

Floods of August 1940 in the Southeastern States

Prepared by WATER RESOURCES BRANCH

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UNITED STATES DEPARTMENT OF THE INTERIOR

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FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Prepared by the WATER RESOURCES BRANCH¹

ABSTRACT

During August 1940 the southeastern States experienced two major floods that took the lives of 30 to 40 persons and caused damage of about \$30,000,000. These floods exceeded all known floods on Roanoke River since settlement began in 1607 and all known floods in western North Carolina except on some streams where the floods of July 1916 were greater.

The first flood resulted from the hurricane storm of August 10-17, which in the coastal area caused the death of about 20 persons and damage amounting to about \$3,000,000. The storm followed a roughly semicircular path, moving inland from the vicinity of Beaufort, S. C., and Savannah, Ga., to the Appalachian Mountains, northward along the mountains, then eastward to the coast near Norfolk, Va. Precipitation greater than 15 inches was measured at many points and averaged 10 inches over an area of about 35,000 square miles. The resulting flood flows were most severe in the Roanoke, Catawba, Yadkin, Nolichucky, Watauga, and New Rivers. Peak discharges of at least 1,400 second-feet per square mile came from several drainage areas of more than 50 square miles. The highest discharge observed was 280,000 second-feet on Roanoke River at Clarksville, Va.

The second flood resulted from the storm of August 28-31, which covered a much smaller area in western North Carolina and eastern Tennessee. Precipitation of about 24 hours' duration, varying from 8 to 13 inches, was measured in the Blue Ridge. Exceptionally high peak discharges occurred in small drainage areas. The floods in the headwaters of the French Broad, Little Tennessee, and upper Savannah River Basins were generally greater than those in mid-August.

An outstanding feature of both streams was the large number of slides of earth on the steeper hillsides, more than 200 being reported within an area of about 150 square miles.

Precipitation records for about 650 stations during the mid-August storm and for about 400 stations during the late-August storm are given in this report. Isohyetal maps based on these records are also given, and pertinent results of analysis are presented.

The report contains records of stream flow at about 300 gaging stations within or adjacent to the flood area in sufficient detail for defining the hydrograph of the flood rise. Records for more than 20 reservoirs are included, and several of them are analyzed to show the effect of storage on the flood flow.

Peak discharges of streams at about 100 miscellaneous points are combined with a summary of peak discharges at gaging stations and reservoirs, where available previous maximum discharges are also shown. A map showing the locations of measurements is included. Studies of peak-discharge rates indicate the occurrence of point rainfalls of intensity greater than any recorded.

¹ This report represents the combined effort of many engineers of the Water Resources Branch. Those responsible for its preparation are noted under Administration and personnel (p. 5).

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Special studies of rainfall-runoff relations are described. Two drainage basins of about 65 square miles had a direct-runoff volume of 11 inches; direct runoff of Roanoke River at Scotland Neck, N. C. (8,700 square miles) was 4.7 inches. Maps showing generalized values of the infiltration index are given for both storms. The effect of the storms on base flow and ground-water levels is discussed.

Flood-crest stages are given for more than 2,700 miles of river in the James, Chowan, Roanoke, Pamlico, Pee Dee, Kanawha, and Tennessee River Basins for the mid-August flood, and for more than 600 miles of river in the Tennessee River Basin for the late-August flood.

Records of previous flood in the Roanoke, Kanawha, and Tennessee River Basins are given for selected gaging stations.

INTRODUCTION

Two storms, a West Indian hurricane in mid-August and a local storm in late August, produced floods in North Carolina and adjacent States that exceeded all those previously known on Roanoke River since white settlement in 1607 and all those previously known in western North Carolina except the floods of July 1916 on some streams.

The hurricane storm moved inland on August 11, 1940, in the vicinity of Beaufort, S. C., and Savannah, Ga., where the high winds smashed and wrecked many buildings, uprooted and broke trees, and caused a tide higher than any experienced since 1934. Damage amounting to about \$3,000,000 and the loss of about 20 lives were reported as resulting from the hurricane winds in the coastal area.¹ As the hurricane proceeded inland with decreasing intensity, it curved northward along the Appalachian Mountains, thence eastward, and on August 16 passed out into the Atlantic Ocean south of Norfolk, Va. The late-August storm was local in the headwaters of the Little Tennessee and French Broad Rivers. The observed precipitation of both storms was not record breaking in total amount or intensity; but the rain fell on the steep slopes of the Appalachian Mountains, and in many places the storm tended to progress downstream from the headwaters in a manner favorable to a maximum concentration of runoff. Consequently, it produced floods which in more populous and developed areas would undoubtedly have caused damages and losses that would have been as spectacular as and would have ranked with other great disastrous floods of the country.

Rates of flood discharge were extraordinary and are among the highest of record in the region. In the headwaters the floods rushed down the steep slopes of the Appalachian Mountains and by erosion or deposition of debris destroyed substantial areas of farm lands adjacent to the streams and ripped out highways, bridges, railroads, and other improvements along the banks. Slides, of which 200 were

¹ U. S. Weather Bur., Monthly Weather Rev., vol. 68, No. 8, p. 218, August 1940.

reported on one area of 150 square miles in the headwaters of the West Fork Pigeon River and East Fork Tuckasegee River, caused great damage and considerable loss of life. In the lower reaches of the larger streams great damage was inflicted, chiefly by inundation, on industrial plants, agricultural lands, public utilities, and homes. Loss and damage resulting from the floods have been estimated as 30 to 40 lives and about \$30,000,000. Injury on the lower reaches of Yadkin and Catawba Rivers was greatly reduced by the moderating effect of numerous storage reservoirs on each stream.

The floods of August 1940, coming only 24 years after the great flood of July 1916, have again impressed those who viewed the ravages of the floods with the magnitude of the problems of flood control. The design of protective or preventive measures requires adequate records of the great floods that have occurred in the past and hence are likely to occur in the future.

The Geological Survey, operating through several local district offices, maintains as a part of the regular Nation-wide stream-gaging program about 300 stream-gaging stations within the area affected by the floods of August 1940. These stations have been maintained largely in cooperation with States and municipalities and generally for periods beginning several years prior to the August floods. Thus the Survey has obtained and published systematic records of the stage and flow of the streams from drought to extraordinary floods.

Immediately after the floods of August 1940 the Geological Survey began to investigate comprehensively the flood flow of the streams throughout the affected area. The Tennessee Valley Authority assembled and published in a complete report information relating to precipitation, flood discharge, and damage in the Tennessee River Basin. The Corps of Engineers, War Department, the Forest Service and Soil Conservation Service, Department of Agriculture, the Weather Bureau, Department of Commerce, and various private companies have cooperated in the collection and assembly of all available information relative to the precipitation that occurred in the mid-August storm outside the Tennessee River Basin. Most of these data on rainfall have been printed by the Weather Bureau and are available for examination at offices of the Weather Bureau and of the Corps of Engineers. The Geological Survey has published in Water-Supply Papers 891, 892, and 893 the daily mean discharge during the flood periods at the regular gaging stations. Some of those records have been revised in succeeding Water-Supply Papers. The present report contains all pertinent revisions appearing in annual reports on Surface Water Supply of the United States through 1945.

The Corps of Engineers has prepared a series of isohyetal maps to show the precipitation for varying intervals during the mid-August

storm period. These maps are available for examination in the office of the Chief of Engineers, War Department, Washington, D. C., or in the office of the District Engineer, Corps of Engineers, Norfolk, Va.

At the Coweeta and Bent Creek Experimental Forests in North Carolina and the Work Center of the Appalachian Forest Experiment Station at Copperhill, Tenn., the Forest Service has collected numerous detailed measurements of rainfall, runoff, ground-water levels, and soil loss. The station was in operation during the floods of August 1940. Daily rainfall amounts at selected rain gages have been furnished by the Forest Service and are published in tables 5 and 6, but for other climatologic and hydrologic information, a written request should be made to the Appalachian Forest Experiment Station, Asheville, N. C.

The Soil Conservation Service has made many measurements of rainfall, runoff, and erosion from plots and small catchment areas during August 1940 at experimental and demonstration projects in Virginia, North Carolina, South Carolina, and Georgia. A list of these projects follows:

- Danville Demonstration Project, near Chatham, Va.
- Virginia Agricultural Experiment Station, near Blacksburg, Va.
- Soil Conservation Experiment Station, near Statesville, N. C.
- High Point Demonstration Project, High Point, N. C.
- Soil Conservation Experiment Station, near Raleigh, N. C.
- South Carolina Agricultural Experiment Station, Clemson, S. C.
- Soil Conservation Experiment Station, near Spartanburg, S. C.
- Sedimentation Station, near Greenville, S. C.
- Southern Piedmont Experiment Station, near Watkinsville, Ga.

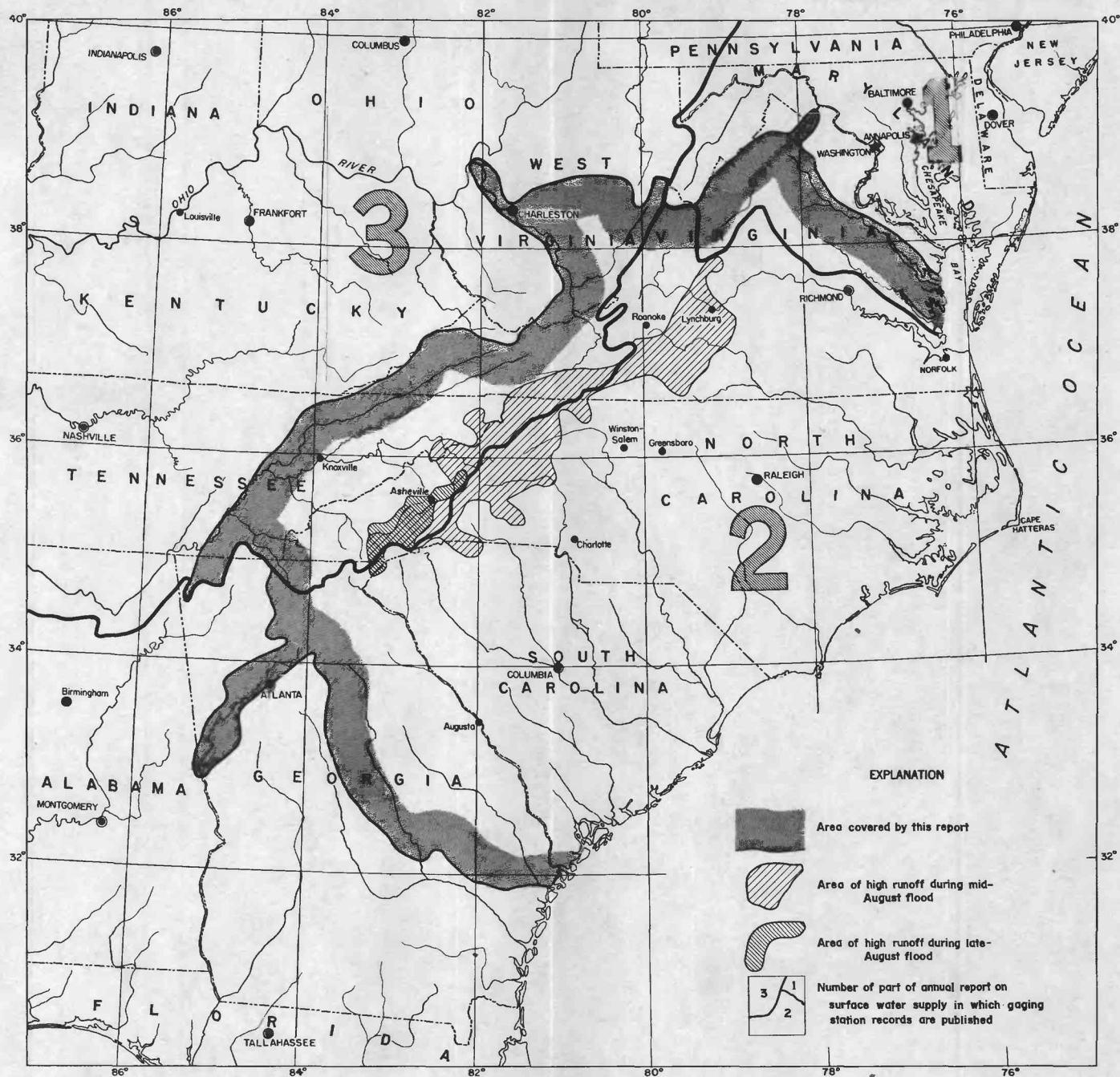
Daily rainfall measurements at these projects during the mid-August and late-August storms have been furnished by the Soil Conservation Service and are included in tables 5 and 6 of this report. A compilation of rainfall, runoff, and soil-loss data for the period 1934-40 at the High Point Demonstration Project has been published by the Soil Conservation Service.² Cardwell and Dickerson have published rainfall and runoff data for the mid-August flood at the Danville Experiment Station, including the results of their studies of rainfall and runoff.³

For other climatologic and hydrologic information collected at the above-mentioned projects, written request should be made to the Chief, Soil Conservation Service, Washington, D. C.

For many of the recent great floods the Geological Survey has assembled and published for a given flood a single volume containing all

²Potter, W. D., and Love, S. K., Hydrologic studies at the High Point Demonstration Project, SCS-NC-1, High Point, N. C.: U. S. Dept. Agr., Soil Cons. Service Tech. Pub. 48, March 1942. [Processed.]

³Cardwell, D. W., and Dickerson, W. E., Runoff from terraced areas under conditions of extreme flood: Am. Geophys. Union Trans., p. 856-862, 1941.



INDEX MAP SHOWING AREA COVERED BY REPORT AND AREAS OF HIGH RUNOFF

50 0 200 Miles

available data and information relative to that flood. Similar procedure would have been desirable in connection with the floods of August 1940, but limitations imposed by the war made it necessary to include in this report only data that have not been made readily available in other publications. This report contains all the basic information relating to stages and discharges collected at the regular stream-gaging stations, the results of flood-flow measurements made at points where regular gaging stations were not being maintained, detailed records of the operation of storage reservoirs in the Pee Dee and Santee River Basins, basic meteorologic and hydrologic information not readily available elsewhere, and the results of analyses of rainfall and runoff. The area covered by the report is shown on plate 1.

The major part of this report was prepared within a short period after the floods; thus most of the descriptive material was written while the facts were still fresh. Publication of the report was delayed because of the war, thus providing an unusual opportunity to include the results of later studies. In this flood, as in almost all major floods, great changes occurred in many stream channels during the highest part of the flood. Stage-discharge relations at many gaging stations, which had required several years of observation to define, were destroyed. Only a few of them could be redefined during the recession of the flood. In the years since August 1940 other smaller floods have provided opportunity on many streams to secure additional information. The records in this report make use of information available up to the time the computations for the 1945 annual report were made. This report should therefore prove to be less subject to revision and thus have more permanent value than if it had been published immediately after the 1940 flood.

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 G. L. Parker, chief hydraulic engineer. The actual field work and collection and tabulation of the basic information for stages and discharges were done in the Division of Surface Water, R. G. Kasel, chief. This work was performed by the district engineers and their staffs at Asheville, N. C., Atlanta, Ga., Charlottesville, Va., Chattanooga, Tenn., Columbia, S. C., and Charleston, W. Va.

The general organization of special features of the work and the compilation of the report were supervised or conducted by the Division of Water Utilization, R. W. Davenport, chief. The organization of the report in its early stages was the work of Hollister Johnson,

hydraulic engineer, who also furnished helpful advice and assistance in evaluating flood discharges at gaging stations and at miscellaneous points. W. B. Langbein, hydraulic engineer, prepared the section 'Rainfall and runoff studies' and made the hydrologic analyses and interpretations contained therein. The report was reviewed and arranged for publication by W. S. Eisenlohr, Jr., hydraulic engineer. Many other members of the staff of the Geological Survey made valuable contributions to this work.

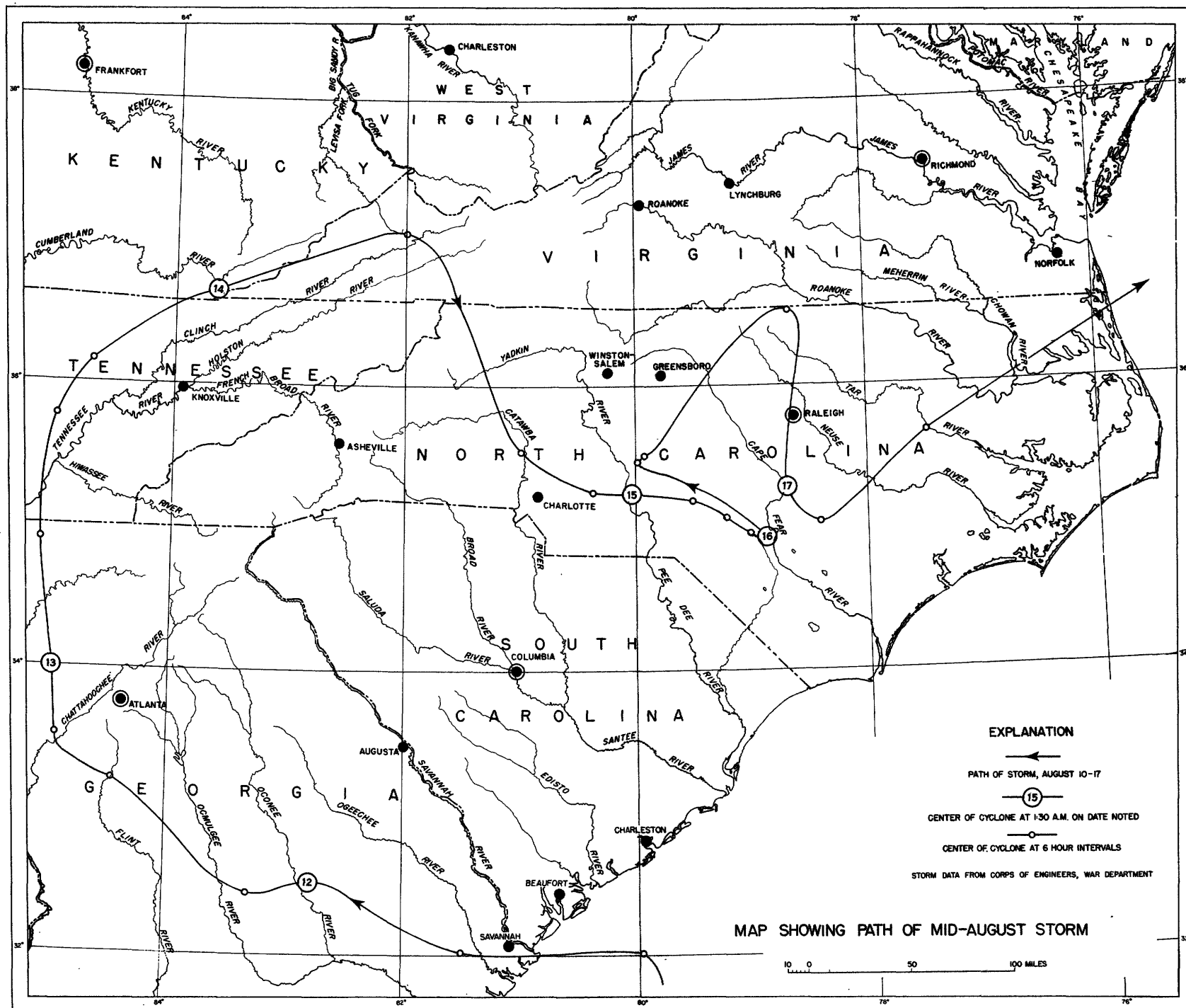
ACKNOWLEDGMENTS

The Geological Survey, acting through its district field offices, cooperates with State and municipal agencies in the several districts. Acknowledgment is made to the cooperating agencies for participation in the systematic collection of the records of river discharge that form the broad base for the specific flood information and in the maintenance of field organizations in which engineers trained for investigation of this kind are available for the special studies related to the collection of the field data and the preparation of the report.

Information appearing in this report has been obtained from many sources, including individuals, corporations, and local, State, and Federal governmental organizations. Financial cooperation in connection with the regular stream-gaging program of the Geological Survey in the areas covered by this report has been received from the following agencies: In Georgia from the Department of Mines, Mining and Geology, Division of Conservation; in North Carolina from the State Department of Conservation and Development; in South Carolina from the State Highway Department, the City of Spartanburg Board of Public Works, and the town of Duncan; in Tennessee from the Division of Geology, the Tennessee Department of Conservation, and the State Department of Public Health; in Virginia from the Virginia Conservation Commission; and in West Virginia from the State Public Service Commission and the State Geological and Economic Survey. The work in the Tennessee River Basin was done also in cooperation with the Tennessee Valley Authority.

Federal agencies to whom acknowledgment is made for financial cooperation, services rendered, or data furnished include the Corps of Engineers, the Tennessee Valley Authority, the Weather Bureau, and the Department of Agriculture, particularly the Flood Control Advisory Committee, the Forest Service, the Soil Conservation Service, and the Bureau of Agricultural Economics.

Funds in the amount of \$8,000 received from the Soil Conservation Service made possible an increase in the scope of the work to include the measurement of peak discharges on a greater number of



streams than would have been possible otherwise. The Norfolk, Va., and Charleston, S. C., districts, Corps of Engineers, furnished field parties for surveys for the measurement of peak discharges on streams in the Roanoke River Basin and Yadkin River Basin, respectively, as did the Tennessee Valley Authority for the Tennessee River Basin. Field parties were also made available by the Forest Service and the Flood Control Advisory Committee of the Department of Agriculture for surveys for the measurement of peak discharges of streams in Virginia and North Carolina, respectively.

Assistance in collecting records was also rendered by various individuals, corporations, organizations, and municipalities. Acknowledgments for all such contributions are given at appropriate places in the report insofar as practicable.

GENERAL FEATURES OF THE STORMS AND FLOODS

Two storms at the middle and end of August 1940 were the cause of unusual floods over a wide area in the southeastern United States.

MID-AUGUST STORM

The first or mid-August storm developed as a hurricane in the Atlantic Ocean about August 8. This hurricane, the worst in the affected coastal area since August 27, 1893, struck the coast at Savannah, Ga., with great violence during the afternoon of August 11. As it proceeded inland, following the path shown in plate 2, the hurricane abated rapidly in severity, with the result that damage was confined to a relatively small area adjacent to the coast. The center of heaviest precipitation of this storm crossed the coast line on August 11 at Beaufort, S. C., and, following a roughly semi-circular path, moved inland up the Savannah River Basin across the Appalachian Mountains and adjoining areas in North Carolina, and then down the Roanoke River Basin, passing out to sea south of Norfolk, Va., about August 16. Precipitation greater than 15 inches for the entire storm and 8 inches during a single day was measured at numerous points.

The 2-day storm of July 1916 over North Carolina and South Carolina is the most outstanding previous storm of record; it caused stages and discharges on streams in the area which generally exceeded any previously known and which in some places were unsurpassed by the floods of August 1940. The Weather Bureau⁴ described the 1916 storm and subsequent flood as follows:

The great rainfall over the western and southern portions of North Carolina during July and particularly the downpour in the Blue Ridge Mountains on the

⁴ U. S. Weather Bur., Climatological data, North Carolina Section, July 1916.

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15th-16th far exceeds previous records for this section. In some respects it was the most extraordinary rainfall of which there is any authentic record in this country. All streams from the upper Yadkin to the French Broad were decidedly above their previous high water marks, and no such destructive flood damage has ever been experienced before in this section.

Comparison of the two storms is significant. On areas smaller than 5,000 square miles the average rainfall in the storms of August 1940 was less than that observed during the 2-day storm of July 1916, but on areas larger than 5,000 square miles it exceeded that recorded in the earlier storm. An average rainfall of 10 inches was observed over about 11,000 square miles during the storm of July 1916 and over about 35,000 square miles during the storm of August 10-17, 1940. The average precipitation for the day of maximum rainfall, August 13, 1940, was generally slightly less than that recorded in the earlier storm for the day of maximum rainfall, July 15, 1916. The intensities of hourly precipitation recorded during the storm of August 1940 were not especially unusual, but the evidence of excessive runoff from small mountainous areas suggests intensities greater than those that were recorded. The major part of the precipitation occurred during a period of about 40 hours in the region first struck by the storm, but this period increased to about 70 hours as the storm progressed.

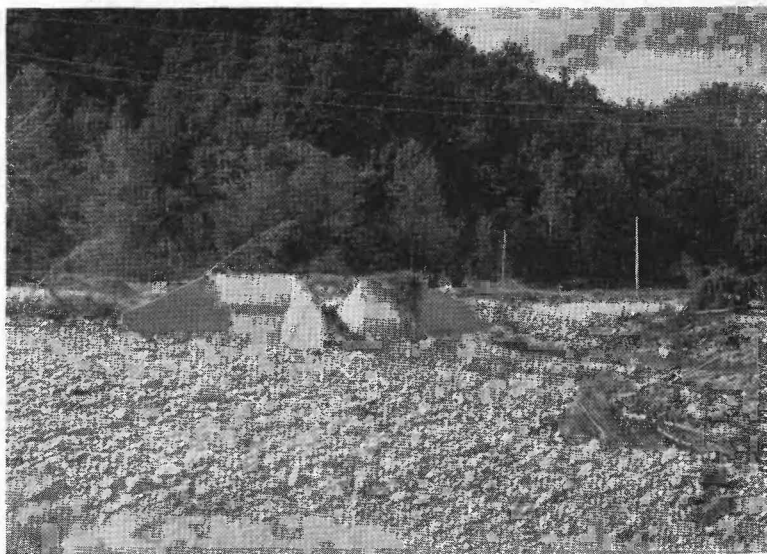
The period preceding the storm had been unusually dry in North Carolina, so that stream flow at the beginning of the storm was generally low. In contrast, the Weather Bureau reported in reference to the storm of 1916 that "the soil was thoroughly soaked prior to July 15."

LATE-AUGUST STORM

The second or late-August storm occurred August 28-31 in the vicinity of the Blue Ridge in North Carolina and was a comparatively local meteorological disturbance centered in the Little Tennessee and French Broad River Basins. Precipitation varying from 8 to 13 inches was measured on the western slopes of the Blue Ridge for periods of 20 to 30 hours and in general produced more rain for short periods in certain areas than the mid-August storm. The amounts of rainfall recorded at any station in periods from 2 hours to 1 day were greater during the late-August storm. There was more rain on the day of maximum rainfall in the late-August storm than in the mid-August storm for areas less than about 2,000 square miles.

MID-AUGUST FLOOD

Both storms caused floods that in many places exceeded all those previously known. In the streams draining the south Atlantic slopes the floods resulting from the mid-August storm, with very few exceptions, exceeded those occurring at the end of the month. The



A. BRIDGE OVER LOST COVE CREEK AT JUNCTION WITH WILSON CREEK, NEAR EDGE-MONT, CALDWELL COUNTY.

High water was about 5 feet over piers as they now stand. Courtesy H. J. Loughhead, U.S. Forest Service



B. BRIDGE ON U.S. HIGHWAY 421, WILKES COUNTY.

Courtesy North Carolina State Highway Commission.

HIGHWAY BRIDGES DESTROYED IN NORTH CAROLINA.



A. DEBRIS LEFT BY JOHNS RIVER AT COLIETTSTVILLE, N. C.

In background, Rocky Springs Baptist Church rests on lot of Adventist Church after being floated from its own foundation. Courtesy U.S. Soil Conservation Service.



B. AGRICULTURAL DAMAGE ON NEW RIVER NEAR GALAX, VA.

Courtesy Corps of Engineers, War Department, Huntington, W. Va.

floods were most severe on the headwaters of Catawba and Yadkin Rivers on the eastern slopes of the Blue Ridge. The shaded area on plate 1 showing areas of high runoff conforms generally to areas tributary to those gaging stations or measuring points where the peak discharge exceeded 100 second-feet per square mile. The upper Yadkin River Basin appears to have received some of the greatest highway damage, as "highway officials estimated that 90 percent of the secondary road bridges in Ashe, Watauga, [and] Wilkes [Counties] and the northern part of Caldwell County in North Carolina were lost. Damage to main roads was not so extensive but was serious at many points, and several bridges were damaged. Railroads lost many embankments and were buried by landslides at numerous points. On the Southern Railway between Asheville and Salisbury, a distance of about 140 miles, there were 13 slides, one being 33 feet deep and 700 feet long."⁵ (See pl. 3.) Floods in streams tributary to Ohio River were most severe in the headwaters of the Nolichucky, Watauga, and New Rivers on the western slopes of the Blue Ridge.

The very steep slopes of the mountains undoubtedly were contributing factors to the high rates of runoff in the areas where they occurred. The highest rates occurred in the vicinity of Grandfather Mountain and Blowing Rock. Peak discharges of 1,400 second-feet per square mile or more were delivered by drainage areas of more than 50 square miles on the headwaters of Catawba and Yadkin Rivers. Unit discharges were not so great on the western slopes, but on one stream 1,100 second-feet per square mile came from about 33 square miles. Both floods were characterized by the large masses of floating debris brought down from the mountain areas. (See pl. 4,A.) Agricultural damage was quite extensive in many valleys, not only because of destroyed crops (pl. 4,B), but also because of topsoil washed away from some fields and deposition of sterile sand and gravel on others (pl. 5). Many gaging stations were seriously damaged or lost completely, owing to changes in the stream channels or battering by heavy drift.

Streams draining into the Atlantic Ocean north of the James River Basin did not experience severe floods, except in the Potomac River Basin on the headwaters of Shenandoah River. On James River the flood was the greatest of record at Scottsville and on several tributaries, including Appomattox River. At other points on lower James River and many tributaries, stages and discharges were nearly as great as during the flood of March 1936. On Appomattox River maximum discharges were about one and a half to two times those observed in the past 15 years and exceeded the highest stages recorded by about 2.5 feet at Farmville, Va., 5.3 feet at Mattoax, Va., and 3.3

⁵ Engineering News-Record, vol. 125, p. 253, Aug. 22, 1940.

feet near Petersburg, Va. In the Chowan River Basin discharges were more than twice those previously recorded at gaging stations on the Nottoway River since 1930 and on the Meherrin River since 1928.

The downstream path of the storm and the timing of rainfall was such as to aggravate the floods in the lower James and Roanoke River Basins. Most streams in the upper James River Basin were at their highest stages on August 15 and 16. The flood crest on the main river occurred progressively later as the flood wave moved downstream, cresting at Richmond at 8:30 a.m. August 18. (See pl. 6.) The lower tributaries were in flood on August 16, 17, and 18, debouching at near-maximum rates at times nearly coincident with the crest on the main river. A similar condition existed in the Roanoke Basin, where the floods on the upper Roanoke and Dan Rivers were approximately coincident at their confluence.

Roanoke River and practically all its tributaries reached stages and discharges at the Geological Survey gaging stations greater than previously observed. At Old Gaston, N. C., the river reached a stage of 21.48 feet as compared with stages of about 19 feet, about 15 feet, 16.2 feet, and 13.94 feet reached by the floods of 1877, 1889, 1912, and January 1936, respectively. At the plant of the Virginia Electric & Power Co. at Roanoke Rapids, N. C., the crest stage was reported as being 10 feet higher than that reached during the 1912 flood. On the basis of research by the Corps of Engineers⁶ the mid-August flood was the greatest known on this river since the first white settlement was established in Virginia in 1607. Floods in the Pamlico, Neuse, Cape Fear, and Waccamaw River Basins were not severe and were considerably less than previously recorded at gaging stations.

On the headwaters of Yadkin River above Donnah, N. C., the mid-August flood exceeded by a wide margin all previously known floods. (See pl. 7,A.) Discharges were especially large on the headwater tributaries on the north side of the basin. The peak discharge of Elk Creek near Elkville, N. C., was 70,000 second-feet from 50 square miles. The high rates of discharge of nearby streams computed by various methods corroborated the especially high computed discharge of Elk Creek. All bridges over Yadkin River above North Wilkesboro, N. C., were swept away. At the gaging station at Wilkesboro, N. C., the flood reached a stage of 37.6 feet, 3.1 feet higher than that of July 1916. The flood discharge of Pee Dee River in South Carolina was very extensively modified by the operation of storage reservoirs on Yadkin River at High Rock, Badin, and Mount Gilead, N. C., and on Pee Dee River near Rockingham, N. C. At the Geological Survey gaging station on Pee Dee River at Rockingham, N. C., the crest stage was 13.46 feet, as compared with 31.28 feet in 1908.

⁶ See 74th Cong., 1st sess., H. Doc. 65.



[A. BOTTOM LAND COVERED WITH BOULDERS WASHED DOWN BY FLOOD.



B. SAND CARRIED DOWN FROM BROWN MOUNTAIN BEACH AND UPPER WILSON CREEK.

Sand in center of picture is about 3 feet deep.

FARM LANDS RUINED BY FLOOD DEBRIS, WILSON CREEK NEAR
ADOKA, BELOW BROWN MOUNTAIN BEACH, N. C.

Courtesy U.S. Soil Conservation Service.



A. EMERGENCY LEVEES ERECTED TO PROTECT LOWER PART OF CITY.



B. AIRPLANE VIEW OF FLOODED INDUSTRIAL AREA.

FLOOD CREST OF JAMES RIVER AT RICHMOND, VA., AUGUST 18, 1940.

Courtesy Corps of Engineers, War Department, Norfolk, Va.

In the headwaters of Catawba River in the Santee River Basin occurred some of the most intense runoff of the flood. (See pl. 7,*B*.) The peak discharge of Wilson Creek at Brown Mountain Beach, near Adako, N. C., was computed to be 99,000 second-feet from 66 square miles, or 1,500 second-feet per square mile. (See pl. 5.) This unusual unit discharge is also corroborated by measurements on nearby streams.

On Catawba and Wateree Rivers the Duke Power Co. operates nine reservoirs and power plants. During the mid-August flood the operation of the upper reservoir at Bridgewater reduced the peak discharge from about 142,000 second-feet to about 43,700 second-feet. Water was being stored at a rate of over 120,000 second-feet for more than 1 hour. At Rhodhiss Reservoir, the next reservoir downstream, the peak contribution of 43,700 second-feet flowing out of the Bridgewater Reservoir was increased to about 168,000 second-feet by the very intense runoff from Wilson Creek and other streams that entered the reservoir from the north. By the storage of water the maximum outflow from Rhodhiss Reservoir was reduced to 104,000 second-feet. From 8 p.m. to midnight August 13, water was being stored at an average rate greater than 100,000 second-feet. The magnitude of the effect of storage in the other seven reservoirs and ponds was not so great as for the upper two reservoirs, but contributed greatly to the reduction of the flood discharges.

The storage in these reservoirs undoubtedly prevented a very severe and destructive flood in South Carolina. Generally all tributaries to Catawba River above Catawba, N. C., experienced floods greater than those of July 1916. At and downstream from Catawba, N. C., the magnitude of the flood of July 1916 was claimed to have been increased by the failure of a dike at the power development at Lookout Shoals. At the Geological Survey gaging station at Catawba, N. C., a stage of 36.8 feet was reached on August 14, as compared with a stage of 44.1 feet on July 16, 1916. At the Weather Bureau gage near Camden, S. C., on Wateree River, a maximum stage of 30.5 feet was recorded on August 16, about 9 feet lower than that of July 18, 1916, which was measured $1\frac{1}{2}$ miles downstream.

Floods on many streams in South Carolina and Georgia were severe but in general did not exceed previously known floods. (See pl. 8,*A*.) The high winds of the hurricane caused considerable damage and loss of life in the vicinity of Charleston, S. C., and Savannah, Ga. Many buildings were smashed, and trees were uprooted or broken off above ground. The records of the Coast and Geodetic Survey show that at Charleston, S. C., the hurricane tide reached a stage of 10.7 feet above mean low water on August 11, 1.6 feet above the previous high, which occurred on May 28, 1934. Records began in 1921.

On New River and many of its tributaries there occurred the greatest floods of record in the headwaters in North Carolina and Virginia. (See pl. 8,B.) At Crumpler, N. C., North Fork New River reached a stage of 23.0 feet on August 14, as compared with stages of 17.6 feet during the flood of 1878 and 16.4 feet during the flood of July 1916. South Fork New River near Jefferson, N. C., on August 14 reached a stage of 22.5 feet, which was the highest known since 1892 and 4.5 feet above that of the flood of July 1916. All but two bridges in the New River Basin in North Carolina were reported to have been washed out by the flood. The flood was also reported to be particularly severe on Chestnut Creek near Galax, Va.

In the Tennessee River Basin floods were most severe on those tributaries draining the west slopes of the Blue Ridge. In the Clinch River Basin, floods on many tributaries above Norris Dam approached the magnitude of previous floods, but storage of water in Norris Reservoir materially reduced flows downstream. On North Fork Holston River and South Fork Holston River the floods generally did not surpass those previously recorded. On Watauga River at and above Butler, Tenn., the flood was the greatest known, and discharges from headwater areas exceeded 1,000 second-feet per square mile from areas greater than 30 square miles. Damage along Watauga River was the greatest on any stream in the Tennessee River Basin. (See pl. 9) At Elizabethton, Tenn., on August 14, 1940, the river reached a stage of 20.9, only 1.1 feet lower than that reached in the record flood of February 1902.

In the Nolichucky River Basin the floods were the highest in recent years. Of the tributaries, the floods were the greatest of record on South Toe and Cane Rivers. In the French Broad River Basin above Asheville, N. C., the flood of August 13 generally exceeded that of August 30, although the August floods were generally less than previously known floods except in the Hominy Creek and Pigeon River Basins. In the Hiwassee River Basin the flood of August 13 was greater than that of August 30 but generally not outstanding. Along Tennessee River below Chattanooga, Tenn., the August floods were not serious because of the regulating effect of the reservoirs upstream.

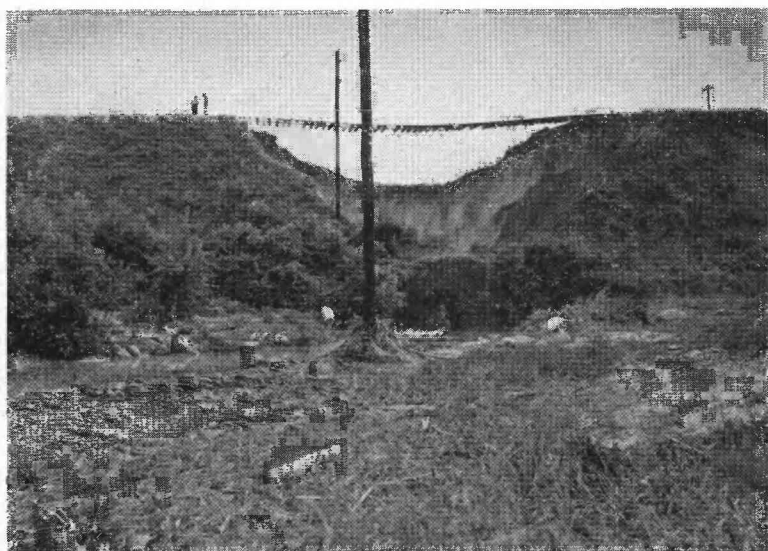
LATE-AUGUST FLOOD

Precipitation during the late-August storm was neither so great for the total storm period nor covered so extensive an area as during the mid-August storm. Owing to the shorter storm period, however, precipitation was more intense, so that in drainage basins near the storm centers the resulting floods were generally greater than those that resulted from the mid-August storm. The basins principally affected were those of French Broad, Little Tennessee, and upper



A. FLOOD OF AUGUST 14, 1940, ON YADKIN RIVER AT ELKIN, N. C.

Courtesy Winston-Salem (N.C.) Journal and Sentinel.



B. WASHOUT ON SOUTHERN RAILWAY NEAR ICARD, N.C.

Caused by inability of culvert to pass the great volume of water. Courtesy H. J. Loughhead, U.S. Forest Service.



A. FLOOD ON SAVANNAH RIVER AT AUGUSTA, GA.

Courtesy Frank J. Christian, Augusta, Ga.



B. FLOOD ON NEW RIVER PASSING CLAYTOR DAM NEAR RADFORD, VA.

Discharge about 200,000 second-feet. Photograph by David C. Kent, Pulaski, Va.

Savannah Rivers. The towns of Biltmore, Canton, Clyde, Cullowhee, Dillsboro, Enka, and Marshall, N. C., were severely damaged, and the business section of Bryson City, N. C., was deeply flooded. (See pls. 10 and 11.) The manufacturing plant of the Champion Paper & Fibre Co. at Canton was especially hard hit, as it had just recovered from the mid-August flood. (See pl. 12,A.) Material damages in Jackson County, N. C., were estimated at \$500,000.⁷

At the plant of the American Enka Corp., at Enka, about 10,000 electric motors and their switch boxes were drowned out and had to be reconditioned. Mud covered the entire plant, in some places nearly a foot thick. (See pl. 12,B.) Total damages were estimated at more than half a million dollars.

On French Broad River the late-August flood exceeded the mid-August flood at all gaging stations except three in North Carolina, but it was much less than the flood of July 1916. Flood heights at Marshall, N. C., were about the same as during the 1916 flood, but this is believed to be due to channel encroachments rather than to greater discharge, as flood heights in 1916 were greater both upstream and downstream from the town.⁸ On some of the tributaries, however, principally Hominy Creek and Mills, Ivy, and Pigeon Rivers, the late-August flood was the largest known.

Two slope-area measurements were made by the Geological Survey and one was made by the Tennessee Valley Authority on small streams in the headwaters of Pigeon River. These measurements indicated peak discharges of about 10,000 second-feet per square mile from drainage areas of 0.4 and 1.3 square miles. No great accuracy is claimed for these measurements, as they were made under difficult conditions. They indicate the extremely high rates of runoff that can come from intense rains on small areas.

The late-August flood in the Little Tennessee River Basin was particularly severe. It exceeded the mid-August flood generally and was the greatest flood of record at several points on Little Tennessee River and on Cullasaja Creek and Tuckasegee River above Dillsboro. On Tuckasegee River and Cullasaja Creek, discharges were 1½ to 2 times greater than those previously recorded. Only two bridges were left in place on Tuckasegee River. (See pl. 13,A.) The peak discharge at Dillsboro, N. C., amounted to 52,600 second-feet from nearly 350 square miles.

The flood in the Savannah River Basin was not particularly outstanding, although it exceeded the mid-August flood in Chattooga and Tugaloo Rivers.

⁷ Asheville (N. C.) Times, Aug. 31, 1940.

⁸ Tennessee Valley Authority, Floods of August 1940 in the Tennessee River Basin, pp. 259, 263, 1940. [Processed. Supplement to Precipitation in Tennessee River Basin, October 1940.]

SLIDES

One of the outstanding features connected with the storms of August 1940 was the great number of large landslides. These slides were conspicuous and contributed greatly to the devastation and death wrought by the floods. These slides occurred near the centers of both storms and they had many other characteristics in common. They occurred in shallow soils on steep slopes, surface exposures were toward the storm's path, and the areas tributary to the point of outbreak were amazingly small. They generally originated near the top of the mountain, usually about 300 to 400 feet from the top, and at a point where the slope changed from the relatively flat top to the steeper mountainside. The outbreaks are reported to have had the appearance of originating from eruptive forces, and the dislodged material was carried long distances. The slides were apparently caused by a high water content in the zone between the earth mantle and the steep underlying rock surfaces of the mountain slopes. Many of the larger slides continued on down the mountainsides into the stream valleys below, making a clean sweep of everything in their paths. (See pl. 13,B,C.) They emptied thousands of tons of soil and rock into the valley stream, which then became a mud-boulder flow, increasing the flood's destructiveness.

The slides varied in size from 6 or 8 feet wide and 40 or 50 feet long to 200 or 300 feet wide and a quarter to half a mile long. During the mid-August storm they occurred chiefly in the Blue Ridge from North Fork Catawba River northward to the north side of the Yadkin River Basin on the Atlantic slope and in the headwaters of Elk Creek and Watauga and New Rivers in the Ohio River Basin. During the late-August storm they occurred principally in the upper Pigeon and Tuckasegee River Basins, more than 200 occurring within an area of about 150 square miles. Similar slides are reported in most accounts of the flood of 1916.

Measurements of soil eroded from experimental plots were made at several projects of the Soil Conservation Service. (For a list of these projects see p. 4.)

DAMAGE

A list of estimated damage and losses arising from the floods of August 1940 is given in table 1. These data were furnished by the Corps of Engineers, except for the Tennessee River Basin, which were taken from the report of the Tennessee Valley Authority.⁹

The estimated number of deaths of persons caused by the floods varies between 30 and 40. Twenty-six persons are reported to have lost their lives in North Carolina.

⁹ Op. cit.



A. BRIDGE, TRACK, AND ROADBED OF LINVILLE VALLEY RAILROAD DESTROYED

Courtesy Harrison Studio, Johnson City, Tenn.



B. WILBUR POWERHOUSE AT HORSESHOE DAM.

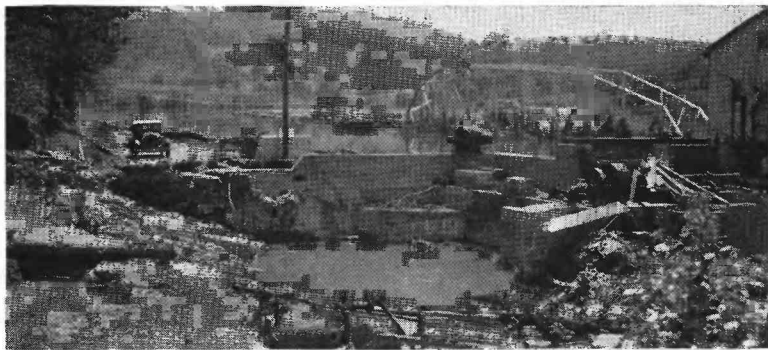
Water in the reservoir rose more than 5 feet above the concrete wall near the top of the picture and destroyed walls and roof of powerhouse, with heavy damage to equipment. Courtesy East Tennessee Light & Power Co.

FLOOD DAMAGE ALONG WATAUGA RIVER, TENN.



A. LATE-AUGUST FLOODS ON SWANNANOA RIVER AT BILTMORE, N. C.

Courtesy Asheville (N.C.) Citizen-Times.



B. REMAINS OF POWERHOUSE AT DILLSBORO, N.C.

Bridge over Tuckasegee River in background was turned 90° out of line. Courtesy Tennessee Valley Authority.

TABLE 1.—*Estimates of loss and damage, in dollars, caused by the floods of August 1940*

Drainage basin	Type of loss				Total
	Agricultural	Urban	Communications and utilities	Miscellaneous	
James.....	605,000	171,800	139,200	27,000	943,000
Chowan.....	550,900	185,900	222,100	3,100	962,000
Roanoke.....	2,803,500	1,676,200	740,800	57,000	5,277,500
Famlico.....	557,226	23,200	3,280	17,600	601,306
Neuse ¹	-----	-----	-----	-----	-----
Pee Dee.....	430,000	2,820,000	-----	-----	3,250,000
Santee.....	200,000	135,000	1,241,000	-----	1,576,000
Edisto ¹	-----	-----	-----	-----	-----
Savannah.....	7,324,600	929,665	415,284	1,326,695	9,996,244
Ogeechee.....	446,000	45,350	138,060	-----	629,410
Altamaha.....	10,000	700	20,900	-----	31,600
Kanawha.....	1,195,000	21,074,500	901,085	4,500	3,175,085
Tennessee.....	686,800	2,049,000	1,547,200	-----	4,283,000
Total.....	14,809,026	14,480,224	-----	1,435,895	30,725,145

¹ Damage minor; no estimate prepared.² Includes \$200,000 loss to navigation interests.

Highway damage alone was estimated at about \$750,000 in Virginia and \$2,600,000 in North Carolina. (See pl. 14.) Public water supplies were damaged and service was interrupted in a number of communities (see pl. 15), but apparently there were no outstanding losses of this nature.

Six gaging stations and six measuring cableways were lost by the Geological Survey during the flood.

METEOROLOGIC AND HYDROLOGIC CONDITIONS

As an aid to engineers and others who may desire to study the basic causes of floods and the remedial measures for protection from them, an effort has been made to present in this report basic data relating to the meteorologic and hydrologic conditions pertinent to the two floods of August 1940. The meteorologic data presented herein have been analyzed and used as a basis for the study of runoff during the floods of August 10-17 and 28-31. The data for the mid-August flood have been studied more extensively than those for the late-August flood; however, an attempt has been made to collect and publish all available precipitation data for both floods.

The unusual meteorologic events causing the mid-August flood were associated with the West Indian hurricane, which struck the coast about 4 p.m. August 11 near Savannah, Ga., and moved inland across Georgia, eastern Tennessee, southwestern Virginia, and North Carolina, where its identity was lost about August 15. Precipitation not directly associated with the hurricane also occurred at many points throughout the storm area, August 10-17. In general, the centers of greatest precipitation were in the Blue Ridge of North Carolina and Virginia, although a center on the Atlantic coast at Swansboro, N. C., and another at Keysville, Va., were observed.

Following the mid-August storm by about 2 weeks, the storm of

16 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

August 28-31 again deluged the Blue Ridge area of North Carolina and Georgia with rainfall only slightly less than experienced during the first storm. This storm was rather limited in extent and duration, the principal rainfall occurring in 24 hours instead of 2 or 3 days, as in the mid-August storm. This second storm deposited maximum totals of 12 to 13 inches in 20 to 28 hours, as compared with 17 to 19 inches in 40 to 50 hours during the mid-August storm.

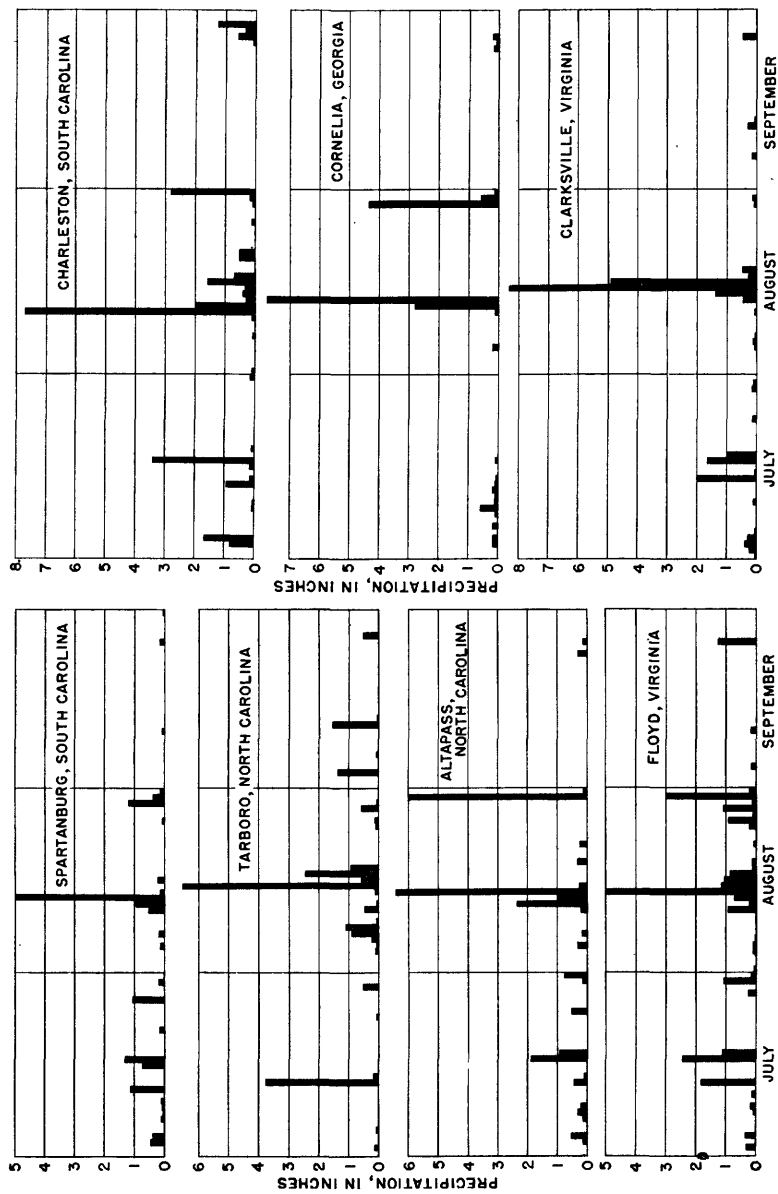
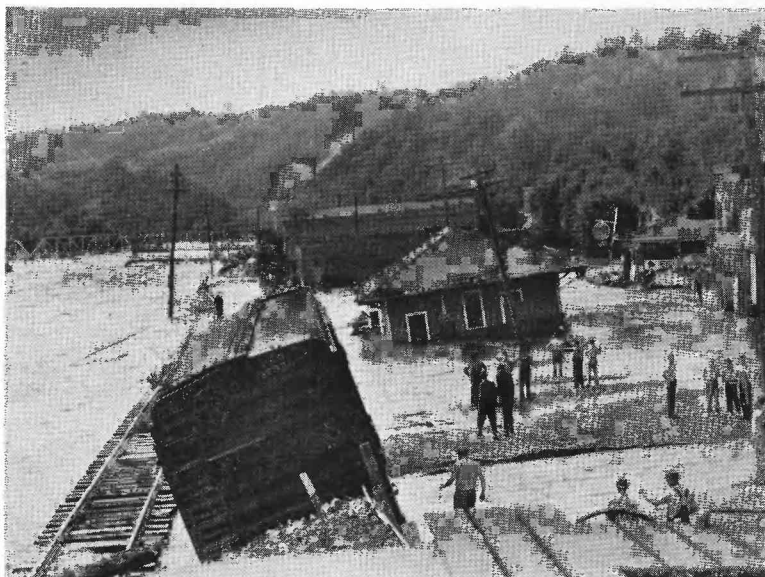
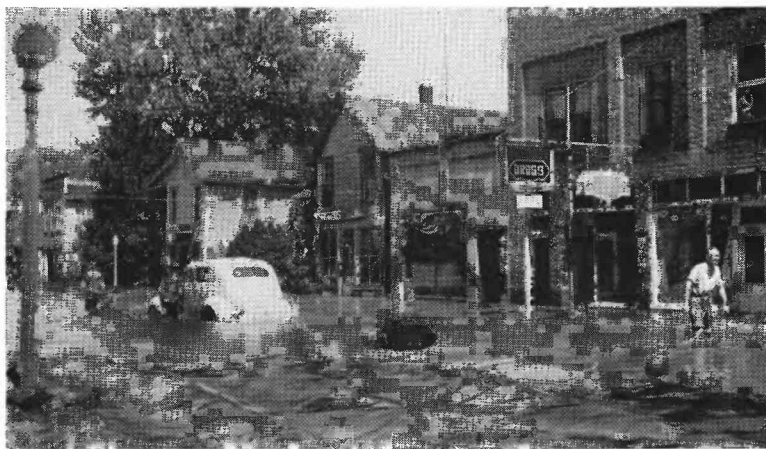


FIGURE 1.—Daily precipitation at selected precipitation stations, July 1 to September 30, 1940.



A. FRENCH BROAD RIVER AT MARSHALL.

Courtesy Asheville (N.C.) Citizen-Times.



B. TUCKASEGEE RIVER AT BRYSON CITY.

About an hour and a half after the crest of the flood. Courtesy Tennessee Valley Authority.

LATE-AUGUST FLOODS IN NORTH CAROLINA.



A. CANTON, N.C., PLANT OF CHAMPION PAPER & FIBER CO. DAMAGED BY MID-AUGUST FLOOD.

Late-August flood was 3 feet above the floodmark shown in this plant. Courtesy Frank Clodfelter, Asheville (N.C.) Citizen-Times.



B. CLEANING UP AFTER THE FLOOD IN THE RIO VISTA SECTION OF ELIZABETHTON, TENN.
Mud deposits such as these were typical of much of the flood area. Courtesy Knoxville (Tenn.) News-Sentinel.

ANTECEDENT CONDITIONS

To a considerable extent the foundation of a flood may be laid by the meteorologic events during the period preceding the directly causative storm. In summer, factors of primary importance are soil moisture and ground-water levels, which influence the rate of infiltration into the soil and the space available for storage within the soil and as ground water. As direct measurements of soil moisture are not generally available, indirect methods of evaluating this factor, based on pertinent antecedent climatologic data, must be used. The continuation of below-normal rainfall in combination with above-normal temperatures would be indicative of below-normal soil moisture and hence a soil conducive to greater retention. Ordinarily ground-water levels would tend to be relatively low under these circumstances. Monthly variations from normal precipitation and temperature, based on Weather Bureau records, afford a basis for evaluating such conditions and are presented in tables 2 and 3 for use in studying seasonal conditions prior to both floods. Figure 1 shows daily precipitation for July to September 1940 and indicates conditions immediately prior to as well as during and following the storms.

Owing to the broad areal extent of the mid-August storm and the variety of weather conditions in the several States affected, antecedent conditions varied considerably. This was indicated by cumulative departures from normal for both precipitation and temperature. Cumulative deficiency in precipitation for the 5 months previous to the storm existed in all of the five States except Virginia and was greatest in North Carolina and South Carolina, being 4.2 inches and 5.9 inches, respectively. (See table 2.) As North Carolina was most affected by the storm and resulting flood, this below-normal precipitation had the effect of producing a below-normal soil moisture and hence of reducing the flood runoff to some extent. For this same period the precipitation in Georgia and eastern Tennessee was only slightly below normal and in Virginia was slightly above normal.

State-wide mean temperatures prior to the storm were below normal. (See table 3.) As this condition has a tendency to reduce soil-moisture losses, it tended to offset partly the deficiencies resulting from deficient precipitation.

18 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 2.—*Monthly precipitation and departure from normal, in inches, March to August 1940, by States*

State	March			April			May		
	Precipitation	Departure from normal	Cumulative departure from normal	Precipitation	Departure from normal	Cumulative departure from normal	Precipitation	Departure from normal	Cumulative departure from normal
Virginia.....	2.58	-1.10	-1.10	4.34	+0.98	-0.12	4.43	+0.72	+0.60
North Carolina.....	3.12	-1.06	-1.06	3.46	-.15	-1.21	3.81	-.25	-1.46
Eastern Tennessee.....	4.91	-.39	-.39	4.04	-.30	-.69	3.02	-1.08	-1.77
South Carolina.....	3.38	-.45	-.45	2.07	-1.21	-1.66	2.84	-.72	-2.38
Georgia.....	4.03	-.77	-.77	3.03	-.80	-1.57	2.14	-1.29	-2.86

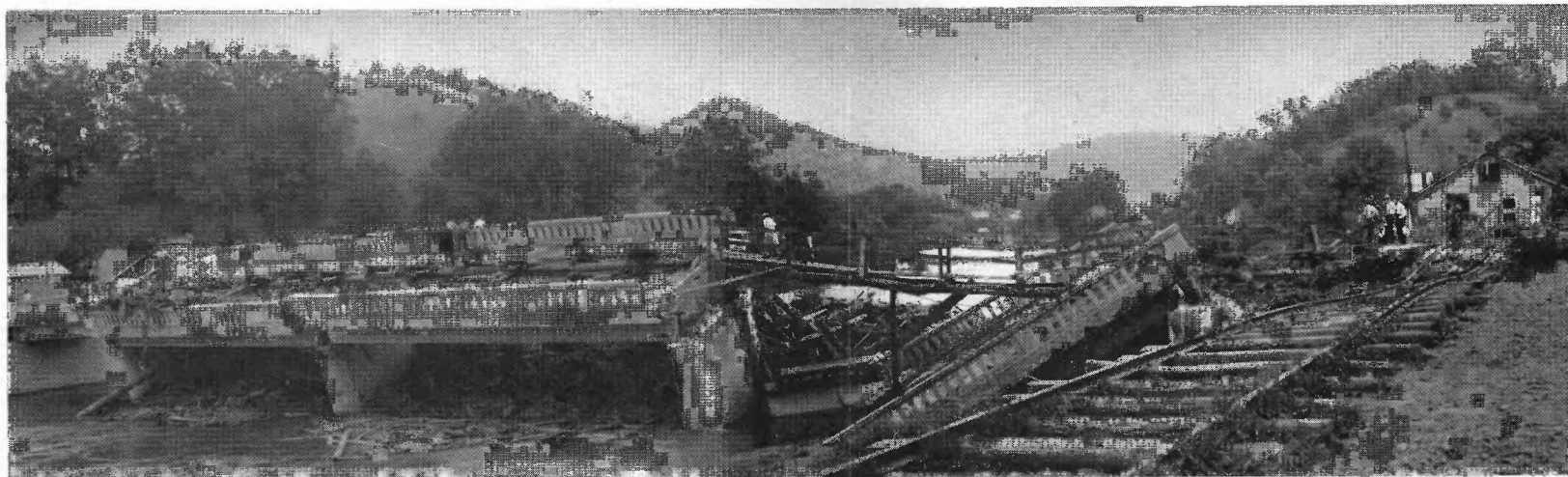
State	June			July			August		
	Precipitation	Departure from normal	Cumulative departure from normal	Precipitation	Departure from normal	Cumulative departure from normal	Precipitation	Departure from normal	Cumulative departure from normal
Virginia.....	3.87	-0.32	+0.28	5.16	+0.56	+0.84	9.19	+4.71	+5.55
North Carolina.....	3.56	-1.11	-2.57	4.26	-1.63	-4.20	10.57	+5.38	+1.18
Eastern Tennessee.....	4.78	+.22	-1.55	5.26	+.34	-1.21	5.00	+.62	-.59
South Carolina.....	3.45	-1.28	-3.66	3.60	-2.22	-5.85	10.22	+4.45	-1.43
Georgia.....	4.68	+.25	-2.61	6.69	+.92	-1.69	7.09	+1.80	+.11

TABLE 3.—*Monthly mean temperature and departure from normal, in degrees Fahrenheit, March to August 1940, by States*

State	March			April			May		
	Mean	Departure from normal	Cumulative departure from normal	Mean	Departure from normal	Cumulative departure from normal	Mean	Departure from normal	Cumulative departure from normal
Virginia.....	42.3	-3.5	-3.5	52.2	-2.2	-5.7	63.4	-0.7	-6.4
North Carolina.....	47.0	-3.0	-3.0	56.3	-1.6	-4.6	65.4	-1.4	-6.0
Eastern Tennessee.....	45.8	-2.5	-2.5	56.2	-1.2	-3.7	63.1	-2.8	-6.5
South Carolina.....	51.6	-3.2	-3.2	60.6	-1.6	-4.8	68.4	-2.5	-7.3
Georgia.....	53.9	-2.4	-2.4	61.6	-1.7	-4.1	69.3	-2.2	-6.3

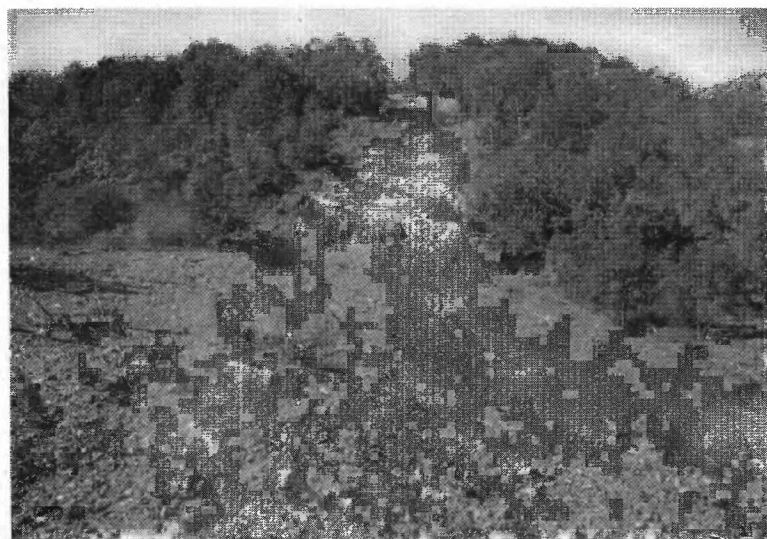
State	June			July			August		
	Mean	Departure from normal	Cumulative departure from normal	Mean	Departure from normal	Cumulative departure from normal	Mean	Departure from normal	Cumulative departure from normal
Virginia.....	72.9	+1.2	-5.2	74.3	-1.1	-6.3	72.7	-1.4	-7.7
North Carolina.....	75.3	+1.3	-4.7	75.9	-1.0	-5.7	75.4	-.5	-6.2
Eastern Tennessee.....	73.4	0.	-6.5	74.9	-1.7	-8.2	75.4	0.	-8.2
South Carolina.....	78.3	+.9	-6.4	79.6	-.2	-6.6	78.5	-.4	-7.0
Georgia.....	77.9	-.2	-6.5	78.5	-1.5	-8.0	79.9	+.4	-7.6

Ground-water levels are indicative of storage space in the ground; they also reflect the cumulative effects of excesses or deficiencies in precipitation and thus indirectly indicate relative soil-moisture conditions. Figure 2 shows ground-water levels in the Kurfee well, at Mocksville, N. C., in the Yadkin River Basin. This well reflects, in general, the relative water levels in the region of greater runoff during the mid-August storm. It can be noted that the level immediately prior to the storm was somewhat lower than during the corresponding periods of 1937, 1938, and 1939 but did not approach the lowest levels recorded at this well. The water level in the Baldwin

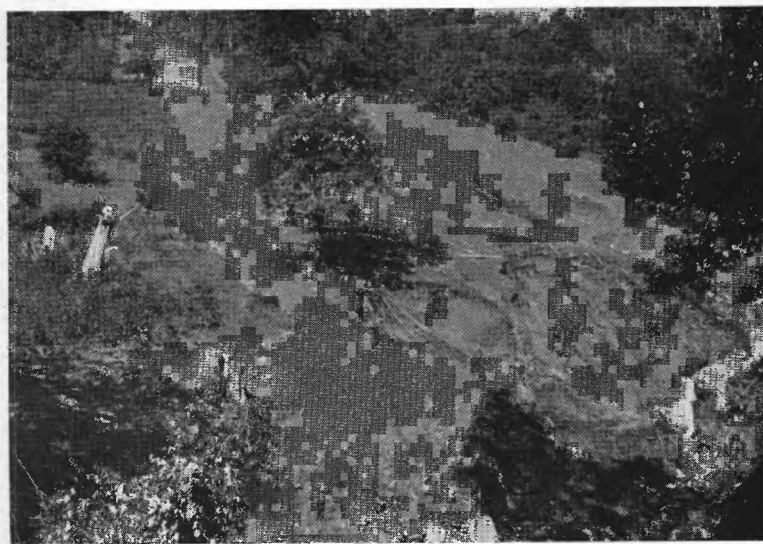


A. HIGHWAY BRIDGE DESTROYED ON TUCKASEGEE RIVER.

This bridge near Cullowhee, N.C., is one of many on Tuckasegee River destroyed by the flood of August 30. Courtesy Tennessee Valley Authority.



B



C

LARGE SLIDE ON LEFT FORK STONY FORK IN WILKES COUNTY, N. C.

Typical of many slides in the Deep Gap region. Note stream in lower right corner of C and toe of slide from which some material has been removed. B is a view of upper part of slide from top of debris pile shown in C. Courtesy H. J. Loughead, U.S. Forest Service.

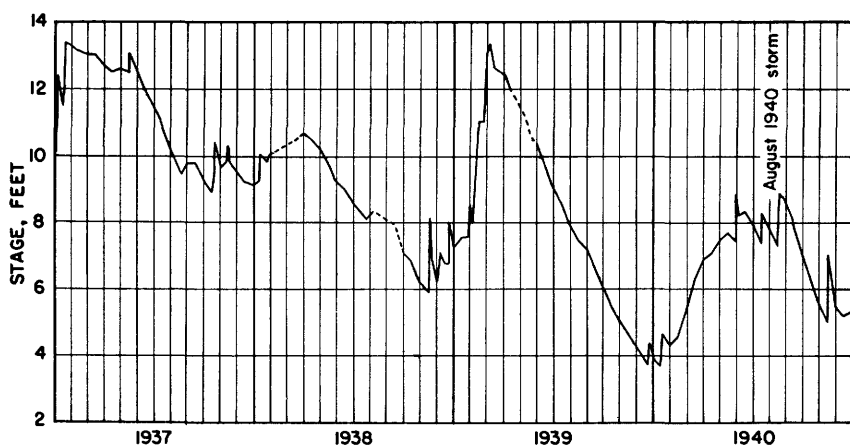


FIGURE 2.—Water levels of Kurfee well, Mocksville, N. C., 1937–40.

well, at Blantyre, N. C., in the upper French Broad River Basin stood at 5.49 feet on August 10; the normal stage in August in this well is 7+ feet. The water level in well 33, of the Tyger River area near Spartanburg, S. C., was at a stage of 7.78 feet on August 12; normal is about 10.8 feet.

Another indirect measure of soil-moisture conditions and ground-water levels is base flow or ground-water effluent as measured by the natural flow in stream channels during periods of no direct runoff. When direct runoff has ceased subsequent to periods of rainfall, the flow of streams consists essentially of outflow from ground water. Further discharge during periods of no rainfall drains water stored in the zone of saturation and reduces the ground-water level correspondingly. The base flow for the first 10 days of August as estimated for various years is given in table 4 to afford comparison with the conditions prior to the 1940 mid-August flood. On this basis, it is apparent that soil-moisture conditions varied considerably over the area effected by the storms. Conditions in the upper Roanoke and Yadkin River Basins were generally somewhat below normal but were much higher than in 1932, one of the drought years for this region. The base flow in the Neuse and French Broad River Basins was subnormal and approached the conditions prevailing in 1932. For the Roanoke and French Broad River Basins, the base flow preceding the July 1916 flood has also been shown. The comparison of base flows in the French Broad River Basin suggests that soil-moisture conditions were apparently more conducive to direct runoff in July 1916 than in 1940.

The late-August flood, following within 2 weeks of the first flood, may have been increased to some extent by increments to soil mois-

20 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 4.—*Estimated base flow, in second-feet, at selected gaging stations for period August 1-10 in various years*

Year	Roanoke River at Roanoke, Va.	Neuse River near Clayton, N. C.	Yadkin River at Yadkin College, N. C.	French Broad River at Asheville, N. C.
1940.....	120-130	180-200	1,550-1,600	650- 700
1939.....	130-150	400-500	1,550-1,600	950-1,000
1938.....	200-250	400-450	2,000-2,200	1,600-1,700
1936.....	80- 85	500-600	1,400-1,500	-----
1932.....	40- 50	100-120	1,000-1,100	1,100-1,200
1925.....	-----	-----	-----	350- 400
1916 (July 1-10).....	110-120	-----	-----	1,600-1,700

ture resulting from the mid-August storm. However, from an inspection of numerous discharge hydrographs for gaging stations in this area, it was noted that the base flow receded soon after the first flood to a comparatively low stage, so that the stage before the second flood at the end of August was not much greater than before the first flood.

PRECIPITATION

MID-AUGUST STORM

PRECIPITATION RECORDS

Precipitation records at nearly 650 stations were collected and used for the study of rainfall and runoff. The records have been furnished by governmental agencies, power companies, municipalities, corporations, and many individuals, whose cooperation is hereby acknowledged and to whom individual credit is given in the tabulations.

A compilation of rainfall data for this storm, made by the Corps of Engineers in their district office at Norfolk, Va., and furnished to the Geological Survey through the Chief of Engineers, has formed a basis for the records presented in table 5. Numerous records published by the hydrologic units of the Weather Bureau, in cooperation with the Corps of Engineers, Soil Conservation Service, Forest Service, Flood Control Advisory Committee, and Bureau of Agricultural Economics, were assembled in this compilation, so that preparation of table 5 was greatly facilitated. Some records have been added, particularly data published by the Tennessee Valley Authority and data for miscellaneous stations maintained by the Weather Bureau. The isohyetal map presented as plate 16 has been prepared on the basis of a similar map prepared by the Corps of Engineers. However, data for the rainfall stations added by the Geological Survey have necessitated considerable revision, particularly in the Tennessee River Basin.

The daily precipitation at all stations from August 10 to 19, inclusive, is reported in table 5, with appropriate footnotes indicating the time of measurement, source of the record, and other information



A. STATE ROUTE 195 ON LEFT BANK OF MEHERRIN RIVER NEAR BRANCHVILLE, VA.

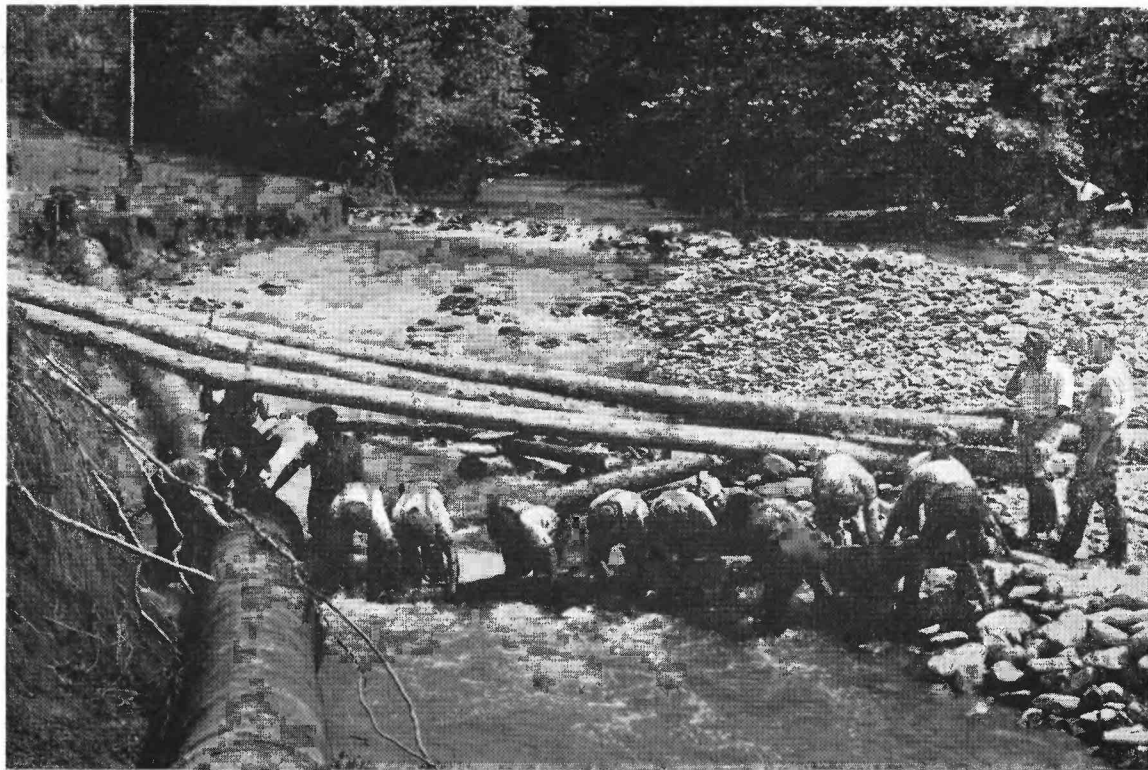
Courtesy Corps of Engineers, War Department, Norfolk, Va.



B. U.S. HIGHWAY 19-23 ALONG HOMINY CREEK NEAR CANTON, N.C.

Courtesy Asheville (N.C.) Citizen-Times.

HIGHWAYS DAMAGED BY FLOOD



REPAIRING ASHEVILLE'S WATER-SUPPLY LINE.

This main meter line of the city of Asheville sagged and broke when Beetree Creek cut away the bank.
Courtesy Frank Clodfelter, Asheville (N.C.) Citizen-Times.

pertinent to the record. All data were furnished by the Weather Bureau, except as otherwise noted.

The last column in table 5 lists the total storm precipitation during the period between 6 a.m. August 10 and midnight August 17, which embraces the major storm. For stations in the compilation by the Corps of Engineers, the total for the stations that were read once or twice daily have been obtained from mass curves based on recording gage records (such as shown in fig. 3) at nearby stations and observers' notes as to times of beginning and ending of rain. There was generally no rain from the afternoon of August 9 to the morning of August 10, and except for scattered showers in the mountainous areas of North Carolina and Virginia on August 18 and 19, the rain had ceased by midnight of August 17. The distribution of precipitation at selected recording gages in the storm area is shown in figure 4. From inspection of the hourly records the following rules were formulated for combining daily records that were not in the compilation by the Corps of Engineers, so as to show on as uniform a basis as possible all rainfall from 6 a.m. August 10 to midnight August 17:

1. For gages read in the afternoon, the precipitation records for August 10-17, inclusive, were totaled.
2. For gages read at midnight, the records for August 10-17, inclusive, were totaled.
3. For gages read at 1:30 a.m. and recorded for the preceding day, the records for August 10-17, inclusive, were totaled.
4. For gages read in the morning and recorded for the day read, the records for August 11-18, inclusive, were totaled.

TABLE 5.—*Daily precipitation, in inches, August 10-19, 1940*
 [Measured in morning except as noted; M, missing; NR, no record; Tr, less than 0.01 inch]

No. on pl. 16	Station	County	August										Total for storm period ¹	
			10	11	12	13	14	15	16	17	18	19		
	POTOMAC RIVER BASIN													
	Virginia:													
1	Camp N. P. 1	Madison		0.65	1.42	0.76	0.30	4.55	4.00	M	M	M	11.7	
2	Churchville ²	Augusta	0.05	.23	.08	.06	1.09	1.78	1.49	0.06		0.03	4.8	
3	Dale Enterprise	Rockingham		.06		Tr	1.33	1.28	.45	.09		Tr	3.2	
4	Harrisonburg (near) ^{2 3}	do		.04		.06	.84	1.58	.75				3.3	
5	Lipscomb (near) ^{4 5}	Augusta		.31	.09	.27	.86	6.86	4.58	1.52			14.5	
6	McGayheysville ²	Rockingham	.03	.15	.11	.53	.92	2.02	1.57	.08	0.12	.06	5.4	
7	Monterey	Highland		.10	.09		.33	.89	1.42	.33		Tr	3.2	
8	Mount Jackson ^{4 6}	Shenandoah		.27	.09			1.00	.73	.13	.01	.18	2.2	
9	Mount Solon ⁴	Augusta		.15	.35		.40	1.26	3.47	.85		.03	6.5	
10	North River Dam ⁶	do	.11	.39		.43	1.23	2.73	1.60	.34			6.7	
11	Park Headquarters ^{4 5}	Page		.56		.16	.14	1.30	5.79	.75			8.7	
12	Riverton	Warren			.14				.61	.36			1.1	
13	Skyland ²	Page		1.62	.64	.01	.30	6.75	6.23	.55		.27	16.1	
14	Staunton	Augusta		.05	.06	.24	.40	1.13	2.62	.86		1.01	5.4	
15	Timberville ⁶	Rockingham		.24			.40	1.13	.79	.10		.10	2.7	
16	Woodstock ⁶	Shenandoah		.06	.14			1.03	.73	.71		.16	2.7	
	RAPPAHANNOCK RIVER BASIN													
	Virginia:													
17	Big Meadows ⁶	Madison	.85	.70	1.23	.39	.57	5.40	5.50	NR	NR	NR	14.6	
18	Brandy ⁷	Culpeper	.17					1.30	.80	.86		.33	3.0	
19	Christchurch ⁶	Middlesex		.09			1.40	1.68	.25	.04	Tr	Tr	3.5	
20	Culpeper ⁶	Culpeper		.06	.03	.02	.30	1.57	.80	.15	.04	.12	2.9	
21	Elkwood ⁶	do		.38		.01	.13	1.53	.73	.28	.01	.21	3.1	
22	Fredericksburg ⁶	Spottsylvania		.45	.13		.25	1.59	.68	.20		.04	3.3	
23	Orange ⁶	Orange		.83			1.85	1.44	1.16	.50			5.8	
24	Tappahannock ⁶	Essex						2.44	.19	.35			3.0	
24a	Urbanna	Middlesex			Tr	Tr	.91	1.20	.13	Tr	.09	.02	2.3	
	YORK RIVER BASIN													
	Virginia:													
25	Gordonsville ⁸	Orange		.59		.47	1.05	1.64	1.37	.25		Tr	5.4	
26	Mineral ⁶	Louisa		.36	Tr		.94	1.34	.71	.31	.05		3.7	
27	Walkerton ⁶	King and Queen		Tr			.55	2.84	.24	.76	.01	.02	4.4	

JAMES RIVER BASIN												
Virginia:												
28	Afton	Nelson	.26	.23		.68	1.43	4.42	2.64	.12		9.8
29	Appomattox	Appomattox		.38	Tr	.71	5.96	3.50	.43	.23	Tr	11.2
30	Augusta Springs	Augusta	.20	.73	.02	.50	1.19	3.24	1.10	.20	.30	7.2
31	Balcony Falls	Rockbridge		.65	.26	1.97	3.24	2.61	1.75	Tr		10.5
32	Barbours Creek ⁴	Craig	.40	.08	.30	2.00	.70	.77	.35		.08	4.6
33	Bremo Bluff	Fluvanna	.02	.06	.17	1.33	2.86	1.86	.42	Tr		6.7
34	Buchanan	Botetourt	.08	.24	.05	1.10	2.75	1.70	.67	.05		6.6
35	Buena Vista	Rockbridge	.05	.10	.12	.89	1.93	2.20	1.01	.01	.02	6.3
36	Catawba Sanatorium	Roanoke	.20	.58	.32	3.88	2.90	1.25	.25		.20	9.4
37	Charlottesville (near) ⁹	Albemarle	.14	Tr	.30	1.24	2.52	.97	.28	Tr	Tr	5.4
38	Clifton Forge	Alleghany	.10			1.19	2.10	.67	.18			4.1
39	Columbia	Fluvanna	.02	.24	.05	1.48	2.99	2.56	.29	.10		7.7
40	Covington	Alleghany		.37		1.05	.86	.24		.14	.15	2.7
41	Cumberland	Cumberland	Tr			.46	4.00	1.79	.50	.12		6.9
42	Deerfield (near) ⁴	Augusta		.70	.10	1.00	1.55	.90	1.22			5.5
43	Deerfield	do.			.48		.44	.75	1.70	.44	Tr	3.8
43a	Earlsville (near) (Woodson's store) ^{2 3}	Albemarle			.10	2.00	1.06	1.88	.04			5.1
43b	Esmont (near) (Camp F-2) ^{4 5}	do.		.19	.35	1.03	2.25	2.50	.85		.03	7.2
44	Farmville ⁶	Prince Edward	.02	.25		4.97	4.25	1.76	.24			11.5
45	Goshen	Rockbridge				.34	1.42	1.92	.24			3.9
46	Hopewell ⁸	Prince George	Tr	.15	Tr	1.11	5.56	2.23	1.00	Tr		10.0
47	Hot Springs	Bath		.11	.42	.06	1.14	1.71	2.43	.48	.01	6.4
47a	Hydraulic (near) ^{2 5}	Albemarle		.12		(10)	3.06	1.88	.04			5.1
47b	Ivy Depot (near) (Baker) ^{2 5}	do.		.45		(10)	4.56	2.63	.21			7.8
48	Jordan Mines (near) ²	Alleghany		(10)	.17	.36	2.66	.92	.54			4.6
49	Kerra Creek	Rockbridge		.07	.05	.02	1.10	1.56	3.37	.37		6.5
50	Lynchburg ²	Campbell	.01	.15	Tr	.60	3.83	1.51	2.56	.09	Tr	8.7
51	Lynchburg (airport) ⁸	do.	.14	.32	Tr	.54	5.02	2.14	2.13	.18	.02	10.5
52	McDowell	Highland		.20		1.15	2.77	1.95	1.55	Tr		8.0
53	Millboro Springs ²	Bath		.12	.20	1.69	1.59	.78	.03			4.4
53a	Monoco (near) (Camp E-18) ^{4 5}	Amherst		.07	.54	.29	1.78	1.92	2.84	.95	.04	8.4
54	Montebello ⁴	Nelson		.30	1.01	.28	.65	2.25	4.25	1.70	.44	10.9
55	Moore's Creek Dam	Rockbridge				2.10	1.86	1.60				5.6

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values August 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

⁵ Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

⁷ Record furnished by Corps of Engineers, War Department.

⁸ Precipitation measured at 1:30 a.m.; total is then recorded for previous day.

⁹ Precipitation measured at midnight.

¹⁰ Precipitation included in the following measurement.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	Virginia—Continued												
56	New Canton ⁶	Buckingham	Tr	0.09	0.09	0.01	1.68	2.68	1.18	0.59	Tr		6.3
57	Newcastle	Craig		.16	.47	.19	2.50	2.45	1.10	.40		0.10	7.3
58	Norfolk ²	Norfolk	0.08	Tr		.45	2.23	1.32	.70	.06	Tr	1.96	4.8
59	North Garden	Albemarle			.31		.73	1.93	4.61	1.10			8.7
60	Oronoco ⁴	Amherst		.07	.54	.29	.99	2.12	3.30	1.45	0.13	.04	8.9
61	Pedlar Dam	do		.30	.34	.54	.80	3.80	2.24	1.18	.03		9.2
62	Powhatan ⁶	Powhatan		.12	.02	.01	1.32	3.96	.86	1.36	.34	.02	8.0
63	Richmond	Henrico		.06	Tr		.03	3.71	1.86	1.49	.57		7.7
64	Richmond (Byrd Airport) ⁸	do	.05	.01	.27		1.55	3.45	1.25	.15			6.7
65	Rockfish	Nelson		.04	.06	.04	.63	2.10	4.12	1.10	.06		8.2
65a	Rocky Point (near) (Arnolds Valley) ⁴	Rockbridge			1.47	.10	2.00	7.53	3.52	1.92	.10	.08	16.5
66	State Farm ⁶	Goochland						3.60	2.22	.43	.60		6.8
67	Tye River	Nelson		.09	.15		1.02	3.80	2.37	1.09	.07		8.6
68	Vesuvius	Rockbridge			.42	.05	.48	1.46	2.72	1.08	.35		6.6
69	Wagners store ²	Albemarle				.40	2.60	1.88	2.58	.26			7.7
69a	Warm Springs (near) (Camp F-25) ⁴												
70	Williamsburg ⁶	Bath		.06	.04	.14	2.08	1.21	.51	.14		.06	4.2
71	Williamsville	James City		.06			.68	3.05	.64	.16		.06	4.6
		Bath			.25		.71	1.04	1.14	.31			3.4
	CHOWAN RIVER BASIN												
	Virginia:												
72	Callaville ⁶	Brunswick		.38			4.17	6.93	1.42	1.22			14.1
73	Capron ⁶	Southampton	.23	.10	.57	.45	1.63	5.26	3.84	1.86			13.7
74	Creve (near) ²	Nottoway	.15	.09	.01		7.24	4.70	.98	.67			13.8
75	Emporia	Greensville		.19	.21	.07	.14	5.17	3.08	2.05			10.9
76	Holland ⁶	Nansemond	1.29	.63	.70		.90	4.20	3.10	.70			11.5
77	Kenbridge ⁶	Lunenburg		.26			5.50	3.95	3.00	.30			13.0
78	Keysville (near) ³	do	.10	.50		.75	10.75	4.50	.63	.25			17.5
	ROANOKE RIVER BASIN												
	Virginia:												
79	Bedford ⁶	Bedford		.38	.08	.03	5.50	2.10	1.65	.39		.01	10.1
79a	Chartville (Woolwine) ⁴	Patrick	.01	.60	1.20	.46	6.75	1.74	2.26	1.83	.02	.08	14.9
80	Chatham (near) ⁶	Pittsylvania		.17		.29	2.85	4.75	2.05	.54	.16	.01	10.7
81	Chatham (near) (No. 4) ^{3 11}	do		.17	.15	6.83			4.49		.62		11.6
82	Chatham (near) (No. 5) ^{3 11}	do	.32		.09			8.03	.28				8.7
83	Chatham (near) (Easley Farm) ^{2 3}	do	.26	.75		.30	6.72	2.58	.30	.15			11.1
84	Chatham (S.C.S. Warehouse) ^{2 3}	do	.14	.35		.29	7.49	3.23	1.22	.17			12.9

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84a	Chatham (near) (Rogers) ^{2 3}	Pittsylvania	.21	.46	-----	.37	6.86	1.93	.23	.56	-----	10.4	
85	Clarksville	Mecklenburg	-----	.02	-----	.43	1.35	8.27	4.78	.23	.43	15.5	
86	Copper Hill	Floyd	-----	1.20	1.15	.50	6.70	2.70	3.52	1.26	-----	17.0	
87	Danville ⁶	Pittsylvania	.03	.50	-----	.03	3.83	1.57	.24	.19	-----	6.4	
88	Dry Fork (Bryants Farm) ^{2 3}	do	.28	1.13	-----	.26	7.48	3.09	.48	.71	-----	13.4	
89	Fairy Stone State Park	Patrick	-----	.40	.07	.53	3.38	1.33	1.14	-----	.04	6.9	
89a	Gretna (Sandy Level) ^{2 3}	Pittsylvania	.10	.08	.07	.39	8.68	2.52	.88	.05	-----	12.8	
90	Halifax ⁶	Halifax	.42	.21	.25	.22	5.02	4.11	.92	.34	-----	11.1	
91	Martinsville	Henry	Tr	.96	.04	.07	5.46	1.66	.47	.14	.02	.01	8.8
92	Moneta (near) ³	Bedford	-----	-----	-----	.50	3.00	2.52	.60	-----	-----	-----	6.6
92a	Peaksville (near)	do	-----	-----	-----	2.55	3.10	1.25	1.55	-----	-----	-----	8.4
93	Pinnacles ⁶	Patrick	.05	.17	1.02	.42	6.00	1.19	.35	.66	1.15	.05	9.8
94	Randolph	Charlotte	-----	.10	.20	.46	.46	6.90	126.38	12.40	12.10	-----	15.0
95	Roanoke ⁶	Roanoke	.16	.51	.11	.51	5.36	2.50	1.45	.14	Tr	.04	10.7
96	Roanoke city gage ²	do	-----	.39	.39	1.47	5.76	3.12	1.34	.04	-----	-----	12.1
97	Roanoke (city) ²	do	-----	.27	.55	.95	5.59	(10)	(10)	2.06	-----	-----	9.4
98	Roanoke (airways) ³	do	.08	.25	.56	1.13	5.43	1.56	.33	.01	.0	.02	9.4
99	Rocky Mount	Franklin	-----	.41	.47	.28	2.38	1.78	2.80	.60	-----	.07	8.7
100	Stuart ⁶	Patrick	-----	.31	.58	.60	5.26	.53	.41	.07	.19	-----	7.9
101	North Carolina:												
102	Henderson ⁶	Vance	-----	.55	.04	.02	3.11	2.83	.73	.03	-----	-----	7.3
103	Madison ^{2 3}	Rockingham	-----	.26	.41	.30	4.75	.13	1.29	.10	-----	-----	7.2
104	Scotland Neck ⁶	Halifax	.54	-----	-----	.34	3.65	6.13	1.65	1.35	-----	-----	13.7
105	Scotland Neck No. 2	do	-----	.87	-----	-----	-----	4.74	2.74	1.32	-----	-----	9.7
106	Weldon	do	-----	.39	.57	Tr	.12	5.22	2.75	.78	.11	-----	9.9
107	Williamston	Martin	.02	.91	.01	.01	.37	3.07	1.09	.21	.87	.06	6.6
108	Yanceyville ^{5 11}	Caswell	.10	-----	.10	-----	5.37	.94	.94	-----	-----	-----	7.4
109	PAMLICO RIVER BASIN												
110	North Carolina:												
111	Arcola ⁶	Warren	.62	.08	.24	Tr	2.70	.60	3.77	.09	Tr	-----	8.1
112	Enfield	Halifax	-----	.62	.40	.17	-----	5.25	1.07	1.46	.45	-----	9.4
113	Franklington (near) (No. 3-Smith Farm) ^{2 3}	Franklin	.65	.30	-----	-----	6.40	3.75	-----	-----	-----	-----	11.1
114	Franklington (near) (No. 6-Fuller Farm) ^{2 3}	do	.65	.20	-----	.05	5.15	4.00	.10	-----	-----	-----	10.2
115	Greenville ³	Pitt.	1.40	.14	-----	Tr	1.11	.92	1.26	.32	Tr	-----	5.2
116	Greenville No. 27	do	-----	1.19	.18	-----	-----	1.18	1.02	.75	.27	-----	4.6
117	Henderson ⁶	Vance	-----	.55	.04	.02	3.11	2.83	.73	.03	-----	-----	7.3
118	Louisburg	Franklin	-----	-----	.05	Tr	.20	3.23	2.00	Tr	-----	-----	5.5
119	Nashville	Nash	-----	.89	.70	-----	.10	6.03	2.91	1.38	.39	-----	12.0
120	Oxford ⁶	Granville	.13	.66	-----	.10	2.45	1.40	1.27	.13	-----	-----	6.1

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values August 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

⁷ Record furnished by Corps of Engineers, War Department.

