	18,400
10	-	-	-	-	-	-	-	-	7.35	13,800	8.62	18,400
N	4.80	*7,200	5.56	*8,500	5.57	*9,100	5.91	*9,800	7.73	15,200	8.59	18,300
2	-	-	-	-	-	-	-	-	8.10	16,500	8.61	18,400
4	-	-	-	-	-	-	-	-	8.30	17,200	8.70	18,800
6	-	-	-	-	-	-	6.14	10,200	8.41	17,500	8.81	19,200
8	-	-	-	-	-	-	-	-	8.46	17,700	8.80	19,200
10	-	-	-	-	-	-	-	-	8.60	18,200	8.77	19,000
M	-	-	-	-	-	-	6.52	11,300	8.69	18,600	8.75	19,000
	March 14		March 15		March 16		March 17		March 18		March 19	
2	8.72	18,800	8.69	18,600	8.61	18,700	8.68	19,300	9.40	22,200	10.69	27,000
4	8.69	18,600	8.61	18,300	8.50	18,300	8.69	19,400	9.43	22,300	10.63	27,200
6	8.67	18,600	8.61	18,300	8.49	18,300	8.70	19,400	9.49	22,600	10.70	27,400
8	8.65	18,500	8.62	18,400	8.52	18,400	8.72	19,500	9.57	22,900	10.79	27,800
10	8.62	18,400	8.60	18,300	8.40	18,000	8.74	19,600	9.66	23,300	10.75	27,600
N	8.74	18,800	8.53	18,000	8.38	17,900	9.06	20,800	9.83	23,900	11.21	29,500
2	9.05	20,100	8.49	17,900	8.43	18,100	9.36	22,000	10.05	24,800	11.15	29,200
4	8.98	19,800	8.43	17,700	8.58	18,600	9.51	22,600	10.03	24,700	11.13	29,200
6	9.00	19,900	8.44	17,700	8.63	18,800	9.58	22,900	10.08	24,900	11.14	29,200
8	8.88	19,400	8.48	17,900	8.67	19,000	9.46	22,400	10.33	25,900	11.19	29,400
10	8.83	19,200	8.50	17,900	8.67	19,000	9.43	22,300	10.51	26,700	11.22	29,500
M	8.79	19,000	8.51	18,000	8.67	19,000	9.40	22,200	10.57	26,900	11.23	29,600
	March 20		March 21		March 22		March 23		March 24		March 25	
2	11.26	29,600	11.80	31,800	12.16	33,300	12.57	35,200	12.66	35,600	12.73	35,900
4	11.29	29,700	11.82	31,900	12.15	33,300	12.76	36,000	12.64	35,500	12.74	36,000
6	11.31	29,800	11.83	31,900	12.14	33,300	12.78	36,100	12.63	35,500	12.76	36,100
8	11.33	29,900	11.70	31,400	12.14	33,300	12.72	35,800	12.63	35,500	12.74	36,000
10	11.34	29,900	11.92	32,300	12.09	33,000	12.63	35,400	12.61	35,400	12.72	35,900
N	11.43	30,300	11.98	32,500	12.23	33,700	12.64	35,500	12.53	35,000	12.76	36,100
2	11.43	30,300	11.99	32,600	12.26	33,800	12.63	35,400	12.61	35,400	12.74	36,000
4	11.52	30,700	12.00	32,600	12.32	34,100	12.58	35,200	12.64	35,500	12.60	35,300
6	11.60	31,000	12.04	32,800	12.40	34,400	12.69	35,700	12.68	35,700	12.84	36,400
8	11.69	31,300	12.12	33,200	12.57	35,200	12.69	35,700	12.69	35,700	12.80	36,200
10	11.74	31,500	12.13	33,200	12.61	35,400	12.68	35,700	12.70	35,800	12.79	36,200
M	11.77	31,700	12.17	33,400	12.72	35,900	12.66	35,600	12.71	35,800	12.78	36,100

* (See note at end of table on next page).

Oswego River at Lock 7, Oswego, N. Y.--Continued

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936--Continued

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 26		March 27		March 28		March 29		March 30		March 31	
2	12.77	36,100	12.68	35,700	12.94	36,900	12.96	37,000	12.74	36,000	12.50	34,900
4	12.73	35,900	12.68	35,700	12.93	36,900	12.93	36,900	12.72	35,900	12.43	34,600
6	12.75	36,000	12.67	35,700	12.91	36,800	12.93	36,900	12.70	35,800	12.44	34,600
8	12.72	35,900	12.71	35,900	12.88	36,600	12.94	36,900	12.66	35,600	12.41	34,500
10	12.72	35,900	12.80	36,300	12.98	37,100	12.93	36,900	12.64	35,500	12.39	34,400
N	12.70	35,800	12.88	36,600	13.04	37,400	12.90	36,700	12.62	35,400	12.33	34,100
2	12.70	35,800	13.04	37,300	13.00	37,200	12.90	36,700	12.59	35,300	12.36	34,300
4	12.71	35,800	13.00	37,200	13.02	37,300	12.84	36,500	12.57	35,200	12.33	34,100
6	12.70	35,800	13.01	37,200	13.00	37,200	12.89	36,700	12.56	35,200	12.32	34,100
8	12.68	35,700	13.00	37,200	12.98	37,100	12.83	36,400	12.55	35,100	12.31	34,100
10	12.69	35,700	12.99	37,100	12.97	37,000	12.79	36,200	12.57	35,200	12.28	33,900
M	12.68	35,700	12.97	37,000	12.96	37,000	12.76	36,100	12.52	35,000	12.26	33,800

Supplemental records.- Mar. 12. 5:40 a.m., 6.88 ft., 12,400 sec.-ft. Mar. 13, 5 p.m., 8.80 ft., 19,200 sec.-ft. Mar. 14, 12:50 p.m., 8.57 ft., 18,200 sec.-ft.; 1:45 p.m., 9.10 ft., 20,300 sec.-ft. Mar. 15, 6:30 a.m., 8.00 ft., 16,200 sec.-ft.; 7:25 a.m., 8.79 ft., 19,000 sec.-ft.; 8:50 a.m., 8.92 ft., 19,600 sec.-ft. Mar. 16, 3:15 p.m., 8.35 ft., 17,800 sec.-ft. Mar. 17, 2:30 p.m., 9.30 ft., 21,800 sec.-ft. Mar. 19, 10:35 a.m., 10.75 ft., 27,600 sec.-ft.; 10:55 a.m., 11.32 ft., 29,900 sec.-ft.; 11:55 a.m., 11.29 ft., 29,800 sec.-ft.; 3 p.m., 10.91 ft., 28,300 sec.-ft. Mar. 23, 4:55 p.m., 12.86 ft., 36,500 sec.-ft. Mar. 24, 4:10 p.m., 12.78 ft., 36,100 sec.-ft. Mar. 25, 8:20 a.m., 12.56 ft., 35,200 sec.-ft.; 10:40 a.m., 12.94 ft., 36,900 sec.-ft.; 3:50 p.m., 12.54 ft., 35,100 sec.-ft.; 5:30 p.m., 13.00 ft., 37,100 sec.-ft. Mar. 28, 9 a.m. 12.64 ft., 35,600 sec.-ft.; 10:30 a.m., 12.84 ft., 36,500 sec.-ft.; 3:55 p.m., 13.10 ft., 37,500 sec.-ft.

*Mean for the day. Considerable diurnal fluctuation occurred Mar. 8-11. The maxima and minima for these days are respectively: Mar. 8, 10:25 p.m., 5.55 ft., 8,370 sec.-ft.; 12:25 p.m., 4.07 ft., 4,100 sec.-ft. Mar. 9, 10 p.m., 6.18 ft., 10,300 sec.-ft.; 1:55 a.m., 4.87 ft., 6,340 sec.-ft. Mar. 10, 9:10 p.m., 6.24 ft., 10,400 sec.-ft.; 6:30 a.m., 5.44 ft., 8,050 sec.-ft. Mar. 11, midnight, 6.52 ft., 11,300 sec.-ft.; 6:40 a.m., 5.49 ft., 8,200 sec.-ft.

Seneca Lake at Watkins, N. Y.

Location.- Lat. 42°23'0", long. 76°53'0", near Lembeck & Betz malt house, in Watkins, Schuyler County, at the southern end of Seneca Lake.
Drainage area.- 714 square miles, at outlet of lake.
Gage-height record.- One gage reading daily. Gage heights refer to Barge Canal datum; subtract 0.87 to convert to mean sea level.
Maxima.- 1936: Gage height recorded, 448.8 feet Mar. 22, 23, 25-27.
1912-35: Gage height recorded, 449.3 feet on July 9-11, 1935 (gage read 449.34 feet on July 10, 1935).
Remarks.- Barge Canal pool elevation, 445.0 feet. Area of water surface of Seneca Lake is 66.7 square miles. Records furnished by New York State Department of Public Works.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	445.4	445.0	448.6	11	445.2	445.5	447.8	21	444.7	448.7	447.7
2	445.4	445.0	448.4	12	445.1	446.1	447.9	22	444.8	448.8	447.7
3	445.4	445.0	448.3	13	445.0	446.3	448.0	23	444.7	448.8	447.6
4	445.3	445.0	448.2	14	444.9	446.5	447.9	24	444.7	448.7	447.6
5	445.3	445.2	448.1	15	444.9	446.5	448.0	25	444.8	448.8	447.5
6	445.3	445.3	448.1	16	444.9	446.8	447.9	26	444.8	448.8	447.5
7	445.2	445.2	448.1	17	444.8	447.3	447.8	27	444.8	448.8	447.4
8	445.2	445.2	447.8	18	444.9	447.8	447.8	28	445.0	448.7	447.3
9	445.2	445.3	447.8	19	444.9	447.9	447.8	29	445.0	448.6	447.3
10	445.2	445.4	447.9	20	444.8	448.4	447.7	30		448.6	447.4
								31		448.5	

Fall Creek near Ithaca, N. Y.

Location.- Lat. 42°27'20", long. 76°28'30", in Forest Home, Tompkins County, half a mile above Cornell University Dam and 1½ miles northwest of Ithaca.
Drainage area.- 124 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 11. Defined by current-meter measurements below 1,740 second-feet; extended to July 1935 peak stage by averaging discharges computed over four dams near the gaging station.
Maxima.- 1936: Discharge, 6,240 second-feet 9:45 a.m. Mar. 18 (gage height, 5.57 feet).
1925-35: Discharge, 15,500 second-feet July 8, 1935 (gage height, 9.52 feet).
Remarks.- Flood run-off not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	55	300	418	11	55	1,600	380	21	50	2,000	302
2	55	240	632	12	55	4,190	424	22	48	1,320	380
3	55	200	660	13	54	1,320	824	23	48	939	253
4	60	190	370	14	54	688	489	24	46	795	227
5	60	340	328	15	56	1,080	626	25	54	1,230	194
6	60	280	524	16	58	2,270	450	26	124	942	174
7	55	220	574	17	57	2,040	351	27	294	796	166
8	55	170	411	18	57	5,020	334	28	379	796	151
9	55	220	374	19	51	3,150	334	29	359	549	184
10	55	460	380	20	50	1,620	286	30		463	235
								31		581	
Mean monthly discharge, in second-feet									86.7	1,162	381
Run-off, in inches									0.75	10.80	3.42

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	4.75	4,320	-	-
4	-	-	-	-	-	-	-	-	5.11	5,150	3.33	1,680
6	1.61	-	1.63	-	2.29	-	2.56	798	5.21	5,380	-	-
8	-	-	-	-	-	-	-	-	5.20	5,360	3.08	1,350
10	-	-	-	-	-	-	-	-	5.00	4,900	-	-
N	1.58	*170	1.71	*220	2.28	*460	3.09	1,030	4.86	4,580	2.98	1,230
2	-	-	-	-	-	-	-	-	4.69	4,190	-	-
4	-	-	-	-	-	-	3.43	1,820	4.50	3,760	2.91	1,140
6	1.44	-	1.90	-	2.36	-	-	-	4.31	3,350	-	-
8	-	-	-	-	-	-	4.42	3,070	4.11	2,960	2.81	1,030
10	-	-	-	-	-	-	-	-	3.90	2,580	-	-
M	1.62	-	2.19	-	2.48	-	4.65	3,890	3.70	2,240	2.63	857
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	4.40	3,540	-	-
4	-	-	-	-	3.50	1,930	3.45	1,860	4.81	4,460	4.36	3,460
6	2.42	691	2.47	727	3.45	1,860	-	-	5.17	5,290	4.20	3,130
8	-	-	-	-	-	-	3.38	1,750	5.50	6,070	4.21	3,150
10	-	-	-	-	3.60	2,080	-	-	5.57	6,240	-	-
N	2.31	618	2.49	742	-	-	3.49	1,920	5.42	5,880	4.31	3,350
2	-	-	-	-	3.87	2,530	-	-	5.38	5,780	-	-
4	-	-	2.82	1,040	-	-	-	-	5.22	5,410	4.17	3,070
6	2.39	670	3.17	1,460	3.94	2,650	3.53	1,980	5.00	4,900	-	-
8	-	-	3.41	1,800	-	-	3.72	2,270	4.90	4,670	3.95	2,670
10	-	-	3.56	2,020	3.83	2,460	3.94	2,650	4.83	4,510	-	-
M	2.49	742	3.63	2,130	3.70	2,240	4.04	2,830	4.68	4,160	3.80	2,410
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	3.52	1,950	3.11	1,390	3.30	1,630	-	-	-	-	2.98	1,250
6	-	-	3.10	1,380	-	-	2.80	1,080	2.46	791	-	-
8	3.29	1,620	3.22	1,530	3.04	1,310	-	-	-	-	3.06	1,340
10	-	-	-	-	-	-	-	-	-	-	3.08	1,360
N	3.13	1,420	3.62	2,110	2.84	1,120	2.56	871	2.43	767	3.05	1,320
2	-	-	3.85	2,500	-	-	-	-	-	-	-	-
4	3.06	1,340	4.00	2,760	2.83	1,110	-	-	-	-	-	-
6	-	-	3.97	2,710	-	-	2.46	791	2.44	775	2.91	1,180
8	3.13	1,420	3.87	2,530	2.93	1,200	-	-	-	-	-	-
10	-	-	3.76	2,340	-	-	-	-	-	-	-	-
M	3.17	1,460	3.59	2,060	2.96	1,230	2.46	791	2.65	946	2.86	1,130

Supplemental records.- Mar. 11, 7:30 p.m., 5.02 ft., 2,940 sec.-ft. Mar. 12, 3 a.m., 5.30 ft., 4,900 sec.-ft.; 7 a.m., 5.25 ft., 5,480 sec.-ft. Mar. 21, 4:30 p.m., 5.02 ft., 4,950 sec.-ft.

*Mean for the day.

Owasco Lake outlet near Auburn, N. Y.

Location.- Lat. 42°56'45", long. 76°36'5", above concrete dam 2½ miles below center of Auburn, Cayuga County, and 4 miles below State dam at outlet of Owasco Lake.
Drainage area.- 208 square miles. About 205 square miles affected by storage in Owasco Lake.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Defined by current-meter measurements below 1,830 second-feet; extended logarithmically on basis of a study of flow conditions and submergence corrections for artificial control.
Maxima.- 1936: Discharge, 2,090 second-feet 7 a.m. Mar. 19 (gage height, 4.88 feet).
1912-35: Discharge, 1,950 second-feet (revised) during period Mar. 25-30, 1913 (gage height, 4.6 feet, from flood marks).
Remarks.- Flow regulated by storage in Owasco Lake. Mean monthly discharges corrected for storage.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	415	250	1,470	11	280	488	842	21	170	2,030	640
2	395	260	1,390	12	265	812	834	22	158	2,020	622
3	355	275	1,340	13	246	1,040	834	23	148	2,000	600
4	305	295	1,200	14	234	1,090	810	24	150	1,950	570
5	295	305	1,110	15	226	1,110	795	25	176	1,950	555
6	310	310	1,080	16	218	1,240	788	26	184	1,920	533
7	320	310	1,040	17	220	1,450	758	27	226	1,860	511
8	310	320	980	18	226	1,700	742	28	238	1,800	483
9	265	335	953	19	146	1,950	720	29	248	1,690	460
10	280	390	882	20	192	2,000	670	30		1,620	440
								31		1,540	
Mean monthly discharge, in second-feet (observed)									248	1,171	822
Mean monthly discharge, in second-feet (corrected)									179	1,600	600
Run-off, in inches (corrected)									0.93	8.87	3.21

East Branch of Fish Creek at Taberg, N. Y.

Location.- Lat. 43°18'5", long. 75°37'10", at highway bridge in Taberg, Oneida County, just below mouth of Furnace Creek.
Drainage area.- 189 square miles.
Gage-height record.- Water-stage recorder graph except for periods Feb. 15-18, Mar. 1-4, 8-10.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined by current-meter measurements below 3,030 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 7,180 second-feet 4:30 p.m. Mar. 18 (gage height, 6.35 feet).
1923-35: Discharge, about 16,500 second-feet Oct. 6, 1932 (gage height, 9.18 feet).
Remarks.- Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	140	190	2,830	11	120	480	1,900	21	110	3,140	1,450
2	140	170	1,720	12	120	1,900	2,020	22	110	2,740	1,380
3	140	170	1,120	13	120	1,870	1,670	23	100	2,170	954
4	140	220	946	14	120	1,410	1,510	24	100	2,190	843
5	140	220	954	15	120	1,280	1,820	25	110	3,550	801
6	130	200	4,000	16	120	1,370	2,150	26	130	3,360	843
7	130	200	2,960	17	120	1,970	1,490	27	150	5,170	914
8	130	190	1,500	18	120	5,060	1,150	28	190	4,600	1,000
9	130	200	1,280	19	110	4,750	1,050	29	220	3,080	2,210
10	120	300	1,360	20	110	3,460	970	30		2,880	2,160
								31		3,820	
Mean monthly discharge, in second-feet									129	2,010	1,565
Run-off, in inches									0.74	12.26	9.24

Gage height, in feet, and discharge, in second-feet, at indicated time, 1936

Hour	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.	Feet	Sec.ft.
	March 8		March 9		March 10		March 11		March 12		March 13	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	3.60	1,370	3.89	2,090
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	3.84	1,800	3.73	1,900
10	-	-	-	-	-	-	-	-	-	-	-	-
N	-	*190	-	*200	1.63	*300	2.50	*480	3.96	2,070	3.72	1,880
2	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	4.35	2,180	3.68	1,840
6	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	3.94	2,120	3.53	1,680
10	-	-	-	-	-	-	-	-	-	-	-	-
M	-	-	-	-	-	-	2.80	1,020	3.86	2,050	3.43	1,580
	March 14		March 15		March 16		March 17		March 18		March 19	
2	-	-	-	-	-	-	-	-	4.88	3,780	-	-
4	3.34	1,490	-	-	-	-	3.26	1,420	5.07	4,140	5.60	5,300
6	-	-	3.09	1,270	3.22	1,380	-	-	5.22	4,440	-	-
8	3.24	1,400	-	-	-	-	3.32	1,480	5.42	4,850	5.46	4,950
10	-	-	-	-	-	-	-	-	5.29	4,580	-	-
N	3.22	1,380	3.06	1,240	3.20	1,370	3.48	1,630	5.37	4,740	5.24	4,480
2	-	-	-	-	-	-	-	-	5.48	5,000	-	-
4	3.22	1,380	-	-	-	-	3.92	2,120	6.02	6,350	5.20	4,400
6	-	-	3.09	1,270	3.25	1,410	-	-	6.02	6,350	-	-
8	3.20	1,370	-	-	-	-	4.39	2,800	6.04	6,400	5.14	4,280
10	-	-	-	-	-	-	-	-	5.98	6,250	-	-
M	3.15	1,320	3.12	1,300	3.22	1,380	4.62	3,180	5.72	5,600	4.99	3,990
	March 20		March 21		March 22		March 23		March 24		March 25	
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.85	3,730	4.41	3,000	4.35	2,900	3.85	2,200	3:66	1,970	4.48	3,110
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.65	3,380	4.36	2,920	4.11	2,550	3.72	2,040	3.59	1,890	4.54	3,200
10	-	-	-	-	-	-	-	-	-	-	-	-
N	4.52	3,170	4.41	3,000	4.03	2,440	3.79	2,130	3.63	1,940	4.56	3,240
2	-	-	-	-	-	-	-	-	-	-	-	-
4	4.62	3,330	4.59	3,280	4.29	2,820	3.83	2,180	3.94	2,320	5.03	4,070
6	-	-	-	-	-	-	-	-	-	-	-	-
8	4.72	3,500	4.64	3,370	4.32	2,860	3.83	2,180	4.11	2,550	5.25	4,500
10	-	-	-	-	-	-	-	-	-	-	-	-
M	4.59	3,280	4.54	3,200	4.11	2,550	3.76	2,090	4.29	2,820	4.95	3,920

Supplemental records.- Mar. 11, 9:30 p.m., 3.89 ft. (backwater from ice). Mar. 12. 12:30 a.m., 4.70 ft. (backwater from ice); 2 a.m., 4.90 ft. (backwater from ice); 5:50 a.m., 5 ft. (backwater from ice); 3:30 p.m., 4.97 ft. (backwater from ice). Mar. 13, 12:50 p.m., 3.95 ft., 2,160 sec.-ft. Mar. 15, 4 p.m., 3.30 ft., 1,460 sec.-ft. Mar. 16, 5:50 a.m., 3.39 ft., 1,540 sec.-ft. Mar. 17, 2:40 a.m., 4.14 ft., 2,420 sec.-ft; 6:30 p.m., 4.58 ft., 3,110 sec.-ft. Mar. 18, 4:30 p.m., 6.35 ft., 7,180 sec.-ft.

*Mean for the day.

Oneida Lake at Sylvan Beach, N. Y.

Location.- Lat. 43°11'45", long. 75°43'50", on Railroad Street bridge over Fish Creek at Sylvan Beach, Oneida County, about 800 feet from Oneida Lake.
Drainage area.- 1,353 square miles, at outlet of lake.
Gage-height record.- One gage reading daily, about noon during February and March, about 4 p.m. during April. Gage heights refer to Barge Canal datum; subtract 0.87 to convert to mean sea level.
Maxima.- 1936: Gage height recorded, 375.0 feet Mar. 29 and 31.
1905-35: Gage height recorded, 377.0 feet Mar. 31 and Apr. 1, 1913.
Remarks.- Barge Canal pool elevation, 369.9 feet. Area of water surface of Oneida Lake is 79.8 square miles. Records furnished by New York State Department of Public Works.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	369.9	368.7	374.8	11	369.4	368.9	373.9	21	368.9	374.0	373.1
2	369.8	368.6	374.6	12	369.3	369.2	373.9	22	368.8	374.3	373.2
3	369.8	368.7	374.9	13	369.3	369.7	373.8	23	368.8	374.5	373.0
4	369.7	368.7	374.7	14	369.2	370.2	373.8	24	368.8	374.5	372.9
5	369.7	368.7	374.2	15	369.2	370.6	373.7	25	368.8	374.6	372.7
6	369.7	368.8	374.3	16	369.2	370.9	374.0	26	368.7	374.7	372.7
7	369.6	368.8	374.2	17	369.1	371.3	373.7	27	368.7	374.8	372.5
8	369.5	368.8	374.5	18	369.1	371.9	373.5	28	368.7	374.9	372.4
9	369.4	368.8	374.1	19	369.0	372.8	373.4	29	368.7	375.0	372.3
10	369.4	368.9	374.0	20	368.9	373.6	373.2	30		374.9	372.3
								31		375.0	

Oneida River at Brewerton, N. Y.

Location.- Lat. 42°14'25", long. 76°8'30", at the highway bridge in Brewerton, Onondaga County, at foot of Oneida Lake.
Drainage area.- 1,353 square miles.
Gage-height record.- Two gage readings daily at 8 a.m. and 4 p.m. Gage heights refer to Barge Canal datum; subtract 0.87 to convert to mean sea level.
Maxima.- 1936: Gage height recorded, 374.9 feet Mar. 29.
1904-35: Gage height recorded, 375.3 feet Apr. 10-12, 1912, and Mar. 29, 1913.
Remarks.- Barge Canal pool elevation, 369.9 feet. Area of water surface of Oneida Lake is 79.8 square miles. Records furnished by New York State Department of Public Works.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	369.8	368.7	374.7	11	369.3	369.0	373.9	21	368.9	373.9	372.9
2	369.8	368.7	374.8	12	369.3	369.3	373.8	22	368.8	374.2	372.8
3	369.7	368.7	374.3	13	369.2	369.9	373.7	23	368.8	374.4	372.8
4	369.7	368.7	374.3	14	369.3	370.4	373.7	24	368.8	374.5	372.7
5	369.6	368.7	374.2	15	369.1	370.8	373.6	25	368.7	374.5	372.7
6	369.6	368.7	374.1	16	369.1	371.0	373.1	26	368.6	374.6	372.3
7	369.5	368.7	374.2	17	369.1	371.5	373.2	27	368.6	374.7	372.4
8	369.4	368.7	374.0	18	369.0	372.0	373.3	28	368.6	374.8	372.4
9	369.3	368.8	374.1	19	369.0	372.8	373.2	29	368.7	374.9	372.2
10	369.3	368.8	374.0	20	368.9	373.5	373.1	30		374.8	372.2
								31		374.6	

Black River at Watertown, N. Y.

Location.- Lat. 43°59'5", long. 75°55'30", at Vanduzee Street bridge in Watertown, Jefferson County.
Drainage area.- 1,876 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Based on current-meter measurements below 25,600 second-feet; extended logarithmically to peak stage.
Maxima.- 1936: Discharge, 28,000 second-feet 4:45 p.m. Mar. 20 (gage height, 9.24 feet).
1920-35: Discharge, 33,900 second-feet Apr. 9, 1928 (gage height, 10.6 feet).
Remarks.- Discharge affected by storage in Stillwater Reservoir, Fulton Chain Lakes, and other reservoirs in the headwaters.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1,840	2,100	14,900	11	1,560	3,400	10,300	21	1,580	26,900	7,840
2	1,660	2,140	14,200	12	1,720	9,000	9,220	22	1,580	23,600	7,530
3	1,360	2,080	13,000	13	1,560	10,600	9,130	23	1,480	20,000	7,380
4	1,480	2,160	11,200	14	1,480	8,920	8,800	24	1,180	16,800	7,230
5	1,660	2,220	9,740	15	1,460	8,420	8,480	25	1,340	15,800	7,040
6	1,720	2,380	8,690	16	1,320	8,690	7,840	26	1,540	15,800	6,200
7	1,860	2,550	9,300	17	1,100	9,050	7,840	27	2,120	16,200	5,360
8	1,680	2,000	10,500	18	1,220	10,500	8,160	28	1,980	17,800	5,100
9	1,560	1,960	12,800	19	1,640	16,300	8,320	29	2,080	19,200	5,360
10	1,280	2,300	12,000	20	1,600	26,200	8,000	30		18,200	6,480
								31		16,200	
Mean monthly discharge, in second-feet									1,574	10,950	8,931
Run-off, in inches									0.90	6.73	5.31

Richelieu River (Lake Champlain) at Rouses Point, N. Y.

Location.- Lat. 44°59'45", long. 73°21'40", at Rutland Railroad bridge in Rouses Point, Clinton County, 1 mile south of Fort Montgomery. Zero of gage is 92.50 feet above mean sea level.
Drainage area.- 8,277 square miles.
Gage-height record.- Gage read daily at 10 a.m.
Maxima.- 1936: Maximum gage height observed, 8.61 feet Mar. 27.
1871-1935: Maximum gage height observed, 8.60 feet Apr. 2, 1903; observations at St. Johns, Quebec, indicate a maximum computed gage height of 8.83 feet during April 1869.
Remarks.- Gage-height record furnished by Corps of Engineers, U. S. Army.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	1.84	1.76	8.34	11	1.78	1.87	8.03	21	1.74	7.59	7.63
2	1.86	1.78	8.31	12	1.81	2.22	8.12	22	1.78	7.99	7.31
3	1.87	1.76	8.33	13	1.74	3.08	7.91	23	1.74	8.22	7.43
4	1.90	1.80	8.02	14	1.80	3.80	7.87	24	1.74	8.27	7.25
5	1.81	1.77	8.03	15	1.81	4.20	7.92	25	1.75	8.39	7.23
6	1.84	1.73	8.21	16	1.80	4.43	7.79	26	1.74	8.47	6.87
7	1.80	1.79	8.04	17	1.77	4.85	7.67	27	1.78	8.61	6.97
8	1.83	1.80	8.05	18	1.78	5.50	7.67	28	1.74	8.57	7.17
9	1.90	1.85	8.11	19	1.80	6.37	7.67	29	1.78	8.53	6.77
10	1.81	1.85	8.07	20	1.82	7.17	7.69	30		8.42	6.72
								31		8.34	

Lake Champlain at Burlington, Vt.

Location.- Lat. 44°28'40", long. 73°13'25", on south side of wharf of Champlain Transportation Co., at foot of King Street, Burlington, Chittenden County. Zero of gage is about 92.5 feet above mean sea level.
Gage-height record.- One reading daily.
Maxima.- 1936: Gage height observed, 8.65 feet Mar. 27, 28.
1907-35: Gage height observed, 8.47 feet Apr. 21, 1933.
Remarks.- No record on days where no gage heights are shown. Water-surface area of Lake Champlain is 440 square miles. Gage-height record furnished by D. A. Loomis, general manager, Champlain Transportation Co.

Gage height, in feet, water year October 1935 to September 1936

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.54	1.10	-	1.82	-	-	8.45	6.66	4.96	2.42	1.76	1.16
2	1.54	1.08	1.84	1.80	-	1.88	8.35	-	4.86	2.26	-	1.16
3	1.52	-	1.94	1.80	1.94	-	8.33	-	4.76	2.24	1.68	1.22
4	1.52	1.06	1.94	1.78	-	1.88	-	6.85	4.74	2.22	1.64	1.24
5	1.56	1.04	1.96	-	-	1.90	-	6.66	4.60	2.20	1.60	1.20
6	-	1.02	1.94	1.78	-	1.92	-	6.64	4.46	2.18	1.58	-
7	1.56	1.02	1.96	1.78	-	-	8.25	-	-	-	1.56	1.18
8	1.54	1.00	-	1.76	-	-	8.23	-	4.36	2.16	1.46	1.16
9	1.54	.98	1.96	1.76	-	1.92	8.15	-	4.26	-	-	1.26
10	1.52	-	1.98	1.78	-	1.94	8.15	-	4.16	-	1.44	1.28
11	1.50	.96	2.04	1.78	-	1.94	8.13	6.22	4.04	-	1.38	1.30
12	1.50	.96	2.04	-	1.86	-	-	6.12	4.00	-	1.36	1.32
13	-	1.04	2.04	-	1.86	3.34	8.05	6.04	3.86	2.14	1.34	-
14	1.48	1.14	2.06	1.74	1.84	3.96	8.03	6.02	-	2.12	1.32	1.28
15	1.46	1.30	-	1.74	-	-	7.85	6.02	3.72	-	1.30	1.30
16	1.44	1.32	2.12	1.78	-	4.54	-	-	3.66	-	-	1.32
17	1.42	-	2.14	1.80	1.84	4.54	-	-	3.58	-	1.28	1.34
18	1.40	1.34	2.14	-	1.84	5.40	7.73	5.94	3.52	-	1.26	1.38
19	1.38	1.44	2.12	-	1.84	6.46	-	5.86	3.36	-	1.22	1.36
20	-	1.44	2.10	-	-	7.25	7.73	5.84	3.26	2.06	1.20	-
21	1.32	1.50	2.10	1.84	-	7.75	7.69	5.84	-	2.04	1.18	1.34
22	1.30	1.54	-	1.86	-	-	-	-	3.18	2.02	1.18	1.34
23	1.28	1.56	2.08	-	-	-	7.55	5.84	3.14	2.00	-	1.32
24	1.24	-	2.06	1.90	1.84	8.45	7.45	-	3.10	1.98	1.14	1.30
25	1.24	1.58	2.04	-	1.84	8.51	7.33	5.66	3.06	1.96	1.14	1.28
26	1.18	1.58	1.96	-	1.86	8.60	-	5.62	2.96	-	1.12	1.26
27	-	1.60	1.94	1.96	1.86	8.65	7.06	5.46	-	1.94	1.12	-
28	1.16	1.62	1.90	1.96	1.86	8.65	-	5.42	2.76	1.90	1.10	1.20
29	1.14	1.64	-	1.96	-	-	6.85	5.32	2.66	1.88	1.08	1.20
30	1.12	1.78	1.84	-	-	8.45	6.66	5.18	-	1.84	-	1.16
31	1.12	-	1.84	-	-	8.45	-	-	-	1.78	1.14	-

Ausable River near Ausable Forks, N. Y.

Location.- Lat. 44°27'5", long. 73°38'35", 1¾ miles below junction of East and West Branches of Ausable River at Ausable Forks, Clinton County.
Drainage area.- 448 square miles.
Gage-height record.- Water-stage recorder graph.
Stage-discharge relation.- Affected by ice Feb. 1 to Mar. 12. Defined by current-meter measurements below 9,040 second-feet; extended logarithmically to peak stage. Discharge compared with other records in Ausable River Basin.
Maxima.- 1936: Discharge, 16,700 second-feet 7:40 p.m. Mar. 18 (gage height, 9.77 feet).
1924-35: Discharge, 19,100 second-feet Oct. 1, 1924; gage height, 12.0 feet Mar. 27, 1934 (ice jam).
Remarks.- Discharge affected by storage, principally in Taylor Pond and Fern Lake.

Mean discharge, in second-feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	150	280	2,100	11	150	750	1,080	21	140	3,820	920
2	150	260	1,470	12	150	2,400	1,120	22	170	3,630	1,160
3	160	240	1,420	13	150	3,580	1,030	23	180	2,080	946
4	160	260	1,110	14	150	1,620	895	24	180	1,690	823
5	160	340	912	15	160	1,030	815	25	170	2,840	712
6	150	320	2,330	16	150	1,320	1,230	26	300	3,180	664
7	140	280	3,340	17	150	2,290	1,520	27	480	2,450	664
8	140	260	1,810	18	150	10,600	1,140	28	420	3,360	670
9	150	280	1,260	19	140	8,980	989	29	340	1,970	1,800
10	160	360	1,130	20	140	5,280	839	30		1,640	3,790
								31		2,650	
Mean monthly discharge, in second-feet									186	2,259	1,323
Run-off, in inches									0.45	5.81	3.29

Lake George at Rogers Rook, N. Y.

Location.- Lat. 43°48'10", long. 73°27'25", about 500 feet north of Hooper's dock, on south side of Stones Bay, Rogers Rock, Essex County. Zero of gage is 315.93 feet above mean sea level.

Gage-height record.- Staff gage read in the afternoon once daily.

Maxima.- 1936: Maximum gage height observed, 5.09 feet Apr. 9.
1913-35: Maximum gage height observed, 5.07 feet Apr. 18, 1922.

Remarks.- Elevation of lake surface regulated by power operations and flood gates at Ticonderoga.

Gage height, in feet, 1936

Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.	Day	Feb.	Mar.	Apr.
1	2.57	2.09	4.85	11	2.47	2.05	4.97	21	2.29	4.69	4.63
2	2.55	2.11	4.79	12	2.43	2.27	4.99	22	2.25	4.85	4.67
3	2.51	2.13	4.89	13	2.39	2.63	4.95	23	2.23	4.85	4.59
4	2.53	2.09	4.85	14	2.37	2.75	4.91	24	2.25	4.83	4.47
5	2.55	2.07	4.73	15	2.39	2.85	4.85	25	2.19	4.89	4.45
6	2.53	2.01	4.87	16	2.37	2.89	4.91	26	2.21	4.91	4.43
7	2.47	2.03	4.99	17	2.33	3.27	4.93	27	2.15	4.85	4.33
8	2.45	2.01	5.05	18	2.31	3.73	4.81	28	2.13	4.95	4.35
9	2.41	2.03	5.09	19	2.33	4.27	4.75	29	2.11	4.97	4.27
10	2.43	1.99	5.03	20	2.35	4.59	4.71	30		4.91	4.23
								31		4.93	

SUMMARY OF FLOOD DISCHARGES

Each volume of this report includes a table, "Summary of flood discharges", in which are assembled the results of the determinations of maximum flood flows at existing river-measurement stations and other places on streams in the basins covered in that volume. Table 8 (pp. 282-295) gives this information for the Hudson River to Susquehanna River region, including streams in New York tributary to the Niagara and St. Lawrence Rivers and Lake Ontario. For general information, some discharges are presented for streams in basins adjoining or near those most affected by the floods. The table gives the following information:

1. Map reference number, applicable to figures 42 to 46, to aid in the location of the place where the discharge was determined.

2. Name of stream and place of determination of discharge.

3. Drainage area, in square miles, tributary to the stream at the place of determination of discharge.

4. Period of record. This information is generally given only for the existing stations for measuring discharge and conforms to the period of their operation.

5. The date of the maximum discharge previously known and its magnitude in second-feet. Some of these floods antedate the period of record given in the preceding column.

6. The day and time of day and the rate in second-feet, total and per square mile, of the maximum discharge during or concurrent with the floods of March 1936. A brief notation as to the method of determination is also included.

The discharges for the existing river-measurement stations were determined by methods generally described in greater detail in the presentation of the record for the respective stations in the preceding section of this report. For existing river-measurement stations the method of determination is designated "Stage-discharge relation", because the determination is based on the comprehensive studies of that subject that are conducted at such stations.

Where the recorded discharge was not measured at a regular station a brief reference is made to the method of determination, and, where practicable, coefficients of discharge used in the application of the method are given. A description of the methods of determination with respect to the significance of coefficients of discharge and other details is given in the section entitled "Determination of flood discharges."

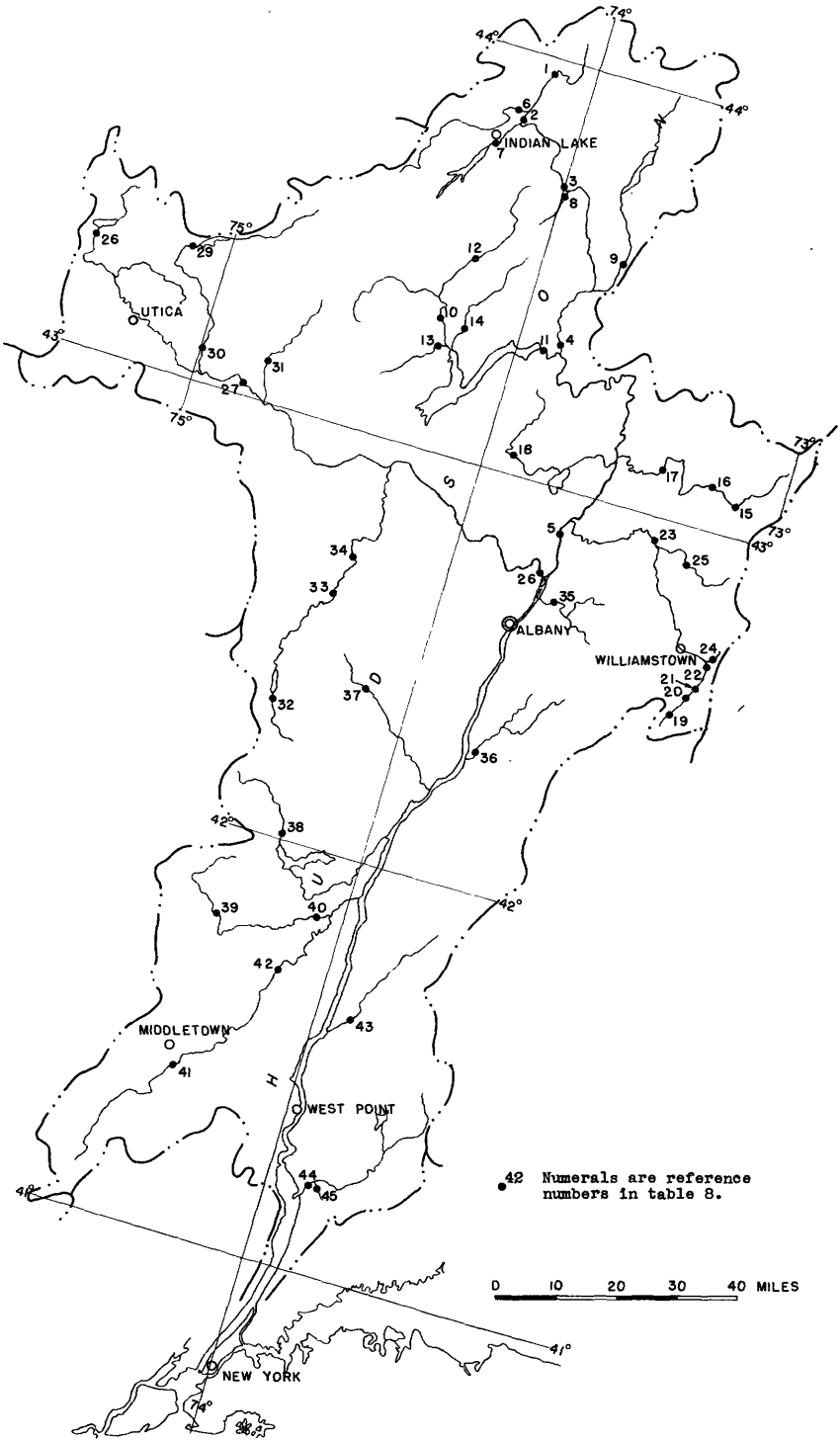

Figure 42.--Map showing location of flood determinations in the Hudson River drainage basin, March 1936.