⁸ Precipitation measured at 1:30 a.m.; total is then recorded for previous day.

¹⁰ Precipitation included in following measurement.

¹¹ Precipitation measured after each rain.

¹² Precipitation estimated on basis of nearby stations.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	North Carolina—Continued												
118	Rockymount No. 1	Nash		0.63	0.52		0.01	4.98	0.25	1.40	0.20		8.0
119	Rockymount No. 2 ⁶	do	1.24	.10			5.10	.38	3.49		.68		11.0
120	Tarboro	Edgecombe	Tr	.44	.05		.05	6.55	.59	2.43	.93		11.0
121	Warrenton ⁶	Warren	.15	.17	.28	0.08	5.98	.83	2.69	.03	.10		10.2
	NEUSE RIVER BASIN												
	North Carolina:												
122	Clayton ⁶ ¹³	Johnston					.62	.69	.58				1.9
123	Crabtree Creek ⁶	Wake	.29	.31		.10	4.00	1.27		.10			6.1
123a	Deep Creek	Person		.27	.30		1.90	2.00	1.30	.25	.28		6.3
124	Goldsboro ⁶	Wayne	.01	.09	.27	.02	.05	2.50	1.96	.45	.09		5.4
125	Goldsboro No. 2	do	.03	.81	.25	.01	.14	3.88	1.85	.73	.72		8.4
125a	Kenly	Neuse	.36	1.00	.30			2.90	2.68	.10			7.3
126	Kinston	Lenoir	Tr	.26	.69	.03	Tr	.76	.33	.13	.25		2.2
127	Lake Michie	Durham		.05		.68	1.95	.95	.40				4.0
128	Mangum store	do			.04	.04	1.00	2.00	1.00	.15			4.2
129	McCullers ⁶	Wake	.21	.43	.15	.01	2.55	.76	.02	.85	.01		5.0
130	Neuse	do		.30	.09	.26	.09	6.50	1.50	.34			9.1
131	New Bern	Craven	.52	1.43	.10		.71	2.18	2.53	.74	1.22		9.4
132	Raleigh ²	Wake	.49	.38	Tr	.03	4.36	.20	.08	.44			6.0
133	Raleigh (near) ² ³	do	.31	.26	.02		2.11	2.75	.61	.73			6.8
133a	Rougemont	Durham	Tr	Tr	Tr		1.40	1.80	.65	1.45			5.3
134	Roxboro	Person		.06	.45	.01	1.64	2.33	.86	.41	Tr		5.8
135	Smithfield	Johnston	Tr	.90	.18	Tr	.03	4.45	.87	.05	.26		6.7
136	Wendell ² ³	Wake	.31	.26	.02		2.13	2.76	.74	.83			7.0
137	Wilson ⁶	Wilson	.60	Tr		.16	2.13	2.21	1.35	1.46	.03		7.9
	CAPE FEAR RIVER BASIN												
	North Carolina:												
138	Archdale No. 51 ³	Randolph		.45	.40	.04	3.51	.70	.68	.04			5.8
139	Archdale No. 43 ² ³	do	.28	.34		.46	3.27	(¹⁰) 1.25					5.6
140	Asheboro ⁶	do	.91	.13	.21	.60	3.68	.45	.09	.02			6.1
141	Burlington (near) ² ³	Alamance			.10	.05	1.82	.46	1.32				3.8
142	Chapel Hill ⁶	Orange	.09	.18	.04	.08	2.95	1.66	.10	.06			5.2
143	Clinton ⁶	Sampson		.32	.47	.20	Tr	1.60	.55	.60	Tr		3.7
144	Colfax No. 14 ² ³	Guilford		.30	.32	.78	3.31	.16	.26	.04			5.2
145	Colfax No. 22 ³	do		.17	.20	.12	3.00	.85	.22	.12	.20		4.9

146	Elizabethtown	Bladen		2.50	.38	.12		.63	2.22	.03	1.40		7.3
147	Fayetteville	Cumberland		1.54	.41	.32	.18	.87	1.87	.57	.35		6.1
148	Glenola No. 2 ³	Randolph		.07	.54	.30	3.34	1.80	.25	.05	.07		6.4
149	Glenola No. 41 ³	do		.10	.90	.03	3.10	.76	.95	.12	.05		6.0
150	Glenola No. 49 ³	do		.10	.40		3.60	.75	1.05	.10			6.0
151	Graham	Alamance		.60	.54	Tr	3.12	1.75	.62	.12	Tr		6.8
152	Greensboro (airport) ²	Guilford	.22	.21	.33	.43	3.52	.63	.08	.03			5.4
153	Greensboro	do		.27	.74	.16	1.52	1.06	1.42	.07			5.3
154	High Point (near) (No. 5) ³	do		.32	.32	.12	3.02	2.29	1.47	.30	.06		7.8
155	High Point ⁶	do			.25	.35	7.50						8.1
156	High Point (near) (No. 52) ³	do			.42	.08	3.18	1.04	1.30	.11	.04		6.2
157	High Point (near) (No. 53) ³	do		.06	.48	.10	3.21	1.70	.71	.11			6.4
158	High Point No. 13 ³	do		.35	.30	.15	3.22	1.73	1.63	.02	.02		7.4
158a	High Point (near) (C.A. Idol farm) ³	do		.11	.25	.14	3.25	.90	.50	.07			5.2
159	High Point (near) (Lindale Dairy) ^{2, 3}	do	.12	.27	.20	.51	2.46	1.37	.20				5.1
160	Manchester	Cumberland	.67	.53			.46	.34	.04	.57	.15		2.8
161	Moncure	Chatham			.29	.24	.74	2.25	.21	.16			3.9
162	Randleman	Randolph		.09	.55	.11	3.41	.85	1.19	Tr	.05		6.2
163	Reidsville	Rockingham		.05	.52		2.20	2.15	.35	.72	.19		6.2
164	Riegall Tower ^{4, 5}	Brunswick	.10	.99	.10				.30	.60			2.1
165	Siler City ⁶	Chatham	.54	.55	.44	.03	2.28	.53	.35	.03	.05		4.8
166	Sloan ⁶	Duplin	Tr	1.10	.70					1.50		Tr	3.3
167	Southport ⁶	Brunswick	.12	.83	.05	Tr		1.36	.14	2.37	.25	0.51	5.1
167a	Trinity (near) ^{2, 3}	Randolph		.42	.03	.39	3.86	.49	2.30	.01			7.5
168	Willard ⁶	Pender	.69	.60	.75			.59	.38	.70	.34	.08	4.0
169	Wilmington ²	New Hanover	1.24	1.58	.24	Tr	.11	2.47	.61	1.93		.21	8.2
PEE DEE RIVER BASIN													
North Carolina:													
170	Albemarle ⁶	Stanly	.82	.68	.50		.70	1.11	.12	.03	.04		4.0
171	Buffalo Cove ⁴	Caldwell			.58	2.42	8.84	.88	.09		.65	.02	13.2
172	Candor ⁶	Montgomery	.30	1.00	.59	.29	3.75	.90	.05	.13			7.0
173	Cognac ⁶	Richmond	.15	.77	.20	.90	.60	.43	.10	.20			3.4
174	Concord ⁶	Cabarrus	.05	.68	1.59	.45	2.71	.17	.03				5.7
175	Dalton ²	Stokes		1.00	.48	1.27	2.70	.10	.03	.04	.23		5.6
175a	Dobson ²	Surry			.73	1.63	1.63	.23	.03	.05	.47	.05	4.8
176	Elkin	do		.12	.06	.48	3.91	.14	.25	.06			5.0
177	Farmington (near) ^{2, 3}	Davie			.50	(10)	3.60		.12				4.2
178	Huntersville ^{2, 3}	Mecklenburg		.42	1.14	1.95	.44	.22					4.2

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

⁵ Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

¹⁰ Precipitation included in following measurement.

¹³ Disregarded in preparation of isohyetal map.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	North Carolina—Continued												
179	Kilby's Gap ⁶	Wilkes	0.03	0.19	1.16	1.81	8.00	0.20	0.18	Tr	0.35		11.9
180	Lexington (near) ^{2 3}	Davidson	.23	.56	.22	.52	6.56	.15					8.2
181	Lexington ⁶	do	.06	.20	.47	.30	4.00	.08	.85	0.40			6.4
182	Lumberton	Robeson		1.30		.70	.02	1.20	.50	.60			4.3
183	Mocksville ⁶	Davie		.60	1.10	2.47	.43	.63	.05				5.3
183a	Monroe ⁶	Union	.20	.15	.64	.35	1.10	Tr	Tr	Tr			2.4
184	Mount Airy ⁶	Surry			.93	.34	3.00	.37	.07	.36	.11		5.1
185	Mount Gilead ³	Montgomery		1.68	.90	2.22	.33	.08	.33				5.5
186	Mount Pleasant ²	Cabarrus	.24	.44	.59	.72	2.14	.13	.05				4.3
187	North Wilkesboro (near) ²	Wilkes	.10	.09	1.66	3.50	2.60	.14		.11		0.03	8.2
188	North Wilkesboro ⁶	do	.08	.38	1.54	2.15	4.50	.34	.40	.06	.09	.02	9.5
189	Pinehurst ⁶	Moore		2.40	.60	.70	.70	1.20	.10				5.7
190	Red Springs ⁶	Robeson	.05	1.50	.40	.40	.22		.08	.47		.21	3.1
191	Rockingham	Richmond	Tr	.87	1.48	.87	.70	.97	.32	.86	.03		6.1
192	Salisbury (near) ^{2 3}	Rowan	.37	.05	.48	1.40	2.07	.25	.25	.05	.08		4.9
193	Salisbury ⁶	do	.20		.66	.78	2.58	2.27	.20		.15		6.7
194	Settle ⁶	Iredell	.07	.29	.53	.62	2.63	.10	.37	Tr	Tr		4.6
195	Southern Pines ⁶	Moore	.10	1.87	.75	.33	.86	.50		.12	.12	Tr	4.6
196	Statesville ⁶	Iredell		.20	.69	.85	3.05	.25	.08		.14	.03	5.1
197	Trinity No. 50 ^{2 3}	Randolph	.21	.58	.20	.34	4.93	1.04	.08				7.4
198	Trinity No. 46 ^{2 3}	do	.28	.46	.30	.31	6.06	.54	.04	.02			8.0
199	Trinity No. 3 ³	do		.01	.72	.23	3.30	.94	.73	.36	.04		6.3
200	Troy Court House ^{4 5}	Montgomery		1.20	.17	.57	2.33	.57	.77	.10			5.7
201	Wadesboro (near) (Briggs farm) ^{3 11}	Anson	.50	1.06	.56	.25	1.01						3.4
202	Wadesboro (near) ^{2 3}	do	.30	1.06	.90	.58	3.52	.04	.20	.10	.04		6.7
203	Wadesboro	do	.41	2.40	.59	.84	1.33	.04	.41				6.0
204	Winston-Salem	Forsyth	.01	.07	.31	.22	3.37	1.39	.09	.07		.04	5.5
205	Yadkinville ^{2 14}	Yadkin	.26	.09	.38	1.49	3.46	.34		.27			6.3
	South Carolina:												
206	Bishopville ⁶	Lee	.40	.59	.40	.04	1.45	.04	.04	.15		Tr	3.1
207	Cheraw	Chesterfield		.23	.75	.70	.45	1.53	.11	.25			4.0
208	Choppee ^{4 5}	Georgetown	.14	1.54	1.00	1.10		.90	.64	.41		.03	5.7
210	Darlington	Darlington		.43	.74	2.30	.79	3.67	.37	.12	.02		8.4
211	Effingham	Florence		Tr	.92	1.51	.85	3.14		1.54	.43		8.4
212	Florence	do		.40	.61	2.59	.14	6.68	.15	1.31	.03	.03	11.9
213	Florence (airport)	do	.51	.53	1.71	.52	6.06	.32	.94	.07			10.7
214	Juniper Creek Dam ^{2 3}	Chesterfield	.52	.24	.43	.39	2.22		.12				3.9

215	Kershaw	Kershaw		.05	.74	.55	.36	1.39	.07	Tr			3.2
216	Kingsree	Williamsburg	Tr	.15	1.30	.27	.25	2.00	.06	1.00	1.00	.02	6.0
217	Lake City ⁶	Florence	.22	.37	.98	.60	1.55	.08	.02	.30			4.1
218	Lee-Matthews ^{4 5}	do	.28	.72	.88	1.06	1.80	1.18		.67			6.6
219	Mars Bluff Bridge	do		.70	1.00	3.55	1.10	2.45	.04	.98	.04		9.9
220	McColl ⁶	Marlboro	.15	.20	2.80	1.10	1.13	.60	.42	.09	.02		6.5
221	Rosemary Tower ^{4 5}	Sumter	.40	.85	3.94	.02	1.84	.52		.20			7.8
222	Society Hill	Darlington		1.07			2.10		3.25	.40			6.8
223	Sumter ⁶	Sumter	.05	.25	1.54	.02	2.07	.44	.10	.44			4.9
SANTÉE RIVER BASIN													
North Carolina:													
224	Buck Creek ^{4 5}	McDowell	.40	.80	2.50	9.60	3.05						16.4
225	Caroleen ⁶	Rutherford	Tr	.14	.21	3.12	2.71	.09			Tr		6.3
226	Catawba	Catawba		.07	.07	2.12	4.06	.03	.16	.42		.03	6.9
227	Charlotte ²	Mecklenburg	.11	.75	.61	.91	2.00	.02	.04	.20	.08		4.6
228	Crossnore ⁶	Avery	.63	.68	4.71	8.98	Tr	Tr	Tr		Tr		15.0
229	Forest City ³	Rutherford			.31	1.07	8.65	.43		.12			10.6
230	Gastonia ⁶	Gaston		.23	.51	1.07	1.71	.02	.36	.12			4.0
231	Hickory ⁶	Catawba	.01	.29	1.33	1.92	7.92	.19	.80	.11	.95		12.6
232	Hickory ^{6 15}	do		.34	1.72	9.33	.68	.08	.88	.30	.78		13.3
233	Lenoir ⁶	Caldwell		.20	1.48	2.97	5.40		.10	.92	.15		11.1
234	Lenoir ⁶	do	.05	.15	1.30	2.05	4.55	.11	.04	.60	.10		8.8
235	Marion ⁶	McDowell	.14	.53	1.19	8.20	.35	.07		.07	.01		10.6
236	Morgantown ¹⁵	Burke		.24	1.32	1.95	8.15	.08					11.7
237	Morganton ⁶	do	Tr	.68	1.78	2.96	6.10	.08		Tr	.22		11.6
238	Rhodhiss Dam ^{9 15}	Burke-Caldwell		.15	1.17	9.72	.23	.07	.18	.54	.88		12.1
239	Shelby ⁶	Cleveland		.12	.32	1.06	4.55	.03	.05	.09	.30	.09	6.2
239a	Statesville (near) ^{2 3}	Iradell		.08	1.09	3.53	.65	.14	.34	.04		.03	5.9
240	Taylorsville (near) ³	Alexander		.50	.82	1.91	7.13				1.47	.03	11.8
241	Tryon ⁶	Polk		.31	.75	7.15	1.13	.28			.08		9.7
South Carolina:													
242	Blairs	Fairfield			.87	1.60	.92	.12	Tr				3.5
243	Caesars Head ⁶	Greenville		.16	1.69	9.50	.40						11.8
244	Camden	Kershaw		.15	.71	.74	.30	2.47	.01	.03			4.4
245	Catawba	York	Tr		.49	.61	1.13	.32	.03	.02	.07		2.7
246	Cedar Springs (near) ^{2 3}	Spartanburg		.40	.72	4.53							5.6

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

⁵ Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

⁹ Precipitation measured at midnight.

¹¹ Precipitation measured after each rain.

¹⁴ Source of record unknown.

¹⁵ Record furnished by Duke Power Co.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	South Carolina—Continued												
247	Chappells	Newberry		0.12	4.72	5.23	1.17	0.43	0.03	Tr	0.01		11.7
248	Cherokee (near) ⁵	Spartanburg		.32	.60	4.34	1.47		1.32				8.0
249	Chester ⁶	Chester	0.01	.22	.80	1.06	.93				.05		3.0
249a	Collins Mill (near) ³	Spartanburg			.42	2.76	8.29						11.5
249b	Collins Mill (near) ³	do			2.00	7.85	2.68	.65					13.2
250	Columbia	Richland	.04	.16	1.41	.03	.24	Tr	Tr	Tr			1.9
251	Crescent	Spartanburg			.30	2.70	7.60	.36					11.0
252	Duncan (near) ^{2 3}	do	(¹⁰)	.46	.84	6.27	.29						7.9
253	Fairforest (near) ^{2 3}	do		.58	.60	6.70	.20						8.1
254	Fairforest (near) ³	do		.15	.62	4.28	3.91	.29					9.2
255	Fairmount ⁵	do		.20	.25	3.85	4.28						8.6
256	Ferguson	Orangeburg	.01	.08	3.20	.90	.30	1.90	.04		.08		6.5
257	Fountain Inn (near) ³	Greenville		.50	6.00	1.95							8.4
258	Gaston Shoals ⁹	Cherokee		.08	.17	4.14	3.00		.47				7.9
259	Goldville ⁵	Laurens			1.02	3.90	2.74						7.7
260	Greenville ²	Greenville	.04	.52	2.04	4.29	.23						7.1
261	Greenwood (near) ³	Greenwood			1.80	8.00	1.30	.13					11.2
262	Greenwood	do			1.65	7.42	2.11	.04					11.2
263	Greer (near) ^{2 3}	Greenville		.65	1.30	(¹⁰)	9.15						11.1
264	Greer (near) ³	Spartanburg			.80	6.65	3.53						11.0
265	Heath Springs ⁶	Lancaster	.30	.32	.55	.17	2.14	.05	.02				3.6
266	Highland (near) ³	Greenville		.10	.25	4.25	4.25	.09					8.9
267	Inman ^{2 3}	Spartanburg		.30	.90	11.80	.30						13.3
268	Lancaster ⁵	Lancaster		.72	.33	.42	.64	.03					2.1
269	Landrum ⁶	Spartanburg		.31	.74	6.83	1.81	.59			.81		10.2
270	Laurens ⁶	Laurens		.52	1.51	5.55	.11						7.7
271	Little Mountain ⁶	Newberry	.15	.35	2.10	2.25	2.50						7.4
272	Locust (near) ^{2 3}	Greenville	.02	.60	1.41	5.64	.41						8.1
273	Locust (near) ³	do		.03	.85	4.40	2.61	.18					8.1
274	Moore (near) ³	Spartanburg			.86	5.10	2.30	.28	1.09				9.6
275	Moore (near) ^{2 3}	do		.48	.56	5.92	.20						7.2
276	Newberry ⁶	Newberry	.06	1.33	1.74	2.81	.89						6.8
277	Newberry (near) ³	do	.06		4.50	1.00							5.6
278	O'Neal (near) ^{2 3}	Greenville		.45	(¹⁰)	7.60	.32						8.4
279	Pelham ^{2 3}	do		.51	1.53	3.62							5.6
280	Pelzer	Anderson		.08	.66	5.68	1.07	.08			.18		7.8
281	Rimini	Sumter			2.00			.55					2.6

282	Rock Hill (near) ³	York			1.11	.83	.66	.02					2.6
283	Saluda (near) ²	Saluda			4.00	2.10	2.82	.73				0.33	9.7
284	Saluda ⁶	do.		.28	3.15	4.48	.90					.22	8.8
285	Santuck ⁶	Union		.24	.52	1.91	.98	.10	.02	0.13			3.9
286	Spartanburg	Spartanburg	Tr	.48	.95	5.00	.11	Tr	.20			Tr	6.7
287	Saint Matthews (near) ^{2 3}	Calhoun		2.20	1.77	.22	.52			.04	.19	.13	4.8
288	Saint Matthews ^{2 3}	do.		2.35	1.85	.15	.20				.10	.15	4.6
289	Switzer ³	Spartanburg		.65	6.16	2.25							9.1
290	Taylor ^{2 3}	Greenville		.14	1.00	5.20	.06						6.4
291	Travelers Rest (near) ^{2 3}	do.		.58	1.62	3.43	.27						5.9
292	Tyger School ³	do.				1.19	6.82	.37					8.4
293	Walnut Grove (near) ^{2 3}	Spartanburg		.31	1.13	4.08	.50	.16	.88				7.1
294	Walnut Grove (near) ^{2 6}	do.		.85	3.85	1.40	.15		.40				6.6
295	Walnut Grove (near) ^{2 3}	do.		.44	.93	4.60	.22	1.42					7.6
296	Ware Shoals	Greenwood			3.38	5.97	1.22	.02			.05		10.6
297	Wedgefield ⁶	Sumter	Tr	.80	.85	.85	.12	.17	.05	Tr	.22		2.8
298	Wellford (near) ³	Spartanburg		.02	.86	3.67	3.72	.44					8.7
299	Whitestone (near) ^{2 3}	do.		.71	(10)	(10)	6.50						7.2
300	Winnsboro (near) ³	Fairfield			.73	1.19	1.81	.41		.19			4.3
301	Winnsboro ⁶	do.	.06	.23	1.32	.63	2.14			Tr			4.4
302	Winthrop College ⁶	York	.25		.67	.41	1.20	.20		.10			2.8
303	Woodruff (near) ^{2 3}	Spartanburg		.38	1.10	5.40	.10						7.0
304	Woodruff (near) ^{2 3}	do.		.22	1.13	5.02							6.4
EDISTO RIVER BASIN													
South Carolina:													
305	Aiken ⁶	Aiken			2.41	1.69				.42		.05	4.5
306	Blackville	Barnwell	Tr		3.60	1.51	.01	.15	.07	.47	.01	.23	5.8
307	Orangeburg	Orangeburg		.04	4.20	.45	.07	.75				.39	5.5
307a	Trenton ⁶	Edgefield		.19	2.45	2.65	1.60	.22				.04	7.1
SAVANNAH RIVER BASIN													
North Carolina:													
307b	Highlands ⁶	Macon	.01	.15	2.91	9.68	.06						12.8
308	Rock House	do.	.02	.27	4.03	8.90	.04						13.2
South Carolina:													
309	Anderson (near) ³	Anderson		.25	5.00	.90	.25						6.4
310	Anderson (near) ³	do.		.40	6.80	1.70							8.9
311	Anderson (near) ³	do.			2.45	5.10	.85						8.4
312	Anderson ⁶	do.		.20	5.23	6.32	.35			.01			12.1
313	Belton ³	do.			.78	8.75	.43						10.0

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁶ Precipitation measured in the afternoon.

⁹ Precipitation measured at midnight.

¹⁰ Precipitation included in the following measurement.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	South Carolina—Continued												
314	Calhoun Falls ⁶	Abbeville			1.20	7.06							8.3
315	Clemson College ⁶	Oconee		2.50	4.95	1.16		Tr					8.6
316	Clemson (SCS Camp 17) ⁸	Pickens			.78	8.75	0.43						10.0
317	Due West	Abbeville		2.40	3.90	1.80	.15						8.2
318	Edgefield	Edgefield			1.40	4.70	1.49	0.15					7.7
319	Longcreek (near)	Oconee			2.41	7.75							10.2
321	Walhalla ⁶	do		.11	2.90	6.37					0.03		9.4
	Georgia:												
322	Augusta ²	Richmond		.87	2.27	3.04	.15						6.3
323	Augusta Airport ²	do		.97	2.70	3.34	.13						7.1
324	Carlton Bridge	Elbert			.27	7.48	.91						8.7
325	Clayton ⁶	Rabun		.07	2.20	7.26	.02					0.19	9.6
326	Double Branches	Lincoln			1.21	8.71	1.34						11.3
327	Gillsville	Hall			.25	5.12							5.4
328	Hartwell (near)	Hart			2.15	6.37	.18						8.7
329	Savannah ²	Chatham	0.04	1.99	.84	.18	.04			Tr		Tr	3.1
330	Toccoa	Stephens			1.50	7.08	.40						9.0
331	Washington	Wilkes			.99	6.72	.45						8.2
332	Waynesboro ⁶	Burke		.40	4.62	3.28		.02	0.02				8.3
	OGEECHEE RIVER BASIN												
	Georgia:												
333	Brooklet ⁶	Bulloch		.50	5.97	.20	Tr	.27					6.9
334	Dover	Screven		Tr	5.21	.17	.43	.22		0.24	.08		6.4
335	Louisville ⁶	Jefferson			⁽¹⁰⁾	13.68				.18	Tr	Tr	13.9
336	Midville	Burke			3.65	4.17	.52	.10		.25			8.7
337	Millen	Jenkins			4.00	1.00	.05	.26					5.3
338	Savannah No. 2	Chatham			7.86	.81		.53			.35		9.6
339	Sparta	Hancock			.95	2.41	1.48						4.8
340	Stillmore (near) ⁶	Emanuel		.25	4.70	1.08		.04					6.1
341	Warrenton	Warren			1.40	5.60	.65						7.6
	ALTAMAHA RIVER BASIN												
	Georgia:												
342	Athens No. 1	Clarke			.15	4.80	.16						5.1
343	Athens No. 2 ⁶	do			5.20	.87							6.1
344	Atlanta No. 2	DeKalb			.16	3.87	.28	Tr			.03		4.3
345	Covington	Newton		.20	4.00	.30							4.5
346	Dublin	Laurens			4.05	2.12	.58				Tr	.02	6.8

347	Eastman	Dodge			2.00	1.20	.43					3.6
348	Experiment	Spalding			.16	1.42	.26				.09	1.8
349	Glenville ⁶	Tattnall	.25	2.80	.61	.05	.25			1.53	.05	4.0
350	Greensboro	Greene				10.44						10.4
351	Hawkinsville	Pulaski			.20	1.20	.45				Tr	1.8
352	Jonesboro	Clayton			.48	3.33						3.8
353	Macon ²	Bibb		.05	1.69	.81				.38	.03	2.6
354	Milledgeville	Baldwin			1.29	2.03	1.93				.12	5.2
355	Monticello	Jasper			.47	2.43	Tr					2.9
356	Mount Vernon	Montgomery			2.75	.98	.06	.03				3.8
356a	Rutledge (near) (Hard Labor Creek) ^{4 5}	Morgan		.08	.72	.52	.60					1.9
357	Watkinsville ⁷	Oconee		.05	6.90	.66	.06					7.7
APALACHICOLA RIVER BASIN												
Georgia:												
358	Atlanta (City) ²	Fulton		Tr	3.32	.45	Tr					3.8
359	Atlanta Airport ²	do		Tr	4.90	.73						5.6
359c	Chenocetah ⁴	Habersham			5.40	5.93	.50					11.8
360	Cornelia ⁶	do		.04	2.76	7.69	Tr	Tr				10.5
361	Cumming ⁷	Forsyth			.77	2.53	.63	.33				4.3
362	Dahlonega	Lumpkin			.10	4.73	.44	.01				5.3
363	Douglasville	Douglas				3.27	.87					4.1
364	Gainesville	Hall			.10	5.05	.15	Tr				5.3
365	Jonesboro	Clayton			.48	3.33						3.8
366	Norcross	Gwinnett			.10	6.39	.15					6.6
MOBILE RIVER BASIN												
Georgia:												
367	Adairsville (near)	Bartow			.03	3.30	.17				.02	3.5
368	Canton	Cherokee			.01	5.29	.37					5.7
369	Carrollton ⁶	Carroll			.74		.02			.55		1.3
370	Cartersville	Bartow			1.08	1.40					Tr	2.5
371	Chatsworth	Murray			1.30	.60						1.9
372	Chatsworth (near) ^{4 5}	do			.07	1.90						2.0
373	Ellijay	Gilmer				2.76	.36					3.1
374	Ellijay (near) ^{2 3}	do		.60	2.15	.25				.34		3.0
375	Emma ^{2 3}	Dawson			3.05	2.65						5.7
376	Fairmount	Gordon				2.60	.83				.02	3.4

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

⁵ Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

⁷ Record furnished by Corps of Engineers, War Department.

¹⁰ Precipitation included in the following measurement.

¹⁶ Partly estimated.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	Georgia—Continued												
377	Jasper	Pickens				4.10	0.61	0.08					4.8
378	Jasper (near) ² s	do		2.55	1.34		1.16				0.04		5.0
379	Oakman	Gordon				2.35	.11					0.33	2.5
380	Taylorville	Bartow				3.12							3.1
381	Woodstock	Cherokee				5.07	.06						5.1
	COASTAL BASINS												
	Virginia:												
382	Cape Henry ²	Princess Anne	Tr			Tr	1.69	1.92	0.58	0.09	.14	1.39	4.3
383	Cheriton ⁶	Northampton					.18	1.96	.10	.08		.45	2.3
384	Diamond Springs ⁶	Princess Anne				.05	.84	4.53	.49	.05		2.10	6.0
385	Langley Field ⁹	Elizabeth City	0.02				1.81	2.66	.59	Tr	.53	.07	5.1
386	Princess Anne ⁸	Princess Anne	Tr				2.64	1.51	.45			2.01	4.6
387	Wallaceton (near) ⁶	Norfolk	.47	.02			1.89	.85	.85	.13	Tr	.35	3.7
	North Carolina:												
388	Beaufort ⁶	Carteret	1.13	.11	.08	.08	.14	2.00	.38	.45	.15	.01	4.5
389	Belhaven ⁶	Beaufort	.90	.10			1.25	2.00	1.10	.40		.50	5.8
390	Caffeys Inlet ⁸	Currituck	.43	.02			3.20	1.57	.09	1.14		.45	6.0
391	Dixon Tower ⁴ s	Onslow				.18	1.26	1.99	1.90	.55			5.9
392	Edenton ⁶	Chowan	.03		.07		.12	1.35	.39	1.63			3.6
393	Elizabeth City ⁶	Pasquotank		.04	Tr	.08	.73	1.34	2.35	.38	.47	.35	4.9
394	Hatteras ²	Dare	.10	.07	Tr	.01	1.24	1.06	.75	.56	.03	1.10	3.8
395	Manteo ⁶	do				1.62	2.24	4.32		.48		1.52	8.7
396	New Holland ⁶	Hyde	1.69		.05	.05	.50	.47	.42	.04		.02	3.2
397	Newport ⁴ s	Carteret	1.00	.06	.03	.14	.08	2.10	.85	.45	.05	.06	4.8
398	Oregon Inlet ⁸	Dare				1.40	1.00	1.25	.70	1.04	.09	1.05	5.5
399	Swansboro ⁶	Onslow	.90	3.40	2.20	.50	.30	9.06	2.50	.70			19.6
400	Wenona ⁶	Washington	1.42		.78	.01	.11	3.23	1.01	.06	.07	1.04	6.6
	South Carolina:												
401	Beaufort (near) ⁶	Beaufort	.24	10.84	.32	.84	.35			.04		Tr	12.6
402	Charleston ²	Charleston	.03	7.66	1.94	.25	.35	.27	1.55	.64		Tr	12.7
403	Charleston Airport ⁸	do	.41	7.88	1.99	.48	.78	.01	.31	.04			11.9
403a	Conway	Horry	.19	.08	1.64	.43	.08	.20	.46	.06	.78		3.9
404	Georgetown ⁶	Georgetown	.03	.96	.92	1.03	.08	2.08	.02	.27	.16	.17	5.4
405	Miley ⁶	Hampton	.20	2.50	8.36	.33	.08	.75		.01			12.2
406	Myrtle Beach ⁶	Horry	.08	.84	.24		.05	.50	1.14	2.00		.08	4.8
407	Pinopolis ⁶	Berkeley	.20	5.00	1.00	.34	1.00	.20		.22			8.0

408	Sampit ⁴ 5	Georgetown	.65	1.62	1.28	2.42	.25	.55	.04	.59	.07	.15	7.5
409	Summersville	Dorchester		.65	10.23	.80	.19		.27	.30	.25		12.7
410	Walterboro	Colleton	.06	3.21	2.87	.96	.11	.10		.01			7.3
411	Yemassee	Hampton		.45	9.00	.50		.17	.15				10.3
Georgia:													
412	Savannah Airport ²	Chatham	.02		1.03	.48	.28			.01			1.8
413	Savannah Beach ⁶	do		(10)	9.90	.08	.43		Tr	Tr			10.4
KANAWHA RIVER BASIN													
Virginia:													
414	Bastian	Bland		.10	.30	Tr	1.75	.78	.57	.17			3.7
415	Blacksburg ⁶	Montgomery		.25	.09	.18	4.48	1.15	.59	.38		.04	7.1
417	Floyd ⁶	Floyd	Tr	.95	.20	.70	5.00	1.17	1.04	.82	.04	.07	9.9
418	Galax	Grayson		.01	.45	.99	4.60	.32	.28	.07		.01	6.7
419	Glenlyn	Giles		.01	.09	Tr	1.78	1.19	.68	.27		.33	4.0
420	Hillsville	Carroll		.56	.04	3.56	1.21	1.01	.24			.11	6.6
421	Independence	Grayson		.16	.45	.93	3.88	.35	.42		.06		6.2
422	Indian Valley	Floyd		.23	.44	.10	3.19	1.22	1.21	.38	.08	.64	6.8
423	Ivanhoe	Wythe			.24		3.85	.39	.74	.37		.18	5.6
424	Mountain Lake	Giles		.51	.15	.25	4.75	3.41	1.65	.39	.15	.47	11.1
425	Newport ³ 5	do		.25	.05	.10	5.00	.52	.14	.08		.20	6.1
426	Pilot	Montgomery		.38	.50	.90	2.67	1.58	1.74				7.8
427	Pulaski	Pulaski		.07	.10		2.44	.84	.70	.28		.20	4.4
428	Radford	Montgomery		.53	.03		2.40	2.09	.98	.86	.11	.25	7.0
429	Speedwell	Wythe			.06	.25	.65	2.30	.76	.77	.32	.03	5.1
430	White Gate (near) ²	Giles	.09	.27		.85	2.84	.74	.14	.04		.16	5.0
431	Wytheville ²	Wythe	.10	.44	.21	.96	1.80	1.03	.15	.08	.21	.22	4.7
West Virginia:													
431a	Arboreale	Pocahontas			.07		1.38	.24	Tr	Tr		.10	1.69
431b	Hinton	Summers		.01	.03		1.98	.89	.05	.10	.02	.15	3.08
431c	Indian Mills	do					2.15	.85	.20	.22	.14	.18	3.56
431d	Leonard ²	Greenbrier				.28	2.10	.04	.02	.05	.02	.16	2.49
431e	Lewisburg ⁶	do		.07		.05	2.19	.13	.15	.32	.09	.22	2.91
431f	Lindside	Monroe					1.65	1.05	.75	.18		.50	3.63
431g	Marlinton ⁶	Pocahontas		.07			2.10	.44	.10		.12	.05	2.71
431h	Seneca State Forest (Clover Lick) ⁶	do		.01			1.82	.17	.10			.04	2.10
431i	Union ⁶	Monroe			.15		(10)	3.00	.31	.15	.03	.15	3.61
431j	White Sulphur Springs	Greenbrier		.05	.40	.05	1.90	1.15	.50	.45	.05	.30	4.55

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

³ Record furnished by Soil Conservation Service.

⁴ Record furnished by U. S. Forest Service.

⁵ Precipitation measured in the morning and the evening.

⁶ Precipitation measured in the afternoon.

⁸ Precipitation measured at 1:30 a.m.; total is then recorded for previous day.

⁹ Precipitation measured at midnight.

¹⁰ Precipitation included in the following measurement.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	North Carolina:												
432	Boone ⁶ -----	Watauga-----	0.59	0.20	2.51	3.63	5.10	0.65	0.02	0.15			12.8
433	Helton-----	Ashe-----		.12	.55	1.80	7.05	1.28	.16	.03	0.07	0.04	11.1
434	Jefferson ⁶ -----	do-----	.31	.26	1.79	4.60	5.87	.21	.10	.15	.33	.03	13.3
435	Jefferson-----	do-----			1.45	1.77	6.82						10.0
436	Laurel Springs (near)-----	Allegheny-----		.30	.35	2.97	7.33	.87	.34	.02		.02	12.2
436a	Laurel Springs (Bluff Park)-----	do-----		.30	.50	3.38	10.00	.25	.25				14.7
437	Parker ⁶ -----	Ashe-----	.12	.39	.71	2.42	2.77	.27	.19	.08	.53	.20	7.0
	BIG SANDY RIVER BASIN												
	Virginia:												
438	Davenport (near)-----	Buchanan-----		.02		2.00	2.00	1.00		.22		.67	5.2
439	Haysi-----	Dickenson-----				.04	2.70	1.06	.10			.35	3.9
440	Hurley (near) ² -----	Buchanan-----				1.83	1.55	.22			.41	.34	3.6
441	Slate-----	do-----					3.56	.40			.60		4.6
	TENNESSEE RIVER BASIN												
	Virginia:												
442	Appalachia ¹⁷ -----	Wise-----					1.69	.06				1.04	1.8
443	Big Knob ^{18 19} -----	Scott-----					3.04	.37	.04			.47	3.4
444	Camp F-26, Jefferson National Forest ⁴ -----	Wise-----				.01	1.00	.09	.04			.55	1.1
445	Cleveland ¹⁸ -----	Russell-----					4.93	.18	.06			.56	5.2
446	Clinchport-----	Scott-----					1.79	.16		.31		.41	2.3
447	Damascus-----	Washington-----			.10	.13	3.05	.87	.37			.69	4.5
448	Dante ² -----	Russell-----			.04	.95	2.45	.40	.15			.42	4.0
449	Dungannon ¹⁸ -----	Scott-----				.03	2.25	.15			.12	1.00	2.6
450	Emory ⁶ -----	Washington-----		.02	.08	2.25	3.98	.10	.06	.28	.01	.07	6.8
451	Glade Spring ^{17 19} -----	do-----				.82				.60	.95		2.4
452	High Knob ^{18 19} -----	Wise-----				.03	1.91	1.47	.37	.06	(¹⁰)	1.50	125.3
453	Holston ¹⁸ -----	Washington-----			.32		4.53	.42		.70		.20	6.0
454	Honaker ¹⁸ -----	Russell-----					6.90	.22	.02	.03		1.04	7.2
455	Jewell Ridge-----	Tazewell-----			.03		2.31	.69	.15	.09		1.30	3.3
456	Jonesville ¹⁷ -----	Lee-----				1.13	.17						1.3
457	Loves Mill ¹⁸ -----	Washington-----			(¹⁰)	(¹⁰)	2.39	1.31		.15	1.70	1.06	5.6
458	Marion ¹⁸ -----	Smyth-----				.15	1.80	.55	.35		.48	1.49	3.3
459	Mendota-----	Washington-----				.06	3.13	.30				.77	3.5

460	Mutters Gap ¹⁸	Russell		Tr	.07	.04	5.43	1.64	.58	.04	Tr	1.24	7.8
461	Nebo ¹⁸	Smyth	.15	.30	.35	.50	.70	.60	.55	.40	.30	1.00	3.7
462	Norton ⁴	Wise				.01	1.00	.09	.04			.55	1.1
463	Olinger ⁸	Lee					1.44					.72	1.4
464	Pennington Gap	do				Tr	1.61	.18				.95	1.8
465	Saltville	Smyth			.10	.05	4.20	1.01	.04	Tr		.95	5.4
466	Spring Creek ¹⁸	Tazewell			.06	.05	2.63	1.54	.25		.58	.92	5.1
467	Swords Creek	Russell					3.60	.42	.11			.68	4.1
468	Tazewell ¹⁸	Tazewell					1.55	.84	.30	.22			2.9
469	Tazewell ¹⁷	do					1.80	.75	.30	.26		.34	3.1
470	Trout Dale ²	Grayson		.08	.95	3.43	2.33	.36	.10	.59	.01	.11	7.8
471	Wallace ¹⁸	Washington					4.03	2.01				.52	6.0
Tennessee:													
472	Archville ⁴	Polk			.35		2.00						2.4
473	Beauty Spot	Unicoi			.18	.67	2.80	1.10	.70	.19	.04	.33	5.7
474	Bluff City ¹⁸	Sullivan					2.05	.30	.04	.20		.25	2.6
475	Boonville ¹⁸	Polk					1.96	.36					2.6
476	Brush Creek ⁸	do					1.12	1.02	.31			.20	2.4
477	Bulls Gap ¹⁸	Hawkins				.26	1.12	.18			.01		1.6
478	Cades Cove ¹⁸	Blount			.08	.16	.89	.29				.52	1.4
479	Calderwood ²⁰	do	.05		.02	.22	.96	.32				.29	1.5
480	Camp Creek Bald ^{18 19}	Greene	.02		.03	.23	1.81	1.62	.66	.28	.07	.52	4.7
481	Cedar Creek ¹⁸	Washington				.16	2.38	.28	.04	.12		.14	3.0
482	Clear Branch ¹⁸	Unicoi			.17	.48	1.25	.25	.05	.14		.53	2.3
483	Clingman's Dome ^{18 19}	Sevier	.04		.12	1.67	5.33	2.35	.12	.02		.60	9.6
484	Coker Creek ¹⁸	Monroe	.95			.90	1.10	.30				.12	2.3
485	Colesville ¹⁸	Jonson					3.00	1.00		.11	.08	.16	4.2
486	Columbus ¹⁸	Polk				.99	.32					.05	1.3
487	Copperhill	do					1.40	.27	.04			.26	1.7
488	Cosby ¹⁸	Cooke				.21	.63	1.11	.04			.35	2.0
489	Crandall ¹⁸	Johnson			.15	.63	.72	.87	.94		.34		3.6
490	Elizabethton No. 1	Carter			Tr	1.17	1.42	.17	.14	Tr		.22	2.9
491	Elizabethton No. 2	do			.01	.07	1.64	1.66	.09			.19	3.5
492	Elkmont	Sevier	.08		.23	.23	1.03	1.10	.02	Tr		.20	2.6
493	Embreville	Washington			.03	.24	1.45	.20	.13	.02		.25	2.1
494	Erwin ⁶	Unicoi				.40	1.80						2.2
495	Etowah ⁶	McMinn		Tr	.17	.95	.50						1.6
496	Gatlinburg	Sevier	.24	.03	.02	.29	.59	.54			Tr	.18	1.5

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁴ Record furnished by U. S. Forest Service.

⁶ Precipitation measured in the afternoon

¹⁰ Precipitation included in the following measurement.

¹² Precipitation estimated on basis of nearby stations.

¹⁷ Record furnished by Virginia Agricultural Experiment Station.

¹⁸ Record furnished by Tennessee Valley Authority.

¹⁹ Recording gage; daily total for 24 hours ending in morning.

²⁰ Record furnished by Aluminum Company of America.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	Tennessee—Continued												
497	Greeneville (near) ⁶	Greene	0.01		Tr	1.15	0.37	0.06	0.20			0.19	1.8
498	Harbuck ¹⁸	Polk			Tr	1.60	.99	.32				.19	2.9
499	Hartford ¹⁸	Cocke				.15	.70	.80				.33	1.6
500	Haw Knob ^{18 19}	Monroe	.47		0.07	.96	4.05	2.22	.04			.62	7.3
501	Isabella ¹⁸	Polk				1.34	.31	.11	Tr	Tr		.15	1.8
502	Jearoldstown ¹⁸	Greene				.33	2.13	.21	.03	0.04		.18	2.7
503	Johnson City ¹⁸	Washington		Tr		.15	2.42	.30	.12	Tr		.27	3.0
504	Johnson City Veterans Hospital ¹⁸	do			.01	.13	2.38	.22	.04	.04	0.10	.12	2.9
505	Kingsport	Sullivan				.03	2.71	.10	.06	.19		1.07	3.1
506	Lick Creek ^{18 19}	Greene				.40	1.27	.08		.29		.19	2.0
507	Limestone ¹⁸	Washington				.21	1.30		.05	.15		.20	1.7
508	Little Chucky ¹⁸	Greene				.15	.91					.30	1.1
509	Mountain City ¹⁸	Johnson			.60	.52	2.78	1.66	.17	.04		.66	5.8
510	Mount LeConte ¹⁸	Sevier	.01	0.06	.20	.86	2.04	4.80	.18			.96	8.2
511	Ocoee No. 2 ¹⁸	Polk				1.07	.73	.06				.19	1.9
512	Odomville ¹⁸	Carter		.03	.04	.41	1.95	.28	.12			.34	2.8
513	Parksville	Polk				.91	.36					.02	1.3
514	Potato Creek ¹⁸	do				1.52	.34	.12				.24	2.0
515	Reese ¹⁸	Johnson		.04	.29	1.53	4.63	.91	1.01	.19	.04	.26	8.6
516	Roan High Knob ^{18 19}	Carter		.37	.83	2.95	3.67	1.00	.24	.37	.03	.83	9.5
517	Sassafras Knob ^{18 19}	Polk				2.20	1.53	.32	.05				4.1
518	Servilla ¹⁸	do				1.13	.46	.29				.04	1.9
519	Snake Mountain ^{18 19}	Johnson		.36	.65	1.15	4.00	1.56	.57	.11		.11	8.4
520	Stansbury Gap ^{18 19}	Polk				1.44	.38	.09				.03	1.9
521	Stone Mountain ¹⁸	Carter				.43	1.38	.92		.42	.41	.32	3.6
522	Tellico ⁴	Monroe	.43		(¹⁰)	.16	(¹⁰)	1.20					1.4
523	Tellico Plains	do		.18	.34	.56	.94				.15		2.2
524	Tri-City Airport ⁴	Sullivan				2.13	.35				.14	.08	2.5
525	Turtletown ¹⁸	Polk				.37	.65	.42					1.4
526	Wolf Creek ¹⁸	Cocke		.05		.16	.91	.21	.21		.46	.27	2.0
	North Carolina:												
527	A & H Airport ¹⁸	Henderson			.86	2.00	2.01					.50	4.9
528	Altapass	Mitchell		.20	2.35	.95	6.40	.23				.31	10.1
529	Andrews Power Plant ^{9 21}	Clay		.02	.25	1.45	.11				.07		1.8
530	Andrews	Cherokee			.03	.78	.94	.03				.02	1.8
531	Asheville ²	Burcombe	.01	.36	1.24	3.62	.50	Tr			.01	Tr	5.7
532	Asheville No. 2	do		.04	.92	1.29	2.98	.50	Tr			.01	5.7

533	Bakersville ¹⁸	Mitchell			.54	1.62	3.00	.32	.08	.10		.30	5.7
534	Banners Elk ⁶	Avery	.30	.45	2.77	8.50	.25	.31	.35				12.9
535	Barnardsville ¹⁸	Buncombe		.05	.51	1.39	2.41		.14			.16	4.5
536	Beaverdam Creek ¹⁸	Cherokee				.89	1.53	.60					3.0
537	Beetree Dam ^{19 22}	Buncombe		.27	1.12	4.54	4.25	.03		.17		.01	10.4
538	Beetree Gap ^{19 22}	do.		.61	2.19	3.13	3.11	.42	.13	.21		.08	9.8
539	Bent Creek ^{4 19}	do.		.07	.59	2.22	3.24	.03		.03			6.2
540	Big Pine ¹⁸	Madison		.11	.44	.33	1.65	.39	.06	.18		.04	3.2
541	Blue Ridge Post Office ¹⁸	Henderson	.03	.27	.20	5.15	3.86	.10				.47	9.6
542	Boiling Spring ¹⁸	Cherokee	.02		.07	1.10	1.60	.19					3.0
542a	Brasstown ⁴	Clay			.02	1.88	.34	.02					2.3
543	Bryson City ¹⁸	Swain				.95	1.50					.08	2.5
544	Cane River ¹⁸	Yancey		.10	.80	1.28	2.23	.22		Tr		.28	4.6
545	Canton ⁹	Haywood	.09	.32	2.03	2.00	.20				.11	.01	4.6
546	Cataloochee Ranch ¹⁸	do.	.05	.46	.98	3.34	1.13	.55	Tr			.45	6.5
547	Cedar Mountain ¹⁸	Transylvania		.15	.70	6.97	4.60						12.4
548	Celo ¹⁸	Yancey		1.78	4.20	3.50	4.10	.05					13.6
549	Chambers Mountain (near Clyde) ^{18 19}	Haywood		.20	.60	1.81	1.24	.20	.10			.13	4.2
550	Cheoah ²⁰	Graham			.03	.45	.95	.38				.18	1.8
551	Cody Store ¹⁸	Madison		.11	.16	.75	1.25		.08			.64	2.4
552	Coleman Dam Site ¹⁸	Cherokee				1.07	.67	.20				.20	1.9
553	Cove Creek ¹⁸	Haywood				1.48	1.05	.65				.93	3.2
554	Coweeta No. 1 ^{4 19}	Macon			.15	3.55	1.92					.08	5.6
555	Coxcombe Mountain ^{18 19}	Buncombe		.27	1.09	2.98	2.74	.22	.07	.06		.44	7.4
556	Cullowhee ⁶	Jackson		Tr	.46	2.83	.05				.11	.05	3.5
557	Daybook ¹⁸	Yancey		.07	.63	2.19	2.97	.06	.01			.29	5.9
558	Dicks Creek ¹⁸	Jackson			Tr	1.60	1.70					.32	3.3
559	Dix Creek ¹⁸	Haywood		.45	2.15	6.87	1.72	.14		.03		.03	11.3
560	Doggett Gap ¹⁸	Madison		.28	.40	1.37	2.85	.71	.05			.24	5.7
561	Eaglenest Mountain ¹⁸	Haywood		.25	.90	2.75	1.60	.12				.18	5.6
562	Erastus ¹⁸	Jackson		.05	.92	6.76	1.23	.09					9.0
563	Fie Branch ¹⁸	Haywood	.20	.49	.54	2.95	1.30	.32				.74	5.6
564	Flat Top Mountain ¹⁸	Yancey		.05	.27	.71	3.26	.45	.15	.18		.46	5.1
565	Franklin ⁹	Macon			.75	2.25	.09						3.1
566	Garren Creek ¹⁸	Buncombe		.41	2.18	6.80	3.49			.50		.15	13.4
567	Glade Gap ^{18 19}	Clay			.53	3.55	2.60	.25	.02	.01		.08	7.0
568	Hayesville ¹⁸	do.				1.70	.88					.09	2.6
569	Haywood Gap ^{18 19}	Jackson	.02	.29	2.00	8.54	2.11	.32	.02				13.3
570	Hendersonville ⁶	Henderson	.07	.21	1.55	5.53	.37				.77		7.7

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

² Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁴ Record furnished by U. S. Forest Service.

⁶ Precipitation measured in the afternoon.

⁹ Precipitation measured at midnight.

¹⁰ Precipitation included in the following measurement.

¹⁸ Record furnished by Tennessee Valley Authority.

¹⁹ Recording gage; daily total for 24 hours ending in morning.

²⁰ Record furnished by Aluminum Company of America.

²¹ Record furnished by Nantahala Power Co.

²² Record furnished by city of Asheville, N. C.

TABLE 5.—Daily precipitation, in inches, August 10-19, 1940—Continued

No. on pl. 16	Station	County	August										Total for storm period ¹
			10	11	12	13	14	15	16	17	18	19	
	North Carolina—Continued												
571	Hiwassee Dam ^{18 19}	Cherokee			0.01	0.54	0.89	0.08				0.19	1.5
573	Horseshoe ¹⁸	Henderson		0.20	.40	4.00	3.65	.10					8.4
574	Hot Springs	Madison				.35	1.06	.15	0.05	0.10	0.60	.35	2.1
575	Hyatt Creek ¹⁸	Cherokee	0.52		.10	.26	3.56	.40				.32	4.3
576	Ivy ¹⁸	Madison		.04	.20	.31	1.40	.34		.03		.35	2.3
577	Jack Cove ¹⁸	Jackson				1.03	1.94	.14					3.1
578	John Rock (Camp F-28) ⁴	Transylvania		.21	2.46	7.40	.18						10.2
579	Leicester ¹⁸	Buncombe		.15	.09	1.71	1.79			.11		.15	3.8
580	Letitia ¹⁸	Cherokee				1.42	.36					.11	1.8
581	Little Switzerland ¹⁸	Mitchell		.47	1.53	3.83	7.27	.35				.06	13.4
582	Lonesome Mountain ¹⁸	Madison				.20	.93	.15		.11		.25	1.4
583	Marshall	do		.31	Tr	.40	1.15	.25	Tr	.05		.10	2.2
584	Max Patch Mountain ¹⁸	do		.40	.33	1.10	1.41	1.81	.27	.04	.01	.44	5.4
585	McKinney Gap ¹⁸	Yancey		.20	.53	1.09	2.41	.32	.03	.16		.70	4.7
586	Montreat	Buncombe		1.01	1.70	5.30	1.80			.20	.01		10.0
587	Mount Mitchell ¹⁸	Yancey	1.30	1.94	3.93	8.18	.28	.06	.03			.06	15.7
588	Mount Pisgah ^{18 19}	Haywood		1.03	1.75	(10)	(10)	11.11				.05	13.9
589	Mount Sterling ¹⁸	do		.07	.13	.78	1.95	1.34	.10			.40	4.4
590	Murphy Evaporation Sta. ^{18 19}	Cherokee				1.20	.55	.03				.02	1.8
591	Murphy	do			Tr	1.25	.58	.03				.05	1.9
592	Nantahala ⁶	Swain			.75	.60	.55				.12		1.9
593	Needmore ¹⁸	do				1.83	.75					.10	2.6
594	Noland Creek ²⁵	do				.89	1.65	.08				.23	2.6
595	North Fork ^{19 22}	Buncombe		.48	1.68	6.00	(10)	(10)	(10)	(10)	(10)	7.08	1615.0
596	Old Road Gap ^{18 19}	Cherokee				1.50	3.29	.10				.08	4.9
597	Otto ¹⁸	Macon	.02	.03	.34	4.10	1.34	.02				.07	5.8
598	Owen's Gap ¹⁸	Jackson		.18	1.15	7.36	1.90	.11					10.7
599	Peachtree Creek ¹⁸	Cherokee			.02	1.46	1.66	.18					3.3
600	Pisgah Forest ⁵	Transylvania	Tr	.26	1.60	8.10	.11						10.1
601	Plumtree ¹⁸	Avery		.34	1.02	3.73	4.98	.22				.12	10.3
602	Postell ¹⁸	Cherokee				1.70	.40	.15				.20	2.2
603	Proctor ¹⁸	Swain				.82	1.29	.40		.10		.55	2.6
604	Ranger ¹⁸	Cherokee				1.49	.29	.05				.17	1.8
605	Raven Mountain ^{18 19}	Macon			.04	2.08	2.27	.08					4.5
606	Rockyface Mountain ¹⁸	Haywood	.04	.23	.74	2.51	2.59		.02			.38	6.1
607	Rosman	Transylvania		.11	.55	6.15	4.10	.26					11.2
608	Rush Mountain ¹⁸	Henderson		.50	1.50	6.00	2.50	1.00					11.5

609	Santeetlah ²⁰	Graham	.98		.04	.43	.95	.12				.23	1.5
610	Shooting Creek ¹⁸	Clay				1.90	.72					.28	2.6
611	Smokemont	Swain			.06	.95	2.00	.18	.01			.50	3.2
612	Smoky Gap ¹⁸	Avery		.22	.68	3.30	4.45	.55	.48	.13		.26	9.8
613	Snow Creek ¹⁸	Mitchell		.20	.65	2.55	3.60	.43		.19		1.07	7.6
614	Spruce Mountain ^{18 19}	Haywood		.34	.93	2.89	2.35	.21	.09		.03	.28	6.8
615	Stecoah ¹⁸	Graham			.03	1.15	1.31	.08				.20	2.6
616	Swannanoa ⁶	Buncombe	.80	1.40	2.70	4.90							9.8
617	Tapoco	Graham			.03	.45	.95	.38				.18	1.8
618	Tatham Gap ^{18 19}	Cherokee	.03			.82	2.40	.17	.01	.03		.08	3.4
619	Teyahalee Bald ^{18 19}	Graham	.32		.07	.76	3.03	.15	.03			.27	4.0
619a	The Pink Beds ^{18 19}	Transylvania	.02	.38	1.68	7.61	2.88	.27	.04				12.9
620	Tipton Hill ¹⁸	Mitchell		.06	.39	1.03	3.21	.42		.07		1.01	5.2
621	Tomotla ¹⁸	Cherokee				1.42	.62						2.0
622	Waterville ⁹	Haywood		.01	.10	1.02	.82	.14			.27	.10	2.1
623	Wayah Bald ^{18 19}	Macon	.02		.08	2.24	2.52	.20				.06	5.0
624	Waynesville	Haywood	.05	.49	1.70	2.60	.12	Tr					5.0
Georgia:													
625	Blairsville ⁶	Union			.89	2.81	.10					.30	3.8
626	Blue Ridge Reservoir ¹⁸	Fannin				1.61	.24	.07	.06				2.0
627	Brasstown Bald ^{18 19}	Towns	.04	.59	6.97	1.02	.28	.28	.02			.30	8.9
628	Flat Top (near Blue Ridge) ^{18 19}	Gilmer			3.67	2.33	.23	.23				.08	6.2
629	Hemptown Gap ¹⁸	Fannin			.02	2.03	.20	.08				.09	2.3
630	Hiawassee ¹⁸	Towns		.80	3.17	.76	.09					.48	4.8
631	Ivylog ¹⁸	Union		.02	1.66	.30	.02					.23	2.0
632	Little Hightower ¹⁸	Towns		.10	5.85	.64							6.6
633	Margret ¹⁸	Fannin		.04	3.97	.27	.18					.06	4.5
634	Mulky Gap ¹⁸	Union		.19	4.19	.55	.04					.41	5.0
635	Neel Gap ^{18 19}	Lumpkin	.02	.90	8.16	1.00	.06	.03	.02	.04		.28	10.2
636	Noontootla Creek ¹⁸	Fannin		.12	4.80	.65						.46	5.6
637	Patterson Gap ¹⁸	do			2.35	.27	.15					.18	2.7
638	Stanley Gap ^{18 19}	Gilmer			3.24	.69	.08	.02				.31	4.0
639	Suches ¹⁸	Union		.30	11.60	1.62	.10					.40	13.6
640	Sweetgum ¹⁸	Fannin				1.71	.37	.05				.26	2.1
641	Tray Mountain ^{18 19}	Towns	.03	.72	8.77	3.34	.10	.10			.15	.11	13.1
642	Warne ¹⁸	do			2.33	.50						.12	2.8
643	Youngcane ^{18 9}	Union	(10)	(9)	(10)	(10)	4.0					.2	4.0
644	Young Harris ^{18 19}	Towns			1.0	4.0	.40						5.4

¹ Total is for storm period 6 a.m. Aug. 10 to 12 p.m. Aug. 17 and is not the total of recorded daily values Aug. 10-17.

⁴ Record furnished by U. S. Forest Service.

⁶ Precipitation measured in the afternoon.

⁵ Precipitation measured at 1:30 a.m.; total is then recorded for previous day.

⁹ Precipitation measured at midnight.

¹⁰ Precipitation included in the following measurement.

¹⁶ Partly estimated.

¹⁸ Record furnished by Tennessee Valley Authority.

¹⁹ Recording gage; daily total for 24 hours ending in morning.

²⁰ Record furnished by Aluminum Company of America.

²² Record furnished by city of Asheville, N. C.

²³ Record furnished by P. G. Rust.

DISTRIBUTION OF PRECIPITATION

The total precipitation during the period August 10-17, based on data listed in table 5, is shown on plate 16. Several areas of rainfall concentration, or storm centers, defined by this map, indicate the variability of the storm rainfall over comparatively short distances. There is a well-defined series of storm centers along the Appalachian Mountains, extending from the vicinity of Blue Ridge, Ga., in a northeasterly direction to the vicinity of Luray, Va., showing the orographic influence on the storm precipitation. This is not a continuous ridge of high precipitation but rather a series of storm centers with relatively low precipitation intervening. Total precipitation for the storm period varied from 13 to 16 inches as a maximum and from 6 to 8 inches as a minimum for the mountainous area. Along the coastal plain there are two centers, one between Beaufort and Charleston, S. C., and another near Swansboro, N. C., where there was a total precipitation of more than 19 inches, the maximum observed for the storm. Other major centers of precipitation were located around Keysville, Va., and Louisville, Ga.

A factor of importance to the Tennessee Valley region was the sharp westward decrease in precipitation in the vicinity of the North Carolina-Tennessee boundary. Many of the tributaries of Tennessee River in North Carolina rose to high stages. On some of the headwater streams with drainage areas of less than 100 square miles, the peak runoff rates rank with the greatest experienced in the eastern United States. Owing to the rapid decrease in precipitation in the downstream direction, the relative magnitude of the floods decreased progressively. The volume of flood flow from the mountainous areas was sufficient, however, to produce flood stages along the entire length of Holston and French Broad Rivers. On Tennessee River, flood stages occurred downstream as far as Chickamauga Reservoir, but below this point the combined effect of reservoir regulation and decreased rainfall reduced the peak discharges to minor rises.

On the rivers affected by the storm of August 10-17 the distribution of precipitation relative to time was a decisive factor in producing peak stages and discharges. The path of the center of the storm has been indicated on plate 2.

In general on August 11 and 12 the storm crossed the Coastal Plain and Piedmont areas of Georgia and South Carolina and moved up the rivers. To the extent that the runoff from some of the downstream tributaries would reach tidewater in advance of the flood runoff from the headwaters, the peak discharges downstream were reduced. In the mountainous areas affected by the storm where the drainage basins are comparatively small, broad-areal timing is, of course, not critical in producing high rates of runoff.

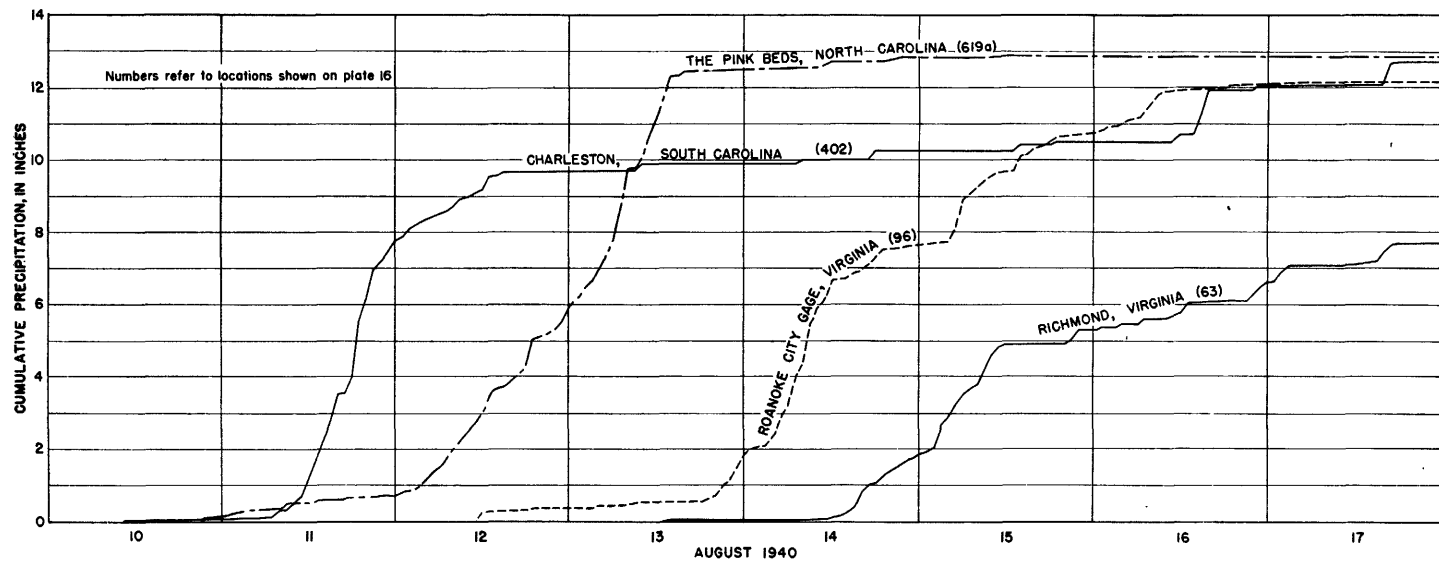


FIGURE 3.—Cumulative precipitation, in inches, at selected stations for storm period, August 10–17, 1940.

44 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

On August 14 and 15 the storm reversed its direction of travel and moved eastward down the various streams flowing into the Atlantic Ocean in Virginia and North Carolina. On Roanoke River, especially, this critical direction of the storm and resulting timing of rainfall served to produce the highest flood in more than 300 years on the lower portion of the main stem of the river.

Cumulative precipitation graphs based on records of recording rain gages at four selected stations are shown in figure 3 to illustrate the distribution of rainfall during the storm. Hourly precipitation at these stations and four additional stations is shown in figure 4. Of particular interest is the difference between the time of occurrence

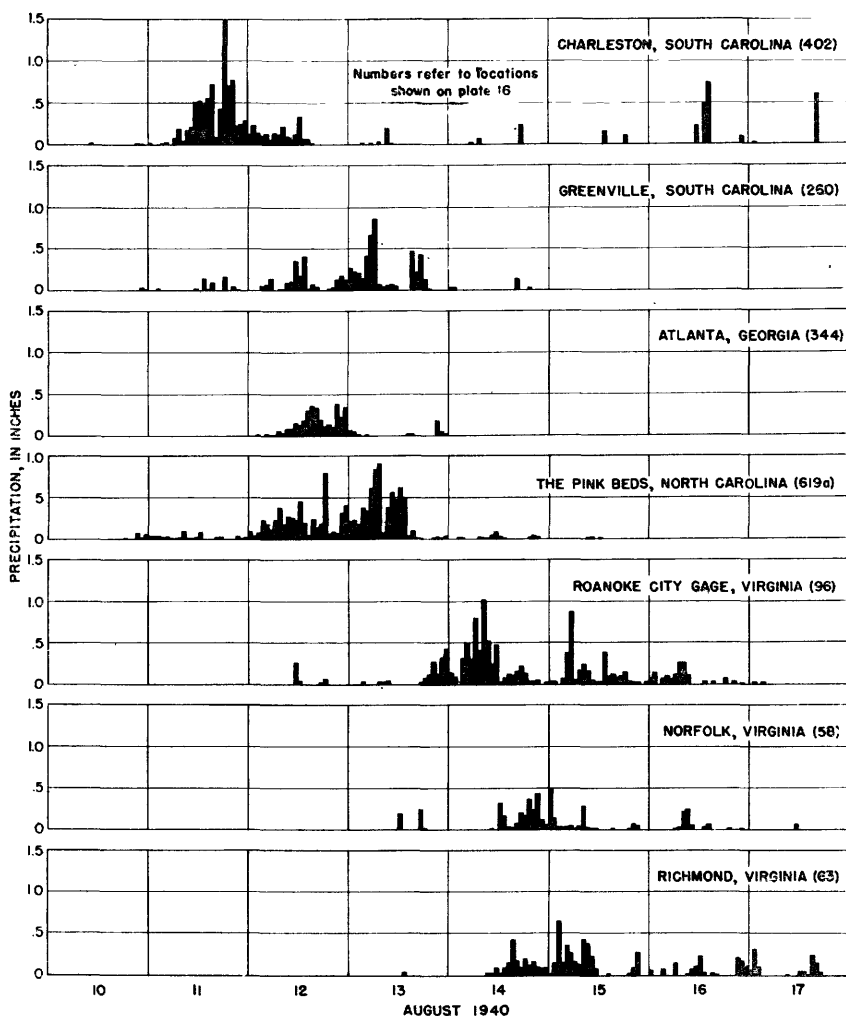


FIGURE 4.—Hourly precipitation, in inches, at selected stations, August 10-17, 1940.

of the major rainfall at the various stations. The arrival of the storm can be traced from southern South Carolina westward, thence northward along the mountains of North Carolina, and thence eastward through Virginia and northeastern North Carolina. There was a lag of about 3 days between the beginning of flood-producing rainfall at Beaufort, S. C., where the storm first crossed the coast, and Richmond, Va., about where the storm passed out to sea. The lag of about 24 hours between the rainfall at Roanoke, Va., and Richmond, Va., is especially important, as during this period the storm was progressing downstream over the Roanoke River Basin, so that the peak discharges from the longer downstream tributaries tended to synchronize with the peak on the main stem.

As the storm traveled over the land, it diminished in intensity and apparently was dispersed over a great area. At Charleston, S. C., about $9\frac{1}{2}$ inches of rain fell in 30 hours, and at The Pink Beds, N. C., 12 inches fell in about 40 hours, during the most intense part of the storm, whereas at Richmond, Va., the major storm precipitation continued for 60 to 70 hours. These rates were fairly typical, the storm being most concentrated during the time it was over Georgia, South Carolina, and western North Carolina, and somewhat more spread out by the time it reached Virginia and eastern North Carolina.

LATE-AUGUST STORM

The storm of August 28-31, 1940, was rather local, the principal area of heavy precipitation being along the Blue Ridge in North Carolina. Total rainfall was slightly less than for the mid-August storm, but it fell mostly in a period of about 24 hours, whereas in the earlier storm the slightly greater amount was distributed over several days.

There was rain on 4 days, August 28-31, inclusive, but intense rainfall did not begin until the morning of August 29, the time ranging from midnight to noon. Generally, rainfall thereafter was practically continuous until August 30, when it ended as abruptly as it had started. Except for an occasional shower noted at several gages on August 31, precipitation had ceased by noon of August 30. Figure 5 indicates intensities observed during this storm.

The daily precipitation at all stations August 28-31, inclusive, is reported in table 6 with appropriate footnotes indicating the time of measurement, source of the record, and other information pertinent to the record. All data were furnished by the Weather Bureau, except as noted. The rain gages are numbered to agree with the corresponding record for the mid-August flood in table 5. The last column in table 6 lists the total precipitation during the period between 12:01 a.m. August 28 and 12 p.m. August 31, termed either the storm

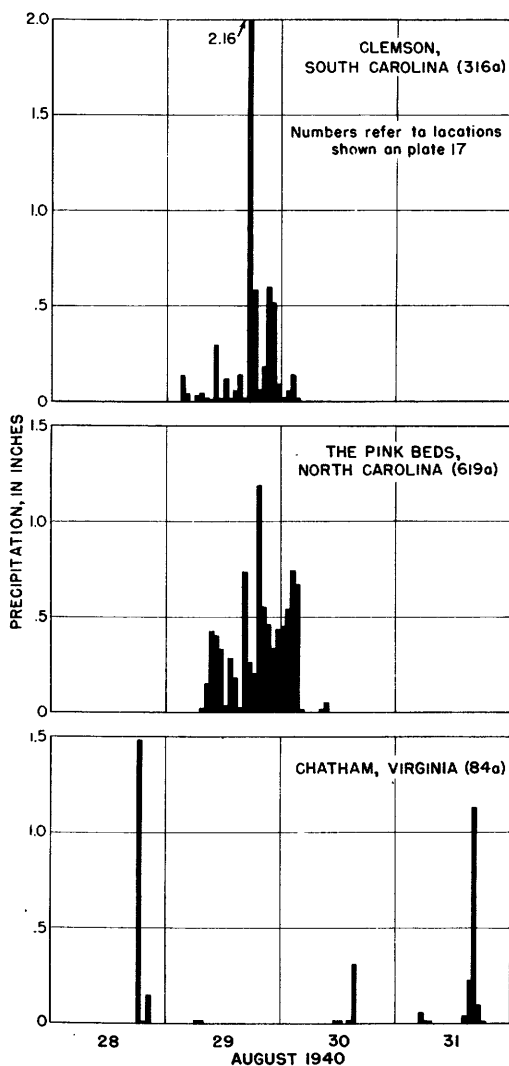


FIGURE 5.—Hourly precipitation, in inches, at selected precipitation stations, August 28–31, 1940.

of August 28–31 or the late-August storm. From inspection of the hourly records (not published in this report) the following rules were adopted for combining the daily records so as to exclude all rain not occurring within the storm period as defined:

1. For gages read in the afternoon all precipitation measurements on August 28–31 were added.
2. For gages read at midnight all precipitation measurements on August 28–31 were added.
3. For gages read in the morning and recorded for the day read, records for August 28–September 1 were added.

The total precipitation given in table 6 was plotted on a 1:1,000,000-scale base map in proper locations, and lines of equal precipitation were drawn to conform to the points so plotted. The resultant isohyetal map is presented on full scale as plate 17.

On plate 17 there are four storm centers indicated, fairly evenly spaced along the crest of the Blue Ridge in North Carolina. The sharp decrease in rainfall on both sides of the mountain indicates the probable effect of physiographic characteristics of the storm-affected area. Practically the entire area that experienced more than 6 inches of rainfall was in the mountains of North Carolina.

48 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 6.—*Daily precipitation, in inches, August 28-31, 1940*
[Measured in morning except as noted; M, missing; NR, no record; Tr, less than 0.01 inch]

No. on pl. 17	Station	County	August				Total for storm period ¹
			28	29	30	31	
POTOMAC RIVER BASIN							
Virginia:							
5	Lipscomb (near) ^{2 3}	Augusta	0.90	0.04	0.17	0.88	2.0
7	Monterey	Highland	.32	.05	.07	.34	.8
14	Staunton	Augusta	.05	.04	.02	1.01	1.1
JAMES RIVER BASIN							
Virginia:							
28	Afton	Nelson	.10	.12	.54	.29	1.1
30	Augusta Springs	Augusta	1.16	.56		1.27	3.0
32	Barbours Creek ²	Craig	.97	.11	1.54		2.6
34	Buchanan	Botetourt	.17	1.29	.18	3.00	4.6
35	Buena Vista	Rockbridge	.78	.64	.02	.62	2.1
36	Catawba Sanatorium)	Roanoke	.89	.70	.35	2.23	4.2
37	Charlottesville (near) ⁴	Albemarle		.10	.20	.32	.6
38	Clifton Forge	Alleghany	.46		1.03		1.5
42	Deerfield (near) ²	Augusta	.60			.91	1.5
43	Deerfield	do	1.05	.14	.03	.86	2.1
43b	Esmont (near) (Camp F-2) ^{2 3}	Albemarle	1.18	.60	.28	.77	2.8
45	Goshen	Rockbridge	.90		.20	1.78	2.9
47	Hot Springs	Bath	.17	1.35	.10	.16	1.8
47b	Ivy Depot (near) (Baker) ^{5 6}	Albemarle		.30		1.00	1.3
48	Jordan Mines (near) ⁵	Alleghany	.08		.59	1.05	1.7
49	Kerrs Creek	Rockbridge	.44	.74	.17	2.43	3.8
50	Lynchburg ⁵	Campbell	.21	.02	.08	.33	.6
52	McDowell	Highland	1.45	.65	.45	1.10	3.6
53	Millboro Springs (near) ⁵	Bath	.99		.71	.28	2.0
53a	Monoco (near) (Camp E-18) ^{2 3}	Amherst	1.12		.53	.92	2.6
55	Moores Creek Dam	Rockbridge	2.16	Tr	1.75	.50	4.4
57	Newcastle	Craig	.45	.05	.25	1.64	2.4
65a	Rocky Point (near) (Arnolds Valley) ²	Rockbridge		.23		1.80	2.0
67	Tye River	Nelson	.44	.48	.24	.07	1.2
69a	Warm Springs (near) (Camp F-25) ^{2 3}	Bath	.80	.10	.51	.14	1.6
ROANOKE RIVER BASIN							
Virginia:							
79	Bedford ⁷	Bedford	Tr		.80	.95	1.8
79a	Chartville (Woolwine) ²	Patrick		1.08	1.76	3.14	6.0
83	Chatham (near) (Easley Farm) ^{5 6}	Pittsylvania	.43	.14	.60	.81	2.0
84	Chatham (S.C.S. Warehouse) ^{5 6}	do	.24	.09	.34	1.87	2.5
84a	Chatham (near) (Rogers) ^{5 6}	do	1.74	.03	.36	1.56	3.7
86	Copper Hill	Floyd			.70	2.17	2.9
87	Danville ⁷	Pittsylvania		.77	.58	.80	2.2
88	Dry Fork (Bryants Farm) ^{5 6}	do	.51	.02	.55	1.02	2.1
89a	Gretna (Sandy Level) ^{5 6}	do	.12	.03	.10	.30	.6
90	Halifax ⁷	Halifax	.22	.20	.10	1.27	1.8
91	Martinsville ⁷	Henry	.26	.30	.25	.09	.9
92	Moneta (near) ⁶	Bedford	.20	.03		.40	.6
92a	Peaksville (near) ^{2 7}	do			.73	2.25	3.0
93	Pinnacles ⁷	Patrick		.26	3.46	1.65	5.4
94	Randolph	Charlotte		.04	.14		.2
95	Roanoke ⁷	Roanoke	.03	.23	2.56	1.20	4.0
97	Roanoke (city) ⁵	do	.35	.25	1.60	.51	2.7
99	Rocky Mount	Franklin		.03	.11	.28	.4
100	Stuart ⁷	Patrick		.25	1.72	1.03	3.0

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.² Record furnished by U. S. Forest Service.³ Precipitation measured in the morning and the evening.⁴ Precipitation measured at midnight.⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.⁶ Record furnished by Soil Conservation Service.⁷ Precipitation measured in the afternoon.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl. 17	Station	County	August				Total for storm period ¹
			28	29	30	31	
107	North Carolina: Yanceyville ⁶ 8	Casewell			0.56		0.6
	CAPE FEAR RIVER BASIN						
163	North Carolina: Reidsville	Rockingham	0.03	0.02		0.17	.2
	PEE DEE RIVER BASIN						
171	North Carolina: Buffalo Cove ²	Caldwell			3.96	3.56	7.5
175	Dalton ⁵	Stokes		.32	.50	.13	1.0
175a	Dobson ⁵	Surry	.31	.03	1.68		2.0
176	Elkin	do	.77	.04	.30	1.33	2.4
176a	Elkville ⁵	Wilkes		.14	1.26	.01	1.4
177	Farmington (near) ⁵ 6	Davie			.30	.12	.4
184	Mount Airy	Surry	.21	.53	2.19	.18	3.1
187	North Wilkesboro (near) ⁵	Wilkes	.04	1.05	.01	.25	1.4
188	North Wilkesboro ⁷	do		Tr	1.34	.90	2.2
194	Settle ⁷	Iredell		.13	1.36		1.5
196	Statesville ⁷	do			.36	.82	1.2
204	Winston-Salem	Forsyth		.03	.76	.28	1.1
205	Yadkinville (near) ⁵	Yadkin			.52	.99	1.5
	SANTEE RIVER BASIN						
224	North Carolina: Buck Creek ² 3	McDowell		4.10	6.81	.23	11.1
225	Caroleen ⁷	Rutherford		.76			.8
228	Crossnore ⁷	Avery	Tr	4.60	3.40	.59	8.6
231	Hickory ⁷	Catawba		.13	1.17	.11	1.4
234	Lenoir ⁷	Caldwell		.25	1.80	.15	2.2
235	Marion ⁷	McDowell		1.89	2.31	.16	4.4
237	Morganton ⁷	Burke		.80	1.25	Tr	2.1
239	Shelby ⁷	Cleveland			2.23	.02	2.2
240	Taylorsville (near) ⁶	Alexander			.95	.27	1.2
241	Tryon ⁷	Polk		.96	1.21	1.20	3.4
243	South Carolina: Caesars Head ⁷	Greenville		2.46	4.00	.53	7.0
248	Cherokee (near) ⁷	Spartanburg		1.44	.30		1.7
249	Chester ⁷	Chester			1.03		1.0
249a	Collins Mill (near) ⁶	Spartanburg			1.31		1.3
249b	Collins Mill (near) ⁶	do			1.40		1.4
250	Columbia ⁵	Richland		.97	1.32		2.3
252	Duncan (near) ⁵ 6	Spartanburg	.96	.24			1.2
253	Fairforest (near) ⁵ 6	do	.80	.30			1.1
254	Fairforest (near) ⁶	do		.11	1.25		1.4
255	Fairmount (near) ⁶	do			1.51		1.5
257	Fountain Inn (near) ⁶	Greenville		.94			.9
258	Gaston Shoals ⁴	Cherokee		1.54	.57		2.1
260	Greenville ⁵	Greenville		1.45	.31	.01	1.8
263	Greer (near) ⁵ 6	do		1.06	.46		1.5
264	Greer (near) ⁶	Spartanburg		.23	1.40		1.6
266	Highland (near) ⁶	Greenville	.75		3.18		3.9
269	Landrum ⁷	Spartanburg		1.13	.73	.56	2.4
272	Locust (near) ⁵ 6	Greenville		1.78	.45		2.2
273	Locust (near) ⁵ 6	do		.04	2.04		2.1
274	Moore (near) ⁶	Spartanburg			.99	.22	1.2
275	Moore (near) ⁵ 6	do	.89	.35			1.2

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

² Record furnished by U. S. Forest Service.

³ Precipitation measured in the morning and the evening.

⁴ Precipitation measured at midnight.

⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁶ Record furnished by Soil Conservation Service.

⁷ Precipitation measured in the afternoon.

⁸ Precipitation measured after each rain.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl. 17	Station	County	August				Total for storm period ¹
			28	29	30	31	
	South Carolina—Continued						
278	O'Neal (near) ^{5 6}	Greenville	1.23	0.41	0.18	---	1.8
280	Pelzer	Anderson	---	.05	1.21	Tr	1.3
285	Santuck ⁷	Union	---	1.44	.37	---	1.8
285a	Spartanburg (near) ^{5 6}	Spartanburg	.73	.22	---	---	1.0
286	Spartanburg	do	---	1.17	.38	0.06	1.6
291	Travelers Rest (near) ^{5 6}	Greenville	---	1.68	---	1.03	2.7
292	Tyger School ⁸	do	---	---	1.85	.43	2.3
293	Walnut Grove (near) ^{5 6}	Spartanburg	(⁹)	1.50	---	---	1.5
294	Walnut Grove (near) ⁶	do	---	.95	.65	---	1.6
295	Walnut Grove (near) ^{5 6}	do	.85	.20	---	---	1.0
298	Wellford (near) ⁶	do	---	---	1.31	---	1.3
299	Whitestone (near) ^{5 6}	do	1.20	.33	---	---	1.5
	SAVANNAH RIVER BASIN						
	North Carolina:						
307b	Highlands ⁷	Macon	---	3.89	7.76	---	11.6
308	Rock House ⁷	do	---	13.13	.06	---	13.2
	South Carolina:						
309	Anderson (near) ⁶	Anderson	---	---	1.55	---	1.6
310	Anderson (near) ⁶	do	---	---	1.50	.02	1.5
311	Anderson (near) ⁶	do	---	---	1.60	---	1.6
312	Anderson ⁷	do	---	.62	1.98	---	2.6
313	Belton ⁶	do	---	.54	4.75	.21	5.5
315	Clemson College ⁷	Oconee	---	3.43	2.07	Tr	5.5
316	Clemson (SCS Camp 17) ⁶	Pickens	---	.54	4.75	.21	5.5
316a	Clemson ^{5 6}	Oconee	---	5.12	.36	---	5.5
317	Due West	Abbeville	---	.67	.20	---	.9
319	Longcreek (near) ⁷	Oconee	---	2.77	8.52	---	11.3
319a	Mountain Rest ²	do	---	2.77	8.52	---	11.3
321	Walhalla ⁷	do	---	2.12	2.42	---	4.5
	Georgia:						
324	Carlton Bridge	Elbert	---	.41	1.10	.20	1.7
325	Clayton ⁷	Rabun	.02	2.83	3.91	.09	6.8
326	Double Branches	Lincoln	---	---	2.01	.39	2.4
327	Gillsville	Hall	---	.78	---	---	.8
328	Hartwell (near)	Hart	---	.30	2.68	.31	3.3
330	Toccoa	Stephens	---	.73	3.25	.31	4.3
331	Washington	Wilkes	---	.01	.52	.67	1.2
	ALTAMAHA RIVER BASIN						
	Georgia:						
342	Athens No. 1	Clarke	---	.40	1.26	.59	2.2
343	Athens No. 2 ⁷	do	---	1.66	1.40	---	3.1
344	Atlanta No. 2	DeKalb	---	.01	1.50	.33	1.8
	APALACHICOLA RIVER BASIN						
	Georgia:						
358	Atlanta (city) ⁵	Fulton	---	1.12	.20	---	1.3
359	Atlanta Airport ⁶	do	---	.71	.51	---	1.2
359a	Blue Ridge ^{2 10}	Fannin	---	1.47	1.64	1.17	4.3
359b	Camp F-16 ^{2 10}	Gordon	.22	.28	---	.02	.5
359c	Chenocetah ²	Habersham	.20	4.25	.25	---	4.7
360	Cornelia ⁷	do	---	4.31	.57	.04	4.9
362	Dahlonega	Lumpkin	---	1.96	1.22	.43	3.6
363	Douglasville	Douglas	---	.21	.81	---	1.0
364	Gainesville	Hall	---	2.98	1.92	.15	5.0
366	Norcross	Gwinnett	---	.12	.66	.06	.8

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

² Record furnished by U. S. Forest Service.

⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁶ Record furnished by Soil Conservation Service.

⁷ Precipitation measured in the afternoon.

⁹ Precipitation included in the following measurement.

¹⁰ Station is in central standard time zone.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl. 17	Station	County	August				Total for storm period ¹
			28	29	30	31	
MOBILE RIVER BASIN							
Georgia:							
367	Adairsville (near)	Bartow	0.49	0.11	1.35	0.06	2.0
367a	Beaverdale ¹⁰	Whitfield	.24	.52	1.05	.05	1.9
367b	Canton ^{5 10}	Cherokee		1.09	.14		1.2
368	Canton	do		.23	.86	.17	1.3
370	Cartersville	Bartow	.34	1.09	.11		1.5
370a	Cedartown ⁷	Polk	.91	.80	.51	Tr	2.2
371	Chatsworth ¹⁰	Murray	.30	.40	.50	1.05	2.2
372	Chatsworth (near) ^{2 3 10}	do	.24	.26			.5
372a	Cunningham ^{6 8 10}	Floyd		1.17	.96		2.1
372b	Dalton	Whitfield	.39	1.14	1.20	1.84	4.6
373	Ellijay ¹⁰	Gilmer	.37	1.02	.85		2.2
374	Ellijay (near) ^{5 6 10}	do	.15	.46	.33	.37	1.3
374a	Embry ¹⁰	Paulding		.53	.61	.48	1.6
375	Emma ^{5 6 10}	Dawson	1.35	.05	.05		1.4
376	Fairmount	Gordon	.06	.24	.27	1.10	1.7
377	Jasper	Pickens		2.21	1.57	.67	4.4
378	Jasper (near) ^{5 6 10}	do	.91		.77		1.7
378a	LaFayette ^{5 10}	Walker	.51	.42			1.2 3
378b	LaFayette ⁷	do	1.40	.90			2.3
379	Oakman	Gordon	.22	.17	.41	.10	.9
379a	Resaca	do	.15	.42	.43	1.04	2.0
379b	Rome	Floyd	2.05	.18	.21	.03	2.5
379c	Rome (near) ^{6 8 10}	do		1.17	.96		2.1
379d	Summerville	Chattooga	.94	.32	.87	.08	2.2
379e	Tallapoosa	Haralson	.08	1.77	1.04	.14	3.0
380	Taylorssville	Bartow	1.05	1.40	.50		3.0
380a	Whitfield ^{5 6}	Whitfield	(⁹)	1.25	.17		1.4
381	Woodstock	Cherokee		.01	1.20	1.83	3.0
KANAWHA RIVER BASIN							
Virginia:							
415	Blacksburg ⁷	Montgomery	Tr	Tr	1.25	.14	1.4
417	Floyd ⁷	Floyd	1.03	.07	2.97	.15	4.2
418	Galax	Grayson	.19	.32	3.47		4.0
419	Glenlyn	Giles		1.52	.09	.65	2.3
420	Hillsville	Carroll	.09	.34	.49	2.96	3.9
421	Independence	Grayson	.02		2.60	1.55	4.2
422	Indian Valley	Floyd			.53	1.96	2.5
423	Ivanhoe	Wythe		.53		3.21	1.4 0
425	Newport ^{5 6}	Giles	.03				.0
426	Pilot	Montgomery		.14	.29	1.14	1.6
427	Pulaski	Pulaski		.02	.34	1.44	1.8
428	Radford	Montgomery		.19	.08	1.73	1.9 2.5
429	Speedwell	Wythe		.06	.55	1.13	1.7
430	White Gate (near) ⁵	Giles	.01	.11	.96		1.1
431	Wytheville ⁵	Wythe	.17	.08	.61	.06	.9
North Carolina:							
432	Boone ⁷	Watauga	.27	.90	5.55	.55	7.3
433	Helton	Ashe		.04	1.39	.35	1.8
433a	Idlewild (near)	do	.05		3.70	2.55	6.3
434	Jefferson ⁷	do	Tr	.26	7.90	.39	8.6
436	Laurel Springs (near)	Alleghany		.04	2.44	2.00	4.5

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31

² Record furnished by U.S. Forest Service.

³ Precipitation measured in the morning and the evening.

⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁶ Record furnished by Soil Conservation Service.

⁷ Precipitation measured in the afternoon.

⁸ Precipitation measured after each rain.

⁹ Precipitation included in the following measurement.

¹⁰ Station is in central standard time zone.

¹¹ Includes 1.35 inches measured Aug. 27.

¹² Includes 0.21 inch measured Sept. 1.

¹³ Includes 0.53 inch measured Sept. 1.

52 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl. 17	Station	County	August				Total for storm period ¹
			28	29	30	31	
	North Carolina—Continued						
436a	Laurel Springs (Bluff Park)	Alleghany		0.07	4.00	2.60	6.7
437	Parker ²	Ashe		.16	.93	.24	1.3
	BIG SANDY RIVER BASIN						
	Virginia:						
438	Davenport (near)	Buchanan			.79	.74	1.5
438a	Foraker	Dickenson			1.07	.32	1.4
439	Haysi	do.			.76	.58	1.3
441	Slate	Buchanan		.59	.57	1.20	2.4
	TENNESSEE RIVER BASIN						
	Virginia:						
443	Big Knob ^{14 15}	Scott			2.11	1.62	3.7
443a	Burkes Garden ⁷	Tazewell	0.16		.24		.4
444	Camp F-26, Jefferson National Forest ²	Wise			1.07	.37	1.4
445	Cleveland ¹⁴	Russell			1.05	1.36	2.4
446	Clinchport	Scott			2.16		2.2
447	Damascus	Washington	Tr	Tr	Tr	.25	16.8
448	Dante ⁵	Russell		.42	1.02	.50	1.9
448a	Dunbar ¹⁴	Wise		.03	1.65	.33	2.0
449	Dungannon ¹⁴	Scott			1.78	1.15	2.9
450	Emory ⁷	Washington	.05	.14	.96	.34	1.5
452	High Knob ^{14 15}	Wise		.02	1.74	.40	2.2
453	Holston ¹⁴	Washington					.0
454	Honaker ¹⁴	Russell			.89	.30	1.2
455	Jewell Ridge	Tazewell		.09	.62	.65	171.6
456	Jonesville ¹⁴	Lee			1.47	.06	1.5
457	Loves Mill ¹⁴	Washington			(⁹)	0.62	181.1
458	Marion ¹⁴	Smyth			.60	.27	191.2
459	Mendota	Washington			1.73	.62	202.8
460	Mutters Gap ¹⁴	Russell			1.08	.14	211.9
461	Nebo ¹⁴	Smyth	Tr		.30		.3
463	Olinger ¹⁴	Lee		.27	1.71	.34	2.3
464	Pennington Gap	do.			1.62	.04	1.7
464a	Rose Hill	do.		.03	1.17	.08	1.3
465	Saltville	Smyth		Tr	.86	.31	221.4
466	Spring Creek ^{14 15}	Tazewell		.24	.92	.27	231.6
467	Swords Creek	Russell			.60	2.21	243.4
468	Tazewell ¹⁴	Tazewell			.39	.43	.8
470	Trout Dale ⁵	Grayson	.32	.14	.99	.15	1.6
470a	Trout Dale ¹⁴	do.		.81	1.10	.48	2.4
471	Wallace ¹⁴	Washington			1.62		1.6
	Tennessee:						
472	Archville ³	Polk		.02	1.00	2.00	3.0
473	Beauty Spot ^{14 15}	Unicoi			2.87	.15	3.0
474	Bluff City	Sullivan			1.80	.07	1.9
475	Boonville ¹⁴	Polk	.70	.30	1.24	.61	2.8
475a	Bristol	Sullivan			2.26	.01	2.3
476	Brush Creek ¹⁴	Polk	.15		.94	.48	1.6
477	Bulls Gap ¹⁴	Hawkins			3.05		3.0
478	Cades Cove ¹⁴	Blount		.11	1.21	1.16	2.5
479	Calderwood ²⁵	do.		.16	1.00	.43	1.6
480	Camp Creek Bald ^{14 15}	Greene			3.77	.14	3.9

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

² Record furnished by U. S. Forest Service.

³ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁵ Precipitation measured in the afternoon.

⁹ Precipitation included in the following measurement.

¹⁴ Record furnished by Tennessee Valley Authority.

¹⁵ Recording gage; daily total for 24 hours ending in morning.

¹⁶ Includes 0.50 inch measured Sept. 1.

¹⁷ Includes 0.26 inch measured Sept. 1.

¹⁸ Includes 0.45 inch measured Sept. 1.

¹⁹ Includes 0.33 inch measured Sept. 1.

²⁰ Includes 0.41 inch measured Sept. 1.

²¹ Includes 0.71 inch measured Sept. 1.

²² Includes 0.22 inch measured Sept. 1.

²³ Includes 0.15 inch measured Sept. 1.

²⁴ Includes 0.55 inch measured Sept. 1.

²⁵ Record furnished by Aluminum Company of America.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl.17	Station	County	August				Total for storm period ¹
			28	29	30	31	
Tennessee—Continued							
480a	Catlettsburg ¹⁴	Sevier		0.05	1.71	0.23	2.0
481	Cedar Creek ¹⁴	Washington			2.47	.02	2.5
481a	Charleston	Bradley		.15	.91	.06	1.1
481b	Chattanooga ⁵	Hamilton	0.26	1.36	Tr		1.6
482	Clear Branch ¹⁴	Unicoi			2.93	.15	3.1
483	Clingman's Dome ^{14 15}	Sevier		.39	6.68	.18	7.2
483a	Clinton	Anderson		.01	.74	Tr	.8
484	Coker Creek ⁴	Monroe		.30	1.00	.78	2.1
485	Colesville ⁴	Johnson		.04	.87		.9
486	Columbus ⁴	Polk		.28	.40	1.96	2.6
487	Copperhill	do.	.10	.27	1.23	.56	2.2
487a	Copperhill No. 2 ¹⁴	do.		.39	1.10		1.5
488	Cosby ¹⁴	Cocke			2.63	.54	3.2
489	Crandall ¹⁴	Johnson			.60		.6
489a	Dandridge	Jefferson			2.20	.14	2.3
489b	Decatur ⁷	Meigs	.03	1.92	.01	.02	2.0
489c	Dunlap	Sequatchie		.75	1.80		2.6
490	Elizabethhton No. 1	Carter		.52	1.06	.23	1.8
491	Elizabethhton No. 2	do.			1.70	.07	1.8
492	Elkmont ⁷	Sevier		.10	2.04	.45	2.6
493	Embreeville	Washington			2.25	.05	2.3
494	Erwin ⁷	Unicoi			3.40	.25	3.6
494a	Flat Gap ¹⁴	Hawkins			1.93		1.9
496	Gatlinburg ⁷	Sevier		.18	2.62	.34	3.1
497	Greeneville (near) ⁷	Greene		1.99	1.37		3.4
498	Harbuck ¹⁴	Polk	.10	.75	1.14	.55	2.5
499	Hartford ¹⁴	Cocke			2.80	.52	3.3
500	Haw Knob ^{14 15}	Monroe		.55	2.25	.06	2.9
501	Isabella ¹⁴	Polk	.08	.25	1.73	.67	2.7
502	Jearoldstown ⁴	Greene			2.68	.04	2.7
502a	Jefferson City (near) ⁵	Jefferson		1.61	.09		1.7
503	Johnson City ¹⁴	Washington			1.78	.07	1.8
504	Johnson City Veterans Hospital ¹⁴	do.			1.82	.18	2.0
505	Kingsport	Sullivan			2.40		2.4
505a	Kingston	Roane			1.95		2.0
506	Lick Creek ^{14 15}	Greene			2.47	.04	2.5
507	Limestone ¹⁴	Washington			2.20	.03	2.2
508	Little Chucky ¹⁴	Greene	.05		3.51	.06	3.6
508a	Little War Gap ¹⁴	Hawkins			2.43	.25	2.7
508b	Loudon	Loudon			.45	1.99	2.4
508c	McGhee	Monroe		.11	.90	2.34	3.4
508d	Morgan Springs	Rhea		1.26	1.69	.30	3.2
508e	Morristown (near) ¹⁴	Hamblen			2.26	.05	2.3
508f	Morristown ⁷	do.		1.74	.97		2.7
509	Mountain City ¹⁴	Johnson			.96		1.0
510	Mount Le Conte ¹⁴	Sevier		.64	3.54	.78	5.0
510a	Newport	Cocke		.08	2.15	.08	2.3
511	Ocoee No. 2 ¹⁴	Polk	.05	.04	.55	1.94	2.6
512	Odenville ¹⁴	Carter			1.46	.10	1.6
513	Parksville	Polk	.05		.43	.21	.7
513a	Pittman Center ⁴	Sevier	.20		(⁹)	2.75	3.0
514	Potato Creek ⁴	Polk	.09	.26	1.74	.51	2.6
515	Reese ¹⁴	Johnson			1.20	.11	1.3
516	Roan High Knob ^{14 15}	Carter	.21	.10	3.29	.60	4.2
516a	Rogersville	Hawkins			2.40	.03	2.4
517	Sassafras Knob ^{14 15}	Polk		.15	1.01	.56	1.7
518	Servilla ¹⁴	do.			.41	1.25	1.7
519	Snake Mountain ^{14 15}	Johnson		.09	1.45	1.38	2.9
519a	Sneedville (near) ¹⁴	Hancock		.05	1.70		1.8
520	Stansbury Gap ^{5 14}	Polk	.05	2.17	.46		2.7

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁷ Precipitation measured in the afternoon.

⁹ Precipitation included in the following measurement.

¹⁴ Record furnished by Tennessee Valley Authority.

¹⁵ Recording gage; daily total for 24 hours ending in morning.

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TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl.17	Station	County	August				Total for storm period ¹
			28	29	30	31	
	Tennessee—Continued						
521	Stone Mountain ¹⁴	Carter			2.19	0.48	2.7
521a	Stoney Point ¹⁴	Hawkins			1.97		2.0
521b	Tazewell (near)	Claiborne		0.07	.92	.05	1.0
522	Tellico ²	Monroe			(⁹)	1.48	1.5
523	Tellico Plains	do.		1.28	.83		2.1
524	Tri-City Airport	Sullivan			2.26	.01	2.3
525	Turtletown ¹⁴	Polk	0.08	.77	.83		1.7
525a	White Pine ¹⁴	Jefferson			2.14		2.1
526	Wolf Creek ¹⁴	Cocke			3.43		3.4
	North Carolina:						
527	A & H Airport ¹⁴	Henderson			7.55		7.6
528	Altapass	Mitchell			6.00	.05	6.0
529	Andrews Power Plant ^{4 26}	Clay		2.44	.36		2.8
530	Andrews	Cherokee		.48	1.41	.19	2.1
531	Asheville ⁵	Buncombe		4.70	2.08	Tr	6.8
533	Bakersville ¹⁴	Mitchell		.70	3.50	1.00	5.2
534	Banners Elk ⁷	Avery	.78	4.42	2.27		7.5
535	Barnardsville ¹⁴	Buncombe			5.15		5.2
536	Beaverdam Creek ¹⁴	Cherokee		.52	1.09	.14	1.8
537	Beetree Dam ^{15 27}	Buncombe	.03		7.26	.10	7.4
538	Beetree Gap ¹⁵	do.		.02	7.08	.07	7.2
539	Bent Creek ^{2 15}	do.			8.84		8.8
540	Big Pine ¹⁴	Madison	.06		5.66	.63	6.4
541	Blue Ridge Post Office ¹⁴	Henderson		.03	6.00	.10	6.1
542	Boiling Spring ¹⁴	Cherokee		1.68	1.12	.53	3.3
542a	Brasstown ²	Clay		.95	1.12	.29	2.4
543	Bryson City ¹⁴	Swain		.31	4.50	.55	5.4
544	Cane River ¹⁴	Yancey			2.77	.05	2.8
545	Canton ⁴	Haywood		3.37	2.99	.02	6.4
546	Cataloochee Ranch ¹⁴	do.		.18	5.28	.28	5.6
547	Cedar Mountain ¹⁴	Transylvania	.49	.09	7.62	.35	8.6
548	Celo ¹⁴	Yancey		.25	6.25		6.5
549	Chambers Mountain (near Clyde) ^{14 15}	Haywood			5.06		5.1
550	Cheoah ²⁵	Graham		.07	.99	.56	1.6
551	Cody Store ¹⁴	Madison			4.96	.34	5.3
552	Coleman Dam Site ¹⁴	Cherokee	.01	.67	.79	.50	2.0
553	Cove Creek ¹⁴	Haywood			4.10	.18	4.3
554	Coweeta No. 1 ^{2 15}	Macon		1.25	4.13	.03	5.4
555	Coxcombe Mountain ^{14 15}	Buncombe			4.20	.05	4.3
556	Cullowhee ⁷	Jackson		2.60	3.03		5.6
557	Daybook ¹⁴	Yancey	.02	.02	3.56	.08	3.7
558	Dicks Creek ¹⁴	Jackson		.55	4.78	.09	5.4
559	Dix Creek ¹⁴	Haywood	.01	.20	8.05	.03	8.3
560	Doggett Gap ¹⁴	Madison	.07	.08	6.08	.51	6.7
561	Eaglenest Mountain ¹⁴	Haywood		.11	5.35	.42	5.9
562	Erastus ¹⁴	Jackson		.89	7.31		8.2
563	Fie Branch ¹⁴	Haywood		.04	5.30	.30	5.9
564	Flat Top Mountain ¹⁴	Yancey			5.35	.39	5.7
565	Franklin ⁴	Macon		8.70	.04		8.7
566	Garren Creek ¹⁴	Buncombe		.05	5.50	.03	5.6
567	Glade Gap ^{14 15}	Clay		2.72	.95	.04	3.7
568	Hayesville ¹⁴	do.		(⁹)	2.66	.19	2.8
569	Haywood Gap ^{14 15}	Jackson		1.02	10.86	.06	12.0
570	Hendersonville ⁷	Henderson		4.77	2.22	.51	7.5
571	Hiwassee Dam ^{14 15}	Cherokee	(⁹)	(⁹)	(⁹)	1.85	1.8

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

² Record furnished by U. S. Forest Service.

⁴ Precipitation measured at midnight.

⁵ Recording gage; precipitation is for the 24-hour period, midnight to midnight.

⁷ Precipitation measured in the afternoon.

⁹ Precipitation included in following measurement.

¹⁴ Record furnished by Tennessee Valley Authority.

¹⁵ Recording gage; daily total for 24 hours ending in morning.

²⁵ Includes 0.15 inch measured Sept. 1.

²⁶ Record furnished by Aluminum Company of America.

²⁷ Record furnished by Nantahala Power Co.

²⁸ Record furnished by city of Asheville, N. C.

²⁹ Includes 0.28 inch measured Sept. 1.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No on pl.17	Station	County	August				Total for storm period ¹
			28	29	30	31	
North Carolina—Continued							
572	Hiwassee Dam No. 2 ¹⁴	Cherokee	Tr	0.23	1.00	0.41	1.6
573	Horseshoe ¹⁴	Henderson			6.00	.05	6.0
574	Hot Springs	Madison			4.70	.63	5.3
575	Hyatt Creek ¹⁴	Cherokee	0.45	.55			1.0
576	Ivy ¹⁴	Madison			4.05		4.0
577	Jack Cove ¹⁴	Jackson		.12	3.80	.05	4.0
578	John Rock (Camp F-28) ²	Transylvania		2.48	4.84	.23	7.6
579	Leicester ¹⁴	Buncombe			7.97	.34	8.3
580	Letitia ¹⁴	Cherokee	.03	1.20	.60	.50	2.3
581	Little Switzerland ¹⁴	Mitchell		.40	9.70	.14	10.2
582	Lonesome Mountain ¹⁴	Madison			4.25	.17	4.4
583	Marshall	do	Tr		6.05	Tr	6.1
584	Max Patch Mountain ¹⁴	do		.02	3.92	.48	4.4
585	McKinney Gap ¹⁴	Yancey			4.20	.07	4.3
586	Montreat	Buncombe			7.00		7.0
587	Mount Mitchell	Yancey	.03	9.74	2.36	.02	12.2
588	Mount Pisgah ^{14 15}	Haywood		.14	(9)	11.14	11.3
589	Mount Sterling ¹⁴	do			4.50	.42	4.9
590	Murphy Evaporation Station ^{14 15}	Cherokee		.86	1.12	.87	2.8
591	Murphy	do		.95	1.07	.98	3.0
592	Nantahala ⁷	Swain		2.15	.60		2.8
593	Needmore ¹⁴	do		.75	3.89	.05	4.7
594	Noland Creek ²⁹	do		.38	3.86	.12	4.4
595	North Fork ^{15 27}	Buncombe		.04	8.44	.16	8.6
596	Old Road Gap ^{14 15}	Cherokee		.45	3.10		3.6
597	Otto ¹⁴	Macon		.51	9.42	.01	9.9
598	Owen's Gap ¹⁴	Jackson		.38	9.34	.05	9.8
599	Peachtree Creek ¹⁴	Cherokee	.09	.90	1.55	.29	2.8
600	Pisgah Forest ⁷	Transylvania		1.58	3.80	.32	5.7
601	Plumtree ¹⁴	Avery	.04		5.12	.21	5.4
602	Postell ¹⁴	Cherokee	.05	.40	1.11		1.6
603	Proctor ¹⁴	Swain		.62	2.07	.23	2.9
604	Ranger ¹⁴	Cherokee	.01	.77	.72	.60	2.1
605	Raven Mountain ^{14 15}	Macon		.06	7.13	.04	7.2
606	Rockyface Mountain ¹⁴	Haywood			7.25		309.2
607	Rosman	Transylvania		.55	6.84	.12	7.5
608	Rush Mountain ¹⁴	Henderson		.30	6.50	.30	7.1
609	Santeeetlah ²⁸	Graham		.04	1.34	.23	1.6
610	Shooting Creek ¹⁴	Clay		1.07	1.83	.07	3.0
611	Smokemont	Swain		.15	4.60	.32	5.1
612	Smoky Gap ¹⁴	Avery	.22		3.85	.28	4.4
613	Snow Creek ¹⁴	Mitchell		.19	5.05	.10	5.3
614	Spruce Mountain ^{14 15}	Haywood		.10	4.23	.18	4.5
615	Stecoah ¹⁴	Graham		.09	2.53	.07	2.7
616	Swannanoa ⁷	Buncombe		3.40	4.10		7.5
617	Tapoco	Graham		.07	.99	.56	1.6
618	Tatham Gap ^{14 15}	Cherokee		.25	1.49	.02	1.8
619	Teyahalee Bal ^{14 15}	Graham		.40	1.77	.10	2.3
619a	The Pink Beds ^{14 15}	Transylvania		.02	8.38	.07	8.5
620	Tipton Hill ¹⁴	Mitchell	.09	.06	3.76	.06	4.0
621	Tomotla ¹⁴	Cherokee		1.68	1.12	.53	3.3
622	Waterville ⁴	Haywood		2.47	1.00		3.5
623	Wayah Bald ^{14 15}	Macon		.60	4.02	.07	4.7
624	Waynesville	Haywood		3.01	2.82	.05	5.9

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total of recorded daily values Aug. 28-31.

² Record furnished by U. S. Forest Service.

⁴ Precipitation measured at midnight.

⁷ Precipitation measured in the afternoon.

⁹ Precipitation measured at midnight.

¹⁴ Record furnished by Tennessee Valley Authority.

¹⁵ Recording gage; daily total for 24 hours ending in morning.

²⁶ Record furnished by Aluminum Company of America.

²⁷ Record furnished by city of Asheville, N. C.

²⁹ Record furnished by P. G. Rust.

³⁰ Includes 1.94 inch measured Sept. 1.

TABLE 6.—Daily precipitation, in inches, August 28-31, 1940—Continued

No. on pl.17	Station	County	August				Total for storm period ¹
			28	29	30	31	
Georgia:							
625	Blairsville	Union		3.00	0.25		3.2
626	Blue Ridge Reservoir ¹⁴	Fannin	0.03	.45	.97	0.18	1.6
627	Brasstown Bald ^{14 15}	Towns		.79	2.46	.02	3.3
628	Flat Top (near Blue Ridge) ^{14 15}	Gilmer	.35	.10	1.04	.02	1.5
629	Hemptown Gap ¹⁴	Fannin		1.12	.50	.11	1.7
630	Hiawassee ¹⁴	Towns		1.17	2.13		3.3
631	Ivylog ¹⁴	Union	1.40	.77		.11	2.3
632	Little Hightower ¹⁴	Towns		1.09	3.92	.06	5.1
633	Margret ¹⁴	Fannin		.85	.67		1.5
634	Mulky Gap ¹⁴	Union		1.20	1.40	.56	3.2
635	Neel Gap ^{14 15}	Lumpkin		1.73	2.24	.71	4.7
636	Noontootla Creek ¹⁴	Fannin		.46	.64		1.1
637	Patterson Gap ¹⁴	do	.20	.44	.32	.20	1.2
638	Stanley Gap ^{14 15}	Gilmer		.31	.60	.03	.9
639	Suches ¹⁴	Union		1.47	1.64	1.17	4.3
640	Sweetgum ¹⁴	Fannin	.06	.61	.76	1.62	3.0
641	Tray Mountain ^{14 15}	Towns		.66	4.91	.79	6.4
642	Warne ¹⁴	do		.45	1.55	1.50	3.5
643	Youngcane ¹⁴	Union		.2	.8		1.0
644	Young Harris ¹⁴	do			2.4		2.4

¹ Total is for storm period 12:01 a.m. Aug. 28 to 12 p.m. Aug. 31 and is not necessarily equal to the total for recorded daily values Aug. 28-31.

¹⁴ Record furnished by Tennessee Valley Authority.

¹⁵ Recording gage; daily total for 24 hours ending in morning.

AREA-DEPTH-DURATION RELATIONS

The areas within the various isohyetal lines shown on plates 16 and 17 for the mid-August and late-August storms, respectively, have been measured by planimeter. The total areas (within continuous isohyetal lines) over which the precipitation was greater than the indicated amounts were approximately as given in table 7 for the most prominent centers.

TABLE 7.—Area, in square miles, enclosed within indicated isohyetal lines for various storm centers

Isohyetal line	Mid-August storm		Late-August storm		
	Center at Swansboro, N. C.	Center at Keysville, Va.	Center at Rock House, N. C.	Center at Mount Mit- chell, N. C.	Center at Crossmore, N. C.
19-inch.....	24	0			
17-inch.....	80	64			
15-inch.....	240	688			
13-inch.....	420	2,480	6	0	0
12-inch.....	530	3,980	88	4	0
10-inch.....	860	9,100	478	80	0
8-inch.....	1,270	18,600	1,472	200	92
6-inch.....	2,040	54,200	3,700	(¹)	700
4-inch.....	(²)	128,000	10,100	(¹)	(¹)

¹ Merged with center at Rock House, N. C.

² Merged with center at Keysville, Va.

The mean precipitation within the isohyets about each storm center was computed and then plotted as shown in figure 6. An enveloping curve is drawn to show the relation between the greatest mean precipitation with respect to area enclosed within a continuous isohyetal. From this enveloping curve selected points were read to

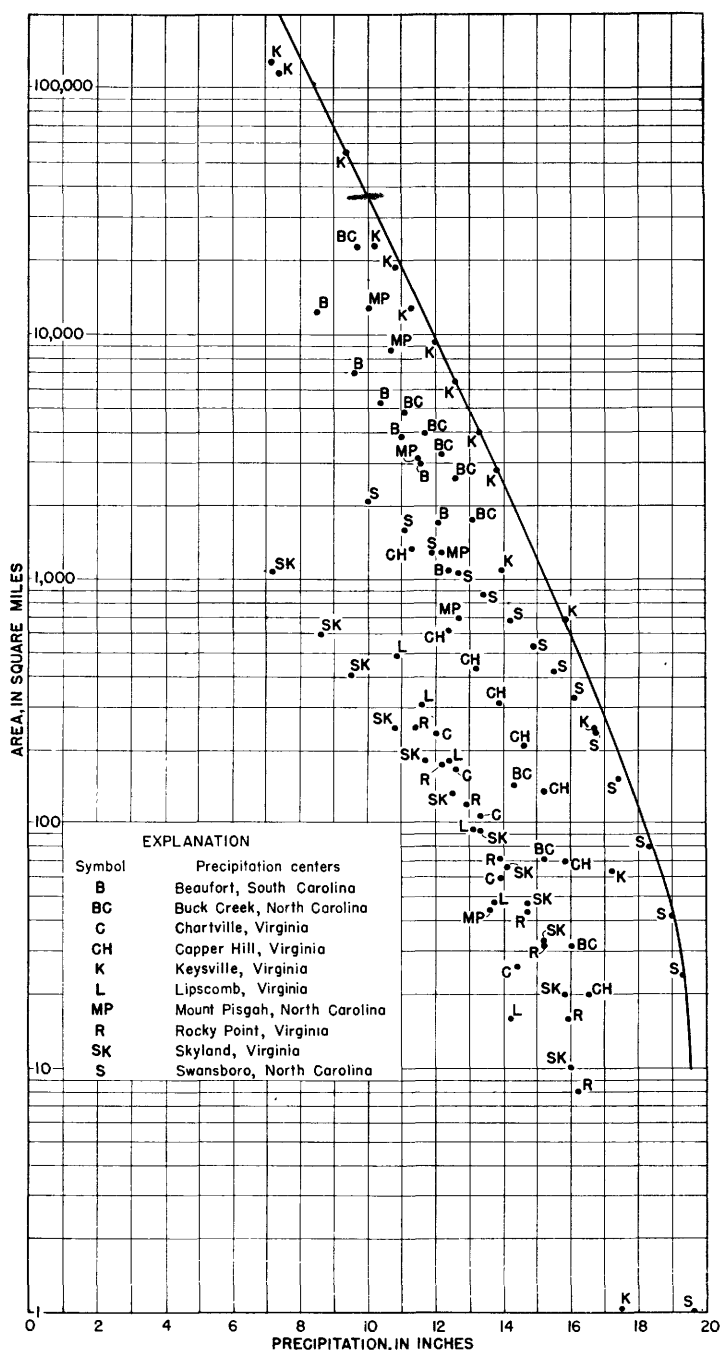


FIGURE 6.—Area-depth relations for various centers of precipitation during mid-August storm.

TABLE 8.—*Depth of mean precipitation in relation to areal extent for notable storms*

Date of storm	Center of storm	Average rainfall, in inches, over indicated area, in square miles										Duration (days)
		1	500	1,000	2,000	4,000	6,000	10,000	20,000	40,000	60,000	
1908, Aug. 24-26 ¹ -----	North Carolina---	15.6	13.9	13.1	12.2	11.6	11.3	-----	-----	-----	-----	3
1914, Oct. 14-15 ¹ -----	do-----	11.3	8.5	7.5	6.9	6.1	5.5	-----	-----	-----	-----	2
1916, July 14-16-----	do-----	23.2	18.4	17.1	15.5	13.7	12.5	10.5	9.2	7.6	6.0	2
1924, Sept. 13-17 ¹ -----	do-----	14.8	13.7	13.0	12.1	11.2	10.5	-----	-----	-----	-----	4
1928, Aug. 14-18 ¹ -----	South Carolina---	13.4	11.8	11.1	10.2	9.3	8.8	-----	-----	-----	-----	4
1929, Mar. 21-23 ¹ -----	Tennessee-----	10.3	9.5	8.9	8.2	7.5	7.0	-----	-----	-----	-----	2
1940, Aug. 10-17-----	North Carolina---	19.6	16.2	15.2	14.3	13.3	12.7	11.9	10.9	9.8	9.2	6
Aug. 28-30-----	do-----	13.2	11.3	10.5	9.4	8.2	7.4	6.3	-----	-----	-----	2

¹ From Miami Conservancy District report "Storm rainfall of eastern United States, revised."² From Tennessee Valley Authority processed report "Floods of August 1940 in Tennessee River Basin."

enable comparison with other storms in the region on a depth-area basis as reported by the Miami Conservancy District.¹⁰ The results are given in table 8.

The mid-August storm is listed as of 6-day duration, though at some locations most of the rain fell in two or three consecutive days. The other storms are of 2- to 4-day duration. Comparisons have already been made with the hurricane of July 1916, a 2-day rain-storm, which deposited greater depths of rain than the mid-August storm over areas smaller than 5,000 square miles. Over larger areas the rainfall during the mid-August storm was the greater. For point rainfall (=1 square mile) the mid-August storm was exceeded only by that of July 1916. For rainfall on 6,000 square miles the mid-August storm was the greatest of all the storms listed. However, the comparison is faulty because the mid-August storm was of longer duration.

The rainfall depths of the storm of August 28-31, 1940, were exceeded by those of all but two storms—October 1914 and March 1929.

The Corps of Engineers prepared a series of isohyetal maps showing rainfall during the mid-August storm by 6-hour periods. These maps were planimetered by the Corps of Engineers in the same way as the isohyetal maps of total storm rainfall. Table 9 is a summary of the results, giving the maximum rainfall over indicated areas, for selected rainfall periods.

TABLE 9.—*Maximum precipitation, in inches, over indicated areas, during indicated periods, for storm of August 10-17, 1940*

[Analysis by Corps of Engineers, War Department]

Period (hours)	Area (square miles)						
	10	100	1,000	5,000	10,000	24,000	2120,000
6-----	¹ 7.1	² 6.2	³ 4.6	⁴ 2.9	⁵ 2.3	1.6	-----
12-----	¹ 9.7	² 8.7	³ 7.2	⁴ 4.9	⁵ 4.0	2.7	-----
24-----	¹ 11.5	² 10.6	³ 10.1	⁴ 7.5	⁵ 6.4	4.6	-----
48-----	¹ 16.3	² 15.7	³ 13.7	⁴ 11.0	⁵ 9.6	7.4	-----
186 (total storm)---	¹ 19.6	² 17.8	³ 15.5	⁴ 13.5	⁵ 12.3	10.3	7.5

¹ Within 7-inch isohyetal, centering at Keysville.

² Whole storm area.

³ Center at Beaufort, S. C.

⁴ Center at Keysville, Va.

⁵ Center at Swansboro, N. C.

The maximum precipitation during the mid-August storm, 19.6 inches, was recorded at Swansboro, N. C., during a period of 186 hours. The maximum storm precipitation recorded during shorter periods is listed in table 10.

Similar data for the late-August storm are given in table 11. It will be observed that the amounts of short-period rainfall (that is, 2 hours to 1 day) were generally greater during the late-August storm. For

¹⁰ Storm rainfall of eastern United States: Miami Conservancy District Tech. Repts., pt. 5 (revised), pp. 280-281, Dayton, Ohio, 1936.

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TABLE 10.—*Maximum recorded precipitation during indicated periods, storm of August 10-17, 1940*

Period (hours)	Name of station	No. on pl. 16	Date	Amount (inches)
1	Lexington, N.C. (near)-----	180	Aug. 14-----	2.75
2	Gretna (Sandy Level), Va-----	89a	do-----	3.90
3	do-----	89a	do-----	4.32
4	do-----	89a	do-----	4.42
6	Watkinsville, Ga-----	357	Aug. 12-----	5.21
12	Inman, S.C.-----	267	Aug. 13-----	8.35
24	do-----	267	Aug. 12, 9 p.m., to Aug. 13, 9 p.m.-----	12.04
48	Keysville, Va. (near)-----	78	Aug. 14-15-----	15.25
186	Swansboro, N.C.-----	399	Aug. 10, 6 a.m., to Aug. 17, 12 p.m.-----	19.6

¹ Storm period.

periods longer than 1 day the amounts for the mid-August storm were greater. In general, it is a characteristic of maximum rainstorms that short-period maxima are associated with storms of small areal distribution and long-period maxima with storms of wider distribution. The behavior of the two August storms conformed to this rule.

TABLE 11.—*Maximum recorded precipitation during indicated periods, storm of August 28-31, 1940*

Period (hours)	Name of station	No. on pl. 17	Date	Amount (inches)
1	(Mount Pisgah, N.C.-----	588	August 30-----	¹ 2.53
	(Clemson, S.C.-----	316a	August 29-----	2.16
2	(Mount Pisgah, N.C.-----	588	August 30-----	14.49
	(North Fork, N.C.-----	595	do-----	3.13
3	(Mount Pisgah, N.C.-----	588	do-----	16.24
	(Haywood Gap, N.C.-----	569	do-----	4.00
4	(Mount Pisgah, N.C.-----	588	do-----	16.56
	(Haywood Gap, N.C.-----	569	August 29-30-----	5.03
6	(Mount Pisgah, N.C.-----	588	August 30-----	17.14
	(Haywood Gap, N.C.-----	569	August 29-30-----	6.08
12	Haywood Gap, N.C.-----	569	do-----	8.95
24	Rock House, N.C.-----	308	August 29-----	13.13
48	do-----	308	August 29-30-----	13.19
296	do-----	308	August 28-31-----	13.2

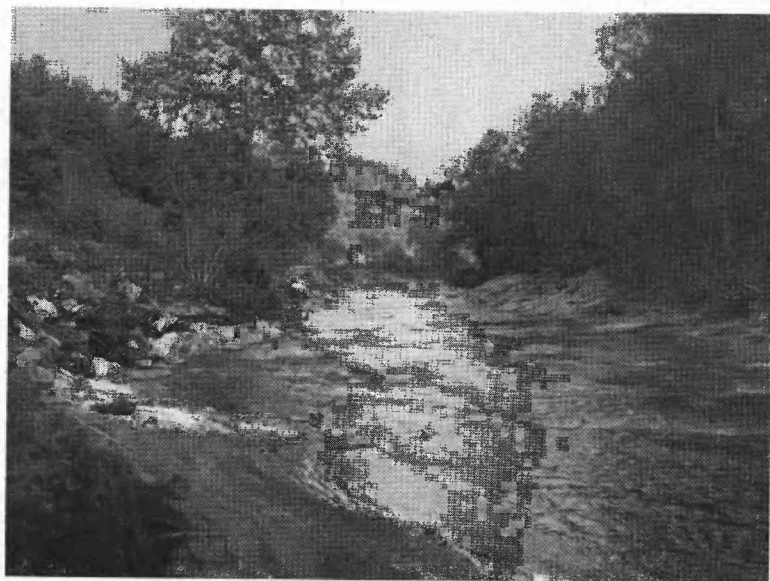
¹ From the part of the record where distribution was estimated.

² Storm period.

Rainfall amounts of less than 24 hours' duration in tables 10 and 11 are based on observations at recording rain gages only. For durations of 24 hours and longer the records at all stations were examined. Differences between depths of precipitation listed in table 10 and those given in table 9 for 10 square miles (equivalent to point rainfall) may be due to one of the following differences in methods of preparation: (1) The Corps of Engineers prepared mass curves of precipitation at all stations, which are understood to have been based on observers' notes and comparisons with nearby recording gages in order to inter-



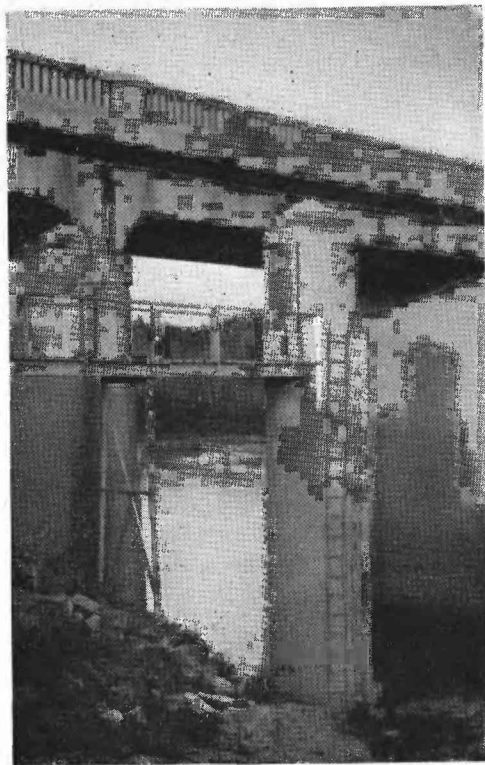
A. ELK CREEK AT ELKVILLE, N.C.



B. WEST FORK LEWIS FORK NEAR CHAMPION, N.C.

REACHES USED FOR SLOPE-AREA MEASUREMENTS.

Courtesy U.S. Soil Conservation Service.



A. SCENE JANUARY 4, 1935.



B. SCENE AUGUST 14, 1940.

RECORDING GAGE ON CATAWBA RIVER AT CATAWBA, N.C.

polate periods of intense precipitation at nonrecording stations where generally only once-daily measurements of catch are made. (2) The Corps of Engineers used 6-hour periods by definite clock hours. This would tend to eliminate more intense 6-hour periods that might straddle the selected 6-hour periods.

As point rainfalls, the amounts listed in the foregoing tables are not impressive in comparison with recorded torrential rainstorms in the region. For example, at Guinea, Va., on August 24, 1906, the Weather Bureau reports a rainfall of 9.25 inches in only 30 minutes. A rainfall of 9.0 inches in $3\frac{1}{2}$ hours was recorded at Ellsworth, N. C., on August 4, 1880. At Altapass, N. C., on July 15-16, 1916, 22.22 inches of rain fell in 24 hours. At Falkland, N. C., August 4-5, 1894, there was 13.55 inches of rain in 24 hours. At Carters Bluff, Tenn. (near Elizabethton), on the night of June 13-14, 1924, about 12 inches of rain fell in $3\frac{1}{2}$ hours. These rare torrential rains were, however, local in coverage and quite different in character from the two August storms, which were relatively broad in areal extent.

In general it might be concluded that for storms of comparable duration no records of precipitation were broken during August 1940 with respect either to volume over broad areas or to local intensity.

MEASUREMENT OF FLOOD DISCHARGES

The evaluation of the peak discharge of a major flood is frequently a difficult problem. At regular stream-gaging stations the discharge is usually obtained from the gage-height record by means of a stage-discharge relation defined by current-meter measurements. (See Definitions of terms, pp. 62-63.) During major floods, however, it is often impossible to obtain current-meter measurements. This may be for several reasons. Many streams rise and fall so rapidly that there is insufficient time to make a current-meter measurement near the crest stage. Means of transportation and communication often fail, so that engineers cannot reach the places of measurement. Even if an engineer is fortunate in reaching a measuring point during a major flood, floating debris or inundation or destruction of the bridge or cableway from which the measurement would be made often prevents his obtaining a current-meter measurement. These happened at many points in the southeastern States during the floods of August 1940.

It is often important to know the flood discharge of streams at points other than at gaging stations. For such points, and at gaging stations under conditions described above, special methods of evaluating flood discharge must be used. The special methods chiefly used are slope-area, contracted opening, dam computation, and, at gaging stations, extension of rating curve. A general description of these

methods will be found in "Stream-gaging procedure."¹¹ Detailed description of slope-area methods, with illustrative examples, will be found in recent flood reports, particularly Water-Supply Papers 773-E, 796-G, and 816. Views of two reaches used for slope-area measurements are shown in plate 18 of the present report. Water-Supply Paper 816 contains also a detailed description and example of the contracted-opening method. The reports cited do not include all the refinements and small changes that have been made as a result of experience since those reports were prepared, but they set forth the basic principles of present Geological Survey practice.

The Norfolk district, Corps of Engineers, made extensive studies of rainfall and runoff in the Roanoke River Basin for the mid-August flood, the results of which were made available to the Geological Survey. These have been utilized in evaluating the flood discharges given herein for some gaging stations. Several records of flood discharge presented in this report have been computed from the rate of storage in reservoirs.

STAGES AND DISCHARGES AT STREAM-GAGING STATIONS

EXPLANATION OF DATA

DEFINITIONS OF TERMS

Stream-gaging terms and units of measurement as used in this report are defined as follows:

"Stage" or "gage height" is the elevation of the water surface above the arbitrary datum, or "zero," of the gage. It may be obtained directly by reading the elevation of the water surface on the graduated scale of a staff gage or by measuring down from a fixed point with a chain or wire-weight gage; or it may be obtained indirectly from the scale of a water-stage recorder graph. Gage heights are usually expressed in feet and hundredths.

"Discharge" signifies the rate of flow of a stream past a given point, such as a gaging station, and is usually given in second-feet; it can also be the total volume of such flow. Measurements of discharge are usually made by a current meter, using equipment and methods developed by the Geological Survey through many years of experience. For flood flows they are sometimes made using methods referred to in the preceding section. (See p. 61.)

"Stage-discharge relation" is the relation between gage height and discharge, by which it is possible to obtain the discharge of a stream from the observed gage heights. The permanency and accuracy of definition of that relation determine the accuracy of the discharge

¹¹ Corbett, D. M., and others, *Stream-gaging procedure*, a manual describing methods and practices of the Geological Survey: U. S. Geol. Survey Water-Supply Paper 888, pp. 98-109, 1943.

record obtained. Auxiliary gages are often used when the stage-discharge relation is a function of other elements of flow conditions, such as the slope of the water surface or the rate of its rise and fall.

"Control" is a term used to designate a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural section, a reach of the channel, or an artificial structure.

"Runoff" is the volume of flow from a drainage area into a stream during a given period of time.

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of flow equivalent to a stream whose channel is 1 square foot in cross-sectional area and whose average velocity is 1 foot per second.

"Second-foot-day" is the volume of water represented by a flow of 1 second-foot for 24 hours. It is equivalent to 86,400 cubic feet, 1,983,471 acre-feet, or 646,317 gallons and represents a runoff of 0.0372 inch from 1 square mile.

An "acre-foot" is the quantity of water required to cover 1 acre to the depth of 1 foot and is equivalent to 43,560 cubic feet. The term is commonly used in connection with storage of water.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the runoff is distributed uniformly in regard to both time and area.

"Runoff in inches" is the depth to which an area would be covered if all the water draining from it in a given period were uniformly distributed on its surface. It is used for comparing runoff with rainfall, which is usually expressed in inches.

GAGING-STATION RECORDS

The base data collected at stream-gaging stations consist of records of stage, measurements of discharge, and general information used to supplement those records. From these data the records of daily flow are obtained. Peak stages are obtained from floodmarks at the station if they have not been previously observed or recorded. For flood periods it is customary to plot readings of nonrecording gages and construct thereon a hydrograph to obtain gage heights for times other than when the gage was read and thereby increase the accuracy of the daily discharge record.

During major floods, parts of gage-height records are occasionally lost, as through submergence or destruction of the gage itself. (See pl. 19.) Under such conditions, it is often possible to obtain a fair record of gage height and discharge from studies of meteorological information and runoff at gaging stations upstream, downstream, or on adjacent streams, interpreted in the light of an intimate knowl-

edge of the peculiar local conditions inherent to a particular gaging station. As Geological Survey engineers usually have access to more of such information than would normally be available to other users of the records, they have made estimates for all periods of missing record pertinent to this report that could be made with reasonable accuracy.

A major flood such as the one described in this report frequently makes substantial changes in stream channels, the effect of which cannot be completely determined until measurements have been obtained at stages greater than normal high water. When such measurements are obtained it sometimes becomes necessary to make revisions in previously published records. The present report contains all revisions published in the annual reports on surface water supply of the United States through 1945. Any revisions of records made necessary in the light of future information will be published in subsequent water-supply papers.

Records of daily mean discharge for the entire 1940 water year at regular gaging stations in the area covered by this report will be found in the reports on Surface Water Supply of the United States, 1940, Parts 1, 2, and 3, published as Water-Supply Papers 891, 892, and 893. The area covered by each part is shown in plate 1. Such records, however, are generally insufficient for the detailed analyses involved in flood studies, which require knowledge of the rate of discharge and the corresponding stage at much more frequent intervals. To provide such detailed information is one of the principal aims of this report. Therefore, on succeeding pages will be found detailed records for stream-gaging stations and for other points in the flood area for which the same type of information is available. Such information consists of a description of the place for which the record is given, details concerning the collection and computation of the record, daily mean discharge for the months of August and September 1940, and monthly figures of mean and total runoff. Also given for most stations is a table of gage height and discharge at indicated times to enable a user of the record to plot a reasonably accurate flood hydrograph of stage or discharge.

Information of this nature provides a basis for studies of the behavior of flood crests, including the concurrence of crests from different tributaries, 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 feasibility of detention reservoirs, channel improvement, forest management, soil treatment, flood forecasting, and other measures, with respect to their merits for

mitigating damage and losses caused by floods. Moreover, in view of the record-setting character of the floods of August 1940, 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 published in this report relate to streams on which floods occurred or which are adjacent to the margins of the flood areas and so serve to define the extent of the floods. The principal river basins are arranged from north to south along the Atlantic coast and Gulf of Mexico, followed by the principal tributaries of the Ohio River. Under each basin the records of streams are arranged in downstream order, as in other Geological Survey water-supply papers. Records for the main stream are given first, followed by records for the tributaries in regular order from source to mouth, all the records for each tributary basin being given before those of the next basin below.

STATION DESCRIPTION

Location.—The statement of location includes the sea-level elevation of the gage datum, if known.

Drainage-area.—The area given represents the total area contributing to the flow at the gaging station. When part of the area does not contribute directly to the flood flow a statement concerning that fact is usually given.

Gage-height record.—Under gage-height record is given the method used to obtain the record during the flood period, including the type of gage from which it was obtained. Where for some reason the gage-height record is incomplete, the missing periods are noted, and the methods, if any, used to supply the missing part are stated.

Discharge record.—The first statement concerning discharge records usually deals with the definition of the stage-discharge relation, because of its influence on the accuracy of the discharge record. Where for ease of computation certain limits of gage height were used in computing the discharge, the limits are given. Other methods that may have been used in computing or estimating the discharge are described.

Maxima.—Under maxima are given first the maximum stage and discharge that occurred during August 1940 and the time or times of their occurrence. On streams where two floods occurred in August, the information given here is for the higher flood only, but the maxima for both floods, where significant, will be found as part of the tables "Gage height and discharge at indicated times" and in table 13 or

14. Next under maxima are given data concerning the greatest previous flood during the period of gaging-station operation; the calendar years covering such a period or periods precede the statement. The period January to July 1940 is not included in the "previous flood" period unless during that period a flood occurred which was greater than the August flood. A further statement is added if there are other important floods to be described, whether they occurred during the period of gaging-station record or not. Flood stages and discharges are usually indicated as being the "maximum observed" if they were not derived from a continuous record of gage height or discharge or a floodmark, or if they were not estimated.

Remarks.—Miscellaneous notes and comments essential or helpful to an understanding of the record are included as remarks.

MEAN DISCHARGE

The first table under each gaging station gives the daily and monthly mean discharge, in second-feet, and the monthly runoff, expressed as the depth in inches over the tributary drainage area, adjusted for artificial storage when appropriate, if the required information was available. These data are given for the months of August and September 1940, thereby giving, in addition to the record for both flood periods, sufficient records before and after the flood periods to show the relation of the floods to the prevalent low-water flow.

GAGE HEIGHT AND DISCHARGE AT INDICATED TIMES

For many types of flood studies, a discharge hydrograph for the flood period is necessary. An adequate hydrograph can occasionally be obtained by plotting the daily mean discharge at noon and connecting the points thus obtained with a smooth curve. Usually, however, such points are insufficient for a proper delineation of the hydrograph. Therefore, following the table of daily discharge is a table giving gage height and discharge at indicated times. This table, used with the table of mean discharge, will make possible the construction of a reasonably accurate hydrograph of discharge for the entire period and of itself will yield a gage-height graph for the major part of the flood rise. Most of the gage heights in these tables were obtained from graphs made by water-stage recorders or graphs based on frequent readings of a nonrecording gage. Some are estimates that are believed to be of sufficient accuracy to warrant their inclusion; the manner of obtaining them is described under "gage-height record."

Figures 7 to 20 give selected hydrographs for the main stream and important tributaries of most of the principal river basins. They show graphically the relation between the mid-August and late-August floods, also something of the runoff characteristics of the different basins.

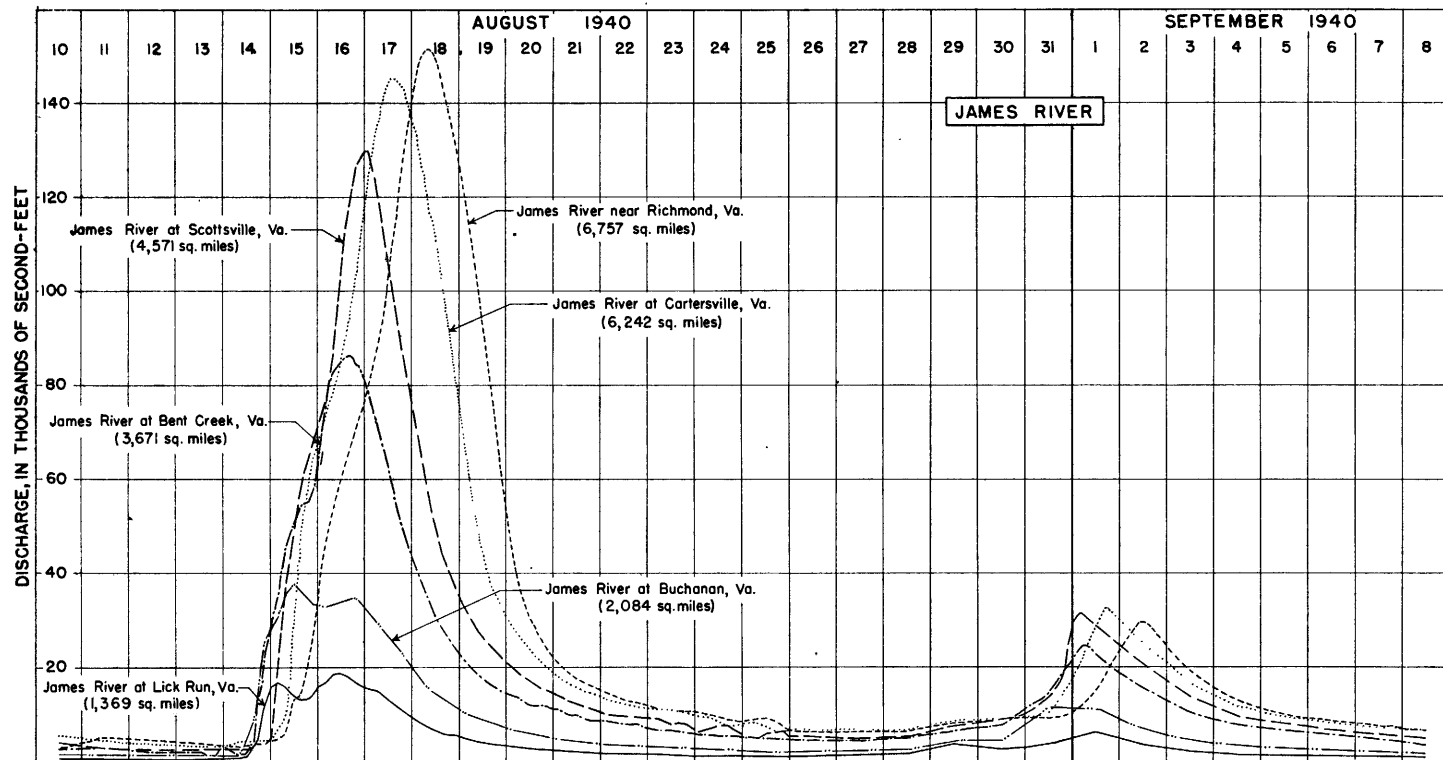


FIGURE 7.—Graphs of discharge at various stream-gaging stations on James River.

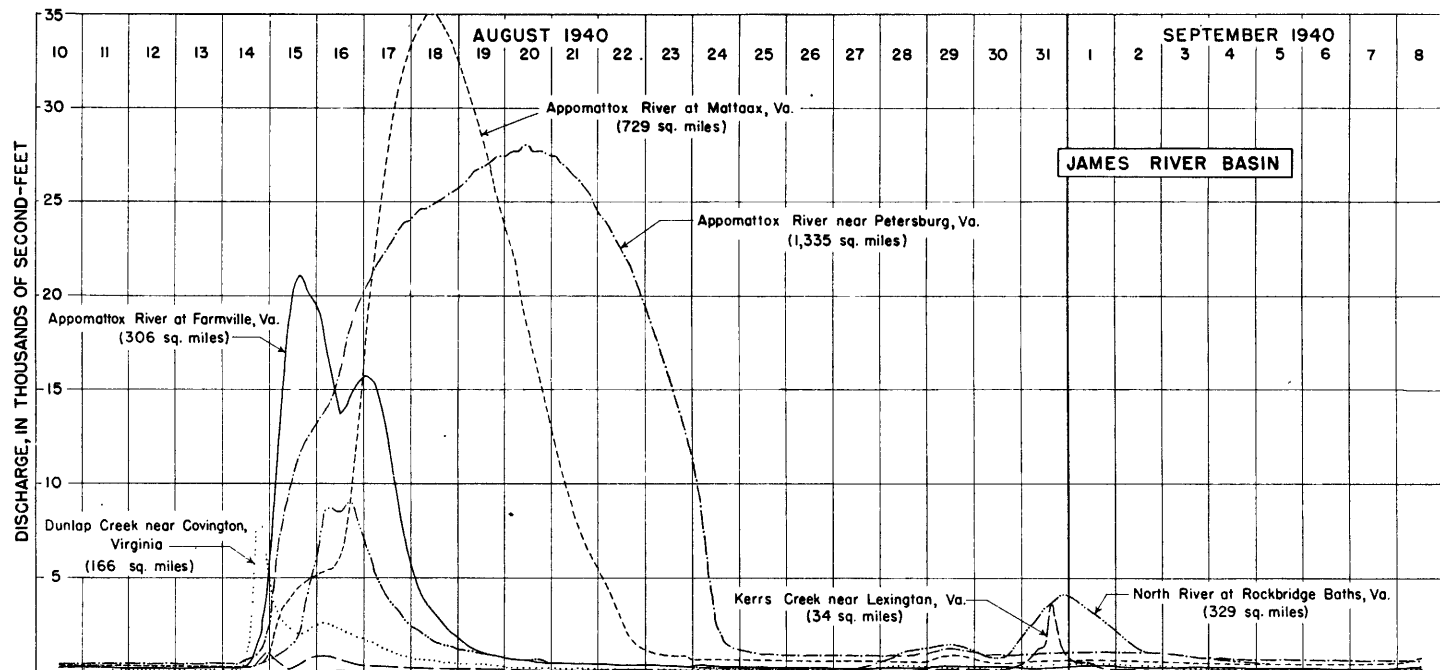


FIGURE 8.—Graphs of discharge at various stream-gaging stations on tributaries of James River.

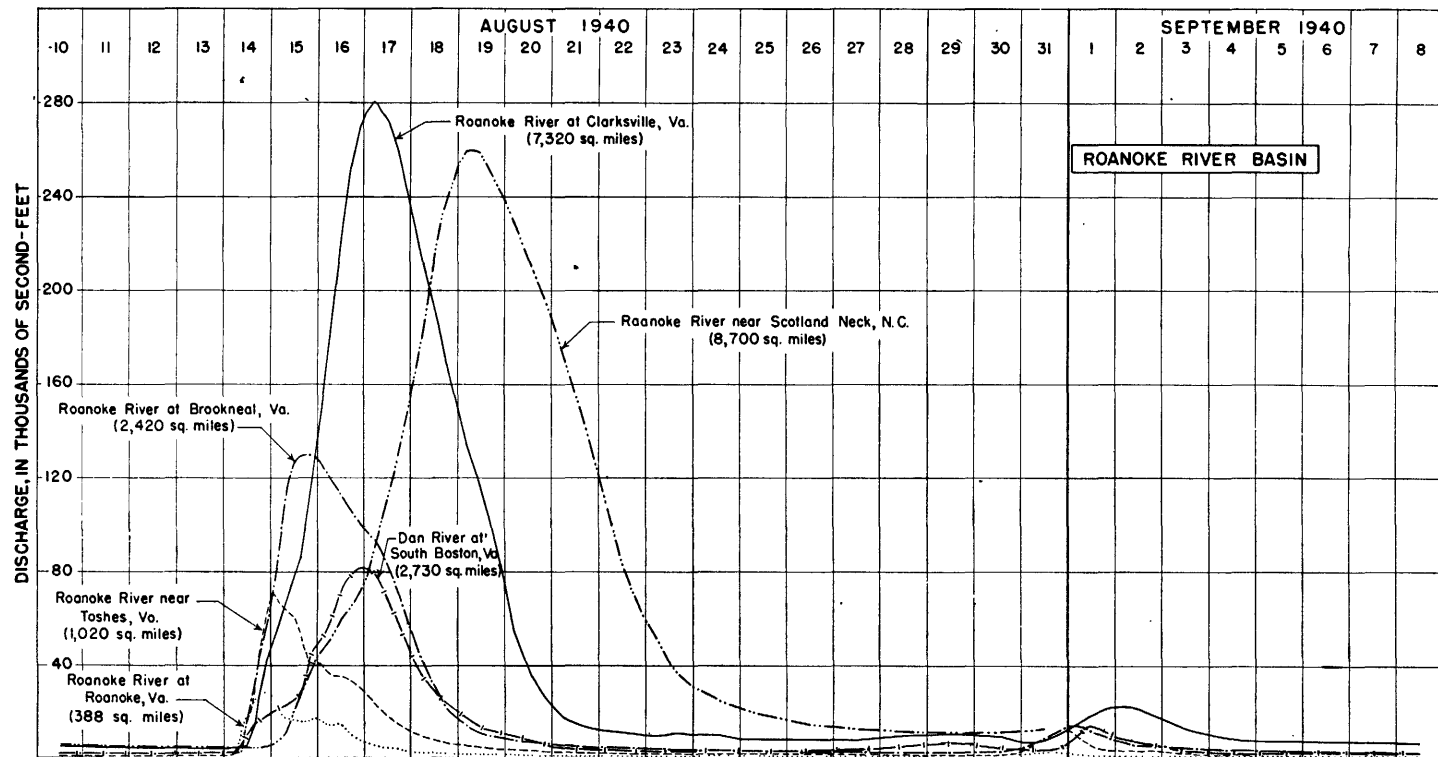


FIGURE 9.—Graphs of discharge at various stream-gaging stations in Roanoke River Basin.

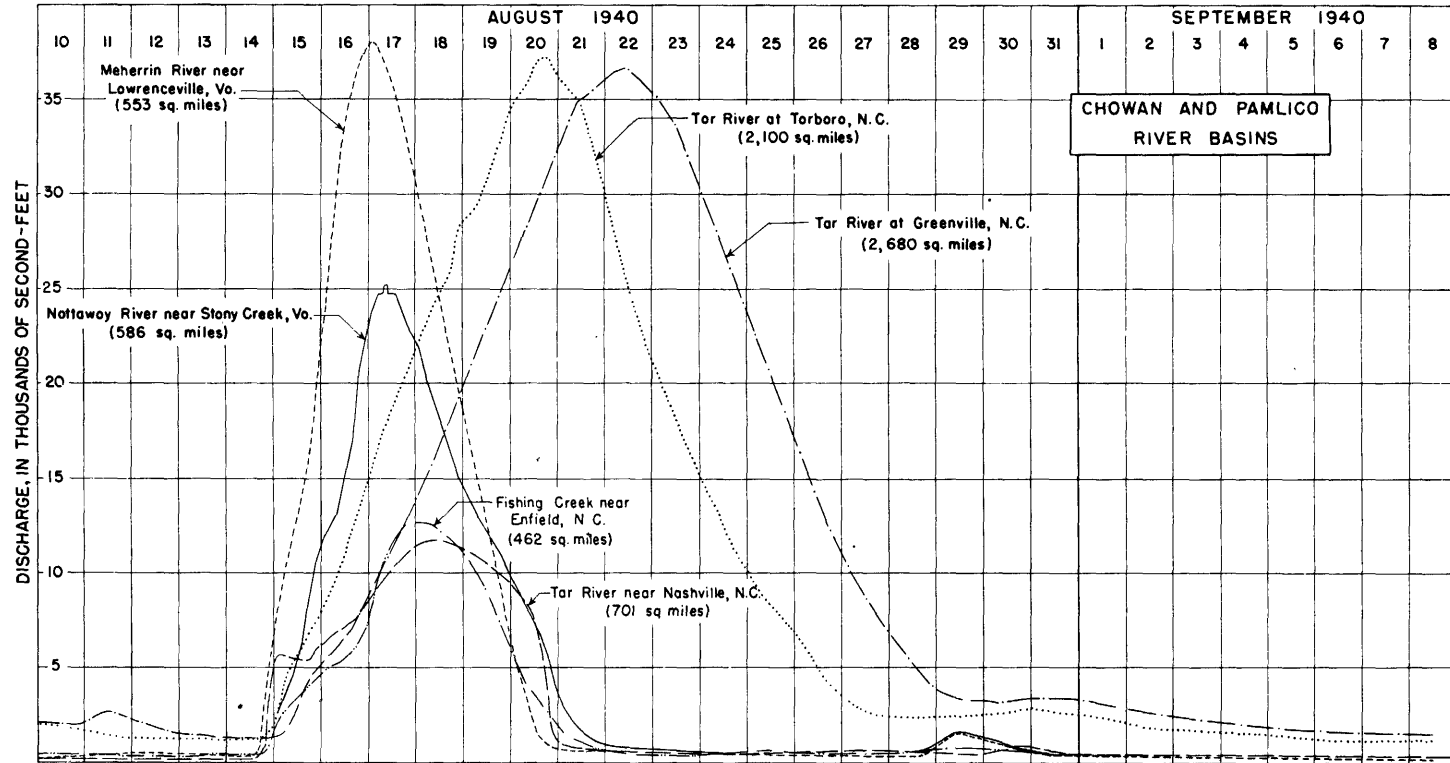


FIGURE 10.—Graphs of discharge at various stream-gaging stations in Chowan and Pamlico River Basins.

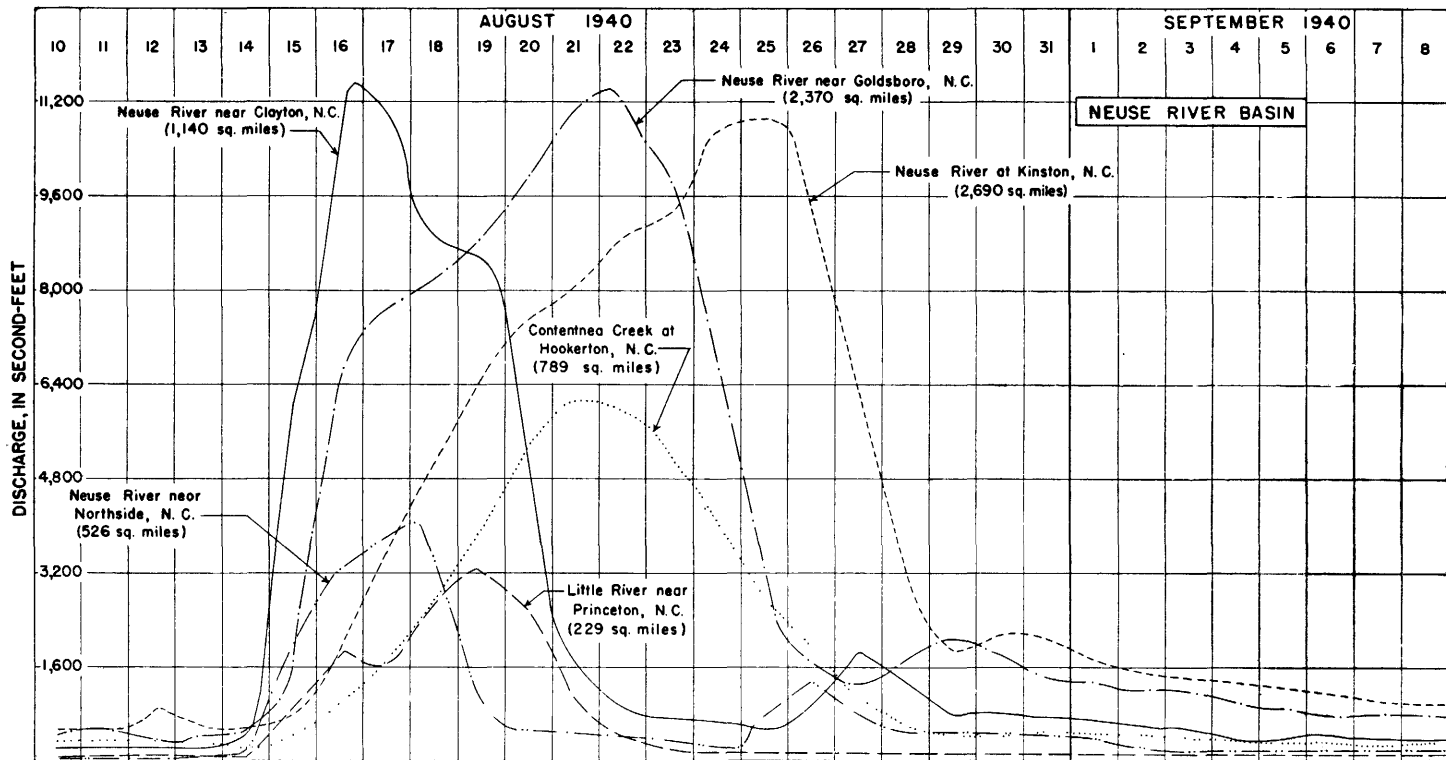


FIGURE 11.—Graphs of discharge at various stream-gaging stations in Neuse River Basin.

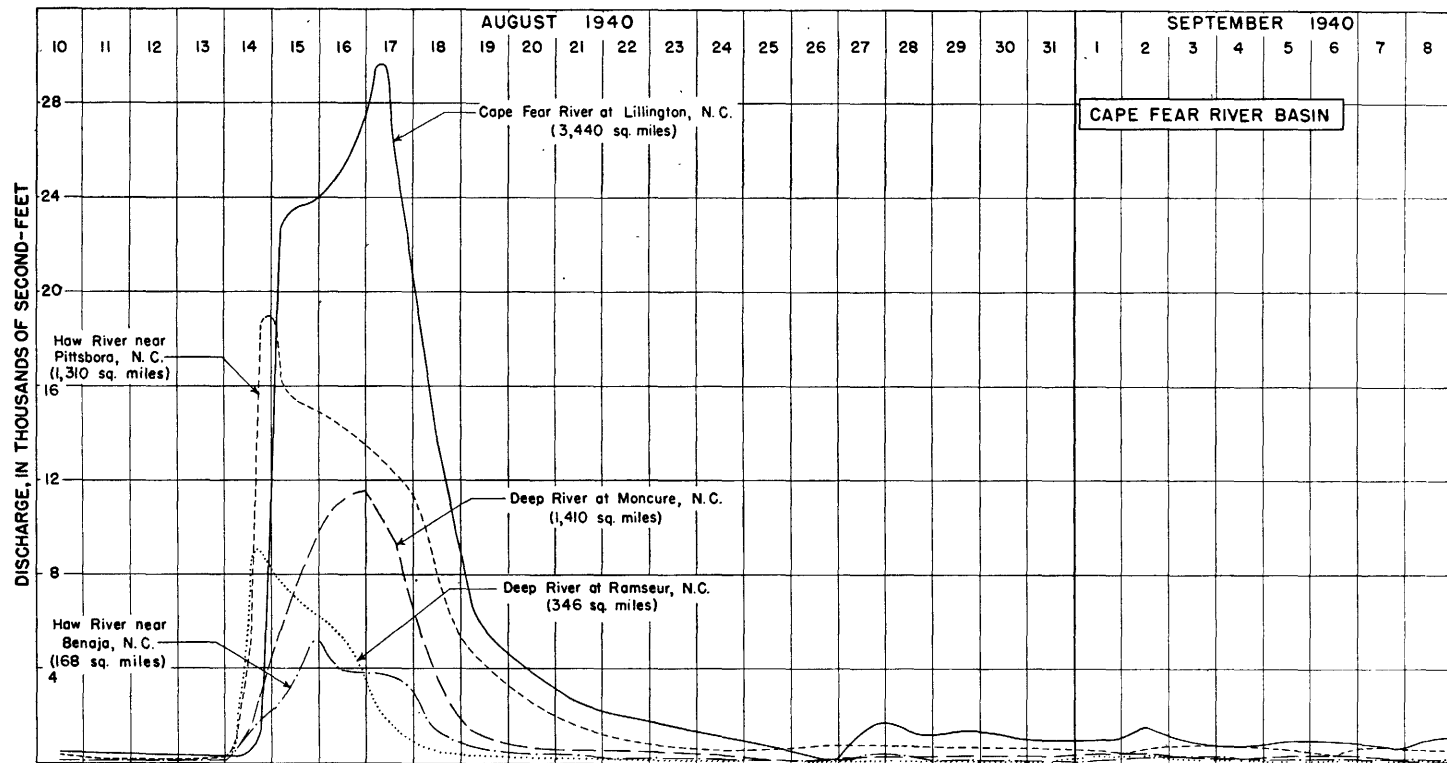


FIGURE 12.—Graphs of discharge at various stream-gaging stations in Cape Fear River Basin.

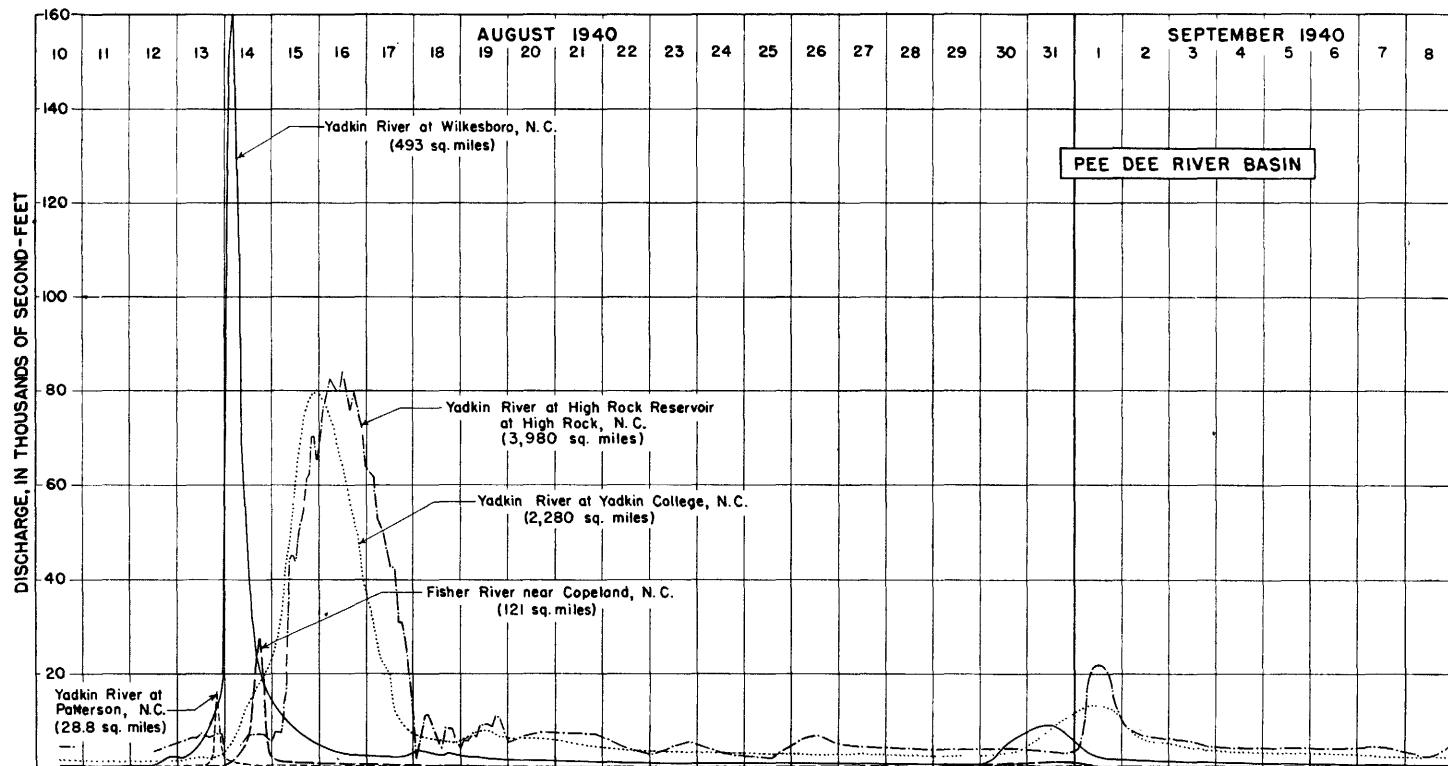


FIGURE 13.—Graphs of discharge at various stream-gaging stations in Pee Dee River Basin.

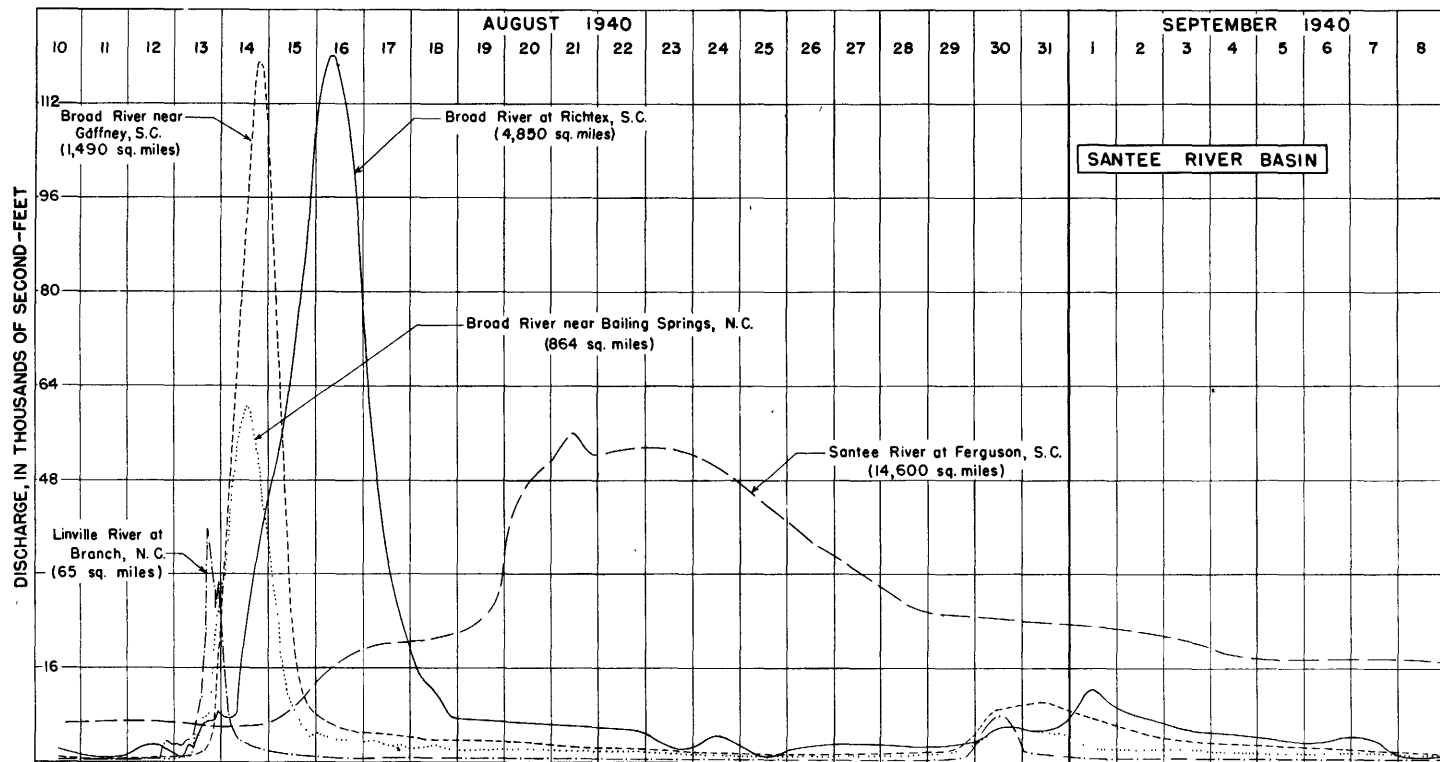


FIGURE 14.—Graphs of discharge at various stream-gaging stations in Santee River Basin.

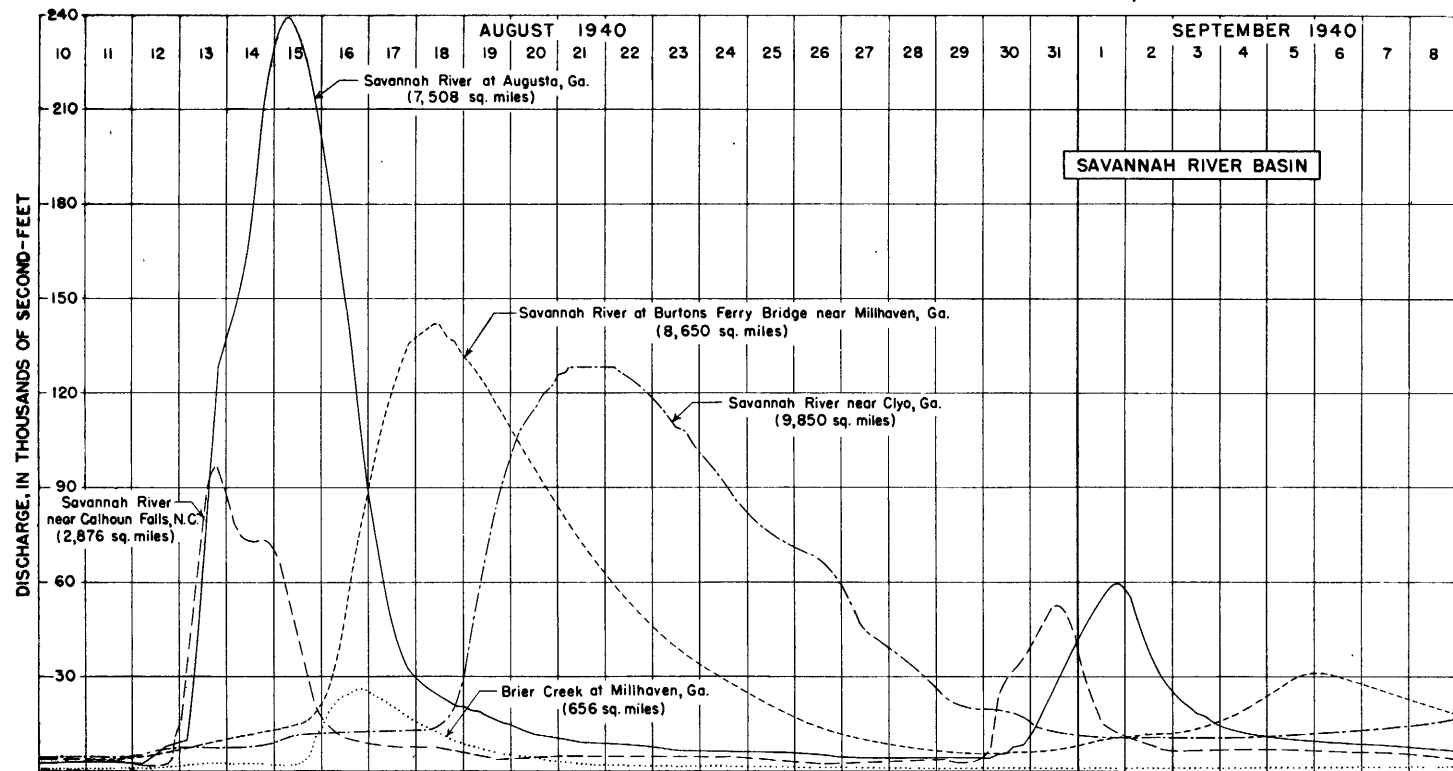


FIGURE 15.—Graphs of discharge at various stream-gaging stations in Savannah River Basin.

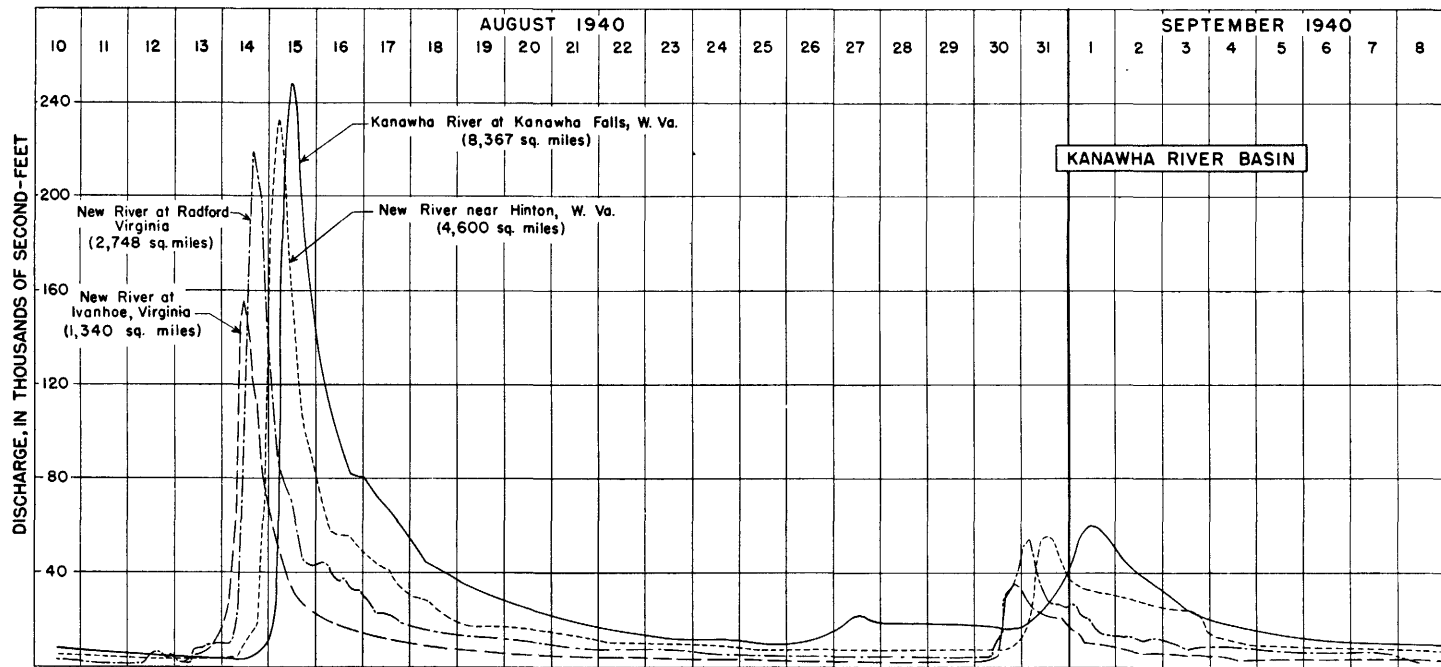


FIGURE 16.—Graphs of discharge at various stream-gaging stations in Kanawha River Basin.

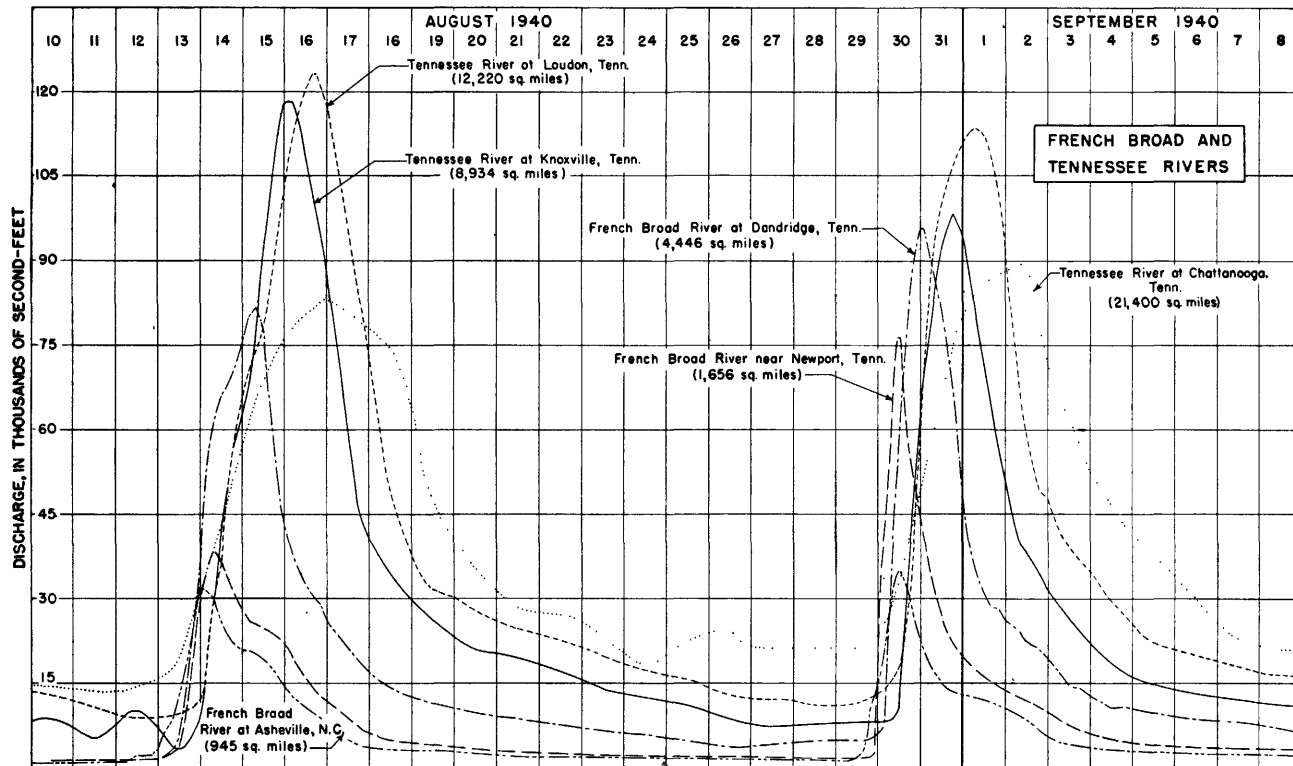


FIGURE 17.—Graphs of discharge at various stream-gaging stations on French Broad and Tennessee Rivers.

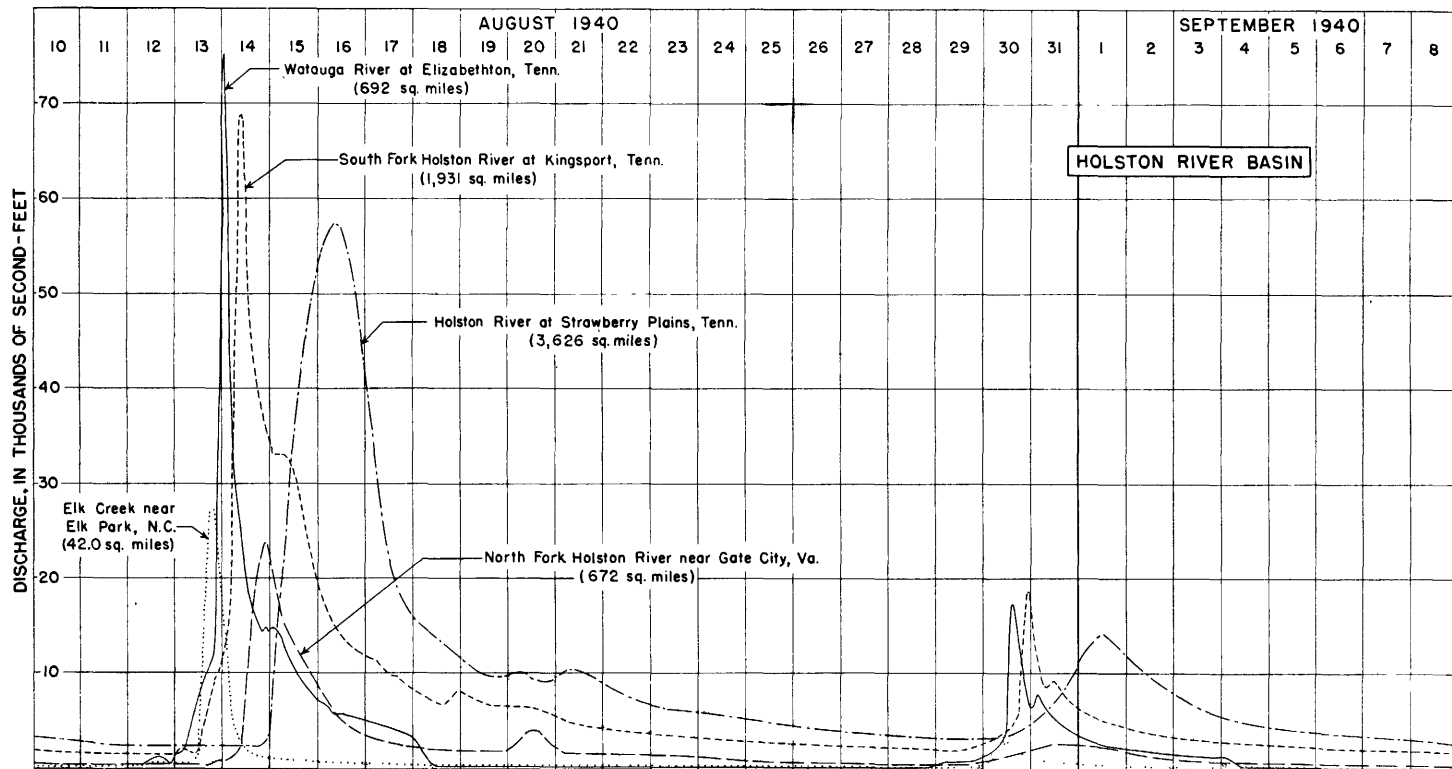


FIGURE 18.—Graphs of discharge at various stream-gaging stations in Holston River Basin.

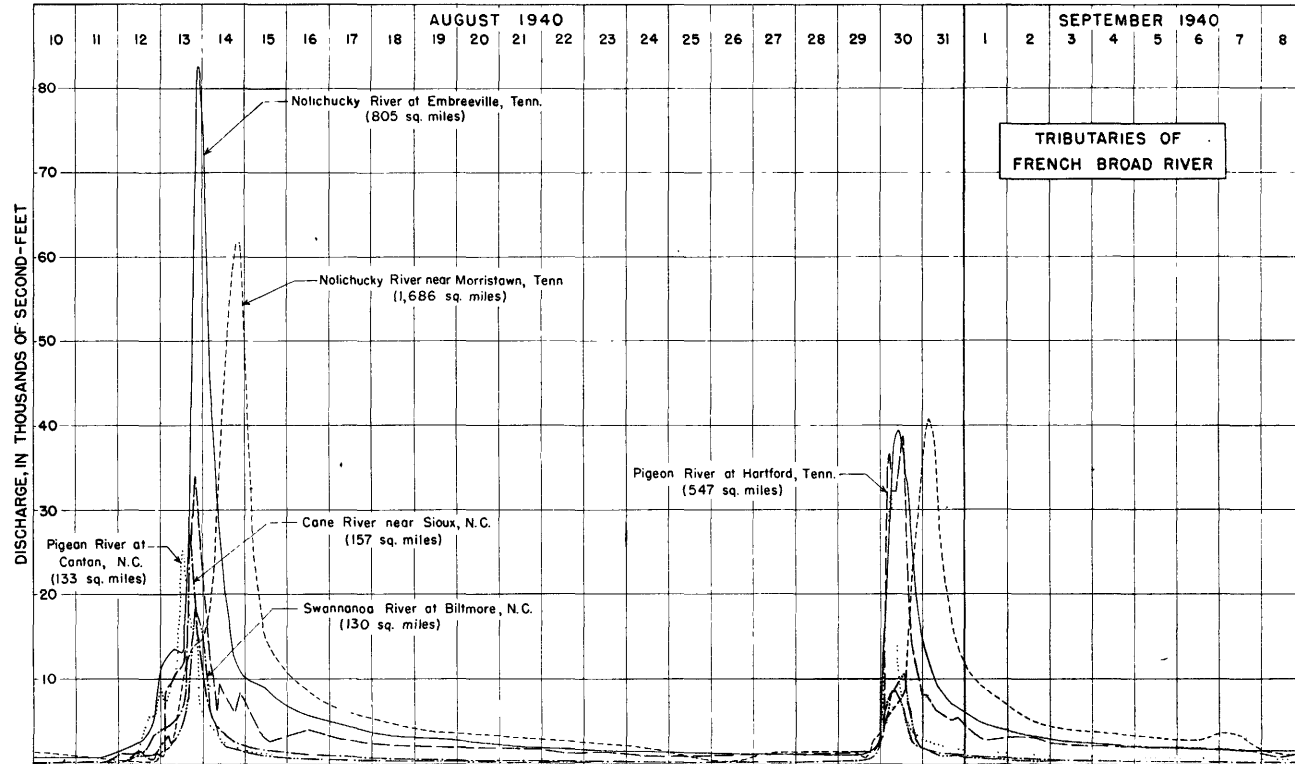


FIGURE 19.—Graphs of discharge at various stream-gaging stations on tributaries of French Broad River.