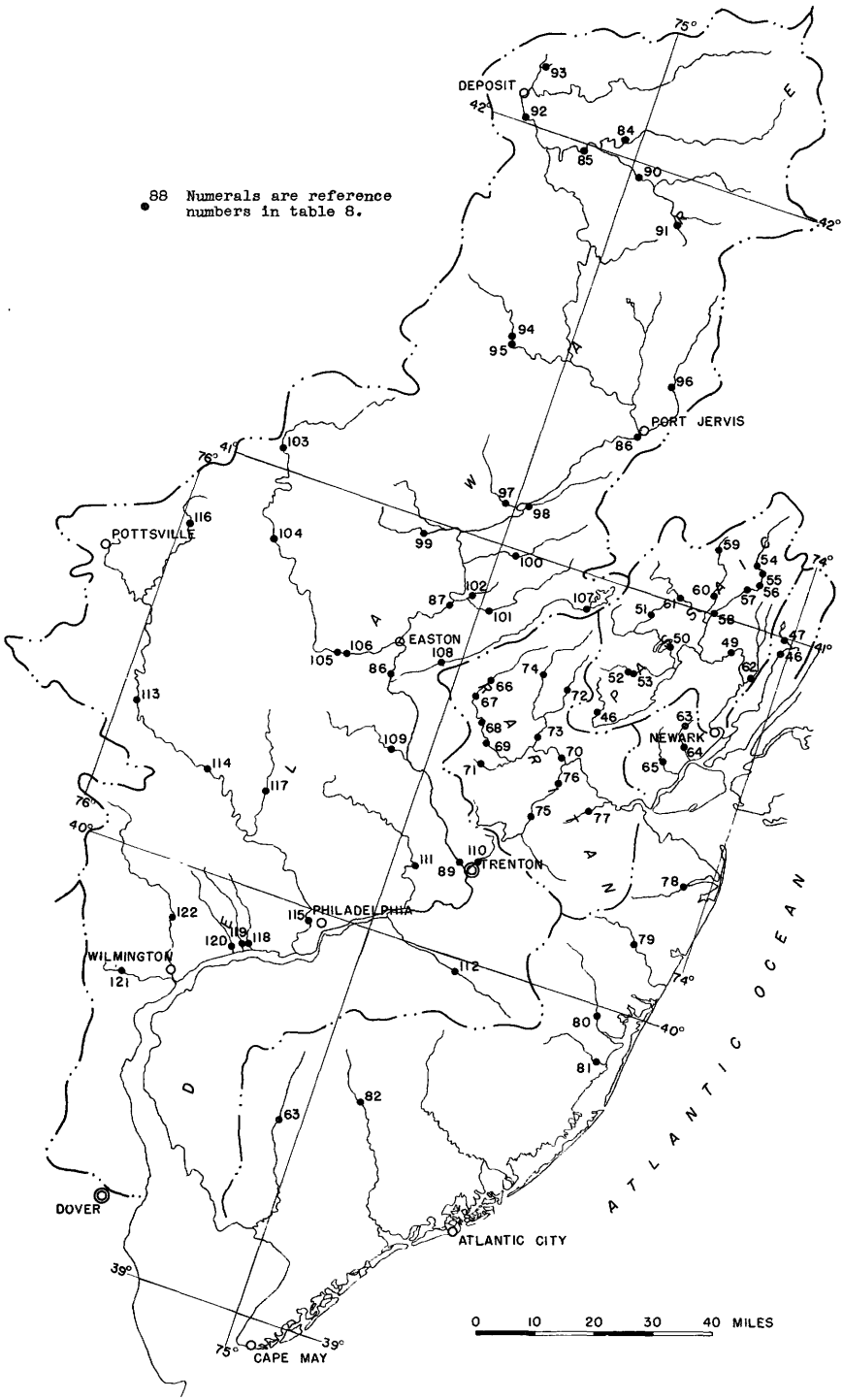

Figure 43.--Map showing location of flood determinations in the drainage basins of the Delaware River and the Passaic and Raritan Rivers and adjacent coastal streams in New Jersey and Delaware, March 1936.

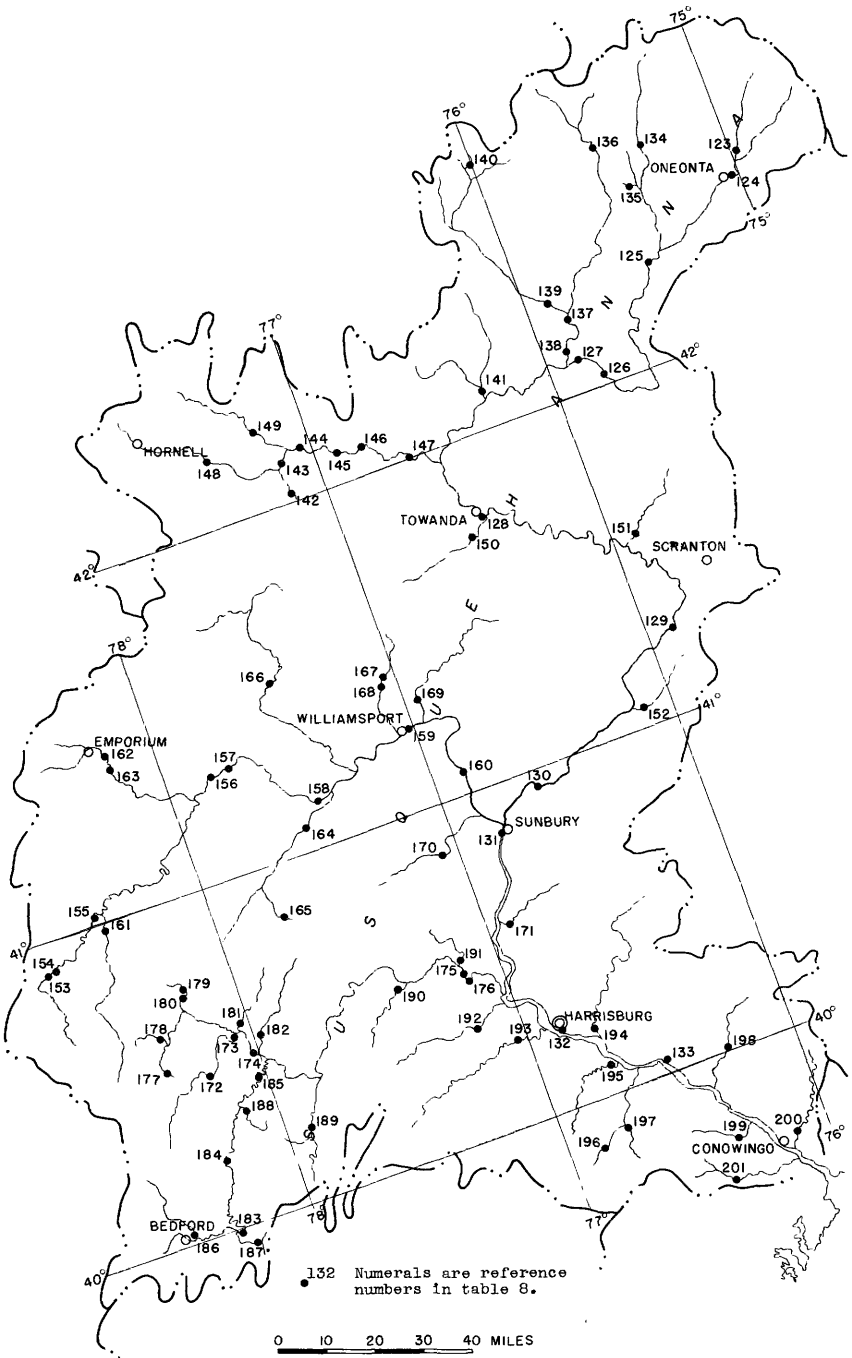

Figure 44.--Map showing location of flood determinations in the Susquehanna River Basin, March 1936.

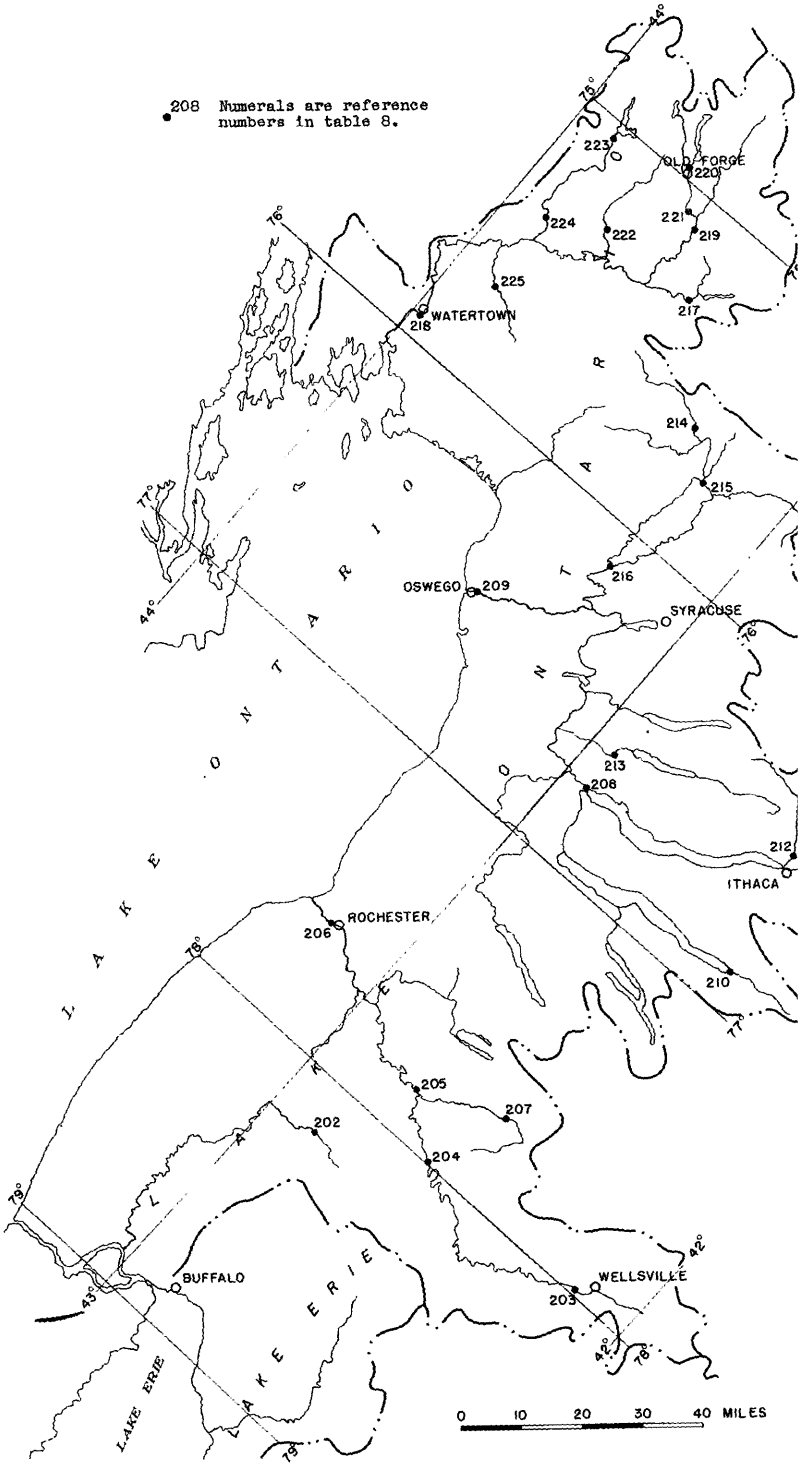

Figure 45.--Map showing location of flood determinations in the drainage basins the rivers in New York tributary to Lake Ontario, March 1936.

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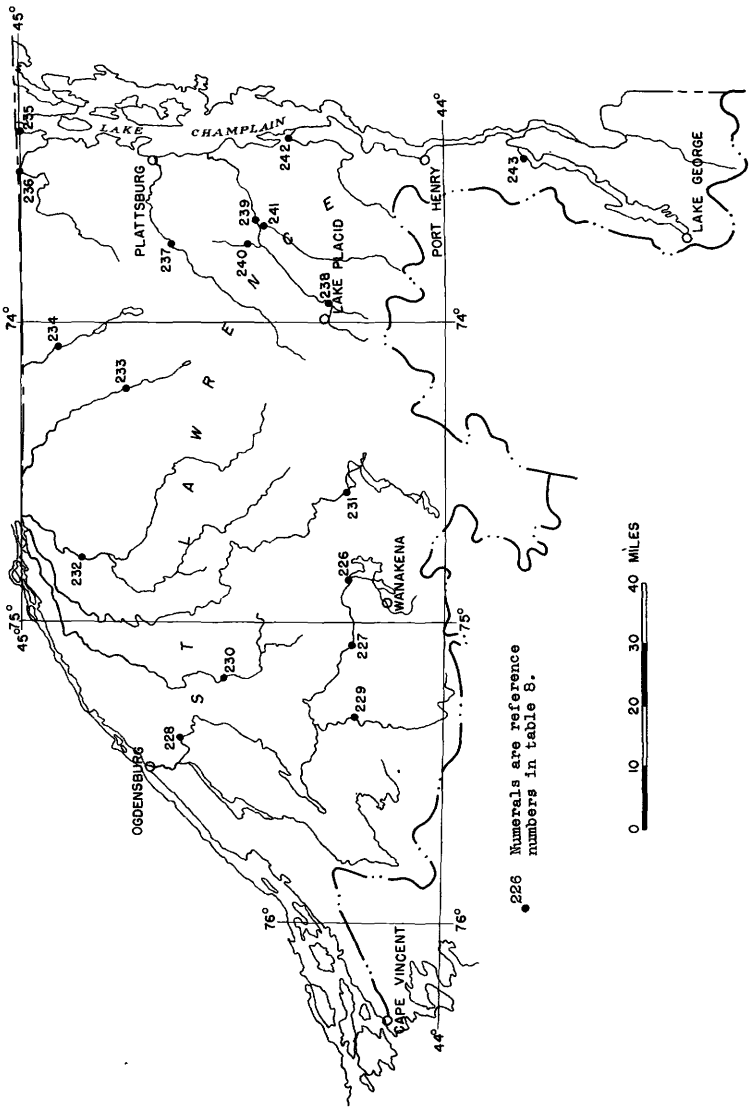

Figure 46.--Map showing location of flood determinations in the drainage basins of the rivers in New York tributary to the St. Lawrence River, March 1936.

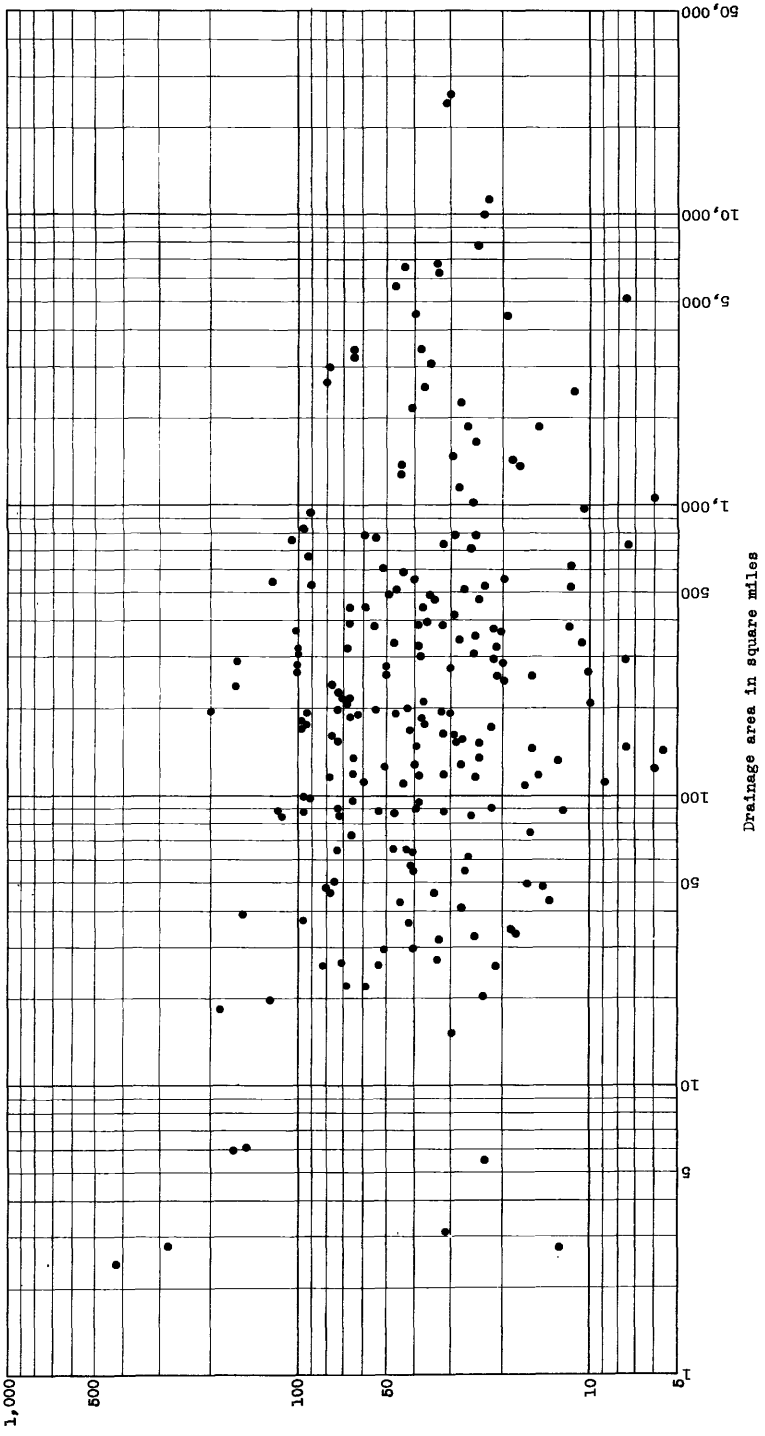

Figure 47.--Chart showing the maximum discharges, in second-feet per square mile, determined for various drainage areas in the Hudson River to Susquehanna River region, March 1936, as given in table 8.

Table 8.- Summary of flood discharges

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Hudson River Basin								
1	Hudson River near Newcomb, N. Y.	192	1925-1936	Apr.9,1928	6,250	Mar.20,4am	5,760	30.0	Stage-discharge relation.
2	Hudson River at Gooley, near Indian Lake, N. Y.	419	1916-1935	Apr.12,1922	13,900	Mar.20	12,200	29.1	Do.
3	Hudson River at North Creek, N. Y.	792	1907-1936	Mar.27,1913	a27,400	Mar.19,7pm	ab23,000	29.2	Do.
4	Hudson River at Hadley, N. Y.	1,664	1921-1936	Apr.12,1922	a33,100	Mar.18,6:15pm	a41,200	24.8	Do.
5	Hudson River at Mechanicville, N. Y.	4,500	1887-1936	Mar.28,1913	a120,000	Mar.19,10am	a86,100	19.1	Do.
6	Cedar River below Chain Lakes, near Indian Lake, N. Y.	160	1930-1936	Oct.7,1932	6,050	Unknown	4,660	29.1	Do.
7	Indian River near Indian Lake, N. Y.	132	1912-1914 1915-1936	Mar.28,1913	a3,460	---	(c)	--	—
8	North Creek at North Creek, N. Y.	21.9	1924-1932	Apr.7,1930	1,690	—	1,300	59.4	Dam (C 2.6, 3.2).d
9	Schroon River at Riverbank, N. Y.	527	1907-1936	Mar.28,1913	10,400	Mar.21,9am	12,100	23.0	Stage-discharge relation.
10	Sacandaga River near Hope, N. Y.	491	1911-1936	Mar.27,1913	32,000	Mar.18,12:30pm	23,900	48.7	Do.
11	Sacandaga River at Conklingville, N. Y.	1,044	1932-1936	July 12,1935	a7,650	Apr.2,6:45pm	a7,350	6.0	Do.
12	East Branch of Sacandaga River at Griffin, N. Y.	114	1933-1936	July 9,1935	3,800	Mar.18,4pm	8,830	77.5	Do.
13	West Stony Creek near Northville, N. Y.	88	1933-1935	July 8,1935	3,900	Mar.18,12:30pm	8,470	96.2	Do.
14	East Stony Creek near Northville, N. Y.	89	1933-1936	July 8,1935	2,230	Mar.18,7pm	10,400	117	Do.
15	Batten Kill at Arlington, Vt.	152	1928-1936	July 7,1935	6,410	Mar.18,4pm	11,100	73.0	Do.
16	Batten Kill at dam at West Arlington, Vt.	199	—	—	—	—	14,600	73.4	Dam (C 3.34, submerged).
17	Batten Kill at Battenville, N. Y.	394	1922-1936	Nov.4,1927	21,300	Mar.18,4:30pm	14,400	36.5	Stage-discharge relation.
18	Kayaderosseras Creek near West Milton, N. Y.	90	1927-1936	July 8,1935	2,750	Mar.18,5pm	3,590	39.9	Do.
19	Hoosic River at dam at outlet of Hoosic Lake, at Cheshire, Mass.	15.1	—	--	—	—	447	29.6	Dam (C 3.1).
20	Hoosic River at Adams, Mass.	46.3	1931-1936	Jan.9,1935	1,110	Mar.18,1pm	3,670	79.3	Stage-discharge relation.

21	Hoosic River at L. L. Brown Paper Co. lower dam, at Adams, Mass.	50.1	—	—	—	—	3,800	75.8	Dam (C 3.6, 3.5).
22	Hoosic River at Phoenix Dam, at North Adams, Mass.	73.6	—	—	—	—	4,850	65.9	Dam (C 3.6).
23	Hoosic River near Eagle Bridge, N. Y.	510	1910-1922 1923-1936	Nov.4,1927	29,800	Mar.18,6pm	23,500	46.1	Stage-discharge relation.
24	North Branch of Hoosic River at North Adams, Mass.	39.0	1931-1936	November 1927	9,980	Mar.18,1pm	6,100	156	Do.
25	Walloomsac River near North Bennington, Vt.	111	1931-1936	Nov.19,1932	3,820	Mar.18,2pm	6,600	59.5	Do.
26	Mohawk River below Delta Dam, near Rome, N. Y.	151	f1927-1936	Mar.9,1921	af4,210	Mar.27,8:30pm	a3,610	23.9	Do.
27	Mohawk River near Little Falls, N. Y.	1,348	1927-1936	Mar.15,1929	a21,300	Mar.18,6pm	a23,200	17.2	Do.
28	Mohawk River at Cohoes, N. Y.	3,456	1917-1936	Mar.16,1929	g72,000	Mar.19,6:30am	gl30,000	37.6	Do.
29	West Canada Creek at Hinckley, N. Y.	375	1919-1936	Apr.12,1922	a10,800	Mar.28,7am	a8,040	21.4	Do.
30	West Canada Creek at East Bridge, N. Y.	556	h1920-1936	Mar.26,1913	ah23,300	Mar.18,8am	a10,900	19.6	Do.
31	East Canada Creek at Dolgeville, N. Y.	261	i1927-1936	Mar.26,1913	ai14,500	Mar.18,6:15pm	13,100	50.2	Do.
32	Schoharie Creek at Prattsville, N. Y.	236	j1902-1936	Nov.16,1926	42,300	Mar.18,9am	j38,500	163	Do.
33	Schoharie Creek at Middleburg, N. Y.	532	k1927-1936	Feb.20,1909	a31,600	Mar.18,12:30pm	g47,800	89.8	Do.
34	Schoharie Creek near Central Bridge, N. Y.	671	--	--	—	Mar.18,8pm	g62,200	92.7	Slope-area (n 0.04).
35	Poesten Kill near Troy, N. Y.	89	1923-1936	Nov.4,1927	7,030	Mar.12,12:30pm	4,750	53.4	Stage-discharge relation.
36	Kinderhook Creek at Rossman, N. Y.	329	1906-1914 1928-1936	Jan.22,1910	11,000	Mar.12,11:45pm	12,900	39.2	Do.
37	Catskill Creek at Oak Hill, N. Y.	98	m1929-1936	Nov.9,1913	m12,300	Mar.18,6am	8,880	90.6	Do.
38	Esopus Creek at Coldbrook, N. Y.	193	j1914-1936	Aug.24,1933	g55,000	Mar.12,2:30am	g38,500	199	Do.
39	Rondout Creek near Lackawack, N. Y.	100	j1906-1936	Aug.26,1928	26,715	Mar.18,8am	9,600	96.0	Do.
40	Rondout Creek at Rosendale, N. Y.	386	1901-1903 1906-1913 1926-1936	Aug.27,1928	27,300	Mar.12,10:30am	21,100	54.7	Do.

a Affected by storage.
b Maximum gage height, 12.10 feet Mar. 19, from high-water marks, affected by ice; maximum gage height previously recorded, 11.5 feet Mar. 27, 1913.
c Affected by storage; see table of daily discharge.
d Location comparable with that of 1924-32 record.
f Records of New York State engineer and surveyor, 1919-26.
g Affected by storage and diversions.
h Records of New York State engineer and surveyor, 1905-09, 1912-13.
i Comparable records at High Falls, 1 mile downstream, by New York State engineer and surveyor, 1898-1926 (part gage heights only).
j Records furnished by New York City Board of Water Supply.
k Records of New York State engineer and surveyor, 1906-27.
m Records of New York City Board of Water Supply, 1910-28.

Table 8.- Summary of flood discharges--Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Hudson River Basin-Continued								
41	Wallkill River at Pellets Island Mountain, N. Y.	385	1919-1936	Mar.16,1920	8,350	Mar.14,1am	12,400	32.2	Stage-discharge relation.
42	Wallkill River at Gardiner, N. Y.	711	1924-1936	Sept.2,1927	12,900	Mar.12,6:45am	18,000	25.3	Do.
43	Wappinger Creek near Wappinger Falls, N. Y.	182	1928-1936	Mar.5,1934	5,950	Mar.12,12:10pm	6,880	37.8	Do.
44	Croton River at Quaker Bridge, near Croton, N. Y.	379	1933-1936	Mar.5,1934	g3,940	Mar.19,3pm	g4,460	11.8	Do.
45	Bird Brook near Croton, N. Y.	0.36	1933-1936	Mar.3,1934	14.0	Mar.12,3am	20.6	57.2	Do.
	Hackensack River Basin								
46	Hackensack River at New Milford, N. J.	113	1921-1936	Sept.2,1927 July 6,1928	g2,500	Mar.12,10pm to Mar.13,1am	g2,800	24.8	Do.
47	Pascack Brook at Westwood, N. J.	29.6	1934-1936	Sept.30,1934	330	Mar.12,9-10am	1,190	40.2	Do.
	Passaic River Basin								
48	Passaic River near Millington, N. J.	55.4	1903-1906 1921-1936	Mar.8,1904	2,000	Mar.12,3-9pm	1,480	26.7	Do.
49	Passaic River at Paterson, N. J.	785	1898-1936	Oct.10,1903	g28,000	Mar.13,11-12pm	g19,400	24.7	Stage-discharge and power output-discharge relations.
50	Rockaway River at Boonton, N. J.	119	1903-1904 1906-1936	Oct.10,1903	gn7,560	Mar.12,8-9:30pm	g3,770	31.7	Stage-discharge relation.
51	Beaver Brook at outlet of Splitrock Pond, N. J.	5.5	1925-1936	Nov.20,1932	a107	Mar.12,8-10pm	a126	22.9	Do.
52	Whippany River at Pocahontas Dam, near Spring Street, at Morristown, N. J.	26	—	—	--	Mar.12	1,380	53.1	Dam (C 3.6).
53	Whippany River at Morristown, N. J.	29.4	1921-1936	Aug.26,1928	1,500	Mar.12,1:30-2am	1,500	51.0	Stage-discharge relation.
54	Ramapo River at Ramapo Dam, at Ramapo, N. Y.	85	--	--	--	Mar.12	6,100	71.8	Dam (C 3.65 and others).
55	Ramapo River at dam of Orange and Rockland Power Co., at Hillburn, N. Y.	90	--	—	--	Mar.12	6,600	73.3	Dam (C 2.7 to 3.38).
56	Ramapo River near Mahwah, N. J.	118	1903-1906 1922-1936	Oct.9,1903	12,400	Mar.12,8am	7,710	65.3	Stage-discharge relation.

57	Ramapo River at Chapman Dam, at Darlington, N. J.	132	—	—	—	Mar.12	8,500	64.4	Dam (C 2.65 to 3.35, with correction for submergence).
58	Ramapo River at Pompton Lakes, N. J.	160	1921-1936	Sept.2,1927	7,220	Mar.12,12:30-2pm	12,300	76.9	Stage-discharge relation.
59	Wanaque River at Greenwood Lake, N. J.	27.1	1919-1936	Aug.24,1933	851	Mar.12,4-7pm	a914	33.7	Do.
60	Wanaque River at Wanaque, N. J.	90.4	1903-1905 1912-1915 1919-1936	June 22 or 23, 1919	—	Mar.19,9am	g1,940	21.5	Do.
61	Pequannock River at Macopin intake dam, N. J.	63.7	1892-1936	Oct.10,1903	g6,100	Mar.12,noon to 6pm	g2,600	40.8	Do.
62	Saddle River at Lodi, N. J.	54.6	1923-1936	Sept.2,1927	1,630	Mar.12,6-7pm	2,200	40.3	Do.
	Elizabeth River Basin								
63	Elizabeth River at Irvington, N. J.	2.79	1930-1936	Aug.6,1932	1,460	Mar.11,11pm	386	138	Do.
64	Elizabeth River at Elizabeth, N. J.	20.2	1921-1936	Sept.1,1927 Nov.19,1933	g2,640	Mar.12,1:30am	g462	22.9	Do.
	Rahway River Basin								
65	Rahway River at Rahway, N. J.	40.9	1908-1915 1921-1936	Aug.2,1927	g1,740	Mar.12,10am	g1,120	27.4	Do.
	Raritan River Basin								
66	South Branch of Raritan River near High Bridge, N. J.	65.3	1919-1936	Feb.2,1922	3,600	Mar.11-12,midnight	3,080	47.2	Do.
67	South Branch of Raritan River at Clinton, N. J.	110	—	—	—	Mar.12	4,770	43.4	Dam (C 2.6, 3.6).
68	South Branch of Raritan River at Stanton, N. J.	147	1903-1906 1919-1936	July 9,1935	7,070	Mar.12,2am	5,800	39.5	Stage-discharge relation.
69	South Branch of Raritan River at Flemington Junction, N. J.	167	--	—	—	Mar.12	6,980	41.8	Dam (C 2.6, 3.4).
70	Raritan River at Manville, N. J.	490	1903-1907 1921-1936	Oct.10,1903 Aug.24,1933	25,000	Mar.12,6-6:30am	17,300	35.3	Stage-discharge relation.
71	Neshanic River at Reaville, N. J.	25.7	1930-1936	Aug.23,1933	4,370	Mar.11,11:30pm	2,110	82.1	Do.
72	North Branch of Raritan River near Far Hills, N. J.	26.2	1922-1936	July 23,1919	7,000	Mar.11,5:30pm	1,860	71.0	Do.

a Affected by storage. g Affected by storage and diversions. n Mean daily discharge.

Table 8.- Summary of flood discharges—Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Raritan River Basin-Continued								
73	North Branch of Raritan River at Milltown, N. J.	190	—	—	--	Mar.11,11pm	11,900	62.6	Slope-area (n 0.03, 0.05, 0.07).
74	Black River near Pottersville, N. J.	32.8	1921-1936	Nov.17,1927	1,600	Mar.12,4:30-9pm	818	24.9	Stage-discharge relation.
75	Millstone River near Kingston, N. J.	171	1933-1936	Aug.24,1933	4,950	Mar.12,8am	3,710	21.7	Do.
76	Millstone River at Blackwells Mills, N. J.	258	1903-1904 1921-1936	Oct.18,1927	7,000	Mar.12,9am	5,260	20.4	Do.
77	Lawrence Brook at Farrington Dam, N. J.	34.4	1922-1926 1927-1936	July 6,1928	1,900	Mar.12,1am	630	18.3	Do.
	Coastal Basins								
78	Swimming River near Red Bank, N. J.	48.5	1922-1936	Sept.9,1934	g2,930	Mar.12,6:30am	g702	14.5	Do.
79	Manasquan River at Squankum, N. J.	43.4	1931-1936	Sept.9,1934	680	Mar.12,7:20am	589	13.6	Do.
80	Toms River near Toms River, N. J.	124	1928-1936	Apr.18,1929	851	Mar.14,1am	739	5.96	Do.
81	Cedar Creek at Lanoka Harbor, N. J.	56.0	1932-1936	May 4,1934	510	Mar.24,1-2am	226	4.04	Do.
82	Great Egg River at Folsom, N. J.	56.3	1925-1934	Sept.8,1935	599	Mar.14,8-12pm	280	4.97	Do.
83	Maurice River at Norma, N. J.	113	1932-1936	Sept.8,1935	1,090	Mar.15,5-7am	503	4.45	Do.
	Delaware River Basin								
84	East Branch of Delaware River at Harvard, N. Y.	443	1935-1936	Dec.1,1935	10,400	Mar.18,5pm	26,200	59	Do.
85	East Branch of Delaware River at Fishs Eddy, N. Y.	783	1912-1936	Aug.24,1933	53,300	Mar.18,12:30pm	46,000	59	Do.
86	Delaware River at Port Jervis, N. Y.	3,076	1904-1936	Oct.10,11, 1903	about 155,000	Mar.18,5pm	a108,000	35	Do.
87	Delaware River at Belvidere, N. J.	4,542	1922-1936	Oct.10,1903	220,000	Mar.19,6-7am	179,000	39.4	Do.
88	Delaware River at Riegelsville, N. J.	6,344	1906-1936	Oct.10,1903	275,000	Mar.19,8-10am	210,000	33.1	Do.
89	Delaware River at Trenton, N. J.	6,796	1913-1936	Mar.28,29, 1913	160,000	Mar.19,3-4pm	227,000	33.4	Do.

90	Beaver Kill at Cooks Falls, N. Y.	241	1913-1936	Aug.24,1933	19,000	Mar.18,11am	18,600	77	Do.
91	Little Beaver Kill near Livingston Manor, N. Y.	19.8	1924-1936	Aug.26,1928	2,500	Mar.18,10am	2,440	123	Do.
92	West Branch of Delaware River at Hale Eddy, N. Y.	593	1912-1936	Oct.10,1903	about 46,000	Mar.18,4:20pm	25,900	44	Do.
93	Cold Spring Brook at China, N. Y.	about 2.0	1934-1936	Dec.1,1934	about 61	Mar.18,6am	about 80	—	Do.
94	Lackawaxen River at West Hawley, Pa.	206	1921-1936	Aug.24,1933	8,180	Mar.18,11:15am	14,000	68	Do.
95	Lackawaxen River at highway bridge at Hawley, Pa.	292	1921-1936	Mar.28,1914	o125	Mar.18,3pm	o15.15	—	—
96	Neversink River at Oakland Valley, N. Y.	222	1928-1936	Aug.24,1933	20,000	Mar.18,2:30pm	16,200	73	Do.
97	Bushkill Creek at Shoemakers, Pa.	117	1908-1936	July 24,1920	e7.2	Mar.18,4pm	e6.92	—	—
98	Flat Brook near Flatbrookville, N. J.	65.1	1923-1936	Apr.7,1924 Feb.11,1925	3,470	Mar.12,11:15am	2,780	42.7	Do.
99	McMichaels Creek at Stroudsburg, Pa.	64.4	1911-1936	Sept.4,1933	3,640	Mar.12,3am	4,670	73	Do.
100	Paulins Kill at Blairstown, N. J.	126	1921-1936	Aug.24,1933	2,300	Mar.12,8:30am	3,480	27.6	Do.
101	Pequest River at Pequest, N. J.	108	1921-1936	July 10,1931	83C	Mar.14,5:30am	1,810	16.8	Do.
102	Beaver Brook near Belvidere, N. J.	36.2	1922-1936	July 15,1928	826	Mar.12,6am	1,510	41.7	Do.
103	Lehigh River at Tannery, Pa.	322	1914-1936	July 10,1935	21,000	Mar.12,5-8am	21,800	68	Do.
104	Lehigh River at Lehighton, Pa.	—	1934-1936	July 10,1935	o13.0	Mar.18,8am	o13.1	—	—
105	Lehigh River at New Street Bridge, at Bethlehem, Pa.	1,240	1902-1905 1909-1936	Feb.28,1902	e25.9	Mar.12,1:30pm	e19.0	—	—
106	Lehigh River at Bethlehem, Pa.	1,280	1902-1905 1909-1936	Feb.28,1902	92,000	Mar.12,1:30pm	55,700	44	Do.
107	Musconetcong River at outlet of Lake Hopatcong, N. J.	25.6	1928-1936	Aug.27,1928	a362	Mar.19,7pm	a534	20.9	Do.
108	Musconetcong River near Bloomsbury, N. J.	143	1903-1907 1921-1936	Oct.10 or 11 1903	—	Mar.11,11:30-12 pm	a2,270	15.9	Do.
109	Tohickon Creek near Pipersville, Pa.	97.4	1935-1936	Oct.31,1935	6,780	Mar.12,5:45pm	p320	65	Do.
110	Assunpink Creek at Trenton, N. J.	89.4	1923-1936	Apr.7,1924	2,400	Mar.12,6:40am	1,080	12.1	Do.

a Affected by storage.
e Gage height in feet.
g Affected by storage and diversions.
o Gage height in feet; record furnished by U. S. Weather Bureau.
p Record furnished by H. L. Crumlish, engineer in charge.

Table 8.- Summary of flood discharges--Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Delaware River Basin-Continued								
111	Neshaminy Creek at highway bridge near Langhorne, Pa.	210	1934-1936	Aug.23,1933	e17.3	Mar.12,2am	7,820	37	Stage-discharge relation.
112	North Branch of Rancocas Creek at Pemberton, N. J.	111	1921-1936	Oct.20,1927	a1,310	Mar.19,6:30pm	535	4.82	Do.
113	Schuylkill River at Penn St. Bridge, at Reading, Pa.	898	1904-1936	Sept.2,1850	o23.0	Mar.12,11am	o15.5	—	--
114	Schuylkill River at Pottstown, Pa.	1,147	1927-1936	Aug.24,1933	44,200	Mar.12,8:30pm	31,800	28	Do.
115	Schuylkill River at Philadelphia, Pa.	1,893	1898-1912 1931-1936	Oct.4,1869	e17.0	Mar.12,7am	48,400	26	Do.
116	Little Schuylkill River at Tamaqua, Pa.	42.9	1916-1936	Aug.24,1933	3,740	Mar.18,4:15am	1,940	45	Do.
117	Perkiomen Creek at Graters Ford, Pa.	279	1914-1936	July 9,1935	41,200	Mar.18,6:30am	14,000	50	Do.
118	Crum Creek at Woodlyn, Pa.	33.3	1931-1936	Aug.23,1933	1,420	Mar.18,9:30am	592	18	Do.
119	Ridley Creek at Moylan, Pa.	31.9	1931-1936	July 9,1935	3,990	Mar.18,5am	1,040	33	Do.
120	Chester Creek near Chester, Pa.	61.1	1931-1936	Aug.23,1933	4,270	Mar.12,1am	1,560	26	Do.
121	White Clay Creek near Newark, Del.	87.8	1931-1936	Aug.23,1933	e16.05	Mar.11-12,midnight to Mar. 12,12:30am	4,110	47	Do.
122	Brandywine Creek at Chadds Ford, Pa.	287	1911-1936	Mar.5,1920	30,500	Mar.12,4:30am	5,650	20	Do.
	Susquehanna River Basin								
123	Susquehanna River at Colliersville, N. Y.	351	1924-1935	Mar.16,1929	a5,190	Mar.19,8:30am	a8,740	24.9	Do.
124	Susquehanna River at Oneonta, N. Y.	—	1907-1935	Mar.27,1913	o19.9	Mar.18-19,midnight	o19.50	—	--
125	Susquehanna River at Bainbridge, N. Y.	—	1907-1935	Mar.29,1914	o21.1	Mar.18,6:40pm	o21.46	—	—
126	Susquehanna River at Conklin, N. Y.	2,240	1912-1935	Mar.28,1913	52,000	Mar.18,1pm	61,600	27.5	Do.
127	Susquehanna River at Binghamton, N. Y.	—	1902-1935	Mar.17,1865	o23.5	Mar.18,3pm	o22.85	—	—
128	Susquehanna River at Towanda, Pa.	7,797	1892-1936	Mar.17,1865	188,000	Mar.19,9am	188,000	24	Do.

129	Susquehanna River at Wilkes-Barre, Pa.	9,960	1890-1936	Mar.18,1865	232,000	Mar.20,2am	232,000	23	Do.
130	Susquehanna River at Danville, Pa.	11,220	1899-1936	Mar.18,1865	258,000	Mar.19-20,midnight to Mar.20, 8am	250,000	22	Do.
131	Susquehanna River at highway bridge at Sunbury, Pa.	18,300	1916-1936	March 1865	e22.5	Mar.19,2pm	e26.85	—	—
132	Susquehanna River at Harrisburg, Pa.	24,100	1890-1936	June 2,1889	699,000	Mar.19,6pm	740,000	31	Do.
133	Susquehanna River at Marietta, Pa.	25,990	1931-1936	June 2,1889	700,000	Mar.19,10pm	787,000	30	Do.
134	Unadilla River near New Berlin, N. Y.	196	1924-1935	Mar.15,1929	5,590	Mar.18,11am	6,320	32.2	Do.
135	Sage Brook near South New Berlin, N. Y.	0.69	1932-1935	July 8,1935	201	Mar.18,4:30am	64	92.8	Do.
136	Chenango River at Sherburne, N. Y.	--	1907-1935	—	o11.2	Mar.18,10am and noon	o10.6	—	—
137	Chenango River near Chenango Forks, N. Y.	1,492	1912-1935	July 8,1935	82,800	Mar.18,1pm	44,100	29.6	Do.
138	Chenango River at Binghamton, N. Y.	—	1901-1911 o1933-1935	July 8,1935	o24.8	Mar.18,5pm	o26.74	—	--
139	Tioughnioga River at Itaska, N. Y.	735	1929-1935	July 8,1935	44,700	Mar.18,11:30am	23,500	32.0	Do.
140	Shackham Brook near Truxton, N. Y.	3.12	1932-1935	Jan.9,1935	64	Mar.12,3am	97	31.1	Do.
141	Owego Creek near Owego, N. Y.	186	1930-1935	July 8,1935	23,500	Mar.18,4am	12,200	65.6	Do.
142	Tioga River at Lindley, N. Y.	770	1930-1935	Apr.1,1932 Aug.24,1933	15,800	Mar.12,7:30am	41,200	53.5	Do.
143	Tioga River at Erwins, N. Y.	1,370	1918-1935	July 8,1935	46,900	Mar.12,8:30am	60,000	43.8	Do.
144	Chemung River at Corning, N. Y.	—	1909-1935	July 8,1935	o20.15	Mar.12,10am to noon	o19.3	—	—
145	Chemung River below Big Flats, N. Y.	2,150	—	—	—	--	87,200	40.6	Slope area determination.
146	Chemung River at Elmira, N. Y.	—	--	1889	q18.3	Mar.11-12,midnight	q16.5	—	--
147	Chemung River at Chemung, N. Y.	2,530	1903-1935	July 9,1935	91,000	Mar.12,10pm	92,300	36.5	Do.
148	Canisteo River at West Cameron, N. Y.	344	1930-1931	July 1935	35,000	--	9,490	28	Slope-area (n 0.03, 0.04).
149	Cohocton River near Campbell, N. Y.	472	1918-1935	July 8,1935	45,400	Mar.12,9am	16,200	34.3	Stage-discharge relation.

a Affected by storage.
e Gage height, in feet.
o Gage height, in feet; record furnished by U. S. Weather Bureau.
q Gage height, in feet; record furnished by Elmira city engineer.

Table 8.- Summary of flood discharges—Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Susquehanna River Basin-Continued								
150	Towanda Creek near Monroeton, Pa.	214	1914-1936	Nov.16,1926	15,800	Mar.18,3am	15,200	71	Stage-discharge relation.
151	Tunkhannock Creek at Dixon, Pa.	383	1914-1936	Sept.30,1924	19,100	Mar.18,11:30am	14,900	39	Do.
152	Wapwallopen Creek near Wapwallopen, Pa.	45.8	1919-1936	Sept.30,1924	2,260	Mar.18,7am	1,540	34	Do.
153	West Branch of Susquehanna River 1.2 miles above gage at Bower, Pa.	305	--	--	--	--	30,600	100	Slope-area (n 0.032 to 0.070).
154	West Branch of Susquehanna River at Bower, Pa.	315	1913-1936	May 31,1889	27,000	Mar.18,3am	31,500	100	Stage-discharge relation.
155	West Branch of Susquehanna River at Clearfield, Pa.	498	1905-1936	June 1889	o15.7	Mar.18,5am	o17.5	--	--
156	West Branch of Susquehanna River 5.2 miles above gage at Renovo, Pa.	2,678	--	--	--	Mar.18,5am	213,000	80	Slope-area (n 0.031 to 0.080).
157	West Branch of Susquehanna River at Renovo, Pa.	2,975	1895-1903 1905-1936	June 1,1889	211,000	Mar.18,7am	236,000	79	Stage-discharge relation.
158	West Branch of Susquehanna River at Jay Street Bridge, at Lock Haven, Pa.	3,338	1913-1923 1925-1936	May 31,1889	e29.8	Mar.18,11:30am	e32.28	--	--
159	West Branch of Susquehanna River at Williamsport, Pa.	5,682	1895-1936	June 1,1889	252,000	Mar.18,9pm	264,000	46	Do.
160	West Branch of Susquehanna River at Watsontown, Pa.	6,596	--	--	--	Mar.18,11pm	285,000	43	Slope-area (n 0.029 to 0.100).
161	Clearfield Creek at Dimeling, Pa.	371	1913-1936	Mar.13,1920	11,700	Mar.18,11am	37,600	101	Stage-discharge relation.
162	Driftwood Branch Sinnemahoning Creek 3.0 miles above gage at Sterling Run, Pa.	267	--	--	--	--	26,900	101	Slope-area (n 0.032 to 0.060).
163	Driftwood Branch Sinnemahoning Creek at Sterling Run, Pa.	281	1913-1936	Feb.12,1925	12,700	Mar.17,10:30pm	28,400	101	Stage-discharge relation.
164	North Bald Eagle Creek at Beech Creek Station, Pa.	559	1910-1936	June 17,1916	17,900	Mar.18,5:30am	22,300	40	Do.
165	McBrides Gap Run at dam at State Penitentiary, at Rockview, Pa.	2.4	--	--	--	--	1,010	421	Dam head 4.0 feet; C 3.5).p
166	Pine Creek at Cedar Run, Pa.	604	1916-1936	Apr.6,7,1924	17,500	Mar.18,3:30am	30,900	51	Stage-discharge relation.

167	Lycoming Creek near Trout Run, Pa.	173	1913-1936	Nov.16,1926	15,200	Mar.18,5am	17,000	98	Do.
168	Lycoming Creek 1.9 miles below gage near Trout Run, Pa.	177	—	—	—	—	17,400	98	Slope-area (n 0.032 and 0.070).
169	Loyalsock Creek at Loyalsock, Pa.	443	1925-1936	Nov.16,1926	34,000	Mar.18,9:45am	29,900	67	Stage-discharge relation.
170	Penn Creek at Penns Creek, Pa.	301	1929-1936	Sept.16,1934	12,900	Mar.18,8am	11,400	38	Do.
171	Mahantango Creek East near Dalmatia, Pa.	162	1929-1936	Aug.24,1933	9,850	Mar.12,1pm	5,180	32	Do.
172	Frankstown Branch of Juniata River at Williamsburg, Pa.	291	1916-1936	June 1,1889	35,500	Mar.18,3am	47,600	164	Do.
173	Frankstown Branch of Juniata River at Warrior Ridge Dam, near Petersburg, Pa.	837	—	—	—	—	80,000	96	Dam (head 8.2 to 13.7 feet; C 3.7 to 3.9).r
174	Frankstown Branch of Juniata River at 4th Street Bridge, at Huntingdon, Pa.	849	1895-1936	June 1,1889	o22.5	Mar.18,6am	o24.1	—	—
175	Juniata River 0.5 mile above gage at Newport, Pa.	3,284	—	—	—	—	211,000	64	Slope-area (n 0.030).
176	Juniata River at Newport, Pa.	3,354	1899-1936	June 1,1889	237,000	Mar.19,7am	215,000	64	Stage-discharge relation.
177	Kettle Creek at Pottsgrove Dam, near Altoona, Pa.	2.8	—	—	—	—	777	278	Dam (head 2.32 feet; C 3.37) and valve discharge.s
178	Bells Gap Run at Bellwood Dam, near Bellwood, Pa.	18.2	—	—	—	Mar.17,10pm	3,350	184	Dam (head 0.16 to 6.92 feet; C 2.50 to 2.63).s
179	Sinking Run at Dam No. 2, near Tyrone, Pa.	6.0	—	—	—	—	1,000	167	Dam (head 2.33 feet; C 3.6).t
180	Sinking Run at Dam No. 1, near Tyrone, Pa.	6.1	—	—	—	—	913	150	Dam (head 3.15 feet; C 3.14).t
181	Shaver Creek near Petersburg, Pa.	46.4	1929-1936	Apr.7,1933	1,800	Mar.18,3-3:15am	u9.32	—	—
182	Standing Stone Creek near Huntingdon, Pa.	128	1929-1936	June 1,1889	5,430	Mar.18,9:30am	5,070	40	Stage-discharge relation.
183	Raystown Branch of Juniata River at Juniata Crossing, Pa.	549	—	—	—	—	67,000	122	Slope-area (n 0.035 and 0.070).
184	Raystown Branch of Juniata River at Saxton, Pa.	756	1911-1936	June 1,1889	71,300	Mar.18,9am	80,500	106	Stage-discharge relation.
185	Raystown Branch of Juniata River at Raystown Dam, at Hawns Bridge, Pa.	949	—	—	—	Mar.18,12:30pm	86,500	91	Dam (head 16.14 and 12.97 feet; C 3.5 and 3.0).r

e Gage height, in feet.
o Gage height, in feet; record furnished by U. S. Weather Bureau.
p Record furnished by H. J. Crumlish, engineer in charge.
r Record furnished by Penn Central Light and Power Co.
s Record furnished by J. A. Russell, manager of water companies.
t Record furnished by water department, borough of Tyrone, Pa.
u Gage height, in feet, (discharge not determined); gage height, 7.0 feet Apr. 7, 1933.

Table 8.- Summary of flood discharges--Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Susquehanna River Basin-Continued:								
186	Dunning Creek at Yount, Pa.	191	1929-1936	Mar.15,1933	4,400	Mar.18,1am	17,900	94	Stage-discharge relation.
187	Brush Creek at Gapsville, Pa.	36.8	1929-1936	Dec.1,1934	1,100	Mar.17,9:30pm	3,520	96	Do.
188	Great Trough Creek near Marklesburg, Pa.	84.6	1930-1936	May 23,1931	2,180	Mar.17-18,midnight	9,580	113	Do.
189	Aughwick Creek near Orbisonia, Pa.	174	1915-1916 1930-1936	June 1889	18,400	Mar.18,3:30am	16,400	94	Do.
190	Tuscarora Creek near Port Royal, Pa.	214	1911-1936	Oct.23,1929	v13,000	Mar.18,2pm	14,400	67	Do.
191	Cocolamus Creek near Millerstown, Pa.	57.2	1930-1936	Aug.24,1933	3,040	Mar.11,11pm	2,370	41	Do.
192	Sherman Creek at Shermandale, Pa.	200	1929-1936	July 22,1927	e20.34	Mar.12,4:40am	w8,460	42	Do.
193	Conodoguinet Creek near Hogestown, Pa.	470	1929-1936	Dec.2,1934	13,100	Mar.13,2am	11,100	24	Do.
194	Swatara Creek at Harper Tavern, Pa.	333	1918-1936	Aug.24,1933	25,300	Mar.12,4pm	15,800	47	Do.
195	West Conewago Creek near Manchester, Pa.	510	1928-1936	Aug.24,1933	47,600	Mar.12,9:30am	13,700	27	Do.
196	Codorus Creek at Spring Grove, Pa.	74.3	1929-1936	Aug.23,1933	11,200	Mar.21,4:30pm	1,200	16	Do.
197	South Branch of Codorus Creek near York, Pa.	117	1925-1936	Aug.23,1933	19,300	Mar.1,12:30am	1,760	15	Do.
198	Conestoga Creek at Lancaster, Pa.	322	1928-1936	Aug.24,1933	22,800	Mar.12,11:50am	6,890	21	Do.
199	Muddy Creek at Castle Fin, Pa.	133	1928-1936	Aug.23,1933	16,600	Mar.11,6:30pm	3,140	24	Do.
200	Octoraro Creek near Rising Sun, Md.	191	1932-1936	Aug.24,1933	25,400	Mar.12,2am	8,800	46.1	Do.
201	Deer Creek at Rocks, Md.	94.4	1926-1936	Aug.23,1933	22,600	Mar.11,4:30pm	3,630	38.5	Do.
	Streams tributary to Niagara River								
202	Little Tonawanda Creek at Linden, N. Y.	22	1912-1936	Apr.22,1916	2,400	Mar.25,6pm	1,490	67.7	Do.
	Streams tributary to Lake Ontario								
203	Genesee River at Scio, N. Y.	309	1916-1936	May 22,1919	10,600	Mar.12,5am	7,760	25.1	Do.

204	Genesee River at St. Helena, N. Y.	1,017	1908-1936	May 17,1916	44,400	Mar.26,5:30am	a25,500	25.1	Do.
205	Genesee River at Jones Bridge, near Mt. Morris, N. Y.	1,419	1903-1906 1908-1913 1915-1935	May 17,1916	55,100	Mar.26-27,noon	a26,300	18.5	Do.
206	Genesee River at Driving Park Avenue, Rochester, N. Y.	2,467	x1919-1935	Dec.2,1927	a29,600	Mar.28,1:15pm	a27,700	11.2	Do.
207	Canaseraga Creek near Dansville, N. Y.	153	1910-1912 1915-1917 1919-1935	July 8,1935	9,920	Mar.25,5pm	4,240	27.7	Do.
208	Seneca River (Cayuga Lake outlet) above Lock 1, near Cayuga, N. Y.	780	1905-1935	Apr.3,1916	y386.6	Mar.27,noon	y386.7		
209	Oswego River at Lock 7, Oswego, N. Y.	5,121	1933-1935	July 14,1935	a16,900	Mar.28,3:35pm	z37,500	7.3	Do.
210	Seneca Lake at Watkins, N. Y.	714	1912-1935	July 9-11, 1935	y449.3	Mar.22,23,25-27	y448.8		
211	Six Mile Creek at Van Atta's Dam, Ithaca, N. Y.	47.8		aaJune 21, 1905	aa8,500	Mar.18	3,820	80.0	Dam (C 3.65)
212	Fall Creek near Ithaca, N. Y.	124	1925-1935	July 8,1935	15,500	Mar.18,9:45am	6,240	50.3	Stage-discharge relation.
213	Owasco Lake outlet near Auburn, N. Y.	208	1912-1935	Mar.25-30, 1913	a1,950	Mar.19,7am	a2,090	10.0	Do.
214	East Branch of Fish Creek at Taberg, N. Y.	189	1923-1936	Oct.6,1932	16,500	Mar.18,4:30pm	7,180	38.0	Do.
215	Oneida Lake at Sylvan Beach, N. Y.	bb1,353	1905-1935	Mar.31,Apr.1 1913	y377.0	Mar.29,31	y375.0		
216	Oneida River at Brewerton, N. Y.	1,353	1904-1935	Apr.10-12, 1912,Mar.29, 1913	y375.3	Mar.29	y374.9		
217	Black River near Boonville, N. Y.	295	1911-1935	Mar.28,1913	a10,000	Mar.18,9pm	a6,300	21.4	Do.
218	Black River at Watertown, N. Y.	1,876	1920-1935	Apr.9,1928	a33,900	Mar.20,4:45pm	a28,000	14.9	Do.
219	Moose River at McKeever, N. Y.	365	1922-1935	June 22,1922	a11,000	Mar.19,8pm	a7,340	20.1	Do.
220	Middle Branch of Moose River at Old Forge, N. Y.	52	1911-1935	Mar.23,1921	a862	--	cc	--	

a Affected by storage.
e Gage height, in feet.
v Corresponding gage height, 16.21 feet; maximum gage height, 20.5 feet June 1, 1889, discharge not determined (affected by backwater from Juniata River).
w Corresponding gage height, 10.28 feet.
x Records of New York State engineer and surveyor, 1904-18; maximum discharge, 48,300 second-feet Mar. 30, 1916.
y Gage height, in feet, Barge Canal datum; records furnished by New York State Department of Public Works.
z Affected by storage; includes mean daily diversion of canals.
aa See U. S. Geological Survey Water-Supply Paper 162.
bb At outlet of lake.
cc Flow during flood period completely regulated by storage. Discharge, 405 second-feet 8 a. m. Apr. 15, from release of stored water.

Table 8.- Summary of flood discharges--Continued

No. on map	Stream and place of determination	Drainage area (sq. mi.)	Period of record	Maximum discharge previously known		Maximum discharge during floods of March 1936			
				Date	Second-feet	Time	Second-feet	Sec.-ft. per sq. mi.	Method of determination
	Streams tributary to Lake Ontario-Continued								
221	Middle Branch of Moose River near McKeever, N. Y.	148	1925-1935	Apr.27,1926	a2,100	Mar.29,6pm to midnight	a1,110	7.5	Stage-discharge relation
222	Independence River at Sperryville, N. Y.	85	1927-1935	Oct.6,1932	4,700	Mar.19,4am	2,150	25.3	Do.
223	Beaver River below Stillwater Dam, near Beaver River, N. Y.	172	1908-1935	May 3,1926	a3,700	--	dd	--	
224	Beaver River at Croghan, N. Y.	294	1930-1935	Apr.19,1933	a3,390	Mar.20,12:15am	a2,230	7.6	Do.
225	Deer River at Copenhagen, N. Y.	89	1929-1935	Jan.8,1930	4,500	Mar.12,6pm	2,820	31.7	Do.
	Streams tributary to St. Lawrence River								
226	East Branch of Oswegatchie River at Cranberry Lake, N. Y.	144	1923-1935	Apr.17-20, 1933	ee1,620	Apr.10-13	ee800	5.6	Do.
227	East Branch of Oswegatchie River near Oswegatchie, N. Y.	263	1924-1935	Apr.6,1928	a4,010	Mar.18,8pm	a2,650	10.1	Do.
228	Oswegatchie River near Heuvelton, N. Y.	973	1916-1935	Jan.11,1930	a15,600	Mar.23,7:30pm	a9,980	10.3	Do.
229	West Branch of Oswegatchie River near Harrisville, N. Y.	258	1916-1935	Jan.9,1930	6,920	Mar.19,3:50pm	4,110	15.9	Do.
230	Grass River at Pyrites, N. Y.	335	1924-1935	Nov.18,1927	8,300	Mar.21,6:30am	3,510	10.5	Do.
231	Raquette River at Piercefield, N. Y.	722	1908-1935	Apr.17,1922	a7,580	Mar.30-31,midnight	5,330	7.4	Do.
232	St. Regis River at Brasher Center, N. Y.	616	1910-1917 1919-1936	Mar.27,1914	16,200	Mar.20	7,080	11.5	Do.
233	Salmon River at Chasm Falls	132	1925-1935	Apr.25,1926	2,890	Mar.18,5pm	1,680	12.7	Do.
234	Chateaugay River near Chateaugay, N. Y.	112	1908 1926-1935	Apr.8,1928	a2,060	Mar.25,6:45am	a993	8.9	Do.
235	Richelieu River (Lake Champlain) at Rouses Point, N. Y.	8,277	1871-1935	Mar.30,1903	ff8.80	Mar.27	e8.61		
236	Great Chazy River at Perry Mills, N. Y.	247	1928-1935	Mar.16,1929	5,810	Mar.19,6am	gg4,900	19.8	Do.

237	Saranac River at Saranac, N. Y.	521	1930-1935	Apr.17,1933	a5,780	Mar.18	hh5,500	11.5	Do.
238	West Branch of Ausable River near Newman, N. Y.	116	1916-1917 1919-1935	Oct.6,1932	a6,200	Mar.18,7:30pm	a4,440	38.3	Do.
239	Ausable River near Ausable Forks, N. Y.	448	1924-1935	Oct.1,1924	a19,100	Mar.18,7:40pm	a16,700	37.3	Do.
240	Black Brook at Black Brook, N. Y.	49.4	1924-1935	Apr.25,1926	a720	Mar.19,3am	a800	16.2	Do.
241	East Branch of Ausable River at Ausable Forks, N. Y.	198	1924-1935	Oct.1,1924	11,000	Mar.18,11pm	10,800	54.5	Do.
242	Bouquet River at Willsboro, N. Y.	275	1904,1908 1923-1935	Oct.1,1924	11,800	Mar.19,4am	8,310	30.2	Do.
243	Lake George at Rogers Rock, N. Y.		1913-1935	Apr.18,1922	e5.07	Apr.9	e5.09		

a Affected by storage.
e Gage height, in feet.
dd Flow during flood period completely regulated by storage. Mean daily discharge, 1,100 second-feet May 4, determined from gate rating.
ee Mean daily discharge, affected by storage.
ff Gage height, in feet. Observations at St. Johns, Quebec, indicate a maximum computed gage height of 8.83 feet during April 1869.
gg Estimated maximum discharge; peak stage, 10.57 feet 11:40 a.m. Mar.19, (affected by ice).
hh Estimated maximum discharge (affected by storage); peak stage, 10.78 feet 5:20 p.m. Mar. 18 (affected by ice).

151158 O—37——20

At some places on streams only information of maximum stages is available, and that information is presented with an appropriate footnote. For other places, pertinent information regarding stages antedating the period of record of discharge is shown by a footnote. Although the tabulation is intended to be reasonably complete, the reader should consult the section "Records of previous floods" for possible additional references to notable floods not included in the summary table. Numerous explanatory footnotes on other features of the table are also included.

The basic data and computations for the determinations of discharge are filed in the district offices of the Geological Survey in the several districts where the floods occurred. The data for any drainage basin may be examined in the district office having supervision of the investigation in that area.

Figure 47 shows the flood discharges of 1936 in second-feet per square mile, as given in table 8, plotted against the corresponding drainage areas. In this connection it should be understood that for a few items, as indicated in the table, the recorded discharges are affected by artificial storage. Available information regarding such storage is presented in the preceding section, "Stages and discharges at river-measurement stations during the flood period."

STORAGE

Scope and utility

Basic information on storage and a discussion of the effects of storage on flood run-off are presented elsewhere in this report in the sections headed "Stages and discharges at river-measurement stations during the flood period" and "Rainfall and run-off studies." The treatment of storage in this section is limited to a brief statement as to the extent and the utility of storage in the region covered in this volume, and a discussion of outstanding examples of the effect of storage reservoirs on flood flows.

The detention or retardation of flood waters by means of storage, either natural or artificial, thereby reducing the peak stages of rivers at critical times, is usually a most attractive and effective method of lessening flood damages. Storage reservoirs, both natural and artificial, were effective in lowering flood peaks in March 1936 below what they would otherwise have been on rivers in New England (see Water-Supply Paper 798) and on the Hudson, Mohawk, and certain other rivers in the region

covered by this report. There is a large amount of natural and artificial storage on the tributaries of the St. Lawrence River in New York, but on those streams the flood was not record-breaking. However, the stages reached in Cayuga, Seneca, Owasco, Oneida, and other lakes in the Oswego River Basin in central New York closely approached the maximum stages previously recorded. As a result of that storage the flood discharge on the Oswego River at Oswego, N. Y., was less than 8 second-feet to the square mile, and the flood run-off was distributed over a period of 2 months.

Storage reservoirs did not exist in many of the river basins in the region covered by this volume, and unless discussed in this section, the influence of storage upon flood peaks was comparatively insignificant.

The section in this volume headed "Stages and discharges at river-measurement stations during the flood period" contains records of the operation of the following reservoirs and lakes:

Hudson River Basin:
- Indian Lake Reservoir near Indian Lake, N. Y.
- Sacandaga Reservoir at Conklingville, N. Y.
- Delta Reservoir at Delta Dam, near Rome, N. Y.
- Hinckley Reservoir at Hinckley, N. Y.
- Schoharie Reservoir at Gilboa Dam, at Gilboa, N. Y.

Hackensack River Basin:
- Oradell Reservoir at Oradell, N. J.
- Woodcliff Lake at Hillsdale, N. J.

Passaic River Basin:
- Boonton Reservoir at Boonton, N. Y.
- Greenwood Lake at The Glens, N. J.
- Wanaque Reservoir at Wanaque, N. J.
- Oak Ridge Reservoir at Oak Ridge, N. J.
- Canistear Reservoir near Stockholm, N. J.
- Clinton Reservoir near Newfoundland, N. J.
- Echo Lake Reservoir near Charlotteburg, N. J.

Raritan River Basin:
- Lake Carnegie at Princeton, N. J.

Delaware River Basin:
- Lake Wallenpaupack at Wilsonville, Pa.
- Swinging Bridge Reservoir at Swinging Bridge Dam, N. Y.
- Toronto Reservoir at Toronto Dam, N. Y.
- Lake Hopatcong at Landing, N. J.

Lake Ontario Basin:
- Caneadea Reservoir near Caneadea, N. Y.
- Cayuga Lake near Cayuga, N. Y.
- Seneca Lake at Watkins Glen, N. Y.
- Oneida Lake at Sylvan Beach, N. Y.
- Oneida Lake at Brewerton, N. Y.

St. Lawrence River Basin:
- Lake George at Rogers Rock, N. Y.

Examples of effects of storage

The Sacandaga Reservoir is near the mouth of the Sacandaga River, the principal tributary of the upper Hudson River. It was constructed

by the Hudson River Regulating District, has a storage capacity of 37,750,000,000 cubic feet, and became effective in the regulation of the flow of the river in March 1930. The reservoir received the run-off from a drainage area of 1,044 square miles. The spillway was designed for a maximum discharge of 50,000 second-feet with a full reservoir. The maximum discharge of the Sacandaga River previously recorded was 35,800 second-feet in the flood of March 1913. By means of snow surveys the engineers of the Hudson River Regulating District anticipated an unusually high run-off in March 1936, and consequently the reservoir was operated so that it was nearly empty at the time of the first flood. During the second flood the maximum rate of inflow to the reservoir was computed as 64,600 second-feet on March 18, but the flood run-off was stored in the reservoir without difficulty. As a result of this storage the peak flow of the Hudson River at Albany, N. Y., did not exceed about 165,000 second-feet, and the flood damage was much less than that in 1913, when the peak flow at Albany was about 225,000 second-feet. Although the reservoir was constructed primarily for the purpose of regulating the flow of the river for the benefit of power plants and mills downstream, it functioned very effective as a flood-control reservoir during the flood of March 1936.

On the lower Mohawk River the flood discharge of March 1936 equaled or exceeded that of the flood of 1913, which was the greatest previously known. The flood damage would have been much greater than it was except for the effect of storage in the headwater reservoirs. The Hinckley Reservoir on West Canada Creek, the Delta Reservoir on the headwaters of the Mohawk River, both operated in connection with the Barge Canal, and the Schoharie Reservoir (above Gilboa Dam) on Schoharie Creek, a part of the water-supply system of New York City, control 24 percent of the Mohawk River drainage area. During the floods of March 1936 water was passing through each of these reservoirs, but the record of storage content and of discharge below the reservoir, tabulated elsewhere in this report, show that the reservoir caused a substantial reduction in the flood flows.

Natural storage had an important influence on the flood flow of the upper Hudson River as illustrated by the record of the Schroon River at Riverbank, N. Y. Many natural lakes and ponds above the river-measurement station at Riverbank have dams at their outlets for controlling the low-water flow, but at times of floods the storage on such lakes and ponds may probably be regarded as essentially the same as that in unregulated

lakes. The combined effect of this natural storage was to delay the flood peak at least 3 days and to distribute the flood flow over a period of several weeks.

The Toronto and Swinging Bridge Reservoirs and Lake Wallenpaupack, in the Delaware River drainage basin, control only a small portion of the total area tributary to the lower Delaware. Their combined effect was to reduce the tributary drainage area at Port Jervis, N. Y., from 3,076 to 2,707 square miles.

RAINFALL AND RUN-OFF STUDIES

Method of analysis

One of the principal objectives in the detailed analyses of the rainfall and run-off records of the floods of March 1936 presented herein was to develop some of the significant features of the relation between rainfall and run-off in these major floods. A second objective, probably of equal importance, was to utilize the results of the analyses so far as practicable in checking the accuracy or reasonableness of the basic data published in this report. The results of these analyses have furnished a background of information that is useful in consideration of the deficiencies in the basic data. The value of this study has become apparent and is largely in addition to the original expectations as to the use of the analyses. These matters are discussed in more detail below.

From the viewpoint of a student of relations between rainfall and run-off, the timing of the meteorologic events that caused the floods was extremely complex. From Maine to the headwaters of the Potomac River in West Virginia the ground just prior to the storm of March 11 and 12 was covered with snow, ranging in depth from a few inches to 60 inches and having an equivalent water content of 20 to 30 percent or more. Although it is known that melting snow furnished a large part of the flood run-off, exact information in regard to the water content of the snow in many parts of the area prior to the floods is not available, even though special efforts have been made to collect all the obtainable data pertaining to the subject. There was frost in the ground throughout much of the Hudson, Delaware, Susquehanna, Potomac, and James River Basins and in other areas where depths of snow were not great. In some areas where the snow cover was deep and the snow fell early in the winter there may

have been little or no frost. Before the run-off resulting from the first rainstorm and the associated melting snow had passed out of the basins a second storm occurred, accompanied by warm weather and rapid melting of the snow. Except in some areas along the coast and in parts of New England, the precipitation of the second storm was in general greater than that of the first one. In many areas before the run-off resulting from the second storm had passed out of the basins a minor storm on March 20-21 resulted in broadening the base of the flood-flow hydrograph without affecting the peak, thus introducing difficulty in analyzing the individual contributions of the different storms associated with the flood run-off. An accurate quantitative study is further complicated by the fact that in some areas snow still remained on the ground at the end of the storm period, and little if any definite information is available showing the depletion in water content of the snow throughout the storm period.

The method used in arriving at an estimate of the water content of the snow and the classification of precipitation by storms and by drainage basins is described under "Meteorologic and hydrologic conditions." (See columns 4 to 8, table 9, for results of determination.) The records of mean daily discharge as published in the section entitled "Stages and discharges at river-measurement stations during the flood period" have been used as a basis for the determination of the direct run-off resulting from the rain and melting snow. A discharge hydrograph was constructed for each river-measurement station covering the period from the first of February to the end of April. The hydrograph for the Delaware River at Port Jervis, N. Y. (fig. 48), shows the general character of the hydrographs for the other river-measurement stations that were studied and analyzed.

Stream flow about February 20 (point A, fig. 48) was low and consisted largely of outflow from ground water. A general thaw, which began about February 25, tended to break up the channel ice and raised the streams somewhat (B). The magnitude of the increase in flow depended on the location of the stations. On March 10 all stations recorded sharp increases in stage and discharge, culminating in a peak (D) occurring on varying days between March 11 and 14 in the different drainage basins. This peak was followed by a decline in stage that was interrupted (E) by the oncoming flood waters of the second storm, which caused a second peak (F), generally between March 18 and 20. The flow then generally decreased

until, as shown at G, the added run-off of the small storm of March 20-21 caused a smaller rise (H). This rise in turn was followed by another decline to a point where the stream flow was sustained at a more uniform rate (I-J) by run-off resulting from local rains after March 22, supplemented by run-off from melting of the remaining snow.

The total area under the hydrograph repressnts the total direct run-off resulting from the rains and melting snow plus the stream flow that

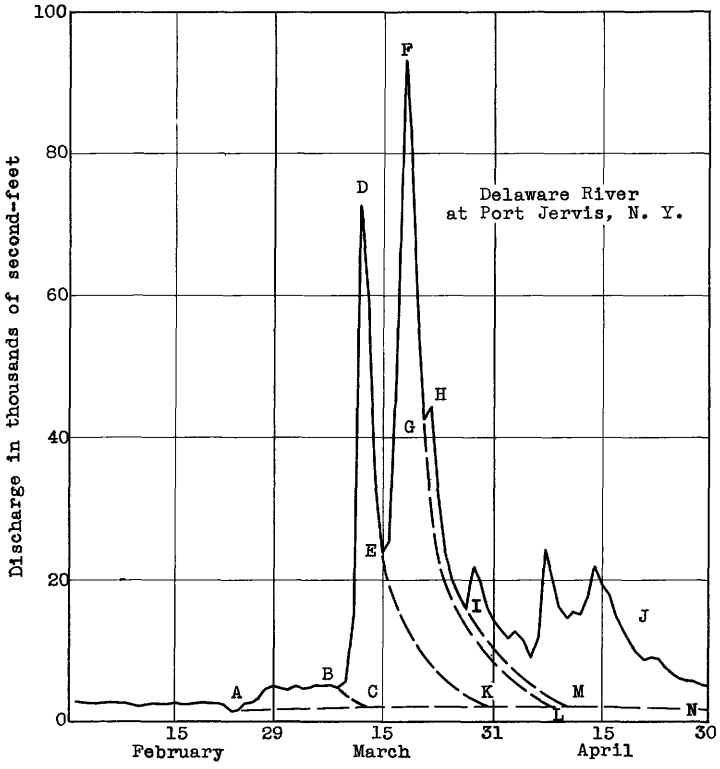

Figure 48.--Method of analysis used in determining direct run-off associated with each storm and total storm period, March 1936.

would have been maintained from antecedent sources if there had been no increment of direct run-off beyond A. The run-off directly attributable to the melting snow and rain has been estimated by making an approximation (A-N) of the position of the graph of flow maintained from antecedent sources and assuming that the area above that line within the observed hydrograph of total stream flow represents the increment in stream flow resulting from meteorologic events after February 24. This increment has been further analyzed to show, first, the run-off directly

attributable to the precipitation and melting snow associated with the first storm; second, the run-off directly attributable to precipitation and melting snow occurring during the second storm: and third, the run-off directly attributable to the precipitation and melting snow during the total storm period March 9-22. This analysis has involved the estimation of recession curves, B-C, E-K, G-L, and I-M for each individual decline of the hydrograph, assuming no subsequent rise. It follows that area BDEKC represents the run-off resulting from the first storm, area EFGLK the run-off resulting from the second storm, and area BDEFGHMC the total run-off resulting from the precipitation and melting snow for the period March 9-22. The results of these analyses, expressed in inches of depth over the drainage basins considered in this volume, are presented in columns 9, 10, and 11, table 9. It is evident that these estimates of direct run-off are less than the total natural stream flow by reason of the exclusion of the flow maintained from antecedent sources.* Other investigators might, of course, estimate such maintained flow differently or construct somewhat different recession curves. In general, such differences in judgment would result in differences that would be relatively small in relation to the magnitude of the run-off as a whole. Moreover, any change in one area under a constructed recession curve must be accompanied by a similar change of opposite sign in the adjacent area, because the total area underneath the hydrograph must check with the figure for run-off in inches actually measured. It is believed that this division makes possible a better understanding of the flood characteristics than can otherwise be obtained. At some of the stations there was difficulty in separating the probable run-off of the small third storm (GHIML) from the run-off of the second storm, and at some stations the amount of run-off attributable to each storm may be slightly underestimated by reason of the fact that the time available did not permit a more refined determination of the shape of the lower end of the recession curves applicable to the drainage basins above the river-measurement stations. Errors resulting from these determinations, however, are believed to be small and probably within the limits of error of the basic run-off records.

For river basins where there was artificial storage and where records of the operation of reservoirs were available, the run-off records

* For a discussion of principles underlying stream-flow separation see Hoyt, W. G., and others, Studies of relations of rainfall and run-off in the United States: U. S. Geol. Survey Water-Supply Paper 772, pp. 111-118, 1936, and Horton, R. E., Surface run-off phenomena, pt. 1, Analysis of the hydrograph: Horton Hydrol. Lab. Pub. 101, Feb. 1, 1935.

used in the rainfall and run-off studies were corrected for the effect of storage in the reservoirs. For a few stations which were immediately below the storage reservoirs and above which daily records of change in storage were available, the run-off following each storm was corrected, as well as the run-off for the entire period (cols. 9, 10, and 11, table 9). For other stations above which daily records of change in storage were not available or which were located some distance downstream from the reservoirs, only the total run-off (col. 11) for the period was corrected. For these stations the figures showing the run-off associated with each storm (cols. 9 and 10) are not directly comparable with the indicated natural run-off for the storm period (col. 11).

Discussion of results*

The data relative to rainfall and run-off have been largely summarized in table 9. It is believed that engineers and hydrologists will readily appreciate the approximations that may have been necessary with respect to individual items. Users are cautioned to apply the data only after a thorough understanding of the explanatory text and footnotes accompanying the table.

The gaging stations for which daily run-off records were available during the entire flood period are listed in columns 1 and 2. Column 3 gives the drainage area in square miles above each river-measurement station. In column 4 is given an estimate of the average water content of the snow, in inches over the drainage areas above the gaging stations on March 9. The probable accuracy of the estimates of the water content of the antecedent snow and of the estimates of the water content of the snow remaining in the drainage basins after March 22 is discussed by drainage basins. Columns 5, 6, and 7 show the precipitation in inches over the drainage basins for each storm and for the total storm period as determined from a study of all available precipitation records. As explained in the section headed "Meteorologic and hydrologic conditions", the precipitation for the first storm includes that for the period March 9-13, and the precipitation for the second storm includes that for the period March 16-19. Column 8 is the sum of columns 4 and 7 and represents estimates of the total amount of water in inches over the drainage basins

* The reader is referred to Water-Supply Papers 798 and 800 for discussions of rainfall and run-off studies relating to areas in New England and in the Potomac, Rappahannock, York, James, Allegheny, and Monongahela River Basins.