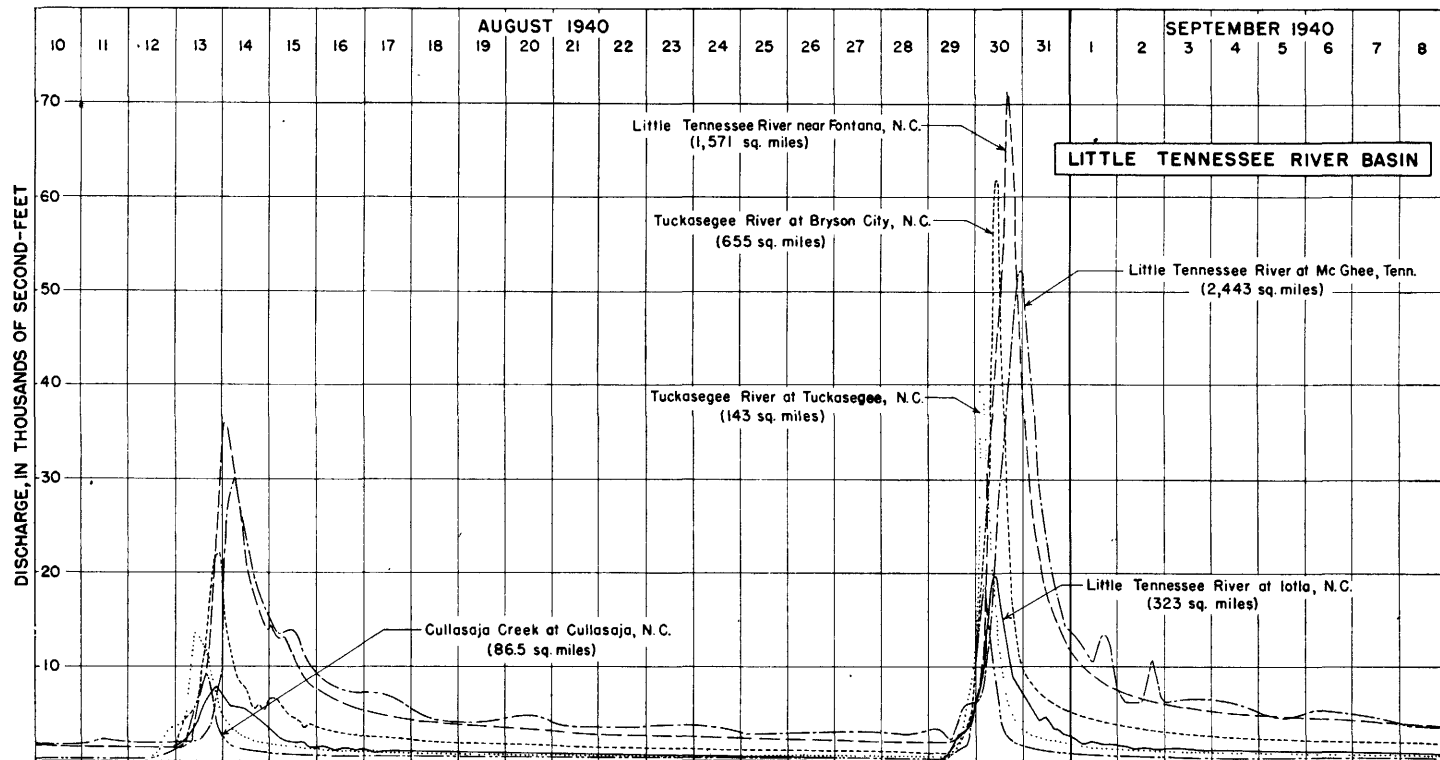


FIGURE 20.—Graphs of discharge at various stream-gaging stations in Little Tennessee River Basin.

JAMES RIVER BASIN

JACKSON RIVER AT FALLING SPRING, VA.

LOCATION.—Lat. 37°52'36", long. 79°58'39", at Smith Bridge, 1 mile south of Falling Spring, Alleghany County, and 1½ miles downstream from Falling Springs Creek. Datum of gage is 1,333.49 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—409 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,000 second-feet and extended to crest gage height of March 1936 on basis of velocity-area studies and comparison of peak discharge and total runoff of flood at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 4.6 and 7.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge during flood period, 4,030 second-feet 4 a.m. Aug. 16 (gage height, 8.72 feet).

1925-40: Discharge, 24,700 second-feet Mar. 17, 1936 (gage height, 14.74 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	884	1,650	9	490	295	17	2,520	182	25	326	178
2	530	1,030	10	364	286	18	1,560	175	26	395	182
3	378	730	11	304	269	19	1,050	168	27	502	175
4	310	572	12	272	244	20	772	162	28	1,130	153
5	275	463	13	254	226	21	596	155	29	1,570	145
6	275	398	14	1,060	213	22	490	153	30	884	138
7	2,100	351	15	2,710	202	23	417	145	31	856	-----
8	779	313	16	3,600	190	24	364	143			
Monthly mean discharge, in second-feet.....										904	323
Runoff, in inches.....										2.55	0.88

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	3.76	247	7.48	2,650	8.60	3,910				
2	3.77	250	7.46	2,600	8.67	4,030	7.80	2,980	6.70	1,870
3	3.78	253	7.43	2,600	8.71	4,030				
4	3.79	255	7.41	2,540	8.72	4,030	7.73	2,870	6.62	1,780
5	3.81	261	7.40	2,540	8.68	4,030				
6	3.82	264	7.42	2,540	8.65	3,910	7.65	2,760	6.53	1,740
7	3.84	269	7.44	2,600	8.60	3,910				
8	3.86	275	7.44	2,600	8.57	3,910	7.57	2,700	6.46	1,650
9	3.90	286	7.43	2,600	8.53	3,790				
10	3.96	304	7.39	2,540	8.48	3,790	7.49	2,650	6.38	1,610
11	4.04	329	7.35	2,490	8.43	3,670				
N	4.16	368	7.30	2,440	8.37	3,670	7.40	2,540	6.32	1,530
1	4.42	460	7.26	2,390	8.33	3,550				
2	4.97	683	7.23	2,390	8.25	3,430	7.31	2,440	6.25	1,490
3	5.82	1,160	7.23	2,390	8.20	3,430				
4	6.35	1,570	7.29	2,440	8.15	3,430	7.22	2,340	6.18	1,450
5	6.65	1,820	7.40	2,540	8.10	3,310				
6	6.90	2,050	7.52	2,650	8.06	3,310	7.13	2,290	6.12	1,370
7	7.19	2,340	7.68	2,870	8.03	3,200				
8	7.38	2,540	7.86	3,090	8.00	3,200	7.00	2,140	6.05	1,340
9	7.50	2,650	8.04	3,200	7.96	3,200				
10	7.53	2,700	8.23	3,430	7.93	3,090	6.90	2,050	5.98	1,300
11	7.53	2,700	8.37	3,670	7.90	3,090				
12	7.51	2,650	8.50	3,790	7.87	3,090	6.80	1,960	5.92	1,230

Hour	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	5.81	1,160	5.28	856	4.86	638	4.57	518	4.36	438	4.20	381
8	5.72	1,090	5.21	804	4.81	616	4.54	506	4.32	423	4.17	371
N	5.64	1,060	5.12	754	4.76	594	4.50	490	4.30	416	4.15	364
4	5.55	1,000	5.05	730	4.71	572	4.45	471	4.27	406	4.12	355
8	5.45	941	5.00	706	4.66	551	4.43	463	4.25	398	4.10	348
12	5.37	884	4.93	683	4.62	530	4.40	452	4.22	388	4.08	342

JAMES RIVER AT LICK RUN, VA.

LOCATION.—Lat. 37°47', long. 79°47', at highway bridge at Lick Run, Botetourt County, three-quarters of a mile downstream from confluence of Cowpasture and Jackson Rivers. Datum of gage is 978.30 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,369 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 33,000 second-feet and extended to crest stage on basis of velocity-area studies and comparison of peak discharge and total runoff of flood of Mar. 18, 1936, at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 2.5 and 5.7 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 18,700 second-feet 10 a.m. Aug. 16 (gage height, 13.22 feet).

1925 to July 1940: Discharge, 66,600 second-feet Mar. 18, 1936 (gage height, 25.65 feet).

Stage known, about 33 feet, from floodmarks, sometime in November 1877 (discharge, about 120,000 second-feet). Flood of March 1913 reached a stage of 30.4 feet, from floodmarks (discharge, about 98,000 second-feet).

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.67	708	12.23	16,400	12.02	15,900	-----	-----	-----	-----
2	-----	-----	2.67	708	12.33	16,600	12.08	16,100	11.80	15,500	8.50	8,580
3	-----	-----	2.67	708	12.32	16,600	12.23	16,400	-----	-----	-----	-----
4	2.51	632	2.67	708	12.26	16,600	12.40	16,800	11.70	15,200	8.24	8,010
5	-----	-----	2.67	708	12.17	16,400	12.65	17,300	-----	-----	-----	-----
6	-----	-----	2.69	734	12.05	15,900	12.80	17,700	11.57	15,000	8.02	7,640
7	-----	-----	2.72	734	11.92	15,700	12.97	18,200	-----	-----	-----	-----
8	2.51	632	2.76	761	11.78	15,500	13.10	18,400	11.37	14,600	7.80	7,280
9	-----	-----	2.83	816	11.56	15,000	13.17	18,700	-----	-----	-----	-----
10	-----	-----	2.95	875	11.38	14,600	13.22	18,700	11.08	13,900	7.58	6,920
11	-----	-----	3.12	970	11.23	14,100	13.20	18,700	-----	-----	-----	-----
N	2.58	682	3.35	1,150	11.10	13,900	13.15	18,700	10.73	13,000	7.39	6,570
1	-----	-----	3.65	1,390	10.98	13,700	13.10	18,400	-----	-----	-----	-----
2	-----	-----	4.33	2,060	10.88	13,500	13.05	18,200	10.40	12,400	7.20	6,230
3	-----	-----	5.10	2,980	10.80	13,300	12.97	18,200	-----	-----	-----	-----
4	2.58	682	5.73	3,820	10.72	13,000	12.88	18,000	10.03	11,600	7.05	5,890
5	-----	-----	6.25	4,580	10.64	12,800	12.77	17,700	-----	-----	-----	-----
6	-----	-----	7.20	6,230	10.61	12,800	12.67	17,500	9.67	11,000	6.88	5,720
7	-----	-----	8.40	8,390	10.68	13,000	12.57	17,300	-----	-----	-----	-----
8	2.62	682	9.45	10,400	10.85	13,300	12.47	17,000	9.35	10,400	6.73	5,380
9	-----	-----	10.32	12,200	11.13	13,900	12.34	16,600	-----	-----	-----	-----
10	-----	-----	11.03	13,700	11.44	14,600	12.20	16,400	9.05	9,550	6.59	5,220
11	-----	-----	11.55	15,000	11.76	15,500	12.05	15,900	-----	-----	-----	-----
12	2.68	734	12.00	15,900	11.94	15,700	11.93	15,700	8.77	9,150	6.46	5,060

	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	6.22	4,580	5.23	3,180	4.48	2,230	4.01	1,700	3.67	1,390	3.39	1,190
8	6.02	4,270	5.09	2,980	4.39	2,120	3.94	1,660	3.62	1,350	3.35	1,150
N	5.84	3,970	4.93	2,780	4.32	2,010	3.88	1,610	3.57	1,310	3.32	1,120
4	5.65	3,740	4.80	2,590	4.23	1,960	3.83	1,560	3.53	1,310	3.30	1,120
8	5.49	3,530	4.70	2,470	4.15	1,850	3.77	1,480	3.48	1,270	3.26	1,080
12	5.35	3,320	4.58	2,350	4.07	1,750	3.72	1,440	3.43	1,230	3.23	1,080

JAMES RIVER AT BUCHANAN, VA.

LOCATION.—Lat. 37°31'50", long. 79°40'45", at Chesapeake and Ohio Railway station at Buchanan, Botetourt County, 300 feet upstream from bridge on U. S. Highway 11, 1,000 feet upstream from Purgatory Creek, and 1½ miles downstream from Looney Creek. Datum of gage is 802.56 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—2,084 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 47,000 second-feet and extended to crest gage height of March 1913 on basis of velocity-area studies, determination of flow over dam at Balcony Falls during flood of March 1936, and comparison of peak discharge and total runoff of that flood at this station with those at other stations in James River Basin. Gage heights used to half-tenths between 3.0 and 6.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 37,600 second-feet 12 noon Aug. 15 (gage height, 16.00 feet).

1895 to July 1940: Discharge, about 105,000 second-feet Mar. 27, 1913 (gage height, 31 feet, from floodmarks).

Stage known, 34.9 feet, from floodmark, sometime in November 1877 (discharge, about 125,000 second-feet).

84 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,820	10,800	9	2,060	1,480	17	26,300	902	25	1,880	798
2	2,450	6,880	10	1,430	1,380	18	14,600	870	26	1,820	830
3	1,640	4,300	11	1,150	1,330	19	8,330	846	27	2,120	814
4	1,260	3,190	12	1,030	1,230	20	5,350	814	28	2,320	782
5	1,070	2,520	13	944	1,140	21	3,820	790	29	4,070	718
6	991	2,120	14	9,040	1,070	22	3,010	758	30	4,500	678
7	1,470	1,880	15	34,200	1,010	23	2,520	718	31	11,100	-----
8	3,970	1,640	16	33,400	964	24	2,140	710			
Monthly mean discharge, in second-feet.....										16,187	1,799
Runoff, in inches.....										3.42	0.96

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion in other published records.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.65	955	13.27	28,500	14.61	32,800	-----	-----	-----	-----
2	-----	-----	2.67	973	13.48	29,200	14.55	32,800	14.25	31,500	10.31	18,800
3	-----	-----	2.69	991	13.73	29,800	14.50	32,500	-----	-----	-----	-----
4	2.66	964	2.71	1,010	14.05	30,800	14.46	32,500	13.88	30,500	9.97	17,900
5			2.73	1,030	14.45	32,200	14.47	32,500	-----	-----	-----	-----
6			2.75	1,040	14.85	33,500	14.54	32,500	13.52	29,200	9.65	16,600
7	-----	-----	2.78	1,070	15.21	34,900	14.60	32,800	-----	-----	-----	-----
8	2.65	955	2.87	1,150	15.54	35,900	14.63	32,800	13.17	28,200	9.36	16,000
9			2.96	1,240	15.74	36,600	14.62	32,800	-----	-----	-----	-----
10	-----	-----	3.12	1,380	15.90	37,300	14.62	32,800	12.87	27,200	9.09	15,100
11	-----	-----	4.05	2,520	15.97	37,600	14.63	32,800	-----	-----	-----	-----
N	2.63	937	5.29	4,590	16.00	37,600	14.68	33,200	12.60	26,200	8.85	14,200
1	-----	-----	5.84	5,780	15.97	37,600	14.75	33,500	-----	-----	-----	-----
2	-----	-----	6.29	6,880	15.87	37,300	14.85	33,500	12.35	25,500	8.62	13,500
3	-----	-----	6.68	7,930	15.72	36,600	14.93	33,900	-----	-----	-----	-----
4	2.62	928	7.29	9,600	15.52	35,900	15.04	34,200	12.07	24,500	8.40	12,900
5			8.50	13,200	15.34	35,200	15.10	34,500	-----	-----	-----	-----
6			9.64	16,600	15.18	34,900	15.12	34,500	11.74	23,300	8.19	12,300
7	-----	-----	10.90	20,700	15.04	34,200	15.11	34,500	-----	-----	-----	-----
8	2.61	919	11.83	23,600	14.94	33,900	15.08	34,500	11.37	22,300	8.01	11,700
9			12.48	25,800	14.87	33,900	14.98	34,200	-----	-----	-----	-----
10	-----	-----	12.85	26,800	14.82	33,500	14.90	33,900	11.00	21,000	7.82	11,100
11	-----	-----	13.03	27,500	14.75	33,500	14.76	33,500	-----	-----	-----	-----
12	2.65	955	13.16	28,200	14.67	33,200	14.62	32,800	10.63	19,700	7.66	10,800
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	7.33	9,600	5.96	6,020	5.10	4,210	4.52	3,190	4.14	2,660	3.85	2,260
8	7.06	9,030	5.81	5,670	4.97	3,940	4.45	3,110	4.08	2,590	3.80	2,190
N	6.81	8,200	5.67	5,330	4.87	3,760	4.38	3,030	4.04	2,520	3.76	2,120
4	6.57	7,660	5.51	5,000	4.77	3,600	4.32	2,880	3.98	2,450	3.72	2,060
8	6.34	6,880	5.36	4,690	4.68	3,510	4.27	2,800	3.95	2,380	3.68	2,060
12	6.14	6,380	5.22	4,400	4.60	3,350	4.21	2,730	3.89	2,320	3.65	2,000

JAMES RIVER AT HOLCOMBS ROCK, VA.

LOCATION.—Lat. 37°30', long. 79°15', at Holcombs Rock, Bedford County, half a mile downstream from Pedlar River. Datum of gage is 548.53 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—3,250 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 41,000 second-feet and extended to crest gage height of flood of March 1936 on basis of determination of peak flow over dam at Reusens and comparisons of peak discharge and total runoff of flood at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 5.1 and 7.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 66,800 second-feet 3 p.m. Aug. 16 (gage height, 24.25 feet).

1926-39: Discharge, 115,000 second-feet Mar. 18, 1936 (gage height, 30.78 feet).

Stage known, 31.3 feet in March 1913, from floodmarks (discharge about 118,000 second-feet.

REMARKS.—Low-water flow regulated by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,180	19,200	9	3,140	2,670	17	48,400	1,670	25	3,320	1,380
2	2,880	12,900	10	2,230	2,510	18	24,600	1,520	26	3,160	1,530
3	2,670	8,320	11	1,800	2,240	19	14,200	1,540	27	3,020	1,400
4	2,000	6,020	12	1,630	2,210	20	9,660	1,380	28	3,960	1,360
5	1,590	4,930	13	1,470	2,000	21	7,100	1,260	29	6,480	1,330
6	1,400	4,040	14	8,220	1,990	22	5,620	1,030	30	7,210	1,260
7	1,610	3,220	15	43,300	1,640	23	4,590	1,300	31	19,100	-----
8	4,200	3,000	16	60,300	1,820	24	3,800	1,280			
Monthly mean discharge, in second-feet -----										9,834	3,265
Runoff, in inches -----										3.49	1.12

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	5.22	1,890	15.25	27,900	21.24	53,100	23.10	61,800
2	5.27	1,960	5.20	1,890	15.95	31,000	21.22	53,100	22.90	60,800
3	-----	-----	5.10	1,750	16.50	32,900	21.20	53,100	22.60	59,400
4	4.99	1,600	5.00	1,610	17.00	34,900	21.18	53,100	22.40	58,500
5	-----	-----	4.94	1,530	17.55	37,400	21.25	53,100	22.15	57,600
6	4.82	1,380	4.92	1,510	18.05	39,100	21.45	54,000	21.90	56,200
7	-----	-----	4.90	1,480	18.55	41,600	21.85	55,800	21.60	54,900
8	4.75	1,290	4.90	1,480	18.95	43,400	22.30	58,100	21.35	54,000
9	-----	-----	4.95	1,540	19.13	43,800	22.55	59,400	21.10	52,600
10	4.72	1,250	5.13	1,820	19.13	43,800	22.75	60,400	20.85	51,300
N	-----	-----	5.95	3,120	19.14	43,800	23.10	61,800	20.55	50,400
1	4.70	1,230	6.80	4,760	19.17	44,200	23.50	63,600	20.20	48,600
2	-----	-----	8.15	7,690	19.25	44,200	23.90	65,400	19.90	47,300
3	4.70	1,230	9.10	9,670	19.35	45,100	24.15	66,800	19.55	46,000
4	-----	-----	9.65	10,800	19.50	45,500	24.25	66,800	19.20	44,200
5	4.74	1,280	9.97	11,800	19.75	46,900	24.20	66,800	18.90	42,900
6	4.99	1,600	10.20	12,200	20.00	47,700	24.05	65,900	18.60	41,600
7	-----	-----	10.10	12,000	20.20	48,600	23.90	65,400	18.30	40,400
8	-----	-----	11.00	14,200	20.45	49,500	23.65	64,000	18.05	39,100
9	4.95	1,540	12.40	18,200	20.75	51,300	23.40	62,100	17.80	38,200
10	-----	-----	12.75	19,500	21.00	52,200	23.30	62,700	17.55	37,400
11	4.89	1,470	13.15	20,800	21.13	52,600	23.23	62,200	17.30	36,200
12	-----	-----	13.70	22,500	21.20	53,100	23.22	62,200	17.05	34,900
	5.10	1,750	14.50	25,300	21.25	53,100	23.20	62,200	16.80	34,100

Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	16.30	32,100	-----	-----	-----	-----	-----	-----
4	15.80	30,200	11.72	16,100	9.60	10,800	8.23	7,690
6	15.35	28,600	-----	-----	-----	-----	-----	-----
8	14.90	26,800	11.30	15,000	9.33	10,100	8.08	7,470
10	14.50	25,300	-----	-----	-----	-----	-----	-----
N	14.08	23,900	10.90	14,000	9.10	9,670	7.91	7,040
2	13.78	22,800	-----	-----	-----	-----	-----	-----
4	13.40	21,500	10.56	13,200	8.85	9,010	7.80	6,830
6	13.08	20,500	-----	-----	-----	-----	-----	-----
8	12.75	19,500	10.21	12,200	8.63	8,570	7.60	6,410
10	12.48	18,500	-----	-----	-----	-----	-----	-----
12	12.20	17,600	9.88	11,500	8.44	8,130	7.52	6,200

JAMES RIVER AT BENT CREEK, VA.

LOCATION.—Lat. 37°32', long. 78°50', at highway bridge at town of Bent Creek, Appomattox County, 150 feet downstream from Bent Creek, and 1 mile downstream from Gladstone. Datum of gage is 381.38 feet above mean sea level datum of 1929.

DRAINAGE AREA.—3,671 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-me'ter measurements up to 45,000 second-feet and extended to crest gage height of March 1936 on basis of velocity-area studies and comparison of peak discharge and total runoff at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 3.8 and 5.8 feet, to Aug. 16, between 3.7 and 5.7 feet, thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 86,200 (revised) second-feet 4:30 p.m. Aug. 16 (gage height, 19.63 feet).

1925-39: Discharge, 115,000 second-feet Mar. 18, 1936 (gage height, 23.02 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,240	21,200	9	4,870	3,500	17	62,700	2,420	25	4,660	1,960
2	2,900	15,300	10	2,550	3,480	18	31,000	2,170	26	4,260	2,380
3	3,200	10,200	11	2,960	2,980	19	18,000	2,020	27	4,100	1,920
4	2,800	7,540	12	2,060	2,810	20	12,400	2,380	28	4,870	2,040
5	2,360	6,210	13	2,020	2,780	21	9,420	2,140	29	6,420	2,260
6	2,040	5,320	14	7,190	2,500	22	7,860	1,420	30	7,700	1,970
7	1,900	4,310	15	147,500	2,380	23	6,200	1,320	31	14,300	-----
8	2,520	3,570	16	81,200	2,310	24	5,300	1,840			
Monthly mean discharge, in second-feet.....										11,920	4,154
Runoff, in inches.....										3.75	1.26

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion in other Water-Supply Papers.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			3.95	2,980	10.95	27,600	16.65	63,000	18.75	79,800
2	3.72	2,510	3.83	2,780	11.60	30,800	17.15	67,500	18.55	78,200
3			3.69	2,450	12.15	34,200	17.75	72,000	18.35	76,600
4	3.41	1,910	3.50	2,080	12.65	36,500	18.15	75,000	18.15	75,000
5			3.38	1,850	13.05	38,900	18.65	78,200	17.95	73,500
6	3.19	1,510	3.28	1,670	13.45	41,300	18.95	81,400	17.80	72,000
7			3.19	1,510	13.80	43,800	19.15	83,000	17.65	70,500
8	3.45	1,980	3.12	1,390	14.05	45,100	19.20	83,000	17.50	69,800
9			3.06	1,300	14.23	46,400	19.26	83,800	17.25	67,500
10	3.80	2,670	3.06	1,300	14.40	47,700	19.30	83,800	17.05	66,000
11			3.11	1,380	14.55	49,000	19.38	84,600	16.85	64,500
N	3.52	2,120	3.25	1,620	14.75	50,300	19.46	85,400	16.60	63,000
1			3.48	2,040	14.95	51,700	19.52	85,400	16.45	61,500
2	3.26	1,640	3.80	2,670	15.15	53,100	19.56	86,200	16.20	60,100
3			4.14	3,420	15.30	53,800	19.60	86,200	16.00	58,700
4	3.06	1,300	4.40	4,450	15.40	54,500	19.62	86,200	15.75	57,300
5			6.15	8,910	15.44	54,500	19.60	86,200	15.50	55,200
6	2.91	1,060	7.55	13,600	15.45	54,500	19.56	86,200	15.25	53,100
7			8.20	15,700	15.46	55,200	19.51	85,400	14.95	51,700
8	3.00	1,200	8.70	17,600	15.50	55,200	19.45	84,600	14.70	49,600
9			9.40	20,400	15.60	55,900	19.38	84,600	14.45	47,700
10	4.17	3,420	9.95	23,000	15.75	57,300	19.28	83,800	14.20	46,400
11			10.28	24,300	16.00	58,700	19.18	83,000	13.95	45,100
12	4.08	3,310	10.45	24,800	16.35	61,500	18.97	81,400	13.77	43,800
	Aug. 18		Aug. 19		Aug. 20		Aug. 21		Aug. 22	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	13.45	41,300								
4	13.10	39,500	9.48	20,800	7.65	13,600	6.73	10,500	5.95	8,340
6	12.70	37,100								
8	12.25	34,200	9.15	19,600	7.35	12,900	6.35	9,570	5.90	8,040
10	11.85	31,900								
N	11.52	30,200	8.75	18,000	7.10	11,800	6.43	9,570	5.80	7,740
2	11.24	28,600								
4	10.93	27,200	8.30	16,100	7.10	11,800	6.24	8,950	5.82	7,740
6	10.62	25,700								
8	10.29	24,300	8.10	15,300	6.95	11,500	6.05	8,340	5.75	7,740
10	10.08	23,400								
12	9.81	22,100	7.75	14,300	6.80	10,900	6.00	8,340	5.43	6,740

SUPPLEMENTAL RECORD.—Aug. 16, 4:30 p. m., gage height, 19.63 feet; discharge, 86,200 second-feet.

JAMES RIVER AT SCOTTSVILLE, VA.

LOCATION.—Lat. 37°48', long. 78°30', at highway bridge at Scottsville, Albemarle County, 6 miles upstream from Hardware River. Datum of gage is 253.17 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—4,571 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 10 p. m. Aug. 26 to 7 p. m. Aug. 27. Gage heights partly estimated for period Aug. 1-3 when intake pipe did not function properly.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 103,000 second-feet; extended to crest gage height by logarithmic plotting. Gage heights used to half-tenths between 3.0 and 4.9 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record computed on basis of records for stations at Bent Creek and Cartersville.

MAXIMA.—1940: Discharge, 130,000 second-feet 12 p. m. Aug. 16 (gage height, 25.84 feet).

1925-39: Discharge, 126,000 second-feet Mar. 19, 1936 (gage height, 25.46 feet, from floodmarks).

Stage known, 30.7 feet in October 1870, from information by local resident. Flood of March 1913 reached a stage of 25.16 feet, from floodmarks (discharge, 121,000 second-feet).

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

Gage heights used to half-tenths between 1.1 and 2.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 145,000 second-feet 3 p.m. Aug. 17 (gage height, 28.34 feet).

1899-1939: Discharge, 166,000 second-feet Mar. 19, 1936 (gage height, 28.77 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	3,340	25,500	9	3,280	5,410	17	138,000	3,260	25	7,390	2,520
2	3,500	25,100	10	5,480	5,360	18	110,000	3,530	26	6,700	3,520
3	3,830	16,600	11	4,240	5,030	19	47,700	3,110	27	6,540	3,670
4	4,270	11,700	12	3,880	4,450	20	24,100	3,080	28	6,710	2,840
5	4,080	9,460	13	3,260	4,160	21	15,800	3,040	29	8,820	3,000
6	3,480	8,010	14	3,990	3,930	22	12,100	3,080	30	9,030	3,020
7	4,220	7,020	15	32,500	3,880	23	10,700	2,540	31	9,900	-----
8	3,620	6,110	16	88,000	3,780	24	8,770	2,250			
Monthly mean discharge, in second-feet-----										19,270	6,265
Runoff, in inches-----										3.56	1.12

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.75	4,900	19.80	69,100	26.15	120,000	27.50	135,000	20.60	73,800
2	1.84	3,240	3.00	5,260	20.00	70,200	26.45	123,000	27.35	134,000	20.05	70,200
3	-----	-----	3.40	6,010	20.33	72,000	26.70	126,000	27.20	132,000	19.50	67,400
4	1.99	3,500	3.80	6,780	20.55	73,800	26.95	129,000	27.05	129,000	18.90	64,200
5	-----	-----	4.25	7,580	20.78	75,000	27.15	132,000	26.85	127,000	18.35	61,400
6	2.19	3,840	4.70	8,610	21.00	76,200	27.40	134,000	26.65	125,000	17.75	58,200
7	-----	-----	5.10	9,460	21.21	77,400	27.55	136,000	26.45	123,000	17.15	55,200
8	2.35	4,100	5.70	10,800	21.45	78,600	27.73	138,000	26.25	120,000	16.65	52,200
9	-----	-----	7.00	14,000	21.67	80,700	27.88	140,000	26.05	118,000	16.20	50,200
10	2.38	4,180	8.50	18,400	21.91	82,100	28.02	141,000	25.80	116,000	15.75	48,200
11	-----	-----	10.10	24,000	22.12	83,500	28.12	143,000	25.60	114,000	15.30	45,900
N	2.37	4,100	11.85	30,800	22.37	85,600	28.20	144,000	25.35	112,000	14.90	44,100
1	-----	-----	13.30	37,200	22.60	87,200	28.27	145,000	25.05	108,000	14.50	42,300
2	2.39	4,180	14.40	41,900	22.90	89,600	28.32	145,000	24.75	106,000	14.15	41,000
3	-----	-----	15.40	46,400	23.13	91,200	28.34	145,000	24.45	103,000	13.85	39,300
4	2.41	4,180	16.15	50,200	23.45	93,600	28.33	145,000	24.15	101,000	13.55	38,400
5	-----	-----	16.85	53,200	23.72	96,300	28.31	145,000	23.85	97,200	13.30	37,200
6	2.41	4,180	17.40	56,200	24.05	99,000	28.25	144,000	23.55	95,400	13.05	35,900
7	-----	-----	17.90	58,700	24.30	102,000	28.18	144,000	23.20	92,000	12.82	35,000
8	2.43	4,270	18.30	60,800	24.60	104,000	28.10	143,000	22.85	88,800	12.60	34,200
9	-----	-----	18.65	62,500	24.95	108,000	28.00	141,000	22.45	85,600	12.40	33,300
10	2.45	4,270	18.95	64,700	25.25	110,000	27.87	140,000	22.00	82,800	12.20	32,500
11	-----	-----	19.20	65,800	25.60	114,000	27.75	139,000	21.55	80,000	12.02	31,600
12	2.58	4,540	19.50	67,400	25.90	117,000	27.65	136,000	21.10	76,800	11.85	30,800
	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	11.50	29,500	-----	-----	-----	-----	-----	-----	5.18	9,680	4.79	8,820
4	11.20	28,300	8.15	17,500	6.63	13,000	5.78	11,000	5.17	9,680	4.72	8,610
6	10.88	27,100	-----	-----	-----	-----	-----	-----	5.12	9,460	4.56	8,400
8	10.57	25,900	7.85	16,300	6.42	12,500	5.82	11,000	4.96	9,240	4.38	7,980
10	10.28	24,700	-----	-----	-----	-----	-----	-----	4.73	8,610	4.18	7,580
N	10.00	23,600	7.57	15,700	6.23	12,000	5.78	11,000	4.52	8,190	4.00	7,180
2	9.77	22,900	-----	-----	-----	-----	-----	-----	4.42	7,980	3.80	6,780
4	9.52	21,800	7.28	14,800	6.02	11,500	5.70	10,800	4.45	7,980	3.60	6,390
6	9.30	21,100	-----	-----	-----	-----	-----	-----	4.51	8,190	3.49	6,200
8	9.05	20,000	7.07	14,300	5.90	11,300	5.46	10,300	4.60	8,400	3.55	6,390
10	8.83	19,400	-----	-----	-----	-----	-----	-----	4.70	8,610	3.71	6,580
12	8.60	18,700	6.87	13,800	5.84	11,000	5.22	9,680	4.78	8,820	3.80	6,780

90 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

JAMES RIVER NEAR RICHMOND, VA.

LOCATION.—Lat. 37°33'47", long. 77°32'50", at Westham Bridge, 1¾ miles downstream from Bosher Dam and 3 miles west of city limits of Richmond, Henrico County. Datum of gage is 98.82 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—6,757 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 9 a.m. Aug. 9 to 1 p.m. Aug. 17. Graph for period Aug. 15 to 1 p.m. Aug. 17 synthesized from partial graph and record for James River at Cartersville.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements. Gage heights used to half-tenths between 4.6 and 6.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 151,000 second-feet 8:30 a.m. Aug. 18 (gage height, 21.80 feet).

1934-39: Discharge, 175,000 second-feet Mar. 19, 1936 (gage height, 23.42 feet).

REMARKS.—Records above 100,000 second-feet include flow of James River & Kanawha Canal.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	3,070	15,900	9	2,510	5,200	17	105,000	2,710	25	8,480	1,580
2	2,190	27,200	10	2,400	4,880	18	144,000	2,510	26	6,350	2,170
3	2,480	18,500	11	5,000	4,560	19	92,800	2,610	27	6,350	2,880
4	2,710	12,900	12	4,300	3,950	20	32,400	2,340	28	6,180	2,580
5	3,180	9,870	13	3,200	3,440	21	17,800	2,220	29	8,070	2,040
6	2,740	8,240	14	2,800	3,270	22	13,100	2,150	30	9,140	2,130
7	3,090	7,200	15	12,500	3,800	23	11,000	2,170	31	9,500	-----
8	2,850	6,020	16	58,000	2,880	24	9,560	1,620			
Monthly mean discharge, in second-feet { observed ----- adjusted for diversion by James River & Kanawha Canal -----										19,120	5,651
Runoff, in inches -----										20,030 3.41	6,550 1.08

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1							21.38	144,000	20.30	126,000
2	4.6	3,800	11.9	39,100	16.9	79,500	21.48	146,000	20.10	122,000
3							21.66	148,000	19.85	118,000
4	4.8	4,410	12.6	44,200	17.2	82,600	21.53	148,000	19.65	115,000
5							21.69	150,000	19.45	112,000
6	5.0	5,040	13.2	48,600	17.5	85,900	21.73	150,000	19.30	110,000
7							21.76	151,000	19.10	107,000
8	5.3	6,020	13.8	53,200	17.9	90,700	21.78	151,000	18.95	106,000
9							21.78	151,000	18.75	103,000
10	5.8	7,720	14.3	57,100	18.3	95,900	21.76	151,000	18.55	100,000
11							21.73	150,000	18.35	97,300
N	6.3	9,500	14.7	60,300	18.73	102,000	21.69	150,000	18.10	93,300
1							21.63	148,000	17.90	90,700
2	6.9	11,800	15.0	62,700	19.17	109,000	21.57	148,000	17.65	87,100
3							21.48	146,000	17.45	84,800
4	7.6	14,500	15.3	65,200	19.60	115,000	21.40	144,000	17.20	82,600
5							21.32	142,000	16.90	79,500
6	8.4	18,000	15.6	67,700	20.05	121,000	21.22	141,000	16.60	76,500
7							21.10	139,000	16.20	72,900
8	9.3	22,600	15.9	70,200	20.51	129,000	20.98	137,000	15.80	69,400
9							20.86	136,000	15.30	65,200
10	10.2	27,800	16.2	72,900	20.90	136,000	20.73	132,000	14.85	61,100
11							20.58	130,000	14.40	57,900
12	11.1	33,600	16.6	76,500	21.25	141,000	20.45	127,000	13.90	54,000

Hour	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	13.05	47,100							6.57	10,600	6.06	8,600
4	12.35	42,700	8.85	19,900	7.52	14,100	6.77	11,400	6.52	10,200	6.08	8,780
6	11.79	38,400							6.47	10,200	6.10	8,780
8	11.33	35,000	8.55	18,900	7.38	13,700	6.70	11,000	6.40	9,870	6.14	8,960
10	10.94	32,300							6.35	9,870	6.18	9,140
N	10.59	30,300	8.27	17,500	7.24	12,900	6.66	11,000	6.31	9,500	6.21	9,140
2	10.25	27,800							6.28	9,500	6.21	9,140
4	10.00	26,600	8.05	16,200	7.10	12,500	6.64	10,600	6.23	9,140	6.12	8,780
6	9.70	24,800							6.18	9,140	5.90	8,070
8	9.50	23,700	7.87	15,800	6.96	12,100	6.64	10,600	6.09	8,780	5.77	7,540
10	9.30	22,600							6.00	8,420	5.66	7,200
12	9.15	22,000	7.69	14,900	6.86	11,800	6.60	10,600	6.02	8,420	5.55	6,860

SUPPLEMENTAL RECORD.—Aug. 18, 8:30 a. m., gage height, 21.80 feet; discharge, 151,000 second-feet.

DUNLAP CREEK NEAR COVINGTON, VA.

LOCATION.—Lat. 37°48', long. 80°03', at highway bridge 2 miles downstream from Ogle Creek and 3 miles west of Covington, Alleghany County. Datum of gage is 1,294.21 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—166 square miles.

GAGE-HEIGHT RECORD.—Twice-daily readings of chain gage. Gage heights at indicated times Aug. 13-24 were obtained from graph based on floodmarks and twice-daily gage readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,500 second-feet and extended to crest gage height of Mar. 17, 1936, on basis of velocity-area studies and comparisons of peak discharge and total runoff of March 1936 flood at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 2.0 and 3.1 feet to Aug. 14, between 2.1 and 3.3 feet thereafter; hundredths below and tenths above these limits.

92 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Discharge, 8,050 second-feet 7 p.m. Aug. 14 (gage height, 10.3 feet, from floodmarks).

1928-39: Discharge, 8,370 second-feet Mar. 17, 1936 (gage height, 10.52 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	128	359	9	47	45	17	1,170	27	25	63	23
2	84	204	10	42	45	18	533	26	26	159	26
3	63	131	11	38	42	19	314	25	27	177	24
4	52	95	12	38	38	20	202	24	28	359	23
5	46	75	13	35	34	21	140	23	29	204	21
6	52	66	14	2,700	32	22	103	23	30	131	20
7	80	56	15	2,570	31	23	80	21	31	321	-----
8	53	50	16	2,210	28	24	70	21			
Monthly mean discharge, in second-feet-----										396	55.3
Runoff, in inches-----										2.76	0.37

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	1.32	42	7.60	4,280	-----	-----	-----	-----	-----	-----
2	1.26	36	1.35	46	7.10	3,690	6.02	2,540	4.90	1,600	3.45	665
3	-----	-----	1.40	52	6.90	3,470	-----	-----	-----	-----	-----	-----
4	1.26	36	1.45	59	6.60	3,140	6.05	2,540	4.80	1,520	3.40	665
5	-----	-----	1.50	66	6.40	2,940	-----	-----	-----	-----	-----	-----
6	1.26	36	1.58	78	6.20	2,740	6.02	2,540	4.70	1,450	3.30	615
7	-----	-----	1.66	91	6.08	2,640	-----	-----	-----	-----	-----	-----
8	1.26	36	1.80	117	5.95	2,540	5.90	2,450	4.55	1,380	3.25	592
9	-----	-----	2.00	161	5.85	2,360	-----	-----	-----	-----	-----	-----
10	1.25	34	2.20	212	5.70	2,270	5.80	2,360	4.45	1,240	3.19	570
11	-----	-----	2.50	302	5.65	2,180	-----	-----	-----	-----	-----	-----
N	1.25	34	3.10	528	5.55	2,180	5.70	2,270	4.30	1,170	3.10	525
1	-----	-----	4.00	990	5.50	2,090	-----	-----	-----	-----	-----	-----
2	1.24	33	5.20	1,840	5.45	2,000	5.55	2,180	4.10	1,050	3.05	503
3	-----	-----	6.40	2,940	5.45	2,000	-----	-----	-----	-----	-----	-----
4	1.24	33	7.90	4,650	5.45	2,000	5.45	2,000	3.95	990	2.95	460
5	-----	-----	9.23	6,410	5.48	2,090	-----	-----	-----	-----	-----	-----
6	1.25	34	10.15	7,900	5.50	2,090	5.30	1,920	3.80	875	2.90	439
7	-----	-----	10.30	8,050	5.55	2,180	-----	-----	-----	-----	-----	-----
8	1.27	37	10.25	7,900	5.60	2,180	5.20	1,840	3.70	820	2.85	419
9	-----	-----	10.00	7,600	5.68	2,270	-----	-----	-----	-----	-----	-----
10	1.28	38	9.35	6,700	5.75	2,360	5.10	1,760	3.60	765	2.80	399
11	-----	-----	8.60	5,570	5.82	2,360	-----	-----	-----	-----	-----	-----
12	1.30	40	8.10	4,910	5.90	2,450	5.00	1,680	3.50	715	2.75	379
Aug. 19			Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	2.70	359	2.33	235	2.10	164	1.88	114	1.72	84	1.65	74
8	2.65	340	2.30	219	2.05	152	1.85	108	1.70	81	1.65	74
N	2.60	321	2.25	204	1.98	136	1.82	102	1.68	78	1.62	69
4	2.50	285	2.20	190	1.95	129	1.80	98	1.68	78	1.62	69
8	2.45	268	2.10	164	1.90	118	1.78	95	1.65	74	1.60	66
12	2.35	235	2.10	164	1.88	114	1.75	90	1.65	74	1.60	66

POTTS CREEK NEAR COVINGTON, VA.

LOCATION.—Lat. 37°44', long. 80°02', at highway bridge a quarter of a mile upstream from Hays Creek and 3 miles southwest of Covington, Alleghany County.

Datum of gage is 1,257.61 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—158 square miles.

GAGE-HEIGHT RECORD.—Twice-daily readings of chain gage. Gage heights at indicated times Aug. 13-24 were obtained from graph based on floodmarks and twice-daily readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,000 second-feet and extended to crest gage height of January 1935 on basis of velocity-area studies. Gage heights used to half-tenths between 2.7 and 3.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 5,800 second-feet 11 p.m. Aug. 14 (gage height, 7.90 feet, from floodmarks).

1928-39: Discharge observed, 9,710 second-feet Jan. 23, 1935 (gage height, 10.10 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	61	436	9	35	74	17	1,640	46	25	118	42
2	50	232	10	33	68	18	947	45	26	146	46
3	42	171	11	33	63	19	584	44	27	124	44
4	42	137	12	34	59	20	404	42	28	100	40
5	39	113	13	43	58	21	290	40	29	98	37
6	38	98	14	1,910	54	22	210	39	30	130	35
7	38	87	15	3,510	52	23	168	38	31	520	-----
8	40	78	16	2,730	51	24	141	37			
Monthly mean discharge, in second-feet.....										461	80.2
Runoff, in inches.....										3.37	0.57

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.90	93	7.65	5,330	-----	-----	-----	-----	-----	-----
2	1.58	37	2.00	118	7.40	5,030	5.38	2,680	4.75	2,140	3.60	1,150
3	-----	-----	2.08	143	7.15	4,740	-----	-----	-----	-----	-----	-----
4	1.58	37	2.15	167	6.95	4,460	5.40	2,680	4.60	1,960	3.55	1,150
5	-----	-----	2.25	206	6.80	4,200	-----	-----	-----	-----	-----	-----
6	1.58	37	2.35	250	6.60	3,950	5.45	2,680	4.45	1,790	3.48	1,070
7	-----	-----	2.45	300	6.45	3,710	-----	-----	-----	-----	-----	-----
8	1.58	37	2.61	390	6.30	3,600	5.55	2,870	4.35	1,790	3.40	990
9	-----	-----	2.80	520	6.20	3,490	-----	-----	-----	-----	-----	-----
10	1.58	37	3.00	670	6.10	3,380	5.65	2,870	4.25	1,630	3.35	950
11	-----	-----	3.25	870	6.05	3,270	-----	-----	-----	-----	-----	-----
N	1.58	37	3.50	1,070	5.95	3,270	5.70	2,970	4.15	1,630	3.30	910
1	-----	-----	3.80	1,310	5.88	3,170	-----	-----	-----	-----	-----	-----
2	1.59	38	4.15	1,630	5.80	3,070	5.70	2,970	4.10	1,550	3.26	870
3	-----	-----	4.50	1,870	5.75	3,070	-----	-----	-----	-----	-----	-----
4	1.60	39	4.90	2,230	5.70	2,970	5.65	2,870	4.00	1,470	3.23	870
5	-----	-----	5.40	2,680	5.65	2,870	-----	-----	-----	-----	-----	-----
6	1.62	42	5.90	3,170	5.60	2,870	5.50	2,770	3.94	1,390	3.20	830
7	-----	-----	6.50	3,830	5.55	2,870	-----	-----	-----	-----	-----	-----
8	1.66	48	7.10	4,600	5.50	2,770	5.30	2,590	3.85	1,310	3.16	790
9	-----	-----	7.60	5,330	5.45	2,680	-----	-----	-----	-----	-----	-----
10	1.75	63	7.85	5,640	5.42	2,680	5.10	2,410	3.75	1,310	3.13	790
11	-----	-----	7.90	5,800	5.40	2,680	-----	-----	-----	-----	-----	-----
12	1.85	82	7.80	5,640	5.38	2,680	4.90	2,230	3.70	1,230	3.10	750
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	3.05	710	2.70	449	2.50	326	2.30	227	2.18	178	2.10	149
8	2.95	632	2.67	430	2.47	310	2.28	219	2.16	171	2.08	143
N	2.85	558	2.65	416	2.44	295	2.26	210	2.15	167	2.07	140
4	2.80	520	2.60	384	2.40	274	2.24	202	2.14	163	2.06	137
8	2.75	484	2.55	355	2.35	250	2.22	193	2.13	160	2.05	134
12	2.72	449	2.52	338	2.32	236	2.20	185	2.12	156	2.04	130

COWPASTURE RIVER NEAR CLIFTON FORGE, VA.

LOCATION.—Lat. 37°48', long. 79°46', at highway bridge 1½ miles upstream from confluence with Jackson River and 4 miles southeast of Clifton Forge, Alleghany County. Datum of gage is 1,006.93 feet above mean sea level (levels by Corps of Engineers, War Department).

94 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—456 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 13,000 second-feet and extended above on basis of velocity-area studies and comparison of peak discharge and total runoff of flood of Mar. 18, 1936, with those for other stations in James River Basin. Gage heights used to half-tenths between 3.7 and 6.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 6,120 second-feet 3 p.m. Aug. 16 (gage height, 8.21 feet).

1907-8, 1925 to July 1940: Discharge, about 34,200 second-feet Mar. 18, 1936 (gage height, 18.62 feet).

Stage known, 20.8 feet, from floodmarks, sometime in March 1913 (discharge, about 45,000 second-feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	724	2,910	9	476	280	17	4,770	170	25	306	163
2	666	1,430	10	328	276	18	12,190	160	26	309	179
3	380	866	11	269	255	19	11,260	157	27	384	176
4	287	607	12	240	233	20	818	151	28	685	148
5	240	476	13	263	209	21	585	146	29	915	134
6	248	397	14	1,832	199	22	464	143	30	822	128
7	1,120	344	15	12,630	186	23	389	134	31	1,630	-----
8	859	306	16	5,650	179	24	336	131			
Monthly mean discharge, in second-feet-----										1,002	376
Runoff, in inches-----										12.54	0.92

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 952.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.53	273	4.84	1,850	7.60	5,200	7.70	5,350	-----	-----
2	2.40	226	2.52	269	4.83	1,850	7.58	5,200	7.80	5,500	5.83	2,910
3	-----	-----	2.51	266	4.83	1,850	7.60	5,200	7.92	5,650	-----	-----
4	2.40	226	2.51	266	4.83	1,850	7.70	5,350	8.03	5,800	5.67	2,680
5	-----	-----	2.51	266	4.86	1,850	7.80	5,500	8.09	5,960	-----	-----
6	2.40	226	2.51	266	4.88	1,900	7.88	5,650	8.12	5,960	5.52	2,520
7	-----	-----	2.53	273	4.94	1,950	7.94	5,650	8.10	5,960	-----	-----
8	2.49	258	2.57	287	5.00	2,000	8.00	5,800	8.03	5,800	5.38	2,410
9	-----	-----	2.63	309	5.10	2,100	8.03	5,800	7.92	5,650	-----	-----
10	2.53	273	2.70	336	5.18	2,200	8.08	5,960	7.79	5,500	5.25	2,250
11	-----	-----	2.80	376	5.25	2,250	8.09	5,960	7.65	5,200	-----	-----
N	2.53	273	2.94	436	5.32	2,300	8.11	5,960	7.50	5,050	5.14	2,150
1	-----	-----	3.25	590	5.38	2,410	8.15	6,120	7.35	4,910	-----	-----
2	2.52	269	3.65	845	5.42	2,410	8.19	6,120	7.20	4,630	5.02	2,000
3	-----	-----	3.98	1,090	5.45	2,460	8.21	6,120	7.05	4,350	-----	-----
4	2.52	269	4.33	1,400	5.48	2,520	8.18	6,120	6.90	4,220	4.90	1,900
5	-----	-----	4.53	1,580	5.54	2,580	8.13	5,960	6.77	4,090	-----	-----
6	2.54	276	4.58	1,620	5.70	2,740	8.07	5,960	6.66	3,960	4.80	1,800
7	-----	-----	4.57	1,580	6.00	3,090	8.00	5,800	6.53	3,700	-----	-----
8	2.56	284	4.56	1,580	6.40	3,570	7.90	5,650	6.42	3,570	4.72	1,710
9	-----	-----	4.57	1,580	6.80	4,090	7.81	5,500	6.31	3,450	-----	-----
10	2.61	302	4.65	1,660	7.25	4,630	7.72	5,350	6.21	3,330	4.64	1,660
11	-----	-----	4.77	1,760	7.57	5,200	7.66	5,350	6.11	3,210	-----	-----
12	2.55	280	4.84	1,850	7.63	5,200	7.65	5,200	6.01	3,090	4.56	1,580
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	4.41	1,440	3.76	915	3.34	642	3.07	496	2.88	410	2.73	348
8	4.28	1,360	3.68	866	3.28	607	3.03	476	2.85	397	2.72	344
N	4.16	1,240	3.61	817	3.24	584	3.00	462	2.83	389	2.70	336
4	4.03	1,160	3.53	762	3.18	552	2.97	449	2.81	380	2.68	328
8	3.93	1,060	3.46	716	3.14	531	2.94	436	2.78	368	2.66	321
12	3.84	985	3.40	678	3.10	510	2.91	422	2.76	360	2.65	317

CRAIG CREEK AT PARR, VA.

LOCATION.—Lat. 37°39'55", long. 79°54'40", at Chesapeake and Ohio Railway bridge, 700 feet downstream from Stony Run, 0.4 mile northwest of Parr, Botetourt County, and 12 miles upstream from mouth. Datum of gage is 992.50 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—331 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,000 second-feet, fairly well defined to 11,000 second-feet and extended above. Gage heights used to half-tenths between 5.9 and 8.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge 15,200 second-feet 5 a.m. Aug. 15 (gage height, 15.02 feet).

1925-39: Discharge observed, 16,700 second-feet Jan. 23, 1935 (gage height, 15.85 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	90	1,320	9	77	191	17	4,670	102	25	275	82
2	82	778	10	67	173	18	2,460	96	26	267	83
3	73	553	11	64	159	19	1,370	93	27	256	83
4	69	420	12	65	146	20	866	90	28	259	77
5	66	344	13	75	133	21	611	85	29	364	73
6	70	290	14	3,180	122	22	479	80	30	480	72
7	164	249	15	11,800	113	23	387	76	31	3,600	-----
8	112	217	16	7,280	107	24	318	77			
Monthly mean discharge, in second-feet.....										1,290	216
Runoff, in inches.....										4.50	0.73

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			3.83	85	13.80	13,000	10.68	7,670				
2	3.73	70	3.84	86	14.35	14,100	10.63	7,510	9.40	5,590	7.76	3,120
3			3.86	90	14.75	14,800	10.58	7,510				
4	3.73	70	3.88	93	14.95	15,200	10.56	7,510	9.22	5,270	7.65	3,000
5			3.90	96	15.02	15,200	10.55	7,510				
6	3.74	72	3.93	102	14.95	15,200	10.58	7,510	9.12	5,110	7.52	2,800
7			3.97	109	14.70	14,600	10.62	7,510				
8	3.75	73	4.05	126	14.45	14,100	10.67	7,670	9.08	5,110	7.39	2,670
9			4.20	164	14.20	13,700	10.72	7,670				
10	3.76	74	4.40	227	13.95	13,400	10.77	7,830	9.04	4,950	7.28	2,540
11			4.75	366	13.65	12,600	10.80	7,830				
N	3.77	76	5.40	700	13.35	12,300	10.82	7,830	8.92	4,790	7.19	2,420
1			6.25	1,370	13.10	11,700	10.79	7,830				
2	3.77	76	7.20	2,420	12.85	11,200	10.72	7,670	8.78	4,640	7.10	2,300
3			8.10	3,610	12.55	10,900	10.62	7,510				
4	3.78	77	8.80	4,640	12.25	10,200	10.50	7,350	8.60	4,340	7.00	2,180
5			9.30	5,430	12.00	9,850	10.35	7,190				
6	3.79	79	9.80	6,230	11.75	9,510	10.25	6,870	8.43	4,040	6.90	2,060
7			10.30	7,030	11.55	9,170	10.12	6,710				
8	3.80	80	10.80	7,830	11.35	8,830	10.02	6,550	8.26	3,890	6.82	1,950
9			11.35	8,830	11.20	8,490	9.92	6,390				
10	3.80	80	12.00	9,850	11.05	8,150	9.82	6,230	8.08	3,610	6.73	1,900
11			12.65	10,900	10.90	7,990	9.72	6,070				
12	3.82	83	13.25	11,900	10.78	7,830	9.60	5,910	7.93	3,400	6.64	1,780
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	6.48	1,620	5.81	988	5.35	670	5.08	522	4.86	416	4.69	340
8	6.34	1,470	5.72	919	5.28	629	5.02	492	4.83	402	4.66	327
N	6.22	1,320	5.63	854	5.23	601	4.98	472	4.79	384	4.64	319
4	6.12	1,230	5.55	798	5.19	579	4.95	458	4.76	370	4.61	306
8	6.01	1,140	5.48	751	5.15	558	4.92	444	4.74	362	4.59	298
12	5.91	1,060	5.42	713	5.12	542	4.89	429	4.72	353	4.57	290

96 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MEADOW CREEK AT NEWCASTLE, VA.

LOCATION.—Lat. 37°29'35", long. 80°06'35", at south town limits of Newcastle, Craig County, 800 feet upstream from Newcastle-Salem highway bridge, and half a mile upstream from mouth. Datum of gage is 1,337.45 feet above mean sea level (unadjusted).

DRAINAGE AREA.—13.8 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Control is sharp-crested weir. Stage-discharge relation defined by current-meter measurements up to 300 second-feet and extended to crest gage height on basis of comparisons of flood records with those for Johns Creek at Newcastle and Craig Creek at Parr. Gage heights used to hundredths throughout.

MAXIMA.—1940: Discharge, 700 second-feet 8 a.m. Aug. 16 (gage height, 4.80 feet).

1929-39: Discharge, 242 second-feet Oct. 2, 1929 (gage height, 3.64 feet, site and datum then in use).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	8.1	88	9	5.6	19	17	323	11	25	24	9.0
2	6.4	62	10	5.3	18	18	179	10	26	23	8.8
3	6.0	49	11	5.7	16	19	101	10	27	26	8.3
4	6.3	39	12	6.9	15	20	65	9.3	28	30	8.1
5	6.1	33	13	7.4	14	21	50	9.3	29	26	7.9
6	6.0	29	14	197	13	22	41	8.8	30	79	7.5
7	5.8	25	15	521	12	23	34	8.6	31	148	-----
8	5.8	21	16	526	12	24	30	8.6			
Monthly mean discharge, in second-feet										80.8	19.7
Runoff, in inches										6.76	1.60

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	1.94	5.8	2.95	44	4.53	465	4.70	600	-----	-----	-----	-----
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	1.96	6.0	3.14	63	4.55	480	4.65	558	4.43	403	3.93	207
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	1.97	6.2	3.25	76	4.45	415	4.67	574	-----	-----	-----	-----
7	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	2.00	6.6	3.45	106	4.55	480	4.80	700	4.34	357	3.88	194
9	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	2.04	7.2	3.85	186	4.60	515	4.69	592	-----	-----	-----	-----
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	1.98	6.3	4.25	316	4.60	515	4.62	532	4.26	320	3.82	179
1	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	2.00	6.6	4.20	295	4.65	558	4.55	480	-----	-----	-----	-----
3	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	2.01	6.8	4.15	277	4.65	558	4.51	451	4.14	273	3.76	165
5	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	1.98	6.3	4.05	243	4.65	558	4.50	444	-----	-----	-----	-----
7	-----	-----	4.20	295	-----	-----	-----	-----	-----	-----	-----	-----
8	2.10	8.2	4.00	227	4.68	583	4.48	432	4.10	259	3.70	152
9	-----	-----	3.75	163	-----	-----	-----	-----	-----	-----	-----	-----
10	2.10	8.2	4.20	295	4.70	600	4.49	438	-----	-----	-----	-----
11	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	2.62	24	4.50	444	4.70	600	4.48	432	3.98	221	3.63	138
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	3.56	125	3.21	71	3.05	54	2.94	44	2.84	36	2.77	32
8	3.50	114	3.18	68	3.03	52	2.93	43	2.83	35	2.76	31
N	3.40	98	3.16	66	3.01	50	2.91	41	2.82	34	2.75	30
4	3.32	86	3.12	61	3.00	49	2.89	39	2.80	33	2.71	28
8	3.27	79	3.10	59	2.97	46	2.87	38	2.79	32	2.68	27
12	3.23	74	3.07	56	2.95	44	2.85	36	2.77	32	2.67	26

SUPPLEMENTAL RECORD.—Aug. 14, 9:30 p.m., gage height, 4.43 feet; discharge, 403 second-feet.

98 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA.

LOCATION.—Lat. 37°59'15", long. 79°29'40", at highway bridge at Goshen, Rock-bridge County, 400 feet upstream from Mill Creek. Datum of gage is 1,384.89 feet above mean sea level (unadjusted).

DRAINAGE AREA.—147 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

Gage heights used to half-tenths between 4.7 and 6.7 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 5,370 second-feet 8 p.m. Aug. 16 (gage height, 8.00 feet).

January 1939 to July 1940: Discharge, 7,010 second-feet May 31, 1940 (gage height, 9.03 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	205	1,380	9	123	75	17	2,440	29	25	95	20
2	123	584	10	88	67	18	874	28	26	88	60
3	79	309	11	69	60	19	457	26	27	101	43
4	62	205	12	88	52	20	266	24	28	368	35
5	49	151	13	116	45	21	181	22	29	319	29
6	44	120	14	128	40	22	140	20	30	258	26
7	440	101	15	1,070	36	23	111	19	31	1,140	-----
8	201	84	16	4,390	32	24	91	18			
Monthly mean discharge, in second-feet										458	125
Runoff, in inches										3.60	0.95

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					3.50	334	6.80	3,630	7.25	4,190	-----	-----
2	2.94	120	2.88	106	3.65	421	7.05	3,910	7.03	3,910	4.68	1,170
3					3.80	518	7.20	4,190	6.83	3,630		
4	2.94	120	2.88	106	3.90	584	7.32	4,330	6.65	3,440	4.58	1,080
5					3.97	632	7.34	4,330	6.50	3,240		
6	2.94	120	2.88	106	4.02	666	7.30	4,330	6.35	3,040	4.50	1,020
7					4.04	679	7.22	4,190	6.23	2,920	-----	-----
8	2.94	120	2.88	106	4.05	686	7.13	4,050	6.10	2,720	4.42	956
9					4.06	693	7.05	3,910	6.00	2,600		
10	2.94	120	2.89	108	4.07	700	6.98	3,910	5.90	2,480	4.34	892
11					4.08	706	6.94	3,770	5.78	2,360	-----	-----
N	2.93	118	2.91	113	4.09	713	6.92	3,770	5.70	2,240	4.28	846
1					4.09	713	6.96	3,910	5.60	2,120	-----	-----
2	2.92	115	2.92	115	4.11	727	7.10	4,050	5.52	2,010	4.22	804
3					4.17	769	7.30	4,330	5.45	1,960		
4	2.91	113	2.94	120	4.28	846	7.50	4,620	5.35	1,840	4.16	762
5					4.48	1,000	7.70	4,920	5.28	1,790		
6	2.91	113	2.98	131	4.75	1,240	7.85	5,070	5.22	1,680	4.09	713
7					5.10	1,580	7.95	5,370	5.13	1,630	-----	-----
8	2.90	110	3.03	145	5.40	1,900	8.00	5,370	5.07	1,530	4.03	672
9					5.70	2,240	7.96	5,370	5.00	1,480		
10	2.90	110	3.17	190	6.00	2,600	7.88	5,220	4.91	1,380	3.97	632
11					6.30	2,980	7.70	4,920	4.85	1,330	-----	-----
12	2.89	108	3.37	271	6.58	3,370	7.48	4,620	4.79	1,280	3.92	598
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	3.83	538	3.43	299	3.19	198	3.05	151	2.93	118	2.84	97
8	3.76	492	3.39	280	3.17	190	3.03	145	2.92	115	2.82	92
N	3.70	452	3.35	262	3.14	180	3.01	139	2.90	110	2.81	90
4	3.64	415	3.32	249	3.12	173	2.99	133	2.88	106	2.80	88
8	3.58	379	3.28	232	3.09	163	2.98	131	2.87	103	2.79	86
12	3.50	334	3.23	213	3.07	157	2.96	126	2.86	101	2.78	84

NORTH RIVER AT ROCKBRIDGE BATHS, VA.

LOCATION.—Lat. $37^{\circ}54'26''$, long. $79^{\circ}25'20''$, at Rockbridge Baths, Rockbridge County, 700 feet upstream from highway bridge, and 1 mile upstream from Hays Creek. Datum of gage is 1,100.33 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—329 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 16,000 second-feet and extended to crest gage height of flood of Mar. 17, 1936 by logarithmic plotting. Gage heights used to half-tenths between 3.2 and 7.9 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 9,200 second-feet 5 p.m. Aug. 16 (gage height, 8.45 feet).

1928 to July 1940: Discharge, 33,000 second-feet Mar. 17, 1936 (gage height, 13.07 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	412	3,160	9	199	190	17	4,360	85	25	235	72
2	248	1,320	10	152	175	18	1,670	83	26	228	105
3	169	766	11	125	155	19	917	76	27	248	96
4	138	522	12	141	133	20	584	72	28	1,040	81
5	117	388	13	196	120	21	414	70	29	1,300	72
6	107	308	14	279	110	22	322	64	30	812	66
7	542	252	15	12,230	103	23	265	61	31	3,160	-----
8	321	215	16	8,550	96	24	218	57			
Monthly mean discharge, in second-feet										956	302
Runoff, in inches										3.36	1.02

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	-----	-----	2.85	617	7.75	7,280	7.65	7,020	-----	-----
2	1.93	206	1.87	187	2.95	672	7.97	8,000	7.50	6,650	4.90	2,260
3	-----	-----	-----	-----	3.09	754	8.15	8,600	7.35	6,290	-----	-----
4	1.93	206	1.87	187	3.25	858	8.25	8,600	7.20	5,940	4.75	2,100
5	-----	-----	-----	-----	3.43	995	8.31	8,900	7.08	5,720	-----	-----
6	1.92	202	1.87	187	3.58	1,100	8.33	8,900	6.95	5,400	4.60	1,950
7	-----	-----	-----	-----	3.67	1,140	8.30	8,900	6.85	5,200	-----	-----
8	1.91	199	1.87	187	3.72	1,170	8.27	8,900	6.74	5,000	4.48	1,850
9	-----	-----	-----	-----	3.76	1,200	8.23	8,600	6.62	4,700	-----	-----
10	1.90	196	1.91	199	3.80	1,240	8.20	8,600	6.50	4,500	4.37	1,700
11	-----	-----	-----	-----	3.84	1,280	8.18	8,600	6.36	4,220	-----	-----
N	1.90	196	1.98	222	3.92	1,320	8.17	8,600	6.25	4,040	4.25	1,620
1	-----	-----	-----	-----	4.03	1,440	8.16	8,600	6.10	3,800	-----	-----
2	1.90	196	2.08	255	4.18	1,570	8.18	8,600	5.97	3,580	4.14	1,520
3	-----	-----	-----	-----	4.35	1,700	8.28	8,900	5.85	3,440	-----	-----
4	1.89	193	2.19	296	4.70	2,050	8.40	9,200	5.73	3,300	4.03	1,440
5	-----	-----	-----	-----	5.15	2,550	8.45	9,200	5.65	3,180	-----	-----
6	1.88	190	2.30	342	5.60	3,110	8.43	9,200	5.55	3,040	3.92	1,320
7	-----	-----	-----	-----	6.10	3,800	8.40	9,200	5.45	2,920	-----	-----
8	1.87	187	2.45	412	6.50	4,500	8.30	8,900	5.38	2,850	3.83	1,280
9	-----	-----	-----	-----	6.80	5,100	8.18	8,600	5.30	2,730	-----	-----
10	1.87	187	2.62	496	7.05	5,610	8.05	8,000	5.22	2,610	3.76	1,200
11	-----	-----	-----	-----	7.25	6,060	7.90	7,700	5.14	2,550	-----	-----
12	1.87	187	2.77	574	7.50	6,650	7.77	7,280	5.07	2,430	3.68	1,170
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	3.56	1,060	2.93	661	2.53	451	2.29	338	2.16	285	2.00	228
8	3.45	995	2.86	622	2.49	431	2.26	325	2.13	273	1.98	222
N	3.33	925	2.78	580	2.46	417	2.24	317	2.10	262	1.96	215
4	3.22	825	2.72	548	2.42	398	2.23	313	2.08	255	1.95	212
8	3.10	760	2.64	507	2.37	374	2.22	308	2.06	248	1.94	209
12	3.00	700	2.58	476	2.33	356	2.20	300	2.03	238	1.92	202

100 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

NORTH RIVER NEAR LEXINGTON, VA.

LOCATION.—Lat. 37°48'49", long. 79°26'42", 300 yards upstream from Lime Kiln highway bridge, a quarter of a mile downstream from Kerrs Creek, and 2½ miles upstream from Lexington, Rockbridge County. Datum of gage is 906.56 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—487 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,000 second-feet and extended to crest gage height of March 1936 on basis of velocity-area studies and comparisons of peak discharge and total runoff at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 3.9 and 6.6 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 10,600 second-feet 9:30 a.m. Aug. 16 (gage height, 12.33 feet).

1925 to July 1940: Discharge, 40,000 second-feet Mar. 18, 1936 (gage height, 23.58 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	529	4,610	9	296	398	17	6,870	223	25	419	302
2	370	2,110	10	226	370	18	2,840	211	26	398	229
3	255	1,260	11	190	336	19	1,570	202	27	435	217
4	211	905	12	188	303	20	1,010	193	28	1,240	188
5	188	714	13	260	282	21	748	188	29	1,840	176
6	190	596	14	476	265	22	591	176	30	1,310	165
7	553	506	15	2,210	248	23	485	168	31	4,940	-----
8	448	440	16	9,310	236	24	412	163			
Monthly mean discharge, in second-feet -----										1,323	543
Runoff, in inches -----										3.14	1.24

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					4.10	795	9.65	6,640	11.96	10,200		
2	2.85	242	2.91	261	4.15	822	9.85	6,920	11.94	10,000	7.40	3,770
3					4.24	878	10.15	7,480	11.85	9,850		
4	2.87	248	2.91	261	4.32	905	10.50	7,900	11.70	9,700	7.18	3,530
5					4.38	960	10.95	8,650	11.50	9,400		
6	2.90	258	2.92	265	4.46	990	11.35	9,250	11.20	8,950	7.00	3,290
7					4.58	1,080	11.70	9,700	10.85	8,350		
8	2.92	265	2.96	278	4.72	1,150	12.00	10,200	10.55	8,050	6.82	3,060
9					4.90	1,290	12.30	10,600	10.25	7,480		
10	2.93	268	3.03	303	5.10	1,430	12.32	10,600	9.95	7,200	6.67	2,950
11					5.23	1,550	12.15	10,500	9.70	6,780		
N	2.93	268	3.10	328	5.32	1,590	12.00	10,200	9.45	6,360	6.52	2,730
1					5.38	1,670	11.93	10,000	9.27	6,220		
2	2.93	268	3.60	538	5.45	1,710	11.92	10,000	9.10	5,940	6.39	2,620
3					5.55	1,800	11.85	9,850	8.90	5,680		
4	2.92	265	3.92	688	5.75	1,980	11.75	9,850	8.70	5,420	6.27	2,460
5					6.15	2,360	11.65	9,550	8.55	5,290		
6	2.91	261	3.97	714	6.60	2,840	11.53	9,400	8.35	5,030	6.14	2,360
7					7.15	3,530	11.48	9,400	8.20	4,770		
8	2.91	261	4.10	795	7.75	4,250	11.53	9,400	8.05	4,510	6.02	2,210
9					8.20	4,770	11.65	9,550	7.90	4,380		
10	2.91	261	4.07	768	8.65	5,290	11.75	9,850	7.80	4,250	5.90	2,110
11					9.00	5,810	11.85	9,850	7.70	4,130		
12	2.91	261	4.06	768	9.35	6,360	11.93	10,000	7.60	4,010	5.78	2,020
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	5.57	1,800	4.67	1,120	4.13	822	3.79	631	3.55	515	3.36	431
8	5.42	1,670	4.57	1,050	4.05	768	3.75	611	3.51	497	3.33	419
N	5.27	1,550	4.47	990	4.00	740	3.70	586	3.48	483	3.31	410
4	5.14	1,470	4.38	960	3.95	714	3.67	572	3.45	470	3.29	402
8	4.94	1,320	4.29	905	3.90	688	3.63	552	3.42	457	3.27	394
12	4.80	1,220	4.20	850	3.84	657	3.59	533	3.39	444	3.25	386

SUPPLEMENTAL RECORD.—Aug. 16, 9:30 a.m., gage height, 12.33 feet; discharge, 10,600 second-feet.

NORTH RIVER NEAR BUENA VISTA, VA.

LOCATION.—Lat. $37^{\circ}45'45''$, long. $79^{\circ}23'30''$, half a mile downstream from South River and $2\frac{1}{2}$ miles northwest of Buena Vista, Rockbridge County. Datum of gage is 846.58 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—649 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

Gage heights used to half-tenths between 3.2 and 6.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 14,700 second-feet 10:30 a.m. Aug. 16 (gage height, 13.36 feet).

1939 to July 1940: Discharge, 12,900 second-feet May 31, 1940 (gage height, 12.55 feet).

Stage known, about 22 feet Mar. 18 or 19, 1936, from information by local residents (discharge not determined).

102 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	595	5,470	9	368	554	17	9,270	327	25	595	407
2	456	2,580	10	292	514	18	14,030	312	26	595	327
3	327	1,550	11	255	475	19	2,300	300	27	637	312
4	283	1,110	12	255	434	20	1,440	286	28	1,640	274
5	257	890	13	328	402	21	1,050	280	29	2,190	257
6	286	769	14	726	378	22	851	269	30	1,560	246
7	557	680	15	13,050	362	23	722	255	31	5,420	-----
8	534	616	16	12,700	346	24	620	252			
Monthly mean discharge, in second-feet-----										1,748	708
Runoff, in inches-----										3.10	1.22

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 952.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1					4.48	1,140	10.45	8,660	12.67	13,100		
2	2.58	300	2.73	346	4.48	1,140	10.65	9,020	12.64	12,900	8.25	5,130
3					4.52	1,140	10.85	9,380	12.60	12,900		
4	2.63	315	2.75	352	4.56	1,170	11.15	10,100	12.50	12,700	8.03	4,850
5					4.65	1,230	11.50	10,700	12.35	12,500		
6	2.63	315	2.76	355	4.74	1,300	12.00	11,700	12.10	11,900	7.83	4,570
7					4.88	1,400	12.50	12,700	11.75	11,300		
8	2.68	330	2.84	382	5.00	1,470	13.05	13,800	11.50	10,700	7.63	4,310
9					5.20	1,630	13.28	14,500	11.20	10,100		
10	2.70	336	2.95	420	5.37	1,770	13.35	14,700	10.95	9,760	7.46	4,180
11					5.50	1,920	13.34	14,500	10.70	9,200		
N	2.71	339	3.25	534	5.63	2,080	13.28	14,500	10.50	8,840	7.30	3,940
1					5.78	2,240	13.20	14,200	10.30	8,480		
2	2.72	342	3.80	769	6.00	2,460	13.16	14,200	10.10	8,120	7.14	3,710
3					6.20	2,700	13.18	14,200	9.90	7,780		
4	2.72	342	4.37	1,050	6.40	2,940	13.13	14,000	9.74	7,440	7.00	3,600
5					6.85	3,380	13.05	13,800	9.55	7,270		
6	2.70	336	4.58	1,200	7.60	4,310	12.90	13,600	9.40	6,950	6.84	3,380
7					8.30	5,270	12.80	13,400	9.25	6,630		
8	2.69	333	4.80	1,330	8.85	6,010	12.70	13,100	9.10	6,470	6.70	3,280
9					9.30	6,790	12.65	12,900	8.95	6,310		
10	2.68	330	4.66	1,230	9.65	7,270	12.65	12,900	8.80	6,010	6.57	3,180
11					9.90	7,780	12.66	13,100	8.65	5,710		
12	2.70	336	4.51	1,140	10.20	8,300	12.67	13,100	8.52	5,560	6.43	3,000
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	6.20	2,700	5.20	1,630	4.49	1,140	4.08	916	3.78	769	3.52	637
8	6.02	2,460	5.08	1,550	4.40	1,080	4.02	865	3.73	746	3.50	637
N	5.83	2,300	4.92	1,400	4.32	1,020	3.97	840	3.70	724	3.46	616
4	5.65	2,080	4.80	1,330	4.26	996	3.92	816	3.65	702	3.43	616
8	5.48	1,920	4.68	1,260	4.19	968	3.88	816	3.60	680	3.40	595
12	5.32	1,720	4.58	1,200	4.13	942	3.82	769	3.56	658	3.37	574

SUPPLEMENTAL RECORD.—Aug. 16, 10:30 a.m., gage height, 13.36 feet; discharge, 14,700 second-feet.

KERRS CREEK NEAR LEXINGTON, VA.

LOCATION.—Lat. 37°49'33", long. 79°26'28", at highway bridge 1¼ miles upstream from mouth and 2½ miles north of Lexington, Rockbridge County. Datum of gage is 972.04 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—34 square miles.

GAGE-HEIGHT RECORD.—Twice-daily readings of chain gage. Gage heights at indicated times Aug. 13-24 were obtained from graph based on floodmark and twice-daily gage readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 800 second-feet and extended to crest gage height of March 1936 flood on basis of velocity-area studies and comparison of peak discharge and total runoff of flood at this station with those for other stations in James River Basin. Gage heights used to half-tenths between 5.4 and 6.6 feet; hundredths below and tenths above these limits. The record includes revised discharge published in Water-Supply Paper 1052.

MAXIMA.—1940: Discharge observed, 3,660 second-feet 4 p.m. Aug. 31 (gage height, 10.07 feet).

1927-39: Discharge observed, about 7,600 second-feet Mar. 17, 1936 (gage height, 12.82 feet, from floodmark).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	13	353	9	12	27	17	249	20	25	20	46
2	13	128	10	12	25	18	155	18	26	24	20
3	13	66	11	12	26	19	70	18	27	20	18
4	13	55	12	12	26	20	42	18	28	29	18
5	12	46	13	12	22	21	33	17	29	28	18
6	31	35	14	275	22	22	26	17	30	114	17
7	15	31	15	485	23	23	24	16	31	1,400	-----
8	12	32	16	655	20	24	23	16			-----
Monthly mean discharge, in second-feet.....										124	40.5
Runoff, in inches.....										4.22	1.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	4.35	12	6.90	880	-----	-----	-----	-----	-----	-----	-----	-----
2	4.35	12	6.65	710	7.05	940	5.75	292	5.25	145	-----	-----
3	4.35	12	6.35	555	-----	-----	-----	-----	-----	-----	-----	-----
4	4.36	13	6.00	385	6.95	880	5.70	276	5.15	120	5.05	97
5	4.36	13	5.70	276	-----	-----	-----	-----	-----	-----	-----	-----
6	4.36	13	5.40	186	6.90	880	5.70	276	5.15	120	-----	-----
7	4.36	13	5.20	132	-----	-----	-----	-----	-----	-----	-----	-----
8	4.37	13	5.15	120	6.80	820	5.65	260	5.15	120	4.90	67
9	4.37	13	5.12	113	-----	-----	-----	-----	-----	-----	-----	-----
10	4.37	13	5.15	120	6.70	765	5.70	276	5.20	132	-----	-----
11	4.40	14	5.18	127	-----	-----	-----	-----	-----	-----	-----	-----
N	4.47	18	5.25	145	6.60	682	5.70	276	5.30	158	4.85	60
1	4.57	25	5.50	215	-----	-----	-----	-----	-----	-----	-----	-----
2	4.77	48	5.70	276	6.45	605	5.65	260	5.45	200	-----	-----
3	4.97	80	5.95	360	-----	-----	-----	-----	-----	-----	-----	-----
4	5.30	158	6.20	465	6.30	532	5.60	245	5.50	215	4.80	52
5	5.60	245	6.40	580	-----	-----	-----	-----	-----	-----	-----	-----
6	6.05	405	6.55	655	6.15	445	5.50	215	5.45	200	-----	-----
7	6.45	605	6.70	765	-----	-----	-----	-----	-----	-----	-----	-----
8	7.00	940	6.80	820	6.05	405	5.45	200	5.30	158	4.80	52
9	7.25	1,060	6.90	880	-----	-----	-----	-----	-----	-----	-----	-----
10	7.40	1,200	7.00	940	5.90	342	5.35	172	5.25	145	-----	-----
11	7.30	1,130	7.05	940	-----	-----	-----	-----	-----	-----	-----	-----
12	7.20	1,060	7.05	940	5.85	325	5.30	158	5.20	132	4.80	52

104 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1			6.32	555				
2			6.47	630				
3			6.60	710				
4	4.60	28	6.70	765	6.20	510	5.26	160
5			6.82	820				
6			6.95	940				
7			7.06	1,000				
8	4.63	31	7.18	1,060	5.92	385	5.26	160
9			7.30	1,130				
10			7.40	1,200				
11			7.50	1,270				
N	4.70	39	7.60	1,340	5.72	310	5.16	125
1			7.75	1,500				
2			8.70	2,270				
3			10.00	3,540				
4	4.95	76	10.07	3,660	5.56	258	5.08	104
5			9.20	2,740				
6			8.40	2,000				
7			7.95	1,660				
8	5.50	242	7.55	1,340	5.43	212	5.02	90
9			7.30	1,130				
10			7.05	940				
11			6.88	880				
12	6.18	510	6.65	710	5.32	180	4.99	84

BUFFALO RIVER NEAR NORWOOD, VA.

LOCATION.—Lat. 37°38', long. 78°53', 1 mile downstream from Tye River, 3 miles upstream from Rucker Run, and 4½ miles upstream from mouth at Norwood, Nelson County. Datum of gage is 400.77 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—360 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 8 a.m. Aug. 17 to 10 a.m. Aug. 18 where gage heights were obtained from graph based on many slope gage readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 13,000 second-feet and extended to crest gage height by logarithmic plotting. Gage heights used to half-tenths between 4.0 and 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 25,600 second-feet 12 m. Aug. 16 (gage height, 15.25 feet).

March to July 1940: Discharge, 2,900 second-feet Apr. 9 (gage height, 4.77 feet).

Mean discharge, in second-feet, 1940

[illegible]

105

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			2.67	388	5.00	3,270	12.20	18,000	11.90	17,300		
2	2.75	447	2.69	401	5.35	3,820	12.00	17,500	11.55	16,500	6.25	5,220
3			2.71	416	8.30	9,170	11.78	17,000	11.05	15,100		
4	2.72	424	2.72	424	8.18	8,970	12.30	18,200	10.65	14,200	6.05	4,880
5			2.72	424	8.72	10,000	12.80	19,400	10.35	13,700		
6	2.75	447	2.72	424	8.70	10,000	13.00	20,000	10.00	12,800	5.90	4,710
7			2.73	431	8.72	10,000	13.20	20,400	9.70	12,100		
8	2.82	503	2.76	455	8.75	10,200	13.85	22,000	9.40	11,500	5.70	4,380
9			2.78	470	8.70	10,000	14.50	23,800	9.10	10,800		
10	2.74	439	2.79	478	8.58	9,790	15.00	25,000	8.85	10,200	5.55	4,220
11			2.83	512	8.35	9,370	15.20	25,600	8.60	9,790		
N	2.68	394	2.93	600	8.10	8,770	15.25	25,600	8.30	9,170	5.38	3,900
1			3.15	818	7.98	8,570	15.15	25,600	8.05	8,570		
2	2.63	360	3.70	1,460	7.88	8,370	14.95	25,000	7.80	8,170	5.25	3,660
3			4.40	2,400	7.86	8,370	14.85	24,500	7.65	7,770		
4	2.60	340	4.75	2,900	7.94	8,370	14.60	24,000	7.45	7,390	5.13	3,500
5			4.90	3,120	8.20	8,970	14.25	23,000	7.30	7,200		
6	2.58	328	4.70	2,820	9.25	11,000	13.95	22,400	7.15	7,010	5.05	3,340
7			4.35	2,330	9.75	12,400	13.50	21,200	7.03	6,630		
8	2.57	322	4.18	2,120	10.10	13,000	13.05	20,000	6.92	6,450	4.92	3,120
9			4.19	2,120	10.40	13,700	12.80	19,400	6.80	6,270		
10	2.62	354	4.35	2,330	10.75	14,600	12.50	18,700	6.68	6,090	4.80	2,970
11			4.52	2,540	11.20	15,600	12.30	18,200	6.58	5,910		
12	2.66	381	4.73	2,900	11.85	17,000	12.15	18,000	6.47	5,730	4.73	2,900
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	4.62	2,680	4.01	1,850	3.67	1,420	3.44	1,140	3.30	980	3.13	797
8	4.50	2,540	3.96	1,780	3.63	1,370	3.42	1,110	3.27	947	3.12	787
N	4.40	2,400	3.90	1,720	3.60	1,330	3.40	1,090	3.25	925	3.11	776
4	4.29	2,260	3.83	1,630	3.55	1,270	3.37	1,060	3.22	892	3.10	766
8	4.18	2,120	3.75	1,520	3.50	1,210	3.33	1,010	3.18	849	3.07	736
12	4.08	1,980	3.70	1,460	3.46	1,160	3.31	991	3.15	818	3.05	716

TYE RIVER NEAR LOVINGSTON, VA.

Mean discharge, in second-feet, 1940

[illegible]

106 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1			1.77	102	3.37	692	9.30	5,120	9.65	5,400		
2	1.75	96	1.79	106	3.42	715	9.05	4,850	9.10	5,210	5.18	1,740
3			1.82	115	3.45	738	8.85	4,670	9.10	4,940		
4	1.74	94	1.84	120	3.70	800	8.40	4,580	8.80	4,670	5.07	1,640
5			1.84	120	3.98	1,010	8.60	4,490	8.50	4,400		
6	1.74	94	1.84	120	4.20	1,120	8.45	4,310	8.20	4,130	4.95	1,570
7			1.85	123	4.55	1,330	8.50	4,400	7.85	3,770		
8	1.78	104	1.87	129	4.85	1,510	8.95	4,850	7.55	3,590	4.84	1,510
9			1.90	137	5.07	1,640	9.70	5,500	7.30	3,340		
10	1.79	106	1.95	152	5.13	1,700	11.00	6,800	7.10	3,180	4.72	1,420
11			2.00	167	5.17	1,700	11.65	7,400	6.95	3,100		
N	1.77	102	2.10	199	5.35	1,880	11.75	7,600	6.75	2,940	4.61	1,360
1			2.30	266	6.00	2,300	11.90	7,700	6.55	2,780		
2	1.75	96	2.80	452	6.50	2,700	11.85	7,600	6.40	2,620	4.50	1,300
3			3.08	571	6.95	3,100	11.55	7,400	6.25	2,460		
4	1.75	96	3.20	625	7.55	3,590	11.28	7,100	6.10	2,380	4.38	1,240
5			3.70	860	8.15	4,130	11.18	7,000	5.97	2,300		
6	1.75	96	3.85	935	9.00	4,850	11.18	7,000	5.85	2,160	4.27	1,150
7			3.67	835	11.00	6,800	11.11	6,900	5.73	2,090		
8	1.73	92	3.53	785	11.50	7,300	10.98	6,800	5.65	2,020	4.17	1,090
9			3.45	738	11.45	7,200	10.97	6,800	5.55	2,020		
10	1.77	102	3.38	715	11.10	6,900	10.85	6,600	5.46	1,950	4.10	1,060
11			3.35	692	10.40	6,200	10.45	6,200	5.38	1,880		
12	1.77	102	3.35	692	9.70	5,500	10.00	5,800	5.32	1,810	4.03	1,040
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
4	3.90	960	3.29	670	2.93	507	2.66	402	2.50	345	2.32	285
8	3.80	910	3.23	648	2.88	486	2.64	394	2.48	338	2.31	281
N	3.68	860	3.16	602	2.84	470	2.61	384	2.45	328	2.29	275
4	3.54	785	3.07	567	2.78	446	2.56	366	2.40	311	2.25	262
8	3.42	715	3.01	540	2.72	424	2.60	380	2.35	294	2.28	272
12	3.35	692	2.97	523	2.68	409	2.55	362	2.33	288	2.26	265

SUPPLEMENTAL RECORD.—Aug. 16, 1:30 p.m., gage height, 11.94 feet; discharge, 7,700 second-feet.

HARDWARE RIVER BELOW BRIERY RUN, NEAR SCOTTSVILLE, VA.

LOCATION.—Lat. 37°49', long. 78°28', at highway bridge half a mile downstream from Briery Run, 2 miles northeast of Scottsville, Albemarle County, and 9 miles upstream from mouth. Datum of gage is 294.95 feet above mean sea level.

DRAINAGE AREA.—116 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements. Gage heights used to half-tenths between 3.2 and 4.4 feet to Aug. 16 and between 3.3 and 4.5 feet thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,250 second-feet 11 p.m. Aug. 16 (gage height, 13.73 feet).

1938-39: Discharge, 1,370 second-feet Feb. 11, 1939 (gage height, 10.04 feet).

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	---	---	---	---	3.03	166	12.46	3,010	13.69	4,250	9.25	1,190
2	2.14	50	2.15	52	3.15	184	12.53	3,010	13.62	4,140	8.90	1,110
3	---	---	---	---	3.28	206	12.63	3,100	13.50	4,030	8.55	1,050
4	2.15	52	2.15	52	3.44	228	12.80	3,300	13.35	3,920	8.20	960
5	---	---	---	---	3.57	244	13.10	3,600	13.20	3,700	7.90	894
6	2.13	49	2.15	52	3.68	267	13.40	3,920	13.02	3,500	7.60	830
7	---	---	---	---	3.80	283	13.56	4,140	12.87	3,400	7.35	788
8	2.12	48	2.20	57	3.96	307	13.60	4,140	12.70	3,200	7.05	711
9	---	---	---	---	4.07	323	13.67	4,250	12.50	3,010	6.85	678
10	2.15	52	2.28	66	4.18	347	13.64	4,140	12.35	2,920	6.60	649
11	---	---	---	---	4.60	407	13.55	4,140	12.20	2,740	6.45	622
N	2.13	49	2.36	75	6.10	585	13.51	4,030	12.02	2,580	6.30	609
1	---	---	---	---	7.50	809	13.47	4,030	11.85	2,420	6.15	597
2	2.18	55	2.45	86	8.75	1,090	13.45	3,920	11.65	2,270	6.00	574
3	---	---	---	---	9.12	1,160	13.45	3,920	11.45	2,130	5.87	563
4	2.16	53	2.54	98	9.40	1,240	13.48	4,030	11.25	2,010	5.75	553
5	---	---	---	---	9.90	1,410	13.50	4,030	11.05	1,890	5.65	533
6	2.10	46	2.58	103	10.20	1,520	13.54	4,030	10.85	1,790	5.57	533
7	---	---	---	---	10.55	1,700	13.60	4,140	10.70	1,740	5.48	522
8	2.11	47	2.78	131	10.95	1,890	13.65	4,140	10.50	1,650	5.38	511
9	---	---	---	---	11.50	2,200	13.70	4,250	10.30	1,560	5.30	499
10	2.12	48	2.83	138	12.00	2,580	13.72	4,250	10.10	1,480	5.21	487
11	---	---	---	---	12.25	2,740	13.73	4,250	9.85	1,380	5.12	474
12	2.14	50	2.96	156	12.40	2,920	13.71	4,250	9.55	1,300	5.04	461

	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	4.90	447	---	---	---	---	---	---	---	---	---	---
4	4.78	433	3.87	280	3.42	208	3.20	178	3.07	158	2.97	144
6	4.68	419	---	---	---	---	---	---	---	---	---	---
8	4.60	404	3.78	272	3.39	208	3.19	176	3.06	157	2.96	142
10	4.52	389	---	---	---	---	---	---	---	---	---	---
N	4.45	381	3.73	264	3.37	200	3.19	176	3.05	156	2.96	142
2	4.39	373	---	---	---	---	---	---	---	---	---	---
4	4.34	365	3.63	248	3.34	200	3.14	169	3.04	154	2.94	139
6	4.23	348	---	---	---	---	---	---	---	---	---	---
8	4.15	332	3.55	232	3.28	190	3.12	166	3.00	148	2.94	139
10	4.07	314	---	---	---	---	---	---	---	---	---	---
12	3.98	306	3.47	216	3.24	184	3.08	160	2.99	146	2.90	133

SLATE RIVER NEAR ARVONIA, VA.