Table 9.- Rainfall and run-
(Mean depth, in inches,

No. on figs. 42,43	Stream	Point of measurement	Drainage area (square miles)	Water content of snow Mar. 9
	1	2	3	4
	Hudson River Basin			
2	Hudson River	Gooley, near Indian Lake, N. Y.	419	7.0
3	Hudson River	North Creek, N. Y.	792	7.7
4	Hudson River	Hadley, N. Y.	1,664	6.2
5	Hudson River	Mechanicville, N. Y.	4,500	5.2
-	Hudson River	New York, N. Y.	13,400	3.7
6	Cedar River	Chain Lakes, near Indian Lake, N. Y.	160	8.0
7	Indian River	Indian Lake, N. Y.	132	9.9
9	Schroon River	Riverbank, N. Y.	527	4.5
10	Sacandaga River	Hope, N. Y.	491	7.3
11	Sacandaga River	Conklingville, N. Y.	1,044	6.4
12	East Branch of Sacandaga River	Griffin, N. Y.	114	6.7
13	West Stony Creek	Northville, N. Y.	88	7.1
14	East Stony Creek	Northville, N. Y.	89	5.8
15	Batten Kill	Arlington, Vt.	152	5.7
17	Batten Kill	Battenville, N. Y.	394	4.2
18	Kayaderosseras Creek	West Milton, N. Y.	90	3.8
20	Hoosic River	Adams, Mass.	46.3	6.0
23	Hoosic River	Eagle Bridge, N. Y.	510	5.1
24	North Branch of Hoosic River	North Adams, Mass.	39	7.4
25	Walloomsac River	North Bennington, Vt.	111	5.5
26	Mohawk River	Delta Dam, near Rome, N. Y.	151	6.6
27	Mohawk River	Little Falls, N. Y.	1,348	5.1
28	Mohawk River	Cohoes, N. Y.	3,456	3.6
29	West Canada Creek	Hinckley, N. Y.	375	7.2
30	West Canada Creek	East Bridge, N. Y.	556	6.1
31	East Canada Creek	Dolgeville, N. Y.	261	4.6
32	Schoharie Creek	Prattsville, N. Y.	236	3.8
-	Schoharie Creek	Gilboa, N. Y.	314	3.8
33	Schoharie Creek	Middleburg, N. Y.	532	3.5
35	Poesten Kill	Troy, N. Y.	89	2.2
36	Kinderhook	Rossman, N. Y.	329	3.7
37	Catskill Creek	Oak Hill, N. Y.	98	2.4
38	Esopus Creek	Coldbrook, N. Y.	192	4.7
39	Rondout Creek	Lackawack, N. Y.	100	4.1
40	Rondout Creek	Rosendale, N. Y.	386	3.6
41	Wallkill River	Pellets Island Mountain, N. Y.	385	3.5
42	Wallkill River	Gardiner, N. Y.	711	3.4
43	Wappinger Creek	Wappinger Falls, N. Y.	182	2.5
44	Croton River	Quaker Bridge, near Croton, N. Y.	379	2.4
	Hackensack River Basin			
46	Hackensack River	New Milford, N. J.	113	.9
47	Pascack Brook	Westwood, N. J.	29.6	1.0
	Passaic River Basin			
48	Passaic River	Millington, N. J.	55.4	1.9
49	Passaic River	Paterson, N. J.	785	2.4
50	Rockaway River	Boonton, N. J.	119	3.3
53	Whippany River	Morristown, N. J.	29.4	2.0
56	Ramapo River	Mahwah, N. J.	118	2.5

a Not corrected for storage.
b Corrected for 1,643,000,000 cubic feet of storage Mar. 9-24 in Indian Lake Reservoir; equivalent to 0.90 inch over basin above North Creek and 0.40 inch over basin above Hadley.
c Corrected for 1,643,000,000 cubic feet of storage Mar. 9-24 in Indian Lake Reservoir and 17,333,000,000 cubic feet of storage Mar. 9-23 in Sacandaga Reservoir; equivalent to 1.81 inches over basin above Mechanicville.
d Corrected for storage in Indian Lake Reservoir.
e Flow affected by storage for which records are not available.
f Corrected for storage in Sacandaga Reservoir.
g Corrected for storage in Delta Reservoir.
h Corrected for 5,781,000,000 cubic feet of storage Mar. 9-24 in Hinckley and Delta Reservoirs; equivalent to 1.85 inches over basin above Little Falls.
i Corrected for 7,426,000,000 cubic feet of storage Mar. 9-24 in Gilboa, Hinckley, and Delta Reservoirs; equivalent to 0.93 inch over basin above Cohoes.
j Corrected for storage in Hinckley Reservoir.

off of floods of March 1936
over drainage basins)

Precipitation			Column 4 plus column 7	Direct run-off associated with each storm and total storm period			Column 11 minus column 7	Column 8 minus column 11	No. on figs. 42,43
First storm	Second storm	Total period Mar. 9-22		First storm	Second storm	Total storm period			
5	6	7	8	9	10	11	12	13	
1.1	1.9	3.7	10.7	0.79	5.72	6.51	2.8	4.2	2
1.25	2.15	4.05	11.75	a.62	a4.77	b6.29	2.25	5.45	3
1.5	2.65	4.7	10.9	a.56	a5.27	b6.25	1.55	4.65	4
1.8	2.65	4.95	10.15	a1.54	a3.60	c6.95	2.0	3.2	5
1.7	2.55	5.05	8.75	-	-	-	-	-	-
1.15	2.0	3.5	11.5	-	-	-	-	-	6
1.55	2.55	4.25	14.15	d.99	d5.54	d6.53	2.3	7.6	7
1.6	2.25	4.9	9.4	(e)	(e)	(e)	-	-	9
2.05	2.85	5.15	12.45	2.82	6.48	9.82	4.65	2.65	10
2.15	2.85	5.4	11.8	f1.57	f6.89	f8.46	3.05	3.35	11
1.75	3.0	5.15	11.85	1.66	6.49	8.67	3.5	3.2	12
2.5	2.5	5.3	12.4	2.97	7.26	10.88	5.6	1.5	13
2.5	3.4	6.3	12.1	2.28	8.06	11.13	4.85	.95	14
2.05	2.9	5.0	10.7	2.96	5.17	8.69	3.7	2.0	15
1.85	2.65	4.8	9.0	3.64	4.67	8.93	4.15	.05	17
1.75	2.55	4.75	8.55	3.63	4.63	8.26	3.5	.3	18
2.05	3.5	6.4	12.4	3.91	5.42	9.98	3.6	2.4	20
1.85	2.35	5.4	10.6	4.00	4.35	8.85	3.45	1.75	23
2.5	3.4	6.9	14.3	4.74	7.77	13.71	6.8	.6	24
2.0	2.35	5.4	10.9	2.86	3.84	7.56	2.15	3.35	25
1.2	1.5	3.5	10.1	g3.16	g4.90	g9.00	5.5	1.1	26
1.25	1.75	3.6	8.7	a.70	a3.16	h6.39	2.8	2.3	27
1.5	2.5	4.65	8.25	a2.53	a4.46	18.39	3.75	-.15	28
1.65	2.05	3.9	11.1	j1.63	j4.76	j6.87	2.95	4.25	29
1.5	1.9	3.8	9.9	(k)	(k)	m6.42	2.6	3.5	30
1.8	2.0	4.3	8.9	2.28	6.38	8.66	4.35	.25	31
2.85	4.35	8.45	12.25	5.26	6.46	12.20	3.75	.05	32
2.45	4.15	7.9	11.7	n3.90	n5.15	n9.79	1.9	1.9	-
2.05	3.85	6.9	10.4	a2.94	a5.24	o10.29	3.4	.1	33
1.5	1.95	4.5	6.7	4.48	3.38	8.13	3.65	-1.45	35
1.6	1.75	4.3	8.0	3.91	3.19	7.41	3.1	.6	36
2.0	3.75	6.9	9.3	3.22	5.22	9.20	2.3	.1	37
3.65	3.75	8.7	13.4	6.70	6.82	14.32	5.6	-.9	38
2.95	3.45	7.4	11.5	5.05	5.43	11.18	3.8	.3	39
2.75	2.95	6.7	10.3	5.31	3.93	9.74	3.05	.55	40
1.8	2.65	5.35	8.85	5.64	3.25	8.89	3.55	-.05	41
1.9	2.6	5.45	8.85	5.78	1.92	8.52	3.05	.35	42
1.6	1.6	3.7	6.2	4.17	1.98	6.32	2.6	-.1	43
2.45	2.7	5.75	8.15	-	-	-	-	-	44
2.7	1.95	5.5	6.4	p3.54	p1.48	q5.49	0	.9	46
2.7	2.0	5.5	6.5	a3.13	a1.34	r5.00	-.5	1.5	47
2.5	1.5	4.65	6.55	4.48	1.71	6.49	1.85	.05	48
3.0	2.4	6.5	8.9	a5.38	a2.92	s8.70	2.2	.2	49
3.6	2.65	7.5	10.8	t5.64	t2.48	t8.76	1.25	2.05	50
2.65	1.5	4.95	6.95	4.15	1.34	5.94	1.0	1.0	53
3.15	2.5	6.4	8.9	6.00	3.01	9.52	3.1	-.6	56

k Separate storm run-off not determined.

m Corrected for 3,439,000,000 cubic feet of storage Mar. 9-24 in Hinckley Reservoir; equivalent to 2.66 inches over the basin above Kast Bridge.

n Corrected for storage in Gilboa Reservoir.

o Corrected for 1,645,000,000 cubic feet of storage Mar. 9-24 in Gilboa Reservoir; equivalent to 1.33 inches over basin above Middleburg.

p Corrected for storage and diversion at Oradell Reservoir.

q Corrected for storage and diversion at Oradell Reservoir and 6,000,000 cubic feet of storage Mar. 9-23 in Woodcliff Lake; latter storage equivalent to 0.02 inch over basin above New Milford.

r Corrected for 6,000,000 cubic feet of storage Mar. 9-23 in Woodcliff Lake; equivalent to 0.09 inch over basin above Westwood.

s Corrected for 718,000,000 cubic feet of storage Mar. 9-23 in Boonton Reservoir, Greenwood Lake, Wanaque Reservoir, and in reservoirs on Pequannock River; equivalent to 0.40 inch over basin above Paterson.

t Corrected for storage and diversion at Boonton Reservoir.

Table 9.- Rainfall and run-off of
(Mean depth, in inches,

No. on fig. 43	Stream	Point of measurement	Drainage area (square miles)	Water content of snow Mar. 9
	1	2	3	4
	Passaic River Basin--Continued			
58	Ramapo River	Pompton Lakes, N. J.	160	2.4
59	Wanaque River	Greenwood Lake, N. J.	27.1	3.0
60	Wanaque River	Wanaque, N. J.	90.4	3.0
61	Pequannock River	Macopin intake dam, N. J.	63.7	3.5
62	Saddle River	Lodi, N. J.	54.6	1.0
	Elizabeth River Basin			
64	Elizabeth River	Elizabeth, N. J.	20.2	0
	Rahway River Basin			
65	Rahway River	Rahway, N. J.	40.9	.2
	Raritan River Basin			
66	South Branch of Raritan River	High Bridge, N. J.	65.3	2.4
68	South Branch of Raritan River	Stanton, N. J.	147	1.8
70	Raritan River	Manville, N. J.	490	1.6
71	Neshanic River	Reaville, N. J.	25.7	1.0
72	North Branch of Raritan River	Far Hills, N. J.	26.2	2.5
74	Black River	Pottersville, N. J.	32.8	2.5
75	Millstone River	Kingston, N. J.	171	.1
76	Millstone River	Blackwells Mills, N. J.	258	.3
	Great Egg River Basin			
82	Great Egg River	Folsom, N. J.	56.3	0
	Delaware River Basin			
84	East Branch of Delaware River	Harvard, N. Y.	443	4.8
85	East Branch of Delaware River	Fishs Eddy, N. Y.	783	4.8
86	Delaware River	Port Jervis, N. Y.	3,076	4.2
87	Delaware River	Belvidere, N. J.	4,542	4.1
88	Delaware River	Riegelsville, N. J.	6,344	3.9
89	Delaware River	Trenton, N. J.	6,796	3.6
90	Beaver Kill	Cooks Falls, N. Y.	241	5.2
91	Little Beaver Kill	Livingston Manor, N. Y.	19.8	5.5
92	West Branch of Delaware River	Hale Eddy, N. Y.	593	3.9
94	Lackawaxen River	West Hawley, Pa.	206	5.1
-	Wallenpaupack Creek	Wilsonville, Pa.	228	5.4
-	Mongaup River	Swinging Bridge Dam, N. Y.	118	4.8
-	Toronto Brook	Toronto Dam, N. Y.	23.2	3.8
96	Neversink River	Oakland Valley, N. Y.	222	4.2
97	Bushkill Creek	Shoemakers, Pa.	117	5.9
98	Flat Brook	Flatbrookville, N. J.	65.1	2.9
99	McMichaels Creek	Stroudsburg, Pa.	64.4	4.8
100	Paulins Kill	Blairstown, N. J.	126	2.9
101	Pequest River	Pequest, N. J.	108	2.5
102	Beaver Brook	Belvidere, N. J.	36.2	2.2
103	Lehigh River	Tannery, Pa.	322	6.6
106	Lehigh River	Bethlehem, Pa.	1,280	4.0
107	Musconetcong River	Lake Hopatcong, N. J.	25.6	3.5
108	Musconetcong River	Bloomsbury, N. J.	143	2.4
110	Assunpink Creek	Trenton, N. J.	89.4	0
114	Schuylkill River	Pottstown, Pa.	1,147	2.7
115	Schuylkill River	Philadelphia, Pa.	1,893	1.6
116	Little Schuylkill River	Tamaqua, Pa.	42.9	5.3

a Not corrected for storage.
u Corrected for storage in Greenwood Lake.
v Corrected for storage and diversions at Wanaque Reservoir only.
w Corrected for storage and diversions at Wanaque Reservoir and for 15,000,000 cubic feet of storage Mar. 9-23 in Greenwood Lake.
x Corrected for diversion at Macopin Intake; not corrected for storage.
y Corrected for diversion at Macopin Intake and for 104,000,000 cubic feet of storage Mar. 9-23 in 4 reservoirs above Macopin Intake; equivalent to 0.70 inch over basin.
z No change in storage Mar. 9-23 in Lake Carnegie.
aa Corrected for 6,656,000,000 cubic feet of storage Mar. 9-22 in Lake Wallenpaupack, Toronto Reservoir, and Swinging Bridge Reservoir; equivalent to 0.93 inch over basin above Port Jervis and to 0.63 inch over basin above Belvidere.

floods of March 1936--Continued
over drainage basins)

Precipitation			Column 4 plus column 7	Direct run-off associated with each storm and total storm period			Column 11 minus column 7	Column 8 minus column 11	No. on fig. 43
First storm	Second storm	Total period Mar. 9-22		First storm	Second storm	Total storm period			
5	6	7	8	9	10	11	12	13	
3.1	2.5	6.25	8.65	6.48	3.12	9.98	3.75	-1.35	58
3.0	2.95	6.85	9.85	u5.29	u3.24	u9.32	2.45	.55	59
3.4	2.9	7.15	10.15	v5.87	v3.27	w9.69	2.55	.45	60
3.3	3.5	7.2	10.7	x5.18	x4.48	y10.36	3.15	.35	61
2.65	2.05	5.5	6.5	3.06	1.76	5.16	-.35	1.35	62
1.5	1.5	4.4	4.4	.93	.53	1.69	-2.7	2.7	64
2.15	1.5	4.8	5.0	1.91	1.03	3.24	-1.55	1.75	65
3.05	2.5	5.9	8.3	4.04	1.69	6.32	.4	2.0	66
2.45	2.45	5.25	7.05	3.72	1.74	5.92	.65	1.15	68
2.35	2.0	4.85	6.45	3.15	1.54	5.09	.25	1.35	70
1.8	1.6	4.3	5.3	3.41	1.56	5.30	1.0	0	71
3.0	1.9	5.35	7.85	3.97	1.72	6.29	.95	1.55	72
3.2	2.5	6.2	8.7	4.14	1.19	6.20	0	2.5	74
1.5	1.2	3.3	3.4	1.81	.80	z2.76	-.55	.65	75
1.5	1.5	3.5	3.8	1.77	.94	z2.92	-.6	.9	76
1.7	1.25	4.2	4.2	1.01	.62	1.63	-2.55	2.55	82
1.85	3.35	5.4	10.2	3.92	5.42	9.83	4.45	.35	84
1.85	3.4	5.5	10.3	4.03	5.56	10.19	4.7	.1	85
1.55	3.75	6.0	10.2	a3.50	a4.96	aa9.91	3.9	.3	86
1.55	3.9	6.2	10.3	a4.06	a4.14	aa9.90	3.7	.4	87
1.7	3.8	6.2	10.1	a4.07	a4.25	bb9.30	3.1	.8	88
1.7	3.7	6.1	9.7	a3.98	a4.40	bb9.20	3.1	.5	89
2.0	3.5	5.7	10.9	3.64	5.73	9.90	4.2	1.0	90
1.95	3.5	6.5	12.0	6.19	6.58	14.38	7.9	-2.4	91
1.15	2.65	4.95	8.85	3.58	5.00	9.20	4.25	-.35	92
1.5	4.8	7.4	12.5	3.96	5.96	10.37	2.95	2.1	94
1.55	5.3	7.6	13.0	cc4.37	cc6.96	cc11.33	3.75	1.7	-
1.75	3.5	6.5	11.3	(dd)	(dd)	(dd)	-	-	-
1.5	3.5	5.95	9.75	(dd)	(dd)	(dd)	-	-	-
2.6	3.5	6.65	10.85	4.48	4.76	9.95	3.3	.9	96
1.2	4.85	7.4	13.3	4.28	4.11	9.08	1.7	4.2	97
1.1	3.45	5.2	8.1	3.61	2.59	6.64	1.45	1.4	98
1.7	5.25	7.55	12.35	6.64	4.87	12.35	4.8	1.0	99
.7	2.95	4.75	7.65	3.80	2.03	6.24	1.5	1.4	100
2.0	2.75	5.4	7.9	4.37	1.80	6.17	.75	1.75	101
2.0	2.95	6.0	8.2	5.02	1.68	7.08	1.1	1.1	102
2.2	4.45	7.1	13.7	5.42	5.10	10.52	3.4	3.2	103
2.15	3.75	6.4	10.4	4.52	4.38	8.90	2.5	1.5	105
3.75	3.1	7.5	11.0	ee5.91	ee4.65	ee10.56	3.05	.45	107
2.7	2.7	5.8	8.2	ff3.90	ff2.39	gg7.92	2.1	.3	108
1.4	1.25	3.0	3.0	1.45	.79	2.43	-.55	.55	110
2.0	2.7	5.1	7.8	3.77	3.12	6.89	1.8	.9	114
1.85	2.5	4.8	6.4	3.29	2.17	5.68	.9	.7	115
2.5	3.5	7.5	12.8	a4.22	a3.58	hh9.57	2.05	3.25	116

bb Corrected for 6,961,000,000 cubic feet of storage Mar. 9-22 in Lake Wallenpaupack, Toronto Reservoir, Swinging Bridge Reservoir, and Lake Hopatcong; equivalent to 0.47 inch over basin above Riegelsville and to 0.44 inch over basin above Trenton.

cc Corrected for storage in Lake Wallenpaupack.

dd No record of run-off.

ee Corrected for storage in Lake Hopatcong.

ff Not corrected for storage in Lake Hopatcong, Lake Musconetcong, Cranberry Lake, and a number of small ponds.

gg Corrected for 305,000,000 cubic feet of storage Mar. 9-22 in Lake Hopatcong; equivalent to 0.91 inch over basin above Bloomsbury.

hh Corrected for 135,000,000 cubic feet of storage Mar. 9-23 in Still Creek Reservoir; equivalent to 1.35 inches over basin above Tamaqua.

Table 9.- Rainfall and run-off of
(Mean depth, in inches,

No. on figs. 44-46	Stream	Point of measurement	Drainage area (square miles)	Water content of snow Mar. 9
	1	2	3	4
	Susquehanna River Basin			
123	Susquehanna River	Colliersville, N. Y.	351	3.5
126	Susquehanna River	Conklin, N. Y.	2,240	3.1
128	Susquehanna River	Towanda, Pa.	7,797	2.4
129	Susquehanna River	Wilkes-Barre, Pa.	9,960	2.6
130	Susquehanna River	Danville, Pa.	11,220	2.6
132	Susquehanna River	Harrisburg, Pa.	24,100	3.0
133	Susquehanna River	Marietta, Pa.	25,990	2.9
134	Unadilla River	New Berlin, N. Y.	196	3.3
135	Sage Brook	South New Berlin, N. Y.	.69	2.5
137	Chenango River	Chenango Forks, N. Y.	1,492	2.6
139	Tioughnioga River	Itaska, N. Y.	735	2.8
140	Shackham Brook	Truxton, N. Y.	3.12	3.3
141	Owego Creek	Owego, N. Y.	186	2.3
142	Tioga River	Lindley, N. Y.	770	3.1
143	Tioga River	Erwins, N. Y.	1,370	2.4
147	Chemung River	Chemung, N. Y.	2,530	2.0
149	Cohocton River	Campbell, N. Y.	472	1.5
150	Towanda Creek	Monroeton, Pa.	214	4.8
151	Tunkhannock Creek	Dixon, Pa.	383	2.9
152	Wapwallopen Creek	Wapwallopen, Pa.	45.8	2.9
154	West Branch of Susquehanna River	Bower, Pa.	315	3.7
157	West Branch of Susquehanna River	Renova, Pa.	2,975	3.9
159	West Branch of Susquehanna River	Williamsport, Pa.	5,682	4.0
161	Clearfield Creek	Dimeling, Pa.	371	3.8
163	Driftwood Branch of Sinnemahoning Creek	Sterling Run, Pa.	281	5.3
164	North Bald Eagle Creek	Beech Creek Station, Pa.	559	3.4
166	Pine Creek	Cedar Run, Pa.	604	4.8
167	Lycoming Creek	Trout Run, Pa.	173	4.6
169	Loyalsock Creek	Loyalsock, Pa.	443	4.4
170	Penn Creek	Penns Creek, Pa.	301	4.5
171	Mahantango Creek East	Dalmatia, Pa.	162	2.5
172	Frankstown Branch of Juniata River	Williamsburg, Pa.	291	5.5
176	Juniata River	Newport, Pa.	3,354	3.4
181	Shaver Creek	Petersburg, Pa.	46.4	3.0
182	Standing Stone Creek	Huntingdon, Pa.	128	2.5
184	Raystown Branch of Juniata River	Saxton, Pa.	756	3.6
186	Dunning Creek	Yount, Pa.	191	3.7
187	Brush Creek	Gapsville, Pa.	36.8	3.5
188	Great Trough Creek	Marklesburg, Pa.	84.6	4.0
189	Aughwick Creek	Orbisonia, Pa.	174	4.5
190	Tuscarora Creek	Port Royal, Pa.	214	4.5
191	Cocolamus Creek	Millerstown, Pa.	57.2	2.6
192	Sherman Creek	Shermandale, Pa.	200	3.0
193	Conodoguinet Creek	Hogestown, Pa.	470	2.5
194	Swatara Creek	Harper Tavern, Pa.	333	3.5
195	West Conewego Creek	Manchester, Pa.	510	1.0
196	Codorus Creek	Spring Grove, Pa.	74.3	.5
197	South Branch of Codorus Creek	York, Pa.	117	0
198	Conestoga Creek	Lancaster, Pa.	322	.6
199	Muddy Creek	Castle Fin, Pa.	133	0
200	Octoraro Creek	Rising Sun, Md.	191	0
201	Deer Creek	Rocks, Md.	94.4	0
	St. Lawrence River Basin			
202	Little Tonawanda Creek	Linden, N. Y.	22	.2
205	Genesee River	Jones Bridge, near Mount Morris, N. Y.	1,419	1.6
209	Oswego River	Oswego, N. Y.	5,121	3.2
212	Fall Creek	Ithaca, N. Y.	124	3.2
213	Owasco Lake outlet	Auburn, N. Y.	208	2.3
214	East Branch of Fish Creek	Taberg, N. Y.	189	6.1
218	Black River	Watertown, N. Y.	1,876	5.0
239	Ausable River	Ausable Forks, N. Y.	448	3.0

a Not corrected for storage.

ii Corrected for 436,000,000 cubic feet of storage Mar. 9-23 in Caneadea Reservoir; equivalent to 0.13 inch over basin above Jones Bridge.

jj Considerable natural and artificial storage, resulting in one peak only. Separate storm run-off not determined.

floods of March 1936--Continued
over drainage basins)

Precipitation			Column 4 plus column 7	Direct run-off associated with each storm and total storm period			Column 11 minus column 7	Column 8 minus column 11	No. on figs. 44-46
First storm	Second storm	Total period Mar. 9-22		First storm	Second storm	Total storm period			
5	6	7	8	9	10	11	12	13	
1.2	2.65	4.5	8.0	2.71	5.26	8.42	3.9	-0.4	123
1.35	3.2	4.95	8.05	3.20	5.10	8.30	3.35	-.25	126
1.6	3.7	5.8	8.2	3.15	4.46	7.61	1.8	.6	128
1.55	3.65	5.7	8.3	3.25	4.78	8.03	2.35	.25	129
1.55	3.6	5.7	8.3	3.41	4.58	7.99	2.3	.3	130
1.75	4.3	6.65	9.65	3.10	4.73	7.83	1.2	1.8	132
1.8	4.15	6.5	9.4	3.27	4.42	7.69	1.2	1.7	133
1.4	2.7	4.35	7.65	3.49	4.45	8.33	4.0	-.7	134
1.6	2.75	4.6	7.1	-	-	-	-	-	135
1.45	3.3	4.75	7.35	3.16	4.43	7.93	3.2	-.6	137
1.4	3.3	5.1	7.9	3.22	4.40	8.25	3.15	-.35	139
1.6	3.35	5.6	8.9	-	-	-	-	-	140
1.35	3.95	6.5	8.8	3.72	4.38	8.82	2.3	0	141
2.05	4.6	7.4	10.5	3.02	5.25	8.37	.95	2.15	142
1.85	4.45	6.75	9.15	2.64	4.50	7.44	.7	1.7	143
1.8	4.1	6.65	8.65	2.97	4.61	7.95	1.3	.7	147
1.75	3.3	5.55	7.05	3.06	3.43	6.49	.95	.55	149
2.2	4.45	7.0	11.8	3.79	5.03	9.21	2.2	2.6	150
1.0	3.6	5.4	8.3	3.33	3.72	7.27	1.85	1.05	151
1.95	3.0	5.5	8.4	3.36	3.26	6.96	1.45	1.45	152
1.35	6.4	8.0	11.7	1.83	6.75	8.76	.75	2.95	154
1.55	6.0	8.25	12.15	2.84	7.15	9.99	1.75	2.15	157
1.85	5.5	8.15	12.15	3.46	6.11	9.57	1.4	2.6	159
1.4	6.7	8.5	12.3	2.49	7.70	10.39	1.9	1.9	161
1.5	5.4	7.9	13.2	3.69	7.46	11.39	3.5	1.8	163
1.55	5.45	7.45	10.85	3.02	4.92	7.94	.5	2.9	164
2.4	5.1	8.55	13.35	3.54	4.83	8.88	.35	4.45	166
2.5	4.5	8.0	12.6	3.86	5.23	9.09	1.1	3.5	167
2.15	3.45	6.3	10.7	3.28	4.53	8.60	2.3	2.1	169
2.6	5.45	8.1	12.6	4.68	5.20	9.88	1.8	2.7	170
2.35	3.35	6.2	8.7	3.43	2.34	6.39	.2	2.3	171
1.3	6.8	8.65	14.15	2.60	8.20	10.85	2.2	3.3	172
1.6	5.55	7.4	10.8	3.30	5.50	9.05	1.65	1.75	176
1.55	6.3	8.0	11.0	3.61	4.86	9.07	1.05	1.95	181
1.6	5.9	7.6	10.1	2.58	4.21	7.16	-.45	2.95	182
1.4	6.5	8.4	12.0	2.68	6.03	8.91	.5	3.1	184
1.35	6.9	8.6	12.3	2.58	5.22	7.80	-.8	4.5	186
1.6	5.5	8.0	11.5	3.21	5.23	8.56	.7	2.95	187
1.4	5.85	7.5	11.5	3.50	6.00	10.01	2.5	1.5	188
1.6	5.35	7.0	11.5	3.07	5.04	8.49	1.5	3.0	189
1.8	4.05	5.9	10.4	4.12	5.42	9.78	3.9	.6	190
1.95	3.0	5.6	8.2	3.65	3.33	7.59	2.0	.6	191
1.95	3.15	5.35	8.35	4.22	3.19	7.94	2.6	.4	192
2.1	3.3	5.45	7.95	2.67	2.32	5.16	-.3	2.8	193
2.4	2.9	5.75	9.25	4.51	2.37	7.53	1.8	1.7	194
1.95	1.35	4.3	5.3	2.40	.94	4.62	.3	.7	195
2.15	1.65	4.85	5.35	1.49	.96	3.24	-1.6	2.1	196
2.15	1.65	4.55	4.55	1.30	.94	2.90	-1.65	1.65	197
2.2	2.2	5.0	5.6	2.03	1.27	3.85	-1.15	1.75	198
2.3	1.6	4.5	4.5	1.29	.73	2.38	-2.1	2.1	199
2.45	1.75	4.8	4.8	1.54	.71	2.58	-2.2	2.2	200
2.5	1.9	4.65	4.65	1.13	.43	1.84	-2.8	2.8	201
1.1	2.5	5.0	5.2	1.76	.65	3.15	-1.85	2.05	202
1.0	3.45	5.1	6.7	a2.30	a1.50	114.70	-.4	2.0	205
1.5	2.6	4.7	7.9	(jj)	(jj)	kk7.10	2.4	.8	209
1.5	3.6	6.15	9.35	2.84	2.68	8.72	2.55	.65	212
1.5	3.1	5.3	7.6	mm2.62	mm3.70	mm6.70	1.4	.9	213
1.8	1.85	4.0	10.1	1.83	4.43	7.09	3.1	3.0	214
1.15	1.45	2.95	7.95	a1.11	a3.97	nn5.41	2.45	2.55	218
1.1	1.7	3.5	6.5	.90	3.03	4.24	.75	2.25	239

kk Corrected for storage in Seneca, Cayuga, Owasco, and Oneida Lakes; equivalent to 2.50 inches over basin above Oswego.

mm Corrected for storage in Owasco Lake.

nn Corrected for 1,460,000,000 cubic feet of storage in Stillwater Reservoir, Old Forge Reservoir, and Sixth Lake of Fulton Chain Lakes; equivalent to 0.33 inch over basin above Watertown.

available as potential run-off. Column 9 gives the run-off, in inches, over the drainage basins, associated with the first storm and first flood.

The direct run-off is derived from rainfall and snow and can never exceed its supply but must be less by reason of loss by evaporation or basin detention in the form of infiltration and surface storage. This principle may be used to test the accuracy of the data, and where it cannot be met, the discrepancy must be explained by inaccuracies in the basic data or inadequacy of the methods of analysis. As the run-off for the flood period as given in column 11 is generally believed to be accurate within about 10 percent, inconsistencies greater than this may be indicative of deficiencies in other basic data or limitations in the analysis of the data.

On the assumption that all the data are accurate, run-off from melting snow is indicated if the run-off shown in column 9 is greater than the storm precipitation shown in column 5. In the upper Hudson River Basin above Mechanicville, N. Y., the precipitation during the first storm and the resultant direct run-off were about equal, indicating that in this area, where the snow cover was relatively deep, there was little change in the water content of the snow during the first storm and flood period. This condition is similar to that observed in some of the basins in northern New England. (See Water-Supply Paper 798.) In the Mohawk, lower Hudson, upper Delaware, and Susquehanna River basins melting snow contributed between 1 and 2 inches to the first flood, with the greatest amounts in the lower basins, where the snow depths were less and where the run-off from melting snow nearly equaled the depth of water in the form of snow.

Column 10 gives the run-off associated with the second storm and second flood. If all the data are correct, run-off from melting snow was evidently present during the second flood at stations where the figures in column 10 exceed the storm precipitation shown in column 6. In the upper basins of the Hudson, Mohawk, and Delaware Rivers melting snow contributed more than 2 inches to the run-off of the second flood. In the upper Susquehanna River Basin, especially in the western portion, temperatures were low, and part of the precipitation was in the form of snow, and as a result the contribution of water from melting snow in the second flood was apparently less than during the first flood. In most of the New Jersey coastal basins and in lower basins elsewhere most of the run-off from melting snow appeared during the first flood.

Column 11 shows the total direct run-off associated with the total storm precipitation and the melting snow. If all the data are correct, a measure of the extent to which melting snow contributed to the direct run-off during the entire flood period is indicated by the excess of the run-off shown in column 11 over the total storm precipitation shown in

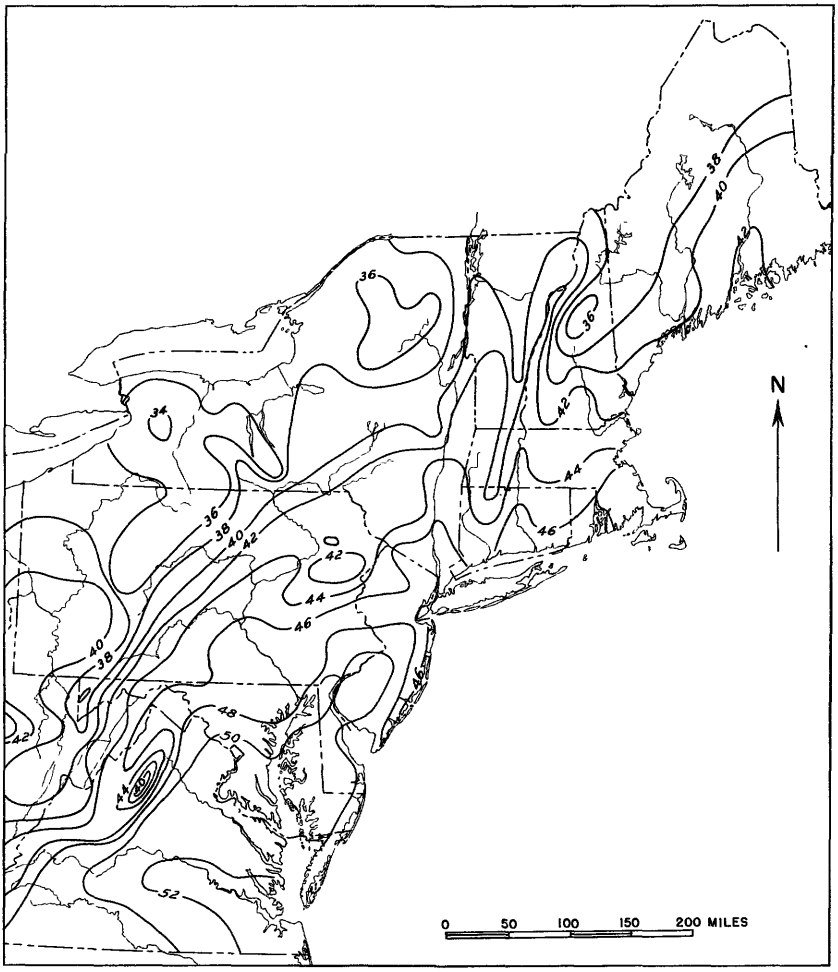

Figure 49.--Map of the northeastern United States, showing isothermal lines of mean temperature, in degrees Fahrenheit, March 9-22, 1936.

column 7. This difference is shown in column 12. In general, a run-off from snow of more than 3 or 4 inches is shown for all headwater areas. The amount tended to increase in a downstream direction, until the snow run-off became equal to the water content available on the ground. From

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this point the direct run-off from the snow decreased in a downstream direction as the amount of snow on the ground became less.

Figure 49 shows isothermal lines for mean temperature for the period March 9-22 over the flooded region and affords an indication of the possible influence of variations in temperature upon the melting of snow. The Committee on Floods of the Boston Society of Civil Engineers, in its report,* discusses run-off from melting snow for relatively short periods and small rains and shows that for each degree-day above about 27.1° F. there is an increase of 0.0126 inch in run-off from snow. A brief study of the relationship between run-off from melting snow and the mean temperature for the 14-day flood period March 9-22, 1936, indicates that run-off from snow at a mean temperature of about 31° F. was negligible and that for each degree-day above this temperature the run-off from melting snow increased between 0.03 and 0.05 inch.

Errors in basic data are indicated where the residual shown in column 12 is more than the estimated water content of the snow shown in column 4. Where such discrepancies are shown, the error is probably predominantly in the snow estimates unless otherwise explained.

Column 13 represents the difference between the direct run-off shown in column 11 and the combined water content of the snow and storm precipitation as shown in column 8. If all the basic data were accurate the figure in this column would represent, in inches over the drainage basin, (a) the total water content of the snow that did not appear as run-off in the period analyzed, (b) the total natural surface storage and in a few places artificial storage where records of such storage were lacking, (c) the total infiltration that did not appear as stream flow in the period analyzed, and (d) evaporation and other losses.

In the Adirondack Mountain region and to some extent in the upper Susquehanna River Basin snow, the water content of which is included in the indicated residual shown in column 13, remained on the ground until March 22. In most of the Delaware River Basin and the lower Hudson and Susquehanna River Basins the snow had disappeared during the flood period, and the residual shown in column 13 is a measure of the accumulated natural storage, infiltration, and evaporation. In some of the areas negative residuals are indicated. As discussed by basins these negative residuals in most places apparently result from an underestimation of the water content of the snow on the ground on March 9 or, in some areas near storm

* Boston Soc. Civil Eng. Jour., vol. 17, no. 7, pp. 354-365, September 1930.

centers, from lack of precipitation records necessary to determine properly the position of the isohyetals. In the lower Hudson River, Delaware River, and New Jersey coastal basins the residuals consistently average about 1 inch. These relatively low residuals are believed to have resulted largely from the presence of frost in the ground. In the higher areas, where there was more snow protection, the residual averages about 2 inches, or about the same as noted in New England (Water-Supply Paper 798). In the lower Susquehanna River Basin and on the eastern slopes of New Jersey, in common with the Potomac and James River Basins (Water-Supply Paper 800), there was a tendency for the residual to increase in the tributary areas in downstream order - a condition that is probably related to temperature and its effect on frost in the ground. Largely on account of deficiencies in data on snow and snow depletion, a rigorous analysis of rainfall and run-off relations by sub-basins was not attempted.

In arriving at the estimates shown in table 9 the records of 380 precipitation stations and about 350 snow surveys and snow observations were compiled and analyzed. Hydrographs of mean daily discharge for the months of February, March, and April were plotted and analyzed for 152 gaging stations. To the extent that the residuals shown in column 13 can be corrected for the amount of water in the form of snow and ice on March 22, the run-off from which is not included in the direct run-off shown in column 11, they may be used with confidence as representative of the amount of surface storage and infiltration which may be expected during comparable flood periods occurring in the early spring.

The general uniformity of the results suggests that over the area covered by this flood report the direct run-off was a function of the total amount of water in the form of rain and melted snow and that differences in the cover, topography, channel conditions, and other features had little influence on the total direct run-off. These factors, however, may have influenced the degree to which the run-off was concentrated with respect to time, as measured by the ratio of the direct run-off during the maximum day of each flood to the total direct run-off during each flood. Brief analyses of the hydrographs for all gaging stations indicate that in the smaller headwater basins with steep slopes and small amounts of channel storage, 30 to 40 percent of the direct run-off occurred during the calendar day of maximum run-off. In the larger basins or in the downstream basins with flatter slopes about 20 percent or less of the total run-off occurred during the day of maximum run-off. These ratios are

believed to be indicative of the effect of basin characteristics, particularly size, slope, shape, and channel storage. The ratios vary directly with slope and inversely with the volume of channel storage.

After brief studies, which are discussed by drainage basins, it appears that the ratios during the flood of March 1936 were lower than were obtained during other floods in which no run-off from snow was present, indicating a greater sustained flood flow as a result of the large contribution from melting snow.

Errors in basic data are indicated wherever minus quantities are shown in column 13, or in other words where the run-off is shown as exceeding the indicated water available for run-off. As discussed by basins, there are deficiencies in snow data in all areas where snow surveys to determine the depth and the water content were not available. In most of the upper Hudson River Basin the results of extensive snow surveys were available. In Pennsylvania snow-depth observations at many Civilian Conservation Corps camps have been translated into water equivalent by using an assumed ratio of 25 to 30 percent. In the lower Hudson River and Delaware River Basins and on the eastern slope of New Jersey there was little or no information available regarding the water equivalent of the snow on the ground on March 9, and only fragmentary observations of the depth of snow were made by the Weather Bureau, mostly in urban areas. So far as the rainfall characteristics of the storm during the period March 9-22 are concerned, the analyses which have been made indicate deficiencies in precipitation records in areas where there were major storm centers. The distribution of precipitation stations was such that isohyetals that appear reasonable could be constructed in most of the area except along the eastern front of the Allegheny Mountains in Pennsylvania, where only a few precipitation records were available. In general there were deficiencies in information in all parts of the area as to actual snow depletion and as to whether the precipitation was in the form of snow or rain. Data with respect to frost in the ground over the area as a whole were also lacking.

As above pointed out, individual items presented in the table summarizing the results of the study of rainfall and run-off data may be subject to error. However, when the mass of data that entered into the compilation of these tables is taken into account, it seems that the composite results shown for major basins or for groups of minor basins may be very significant and close to the truth and as such may be of substantial

value in the study of flood problems and remedial measures, especially those problems relating to headwater areas.

Hudson River Basin

In the Hudson River Basin, as elsewhere in the Northeastern States, December 1935 was unusually cold, with the temperature averaging about 20°, or about 5° below normal. The precipitation during December averaged about 1.7 inches over the upper basin and 1.0 inch over the lower basin, being deficient in relation to normal by about 1.6 inches and 2.0 inches respectively. January and February continued cold, averaging about 4° below normal. Precipitation during January and February was nearly normal. With subfreezing temperature and deficient precipitation during early winter there was opportunity for the deep penetration of frost, particularly in the lower Hudson River Basin.

Higher temperatures prevailed during the period beginning about February 25 and continuing to March 9. The temperature rose above the freezing point on February 25, on March 4, and again on March 9. The effect upon stream flow of the rise in temperature was very moderate, being in general proportional to the extent of the rise above freezing. In the upper basin above Albany there was no appreciable rise in stream flow until March 10, whereas in the lower basin direct run-off during the period February 25 to March 10 increased about 0.3 inch above the normal winter depletion. It appears, then, that any large depletion in snow cover previous to March 10, other than by sublimation, was negligible.

Snow cover on March 9, as shown in figure 29, was generally complete throughout the basin and averaged 3.6 inches of water content over the drainage basin above New York. In the Adirondack Mountain region the snow expressed as water content reached a maximum of over 11 inches and ranged from an average of 7.5 inches in the upper basin to an average of 2.5 inches in the lower subareas.

The storm period was characterized by two major storms, the first on March 11 and 12 and the second on March 17 and 18, each of which resulted in a decided flood rise. The second storm was followed by a minor storm on March 20 to 21, which did not produce any marked rise in the streams.

During the first storm precipitation, as shown on figure 13, averaged 1.7 inches over the basin, with a maximum of about 5 inches recorded at a center in the Catskill Mountain region. Otherwise precipitation over the basin was fairly uniform.

Precipitation during the second storm period (fig. 18) averaged 2.55 inches over the basin above New York and exceeded that of the first storm throughout the basin. The precipitation was generally uniform, with greater than average amounts over the Catskill region and in the vicinity of the Sacandaga Reservoir.

The total precipitation during the storm period averaged 5.05 inches over the basin. Figure 23 shows two regions of relatively high precipitation, one over the Catskill region, where a maximum of about 11 inches was recorded, and another near the Sacandaga Reservoir, where a maximum of over 6 inches was recorded.

The storm precipitation generally fell as rain. Some snowfall during the second storm period was recorded at Indian Lake, N. Y. The snowfall during the storm, however, was of moderate areal extent, in marked contrast to conditions in western New York. During the flood period mean temperatures remained above freezing, as shown in figure 49.

The snow cover on March 9 was an important factor in the flood run-off. In the upper Hudson Basin above Mechanicville, N. Y., the total snow cover, expressed as water content in inches, was greater than the total storm precipitation. In other regions the total precipitation was not greatly in excess of the water in the antecedent snow. The manner in which the antecedent snow contributed to run-off may be studied by an analysis of the precipitation and corresponding direct run-off in the separate storms.

For the basin above Mechanicville the precipitation during the first storm was about equal to the resulting direct run-off, thus indicating that in this area, where the snow cover was relatively great, there was, as a result of this storm, little if any change in the water content of the snow, a condition similar to that observed in northern New England. (See Water-Supply Paper 798.) For the Mohawk River Basin above Cohoes, N. Y., the direct run-off exceeded the precipitation during the first storm by about 1.3 inches, indicating the minimum contribution to run-off from snow in this sub-basin. In the remainder of the basin below Albany the minimum contribution from snow averaged 2.2 inches. There was apparently a definite downstream increase in run-off from snow, which varied inversely to the downstream decrease in snow cover. Inasmuch as the rainfall was fairly uniform, there was no apparent relation between rainfall and the associated run-off from snow. It appears, therefore, that the run-off from snow during the first storm was everywhere less than the

snow on the ground and was quantitatively related to temperature, which showed a definite increase in a downstream direction in the basin. (See fig. 49.)

However, during the second storm period run-off from the basin of the Hudson River above Mechanicville exceeded precipitation by an average of about 2.2 inches, and from the Mohawk River above Cohoes by an average of about 2.6 inches. In the sub-basins below Albany the excess of direct run-off over precipitation averaged about 1 inch. In the sub-basins of the Adirondack Mountain region, where snow cover remained throughout the storm period, the contribution to run-off during the second storm period varied between about 2 and 4 inches, averaging about 3 and 4 inches above Hadley and above Conklingville, N. Y., respectively. In these areas the run-off from snow was apparently related to the temperature, as during the first storm. In the lower basin, however, snow run-off was directly limited by the depth on the ground, as a study of the snow depletion during the first and second storms indicates that no snow remained in the lower basin after the second storm, with the exception of that held in the mountainous areas in drifts and depressions.

The excess of total direct run-off over total storm precipitation is tabulated in column 12, table 9. This excess represents the minimum contribution to the direct run-off from melting snow. In the basin of the Hudson River above Mechanicville, N. Y., the excess averaged about 2 inches, varying between average limits of 1.5 and 4 inches, with a tendency toward the lower limit in the upper sub-basins. In the basin of the Mohawk River the excess averaged 3.75 inches above Cohoes and 2.8 inches above Little Falls, N. Y., and in the basins of the Batten Kill and Hoosic River it averaged about 4 inches. For the sub-basins below Albany the excess averaged about 3.5 inches. It appears, therefore, that the contribution to run-off from melting snow tended to increase in a downstream direction, until the snow run-off became equal to the depth, in water content, available on the ground. From this point, direct run-off from snow decreased in a downstream direction as the snow on the ground became less.

The difference between the total storm precipitation plus the water content of the antecedent snow and the total direct run-off is tabulated in column 13, table 9. This residual was composed principally of infiltration, evaporation, and surface storage, and in the Adirondack Mountain region may have included water remaining on the basin in the form of snow.

Data collected in snow surveys in the Adirondack Mountains are published in the section "Meteorologic and hydrologic conditions." So far as observations were made, these data show snow remaining on the ground on March 23 in those basins where its presence is indicated by a large residual in column 13, thus confirming the results of this study. They are further confirmed by a study of the direct run-off for the period between March 22 and April 7. The average precipitation over the basin of the Hudson River above Hadley, N. Y., during this period was about 3 inches, whereas the direct run-off was 4.2 inches, which indicates a minimum contribution of over 1 inch from snow on the ground after March 22.

The residuals in column 13 also indicate the possibility of snow remaining in the upper Hoosic River Basin. A residual of over 3 inches is shown for the Walloomsac River Basin above North Bennington, Vt., which partly confirms the residual obtained in studies of the adjoining basin of the Deerfield River above Davis Bridge, Vt., in the Connecticut River Basin. (See Water-Supply Paper 798.) Observations of snow immediately following the storm on March 22 are inadequate to compute the water content of the remaining snow and thus to determine, by subtraction from the total residual, the infiltration in these areas.

The residuals of the basins draining the Catskill Mountain region are very low, averaging nearly zero. Although there are material deficiencies in base data, it appears reasonable that the inaccuracies from this source may compensate, so that the general indication of a low infiltration in this region may be correct. This deduction confirms the result obtained in the study of the Delaware River Basin, where the net residual of the basin above Port Jervis, N. Y., was 0.3 inch.

The sub-basins on the east side of the lower Hudson River - namely, the Poesten Kill, Kinderhook Creek, and Wappinger Creek - likewise show a low residual, averaging about zero, which may indicate deficient data, particularly in relation to snow, but it is also believed to indicate low infiltration in these areas.

The ratio of the maximum run-off in a calendar day to the run-off during the flood rise is a measure of the degree to which run-off was concentrated with respect to time. This ratio varied between limits of about 40 percent and 18 percent. Ratios greater than 30 percent applied in general to basins of less than 150 square miles, and the smaller ratios applied to the larger basins, such as those of the Hudson River at Hadley and Mechanicville, where the ratios were 15 and 18 percent respectively.

The ratio is indicative of basin characteristics, particularly of size, slope, and channel storage, and in general is greater for the smaller upstream areas having greater slopes and relatively less channel storage than for areas downstream.

A brief study of the run-off of previous floods in the basin of the Mohawk River above Cohoes and the Hudson River Basin above Mechanicville showed that the ratio of the maximum run-off in a calendar day to the total run-off of the flood rise averaged about 30 percent for each basin. All the flood rises that were considered in this study occurred during periods in which the ground was free of snow. The ratios computed for these same basins during the flood of March 1936 were 24 and 18 percent respectively. These ratios, being lower than those determined for previous floods, probably indicate a greater sustained flood flow, resulting from the large amount of water derived from melting snow.

In the Adirondack Mountain region snow depths, expressed as water content in inches, have been systematically collected for many years by several organizations interested in evaluating the possible water yield of the snow cover. These data should have a high degree of reliability. In other areas, principally in the Catskill Mountain region, snow information was deficient. The depths of snow on the ground in the vicinity of the homes of resident observers of the Weather Bureau may not have been representative of conditions in the adjoining mountainous areas.

The areal precipitation in the sub-basins was computed from isohyetal lines based upon data supplied by the Weather Bureau, the Board of Water Supply of the City of New York, and others. The Hudson River Basin is reasonably well covered with rain gages and observation stations; therefore, the computed areal precipitation should be reliable. In general the computed figures for precipitation become less reliable near the storm centers, owing to the high precipitation gradient. The observations of the Board of Water Supply have been particularly useful in defining the storm center over the eastern Catskill Mountain region.

Data relative to frost conditions in the basin are presented in the section "Meteorologic and hydrologic conditions."

Artificial storage in the basin has been developed in Indian Lake Reservoir, Sacandaga Reservoir, Delta Reservoir, Hinckley Reservoir, and Gilboa Reservoir. Detailed data on storage in these reservoirs during the storm period is given in the section "Stages and discharges at river-measurement stations during the flood period." It was not considered

practicable to adjust the stream flow from each storm separately for storage except where the point of measurement was located at the place of storage. At all other points the stream flow for the entire period was corrected for upstream storage.

Eastern New Jersey basins

In eastern New Jersey a slow thaw with very little precipitation began about February 25 and continued to March 10. During this period snow and ice were greatly depleted and in the southern interior of New Jersey were completely removed. On March 9 snow cover over the Passaic River Basin, expressed as water content, ranged from 3½ inches over the upland area in Sussex and Passaic Counties to 2 inches over the lower basin in Morris County. Over the Raritan River Basin above Manville the water content on March 9 ranged from 2½ inches over the upper basin to 1 inch over the lower basin, and in the Millstone River Basin from 1 inch at the mouth to zero in the upper basin. There was no snow or ice in the basins south of that of the Millstone River.

There were two major storms. The first occurred on March 11 and 12, and the second on March 17-18, followed by a minor storm on March 20-21. The first storm and the run-off from that storm were at nearly every point greater than the rainfall and run-off of the second storm.

Water in the form of snow on March 9 plus the rainfall of the first storm exceeded run-off from the first storm (column 4 plus column 5 minus column 9, table 9) by an average of 0.7 inch for the entire area, ranging from 1.25 inches in the upper Passaic and Raritan River Basins to an average of 0.5 inch for these basins above Paterson and Manville, respectively, and 0.6 inch for areas south of the Raritan River.

The greater part of the snow and ice on the ground on March 9 ran off during the first storm period, with the exception of a very small amount in the higher areas in the upper Passaic and Raritan River Basins. The snow run-off, therefore, from the greater part of this area was directly limited by the depth available. Some snow remained on the ground in the higher areas after the first storm, as indicated by a study of the run-off from the second storm.

The run-off from the second storm in the higher areas tributary to the Passaic River apparently exceeded the rainfall (column 10 minus column 6, table 9) by an amount averaging half an inch. This quantity represented the minimum contribution to run-off during the second storm from snow

in these areas. In the lower areas the run-off was nearly equal to the rainfall. The run-off from the Raritan River Basin from the second storm was generally less than the rainfall, the difference averaging half an inch. In the Hackensack, Millstone, Rahway, and Great Egg River Basins rainfall during the second storm exceeded run-off by half an inch to 1 inch.

The run-off of the Passaic River from the total storm as tabulated in column 11, table 9, exceeded the total rainfall (column 7) by an average of 2 inches, and the excess ranged from 3 inches in the higher tributary areas to 1 inch in the lower areas. The run-off excess of the Raritan River Basin for the storm period ranged from 1 inch in the higher tributary areas to zero in the lower basin and averaged about half an inch above Manville. In the other basins the rainfall was in excess of the run-off by amounts varying from zero in the Hackensack River Basin to 2½ inches in the basin of the Great Egg River above Folsom. These figures as tabulated in column 12, table 9, are of interest only so far as they quantitatively indicate the presence of snow cover at the beginning of the storm period. Wherever the total storm run-off equals or exceeds the storm rainfall the presence of water in the form of snow or ice on March 9 is definitely indicated.

Column 13, table 9, gives the net amount by which water contained in snow on March 9 plus the total storm rainfall exceeded the direct run-off resulting from the storm. Over the Passaic River Basin this quantity averaged half an inch, and over the Raritan River Basin above Manville somewhat more than 1 inch. After a consideration of the topography of these two basins it might be expected that this residual, which principally represents infiltration and surface detention, would be greater in the Passaic River Basin than in the Raritan River Basin, as the former basin contains a larger proportion of lakes, swamps, and flat land than the latter. It appears probable, however, the the residual is more directly related to the condition of the ground, both surface and subsurface, during the flood, particularly in regard to its infiltration capacity, which would be very greatly diminished by frost. Frost was generally present throughout northern New Jersey, but in the southern interior of New Jersey, below Trenton, ground frost was entirely removed by the thaw that preceded the flood period. Infiltration and surface detention in the basin of the Great Egg River above Folsom amounted to 2.57 inches out of a storm rainfall of 4.20 inches.

The following are some generalized conclusions concerning the residuals which represent infiltration, surface storage, and evaporation losses:

1. The relatively small residuals shown for all the coastal areas in New England and New Jersey, including the lower Delaware River Basin, may disclose a relation between altitude, latitude, and temperature as they affect frost condition.

2. The residuals have no proportional relation to either the depth of snow on the ground on March 9 or the total water involved in the storm as tabulated in column 8, table 9.

An examination of table 9 discloses that the results are not everywhere consistent. The inconsistencies are necessarily explained by deficiencies in base data or by the inadequacy of the methods of analysis. In discussing the rainfall and run-off relations, an attempt has been made to compensate for such inconsistencies by obtaining averages or trends by graphic methods. In this way wide variations from the local averages and trends may be discovered and subjected to further analysis.

Three basic factors are involved in the study - namely, run-off, storm rainfall, and the antecedent snow and ice cover. The rainfall over the plains of the central and southern sections of New Jersey was fairly uniform, and computed precipitation for this region should be reliable. However, each storm had a secondary center over the highlands of the northern section, and owing to the high precipitation gradient, it appears that computed rainfall on an areal basis becomes subject to considerable error in the vicinity of storm centers. This condition was also observed in the study of rainfall and run-off relations in New England, where deficiencies in rainfall records were particularly evident in the vicinity of storm centers.

Very little information is available as to snow and ice cover over the area on March 9. Data reported by the Weather Bureau observers were of little value, because the places of observation were generally in urban localities, where the snow cover bears little or no relation to snow cover in rural and mountainous areas. Some qualitative information has been obtained from engineers concerned with operations of reservoirs for municipal water supply and from others. These data have been supplemented by estimates based upon data obtained in adjoining areas situated similarly with respect to altitude and latitude.

The ratio of the run-off during the calendar day of maximum discharge to the total direct run-off, which is a measure of the concentration of the direct run-off with respect to time, varied in the Passaic River Basin from 34 percent for the Ramapo River at Mahwah to 13 percent for the Passaic River at Paterson. In the Raritan River Basin this ratio varied between 48 percent for the Neshanic River at Reaville to 19 percent for the Black River at Pottersville, with 29 percent as the average for the basin above Manville. The greatest ratio in the eastern New Jersey area was that for the Neshanic River above Reaville, 48 percent, and the lowest was for the Great Egg River at Folsom, 10.5 percent. These ratios are believed to be indicative of basin characteristics, particularly those relating to size, slope, basin shape, and channel storage, and they vary directly with slope and inversely with the volume of channel storage.

These studies indicate that the upstream tributary areas have larger peak ratios than the lower downstream areas. For example, the Neshanic River above Reaville (48 percent) has a slope of 400 feet in a distance of 6 miles and has a fan-shaped basin, with three tributaries converging a short distance above the point of measurement. The average width of this basin is very nearly equal to its length. On the other hand, the Great Egg River above Folsom (10.5 percent) has a fall of only 100 feet in a distance of 17 miles and flows through swamp land. The average width of the Great Egg River Basin is but one-fifth of its length.

Storage has been developed on the Passaic and Hackensack Rivers for municipal water supply, but the net storage during the flood period was insufficient to have any appreciable effect on either the rate or the volume of run-off of the basin as a whole. The total flood water stored on the Passaic River above Paterson was equal to 0.40 inch over the basin. On the Hackensack River above New Milford the flood water stored was equal to less than 0.10 inch over the basin.

Delaware River Basin

The results of the studies of rainfall and run-off in the Delaware River Basin (table 9), though not consistent in every respect, in general give a reasonably definite perception of the rainfall and run-off relations during the floods.

Until February 25 the season was typical of winter, the temperatures being low and stream flow at the minimum for the season. On February 25

there was a definite rise in temperature, with but little precipitation throughout the basin. The thaw extending from February 25 to March 10 was moderate and discontinuous in upstream areas in New York and Pennsylvania, but somewhat more intense and unbroken in New Jersey in the basin below Riegelsville, N. J. It was not sufficient in intensity to remove entirely the snow cover or frost from the ground.

Snow cover on March 10, expressed as water content in inches (column 4, table 9), ranged over the basin from 5 to 8 inches in the headwaters in New York and Pennsylvania to zero below Trenton, N. J.

There were two major storms, the first occurring on March 11-12 and the second on March 17-18, followed by a minor storm at the end of the storm period on March 21. Run-off from the second storm was greater than that from the first storm on the main stream and on the tributaries in the upper basin in New York, whereas on the tributaries in the southern part of the basin in Pennsylvania and New Jersey the run-off from the first storm was the greater. At a few places in the central part of the basin there was approximately the same run-off from each major storm.

An analysis of the difference between precipitation of the first storm and the associated direct run-off (columns 5 and 9, table 9) indicates that there was, in general, a minimum contribution to the run-off over the basin above Trenton of about 2.4 inches from melting snow. This snow run-off increased from about 2 inches in the upstream areas to an average of 2.75 inches in the central part of the basin and then decreased to an average of 1.5 inches farther downstream.

The run-off from snow during the first flood apparently increased in a downstream direction until in the lower drainage areas, where the snow depths were less, the snow run-off nearly equaled the depth of water available in the form of snow. Inasmuch as the average temperatures increased with a decrease in altitude and latitude (see fig. 49), run-off from snow following the first storm appears to have been related largely to temperature.

A study of the difference between the run-off and the rainfall during the second storm, as tabulated in columns 10 and 6, table 9, indicates that water in the form of snow which remained on the ground after the first storm and which contributed to the run-off of the second storm ranged in general from 3 inches in the headwater areas down to nothing in the central and downstream areas, where the snow cover had largely disappeared before the second storm. After the second storm no snow

remained on the ground except perhaps in the mountainous areas, where it was confined in drifts and depressions.

The figures in column 12, table 9, indicate the depth in inches by which the storm run-off exceeded the recorded rainfall during the total storm period. This excess was supplied by run-off from the antecedent snow and ice, as discussed above. The net amount (column 13, table 9) by which the total rainfall and water content of the antecedent snow and ice exceeded the measured run-off is made up of (1) water lost by evaporation and (2) water added to ground storage or detained as natural surface storage.

The topography of the Delaware River Basin is such that little natural surface storage is available, and as the relative humidity was undoubtedly high and the temperature comparatively low during the storm period, there was little opportunity for evaporation. The greater portion of the residual shown in column 13 therefore represents infiltration, except, of course, for such errors as may exist in the basic data. The average of this quantity for the several major basins is about 1 inch and bears no proportional relation to the total depth of water potentially available for run-off as tabulated in column 8. Nor is there any correlation with the water content of the antecedent snow as recorded in column 4.

Although the relatively low residuals shown for the upper Delaware River Basin could result from an underestimation of snow in the Catskill Mountain region, where there was an almost complete absence of snow data, the analysis also discloses low residuals for the contributing area between Port Jervis, N. Y., and Trenton, N. J., and for the sub-basins where there was known to be little, if any, snow. The surface storage and infiltration would appear to be more nearly related to the ground and subsurface conditions during the flood period, particularly to any factor, such as the presence of frost, that would affect the infiltration capacity.

Very little information is available as to the extent of frost in the ground. In New Jersey definite information shows that frost was present between Riegelsville and Trenton. In general, frost was present wherever the first snow of the winter season was light and fell after a period of freezing temperatures. In the Catskill region the temperatures during the later part of November 1935 and in December 1935 were below normal, averaging about 23° F. During this period the snow cover averaged 5 to 7 inches and was probably insufficient to protect the ground from freezing.

In the Pocono Mountains of Pennsylvania, however, the snow cover averaged 10 inches during the early winter and was sufficient to afford some insulation, although information given elsewhere in this report indicates that the ground was frozen to a depth of 12 inches at Phillipsburg.

As explained under "Meteorologic and hydrologic conditions", the rainfall depths have been computed from ischyetals drawn to conform to data collected at Weather Bureau and other rainfall stations, with which the Delaware River Basin is comparatively well supplied. Admittedly these data are collected primarily to serve climatologic purposes, rather than for use in the fundamental hydrologic equation expressing distribution of water in the hydrologic cycle. For practical rather than technical reasons, these stations are situated almost exclusively at the homes of resident observers and so are usually located in valleys. The effect of this location of the stations upon the record of rainfall catch is illustrated by the following example.

In the upper Catskill Mountain region there is an apparent inconsistency between the measured storm run-off of the Little Beaver Kill above Livingston Manor, N. Y., and the total water available as indicated by the water equivalent of snow and the total precipitation. As shown in column 13, table 9, the run-off was 2.4 inches more than the total indicated amount of water available for run-off. The Weather Bureau station at Jeffersonville, N. Y., lying outside the basin but the nearest station to it, is at an altitude of 1,200 feet; the basin of the Little Beaver Kill lies between altitudes of 1,500 and 2,200 feet and drains to the northwest. On the eastern slope of the Catskill Mountains in the Hudson River Basin there are several rain gages maintained by the City of New York. These gages are situated in places selected with a view to their use in hydrologic studies, and the records taken at them indicate a relative lack of uniformity in the rainfall, particularly with respect to altitude. At these stations a greater depth of precipitation was recorded than at Jeffersonville, on the western slope, yet in view of the fact that the path of the storm was in general from the southwest to the northeast, it might be expected that a greater depth would be recorded on the western slope. The village of Jeffersonville stands in a narrow valley having sides 300 to 400 feet high. It therefore appears reasonable to assume that the recorded rainfall catch at that location would be lower than the actual average rainfall over the basin of the Little Beaver Kill. In

drawing the isohyetals some allowance was made for this characteristic in the records of the Weather Bureau by taking into consideration the relative altitudes of the rainfall stations and of the basins as a whole.

The information relating to water in the form of snow on the ground on March 9 was also deficient. For that part of the basin lying in New York and in New Jersey there was no information regarding the water content of the snow on the ground on March 9. Data recorded at Weather Bureau stations do not indicate the water available in the form of snow on the ground at the station. It has been necessary in this area, therefore, to base estimates of water in the form of snow upon such data as are available in adjoining areas in Pennsylvania that are similarly situated with respect to latitude and altitude.

Drainage-basin exposure was not given direct consideration in drawing the isopleths of water content of the antecedent snow cover, mainly because little information was available upon which to base such consideration. The effect of exposure may, however, have had considerable influence upon snow depths and run-off characteristics. For example, consider the drainage basins of Bushkill Creek above Shoemakers, Pa., and McMichaels Creek above Stroudsburg, Pa. These basins are of nearly equal area and are similarly located with respect to altitude and are on the west side of the Delaware River within 15 miles of one another. The Bushkill Creek Basin has a southern exposure, and the McMichaels Creek Basin a northern exposure. Antecedent snow would be expected to be greater on the latter than on the former basin. This is contrary to the estimates for these basins shown in column 4, table 9. The run-off for these basins shown in column 11, however, indicates the proper relationship. It is in this manner that the inconsistencies shown in column 13 for these two basins are explained.

The ratio of the direct run-off during the calendar day of maximum discharge to the total run-off of the flood rise ranged from 38 percent in the higher headwater areas to an average of about 25 percent for the lower Delaware River stations. These ratios appear to be indicative of the basin characteristics, particularly those relating to slope and channel storage and appear to vary directly with the slope and inversely with channel storage. From a brief study of the run-off of other floods on the Delaware River at Port Jervis, and also a study* of the run-off from

* Hoyt, W. G., and others, Studies of relations of rainfall and run-off in the United States: U. S. Geol. Survey Water-Supply Paper 772, pp. 176-186, 1936.

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isolated rainstorms, it appears that the ratios were lower than have prevailed during other floods, indicating a sustained high rate of run-off during the flood of March 1936, probably resulting from the large amount of run-off from melting snow.

In comparison with the upper Hudson River Basin and most of the basins of New England rivers there is little artificial storage in the Delaware River Basin. However, storage in Swinging Bridge and Toronto Reservoirs on the Mongaup River, in Lake Wallenpaupack on Wallenpaupack Creek, and in Lake Hopatcong at the head of the Musconetcong River was enough to affect the stream flow. The amount of water stored during the storm period amounted to 0.44 inch over the Delaware River Basin above Trenton. It has not been considered practicable to correct the stream flow from each storm separately for storage except where the point of measurement is located at the place of storage. At all other points the stream flow for the entire period has been corrected for the increment in upstream storage between March 9 and March 22.

Susquehanna River Basin

The winter of 1935-36 in the Susquehanna River Basin was characterized by unusually heavy snowfall and long periods of cold weather. About February 25 there was a marked rise in temperature, occasioning a thaw, which continued to March 9, the beginning of the flood period. This thaw broke and moved the ice, which had attained great thickness on many of the streams. However, there was not sufficient flow to float and carry it away, and there was alternate breaking and lodging of ice and the formation of ice jams. This condition prevailed during the later part of February and early in March. The backwater from many of the ice jams reached exceptionally high stages. The continued melting of the snow, augmented by small amounts of rain, furnished sufficient run-off, with the assistance of water impounded by ice jams, to float most of the ice out of the streams before the heavy rain of March 11-12. To what extent the frost disappeared from the ground during this thaw is not definitely known. The snow depletion, however, was not large and probably averaged less than the equivalent of 1 inch of water, as indicated by the fact that during the period February 25 to March 8 the precipitation averaged about 0.35 inch and the direct run-off about 0.60 inch.

The subsequent extreme flood conditions were ameliorated to the extent that some snow cover was removed, channel ice was broken up, and

some frost disappeared during the preceding thaw. Conditions were ripe for a flood, however, and were so reported by T. E. Reed, meteorologist, United States Weather Bureau office, Binghamton, N. Y., in a snowfall bulletin dated March 10.

The water content of the snow cover on March 9 (fig. 31) averaged 2.9 inches over the basin. In the Allegheny Mountains the water content ranged from 2 to 9 inches. Apparently the snow cover was very deep at high altitudes, particularly on the northern slopes and over the ridges that characterize the region south of the Allegheny Mountains.

Precipitation during the first storm, as shown in figure 15, was fairly light, averaging 1.8 inches over the basin. There was a minor center in the vicinity of Williamsport, Pa., where over 3 inches of precipitation was recorded.

During the second storm period precipitation (fig. 20) averaged 4.15 inches over the basin and generally increased from east to west. Precipitation was greatest on the West Branch of the Susquehanna River above Renova, Pa., where it averaged 6.0 inches, and on the Frankstown Branch of the Juniata River above Williamsburg, Pa., where it averaged 6.8 inches.

Precipitation for the total storm period averaged 6.5 inches over the basin above Marietta, Pa., and was likewise greater over the western part of the basin. The average total precipitation over the basin of the West Branch of the Susquehanna River above Williamsport was 8.15 inches (column 7, table 9), with the maximum of over 10 inches in two minor centers, one just south of Williamsport and the other near the western divide northwest of Williamsport.

In most of the drainage basins studied it did not appear that the rainfall rates were of high intensity. However, reports from some of the Allegheny Mountain areas indicate that the rainfall approached cloudburst intensities, and this condition may have been an influential factor in producing the high rates of run-off from some of these areas. On the other hand, these areas had a snow cover, the effect of which may have been to reduce the run-off rates somewhat. In the northwestern part of the basin, particularly in the basins of the West Branch of the Susquehanna River and the Tioga River, some of the precipitation during the second storm fell as snow. A study of the precipitation and temperature records of a few Weather Bureau stations in this area indicates that the final direct surface run-off from this snowfall was probably delayed

until a period of high temperatures which began March 23, and it was then associated with the run-off from additional rainfall. It is reasonably certain that all snow had disappeared from the basin by March 31. Data are inadequate in regard to the accumulation or depletion of snow on the ground during the storm period. For this reason a rigorous analysis of the rainfall and run-off relation in this area appears impossible.

Studies of the rainfall and run-off of the separate storms indicate the general magnitude of the contribution to run-off from the antecedent snow cover. During the first storm run-off exceeded precipitation by an average of 1.5 inches over the basin above Harrisburg, Pa. This excess of run-off over rainfall during the first flood period was fairly uniform, varying between average limits of 1 and 2 inches, with a slight tendency toward the higher limit in the sub-basins above Towanda, Pa., and in the sub-basins just above Harrisburg. No contribution from the few drainage basins where there was no known snow cover was indicated by this study. In these basins precipitation exceeded run-off by an average of 1 inch, as indicated by the net residual (columns 5 minus 9, table 9). Run-off and precipitation during the first storm were nearly equal over those sub-basins below Harrisburg, where snow cover was scant or incomplete. From these basins snow cover was removed during the first storm.

The analysis of the second storm was more complex. While the antecedent snow cover had in general been depleted in water content by an average of at least 1.5 inches, there still remained an appreciable snow cover. In the northwestern part of the basin, where part of the precipitation fell as snow upon snow-covered ground, it is impossible to distinguish between the snow and rainfall sources of water involved in the stream flow.

Run-off during the second storm averaged 0.25 inch in excess of the precipitation over the basin of the Susquehanna River above Marietta. From this excess it would appear that the average contribution to run-off from snow during this storm was less than during the first storm. Above Towanda the run-off exceeded the precipitation by an average of 0.75 inch, the excess being but little above zero in the basin of the Tioga River above Erwins, N. Y. In the intervening area on the Susquehanna River between Danville and Harrisburg, run-off very nearly equaled precipitation, while in the basin below Harrisburg, where snow was not involved during the second storm, precipitation was in excess of run-off by

an average of about 0.75 inch, and in these areas this figure indicates the net residual.

The difference between total direct run-off and total storm precipitation is tabulated in column 12, table 9. These differences are of interest in that they indicate the minimum contribution to run-off derived from antecedent snow. In several basins a contribution of more than 3 inches is indicated, and in only a few of the basins is no contribution indicated. In column 13 the difference between total storm precipitation plus the water equivalent of antecedent snow cover and the total direct storm run-off is tabulated. This quantity represents the total water remaining on a basin as a residual at the end of the storm period and is composed principally of infiltration and surface storage. It also includes evaporation. In the basins of the West Branch of the Susquehanna and Tioga Rivers, where some snow fell during the period, the residuals include in addition such snow as remained on the ground on March 23, of which there is no record available.

On the assumption that the errors in basic data tend to compensate, the net indicated infiltration, evaporation, and surface storage over the basin above Marietta was 1.7 inches. In common with the results of studies in the Potomac and James River Basins (see Water-Supply Paper 800) there was a tendency for the residuals to increase in the tributary areas in downstream order. Largely on account of inadequacy in data with respect to snow and snow depletion, close analysis of the rainfall and run-off relations by sub-basins is not attempted.

The ratio of the run-off during the calendar day of maximum discharge to the total run-off during the flood rise is a measure of the degree to which stream flow was concentrated with respect to time. This ratio ranged from an average of 32 percent in the small headwater areas to an average of 18 percent for the Susquehanna River at Marietta. This ratio is indicative of basin characteristics, particularly those of size, slope, and channel storage, and in general is greater for the smaller upstream areas having greater slopes and relatively less channel storage than for downstream areas.

From a study of the run-off of other floods on the Susquehanna River at Towanda, and also a study* of the run-off from isolated rainstorms, the average ratio for several previous flood rises was found to have been

* Hoyt, W. G., and others, Studies of relations of rainfall and run-off in the United States: U. S. Geol. Survey Water-Supply Paper 772, pp. 163-177, 1936.

32 percent. The flood rises considered in this average all occurred in periods in which the ground was free from snow. The ratio observed during the flood of March 1936 at Towanda was 17 percent. This low percentage indicates a sustained high rate of run-off, probably resulting from the large contribution from melting snow.

The areal rainfall was computed from isohyetal lines (see figs. 15, 20, and 25) drawn to conform to observations made by the United States Weather Bureau. These observations were made at the homes of resident observers, generally located in valleys, and the catch at these places is not necessarily representative of the rainfall at higher altitudes. This characteristic of the observations is particularly conducive to error in the Allegheny Mountain region. There are further inaccuracies in the determinations of areal rainfall introduced in the vicinity of storm centers, where precipitation gradients are relatively great.

The average of the precipitation recorded for the entire storm period at all meteorologic stations within the basin was 5.8 inches; the average over the basin determined by the isohyetal method for the same period was 6.5 inches.

Snow on the ground on March 9 (fig. 31) was determined principally from data obtained by the Geological Survey from camps of the Civilian Conservation Corps, operators of water-supply and power companies, and the Department of Forests and Waters, Commonwealth of Pennsylvania. Information relating to the depletion of snow on the ground during the storm period or its accumulation from snowfalls during the storm period was lacking.

The indicated excess of run-off over water available for run-off shown for the upper Susquehanna River Basin in New York probably resulted from an underestimation of the water content of the snow on March 9. In the Chemung River Basin, where some observations of the water content of the snow were available, the relations seem more consistent.

Frost information as presented in the section "Meteorologic and hydrologic conditions" was collected by the Geological Survey through questionnaires addressed to superintendents of cemeteries and others. These data, for places of varying soil composition, exposure, or snow cover, show that in general frost was present throughout the basin during the storm period. Data are inadequate to correlate infiltration and frost in this basin.

St. Lawrence River Basin in New York

The St. Lawrence River Basin in New York lies outside of the area more seriously affected by the floods of March 1936. Hydrographs of stream flow during March are all very significant in that their varying characteristics were to a great extent determined by temperature, through its effects upon the nature of the storm precipitation and upon the manner and degree to which the precipitation and the antecedent snow cover entered the stream flow.

Over the western part of this region antecedent snow cover was comparatively light, but much of the precipitation in the storm period fell as snow and at a temperature not far removed from the freezing point, whereas in the eastern part of the region temperatures during the storm period were higher (see fig. 49) and the part played by snow in the stream flow was limited to that of the comparatively heavier antecedent snow cover.

Until February 25 the winter was characteristic of the season - cold, complete snow cover, and continuous decrease of stream flow, reaching the minimum for the season about February 24. The period February 25 to March 10 was marked by higher temperatures, which rose above the freezing point in the period February 25-27, on March 4, and again on March 10. The stream flow during this period was generally above that of the winter flow, with peaks corresponding to the rises in temperature above the freezing point. The run-off during this period exceeded the precipitation, was in general proportional to the temperature, and was greater in the western part of the region than in the eastern part. The run-off, however, was moderate. The greatest run-off came from the basin of Little Tonawanda Creek above Linden, N. Y., where the direct run-off during the period February 25 to March 10 was about 1.1 inches. The run-off from this basin exceeded the precipitation by about 0.2 inch and indicated some depletion of water in the snow cover.

The precipitation of the first storm of March 11-12 (figs. 16 and 17) generally fell as rain, and in the smaller basins resulted in a peak in stream flow on March 12 or 13. The second and major storm (figs. 21 and 22), which included the precipitation of March 17-20, was followed by a minor storm March 21-22. Over the western part of the basin the precipitation of these two later storms fell as snow. From March 25 to the end of the month, contemporaneous with higher temperatures, there was additional precipitation not directly considered in this report, although in

the western part of the basin the highest flood stages were reached at this time. The snow that fell over this region between March 17 and 22 was the major contributing factor in the later flood rises. These rises were more definitely affected by and related to the temperature than to the precipitation that was associated with the flood rises.

The total storm precipitation for the period March 9-22 (figs. 26 and 27) generally varied between 4 and 5 inches and was generally heaviest along the southwestern divide of the basin. South of Watertown, N. Y., there was a secondary storm center where over 6 inches of precipitation was recorded. The total precipitation, however, was comparatively light over the basin of the Black River and averaged about 3 inches above Watertown. The greatest total precipitation was recorded in the upper basins of Seneca and Cayuga Lakes and in the upper basin of the Genesee River.

Owing to the different hydrologic and meteorologic factors in the St. Lawrence River Basin in New York, the rainfall and run-off relations are discussed by tributary basins.

Little Tonawanda Creek Basin above Linden, N. Y., and Genesee River Basin above Jones Bridge, N. Y.

The first storm of March 11-12 produced sharp rises in stream flow in the basins of Little Tonawanda Creek above Linden and the Genesee River above Jones Bridge, resulting in a peak on March 12. The direct run-off during this flood rise exceeded the precipitation by about 0.65 inch in the basin of Little Tonawanda Creek and by about 1.35 inches in the basin of the Genesee River above Jones Bridge. A study of the temperature records indicates that the precipitation of about 0.3 inch on March 13 at Linden probably fell as snow and therefore did not appear in the direct run-off associated with that of the flood rise, although it is included in the precipitation for the period. The adjusted excess of precipitation over run-off above Linden is therefore about 0.95 inch, from which it appears that the estimate of 0.2 inch of antecedent snow cover over the basin above Linden is low. That some snow remained over these basins after the first flood rise is shown by a study of the rise in stream flow on March 15, in which there was a run-off of about 0.7 inch from both of these basins. This run-off probably resulted from the melting of antecedent snow due to a rise in temperature on that date, as the precipitation of March 15 and 16 was only about 0.1 inch.

Beginning about March 17 there was a moderate rise, culminating in a low peak on March 18 at Jones Bridge and on March 20 at Linden. Over both of these basins the direct run-off of this rise was exceeded by the precipitation of the period March 16-20 by about 1.9 inches. Examination of the climatologic records indicates that most of the precipitation of this period fell as snow over these basins. As the average temperature was about 32° F., the indications are that, although the snow did not contribute greatly to the run-off, it must have been dense and unstable. Some additional precipitation fell as snow on March 21 and 22, when the temperature was about 32° F. This precipitation did not result in any increase in stream flow.

Water contained in the antecedent snow cover on March 9 plus precipitation during the period March 9-22 exceeded the direct run-off by about 2 inches over both of these basins, as shown in column 13, table 9. Some of the precipitation of the storm period, notably that of March 17-22, fell as snow and still lay upon the ground and is therefore included in the 2-inch residual, together with any water remaining from the antecedent snow. The temperature rose sharply to above 45° F. on March 24 and remained well above freezing for the rest of the month. The sharp rise caused the rapid run-off of all the remaining snow and culminated in the highest peak of the flood on about March 25. Precipitation during this period was less than 0.10 inch, while run-off equaled about 3.6 inches above Linden and 2.4 inches above Jones Bridge. If it is assumed that there was 100 percent run-off, the snow remaining on the ground on March 23 must have had, for the two basins, a water content of at least 3.5 and 2.3 inches respectively. The indicated residual of 2 inches fo these two basins for the period March 9-22 appears to be inconsistent with the run-off of the succeeding flood rise.

The water contained in the antecedent snow cover (column 4, table 9) plus the precipitation during the period March 9-26 was less than the direct run-off associated with this period by about 1.5 inches over the basin of Little Tonawanda Creek above Linden and about 0.4 inch over the basin of the Genesee River above Jones Bridge. This negative residual, although due in a large part to inadequate base data, both in regard to the antecedent snow and to the nature and quantities of the precipitation, may nevertheless be indicative of low infiltration over this area.

Fall Creek Basin above Ithaca, N. Y.

Direct run-off from the first storm of March 11-12 exceeded the precipitation in the Fall Creek Basin above Ithaca by about 1.35 inches, indicating the minimum contribution to run-off from melting snow. The remaining snow cover melted and ran off during a rise that began with a rise in temperature on March 14 and reached a peak on March 16. In this rise the average precipitation was less than 0.2 inch, while the run-off equaled about 2.4 inches. The total minimum run-off from the antecedent snow cover was therefore about 3.5 inches, so that it appears that of the water content of the antecedent snow cover, computed as 3.1 inches (see column 4, table 9), little or none remained on the ground after March 16.

The highest flood peak, which closely followed the melting-snow rise of March 16, occurred on March 18. The run-off of this flood rise was 2.54 inches, which was less than the precipitation by about 0.9 inch. A study of the climatologic record at Ithaca shows that some of the precipitation of March 17 fell as snow, together with a "glaze" storm. Some of the snow probably remained on the ground during this storm period and is included in the residual of 0.9 inch. A minor storm occurred on March 21-22, with about 0.7 inch of precipitation as rainfall and wet snow. This storm was associated with a direct run-off of 0.8 inch, which indicated that there was some depletion of the snow of March 17. The net residual of 0.65 inch shown in column 13, table 9, is the amount by which the water in the antecedent snow plus the storm precipitation prior to March 22 exceeded the total direct run-off. Climatologic records at Ithaca and at Arnot Forest show that some snow remained on the ground in this region on March 23. The water content of this snow, together with any evaporation, infiltration, and surface storage, would be included in the residual of about 0.65 inch shown in column 13. There was a small flood rise, accompanied by a sharp rise in temperature, on March 25. The run-off during this rise was about 0.7 inch, and the rainfall on March 24-25 was about 0.1 inch, indicating a minimum contribution to run-off of about 0.6 inch from snow that remained on the ground on March 23. As the computed net residual on March 27 was nearly zero and as the records showed that little or no snow remained after March 27, there is an indication of low infiltration during the flood period.

Owasco Lake Basin above Auburn, N. Y.

The hydrograph showing stream flow of Owasco Lake outlet near Auburn, N. Y., adjusted for the effects of daily change in storage in Owasco Lake, is similar to that of Fall Creek near Ithaca. However, the effect of natural storage and the effect of the larger and flatter basin above Auburn, together with possible inaccuracies in adjusting for daily changes in storage, make indistinguishable the influence of the rise on March 16 caused by melting snow. As this run-off could not be separated from total flow indicated on the hydrograph, it was therefore included in the run-off of 3.70 inches associated with the second storm (column 10, table 9). For this reason, discussion of the separate storms is not attempted.

The water contained in the antecedent snow cover plus total storm precipitation exceeded the total direct run-off associated with the total storm period of March 9-22 by about 0.9 inch (column 13, table 9). Contained in this residual is some of the snow that fell on March 17 and still remained on the ground on March 22.