LOCATION.—Lat. 37°42', long. 78°21', at Bumpers Bridge, 1 mile upstream from Hunt Creek, 2 miles upstream from mouth, and 2 miles north of Arvonias, Buckingham County. Datum of gage is 238.78 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—235 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 23-26.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,500 second-feet and extended to crest gage height of September 1935 on basis of velocity-area studies. Gage heights used to half-tenths between 4.3 and 6.4 feet; hundredths below and tenths above these limits. Discharge Aug. 23-26 computed on basis of records for Willis River at Flanagan Mills and James River at Scottsville and Cartersville.

MAXIMA.—1940: Discharge, 5,880 second-feet 12 m. Aug. 16 (gage height, 13.62 feet).

1926-39: Discharge, about 13,600 second-feet Sept. 6, 1935 (gage height, 22.18 feet from floodmarks).

108 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	73	170	9	62	89	17	4,170	81	25	150	104
2	58	146	10	54	86	18	926	81	26	150	174
3	54	124	11	51	86	19	367	78	27	149	94
4	57	116	12	66	84	20	243	77	28	925	85
5	53	111	13	69	82	21	187	75	29	311	80
6	194	109	14	258	85	22	165	71	30	208	80
7	134	94	15	3,650	84	23	250	69	31	183	-----
8	72	93	16	5,440	85	24	200	67	-----	-----	-----
Monthly mean discharge, in second-feet-----										611	95.3
Runoff, in inches-----										3.00	0.45

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	-----	-----	7.60	1,760	12.25	4,800	12.50	5,020
2	2.77	74	2.64	62	8.40	2,220	12.35	4,950	12.44	4,950
3	-----	-----	-----	-----	9.05	2,580	12.45	4,950	12.38	4,950
4	2.76	73	2.68	65	9.95	3,220	12.55	5,100	12.32	4,880
5	-----	-----	-----	-----	10.45	3,490	13.10	5,480	12.28	4,880
6	2.74	71	2.71	68	10.65	3,630	13.25	5,560	12.25	4,800
7	-----	-----	-----	-----	10.70	3,700	13.35	5,720	12.20	4,800
8	2.73	70	2.74	71	10.75	3,770	13.43	5,720	12.17	4,800
9	-----	-----	-----	-----	10.80	3,770	13.50	5,800	12.13	4,720
10	2.72	69	2.76	73	10.78	3,770	13.58	5,880	12.09	4,720
11	-----	-----	-----	-----	10.65	3,630	13.61	5,880	12.02	4,650
N	2.73	70	2.83	80	10.60	3,630	13.62	5,880	11.95	4,650
1	-----	-----	-----	-----	10.65	3,630	13.61	5,880	11.80	4,500
2	2.80	77	2.93	92	10.85	3,770	13.53	5,800	11.70	4,420
3	-----	-----	-----	-----	11.07	3,980	13.40	5,720	11.50	4,280
4	2.70	67	3.33	151	11.20	4,050	13.25	5,560	11.30	4,120
5	-----	-----	-----	-----	11.25	4,050	13.10	5,480	11.00	3,910
6	2.62	60	4.05	296	11.35	4,200	13.00	5,400	10.65	3,630
7	-----	-----	-----	-----	11.40	4,200	12.92	5,320	10.25	3,350
8	2.73	70	4.85	536	11.48	4,280	12.92	5,320	9.85	3,090
9	-----	-----	-----	-----	11.55	4,350	12.80	5,250	9.35	2,830
10	2.67	64	5.80	902	11.65	4,350	12.70	5,180	8.85	2,460
11	-----	-----	-----	-----	11.90	4,580	12.63	5,100	8.40	2,220
12	2.64	62	6.85	1,350	12.05	4,650	12.55	5,100	8.00	1,980

	Aug. 18		Aug. 19		Aug. 20		Aug. 21		Aug. 22	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	7.30	1,600	4.62	450	3.98	279	3.61	200	3.43	167
4	6.75	1,350	4.54	434	3.94	270	3.60	198	3.42	165
6	6.35	1,140	4.46	403	3.90	261	3.58	194	3.42	165
8	6.05	1,010	4.40	388	3.87	254	3.56	190	3.42	165
10	5.80	902	4.34	374	3.85	250	3.55	188	3.43	167
N	5.55	800	4.28	355	3.81	241	3.54	187	3.44	169
2	5.35	721	4.24	344	3.79	237	3.54	187	3.39	160
4	5.20	664	4.22	338	3.75	228	3.52	183	3.39	160
6	5.05	608	4.17	326	3.71	220	3.47	174	3.40	162
8	4.93	572	4.08	303	3.70	218	3.47	174	3.35	154
10	4.82	518	4.07	301	3.69	216	3.50	179	3.41	164
12	4.70	484	4.02	289	3.64	206	3.47	174	3.57	192

SUPPLEMENTAL RECORD.—Aug. 16, 7:30 p. m., gage height, 12.98 feet; discharge, 5,400 second-feet.

RIVANNA RIVER AT PALMYRA, VA.

LOCATION.—Lat. 37°51', long. 78°16', 200 feet downstream from highway bridge at Palmyra, Fluvanna County, half a mile upstream from Cunningham Creek, and 15 miles upstream from mouth. Datum of gage is 210.36 feet above mean sea level.

DRAINAGE AREA.—675 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements. Gage heights used to half-tenths between 3.1 and 4.4 feet; hundredths below and tenths above these limits.

JAMES RIVER BASIN

109

MAXIMA.—1940: Discharge, 16,300 second-feet 3:30 p.m. Aug. 17 (gage height, 21.78 feet).

1934-39: Discharge, 56,700 second-feet Apr. 26, 1937 (gage height, 33.35 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	481	1,570	9	255	745	17	15,500	290	25	657	290
2	386	828	10	227	525	18	7,020	285	26	635	481
3	320	613	11	209	434	19	2,640	275	27	618	326
4	290	514	12	275	380	20	1,820	270	28	588	270
5	275	458	13	277	344	21	1,360	260	29	530	255
6	290	428	14	468	320	22	1,100	255	30	514	245
7	564	392	15	3,970	308	23	918	231	31	630	-----
8	332	386	16	11,100	302	24	747	231			
Monthly mean discharge, in second-feet.....										1,774	417
Runoff, in inches.....										3.03	0.69

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	-----	-----	3.40	855	15.03	7,630	20.80	14,400	20.50	13,900
2	2.43	308	2.55	380	3.45	892	15.03	7,630	20.88	14,600	20.15	13,400
3	-----	-----	-----	-----	3.50	910	15.18	7,780	20.97	14,800	19.75	12,800
4	2.40	290	2.73	486	3.62	965	15.50	8,020	21.05	14,800	19.20	11,900
5	-----	-----	-----	-----	3.80	1,080	15.95	8,420	21.10	15,000	18.60	11,100
6	2.37	275	2.78	514	4.00	1,180	16.40	8,770	21.18	15,200	17.70	10,100
7	-----	-----	-----	-----	4.12	1,240	16.90	9,230	21.24	15,200	16.70	9,040
8	2.36	270	2.70	470	4.25	1,320	17.30	9,630	21.32	15,300	15.40	7,940
9	-----	-----	-----	-----	4.55	1,520	17.70	10,100	21.40	15,500	14.30	7,140
10	2.35	265	2.58	398	5.10	1,790	18.10	10,500	21.48	15,700	13.40	6,540
11	-----	-----	-----	-----	5.70	2,120	18.60	11,100	21.56	15,900	12.50	5,960
N	2.35	265	2.57	392	7.50	3,110	18.95	11,600	21.63	15,900	11.75	5,520
1	-----	-----	-----	-----	9.30	4,100	19.30	12,100	21.69	16,100	11.10	5,100
2	2.35	265	2.57	392	10.40	4,700	19.50	12,400	21.74	16,100	10.55	4,820
3	-----	-----	-----	-----	11.60	5,400	19.70	12,600	21.77	16,300	10.00	4,480
4	2.34	260	2.61	416	12.40	5,890	19.85	12,800	21.77	16,300	9.60	4,260
5	-----	-----	-----	-----	13.40	6,540	20.00	13,100	21.75	16,300	9.25	4,040
6	2.34	260	2.66	446	14.50	7,280	20.08	13,300	21.69	16,100	8.95	3,940
7	-----	-----	-----	-----	15.15	7,780	20.18	13,400	21.61	15,900	8.70	3,770
8	2.33	255	2.75	498	15.60	8,100	20.28	13,600	21.50	15,700	8.45	3,600
9	-----	-----	-----	-----	15.75	8,260	20.39	13,700	21.38	15,500	8.25	3,500
10	2.35	265	3.00	635	15.63	8,100	20.50	13,900	21.22	15,200	8.10	3,440
11	-----	-----	-----	-----	15.43	7,940	20.62	14,100	21.05	14,800	7.95	3,380
12	2.56	386	3.30	800	15.20	7,780	20.70	14,300	20.77	14,400	7.82	3,280

	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
2	7.55	3,160	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	7.32	3,000	5.58	2,060	4.54	1,460	3.97	1,160	3.63	992	3.31	800
6	7.10	2,890	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	6.90	2,780	5.34	1,900	4.40	1,400	3.89	1,130	3.56	938	3.27	772
10	6.72	2,670	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	6.57	2,620	5.14	1,790	4.28	1,350	3.82	1,080	3.49	910	3.21	745
2	6.43	2,500	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	6.30	2,450	4.93	1,680	4.19	1,300	3.76	1,050	3.44	892	3.16	718
6	6.17	2,400	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	6.03	2,280	4.80	1,620	4.12	1,240	3.76	1,050	3.39	855	3.12	690
10	5.90	2,230	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	5.78	2,180	4.70	1,570	4.05	1,210	3.72	1,020	3.36	828	3.10	690

SUPPLEMENTAL RECORD.—Aug. 17, 3:30 p. m., gage height, 21.78 feet; discharge 16,300 second-feet.

WILLIS RIVER AT FLANAGAN MILLS, VA.

LOCATION.—Lat. 37°40', long. 78°11', at highway bridge a quarter of a mile downstream from Flanagan Mills, Cumberland County, half a mile downstream from Trices Lake, and 4 miles downstream from Reynolds Creek. Datum of gage is 178.98 feet above mean sea level (levels by Corps of Engineers, War Department).

110 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—247 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,800 second-feet and extended to crest gage height of Apr. 27, 1937, on basis of velocity-area studies with backwater correction. Gage heights used to half-tenths between 4.9 and 6.6 feet to Aug. 17, between 4.8 and 6.4 feet thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 7,380 second-feet 12 m. to 2 p.m. Aug. 17 (gage height, 21.94 feet).

1926-35, 1936-39: Discharge, 9,580 second-feet Apr. 27, 1937 (gage height, 23.86 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	104	186	9	76	106	17	7,280	92	25	186	87
2	144	167	10	68	102	18	5,780	87	26	180	161
3	87	148	11	60	102	19	2,510	87	27	180	128
4	67	128	12	60	103	20	1,360	87	28	501	103
5	68	120	13	64	94	21	336	86	29	919	86
6	73	117	14	102	94	22	239	80	30	303	83
7	94	113	15	1,300	87	23	341	75	31	226	-----
8	86	103	16	5,120	87	24	242	80			
Monthly mean discharge, in second-feet-----										908	106
Runoff, in inches-----										4.24	0.48

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					7.00	534	14.30	2,200	21.50	7,120	21.35	7,040
2	3.68	60	3.74	63	7.80	686	14.70	2,380	21.58	7,200	21.25	6,950
3					8.60	844	15.10	2,580	21.65	7,200	21.10	6,860
4	3.68	60	3.74	63	9.30	986	15.60	2,880	21.72	7,290	20.95	6,780
5					9.75	1,090	16.15	3,210	21.75	7,290	20.80	6,700
6	3.68	60	3.81	67	10.00	1,130	16.70	3,550	21.79	7,290	20.65	6,610
7					10.30	1,200	17.30	3,980	21.83	7,380	20.50	6,520
8	3.68	60	3.85	69	10.55	1,260	17.75	4,320	21.86	7,380	20.30	6,360
9					10.70	1,280	18.25	4,740	21.88	7,380	20.10	6,270
10	3.71	62	3.87	70	10.85	1,310	18.65	5,000	21.91	7,380	19.95	6,180
11					11.00	1,350	19.05	5,340	21.93	7,380	19.75	6,020
N	3.84	68	3.99	78	11.20	1,380	19.40	5,590	21.94	7,380	19.50	5,840
1					11.40	1,400	19.75	5,840	21.94	7,380	19.30	5,760
2	3.87	70	4.03	81	11.70	1,470	20.00	6,100	21.94	7,380	19.08	5,590
3					11.95	1,520	20.25	6,270	21.94	7,290	18.85	5,420
4	3.81	67	4.15	92	12.20	1,570	20.45	6,440	21.93	7,290	18.62	5,340
5					12.45	1,620	20.65	6,610	21.92	7,290	18.40	5,160
6	3.85	69	4.18	94	12.65	1,670	20.80	6,700	21.89	7,290	18.18	5,000
7					12.85	1,690	20.95	6,780	21.87	7,290	17.95	4,910
8	3.78	65	4.45	122	13.02	1,720	21.07	6,860	21.82	7,290	17.70	4,660
9					13.20	1,780	21.17	6,860	21.75	7,200	17.50	4,570
10	3.73	62	5.05	200	13.45	1,840	21.26	6,950	21.67	7,200	17.25	4,400
11					13.70	1,960	21.35	7,040	21.57	7,120	17.00	4,230
12	3.78	65	6.20	388	14.00	2,100	21.43	7,040	21.47	7,120	16.75	4,060
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	16.30	3,720	12.80	1,670	6.92	427	5.77	261	5.52	226	5.90	282
4	15.85	3,380	12.62	1,640	6.68	397	5.73	254	5.58	233	5.80	268
6	15.42	3,040	12.42	1,590	6.52	367	5.69	247	5.73	254	5.73	254
8	15.00	2,720	12.20	1,570	6.40	352	5.65	247	6.10	310	5.67	247
10	14.65	2,440	11.95	1,520	6.28	331	5.61	240	6.65	382	5.65	247
N	14.35	2,320	11.65	1,470	6.20	324	5.58	233	6.95	427	5.66	247
2	14.05	2,100	11.30	1,400	6.10	310	5.55	233	7.08	459	5.62	240
4	13.82	2,000	10.80	1,290	6.06	303	5.54	226	7.00	443	5.55	233
6	13.60	1,920	10.00	1,100	5.98	289	5.54	226	6.80	412	5.50	226
8	13.35	1,840	8.95	808	5.92	282	5.52	226	6.50	367	5.39	206
10	13.17	1,780	7.95	600	5.87	275	5.50	226	6.23	324	5.35	206
12	13.00	1,720	7.30	492	5.82	268	5.49	219	6.04	296	5.33	199

LOCATION.—Lat. 37°33'52", long. 77°34'28", at canal bridge 400 feet downstream from head gates, 1,200 feet north of north end of Boshier Dam on James River, 1½ miles upstream from Westham Bridge, and 4½ miles west of city limits of Richmond, Henrico County. Datum of gage is 106.07 feet above mean sea level, datum of 1929.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,100 second-feet and extended above. Canal merges with river during extreme floods. Gage heights used to half-tenths between 2.3 and 4.0 feet; hundredths below and tenths above these limits.

1936-39: Discharge not determined.

REMARKS.—Canal diverts around station on James River near Richmond except during extreme floods.

[illegible]

LOCATION.—Lat. 37°18', long. 78°23', at highway bridge 1,000 feet north of town limits of Farmville, Prince Edward County, and 1¼ miles downstream from Buffalo Creek. Datum of gage is 281.93 feet above mean sea level, datum of 1929.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 12,000 second-feet and extended to crest gage height on basis of logarithmic plotting and peak flow for stations downstream. Gage heights used to half-tenths between 4.3 and 6.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 21,000 second-feet 4 p.m. Aug. 15 (gage height, 23.60 feet).

1926-39: Discharge observed, 13,900 second-feet Aug. 12, 1928 (gage height, 21.10 feet).

[illegible]

112 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	3.98	107	17.23	6,500	23.04	19,100						
2	3.98	107	18.33	8,260	22.97	19,100	21.81	15,700	16.15	5,150	12.11	1,590
3	4.01	110	19.20	9,890	22.83	18,500						
4	4.13	122	20.01	11,500	22.62	17,900	21.74	15,400	15.63	4,460	11.55	1,420
5	4.13	122	20.67	13,000	22.40	17,300						
6	4.39	151	21.25	14,200	22.16	16,700	21.58	15,200	15.16	4,040	11.01	1,280
7	4.39	151	21.80	15,700	21.94	15,900						
8	4.40	151	22.20	16,700	21.74	15,400	21.31	14,400	14.84	3,650	10.56	1,150
9	4.56	169	22.55	17,900	21.54	14,900						
10	4.49	163	22.84	18,500	21.35	14,700	20.95	13,700	14.57	3,380	10.20	1,070
11	4.87	208	23.06	19,400	21.16	14,200						
N	5.60	310	23.28	20,000	21.04	13,700	20.48	12,600	14.32	3,040	9.93	992
1	5.79	340	23.46	20,700	21.00	13,700						
2	6.75	508	23.54	20,700	21.01	13,700	19.93	11,300	14.06	2,800	9.64	920
3	8.25	800	23.58	21,000	21.06	13,900						
4	9.16	1,040	23.60	21,000	21.21	14,200	19.31	10,100	13.79	2,490	9.37	872
5	10.18	1,310	23.58	21,000	22.35	17,300						
6	11.26	1,620	23.52	20,700	21.46	14,900	18.67	8,960	13.52	2,250	9.14	800
7	12.40	1,990	23.42	20,400	21.55	15,200						
8	13.02	2,250	23.30	20,000	21.62	15,200	18.02	7,750	13.23	2,070	8.92	756
9	13.53	2,560	23.18	19,700	21.68	15,400						
10	14.26	3,200	23.15	19,700	21.73	15,400	17.35	6,800	12.92	1,920	8.72	712
11	15.20	4,040	23.12	19,400	21.78	15,700						
12	16.28	5,270	23.08	19,400	21.80	15,700	16.72	5,790	12.56	1,780	8.55	668
	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	8.39	646										
4	8.24	606	7.00	386	6.54	318	6.32	282	6.16	261	6.03	240
6	8.09	586										
8	7.96	546	6.96	378	6.48	303	6.39	296	6.17	261	6.02	240
10	7.84	526										
N	7.72	508	6.81	355	6.47	303	6.29	282	6.12	254	6.00	240
2	7.60	490										
4	7.47	472	6.73	340	6.43	296	6.26	275	6.10	254	5.98	234
6	7.37	445										
8	7.27	427	6.66	332	6.40	296	6.23	268	6.07	247	5.97	234
10	7.14	410										
12	7.12	402	6.59	325	6.34	289	6.06	247	6.05	247	5.97	234

APPOMATTOX RIVER AT MATTOAX, VA.

LOCATION.—Lat. 37°25', long. 77°52', at Southern Railway bridge at Mattoax, Amelia County, half a mile upstream from Skinquarter Creek. Datum of gage is 174.49 feet above mean sea level.

DRAINAGE AREA.—729 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except from 10 a.m. Aug. 17 to 12 m. Sept. 4. Gage heights Aug. 17-25 obtained from graph based on flood-mark, many chain gage readings, and comparison with records for other stations in James River Basin. Gage height Aug. 26 from gage reading. No gage-height record Aug. 27 to Sept. 3. Gage heights given to tenths from 10 a.m. Aug. 17 to 12 p.m. Aug. 25.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 20,000 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for other stations on Appomattox River. Gage heights used to half-tenths between 5.5 and 7.7 feet; hundredths below and tenths above these limits. Discharge for period Aug. 27 to Sept. 3 computed on basis of records for stations at Farmville and near Petersburg.

JAMES RIVER BASIN

113

MAXIMA.—1940: Discharge, 35,000 second-feet 8 a.m. to 12 m. Aug. 18 (gage height, 35.3 feet, from floodmark).

1900-1905, 1926-39: Discharge, 20,100 second-feet Apr. 28, 1937 (gage height, 29.97 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	916	650	9	323	349	17	26,600	289	25	614	273
2	474	550	10	257	332	18	34,300	289	26	557	289
3	332	470	11	226	332	19	28,600	273	27	520	349
4	265	434	12	218	332	20	18,300	273	28	500	298
5	257	414	13	234	332	21	8,640	265	29	750	265
6	306	395	14	336	314	22	2,920	257	30	600	257
7	340	376	15	3,830	298	23	905	249	31	520	-----
8	395	358	16	7,840	298	24	684	241			
Monthly mean discharge, in second-feet.....										4,566	337
Runoff, in inches.....										7.22	0.52

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	6.19	257	12.00	1,730	20.97	5,180	29.60	18,400	35.0	34,000	34.4	32,100
4	6.17	249	14.76	2,710	21.16	5,280	30.47	20,800	35.1	34,300	34.2	31,400
6	6.15	249	16.26	3,270	21.36	5,380	31.20	22,700	35.2	34,700	34.0	30,800
8	6.14	249	17.22	3,610	21.61	5,480	31.85	24,300	35.3	35,000	33.8	30,200
10	6.26	265	17.94	3,890	22.00	5,710	32.5	26,400	35.3	35,000	33.6	29,600
N	6.23	265	18.62	4,170	22.64	6,090	33.0	27,800	35.3	35,000	33.3	28,700
2	6.21	257	19.21	4,410	23.51	6,860	33.4	29,000	35.2	34,700	33.1	28,100
4	6.31	273	19.60	4,570	24.50	8,200	33.8	30,200	35.1	34,300	32.8	27,200
6	6.57	314	19.97	4,730	25.51	9,750	34.0	30,800	35.0	34,000	32.5	26,400
8	7.20	434	20.30	4,850	26.62	11,700	34.3	31,800	34.9	33,700	32.2	25,500
10	8.12	622	20.58	4,980	27.68	13,900	34.6	32,700	34.8	33,400	31.9	24,600
12	9.44	943	20.79	5,080	28.70	16,100	34.8	33,400	34.6	32,700	31.6	23,800
	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	31.3	22,900	26.8	12,100	20.9	4,980	10.2	1,080	8.9	739	8.5	645
4	31.0	22,100	26.4	11,300	20.0	4,610	10.0	1,020	8.8	715	8.5	645
6	30.7	21,300	26.0	10,600	19.0	4,210	9.9	997	8.8	715	8.5	645
8	30.3	20,200	25.5	9,750	17.6	3,650	9.7	943	8.7	691	8.5	645
10	29.9	19,100	25.0	8,950	16.4	3,190	9.6	916	8.7	691	8.5	645
N	29.6	18,400	24.6	8,350	15.0	2,680	9.5	890	8.6	668	8.4	622
2	29.2	17,400	24.2	7,770	13.9	2,280	9.4	864	8.6	668	8.3	600
4	28.8	16,400	23.7	7,100	12.8	1,900	9.3	838	8.6	668	8.2	578
6	28.4	15,400	23.2	6,540	11.9	1,600	9.2	818	8.6	668	8.2	578
8	28.0	14,500	22.8	6,230	11.2	1,370	9.1	788	8.5	645	8.2	578
10	27.6	13,700	22.2	5,830	10.8	1,250	9.0	763	8.5	645	8.2	578
12	27.2	12,800	21.6	5,480	10.4	1,140	8.9	739	8.5	645	8.2	578

APPOMATTOX RIVER NEAR PETERSBURG, VA.

LOCATION.—Lat. 37°14', long. 77°33', 1½ miles upstream from Wallace Creek, 2¼ miles upstream from dam of Virginia Electric & Power Co., and 7 miles west of Petersburg, Dinwiddie County.

DRAINAGE AREA.—1,335 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Sept. 13-14.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements. Gage heights used to half-tenths between 4.0 and 5.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 28,000 second-feet 10 a.m. to 12 m. Aug. 20 (gage height, 18.15 feet).

1927-39: Discharge, 18,800 second-feet Apr. 30, 1937 (gage height, 14.85 feet, from floodmarks).

114 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,460	1,100	9	544	483	17	22,400	426	25	979	356
2	916	1,020	10	432	477	18	25,000	426	26	868	448
3	564	844	11	380	471	19	26,700	421	27	844	525
4	416	692	12	333	483	20	27,700	410	28	836	512
5	346	597	13	333	480	21	26,300	405	29	1,180	438
6	505	558	14	684	460	22	22,200	390	30	868	395
7	780	525	15	9,610	438	23	15,500	375	31	1,000	-----
8	618	507	16	16,300	432	24	4,290	360			
Monthly mean discharge, in second-feet.....										6,803	515
Runoff, in inches.....										5.88	0.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	2.95	338	6.70	3,840	12.65	13,400	15.60	20,800	16.92	24,300	17.48	26,000
4	2.96	342	8.72	6,380	12.78	13,900	15.73	21,000	16.96	24,600	17.54	26,000
6	2.97	346	9.76	7,950	12.92	14,100	15.88	21,500	17.00	24,600	17.60	26,300
8	2.98	351	10.30	8,730	13.09	14,500	16.01	21,800	17.05	24,600	17.66	27,600
10	2.98	351	10.68	9,400	13.32	15,000	16.13	22,100	17.09	24,900	17.72	26,600
N	3.00	360	11.15	10,400	13.70	16,000	16.23	22,400	17.13	24,900	17.78	26,800
2	3.08	400	11.60	11,200	14.07	16,900	16.35	22,900	17.17	25,200	17.83	26,800
4	3.26	501	11.84	11,700	14.46	17,900	16.49	23,200	17.22	25,200	17.88	27,100
6	3.60	740	12.06	12,300	14.78	18,700	16.60	23,500	17.26	25,400	17.93	27,100
8	4.18	1,230	12.23	12,500	15.00	19,200	16.71	23,800	17.31	25,400	17.98	27,400
10	4.80	1,800	12.38	13,000	15.24	19,700	16.79	24,000	17.37	25,700	18.02	27,400
12	5.53	2,550	12.51	13,200	15.43	20,200	16.85	24,000	17.43	25,700	18.05	27,400
	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	18.09	27,700	17.99	27,400	16.90	24,300	14.80	18,700	11.09	10,200	4.04	1,100
4	18.11	27,700	17.93	27,100	16.76	24,000	14.58	18,200	10.50	9,050	4.00	1,060
6	18.13	27,700	17.87	27,100	16.63	23,500	14.34	17,400	9.45	7,360	3.97	1,040
8	18.14	27,700	17.80	26,800	16.49	23,200	14.09	16,900	7.94	5,320	3.93	1,000
10	18.15	28,000	17.73	26,600	16.34	22,600	13.85	16,200	6.48	3,600	3.90	980
N	18.15	28,000	17.65	26,300	16.18	22,400	13.58	15,700	5.47	2,450	3.87	956
2	18.14	27,700	17.56	26,300	16.01	21,800	13.30	15,000	4.88	1,900	3.85	940
4	18.13	27,700	17.46	26,000	15.83	21,300	13.01	14,300	4.54	1,550	3.84	932
6	18.11	27,700	17.36	25,700	15.65	20,800	12.71	13,600	4.35	1,360	3.82	916
8	18.09	27,700	17.26	25,400	15.46	20,500	12.39	13,000	4.23	1,280	3.81	908
10	18.06	27,700	17.15	25,200	15.27	20,000	12.04	12,100	4.15	1,180	3.80	900
12	18.03	27,400	17.03	24,600	15.06	19,500	11.66	11,400	4.09	1,140	3.79	892

CHOWAN RIVER BASIN

NOTTOWAY RIVER NEAR STONY CREEK, VA.

LOCATION.—Lat. 36°54'00", long. 77°24'00", at bridge on Petersburg-Emporia highway 2 miles upstream from Island Swamp Creek and 3½ miles south of town of Stony Creek, Sussex County.

DRAINAGE AREA.—586 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except from 8 a.m. Aug. 22 to 1 p.m. Aug. 27 and from 10 p.m. Aug. 28 to 3 p.m. Sept. 4.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 13,000 second-feet and extended to crest gage height by logarithmic plotting on basis of comparison of flood records with those for Meherrin River near Lawrenceville and those for stations on Appomattox River. Gage heights used to half-tenths between 3.1 and 5.0 feet; hundredths below and tenths above these limits. Discharge for periods of no gage-height record computed on basis of records for Meherrin River near Lawrenceville.

MAXIMA.—1940: Discharge, 25,200 second-feet 9 a.m. Aug. 17 (gage height, 23.66 feet).

1930-39: Discharge, 11,500 second-feet Apr. 28, 1937 (gage height, 20.00 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	250	500	9	189	241	17	24,000	224	25	450	267
2	232	450	10	148	241	18	18,200	216	26	440	224
3	224	400	11	130	267	19	12,300	208	27	450	224
4	152	330	12	159	294	20	7,200	203	28	520	192
5	130	294	13	224	285	21	1,810	198	29	1,500	176
6	129	276	14	272	250	22	800	190	30	1,000	170
7	208	267	15	5,980	232	23	600	178	31	500	-----
8	183	258	16	15,900	224	24	500	170			
Monthly mean discharge, in second-feet-----										3,057	255
Runoff, in inches-----										6.02	0.49

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			3.01	198	9.29	1,850				
2	3.20	232	2.99	195	10.68	2,300	19.90	11,800	23.39	23,700
3			2.97	192	11.78	2,670				
4	3.26	241	2.95	189	12.62	2,960	20.08	12,200	23.50	24,200
5			2.93	186	13.18	3,260				
6	3.28	241	2.91	183	13.62	3,510	20.31	12,600	23.61	24,700
7			2.89	180	13.98	3,810				
8	3.27	241	2.88	178	14.27	4,060	20.65	13,200	23.64	24,700
9			2.86	176	14.54	4,240				
10	3.22	232	2.85	174	14.81	4,540	21.04	14,100	23.65	24,700
11			2.84	172	15.17	4,960				
N	3.18	224	2.83	171	15.50	5,300	21.35	15,200	23.63	24,700
1			2.83	171	15.86	5,780				
2	3.14	216	2.83	171	16.25	6,140	21.63	15,800	23.59	24,700
3			2.84	172	16.70	6,790				
4	3.10	216	2.87	177	17.19	7,460	21.98	17,400	23.54	24,200
5			2.98	194	17.64	8,020				
6	3.09	208	3.15	224	18.05	8,600	22.44	19,100	23.44	23,700
7			3.40	267	18.40	9,210				
8	3.09	208	3.65	313	18.74	9,690	22.78	20,900	23.33	23,200
9			4.02	385	19.03	10,200				
10	3.07	208	4.76	554	19.27	10,700	23.03	21,800	23.20	22,800
11			6.20	909	19.48	11,100				
12	3.04	203	7.80	1,380	19.64	11,300	23.23	22,800	23.06	22,300
Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21			
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge		
2	22.92	21,300	21.00	14,100	18.57	9,530	12.66	3,000		
4	22.78	20,900	20.82	13,600	18.31	9,050	11.65	2,600		
6	22.65	20,000	20.64	13,200	18.04	8,600	10.75	2,330		
8	22.51	19,500	20.46	13,000	17.75	8,300	9.94	2,040		
10	22.37	19,100	20.27	12,600	17.45	7,740	9.19	1,820		
N	22.20	18,200	20.11	12,200	17.15	7,460	8.56	1,590		
2	22.02	17,400	19.99	12,000	16.83	6,920	8.05	1,440		
4	21.86	17,000	19.79	11,600	16.47	6,530	7.61	1,320		
6	21.69	16,200	19.59	11,300	16.04	5,900	7.26	1,190		
8	21.52	15,500	19.36	10,900	15.48	5,300	6.96	1,110		
10	21.34	14,900	19.10	10,400	14.64	4,340	6.71	1,020		
12	21.16	14,600	18.85	9,860	13.67	3,580	6.53	964		

SUPPLEMENTAL RECORD.—Aug. 17, 9 a. m., gage height, 23.66 feet; discharge, 25,200 second-feet.

MEHERRIN RIVER NEAR LAWRENCEVILLE, VA.

LOCATION.—Lat. 36°43'00", long. 77°50'00", at Gholson Bridge, 1 mile upstream from Allen Creek and 3 miles southeast of Lawrenceville, Brunswick County. Datum of gage is 136.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—553 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 10 a.m. Aug. 15 to 5 p.m. Aug. 27, 1 p.m. Sept. 1 to 4 p.m. Sept. 6, 4 p.m. Sept. 8 to 9 a.m. Sept. 12, and 9 a.m. Sept. 16 to 4 p.m. Sept. 17. Gage heights Aug. 15-24 obtained from graph based on floodmark and twice-daily gage readings. Chain gage read twice daily Aug. 25-27.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 13,000 second-feet and extended to crest gage height on basis of logarithmic plotting, unit hydrograph, and velocity-area studies, and comparisons of flood records with those for Nottoway River near Stony Creek. Gage heights used to half-tenths between 3.0 and 4.4 feet; hundredths below and tenths above these limits. Discharge for periods of no gage-height record computed on basis of records for Nottoway River near Stony Creek.

MAXIMA.—1940: Discharge, 38,000 second-feet 2 a.m. Aug. 17 (gage height, 42.0 feet from floodmark).

1928-39: Discharge, 17,300 second-feet Apr. 27, 1937 (gage height, 30.92 feet, from floodmarks).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished data and computations used as factors in the determination of stage-discharge relation.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.48	149	2.59	166	21.05	6,480	---	---	---	---	---	---
2	2.50	152	2.58	165	22.35	7,660	34.6	23,300	42.0	38,000	38.0	29,500
3	2.51	154	2.56	162	23.68	8,900	---	---	---	---	---	---
4	2.54	158	2.55	160	24.30	9,530	36.1	26,000	41.9	37,800	37.5	28,600
5	2.60	168	2.54	158	24.64	9,860	---	---	---	---	---	---
6	2.66	179	2.53	157	25.00	10,300	37.2	28,000	41.7	37,300	37.0	27,600
7	2.74	193	2.52	155	25.36	10,700	---	---	---	---	---	---
8	2.91	224	2.62	172	25.76	11,200	38.3	30,100	41.5	36,800	36.5	26,700
9	2.91	224	2.58	165	26.12	11,500	---	---	---	---	---	---
10	2.93	228	2.55	160	26.4	11,800	39.2	31,900	41.3	36,400	35.9	25,600
11	2.94	230	2.54	158	26.8	12,300	---	---	---	---	---	---
N	2.95	232	2.53	157	27.2	12,700	39.9	33,300	41.0	35,700	35.3	24,500
1	2.94	230	2.39	135	27.6	13,200	---	---	---	---	---	---
2	2.92	226	2.48	149	28.0	13,700	40.5	34,600	40.7	35,000	34.7	23,500
3	2.90	222	2.90	222	28.4	14,200	---	---	---	---	---	---
4	2.87	217	3.78	406	28.9	14,800	41.0	35,700	40.4	34,400	34.1	22,500
5	2.84	211	5.00	675	29.4	15,400	---	---	---	---	---	---
6	2.83	209	7.96	1,490	29.8	15,900	41.3	36,400	40.0	33,500	33.5	21,500
7	2.81	206	11.85	2,690	30.5	16,800	---	---	---	---	---	---
8	2.76	197	14.80	3,700	31.0	17,600	41.6	37,100	39.5	32,500	32.9	20,500
9	2.72	190	16.42	4,250	31.6	18,500	---	---	---	---	---	---
10	2.66	162	17.58	4,670	32.2	19,400	41.7	37,300	39.0	31,500	32.3	19,600
11	2.68	165	18.50	5,010	32.8	20,400	---	---	---	---	---	---
12	2.69	166	19.75	5,660	33.4	21,300	41.9	37,800	38.5	30,500	31.6	18,500
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	30.9	17,400	19.5	5,480	---	---	---	---	---	---	---	---
4	30.2	16,400	18.0	4,810	5.1	700	4.4	538	4.2	494	3.9	428
6	29.5	15,500	16.4	4,250	---	---	---	---	---	---	---	---
8	28.8	14,700	14.9	3,740	4.9	652	4.3	516	4.1	472	3.8	406
10	27.9	13,600	12.4	2,890	---	---	---	---	---	---	---	---
N	27.0	12,500	10.0	2,110	4.8	629	4.3	516	4.0	450	3.7	385
2	26.2	11,600	7.5	1,340	---	---	---	---	---	---	---	---
4	25.4	10,700	6.4	1,030	4.7	606	4.3	516	4.0	450	3.7	385
6	24.4	9,640	5.8	875	---	---	---	---	---	---	---	---
8	23.4	8,600	5.5	800	4.6	583	4.2	494	3.9	428	3.7	385
10	22.1	7,390	5.4	775	---	---	---	---	---	---	---	---
12	21.0	6,480	5.3	750	4.5	560	4.2	494	3.9	428	3.7	385

ROANOKE RIVER BASIN

ROANOKE RIVER AT ROANOKE, VA.

LOCATION.—Lat. 37°15'30", long. 79°56'20", at Walnut Street Bridge in Roanoke, Roanoke County, 3 miles upstream from Tinker Creek. Datum of gage is 906.84 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—388 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,500 second-feet and extended to crest gage height by logarithmic plotting on basis of slope-area measurement, unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 2.5 and 4.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 28,000 second-feet 10:30 p.m. Aug. 14 (gage height, 18.25 feet).

1896-1939: Discharge observed, 16,900 second-feet Aug. 6, 1901 (gage height, 14.34 feet).

The flood of August 1928 exceeded that of 1901 but was less than that of August 1940, according to local information; crest not recorded by gage observer.

ROANOKE RIVER AT NIAGARA, VA.

LOCATION.—Lat. 37°15'18", long. 79°52'18", 200 feet downstream from power plant of Appalachian Electric Power Co. at Niagara, Roanoke County, and 2 miles downstream from Tinker Creek. Datum of gage is 820.15 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—511 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder not operating Aug. 1 to Sept. 9. Gage heights Aug. 14-19 obtained to tenths from graph based on floodmark, unit-hydrograph and flood-routing studies, and comparisons with flood records for other stations in Roanoke River Basin. No gage heights Aug. 1-13, Aug. 20 to Sept. 9.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 12,000 second-feet and extended to crest gage height by logarithmic plotting on basis of velocity-area studies, unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to tenths throughout. Discharge for periods Aug. 1-13 and Aug. 20 to Sept. 9 computed on basis of output of Niagara power plant and records for stations at Roanoke and near Toshes.

MAXIMA.—1940: Discharge, 35,000 second-feet about 8 to 10 p.m. Aug. 14 (gage height, 17.5 feet, from floodmark).

1926-39: Discharge, 34,400 second-feet Aug. 16, 1928 (gage height, 17.36 feet).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation and in preparation of graph.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	320	2,400	9	240	570	17	7,090	356	25	720	328
2	230	1,400	10	230	533	18	3,300	366	26	720	356
3	200	1,100	11	190	522	19	2,010	352	27	680	310
4	170	910	12	350	474	20	1,300	325	28	600	268
5	170	780	13	310	442	21	1,100	339	29	740	269
6	310	740	14	19,600	438	22	940	304	30	1,500	298
7	200	680	15	24,400	420	23	860	307	31	4,100	-----
8	430	600	16	18,200	414	24	790	293			
Monthly mean discharge, in second-feet.....										2,968	563
Runoff, in inches.....										6.70	1.23

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	5.0	1,470	17.1	32,600	15.0	22,500	11.3	10,100	-----	-----	-----	-----
4	6.3	2,490	16.6	30,000	15.0	22,500	10.9	9,080	7.9	4,040	6.0	2,230
6	8.5	4,700	16.0	27,000	14.9	22,100	10.6	8,380	-----	-----	-----	-----
8	10.9	9,080	15.2	23,400	14.6	20,900	10.3	7,710	7.5	3,630	5.8	2,070
10	13.3	16,000	14.6	20,900	14.2	19,300	10.1	7,280	-----	-----	-----	-----
N	15.0	22,500	14.6	20,900	13.9	18,200	9.9	6,870	7.1	3,230	5.7	1,990
2	15.9	26,600	15.0	22,500	13.7	17,400	9.6	6,290	-----	-----	-----	-----
4	16.7	30,500	15.2	23,400	13.5	16,800	9.4	5,930	6.7	2,850	5.6	1,910
6	17.3	33,800	15.0	22,500	13.1	15,400	9.1	5,450	-----	-----	-----	-----
8	17.5	35,000	14.8	21,700	12.7	14,100	8.9	5,170	6.4	2,580	5.5	1,830
10	17.5	35,000	14.5	20,500	12.2	12,600	8.7	4,920	-----	-----	-----	-----
12	17.4	34,400	14.7	21,300	11.7	11,200	8.4	4,590	6.2	2,400	5.3	1,680

120 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

ROANOKE RIVER NEAR TOSHES, VA.

LOCATION.—Lat. 37°02'03", long. 79°31'18", 1¾ miles downstream from Witchers Creek, 3 miles upstream from Pigg River, and 5 miles northwest of Toshes, Pittsylvania County. Datum of gage is 588.99 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,020 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 11 p.m. Aug. 14 to 8 a.m. Aug. 15 when float was stopped by recorder shelf at stage of 26.62 feet, and Aug. 22-30, Sept. 4-22. Synthetic graph was drawn for crest stages based on high-water mark in gage house and extension of rising and receding recorder graphs.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 31,000 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 2.4 and 4.0 feet; hundredths below and tenths above these limits. Discharge for period when intake was stopped computed on basis of records for stations at Niagara and Altavista.

MAXIMA.—1940: Discharge, 70,000 second-feet 1.30 a.m. Aug. 15 (gage height, 27.36 feet, from floodmark).

1925-39: Discharge, 29,500 second-feet Oct. 19, 1937 (gage height, 20.45 feet).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1			2.27	848	27.35	70,000		
2	2.47	982	2.30	870	27.35	70,000	23.26	39,900
3			2.34	900	27.26	69,200		
4	2.45	982	2.44	982	27.11	67,500	22.92	38,000
5			2.64	1,140	26.97	66,700		
6	2.44	982	2.88	1,340	26.82	65,100	22.55	36,600
7			3.33	1,700	26.70	64,300		
8	2.54	1,060	4.00	2,260	26.60	63,600	22.32	35,400
9			5.20	3,430	26.50	62,700		
10	2.57	1,060	8.00	6,980	26.39	61,900	22.15	35,000
11			11.15	11,800	26.28	61,100		
N	2.56	1,060	13.10	14,900	26.17	60,300	22.20	35,000
1			14.85	17,800	25.98	58,700		
2	2.52	1,020	16.45	21,000	25.67	56,300	22.16	35,000
3			18.20	24,600	25.30	53,200		
4	2.49	1,020	20.40	29,500	24.90	50,200	21.87	33,800
5			22.00	34,200	24.50	47,400		
6	2.45	982	23.30	39,900	24.09	44,600	21.48	32,200
7			24.30	46,000	23.74	42,200		
8	2.38	930	25.17	52,500	23.50	41,000	21.33	31,600
9			25.67	56,300	23.42	40,400		
10	2.29	862	26.25	60,300	23.45	40,400	20.98	30,800
11			26.73	64,300	23.47	41,000		
12	2.25	832	27.18	68,400	23.46	41,000	20.28	29,300

	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	19.40	27,300	10.7	11,000	7.1	5,750		
4	18.38	25,100	10.2	10,200	6.9	5,490	5.4	3,650
6	17.55	23,400	9.9	9,750	6.8	5,360		
8	16.60	21,400	9.5	9,150	6.6	5,100	5.2	3,430
10	15.73	19,600	9.1	8,550	6.4	4,840		
N	14.88	18,000	8.8	8,100	6.3	4,720	5.0	3,210
2	14.16	16,800	8.5	7,680	6.2	4,600		
4	13.52	15,600	8.2	7,260	6.0	4,360	4.9	3,110
6	12.92	14,500	7.9	6,840	5.9	4,240		
8	12.2	13,400	7.7	6,560	5.8	4,120	4.7	2,910
10	11.7	12,600	7.5	6,280	5.7	4,000		
12	11.1	11,600	7.3	6,010	5.6	3,880	4.5	2,710

SUPPLEMENTAL RECORD.—Aug. 15, 1:30 a. m., gage height, 27.36 feet; discharge, 70,000 second-feet.

ROANOKE RIVER AT ALTAVISTA, VA.

LOCATION.—Lat. 37°06'21", long. 79°17'38", at highway bridge a quarter of a mile south of Altavista, Campbell County, half a mile downstream from Sycamore Creek, and 3½ miles upstream from Otter River. Datum of gage is 503.25 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,802 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period 4 p.m. Aug. 14 to 7 a.m. Aug. 16, where record was based on floodmark and comparison with flood records for other stations in Roanoke River Basin.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 41,000 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 3.1 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 105,000 second-feet 6 a.m. Aug. 15 (gage height, 40.08 feet, from floodmark).

1930-39: Discharge, 57,000 second-feet Oct. 20, 1937 (gage height, 31.27 feet).

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REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,940	8,600	9	2,100	1,820	17	42,700	1,340	25	2,340	1,300
2	1,460	4,660	10	1,160	1,700	18	13,900	1,260	26	2,180	1,660
3	1,100	3,400	11	999	1,660	19	7,140	1,260	27	2,020	1,340
4	968	2,740	12	1,300	1,580	20	4,790	1,230	28	1,980	1,160
5	939	2,500	13	1,740	1,500	21	3,760	1,230	29	2,020	1,130
6	968	2,260	14	30,200	1,460	22	3,310	1,200	30	2,100	1,100
7	1,610	2,100	15	98,300	1,420	23	2,820	1,130	31	7,020	-----
8	1,570	1,940	16	69,800	1,380	24	2,420	1,130			
Monthly mean discharge, in second-feet-----										10,210	1,940
Runoff, in inches-----										6.54	1.20

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	4.54	1,660	39.4	101,000	-----	-----
2	4.97	1,980	4.54	1,660	39.6	102,000	36.1	80,600
3	-----	-----	4.55	1,660	39.8	103,000	-----	-----
4	4.91	1,940	4.57	1,660	39.9	104,000	35.5	77,200
5	-----	-----	4.59	1,700	40.0	104,000	-----	-----
6	4.80	1,860	4.67	1,740	40.08	105,000	35.0	74,500
7	-----	-----	4.92	1,940	40.0	104,000	-----	-----
8	4.69	1,780	5.38	2,340	40.0	104,000	34.62	72,400
9	-----	-----	6.75	3,490	39.9	104,000	-----	-----
10	4.61	1,700	8.40	4,930	39.8	103,000	34.26	70,900
11	-----	-----	11.50	7,980	39.6	102,000	-----	-----
N	4.53	1,660	18.50	18,800	39.5	101,000	33.93	68,800
1	-----	-----	21.90	26,600	39.4	101,000	-----	-----
2	4.49	1,620	24.10	32,200	39.2	99,300	33.57	67,400
3	-----	-----	25.40	35,900	39.0	98,000	-----	-----
4	4.48	1,620	26.7	39,900	38.8	96,800	33.20	65,500
5	-----	-----	28.6	46,500	38.6	95,600	-----	-----
6	4.49	1,620	30.3	52,900	38.3	93,800	32.93	64,000
7	-----	-----	32.2	60,900	38.1	92,600	-----	-----
8	4.51	1,620	34.0	69,300	37.8	90,800	32.64	62,700
9	-----	-----	35.9	79,400	37.6	89,600	-----	-----
10	4.48	1,620	37.2	87,200	37.3	87,800	32.35	61,800
11	-----	-----	38.3	93,800	37.0	86,000	-----	-----
12	4.51	1,620	38.9	97,400	36.7	84,200	32.00	60,000
	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	31.57	58,300	19.42	20,800	12.50	8,600	9.95	5,500
4	30.93	55,300	18.40	18,600	12.21	8,300	9.81	5,350
6	30.33	52,900	17.50	16,800	11.92	7,900	9.68	5,200
8	29.57	50,200	16.63	15,000	11.65	7,600	9.56	5,000
10	28.66	46,800	15.88	13,800	11.44	7,300	9.45	4,870
N	27.65	42,900	15.30	12,700	11.21	7,000	9.34	4,730
2	26.55	39,600	14.75	11,900	11.00	6,800	9.23	4,600
4	25.45	35,900	14.27	11,200	10.81	6,550	9.12	4,500
6	24.30	32,700	13.77	10,500	10.60	6,300	9.01	4,370
8	23.10	29,600	13.54	9,900	10.41	6,100	8.91	4,270
10	21.90	26,600	13.21	9,500	10.24	5,850	8.81	4,180
12	20.64	23,500	12.81	9,100	10.09	5,700	8.72	4,100

LOCATION.—Lat. 37°02'22", long. 78°56'41", at highway bridge at Virginian Railway station at Brookneal, Campbell County, 2¾ miles upstream from Falling River. Datum of gage is 352.02 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 6 a.m. Aug. 15 to Sept. 30. Gage heights to tenths 6 a.m. Aug. 15 to 12 p.m. Aug. 19 and to tenths and half-tenths Aug. 20-21 were obtained from graph based on flood-mark, several slope gage readings, unit-hydrograph and flood-routing studies, and comparison with flood records for other stations in the Roanoke River Basin. Gage heights subsequent to Aug. 21 obtained from twice-daily slope gage readings except for periods of no gage-height record Aug. 22-25, 27, 28, Sept. 1, 8.

MAXIMA.—1940: Discharge, 130,000 second-feet about 7 p.m. Aug. 15 (gage height, 46.0 feet, from floodmark).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., cooperated in completing field work for determination of flood flow by slope-area method and in furnishing computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation and in preparation of stage graph during flood period.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,840	12,000	9	2,210	2,330	17	80,600	1,780	25	3,100	1,540
2	2,000	5,930	10	1,720	2,190	18	33,100	1,720	26	2,950	2,120
3	1,560	4,260	11	1,380	2,120	19	11,600	1,600	27	2,700	1,910
4	1,350	3,450	12	1,410	2,050	20	6,890	1,660	28	2,600	1,660
5	1,320	3,030	13	1,910	1,980	21	5,120	1,660	29	2,550	1,600
6	1,320	2,790	14	20,800	1,840	22	4,300	1,540	30	3,030	1,540
7	1,530	2,710	15	112,000	1,840	23	3,600	1,540	31	8,520	-----
8	2,000	2,500	16	113,000	1,780	24	3,300	1,510			
Monthly mean discharge, in second-feet.....									14,270		2,539
Runoff, in inches.....									6.80		1.17

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Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1			5.56	1,930	35.00	65,200				
2	4.93	1,500	5.58	1,930	36.05	70,200	45.5	127,000	40.8	96,800
3			5.61	1,930	37.05	75,200				
4	5.12	1,590	5.69	2,000	38.15	81,800	45.1	124,000	40.5	95,000
5			5.87	2,140	39.20	87,300				
6	5.42	1,790	5.89	2,140	40.4	94,400	44.7	121,000	40.1	92,600
7			5.92	2,140	41.6	102,000				
8	5.64	1,930	6.05	2,210	42.6	108,000	44.2	118,000	39.7	90,200
9			6.40	2,520	43.6	114,000				
10	5.76	2,070	7.35	3,360	44.3	119,000	43.8	116,000	39.1	86,800
11			9.30	5,120	44.9	123,000				
N	5.87	2,140	15.90	12,500	45.2	125,000	43.4	113,000	38.5	83,400
1			19.50	17,700	45.5	127,000				
2	5.91	2,140	22.30	22,400	45.7	128,000	42.9	110,000	37.7	79,000
3			24.80	27,200	45.8	129,000				
4	5.86	2,140	26.40	31,600	45.8	129,000	42.5	107,000	36.7	73,800
5			27.60	35,200	45.9	129,000				
6	5.83	2,070	28.65	38,600	45.9	129,000	42.2	105,000	35.7	69,000
7			29.75	42,800	46.0	130,000				
8	5.72	2,000	30.90	47,100	45.9	129,000	41.8	103,000	34.7	64,000
9			31.90	51,100	45.9	129,000				
10	5.62	1,930	32.75	55,000	45.8	129,000	41.5	101,000	33.4	59,500
11			33.50	58,200	45.8	129,000				
12	5.55	1,930	34.20	61,300	45.7	128,000	41.2	99,200	32.2	55,000

Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	31.0	51,000	16.4	15,700	11.6	8,100	9.85	5,600
4	29.7	46,500	15.6	14,300	11.4	7,800	9.75	5,460
6	28.5	42,500	15.0	13,300	11.3	7,550	9.65	5,360
8	27.1	38,500	14.4	12,600	11.1	7,300	9.55	5,280
10	25.7	35,000	14.0	11,800	10.95	7,000	9.45	5,200
N	24.4	31,500	13.6	11,100	10.8	6,800	9.35	5,100
2	23.0	28,000	13.2	10,600	10.65	6,550	9.25	5,000
4	21.6	25,100	12.8	10,000	10.5	6,400	9.20	4,900
6	20.3	22,900	12.5	9,500	10.35	6,200	9.15	4,850
8	19.1	20,800	12.2	9,100	10.25	6,000	9.10	4,780
10	18.0	19,000	12.0	8,800	10.15	5,880	9.00	4,700
12	17.2	17,300	11.8	8,400	10.0	5,750	8.95	4,650

ROANOKE RIVER NEAR CLOVER, VA.

LOCATION.—Lat. 36°50'17", long. 78°40'02", at highway bridge 3½ miles downstream from Roanoke Creek and 6 miles east of Clover, Halifax County. Datum of gage is 302.91 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—3,230 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 3 a.m. Aug. 16 to Aug. 30. Gage heights Aug. 16-21 obtained from graph based on floodmarks, 2 gage readings, unit-hydrograph and flood-routing studies, and comparison of flood records with those for other stations in Roanoke River Basin. No gage-height record Aug. 22-30.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 70,000 second-feet and extended to crest gage height by logarithmic plotting on basis of slope-area measurement, unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 1.9 and 3.8 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record computed on basis of records for stations at Brookneal and Clarksville.

MAXIMA.—1940: Discharge, 160,000 second-feet 6 p.m. Aug. 16 (gage height, 37.15 feet, from floodmark).

1929-39: Discharge observed, 56,400 second-feet Mar. 19, 1936 (gage height, 23.49 feet), but peak discharge of flood of Oct. 20 or 21, 1937, may have been as great.

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation and in preparation of stage graph during flood period.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	5,590	9,990	9	2,190	3,090	17	137,000	2,290	25	4,300	1,850
2	2,650	9,840	10	2,540	2,980	18	89,000	2,190	26	4,000	2,040
3	2,090	9,950	11	1,850	2,870	19	41,400	2,140	27	3,800	2,490
4	1,760	4,750	12	1,760	2,700	20	13,300	2,090	28	3,500	2,140
5	1,580	4,080	13	1,810	2,600	21	7,550	2,040	29	3,400	1,940
6	1,580	3,860	14	7,630	2,490	22	5,800	2,040	30	3,600	1,900
7	1,850	3,530	15	58,100	2,390	23	4,900	1,940	31	3,860	-----
8	2,390	3,310	16	147,000	2,340	24	4,600	1,900			
Monthly mean discharge, in second-feet -----										18,460	3,192
Runoff, in inches -----										6.60	1.10

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			3.30	2,240	16.96	23,700	32.92	119,000		
2	2.77	1,720	3.35	2,290	17.35	25,000	33.40	124,000	36.5	154,000
3			3.40	2,340	17.78	26,200	33.80	127,000		
4	2.77	1,720	3.43	2,390	18.21	27,600	34.3	132,000	36.3	152,000
5			3.47	2,390	18.67	29,500	34.6	134,000		
6	2.77	1,720	3.49	2,440	19.20	31,400	34.9	138,000	35.9	148,000
7			3.51	2,440	19.77	34,000	35.2	140,000		
8	2.77	1,720	3.53	2,490	20.45	36,800	35.5	144,000	35.7	146,000
9			3.54	2,490	21.20	40,600	35.8	146,000		
10	2.77	1,720	3.59	2,540	21.98	44,500	36.0	148,000	35.3	142,000
11			3.67	2,600	22.70	48,000	36.2	150,000		
N	2.78	1,760	3.78	2,760	23.48	52,300	36.4	152,000	34.9	138,000
1			4.70	3,750	24.25	56,200	36.6	154,000		
2	2.80	1,760	6.65	5,950	25.10	61,600	36.7	156,000	34.5	134,000
3			8.30	7,990	25.80	65,800	36.9	158,000		
4	2.82	1,760	9.55	9,680	26.55	70,700	37.0	158,000	34.1	130,000
5			10.70	11,100	27.33	75,600	37.1	160,000		
6	2.88	1,850	11.95	13,000	28.15	81,900	37.15	160,000	33.7	126,000
7			13.05	14,600	28.90	86,800	37.1	160,000		
8	2.98	1,940	14.00	16,500	29.80	93,400	37.1	160,000	33.3	123,000
9			14.78	18,200	30.65	99,800	37.0	158,000		
10	3.11	2,040	15.46	19,800	31.30	105,000	37.0	158,000	32.8	118,000
11			15.98	21,000	31.90	110,000	36.9	158,000		
12	3.24	2,190	16.54	22,300	32.40	115,000	36.9	158,000	32.3	114,000

Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	31.9	110,000	24.8	59,800	15.2	19,100	8.8	8,640
4	31.4	106,000	24.1	55,600	14.5	17,600	8.6	8,380
6	30.9	102,000	23.3	51,200	13.7	15,900	8.4	8,120
8	30.3	97,400	22.6	47,500	13.0	14,600	8.1	7,750
10	29.8	93,400	21.8	43,500	12.3	13,500	8.0	7,630
N	29.2	88,900	21.0	39,600	11.6	12,400	7.8	7,390
2	28.6	84,700	20.2	35,800	11.1	11,700	7.7	7,270
4	28.0	80,500	19.4	32,300	10.5	10,800	7.6	7,150
6	27.4	76,300	18.6	29,100	10.1	10,300	7.5	7,030
8	26.8	72,100	17.7	25,900	9.7	9,810	7.3	6,790
10	26.1	67,600	16.9	23,400	9.4	9,420	7.2	6,670
12	25.5	64,000	16.0	21,000	9.1	9,030	7.1	6,550

126 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

ROANOKE RIVER AT CLARKSVILLE, VA.

LOCATION.—At mouth of Dan River. Gage is water-stage recorder, lat. 36°37'40", long. 78°33'04", at highway bridge in Clarksville, Mecklenburg County, 500 feet upstream from Dan River. Datum of gage is 258.23 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—7,320 square miles (including that of Dan River).

GAGE-HEIGHT RECORD.—Water-stage recorder graph. Intake stopped Aug. 1-4.

DISCHARGE RECORD.—Includes flow of Dan River. Stage-discharge relation defined by current-meter measurements up to 270,000 second-feet. Gage heights used to half-tenths between 2.2 and 4.3 feet; hundredths below and tenths above these limits. Discharge for period when intake was stopped computed on basis of records for other stations in the basin.

MAXIMA.—1940: Discharge, 280,000 second-feet 6 a.m. Aug. 17 (gage-height, 26.66 feet).

1934-39: Discharge, 114,000 second-feet Jan. 21, 1936 (gage height, 16.88 feet).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., cooperated in completing field work for determination of flood flow by slope-area method. Gage-height record collected in cooperation with the U. S. Weather Bureau.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.26	3,330	10.71	47,600	18.70	140,000	26.41	274,000	24.31	233,000
2	2.27	3,330	2.28	3,450	10.93	50,000	19.18	147,000	26.50	276,000	24.11	229,000
3	-----	-----	2.30	3,450	11.17	51,800	19.65	153,000	26.58	278,000	23.90	225,000
4	2.24	3,330	2.33	3,580	11.36	53,600	20.10	161,000	26.62	278,000	23.69	222,000
5	-----	-----	2.36	3,580	11.60	55,400	20.58	169,000	26.65	278,000	23.48	218,000
6	2.22	3,210	2.40	3,700	11.95	59,000	21.05	175,000	26.66	280,000	23.26	214,000
7	-----	-----	2.45	3,830	12.47	64,000	21.48	184,000	26.65	278,000	23.04	209,000
8	2.20	3,210	2.51	3,960	12.72	66,000	21.88	190,000	26.62	278,000	22.84	206,000
9	-----	-----	2.57	4,100	12.96	69,000	22.24	195,000	26.57	278,000	22.63	202,000
10	2.19	3,190	2.64	4,370	13.17	71,200	22.65	202,000	26.51	276,000	22.43	199,000
11	-----	-----	2.70	4,510	13.37	73,400	23.13	211,000	26.44	274,000	22.23	195,000
N	2.19	3,190	2.82	4,800	13.55	75,600	23.50	218,000	26.35	274,000	22.02	192,000
1	-----	-----	3.20	6,020	13.74	76,700	23.87	225,000	26.25	270,000	21.82	189,000
2	2.20	3,210	3.90	8,320	13.92	78,900	24.18	231,000	26.15	270,000	21.61	185,000
3	-----	-----	4.60	11,000	14.15	82,400	24.48	236,000	26.04	266,000	21.38	182,000
4	2.20	3,210	5.50	14,800	14.39	84,800	24.76	242,000	25.92	264,000	21.16	178,000
5	-----	-----	6.65	20,200	14.75	89,600	25.03	246,000	25.77	262,000	20.95	175,000
6	2.21	3,210	7.48	25,000	15.40	96,800	25.29	252,000	25.60	258,000	20.72	170,000
7	-----	-----	8.20	29,200	15.80	102,000	25.51	256,000	25.44	254,000	20.52	167,000
8	2.21	3,210	8.80	33,100	16.22	107,000	25.70	260,000	25.27	252,000	20.30	164,000
9	-----	-----	9.30	36,600	16.70	113,000	25.91	264,000	25.10	248,000	20.09	161,000
10	2.22	3,210	9.75	40,400	17.20	120,000	26.06	268,000	24.90	244,000	19.87	158,000
11	-----	-----	10.08	42,800	17.75	127,000	26.21	270,000	24.71	240,000	19.65	153,000
12	2.24	3,330	10.40	45,200	18.20	133,000	26.31	272,000	24.51	236,000	19.42	150,000
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	18.98	144,000	12.83	67,000	6.62	20,200	-----	-----	-----	-----	-----	-----
4	18.53	137,000	12.04	59,000	6.30	18,700	4.83	11,800	4.24	9,620	4.35	10,200
6	18.09	131,000	11.28	52,700	6.00	17,200	-----	-----	-----	-----	-----	-----
8	17.65	125,000	10.65	46,800	5.75	16,200	4.74	11,400	4.32	9,810	4.35	10,200
10	17.20	120,000	10.10	42,800	5.57	15,300	-----	-----	-----	-----	-----	-----
N	16.75	114,000	9.60	38,800	5.42	14,400	4.66	11,400	4.48	10,600	4.32	9,810
2	16.32	108,000	9.14	35,200	5.30	14,000	-----	-----	-----	-----	-----	-----
4	15.90	103,000	8.72	32,400	5.21	13,500	4.57	11,000	4.56	11,000	4.23	9,620
6	15.40	96,800	8.29	29,800	5.12	13,000	-----	-----	-----	-----	-----	-----
8	14.85	89,600	7.84	26,800	5.05	12,600	4.46	10,600	4.54	10,600	4.14	9,240
10	14.25	82,400	7.40	24,400	4.97	12,600	-----	-----	-----	-----	-----	-----
12	13.57	75,600	7.00	22,200	4.92	12,200	4.32	9,810	4.42	10,200	4.02	8,680

ROANOKE RIVER AT ROANOKE RAPIDS, N. C.

LOCATION.—Lat. 36°28'15", long. 77°38'05", 1½ miles downstream from State highway bridge at city of Roanoke Rapids, Halifax County. Datum of gage is 43.83 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Auxiliary gage on highway bridge at Weldon, Halifax County. Datum of auxiliary gage is 16.02 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—8,410 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period 10 a.m. Aug. 17 to 10 a.m. Aug. 22 where record is from graph based on floodmarks, several readings of staff gage, and shape of graph based on frequent readings of staff gage or readings referred to reference points at Weldon, N. C.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 260,000 second-feet. Gage heights used to half-tenths between 2.4 and 5.3 feet; hundredths below and tenths above these limits. Percent submergence was a factor in computing discharge from 6 a.m. Aug. 15 to 2 a.m. Aug. 23.

MAXIMA.—1940: Discharge, 261,000 second-feet 10:30 a.m. Aug. 18 (gage height, 39.0 feet, from floodmarks).

1911-39: Discharge, 158,000 second-feet Mar. 18, 1912 (gage height, 16.2 feet, former site and datum, from graph based on gage readings).

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Weather Bureau records at Weldon, 3½ miles downstream from this station, show observed stages on Nov. 26, 1877, and Mar. 18, 1912, to be lower by about 4.5 feet and 7.5 feet, respectively, than that observed Aug. 18, 1940. For records of previous floods at Old Gaston, 9 miles upstream, see that section of this report.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	11,000	9,450	9	3,800	6,600	17	209,000	4,640	25	10,500	3,510
2	15,400	21,600	10	4,420	6,170	18	254,000	4,100	26	9,280	3,600
3	8,470	18,700	11	4,760	6,460	19	205,000	4,100	27	9,450	3,600
4	5,500	12,500	12	4,310	5,500	20	133,000	4,000	28	8,760	4,100
5	4,000	9,100	13	3,700	5,380	21	47,200	4,000	29	10,500	4,530
6	3,660	7,800	14	4,330	5,000	22	15,600	3,900	30	12,100	4,000
7	3,900	7,800	15	63,300	4,640	23	12,400	3,800	31	10,200	-----
8	3,700	6,900	16	106,000	4,760	24	11,300	3,900			

Monthly mean discharge, in second-feet.....	38,990	6,471
Runoff, in inches.....	5.34	0.86

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	9.99	27,200	-----	-----	-----	-----	-----	-----	-----	-----
2	3.78	3,700	10.50	30,000	19.27	85,100	29.25	159,000	38.4	252,000	37.6	235,000
3	-----	-----	12.15	40,400	-----	-----	-----	-----	-----	-----	-----	-----
4	3.73	3,600	12.35	41,800	19.64	86,400	30.47	173,000	38.6	255,000	37.2	227,000
5	-----	-----	12.60	43,200	-----	-----	-----	-----	-----	-----	-----	-----
6	3.65	3,420	13.70	50,700	20.10	89,000	31.65	184,000	38.8	258,000	36.9	224,000
7	-----	-----	13.75	50,900	-----	-----	-----	-----	-----	-----	-----	-----
8	3.61	3,320	14.20	53,400	20.60	91,800	32.80	196,000	38.9	259,000	36.5	219,000
9	-----	-----	14.85	58,000	-----	-----	-----	-----	-----	-----	-----	-----
10	3.51	3,140	15.30	60,600	21.28	95,900	33.7	207,000	39.0	261,000	36.1	214,000
11	-----	-----	15.75	64,400	-----	-----	-----	-----	-----	-----	-----	-----
N	3.54	3,230	16.70	71,700	22.05	101,000	34.6	215,000	39.0	261,000	35.6	205,000
1	-----	-----	16.97	74,300	-----	-----	-----	-----	-----	-----	-----	-----
2	3.55	3,230	17.20	75,200	22.80	106,000	35.4	222,000	38.9	259,000	35.1	200,000
3	-----	-----	17.35	76,100	-----	-----	-----	-----	-----	-----	-----	-----
4	3.67	3,420	17.54	76,900	23.60	112,000	36.2	230,000	38.8	258,000	34.7	192,000
5	-----	-----	17.67	77,700	-----	-----	-----	-----	-----	-----	-----	-----
6	3.78	3,700	17.95	80,200	24.53	119,000	36.7	236,000	38.6	252,000	34.2	187,000
7	-----	-----	18.20	81,000	-----	-----	-----	-----	-----	-----	-----	-----
8	3.93	4,000	18.39	82,600	25.50	127,000	37.2	240,000	38.4	249,000	33.7	182,000
9	-----	-----	18.56	83,300	-----	-----	-----	-----	-----	-----	-----	-----
10	4.05	4,200	18.72	83,200	26.72	137,000	37.7	246,000	38.1	245,000	33.1	173,000
11	-----	-----	18.85	84,000	-----	-----	-----	-----	-----	-----	-----	-----
12	9.00	22,200	19.00	84,700	27.95	149,000	38.1	248,000	37.9	239,000	32.6	168,000

	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
2	32.0	160,000	24.0	90,900	11.3	16,400	7.04	13,500	6.32	10,900	-----	-----
4	31.5	156,000	23.0	82,000	10.6	15,300	6.94	13,300	6.34	10,900	6.33	10,900
6	30.9	149,000	21.8	70,400	10.0	15,500	6.87	13,300	6.39	11,300	-----	-----
8	30.3	142,000	20.6	58,600	9.5	17,000	6.80	12,900	6.42	11,300	6.29	10,900
10	29.7	137,000	19.2	46,100	9.0	17,100	6.75	12,900	6.45	11,300	-----	-----
N	29.2	134,000	18.0	37,500	8.54	16,200	6.67	12,500	6.51	11,700	6.22	10,500
2	28.5	129,000	16.9	33,200	8.25	15,900	6.62	12,100	6.54	11,700	-----	-----
4	27.9	123,000	15.7	28,100	7.93	15,400	6.55	12,100	6.52	11,700	6.13	10,200
6	27.2	118,000	14.7	24,800	7.67	15,100	6.49	11,700	6.45	11,300	-----	-----
8	26.5	114,000	13.7	20,000	7.40	14,400	6.43	11,300	6.42	11,300	6.02	9,800
10	25.7	105,000	12.8	17,400	7.26	14,300	6.37	11,300	6.40	11,300	-----	-----
12	24.9	98,200	12.0	16,100	7.13	13,800	6.34	10,900	6.36	11,300	5.95	9,800

SUPPLEMENTAL RECORDS.—Aug. 15, 6:30 a.m., gage height 13.34 feet; discharge, 47,700 second-feet. Aug. 18, 10:30 a.m., gage height, 39.0 feet; discharge, 261,000 second-feet.

ROANOKE RIVER NEAR SCOTLAND NECK, N. C.

LOCATION.—Lat. 36°12'30", long. 77°23'10", at bridge on U. S. Highway 258, 1 mile downstream from tributary on right, 3 miles downstream from Bridgers

Creek, and 5¼ miles north of Scotland Neck, Halifax County. Auxiliary gage is at Atlantic Coast Line Railroad bridge 8¼ miles downstream (site of old station at Neal, N. C.). Datum of both gages is 5.77 feet above mean sea level, sea level datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—8,700 square miles.

GAGE-HEIGHT RECORD.—Graphs based on wire-weight gage readings Aug. 15-29 and Sept. 3-12, and auxiliary staff gage readings from 3 p.m. Aug. 19 to Aug. 26. Corps of Engineers, War Department, furnished records Aug. 16 to 12 m. Aug. 19 from graph based on readings of auxiliary staff gage at Caledonia Farm above Scotland Neck. No gage-height record Aug. 1-14, Aug. 30 to Sept. 2, and Sept. 13-30.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 241,000 second-feet. Discharge computed by using fall as a factor. Discharge for periods of no gage-height record based on records for station at Roanoke Rapids. Discharge Aug. 15 to 12 m. Aug. 19 furnished by Corps of Engineers, War Department.

MAXIMA.—1940: Discharge, 260,000 second-feet 8 a.m. Aug. 19. Gage height observed, 41.98 feet 2 p.m. Aug. 19.

1930-39: Stage observed, 35.1 feet Jan. 24, 1936 (from unpublished United States Weather Bureau records adjusted to present datum, discharge not determined).

The following data on major flood stages (adjusted to present datum) were furnished by North Carolina State Highway Commission: About 37.8 feet 1877, 36.8 feet March 1912, 34.9 feet 1919, 32.9 feet 1924 (discharges not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	11,000	11,000	9	4,000	6,900	17	111,000	5,000	25	19,300	4,200
2	13,000	15,000	10	4,200	6,420	18	208,000	5,000	26	15,300	3,800
3	15,000	18,100	11	4,600	6,840	19	253,000	4,400	27	13,000	3,800
4	8,000	14,900	12	4,600	6,320	20	215,000	4,400	28	11,900	3,800
5	5,500	12,200	13	4,200	5,500	21	156,000	4,200	29	11,500	4,400
6	4,000	10,000	14	3,800	5,500	22	86,300	4,200	30	11,000	4,800
7	4,000	8,290	15	20,400	5,500	23	42,800	4,200	31	13,000	-----
8	4,000	7,570	16	56,200	5,000	24	26,200	4,000			
Monthly mean discharge, in second-feet.....										43,860	6,841
Runoff, in inches.....										5.81	0.88

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	10.6	6,200	29.5	46,500	32.7	84,000	37.6	170,000	41.68	259,000	41.60	231,000
8	11.9	11,700	30.0	51,000	33.3	97,000	38.72	191,000	41.88	260,000	41.37	223,000
N	14.4	19,400	30.6	55,500	34.0	109,000	39.61	213,000	41.97	259,000	41.12	214,000
4	17.5	26,500	31.1	60,000	34.7	123,000	40.47	231,000	41.98	252,000	40.84	205,000
8	22.5	35,500	31.7	66,000	35.5	138,000	41.00	242,000	41.90	245,000	40.53	197,000
12	28.7	42,000	32.2	74,000	36.5	154,000	41.41	253,000	41.76	238,000	40.19	189,000
	Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25		Aug. 26	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	39.82	177,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	36.60	102,000	33.39	49,200	30.44	28,500	28.07	20,300	25.60	16,000
8	39.42	166,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	39.00	157,000	35.72	83,300	32.60	41,400	29.80	25,900	27.48	19,000	25.00	15,200
4	38.51	145,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	34.91	69,600	31.83	35,100	29.21	23,600	26.87	18,200	24.4	14,400
8	38.00	133,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	37.46	121,000	34.16	59,300	31.11	31,400	28.66	21,900	26.24	17,100	23.9	13,900

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BLACKWATER RIVER NEAR UNION HALL, VA.

LOCATION.—Lat. 37°02'35", long. 79°41'07", at highway bridge at Kemps Ford, 3 miles upstream from Gills Creek and 3 miles north of Union Hall, Franklin County. Datum of gage is 693.13 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—208 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,500 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 3.2 to 4.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 19,700 second-feet 8:30 p.m. Aug. 14 (gage height, 19.52 feet).

1925-39: Discharge, 17,900 second-feet Aug. 19, 1939 (gage height, 18.50 feet).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

The Flood Control Advisory Committee, Department of Agriculture, furnished field party and equipment to obtain field data for determination of flood flows by the slope-area method on Blackwater River near Rockymount, Maggoty Creek at Boone's Mill, and Gills Creek near Union Hall.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			2.45	293	18.59	18,100	13.89	10,400	9.44	5,110		
2	2.42	280	2.71	409	18.68	18,300	13.62	9,940	9.25	4,930	5.40	1,910
3			3.13	617	18.78	18,400	13.27	9,520	9.12	4,840		
4	2.41	276	3.27	678	18.76	18,400	13.13	9,250	8.87	4,660	5.23	1,780
5			3.40	756	18.55	18,100	13.18	9,380	8.70	4,480		
6	2.43	285	3.50	808	18.18	17,400	13.40	9,660	8.48	4,300	5.04	1,660
7			3.83	998	17.72	16,500	13.90	10,400	8.32	4,120		
8	2.40	272	5.55	2,050	17.15	15,600	14.38	11,100	8.23	4,030	4.88	1,600
9			8.55	4,390	16.55	14,600	14.52	11,200	8.20	4,030		
10	2.39	268	11.50	7,270	15.95	13,600	14.53	11,200	8.23	4,030	4.78	1,540
11			13.53	9,800	15.45	12,600	14.65	11,400	8.16	4,030		
N	2.44	289	15.00	12,000	15.00	12,000	14.71	11,600	7.94	3,790	4.67	1,450
1			16.44	14,300	14.75	11,700	14.45	11,100	7.63	3,550		
2	2.43	285	17.67	16,500	14.40	11,100	13.98	10,500	7.30	3,310	4.58	1,420
3			17.94	16,800	14.05	10,500	13.72	10,100	7.00	3,070		
4	2.40	272	17.90	16,800	13.87	10,400	13.37	9,660	6.77	2,910	4.48	1,360
5			17.98	17,000	13.67	10,100	13.00	9,120	6.54	2,680		
6	2.35	252	18.45	17,700	13.53	9,800	12.55	8,600	6.45	2,610	4.38	1,300
7			19.13	19,000	13.32	9,520	12.14	7,980	6.25	2,470		
8	2.32	239	19.40	19,500	13.26	9,520	11.67	7,500	6.13	2,400	4.28	1,240
9			19.48	19,700	13.60	9,940	11.08	6,830	5.98	2,330		
10	2.32	239	19.27	19,300	13.85	10,200	10.62	6,300	5.83	2,190	4.23	1,220
11			18.90	18,600	13.95	10,500	10.07	5,800	5.72	2,120		
12	2.36	256	18.65	18,100	14.00	10,500	9.67	5,400	5.60	2,050	4.15	1,160
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	4.02	1,080	3.47	782	3.17	637	2.98	542	2.94	522	2.77	438
8	3.89	1,020	3.38	756	3.12	612	2.95	527	2.93	517	2.75	428
N	3.82	970	3.33	730	3.07	587	2.93	517	2.88	492	2.72	414
4	3.73	942	3.30	704	3.06	582	2.92	512	2.83	467	2.71	409
8	3.64	888	3.25	678	3.04	572	2.90	502	2.81	457	2.70	404
12	3.56	834	3.21	652	3.01	557	2.94	522	2.79	447	2.69	399

SUPPLEMENTAL RECORDS.—Aug. 14, 8 30 p.m., gage height, 19.52 feet; discharge, 19,700 second-feet.
 Aug. 16, 11 30 a.m., gage height, 14.74 feet; discharge, 11,600 second-feet.

PIGG RIVER NEAR TOSHES, VA.

LOCATION.—Lat. 36°59'01", long. 79°30'52", half a mile downstream from Fryingpan Creek and 1.7 miles northwest of Toshes, Pittsylvania County. Datum of gage is 602.55 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—394 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 3 p.m. Aug. 14 to 1 p.m. Aug. 24 (recorder submerged) and Sept. 26, 27. Gage heights Aug. 14-20 obtained from graph based on floodmark, unit-hydrograph and flood-routing studies, and comparisons with records for other stations in Roanoke River Basin. No gage-height record Aug. 21-23, Sept. 26, 27.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,000 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 4.2 and 5.9 feet; hundredths below and tenths above these limits. Discharge for Aug. 21-23, Sept. 26, 27, computed on basis of records for Blackwater River near Union Hall and Roanoke River near Toshes and at Altavista.

MAXIMA.—1940: Discharge, 34,300 second-feet 8 a.m. Aug. 15 (gage height, 32.5 feet, from floodmark).

1930-39: Discharge, 15,400 second-feet Oct. 20, 1937 (gage height, 22.23 feet).

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REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation and in preparation of stage graphs during flood period.

The Flood Control Advisory Committee, Department of Agriculture, furnished field party and equipment to obtain field data for determination of flood flow over dam on Pigg River near Glade Hill.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	768	744	9	332	315	17	7,140	268	25	464	281
2	385	448	10	261	304	18	1,870	268	26	448	350
3	304	385	11	276	302	19	1,170	266	27	432	300
4	289	361	12	566	291	20	858	268	28	416	259
5	281	343	13	377	276	21	700	256	29	464	256
6	356	340	14	12,400	281	22	600	247	30	432	254
7	560	329	15	26,200	286	23	530	247	31	708	
8	332	320	16	17,900	281	24	481	242			
Monthly mean discharge, in second-feet.....										2,526	312
Runoff, in inches.....										7.39	0.88

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1			4.08	364	30.94	30,700		
2	4.30	432	4.19	397	31.25	31,300	23.18	16,800
3			4.36	448	31.56	32,200		
4	4.23	416	4.52	498	31.81	32,700	23.36	17,100
5			4.65	549	32.12	33,300		
6	4.17	391	4.90	636	32.31	33,800	23.67	17,500
7			5.50	856	32.44	34,100		
8	4.11	373	7.40	1,670	32.50	34,300	24.04	17,900
9			10.40	3,350	32.31	33,800		
10	4.08	364	13.10	5,280	31.70	32,400	24.46	18,700
11			15.00	6,900	31.00	30,900		
N	4.11	373	17.25	9,220	30.00	28,700	24.77	19,200
1			19.60	12,000	28.80	26,300		
2	4.13	379	21.85	14,800	27.86	24,500	25.00	19,500
3			24.00	17,900	26.82	22,500		
4	4.08	364	26.04	21,100	26.18	21,500	25.08	19,700
5			27.18	23,300	25.31	20,000		
6	4.03	349	28.00	24,700	24.54	18,700	24.77	19,200
7			28.53	25,700	24.00	17,900		
8	4.01	343	29.00	26,700	23.50	17,200	24.00	17,900
9			29.40	27,500	23.16	16,800		
10	4.01	343	29.80	28,300	23.00	16,500	22.67	16,100
11			30.19	29,100	23.00	16,500		
12	4.05	355	30.56	30,000	23.05	16,500	21.14	13,900
	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	19.95	12,500	9.04	2,430				
4	18.90	11,200	8.70	2,280	6.63	1,300	5.72	932
6	18.00	10,100	8.40	2,130				
8	17.20	9,220	8.14	1,980	6.44	1,210	5.62	894
10	16.00	7,900	7.94	1,880				
N	14.69	6,630	7.72	1,790	6.26	1,170	5.51	856
2	13.11	5,280	7.54	1,700				
4	11.96	4,460	7.37	1,660	6.12	1,090	5.41	818
6	11.00	3,760	7.21	1,560				
8	10.38	3,350	7.08	1,520	5.98	1,050	5.30	780
10	9.84	2,990	6.95	1,480				
12	9.44	2,750	6.83	1,380	5.84	990	5.20	744

SNOW CREEK AT SAGO, VA.

LOCATION.—Lat. 36°53'50", long. 79°39'05", at highway bridge 200 feet downstream from First Fork and three-quarters of a mile northwest of Sago, Franklin County. Datum of gage is 706.20 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—60 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except Aug. 19-22.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,200 second-feet and extended to crest gage height by logarithmic plotting on basis of velocity-area studies and comparisons with flood records of other stations in Roanoke River Basin. Gage heights used to half-tenths between 3.0 and 4.7 feet; hundredths below and tenths above these limits. Discharge for period when intake was stopped computed on basis of record for Pigg River near Toshes.

MAXIMA.—1940: Discharge, 12,000 second-feet 5 p.m. Aug. 14 (gage height, 22.98 feet).

1934-39: Daily mean discharge, 1,700 second-feet (estimated) Jan. 19, 1936.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	277	89	9	84	61	17	261	43	25	92	42
2	114	74	10	77	58	18	172	43	26	90	41
3	92	70	11	86	57	19	150	43	27	96	36
4	87	67	12	98	52	20	130	41	28	88	36
5	84	66	13	72	50	21	110	39	29	89	35
6	174	67	14	4,180	49	22	100	37	30	88	34
7	118	62	15	1,860	48	23	109	36	31	97	-----
8	87	60	16	11,040	46	24	95	36			
Monthly mean discharge, in second-feet.....										332	50.6
Runoff, in inches.....										6.38	0.94

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.70	88	15.85	2,550	-----	-----	-----	-----	-----	-----
2	2.52	74	2.90	106	15.35	2,370	13.93	1,800	5.70	357	4.27	212
3	-----	-----	4.10	212	14.83	2,130	-----	-----	-----	-----	-----	-----
4	2.50	72	4.52	250	14.42	1,980	13.58	1,700	5.40	325	4.12	198
5	-----	-----	5.00	295	13.98	1,840	-----	-----	-----	-----	-----	-----
6	2.49	72	6.90	500	13.50	1,670	12.80	1,460	5.12	295	3.98	184
7	-----	-----	11.25	1,120	12.95	1,520	-----	-----	-----	-----	-----	-----
8	2.48	71	13.40	1,640	12.48	1,380	11.73	1,210	4.85	265	3.89	176
9	-----	-----	15.20	2,290	12.70	1,440	-----	-----	-----	-----	-----	-----
10	2.48	71	16.10	2,680	13.23	1,580	10.70	1,040	4.69	250	3.84	171
11	-----	-----	16.75	3,030	13.33	1,610	-----	-----	-----	-----	-----	-----
N	2.48	71	17.70	3,520	13.42	1,640	9.95	927	4.53	235	3.78	166
1	-----	-----	18.75	4,460	13.60	1,700	-----	-----	-----	-----	-----	-----
2	2.48	71	20.00	6,100	13.77	1,770	9.39	833	4.42	225	3.75	162
3	-----	-----	21.40	8,600	13.90	1,800	-----	-----	-----	-----	-----	-----
4	2.49	72	22.40	10,700	14.06	1,880	8.85	749	4.34	216	3.70	158
5	-----	-----	22.98	12,000	14.19	1,910	-----	-----	-----	-----	-----	-----
6	2.49	72	22.50	10,900	14.18	1,910	8.03	637	4.42	225	3.62	153
7	-----	-----	21.20	8,200	14.21	1,910	-----	-----	-----	-----	-----	-----
8	2.47	70	19.80	5,780	14.32	1,940	7.23	524	4.35	216	3.57	148
9	-----	-----	18.95	4,700	14.35	1,980	-----	-----	-----	-----	-----	-----
10	2.47	70	17.90	3,640	14.33	1,940	6.60	456	4.36	220	3.56	148
11	-----	-----	17.05	3,130	14.32	1,940	-----	-----	-----	-----	-----	-----
12	2.52	74	16.40	2,830	14.15	1,910	6.10	401	4.31	216	3.56	148

134 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

GOOSE CREEK NEAR HUDDLESTON, VA.

LOCATION.—Lat. $37^{\circ}10'$, long. $79^{\circ}32'$, a quarter of a mile upstream from Haden Bridge, three-eighths of a mile upstream from Rockcastle Creek, and 4 miles upstream from Huddleston, Bedford County. Datum of gage is 592.91 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—187 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,400 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 2.6 and 4.2 feet to Aug. 14, between 2.8 and 4.4 feet thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 12,700 second-feet 5 p.m. Aug. 14 (gage height, 21.90 feet).

1930-39: Discharge, 17,200 second-feet Oct. 19, 1937 (gage height, 25.75 feet, from floodmarks).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

The Flood Control Advisory Committee, Department of Agriculture, furnished field party and equipment to obtain field data for determination of flood flow by slope-area method of Goose Creek at Joppa Mill.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	124	794	9	99	211	17	12,140	141	25	302	211
2	106	464	10	83	200	18	945	136	26	287	157
3	90	357	11	90	192	19	641	131	27	276	111
4	88	310	12	122	181	20	495	126	28	265	104
5	88	279	13	97	171	21	414	118	29	253	101
6	104	253	14	15,510	165	22	478	111	30	267	99
7	249	231	15	5,240	157	23	367	109	31	1,370	-----
8	124	217	16	4,780	146	24	319	99			
Monthly mean discharge, in second-feet-----										833	203
Runoff, in inches-----										5.13	1.22

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	1.60	104	13.47	5,620	11.45	4,350	10.42	3,800	-----	-----
2	1.60	104	1.63	112	12.17	4,820	10.49	3,860	9.92	3,520	4.97	1,150
3	-----	-----	1.68	124	10.94	4,080	9.62	3,360	9.25	3,150	-----	-----
4	1.59	102	1.74	139	9.92	3,520	9.09	3,100	8.98	3,050	4.81	1,080
5	-----	-----	1.80	155	9.57	3,360	9.52	3,300	8.42	2,750	-----	-----
6	1.59	102	1.93	190	10.40	3,800	10.82	4,020	8.10	2,600	4.72	1,040
7	-----	-----	2.17	258	10.74	3,960	12.68	5,120	7.67	2,400	-----	-----
8	1.58	99	2.77	426	10.58	3,910	13.44	5,560	7.42	2,250	4.61	1,010
9	-----	-----	4.37	948	10.80	4,020	13.78	5,820	7.21	2,160	-----	-----
10	1.57	97	8.32	2,700	12.07	4,760	14.17	6,080	6.96	2,070	4.48	970
11	-----	-----	12.52	5,000	13.47	5,620	14.21	6,080	6.82	1,980	-----	-----
N	1.56	95	15.02	6,630	14.06	6,020	14.00	5,950	6.58	1,890	4.40	934
1	-----	-----	17.52	8,550	14.11	6,020	13.70	5,760	6.43	1,800	-----	-----
2	1.56	95	18.80	9,720	13.95	5,950	13.45	5,560	6.25	1,710	4.30	898
3	-----	-----	20.02	10,800	13.78	5,820	13.07	5,360	6.15	1,710	-----	-----
4	1.56	95	21.24	12,000	13.59	5,690	12.52	5,000	6.04	1,620	4.20	862
5	-----	-----	21.90	12,700	13.61	5,690	11.75	4,580	5.96	1,620	-----	-----
6	1.55	92	21.47	12,300	13.65	5,690	10.90	4,080	5.89	1,580	4.11	828
7	-----	-----	20.47	11,300	13.47	5,620	10.42	3,800	5.79	1,530	-----	-----
8	1.55	92	19.30	10,200	13.38	5,560	10.24	3,690	5.69	1,480	4.02	794
9	-----	-----	18.22	9,180	13.19	5,430	10.37	3,800	5.59	1,440	-----	-----
10	1.55	92	17.12	8,230	12.95	5,300	10.40	3,800	5.51	1,400	3.94	777
11	-----	-----	15.87	7,270	12.87	5,240	10.47	3,860	5.40	1,350	-----	-----
12	1.57	97	14.64	6,350	12.33	4,880	10.59	3,910	5.30	1,300	3.85	743
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	3.80	726	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	3.75	709	3.18	528	2.89	434	2.73	383	2.75	389	2.53	325
6	3.66	675	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	3.64	675	3.14	512	2.84	419	2.72	380	2.68	368	2.51	319
10	3.60	658	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	3.56	641	3.09	496	2.85	419	2.71	377	2.65	360	2.50	316
2	3.50	624	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	3.47	608	3.06	480	2.80	404	3.01	464	2.61	348	2.50	316
6	3.41	592	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	3.37	576	2.98	464	2.78	398	4.15	845	2.60	345	2.48	310
10	3.32	560	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	3.26	544	2.90	434	2.75	389	2.93	449	2.57	336	2.50	316

SUPPLEMENTAL RECORDS.—Aug. 15, 12:30 p.m., gage height, 14.16 feet, discharge, 6,080 second-feet. Aug. 22, 3 p.m., gage height, 2.71 feet, discharge, 377 second-feet; 6 p.m., gage height, 4.12 feet, discharge, 828 second-feet; 10 p.m., gage height, 3.25 feet, discharge, 544 second-feet.

OTTER RIVER NEAR EVINGTON, VA.

LOCATION.—Lat. 37°13', long. 79°18', at highway bridge 2 miles upstream from Flat Creek and 2 miles southwest of Evington, Campbell County. Datum of gage is 544.02 feet above mean sea level.

DRAINAGE AREA.—325 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,600 second-feet and extended to crest gage height by logarithmic plotting on basis of unit-hydrograph and flood-routing studies, and other comparisons with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 2.7 and 4.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 24,400 second-feet 5 p.m. Aug. 14 (gage height, 22.42 feet).

1936-39: Discharge, 27,500 second-feet Oct. 19, 1937, Aug. 19, 1939 (gage height, 23.1 feet).

136 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

The Flood Control Coordinating Committee, Department of Agriculture, furnished field party and equipment to obtain data for determinations of flood flow by slope-area method on Otter River near Bedford and Little Otter River near Bedford.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	165	1,220	9	112	300	17	4,410	220	25	385	289
2	134	652	10	92	285	18	1,620	210	26	385	318
3	116	514	11	88	271	19	999	204	27	372	208
4	111	449	12	142	260	20	736	200	28	372	194
5	112	398	13	127	245	21	604	194	29	436	189
6	113	360	14	10,300	239	22	527	180	30	360	181
7	160	336	15	10,400	230	23	473	172	31	1,180	-----
8	119	312	16	8,220	228	24	415	174			
Monthly mean discharge, in second-feet.....										1,412	308
Runoff, in inches.....										5.00	1.06

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.03	155	20.50	16,900	16.62	7,660	16.18	7,160	-----	-----
2	1.95	142	2.10	167	20.00	15,200	16.61	7,660	16.02	6,920	8.00	2,080
3	-----	-----	2.15	176	19.50	13,700	16.75	7,940	15.80	6,700	-----	-----
4	1.90	134	2.18	181	19.25	12,800	17.03	8,220	15.62	6,480	7.71	1,940
5	-----	-----	2.37	218	19.00	12,300	17.30	8,700	15.40	6,270	-----	-----
6	1.85	126	2.50	245	18.73	11,500	17.48	9,040	15.12	5,970	7.47	1,860
7	-----	-----	2.72	289	18.47	11,000	17.59	9,220	14.83	5,690	-----	-----
8	1.82	122	3.15	398	18.20	10,400	17.58	9,220	14.42	5,340	7.22	1,720
9	-----	-----	3.40	596	18.06	10,200	17.49	9,040	14.03	5,020	-----	-----
10	1.80	119	6.35	1,400	17.90	9,780	17.42	8,860	13.60	4,740	7.03	1,640
11	-----	-----	10.40	3,140	17.78	9,580	17.30	8,700	13.13	4,430	-----	-----
N	1.78	116	13.55	4,740	17.58	9,220	17.15	8,540	12.60	4,170	6.85	1,560
1	-----	-----	16.60	7,660	17.43	8,860	17.06	8,380	12.00	3,870	-----	-----
2	1.77	115	19.10	12,500	17.40	8,860	17.00	8,220	11.40	3,600	6.66	1,520
3	-----	-----	21.35	20,300	17.40	8,860	17.01	8,220	10.85	3,320	-----	-----
4	1.76	113	22.25	23,500	17.35	8,860	16.95	8,220	10.40	3,140	6.48	1,440
5	-----	-----	22.42	24,400	17.30	8,700	16.85	7,940	9.95	2,960	-----	-----
6	1.79	118	22.38	24,400	17.17	8,540	16.78	7,940	9.65	2,780	6.29	1,360
7	-----	-----	22.33	23,900	17.08	8,380	16.70	7,800	9.38	2,700	-----	-----
8	1.92	137	22.22	23,500	17.02	8,220	16.64	7,660	9.14	2,560	6.13	1,290
9	-----	-----	22.00	22,700	16.95	8,220	16.60	7,660	8.92	2,470	-----	-----
10	1.91	136	21.75	21,900	16.85	7,940	16.54	7,520	8.72	2,380	5.98	1,250
11	-----	-----	21.40	20,300	16.76	7,940	16.48	7,520	8.53	2,290	-----	-----
12	1.97	145	20.95	18,700	16.67	7,800	16.35	7,400	8.35	2,240	5.80	1,180
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	5.68	1,140	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	5.57	1,110	4.55	798	3.99	624	3.69	540	3.46	475	3.23	423
6	5.50	1,080	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	5.42	1,040	4.47	753	3.95	610	3.65	527	3.45	475	3.21	410
10	5.34	1,010	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	5.27	1,010	4.40	738	3.93	610	3.65	527	3.44	475	3.21	410
2	5.20	978	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	5.11	948	4.32	708	3.91	596	3.65	527	3.45	475	3.22	410
6	5.00	918	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	4.94	888	4.21	680	3.83	582	3.58	514	3.41	462	3.21	410
10	4.84	858	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	4.70	828	4.10	652	3.75	554	3.54	501	3.35	449	3.18	410

LOCATION.—Lat. 37°04'54", long. 78°56'07", 300 feet downstream from Hat Creek and 2¼ miles north of Brookneal, Campbell County. Datum of gage is 378.69 feet above mean sea level, datum of 1929.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period 12 p.m. Aug. 14 to 12 m. Aug. 21 where gage heights, generally to tenths, were obtained from graph based on floodmark, one gage reading, unit-hydrograph and flood-routing studies, and comparisons of flood records with those for other stations in Roanoke River Basin.

MAXIMA.—1940: Discharge, 23,000 second-feet 3 a.m. Aug. 15 (gage height, 29.35 feet, from floodmarks).

1935-39: Discharge, 20,400 second-feet Mar. 17 or 18, 1936 (gage height 28.0 feet, from floodmarks).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation and in preparation of a stage graph.

The Flood Control Advisory Committee, Department of Agriculture, furnished field party and equipment to obtain field data for determination of flood flow by the slope-area method at Naruna.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1			1.55	150	1.88	245	4.93	2,400	3.68	1,230	3.40	1,010
2	1.39	114	1.55	150	2.27	397	4.73	2,200	3.68	1,230	3.37	978
3			1.55	150	3.03	790	4.57	2,000	3.65	1,190	3.32	945
4	1.40	116	1.54	148	4.00	1,480	4.43	1,900	3.59	1,160	3.27	912
5			1.52	143	4.92	2,350	4.34	1,800	3.59	1,160	3.25	912
6	1.41	118	1.50	138	6.24	3,690	4.29	1,750	3.61	1,160	3.29	945
7			1.48	134	7.06	4,720	4.21	1,660	3.64	1,190	3.31	945
8	1.41	118	1.55	150	8.44	6,330	4.14	1,620	3.65	1,190	3.35	978
9			1.56	152	8.84	6,850	4.11	1,570	3.65	1,190	3.37	978
10	1.45	127	1.53	145	9.34	7,500	4.04	1,520	3.66	1,190	3.40	1,010
11			1.52	143	9.30	7,500	3.96	1,440	3.68	1,230	3.40	1,010
N	1.53	145	1.51	140	9.15	7,370	3.91	1,390	3.66	1,190	3.40	1,010
1			1.49	136	9.00	7,110	3.85	1,350	3.64	1,190	3.38	1,010
2	1.47	131	1.46	129	8.58	6,590	3.78	1,310	3.64	1,190	3.36	978
3			1.43	123	8.27	6,200	3.70	1,230	3.66	1,190	3.35	978
4	1.45	127	1.44	125	8.83	6,850	3.64	1,190	3.66	1,190	3.31	945
5			1.44	125	8.02	5,810	3.62	1,160	3.64	1,190	3.29	945
6	1.41	118	1.44	125	7.73	5,440	3.62	1,160	3.62	1,160	3.24	912
7			1.47	131	7.36	5,080	3.62	1,160	3.62	1,160	3.19	880
8	1.40	116	1.47	131	6.86	4,480	3.62	1,160	3.57	1,120	3.11	820
9			1.60	162	6.31	3,800	3.62	1,160	3.52	1,080	3.07	790
10	1.46	129	1.71	191	5.78	3,250	3.64	1,190	3.51	1,080	3.04	790
11			1.73	197	5.43	2,850	3.69	1,230	3.56	1,120	2.99	760
12	1.55	150	1.75	203	5.15	2,650	3.68	1,230	3.48	1,080	2.97	732
	Aug. 18		Aug. 19		Aug. 20		SUPPLEMENTAL RECORDS					
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge						
2	2.92	705	2.92	705	2.41	460	Aug. 14, 10:30 a.m.-----					
4	2.86	683	2.89	700	2.44	473	Aug. 18, 7 p.m.-----					
6	2.77	635	2.84	672	2.38	446	9 p.m.-----					
8	2.74	620	2.79	645	2.33	424						
10	2.72	610	2.72	610	2.34	428						
N	2.70	600	2.70	600	2.33	424						
2	2.68	590	2.67	585	2.32	419						
4	2.66	580	2.67	585	2.34	428						
6	2.81	656	2.58	540	2.34	428						
8	3.35	978	2.53	515	2.29	406						
10	3.12	820	2.51	505	2.27	397						
12	2.88	694	2.47	486	2.26	393						

DAN RIVER NEAR WENTWORTH, N. C.

LOCATION.—Lat. 36°24'45", long. 79°49'45", at Settles Bridge, 3½ miles north of

Wentworth, Rockingham County, and 7½ miles downstream from Mayo River.

DRAINAGE AREA.—1,050 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 16,500 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method and flood runoff comparisons. Shifting-control method used Aug. 19 to Sept. 30. Gage heights used to half-tenths between 1.9 and 4.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 50,200 second-feet 10-12 a.m. Aug. 15 (gage height, 26.9 feet).

REMARKS.—Flood runoff not affected by artificial storage.

140 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,430	1,980	9	635	765	17	7,060	635	25	1,010	555
2	968	1,260	10	555	742	18	3,080	615	26	1,040	765
3	788	1,040	11	515	742	19	3,480	635	27	1,450	675
4	698	945	12	1,040	720	20	1,920	615	28	1,130	575
5	720	878	13	953	675	21	1,480	595	29	1,060	575
6	655	1,140	14	10,700	655	22	1,330	575	30	1,080	575
7	930	900	15	40,900	635	23	1,260	575	31	2,480	-----
8	742	788	16	15,200	655	24	1,130	535			
Monthly mean discharge, in second-feet-----										3,465	767
Runoff, in inches-----										3.80	0.82

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	2.47	575	3.38	990	2.96	788	24.02	32,100	22.20	24,600
4	2.70	675	3.30	945	3.00	810	25.03	37,900	21.20	21,500
6	3.03	832	3.38	990	4.35	1,480	25.85	42,700	20.28	19,200
8	3.29	945	3.52	1,040	7.60	3,580	26.50	47,400	19.09	16,800
10	3.61	1,080	3.61	1,080	12.00	7,600	26.9	50,200	17.81	14,800
N	3.98	1,280	3.61	1,080	15.12	11,100	26.9	50,200	16.32	12,700
2	4.09	1,330	3.43	1,010	16.46	13,000	26.68	48,800	15.07	11,100
4	4.06	1,330	3.25	922	17.86	15,000	26.17	45,300	14.46	10,400
6	4.00	1,280	3.11	855	19.40	17,400	25.52	40,900	14.41	10,300
8	3.84	1,200	3.06	832	20.65	20,000	24.76	36,700	14.59	10,500
10	3.63	1,100	2.94	788	21.93	23,600	23.85	31,100	14.77	10,800
12	3.51	1,040	2.92	765	22.98	27,600	23.07	28,000	14.86	10,900

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	14.67	10,600	7.89	3,820	7.88	3,820	-----	-----
4	14.11	9,920	7.63	3,580	7.82	3,820	5.51	2,160
6	13.22	8,890	7.38	3,420	7.92	3,900	-----	-----
8	12.26	7,900	7.14	3,200	8.30	4,140	5.26	1,980
10	11.53	7,100	6.94	3,040	8.50	4,320	-----	-----
N	10.98	6,600	6.75	2,970	8.17	4,060	5.07	1,920
2	10.61	6,200	6.60	2,830	7.62	3,660	-----	-----
4	10.15	5,820	6.47	2,760	7.04	3,200	4.96	1,800
6	9.53	5,190	6.29	2,620	6.58	2,830	-----	-----
8	8.94	4,660	6.12	2,480	6.25	2,620	4.76	1,690
10	8.50	4,320	6.20	2,550	6.03	2,480	-----	-----
12	8.17	4,060	7.37	3,420	5.86	2,360	4.66	1,640

SUPPLEMENTAL RECORD.—Aug. 18, 9 p.m., gage height, 6.06 feet; discharge, 2,480 second-feet.

DAN RIVER AT LEAKSVILLE, N. C.

LOCATION.—Lat. 36°29'05", long. 79°45'30", at Leaksville, Rockingham County, half a mile downstream from State highway bridge and half a mile upstream from Smith River. Datum of gage is 490.33 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—1,150 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 28,000 second-feet. Gage heights used to half-tenths between 2.0 and 3.4 feet; hundredths below and tenths above these limits. During floods this station is subject to backwater from Smith River or from channel storage downstream. From 1 p.m. Aug. 14 to 4 a.m. Aug. 17 the discharge has been adjusted for backwater on basis of records for station at Wentworth.

MAXIMA.—1940: Discharge, about 43,000 second-feet 12-2 p.m. Aug. 15; gage height, 28.26 feet 6:30 a.m. Aug. 15.

1929-39: Gage height, 27.90 feet Oct. 20, 1937 (discharge not determined owing to backwater).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,680	2,430	9	702	839	17	8,910	683	25	1,120	569
2	1,060	1,420	10	605	794	18	3,900	657	26	1,420	735
3	852	1,160	11	545	806	19	3,720	664	27	1,920	747
4	742	1,030	12	1,030	806	20	2,240	664	28	1,320	599
5	768	962	13	1,060	754	21	1,710	644	29	1,350	593
6	735	1,160	14	10,600	709	22	1,480	569	30	1,160	587
7	930	1,030	15	38,600	690	23	1,420	581	31	3,050	-----
8	865	865	16	20,800	702	24	1,220	563			
Monthly mean discharge, in second-feet.....										3,791	834
Runoff, in inches.....										3.80	0.81

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	-----	-----	2.03	898	-----	-----	-----	-----
2	1.71	676	-----	-----	2.03	898	27.32	31,000	23.63	32,500
3	-----	-----	-----	-----	2.05	898	-----	-----	-----	-----
4	1.74	696	2.37	1,090	2.18	995	28.00	35,000	22.97	29,000
5	-----	-----	-----	-----	2.49	1,190	-----	-----	-----	-----
6	1.74	696	-----	-----	3.45	1,780	28.26	38,000	22.26	27,000
7	-----	-----	-----	-----	4.50	2,560	-----	-----	-----	-----
8	1.86	774	2.25	1,030	5.80	3,580	28.08	41,000	21.61	25,000
9	-----	-----	-----	-----	7.15	4,800	-----	-----	-----	-----
10	2.04	898	-----	-----	8.78	6,400	27.75	42,500	20.82	22,000
11	-----	-----	-----	-----	10.95	8,750	-----	-----	-----	-----
N	2.25	1,030	2.37	1,090	12.80	11,000	27.23	43,000	19.84	20,000
1	-----	-----	-----	-----	14.35	12,000	-----	-----	-----	-----
2	2.53	1,220	-----	-----	15.36	13,000	26.79	43,000	18.94	17,000
3	-----	-----	-----	-----	16.10	14,000	-----	-----	-----	-----
4	2.76	1,350	2.40	1,120	17.35	15,000	26.20	42,000	17.83	14,500
5	-----	-----	-----	-----	18.92	16,000	-----	-----	-----	-----
6	2.81	1,380	-----	-----	19.90	17,500	25.73	41,000	16.64	13,300
7	-----	-----	-----	-----	20.70	19,000	-----	-----	-----	-----
8	2.80	1,380	2.16	962	21.58	20,000	25.35	38,500	15.50	13,000
9	-----	-----	-----	-----	22.50	21,000	-----	-----	-----	-----
10	2.75	1,350	-----	-----	23.55	23,000	24.89	37,000	14.77	13,100
11	-----	-----	-----	-----	24.96	25,000	-----	-----	-----	-----
12	2.62	1,260	2.07	898	25.88	28,000	24.33	34,500	14.48	13,000

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	14.18	12,500	-----	-----	5.34	3,180	4.63	2,640
4	13.63	12,000	7.09	4,710	5.97	3,740	4.41	2,420
6	12.90	11,100	-----	-----	6.22	3,910	4.30	2,340
8	12.22	10,200	6.38	4,080	6.25	3,910	4.29	2,340
10	11.41	9,190	-----	-----	6.40	4,080	4.19	2,270
N	10.63	8,310	5.99	3,740	6.63	4,260	4.09	2,200
2	10.19	7,870	-----	-----	6.71	4,260	3.95	2,130
4	9.72	7,320	5.67	3,500	6.57	4,170	3.86	2,060
6	9.17	6,800	-----	-----	6.01	3,660	3.82	2,060
8	8.88	6,500	5.27	3,180	5.69	3,420	3.80	1,990
10	8.32	5,900	-----	-----	5.32	3,100	3.82	2,060
12	7.80	5,400	5.13	3,020	4.87	2,790	3.67	1,920

142 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DAN RIVER AT DANVILLE, VA.

LOCATION.—Lat. 36°35'15", long. 79°22'55", at Southern Railway bridge in Danville, Pittsylvania County, 1,000 feet upstream from Fall Creek. Datum of gage is 379.41 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—2,050 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 56,000 second-feet and extended to crest gage height by logarithmic plotting on basis of computation of flow over dam $3\frac{1}{2}$ miles upstream and comparisons with flood records for other stations in Roanoke River Basin. Gage heights used to half-tenths between 3.6 and 5.1 feet; hundredths below and tenths above these limits. Rating curve not applicable Aug. 2-12 and affected by backwater from debris Aug. 18 to Sept. 30; discharge computed on basis of records for station at South Boston and stations upstream.

MAXIMA.—1940: Discharge, 75,000 second-feet 6:30 p.m. Aug. 15 (gage height, 20.96 feet).

1934-39: Discharge, 54,100 second-feet Oct. 21, 1937 (gage height, 18.34 feet).

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.78	1,220	2.53	893	16.32	47,000	20.39	69,800
2	3.16	1,910	2.87	1,370	16.85	49,700	20.21	68,500
3	3.10	1,790	2.93	1,470	17.27	52,400	20.02	67,300
4	3.10	1,790	2.87	1,370	17.55	54,100	19.82	66,100
5	3.13	1,850	2.84	1,320	17.82	55,300	19.65	64,900
6	3.09	1,770	2.85	1,340	18.27	58,300	19.46	63,700
7	3.15	1,890	2.74	1,160	18.72	60,700	19.22	62,500
8	3.17	1,930	3.02	1,640	18.94	61,900	18.99	61,300
9	3.29	2,170	4.37	4,590	19.12	63,100	18.74	59,500
10	3.27	2,130	5.49	7,460	19.29	64,300	18.45	57,700
11	3.28	2,150	5.77	8,240	19.42	64,900	18.07	55,300
N	3.27	2,130	5.97	8,760	19.58	66,100	17.72	53,600
1	3.24	2,070	6.12	9,030	19.84	67,300	17.42	51,900
2	3.22	2,030	6.65	10,400	20.22	69,800	17.27	50,800
3	3.18	1,950	7.52	12,900	20.55	72,400	17.15	50,200
4	3.08	1,750	8.15	15,000	20.70	73,000	16.80	48,600
5	3.07	1,730	8.48	15,900	20.90	74,400	16.49	47,000
6	3.05	1,700	8.94	17,100	20.94	74,400	16.17	44,800
7	2.91	1,440	9.47	19,000	20.95	75,000	15.90	43,600
8	2.88	1,390	10.22	21,200	20.90	74,400	15.72	42,600
9	2.89	1,400	11.02	23,900	20.79	73,700	15.60	42,000
10	2.88	1,390	12.27	28,400	20.69	73,000	15.60	42,000
11	2.75	1,180	13.92	34,600	20.61	72,400	15.54	41,500
12	2.73	1,140	15.47	42,600	20.52	71,800	15.49	41,500

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	15.35	40,500						
2	14.93	38,500	7.35	11,800	6.22	6,600	6.19	6,600
3	14.60	37,000						
4	14.27	35,000	7.13	11,200	6.14	6,600	6.10	6,300
5	13.99	34,200						
6	13.67	32,600	6.96	10,700	6.06	6,700	5.95	5,900
7	13.32	31,400						
8	12.95	29,900	6.82	10,400	6.14	6,900	5.85	5,400
9	12.54	28,400						
10	12.22	27,400	6.64	9,840	6.01	7,000	5.65	4,800
11	11.79	26,000						
N	11.29	24,200	6.57	9,200	6.11	7,000	5.50	4,400
1	10.89	22,900						
2	10.48	21,200	6.49	8,700	6.24	7,100	5.49	4,200
3	10.05	20,000						
4	9.57	18,400	6.36	8,200	6.22	7,200	5.44	4,100
5	9.18	17,400						
6	8.74	15,900	6.27	7,700	6.26	7,100	5.45	4,000
7	8.33	14,700						
8	8.07	13,800	6.25	7,300	6.34	7,100	5.42	3,900
9	7.92	13,500						
10	7.85	13,200	6.15	7,000	6.35	7,000	5.37	3,800
11	7.69	12,900						
12	7.56	12,400	6.22	6,800	6.24	6,800	5.20	3,700

SUPPLEMENTAL RECORD.—Aug. 15, 6:30 p.m., gage height, 20.96 feet; discharge, 75,000 second-feet.

DAN RIVER AT SOUTH BOSTON, VA.

LOCATION.—Lat. 36°41'37", long. 78°54'09", at Norfolk & Western Railway bridge at South Boston, Halifax County, 1 mile downstream from Lawson Creek and 6 miles upstream from Banister River. Datum of gage is 299.23 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,730 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period Aug. 1 to 3 p.m. Aug. 21. Gage heights Aug. 14 to 3 p.m. Aug. 21 were obtained from graph based on occasional gage readings, floodmarks, and comparisons with flood records for other stations in Roanoke River Basin. No gage-height record Aug. 1-13.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 68,000 second-feet and extended to crest gage height by logarithmic plotting on basis of slope-area measurement and comparison with flood records for other stations in Roanoke River Basin. Discharge for Aug. 1-13 computed on basis of records for Dan River at Danville and Roanoke River at Clarksville.

MAXIMA.—1940: Discharge, 81,000 second-feet 12 p.m. Aug. 16 (gage height, 31.8 feet, from floodmark).

1900-1907, 1923-39: Discharge, 51,000 second-feet Jan. 21, 1936 (gage height, 28.5 feet, from floodmarks).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., cooperated in completing field work for determination of flood flow by slope-area method.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	6.9	1,870	21.7	20,300								
2	6.9	1,870	21.8	20,600	28.6	51,800	31.75	81,000	27.2	41,400	20.8	19,100
3	6.9	1,870	22.0	21,000								
4	7.0	1,940	22.2	21,500	28.8	53,400	31.7	80,000	26.7	37,900	20.3	17,900
5	7.2	2,080	22.4	22,000								
6	7.5	2,290	22.6	22,400	29.3	57,400	31.5	78,000	26.2	34,700	19.9	17,000
7	8.2	2,830	22.8	22,900								
8	9.1	3,590	23.0	23,400	29.8	61,400	31.2	75,000	25.7	32,000	19.2	15,500
9	10.2	4,580	23.2	23,900								
10	12.0	6,300	23.3	24,200	30.4	67,000	30.8	71,000	25.2	29,800	18.6	14,400
11	13.8	8,110	23.5	24,700								
N	15.0	9,430	23.7	25,200	30.8	71,000	30.5	68,000	24.6	27,800	18.1	13,600
1	16.4	11,100	23.9	25,700								
2	17.4	12,500	24.2	26,600	31.2	75,000	30.1	64,000	24.1	26,300	17.7	12,900
3	18.2	13,700	24.6	27,800								
4	18.9	14,800	25.0	29,000	31.4	77,000	29.6	59,800	23.7	25,200	17.2	12,200
5	19.4	15,700	25.6	31,500								
6	19.8	16,400	26.4	35,900	31.6	79,000	29.2	56,600	23.1	23,700	16.8	11,700
7	20.2	17,200	27.1	40,700								
8	20.5	17,800	27.5	43,500	31.7	80,000	28.7	52,600	22.6	22,400	16.4	11,100
9	20.7	18,200	27.8	45,600								
10	21.0	18,800	28.0	47,000	31.75	81,000	28.2	48,600	22.1	21,200	16.1	10,800
11	21.1	19,200	28.2	48,600								
12	21.5	19,900	28.3	49,400	31.8	81,000	27.7	44,900	21.5	19,900	15.8	10,400

Hour	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	15.5	10,000	10.9	5,260	9.74	4,180	9.13	3,700	9.46	4,020
4	15.2	9,660	10.7	5,080	9.65	4,100	9.25	3,780	9.48	4,020
6	15.0	9,430	10.5	4,900	9.59	4,100	9.41	3,940	9.40	3,940
8	14.7	9,100	10.3	4,720	9.53	4,020	9.48	4,020	9.30	3,860
10	14.4	8,770	10.2	4,630	9.44	3,940	9.49	4,020	9.20	3,780
N	13.9	8,220	10.1	4,540	9.25	3,780	9.39	3,940	9.08	3,700
2	13.3	7,600	10.0	4,450	9.00	3,620	9.18	3,780	8.90	3,540
4	12.8	7,100	10.0	4,450	8.70	3,380	8.93	3,540	8.64	3,300
6	12.3	6,600	9.97	4,450	8.43	3,140	8.74	3,380	8.35	3,140
8	11.8	6,100	9.98	4,450	8.37	3,140	8.73	3,380	8.09	2,900
10	11.5	5,800	9.95	4,450	8.57	3,300	8.98	3,620	7.87	2,740
12	11.2	5,530	9.87	4,360	8.88	3,540	9.28	3,860	7.76	2,660

MAYO RIVER NEAR PRICE, N. C.

LOCATION.—Lat. 36°32'00", long. 79°59'30", just downstream from Anglins Bridge, three-quarters of a mile downstream from State line and 4 miles west of Price, Rockingham County.

DRAINAGE AREA.—260 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,000 second-feet and extended logarithmically to crest gage height. Gage heights used to half-tenths between 2.8 and 5.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 19,000 second-feet 5 p.m. Aug. 14 (gage height, 11.00 feet).

1929-39: Discharge, 30,000 second-feet Oct. 19, 1937 (gage height, 14.00 feet).

REMARKS.—Flood runoff not affected by artificial storage.

146 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	362	465	9	209	258	17	1,320	215	25	340	203
2	266	376	10	185	250	18	1,280	215	26	499	250
3	229	336	11	197	254	19	1,180	215	27	727	203
4	209	314	12	361	240	20	612	209	28	507	197
5	203	297	13	271	232	21	497	206	29	464	197
6	203	293	14	9,300	229	22	405	197	30	438	191
7	424	273	15	4,390	226	23	405	191	31	667	-----
8	240	266	16	2,470	226	24	367	194			
Monthly mean discharge, in second-feet.....										943	247
Runoff, in inches.....										4.18	1.06

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	-----	-----	1.61	254	7.62	8,760	-----	-----
2	1.90	376	-----	-----	1.64	266	7.37	8,260	4.53	2,740
3	-----	-----	-----	-----	1.77	318	7.02	7,800	-----	-----
4	2.12	486	-----	-----	2.13	492	6.81	6,860	4.43	2,600
5	-----	-----	-----	-----	2.97	1,000	6.60	6,420	-----	-----
6	2.09	470	1.70	289	3.68	1,690	6.36	5,980	4.38	2,540
7	-----	-----	-----	-----	4.35	2,480	6.03	5,150	-----	-----
8	1.98	414	-----	-----	5.65	4,490	5.65	4,490	4.41	2,540
9	-----	-----	-----	-----	6.62	6,420	5.32	3,880	-----	-----
10	1.90	376	-----	-----	7.35	8,260	5.00	3,400	4.40	2,540
11	-----	-----	-----	-----	7.87	9,540	4.82	3,100	-----	-----
N	1.84	349	1.62	258	8.45	10,900	4.70	2,950	4.32	2,410
1	-----	-----	-----	-----	9.08	12,900	4.63	2,880	-----	-----
2	1.80	331	-----	-----	10.30	16,600	4.61	2,810	4.25	2,340
3	-----	-----	-----	-----	10.70	17,900	4.58	2,810	-----	-----
4	1.77	318	-----	-----	10.93	18,600	4.58	2,810	4.19	2,280
5	-----	-----	-----	-----	11.00	19,000	4.63	2,880	-----	-----
6	1.75	310	1.61	254	10.95	19,000	4.68	2,950	4.34	2,480
7	-----	-----	-----	-----	10.78	18,200	4.73	3,020	-----	-----
8	1.72	297	-----	-----	10.10	15,900	4.79	3,100	4.28	2,410
9	-----	-----	-----	-----	9.05	12,600	4.81	3,100	-----	-----
10	1.74	306	-----	-----	8.48	11,200	4.79	3,100	4.17	2,220
11	-----	-----	-----	-----	8.18	10,400	4.74	3,020	-----	-----
12	1.78	323	1.59	246	7.90	9,540	4.68	2,950	3.98	2,040

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	-----	-----	2.80	895	4.09	2,160	-----	-----
4	3.59	1,580	2.76	867	3.80	1,800	-----	-----
6	-----	-----	2.71	832	3.42	1,380	2.40	640
8	3.43	1,430	2.68	812	3.17	1,160	-----	-----
10	-----	-----	2.65	792	3.02	1,040	-----	-----
N	3.28	1,290	2.62	773	2.97	1,000	2.35	612
2	-----	-----	2.59	754	2.84	930	-----	-----
4	3.12	1,120	2.63	780	2.77	874	-----	-----
6	-----	-----	4.57	2,740	2.70	825	2.28	574
8	2.99	1,040	4.36	2,480	2.64	786	-----	-----
10	-----	-----	4.00	2,040	2.58	748	-----	-----
12	2.86	930	4.14	2,220	2.52	712	2.20	530

SUPPLEMENTAL RECORD.—Aug. 18, 3:30 p.m., gage height, 2.57 feet; discharge, 742 second-feet.

NORTH MAYO RIVER NEAR SPENCER, VA.

LOCATION.—Lat. 36°34'05", long. 79°59'15", 800 feet downstream from highway bridge at Moores Mill, 2 miles downstream from Horse Pasture Creek, and 4 miles southeast of Spencer, Henry County. Datum of gage is 730.94 feet above mean sea level (from levels by Corps of Engineers, War Department).

DRAINAGE AREA.—108 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,500 second-feet and extended to crest gage height by logarithmic plotting on basis of velocity-area study for flood of October 1937, and comparison with flood records for other stations in Dan River Basin. Gage heights used to half-tenths between 3.3 and 5.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 6,800 second-feet 3 p.m. Aug. 14 (gage height, 10.11 feet).

1928-39: Discharge, 14,300 second-feet Oct. 19, 1937 (gage height, 14.33 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	162	164	9	90	94	17	431	81	25	120	85
2	117	136	10	74	94	18	429	81	26	337	96
3	97	122	11	86	94	19	389	81	27	601	79
4	88	115	12	157	90	20	207	79	28	247	77
5	88	110	13	93	87	21	169	77	29	260	75
6	116	105	14	3,430	85	22	165	75	30	188	73
7	165	101	15	1,760	85	23	187	73	31	234	-----
8	114	98	16	873	83	24	131	75			
Monthly mean discharge, in second-feet-----										374	92.3
Runoff, in inches-----										3.99	0.95

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.82	95	8.22	4,260	-----	-----	-----	-----	-----	-----
2	1.83	97	1.86	104	7.78	3,820	3.98	928	3.35	612	2.52	289
3	-----	-----	1.96	130	7.43	3,420	-----	-----	-----	-----	-----	-----
4	1.82	95	2.26	215	7.15	3,240	3.91	876	3.17	533	2.48	276
5	-----	-----	2.48	285	6.67	2,820	-----	-----	-----	-----	-----	-----
6	1.81	92	2.97	461	6.30	2,500	3.93	902	3.05	484	2.47	272
7	-----	-----	3.45	672	5.72	2,030	-----	-----	-----	-----	-----	-----
8	1.80	90	4.10	1,015	5.15	1,640	3.96	902	2.97	453	2.45	266
9	-----	-----	4.60	1,310	4.75	1,360	-----	-----	-----	-----	-----	-----
10	1.81	92	5.03	1,600	4.47	1,180	3.95	902	2.92	434	2.43	260
11	-----	-----	5.80	2,130	4.25	1,060	-----	-----	-----	-----	-----	-----
N	1.82	95	7.90	3,930	4.13	1,010	3.90	876	2.85	407	2.41	253
1	-----	-----	9.35	5,780	4.08	980	-----	-----	-----	-----	-----	-----
2	1.82	95	9.96	6,650	4.04	954	3.82	824	2.78	381	2.39	247
3	-----	-----	10.11	6,800	4.03	954	-----	-----	-----	-----	-----	-----
4	1.81	92	10.00	6,650	4.08	980	3.82	824	2.74	366	3.00	464
5	-----	-----	9.84	6,350	4.02	928	-----	-----	-----	-----	-----	-----
6	1.80	90	9.72	6,200	4.10	980	3.86	850	2.68	345	3.55	703
7	-----	-----	9.70	6,200	4.20	1,040	-----	-----	-----	-----	-----	-----
8	1.80	90	9.70	6,200	4.27	1,060	3.92	876	2.64	330	3.83	850
9	-----	-----	9.60	6,060	4.28	1,090	-----	-----	-----	-----	-----	-----
10	1.80	90	9.35	5,780	4.26	1,060	3.85	850	2.60	316	3.67	750
11	-----	-----	9.04	5,240	4.27	1,060	-----	-----	-----	-----	-----	-----
12	1.80	90	8.66	4,850	4.17	1,010	3.62	726	2.56	302	3.59	726
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	3.52	680	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	3.26	572	2.32	224	2.15	173	2.08	152	2.46	269	2.02	136
6	2.97	453	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	2.81	392	2.28	212	2.15	173	2.07	150	2.23	197	2.00	130
10	2.71	356	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	2.64	330	2.26	206	2.14	170	2.07	150	2.13	167	2.00	130
2	2.58	309	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	2.53	292	2.24	200	2.13	167	2.06	147	2.09	155	2.00	130
6	2.49	279	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	2.45	266	2.21	191	2.12	164	2.22	194	2.06	147	1.99	128
10	2.41	253	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	2.37	240	2.17	179	2.09	155	2.36	237	2.04	141	1.97	122

SUPPLEMENTAL RECORDS.—Aug. 18, 3 p.m., gage height, 2.38 feet; discharge, 244 second-feet. Aug. 22, 6 p.m., gage height, 2.20 feet; discharge, 188 second-feet; 10 p.m., gage height, 2.21 feet; discharge, 191 second-feet. Aug. 23, 2 a.m., gage height, 2.50 feet; discharge, 282 second-feet.

SMITH RIVER AT BASSETT, VA.

LOCATION.—Lat. 36°46'15", long. 80°00'00", at highway bridge at north edge of North Bassett, 1 mile northwest of Bassett, Henry County, and 2½ miles downstream from Town Creek. Datum of gage is 753.09 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—253 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 24,000 second-feet. Gage heights used to half-tenths between 3.2 and 5.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 26,600 second-feet 5 p.m. Aug. 14 (gage height, 18.28 feet).

1939: Discharge, 23,300 second-feet Aug. 18 (gage height, 16.93 feet).

Stage known, about 22.9 feet Oct. 19, 1937, from information furnished by local residents (discharge, 38,200 second-feet, from rating curve extended above 24,000 second-feet on basis of backwater studies and comparisons of flood records with those for Smith River at Martinsville).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	312	940	9	221	394	17	2,580	307	25	487	389
2	251	704	10	198	384	18	1,390	297	26	635	342
3	226	597	11	256	384	19	1,110	297	27	634	269
4	226	533	12	451	352	20	798	292	28	628	260
5	238	498	13	350	337	21	638	278	29	714	251
6	264	465	14	11,600	332	22	654	269	30	1,570	242
7	347	437	15	4,500	322	23	574	255	31	1,870	-----
8	246	410	16	4,670	322	24	493	255			
Monthly mean discharge, in second-feet -----										1,262	380
Runoff, in inches -----										5.75	1.67

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			2.17	327	8.37	6,500	7.78	5,650				
2	2.12	347	2.21	347	7.77	5,650	8.15	6,210	5.65	3,040	4.10	1,630
3			2.28	384	7.32	4,990	7.92	5,790				
4	2.10	337	2.50	504	6.93	4,480	7.66	5,510	5.68	3,140	4.02	1,550
5			3.10	870	6.63	4,120	7.49	5,250				
6	2.07	322	3.78	1,390	6.38	3,890	7.29	4,990	5.76	3,240	3.95	1,510
7			5.10	2,540	6.19	3,670	7.10	4,730				
8	2.06	317	6.70	4,240	6.04	3,450	6.94	4,480	5.74	3,140	3.89	1,470
9			8.85	7,190	5.91	3,340	6.80	4,360				
10	2.05	312	10.90	10,600	5.79	3,240	6.70	4,240	5.42	2,840	3.83	1,430
11			13.80	16,400	5.82	3,240	6.68	4,240				
N	2.21	394	16.30	21,900	6.25	3,670	6.74	4,240	5.17	2,640	3.78	1,390
1			17.03	23,500	6.80	4,360	6.82	4,360				
2	2.21	394	16.83	23,000	7.33	4,990	6.96	4,600	4.94	2,400	3.73	1,350
3			16.55	22,600	7.47	5,250	7.22	4,860				
4	2.17	373	17.50	24,700	7.44	5,120	7.50	5,250	4.78	2,260	3.67	1,270
5			18.28	26,600	7.22	4,860	7.72	5,510				
6	2.13	352	17.48	24,700	7.08	4,730	7.55	5,380	4.63	2,120	3.62	1,230
7			15.30	19,700	7.02	4,600	7.00	4,600				
8	2.12	347	13.27	15,300	6.97	4,600	6.45	3,890	4.42	1,900	3.57	1,190
9			11.30	11,400	6.90	4,480	6.12	3,560				
10	2.12	347	10.00	9,060	6.80	4,360	5.90	3,340	4.30	1,810	3.54	1,190
11			9.35	8,050	6.78	4,360	5.72	3,140				
12	2.15	363	8.93	7,250	7.08	4,730	5.66	3,140	4.19	1,720	3.70	1,310
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	3.89	1,470										
4	3.65	1,270	3.10	870	2.75	650	2.67	603	2.65	591	2.48	493
6	3.52	1,150										
8	3.47	1,120	3.07	849	2.74	644	2.67	603	2.65	591	2.48	493
10	3.44	1,120										
N	3.41	1,080	3.05	835	2.73	638	2.67	603	2.62	574	2.48	493
2	3.38	1,080										
4	3.34	1,040	2.91	746	2.72	632	2.66	597	2.60	562	2.49	498
6	3.30	1,010										
8	3.25	975	2.83	698	2.71	626	3.13	891	2.57	545	2.47	487
10	3.20	940										
12	3.16	912	2.77	662	2.69	614	2.74	644	2.52	516	2.44	470

SUPPLEMENTAL RECORDS.—Aug. 17, 7 a.m., gage height, 5.80 feet; discharge, 3,240 second-feet. Aug. 20 2 p.m., gage height, 3.00 feet; discharge, 800 second-feet. Aug. 22, 6 p.m., gage height, 2.66 feet; discharge 597 second-feet.

SMITH RIVER AT MARTINSVILLE, VA.

LOCATION.—Lat. 36°39'45", long. 70°52'55", 2 miles south of Martinsville, Henry County, and 3 miles downstream from Grassy Creek. Datum of gage is 656.86 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—374 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,800 second-feet and extended to crest gage height on basis of computations of flow over dam at gage heights 16.76 feet and 21.50 feet. Gage heights used to half-tenths between 3.7 and 5.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 34,200 second-feet 9 p.m. Aug. 14 (gage height, 19.50 feet).

1929-39: Discharge, 39,000 second-feet Oct. 19, 1937 (gage height, 21.50 feet).

REMARKS.—Flow regulated by dam and power plant 1,000 feet upstream.

150 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	485	1,120	9	296	522	17	3,010	382	25	531	421
2	350	778	10	286	470	18	1,570	394	26	886	508
3	304	674	11	250	456	19	1,220	384	27	836	379
4	245	632	12	555	450	20	949	384	28	1,010	352
5	362	596	13	381	408	21	719	412	29	994	309
6	332	548	14	18,500	414	22	704	318	30	1,330	386
7	404	510	15	8,630	347	23	717	339	31	2,290	
8	468	436	16	5,900	462	24	602	353			
Monthly mean discharge, in second-feet.....										1,778	471
Runoff, in inches.....										5.48	1.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.37	327	2.28	286	15.40	24,700	7.01	6,130
2	2.30	295	2.23	265	13.60	20,600	7.01	6,130
3	2.15	232	2.20	252	11.60	16,000	7.13	6,320
4	2.14	228	2.26	278	8.88	10,000	7.38	6,920
5	2.13	224	2.38	332	8.75	9,800	7.88	7,920
6	2.14	228	3.00	686	7.14	6,320	7.67	7,520
7	2.19	248	5.45	3,480	7.22	6,520	7.30	6,720
8	2.60	442	7.02	6,130	7.02	6,130	7.25	6,520
9	2.65	469	9.10	10,400	6.45	5,020	6.65	5,380
10	2.66	474	9.25	10,600	6.37	5,020	7.17	6,520
11	2.66	474	12.85	18,700	6.32	4,850	6.97	6,130
N	2.66	474	15.15	24,300	6.30	4,850	6.35	5,020
1	2.65	469	16.40	27,000	6.33	4,850	6.44	5,020
2	2.65	469	17.70	30,000	6.45	5,020	6.46	5,200
3	2.65	469	18.47	31,800	6.70	5,560	6.47	5,200
4	2.65	469	18.71	32,300	7.62	7,320	6.49	5,200
5	2.60	442	18.80	32,500	7.54	7,120	6.56	5,380
6	2.56	421	18.91	32,800	7.52	7,120	6.80	5,750
7	2.40	341	19.12	33,200	7.37	6,920	6.89	5,940
8	2.45	366	19.35	34,000	7.31	6,720	7.07	6,320
9	2.55	416	19.50	34,200	7.20	6,520	6.92	5,940
10	2.54	411	19.18	33,500	6.80	5,750	6.35	5,020
11	2.55	416	18.65	32,100	7.34	6,720	6.20	4,680
12	2.40	341	17.42	29,300	7.05	6,130	5.43	3,480
SUPPLEMENTAL RECORDS								
Aug. 14, 6:05 a.m.-----							5.00	2,840
9:15 a.m.-----							9.46	11,300
9:30 a.m.-----							8.95	10,200
Aug. 15, 4:20 a.m.-----							9.12	10,400
Aug. 16, 5:30 a.m.-----							7.99	8,120

SMITH RIVER AT SPRAY, N. C.

LOCATION.—Lat. 36°31'47", long. 79°46'08", 0.9 mile south of State line, 1 mile downstream from Stuart Creek, and 1 mile north of Spray, Rockingham County. Datum of gage is 539.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—538 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,000 second-feet and extended to crest gage height on basis of computation of flood flow over Spray Cotton Mill dam 1½ miles downstream. Gage heights used to half-tenths between 3.4 and 5.1 feet; hundredths below and tenths above these limits.

ROANOKE RIVER BASIN

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MAXIMA.—1940: Discharge, 45,600 second-feet 1 a.m. Aug. 15 (gage height, 19.28 feet).

Other flood-peak discharges over Spray Cotton Mill dam have been computed as follows: 33,000 second-feet Oct. 20, 1937, 19,000 second-feet Aug. 19, 1939.

REMARKS.—Flood runoff affected very little, if any at all, by power plant at Martinsville, Va.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	948	1,480	9	385	589	17	4,300	473	25	627	482
2	519	956	10	333	532	18	2,150	454	26	976	622
3	384	808	11	346	502	19	1,670	450	27	1,620	476
4	347	713	12	671	532	20	1,070	455	28	1,050	408
5	434	696	13	521	486	21	894	432	29	1,670	388
6	368	686	14	15,400	440	22	884	406	30	1,040	459
7	524	577	15	23,300	414	23	910	421	31	2,690	-----
8	594	518	16	8,130	508	24	709	399			
Monthly mean discharge, in second-feet-----										2,434	559
Runoff, in inches-----										5.22	1.16

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.97	228	2.75	692	2.60	585	19.28	45,600	-----	-----	-----	-----
2	1.97	228	2.68	641	2.56	557	19.21	45,200	9.13	9,150	7.66	6,440
3	1.97	228	2.64	613	2.53	536	19.05	44,200	-----	-----	-----	-----
4	2.35	420	2.61	592	2.60	585	18.72	42,900	8.98	8,950	6.90	5,110
5	2.67	634	2.58	571	2.90	805	18.32	41,100	-----	-----	-----	-----
6	2.73	678	2.55	550	3.45	1,230	17.60	38,000	8.85	8,550	6.42	4,380
7	2.72	670	2.52	529	4.15	1,840	16.75	34,400	-----	-----	-----	-----
8	2.70	655	2.48	502	4.80	2,480	15.83	30,200	9.04	8,950	6.29	4,240
9	2.70	655	2.42	463	6.15	4,100	14.85	26,200	-----	-----	-----	-----
10	2.71	662	2.36	426	7.80	6,620	13.78	22,500	9.13	9,150	6.11	3,970
11	2.74	685	2.29	384	9.03	8,950	12.86	19,400	-----	-----	-----	-----
N	2.77	708	2.23	352	9.95	11,200	12.09	16,900	8.75	8,550	6.08	3,970
1	2.85	768	2.18	325	10.63	12,700	11.48	15,100	-----	-----	-----	-----
2	2.94	835	2.14	305	11.28	14,500	10.92	13,400	8.54	7,950	6.41	4,380
3	2.99	872	2.14	305	12.00	16,600	10.36	12,200	-----	-----	-----	-----
4	3.00	880	2.35	420	13.27	20,800	10.00	11,200	8.14	7,180	5.88	3,710
5	2.98	865	2.55	550	14.25	23,900	9.78	10,700	-----	-----	-----	-----
6	2.96	850	2.61	592	15.10	27,400	9.64	10,200	7.94	6,800	5.86	3,710
7	2.94	835	2.62	599	15.99	31,000	9.71	10,400	-----	-----	-----	-----
8	2.93	828	2.62	599	16.81	34,400	9.78	10,700	7.88	6,800	5.77	3,590
9	2.92	820	2.62	599	17.76	38,800	9.85	10,700	-----	-----	-----	-----
10	2.91	812	2.63	606	18.61	42,400	9.76	10,700	8.00	6,990	5.37	3,120
11	2.89	798	2.63	606	19.00	44,200	9.55	10,200	-----	-----	-----	-----
12	2.83	752	2.63	606	19.20	45,200	9.50	9,950	8.13	7,180	5.23	2,900
	Aug. 18		Aug. 19		Aug. 20		SUPPLEMENTAL RECORDS					
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge						
2	5.16	2,900	3.95	1,620	2.91	718	Aug. 16, 9 a.m.-----					
4	4.94	2,620	3.97	1,620	3.05	832	Aug. 17, 5 p.m.-----					
6	4.50	2,170	3.93	1,620	3.49	1,220	7 p.m.-----					
8	4.43	2,120	3.89	1,580	3.47	1,180	Aug. 19, 2:30 p.m.-----					
10	4.47	2,120	3.98	1,670	3.45	1,180	5:30 p.m.-----					
N	4.45	2,120	4.13	1,820	3.37	1,100	7:30 p.m.-----					
2	4.46	2,120	4.37	2,020	3.23	986	Aug. 20, 3 a.m.-----					
4	4.22	1,870	4.16	1,820	3.32	1,060	11 a.m.-----					
6	4.05	1,720	3.95	1,620	3.33	1,070						
8	4.10	1,770	4.35	2,020	3.67	1,360						
10	4.28	1,970	3.58	1,310	3.43	1,180						
12	4.02	1,670	3.28	1,030	3.12	892						

152 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

SANDY RIVER NEAR DANVILLE, VA.

LOCATION.—Lat. $36^{\circ}37'05''$, long. $79^{\circ}30'00''$, 800 feet downstream from bridge on road between Callahans store and Mount Cross, a quarter of a mile downstream from Hickory Forest Creek, 6 miles northwest of Danville, Pittsylvania County, and 6 miles upstream from mouth. Datum of gage is 454.81 feet above mean sea level (unadjusted).

DRAINAGE AREA.—113 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,000 second-feet and extended to crest gage height by logarithmic plotting on basis of slope-area measurement, unit-hydrograph and flood-routing studies, and other comparison with flood records for stations in Roanoke River Basin. Gage heights used to half-tenths between 5.0 and 6.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 23,000 second-feet 9 p.m. Aug. 14 (gage height, 17.38 feet).

1929-39: Discharge, 7,140 second-feet Sept. 7, 1934 (gage height, 11.60 feet).

REMARKS.—The District Engineer, Corps of Engineers, War Department, Norfolk, Va., furnished computed flood records by the unit-hydrograph and flood-routing methods used as a factor in determination of stage-discharge relation.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	56	275	9	36	64	17	1620	56	25	178	58
2	45	139	10	36	63	18	268	55	26	140	57
3	42	106	11	40	62	19	149	55	27	103	49
4	42	90	12	61	56	20	109	53	28	126	52
5	43	76	13	43	58	21	94	53	29	177	52
6	42	77	14	5,850	56	22	114	51	30	133	51
7	41	69	15	6,050	57	23	190	52	31	355	
8	38	64	16	1,870	54	24	108	51			
Monthly mean discharge, in second-feet										555	70.4
Ru off, in inches										5.61	0.70

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.70	44	2.70	44	15.13	14,800	7.29	2,920	4.83	1,120	-----	-----
2	2.70	45	2.75	48	14.55	13,330	7.01	2,700	4.66	975	-----	-----
3	2.71	45	2.76	49	13.98	11,500	6.86	2,620	4.53	905	-----	-----
4	2.70	44	2.81	54	13.43	10,300	6.73	2,480	4.41	870	3.76	331
5	2.67	42	2.91	65	12.78	9,120	6.51	2,320	4.32	780	-----	-----
6	2.65	40	3.16	103	12.05	7,750	6.31	2,180	4.25	715	-----	-----
7	2.64	39	3.60	244	11.33	6,720	6.06	2,020	4.22	688	-----	-----
8	2.63	38	4.28	742	10.73	5,970	5.90	1,880	4.19	661	3.69	291
9	2.63	38	4.83	1,120	10.28	5,510	5.63	1,690	4.15	625	-----	-----
10	2.65	40	5.20	1,360	10.03	5,180	5.46	1,540	4.13	607	-----	-----
11	2.67	42	5.63	1,690	9.81	4,980	5.25	1,400	4.09	572	-----	-----
N	2.61	37	6.13	2,020	9.53	4,680	5.38	1,500	4.04	530	3.64	265
1	2.68	42	6.63	2,400	9.11	4,320	5.26	1,400	4.00	496	-----	-----
2	2.67	42	7.13	2,780	8.54	3,830	5.01	1,220	3.96	466	-----	-----
3	2.69	43	7.95	3,450	8.18	3,590	4.84	1,120	3.92	435	-----	-----
4	2.69	43	8.36	3,750	8.16	3,590	4.68	1,010	3.90	420	3.59	240
5	2.68	42	8.63	3,910	7.91	3,380	4.57	905	3.88	407	-----	-----
6	2.68	42	11.83	7,440	7.61	3,150	4.88	1,150	3.90	420	-----	-----
7	2.71	45	15.33	15,400	7.29	2,920	6.38	2,250	4.07	555	-----	-----
8	2.72	46	16.83	20,600	7.03	2,700	7.09	2,780	4.05	538	3.53	212
9	2.69	43	17.38	23,000	6.85	2,550	6.35	2,250	3.96	466	-----	-----
10	2.70	44	17.13	21,800	6.82	2,550	5.97	1,950	3.90	420	-----	-----
11	2.76	49	16.58	19,800	7.00	2,700	5.38	1,500	3.85	387	-----	-----
12	2.74	48	15.93	17,200	7.35	3,000	5.03	1,260	3.81	361	3.45	180
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	3.23	-----	3.13	-----	3.08	89	3.78	342	3.13	97
4	3.41	166	3.23	117	3.13	97	3.08	89	3.77	337	3.11	94
6	-----	-----	3.20	-----	3.12	-----	3.08	89	3.71	302	3.10	92
8	3.38	156	3.20	110	3.12	96	3.08	89	3.54	217	3.08	89
10	-----	-----	3.20	-----	3.12	-----	3.09	90	3.40	162	3.09	90
N	3.36	150	3.20	110	3.12	96	3.07	88	3.33	142	3.08	89
2	-----	-----	3.18	-----	3.10	-----	3.07	88	3.26	124	3.08	89
4	3.33	142	3.18	106	3.10	92	3.07	88	3.24	119	3.07	88
6	-----	-----	3.15	-----	3.09	-----	3.10	92	3.22	115	3.04	83
8	3.28	128	3.15	101	3.09	90	3.30	133	3.18	106	3.04	83
10	-----	-----	3.14	-----	3.07	-----	3.56	226	3.16	103	3.41	166
12	3.25	122	3.14	99	3.07	88	3.74	319	3.14	99	3.83	374

SUPPLEMENTAL RECORDS.—Aug. 22, 9 p.m., gage height, 3.62 feet; discharge, 254 second-feet. Aug. 24, 11 p. m., gage height, 3.96 feet; discharge, 466 second-feet.

BANISTER RIVER AT HALIFAX, VA.

LOCATION.—Lat. 36°45'30", long. 78°54'05", 1,000 feet downstream from Terrible Creek, 1 mile north of Halifax, Halifax County, and 10 miles upstream from mouth. Datum of gage is 318.54 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—552 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods Aug. 15-20 (recorder submerged) and Sept. 15-20. Gage heights for the period Aug. 15-20 were obtained from graph based on floodmarks, gage readings, and comparisons with flood records for nearby stations. No gage-height record Sept. 15-20.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,000 second-feet and extended to crest gage heights by logarithmic plotting on basis of comparisons with flood records for other stations in Roanoke River Basin. Gage heights used to half-tenths between 1.7 and 3.6 feet to Aug. 16, between 1.8 and 3.6 feet thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 34,000 second-feet 9 a.m. Aug. 16 (gage height, 37.8 feet, from floodmarks).

1928-29: Discharge, 19,000 second-feet June 22, 1938 (gage height, 31.22 feet, from floodmarks).

154 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—The Flood Control Advisory Committee, Department of Agriculture, furnished a field party and equipment to obtain field data for determination of flood flow by the slope-area method on Banister River at Riceville in headwaters. Flow regulated by power plant half a mile upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	688	1,510	9	202	655	17	15,000	60	25	557	232
2	778	2,270	10	198	525	18	6,200	60	26	554	292
3	154	1,090	11	150	403	19	2,560	190	27	535	330
4	146	692	12	292	309	20	1,080	150	28	510	223
5	273	634	13	523	83	21	759	163	29	584	295
6	229	710	14	1,170	327	22	676	152	30	998	583
7	192	666	15	19,400	300	23	687	225	31	985	-----
8	191	665	16	30,200	300	24	610	320			

Monthly mean discharge, in second-feet.....

Runoff, in inches.....

¹ Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.23	130	1.10	113	27.75	15,100	36.5	29,400	33.1	21,700	22.2	9,000
2	.82	80	.74	71	28.22	15,500	36.8	30,300	32.6	20,900	21.9	8,700
3	.63	60	.62	59	28.50	15,800	37.0	31,000	32.0	20,000	21.5	8,300
4	.56	53	.59	56	28.80	16,200	37.2	31,700	31.5	19,400	21.2	8,000
5	.52	49	.58	55	29.05	16,400	37.4	32,400	31.0	18,800	20.9	7,710
6	.51	48	.61	58	29.2	16,600	37.5	32,800	30.4	18,100	20.6	7,440
7	2.10	258	.68	65	29.4	16,900	37.6	33,200	29.8	17,400	20.3	7,170
8	3.76	580	.80	78	29.6	17,100	37.7	33,600	29.3	16,800	20.0	6,900
9	4.40	712	3.80	580	29.8	17,400	37.8	34,000	28.7	16,100	19.7	6,660
10	4.49	734	5.16	898	30.0	17,600	37.7	33,600	28.1	15,400	19.4	6,430
11	4.51	734	6.35	1,190	30.2	17,800	37.7	33,600	27.6	14,900	19.1	6,220
N	4.51	734	10.90	2,410	30.5	18,200	37.6	33,200	27.2	14,400	18.8	6,010
1	4.51	734	13.80	3,390	30.8	18,600	37.5	32,800	26.8	14,000	18.6	5,870
2	4.53	734	14.76	3,770	31.2	19,000	37.4	32,400	26.4	13,500	18.3	5,660
3	4.60	756	15.65	4,150	31.6	19,500	37.1	31,400	26.0	13,100	18.1	5,530
4	4.53	734	17.15	4,990	32.0	20,000	36.8	30,300	25.6	12,700	17.9	5,410
5	4.51	734	18.80	6,010	32.5	20,700	36.5	29,400	25.2	12,200	17.6	5,230
6	4.62	756	20.20	7,080	33.0	21,500	36.2	28,500	24.8	11,800	17.4	5,110
7	4.78	802	21.90	8,700	33.5	22,400	35.8	27,400	24.4	11,300	17.0	4,870
8	4.82	802	23.60	10,500	34.0	23,300	35.4	26,400	24.0	10,900	16.8	4,750
9	4.87	826	24.80	11,800	34.6	24,500	35.0	25,400	23.6	10,500	16.6	4,650
10	4.99	850	25.85	12,900	35.1	25,600	34.5	24,300	23.2	10,000	16.3	4,500
11	3.30	476	26.60	13,800	35.6	26,900	34.0	23,300	22.9	9,700	16.0	4,350
12	1.85	218	27.20	14,400	36.1	28,200	33.6	22,600	22.6	9,400	15.7	4,200

	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	15.0	3,850	7.2	1,360	5.1	814	-----	-----	-----	-----	-----	-----
4	14.3	3,570	6.9	1,280	5.0	814	4.46	678	4.45	678	4.23	634
6	13.6	3,310	6.6	1,200	4.95	790	-----	-----	-----	-----	-----	-----
8	12.7	2,990	6.4	1,150	4.9	766	4.43	678	4.50	678	4.17	612
10	12.0	2,740	6.2	1,100	4.8	766	-----	-----	-----	-----	-----	-----
N	11.0	2,420	5.9	1,030	4.77	744	4.43	678	4.67	722	4.13	612
2	10.1	2,150	5.8	1,010	4.73	744	-----	-----	-----	-----	-----	-----
4	9.4	1,950	5.6	958	4.70	722	4.38	656	4.59	700	4.08	590
6	8.8	1,780	5.5	934	4.66	722	-----	-----	-----	-----	-----	-----
8	8.3	1,640	5.4	910	4.63	722	4.42	678	4.44	678	4.03	590
10	7.9	1,540	5.3	886	4.60	722	-----	-----	-----	-----	-----	-----
12	7.6	1,460	5.2	862	4.57	700	4.42	678	4.31	656	4.00	590

HYCO RIVER NEAR OMEGA, VA.

LOCATION.—Lat. 36°38', long. 78°48', at highway bridge 1½ miles upstream from Hilly Creek, 2½ miles south of Omega, Halifax County, and 7 miles upstream from mouth. Datum of gage is 294.45 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—338 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,800 second-feet and extended to crest gage height by logarithmic plotting. Gage heights used to half-tenths between 3.1 and 4.6 feet to Aug. 17, between 3.3 and 4.7 thereafter; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 9,280 second-feet 8:30 a.m. Aug. 17 (gage height, 25.65 feet).

1934-39: Discharge, 11,000 second-feet Sept. 8, 1934 (gage height, 27.50 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	27	202	9	12	51	17	9,120	41	25	528	42
2	22	103	10	12	49	18	7,230	38	26	617	45
3	16	78	11	20	55	19	13,010	37	27	238	51
4	16	66	12	16	115	20	295	36	28	433	35
5	13	113	13	22	87	21	178	34	29	532	32
6	13	121	14	1,090	58	22	133	31	30	238	28
7	16	66	15	12,920	48	23	113	27	31	160	-----
8	13	56	16	7,090	44	24	93	26			

Monthly mean discharge, in second-feet.....	1,104	60.5
Runoff, in inches.....	3.77	0.20

Discharge is different from that given in Water-Supply Paper 892. It is based on revisions not considered important enough for inclusion with revised records published in Water-Supply Paper 972.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.86	24	12.68	2,110	19.65	4,960	25.39	9,120	24.60	8,480
2	1.77	17	1.87	25	12.65	2,080	20.10	5,270	25.46	9,200	24.48	8,400
3	-----	-----	1.87	25	12.60	2,080	20.40	5,480	25.52	9,200	24.38	8,320
4	1.85	24	1.87	25	12.56	2,080	20.70	5,690	25.56	9,280	24.28	8,240
5	-----	-----	1.88	26	12.55	2,080	20.95	5,900	25.60	9,280	24.17	8,160
6	1.89	27	1.88	26	12.57	2,080	21.20	6,040	25.63	9,280	24.07	8,080
7	-----	-----	1.90	28	12.57	2,080	21.42	6,180	25.64	9,280	23.94	7,930
8	1.90	28	1.92	30	12.59	2,080	21.65	6,320	25.64	9,280	23.78	7,860
9	-----	-----	2.08	47	12.67	2,110	21.88	6,530	25.64	9,280	23.63	7,720
10	1.88	26	2.53	99	13.35	2,300	22.13	6,670	25.63	9,280	23.45	7,580
11	-----	-----	7.50	888	14.40	2,590	22.40	6,880	25.62	9,280	23.25	7,440
N	1.86	24	11.50	1,790	15.00	2,770	22.65	7,020	25.59	9,280	23.07	7,370
1	-----	-----	12.25	1,970	15.15	2,830	22.97	7,300	25.56	9,280	22.87	7,230
2	1.85	24	11.82	1,870	15.15	2,830	23.25	7,440	25.52	9,200	22.70	7,090
3	-----	-----	11.67	1,840	15.30	2,860	23.55	7,720	25.47	9,200	22.50	6,950
4	1.83	22	11.77	1,870	16.25	3,140	23.86	7,930	25.43	9,120	22.29	6,810
5	-----	-----	12.00	1,920	16.93	3,370	24.12	8,080	25.35	9,120	22.08	6,670
6	1.81	20	12.20	1,970	17.43	3,660	24.35	8,320	25.27	9,040	21.84	6,460
7	-----	-----	12.40	2,030	17.90	3,980	24.54	8,400	25.20	8,960	21.60	6,320
8	1.80	19	12.58	2,080	18.23	4,140	24.75	8,640	25.12	8,880	21.37	6,180
9	-----	-----	12.75	2,140	18.48	4,300	24.93	8,720	25.02	8,800	21.15	6,040
10	1.80	19	12.82	2,140	18.75	4,480	25.08	8,880	24.91	8,720	20.90	5,830
11	-----	-----	12.78	2,140	19.05	4,600	25.20	8,960	24.80	8,640	20.48	5,550
12	1.84	23	12.74	2,110	19.35	4,840	25.32	9,040	24.70	8,560	20.17	5,340
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	19.55	4,960	4.63	393	3.45	209	-----	-----	-----	-----	-----	-----
4	19.03	4,600	4.44	361	3.39	202	2.97	143	2.78	119	2.62	99
6	18.50	4,300	4.30	337	3.34	195	-----	-----	-----	-----	-----	-----
8	17.95	4,030	4.18	321	3.30	188	2.93	138	2.75	115	2.59	96
10	17.42	3,660	4.06	298	3.25	181	-----	-----	-----	-----	-----	-----
N	16.68	3,300	3.96	282	3.21	175	2.89	133	2.72	111	2.57	93
2	15.65	2,960	3.86	268	3.17	170	-----	-----	-----	-----	-----	-----
4	13.70	2,390	3.77	252	3.13	164	2.85	128	2.70	109	2.53	89
6	10.45	1,500	3.68	245	3.10	160	-----	-----	-----	-----	-----	-----
8	7.77	938	3.62	230	3.06	155	2.82	124	2.68	107	2.51	86
10	6.00	617	3.56	223	3.03	151	-----	-----	-----	-----	-----	-----
12	4.97	449	3.50	216	3.01	148	2.80	121	2.66	104	2.50	85

SUPPLEMENTAL RECORD.—Aug. 17, 8:30 a.m., gage height, 25.65 feet; discharge, 9,280 second-feet.

156 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

PAMLICO RIVER BASIN TAR RIVER NEAR TAR RIVER, N. C.

LOCATION.—Lat. 36°12', long. 78°34', at bridge on State Highway 562, 1¼ miles upstream from Fishing Creek, 2½ miles east of town of Tar River, Granville County, and 8 miles south of Oxford.

DRAINAGE AREA.—161 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods Aug. 4-12, and 8 p.m. Aug. 14 to 4 a.m. Aug. 15, when the recorder intake was partly obstructed, for which the graph was reconstructed.

DISCHARGE RECORD.—Stage-discharge record defined by current-meter measurements. Gage heights used to half-tenths between 3.5 and 5.7 feet; hundredths below and tenths above these limits. Discharge for periods of no gage-height record based on recorded range in gage height, weather records, and records for nearby streams.

MAXIMA.—August 1940: Discharge, 2,050 second-feet 10 to 10:30 a.m. Aug. 16 (gage height, 7.38 feet).

1939 to July 1940: Discharge, 5,550 second-feet May 25, 1940 (gage height, 11.9 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	13	38	9	17	21	17	493	19	25	208	11
2	34	31	10	12	19	18	200	13	26	365	8.3
3	13	26	11	15	107	19	101	12	27	86	6.6
4	11	23	12	7	48	20	57	13	28	53	7.7
5	10	22	13	10	32	21	41	11	29	142	7.2
6	12	46	14	401	20	22	37	8.9	30	71	5.7
7	15	46	15	930	20	23	30	12	31	59	-----
8	22	33	16	1,700	13	24	24	11			-----
Monthly mean discharge, in second-feet -----										167	23.0
Runoff, in inches -----										1.20	0.16

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.05	13	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	1.04	13	6.65	1,620	6.35	1,520	4.95	847	2.98	216	-----	-----
3	1.02	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	1.02	12	6.50	1,570	6.77	1,720	4.71	751	3.02	230	2.72	131
5	1.01	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	1.00	12	6.08	1,370	7.08	1,880	4.46	661	3.00	223	-----	-----
7	1.00	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	1.01	12	5.40	1,040	7.29	2,000	4.16	568	2.94	203	2.64	110
9	1.01	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	1.02	12	4.60	714	7.38	2,050	3.88	496	2.93	200	-----	-----
11	1.03	12	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
N	1.14	16	3.93	510	7.34	2,000	3.65	426	2.94	203	2.56	97
1	1.55	36	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	2.34	77	3.59	412	7.17	1,940	3.47	375	2.94	203	-----	-----
3	2.77	147	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	2.94	203	3.59	412	6.94	1,780	3.34	336	2.93	200	2.44	85
5	3.06	243	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	4.45	661	3.90	496	6.65	1,620	3.24	304	2.90	190	-----	-----
7	5.61	1,130	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	6.08	1,370	4.28	612	6.34	1,470	3.15	274	2.86	177	2.31	75
9	6.35	1,520	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	6.55	1,620	5.17	952	5.93	1,270	3.07	247	2.83	167	-----	-----
11	6.65	1,620	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	6.68	1,670	5.85	1,230	5.41	1,040	3.00	223	2.78	150	2.21	69

SUPPLEMENTAL RECORDS.—Aug. 15, 12:30 a.m., gage height, 6.69 feet, discharge, 1,670 second-feet; 3 p.m. gage height, 4.57 feet, discharge, 696 second-feet. Aug. 16, 10:30 a.m., gage height, 7.38 feet, discharge, 2,050 second-feet.

TAR RIVER NEAR NASHVILLE, N. C.

LOCATION.—Lat. $35^{\circ}51'00''$, long. $77^{\circ}55'50''$, at Cockrell Bridge on Nashville-Wilson road, 5 miles upstream from Sapony Creek and 10 miles south of Nashville, Nash County.

DRAINAGE AREA.—701 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 15,500 second-feet. Gage heights used to half-tenths between 3.4 and 4.9 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 11,700 second-feet 8 a.m. Aug. 18 (gage height, 17.37 feet).

1928-39: Discharge, 16,900 second-feet Dec. 3, 1934 (gage height, 20.8 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	363	484	9	282	262	17	10,100	206	25	393	159
2	181	371	10	211	240	18	11,500	197	26	522	227
3	141	326	11	326	408	19	10,400	187	27	691	171
4	125	279	12	436	359	20	6,510	187	28	602	171
5	128	276	13	405	374	21	751	174	29	491	165
6	137	344	14	908	268	22	522	171	30	682	147
7	283	333	15	5,520	230	23	438	162	31	637	-----
8	390	294	16	7,180	206	24	400	153			
Monthly mean discharge, in second-feet.....										1,989	251
Runoff, in inches.....										3.27	0.40

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.96	330						
2	2.95	326	12.05	5,600	12.83	6,330		
3	2.93	319						
4	2.91	312	12.11	5,690	13.01	6,530	15.48	9,200
5	2.89	304						
6	2.88	301	12.04	5,600	13.16	6,730		
7	2.87	297						
8	2.85	290	11.94	5,510	13.30	6,830	15.91	9,680
9	2.83	283						
10	2.82	279	11.83	5,420	13.44	6,930		
11	2.80	272						
N	2.79	268	11.75	5,420	13.58	7,130	16.32	10,200
1	3.00	344						
2	3.22	428	11.68	5,330	13.76	7,330		
3	3.39	496						
4	3.46	520	11.67	5,330	13.93	7,430	16.65	10,600
5	3.51	540						
6	3.86	687	11.67	5,330	14.11	7,630		
7	4.25	860						
8	5.04	1,200	11.89	5,510	14.32	7,830	17.04	11,100
9	7.40	2,380						
10	9.42	3,580	12.37	5,960	14.55	8,160		
11	10.68	4,510						
12	11.34	4,990	12.61	6,140	14.79	8,380	17.23	11,400
	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2					15.51	9,200	4.48	970
4	17.34	11,600	16.86	11,000	15.33	8,960	4.28	882
6					15.12	8,720	4.16	816
8	17.37	11,700	16.69	10,700	14.85	8,380	4.06	772
10					14.55	8,160	3.99	750
N	17.35	11,700	16.48	10,400	14.12	7,630	3.93	729
2					13.46	7,030	3.87	687
4	17.28	11,600	16.24	10,100	12.37	5,960	3.82	666
6					10.60	4,430	3.76	645
8	17.17	11,400	15.98	9,800	8.03	2,700	3.72	624
10					5.89	1,630	3.67	603
12	17.03	11,100	15.67	9,440	4.87	1,130	3.63	603

158 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TAR RIVER AT TARBORO, N. C.

LOCATION.—Lat. 35°53'40", long. 77°32'00", at highway bridge at Tarboro, Edgecombe County, 6½ miles downstream from Fishing Creek. Datum of gage is 10.37 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,100 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 1-6, where graph was based on United States Weather Bureau once-daily staff gage readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 38,000 second-feet. Gage heights used to half-tenths between 2.0 and 3.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 37,200 second-feet 6 to 8 p.m. Aug. 20 (gage height, 31.77 feet).

1896-1900, 1931-39: Discharge, 23,800 second-feet Dec. 6, 1934 (gage height, 27.38 feet).

Stage known, 34.2 feet, present datum, July 27, 1919 (discharge, 52,800 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	557	2,400	9	1,420	952	17	18,500	838	25	8,340	516
2	475	1,800	10	1,820	952	18	24,700	749	26	5,060	502
3	491	1,710	11	1,380	1,030	19	30,900	698	27	2,810	544
4	625	1,510	12	1,200	1,270	20	36,100	634	28	2,420	574
5	524	1,310	13	1,200	1,310	21	33,900	604	29	2,490	516
6	475	1,110	14	1,280	1,230	22	25,300	589	30	2,710	460
7	491	1,190	15	5,400	1,070	23	18,200	516	31	2,720	-----
8	973	1,190	16	11,100	933	24	12,500	502			
Monthly mean discharge, in second-feet-----										8,260	974
Runoff, in inches-----										4.53	0.52

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	4.17	1,160	7.50	2,600	-----	-----	-----	-----	-----	-----
4	4.18	1,160	9.00	3,410	17.13	8,790	-----	-----	-----	-----
6	4.19	1,160	10.44	4,240	-----	-----	23.54	16,800	27.13	23,200
8	4.19	1,160	11.37	4,840	18.22	9,800	-----	-----	-----	-----
10	4.20	1,160	12.08	5,260	-----	-----	-----	-----	-----	-----
N	4.21	1,160	12.67	5,640	19.24	10,800	24.62	18,600	27.89	24,700
2	4.27	1,200	13.21	5,970	-----	-----	-----	-----	-----	-----
4	4.41	1,230	13.78	6,360	20.42	12,300	-----	-----	-----	-----
6	4.61	1,310	14.37	6,780	-----	-----	25.52	20,200	28.59	26,100
8	4.94	1,420	14.90	7,130	21.40	13,600	-----	-----	-----	-----
10	5.50	1,660	15.46	7,550	-----	-----	-----	-----	-----	-----
12	6.40	2,050	16.02	7,900	22.34	14,900	26.34	21,700	29.26	27,600
Aug. 19			Aug. 20		Aug. 21		Aug. 22		Aug. 23	
6	29.89	29,200	31.52	35,400	31.64	35,400	30.32	27,500	27.40	19,700
N	30.43	30,800	31.69	36,600	31.47	34,700	29.73	25,100	26.53	18,100
6	30.88	32,600	31.77	37,200	31.19	32,500	29.01	23,000	25.64	16,600
12	31.26	34,400	31.72	36,200	30.81	30,000	28.20	21,200	24.74	15,200
Hour	Aug. 24		Aug. 25		Aug. 26		Aug. 27			
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge		
6	23.79	13,900	19.21	9,040	13.19	5,970	8.34	3,020		
N	22.78	12,500	17.88	8,250	11.63	4,960	7.76	2,750		
6	21.70	11,100	16.40	7,560	10.23	4,120	7.33	2,500		
12	20.56	10,100	14.81	6,900	9.16	3,520	7.10	2,400		

TAR RIVER AT GREENVILLE, N. C.

LOCATION.—Lat. 35°37'00", long. 77°22'30", at bridge on State Highway 11, about 600 feet below Atlantic Coast Line Railroad bridge at Greenville, Pitt County.

Datum of gage is 2.38 feet below mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,680 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 10-11, for which period there is no gage height record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 36,000 second-feet. This relation is affected by tide, but current-meter measurements made Aug. 21, 22, 23, and 24 define the relation throughout the flood peak. Gage heights used to half-tenths between 3.6 and 5.2 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record based on record for station at Tarboro.

MAXIMA.—1940: Discharge, 36,500 second-feet 6-8 a.m. Aug. 22 (gage height, 22.07 feet).

1905-39: Gage height, 24.5 feet July 28, 1919 (from U. S. Weather Bureau records, discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage. Because of serious tide effect this gage is not being maintained as a regular discharge station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	416	3,120	9	1,340	1,230	17	11,200	1,370	25	20,700	495
2	960	2,720	10	2,000	990	18	16,800	1,300	26	14,000	630
3	1,020	2,260	11	2,400	1,160	19	23,000	1,120	27	8,820	990
4	1,060	2,100	12	1,840	1,510	20	29,400	930	28	5,300	1,090
5	840	1,880	13	1,400	1,770	21	34,700	750	29	3,400	1,020
6	690	1,660	14	1,240	1,730	22	36,200	635	30	3,290	1,200
7	650	1,540	15	3,020	1,440	23	33,300	756	31	3,350	-----
8	900	1,510	16	6,670	1,400	24	27,300	680			
Monthly mean discharge, in second-feet.....										9,587	1,366
Runoff, in inches.....										4.12	0.57

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	-----	-----	14.65	1,480	9.56	5,650	-----	-----	-----	-----	-----	-----
8	4.23	1,200	15.27	1,960	10.04	6,050	13.35	10,300	16.20	15,700	18.50	22,000
N	-----	-----	6.47	2,880	10.46	6,550	-----	-----	-----	-----	-----	-----
4	4.31	1,230	7.69	3,880	11.02	7,100	14.44	12,000	16.98	17,700	19.19	24,100
8	-----	-----	8.56	4,690	11.55	7,820	-----	-----	-----	-----	-----	-----
12	4.45	1,340	9.13	5,160	12.16	8,580	15.36	13,900	17.75	19,900	19.83	26,100
	Aug. 20		Aug. 21		Aug. 22		Aug. 23		Aug. 24		Aug. 25	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
6	20.26	28,000	21.56	34,000	22.07	36,500	21.74	34,500	20.53	28,800	18.45	21,700
8	-----	-----	21.75	35,000	22.06	36,500	21.51	33,500	20.11	27,200	-----	-----
N	20.64	29,200	-----	-----	-----	-----	-----	-----	-----	-----	17.66	19,700
4	21.00	31,000	21.90	35,500	22.01	36,000	21.23	32,000	19.66	25,800	-----	-----
12	21.31	32,500	22.01	36,000	21.90	35,500	20.90	30,600	19.16	24,100	16.82	17,200
	Aug. 26		Aug. 27		Aug. 28		Aug. 29		Aug. 30		Aug. 31	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
6	-----	-----	-----	-----	9.97	6,050	7.28	3,540	-----	-----	-----	-----
8	15.93	15,000	12.81	9,420	-----	-----	-----	-----	6.93	3,200	7.09	3,360
N	-----	-----	-----	-----	9.16	5,260	7.02	3,280	7.06	3,360	7.08	3,360
4	14.91	12,900	11.75	8,060	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	-----	-----	8.36	4,500	6.92	3,200	-----	-----	-----	-----
12	13.89	11,100	10.76	6,880	7.74	3,880	6.97	3,280	7.08	3,360	7.02	3,280

¹ Estimated from partial record.

SUPPLEMENTAL RECORD.—Aug. 22, 8 a.m., gage height, 22.07 feet; discharge, 36,500 second-feet.

160 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

FISHING CREEK NEAR ENFIELD, N. C.

LOCATION.—Lat. 36°08'55", long. 77°41'45", at bridge on U. S. Highway 301, 2,000 feet downstream from Atlantic Coast Line Railroad bridge, 2 miles southwest of Enfield, Halifax County, and 4¾ miles downstream from Rocky Creek.

DRAINAGE AREA.—462 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,300 second-feet. Shifting-control method used Sept. 23-30. Gage heights used to half-tenths between 1.6 and 3.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 12,600 second-feet 1-4 a.m. Aug. 18 (gage height, 17.72 feet).

1923-39: Discharge, 12,600 second-feet Dec. 2, 1934 (gage height, 17.66 feet).

1910-39: Stage known, 21.0 feet April 19, 1910 (from U. S. Weather Bureau records, discharge not determined). Flood of July 24, 1919, reached a stage of 19.6 feet (discharge 20,300 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	338	358	9	1,000	228	17	11,100	178	25	577	147
2	212	308	10	390	228	18	12,100	168	26	453	152
3	145	278	11	351	358	19	8,770	173	27	382	137
4	120	250	12	292	308	20	3,760	173	28	543	142
5	117	239	13	390	266	21	1,090	168	29	808	132
6	118	332	14	505	239	22	481	162	30	668	142
7	178	302	15	3,310	206	23	372	162	31	532	-----
8	1,530	234	16	5,670	195	24	370	147			
Monthly mean discharge, in second-feet.....										1,828	217
Runoff, in inches.....										4.56	0.52

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	3.75	429	11.53	2,110	-----	-----	-----	-----	-----	-----
4	3.66	416	12.28	2,540	14.80	5,010	16.55	9,260	17.72	12,600
6	3.57	403	12.67	2,780	-----	-----	-----	-----	-----	-----
8	3.47	390	12.94	2,910	14.89	5,210	17.09	10,700	17.69	12,600
10	3.38	377	13.19	3,120	-----	-----	-----	-----	-----	-----
N	3.30	364	13.43	3,270	15.00	5,420	17.41	11,600	17.63	12,200
2	3.36	377	13.65	3,430	-----	-----	-----	-----	-----	-----
4	3.71	416	13.93	3,710	15.17	5,840	17.56	12,200	17.54	11,900
6	4.01	455	14.17	4,040	-----	-----	-----	-----	-----	-----
8	4.69	550	14.36	4,310	15.51	6,510	17.67	12,600	17.40	11,600
10	7.00	904	14.52	4,470	-----	-----	-----	-----	-----	-----
12	9.85	1,530	14.63	4,640	15.92	7,450	17.71	12,600	17.22	11,000
	Aug. 19		Aug. 20		Aug. 21		Aug. 22		Aug. 23	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
4	-----	-----	14.85	5,010	9.71	1,500	-----	-----	-----	-----
6	16.91	10,100	-----	-----	-----	-----	4.79	517	3.81	384
8	-----	-----	14.35	4,310	8.56	1,240	-----	-----	-----	-----
N	16.48	8,990	13.84	3,610	7.52	1,000	4.40	462	3.74	371
4	-----	-----	13.24	3,120	6.66	843	-----	-----	-----	-----
6	15.94	7,450	-----	-----	-----	-----	4.19	436	3.62	358
8	-----	-----	12.32	2,540	5.92	697	-----	-----	-----	-----
12	15.31	6,060	11.04	1,920	5.37	610	3.97	410	3.47	345

NEUSE RIVER BASIN

ENO RIVER AT HILLSBORO, N. C.

LOCATION.—Lat. 36°04'20", long. 79°06'30", 1,000 feet downstream from U. S. Highway 70 at Hillsboro, Orange County, and 2 miles downstream from Seven-mile Creek.

DRAINAGE AREA.—66.5 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,700 second-feet. Shifting-control method used Sept. 22-30. Gage heights used to half-tenths between 3.6 and 4.3 feet Aug. 1-14 and between 3.5 and 4.6 feet Aug. 15 to Sept. 30; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 1,680 second-feet 5 p.m. Aug. 14 (gage height, 10.90 feet).

1927 to July 1940: Discharge, 6,750 second-feet Oct. 2, 1929 (gage height, 18.0 feet, from graph based on gage readings).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

NEUSE RIVER NEAR NORTHSIDE, N. C.

LOCATION.—Lat. 36°02'25", long. 78°45'05", at Fish Dam Bridge, 1½ miles downstream from Seaboard Railway bridge and 2 miles south of Northside, Granville County. Datum of gage is 226.32 feet above mean sea level (from levels by Corps of Engineers, War Department).

DRAINAGE AREA.—526 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation well defined up to 700 second-feet and poorly defined between 700 and 27,000 second-feet by current-meter measurements. Affected by changing stage and backwater during floods. Gage heights used to half-tenths between 2.2 and 4.1 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 4,050 second-feet 3 a.m. Aug. 18 (gage height, 16.50 feet).

1927 to July 1940: Discharge, 26,600 second-feet Oct. 3, 1929 (gage height, 28.64 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

162 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

NEUSE RIVER NEAR CLAYTON, N. C.

LOCATION.—Lat. 35°38'55", long. 78°24'30", at bridge 3 miles east of Clayton, Johnston County. Datum of gage is 128.12 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,140 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period Aug. 10-22, for which there is no record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,200 second-feet and extended to the 1929 crest gage height on basis of flood runoff comparisons. Shifting-control method used Sept. 11-30. Gage heights used to half-tenths between 2.5 and 4.2 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record based on weather records, recorded range in gage height, and records for United States Weather Bureau river stations at Smithfield and Neuse.

MAXIMA.—1940: Discharge, 11,500 second-feet Aug. 16 (gage height, 14.6 feet, from recorded range in gage height).

1927-39: Discharge, 22,000 second-feet Oct. 3, 1929 (gage height, 21.62 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	214	688	9	386	325	17	11,000	243	25	600	196
2	207	604	10	220	317	18	9,000	227	26	979	273
3	207	535	11	240	475	19	8,500	219	27	1,660	232
4	189	385	12	240	397	20	5,000	227	28	1,370	205
5	179	366	13	220	347	21	1,600	219	29	850	189
6	185	438	14	600	354	22	900	219	30	822	173
7	177	389	15	6,000	328	23	714	196	31	740	-----
8	541	358	16	10,000	277	24	663	205			
Monthly mean discharge, in second-feet-----										2,071	320
Runoff, in inches-----										2.09	0.31

NEUSE RIVER NEAR GOLDSBORO, N. C.

LOCATION.—Lat. 35°20'40", long. 78°01'35", a quarter of a mile upstream from bridge on State Highway 40, 2½ miles upstream from Stoney Creek, and 3 miles south of Goldsboro, Wayne County. Datum of gage is 44.66 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,370 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 25,500 second-feet for 1940 and up to 38,400 second-feet for 1929. During the periods of rapidly changing stage the rate of change in stage was used as a factor in computing the discharge. Gage heights used to half-tenths between 2.4 and 4.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 11,400 second-feet 4 a.m. Aug. 22; gage height, 19.18 feet 11 a.m. Aug. 22.

1930-39: Discharge, 26,300 second-feet Apr. 11, 1936; gage height, 25.3 feet Apr. 11, 1936.

Discharge known, 38,600 second-feet Oct. 5, 1929 (gage height, 25.3 feet, former site and datum).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	363	1,340	9	252	695	17	7,690	636	25	3,250	353
2	366	1,200	10	457	655	18	8,180	539	26	1,700	346
3	300	1,160	11	539	636	19	8,850	466	27	1,340	356
4	271	998	12	387	695	20	9,910	445	28	1,700	387
5	252	875	13	414	795	21	11,100	404	29	2,010	377
6	230	755	14	516	795	22	11,200	397	30	1,830	337
7	227	775	15	1,710	755	23	9,920	363	31	1,420	-----
8	265	755	16	6,460	695	24	6,850	360			
Monthly mean discharge, in second-feet.....										3,224	645
Runoff, in inches.....										1.57	0.30

NEUSE RIVER AT KINSTON, N. C.

LOCATION.—Lat. 35°15'30", long. 77°35'10", at Kinston, Lenoir County, two blocks downstream from bridge on State Highway 11. Datum of gage is 10.80 feet above mean sea level (North Carolina Highway surveys).

DRAINAGE AREA.—2,690 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 36,200 second-feet. Gage heights used to half-tenths between 2.4 and 4.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 10,900 second-feet 6 a.m. Aug. 25 (gage height, 16.14 feet).

1930-39: Discharge, 24,400 second-feet April 14, 1936 (gage height, 20.9 feet).

Stage known, 25.0 feet July 1919 (discharge, about 39,000 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	349	1,710	9	715	938	17	3,580	835	25	10,900	480
2	382	1,510	10	530	875	18	5,060	795	26	9,450	463
3	463	1,410	11	513	835	19	6,510	715	27	6,260	463
4	416	1,320	12	735	815	20	7,500	638	28	3,140	480
5	394	1,230	13	638	815	21	8,040	601	29	1,960	480
6	388	1,140	14	565	895	22	8,860	565	30	2,110	496
7	496	1,000	15	766	915	23	9,300	530	31	2,060	-----
8	696	960	16	1,900	895	24	10,700	513			
Monthly mean discharge, in second-feet.....										3,399	844
Runoff, in inches.....										1.46	0.35

FLAT RIVER AT BAHAMA, N. C.

LOCATION.—Lat. 36°11'25", long. 78°53'00", at head of Lake Michie, 1¼ miles upstream from county highway bridge, 1½ miles upstream from Dial Creek, and 1½ miles north of Bahama, Durham County. Datum of gage is 255.05 feet above mean sea level.

DRAINAGE AREA.—150 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 13,000 second-feet. Gage heights used to half-tenths between 5.0 and 7.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 4,000 second-feet 8:30 p.m. Aug. 14 (gage height, 6.97 feet).

1925 to July 1940: Discharge, 16,000 second-feet July 26, 1938, based on records for nearby streams.

REMARKS.—Flood runoff not affected by artificial storage.

164 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	21	53	9	24	30	17	1,320	24	25	1,060	16
2	27	48	10	16	30	18	222	23	26	386	12
3	26	43	11	12	86	19	123	24	27	157	14
4	23	36	12	13	65	20	82	21	28	200	12
5	21	37	13	14	46	21	64	20	29	92	12
6	20	36	14	1,510	34	22	56	19	30	73	14
7	18	34	15	1,710	30	23	50	18	31	62	-----
8	18	31	16	1,520	28	24	46	18			
Monthly mean discharge, in second-feet										290	30.5
Runoff, in inches										2.23	0.23

FLAT RIVER AT DAM, NEAR BAHAMA, N. C.

LOCATION.—Lat. 36°09'05", long. 78°50'55", just downstream from Durham municipal dam at old Tilley mill site, 3 miles southeast of Bahama, Durham County, and 4 miles upstream from confluence with Eno River.

DRAINAGE AREA.—171 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Sept. 3, 4, 6-8, 11-16, for which periods the graph was completed on basis of record from water-stage recorder at the power-plant tailrace a short distance upstream.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,800 second-feet and extended to the 1938 crest gage height on basis of computations of flow over Durham municipal dam and through power plant for gage heights 13.6, 14.6, 16.7, and 19.5 feet. Gage heights used to half-tenths between 3.1 and 4.7 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 3,020 second-feet 3 a.m. Aug. 16 (gage height, 9.28 feet).

1927 to July 1940: Discharge, 18,600 second-feet July 26, 1938 (gage height, 19.50 feet).

REMARKS.—Flood runoff affected by storage in Durham Reservoir (Lake Michie), which has a usable capacity of 13,810 acre-feet. A daily average of about 10 second-feet is diverted from Lake Michie for Durham water supply.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	7.4	242	9	4.2	98	17	1,410	35	25	209	35
2	8.4	78	10	4.7	104	18	341	41	26	394	25
3	7.9	89	11	4.2	88	19	270	41	27	280	25
4	7.4	99	12	4.2	110	20	294	41	28	276	24
5	6.3	97	13	4.2	100	21	294	43	29	285	18
6	4.2	95	14	105	46	22	310	45	30	285	25
7	4.2	85	15	754	30	23	193	38	31	279	-----
8	4.2	79	16	1,700	41	24	94	43			
Monthly mean discharge, in second-feet										253	65.3
Runoff, in inches										1.71	0.43

DIAL CREEK NEAR BAHAMA, N. C.

LOCATION.—Lat. 36°10'50", long. 78°51'55", three-eighths of a mile upstream from mouth and Lake Michie, and 3 miles northeast of Bahama, Durham County.

DRAINAGE AREA.—4.9 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods Aug. 20-26 and Sept. 24-29, when recorder clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 60 second-feet and extended on basis of computation of flow for gage heights 3.0, 3.5, 4.0, and 4.5 feet over 90° V-notched weir and irregular masonry control. Gage heights used to half-tenths between 3.7 and 7.0 feet; hundredths

below and tenths above these limits. Discharge for periods of no gage-height record based on recorded range in gage heights, weather records, and records for nearby streams.