In this basin, as on Fall Creek, a small increase in run-off began with a rise in temperature on March 23 and culminated in a peak on March 25. During this rise the direct run-off was about 0.8 inch and the rainfall of March 24-25 was about 0.15 inch, indicating a minimum depletion of 0.65 inch in the water content of the snow that remained after March 22. The records show that little or no snow remained after March 27. The indicated net residual of about 0.25 inch on March 27 compares favorably with the residual of nearly zero for Fall Creek.

East Branch of Fish Creek Basin at Taberg, N. Y.

The run-off from the first storm on the East Branch of Fish Creek at Taberg, N. Y., equaled the precipitation of about 1.8 inches and indicated that there was but little or no net change in the 6 inches of water content in the snow cover. This has been a characteristic of this storm, found also in the basins of the upper Hudson River and in New England (Water-Supply Paper 798), where antecedent snow cover was heavy.

As a result of continued warm weather, the run-off associated with the second storm exceeded the storm rainfall of 1.85 inches by about 2.6 inches, this difference indicating the minimum contribution to run-off from the melting of the antecedent snow cover. The rainfall of about 0.5 inch on March 20-21 resulted in a run-off of about 0.8 inch. This result indicated additional run-off from the antecedent snow cover.

Water contained in the antecedent snow cover plus total storm precipitation exceeded the run-off by about 3.0 inches, as shown in column 13, table 9. This quantity includes infiltration, surface storage, and evaporation as well as the water content of any remaining snow.

The snow cover completely disappeared at the time of a sharp rise in temperature which began on March 24 and which was accompanied by additional rainfall. Precipitation during the period March 22-28 was about 1.2 inches, and the direct run-off of this period about 4.4 inches, indicating a minimum contribution from snow of about 3.2 inches. The latter quantity about equals the residual of 3 inches shown for March 22 in column 13, table 9. It appears, therefore, that infiltration must have been low.

Oswego River Basin above Oswego, N. Y.

By reason of the large amount of natural storage, the flood hydrograph for the Oswego River at Oswego shows but one major flood rise, having its peak on March 28. The direct run-off from the antecedent snow and precipitation during the period March 9-22 was about 7.1 inches. This includes 4.6 inches of run-off at Oswego and storage held in Seneca, Cayuga, Owasco, and Oneida Lakes equivalent to 2.5 inches over the basin. Storage in other lakes or in the State Barge Canal was not determined. The water contained in the antecedent snow cover plus the total storm precipitation exceeded the run-off of 7.1 inches by about 0.8 inch. The difference represented total surface storage other than that in the lakes mentioned above, infiltration, evaporation, and the water content of any snow that remained after March 23. Surface storage over this basin is considerable and may account for the greater part of the residual. There are no indications of any appreciable snow on the ground after March 23, except in the headwater areas, such as those above Ithaca and Taberg.

Black River Basin above Watertown, N. Y., and Ausable River Basin above Ausable Forks, N. Y.

The basins of the Black River above Watertown and the Ausable River above Ausable Forks drain the northwestern and northeastern slopes, respectively, of the Adirondack Mountains and are similar in their flood characteristics to nearby areas in the Hudson River Basin. Although in a region of heavy antecedent snow cover, these two basins were not affected by record-breaking floods, principally because the precipitation

was not great, averaging only a little over 3 inches, but also because the temperatures during the flood period over this region were comparatively low (fig. 49).

During the first storm the precipitation and run-off were about equal, approximating 1 inch in both basins. For the total storm period the run-off exceeded the total storm precipitation by about 2.45 inches in the Black River Basin and by about 0.75 inch in the Ausable River Basin, these figures indicating the minimum contribution to run-off from melting snow in these basins.

From a brief study of the record at Stillwater Reservoir, in the Black River Basin, it appears that there was little run-off from the heavy snow cover during the flood period. The direct run-off associated with this period was about 3.7 inches, and the precipitation about 2.7 inches, the difference of 1 inch representing the minimum contribution to run-off from the snow cover, which had a water content of about 7 inches. Water contained in the antecedent snow cover plus total storm precipitation exceeded the total direct run-off by an average of 2.4 inches in these basins as a whole, as shown in column 13, table 9. Included in this residual is the infiltration, evaporation, and surface storage, as well as the water content of the snow remaining on the ground on March 23, which is believed to have been appreciable in the headwater areas.

Storage sufficient to affect the run-off was developed in the basin of the Black River in Stillwater Reservoir, in the Fulton Chain Lakes, and in the State Barge Canal Reservoirs. There is also considerable natural storage in this basin. The run-off was adjusted only for the storage developed during the flood period in Stillwater Reservoir, in Old Forge Reservoir, and in Sixth Lake of Fulton Chain Lakes. The total adjustment was equivalent to 0.33 inch over the basin above Watertown.

The ratio of the run-off during the calendar day of maximum discharge to the total discharge during a given flood rise ranged from 5 percent for the basin of the Oswego River to about 45 percent for the basins of Fall Creek above Ithaca and Little Tonawanda Creek above Linden. The Black River Basin above Watertown had a ratio of 13 percent, and the remaining basins had ratios between 20 and 30 percent. These ratios are indicative of basin characteristics, particularly slope and natural storage, and they vary directly as the former and inversely as the latter.

The isopleths of water content of snow cover shown in figures 32 and 33 were based on many snow surveys (see "Meteorologic and hydrologic conditions") made in the region. The data for the Adirondack Mountains appear consistent and should be reliable. On the other hand, there are serious deficiencies in information concerning depths and water content of the snow in the remainder of the basin.

Data on the depth and extent of frost in the ground are meager. From the few available reports it appears that there was no frost in the ground beneath the heavy snow cover in the Adirondack Mountains. Observations made by Cornell University in the Arnot Forest, near Ithaca, show that soil temperatures in that area were generally above freezing, with but one exposed point on a north slope showing frozen ground to a depth of 30 inches. Further data presented in the section on "Meteorologic and hydrologic conditions" show that deep frost prevailed in the ground during the flood period of March 1936 in the Oswego River Basin. Data are inadequate to correlate frost and surface infiltration.

Effect of first storm on the second flood rise

There were, in general, two distinct flood peaks during the first flood period. Although in most areas the second peak was the larger of the two, in many basins both peaks rank as exceptional floods, which, under the laws of probability, would be expected to occur but rarely. The interval between the two major storms that caused the floods was not long enough in most of the basins to permit the direct run-off from the first storm to pass out of the river systems before the rivers were required to accommodate the water of the second storm. As a result, stages and discharges during the second flood, except on basins draining 100 square miles or less, were greater than those that would have been caused by an isolated storm of a magnitude equivalent to that of the second storm.

The hydrograph analyses described in this section furnish a means for studying the portions of the stages and discharges of the second flood that were due to the first storm. Table 10 shows the results of such a study at a few selected river measurement stations.

Table 10.- Effect of first storm (Mar. 9-13) on the stages and discharges reached during the second flood rise

	Delaware River at Riegelsville, N. J.	Delaware River at Trenton, N. J.	Susquehanna River at Harrisburg, Pa.	West Branch of Susquehanna River at Williamsport, Pa.	Juniata River at Newport, Pa.
Approximate water stage March 9.....feet..	5.9	4.0	8.5	6.4	8.0
Maximum discharge observed during second flood rise second-feet..	210,000	227,000	740,000	264,000	215,000
Maximum stage observed during second flood rise feet..	32.45	16.66	30.3	33.57	34.24
Estimated discharge at time of second flood peak due only to first storm second-feet..	24,000	27,000	73,000	19,000	12,000
Estimated discharge at time of second flood peak if first storm had not occurred.....second-feet..	186,000	200,000	667,000	245,000	203,000
Estimated maximum stage that would have been reached if first storm had not occurred...feet..	29.9	15.41	28.4	31.6	33.2
Estimated increase in stage at time of second flood peak caused by first storm.....feet..	2.55	1.25	1.9	2.0	1.0

FLOOD CRESTS

During or immediately after the floods of March 1936 various agencies of the Federal and State governments, together with public-service companies and individuals, began the work of identifying and marking crest stages reached by rivers in the flood areas. Field parties examined important streams to obtain comprehensive and systematic information from existing flood marks. Local organizations of the Works Progress Administration contributed in a notable way in these activities in New Jersey. Except as otherwise noted, the flood marks were referred to the mean sea level datum of the United States Coast and Geodetic Survey. Their relative positions were identified by distances along the rivers.

Table 11 presents records of flood-crest stages for the Susquehanna River system and for streams in New Jersey. Similar flood-crest observations were not obtained for the Hudson River or for its tributaries except those in New Jersey. These records are of special interest in presenting information of a limiting factor with respect to future developments along the rivers and in furnishing basic data concerning velocity of transmission of flood crests, valley or flood-channel storage, the effects of channel constrictions, natural or artificial, and other aspects of river behavior. The table shows the observation points by reference to local features and river distances, date and time of crest (where known), and altitude of crest at available places of observation, generally sufficient in number for satisfactory definition of the profile of the flood crest along the river. Where observations were more plentiful than needed for adequate definition of a flood profile, selection for publication has been limited to those that are essential for that purpose. Some of the observations that were close together have been combined and the mean recorded as at one point. Certain observations that were obviously unreliable or that were impracticable of reference to mean sea level are not included.

The times of crest at river-measurement stations and at certain other points, such as power dams, are in general well established. At many other points this information is approximate.

It has been found that the crests of floods within the building limits of cities and towns and at other places more or less distant from a river may, for various reasons, be materially different from those along the main river channel and may be seemingly inconsistent if consideration is not given to the effect of the slope. Consequently apparent inconsistencies may appear to exist between local information and the records as herein published. Flood crests on opposite banks of a stream may differ materially because of the effects of bends and obstructions in the channel.

In the table "upstream" signifies that the observation was made at the upstream side of a bridge or other structure; "downstream" signifies that the observation was made at the downstream side of the structure.

Table 11.- Flood-crest stages

Stream and location*	Miles above mouth	Date and time	Altitude in feet
Hudson River Basin			
Wallkill River:			
Sparta, N. J., 1½ miles northeast of, 0.6 mile below New York, Susquehanna & Western R.R. bridge, highway bridge, upstream	85.3	Mar.12	a593.46
Ogdensburg, N. J., 1 mile above railroad bridge, highway bridge, downstream	83.1	Mar.12	a572.08
Ogdensburg, N. J., Passaic Avenue Bridge, upstream	82.2	Mar.12	a571.10
Franklin, N. J., Franklin Avenue Bridge over outlet of Franklin Pond, downstream	79.6	Mar.12	a520.48
Franklin, N. J., North Church Road (viaduct) upstream	78.4	Mar.12	a507.27
Clove River:			
Colesville, N. J., 1½ miles southeast of, Sussex-High Point Road bridge	4.6	--	a565.0
Colesville, N. J., 1½ miles southeast of, Slate Hill Road bridge	4.5	Mar.12	a529.00
Sussex, N. J., half a mile northwest of, Libertyville-Sussex Road bridge	1.5	Mar.12	a432.50
Sussex, N. J., Clove Lake Dam	.7	Mar.12 10:30pm	ab426.36
Sussex, N. J., Ross Corner Road bridge	.5	--	a405.50
Pochuck Creek:			
Vernon, N. J., 1½ miles north of, Glenwood-Maple Grange Road bridge, upstream	7.5	Mar.12	a395.84
Black Creek:			
McAfee, N. J., McAfee-Vernon Road bridge, upstream	3.8	Mar.12	a434.60
Vernon, N. J., 1½ miles southwest of, 900 feet above Lehigh & Hudson River Ry. bridge, highway bridge, downstream	1.8	Mar.12	a401.49
Vernon, N. J., Lehigh & Hudson River Ry. bridge, upstream	1.7	Mar.12	a400.0
Vernon, N. J., 1 mile northwest of, Vernon-Glenwood road bridge, upstream	.2	Mar.12	a398.40
Hackensack River Basin			
Hackensack River:			
Old Tappan, N. J., Tappan Road Bridge, upstream	29.1	Mar.12	a36.09
Old Tappan, N. J., Harrington Avenue Bridge, upstream	27.2	Mar.12	a27.14
Harrington Park, N. J., Harriott Avenue Bridge, upstream	26.0	Mar.12	a21.49
Oradell, N. J., above Oradell Dam	22.6	Mar.12	21.78
Oradell, N. J., Oradell Avenue Bridge, upstream	22.2	Mar.12-13	11.87
New Milford, N. J., above dam of Hacksensack Water Co.	21.8	Mar.12 11pm to Mar.13 1am	c11.33
New Milford, N. J., Elm Street Bridge, upstream, east channel	21.6	Mar.12-13	10.39
New Milford, N. J., Main Street Bridge, upstream, east channel	21.4	Mar.12-13	9.91
New Milford, N. J., Madison Avenue Bridge, upstream, east channel	21.2	Mar.12-13	9.40
New Milford, N. J., Riveredge Road Bridge, upstream	20.2	Mar.12-13	a6.37
Riveredge, N. J., New Bridge Road highway bridge, upstream	18.5	Mar.12-13	a3.60
Pascack Brook:			
Hillsdale, N. J., above Woodcliff Lake Dam	5.7	Mar.12 8am	96.73
Hillsdale, N. J., Hillsdale Avenue Bridge, upstream	4.7	Mar.12	a58.54
Westwood, N. J., Broadway Bridge, upstream	4.3	Mar.12	a49.71
Westwood, N. J., Fairview Avenue Bridge, upstream	4.2	Mar.12	a47.37
Westwood, N. J., Kinderkamack Road Bridge, upstream	4.0	Mar.12	a47.01
Westwood, N. J., Westwood Avenue Bridge, upstream	3.2	Mar.12	a37.62
Westwood, N. J., 75 feet above Sand Road bridge, below mouth of Musquapsink Creek	2.3	Mar.12 9-10am	c34.15
Dwars Kill:			
Closter, N. J., Pierpont Road Bridge, upstream	2.6	Mar.12	a48.73
Closter, N. J., Schraalenburgh Road Bridge, upstream	.3	Mar.12 6:30am	22.07
Tenakill Brook:			
Tenafly, N. J., West Clinton Avenue Bridge, upstream	4.4	Mar.12	a39.16
Tenafly, N. J., Riveredge Avenue Bridge, upstream	4.2	Mar.12	a37.08
Cresskill, N. J., Madison Avenue Bridge, upstream	3.2	Mar.12	a35.18
Demarest, N. J., Hardenburgh Avenue Bridge, upstream	2.1	Mar.12	a33.95
Closter, N. J., Demarest Avenue Bridge, upstream	.7	Mar.12	a29.30
Closter, N. J., Demarest Avenue Bridge, downstream	.7	Mar.12	a27.75
Closter, N. J., Main Street Bridge, upstream	.6	Mar.12	a25.55

a New Jersey Geological Survey mean sea level datum.
b Head on spillway, 2.06 feet.
c River-measurement station.

* "Upstream" signifies upstream side as applied to a location of a bridge or other structure. Likewise "downstream" signifies downstream side.

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Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Hackensack River Basin--Continued			
Hirschfeld Creek:			
Bergenfield, N. J., New Bridge Avenue Bridge, upstream	3.9	Mar.12	67.50
Bergenfield, N. J., Anderson Avenue Bridge, upstream	3.0	Mar.12	57.70
Bergenfield, N. J., West Main Street Bridge, upstream	2.6	Mar.12	54.40
Bergenfield, N. J., West Main Street Bridge, downstream	2.6	Mar.12	53.60
Bergenfield, N. J., Prospect Avenue Bridge, upstream	2.0	Mar.12	41.00
Dumont, N. J., Madison Avenue Bridge, upstream	1.6	Mar.12	34.30
Dumont, N. J., Lafayette Avenue Bridge, upstream	1.2	Mar.12	24.40
New Milford, N. J., New Milford Avenue Bridge, upstream	.8	Mar.12	21.70
New Milford, N. J., Boulevard Bridge, upstream	.4	Mar.12	11.00
New Milford, N. J., Prospect Avenue Bridge	.3	Mar.12 or 13	9.92
New Milford, N. J., River Road Bridge	.2	Mar.12 or 13	9.91
New Milford, N. J., Lenox Avenue Bridge	.2	Mar.12 or 13	9.90
New Milford, N. J., Washington Avenue Bridge, upstream	.1	Mar.12 or 13	9.88
Passaic River Basin			
Passaic River:			
Basking Ridge, N. J., 2 miles north of, Van Doren's Mill, State Highway 32 bridge, upstream	81.8	Mar.12	a253.66
Millington, N. J., 1 mile northwest of, Davis Bridge, upstream	76.5	Mar.12	a226.81
Millington, N. J., near, 150 feet below Davis Bridge	76.4	Mar.12 3-9pm	cd9.18
Millington, N. J., first highway bridge below Delaware, Lackawanna & Western R.R. bridge, upstream	75.8	Mar.12	a219.15
Millington, N. J., Springfield Avenue Bridge, upstream	73.0	Mar.12	a215.29
Stirling, N. J., three-fourths mile east of, Plainfield Road bridge	69.6	Mar.12	a212.18
Gillette, N. J., Mountain Avenue Bridge, upstream	68.4	Mar.12	a211.56
Gillette, N. J., 1 mile northeast of, Delaware, Lackawanna & Western R.R. bridge, upstream	67.2	Mar.12	a211.5
Berkeley Heights, N. J., highway bridge, upstream	66.0	Mar.12	a210.74
New Providence, N. J., near, Central Avenue Bridge, upstream	64.9	Mar.12	a209.8
New Providence, N. J., Passaic Avenue Bridge, upstream	63.5	Mar.12	a207.9
Chatham, N. J., upstream from, Mount Vernon Avenue Bridge, upstream	62.3	Mar.12	a203.8
Chatham, N. J., Watchung Avenue Bridge, upstream	61.2	Mar.12	a194.4
Chatham, N. J., Morris Turnpike Bridge, upstream	59.9	Mar.12 or 13	a178.3
Chatham, N. J., near, Lower Chatham Bridge, upstream	57.9	Mar.12 or 13	a173.20
Florham Park, N. J., Columbia Bridge	54.9	Mar.13	a172.04
Hanover, N. J., State Highway 10 bridge (Cook Bridge)	53.2	Mar.13	a171.56
Hanover Neck, N. J., near, Swinfield Bridge	50.4	Mar.13	a170.70
Pine Brook, N. J., State Highway 6 bridge	47.6	Mar.13	a170.02
Pine Brook, N. J., 1½ miles northwest of, Horseneck Bridge	43.3	Mar.13	a169.66
Mountain View, N. J., 1 mile south of, Two Bridges, Passaic River Bridge, upstream	33.8	Mar.13 6pm	a169.56
Singac, N. J., 1 mile west of, State Highway 6 bridge, upstream	33.2	Mar.13 3:30pm Mar.14 11am	ae168.68
Singac, N. J., State Highway 23 bridge, upstream	31.7	Mar.13 3pm	e167.28
Singac, N. J., Erie R.R. bridge	31.6	Mar.13	167.02
Little Falls, N. J., Beatties Dam	30.4	Mar.13 4pm Mar.14 1am	f164.35
Little Falls, N. J., 1 mile northeast of, Newark Water Department Aqueduct, upstream	29.3	Mar.13	129.43
Little Falls, N. J., 1 mile northeast of, Lackawanna Avenue Bridge, upstream	29.2	Mar.13 3pm	e129.05
West Paterson, N. J., Hillery Street Bridge, upstream	27.5	Mar.13 3pm	e123.90
Paterson, N. J., Lincoln Avenue Bridge, upstream	27.2	Mar.13	123.38
Paterson, N. J., just above Spruce Street Bridge	26.1	Mar.13 11pm to midnight	c121.04

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
d Arbitrary datum.
e At time of reading; peak stage may have been slightly higher.
f At time readings were made; not necessarily absolute peak.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Passaic River Basin--Continued			
Passaic River--Continued:			
Paterson, N. J., West Broadway Bridge, upstream	25.4	Mar.13 2:30pm	e46.95
Paterson, N. J., Main Street Bridge, upstream	25.3	Mar.13	a46.06
Paterson, N. J., Arch Street Bridge, upstream	25.1	Mar.13 2pm	e44.26
Paterson, N. J., Straight Street Bridge	24.8	Mar.13-14	43.95
Paterson, N. J., Hillman Street Bridge	24.6	Mar.13-14	42.79
Paterson, N. J., Sixth Avenue Bridge, upstream	24.2	Mar.13 2pm	e40.74
Paterson, N. J., Moffet Bridge, upstream	23.0	Mar.13-14	a38.93
Paterson, N. J., Wagaraw Bridge, upstream	22.8	Mar.13-14	a37.80
Paterson, N. J., Fifth Avenue Bridge, upstream	22.2	Mar.13-14	a36.33
Paterson, N. J., 33d Street Bridge, upstream	21.6	Mar.13-14	a34.28
Paterson, N. J., Broadway Bridge, upstream	20.7	Mar.13 1:30pm	e32.82
Paterson, N. J., New York, Susquehanna & Western R.R. bridge, upstream	19.7	Mar.13-14	30.90
Paterson, N. J., Market Street Bridge, upstream	19.6	Mar.13-14	30.86
Clifton, N. J., above Dundee Dam	18.1	Mar.13-14 midnight to 3am	30.44
Rockaway River:			
Lake Swannanoa at Petersburg, N. J.	36.1	Mar.11	a768.44
Petersburg, N. J., highway bridge over outlet of Lake Swannanoa	36.1	Mar.11	a753.30
Woodstock, N. J., Oak Ridge Pond	34.0	Mar.11	a750.7
Woodstock, N. J., above Longwood Lake, highway bridge	33.4	Mar.11	a741.12
Berkshire Valley, N. J., 2 miles north of, County Highway 69 bridge	30.4	Mar.11	a703.38
Berkshire Valley, N. J., County Highway 32 bridge, upstream	28.1	Mar.11	a691.35
Berkshire Valley, N. J., lower bridge, upstream	27.8	Mar.11	a689.52
Berkshire Valley, N. J., 1¼ miles south of, Wharton and Northern R.R. bridge	26.0	Mar.11	a684.41
Wharton, N. J., 1½ miles west of, Delaware, Lackawanna & Western R.R. bridge	25.2	Mar.11	a672.65
Wharton, N. J., bridge on road to Spicertown, just below Washington Pond, upstream	24.0	Mar.11	a633.00
Bowlbyville, N. J., Delaware, Lackawanna & Western R.R. bridge, upstream	23.0	Mar.11	a602.50
Dover, N. J., Sussex Street Bridge, upstream	21.7	gMar.12	a565.80
Dover, N. J., Essex Street Bridge, upstream	21.6	gMar.12	a561.10
Dover, N. J., Bergen Street Bridge, upstream	21.6	gMar.12	a559.50
Dover, N. J., Union Street Bridge, upstream	21.4	gMar.12	a556.80
Dover, N. J., Mercer Street Bridge, upstream	21.4	gMar.12	a556.40
Dover, N. J., East Blackwell Street Bridge, upstream	21.1	gMar.12	a552.10
East Dover, N. J., 0.4 mile above mouth of Mill Brook, Franklin Road Bridge, upstream	20.2	gMar.12	a545.60
Rockaway, N. J., State Highway 6 bridge, upstream	18.9	Mar.11	a531.69
Rockaway, N. J., above dam west of West Main Street	18.1	Mar.11	a528.1
Rockaway, N. J., West Main Street Bridge, upstream	18.1	Mar.11	a520.70
Rockaway, N. J., Beach Street Bridge, upstream	17.6	Mar.11	a509.70
Denville, N. J., 1 mile northwest of, Savage Road bridge, upstream side, 0.7 mile below mouth of Beaver Brook	16.5	Mar.11	a506.90
Denville, N. J., north of, 0.2 mile above mouth of Den Brook, Diamond Spring Road bridge, upstream	15.5	Mar.11	a505.63
Denville, N. J., 0.6 mile below mouth of Den Brook, Pocono Road Bridge, upstream	14.6	Mar.11	a502.66
Mountain Lakes, N. J., 1 mile west of, just above mouth of Cedar Lake outlet, sewer crossing, upstream	13.9	Mar.11	a502.80
Mountain Lakes, N. J., 1½ miles west of, 0.6 mile below mouth of Cedar Lake outlet, Cook Lane bridge, upstream	13.2	Mar.11	a501.40
Powerville, N. J., upper bridge, upstream	10.8	Mar.11	a496.10
Powerville, N. J., above dam of Powerville Lake	10.5	Mar.11-12	a495.00
Powerville, N. J., lower bridge, upstream	10.5	Mar.12	a489.00
Boonton, N. J., Pond Bridge, upstream	9.6	Mar.12	a485.00
Boonton, N. J., high bridge over Boonton Reservoir	8.1	Mar.12	a308.00
Boonton Reservoir at Boonton, N. J.	7.2	Mar.12 3pm	a308.05
Boonton, N. J., 1,500 feet below Boonton Reservoir	6.8	Mar.12 8-9pm	ac203.71
Boonton, N. J., Vreeland Avenue Bridge, upstream	6.4	Mar.12	a197.80
Lake Hiawatha, N. J., northwest of, 2 miles downstream from Boonton Reservoir, highway bridge, upstream	5.1	Mar.12	a183.70
Pine Brook, N. J., near, Lake Hiawatha Dam	4.0	Mar.12	a176.65
Pine Brook, N. J., 1½ miles west of, Vail Road bridge, upstream	3.2	Mar.12	a173.50

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
e At time of reading; peak stage may have been slightly higher.
g Time of peak delayed by mill ponds upstream.

Table 11.- Flood crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Passaic River Basin--Continued			
Rockaway River--Continued:			
Pine Brook, N. J., State Highway 6 bridge, upstream	1.9	Mar.12	a172.90
Pine Brook, N. J., 0.3 mile above mouth of Whippany River, Sharkey Bridge	1.3	Mar.12	a171.80
Green Pond Brook:			
Spicertown, N. J., 2½ miles north of, Picatinny Lake	4.5	Mar.12	a712.85
Spicertown, N. J., 2 miles north of, second highway bridge above Cannon Gate of Picatinny Arsenal	4.2	Mar.12	a693.6
Spicertown, N. J., 1½ miles north of, Wharton & Northern R.R. bridge at Cannon Gate of Picatinny Arsenal	3.3	Mar.12	a692.18
Spicertown, N. J., Wharton & Northern R.R. bridge	2.1	Mar.12	a690.44
Spicertown, N. J., Spicertown-Wharton Road bridge	1.2	Mar.12	a688.59
Burnt Meadow Brook:			
Spicertown, N. J., 4¼ miles north of, Lake Denmark	0.3	Mar.12	a821.72
Den Brook:			
Denville, N. J., mouth, State Highway 6 bridge, upstream	0	Mar.11	a505.22
Whippany River:			
Brookside, N. J., 1 mile northwest of, Brookside Reservoir, Morristown water supply	19.8	Mar.11	a659.12
Brookside, N. J., highway bridge, upstream	18.5	Mar.11	a424.53
Brookside, N. J., Days Mill, highway bridge, upstream	17.4	Mar.11	a358.13
Washington Valley, N. J., south of, Whitehead Road bridge, upstream	16.1	Mar.11	a326.31
Washington Valley, N. J., east of, highway bridge, upstream	15.3	Mar.11	a320.83
Morristown, N. J., near, Morristown-Mt. Freedom Road (Sussex Avenue) bridge	14.5	Mar.11	a317.96
Morristown, N. J., 1 3/4 miles west of, Inamere Road bridge	14.1	Mar.11	a316.7
Morristown, N. J., 1¼ miles west of, Henshaw Bridge, upstream	13.5	Mar.11	a313.6
Morristown, N. J., Lake Road bridge, upstream	13.1	Mar.11	a311.78
Morristown, N. J., Speedwell Avenue (State Highway 32) Bridge, upstream	12.4	Mar.11	a308.67
Morristown, N. J., Speedwell Avenue (State Highway 32) Bridge, downstream	12.4	Mar.11	a305.25
Morristown, N. J., above Pocahontas Dam	11.7	Mar.11	a303.42
Morristown, N. J., Water Street Bridge, upstream	11.5	Mar.11	a299.0
Morristown, N. J., Water Street Bridge, downstream	11.5	Mar.11	a289.19
Morristown, N. J., Center Street Bridge, downstream	11.3	Mar.11	a296.3
Morristown, N. J., Abbot Avenue Bridge, upstream	10.9	Mar.11-12	a290.1
Morristown, N. J., Ridgedale Avenue Bridge, upstream	10.6	Mar.11-12	a286.48
Morristown, N. J., Monroe-Morris Plains Road bridge, upstream	9.3	Mar.11-12	a267.83
Morristown, N. J., sewage disposal plant, 300 feet below Monroe-Morris Plains Road	9.2	Mar.12 1:30-2am	ac266.30
Monroe, N. J., Cedar Knolls Road Bridge, upstream	7.9	Mar.12	a254.6
Monroe, N. J., Cedar Knolls Road Bridge, downstream	7.9	Mar.12	a253.1
Monroe, N. J., Jefferson Road Bridge, upstream	7.3	Mar.12	a245.56
Whippany, N. J., 1 mile above, Upper Eden Mill Bridge	7.0	Mar.12	a242.5
Whippany, N. J., Lower Eden Mill Bridge, upstream	6.5	Mar.12	a222.24
Whippany, N. J., Thomas Street Bridge, upstream	6.0	Mar.12	a206.6
Whippany, N. J., Morristown Road Bridge, upstream	5.6	Mar.12	a193.14
Whippany, N. J., 1 mile east of, State Highway 10 bridge, upstream	4.4	Mar.12	a177.4
Hanover Neck, N. J., near, Hopping's Bridge	2.7	Mar.12	a172.9
Hanover Neck, N. J., Hanover Neck-Troy Hills road (Mulford's) bridge	1.2	Mar.12	a172.8
Hanover Neck, N. J., near, Ridgedale Avenue Bridge, north channel	.3	Mar.12	a170.0
Pompton River:			
Pompton Plains, N. J.	4.9	Mar.12 or 13	a176.47
Ramapo River:			
Mahwah, N. J. 1 mile west of, three-quarters of a mile below mouth of Mahwah River	12.4	Mar.12 8am	ac263.17
Oakland, N. J. West River Road, West Oakland Avenue Bridge, upstream	4.4	Mar.12	a214.98
Oakland, N. J., Oakland Avenue, Ramapo Road Bridge, upstream	3.3	Mar.12	a207.36
Pompton Lakes, N. J., above dam of Pompton Lakes	1.3	Mar.12 12:30-2pm	ac204.49
Pompton Lakes, N. J., highway bridge	1.2	Mar.12	a184.05
Pompton Lakes, N. J., below	.8	Mar.12	a182.76

a New Jersey Geological Survey mean sea level datum.
o River-measurement station.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Passaic River Basin--Continued			
Wanaque River:			
The Glens, N. J., Greenwood Lake at	16.8	Mar.12 4-7pm	a620.78
Greenwood Lake, N. J., 600 feet downstream from Greenwood Lake	16.7	Mar.12 4-7pm	ac606.14
Wanaque, N. J., Wanaque Reservoir at	4.4	Mar.19 8am	a302.25
Wanaque, N. J., 50 feet above highway bridge	4.4	Mar.19 9am	ac216.07
Blue Mine Brook:			
Wanaque, N. J., near, just above Wanaque Reservoir	1.0	Mar.12 12:15am	a311.63
Pequannock River:			
Oak Ridge, N. J., Oak Ridge Reservoir	16.9	Mar.12 6am	ae847.03
Butler, N. J., 3 miles above, Macopin Intake Dam	7.4	Mar.12 noon to 6pm	ac585.94
Pacock Brook:			
Stockholm, N. J., Canistear Reservoir near	1.4	Mar.13 noon	ae 1,086.45
Clinton Reservoir Branch of Pequannock River:			
New Foundland, N. J., Clinton Reservoir near	1.8	Mar.12 9am	ae993.19
Echo Lake Branch of Pequannock River:			
Charlotteburg, N. J., Echo Lake Reservoir near	2.0	Mar.12 noon	ae894.25
Saddle River:			
Upper Saddle River Boro, N. J., Short Street Bridge, upstream	19.1	Mar.12	169.58
Upper Saddle River Boro, N. J., Short Street Bridge, downstream	19.1	Mar.12	168.78
Saddle River Boro, N. J., Allendale Avenue Bridge	17.6	Mar.12	138.95
Saddle River Boro, N. J., Bergen Avenue Bridge	16.0	Mar.12	114.94
Hohokus, N. J., Hollywood Avenue Bridge, upstream	14.7	Mar.12	97.50
Hohokus, N. J., Bogert Avenue Bridge, upstream	14.1	Mar.12	90.25
Hohokus, N. J., Bogert Avenue Bridge, downstream	14.1	Mar.12	89.05
Ridgewood, N. J., State Highway 2 bridge, upstream	13.3	Mar.12	78.50
Ridgewood, N. J., Ridgewood Avenue Bridge, upstream	12.2	Mar.12	69.63
Ridgewood, N. J., Grove Street Bridge, upstream	11.1	Mar.12	58.34
Paramus, N. J., Dunkerhook Road Bridge, upstream	9.6	Mar.12	51.30
Arcola, N. J., State Highway 4 bridge, upstream	7.4	Mar.12	45.09
Arcola, N. J., Swamp Road Bridge, upstream	7.2	Mar.12	44.65
Rochelle Park, N. J., Railroad Avenue Bridge, upstream	4.3	Mar.12	37.36
Rochelle Park, N. J., New York, Susquehanna & Western R.R. bridge, upstream	4.3	Mar.12	37.04
Rochelle Park, N. J., Market Street Bridge, upstream	3.8	Mar.12	34.87
Lodi, N. J., just above Outwater Lane	3.3	Mar.12 6-7pm	c28.72
Lodi, N. J., Outwater Lane Bridge, upstream	3.3	Mar.12	29.17
Lodi, N. J., Borig Place Bridge, upstream	3.1	Mar.12	25.41
Lodi, N. J., Borig Place Bridge, downstream	3.1	Mar.12	24.87
Lodi, N. J., Arnot Street Bridge, upstream	2.5	Mar.12	22.37
Lodi, N. J., Arnot Street Bridge, downstream	2.5	Mar.12	21.82
Lodi, N. J., Passaic Avenue Bridge, upstream	2.1	Mar.12	18.79
Lodi, N. J., Terrace Avenue Bridge, upstream	1.7	Mar.12	16.49
Garfield, N. J., Saddle River Avenue Bridge, upstream	.6	Mar.12	11.62
Garfield, N. J., Midland Avenue Bridge	.1	Mar.12	10.64
Hohokus Creek:			
Waldwick, N. J., Wykoff Avenue Bridge, upstream	4.5	Mar.12	211.80
Hohokus, N. J., North Maple Avenue Bridge, upstream	3.2	Mar.12	115.91
Ridgewood, N. J., Pine Lawn Bridge, upstream	2.7	Mar.12	91.70
Ridgewood, N. J., East Glen Avenue Bridge, upstream	2.6	Mar.12	88.20
Ridgewood, N. J., Meadowbrook Avenue Bridge, upstream	2.5	Mar.12	84.18
Ridgewood, N. J., Linwood Avenue Bridge, upstream	2.1	Mar.12	77.65
Ridgewood, N. J., North Irving Street Bridge, upstream	1.8	Mar.12	74.50
Ridgewood, N. J., Ridgewood Avenue Bridge, upstream	1.6	Mar.12	70.68
Raritan River Basin			
South Branch of Raritan River:			
Naughright, N. J., 1 mile northeast of, highway bridge, upstream	42.6	Mar.11	a578.24
Naughright, N. J., Drakestown Road Bridge, upstream	41.6	Mar.11	a559.32

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
e At time of reading; peak stage may have been slightly higher.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Raritan River Basin--Continued			
South Branch of Raritan River--Continued:			
Long Valley, N. J., highway bridge, upstream	39.0	Mar.11	a528.67
Middle Valley, N. J., Pleasant Grove Road Bridge, upstream	36.0	Mar.11	a497.1
High Bridge, N. J., 1 mile above, just above Lake Taylor	27.8	Mar.11-12 midnight	ac292.61
Stanton, N. J., just below highway bridge near Stanton railroad station	17.0	Mar.12 2am	c134.38
Raritan River:			
Manville, N. J., just below Manville-Finderne highway bridge	23.2	Mar.12 6:30am	ac35.47
Manville, N. J., just above mouth of Millstone River	21.4	Mar.12	a32.40
Bound Brook, N. J., highway bridge	19.3	Mar.12	a26.20
Flanders Branch of Raritan River:			
Flanders, N. J., Flanders-Succasunna Road bridge, upstream	3.7	Mar.11	a671.09
Flanders, N. J., Flanders-Ironia Road bridge, upstream	3.1	Mar.11	a644.58
Flanders, N. J., near, Flanders-Chester Road bridge, upstream	2.6	Mar.11	a635.25
Bartley, N. J., State Highway 31 bridge, upstream	1.0	Mar.11	a606.83
Bartley, N. J., 1 mile below, Bartley-Naughright Road bridge, upstream	.2	Mar.11	a587.8
Neshanic River:			
Reaville, N. J., half a mile southwest of, at highway bridge to Muirhead	6.4	Mar.11 11:30pm	cd7.91
North Branch of Raritan River:			
Ralston, N. J., Mendham-Chester road bridge, upstream	20.5	Mar.11	a387.88
Far Hills, N. J., 2 miles north of, above Ravine Lake dam	15.0	Mar.11 5:30pm	ac229.1
Milltown, N. J., 400 feet above State Highway 29	1.4	Mar.11 11pm	ac60.93
South Branch, N. J., three-quarters of a mile north of Old York Road bridge, upstream	.1	Mar.12	a56.11
Burnett Brook:			
Ralston, N. J., near, Mendham-Chester road bridge, upstream, west channel	.8	Mar.11	a407.22
Ralston, N. J., near, Mendham-Chester road bridge, upstream, east channel	.8	Mar.11	a402.63
Black River:			
Kenvil, N. J., just above Central R.R. of New Jersey bridge, State highway 6 bridge, downstream	26.0	Mar.11	a714.15
Succasunna, N. J., State Highway 10 bridge, upstream	24.4	Mar.11	a702
Ironia, N. J., near, Ironia-Flanders road bridge, upstream	22.3	Mar.11	a691
Chester, N. J., near, 0.6 mile above State Highway 31, Flanders Road bridge, upstream	18.1	Mar.11	a682.92
Chester, N. J., near, 0.2 mile above State Highway 31, highway bridge, upstream	17.7	Mar.11	a683.25
Chester, N. J., near, State Highway 31 bridge, upstream	17.5	Mar.11	a682.28
Milltown, N. J., Chester-Long Valley road bridge, upstream	15.7	Mar.11	a675.52
Hacklebarney, N. J., south of, 0.2 mile above Hacklebarney State Park, highway bridge, downstream	13.5	Mar.11	a503
Pottersville, N. J., 1 mile above	11.4	*Mar.12 4:30-9pm	ac287.69
Millstone River:			
Princeton, N. J., near, at Kingston Dam of Lake Carnegie	14.2	Mar.12 8am	i1.60
Kingston, N. J., near, 1 mile downstream from Heathcots Brook	6.6	Mar.12 8am	a47.09
Blackwells Mills, N. J., just below highway bridge	5.7	Mar.12 9am	cd9.27
Green Brook:			
Bound Brook, N. J., Main Street Bridge, downstream	0.2	Mar.12	a26.15
Lawrence Brook:			
Milltown, N. J., half a mile southwest of, Farrington Dam	5.0	Mar.12 1am	cd25.13