MAXIMA.—August 1940: Discharge, 130 second-feet 3:30 p.m. Aug. 14 (gage height, 3.22 feet).

1925 to July 1940: Discharge, 1,270 second-feet May 24, 1940 (gage height, 7.60 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0.95	1.41	9	.39	.84	17	5.9	.68	25	20	.34
2	.60	1.12	10	.31	1.19	18	4.36	.66	26	6.0	.34
3	.55	1.04	11	.63	1.25	19	2.52	.63	27	3.42	.30
4	.52	.97	12	.46	.97	20	1.7	.60	28	2.49	.30
5	.52	1.64	13	.46	.84	21	1.5	.55	29	1.94	.34
6	.52	1.68	14	.33	.74	22	1.3	.48	30	1.79	.33
7	.46	1.08	15	.21	.68	23	1.3	.35	31	1.54	-----
8	.43	.90	16	12	.68	24	1.2	.30			
Monthly mean discharge, in second-feet.....										4.19	.774
Runoff, in inches.....										0.98	0.18

MIDDLE CREEK NEAR CLAYTON, N. C.

LOCATION.—Lat. 35°34'10", long. 78°35'30", at bridge on State Highway 50 a quarter of a mile upstream from Buffalo Branch, 3¼ miles downstream from county line, and 9¼ miles southwest of Clayton, Johnston County.

DRAINAGE AREA.—80.7 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 450 second-feet. Shifting-control method used Sept. 25-30. Gage heights used to half-tenths between 2.7 and 4.4 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 360 second-feet 5:30 a.m. Aug. 18 (gage height, 5.07 feet).

1939 to July 1940: Discharge, 577 second-feet Apr. 22, 1940 (gage height, 6.51 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	3.1	12	9	14	11	17	240	8.7	25	20	6.5
2	2.2	11	10	6.6	9.0	18	286	11	26	20	8.7
3	3.1	9.8	11	4.7	42	19	85	10	27	15	15
4	3.8	8.9	12	4.4	26	20	34	12	28	16	10
5	3.0	11	13	6.4	16	21	21	9.4	29	15	6.7
6	2.0	17	14	9.4	14	22	19	8.7	30	16	6.7
7	2.5	16	15	148	13	23	16	7.8	31	14	-----
8	2.3	12	16	97	11	24	16	6.0			
Monthly mean discharge, in second-feet.....										37.0	12.2
Runoff, in inches.....										0.53	0.17

LITTLE RIVER NEAR PRINCETON, N. C.

LOCATION.—Lat. 35°30'40", long. 78°09'30", a quarter of a mile upstream from county bridge, three-quarters of a mile upstream from Little Creek, and 3 miles north of Princeton, Johnston County.

DRAINAGE AREA.—229 square miles.

166 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,300 second-feet. Gage heights used to half-tenths between 2.4 and 3.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 3,270 second-feet 9 a.m. Aug. 19 (gage height, 11.70 feet).

1930-39: Discharge, 4,030 second-feet Dec. 2, 1934 (gage height, 12.68 feet).

Stage known, 14.90 feet sometime in September 1924 (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	19	111	9	26	102	17	1,710	65	25	98	56
2	18	132	10	42	77	18	2,660	54	26	105	54
3	18	106	11	34	89	19	3,190	50	27	105	51
4	18	97	12	82	75	20	2,510	52	28	86	48
5	37	87	13	72	105	21	972	50	29	84	27
6	34	87	14	78	110	22	406	38	30	103	47
7	31	65	15	848	77	23	187	51	31	102	-----
8	24	78	16	1,710	84	24	128	55			
Monthly mean discharge, in second-feet.....										501	72.7
Runoff, in inches.....										2.52	0.35

CONTENTNEA CREEK NEAR WILSON, N. C.

LOCATION.—Lat. 35°41'15", long. 77°56'50", at bridge on U. S. Highway 301, just downstream from municipal power plant, 1 mile upstream from Atlantic Coast Line Railroad bridge, and 3 miles southwest of Wilson, Wilson County.

DRAINAGE AREA.—236 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,700 second-feet. Gage heights used to half-tenths between 2.6 and 3.4 feet; hundredths below and tenths above these limits. Shifting-control method used Aug. 1-14, Aug. 21 to Sept. 11, and Sept. 13-30.

MAXIMA.—1940: Discharge, 4,830 second-feet 6:30 p.m. Aug. 17 (gage height, 13.80 feet).

1930-39: Discharge, 4,820 second-feet Jan. 31, 1937 (gage height, 13.37 feet).

Stage known, about 24.3 feet sometime in September 1924.

REMARKS.—Flood runoff practically unaffected by artificial storage. About 1.8 second-feet diverted for Wilson, N. C., water supply.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	13	96	9	15	143	17	4,090	66	25	31	84
2	12	86	10	158	26	18	3,870	67	26	251	73
3	12	103	11	36	134	19	2,750	24	27	31	64
4	12	88	12	25	92	20	1,710	24	28	243	76
5	12	47	13	23	123	21	900	65	29	31	15
6	11	107	14	93	94	22	420	19	30	92	15
7	11	161	15	892	19	23	261	19	31	172	-----
8	12	109	16	2,110	62	24	164	74			
Monthly mean discharge, in second-feet.....										596	72.5
Runoff, in inches.....										2.91	0.34

CONTENTNEA CREEK AT HOOKERTON, N. C.

LOCATION.—Lat. 35°25'40", long. 77°35'05", at Hookerton, Green County, about 300 feet downstream from highway bridge and 2½ miles upstream from Wheat Swamp Creek.

DRAINAGE AREA.—789 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,100 second-feet for 1940 and up to 7,200 second-feet for 1929. Gage heights used to half-tenths between 3.2 and 4.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 6,100 second-feet 8 p.m. Aug. 21 (gage height, 15.23 feet).

1928-39: Discharge, 11,100 second-feet Oct. 6, 1929 (gage height, 18.9 feet).

Stage known, 23.3 feet sometime in September 1928.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	76	459	9	488	288	17	1,700	236	25	2,830	134
2	68	445	10	320	340	18	2,750	190	26	1,930	116
3	64	375	11	340	274	19	3,930	177	27	1,080	129
4	62	320	12	340	288	20	5,350	170	28	610	143
5	60	294	13	234	361	21	6,100	164	29	445	143
6	60	288	14	236	375	22	5,950	138	30	417	143
7	430	274	15	428	314	23	5,200	125	31	488	
8	659	248	16	980	268	24	4,060	138			
Monthly mean discharge, in second-feet.....										1,540	245
Runoff, in inches.....										2.25	0.35

CAPE FEAR RIVER BASIN
HAW RIVER NEAR BENAJA, N. C.

LOCATION.—Lat. 36°14'55", long. 79°33'45", at site of old High Rock Mill, 500 feet upstream from county-road crossing, half a mile upstream from county line, and 6 miles east of Benaja, Rockingham County.

DRAINAGE AREA.—168 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 1-28 and Sept. 8-11, when recorder clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,200 second-feet. Gage heights used to half-tenths between 2.7 and 4.5 feet; hundredths below and tenths above these limits. Shifting-control method used Aug. 29 and Sept. 1-4. Discharge for periods of no gage-height record based on recorded range in gage heights, weather records, discharge measurements on Aug. 28 and Sept. 11, and records for nearby streams.

MAXIMA.—1940: Discharge, 5,200 second-feet about 11 p.m. Aug. 15 (gage height, 13.7 feet, from floodmarks).

1928-39: Discharge, 5,020 second-feet Oct. 3, 1929 (gage height, 13.54 feet).

Flood of July 1916 reached a stage of about 17.5 feet, from floodmark on tree about 500 feet below gage (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	100	162	9	70	140	17	3,600	63	25	120	51
2	110	289	10	50	110	18	1,500	58	26	150	53
3	130	290	11	42	85	19	600	52	27	220	51
4	80	135	12	55	105	20	400	53	28	300	51
5	50	85	13	75	82	21	280	52	29	192	48
6	70	88	14	1,200	68	22	200	53	30	105	42
7	100	135	15	3,200	61	23	160	42	31	108	
8	120	160	16	4,000	54	24	140	51			
Monthly mean discharge, in second-feet.....										565	92.3
Runoff, in inches.....										3.88	0.61

168 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

HAW RIVER AT HAW RIVER, N. C.

LOCATION.—Lat. 36°05'35", long. 79°21'40", at town of Haw River, Alamance County, 400 feet downstream from Southern Railway bridge and 3 miles downstream from Stony Creek.

DRAINAGE AREA.—599 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,800 second-feet. Gage heights used to half-tenths between 3.1 and 4.9 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 12,700 second-feet 5 a.m. Aug. 16 (gage height, 20.37 feet).

1928-39: Discharge, 17,000 second-feet Feb. 28, 1929 (gage height, 23.96 feet).

REMARKS.—Flood runoff affected only slightly by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	284	344	9	175	425	17	6,880	189	25	348	190
2	323	395	10	78	443	18	3,380	186	26	498	189
3	190	545	11	56	822	19	1,480	239	27	517	148
4	134	455	12	251	410	20	1,000	164	28	489	130
5	191	359	13	211	380	21	743	48	29	470	109
6	129	444	14	5,820	264	22	490	42	30	429	220
7	164	440	15	8,840	172	23	326	199	31	395	
8	247	395	16	11,300	239	24	230	106			
Monthly mean discharge, in second-feet.....										1,486	290
Runoff, in inches.....										2.86	0.54

HAW RIVER NEAR PITTSBORO, N. C.

LOCATION.—Lat. 35°41'00", long. 79°05'40", about 100 feet upstream from Robinsons Creek, 2 miles downstream from bridge on State Highway 90, and 5 miles east of Pittsboro, Chatham County. Datum of gage is 180.06 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,310 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period Aug. 17 to Sept. 11.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 47,000 second-feet. Gage heights used to half-tenths between 3.7 and 5.4 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record based on weather records and records for station at Haw River.

MAXIMA.—1940: Discharge, 18,900 second-feet 11 p.m. Aug. 14 (gage height, 14.68 feet).

1928-39: Discharge, 47,300 second-feet Oct. 2, 1929 (gage height, 22.1 feet).

Flood of August 1908 reached a stage of about 32.1 feet, from floodmarks on highway bridge (discharge, 98,000 second-feet). Flood of 1865 is believed to have reached a stage 1 foot higher than that of August 1908 (discharge not determined).

REMARKS.—Flood runoff only slightly affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	247	600	9	286	600	17	12,500	495	25	550	104
2	238	600	10	308	600	18	8,000	296	26	750	247
3	265	750	11	196	1,300	19	4,200	276	27	750	270
4	159	750	12	98	908	20	2,600	261	28	700	270
5	65	650	13	149	523	21	1,600	256	29	700	139
6	121	500	14	4,890	502	22	1,000	134	30	700	53
7	252	750	15	15,500	219	23	700	69	31	650	-----
8	313	600	16	14,200	205	24	600	42			
Monthly mean discharge, in second-feet.....										2,364	432
Runoff, in inches.....										2.08	0.37

CAPE FEAR RIVER AT LILLINGTON, N. C.

LOCATION.—Lat. 35°24'25", long. 78°48'45", at highway bridge just downstream from Norfolk Southern Railway bridge at Lillington, Harnett County, and 1 mile downstream from Neill Creek. Datum of gage is 105.71 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—3,440 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Aug. 20-23, when recorder clock was stopped. Recorder graph completed from partial record Aug. 24, Sept. 23, 24, 26, 29, 30.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 77,000 second-feet. Gage heights used to half-tenths between 2.6 and 4.7 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 29,600 second-feet 8 a.m. Aug. 17 (gage height, 13.87 feet).

1923 to July 1940: Discharge, 101,000 second-feet Oct. 2, 1929 (gage height, 27.55 feet).

REMARKS.—Flood runoff only slightly affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	485	990	9	374	570	17	26,600	582	25	722	352
2	146	1,360	10	462	740	18	13,800	386	26	306	161
3	442	1,020	11	362	1,020	19	6,000	411	27	1,240	428
4	274	792	12	268	1,310	20	4,000	360	28	1,400	360
5	168	960	13	240	1,100	21	2,600	322	29	1,340	306
6	167	991	14	1,080	586	22	2,000	329	30	1,200	228
7	242	777	15	23,000	532	23	1,500	253	31	970	-----
8	397	1,080	16	25,400	442	24	1,140	209			
Monthly mean discharge, in second-feet.....										3,817	632
Runoff, in inches.....										1.28	0.20

CAPE FEAR RIVER AT FAYETTEVILLE, N. C.

LOCATION.—Lat. 35°02'50", long. 78°51'35", at highway bridge at Fayetteville, Cumberland County, just downstream from Cross Creek, 7 miles upstream from Rockfish Creek, and about 20 miles upstream from lock 3. Datum of gage is 20.23 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—4,370 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation for low and medium stages unsatisfactory owing to backwater from lock 3 and diurnal fluctuations from power plants upstream and on Rockfish Creek. Discharge record Aug. 1-16 and Aug. 20 to Sept. 30 based on records for stations at lock 3 and Rockfish Creek near Hope Mills.

170 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Stage-discharge relation from 10,000 to 39,000 second-feet, which includes fall between Fayetteville and lock 3 as a factor, defined by current-meter measurements and used for Aug. 17-19.

A stage-discharge relation defined by current-meter measurements for medium and high stages up to 111,000 second-feet was used prior to completion of lock 3 in August 1935.

MAXIMA.—August 1940: Discharge, 28,500 second-feet 5 p.m. Aug. 17 (gage height, 32.25 feet).

1889-1903, 1928-July 1940: Discharge, 110,000 second-feet Oct. 4, 1929 (gage height, 63.43 feet).

Stage known, about 68.0 feet Aug. 29, 1908, from flood crest, as witnessed by local residents (discharge, about 133,000 second-feet).

REMARKS.—Flood runoff affected only slightly by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	301	971	9	462	939	17	27,800	555	25	1,090	254
2	532	1,260	10	498	845	18	21,300	635	26	404	393
3	281	1,220	11	624	981	19	10,600	476	27	411	201
4	364	1,000	12	572	1,440	20	4,370	430	28	1,460	513
5	300	875	13	449	1,330	21	2,740	418	29	1,490	378
6	233	1,080	14	554	1,090	22	1,860	320	30	1,230	302
7	201	1,090	15	14,200	657	23	1,510	336	31	1,340	-----
8	235	866	16	24,700	321	24	1,250	229			
Monthly mean discharge, in second-feet -----										3,979	714
Runoff, in inches -----										1.05	0.18

CAPE FEAR RIVER AT LOCK 3, NEAR TARHEEL, N. C.

LOCATION.—Lat. 34°50'00", long. 78°48'30", just above lock 3, 1 mile downstream from county line, and 7 miles north of Tarheel, Bladen County. Datum of gage is 29.75 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—4,810 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 23,000 second-feet. Submergence, determined from readings of auxiliary staff gages just below lock 3, is generally a factor in computing the discharge above 10,000 second-feet. Above 23,000 second-feet the submergence effect has not yet been defined, and discharge is based on records for stations at Fayetteville and Rockfish Creek near Hope Mills. Gage heights used to half-tenths between 1.8 and 4.2 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Daily discharge, 27,100 second-feet Aug. 17; gage height, 16.49 feet 2 a.m. Aug. 18.

1937 to July 1940: Gage height, 24.0 feet July 28, 1938 (discharge not determined).

REMARKS.—Flood runoff affected only slightly by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

LOCATION.—Lat. 36°10'30", long. 79°37'00", a quarter of a mile downstream from Huffines Mill, 1¼ miles upstream from Buffalo Creek, and 6 miles northwest of Gibsonville, Guilford County.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,400 second-feet. Gage heights used to half-tenths between 2.8 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,130 second-feet 4 p.m. Aug. 15 (gage height, 12.70 feet).

1928-39: Discharge, 4,390 second-feet Jan. 20, 1936 (gage height, 13.28 feet).

Flood of July 1916 reached a stage of 17.90 feet, from reference marks witnessed by landowner (discharge, 8,640 second-feet).

REMARKS.—Flood runoff affected slightly by Greensboro reservoir, 14 miles upstream, where about 11 second-feet is diverted for water supply.

[illegible]

LOCATION.—Lat. 36°08'30", long. 79°51'20", at bridge on U. S. Highway 411, three-quarters of a mile north of Battle Ground, Guilford County, and about 2½ miles upstream from mouth.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 330 second-feet. Gage heights used to half-tenths above 1.9 feet Aug. 1-14, and above 2.2 feet Aug. 15 to Sept. 30; hundredths below these limits.

MAXIMA.—1940: Discharge, 820 second-feet 11:30 a.m. Aug. 14 (gage height, 6.64 feet).

1925-31, 1934-39: Discharge, 980 second-feet Jan. 19, 1936 (gage height, 7.07 feet).

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

172 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

BUFFALO CREEK NEAR GREENSBORO, N. C.

LOCATION.—Lat. 36°03'30", long. 79°43'35", at McConnell road crossing, 3 miles east of Greensboro, Guilford County, and 6 miles upstream from North Buffalo Creek.

DRAINAGE AREA.—32.8 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,960 second-feet. Gage heights used to half-tenths above and hundredths below 7.1 feet. Shifting-control method used Sept. 19-30.

MAXIMA.—1940: Discharge, 1,060 second-feet 10 p.m. Aug. 14 (gage height, 7.32 feet).

1928-39: Discharge, 2,680 second-feet Feb. 28, 1929 (gage height, 8.74 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

NORTH BUFFALO CREEK NEAR GREENSBORO, N. C.

LOCATION.—Lat. 36°07'10", long. 79°42'35", at county highway bridge, 3 miles upstream from mouth and 6 miles northeast of Greensboro, Guilford County.

DRAINAGE AREA.—36.4 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,050 second-feet. Gage heights used to half-tenths between 4.1 and 5.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 1,200 second-feet 1 p.m. Aug. 14 (gage height, 8.89 feet).

1928-39: Discharge, 1,750 second-feet Jan. 19, 1936 (gage height, 11.38 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

173

LOCATION.—Lat. 36°00'15", long. 79°58'40", a quarter of a mile upstream from State highway bridge at head of High Point Reservoir, about 2 miles northwest of Jamestown, and 3½ miles northeast of High Point, Guilford County.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,000 second-feet. Gage heights used to half-tenths between 5.0 and 5.9 feet; hundredths below and tenths above these limits.

1923-26, 1928 to July 1940: Discharge, 2,880 second-feet Jan. 19, 1936 (gage height, 13.84 feet).

Mean discharge, in second-feet, 1940

[illegible]

LOCATION.—Lat. 35°54'10", long. 79°51'15", 500 feet downstream from county bridge at Coltrane Mill, half a mile south of Guilford County line, and 7 miles north of Randleman, Randolph County. Datum of gage is 638.11 feet above mean sea level (levels by Corps of Engineers, War Department).

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods Aug. 21-25, 27, 29, when intake was obstructed. Graph for Aug. 26, 28, and 30 based on partial record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 7,100 second-feet. Gage heights used to half-tenths between 3.7 and 5.0 feet; hundredths below and tenths above these limits. Discharge for periods of no gage-height record based on records for station at Ramseur.

MAXIMA.—August 1940: Discharge, 5,590 second-feet 3 a.m. Aug. 15 (gage height, 19.88 feet).

1928 to July 1940: Discharge, 8,470 second-feet Feb. 28, 1929 (gage height, 23.9 feet).

REMARKS.—Flood runoff affected slightly by High Point Reservoir.

Mean discharge, in second-feet, 1940

[illegible]

174 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DEEP RIVER AT RAMSEUR, N. C.

LOCATION.—Lat. 35°44'10", long. 79°38'40", 2,000 feet downstream from railroad station at Ramseur, Randolph County, and 1½ miles downstream from Sandy Creek. Datum of gage is 419.50 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—346 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 17,000 second-feet and extended above on basis of slope-area measurement in 1945. Gage heights used to half-tenths between 2.4 and 4.8 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 9,050 second-feet 5 p.m. Aug. 14 (gage height, 14.53 feet).

1922 to July 1940: Discharge, 22,400 second-feet Sept. 19, 1928 (gage height, 25.44 feet).

Flood of August 1901 reached a stage of 28.75 feet, from reference mark in mill 1,500 feet above gage (discharge, 30,000 second-feet).

REMARKS.—Flood runoff practically unaffected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

DEEP RIVER AT MONCURE, N. C.

LOCATION.—Lat. 35°36'25", long. 79°05'10", 1½ miles northwest of Moncure, Chatham County. Datum of gage is 185.88 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,410 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 16,500 second-feet. Gage heights used to half-tenths between 3.3 and 6.1 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 11,500 second-feet 11 p.m. Aug. 16 (gage height, 6.64 feet).

1898-99, 1930 to July 1940: Discharge, 27,000 second-feet Apr. 7, 1936 (gage height, 10.47 feet).

REMARKS.—Flood runoff practically unaffected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

EAST FORK DEEP RIVER NEAR HIGH POINT, N. C.

LOCATION.—Lat. 36°02'15", long. 79°56'45", at highway bridge a quarter of a mile upstream from High Point Reservoir and 6 miles northeast of High Point, Guilford County.

DRAINAGE AREA.—14.2 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,550 second-feet. Gage heights used to half-tenths between 3.4 and 3.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 2,520 second-feet 7:45 a.m. Aug. 14 (gage height, 5.84 feet).

1928-39; Discharge, 2,170 second-feet Jan. 19, 1936, Aug. 24, 1939; gage height, 7.5 feet June 8, 1934 (affected by backwater from trash on bridge piers).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	16	25	9	4.4	5.7	17	19	5.3	25	8.7	5.5
2	4.8	9.2	10	4.4	41	18	12	5.1	26	6.5	5.1
3	4.8	7.1	11	5.5	12	19	9.2	5.1	27	6.0	4.8
4	4.8	6.8	12	6.7	7.3	20	7.3	5.1	28	5.7	4.8
5	7.8	11	13	11	6.3	21	6.8	4.8	29	5.5	4.6
6	5.1	10	14	741	6.0	22	6.5	4.6	30	15	4.6
7	4.6	6.3	15	93	5.7	23	6.0	4.6	31	141	-----
8	4.6	6.0	16	62	5.5	24	6.0	4.6			
Monthly mean discharge, in second-feet.....										40.1	7.98
Runoff, in inches.....										3.25	0.63

MUDDY CREEK NEAR ARCHDALE, N. C.

LOCATION.—Lat. 35°52'35", long. 79°52'45", 600 feet upstream from county highway bridge, 2 miles east of Glenola brick plant, 3 miles southwest of Coltrane Mill, and 7 miles southeast of Archdale, Randolph County.

DRAINAGE AREA.—16.2 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,700 second-feet. Gage heights used to half-tenths between 2.8 and 3.8 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 1,240 second-feet 12 m. Aug. 14 (gage height, 8.00 feet).

1934 to July 1940: Discharge, 2,180 second-feet June 28, 1938 (gage height, 10.46 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1.1	5.6	9	.54	1.6	17	46	1.1	25	3.2	1.7
2	.79	3.8	10	.49	1.4	18	19	1.0	26	3.2	.85
3	.64	2.9	11	1.4	3.3	19	12	1.0	27	2.6	.79
4	.72	2.3	12	3.0	2.2	20	8.0	1.0	28	2.3	.79
5	.85	2.0	13	2.3	1.6	21	6.1	.94	29	5.9	.72
6	.94	2.6	14	433	1.3	22	5.1	.85	30	31	.72
7	.72	2.2	15	120	1.3	23	4.0	.72	31	14	-----
8	.59	1.7	16	198	1.2	24	3.6	.64			
Monthly mean discharge, in second-feet.....										30.0	1.66
Runoff, in inches.....										2.13	0.11

BEAR CREEK AT ROBBINS, N. C.

LOCATION.—Lat. 35°25'40", long. 79°35'40", just below Cabin Creek, half a mile west of Robbins, Moore County.

176 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—134 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,500 second-feet. Gage heights used to half-tenths between 4.7 and 6.3 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge 3,420 second-feet 6 p.m. Aug. 14 (gage height 10.08 feet).

REMARKS.—Flood runoff unaffected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1.8	6.8	9	1.5	4.5	17	183	5.8	25	11	32
2	1.5	7.5	10	1.2	4.5	18	78	6.1	26	9.4	7.5
3	3.2	6.4	11	2.0	5.8	19	51	3.8	27	11	4.8
4	2.6	4.1	12	2.8	6.1	20	30	3.4	28	9.4	2.6
5	1.2	5.4	13	27	5.4	21	24	3.6	29	7.1	2.4
6	1.4	5.1	14	1,340	6.1	22	19	3.8	30	8.3	3.4
7	1.5	5.8	15	965	4.8	23	15	3.6	31	7.5	-----
8	1.7	5.1	16	380	3.6	24	17	3.0			
Monthly mean discharge, in second-feet.....										104	5.76
Runoff, in inches.....										0.89	0.05

LOWER LITTLE RIVER AT MANCHESTER, N. C.

LOCATION.—Lat. 35°11'40", long. 78°59'15", at bridge on State Highway 24 at Manchester, Cumberland County, 1¼ miles downstream from Atlantic Coast Line Railroad and 12 miles southwest of Linden.

DRAINAGE AREA.—348 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,550 second-feet. Gage heights used to half-tenths between 1.9 and 3.7 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 289 second-feet 1 p.m. Aug. 16 (gage height, 2.49 feet). Flow regulated.

1938 to July 1940: Discharge, 2,960 second-feet Mar. 3, 1939 (gage height, 12.77 feet).

REMARKS.—Flood runoff practically unaffected by artificial storage except for small rises.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	28	44	9	34	42	17	180	50	25	54	36
2	30	43	10	33	53	18	188	52	26	67	40
3	33	51	11	33	76	19	175	52	27	66	33
4	35	50	12	64	62	20	157	49	28	68	31
5	34	50	13	99	53	21	106	40	29	63	36
6	34	51	14	168	52	22	73	41	30	64	38
7	34	51	15	280	42	23	80	39	31	51	-----
8	40	40	16	280	45	24	71	44			
Monthly mean discharge, in second-feet.....										87.8	46.2
Runoff, in inches.....										0.29	0.15

LOWER LITTLE RIVER AT LINDEN, N. C.

LOCATION.—Lat. 35°16'00", long. 78°46'40", at bridge on State Highway 21, 1¼ miles west of Linden, Cumberland County, 2 miles upstream from Stewart Creek, and 4½ miles upstream from mouth. Datum of gage is 71.37 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—460 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period Sept. 12-26.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,100 second-feet. Several current-meter measurements have been made between 1,700 and 10,100 second-feet during periods of backwater from Cape

Mean discharge, in second-feet, 1940

ROCKFISH CREEK NEAR HOPE MILLS, N. C.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	127	32	9	118	169	17	329	208	25	28	139
2	96	140	10	103	203	18	203	164	26	129	137
3	23	182.	11	285	232	19	368	161	27	144	151
4	26	172	12	313	164	20	319	162	28	140	60
5	126	143	13	295	248	21	279	61	29	127	40
6	128	210	14	345	112	22	284	34	30	137	176
7	144	99	15	447	65	23	145	138	31	55	- - - - -
8	126	47	16	492	224	24	26	139			
Monthly mean discharge, in second-feet -----										191	140
Runnoff, in inches -----										0.77	0.55

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NORTHEAST CAPE FEAR RIVER NEAR CHINQUAPIN, N. C.

LOCATION.—Lat. $34^{\circ}49'$, long. $77^{\circ}50'$, 1,000 feet downstream from bridge on State Highway 41, half a mile downstream from Muddy Creek, and $1\frac{1}{4}$ miles west of Chinquapin, Duplin County.

DRAINAGE AREA.—600 square miles.

GAGE-HEIGHT RECORD.—Graph based on one to four staff-gage readings a day Aug. 1-3, 5-15. Water-stage recorder graph Aug. 23 to Sept. 30. No record Aug. 4, 16-22.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,800 second-feet. Gage heights used to half-tenths between 2.2 and 3.6 feet Aug. 1-22 and between 2.4 and 3.8 feet Aug. 23 to Sept. 30; hundredths below and tenths above these limits. Discharge during periods of no gage-height record based on weather records and characteristic shape of hydrograph.

MAXIMA.—1940: Discharge, 1,700 second-feet about 4 a.m. Aug. 23 (gage height, 8.3 feet, based on partial record).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

WACCAMAW RIVER BASIN

WACCAMAW RIVER AT FREELAND, N. C.

LOCATION.—Lat. $34^{\circ}05'45''$, long. $78^{\circ}32'50''$, at bridge on State Highway 130, 1 mile southwest of Freeland, Brunswick County, and about 7 miles downstream from mouth of White Marsh.

DRAINAGE AREA.—667 square miles.

GAGE-HEIGHT RECORD.—Gage-height record from mean of twice-daily readings of staff gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,860 second-feet. Gage heights used to half-tenths between 1.2 and 2.3 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 398 second-feet 6:15 p.m. Aug. 21 and 6:25 a.m. Aug. 22 (gage height, 6.58 feet).

1939 to July 1940: Discharge, 1,910 second-feet Feb. 23, 24, 1940 (gage height, 13.15 feet).

REMARKS.—Flood runoff affected materially by storage in Lake Waccamaw and large swamps.

Mean discharge, in second-feet, 1940

[illegible]

MIDDLE SWAMP NEAR ELKTON, N. C.

LOCATION.—Lat. $34^{\circ}27'25''$, long. $78^{\circ}33'30''$, at bridge on State Highway 211 and 2 miles east of Elkton, Bladen County.

DRAINAGE AREA.—3.7 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 1-8 and 10-16, when recorder clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 84 second-feet. Discharge for periods of no gage-height record based on recorded range in gage heights, weather records, and records for nearby streams.

MAXIMA.—1940: Discharge, 56 second-feet 7 p.m. Aug. 17 (gage height, 3.29 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0		9	0		17	13		25	0	
2	0		10	0		18	14		26	0	
3	0		11	1		19	5.8		27	0	
4	0		12	1		20	1.5		28	0	
5	0		13	.5		21	.5		29	0	
6	0		14	.5		22	.2		30	0	
7	1		15	0		23	.1		31	0	
8	0		16	0		24	0				
Monthly mean discharge, in second-feet.....										1.26	0
Runoff, in inches.....										0.39	0

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20		Aug. 21		Aug. 22	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	¹ 1.02	0.1										
4	¹ 1.01	0	2.68	19								
6	¹ 1.00	0			2.09	7.5	1.60	2.0	1.33	0.6	1.22	0.3
8	¹ 1.00	0	2.44	14								
10	¹ .99	0										
N	1.30	.8	2.36	12	1.95	5.7	1.51	1.4	1.30	.5	1.19	.2
2	1.51	1.8										
4	1.95	5.9	2.33	12								
6	3.25	52			1.80	3.8	1.43	1.0	1.27	.4	1.15	.1
8	3.23	50	2.28	11								
10	3.05	34										
12	2.92	27	2.22	9.7	1.68	2.6	1.38	.8	1.23	.3	1.13	.1

¹ Estimated.

SUPPLEMENTAL RECORDS.—Aug. 17, 1 p.m., gage height, 1.61 feet, discharge, 2.5 second-feet; 3 p.m., gage height, 1.49 feet, discharge, 1.6 second-feet; 7 p.m., gage height, 3.29 feet, discharge, 56 second-feet.

BEAVERDAM SWAMP AT LEBANON, N. C.

LOCATION.—Lat. $34^{\circ}14'15''$, long. $78^{\circ}44'50''$, at bridge on U. S. Highway 701 half a mile upstream from Big Pond Branch and 1 mile north of Lebanon, Columbus County.

DRAINAGE AREA.—21.3 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 170 second-feet and extended logarithmically to crest gage height.

MAXIMA.—August 1940: Discharge, 18 second-feet 8 a.m. Aug. 19 (gage height, 2.89 feet).

May to July 1940: Discharge, 102 second-feet June 3 (gage height, 4.09 feet).

REMARKS.—Flood runoff affected slightly by regulation in small mill ponds.

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Mean discharge, in second-feet, 1940

[illegible]

PEE DEE RIVER BASIN

YADKIN RIVER AT PATTERSON, N. C.

LOCATION.—Lat. 39°59'30", long. 81°33'32", 200 feet upstream from bridge on State Highway 268 and half a mile south of Patterson, Caldwell County.

DRAINAGE AREA.—28.8 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph. The lower intake was plugged Aug. 2-11, and the graph for part of each day was synthesized.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,000 second-feet but poorly, owing to a shifting bed load of sand, and extended to crest gage height on basis of computation of flood flow over mill dam 1 mile above gage. Gage heights used to half-tenths between 3.0 and 7.2 feet Aug. 1-13, between 2.0 and 3.6 feet Aug. 14-30, and between 2.6 and 4.0 feet Aug. 31 to Sept. 30; hundredths below and tenths above these limits. Shifting-control method used Aug. 1-12, Aug. 30 to Sept. 30.

MAXIMA.—1940: Discharge, 16,200 second.feet 8 p.m. Aug. 13 (gage height, 12.70 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.75	30	2.09	229	4.23	1,740	-----	-----	-----	-----	-----	-----
2	.72	28	2.04	219	3.87	1,580	-----	-----	-----	-----	-----	-----
3	.72	28	2.31	280	3.79	1,520	-----	-----	-----	-----	-----	-----
4	.72	28	2.36	293	3.49	1,360	1.64	439	1.17	248	0.93	164
5	.72	28	2.32	282	3.29	1,240	-----	-----	-----	-----	-----	-----
6	.72	28	2.29	275	3.06	1,120	-----	-----	-----	-----	-----	-----
7	.84	37	2.17	246	2.87	1,020	-----	-----	-----	-----	-----	-----
8	.83	36	2.19	251	2.69	940	1.54	396	1.11	226	.90	154
9	.83	36	2.19	251	2.55	865	-----	-----	-----	-----	-----	-----
10	.83	36	2.25	265	2.46	815	-----	-----	-----	-----	-----	-----
11	.83	36	2.33	285	2.33	765	-----	-----	-----	-----	-----	-----
N	.83	36	2.50	331	2.24	715	1.44	354	1.07	212	.88	148
1	.83	36	2.59	358	2.14	668	-----	-----	-----	-----	-----	-----
2	.88	41	3.37	638	2.08	645	-----	-----	-----	-----	-----	-----
3	.88	41	3.73	825	2.04	622	-----	-----	-----	-----	-----	-----
4	.85	38	4.14	1,020	1.99	596	1.36	322	1.03	198	.86	142
5	.85	38	5.30	1,800	1.92	564	-----	-----	-----	-----	-----	-----
6	1.02	55	5.98	2,490	1.93	568	-----	-----	-----	-----	-----	-----
7	1.36	102	6.42	2,950	1.92	564	-----	-----	-----	-----	-----	-----
8	1.50	123	12.70	16,200	1.89	550	1.28	290	.99	184	.84	135
9	1.49	122	10.50	10,700	1.87	542	-----	-----	-----	-----	-----	-----
10	1.45	116	8.49	6,320	1.86	537	-----	-----	-----	-----	-----	-----
11	1.62	142	6.35	3,330	1.83	524	-----	-----	-----	-----	-----	-----
12	1.73	161	5.24	2,360	1.78	501	1.22	267	.95	170	.82	129

	Aug. 18		Aug. 19		Aug. 20		SUPPLEMENTAL RECORDS		
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge			
4	0.80	123	0.76	111	0.67	86			
8	.79	120	.74	106	.66	84			
N	.78	117	.73	103	.67	86	Aug. 12, 6:30 a.m.	0.86	39
4	.81	126	.72	100	.68	89	2:30 p.m.	.96	49
8	.88	148	.69	91	.66	84	Aug. 13, 7:30 a.m.	2.24	263
12	.80	123	.67	86	.65	81			

YADKIN RIVER AT WILKESBORO, N. C.

LOCATION.—Lat. 36°09', long. 81°09', at highway bridge connecting North Wilkesboro and Wilkesboro, Wilkes County, just downstream from Reddies River.

Datum of gage is 942.35 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—493 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 12 p.m. Aug. 13 to 12 m. Aug. 16, 12 p.m. Aug. 17 to 10 a.m. Aug. 18, and 9 a.m. to 7 p.m. Aug. 30. Graph for Aug. 13-16 completed from floodmark and information on time water receded to low point in highway and to bankful stage near station. Graph for Aug. 17-18 completed from floodmark. Graph for Aug. 30 completed from engineers' notes and records for stations at Patterson, Yadkin College, and Reddies River at North Wilkesboro.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 18,000 second-feet and extended to crest gage height on basis of the mean of two determinations of flood-flow by slope-area method. Shifting-control method used Sept. 2-30.

MAXIMA.—1940: Discharge, 160,000 second-feet about 3:30 a.m. Aug. 14 (gage height, 37.6 feet, from floodmarks).

1903-9, 1920-39: Discharge, 29,000 second-feet, revised, Oct. 2, 1929 (gage height, 24.0 feet, from graph based on gage readings).

The flood of July 1916 reached a stage of 34.5 feet, from flood reference mark cut in old steel highway bridge (discharge, 116,000 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

heights used to half-tenths between 1.3 and 2.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 80,200 second-feet 10:30 p.m. Aug. 15 (gage height, 33.75 feet).

1928-39: Discharge, 67,800 second-feet Oct. 3, 1929 (gage height, 29.8 feet).

Stage known, 35.0 feet sometime in July 1916, from floodmarks (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4,000	12,800	9	2,000	2,490	17	19,090	1,980	25	3,200	1,700
2	3,070	6,290	10	1,850	2,650	18	6,340	1,930	26	3,000	2,160
3	2,140	4,370	11	1,510	2,870	19	7,270	1,930	27	3,070	2,060
4	1,660	3,770	12	1,570	2,490	20	6,500	1,930	28	2,870	1,750
5	1,570	3,370	13	2,200	2,300	21	5,000	1,840	29	2,970	1,660
6	1,570	3,170	14	13,500	2,160	22	4,000	1,800	30	3,370	1,660
7	1,710	2,870	15	56,900	2,060	23	3,600	1,660	31	9,080	-----
8	2,040	2,680	16	62,300	2,020	24	3,400	1,660			
Monthly mean discharge, in second-feet.....										7,815	2,803
Runoff, in inches.....										3.95	1.37

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	1.95	1,850	4.45	4,270	20.10	26,800	33.45	78,200
4	2.02	1,900	5.80	5,670	21.75	31,400	33.08	76,700
6	2.14	2,040	7.50	7,450	23.65	37,100	32.52	74,000
8	2.19	2,090	9.55	9,760	25.72	44,800	31.84	70,800
10	2.17	2,040	11.80	12,400	27.55	52,400	31.08	67,600
N	2.23	2,140	13.35	14,300	29.55	60,900	30.27	64,000
2	2.30	2,180	14.62	15,900	31.15	68,100	29.40	60,000
4	2.37	2,230	15.69	17,600	32.35	73,500	28.45	55,600
6	2.47	2,330	16.48	19,000	33.17	77,200	27.45	51,600
8	2.56	2,420	17.12	20,100	33.60	79,200	26.35	47,600
10	2.76	2,670	17.86	21,600	33.74	79,700	25.20	42,800
12	3.30	3,170	18.89	23,800	33.70	79,700	24.00	38,500

Hour	Aug. 17		Aug. 18		Aug. 19	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	22.83	34,400	-----	-----	-----	-----
4	21.53	30,500	7.12	6,980	6.97	6,870
6	20.13	26,800	-----	-----	-----	-----
8	18.52	22,800	6.73	6,540	7.87	7,860
10	17.56	21,000	-----	-----	-----	-----
N	16.58	19,200	6.43	6,210	8.18	8,190
2	12.31	13,000	-----	-----	-----	-----
4	10.58	10,900	6.14	5,880	7.68	7,640
6	9.48	9,620	-----	-----	-----	-----
8	8.63	8,630	5.92	5,660	7.05	6,870
10	8.07	8,080	-----	-----	-----	-----
12	7.69	7,640	6.06	5,880	6.73	6,540

SUPPLEMENTAL RECORD.—Aug. 15, 10:30 p.m., 33.75 feet; 80,200 second-feet.

YADKIN RIVER AT HIGH ROCK RESERVOIR, AT HIGH ROCK, N. C.

LOCATION.—Lat. 35°35'50", long. 80°14'00", at High Rock Dam, half a mile west of High Rock, Davidson County, and 2 miles upstream from Lick Creek. Datum of gage is 31.32 feet below mean sea level, datum of 1929.

DRAINAGE AREA.—3,980 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Record of outflow based on formula established for similar

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gates and manufacturers' ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Inflow, 85,835 second-feet 12 m. Aug. 16; outflow, 86,965 second-feet 7 a.m. Aug. 16 (reservoir gage height, 654.29 feet); reservoir gage height, 655.00 feet 2 a.m. to 6 p.m. Aug. 19 (contents, 11,090,000,000 cubic feet).

1919-39: Outflow, 113,030 second-feet 7 a.m. Oct. 3, 1929 (reservoir gage height, 652.55 feet); inflow during same flood, 121,300 second-feet.

Stage known, 612.1 feet July 1916, from floodmarks at site of gaging station a quarter of a mile below High Rock Dam (discharge uncertain; figure previously published believed to be too high).

REMARKS.—Reservoir, first put into operation Nov. 7, 1927, has a total storage capacity of 11,090,000,000 cubic feet below 655.00 feet (top of gates) and a storage capacity under normal operation of 10,230,000,000 cubic feet. Records furnished by Aluminum Company of America.

High Rock Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)
1	650.33	8,272	4,556	654.95	11,058	16,656
2	650.15	8,172	4,534	654.98	11,077	7,762
3	650.25	8,228	1,836	654.90	11,025	5,942
4	650.53	8,382	78	654.83	10,980	4,608
5	650.10	8,145	4,640	654.73	10,914	4,460
6	649.65	7,906	4,625	654.72	10,908	4,320
7	649.37	7,759	3,845	654.65	10,862	4,022
8	649.10	7,618	3,845	654.62	10,843	3,280
9	648.79	7,459	3,890	654.26	10,609	5,665
10	648.85	7,489	1,901	654.08	10,492	4,385
11	649.13	7,634	0	653.99	10,434	4,285
12	648.92	7,524	3,749	653.76	10,290	4,255
13	648.57	7,348	4,923	653.49	10,122	4,325
14	652.77	9,677	5,067	653.40	10,065	3,145
15	654.30	10,635	42,477	653.11	9,884	4,230
16	654.46	10,739	77,920	652.66	9,611	5,272
17	654.74	10,921	41,664	652.35	9,425	4,257
18	654.98	11,077	7,208	652.20	9,335	3,025
19	654.98	11,077	8,339	652.01	9,221	3,280
20	654.86	10,999	7,043	651.74	9,065	3,519
21	654.88	11,012	7,645	651.71	9,048	2,315
22	654.83	10,980	4,590	652.00	9,215	0
23	654.76	10,934	4,480	651.75	9,071	3,492
24	654.82	10,973	3,415	651.46	8,905	3,670
25	654.90	11,025	2,855	651.19	8,749	3,628
26	654.53	10,784	6,243	650.99	8,634	3,300
27	654.40	10,700	4,582	650.80	8,530	3,320
28	654.19	10,564	4,420	650.84	8,552	1,800
29	654.00	10,440	4,475	651.10	8,698	0
30	653.91	10,384	4,515	650.63	8,436	4,590
31	654.66	10,869	3,880			
				August	September	
Change in contents, equivalent, in second-feet.....				+986	-939	
Monthly mean outflow, in second-feet.....				9,137	4,227	
Monthly mean inflow, in second-feet.....				10,123	3,288	
Runoff, in inches, corresponding to inflow.....				2.93	.92	

High Rock Reservoir, gage height, contents, and mean inflow and outflow
for preceding hour, at indicated time, 1940

Hour	Aug. 13				Aug. 14			
	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)
1	-----	-----	1,440	0	-----	-----	7,200	0
2	-----	-----	1,440	0	-----	-----	8,640	0
3	-----	-----	1,440	0	648.80	7,464	17,300	0
4	-----	-----	2,880	0	-----	-----	40,300	0
5	-----	-----	2,880	0	-----	-----	26,400	0
6	-----	-----	1,440	0	649.46	7,806	29,300	0
7	-----	-----	4,920	4,920	-----	-----	25,240	4,740
8	-----	-----	5,130	6,570	-----	-----	26,460	7,410
9	-----	-----	3,670	6,550	649.87	8,022	27,850	7,350
10	-----	-----	2,230	6,550	-----	-----	24,710	7,110
11	-----	-----	2,230	6,550	-----	-----	30,210	7,110
N	-----	-----	3,180	7,500	650.27	8,238	27,110	7,110
1	-----	-----	3,180	7,500	-----	-----	31,810	7,110
2	-----	-----	1,560	7,320	-----	-----	25,550	7,050
3	-----	-----	120	7,320	650.70	8,475	30,150	7,050
4	-----	-----	2,670	6,990	-----	-----	53,220	7,020
5	-----	-----	3,000	7,320	-----	-----	41,920	7,020
6	-----	-----	3,030	7,350	651.44	8,893	41,890	6,990
7	-----	-----	1,590	7,350	-----	-----	40,290	6,990
8	-----	-----	5,910	7,350	-----	-----	43,600	7,200
9	-----	-----	3,030	7,350	652.06	9,251	36,140	7,640
10	-----	-----	3,030	7,350	-----	-----	44,040	7,640
11	-----	-----	5,310	6,750	-----	-----	45,740	7,640
12	-----	-----	6,480	3,600	652.77	9,677	48,680	5,580

Hour	Aug. 15				Aug. 16			
	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)
1	-----	-----	43,330	6,930	-----	-----	73,645	73,645
2	653.24	9,965	50,920	7,620	-----	-----	76,185	76,185
3	-----	-----	43,980	7,680	-----	-----	81,080	79,255
4	653.66	10,228	44,010	7,710	-----	-----	80,095	80,095
5	-----	-----	43,950	7,650	-----	-----	82,320	82,320
6	654.06	10,479	49,020	14,320	654.30	10,635	84,495	86,320
7	-----	-----	32,420	16,020	-----	-----	85,140	86,965
8	654.22	10,583	41,780	28,980	-----	-----	82,760	80,935
9	-----	-----	43,880	43,880	-----	-----	81,750	79,925
10	654.22	10,583	45,050	45,050	-----	-----	85,515	80,035
11	-----	-----	45,050	45,050	-----	-----	84,835	83,010
N	654.22	10,583	43,650	43,650	654.36	10,674	85,835	84,010
1	-----	-----	45,630	45,630	-----	-----	84,010	84,010
2	654.23	10,590	51,575	49,750	-----	-----	80,035	80,035
3	-----	-----	53,410	53,410	-----	-----	77,675	77,675
4	654.23	10,590	53,890	53,890	-----	-----	80,970	75,490
5	-----	-----	54,830	54,830	-----	-----	79,140	75,490
6	654.23	10,590	61,160	61,160	654.41	10,706	79,875	79,875
7	-----	-----	63,985	62,160	-----	-----	76,975	78,800
8	654.23	10,590	68,435	70,260	-----	-----	75,490	75,490
9	-----	-----	66,610	70,260	-----	-----	72,970	72,970
10	654.20	10,570	67,235	69,060	-----	-----	75,820	72,170
11	-----	-----	74,595	65,465	-----	-----	69,570	65,920
12	654.30	10,635	76,510	67,380	654.46	10,739	67,410	63,760

186 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

High Rock Reservoir, gage height, contents, and mean inflow and outflow for preceding hour, at indicated time, 1940—Continued

Hour	Aug. 17				Aug. 18			
	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)
1	-----	-----	65,615	63,790	-----	-----	14,025	3,075
2	-----	-----	66,925	65,100	-----	-----	12,850	1,900
3	-----	-----	64,250	64,250	-----	-----	14,025	3,075
4	-----	-----	63,165	61,340	-----	-----	12,080	6,600
5	-----	-----	60,280	56,630	-----	-----	8,975	8,975
6	654.53	10,784	56,510	52,860	654.97	11,070	15,040	11,390
7	-----	-----	54,560	50,910	-----	-----	7,810	11,460
8	-----	-----	52,735	50,910	-----	-----	11,460	11,460
9	-----	-----	50,910	50,910	-----	-----	10,365	10,365
10	-----	-----	48,515	46,690	-----	-----	6,075	7,900
11	-----	-----	45,440	43,615	-----	-----	8,465	6,640
N	654.60	10,830	46,255	42,605	654.95	11,058	6,820	6,820
1	-----	-----	44,430	42,605	-----	-----	7,180	7,180
2	-----	-----	40,780	42,605	-----	-----	6,065	4,240
3	-----	-----	39,050	39,050	-----	-----	9,010	7,185
4	-----	-----	34,330	34,330	-----	-----	10,255	8,430
5	-----	-----	30,880	30,880	-----	-----	8,430	8,430
6	654.61	10,836	32,705	30,880	654.98	11,077	8,430	8,430
7	-----	-----	30,305	28,480	-----	-----	6,605	8,430
8	-----	-----	26,130	26,130	-----	-----	8,415	8,415
9	-----	-----	25,605	23,780	-----	-----	6,930	6,930
10	-----	-----	21,645	19,820	-----	-----	5,450	5,450
11	-----	-----	20,025	12,725	-----	-----	6,965	5,140
12	654.74	10,921	19,960	9,010	654.98	11,077	4,380	4,380

Aug. 19				
Hour	Gage height (feet)	Contents (million cubic feet)	Inflow (second-feet)	Outflow (second-feet)
1	-----	-----	7,895	6,070
2	-----	-----	7,895	6,070
3	-----	-----	6,070	6,070
4	-----	-----	6,070	6,070
5	-----	-----	7,300	7,300
6	655.00	11,090	7,300	7,300
7	-----	-----	5,415	5,415
8	-----	-----	6,840	6,840
9	-----	-----	8,005	8,005
10	-----	-----	9,230	9,230
11	-----	-----	9,230	9,230
N	655.00	11,090	9,230	9,230
1	-----	-----	9,230	9,230
2	-----	-----	9,230	9,230
3	-----	-----	9,230	9,230
4	-----	-----	8,855	8,855
5	-----	-----	11,060	11,060
6	655.00	11,090	11,060	11,060
7	-----	-----	9,235	11,060
8	-----	-----	8,590	10,415
9	-----	-----	9,800	9,800
10	-----	-----	8,820	8,820
11	-----	-----	6,415	8,240
12	654.98	11,077	7,275	5,450

NOTE.—First flood gate opened between 5 and 6 a.m. Aug. 15.

YADKIN RIVER AT NARROWS RESERVOIR, NEAR BADIN, N. C.

LOCATION.—Lat. 35°25'00", long. 80°05'30", at Narrows Dam, 1½ miles north-east of Badin, Stanly County, 2½ miles upstream from Falls Dam, and 4 miles upstream from Uwharrie River. Datum of gage is 31.63 feet below mean sea level, datum of 1929.

DRAINAGE AREA.—4,160 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Record of outflow based on formula established for similar spillways and gates and manufacturers' ratings for turbines.

MAXIMA.—1940: Daily mean outflow, 82,483 second-feet Aug. 16; reservoir gage

height, 541.10 feet Aug. 18-20 (contents, 10,524,000,000 cubic feet).

1917-39: Discharge, 113,200 second-feet 7 a.m. Oct. 3, 1929 (reservoir gage height, 540 feet).

REMARKS.—Reservoir, first put in use Aug. 6, 1917, has a total storage capacity of 10,498,000,000 cubic feet below 541.00 feet (top of gates) and a storage capacity under normal operation of 6,748,000,000 cubic feet. River also affected by storage in High Rock Reservoir upstream having a storage capacity under normal operation of 10,230,000,000 cubic feet. Records furnished by Aluminum Company of America.

Narrows Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)
1	533.75	8,850	3,578	540.97	10,492	13,655
2	534.11	8,929	3,525	541.10	10,524	8,833
3	534.21	8,951	1,830	541.08	10,519	6,012
4	533.79	8,859	1,850	540.94	10,485	5,010
5	533.76	8,852	3,562	540.71	10,432	5,120
6	534.12	8,931	3,865	540.47	10,375	5,150
7	534.26	8,962	3,770	540.36	10,350	4,175
8	534.23	8,956	3,860	540.14	10,297	4,055
9	534.19	8,947	3,815	540.36	10,350	4,890
10	534.28	8,967	1,874	540.07	10,281	5,150
11	533.84	8,870	1,840	539.82	10,224	5,110
12	533.73	8,846	3,175	539.47	10,143	5,200
13	534.47	9,008	2,969	539.16	10,072	5,190
14	535.70	9,282	2,821	538.72	9,971	4,530
15	539.00	10,035	28,042	538.74	9,975	3,860
16	539.92	10,247	82,483	538.85	10,000	5,055
17	540.67	10,422	49,300	538.53	9,927	5,350
18	541.10	10,524	7,137	537.92	9,787	5,135
19	541.10	10,524	8,577	537.36	9,658	4,655
20	541.10	10,524	7,322	537.00	9,575	4,595
21	541.05	10,512	5,181	536.65	9,496	3,785
22	541.06	10,514	4,830	535.66	9,274	3,270
23	540.95	10,488	4,940	534.86	9,094	4,620
24	540.65	10,418	4,160	534.56	9,028	4,495
25	540.26	10,326	4,250	534.32	8,975	4,420
26	540.72	10,435	4,800	534.04	8,914	4,320
27	540.64	10,415	5,120	533.90	8,883	3,705
28	540.40	10,359	5,130	533.66	8,830	2,630
29	540.22	10,317	5,195	532.92	8,667	2,520
30	539.80	10,219	5,210	533.00	8,685	3,225
31	539.84	10,228	4,405			
Change in contents, equivalent, in second-feet..... Monthly mean outflow, in second-feet.....				August	September	
				+547	-595	
				8,981	4,924	

PEE DEE RIVER AT TILLERY RESERVOIR, NEAR NORWOOD, N. C.

LOCATION.—Lat. 35°12'10", long. 80°03'10", in power plant at left end of Tillery Dam, an eighth of a mile above Norfolk Southern R. R. bridge, 4 miles east of Norwood, Stanly County, and 3¼ miles upstream from Rocky River. Datum of gage is 38.71 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—4,600 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Record of outflow based on formula for gates and manufacturers' ratings for turbines.

188 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Daily mean outflow, 83,800 second-feet Aug. 16; reservoir gage height, 241.3 feet, 5-9 p.m. Aug. 17 (contents, estimated, 6,400,000,000 cubic feet).

1896-99: Discharge (not determined) about Mar. 20, 1899; gage washed out.

REMARKS.—Reservoir, first put in use in 1928, has a total usable capacity of 5,960,000,000 cubic feet between 200.5 feet (minimum draw-down) and 239.5 feet (top of spill gates) and a storage capacity under normal operation of 360,000,000 cubic feet above 238.0 feet. River also affected by storage in High Rock and Narrows Reservoirs upstream having a combined storage capacity under normal operation of 16,978,000,000 cubic feet. A small reservoir of unknown capacity at Falls Dam, a short distance below Narrows Dam, affects the stream only slightly. Basic data furnished by Carolina Power & Light Co.

Tillery Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)
1	236.5	5,270	4,060	239.4	5,934	10,100
2	236.4	5,248	3,610	238.7	5,758	10,600
3	237.1	5,402	139	236.8	5,336	11,200
4	237.7	5,534	370	236.8	5,336	5,020
5	237.4	5,468	4,210	236.9	5,358	4,950
6	236.9	5,358	4,990	237.1	5,402	4,840
7	236.9	5,358	3,600	236.6	5,292	5,450
8	237.3	5,446	2,800	237.1	5,402	2,660
9	237.9	5,578	2,300	237.3	5,446	4,260
10	238.6	5,734	231	237.2	5,424	5,500
11	238.7	5,758	1,850	237.2	5,424	5,030
12	238.4	5,688	4,310	237.4	5,468	4,640
13	237.5	5,490	5,320	237.4	5,468	5,100
14	236.6	5,292	6,700	237.0	5,380	5,640
15	238.9	5,806	30,000	238.4	5,688	324
16	240.8	16,275	83,800	238.4	5,688	4,830
17	240.7	16,250	53,100	238.3	5,666	5,640
18	239.2	5,882	12,200	238.6	5,734	4,090
19	239.5	5,960	8,090	238.5	5,710	5,030
20	239.2	5,882	8,920	237.8	5,556	6,230
21	238.1	5,622	7,930	238.2	5,644	2,860
22	236.5	5,270	8,600	238.3	5,666	3,010
23	236.7	5,314	4,330	238.0	5,600	5,370
24	237.6	5,512	2,120	237.5	5,490	5,730
25	238.2	5,644	2,790	238.0	5,600	3,220
26	238.0	5,600	5,300	238.4	5,688	2,960
27	238.1	5,622	4,720	238.2	5,644	4,090
28	238.2	5,644	4,770	238.5	5,710	1,910
29	238.2	5,644	5,080	238.6	5,734	2,090
30	238.3	5,666	5,420	238.1	5,622	4,250
31	237.9	5,578	5,530			
Change in contents, equivalent, in second-feet.....				August		
Monthly mean outflow, in second-feet.....				September		
				+99		
				9,590		
				+17		
				4,890		

¹ Approximate contents.

SUPPLEMENTAL RECORD.—July 31 midnight, gage height, 236.7 feet; contents, 5,314 million cubic feet.

Tillery Reservoir, gage height and contents at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	237.5	5,490	236.6	5,292	239.1	5,856
2	237.5	5,490	236.6	5,292	239.1	5,856
3	237.5	5,490	236.7	5,314	239.2	5,882
4	237.5	5,490	236.7	5,314	239.3	5,908
5	237.5	5,490	236.8	5,336	239.4	5,934
6	237.6	5,512	236.9	5,358	239.5	5,960
7	237.6	5,512	236.9	5,358	239.6	5,980
8	237.6	5,512	236.9	5,358	239.7	6,000
9	237.5	5,490	237.0	5,380	239.8	6,025
10	237.4	5,468	237.2	5,424	239.9	6,050
11	237.4	5,468	237.5	5,490	240.0	6,075
N	237.3	5,446	237.6	5,512	240.1	6,100
1	237.2	5,424	237.8	5,556	240.2	6,125
2	237.2	5,424	237.9	5,578	240.2	6,125
3	237.1	5,402	238.0	5,600	240.3	6,150
4	237.0	5,380	238.1	5,622	240.4	6,175
5	237.0	5,380	238.2	5,644	240.4	6,175
6	236.9	5,358	238.2	5,644	240.4	6,175
7	236.8	5,336	238.3	5,666	240.5	6,200
8	236.8	5,336	238.4	5,688	240.6	6,225
9	236.8	5,336	238.6	5,734	240.6	6,225
10	236.7	5,314	238.7	5,758	240.7	6,250
11	236.7	5,314	238.8	5,782	240.8	6,275
12	236.6	5,292	238.9	5,806	240.8	6,275
	Aug. 17		Aug. 18		Aug. 19	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	240.9	16,300	240.6	16,225	239.2	5,882
2	240.9	16,300	240.3	16,150	239.2	5,882
3	240.9	16,300	240.2	16,125	239.3	5,908
4	241.0	16,325	239.9	16,050	239.3	5,908
5	241.0	16,325	239.7	16,000	239.3	5,908
6	241.1	16,350	239.5	5,960	239.3	5,908
7	241.1	16,350	239.4	5,934	239.3	5,908
8	241.1	16,350	239.3	5,908	239.3	5,908
9	241.1	16,350	239.3	5,908	239.3	5,908
10	241.1	16,350	239.4	5,934	239.3	5,908
11	241.1	16,350	239.4	5,934	239.3	5,908
N	241.1	16,350	239.4	5,934	239.3	5,908
1	241.1	16,350	239.4	5,934	239.3	5,908
2	241.1	16,350	239.5	5,960	239.3	5,908
3	241.1	16,350	239.4	5,934	239.3	5,908
4	241.1	16,350	239.4	5,934	239.3	5,908
5	241.3	16,400	239.3	5,908	239.3	5,908
6	241.3	16,400	239.3	5,908	239.4	5,934
7	241.3	16,400	239.3	5,908	239.4	5,934
8	241.3	16,400	239.3	5,908	239.4	5,934
9	241.3	16,400	239.4	5,934	239.4	5,934
10	241.1	16,350	239.3	5,908	239.4	5,934
11	240.9	16,300	239.3	5,908	239.5	5,960
12	240.7	16,250	239.2	5,882	239.5	5,960

1 Approximate contents.

PEE DEE RIVER NEAR ANSONVILLE, N. C.

LOCATION.—Lat. 35°05'25", long. 79°59'55", in bridge pier on State Highway 109, 1 mile downstream from Brown Creek and 6 miles east of Ansonville, Anson County.

DRAINAGE AREA.—6,330 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 73,000 second-feet. Discharge for periods of changing stage were computed using rate of change of stage as a factor where necessary.

MAXIMA.—1940: Discharge, 78,700 second-feet 11 p.m. Aug. 16 (gage height, 28.20 feet); gage height, 28.27 feet 1 a.m. Aug. 17.

190 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

1938-39: Discharge, 67,600 second-feet Mar. 1, 1939 (gage height, 26.26 feet).

Stage known, 41.3 feet sometime in 1908, from State Highway Department records (discharge not determined). State Highway Department records also give 37.3 feet for flood of Sept. 19, 1928, and 31.3 feet for flood of March 1929 (discharges not determined).

REMARKS.—Flow affected by storage in High Rock, Narrows, and Tillery Reservoirs (combined storage capacity under normal operation, 17,338,000,000 cubic feet). Large diurnal fluctuation caused by power plant above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4,980	8,220	9	2,410	4,090	17	64,900	5,790	25	2,820	4,820
2	3,900	12,700	10	972	4,980	18	20,400	4,060	26	4,630	2,040
3	1,070	12,600	11	1,180	5,900	19	8,440	5,030	27	4,840	4,140
4	460	6,720	12	4,160	4,820	20	9,510	6,070	28	5,070	2,800
5	2,880	5,010	13	7,280	5,260	21	8,070	4,210	29	5,340	1,710
6	5,310	5,050	14	11,900	5,390	22	8,980	2,480	30	5,400	3,410
7	3,810	5,020	15	27,600	1,850	23	5,910	4,290	31	5,890	
8	3,100	4,220	16	71,300	3,500	24	2,670	6,050			
Monthly mean discharge, in second-feet										10,170	5,074
Runoff, in inches										1.85	0.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	5.29	312	7.97	3,040						
2	5.29	294	7.98	2,860	11.47	8,700	10.78	7,560	14.73	16,800
3	5.32	344	7.80	2,370						
4	5.42	471	7.53	1,970	10.68	6,900	10.19	5,960	14.22	15,200
5	5.54	516	7.23	1,600						
6	5.57	513	6.98	1,370	9.95	5,750	9.46	4,920	13.69	14,100
7	5.54	468	6.76	1,180						
8	5.50	420	6.56	1,050	9.43	4,930	9.13	4,730	13.26	13,400
9	5.44	368	6.40	966						
10	5.40	336	6.25	866	9.28	5,320	10.30	8,610	13.80	16,400
11	5.33	287	6.10	773						
N	5.29	270	5.99	764	9.97	6,890	12.40	13,100	14.85	19,800
1	5.24	243	6.90	2,860						
2	5.25	618	8.25	4,470	10.78	8,500	13.40	15,000	16.86	27,800
3	6.40	2,070	9.04	5,290						
4	7.33	2,800	9.42	5,710	10.92	7,910	14.10	16,900	18.46	33,000
5	7.80	3,010	9.76	6,490						
6	7.88	2,830	10.12	7,100	10.82	7,870	14.52	17,500	20.10	39,300
7	7.72	2,270	10.45	7,580						
8	7.50	2,010	10.71	8,050	10.82	7,870	14.63	17,700	21.57	45,400
9	7.31	1,890	10.90	8,390						
10	7.28	2,030	11.10	8,910	10.83	7,870	14.74	17,700	22.90	52,500
11	7.36	2,320	11.38	9,680						
12	7.70	2,960	11.60	9,950	10.84	7,870	14.79	17,800	23.94	56,900

PEE DEE RIVER AT BLEWETT RESERVOIR, NEAR ROCKINGHAM, N. C.

LOCATION.—Lat. 34°59'20", long. 79°52'35", in power plant at right end of Blewett Dam, 5½ miles downstream from Mountain Creek, and 7 miles northwest of Rockingham, Richmond County. Datum of gage is 39.04 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—6,830 square miles.

GAGE-HEIGHT RECORD.—Hourly readings of electric indicating gage.

DISCHARGE RECORD.—Record of outflow based on formula for spillways and manufacturers' ratings for turbines.

MAXIMA.—1940: Daily mean outflow, 82,800 second-feet Aug. 17; reservoir gage height, 141.8 feet 1 a.m. to 3 p.m. Aug. 17 (contents, estimated, 2,130,000,000 cubic feet).

REMARKS.—Reservoir, first put in use in 1911, has a total usable capacity of 1,850,000,000 cubic feet between 120.0 feet (minimum drawdown) and 139.0 feet (top of flashboards) and a storage capacity under normal operation of 300,000,000 cubic feet above 136.0 feet. River also affected by storage in High Rock, Narrows, and Tillery Reservoirs upstream having a combined storage capacity under normal operation of 17,338,000,000 cubic feet. Basic data furnished by Carolina Power and Light Company.

Blewett Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Outflow (second-feet)
1	137.2	1,670	5,360	139.7	1,920	6,030
2	136.8	1,630	4,390	139.9	1,940	11,700
3	137.6	1,710	972	139.9	1,940	11,100
4	137.5	1,700	347	138.9	1,840	8,780
5	136.1	1,560	3,800	137.5	1,700	5,790
6	137.1	1,660	4,400	136.8	1,630	6,310
7	136.1	1,560	5,510	137.1	1,660	4,640
8	135.9	1,540	3,690	137.4	1,690	4,900
9	135.1	1,460	3,480	136.5	1,600	4,880
10	136.3	1,580	0	136.8	1,630	4,860
11	135.9	1,540	1,700	137.8	1,730	4,870
12	134.6	1,410	5,530	137.8	1,730	4,900
13	135.0	1,450	7,180	138.2	1,770	4,900
14	138.3	1,780	7,220	138.5	1,800	4,920
15	140.1	1,960	19,800	137.2	1,670	4,920
16	141.7	2,120	49,500	135.7	1,520	4,830
17	140.9	2,040	82,800	136.6	1,610	4,900
18	136.6	1,610	38,100	136.7	1,620	4,870
19	135.8	1,530	10,800	137.1	1,660	4,870
20	135.8	1,530	10,600	137.8	1,730	4,880
21	135.6	1,510	9,530	137.8	1,730	4,920
22	135.8	1,530	9,490	136.4	1,590	4,690
23	134.4	1,390	8,500	135.9	1,540	4,840
24	134.7	1,420	2,550	137.1	1,660	4,860
25	137.2	1,670	0	137.7	1,720	4,930
26	137.7	1,720	3,800	135.5	1,500	4,900
27	137.7	1,720	4,900	135.1	1,460	4,780
28	137.8	1,730	4,900	136.0	1,550	2,550
29	137.8	1,730	5,490	136.7	1,620	799
30	137.9	1,740	5,830	136.7	1,620	3,500
31	138.2	1,770	5,830			
				August	September	
Change in contents, equivalent, in second-feet.....				+37	-58	
Monthly mean outflow, in second-feet.....				10,500	5,290	

¹ Approximate contents.

SUPPLEMENTAL RECORD.—July 31 midnight, gage height, 137.2 feet; contents, 1,670 million cubic feet.

192 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Blewett Reservoir, gage height and contents at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	135.0	1,450	138.5	1,800	140.3	¹ 1,980
2	135.0	1,450	138.8	1,830	140.4	¹ 1,990
3	135.1	1,460	138.9	1,840	140.6	¹ 2,010
4	135.2	1,470	139.0	1,850	140.7	¹ 2,020
5	135.2	1,470	139.0	1,850	140.8	¹ 2,030
6	135.2	1,470	139.1	¹ 1,860	140.8	¹ 2,030
7	135.2	1,470	139.1	¹ 1,860	140.9	¹ 2,040
8	135.2	1,470	139.1	¹ 1,860	141.0	¹ 2,050
9	135.1	1,460	139.0	1,850	141.1	¹ 2,060
10	135.1	1,460	138.8	1,830	141.1	¹ 2,060
11	135.0	1,450	138.7	1,820	141.2	¹ 2,070
N	135.0	1,450	138.6	1,810	141.2	¹ 2,070
1	135.0	1,450	138.6	1,810	141.2	¹ 2,070
2	135.1	1,460	138.6	1,810	141.2	¹ 2,070
3	135.4	1,490	138.7	1,820	141.2	¹ 2,070
4	135.8	1,530	138.9	1,840	141.3	¹ 2,080
5	136.0	1,550	139.0	1,850	141.3	¹ 2,080
6	136.4	1,590	139.3	¹ 1,880	141.4	¹ 2,090
7	136.7	1,620	139.5	¹ 1,900	141.5	¹ 2,100
8	137.2	1,670	139.7	¹ 1,920	141.5	¹ 2,100
9	137.6	1,710	139.8	¹ 1,930	141.6	¹ 2,110
10	137.8	1,730	139.9	¹ 1,940	141.6	¹ 2,110
11	138.0	1,750	140.0	¹ 1,950	141.7	¹ 2,120
12	138.3	1,780	140.1	¹ 1,960	141.7	¹ 2,120

	Aug. 17		Aug. 18		Aug. 19	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	141.8	¹ 2,130	140.7	¹ 2,020	136.5	1,600
2	141.8	¹ 2,130	140.6	¹ 2,010	136.4	1,590
3	141.8	¹ 2,130	140.5	¹ 2,000	136.3	1,580
4	141.8	¹ 2,130	140.3	¹ 1,980	136.3	1,580
5	141.8	¹ 2,130	140.1	¹ 1,960	136.2	1,570
6	141.8	¹ 2,130	139.9	¹ 1,940	136.1	1,560
7	141.8	¹ 2,130	139.7	¹ 1,920	136.0	1,550
8	141.8	¹ 2,130	139.6	¹ 1,910	136.0	1,550
9	141.8	¹ 2,130	139.4	¹ 1,890	135.8	1,530
10	141.8	¹ 2,130	139.2	¹ 1,870	135.8	1,530
11	141.8	¹ 2,130	139.0	1,850	135.8	1,530
N	141.8	¹ 2,130	138.6	1,810	135.7	1,520
1	141.8	¹ 2,130	138.4	1,790	135.7	1,520
2	141.8	¹ 2,130	138.2	1,770	135.7	1,520
3	141.8	¹ 2,130	138.0	1,750	135.7	1,520
4	141.7	¹ 2,120	137.9	1,740	135.7	1,520
5	141.6	¹ 2,110	137.7	1,720	135.7	1,520
6	141.6	¹ 2,110	137.6	1,710	135.7	1,520
7	141.6	¹ 2,110	137.3	1,680	135.7	1,520
8	141.6	¹ 2,110	137.1	1,660	135.7	1,520
9	141.6	¹ 2,110	136.9	1,640	135.7	1,520
10	141.6	¹ 2,110	136.8	1,630	135.7	1,520
11	141.6	¹ 2,110	136.7	1,620	135.7	1,520
12	140.9	¹ 2,040	136.6	1,610	135.8	1,530

¹ Approximate contents.

PEE DEE RIVER NEAR ROCKINGHAM, N. C.

LOCATION.—Lat. 34°56'10", long. 79°51'10", at State highway bridge, 1 mile upstream from Falling Creek, 4 miles downstream from Blewett Falls hydroelectric plant, and 6 miles west of Rockingham, Richmond County. Datum of gage is 120.68 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—6,870 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 193,000 second-feet. Gage heights used to half-tenths between 3.0 and 5.3 feet; hundredths below and tenths above these limits.

PEE DEE RIVER BASIN

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MAXIMA.—1940: Discharge, 84,000 second-feet 7:30 to 8 a.m. Aug. 17 (gage height, 13.46 feet).

1927-39: Discharge, 212,000 second-feet Sept. 19, 1928 (gage height, 25.38 feet).

Stage known, 31.28 feet sometime in 1908, from State Highway Department records (discharge, 276,000 second-feet).

REMARKS.—Flow affected by storage in High Rock, Narrows, Tillery, and Blewett Reservoirs (combined storage capacity under normal operation, 17,638,000,000 cubic feet). Large diurnal fluctuation caused by power plant above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	5,440	6,010	9	3,700	5,270	17	79,900	5,090	25	169	5,090
2	4,970	12,400	10	534	5,270	18	39,500	5,090	26	3,410	5,090
3	1,250	12,200	11	1,170	5,270	19	11,000	5,090	27	5,270	4,920
4	664	9,820	12	5,610	5,270	20	10,200	5,270	28	5,270	3,570
5	3,620	7,220	13	7,430	5,270	21	9,200	5,270	29	5,640	1,040
6	4,150	6,600	14	8,560	5,270	22	8,980	5,090	30	6,010	2,740
7	5,880	5,020	15	24,500	5,270	23	8,750	5,090	31	6,010	-----
8	3,980	5,270	16	66,700	5,090	24	3,570	5,090			
Monthly mean discharge, in second-feet.....										11,320	5,668
Runoff, in inches.....										1.90	0.92

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.63	172	3.24	5,270	-----	-----	-----	-----	5.45	15,700
2	.62	170	3.14	4,920	-----	-----	-----	-----	-----	-----
3	.61	169	3.31	5,450	-----	-----	3.81	7,430	5.94	18,900
4	.61	169	3.24	5,270	-----	-----	-----	-----	-----	-----
5	.61	169	2.96	4,260	-----	-----	-----	-----	-----	-----
6	.61	169	2.64	3,200	-----	-----	3.82	7,430	6.42	22,200
7	.63	172	2.50	2,780	-----	-----	-----	-----	-----	-----
8	.63	172	2.85	3,890	-----	-----	-----	-----	6.43	22,200
9	.64	174	3.23	5,270	-----	-----	3.81	7,430	-----	-----
10	.64	174	3.38	5,820	-----	-----	-----	-----	6.33	21,500
11	.64	174	3.44	6,010	-----	-----	-----	-----	-----	-----
N	.64	174	3.46	6,010	3.80	7,430	3.79	7,430	6.19	20,900
1	.64	174	3.46	6,010	-----	-----	-----	-----	-----	-----
2	.65	176	3.46	6,010	-----	-----	-----	-----	6.16	20,900
3	.66	177	3.45	6,010	-----	-----	3.88	7,860	6.32	21,500
4	.69	182	3.48	6,200	-----	-----	-----	-----	-----	-----
5	.75	197	3.50	6,200	-----	-----	-----	-----	-----	-----
6	.81	213	3.49	6,200	-----	-----	4.13	8,980	6.83	25,100
7	1.15	370	3.48	6,200	-----	-----	-----	-----	-----	-----
8	2.91	4,090	3.49	6,200	-----	-----	-----	-----	7.92	33,500
9	3.30	5,450	3.61	6,600	-----	-----	4.59	11,100	-----	-----
10	3.40	5,820	3.72	7,010	-----	-----	-----	-----	8.77	41,000
11	3.44	6,010	3.76	7,220	-----	-----	-----	-----	-----	-----
12	3.47	6,010	3.78	7,430	3.81	7,430	5.13	14,200	9.53	47,000
	Aug. 16		Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
4	10.60	56,700	13.30	82,000	10.92	59,300	4.96	13,000	4.32	9,660
8	11.29	63,000	13.46	84,000	9.73	48,800	4.70	11,600	4.43	10,400
N	11.88	68,500	13.42	83,000	8.39	37,700	4.37	9,900	4.50	10,600
4	12.40	73,200	13.24	81,000	7.20	28,100	4.20	9,200	4.44	10,400
8	12.70	76,100	12.72	76,100	6.25	20,900	4.21	9,200	4.41	10,100
12	12.93	78,000	11.94	68,500	5.46	16,300	4.27	9,430	4.39	10,100

SUPPLEMENTAL RECORD.—Aug. 17, 7:30 a.m., 13.46 feet, 84,000 second-feet.

PEE DEE RIVER NEAR MARS BLUFF, S. C.

LOCATION.—Lat. 34°11', long. 79°34', at bridge on U. S. Highway 76, 2 miles downstream from Atlantic Coast Line Railroad bridge, 4.6 miles east of Mars

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Bluff, Florence County, and 10 miles downstream from Black Creek. Datum of gage is 23.46 feet (1942 revision) above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—8,870 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 48,000 second-feet and extended to crest gage height by logarithmic plotting.

MAXIMA.—1940: Discharge, 35,300 second-feet 8 a.m. Aug. 22 (gage height, 22.35 feet).

1939: Discharge, 66,700 second-feet Mar. 6 (gage height, 25.61 feet).

Stage known, 31.6 feet (present datum) Sept. 23, 1928, from records of U. S. Weather Bureau (discharge not determined).

REMARKS.—Flow regulated by power plants above station in North Carolina. Natural storage in large swampy areas.

Mean discharge, in second-feet, 1940

[illegible]

REDDIES RIVER AT NORTH WILKESBORO, N. C.

LOCATION.—Lat. 36°10'25", long. 81°10'10", 1¼ miles northwest of North Wilkesboro, Wilkes County, and 1½ miles upstream from mouth. Datum of gage is 978.62 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—93.9 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period Sept. 2-30.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,100 second-feet and extended logarithmically to crest gage height on basis of computation of flood flow over dam about 1½ miles below station and verified by a determination by slope-area method. Gage heights used to half-tenths between 2.7 and 5.0 feet Aug. 1-13, and between 2.5 and 4.9 feet Aug. 14 to Sept. 30; hundredths below and tenths above these limits. Discharge for period of no gage-height record based on records for nearby streams.

MAXIMA.—1940: Discharge, 27,000 second-feet 2:45 a.m. Aug. 14 (gage height, 22.02 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	130	388	9	68	140	17	395	110	25	184	120
2	84	280	10	64	140	18	360	110	26	171	110
3	72	240	11	73	130	19	286	110	27	153	100
4	72	200	12	257	130	20	232	110	28	145	95
5	86	180	13	2,810	130	21	213	100	29	137	95
6	77	170	14	7,600	120	22	196	100	30	1,390	90
7	84	160	15	897	120	23	196	100	31	980	-----
8	81	150	16	522	120	24	167	95			
Monthly mean discharge, in second-feet -----										587	141
Runoff, in inches -----										7.20	1.68

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.16	73	2.70	430	17.50	17,400						
2	1.16	73	2.66	417	21.10	24,900	4.46	1,250			2.50	417
3	1.17	74	2.58	392	21.75	26,500						
4	1.20	78	2.55	382	19.80	22,100	4.23	1,140	3.00	590	2.47	407
5	1.22	81	2.58	392	17.30	17,100						
6	1.22	81	2.75	447	14.60	12,400	4.02	1,020			2.44	398
7	1.22	81	3.11	580	12.50	9,200						
8	1.21	79	4.40	1,200	11.15	7,460	3.87	948	2.90	555	2.42	391
9	1.21	79	4.78	1,430	10.10	6,120						
10	1.21	79	5.20	1,680	9.20	5,120	3.71	880			2.39	382
11	1.26	86	6.00	2,240	8.50	4,400						
N	1.37	103	6.65	2,700	7.75	3,720	3.60	835	2.80	520	2.37	376
1	1.37	103	7.25	3,180	7.15	3,180						
2	1.60	143	7.25	3,180	6.75	2,840	3.49	790			2.35	370
3	1.87	199	6.70	2,780	6.42	2,520						
4	2.30	308	6.80	2,860	6.21	2,370	3.42	750	2.70	485	2.33	363
5	2.98	540	7.30	3,270	6.20	2,370						
6	2.80	464	8.15	4,100	6.18	2,370	3.36	730			2.41	388
7	2.90	500	8.90	4,800	5.90	2,150						
8	3.02	540	9.65	5,560	5.65	1,940	3.30	710	2.61	450	2.48	411
9	3.43	722	10.45	6,480	5.32	1,750						
10	3.49	745	11.70	8,110	5.11	1,630	3.18	670			2.50	417
11	3.27	640	13.05	9,900	4.96	1,570						
12	2.90	500	14.50	12,200	4.81	1,450	3.12	630	2.53	434	2.48	411
	Aug. 18		Aug. 19		Aug. 20		SUPPLEMENTAL RECORDS					
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge						
2	2.32	360										
4	2.30	354										
6	2.26	342	2.13	304	1.89	240						
8	2.23	333										
10	2.21	327										
N	2.20	324	2.08	291	1.87	236						
2	2.18	318										
4	2.25	339										
6	2.73	502	1.98	264	1.82	223						
8	2.45	401										
10	2.28	348										
12	2.20	324	1.90	243	1.77	211						

FISHER RIVER NEAR COPELAND, N. C.

LOCATION.—Lat. 36°19'55", long. 80°40'30", 300 feet upstream from bridge on State Highway 268, about half a mile upstream from Cody Creek, and 2 miles west of Copeland, Surry County.

DRAINAGE AREA.—121 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 4 p.m. Aug. 14 to 12 m. Aug. 18, 6 to 12 p.m. Aug. 18, and 9 p.m. Aug. 30 to 6 a.m. Aug. 31. Graph for Aug. 14-18 completed on basis of floodmarks, observer's or engineer's once-daily gage readings Aug. 15-18, and records for nearby streams. Graph for Aug. 30-31 completed on basis of flood-graph characteristics.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,800 second-feet and extended logarithmically to crest gage height on basis of two determinations of flood flow by slope-area method. Gage heights used to half-tenths between 3.7 and 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 27,300 second-feet about 5 p.m. Aug. 14 (gage height, 18.4 feet, from floodmarks).

1931-39: Discharge, 10,500 second-feet Oct. 19, 1937 (gage height, 13.59 feet).

REMARKS.—Flood runoff not affected by artificial storage.

196 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

[illegible]

LITTLE YADKIN RIVER NEAR DONNAHA, N. C.

LOCATION.—Lat. 36°15'40", long. 80°26'35", at county highway bridge just upstream from Spainhour Mill, 1¼ miles upstream from mouth, and 2 miles northwest of Donnaha, Forsyth County.

DRAINAGE AREA.—59.7 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Sept. 1-13.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,470 second-feet. A current-meter measurement was made Aug. 14, 1940 at the time of maximum discharge, but a much higher stage occurred shortly afterward, caused by backwater from the Yadkin River. Discharge during this backwater period (Aug. 14-15) is based on a slope-area determination, records for nearby streams, and a study of probable flow from channel and ground-water storage. Shifting-control also used owing to unstable stream-bed conditions. Gage heights used to half-tenths between 3.0 and 4.2 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record, Sept. 1-13, based on records for nearby streams.

MAXIMA.—1940: Discharge, 3,470 second-feet 11 a.m. Aug. 14 (gage height, 10.57 feet); gage height, 11.54 feet 8:30 p.m. Aug. 14.

REMARKS.—Flood flow not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.50	12	1.90	193	1.28	99	2.44	325	8.13	740
2	.50	12	1.75	167	1.17	86	4.25	1,120	7.10	660
3	.50	12	1.60	144	1.04	71	6.95	2,320	6.05	580
4	.50	12	1.46	122	.94	60	8.62	2,950	5.20	520
5	.50	12	1.33	104	.88	53	9.15	3,150	4.32	480
6	.50	12	1.19	83	.83	48	9.60	3,250	3.70	450
7	.50	12	1.07	67	.80	45	10.00	3,340	3.42	420
8	.50	12	1.09	58	.77	42	10.00	3,340	3.18	390
9	.51	13	.92	50	.75	40	10.20	3,390	3.01	370
10	.51	13	.87	44	.74	39	10.45	3,430	2.88	350
11	.51	13	.84	41	.72	37	10.57	3,470	2.74	330
N	.51	13	.80	37	.71	36	10.32	3,410	2.65	320
1	.52	14	.78	35	.70	35	10.40	3,430	2.56	300
2	.52	14	.76	33	.70	35	10.18	3,390	2.46	280
3	.53	14	.75	32	.69	34	9.65	3,250	2.38	270
4	.53	14	.74	31	.69	34	9.22	3,150	2.28	260
5	.52	14	.72	29	.68	33	9.46	3,200	2.21	247
6	.66	24	1.23	89	.68	33	10.23	3,300	2.15	233
7	.66	24	1.61	146	.68	33	10.95	3,300	2.12	227
8	.60	19	1.75	167	.68	33	11.45	2,800	2.11	224
9	.68	26	1.53	133	.69	34	11.48	1,550	2.12	227
10	1.30	99	1.48	125	.72	37	10.84	1,160	2.08	216
11	1.34	105	1.43	118	.82	47	9.95	960	1.98	196
12	1.83	181	1.40	115	1.24	94	9.10	840	1.94	188

	Aug. 16		Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.85	176	1.65	138	1.21	72	2.66	419	-----	-----
2	1.83	167	-----	-----	-----	-----	-----	-----	-----	-----
3	1.81	165	1.52	118	1.19	70	2.18	238	-----	-----
4	1.78	159	-----	-----	-----	-----	-----	-----	-----	-----
5	1.74	152	1.45	106	1.18	69	1.87	176	1.06	54
6	1.71	148	-----	-----	-----	-----	-----	-----	-----	-----
7	1.68	142	1.43	104	1.17	67	1.65	138	-----	-----
8	1.66	140	-----	-----	-----	-----	-----	-----	-----	-----
9	1.63	134	1.40	99	1.15	65	1.51	116	-----	-----
10	1.60	131	-----	-----	-----	-----	-----	-----	-----	-----
11	1.59	129	1.35	92	1.14	64	1.42	102	1.02	50
N	1.58	127	-----	-----	-----	-----	-----	-----	-----	-----
1	1.57	125	1.33	89	1.13	62	1.36	93	-----	-----
2	1.55	123	-----	-----	-----	-----	-----	-----	-----	-----
3	1.53	120	1.31	86	1.12	61	1.31	86	-----	-----
4	1.52	118	-----	-----	-----	-----	-----	-----	-----	-----
5	1.51	116	1.29	83	1.16	66	1.27	80	.98	45
6	1.51	116	-----	-----	-----	-----	-----	-----	-----	-----
7	1.50	115	1.27	80	1.16	66	1.21	72	-----	-----
8	1.49	113	-----	-----	-----	-----	-----	-----	-----	-----
9	1.48	111	1.24	76	4.25	1,120	1.16	66	-----	-----
10	1.47	110	-----	-----	-----	-----	-----	-----	-----	-----
11	1.47	110	1.22	74	3.98	1,040	1.13	62	.94	41
12	1.82	167	-----	-----	-----	-----	-----	-----	-----	-----

SUPPLEMENTAL RECORDS

Day	Gage height	Discharge	Day	Gage height	Discharge
Aug. 11, 6:30 p.m.-----	0.76	33	Aug. 18, 9 p.m.----- 11 p.m.-----	1.16	66
Aug. 12, 6:30 p.m.-----	1.73	163		4.76	1,370
Aug. 14, 12:30 p.m.-----	10.15	3,390		-----	-----
8:30 p.m.-----	11.54	3,300			

FORBUSH CREEK NEAR YADKINVILLE, N. C.

LOCATION.—Lat. 36°08'00", long. 80°32'45", 600 feet upstream from county highway bridge, three-quarters of a mile north of Forbush Church, 4½ miles upstream from mouth, and 6 miles east of Yadkinville, Yadkin County.

DRAINAGE AREA.—21.7 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

198 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 700 second-feet. Gage heights used to half-tenths between 2.3 and 4.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 819 second-feet 6:15 a.m. Aug. 14 (gage height, 7.84 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	13	12	9	9.7	8.2	17	26	5.3	25	12	12
2	14	13	10	11	7.8	18	34	6.4	26	13	6.7
3	13	13	11	9.1	11	19	30	8.5	27	14	7.2
4	9.1	7.4	12	21	6	20	15	7	28	9.9	9.6
5	13	9.4	13	21	7.3	21	15	7.3	29	9	5.6
6	9.1	9.6	14	503	9.4	22	13	5	30	17	5.8
7	13	6.7	15	60	5.5	23	14	6.3	31	18	-----
8	8.4	8.2	16	39	7.6	24	11	5.8			
Monthly mean discharge, in second-feet.....										32.8	8.02
Runoff, in inches.....										1.74	0.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	0.87	16	3.45	256	1.98	96	1.30	43
2	.83	14	4.55	403	1.88	88	1.33	45
3	.87	16	5.75	559	1.81	83	1.32	44
4	.93	19	6.46	650	1.74	77	1.32	44
5	.92	18	7.56	793	1.69	73	1.32	44
6	.90	17	7.84	819	1.64	69	1.29	42
7	.89	17	7.68	806	1.60	66	1.27	41
8	.88	16	7.23	741	1.56	63	1.25	40
9	.88	16	6.90	702	1.53	60	1.24	39
10	.87	16	6.67	676	1.52	60	1.23	38
11	.87	16	6.56	663	1.51	59	1.22	37
N	.87	16	6.33	624	1.45	54	1.22	37
1	.87	16	6.01	585	1.48	56	1.31	44
2	.88	16	5.97	585	1.38	49	1.29	42
3	.88	16	6.23	611	1.45	54	1.23	38
4	.88	16	6.54	650	1.44	53	1.14	32
5	.89	17	6.15	611	1.42	52	1.24	39
6	.89	17	4.45	377	1.42	52	1.25	40
7	.89	17	3.10	214	1.40	50	1.28	42
8	.89	17	2.93	196	1.33	45	1.18	35
9	.90	17	2.62	157	1.28	42	1.14	32
10	.96	21	2.40	136	1.27	41	1.14	32
11	1.30	43	2.21	117	1.23	38	1.10	29
12	2.83	184	2.08	105	1.24	39	1.05	26

SUPPLEMENTAL RECORDS.—Aug. 14, 1:30 p.m., gage height, 5.93 feet; discharge, 572 second-feet; 4:30 p.m., gage height, 6.62 feet, discharge, 663 second-feet.

REEDY CREEK NEAR YADKIN COLLEGE, N. C.

LOCATION.—Lat. 35°54'45", long. 80°20'05", at bridge on State Highway 703 about 700 feet upstream from Huffines Creek and 4 miles northeast of Yadkin College, Davidson County.

DRAINAGE AREA.—13.3 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 380 second-feet and extended logarithmically to crest gage height. Shifting-control method used Sept. 1-30.