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
d Arbitrary datum.
i Head on spillway.
* Altitude, 287.68 feet at 2 and 11:30 p.m. Mar. 11.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Delaware River Basin			
East Branch of Delaware River:			
Fishs Eddy, N. Y., railroad bridge, gaging station, left bank	11.1	Mar.18 12:30pm	j970.01
Delaware River:			
Callicoon, N. Y., Erie R.R. bridge over Callicoon Creek, left bank	269.9	Probably Mar.18	j753.42
Narrowsburg, N. Y., a quarter of a mile below highway bridge, left bank	256.0	Probably Mar.18	j694.80
Port Jervis, N. Y., gaging station near highway bridge, right bank	220.8	Mar.18 5pm	432.92
Milford, Pa., highway bridge, upstream	212.4	Mar.18 9pm	a398.45
Shawnee-on-Delaware, Pa.	180.5		a324.2
Portland, Pa., highway bridge, upstream	173.1	Mar.19 2am	a292.90
Delaware, N. J., highway bridge, upstream	170.9	Mar.19 2am	a282.61
Belvidere, N. J., highway bridge, upstream	163.6	Mar.19 5-7am	a253.05
Belvidere, N. J., just below mouth of Pequest River	163.4	Mar.19 6-7am	ac252.18
Martins Creek, Pa., railroad bridge	156.5	Mar.19	a211.3
Easton, Pa., highway bridge, upstream	149.5	Mar.19 7am	a187.95
Riegelsville, N. J., just above suspension bridge	140.6	Mar.19 8-10am	ac157.74
Milford, N. J., highway bridge, upstream	133.6	Mar.19 9-11am	a132.57
Frenchtown, N. J., highway bridge, upstream	130.4	Mar.19 10-11am	a121.93
Point Pleasant, Pa., highway bridge, upstream	123.2	Mar.19 3pm	a98.64
Lumberville, Pa., highway bridge	121.5	Mar.19	a91.0
Stockton, N. J., highway bridge	118.0	Mar.19	a80.9
Lambertville, N. J., highway bridge, upstream	114.9	Mar.19 1-2pm	a67.00
Washington Crossing, N. J., highway bridge, upstream	108.0	Mar.19 4pm	a47.30
Yardley, Pa., highway bridge, upstream	104.1	Mar.19 2-3pm	a35.90
Trenton, N. J., Clearfield Avenue, left bank	102.7	Mar.19	31.47
Trenton, N. J., Mount Vernon Avenue, left bank	102.4	Mar.19	30.30
Trenton, N. J., Lee Avenue, left bank	102.1	Mar.19	29.57
Trenton, N. J., 1,200 feet above Calhoun Street, waste weir, left bank	100.8	Mar.19	25.37
Trenton, N. J., 650 feet above Calhoun Street, left bank	100.7	Mar.19	25.02
Trenton, N. J., 200 feet above Calhoun Street, left bank	100.6	Mar.19 3-4pm	c24.43
Trenton, N. J., 200 feet below Calhoun Street	100.5	Mar.19 4pm	24.20
Trenton, N. J., 200 feet below Pennsylvania R.R. bridge	99.5	Mar.19 3pm	18.19
Trenton, N. J., 1 3/8 miles below R.R. bridge, municipal dock	98.1	Mar.19 3pm	16.13
West Branch of Delaware River:			
Hale Eddy, N. Y., gaging station at highway bridge, left bank	9.7	Mar.18 4:20pm	j960.56
Hancock, N. Y., railroad bridge over Sands Creek, left bank	1.9	Probably Mar.18	j908.3
Flat Brook:			
Flatbrookville, N. J., 1 mile above	1.2	Mar.12 11:15am	c354.23
Paulins Kill:			
Lafayette, N. J., 1 mile southwest of, on property of Hyper Humus Co.	35.0	Mar.12 8am	ae557.08
Warbasse, N. J., Newton-Branchville Junction road	34.6	Mar.12	a555.35
Lafayette, N. J., just south of, Robeson Corner, Lafayette-Fairview bridge	33.8	Mar.12	a554.15
Lafayette, N. J., half a mile northwest of, Beaver Run road	32.5	Mar.12	a517.35
Lafayette, N. J., 1 mile northwest of, Lafayette-Branchville road	32.1	Mar.12	a504.44
Ross Corner, N. J., 2 miles northwest of Lafayette, State Highway S31	30.4	Mar.12	a497.80

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
e At time of reading; peak stage may have been slightly higher.
j Mean sea level datum of U. S. Geological Survey.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Delaware River Basin--Continued			
Paulins Kill-Continued:			
Baleville, N. J., County highway bridge	26.0	Mar.12	a472.30
Swartswood Station, N. J., 2 miles southwest of, above Paulins Kill Lake dam	20.6	Mar.12 11pm	ak457.38
Stillwater, N. J., County road bridge	16.9	Mar.12	a416.0
Paulina, N. J., above dam	10.3	Mar.12	13.26
Blairstown, N. J., 1,200 feet above bridge on State Highway 8	9.8	Mar.12 8:30am	cd6.92
Culvers Lake Branch of Paulins Kill:			
Culvers Inlet, N. J., State Highway S31 bridge just above Culvers Lake	6.1	Mar.11 or 12	a854.40
Branchville, N. J., 1½ miles west of, State Highway S31 bridge	3.1	Mar.11 or 12	a747.80
Dey Brook:			
Ross Corner, N. J., half a mile south of, Ross Corner-Newton road (State Highway S31)	0.6	Mar.11 or 12	527.50
Pequest River:			
Springdale, N. J., State Highway S31 bridge	29.6	--	a579.50
Springdale, N. J., half a mile south of, State Highway S31 bridge, upstream	29.1	Mar.13 9:25am	ae576.30
Huntsville, N. J., below Brighton Lake, at Huntsville-Greendell road bridge	26.7	--	a558.00
Tranquility, N. J., near, at Tranquility-Greendale road bridge	23.8	--	a547.18
Pequest, N. J., 100 feet above Lehigh & Hudson River Ry. bridge	6.6	Mar.14 5:30am	ac403.75
Stickle Pond Branch of Pequest River:			
Springdale, N. J., half a mile north of, State Highway S31	0.6	--	a586.50
Springdale, N. J., west of, highway bridge	.2	--	a580.00
East Branch of Pequest River:			
Andover Junction, N. J., Delaware, Lackawanna & Western R.R. bridge	1.6	Mar.12 or 13	a575.00
Brighton, N. J., highway bridge	.3	Mar.12 or 13	569.85
Beaver Brook:			
Belvidere, N. J., near, 500 feet above mouth	0.1	Mar.12 6am	ac309.12
Musconetcong River:			
Landing, N. J., Lake Hopatcong, just above dam	42.4	Mar.19 6pm to Mar.21 2am	a924.68
Landing, N. J., 300 feet downstream from Lake Hopatcong, just above highway bridge	42.3	Mar.19 7pm	ac908.16
Stanhope, N. J., 0.3 mile below Lake Musconetcong, highway bridge, upstream	39.6	Mar.12	a789.76
Stanhope, N. J., 0.3 mile below Lake Musconetcong, highway bridge, downstream	39.6	Mar.12	a787.71
Waterloo, N. J., 1 mile northeast of, highway bridge, upstream	37.5	Mar.12	a656.42
Waterloo, N. J., highway bridge, upstream	36.4	Mar.12	a644.65
Waterloo, N. J., 1 mile below, highway bridge, upstream	35.2	Mar.12	a635.49
Hackettstown, N. J., 3 miles above, 500 feet above Delaware, Lackawanna & Western R.R. bridge	32.7	Mar.12 7-9pm	ac609.61
Hackettstown, N. J., State Highway 6 bridge, upstream	29.5	Mar.12	a517.92
Hackettstown, N. J., Schooley Mountain Road bridge, upstream	28.4	Mar.12	a499.54
Beattystown, N. J., 1 mile above, highway bridge, upstream	27.5	Mar.12	a479.57
Beattystown, N. J., upper bridge, upstream	26.7	Mar.12	a465.56
Beattystown, N. J., 1½ miles southwest of, highway bridge, upstream	25.1	Mar.12	a438.83
Stephenburg, N. J., highway bridge, upstream	23.9	Mar.12	a427.57
Bloomsbury, N. J., 1½ miles above, just below highway bridge	9.4	Mar.11 11:30pm to midnight	cd5.67
Assunpink Creek:			
Trenton, N. J., Chambers Street Bridge	1.5	Mar.12 6-7am	ac30.31
North Branch of Rancocas Creek:			
Pemberton, N. J., 600 feet below highway bridge	12.0	Mar.19 6:30pm	ac30.01

a New Jersey Geological Survey mean sea level datum.
c River-measurement station.
d Arbitrary datum.
e At time of reading; peak stage may have been slightly higher.
k U.S. Weather Bureau datum.

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin			
Susquehanna River:			
Oneonta, N. Y., U.S. Weather Bureau gage	416.8	Mar.18-19 about midnight	k1,085.3
Wells Bridge, N. Y., milk plant, right bank	403.1	Mar.18	j1,043.7
Bainbridge, N. Y., 2.34 miles east of, railroad bridge abutment, right bank	390.2	--	j979.3
Bainbridge, N. Y., U.S.Weather Bureau gage	387.2	Mar.18 6:40pm	k978.1
Windsor, N. Y., new bridge, right bank	362.0	--	j920.7
Binghamton, N. Y., U.S. Weather Bureau gage, Washington Street Bridge	327.4	Mar.18 3pm	jm844.3
Owego, N. Y., abutment of bridge, right bank	304.2	Mar.19 10:30-11:30am	j813.0
Owego, N. Y., about 1 mile below Owego Hydro-electric plant, right bank	303.3	--	n811.5
Sayre, Pa., left bank	285.7	--	764.9
Sayre, Pa., highway bridge, right bank	285.6	--	764.3
Sayre, Pa., right bank	285.3	--	763.9
Athens, Pa., right bank	284.3	--	761.4
Athens, Pa., 0.1 mile below highway bridge, right bank	283.8	--	759.4
Chemung River, mouth of	280.9	--	
Milan, Pa., right bank	279.8	--	750.3
Right bank	278.0	--	745.0
Ulster, Pa., highway bridge, right bank	275.9	--	738.3
Sugar Creek, mouth of, right bank	271.2	--	729.3
Towanda, Pa., left bank	270.6	--	726.9
Towanda, Pa., Lehigh Valley Railroad bridge, downstream, right bank	269.3	--	722.9
Towanda, Pa., Bridge Street highway bridge, gage	268.2	Mar.19 9am	718.9
Towanda, Pa., Bridge Street highway bridge, right bank	268.2	--	718.8
Towanda, Pa., right bank	267.6	--	718.0
Left bank	264.1	--	710.1
Wysox Creek, mouth of, left bank	264.0	--	709.0
Rummerfield, Pa., left bank	257.0	--	693.0
Homets Ferry, Pa., left bank	253.5	--	684.0
Wyalusing, Pa., left bank	248.5	--	672.9
Wyalusing, Pa., highway bridge, left bank	248.2	--	671.7
Laceyville, Pa., highway bridge, left bank	238.5	--	653.1
Skinners Eddy, Pa., left bank	237.8	--	652.2
Black Walnut, Pa., left bank	235.0	--	646.3
Meshoppen, Pa., mouth of Meshoppen Creek, left bank	230.5	--	638.5
North Mehoopany, Pa., highway bridge, right bank	227.9	--	633.5
Mehoopany, Pa., left bank	227.8	--	632.4
Vosburg, Pa., old Lehigh Valley Railroad bridge, left bank	220.2	--	615.3
Tunkhannock, Pa., left bank	216.6	--	607.6
Tunkhannock, Pa., left bank	216.2	--	607.2
Tunkhannock, Pa., highway bridge, mouth of Tunkhannock Creek, left bank	215.8	--	607.2
LaGrange, Pa., left bank	211.0	--	595.5
Whites Ferry, Pa., left bank	208.4	--	589.1
West Falls, Pa., highway bridge, left bank	205.2	--	580.6
West Falls, Pa., highway bridge, right bank	205.2	--	580.5
Right bank	203.8	--	577.6
Ooxtan Yards, Pa., 0.6 mile above mouth of Lackawanna River, Lehigh Valley Railroad bridge, upstream, right bank	195.6	Mar.19 11pm	559.1
West Pittston, Pa., Ft. Jenkins highway bridge, downstream, right bank	194.0	--	556.4
Pittston, Pa., River Street highway bridge, left bank	193.8	--	556.1
Wyoming, Pa., highway bridge, upstream, left bank	191.4	--	553.9
Wyoming, Pa., highway bridge, upstream, right bank	191.4	--	551.9
Wilkes-Barre, Pa., North Street highway bridge, right bank	186.5	--	545.4
Wilkes-Barre, Pa., North Street highway bridge, left bank	186.5	--	545.2
Wilkes-Barre, Pa., Market Street highway bridge, right bank	186.1	--	544.7
Wilkes-Barre, Pa., Market Street highway bridge, left bank	186.1	--	545.4
Wilkes-Barre, Pa., Market Street highway bridge, gage	186.1	Mar.20 2am	545.0

j Mean sea level datum of U.S. Geological Survey.
k U.S. Weather Bureau datum.
m Maximum depth measured in apartment vestibule nearby occurred at 6pm and was 3 inches higher than that observed at 3pm.
n Associated Gas & Electric Co. gage.

Table 11.- Flood-crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Susquehanna River--Continued:			
Wilkes-Barre, Pa., Wilkes-Barre Connecting Railroad bridge, left bank	185.1	--	542.3
Plymouth, Pa., Carey Street highway bridge, right bank	183.3	--	541.4
Plymouth, Pa., Hanover Street highway bridge, right bank	182.7	--	541.0
Avendale, Pa., right bank	180.8	--	539.4
Nanticoke, Pa., highway bridge, upstream, left bank	178.8	--	537.9
Nanticoke, Pa., Pennsylvania Railroad bridge, upstream, left bank	178.8	--	537.9
West Nanticoke, Pa., Pennsylvania Railroad bridge, right bank	178.8	--	537.4
West Nanticoke, Pa., mouth of Harvey's Creek, right bank	177.9	--	535.6
Hunlock Creek, Pa., right bank	174.8	Mar.20 4am	528.0
Retreat, Pa., left bank	173.9	--	527.5
Right bank	170.3	--	522.9
Shickshinny, Pa., highway bridge, right bank	169.3	--	520.7
Mocanaqua, Pa., highway bridge, left bank	169.3	--	520.5
Left bank	165.8	--	513.4
Little Wapwallopen Creek, mouth of, left bank	165.3	--	512.9
Old Hick's Ferry, Pa., right bank	164.1	--	509.5
Wapwallopen, Pa., mouth of Wapwallopen Creek, left bank	163.9	--	508.8
Beach Haven, Pa., right bank	161.7	--	503.1
Nescopeck, Pa., left bank	158.6	--	497.6
Berwick, Pa., highway bridge, downstream, right bank	158.5	--	497.1
Berwick, Pa., right bank	157.5	--	494.3
Briar Creek, mouth of, right bank	155.5	--	489.1
Mifflinville, Pa., highway bridge, upstream, right bank	154.0	--	486.2
Creasy, Pa., Pennsylvania Railroad station, left bank	153.9	--	486.1
Right bank	150.9	--	482.1
Almedia, Pa., right bank	149.9	--	480.9
Espy, Pa., right bank	148.8	--	480.5
Rupert, Pa., mouth of Fishing Creek, right bank	144.8	--	476.1
Left bank	144.4	--	473.4
Catawissa, mouth of Catawissa Creek, left bank	143.1	--	469.6
Right bank	137.8	--	461.6
Danville, Pa., right bank	136.9	--	460.9
Danville, Pa., highway bridge, gage	134.3	Mar.19 4pm	459.1
Danville, Pa., Delaware, Lackawanna & Western R.R. bridge, right bank	134.2	--	458.1
Chulasky, Pa., right bank	131.3	--	456.7
Right bank	129.7	--	454.1
West Branch of Susquehanna River, mouth of, right bank	123.5	--	450.2
Sunbury, Pa., left bank	123.2	--	448.4
Sunbury, Pa., Market Street, left bank	122.5	--	446.8
Sunbury, Pa., left bank	122.2	--	446.8
Clement, Pa., Reading Ry. bridge, right bank	122.2	--	446.8
Sunbury, Pa., Reading Ry. bridge, upstream, left bank	122.2	--	446.2
Sunbury, Pa., Reading Ry. bridge, downstream, left bank	122.2	--	445.7
Sunbury, Pa., highway bridge, gage	121.5	Mar.19 2pm	445.8
Sunbury, Pa., Dalbaugh service station, left bank	121.0	--	444.7
Shamokin Dam, Pa., right bank	120.5	--	443.9
Selinsgrove Junction, Pa., left bank	117.5	--	438.3
Selinsgrove, Pa., right bank	117.3	--	435.4
Port Treverton, Pa., old canal lock, right bank	111.3	--	423.0
Herndon, Pa., railroad station, left bank	111.3	--	422.4
Dalmatia, Pa., railroad station, left bank	106.5	--	415.9
Mahantango Creek East, mouth of, left bank	102.6	--	404.4
Millersburg, Pa., ferry landing, left bank	96.6	--	381.9
Montgomery Ferry, Pa., Shuler store, right bank	94.3	--	379.7
Girty's Notch, Pa., right bank	92.4	--	375.5
New Buffalo, Pa., right bank	89.0	Mar.19 4pm	369.8
Amity Hall, Pa., Amity Hall Inn, right bank	86.5	--	368.3
Clark's Ferry, Pa., mouth of Juniata River, left bank	84.6	--	361.1
Duncannon, Pa., milk depot, right bank	84.0	--	360.4
Duncannon, Pa., railroad station, right bank	83.4	--	358.6
Cove, Pa., right bank	79.7	--	347.0
Dauphin, Pa., pumping station, left bank	77.6	--	337.4
Rockville, Pa., railroad bridge, downstream, right bank	75.4	--	328.3
Rockville, Pa., railroad bridge, downstream, left bank	75.4	--	327.5
Harrisburg, Pa., Lewis Street, left bank	72.6	--	324.3
Harrisburg, Pa., Edward Street, left bank	72.5	--	324.3
Harrisburg, Pa., Graham Street, left bank	72.4	--	324.1
Harrisburg, Pa., Manor Street, left bank	72.2	--	323.0
West Fairview, Pa., right bank	71.2	--	322.9
Harrisburg, Pa., Cumberland Street, left bank	70.2	--	322.6
Harrisburg, Pa., city pumping station, left bank	69.9	--	320.9
Harrisburg, Pa., Walnut Street bridge, gage, left bank	69.5	Mar.19 6pm	320.4

Table 11.- Flood-crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Susquehanna River--Continued:			
Harrisburg, Pa., Market Street highway bridge, downstream, left bank	69.4	Mar.19 6pm	320.4
Lemoyne, Pa., Market Street highway bridge, right bank	69.4	--	319.3
South Harrisburg, Pa., Nagle Street, gage, left bank	68.8	--	319.3
South Harrisburg, Pa., Central Iron & Steel Co., left bank	68.3	--	317.4
South Harrisburg, Pa., Jackson Mfg. Co., left bank	67.7	--	316.4
New Cumberland, Pa., railroad station, right bank	67.0	--	313.8
Steelton, Pa., water pump station, left bank	66.8	--	314.4
Steelton, Pa., Bethlehem Steel Co., motor room, left bank	66.5	--	313.5
Marsh Run, Pa., right bank	64.3	--	309.6
Highspire, Pa., Bethlehem Steel Co. pumping station, left bank	63.6	--	307.1
Middletown, Pa., United States Army airport, left bank	61.2	--	304.2
Middletown, Pa., Metro-Edison Co. plant, left bank	60.6	--	303.2
Middletown, Pa., mouth of Swatara Creek, left bank	60.0	--	303.6
Goldsboro, Pa., railroad culvert, right bank	59.4	--	297.3
Goldsboro, Pa., railroad culvert, right bank	59.2	--	297.3
Goldsboro, Pa., right bank	58.8	--	296.9
Goldsboro, Pa., railroad crossing, right bank	58.8	--	296.7
Goldsboro, Pa., right bank	58.7	--	296.5
Cly, Pa., railroad culvert, right bank	56.5	--	295.4
Falmouth, Pa., mouth of East Conewago Creek, left bank	56.4	Mar.19 8pm	295.2
York Haven Power Plant, forebay, right bank	55.0	--	287.7
York Haven Power Plant, tailrace, right bank	55.0	--	280.6
Bainbridge, Pa., left bank	52.8	--	278.7
Atglen & Susquehanna Ry. bridge, upstream, left bank	49.7	--	274.3
Shock's Mills, Pa., left bank	48.3	--	267.5
Marietta, Pa., left bank	46.2	--	264.6
Chickies Creek, mouth of, gage, left bank	44.2	Mar.19 10pm	260.7
Columbia, Pa., left bank	42.2	--	242.1
Rolling Mill, Pa., left bank	41.7	--	241.2
Strickler's Run, Pa., left bank	41.2	--	240.5
Columbia & Port Deposit R.R. mile post 42/2, left bank	40.4	--	236.1
Shuman's Run, Pa., left bank	39.6	--	234.3
Staman's Run, Pa., left bank	39.2	--	233.6
Creswell Station, Pa., left bank	37.2	--	231.3
Safe Harbor Power Plant, forebay, left bank	31.9	--	227.2
Safe Harbor Power Plant, tailrace, left bank	31.9	Mar.19-20 midnight	193.1
Pequea, Pa., left bank	29.5	--	191.4
Holtwood Power Plant, forebay, left bank	24.5	--	184.1
Holtwood Power Plant, tailrace, left bank	24.5	--	148.6
Cully's Falls, Pa., left bank	23.2	--	145.6
- - - - -	22.0	--	126.3
- - - - -	21.7	--	125.3
Fites Eddy, Pa., left bank	21.3	--	117.0
Conewingo Power Plant, forebay, right bank	9.6	--	108.74
Conewingo Power Plant, tailrace, right bank	9.6	Mar.20 2am	39.57
Mouth, Chesapeake Bay	0	--	-
Unadilla River:			
New Berlin, N. Y., New York, Ontario & Western Ry. bridge, both banks	29.4	--	j1,089.7
Mt. Upton, N. Y., near bench march at Methodist Church, right bank	10.7	--	j1,022.3
Chenango River:			
Sherburne, N. Y., U.S. Weather Bureau gage	62.5	Mar.18 10am and noon	k1,047.7
Norwich, N. Y., U. S. Highway 23 bridge, left bank, downstream	49.2	--	998.9
Oxford, N. Y., cellar of building downstream from highway bridge, left bank	39.0	--	970.2
Brisben, N. Y., 1 mile northeast of, along Delaware, Lackawanna & Western R.R., left bank	30.6	--	o930.8
Greene, N. Y., 3.6 miles southwest of, along Delaware, Lackawanna & Western R.R., left bank	19.0	--	o901.2
Chenango Forks, N. Y., near railroad station, right bank	13.3	Mar.18 about 1pm	o893.9
Binghamton, N. Y., U.S. Weather Bureau gage, Court Street bridge	0.5	Mar.18 5pm	j844.7

j Mean sea level datum of U.S. Geological Survey.
k U.S. Weather Bureau datum.
o Datum of Corps of Engineers, U.S. Army.

Table 11.- Flood-crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Chemung River:			
Corning, N. Y., U.S. Weather Bureau gage	39.3	Mar.12 10am	k932.1
Elmira, N. Y., gage at south end of Lake Street bridge	22.3	Mar.11-12 about midnight	j852.0
Athens, Pa., left bank	2.6	--	756.7
Athens, Pa., highway bridge, left bank	2.2	--	756.1
Greens Landing, Pa., right bank	1.0	--	754.5
Mouth of Chemung River	0	--	--
West Branch of Susquehanna River:			
Barnesboro, Pa., right bank	229.5	Mar.17 2:30pm	1,445.0
Burnside, Pa., upper highway bridge, right bank	214.4	Mar.17 10:30pm	1,321.2
Mahaffey, Pa., mouth of Chest Creek, right bank	204.4	Mar.18 1:45am	1,268.9
Bower, Pa., highway bridge, gage, left bank	199.8	Mar.18 3am	1,226.1
Lumber City, Pa., left bank	191.4	--	1,176.6
Lumber City, Pa., highway bridge, upstream, left bank	191.3	Mar.18 3:30am	1,176.6
Curwensville, Pa., mouth of Anderson Creek	181.9	--	--
Left bank	181.3	--	1,134.8
County highway bridge, 0.6 mile above Pennsylvania Railroad bridge, left bank	179.1	--	1,128.1
Left bank	178.5	--	1,124.6
Hyde, Pa., highway bridge, upstream, right bank	175.9	--	1,116.6
Hyde, Pa., right bank	175.9	--	1,114.9
Clearfield, Pa., right bank	175.7	--	1,113.4
Clearfield, Pa., right bank	175.2	--	1,112.9
Clearfield, Pa., Market Street highway bridge, right bank	174.8	Mar.18 5am	1,110.8
Clearfield, Pa., right bank	174.7	--	1,111.0
Clearfield, Pa., right bank	174.5	--	1,110.7
Clearfield, Pa., right bank	174.1	--	1,110.6
Clearfield, Pa., right bank	173.9	--	1,109.9
Clearfield, Pa., right bank	173.5	--	1,109.6
Clearfield, Pa., left bank	173.3	--	1,109.4
Clearfield Creek, mouth of, right bank	171.5	--	1,103.5
Shawville, Pa., mouth of Trout Run, left bank	163.1	--	1,053.9
Shawville, Pa., mouth of Trout Run, right bank	163.1	--	1,051.9
Coudley, Pa., left bank	148.8	--	976.6
Coudley, Pa., highway bridge, downstream, left bank	148.5	--	972.7
Rolling Stone highway bridge, downstream, left bank	143.0	--	936.9
Moshannon Creek, mouth of	135.6	--	--
Karthaus, Pa., mouth of Mosquito Creek, left bank	132.2	--	853.4
Karthaus, Pa., left bank	132.1	--	849.4
Left bank	127.1	--	813.9
Lower Three Runs Run, mouth of, left bank	126.2	--	805.7
Keating, Pa., mouth of Sinnemahoning Creek, left bank	110.2	Mar.18 3am	724.8
Cooks Run, mouth of, left bank	107.7	--	708.6
Kettle Creek, mouth of, left bank	104.0	Mar.18 5am	695.9
Left bank	103.9	--	695.4
Shintown Run, mouth of, left bank	101.2	--	680.2
Left bank	101.1	--	678.9
Drury Run, mouth of, left bank	99.0	--	672.1
Right bank	98.6	--	669.0
Renovo, Pa., left bank	97.7	--	665.1
Renovo, Pa., highway bridge, gage, left bank	97.6	Mar.18 7am	663.4
Renovo, Pa., left bank	97.2	--	662.0
Left bank	94.1	--	650.3
Young Womans Creek, mouth of, left bank.	93.8	--	650.3
Hyner Run, mouth of, left bank	90.8	--	638.8
Hyner, Pa., highway bridge, left bank	90.8	--	635.8
Hyner, Pa., right bank	89.6	--	629.8
Rattlesnake Run, mouth of, left bank	85.8	Mar.18 8am	618.2
Tanganscootack Creek, mouth of	77.3	--	587.8
Right bank	77.3	--	587.8
Right bank	74.8	--	581.7
Lock Haven, Pa., right bank	71.0	--	570.1
Lock Haven, Pa., right bank	70.2	--	567.9
Lock Haven, Pa., highway bridge, gage	70.0	Mar.18 11:30am	567.3
Lock Haven, Pa., right bank	69.6	--	566.5
Lock Haven, Pa., right bank	69.3	--	566.5

j Mean sea level datum of U.S. Geological Survey.
k U.S. Weather Bureau datum.

Table 11.- Flood-crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
West Branch of Susquehanna River--Continued:			
Great Island, Pa., West highway bridge, upstream, left bank	68.5	--	565.9
North Bald Eagle Creek, mouth of	67.5	--	-
Great Island, Pa., East Bridge, upstream, left bank	67.3	--	564.7
Great Island, Pa., 0.4 mile below East Bridge, left bank	66.9	--	562.4
McElhattan, Pa., left bank	63.9	--	560.1
Pine Creek, mouth of, left bank	58.7	--	555.4
Jersey Shore, Pa., left bank	56.3	--	552.3
Jersey Shore, Pa., left bank	55.6	--	551.1
Jersey Shore, Pa., highway bridge, left bank	55.4	--	550.6
Jersey Shore, Pa., left bank	55.3	Mar.18 3 pm	550.7
Jersey Shore, Pa., left bank	53.8	--	548.4
Left bank	46.9	--	537.8
Quineshakony Run, mouth of, left bank	46.7	Mar.18 7pm	537.7
Linden Station, Pa., Pennsylvania Railroad bridge, upstream, right bank	45.4	--	536.0
Linden Station, Pa., Pennsylvania Railroad bridge, upstream, left bank	45.4	--	535.4
Left bank	44.0	--	535.3
Lycoming Creek, mouth of	41.5	--	-
Williamsport, Pa., left bank	40.2	--	530.8
Williamsport, Pa., left bank	39.4	--	528.5
Williamsport, Pa., Market Street highway bridge, gage, left bank	39.3	Mar.18 9pm	528.1
Williamsport, Pa., left bank	37.6	--	526.1
Williamsport, Pa., 0.1 mile above mouth of Loyalsock Creek, left bank	35.7	--	523.5
Left bank	34.1	--	520.7
Carpenters Run, mouth of, left bank	30.0	Mar.18 10:30pm	507.4
Muncy, Pa., highway bridge, left bank	27.7	--	499.9
Montgomery, Pa., right bank	23.3	--	491.3
Montgomery, Pa., right bank	23.1	--	490.8
Montgomery, Pa., highway bridge	22.7	--	-
Montgomery, Pa., right bank	22.6	--	489.5
Allenwood, Pa., right bank	18.5	--	479.7
Watsontown, Pa., left bank	16.3	--	475.8
Watsontown, Pa., left bank	16.0	--	475.4
Watsontown, Pa., highway bridge, upstream, left bank	15.8	Mar.19 2am	475.4
Watsontown, Pa., left bank	15.6	--	475.1
Milton, Pa., left bank	12.2	--	469.8
Milton, Pa., left bank	11.6	--	469.0
Milton, Pa., highway bridge, upstream, left bank	11.3	--	468.5
Milton, Pa., left bank	11.0	--	466.9
Milton, Pa., Reading Railroad bridge, left bank	10.9	--	467.3
Milton, Pa., left bank	10.7	--	464.7
Left bank	8.9	--	461.7
Lewisburg, Pa., Pennsylvania Railroad bridge, downstream, left bank	7.6	--	460.0
Lewisburg, Pa., right bank	7.3	--	459.3
Left bank	5.2	--	457.4
Left bank	3.1	Mar.19 6am	454.4
Northumberland, Pa., highway bridge, left bank	0.1	--	450.6
Mouth, confluence with Susquehanna River	0	--	450.2
Chest Creek:			
Westover, Pa., left bank	11.9	--	1,355.7
Mahaffey, Pa., mouth	0.0	--	1,268.9
Clearfield Creek:			
Irvona, Pa., left bank	36.7	--	1,377.7
Irvona, Pa., highway bridge, right bank	36.7	Mar.17 11:30pm	1,377.5
Madera, Pa., right bank	25.7	--	1,340.8
Madera, Pa., highway bridge, upstream, right bank	25.7	Mar.18 5am	1,341.7
Dimeling, Pa., highway bridge, gage	7.7	Mar.18 11am	1,164.0
New York Central Railroad bridge, left bank	0.9	Mar.18 3pm	1,107.9
Mouth	0	--	1,103.5
Moshannon Creek:			
Philipsburg, Pa., highway bridge, left bank	32.5	Mar.18 2am	1,424.5
Black Moshannon Creek, mouth of, right bank	5.1	Mar.18 6am	995.6

Table 11.- Flood-crest stages--Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Bennett Branch of Sinnemahoning Creek:			
Caledonia, Pa., left bank	23.2	--	1,113.3
Medix Run, mouth of, left bank	19.5	--	1,046.4
Benezette Run, mouth of, left bank	16.1	Mar.17 11pm	994.8
Dents Run, mouth of, left bank	9.0	--	904.1
Hicks Run, mouth of, left bank	7.9	--	896.0
Pennsylvania Railroad bridge, upstream, left bank	1.3	Mar.18 2am	817.8
Driftwood, Pa., mouth of, left bank	0	Mar.18 1:30am	809.2
Sinnemahoning Creek:			
Driftwood, Pa., Pennsylvania Railroad bridge, left bank	14.9	Mar.18 1:30am	809.2
Left bank	11.8	--	787.7
Sinnemahoning, Pa., Baltimore & Ohio R.R. bridge, upstream, right bank	11.7	--	788.0
Sinnemahoning, Pa., Baltimore & Ohio R.R. bridge, upstream, left bank	11.7	--	788.0
Sinnemahoning, Pa., left bank	11.7	Mar.18 2am	785.0
Keating, Pa., mouth, right bank	0	Mar.18 3am	724.8
Driftwood Branch Sinnemahoning Creek:			
Emporium Junction, Pa., left bank	18.7	--	1,013.0
Cameron, Pa., highway bridge, left bank	12.9	Mar.17 10pm	954.5
Sterling Run, Pa., highway bridge, gage, right bank	9.1	Mar.17 10:30pm	905.1
Driftwood, Pa., Pennsylvania Railroad bridge, mouth, left bank	0	Mar.18 1:30am	809.2
North Bald Eagle Creek:			
Milesburg, Pa.	23.5	Mar.18 1:30am	695.5
Beech Creek Station, Pa., highway bridge, gage	12.1	Mar.18 5:30am	586.2
Pine Creek:			
Cedar Run, Pa., highway bridge, gage, left bank	36.6	Mar.18 3:30am	793.4
Ramsey, Pa., left bank	10.4	--	608.4
Pine Creek, highway bridge, left bank	2.6	Mar.18 2pm	555.4
Frankstown Branch of Juniata River:			
Frankstown, highway bridge, upstream, left bank	40.4	--	920.5
Canoe Creek, Pa., Pennsylvania Railroad bridge, downstream, left bank	34.9	--	887.8
Gannister, Pa., highway bridge, left bank	30.4	--	869.1
Williamsburg, Pa., West Virginia Pulp & Paper Co. plant, right bank	28.9	--	857.3
Williamsburg, Pa., highway bridge, right bank	28.5	--	852.5
Williamsburg, Pa., gage, left bank	28.5	Mar.18 3am	850.4
Williamsburg, Pa., pump station, right bank	28.3	--	851.2
Clover Creek, mouth of, left bank	26.1	--	827.5
Covedale, Pa., highway bridge, left bank	25.2	--	812.5
Fox Run, mouth of, left bank	20.2	--	758.9
Water Street, Pa., Pennsylvania Railroad station, left bank	16.8	--	730.5
Alexandria, Pa., left bank	15.1	--	710.2
Alexandria, Pa., left bank	14.9	--	707.9
Alexandria, Pa., highway bridge, left bank	14.6	--	706.4
Little Juniata River, mouth of, highway bridge	10.5	--	678.5
Warrior's Ridge, Pa., Penn Central Light & Power Co. plant, left bank	7.2	--	657.8
Huntingdon, Pa., Pennsylvania Industrial School, island	3.7	--	623.0
Huntingdon, Pa., Smithfield Street highway bridge	3.2	--	621.8
Huntingdon, Pa., Huntingdon-Broad Top Mountain R.R. & Coal Co. bridge, upstream, left bank	3.1	--	619.3
Huntingdon, Pa., 4th Street highway bridge, upstream, left bank	2.7	--	619.2
Huntingdon, Pa., 4th Street highway bridge, right bank	2.7	Mar.18 6am	618.0
Huntingdon, Pa., mouth of Standing Stone Creek, left bank	2.4	--	617.5
Ardenheim, Pa., left bank	0.7	--	614.1
Juniata River:			
Junction of Frankstown and Raystown Branches	91.0	--	--
Trough Creek, Pa., highway bridge, left bank	88.9	--	609.5
Mapleton, Pa., highway bridge, right bank	85.3	--	596.0
Mt. Union, Pa., right bank	82.7	--	576.4

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Juniata River--Continued:			
Mt. Union, Pa., highway bridge, right bank	82.3	--	575.4
Mt. Union, Pa., right bank	81.8	--	570.5
Mt. Union, Pa., Pennsylvania Railroad bridge, downstream, right bank	80.8	--	567.1
Aughwick Creek, mouth of, right bank	77.7	Mar.18 noon	556.3
Newton Hamilton, Pa., left bank	74.2	--	542.4
Newton Hamilton, Pa., left bank	74.0	--	542.0
Newton Hamilton, Pa., highway bridge, right bank	73.8	--	540.0
Newton Hamilton, Pa., left bank	73.6	Mar.18 3:30pm	539.6
Ryde, Pa., right bank	67.7	--	523.7
Ryde, Pa., Pennsylvania Railroad bridge, upstream, left bank	67.4	Mar.18 5:30pm	521.3
McVeytown, Pa., left bank	63.2	--	512.5
McVeytown, Pa., left bank	62.8	Mar.18 7:30pm	512.0
McVeytown, Pa., highway bridge, downstream, right bank	62.8	--	512.0
Longfellow, Pa., 0.3 mile below railroad station, right bank	57.4	--	503.9
Right bank	52.7	--	497.5
Mayes Bridge, upstream, right bank	51.8	Mar.18 11pm	495.1
Lewistown, Pa., first bridge of Pennsylvania Railroad, above, upstream, right bank	49.4	--	490.9
Left bank	47.8	--	488.2
Lewistown, Pa., left bank	47.0	--	487.2
Lewistown, Pa., highway bridge, right bank	46.9	Mar.18-19 midnight	486.7
Lewistown, Pa., mouth of Jacks Creek, left bank	45.5	--	485.0
Left bank	43.1	--	476.6
Macadonia Creek, mouth of, left bank	38.5	--	455.2
Mifflin, Pa., highway bridge, right bank	34.6	--	448.3
Mifflintown, Pa., highway bridge, downstream, left bank	34.6	Mar.19 2am	446.8
Port Royal, Pa., highway bridge, downstream, right bank	31.7	--	441.6
Port Royal, Pa., mouth of Tuscarora Creek, right bank	31.4	--	441.3
Mexico, Pa., highway bridge, downstream, left bank	29.8	Mar.19 2:30am	434.3
Mexico, Pa., right bank	29.6	--	433.7
Van Dyke, Pa., Pennsylvania Railroad station, right bank	26.1	--	427.1
Thompsontown, Pa., left bank	23.2	--	423.5
Thompsontown, Pa., highway bridge, upstream, left bank	22.9	Mar.19 4am	422.4
Millerstown, Pa., left bank	19.3	--	413.9
Millerstown, Pa., left bank	17.8	--	411.2
Millerstown, Pa., highway bridge, right bank	17.6	--	410.7
Millerstown, Pa., left bank	17.2	--	410.5
Cocolamus Creek, mouth of, left bank	16.6	--	408.4
Wildcat Creek, mouth of, left bank	14.5	--	402.9
Newport, Pa., mouth of Big Buffalo Creek, right bank	13.0	--	400.4
Newport, Pa., left bank	12.3	--	398.5
Newport, Pa., right bank	12.3	--	398.3
Newport, Pa., highway bridge, upstream, right bank	12.3	--	398.2
Newport, Pa., gage, right bank	12.3	Mar.19 7am	397.4
Newport, Pa., mouth of Little Buffalo Creek, right bank	12.0	--	397.5
Trimmers Rock, Pa., left bank	10.7	--	391.7
Bailey, Pa., 0.8 mile above, left bank	8.6	--	387.0
Board Run, mouth of, left bank	6.3	--	382.5
Lashs Run, Pa., 0.6 mile above, left bank	3.5	--	370.2
Bevenue, Pa., left bank	0.2	Mar.19 9am	359.5
Little Juniata River:			
Tyrone, Pa., left bank	16.2	--	908.7
Tyrone, Pa., Pennsylvania Railroad bridge, upstream,	15.2	--	897.3
Tyrone, Pa., Penn Avenue highway bridge, left bank	15.0	Mar.17-18 midnight	896.5
Bald Eagle Creek, mouth of, left bank	14.9	--	890.9
Spruce Creek, Pa., twelfth bridge of Pennsylvania Railroad, above, upstream, right bank	13.4	--	872.8
Ironville, Pa., Pennsylvania Railroad bridge, upstream left bank	12.8	--	862.7
Birmingham, Pa., highway bridge, right bank	11.8	--	851.5
Spruce Creek, Pa., tenth bridge of Pennsylvania Railroad above, upstream, right bank	11.2	--	848.2
Spruce Creek, Pa, ninth bridge of Pennsylvania Railroad above, upstream, left bank	10.9	--	840.5
Shoenberger, Pa., highway bridge, left bank	10.2	--	823.8
Spruce Creek, Pa., highway bridge, left bank	6.3	Mar.18 2am	765.8

Table 11.- Flood-crest stages --Continued

Stream and location	Miles above mouth	Date and time	Altitude in feet
Susquehanna River Basin--Continued			
Little Juniata River--Continued:			
Barree, Pa., second bridge of Pennsylvania Railroad above, upstream, right bank	4.5	--	747.5
Barree, Pa., highway bridge, right bank	2.9	Mar.18 3am	716.6
Highway bridge, Pa., right bank	0.4	--	679.9
Pennsylvania Railroad bridge, downstream, right bank	0.3	--	678.9
Mouth, right bank	0	--	678.5
Raystown Branch of Juniata River:			
Wolfsburg, Pa., highway bridge, upstream, right bank	100.2	--	1,093.3
Bedford, Pa., right bank	97.5	--	1,066.3
Bedford, Pa., highway bridge, left bank	97.0	Mar.18 3am	1,065.5
Bedford, Pa., right bank	96.5	--	1,063.2
Dunning Creek, mouth of, left bank	95.4	--	1,061.9
Everett, Pa., left bank	87.3	--	1,019.8
Everett, Pa., left bank	86.6	--	1,019.3
Everett, Pa., highway bridge, upstream, left bank	86.5	Mar.18 3am	1,018.6
Everett, Pa., left bank	86.4	--	1,017.8
Juniata Crossing, Pa., highway bridge, upstream, left bank	78.6	--	996.5
Juniata Crossing, Pa., right bank	78.4	--	991.6
Cypher, Pa., highway bridge, left bank	58.9	--	912.0
Hopewell, Pa., highway bridge, right bank	54.3	--	880.9
Hopewell, Pa., highway bridge, left bank	54.3	Mar.18 6am	880.4
Riddlesburg, Pa., highway bridge, upstream, right bank	51.9	--	867.7
Riddlesburg, Pa., right bank	51.9	--	863.7
Saxton, Pa., highway bridge, upstream, right bank	44.2	--	819.8
Saxton, Pa., gage, left bank	44.2	--	819.3
Saxton, Pa., highway bridge, right bank	43.2	Mar.18 9am	816.1
Saxton, Pa., Penn Central Light & Power Co. plant, right bank	42.2	--	804.5
Entriken Bridge, left bank	29.9	--	745.6
Trexler Bridge, left bank	24.2	--	705.6
Hawns Bridge, left bank	9.1	--	651.1
Corbin Bridge, left bank	.3	--	612.9

RECORDS OF PREVIOUS FLOODS

Knowledge of the floods of the past provides an effective basis upon which to formulate plans for protection against future floods and for control of the flood waters. Discriminating consideration of the magnitude and frequency of great floods is essential to the best economic solution of flood problems; consequently, the longer the record of flood experience the more enlightened and adequate the solution may be.

Systematic observations of the stages and discharges of rivers in the United States cover short periods of time and may be said to be comparatively in their infancy. The records diminish greatly in number as they extend into the past, and those exceeding 50 years in length are few. Information regarding many floods is published currently in the water-supply papers of the Geological Survey. Water-Supply Paper 771, "Floods in the United States - magnitude and frequency", contains an extensive compilation, largely from the water-supply papers, of records of floods on many of the rivers of the country for which, in general, the periods of systematic observation exceed 25 or 30 years.

Information regarding some notable floods of the past is presented below for the group of river basins covered in this volume. This information has been assembled as an incident to the preparation of the report on the floods of March 1936 and consists primarily of a summary, in either textual or tabular form, of notes and other data concerning outstanding floods for which there are authentic or reasonably trustworthy records. Variations in the nature and origin of the information obtained from different sources have necessitated the variation in the form of presentation for different basins.

The reports of the Corps of Engineers, U. S. Army, on the development and utilization of many of the rivers of the country, published under the provisions of House Document 308, 69th Congress, 1st session, are sources of information regarding historical floods. Official State reports of agencies and departments that are concerned with the use of water often contain data and information about past floods. Specific references are given in the following text to the sources of information regarding early floods.

Information of past floods in detail adequate for significant comparison diminishes very greatly as the floods antedate the periods of systematic observation, which began generally within the last 50 years.

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It is important, however, that records pertaining to the more outstanding early floods have been preserved through the years and may be compared with those of later floods.

Although available flood records are invaluable, it is to be emphasized that the experience disclosed even by 100-year or 200-year records may have serious limitations in establishing a reliable long-time experience with respect to the magnitude and frequency of rare floods. A broad knowledge of practical hydrology and meteorology is essential to the most effective interpretation of the records in respect to the occurrence of rare floods.

The records of previous floods are generally compiled only for the major rivers, and therefore little definite information regarding the floods on the smaller tributaries and small coastal streams is ordinarily available. The times of occurrence of the floods on such smaller streams, however, undoubtedly correspond more or less closely to the times of occurrence of the floods on the neighboring larger streams.

Hudson River Basin

Upper Hudson River Basin.- Records of floods in the upper Hudson River region are meager, partly because there are no large cities on the rivers but largely because this region has been protected by natural storage. With the exception of streams rising in New England, the maximum flood of record is that of March 24-29, 1913. The Sacandaga River reached a flow of 35,800 second-feet at Hadley, N. Y., in that flood,or about 36 second-feet per square mile. The Hudson River at Mechanicville, N. Y., with a record continuous since 1887, reached a flow of 120,000 second-feet, or 26.6 second-feet per square mile at that time. This flood discharge will probably never again be equaled at Mechanicville, because of the construction of the Sacandaga Reservoir (completed in 1930). The flood of 1869 was the greatest recorded on the Hudson River prior to 1913 and was estimated to be 70,000 second-feet at Mechanicville.*

For streams rising in New England the maximum flood of record is that of November 1927. The Batten Kill at Battenville, N. Y., with a drainage area of 394 square miles, reached a peak of 21,300 second-feet.

* Rafter, G. W., Hydrology of the State of New York: New York State Mus. Bull. 85, p. 467, 1905.

According to the report of the Corps of Engineers, United States Army,* "The watershed received an average rainfall of 6 inches. Other major floods on the Batten Kill occurred in 1904 and 1913, the former having a discharge of 11,700 and the latter 8,400 second-feet at Battenville. The damage caused by the 1927 flood amounted to $300,000." This report contains a detailed description of the flood of 1927. House Document 684, 71st Congress, 3d session, contains a complete report of previous floods on the Hoosic River. The Hoosic River at Eagle Bridge, N. Y., had a peak of 29,800 second-feet in November 1927 from 510 square miles. The estimated damage was nearly $3,000,000. Prior to 1927 the greatest recorded discharge was 16,700 second-feet at Eagle Bridge on July 9, 1915.

Lower Hudson River Basin.- The following description and table (except for the 1936 data, which have been added at the end of the table) are taken from House Document 149, 72d Congress, 1st session:

(a) A list of the greatest floods at the city of Albany since 1839, as recorded by the United States Weather Bureau and this office [New York, N. Y., district office of Corps of Engineers, U. S. Army], is presented in the following tabulation:

Hudson River floods at State Street, Albany, N. Y., above safe stage of 10.6 feet

Date	Causes	Mean sea level elevations [feet]
Jan. 27, 1839	. . . . .	18.24
Mar. 15, 1846	Gorge at Barren Island.	18.73
Feb. 9, 1857	Gorge above Van Wies Point.	21.71
Jan. 11, 1869	Gorge at freight bridge, Albany, N. Y . . .	18.46
Apr. 22, 1869	Gorge	19.46
Oct. 5, 1869	13.8 inches rainfall.	18.98
Feb. 6, 1876	No ice.	14.46
Feb. 14, 1886	Gorge in front of Albany, N. Y.	18.35
Apr. 12, 1887	Gorge	15.46
Mar. 26, 1893	Gorge off south end Houghtailing Island . .	18.89
May 5, 1893	Gorge	16.58
Apr. 10, 1895	Melting snow and rain	16.42
Mar. 1, 1896	Gorge north of Stockport.	18.24
Mar. 13, 1898	Gorge	13.76
Mar. 6, 1899	Gorge at Van Wies, Castleton, North Coeymans	12.91
Feb. 14, 1900	Gorge at Stuyvesant Light, North Coeymans, etc.	20.42
Dec. 12, 1901	Gorge below Stone House bar	14.04
Mar. 2, 1902	do	18.96
Mar. 2, 1903	Gorge at Coxsackie Island and Upper Schodak Island	16.78
Mar. 24, 1904	Gorge at Van Wies Point	13.8
Apr. 2, 1905	Gorge below Albany and heavy rain	14.2
Mar.4-6, 1906	Gorge at Van Wies Point	12.4
Nov. 8, 1907	Rain.	13.9
Feb. 16, 1908	Gorge at Castleton.	16.7
Feb. 20, 1909	Gorge below Albany.	17.9
Jan. 23, 1910	do	13.75
Mar. 28, 1913	Warm rain, about 5 inches in 5 days	21.45
Mar. 29, 1914	Rain 3 days and thaw, Spier Falls, 0.73 inch; Albany, 1.13 inches.	14.83

* 71st Cong., 3d sess., H. Doc. 685.

Hudson River floods at State Street, Albany, N. Y., above safe stage of 10.6 feet--Continued

Date	Causes	Mean sea level elevations [feet]
Apr. 21, 1914	Rain and thaw, Spier Falls, 1.06 inches; Albany, 1.52 inches.	15.52
Feb. 16, 1915	Rain 1 day, Spier Falls, 1.4 inches	11.12
July 9, 1915	Rain 8 days, Spier Falls, 3.29 inches . . .	11.04
Apr. 2, 1916	Thaw, weather abnormally warm	15.01
Mar. 28, 1917	do	12.10
June 13, 1917	Rain, Spier Falls, 2.88 inches; Gloversville, 3.38 inches	11.46
Mar. 27, 1920	Thaw, abnormally warm weather	13.14
Apr. 12, 1922	Rain and thaw, Spier Falls, 1.3 inches; Ballston Lake, 2.13 inches	15.98
Apr. 7, 1923	Rain and thaw, Spier Falls, 1.5 inches; North Lake, 1.69 inches.	12.96
Apr. 8, 1924	Rain, Spier Falls, 2.46 inches; Gloversville, 1.3 inches.	13.74
Apr. 10, 1926	Rain, Conklingville, 1.12 inches; Gloversville, 1.8 inches.	10.88
Apr. 26, 1926	Rain, Conklingville, 0.88 inch; Gloversville, 0.66 inch	12.14
Nov. 4, 1927	Rain, Conklingville, 3.55 inches.	15.96
Dec. 9, 1927	Rain, Conklingville, 1.5 inches; Gloversville, 0.74 inch; Spier Falls, 1.5 inches	12.21
Mar. 16, 1929	Rain and thaw, Conklingville, 2.26 inches; Gloversville, 1.77 inches; Spier Falls, 1.64 inches.	12.67
Apr. 22, 1929	Rain, Conklingville, 1.08 inches; Gloversville, 1.4 inches; Spier Falls, 1.1 inches	12.11
Mar. 13, 1936	. . . . .	15.00
Mar. 19, 1936	. . . . .	17.86

* * *

(b) Flood of March 1913.- (1) The most severe flood ever recorded on the Hudson River was that of March 24-29, 1913. The rainfall causing this flood was general over the entire north-central and northeastern part of the United States. The effects it produced in the Miami River Valley in Ohio led directly to the extensive flood-prevention works undertaken on that river. On the Hudson River watershed a period of thaw with temperatures rising to 70° F. was followed by 5 days of continuous rain. The total precipitation amounted to 5.05 inches at Indian Lake, 6.4 inches at Spier Falls, and 5.43 inches at Glens Falls. At the latter station the maximum 1-day rainfall was 2.3 inches.

(2) Discharge measurements indicated a maximum flow of 89,000 second-feet [later revised to 71,800 second-feet by the United States Geological Survey] at Spier Falls, 120,000 second-feet at Mechanicville, and about 220,000 second-feet at Albany. In the city of Troy the flood reached an elevation of 29.7 feet above mean sea level, 7 feet above safe height, and exceeded the greatest previous height by 4.1 feet. At Albany the highest elevation reached was 21.53 feet, or 11 feet beyond the safe limit. The flood of February 9, 1857, rose to about the same height at Albany, but as it was caused by ice it was lower than the 1913 flood at the city of Troy. The flood of February 14, 1900, also due to ice, reached to within a foot of the two greatest floods of record. From surveys made at the time of the 1913 flood the area inundated in the industrial and residential sections was determined at about 170 acres in Watervliet, 580 acres in Troy, 300 acres in Rensselaer, and 530 acres in Albany. In addition to the great amount of property damage incurred, a serious menace to health arose through the flooding of the Albany filtration plant, which resulted in a typhoid epidemic throughout the city.

Flood records on tributaries of the lower Hudson River do not extend back many years. Rafter (New York State Mus. Bull. 85, p. 474) estimated the spring flood of 1901 on Catskill Creek at 21,000 second-

feet, or 100 second-feet to the square mile. The greatest flood on Kinderhook Creek was that of November 4, 1927, with a peak discharge of 17,000 second-feet at Rossman, N. Y. (House Document 653, 71st Congress, 3d session). The greatest discharge recorded at the Rossman station prior to 1936 was 11,000 second-feet on January 22, 1910, although the peak discharge on February 20, 1909, when there was a mean daily flow of 10,200 second-feet, may have equaled or possibly surpassed the 1910 flood. No record is available at that point for the flood of 1927.

There is no gaging-station record prior to 1914 on Esopus Creek. Rafter (New York State Mus. Bull. 85, p. 474) estimated the flood of December 10, 1878, at Saugerties, N. Y., as 50,000 to 60,000 second-feet, or 120 to 145 second-feet to the square mile. The greatest known flood on Rondout Creek probably occurred on October 4, 1869, but no record of discharge is available. The flood of August 27, 1928, caused by a local storm, exceeds all other floods subsequent to the installation of gaging stations. For a description of the flood of 1928 on Rondout Creek see House Document 704, 71st Congress, 3d session.

The Wallkill River, because of its high ground-water storage, large overflow and swamp areas, does not have high flood flows. The Croton River, although affected by storage control throughout its flood history, has experienced several extreme floods. Rafter (New York State Mus. Bull. 85, pp. 472-473) describes the flood of January 7-8, 1841, and states: "Another severe flood occurred in November 1853, while in April 1854, after unprecedented rains, the worst freshet was experienced which has yet been recorded."

Mohawk River Basin.- The following is quoted from House Document 158, 72d Congress, 1st session:

> The most severe flood of record on the Mohawk River as a whole occurred in March 1913. Although a year later a much larger discharge occurred locally at Vischer Ferry, this was due primarily to the breaking of an ice gorge at some point above. At the time of the 1913 flood the Delta Reservoir was in operation. Its effect at the city of Rome, 5 miles below the dam, was such that the river remained within its banks. Previously, in 1902, an even smaller run-off had caused extensive flooding through the city. Farther downstream at Schenectady, where the controlled area was small, the 1913 flood caused considerable inundation. About 300 acres within the city were under water, and great property damage resulted.

Table 12, giving a list of the large floods recorded on the Mohawk River since 1869, is taken from the above-mentioned report, with slight modifications.

Table 12.- Previous floods on the Mohawk River

Stream	Location	Date	Drainage area (sq.mi., revised)	Maximum discharge	
				Sec.ft.	Sec.ft. per sq.mi.
Mohawk River a	Cohoes	1913, March	3,456	99,000	28.6
Do. b	Crescent	1918, Mar. 23	3,453	38,000	11.0
Do.	Dunsbach Ferry	1903, Oct. 10	3,442	84,600	24.6
Do. a	Vischer Ferry	1914, Mar. 28	3,385	140,000	41.4
Do.	Rexford Flats	1892	3,375	78,350	23.2
Do. a	Tribes Hill	1913, March	3,096	90,400	29.2
Do.	Rocky Rift Dam	1901, Mar. 21	1,348	23,200	17.2
Do.	Little Falls	1890	1,290	22,000	17.1
Do.	do.	1898, Mar. 14	1,290	23,749	18.4
Do. a	do.	1913, Mar. 28	1,290	34,200	26.5
Do.	Utica	1891, February	514	17,300	33.7
Do.	Rome	1904, Mar. 26	155	4,340	28.0
Do.	do.	1910, Feb. 28	155	6,130	39.5
Do.	Ridge Mills	1888, spring	153	7,080	46.3
Do.	do.	1898, Mar. 12	153	5,266	34.4
West Canada Creek	Middleville	1898, August	512	12,950	25.3
Do.	Trenton Falls	1913, Mar. 28	377	25,700	68.2
Do.	Hinckley	1869, April	375	39,200	105
East Canada Creek	Dolgeville	1913, Mar. 26	261	14,500	55.6
Schoharie Creek	Fort Hunter	1901, Mar. 21	926	50,000	54.0
Do.	Esperance	1918, Feb. 20	872	45,000	51.6
Do.	Middleburg	1909, Feb. 20	532	31,600	59.4
Do.	Prattsville	1903, Oct. 9	236	28,000	119
Do.	do.	1924, September	236	29,100	123
Cayadutta Creek	Johnstown	1896	38	2,895	76.2
Oriskany Creek	Colmans	1888, spring	140	7,830	55.9

a Affected by storage in Delta Reservoir.
b Affected by storage in Delta and Hinckley Reservoirs.

The Hinckley and Delta Reservoirs, which provide storage for canal purposes, and the Schoharie Reservoir, which forms part of the New York City water-supply system, together control the run-off from 24 percent of the entire Mohawk River drainage area. Floods of serious magnitude are thus much less likely to occur than prior to the reservoir construction. Mohawk River floods are discussed in detail in the Report of the Board of Engineers on Deep Waterways, and by Rafter (New York State Mus. Bull. 85, pp. 475-477).

Passaic River Basin

Table 13 gives a summary of flood discharges for several streams in the Passaic River Basin covering the period November 1810 to March 1936. The list is not complete but includes all floods of which there are records. Selection of floods for this table was made by including all recorded floods in which the discharge of the Passaic River at Dundee Dam, at Clifton, N. J., was over 12,000 second-feet.

Table 13.- Discharges, in second-feet, at indicated places in the Passaic River Basin for floods in which the discharge was over 12,000 second-feet at Dundee Dam, Clifton, N. J.

Date	Passaic River				Rockaway River		Whippany River			Ramapo River		Wanaque River		Pequannock River		
	Dundee Dam [a] at Clifton	Great Falls [a] at Paterson	Beattie's Dam [a] at Little Falls	near Millington	Boonton [a] below reservoir of Jersey City	Boonton	Whippany	Morristown	Pompton River at Two Bridges	Pompton	Near Mahwah	Pompton	Greenwood Lake	Pompton [a]	Macopin [a]	Saddle River at Lodi
Drainage area (sq. mi.)	809	785	761	55.4	119	118	38	29.4	374	160	118	101		85	63.7	54.6
1810, November	25,500															
1878, December	16,600															
1882, September	18,300		19,000			4,800			b16,000	10,500		6,670		4,460		
1886, February	12,500								b18,500							
1896, February	17,200		16,700			5,440	3,200			8,730		7,200		5,500		
1901, December		c10,500														
1902, March	25,000	c21,400	21,200			4,540	2,600		b17,900	7,050		6,190	d621.48	4,600		
1902, December		c11,000											d620.56			
1903, October	35,800	c28,000	31,700			5,760			b23,400		e12,400	8,440	d623.11		c6,100	
1920, March		c11,600			c2,120								d620.5			
1924, April	13,000	c10,800		1,100	c1,950			830		f6,800	e4,320		d621.1			1,280
1936, March	18,600	19,400		1,480	3,770			1,500		12,300	7,710		d620.78		2,600	2,200

a Discharge not adjusted for diversions of storage.
b Approximate.
c Mean daily discharge.
d Altitude of water surface above mean sea level.
e Revised values.
f Not including discharge through turbines (about 160 second-feet)

Raritan River Basin

Table 15 gives a summary of flood stages for several streams in the Raritan River Basin covering the period November 1810 to March 1936. Although the list is incomplete, all floods of which there are records are included. Selection of floods for this table was made by including only those in which the stage of the Raritan River at Manville, N. J., was 34.5 feet or above.

Delaware River Basin

Delaware River in New York.- There is no record of floods causing a serious loss of life or property or attaining the magnitude of a disaster on the Delaware River above Port Jervis, N. Y. This may be attributed to the absence of large cities, to the location of most of the towns on high ground, and possibly to the characteristics of the basin being unfavorable for exceptional floods. The highest flood discharge on record is that of October 1903. However, an ice gorge with a moderate flood run-off in March 1904 caused a higher stage and greater damage at Port Jervis. Ice gorges are of frequent occurrence and have caused more damage than floods caused by high discharge. According to tradition the highest flood prior to 1903 occurred on January 8, 1841.

The storm of July 1935 produced high discharges on some of the smaller tributaries in the northwest part of the basin. A full account of this flood is given in Water-Supply Paper 773-E, "The New York State flood of July 1935."

Delaware River in Pennsylvania and New Jersey.- The floods of 1687 and 1692 on the Delaware River are mentioned in a letter written by Phineas Pemberton on February 27, 1692 ("Historic tales of olden times concerning the early settlement and progress of Philadelphia and Pennsylvania"). He described the flood of 1692 as having risen 12 feet above the usual high-water mark at the Delaware Falls (Trenton, N. J.), the water reaching the upper stories of houses on the lowlands. A detailed account of this flood appears in "History of the City of Trenton", by John O. Raum, in 1871, which mentions the danger of inundations as foreseen by the Indians.

Early flood heights on the Delaware River were observed at various places, but the records collected in the vicinity of Phillipsburg, N. J., cover the longest period prior to the establishment of the Weather Bureau gage at that place in 1904, when systematic daily observations began.

Although the early records at Phillipsburg were observed at gages set to different datums and at some distance apart, certain deductions and corrections have been made to the early records of flood heights, so that they are believed to be comparable with those observed in recent years. The greatest recorded flood on the Delaware River was that of October 10, 1903, which reached a stage of 35.9 feet referred to the present Phillipsburg gage. It was 4.8 feet above the second highest recorded stage of December 1901, and exceeded the flood of March 1936 by 5.2 feet. Other great floods on the Delaware River were those of January 1841 and June 1862, which reached 28.5 feet, and that of March 1902, which reached 29.5 feet. Smaller floods that attained a height of 24.5 feet occurred in October 1869 and December 1878. A stage of 25 feet was recorded in August 1933. Table 14 gives flood stages of 20.0 feet and above at Phillipsburg from May 1781 to March 1936. The zero of the gage is about 155 feet above mean sea level.

Table 14.- Stages of previous floods on the Delaware River at Phillipsburg, N. J.

Date	Stage (feet)	Date	Stage (feet)
1781, May 9.	21.0	1895, Apr. 9.	23.5
1783, Feb. 28.	20.0	1901, Dec. 16	31.1
1785, Mar. 17.	23.0	1902, Mar. 2.	29.5
1786, Oct. 4	21.0	1903, Oct. 10	35.9
1814, Apr. 1	20.0	1913, Mar. 28	22.2
1841, Jan. 8	28.5	1914, Mar. 29	21.0
1846, Mar. 16.	24.0	1924, Oct. 1.	22.0
1862, Jan. 5	28.5	1925, Feb. 12	21.0
1869, Oct. 15.	24.5	1933, Aug. 25	25.0
1875, Apr. 9	23.5	1935, July 10	20.0
1878, Dec. 11.	24.5	1936, Mar. 19	30.7

Table 16 gives flood stages for places on the Delaware River from Belvidere, N. J., to Trenton, N. J., and for places on several tributaries during the period from October 1786 to March 1936. The list includes all floods of which there are records. Selection of floods was made by including all those for which the stage of the Delaware River at Riegelsville, N. J., was 148.0 feet or above.

Knowledge of floods on the Lehigh River begins with a reference to one in 1739. The greatest recorded flood for this stream occurred on February 28, 1902, when an altitude of 236.8 feet was reached at New Street Bridge in Bethlehem, Pa. Table 18 lists the recorded larger floods at five points on the Lehigh River from Tannery, Pa., to Bethlehem, Pa., covering the period from October 1786 to March 1936.

Table 15.- Peak stage, in feet, at indicated places in the Raritan River Basin for floods in which the stage was 34.5 feet or higher at Manville, N. J.

Date	Raritan River					South Branch of Raritan River				Neshanic River at Reaville	North Branch of Raritan River			Black River above Pottersville	Millstone River	
	Manville	Bound Brook	Dam below Bound Brook	Raritan Landing, New Brunswick	Albany Street, New Brunswick	Above High Bridge	Stanton Station	Neshanic	South Branch		Ravine Lake, Far Hills	Milltown	North Branch		Below Kingston	Blackwells Mills
1810, November		13														
1850								a9.25	a12.7							
1865, July		b14						a9.79	a12.7							
1874, September					9											
1882, September		16	a14.2	13	12			a10.15								c11.0
1886, February			a9.0		9								10.8			
1887, July			a8.0	8									11.8			
1889, November			a8.0	8												
1896, February			a15.2					a12.0	a14.0				13.0			c7.0
1903, October	36.5	12.0	a12.25				10.5		a12.5							
1919, July							10.0				232.1					
1922, February						293.07	8.3									7.4
1924, April	35.6					292.01	10.0				227.62	59.9		287.68		11.0
1927, October	34.7					291.02	8.0				227.72					10.4
1927, November						292.02	8.03				229.14	60.4		288.89		5.15
1932, November 10	35.15					290.58	9.24			9.62	228.34	59.1		287.24		9.22
1932, November 19	35.54					291.32	8.11			9.44	228.76	59.6		288.28		10.21
1933, August	36.79					290.89	10.5			10.80	228.00	59.5		287.23	48.60	9.77
1934, March	35.09					d	e10.03			9.35	228.87	60.0		288.42	46.85	9.32
1934, September	d					292.09	9.22			4.29	229.74	61.0		288.24	d	4.35
1936, January	36.67					e292.10	d			9.12	e229.31	e61.7		288.33	d	10.05
1936, March	35.47					292.61	9.37			7.91	229.10	60.9		287.69	47.09	9.27

a Head over dam.
b Dam below Bound Brook built in 1833.
c Above "ordinary stage".
d Record missing.
e Ice jam.

Table 16.- Peak stage, in feet, at indicated places in the Delaware River Basin for floods in which the stage was 148.0 feet higher at Riegelsville, N. J.

Date	Delaware River						Flat Brook near Flatbrookville	Paulins Kill at Blairstown	Pequest River at Pequest	Beaver Brook near Belvidere	Musconetcong River		Assunpink Creek at Trenton
	Belvidere	Easton	Riegelsville	Stockton	Lambertville	Trenton (Calhoun Street)					Near Hackettstown	Near Bloomsbury	
1786, October					62.9								
1801					60.9								
1814					60.9								
1836, April					61.4								
1839, April					61.5								
1841, January		189.2		77.76	66.9								
1843, October					60.9								
1846, March					64.5								

1862, June				75.8									
1901, December					64.4	23.1							
1902, February-March	255.3			76.83	65.7	23.57							
1903, October	255.8	193.3	161.2	81.16	70.0	27.34						a8.0	
1913, March		b177.2	150.3			21.1							
1914, March			148.7			19.8							
1924, April	245.20		148.39		61.0	19.6	354.83	6.83	401.45	306.92	608.30	4.34	32.61
1924, September-October	246.48		149.49		62.5	20.3	352.53	4.61	400.63	306.10	607.16	3.72	28.88
1925, February	245.08		149.11			20.8	354.83	7.0	401.69	307.45	609.08	5.90	31.65
1933, August	247.08		150.29	72.83	61.91	20.43	352.90	c	401.66	306.26	608.19	4.04	30.82
1935, July	240.70		148.49	71.94	59.92	19.51	352.77	5.76	402.20	307.56	609.51	4.50	28.53
1936, March	252.18	187.95	157.74	80.9	67.00	24.43	354.23	6.92	403.75	309.12	609.61	5.67	30.31

a Former datum. b Below mouth of Lehigh River. c Record missing.

Table 17.- Altitude, in feet, of previous floods at indicated places on the Schuylkill River from Schuylkill Haven, Pa., to Philadelphia, Pa., and on the Little Schuylkill River at Tamaqua, Pa.

Date	Schuylkill River									Little Schuylkill at Tamaqua
	Schuylkill Haven	Hamburg	Reading	Pottstown	Phoenixville	Norristown	Conshohocken	Flat Rock Dam (7.1 miles from Fairmount Dam)	Philadelphia (Fairmount Dam)	
1757, July			203.5							
1786, October			205.8							
1841, January			204.3							
1850, July			207.1		90.4					
1850, September			211.5		96.9					
1862, June			204.5							
1869, October			210.1		93.8	68.4	61.7	50.6	22.2	
1894, May			205.3		92.2	66.1		48.0		
1902, February-March			210.0		93.3					
1904, March			203.5							
1920, March			a206.7							
1924, September-October			205.0							
1933, August			206.0	137.0					19.9	825.0
1935, July			204.4	132.7					19.3	824.8
1936, Mar. 12	503.9	353.0	204.0	132.9	86.9	60.5	52.0	44.6	16.8	823.1

a Affected by ice

Table 18.- Altitude. in feet, of previous floods at indicated places on the Lehigh River

Date	Tannery	Mauch Chunk	Lehighton	Allentown (Hamilton Street)	Bethlehem (New Street)
1786, October	-	-	-	-	228.9
1839, January	-	-	-	-	226.9
1841, January	-	-	-	-	233.9
1862, June	-	529.4	-	-	234.2
1869, October	-	-	-	-	233.9
1894, May	-	-	-	-	227.9
1901, December	-	-	-	-	228.4
1902, February	-	-	-	256.5	236.8
1924, October	-	527.1	-	248.3	227.1
1926, November	-	a527.9	-	a250.0	227.4
1933, August	1,054.4	524.4	-	-	231.7
1935, July	1,055.1	-	456.9	-	231.6
1936, Mar. 12	1,055.3	-	-	b248.2	229.9
1936, Mar. 18	1,055.0	-	457.0	-	228.3

a Affected by a dam failure.
b About 4,000 feet downstream from Hamilton Street.

The earliest recorded flood for the Schuylkill River was that of July 15, 1757. Table 17 gives a summary of floods for the Little Schuylkill River at Tamaqua, Pa., and for several points on the Schuylkill River from Schuylkill Haven, Pa., to Philadelphia, Pa.

Susquehanna River Basin

Susquehanna River Basin in New York.- For a presentation of available data on historic floods on the Susquehanna and Chenango Rivers in the vicinity of Binghamton, N. Y., and for a detailed account of the floods of July 1935, which caused record flows on most of the northern tributaries of the Susquehanna River in New York, see Water-Supply Paper 773-E, "The New York State flood of July 1935." The flood of March 1865 is probably the greatest known on the upper Susquehanna River. Rafter (New York State Mus. Bull. 85, p. 486) estimated the flood of March 1902 on the Susquehanna River at Binghamton at about 70,000 to 80,000 second-feet, and the flood of 1865 as still greater. Records of the New York State engineer and surveyor give the mean daily discharge on March 2, 1902, as 60,400 second-feet, and the rating table in use at that time would give a peak discharge of 62,500 second-feet, or about the same discharge as that for the flood of 1936. Records of stage at Binghamton are complicated by the condition that high water on the Chenango River caused backwater on the Susquehanna River and vice versa. Records of stage on the Susquehanna River at Binghamton indicate that the flood of 1936 was higher than that of 1902 and lower than that of 1865. Newspaper accounts at the village of Owego, N. Y., below Binghamton, show the flood stage in 1936 to have been three-fourths of a foot higher than

A. SCENE AT 4 P. M., MARCH 18, 1936, AT CORNER OF EAST MAIN STREET AND BELLEFONTE AVENUE, LOCK HAVEN, PA.

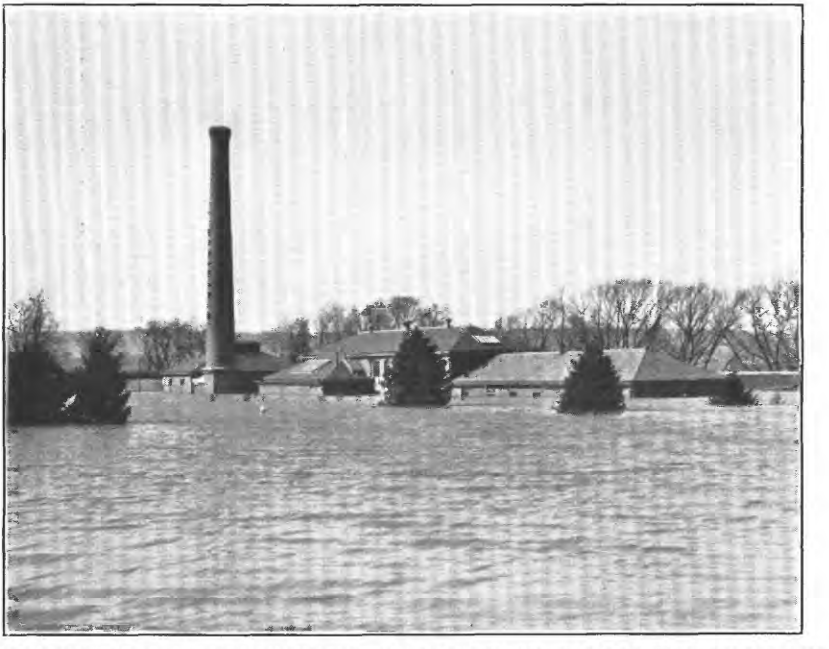
Courtesy of Leh Henry.

B. DEBRIS IN TREES AFTER FLOOD WATERS FROM THE WEST BRANCH OF THE SUSQUEHANNA RIVER HAD RECEDED NEAR LOCK HAVEN, PA.

Courtesy of Delos Glossner.

A. HIGH-WATER MARK AT ROCKVILLE BRIDGE ON THE SUSQUEHANNA RIVER NEAR DAUPHIN, PA.

Courtesy of Mose Fenical.



B. FILTER PLANT AT HARRISBURG, PA., INUNDATED BY FLOOD WATERS FROM THE SUSQUEHANNA RIVER.

Courtesy of the Kemp Studio.

the flood stage in 1865. All records of the flood of 1865 seem largely legendary, but it is logical to conclude that the flood of March 1936 on the Susquehanna River approached that of 1865 and was the greatest flood since that date.

The greatest flood on the Chenango River prior to July 1935 was that of March 1-3, 1902. The flood of July 1935 was more than a foot higher than the flood of 1902 and caused much greater damage, owing to the growth of the city of Binghamton. Losses in 1902 were about $60,000 according to Rafter (New York State Mus. Bull. 85). Damages in 1935 were probably greater than $2,000,000 in Binghamton alone. Much of the latter damage can be attributed to encroachment by works of man on the natural flood plains of the Chenango and Susquehanna Rivers, particularly the Chenango.

The greatest known flood on the Chemung River occurred June 1, 1889. Fairly reliable gage-height records at Corning, N. Y., and Elmira, N. Y., show that the flood of 1936 was lower than that of 1889. Francis Collingwood (New York State Mus. Bull. 85, p. 488, and the Report of the Board of Engineers on Deep Waterways) estimated the flood flow at Elmira in 1889 to have been 138,000 second-feet, or 67 second-feet to the square mile. This is much greater than the 36.5 second-feet to the square mile recorded at Chemung, N. Y., on March 12, 1936, which was the highest flow in 34 years of record.

Susquehanna River Basin in Pennsylvania.- The earliest mention of floods on the Susquehanna River is found in Hazard's Register, which states that at Harrisburg, Pa., the flood in 1740 was higher than that of March 15, 1784. Systematic observations of river heights began at Harrisburg on January 1, 1874. There are references to 22 floods before that time, with some information relating to the height of eight floods that were not caused by ice jams and reached stages ranging from 16 to 24.6 feet on the Harrisburg (Walnut Street) gage.

The highest known flood on the Susquehanna River between Sunbury, Pa., and its mouth, during the 196 years 1740 to 1936 occurred on March 19, 1936, when 30.33 feet was reached at the Walnut Street gage in Harrisburg. This flood exceeded any previous known height at Harrisburg by 3.5 feet. Six days prior to this flood, however, a stage of 21.76 feet was reached the highest water in 42 years not caused by ice jams. In table 19 are given the altitudes of recorded great floods for places on the Susquehanna River from Binghamton, N. Y., to Marietta, Pa., covering

Table 19.- Altitude, in feet, of previous floods at indicated places on the Susquehanna River from Binghamton, N. Y., to Marietta, Pa.

Date	Binghamton, N.Y.	Towanda	Wilkes-Barre	Creasy	Danville	Sunbury	Shamokin Dam	Port Trevorton	Montgomery Ferry	Clarks Ferry	Rockville	Harrisburg†	Steelton	Highspire	Middletown	Falmouth	Marietta
1784, March			*541.9														
1786, October			540.9									312					
1807, April			541.9														
1833, May			539.9														
1846, March												312					
1865, March	845.0	718.8	545.0	486.9	459.1	441.5	439.7					314.6					
1868, March												310.0					
1886, February												*310.8					
1889, June						440.0	438.0	416.6	375.3	355.7	324.1	316.8	311.2	303.9	299.9	292.0	258.3
1891, January			538.7														
1893, March		709.2	*540.6														
1894, May							438.1		375.7		322.4	315.4			299.2		
1895, March		700.4	*538.9														
1899, January			*536.9														
1901, December			538.9		453.9							311.2					
1902, March		718.4	543.3	485.1	*457.9		*438.2		*374.2		*320.7	*313.7			*297.7		
1904, February		705.8	*537.6		*455.6												
1904, March		707.6	*542.5	488.5	*461.8							*313.3	*311.3	*307.7	*305.0		
1910, March		712.2	538.0		452.1												
1913, March		714.0	540.4		454.2												
1914, March		714.0	540.2		453.8												
1916, April	838.1	712.4	538.4		452.9												
1920, March	836.0	711.0	537.9		452.0	437.0						310.2					
1925, February	838.8	712.6	537.0		451.4												
1929, April		713.8	538.4		451.4												
1935, July	839.3	715.0	537.5		451.1												
1936, Mar. 13	838.9	716.2	540.7		454.3	438.5						311.8					254.7
1936, Mar. 18-20	844.3	718.9	545.0	486.1	**459.1	445.8	443.9	423.0	379.7	361.1	327.5	320.4	314.4	307.1	303.6	295.2	260.7

† Walnut Street gage. * Affected by ice ** Affected by backwater from West Branch.

Table 20.- Altitude, in feet, of previous floods at indicated places on the West Branch of the Susquehanna River from Mahaffey, Pa., to Northumberland, Pa.

Date	Mahaffey	Bower	Clearfield	Karthaus	Keating	Renovo	Lock Haven	Jersey Shore	Williams-port	Muncy	Montgomery	Watsontown	Milton	Lewisburg	Northumber-land
1846, March									518.6						
1847, October									514.6						
1851, July									516.6						
1861, September									518.6						
1865, March									520.6			467.3			
1886, January									517.6						
1889, June	1266.3	1225	1109.0	850.9	721.2	661.3	564.8	550.5	527.0			473.6	466.9	457.1	448.1
1891, February									516.6						
1894, May						657.0		547.7	524.6			472.1	464.5	456.3	
1898, March						649.4			515.6						
1901, December						647.5			515.2						
1902, March						*651.0			*516.2						
1904, March									515.6						
1909, May						649.5			515.6						
1913, March						646.8			515.0						
1916, March						649.9			515.0						
1916, June						648.7			515.6						
1918, February						648.5			516.0						
1919, May						647.7			515.4						
1920, March						649.0			515.0						
1923, March						647.1			516.2						
1936, Mar. 11, 12						649.6			518.2						
1936, Mar. 18, 19	1268.9	1226.1	1110.8	853.4	724.8	663.4	567.3	551.1	528.1	499.9	490.8	475.4	469.0	459.3	450.6

* Affected by ice Approximate

Table 21.- Altitude, in feet, of previous floods at indicated places on the Juniata River and its important tributaries.

Date	Frankstown Branch of Juniata River			Juniata River					Little Juniata River at Tyrone	Raystown Branch of Juniata River	
	Williamsburg	Alexandria	Huntingdon (Fourth Street)	Mapleton	McVeytown	Lewistown	Mifflintown	Newport		Everett	Saxton
1810, November			613.7					391.2			
1846, March								383.2			
1847, October								391.7			
1889, June	850.9	705.9	617.7	597.4	512.4	486.7		399.1	892.7	1012.9	817.7
1894, May			612.4					394.2			
1901, December			609.9					385.2			
1902, March			608.3					388.5			
1907, March			609.2					386.7			
1908, March			608.2					384.5			
1916, June			610.2					383.2			
1920, March			607.0					*384.1			
1936, February								*386.6			
1936, Mar. 12	843.1		606.3					383.6			805.6
1936, Mar. 18, 19	850.4	707.2	619.3	596.0	512.0	485.2	446.8	397.4	896.5	1019.3	819.3

* Affected by ice.

varying lengths of record, the longest being for Harrisburg, which starts with the flood of October 1786.

Tables 20 and 21 present data on recorded floods for places on the West Branch of the Susquehanna River and the Juniata River and its tributaries, respectively.

St. Lawrence River Basin in New York

Information regarding previous floods on the Genesee River is presented in the "Report on flood conditions in the Genesee River" published in 1937 by the City Manager of Rochester, N. Y.

Rafter, in Bulletin 85 of the New York State Museum (p. 458), states that the great flood of March 1865 on the Oswego River at Oswego, N. Y., probably reached 41,000 to 42,000 second-feet. Mr. Breed, in testimony given in Empire Street Railway Co. vs. the State of New York, stated that the peak discharge of the Oswego River at Phoenix, N. Y., was 30,000 to 35,000 second-feet for the 1865 flood. The large difference between the discharges at Phoenix and Oswego, according to Ernest D. Hendricks, claims engineer for the New York State Department of Public Works, may have been largely due to the failure of a dam 4 miles above Oswego.

The following information comparing the altitudes and discharges at various places during the floods of 1865 and 1936 was also furnished by Mr. Hendricks:

	1865		1936	
	Altitude	Discharge	Altitude	Discharge
Cayuga Lake	389.3	-	386.7	-
Seneca River	-	19,435	-	22,500
Oneida Lake	376.0	-	375.0	-
Oneida River	-	12,500	-	11,700
Oswego River	-	35,000	-	37,000

The large amount of natural storage on this drainage basin reduces considerably the probability of large flood flows. The floods of 1865 and 1936 exceeded all other floods within the memory of any living inhabitant.

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