MAXIMA.—1940: Discharge, 738 second-feet 10:30 a.m. Aug. 14 (gage height, 5.46 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4.1	34	9	2.8	3.1	17	57	2.8	25	6.2	3.9
2	3.5	4.5	10	2.7	10	18	9.6	2.8	26	4.3	3.1
3	3.1	3.8	11	4.5	18	19	6.4	2.8	27	3.9	2.8
4	3.5	3.5	12	5.8	4.1	20	5.2	2.8	28	3.8	2.8
5	3.8	3.6	13		3.3	21	4.9	2.7	29	5.9	2.7
6	3.5	8.4	14	329	3.1	22	4.7	2.7	30	18	2.5
7	3.1	3.8	15	109	3.0	23	4.5	2.5	31	28	-----
8	2.8	3.3	16	43	3.0	24	5.3	2.7			
Monthly mean discharge, in second-feet-----										22.5	5.07
Runoff, in inches-----										1.95	0.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.06	7.5	1.52	21	-----	-----	2.36	46	-----	-----
2	1.03	6.8	2.01	35	-----	-----	2.26	43	3.28	86
3	1.01	6.3	2.84	65	4.19	145	2.16	40	3.14	79
4	.99	5.9	3.55	100	-----	-----	2.08	37	3.13	78
5	.98	5.7	4.14	140	-----	-----	2.03	36	-----	-----
6	.96	5.3	4.87	343	4.05	132	2.01	35	3.33	88
7	.95	5.1	5.42	706	-----	-----	2.00	35	3.33	88
8	.95	5.1	5.29	603	-----	-----	1.98	34	3.26	85
9	.95	5.1	5.35	650	3.91	122	1.99	35	-----	-----
10	.95	5.1	5.43	714	-----	-----	2.03	36	3.01	72
11	.96	5.3	5.40	690	-----	-----	2.03	36	-----	-----
N	.97	5.5	5.21	547	3.73	110	2.06	37	2.68	58
1	.97	5.5	5.00	410	-----	-----	2.13	39	-----	-----
2	.97	5.5	4.85	333	-----	-----	2.28	43	2.37	46
3	.97	5.5	4.81	314	3.50	97	2.35	46	-----	-----
4	.98	5.7	4.77	296	-----	-----	2.30	44	2.11	38
5	.98	5.7	4.76	292	-----	-----	2.22	42	-----	-----
6	.98	5.7	4.95	384	3.32	88	2.17	40	1.87	31
7	.98	5.7	4.83	323	-----	-----	2.13	39	-----	-----
8	.98	5.7	4.70	266	-----	-----	2.11	38	1.65	24
9	.98	5.7	4.57	220	2.98	71	2.10	38	-----	-----
10	.97	5.5	4.48	194	-----	-----	2.35	46	1.49	20
11	.97	5.5	4.39	174	-----	-----	3.33	88	-----	-----
12	1.10	8.5	4.33	164	2.50	51	3.55	100	1.36	16

SUPPLEMENTAL RECORDS.—Aug. 14, 10:30 a.m., gage height, 5.46 feet; discharge, 738 second-feet. Aug. 16, 9:30 p.m., gage height, 2.10 feet; discharge, 38 second-feet.

DUTCHMAN CREEK NEAR CORNATZER, N. C.

LOCATION.—Lat. 35°55'50", long. 80°30'10", at bridge on county highway 100 feet downstream from Cedar Creek and 1½ miles west of Cornatzer, Davie County.

DRAINAGE AREA.—83.6 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,450 second-feet. Change in channel storage was a factor in computing discharge from 12 p.m. Aug. 13 to 12 m. Aug. 18. Gage heights used to half-tenths between 1.6 and 7.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 3,300 second-feet 3 a.m. Aug. 15 (gage height, 10.58 feet); gage height, 10.63 feet 4 a.m. Aug. 15.

REMARKS.—Flood runoff not affected by artificial storage.

200 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	31	56	9	20	21	17	112	18	25	30	17
2	24	29	10	18	32	18	65	17	26	30	44
3	21	24	11	19	42	19	51	17	27	26	21
4	20	22	12	26	22	20	40	17	28	24	18
5	22	21	13	53	20	21	34	16	29	23	17
6	22	24	14	1,400	19	22	31	15	30	24	16
7	56	24	15	2,150	19	23	29	14	31	45	-----
8	24	21	16	460	18	24	27	14			
Monthly mean discharge, in second-feet-----										160	22.5
Runoff, in inches-----										2.20	0.30

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	2.06	180	-----	-----	-----	-----	-----	-----
2	1.27	50	3.80	480	10.37	3,250	-----	-----	-----	-----
3	-----	-----	5.39	640	-----	-----	-----	-----	-----	-----
4	1.27	50	5.84	770	10.63	3,290	5.81	660	3.17	138
5	-----	-----	6.21	910	-----	-----	-----	-----	-----	-----
6	1.23	48	6.62	1,060	10.44	3,050	-----	-----	-----	-----
7	-----	-----	6.89	1,160	-----	-----	-----	-----	-----	-----
8	1.26	49	7.12	1,280	10.07	2,800	5.34	520	2.76	118
9	-----	-----	7.30	1,360	-----	-----	-----	-----	-----	-----
10	1.35	54	7.49	1,460	9.60	2,550	-----	-----	-----	-----
11	-----	-----	7.66	1,540	-----	-----	-----	-----	-----	-----
N	1.46	59	7.79	1,580	9.09	2,180	5.13	460	2.48	106
1	-----	-----	7.88	1,640	-----	-----	-----	-----	-----	-----
2	1.43	58	7.94	1,640	8.55	1,860	-----	-----	-----	-----
3	-----	-----	7.96	1,640	-----	-----	-----	-----	-----	-----
4	1.39	56	7.94	1,620	8.03	1,600	4.72	340	2.29	96
5	-----	-----	7.92	1,620	-----	-----	-----	-----	-----	-----
6	1.35	54	8.06	1,800	7.55	1,360	-----	-----	-----	-----
7	-----	-----	8.19	1,800	-----	-----	-----	-----	-----	-----
8	1.30	51	8.28	1,840	7.10	1,140	4.27	260	2.11	87
9	-----	-----	8.42	1,960	-----	-----	-----	-----	-----	-----
10	1.28	50	8.58	2,060	6.72	970	-----	-----	-----	-----
11	-----	-----	8.85	2,280	-----	-----	-----	-----	-----	-----
12	1.57	66	9.37	2,600	6.40	860	3.72	178	1.94	80

SUPPLEMENTAL RECORDS.—Aug. 15, 3 a.m., gage height, 10.58 feet; discharge, 3,300 second-feet.

SOUTH YADKIN RIVER NEAR MOCKSVILLE, N. C.

LOCATION.—Lat. 35°50'40", long. 80°39'45", at highway bridge 1 mile upstream from Little Creek, 4½ miles upstream from Hunting Creek, and 5¼ miles southwest of Mocksville, Davie County.

DRAINAGE AREA.—313 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,900 second-feet and extended logarithmically to crest gage height. Shifting-control method used Aug. 18 to Sept. 30. Gage heights used to half-tenths between 3.0 and 4.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,600 second-feet 11:30 p.m. Aug. 15 (gage height, 12.34 feet).

1938-39: Discharge, 3,110 second-feet Mar. 1, 1939 (gage height, 9.33 feet).

Stage known, 22.6 feet, from flood reference mark cut by local resident in tree near gage, sometime in October 1929 (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	210	579	9	106	143	17	1,010	120	25	215	114
2	171	255	10	95	164	18	545	118	26	215	125
3	111	196	11	97	159	19	486	118	27	198	121
4	98	173	12	178	135	20	370	118	28	183	114
5	102	161	13	420	129	21	300	112	29	170	107
6	114	312	14	2,200	125	22	264	111	30	178	102
7	297	197	15	3,680	123	23	234	106	31	548	-----
8	121	154	16	3,920	121	24	223	106			
Monthly mean discharge, in second-feet-----										550	157
Runoff, in inches-----										2.03	0.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1			3.54	650				
2	2.78	373	4.09	870	9.22	3,060	12.26	4,600
3			5.11	1,270				
4	2.90	415	7.18	2,160	9.28	3,110	12.08	4,500
5			7.17	2,160				
6	3.01	450	7.06	2,120	9.34	3,110	11.87	4,400
7			7.05	2,080				
8	3.03	468	7.04	2,080	9.48	3,200	11.61	4,250
9			7.05	2,080				
10	3.05	468	7.10	2,120	9.71	3,300	11.46	4,200
11			7.18	2,160				
N	2.95	432	7.26	2,210	10.05	3,450	11.21	4,050
1			7.34	2,210				
2	2.87	404	7.45	2,260	10.51	3,700	10.93	3,900
3			7.53	2,300				
4	2.83	390	7.58	2,340	11.17	4,050	10.65	3,750
5			7.49	2,300				
6	2.83	390	7.49	2,300	11.69	4,300	10.27	3,600
7			7.49	2,300				
8	2.83	390	9.66	3,300	12.09	4,500	9.73	3,300
9			9.86	3,400				
10	2.93	426	9.51	3,200	12.29	4,600	8.99	2,980
11			9.32	3,110				
12	3.19	520	9.23	3,060	12.33	4,600	7.86	2,480
	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	6.28	1,760						
4	5.20	1,310	3.36	590	3.18	538	2.77	401
6	4.78	1,150						
8	4.50	1,030	3.27	555	3.08	502	2.72	384
10	4.25	910						
N	4.05	830	3.22	538	3.01	468	2.68	370
2	3.91	790						
4	3.79	750	3.19	520	3.00	468	2.63	353
6	3.69	710						
8	3.60	670	3.14	502	2.97	468	2.59	339
10	3.53	650						
12	3.46	610	3.18	520	2.86	422	2.55	326

SUPPLEMENTAL RECORDS.—Aug. 14, 4:30 a.m., gage height, 7.25 feet, discharge, 2,160 second-feet; 8:45 p.m., gage height, 9.96 feet, discharge, 3,450 second-feet. Aug. 15, 11:30 p.m., gage height, 12.34 feet, discharge, 4,600 second-feet.

202 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

SOUTH YADKIN RIVER AT COOLEEMEE, N. C.

LOCATION.—Lat. 35°48'30", long. 80°33'45", just downstream from tailrace of Erwin Cotton Mills at Cooleemee, Davie County, and 2¼ miles downstream from Bear Creek. Datum of gage is 624.57 feet above mean sea level, datum of 1929 supplementary adjustment of 1936 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—569 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 1-5, when recorder clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 7,400 second-feet for 1940, up to 4,600 second-feet for 1929, and extended to crest gage height on basis of a rough computation of flood flow over Erwin Cotton Mills dam. Discharge during period of no gage-height record, Aug. 1-5, based on recorded range in gage heights, weather records, and records for station near Mocksville.

MAXIMA.—1940: Discharge, 8,230 second-feet 2 a.m. Aug. 16 (gage height, 20.62 feet).

1928-39: Discharge, 24,800 second-feet Oct. 3, 1929 (gage height, 32.25 feet).

REMARKS.—Flood runoff practically unaffected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.67	21	1.49	205	2.13	420	4.00	1,260	-----	-----
2	.68	22	1.53	217	2.13	420	5.58	1,850	14.92	5,440
3	.68	22	1.59	236	2.14	424	7.39	2,480	-----	-----
4	.68	22	1.64	252	2.14	424	8.53	2,890	15.76	5,840
5	.68	22	1.68	265	2.15	428	8.91	3,040	-----	-----
6	.68	22	2.49	569	2.17	436	9.10	3,120	16.37	6,120
7	.68	22	2.28	479	2.18	439	9.37	3,230	-----	-----
8	.68	22	2.21	451	2.18	439	9.73	3,350	16.90	6,350
9	.68	22	2.19	443	2.21	451	10.54	3,650	-----	-----
10	.68	22	2.18	439	2.54	591	10.85	3,760	17.14	6,450
11	.68	22	2.17	436	2.60	619	10.93	3,800	-----	-----
N	.68	22	2.16	432	2.64	642	10.96	3,840	17.69	6,750
1	.68	22	2.16	432	2.72	666	11.01	3,840	-----	-----
2	.69	23	2.15	428	2.81	714	11.07	3,880	18.24	7,000
3	.75	31	2.14	424	2.88	762	11.13	3,880	-----	-----
4	.96	66	2.13	420	2.92	762	11.21	3,920	18.82	7,300
5	1.18	117	2.12	417	2.93	786	11.38	4,000	-----	-----
6	1.27	141	2.11	413	2.94	786	11.82	4,160	19.40	7,600
7	1.33	158	2.11	413	2.94	786	12.00	4,240	-----	-----
8	1.38	172	2.11	413	2.93	786	12.28	4,360	19.87	7,850
9	1.41	181	2.11	413	2.91	762	12.70	4,520	-----	-----
10	1.43	187	2.11	413	2.71	666	13.20	4,720	20.31	8,060
11	1.45	193	2.12	417	2.95	786	13.66	4,930	-----	-----
12	1.47	199	2.12	417	3.50	1,040	14.07	5,100	20.53	8,180

	Aug. 16		Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	20.62	8,230	16.61	6,210	4.66	1,540	4.05	1,260	-----	-----
4	20.54	8,180	15.57	5,750	4.50	1,460	4.01	1,260	3.40	996
6	20.37	8,120	14.44	5,230	4.33	1,380	3.96	1,260	-----	-----
8	20.18	8,010	13.28	4,770	4.20	1,340	3.99	1,260	3.26	927
10	19.91	7,850	12.22	4,320	1.51	211	3.95	1,260	-----	-----
N	19.64	7,700	10.84	3,760	1.73	281	3.77	1,170	3.20	904
2	19.42	7,600	9.84	3,380	2.93	786	3.70	1,130	-----	-----
4	19.22	7,500	8.88	3,040	4.05	1,260	3.66	1,110	2.79	714
6	18.94	7,350	7.83	2,620	4.15	1,340	3.64	1,110	-----	-----
8	18.66	7,250	6.74	2,220	4.10	1,300	3.62	1,090	2.58	610
10	18.10	6,950	5.78	1,920	4.06	1,300	3.58	1,090	-----	-----
12	17.41	6,600	5.10	1,680	4.06	1,300	3.52	1,040	2.54	591

SUPPLEMENTAL RECORDS

Day	Gage height	Discharge	Day	Gage height	Discharge
Aug. 12, 5:30 a.m.-----	1.70	271	Aug. 19, 6:30 a.m.-----	4.40	1,420
Aug. 13, 9:30 a.m.-----	2.14	424	9 a.m.-----	4.11	1,300
Aug. 18, 9 a.m.-----	2.44	547	Aug. 20, 2 p.m.-----	3.15	881
			5 p.m.-----	2.63	642

ROCKY RIVER AT TURNERSBURG, N. C.

LOCATION.—Lat. 35°54'35", long. 80°48'10", 500 feet downstream from bridge on U. S. Highway 21 at Turnersburg, Iredell County, and 1 mile downstream from Mud Creek.

DRAINAGE AREA.—85.5 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,350 second-feet.

MAXIMA.—1940: Discharge, 2,840 second-feet 11 p.m. Aug. 14 (gage height, 8.05 feet).

REMARKS.—Flood runoff not affected by artificial storage.

204 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	57	92	9	36	50	17	180	40	25	63	42
2	40	68	10	34	47	18	154	41	26	64	43
3	36	61	11	39	46	19	126	41	27	62	43
4	34	58	12	129	45	20	97	40	28	57	38
5	43	55	13	199	43	21	82	39	29	53	36
6	55	69	14	1,880	44	22	75	35	30	75	38
7	68	55	15	969	41	23	70	37	31	237	-----
8	40	48	16	291	44	24	67	37			
Monthly mean discharge, in second-feet-----										175	47.2
Runoff, in inches-----										2.36	0.62

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.80	37	1.88	44	2.62	163	4.38	810
2	1.81	38	1.89	45	2.56	149	4.95	1,060
3	1.80	37	1.90	46	2.50	136	5.12	1,140
4	1.80	37	1.91	47	2.45	126	5.20	1,190
5	1.80	37	1.91	47	2.41	118	5.32	1,240
6	1.79	36	1.91	47	2.40	116	5.49	1,340
7	1.80	37	1.97	53	2.40	116	5.78	1,500
8	1.80	37	1.91	47	2.37	111	5.85	1,500
9	1.80	37	1.88	44	2.45	126	6.00	1,610
10	1.79	36	1.93	49	2.55	147	6.14	1,660
11	1.78	35	2.08	66	2.66	172	6.39	1,840
N	1.78	35	1.94	50	2.85	222	6.59	1,950
1	1.78	35	2.08	66	3.01	269	6.77	2,070
2	1.78	35	2.61	160	2.98	260	6.89	2,130
3	1.80	37	2.55	147	2.89	233	7.01	2,190
4	1.81	38	2.98	260	2.85	222	7.03	2,190
5	1.81	38	3.07	288	2.89	233	7.46	2,510
6	1.93	49	3.03	276	2.92	242	7.28	2,380
7	1.92	48	2.98	260	2.91	239	7.33	2,380
8	1.87	43	2.98	260	2.88	230	7.51	2,510
9	1.89	45	2.96	254	2.89	233	7.75	2,700
10	1.88	44	2.89	233	2.97	257	7.98	2,840
11	1.86	42	2.78	203	3.20	332	8.05	2,840
12	1.86	42	2.69	180	3.60	480	7.96	2,840
	Aug. 15		Aug. 16		Aug. 17		Aug. 18	
1	7.68	2,630	3.35	386	-----	-----	-----	-----
2	7.32	2,380	3.31	372	-----	-----	2.55	147
3	6.91	2,130	3.27	357	-----	-----	-----	-----
4	6.36	1,840	3.24	346	-----	-----	2.57	151
5	5.75	1,500	3.22	339	-----	-----	-----	-----
6	5.20	1,190	3.19	329	2.74	192	2.60	158
7	4.76	971	3.16	318	-----	-----	-----	-----
8	4.47	833	3.13	308	-----	-----	2.58	154
9	4.30	767	3.11	301	-----	-----	-----	-----
10	4.19	724	3.08	292	-----	-----	2.54	145
11	4.13	702	3.07	288	-----	-----	-----	-----
N	4.03	660	3.03	276	2.68	177	2.52	140
1	3.95	618	3.02	272	-----	-----	-----	-----
2	3.86	578	3.00	266	-----	-----	2.56	149
3	3.76	538	2.98	260	-----	-----	-----	-----
4	3.67	499	2.97	257	-----	-----	2.67	175
5	3.59	476	2.95	251	-----	-----	-----	-----
6	3.55	461	2.92	242	2.62	163	2.66	172
7	3.55	461	2.91	239	-----	-----	-----	-----
8	3.51	446	2.94	248	-----	-----	2.62	163
9	3.45	423	2.93	245	-----	-----	-----	-----
10	3.39	400	2.93	245	-----	-----	2.57	151
11	3.39	400	2.90	236	-----	-----	-----	-----
12	3.39	400	2.85	222	2.57	151	2.53	143

SUPPLEMENTAL RECORDS.—Aug. 11, 6:30 p.m., gage height, 2.00 feet; discharge, 56 second-feet. Aug. 12, 6:30 a.m., gage height, 2.06 feet; discharge, 63 second-feet. Aug. 16, 8:30 p.m., gage height, 3.02 feet; discharge, 272 second-feet. Aug. 18, 5 p.m., gage height, 2.69 feet; discharge, 180 second-feet.

THIRD CREEK AT CLEVELAND, N. C.

LOCATION.—Lat. 35°44'40", long. 80°40'55", at county road bridge $\frac{3}{4}$ mile north of Cleveland, Rowan County, and 7 miles upstream from Fourth Creek.

DRAINAGE AREA.—87.4 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Aug. 1-4.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,130 second-feet. Gage heights used to half-tenths between 2.3 and 4.8 feet; hundredths below and tenths above these limits. Shifting-control method used from 12 m. Aug. 17 to Sept. 6. Discharge for period of no gage-height record, Aug. 1-4, based on records for nearby streams.

MAXIMA.—1940: Discharge, 1,380 second-feet 9:30 p.m. Aug. 14 (gage height, 8.91 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	30	68	9	27	33	17	162	28	25	46	62
2	28	44	10	26	142	18	102	28	26	44	79
3	26	41	11	28	87	19	84	28	27	41	31
4	26	38	12	40	41	20	64	28	28	41	29
5	33	38	13	97	35	21	57	27	29	39	28
6	30	166	14	1,150	33	22	51	27	30	45	27
7	35	44	15	848	31	23	56	26	31	80	-----
8	28	36	16	443	30	24	54	26			
Monthly mean discharge, in second-feet-----										125	46.0
Runoff, in inches-----										1.65	0.59

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.95	82	5.10	521	8.80	1,350	3.67	272	-----	-----
2	1.94	82	7.15	965	8.71	1,320	3.58	265	-----	-----
3	1.91	79	7.94	1,130	8.81	1,350	3.50	250	-----	-----
4	1.90	78	8.23	1,200	8.73	1,320	3.43	243	3.13	202
5	1.90	78	8.32	1,220	8.70	1,320	3.38	236	-----	-----
6	1.92	80	8.32	1,220	8.65	1,300	3.35	229	-----	-----
7	1.95	82	8.32	1,220	8.56	1,300	3.53	258	-----	-----
8	1.97	84	8.28	1,220	8.38	1,250	6.34	764	2.88	173
9	2.06	92	8.24	1,200	8.09	1,180	7.04	919	-----	-----
10	2.14	100	8.20	1,200	7.77	1,100	7.04	919	-----	-----
11	2.20	105	8.22	1,200	7.23	965	6.87	896	-----	-----
N	2.22	107	8.14	1,180	6.65	830	6.55	830	2.69	152
1	2.22	107	8.07	1,180	6.06	722	5.80	659	-----	-----
2	2.22	107	8.01	1,150	5.65	619	5.18	540	-----	-----
3	2.24	109	8.04	1,150	5.25	540	4.80	465	-----	-----
4	2.24	109	7.88	1,130	4.94	483	4.52	411	2.52	137
5	2.25	110	7.76	1,100	4.74	456	4.27	368	-----	-----
6	2.25	110	7.60	1,060	4.49	411	4.06	335	-----	-----
7	2.22	107	8.13	1,180	4.33	386	3.86	303	-----	-----
8	2.19	104	8.71	1,320	4.19	360	3.70	280	2.38	123
9	2.15	100	8.89	1,380	4.08	343	3.96	319	-----	-----
10	2.14	100	8.88	1,380	3.97	319	3.86	303	-----	-----
11	2.23	108	8.80	1,350	3.86	303	3.70	280	-----	-----
12	2.58	142	8.78	1,350	3.78	295	3.55	258	2.28	114

SUPPLEMENTAL RECORDS.—Aug. 14, 9:30 p.m., gage height, 8.91 feet; discharge, 1,380 second-feet. Aug. 16, 9:30 a.m., gage height, 7.08 feet; discharge, 942 second-feet.

ABBOTTS CREEK AT LEXINGTON, N. C.

LOCATION.—Lat. 35°48'30", long. 80°14'10", about 1,000 feet upstream from first bridge below U. S. Highway 64 and $1\frac{1}{2}$ miles southeast of Lexington, Davidson County.

206 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—174 square miles (includes small unnamed tributary between gage and highway bridge below gage).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,200 second-feet. Gage heights used to half-tenths between 3.9 and 5.2 feet; hundredths below and tenths above these limits. Shifting-control method used Aug. 28-29, Sept. 9-10, 14-30.

MAXIMA.—1940: Discharge, 6,820 second-feet 4 a.m. Aug. 15 (gage height, 16.92 feet).

REMARKS.—Flood runoff practically unaffected by artificial storage. The cities of Thomasville and Lexington divert their water supplies above the station, and Lexington sewage is returned below the station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	34	304	9	15	43	17	614	33	25	52	24
2	26	228	10	14	54	18	207	30	26	55	26
3	21	71	11	19	154	19	116	29	27	50	29
4	20	54	12	35	148	20	82	28	28	49	17
5	23	56	13	69	56	21	64	26	29	38	17
6	25	200	14	2,440	44	22	57	24	30	169	14
7	20	88	15	5,300	39	23	52	21	31	188	-----
8	18	53	16	1,550	36	24	49	20			
Monthly mean discharge, in second-feet.....										370	65.2
Runoff, in inches.....										2.45	0.42

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.23	36	3.11	152	16.47	6,400	12.22	3,120	-----	-----	-----	-----
2	2.46	56	3.11	152	16.72	6,600	12.11	3,070	-----	-----	-----	-----
3	2.82	102	3.86	353	16.88	6,820	11.53	2,810	-----	-----	-----	-----
4	2.92	118	6.19	1,050	16.92	6,820	11.00	2,620	5.62	870	-----	-----
5	2.92	118	6.27	1,080	16.88	6,820	10.41	2,400	-----	-----	-----	-----
6	2.87	110	6.88	1,260	16.79	6,710	9.80	2,190	-----	-----	3.47	242
7	2.82	102	7.70	1,510	16.65	6,500	9.17	1,990	-----	-----	-----	-----
8	2.75	92	8.15	1,660	16.49	6,400	8.50	1,760	5.22	750	-----	-----
9	2.70	84	8.36	1,730	16.27	6,200	7.85	1,540	-----	-----	-----	-----
10	2.64	76	8.46	1,760	16.06	6,000	7.26	1,380	-----	-----	-----	-----
11	2.60	71	8.74	1,820	15.82	5,700	6.73	1,200	-----	-----	-----	-----
N	2.55	66	9.19	1,990	15.59	5,510	6.34	1,080	4.70	600	3.30	195
1	2.52	62	9.75	2,190	15.34	5,220	6.06	1,020	-----	-----	-----	-----
2	2.49	59	10.29	2,370	15.10	5,040	5.83	930	-----	-----	-----	-----
3	2.46	56	10.79	2,550	14.85	4,770	5.69	900	-----	-----	-----	-----
4	2.43	53	13.10	3,580	14.59	4,600	5.64	870	4.23	466	-----	-----
5	2.41	51	13.85	4,000	14.28	4,360	5.62	870	-----	-----	-----	-----
6	2.40	50	13.58	3,880	14.01	4,140	5.65	870	-----	-----	3.16	163
7	2.40	50	13.54	3,810	13.72	3,940	5.70	900	-----	-----	-----	-----
8	2.39	50	13.79	4,000	13.42	3,750	5.84	930	3.93	380	-----	-----
9	2.39	50	14.28	4,360	13.11	3,580	5.85	930	-----	-----	-----	-----
10	2.38	49	14.90	4,860	12.79	3,420	5.86	960	-----	-----	-----	-----
11	2.38	49	15.50	5,420	12.46	3,260	5.86	960	-----	-----	-----	-----
12	2.52	62	16.07	6,000	12.12	3,070	5.85	930	3.71	310	3.06	143

SUPPLEMENTAL RECORDS.—Aug. 14, 4:30 a.m., gage height, 6.80 feet; discharge, 1,230 second-feet. Aug. 16, 12:30 a.m., gage height, 12.06 feet; discharge 3,070 second-feet; 1:30 a.m., gage height 12.28 feet; discharge, 3,160 second-feet.

FOURMILE BRANCH NEAR SOUTHMONT, N. C.

LOCATION.—Lat. 35°40'00", long. 80°10'25", at county highway bridge, 1,600 feet upstream from Flat Swamp Creek, and 5 miles east of Southmont, Davidson County.

DRAINAGE AREA.—19.4 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 360 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths above and hundredths below 2.3 feet.

MAXIMA.—1940: Discharge, 1,800 second-feet 8 a.m. Aug. 14 (gage height, 6.95 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0.34	1.5	9	0	.24	17	13	.10	25	.77	0
2	.24	.98	10	.11	.22	18	8.1	.09	26	.56	0
3	.15	.56	11	.24	.30	19	5.0	.07	27	.48	0
4	.10	.42	12	.39	.42	20	2.7	.05	28	.42	0
5	.10	.34	13	.49	.28	21	1.7	.02	29	.39	0
6	.06	.34	14	664	.24	22	1.4	0	30	.75	0
7	.01	.31	15	139	.18	23	1.1	0	31	2.3	-----
8	0	.28	16	31	.16	24	.83	0			
Monthly mean discharge, in second-feet.....										28.2	.237
Runoff, in inches.....										1.68	0.01

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	0.37	1.3	4.94	662	1.31	40
2	.45	2.3	4.35	454	1.28	37
3	.62	6.1	3.75	315	1.25	35
4	1.10	25	2.86	188	1.24	34
5	3.65	298	2.23	123	1.23	34
6	5.18	768	1.99	100	1.23	34
7	6.02	1,170	1.87	89	1.23	34
8	6.95	1,800	1.77	80	1.28	37
9	6.50	1,490	1.68	72	1.34	42
10	5.76	1,040	1.61	66	1.34	42
11	5.05	703	1.54	60	1.30	39
N	4.64	550	1.49	55	1.27	37
1	4.47	484	1.44	51	1.23	34
2	4.14	400	1.40	48	1.19	31
3	3.55	281	1.37	45	1.16	29
4	2.27	127	1.34	42	1.13	27
5	1.90	92	1.33	42	1.09	25
6	2.90	193	1.48	54	1.07	24
7	4.50	499	1.45	52	1.04	22
8	6.20	1,290	1.40	48	1.01	21
9	6.56	1,520	1.40	48	.99	20
10	6.24	1,320	1.39	47	.97	19
11	6.32	1,350	1.35	43	.95	18
12	5.73	1,040	1.33	42	.93	17

SUPPLEMENTAL RECORD.—Aug. 14, 8:30 p.m., gage height, 6.63 feet; discharge 1,600 second-feet.

UWHARRIE RIVER NEAR TRINITY, N. C.

LOCATION.—Lat. 35°52'00", long. 79°59'20", 500 feet downstream from county highway bridge and 2 miles south of Trinity, Randolph County.

DRAINAGE AREA.—11.3 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,500 second-feet. Gage heights used to half-tenths between 3.2 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 2,140 second-feet 7:30 p.m. Aug. 14 (gage height, 6.88 feet).

1934-39: Discharge, 1,540 second-feet Oct. 8, 1936 (gage height, 5.7 feet).

REMARKS.—Flood runoff not affected by artificial storage.

208 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1.1	3.8	9	.63	1.7	17	17	1.4	25	3.3	1.3
2	.76	2.9	10	.56	2.3	18	9.7	1.3	26	3.1	1.2
3	.76	2.6	11	4.4	3.3	19	7.1	1.3	27	2.6	1.0
4	.76	2.3	12	3.2	2.1	20	5.2	1.3	28	2.4	1.0
5	1.3	2.3	13	2.8	1.7	21	4.3	1.2	29	5.0	.92
6	.92	2.8	14	515	1.5	22	3.5	1.1	30	19	.84
7	.76	2.0	15	98	1.5	23	6.1	1.0	31	5.9	
8	.69	1.8	16	52	1.5	24	3.8	1.1			
Monthly mean discharge, in second-feet										25.2	1.74
Runoff, in inches										2.57	0.17

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	0.77	3.2	1.17	17	1.91	101	1.58	52
2	.74	2.6	1.60	54	1.83	87	1.55	48
3	.73	2.5	1.95	108	1.79	80	1.53	46
4	.71	2.1	2.60	252	1.74	73	1.51	44
5	.69	1.9	3.65	609	1.69	66	1.51	44
6	.68	1.7	4.16	816	1.64	59	1.50	43
7	.68	1.7	4.85	1,130	1.59	53	1.47	40
8	.67	1.6	4.90	1,150	1.54	47	1.44	37
9	.67	1.6	3.95	732	1.50	43	1.42	35
10	.67	1.6	3.22	441	1.47	40	1.39	32
11	.67	1.6	2.62	258	1.43	36	1.38	31
N	.66	1.5	2.18	152	1.41	34	1.57	51
1	.66	1.5	1.90	99	1.89	97	2.60	252
2	.66	1.5	1.72	70	2.71	284	2.10	136
3	.66	1.5	1.62	57	2.54	236	1.67	63
4	.90	6.2	1.53	46	2.33	184	1.53	46
5	.81	4.0	1.64	59	2.20	156	1.46	39
6	.88	5.7	3.55	570	2.10	136	1.40	33
7	.85	5.0	6.30	1,840	2.03	123	1.37	31
8	.83	4.5	6.60	1,990	1.96	110	1.34	28
9	.79	3.5	5.16	1,290	1.82	85	1.32	27
10	.77	3.2	3.03	384	1.74	73	1.30	25
11	.77	3.2	2.27	171	1.68	64	1.28	24
12	.78	3.3	2.05	126	1.63	58	1.27	23

SUPPLEMENTAL RECORDS.—Aug. 14, 7:30 a.m., gage height, 5.12 feet, discharge, 1,250 second-feet; 4:30 p.m., gage height, 1.50 feet, discharge, 43 second-feet; 7:30 p.m., gage height, 6.88 feet, discharge, 2,140 second-feet.

UWHARRIE RIVER NEAR ELDORADO, N. C.

LOCATION.—Lat. 35°25'25", long. 80°00'40", a quarter of a mile upstream from State Highway 109, 1 mile upstream from McLeans Creek, and 3 miles south of Eldorado, Montgomery County.

DRAINAGE AREA.—347 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,500 second-feet.

MAXIMA.—1940: Discharge, 4,810 second-feet 4:30 p.m. Aug. 15 (gage height, 8.75 feet).

1938-39: Discharge, 9,400 second-feet Aug. 18, 1939 (gage height 13.70 feet).

Stage known, 22.2 feet sometime in August 1928, from flood reference mark established by local resident (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	35	126	9	22	19	17	706	18	25	52	39
2	38	74	10	15	41	18	238	20	26	48	21
3	39	55	11	17	19	19	146	22	27	42	34
4	33	42	12	15	32	20	99	12	28	38	19
5	11	37	13	44	34	21	74	23	29	40	25
6	9	41	14	947	38	22	62	27	30	36	12
7	25	28	15	4,220	29	23	52	11	31	204	-----
8	26	31	16	1,350	11	24	48	9			
Monthly mean discharge, in second-feet.....										282	31.6
Runoff, in inches.....										0.94	0.10

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.33	48						
2	1.51	77	7.23	3,450	5.95	2,480	3.31	725
3	1.55	84						
4	1.55	84	7.53	3,700	4.97	1,700	3.82	995
5	1.57	88						
6	1.57	88	7.81	3,960	4.54	1,440	3.92	1,050
7	1.56	86						
8	1.54	83	8.08	4,220	4.45	1,380	3.85	1,020
9	1.53	81						
10	1.53	81	8.31	4,380	4.41	1,340	3.66	912
11	1.56	86						
N	1.95	178	8.49	4,560	4.30	1,280	3.42	775
1	2.62	408						
2	3.09	620	8.63	4,640	4.12	1,160	3.18	675
3	3.40	775						
4	3.92	1,050	8.73	4,720	3.88	1,050	2.98	566
5	4.65	1,500						
6	5.30	1,940	8.72	4,720	3.63	912	2.80	485
7	5.77	2,320						
8	6.11	2,560	8.57	4,640	3.40	775	2.66	424
9	6.37	2,800						
10	6.59	2,960	8.15	4,300	3.18	675	2.55	380
11	6.78	3,120						
12	6.94	3,200	7.25	3,450	3.06	605	2.42	332

Hour	Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2			1.89	161	1.67	109
4			1.87	156	1.61	96
6	2.25	272	1.85	151	1.56	86
8			1.83	146	1.56	86
10			1.82	143	1.58	90
N	2.13	232	1.81	141	1.60	94
2			1.80	138	1.61	96
4			1.83	146	1.61	96
6	2.02	198	1.84	148	1.65	104
8			1.81	141	1.69	113
10			1.77	131	1.68	111
12	1.92	170	1.72	120	1.64	102

SUPPLEMENTAL RECORD.—Aug. 15, 4:30 p.m., gage height, 8.75 feet; discharge, 4,810 second-feet.

ROCKY RIVER NEAR NORWOOD, N. C.

LOCATION.—Lat. 35°08'40", long. 80°10'45", at Hyatts Ford, 1,000 feet downstream from Lanes Creek, and 6 miles southwest of Norwood, Stanly County.

Datum of gage is 212.91 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,370 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

210 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 70,000 second-feet and extended above on basis of slope-area measurement in 1945. Gage heights used to half-tenths between 2.3 and 4.3 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 8,500 second-feet 8 p.m. Aug. 15 (gage height, 8.21 feet).

1929 to July 1940: Discharge, 56,400 second-feet (revised) Apr. 7, 1936 (gage height, about 32.0 feet, from floodmarks).

Stage known, about 35 feet sometime in August 1908, from flood reference mark as witnessed by local resident (discharge estimated, 67,600 second-feet (revised)).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	84	701	9	62	146	17	1,400	69	25	164	47
2	69	482	10	55	100	18	760	59	26	149	54
3	75	224	11	63	82	19	436	60	27	130	60
4	71	149	12	1,140	71	20	297	64	28	105	54
5	59	119	13	1,310	98	21	228	59	29	102	55
6	60	184	14	4,120	94	22	200	60	30	105	47
7	98	300	15	7,730	80	23	177	54	31	132	
8	75	193	16	4,310	66	24	168	59			
Monthly mean discharge, in second-feet										772	130
Runoff, in inches										0.65	0.11

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	0.49	98	2.93	1,600	2.27	1,010						
2	.61	127	2.92	1,550	2.25	990	6.83	6,400	7.91	8,050	3.15	1,780
3	.84	197	2.86	1,500	2.24	982						
4	1.16	320	2.83	1,500	2.34	1,070	7.05	6,700	7.62	7,600	3.35	1,980
5	1.66	581	2.84	1,500	2.83	1,500						
6	2.00	800	2.87	1,500	3.45	2,080	7.28	7,150	7.05	6,700	3.07	1,680
7	2.13	894	2.87	1,500	3.94	2,620						
8	2.04	828	2.85	1,500	4.45	3,130	7.50	7,450	6.37	5,800	2.94	1,600
9	1.98	786	2.82	1,460	4.79	3,610						
10	2.27	1,010	2.77	1,420	4.89	3,730	7.74	7,750	5.56	4,650	2.75	1,420
11	2.78	1,460	2.71	1,370	5.12	3,990						
N	2.82	1,460	2.65	1,320	5.92	5,070	7.91	8,050	4.70	3,490	2.58	1,280
1	2.85	1,500	2.59	1,280	6.18	5,500						
2	2.99	1,640	2.52	1,190	6.41	5,800	8.03	8,200	4.04	2,720	2.49	1,190
3	3.07	1,680	2.47	1,150	6.55	6,100						
4	3.16	1,780	2.44	1,150	6.56	6,100	8.12	8,350	3.57	2,180	2.46	1,150
5	3.23	1,880	2.42	1,110	6.55	6,100						
6	3.24	1,880	2.42	1,110	6.53	5,950	8.18	8,500	3.27	1,880	2.45	1,150
7	3.09	1,730	2.39	1,110	6.51	5,950						
8	2.99	1,640	2.37	1,070	6.51	5,950	8.21	8,500	3.18	1,830	2.45	1,150
9	2.82	1,460	2.37	1,070	6.52	5,950						
10	2.75	1,420	2.35	1,070	6.54	5,950	8.20	8,500	3.16	1,780	2.42	1,110
11	2.80	1,460	2.33	1,070	6.57	6,100						
12	2.89	1,550	2.30	1,030	6.62	6,100	8.11	8,350	3.00	1,640	2.37	1,070

SUPPLEMENTAL RECORDS.—Aug. 11, 12 p.m., gage height, 0.34 feet; discharge, 69 second-feet. Aug. 17, 5 a.m., gage height, 3.35 feet; discharge, 1,980 second-feet.

RICHARDSON CREEK NEAR MARSHVILLE, N. C.

LOCATION.—Lat. 35°05'55", long. 80°23'05", at bridge on State Highway 205, a quarter of a mile downstream from Goodman Branch, three-quarters of a mile upstream from Niggerhead Creek, and 7½ miles north of Marshville, Union County.

DRAINAGE AREA.—170 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,900 second-feet. Gage heights used to half-tenths between 2.8 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 129 second-feet 12 to 12:30 a.m. Aug. 15 (gage height, 1.90 feet).

April to July 1940: Daily discharge, 200 second-feet July 18 (estimated, recorder not operating properly).

REMARKS.—There is a small reservoir about 13 miles above station where the city of Monroe diverts its water supply.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	28	75	9	.65	1.5	17	13	.55	25	1.2	0
2	17	25	10	.45	1.3	18	6.0	.55	26	1.1	0
3	5.1	9.3	11	.9	1.2	19	3.0	.45	27	.95	0
4	2.5	5.1	12	3.6	1.1	20	1.9	.35	28	.85	0
5	1.7	2.9	13	3.3	.95	21	1.5	.25	29	.65	0
6	1.4	3.7	14	64	.85	22	1.3	.25	30	.65	0
7	1.2	2.9	15	92	.75	23	1.4	.15	31	.65	
8	.85	1.8	16	32	.65	24	1.3	.15			
Monthly mean discharge, in second-feet										9.36	4.56
Runoff, in inches										0.06	0.03

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	1.13	2.9	1.86	121						
4	1.18	5.1	1.78	105						
6	1.22	7.7	1.70	89	1.46	41	1.28	12		
8	1.64	77	1.64	77						
10	1.62	73	1.61	71						
N	1.57	63	1.68	85	1.39	28	1.26	11	1.18	5.1
2	1.55	59	1.81	111						
4	1.64	77	1.79	107						
6	1.74	97	1.73	95	1.35	22	1.31	16		
8	1.82	113	1.66	81						
10	1.88	125	1.61	71						
12	1.90	129	1.56	61	1.31	16	1.25	10	1.15	3.7

SUPPLEMENTAL RECORD.—Aug. 15, 12:30 a.m., gage height, 1.90 feet; discharge, 129 second-feet.

BROWN CREEK NEAR POLKTON, N. C.

LOCATION.—Lat. 35°02'15", long. 80°08'45", at Medley Mill, just downstream from bridge on State Highway 742, 3½ miles downstream from Little Brown Creek, and 4 miles northeast of Polkton, Anson County.

DRAINAGE AREA.—110 square miles.

GAUGE-HEIGHT RECORD.—None, except water-stage recorder graph for Sept. 25-26.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,900 second-feet. Discharge for periods of no gage-height record, Aug. 1 to Sept. 24, Sept. 27-30, based on floodmarks, weather records, recorded range in gage heights, and records for nearby streams.

MAXIMA.—1940: Discharge, 535 second-feet Aug. 14 (gage height, 6.17 feet, from floodmarks).

1937-39: Discharge, 3,960 second-feet July 21, 1939 (gage height, 12.50 feet).

Stages known, 16.4 feet sometime in August 1908 (discharge 12,500 second-feet), 15.7 feet sometime in July 1916 (discharge 10,400 second-feet), and 15.0

feet sometime in September 1928 (discharge 8,500 second-feet), from flood reference marks as witnessed by owner of Medley Mill.

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0.1	25	9	0	2.0	17	200	1.0	25	2.0	.79
2	.1	14	10	0	1.8	18	50	1.0	26	1.6	.72
3	.1	8.0	11	0	1.6	19	20	.9	27	1.2	.7
4	.1	5.0	12	.5	1.4	20	12	.9	28	1.1	.7
5	0	4.0	13	10	1.4	21	8.0	.9	29	1.0	.6
6	0	7.0	14	200	1.2	22	5.0	.8	30	10	.6
7	0	4.0	15	450	1.2	23	4.0	.8	31	60	-----
8	0	3.0	16	300	1.0	24	3.0	.8			
Monthly mean discharge, in second-feet -----										43.2	3.09
Runoff, in inches -----										0.45	0.03

LOCATION.—Lat. 34°58'45", long. 80°11'20", 1 mile southwest of State convict camp on U. S. Highway 74, 1½ miles upstream from mouth, and 2 miles southeast of Polkton, Anson County.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Aug. 15-19, when recorder clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 410 second-feet. Discharge for period of no gage-height record, Aug. 15-19, based on recorded range in gage heights, weather records, and records for nearby streams.

MAXIMA.—1940: Discharge, 668 second-feet 3 p.m. Aug. 14 (gage height, 3.83 feet).

1935-39: Discharge, 2,200 second-feet July 21, 1939 (gage height, 7.04 feet).

REMARKS.—Flood runoff practically unaffected by artificial storage.

[illegible]

214 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.76	7.7	2.82	160	1.78	70	-----	-----	-----	-----
2	.75	7.3	2.64	145	1.69	63	2.43	126	-----	-----
3	.75	7.3	2.41	122	1.62	58	-----	-----	-----	-----
4	.75	7.3	2.19	103	1.55	54	2.06	93	-----	-----
5	.87	13	1.99	87	1.49	49	-----	-----	-----	-----
6	.95	17	1.83	74	1.45	46	1.77	70	1.17	29
7	1.09	24	1.71	65	1.41	44	-----	-----	-----	-----
8	1.05	22	1.60	57	1.37	41	1.61	58	-----	-----
9	1.02	21	1.52	51	1.34	39	-----	-----	-----	-----
10	1.33	39	1.48	49	1.32	38	1.50	50	-----	-----
11	1.38	42	1.44	46	1.30	37	-----	-----	-----	-----
N	1.71	65	1.41	44	1.29	36	1.40	43	1.16	29
1	1.83	74	1.37	41	1.28	36	-----	-----	-----	-----
2	1.90	80	1.29	36	1.28	36	1.30	37	-----	-----
3	1.81	73	1.39	42	1.38	42	-----	-----	-----	-----
4	2.37	118	1.90	80	1.31	38	1.34	39	-----	-----
5	2.68	150	1.96	85	1.22	32	-----	-----	-----	-----
6	2.74	155	2.00	88	1.19	30	1.33	39	1.13	27
7	2.94	175	2.07	94	1.90	80	-----	-----	-----	-----
8	2.87	165	2.14	99	2.35	118	1.30	37	-----	-----
9	2.87	165	2.04	91	2.20	104	-----	-----	-----	-----
10	2.89	170	1.96	85	2.35	118	1.28	36	-----	-----
11	2.90	170	1.94	83	2.60	140	-----	-----	-----	-----
12	2.88	170	1.86	77	2.64	145	1.28	36	1.05	22

NORTH FORK JONES CREEK NEAR WADESBORO, N. C.

LOCATION.—Lat. 34°55'20", long. 80°04'05", 300 feet downstream from county highway bridge, 3½ miles south of Wadesboro, Anson County, and 5½ miles upstream from confluence with South Fork.

DRAINAGE AREA.—10.0 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Aug. 6-8 and Aug. 14 to Sept. 25.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 320 second-feet and extended to 1937 and 1939 crest gage heights on basis of computation of flood-flow over concrete control.

MAXIMA.—1940: Discharge, 219 second-feet Aug. 14 (gage height, 2.48 feet, from recorded range in stage).

1935-39: Discharge, 2,410 second-feet June 4, 1937 and July 20, 1939; gage height, 6.39 feet June 4, 1937.

REMARKS.—Flood runoff unaffected by artificial storage except for small rises, which might be slightly affected by a small reservoir a short distance above station where Wadesboro diverts about 0.3 second-foot for water supply.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	0.2	1.0	9	.2	.2	17	10	.2	25	.4	.2
2	.2	.6	10	.3	.2	18	5.0	.2	26	.4	.2
3	.2	.4	11	1.0	.2	19	2.0	.2	27	.4	.2
4	.2	.3	12	2.5	.2	20	1.0	.2	28	.4	.2
5	.2	.2	13	1.3	.2	21	.8	.2	29	.4	.2
6	.2	.2	14	80	.2	22	.6	.2	30	17	.2
7	.2	.2	15	40	.2	23	.5	.2	31	5.0	-----
8	.2	.2	16	25	.2	24	.4	.2			
Monthly mean discharge, in second-feet										6.33	0.25
Runoff, in inches										0.73	0.03

JUNIPER CREEK NEAR CHERAW, S. C.

LOCATION.—Lat. 34°39', long. 79°54', at spillway of Eureka Lake Dam, 1½ miles

upstream from mouth and $3\frac{1}{2}$ miles south of Cheraw, Chesterfield County.

DRAINAGE AREA.—64 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

Shifting-control method used Aug. 1-31.

MAXIMA.—1940: Discharge, 256 second-feet 4-7 a.m. Aug. 16 (gage height, 1.06 feet.)

REMARKS.—Runoff slightly affected by artificial storage in Eureka Lake.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	8.6		9	28.3		17	211		25	22.4	
2	9.7		10	25.6		18	159		26	20.1	
3	9.7		11	31		19	112		27	19.4	
4	11.4		12	47		20	68		28	18.6	
5	14.5		13	68		21	41		29	17.9	
6	15.2		14	100		22	32		30	30	
7	21.6		15	194		23	26.5		31	57	
8	29.2		16	243		24	23.2				
Monthly mean discharge, in second-feet.....										55.3	
Runoff, in inches.....										1.00	

LYNCHEs RIVER AT EFFINGHAM, S. C.

LOCATION.—Lat. $34^{\circ}03'$, long. $79^{\circ}45'$, at steel bridge on U. S. Highway 52, 75 feet upstream from Atlantic Coast Line Railroad bridge and 1 mile south of Effingham, Florence County. Datum of gage is 58.49 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,030 square miles. (1942 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,900 second-feet and extended to crest gage height.

MAXIMA.—1940: Discharge, 1,980 second-feet 10 p.m. Aug. 18 (gage-height, 9.43 feet).

1929-39: Discharge observed, 15,200 second-feet Oct. 7, 1929 (gage height, 19.25 feet).

1891-1929: Stage known, 20.0 feet Aug. 30, 1908, from records of U. S. Weather Bureau (discharge, 18,000 second-feet).

REMARKS.—Runoff not affected by artificial storage or diversion. Natural storage in swampy area.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	156	258	9	192	312	17	1,840	222	25	764	170
2	154	258	10	204	284	18	1,940	216	26	417	167
3	162	288	11	272	312	19	1,910	202	27	348	162
4	198	370	12	320	319	20	1,660	196	28	318	164
5	210	434	13	313	291	21	1,460	190	29	295	170
6	210	451	14	436	256	22	1,420	183	30	280	183
7	198	342	15	1,670	242	23	1,520	183	31	272	
8	204	334	16	1,770	235	24	1,400	176			
Monthly mean discharge, in second-feet.....										726	252
Runoff, in inches.....										0.81	0.27

LITTLE PEE DEE RIVER NEAR DILLON, S. C.

LOCATION.—Lat. $34^{\circ}24'$, long. $79^{\circ}20'$, at bridge on State Highway 9, 1.1 miles east of Dillon, Dillon County, and 3 miles upstream from Maple Swamp.

DRAINAGE AREA.—524 square miles.

GAGE-HEIGHT RECORD.—Wire-weight gage read twice daily to hundredths except

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Aug. 23. Record for Aug. 14, 15 obtained from graph based on twice-daily gage readings. Record for Aug. 23 obtained from graph based on record for adjacent days.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,400 second-feet and extended to crest gage height by logarithmic plotting.

MAXIMA.—August 1940: Discharge observed, 797 second-feet 6 p.m. Aug. 19 (gage height, 7.94 feet).

1939 to July 1940: Discharge, 2,910 second-feet July 24, 1939 (gage height, 10.18 feet, from graph based on gage readings).

REMARKS.—Runoff not affected by artificial storage or diversion. Natural storage in swampy areas.

Mean discharge, in second-feet, 1940

[illegible]

DROWNING CREEK NEAR HOFFMAN, N. C.
(Head of Lumber River)

LOCATION.—Lat. 35°03'35", long. 79°29'35", at bridge on U. S. Highway 1, about three-quarters of a mile downstream from Deep Creek, about 1 mile upstream from Seaboard Railway bridge, and 4 miles northeast of Hoffman, Richmond County.

DRAINAGE AREA.—178 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 600 second-feet. Gage heights used to half-tenths between 2.3 and 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 354 second-feet 9 a.m. Aug. 18 (gage height, 5.07 feet).

1939 to July 1940: Discharge, 435 second-feet Feb. 22, 1940 (gage height, 5.28 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

LOCATION.—Lat. 34°26'40", long. 78°56'35", at State highway bridge, 1 mile downstream from Atlantic Coast Line Railroad bridge at Boardman, Columbus County, and 1½ miles downstream from Big Swamp. Datum of gage is 72.05 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department).

11-28. Mean of twice-daily readings used Aug. 1-10 and Aug. 29 to Sept. 30.

MAXIMA.—August 1940: Discharge, 763 second-feet 12 m. Aug. 20 (gage height, 4.00 feet).

1929 to July 1940: Discharge, 12,600 second-feet Mar. 4, 1939 (gage height, 10.35 feet).

Stage known, 11.8 feet sometime in August 1928, from flood reference mark as witnessed by local resident (discharge, estimated, 25,000 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	145	254	9	226	214	17	516	190	25	668	145
2	156	240	10	190	202	18	638	190	26	656	145
3	167	226	11	202	202	19	729	178	27	623	134
4	167	226	12	240	214	20	760	178	28	558	134
5	167	226	13	300	202	21	738	167	29	414	145
6	178	240	14	334	202	22	702	156	30	348	156
7	190	240	15	372	202	23	686	156	31	284	-----
8	240	214	16	448	202	24	668	145			
Monthly mean discharge, in second-feet -----										410	191
Runoff, in inches -----										0.39	0.17

LOCATION.—Lat. 35°07'20", long. 79°32'25", at county highway bridge, 2 miles southwest of Roseland, Moore County, 2½ miles upstream from Horse Creek, and about 7 miles west of Aberdeen.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 47 second-feet.

MAXIMA.—1940: Discharge, 47 second-feet 11 p.m. Aug. 15 (gage height, 2.79 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	5.9	9.7	9	7.1	7.1	17	34	6.9	25	8.3	7.9
2	5.9	8.3	10	7.1	6.9	18	25	7.1	26	8.1	8.5
3	5.9	8.1	11	25	7.1	19	15	6.7	27	7.9	7.9
4	6.3	7.9	12	34	7.7	20	12	6.5	28	7.5	7.7
5	7.3	7.5	13	25	7.1	21	11	6.3	29	7.5	8.1
6	6.9	9.3	14	28	7.1	22	9.7	6.1	30	8.9	7.5
7	9.7	8.5	15	40	6.9	23	9.3	6.1	31	10	-----
8	9.9	7.5	16	45	6.9	24	8.7	6.3			
Monthly mean discharge, in second-feet -----										14.6	7.44
Runoff, in inches -----										0.89	0.44

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LITTLE RAFT SWAMP AT RED SPRINGS, N. C.

LOCATION.—Lat. 34°49'50", long. 79°10'55", at bridge on State Highway 71, at Red Springs, Robeson County, half a mile upstream from Atlantic Coast Line Railroad crossing, and three-quarters of a mile downstream from Graham Pond.

DRAINAGE AREA.—23.1 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Sept. 20-30.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 30 second-feet. Discharge for period of no gage-height record, Sept. 20-30, based on records for nearby streams.

MAXIMA.—1940: Discharge, 32 second-feet 2 a.m. Aug. 13 (gage height, 2.14 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

BLACK RIVER AT KINGSTREE, S. C.

LOCATION.—Lat. $33^{\circ}40'$, long. $79^{\circ}50'$, at highway bridge at Kingstree, Williamsburg County, a quarter of a mile downstream from Broad Swamp. Datum of gage is 25.66 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,260 square miles (1945 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9.900 second-feet and extended to crest stage.

MAXIMA.—August 1940: Discharge, 376 second-feet 11 p.m. Aug. 25 (gage height, 4.03 feet).

1929 to July 1940: Discharge, 12,200 second-feet Mar. 4, 1939 (gage height, 13.21 feet).

1893-1929: Stage known, 18.0 feet Sept. 21, 1928, from records of United States Weather Bureau (discharge, 41,600 second-feet).

REMARKS.—Runoff not affected by artificial storage or diversion. Natural storage in large swampy areas.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	6	153	9	6	51	17	216	48	25	368	28
2	5	126	10	6	45	18	232	44	26	368	24
3	5	106	11	8	42	19	227	40	37	354	22
4	5	91	12	10	44	20	239	40	28	310	23
5	8	80	13	11	57	21	245	38	29	263	24
6	8	72	14	15	66	22	257	36	30	222	20
7	6	65	15	70	61	23	296	34	31	183	-----
8	6	58	16	158	54	24	338	31			
Monthly mean discharge, in second-feet -----										143	54.1
Runnoff, in inches -----										0.13	0.05

SANTEE RIVER BASIN

CATAWBA RIVER AT BRIDGEWATER RESERVOIR,
NEAR BRIDGEWATER, N. C.

LOCATION.—Lat. $35^{\circ}44'40''$, long. $81^{\circ}50'35''$, at intake tower in Paddy-Linville division of Bridgewater Dam, 2 miles northeast of Bridgewater, Burke County. Datum of gage is 1,100 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—380 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillways and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 141,760 second-feet for hour ending 9 p.m. Aug. 13; outflow, 43,700 second-feet 2 to 3 a.m. Aug. 14; reservoir gage height, 106.1 feet 2 to 3 a.m. Aug. 14 (total contents, 14,402,000,000 cubic feet).

REMARKS.—Reservoir, first put in use May 5, 1919, is in two divisions, one on Catawba River and one on Paddy Creek and Linville River, connected by a canal; it has a total storage capacity of 12,582,000,000 cubic feet below 100 feet gage height (crest of spillways). Storage capacity under normal operation is 10,506,000,000 cubic feet above gage height of 60 feet in Catawba division and 20 feet in Paddy-Linville division. Records furnished by Duke Power Co.

Bridgewater Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September			Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)		Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)
1	93.6	10,865	340	101.3	12,955	6,310	16	100.9	12,839	5,900	96.0	11,487	1,810
2	93.6	10,865	160	100.8	12,810	4,810	17	100.5	12,725	3,620	95.5	11,355	2,060
3	93.6	10,865	0	100.4	12,696	3,320	18	100.4	12,696	1,980	94.9	11,199	2,150
4	93.6	10,865	200	100.0	12,582	2,370	19	100.1	12,610	2,380	94.3	11,044	2,100
5	93.7	10,890	0	99.7	12,497	2,040	20	99.9	12,554	1,430	93.8	10,916	1,750
6	93.5	10,840	540	99.3	12,385	2,040	21	99.7	12,497	1,280	93.8	10,916	770
7	93.4	10,814	550	99.1	12,329	1,590	22	99.5	12,441	1,370	93.7	10,890	350
8	93.3	10,789	510	99.2	12,357	320	23	99.3	12,385	1,350	93.5	10,840	1,140
9	93.2	10,764	410	99.0	12,301	1,540	24	99.2	12,357	560	93.3	10,789	770
10	93.1	10,739	330	98.5	12,163	2,020	25	99.1	12,329	1,000	93.2	10,764	860
11	93.2	10,764	470	98.1	12,053	2,050	26	98.8	12,246	1,710	93.0	10,713	710
12	93.8	10,916	0	97.6	11,916	2,060	27	98.3	12,108	2,100	92.8	10,663	810
13	105.8	14,308	5,120	97.1	11,781	2,100	28	97.8	11,971	2,110	92.8	10,663	180
14	102.9	13,424	28,950	96.6	11,647	1,750	29	98.2	12,080	2,110	92.8	10,663	350
15	101.7	13,071	11,400	96.4	11,593	1,080	30	102.7	13,365	8,460	92.7	10,638	620
							31	102.0	13,158	11,770	-----	-----	-----
											August	September	
Change in contents, equivalent, in second-feet.....											+856	—972	
Monthly mean outflow, in second-feet.....											3,165	1,728	
Monthly mean inflow, in second-feet.....											4,021	756	
Runoff, depth in inches, corresponding to inflow.....											12.22	2.22	

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 93.6 feet; contents, 10,865 million cubic feet.

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Bridgewater Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	93.24	10,773.9	690	0	93.96	10,956.5	6,360	0
2	93.25	10,776.4	690	0	94.05	10,979.5	6,390	0
3	93.26	10,778.9	690	0	94.14	11,002.5	6,390	0
4	93.27	10,781.4	690	0	94.23	11,025.6	6,420	0
5	93.28	10,784.0	720	0	94.32	11,048.7	6,420	0
6	93.29	10,786.5	690	0	94.41	11,071.9	6,440	0
7	93.30	10,789.0	690	0	94.50	11,095.1	6,440	0
8	93.31	10,791.5	690	0	94.60	11,120.9	7,170	0
9	93.32	10,794.0	690	0	94.70	11,146.7	7,170	0
10	93.33	10,796.6	720	0	94.81	11,179.2	9,030	0
11	93.34	10,799.1	690	0	95.00	11,224.6	12,610	0
N	93.35	10,801.6	690	0	95.20	11,276.7	14,470	0
1	93.36	10,804.1	690	0	95.50	11,355.2	21,810	0
2	93.37	10,806.6	690	0	95.85	11,447.3	25,580	0
3	93.39	10,811.7	1,420	0	96.30	11,566.5	33,110	0
4	93.42	10,819.3	2,110	0	96.80	11,700.1	37,110	0
5	93.45	10,826.9	2,110	0	97.80	11,970.7	76,270	2,200
6	93.48	10,834.4	2,083	0	99.10	12,329.2	101,730	2,100
7	93.52	10,844.6	2,830	0	100.70	12,781.7	128,040	2,600
8	93.56	10,854.7	2,810	0	102.30	13,246.6	133,190	5,500
9	93.60	10,864.9	2,830	0	103.90	13,724.0	141,760	12,800
10	93.69	10,887.7	6,330	0	104.90	14,029.0	100,920	19,600
11	93.78	10,910.6	6,360	0	105.50	14,214.8	80,210	37,600
12	93.87	10,933.6	6,390	0	105.80	14,308.0	64,940	40,500
Hour	Aug. 14				Aug. 15			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	106.00	14,370.1	58,900	42,800	102.87	13,415.1	12,720	15,020
2	106.10	14,401.6	52,000	43,700	102.84	13,406.2	12,460	14,840
3	106.10	14,401.6	43,700	43,700	102.81	13,397.4	12,310	14,660
4	106.00	14,370.1	34,450	42,700	102.78	13,388.5	12,090	14,460
5	105.90	14,339.0	33,460	41,500	102.74	13,376.6	11,010	14,180
6	105.65	14,261.4	18,670	38,950	102.70	13,364.8	10,760	13,900
7	105.40	14,183.8	16,160	36,500	102.63	13,344.1	7,940	13,480
8	105.20	14,121.7	18,250	34,500	102.56	13,323.4	7,500	13,020
9	105.00	14,059.5	16,270	32,600	102.48	13,299.8	6,180	12,460
10	104.85	14,013.7	19,210	31,250	102.40	13,276.1	5,600	11,900
11	104.70	13,967.9	17,800	29,800	102.35	13,261.4	7,650	11,550
N	104.55	13,922.1	16,430	28,500	102.30	13,246.6	7,260	11,200
1	104.40	13,876.2	15,100	27,200	102.25	13,231.8	6,970	10,950
2	104.25	13,830.4	13,880	26,000	102.20	13,217.0	6,710	10,700
3	104.10	13,784.6	12,580	24,600	102.15	13,202.2	6,440	10,400
4	103.95	13,739.0	11,330	23,400	102.10	13,187.5	6,220	10,200
5	103.80	13,693.9	10,220	22,100	102.05	13,172.7	5,920	9,850
6	103.65	13,648.8	9,000	20,950	102.00	13,157.9	5,560	9,500
7	103.50	13,603.7	7,840	19,800	101.95	13,143.4	5,320	9,200
8	103.35	13,558.6	6,620	18,500	101.90	13,128.9	5,020	8,900
9	103.20	13,513.6	5,500	17,500	101.85	13,114.3	4,720	8,650
10	103.10	13,483.5	8,790	16,800	101.80	13,099.8	4,490	8,400
11	103.00	13,453.5	8,120	16,100	101.75	13,085.3	4,250	8,150
12	102.90	13,423.9	7,480	15,300	101.70	13,070.8	3,990	7,900
Hour	Aug. 16				Aug. 16—Con.			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Outflow (second- feet)
1	101.66	13,059.2	4,630	7,800	1	101.26	12,942.9	2,610
2	101.62	13,047.5	4,430	7,550	2	101.23	12,934.2	3,250
3	101.58	13,035.9	4,230	7,350	3	101.20	12,925.5	3,110
4	101.55	13,027.2	4,850	7,200	4	101.16	12,913.9	2,150
5	101.52	13,018.5	4,710	7,050	5	101.13	12,905.1	2,810
6	101.49	13,009.8	4,550	6,900	6	101.10	12,896.4	2,730
7	101.46	13,001.1	4,410	6,750	7	101.06	12,884.8	1,810
8	101.43	12,992.3	4,230	6,600	8	101.03	12,876.1	2,430
9	101.40	12,983.6	4,110	6,450	9	101.00	12,867.4	2,250
10	101.36	12,972.0	3,100	6,200	10	100.96	12,856.0	1,360
11	101.33	12,963.2	3,690	6,050	11	100.93	12,847.4	2,030
N	101.30	12,954.5	3,550	5,900	12	100.90	12,838.8	1,960

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 93.23 feet; contents 10,771.4 million cubic feet.

CATAWBA RIVER AT RHODHISS RESERVOIR, AT RHODHISS, N. C.

LOCATION.—Lat. 35°46'30", long. 81°26'25", at powerhouse forebay at Rhodhiss Dam, three-quarters of a mile west of Rhodhiss, Caldwell County, and 2 miles upstream from Carolina & Northwestern Railway bridge. Datum of gage is 895.0 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—1,088 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 167,740 second-feet for hour ending 12 p.m. Aug. 13; outflow, 104,000 second-feet 4 a.m. Aug. 14; reservoir gage height, 110.1 feet 4 to 6 a.m. Aug. 14 (contents, 3,560,000,000 cubic feet above gage height 85.0 feet).

REMARKS.—Reservoir, first put in use Feb. 18, 1925, has a storage capacity under normal operation of 1,717,000,000 cubic feet between gage heights 85.0 and 100.0 feet (crest of spillway). River also affected by storage in Bridgewater Reservoir upstream having a storage capacity under normal operation of 10,506,000,000 cubic feet. Records furnished by Duke Power Co.

Rhodhiss Reservoir, gage height and contents at midnight and mean outflow, 1940

Day	August			September			Day	August			September		
	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)		Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)	Gage height (feet)	Contents (million cubic feet)	Out-flow (second-feet)
1	90.2	477	1,090	101.7	1,986	9,430	16	101.1	1,889	10,000	96.2	1,177	3,360
2	89.7	427	1,090	100.8	1,842	7,200	17	100.8	1,842	5,990	95.7	1,112	3,270
3	90.1	467	0	100.2	1,748	5,590	18	100.6	1,811	4,050	95.9	1,137	2,500
4	90.5	508	0	99.9	1,702	4,200	19	99.9	1,702	5,400	96.0	1,150	2,850
5	90.0	457	1,190	99.5	1,641	3,930	20	99.0	1,567	4,440	95.7	1,112	3,000
6	89.4	398	1,200	99.1	1,582	3,780	21	98.1	1,436	3,480	96.0	1,150	1,080
7	89.5	408	1,090	99.3	1,611	2,410	22	97.5	1,352	3,350	96.7	1,243	0
8	89.5	408	980	99.2	1,597	1,600	23	96.7	1,243	3,420	96.5	1,216	1,800
9	89.3	388	1,070	98.0	1,422	3,830	24	97.9	1,408	220	95.8	1,124	2,320
10	89.7	427	0	97.5	1,352	3,640	25	98.6	1,509	880	95.3	1,060	2,000
11	90.7	528	0	96.6	1,230	4,100	26	98.0	1,422	3,400	95.1	1,035	1,470
12	90.8	539	1,330	95.8	1,124	3,830	27	97.0	1,283	4,130	94.7	985	1,690
13	107.1	2,959	5,810	95.0	1,022	3,820	28	96.7	1,243	3,460	95.5	1,086	0
14	105.8	2,708	79,820	96.3	1,190	1,050	29	97.1	1,297	2,760	96.1	1,163	0
15	102.2	2,069	25,200	96.9	1,270	1,110	30	103.6	2,307	10,400	95.4	1,073	1,840
							31	102.5	2,119	18,640			
											Au- gust	Sep- tember	
Change in contents, equivalent, in second-feet.....											+609	—404	
Monthly mean outflow, in second-feet.....											6,577	2,090	

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 90.3 feet; contents, 488 million cubic feet.

222 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Rhodhiss Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Aug. 12					Aug. 13				
Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	
1	90.75	533.6	1,470	0	90.90	549.4	2,940	0	
2	90.80	538.8	1,440	0	91.00	560.0	2,940	0	
3	90.85	544.1	1,470	0	91.10	570.6	2,940	0	
4	90.90	549.4	1,470	0	91.20	581.3	2,970	0	
5	90.95	554.7	1,470	0	91.30	592.0	2,970	0	
6	90.97	556.8	1,210	1,250	91.40	602.7	3,520	1,100	
7	90.98	557.9	1,560	1,250	91.50	613.5	4,050	1,000	
8	90.99	558.9	1,680	1,550	91.60	624.3	4,130	1,250	
9	91.00	560.0	2,010	1,850	91.65	629.8	2,750	1,200	
10	91.00	560.0	1,850	1,850	91.70	635.2	2,730	1,250	
11	90.96	555.8	680	1,850	91.80	646.1	4,230	1,150	
N	90.90	549.4	840	3,400	91.90	657.0	4,380	1,550	
1	90.85	544.1	1,380	2,300	92.00	668.0	4,480	1,300	
2	90.80	538.8	1,110	2,850	92.30	701.4	10,630	1,400	
3	90.76	534.6	1,750	3,000	92.60	735.2	10,770	1,350	
4	90.73	531.5	2,020	2,750	92.90	769.5	10,880	1,350	
5	90.71	529.4	1,420	1,250	93.40	827.6	17,640	1,650	
6	90.70	528.3	960	1,300	93.80	875.0	16,540	5,100	
7	90.68	526.2	800	1,450	94.70	984.6	35,690	5,400	
8	90.66	524.1	990	1,700	96.50	1,216.2	69,680	5,300	
9	90.64	522.0	920	1,300	99.50	1,641.1	122,530	3,700	
10	90.65	523.1	1,510	1,100	102.10	2,052.0	121,840	11,700	
11	90.70	528.3	1,990	0	104.80	2,522.0	153,110	33,400	
12	90.80	538.8	2,920	0	107.10	2,959.0	167,740	59,300	
Aug. 14					Aug. 15				
1	108.6	3,260.0	153,510	80,500	105.6	2,670.0	32,490	41,800	
2	109.5	3,440.0	137,400	94,300	105.4	2,633.0	30,470	39,700	
3	109.9	3,520.0	119,620	100,500	105.2	2,595.0	28,190	37,800	
4	110.1	3,560.0	113,360	104,000	105.0	2,558.0	26,320	35,400	
5	110.1	3,560.0	103,850	103,700	104.8	2,522.0	24,400	33,400	
6	110.1	3,560.0	103,750	103,800	104.6	2,486.0	22,450	31,500	
7	110.0	3,540.0	97,990	103,300	104.6	2,486.0	31,000	30,500	
8	109.8	3,500.0	91,440	101,800	104.5	2,468.0	26,000	31,500	
9	109.5	3,440.0	82,930	97,400	104.5	2,468.0	31,650	31,800	
10	109.3	3,400.0	84,740	94,300	104.1	2,395.0	9,670	28,100	
11	109.0	3,340.0	75,280	89,600	103.8	2,342.0	11,830	25,000	
N	108.8	3,300.0	76,890	86,400	103.7	2,325.0	19,880	24,200	
1	108.6	3,260.0	73,840	83,500	103.5	2,290.0	13,580	22,400	
2	108.3	3,200.0	64,630	79,100	103.4	2,273.0	17,330	21,700	
3	108.0	3,140.0	60,280	74,800	103.2	2,238.0	11,630	21,000	
4	107.7	3,079.0	55,760	70,600	103.0	2,203.0	10,580	19,600	
5	107.5	3,039.0	58,140	67,900	102.9	2,186.0	14,480	18,800	
6	107.2	2,979.0	49,380	64,200	102.8	2,169.0	13,630	17,900	
7	107.0	2,939.0	51,540	61,100	102.8	2,169.0	17,650	17,400	
8	106.7	2,881.0	43,340	57,800	102.6	2,136.0	8,030	17,000	
9	106.5	2,842.0	45,520	54,900	102.5	2,119.0	11,480	15,400	
10	106.2	2,784.0	36,540	50,400	102.4	2,102.0	10,730	15,500	
11	106.0	2,745.0	38,120	47,500	102.3	2,085.0	10,080	14,100	
12	105.8	2,708.0	35,620	44,300	102.2	2,069.0	9,260	13,300	
Aug. 16					Aug. 16—Con.				
Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	102.2	2,069.0	13,350	13,000	1	101.5	1,954.0	9,800	10,000
2	102.1	2,052.0	8,030	12,500	2	101.5	1,954.0	9,700	9,400
3	102.1	2,052.0	12,500	12,500	3	101.4	1,938.0	4,960	9,400
4	102.0	2,035.0	7,480	11,900	4	101.3	1,922.0	4,610	8,700
5	102.0	2,035.0	11,900	11,900	5	101.3	1,922.0	9,000	9,300
6	101.9	2,019.0	7,260	11,500	6	101.2	1,905.0	4,330	8,800
7	101.8	2,003.0	6,510	10,400	7	101.2	1,905.0	8,750	8,700
8	101.8	2,003.0	11,050	11,700	8	101.2	1,905.0	8,750	8,800
9	101.7	1,986.0	6,780	11,300	9	101.1	1,889.0	3,860	7,800
10	101.6	1,970.0	6,560	10,700	10	101.1	1,889.0	7,500	7,200
11	101.6	1,970.0	10,600	10,500	11	101.1	1,889.0	7,000	6,800
N	101.5	1,954.0	5,610	9,600	12	101.1	1,889.0	7,150	7,500

Gage heights from graph based on hourly observations.
 SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height 90.70 feet; contents 528.3 million cubic feet.

CATAWBA RIVER AT OXFORD RESERVOIR, NEAR TAYLORSVILLE, N. C.

LOCATION.—Lat. 35°49', long. 81°12', at powerhouse forebay at Oxford Dam, 2 miles upstream from Lower Little River, and 7 miles south of Taylorsville, Alexander County. Datum of gage is 835.0 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—1,310 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for flood gates and manufacturer's rating for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 183,620 second-feet for hour ending 4 a.m. Aug. 14; outflow, 158,060 second-feet 5 a.m. Aug. 14; reservoir gage height, 104.7 feet 4 to 5 a.m. Aug. 14 (total contents, 6,381,000,000 cubic feet).

REMARKS.—Reservoir, first put in use Apr. 5, 1928, has a total storage capacity of 5,553,000,000 cubic feet below gage height of 100.0 feet (top of flood gates in closed position) and a storage capacity under normal operation of 2,278,000,000 cubic feet between gage heights 85.0 and 100.0 feet. River also affected by storage in Bridgewater and Rhodhiss Reservoirs upstream having a combined storage capacity under normal operation of 12,223,000,000 cubic feet. Records furnished by Duke Power Co.

Oxford Reservoir, gage height and contents, at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	93.8	1,240	99.9	2,230	16	99.0	2,101	97.6	1,859
2	93.8	1,240	99.9	2,260	17	99.8	2,242	97.1	1,775
3	93.8	1,240	99.6	2,206	18	98.7	2,048	96.3	1,641
4	93.5	1,193	99.6	2,206	19	99.5	2,189	96.0	1,592
5	93.4	1,178	99.6	2,206	20	99.5	2,189	95.6	1,527
6	93.3	1,162	99.5	2,189	21	99.7	2,224	95.5	1,510
7	93.0	1,116	99.4	2,171	22	99.7	2,224	95.5	1,510
8	92.7	1,070	99.4	2,171	23	99.6	2,206	95.1	1,446
9	92.8	1,085	99.0	2,101	24	99.1	2,118	95.4	1,494
10	92.8	1,085	98.7	2,043	25	99.3	2,153	95.7	1,543
11	92.6	1,055	98.5	2,014	26	99.5	2,189	95.6	1,527
12	92.7	1,070	98.2	1,962	27	99.6	2,206	95.4	1,494
13	100.0	2,278	98.0	1,927	28	99.6	2,206	95.4	1,494
14	99.2	2,136	97.7	1,876	29	99.5	2,189	95.4	1,494
15	99.9	2,260	97.7	1,876	30	99.9	2,260	95.3	1,478
					31	99.9	2,260		
Change in contents, equivalent, in second-feet								August	September
								+381	—302

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 93.8 feet; contents, 1,240 million cubic feet.

224 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Oxford Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	92.52	1,042.6	830	0	92.65	1,062.4	420	0
2	92.54	1,045.7	860	0	92.66	1,063.9	420	0
3	92.56	1,048.7	830	0	92.67	1,065.4	420	0
4	92.57	1,050.2	420	0	92.68	1,067.0	440	0
5	92.58	1,051.8	440	0	92.69	1,068.5	420	0
6	92.60	1,054.8	830	0	92.70	1,070.0	420	0
7	92.60	1,054.8	1,350	2,700	92.71	1,071.5	1,770	2,700
8	92.57	1,050.2	1,520	2,900	92.72	1,073.0	3,120	2,700
9	92.54	1,045.7	1,650	2,900	92.73	1,074.6	3,240	2,900
10	92.50	1,039.6	1,210	2,900	92.74	1,076.1	3,320	2,900
11	92.46	1,033.6	1,230	2,900	92.75	1,077.6	3,320	2,900
N	92.42	1,027.5	1,210	2,900	92.76	1,079.1	3,320	2,900
1	92.40	1,024.5	1,570	1,900	92.77	1,080.6	3,120	2,500
2	92.45	1,032.1	4,010	1,900	92.78	1,082.2	2,940	2,500
3	92.50	1,039.6	3,930	1,800	92.79	1,083.7	2,920	2,500
4	92.55	1,047.2	3,910	1,800	92.80	1,085.2	2,970	2,600
5	92.60	1,054.8	3,710	1,400	92.84	1,091.3	4,240	2,500
6	92.605	1,055.6	1,670	1,500	92.88	1,097.4	4,390	2,900
7	92.610	1,056.3	1,690	1,500	92.92	1,103.6	4,570	2,800
8	92.615	1,057.1	1,920	1,900	93.00	1,115.8	6,190	2,800
9	92.62	1,057.8	2,040	1,800	93.50	1,193.0	24,240	2,800
10	92.625	1,058.6	1,770	1,300	94.70	1,381.6	55,190	2,800
11	92.63	1,059.4	870	0	97.60	1,859.1	135,540	3,000
12	92.64	1,060.9	420	0	100.0	2,277.8	119,310	3,000

Hour	Aug. 14				Aug. 15			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	101.1	2,467.0	76,700	45,280	98.8	2,065.7	37,260	56,300
2	102.0	2,620.0	106,340	82,400	98.8	2,065.7	48,480	40,650
3	103.6	2,908.0	180,600	118,790	98.8	2,065.7	40,650	40,650
4	104.7	3,106.0	183,620	138,450	98.8	2,065.7	40,650	40,650
5	104.7	3,106.0	148,250	158,060	98.8	2,065.7	35,710	30,770
6	104.3	3,034.0	136,360	154,650	98.8	2,065.7	28,940	27,120
7	103.7	2,926.0	122,850	151,060	99.0	2,100.7	36,870	27,170
8	103.0	2,800.0	113,680	146,300	99.0	2,100.7	27,120	27,070
9	102.7	2,746.0	130,600	144,890	99.1	2,118.2	29,150	21,510
10	102.0	2,620.0	107,600	140,310	99.2	2,135.8	26,420	21,560
11	101.4	2,518.0	110,070	136,500	99.3	2,153.4	26,580	21,810
N	100.7	2,398.3	100,810	131,610	99.3	2,153.4	21,810	21,810
1	100.3	2,329.5	101,540	109,700	99.3	2,153.4	21,810	21,810
2	100.1	2,295.0	92,700	94,860	99.3	2,153.4	21,810	21,810
3	100.0	2,277.8	87,510	89,710	99.4	2,171.1	26,760	21,870
4	100.0	2,277.8	77,360	65,010	99.4	2,171.1	21,870	21,870
5	100.0	2,277.8	65,010	65,010	99.4	2,171.1	21,870	21,870
6	100.0	2,277.8	70,250	75,500	99.4	2,171.1	21,870	21,870
7	100.0	2,277.8	75,400	75,300	99.4	2,171.1	21,870	21,870
8	99.7	2,224.3	60,030	74,480	99.4	2,171.1	16,750	11,640
9	99.4	2,171.1	54,200	63,470	99.4	2,171.1	11,640	11,640
10	99.3	2,153.4	55,500	57,370	99.5	2,188.8	13,590	5,700
11	99.2	2,135.8	52,320	57,060	99.7	2,224.3	14,960	4,500
12	99.2	2,135.8	57,110	57,160	99.9	2,259.9	14,440	4,600

Hour	Aug. 16				Hour	Aug. 16—Con.			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)		Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	100.00	2,277.8	12,800	11,050	1	99.20	2,135.8	12,610	17,500
2	100.00	2,277.8	10,900	10,750	2	99.10	2,118.2	9,680	11,650
3	100.00	2,277.8	13,770	16,800	3	99.09	2,116.5	10,380	10,050
4	99.93	2,265.3	13,580	17,300	4	99.08	2,114.7	9,950	10,850
5	99.86	2,252.8	13,830	17,300	5	99.06	2,111.2	9,830	10,750
6	99.80	2,242.1	14,050	16,750	6	99.04	2,107.7	9,750	10,700
7	99.74	2,231.4	13,700	16,600	7	99.03	2,106.0	9,980	10,200
8	99.66	2,217.2	12,560	16,400	8	99.02	2,104.2	9,700	10,200
9	99.58	2,203.0	13,060	17,600	9	99.01	2,102.5	9,730	10,200
10	99.50	2,188.8	13,640	17,550	10	99.00	2,100.7	9,600	10,000
11	99.40	2,171.1	12,680	17,650	11	99.00	2,100.7	10,050	10,100
N	99.30	2,153.4	12,650	17,500	12	99.00	2,100.7	10,100	10,100

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 92.5 feet; contents, 1,039.6 million cubic feet.

**CATAWBA RIVER AT LOOKOUT SHOALS RESERVOIR,
NEAR CATAWBA, N. C.**

LOCATION.—Lat. 35°46', long. 81°06', at powerhouse forebay at Lookout Shoals Dam, 4 miles upstream from bridge on U. S. Highways 64 and 70, and 4¼ miles north of Catawba, Catawba County. Datum of gage is 738.0 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—1,449 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 191,230 second-feet for hour ending 6 a.m. Aug. 14; outflow, 177,400 second-feet 6 a.m. Aug. 14; reservoir gage height, 114.4 feet 6 to 8 a.m. Aug. 14 (total contents, 2,183,000,000 cubic feet).

1915-40: Discharge 180,000 second-feet July 16, 1916, just prior to failure of earth dike.

REMARKS.—Reservoir, first put in use Dec. 2, 1915, has a total storage capacity of 1,355,000,000 cubic feet below gage height of 100.0 feet (crest of spillway) and a storage capacity of 474,000,000 cubic feet under normal operation between gage heights 90.0 and 100.0 feet. River affected by storage in Bridgewater, Rhodhiss, and Oxford Reservoirs upstream which have a combined storage capacity under normal operation of 14,501,000,000 cubic feet. Records furnished by Duke Power Co.

Lookout Shoals Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	97.2	326	101.9	577	16	102.3	598	97.5	342
2	97.2	326	101.2	539	17	101.0	528	97.5	342
3	97.1	321	101.0	528	18	102.1	588	97.9	363
4	98.1	373	100.2	485	19	100.6	506	95.9	261
5	98.1	373	100.2	485	20	100.8	517	97.6	347
6	98.1	373	99.6	453	21	99.9	469	98.2	379
7	98.2	379	99.1	426	22	99.8	463	98.0	368
8	98.0	368	97.9	363	23	99.4	442	99.0	421
9	97.4	337	98.7	405	24	97.6	347	98.3	384
10	97.1	321	99.0	421	25	97.4	337	97.1	321
11	97.7	352	99.3	437	26	98.5	394	96.8	306
12	97.9	363	99.5	448	27	99.8	463	97.4	337
13	98.9	416	99.0	421	28	100.3	490	97.5	342
14	107.9	916	97.2	326	29	100.0	474	97.8	358
15	102.6	615	97.4	337	30	103.0	637	97.5	342
					31	103.5	665		
Change in contents, equivalent, in second-feet								August	September
								+128	-125

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 97.1 feet; contents, 321 million cubic feet.

226 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Lookout Shoals Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13				
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	
1	97.88	361.8	300	600	97.88	361.8	820	900	
2	97.86	360.7	290	600	97.86	360.7	590	900	
3	97.84	359.7	320	600	97.84	359.7	620	900	
4	97.82	358.6	290	600	97.80	357.6	320	900	
5	97.80	357.6	320	600	97.75	355.0	180	900	
6	97.78	356.6	320	600	97.70	352.4	180	900	
7	97.75	355.0	210	700	97.65	349.8	180	900	
8	97.70	352.4	230	1,200	97.60	347.2	380	1,300	
9	97.60	347.2	110	1,900	97.55	344.6	1,030	2,200	
10	97.50	342.0	510	2,000	97.50	342.0	1,430	2,100	
11	97.40	336.8	560	2,000	97.50	342.0	2,100	2,100	
N	97.45	339.4	2,720	2,000	97.60	347.2	3,540	2,100	
1	97.50	342.0	2,670	1,900	97.70	352.4	3,390	1,800	
2	97.60	347.2	3,340	1,900	97.80	357.6	3,240	1,800	
3	97.70	352.4	3,340	1,900	97.90	362.8	3,240	1,800	
4	97.75	355.0	2,620	1,900	98.00	368.0	3,290	1,900	
5	97.80	357.6	2,270	1,200	98.00	368.0	2,000	2,100	
6	97.85	360.2	1,920	1,200	98.00	368.0	3,100	4,100	
7	97.88	361.8	1,640	1,200	98.00	368.0	4,050	4,000	
8	97.90	362.8	1,530	1,300	98.00	368.0	4,000	4,000	
9	97.90	362.8	1,300	1,300	98.00	368.0	4,000	4,000	
10	97.90	362.8	1,200	1,200	98.00	368.0	4,000	4,000	
11	97.90	362.8	1,300	1,300	98.00	368.0	4,050	4,100	
12	97.90	362.8	1,300	1,300	98.90	415.7	17,350	4,100	
Aug. 14					Aug. 15				
1	100.0	474.0	20,090	3,700	107.7	904.6	61,480	63,500	
2	103.2	648.2	57,490	14,500	107.6	898.8	61,240	62,200	
3	107.4	887.2	104,940	62,600	107.0	864.0	49,030	55,200	
4	109.9	1,033.1	119,730	95,800	106.6	841.2	46,570	50,600	
5	112.4	1,182.0	158,460	138,400	106.4	829.8	46,330	48,400	
6	114.4	1,302.0	191,230	177,400	105.9	801.3	37,780	43,000	
7	114.4	1,302.0	176,500	175,600	105.5	778.5	35,370	40,400	
8	114.4	1,302.0	175,800	176,000	105.3	767.1	35,980	37,900	
9	113.9	1,272.0	162,420	165,500	105.1	755.7	33,930	36,300	
10	113.3	1,236.0	149,750	154,000	104.9	744.3	32,680	35,400	
11	112.7	1,200.0	138,500	143,000	104.7	732.9	31,430	33,800	
N	112.1	1,164.0	127,500	132,000	104.5	721.5	29,780	32,100	
1	111.5	1,128.0	116,450	120,900	104.4	715.8	29,870	30,800	
2	111.0	1,098.0	108,520	112,800	104.3	710.1	29,020	30,400	
3	110.0	1,039.0	88,610	97,200	104.2	704.4	28,370	29,500	
4	109.0	980.0	73,460	82,500	104.2	704.4	29,400	29,300	
5	108.7	962.6	75,220	77,600	104.2	704.4	29,350	29,400	
6	108.7	962.6	76,550	75,500	104.2	704.4	29,400	29,400	
7	108.8	968.4	77,860	77,000	104.2	704.4	29,400	29,400	
8	108.8	968.4	77,000	77,000	104.1	698.7	27,420	28,600	
9	108.8	968.4	77,000	77,000	103.9	687.4	24,660	27,000	
10	108.6	956.8	72,530	74,500	103.5	665.0	19,180	23,800	
11	108.4	945.2	69,780	71,500	103.0	637.0	14,320	20,400	
12	107.9	916.2	60,640	65,900	102.6	615.0	12,840	17,500	
Aug. 16					Aug. 16—Con.				
Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	102.3	598.5	11,920	15,500	1	103.4	659.4	24,000	23,700
2	102.2	593.0	13,670	14,900	2	103.3	653.8	22,090	23,600
3	102.1	587.5	13,070	14,300	3	103.2	648.2	21,790	23,100
4	102.4	604.0	19,930	16,400	4	102.9	631.5	17,260	20,700
5	102.6	615.0	20,110	17,700	5	102.7	620.5	16,890	19,200
6	103.0	637.0	25,060	20,200	6	102.7	620.5	19,250	19,300
7	103.1	642.6	21,860	20,400	7	102.5	609.5	15,340	17,500
8	103.0	637.0	18,590	19,900	8	102.5	609.5	17,550	17,600
9	103.1	642.6	21,860	20,700	9	102.5	609.5	17,600	17,600
10	103.1	642.6	20,700	20,700	10	102.5	609.5	17,500	17,400
11	103.2	648.2	22,610	21,400	11	102.5	609.5	17,400	17,400
N	103.4	659.4	25,960	24,300	12	102.3	598.5	13,590	15,900

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 97.88 feet; contents, 361.8 million cubic feet.

LOCATION.—Lat. $35^{\circ}42'50''$, long. $81^{\circ}04'10''$, just downstream from bridge on U. S. Highway 70, a quarter of a mile upstream from Lyle Creek, half a mile upstream from Southern Railway bridge, and 1 mile northeast of Catawba, Catawba County. Datum of gage is 746.49 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 6 a.m. to 3 p.m. Aug. 14, 4-8 a.m., 1-3 p.m. and 5-7 p.m. Aug. 15, 6 a.m. to 12 p.m. Aug. 16, 1-7 a.m. Aug. 23, 7-8 a.m. Aug. 24, 1-7 a.m. Sept. 1, 11 a.m. Sept. 2 to 7 a.m. Sept. 3, and 1-7 a.m. Sept. 15 when recorder clock was stopped after being submerged by the flood. Gage-height graph for these periods partly estimated on basis of United States Weather Bureau gage reading at 8 a.m. and flood-mark plotted to time of crest as reported by gage observer on Aug. 14, recorded range in gage heights and engineers' notes on Aug. 15, six gage readings on Aug. 16, and recorded range in gage heights on other days. No gage-height record of value for Aug. 17-22 and Sept. 4-14.

DISCHARGE RECORD.—Stage-discharge relation defined for present site by current-meter measurements up to 23,000 second-feet and extended to crest gage height on basis of computation of flow at gage heights 25.0 and 36.8 feet by Duke Power Co. at their Lookout Shoals plant about 4 miles upstream. Stage-discharge relation defined for site at Southern Railway bridge, half a mile downstream, by current-meter measurements up to 10,000 second-feet and extended above. Gage heights used to half-tenths between 4.0 and 5.7 feet; hundredths below and tenths above these limits. Discharge record for periods of no gage-height record, Aug. 17-22, Sept. 4-14, furnished by Duke Power Co. as computed for their Lookout Shoals power plant.

1896-1902, 1934-39: Discharge observed, 81,500 second-feet May 22, 1901 (gage height, 29.0 feet, former site and datum).

Stage known, 44.1 feet July 16, 1916, affected by failure of earth dike at Lookout Shoals Dam, from levels of State Bridge Department (discharge not determined).

REMARKS.—Flow affected by storage in Bridgewater, Rhodhiss, Oxford, and Lookout Shoals Reservoirs (combined storage capacity under normal operation, 14,975,000,000 cubic feet).

Mean discharge, in second-feet, 1940

[illegible]

228 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	2.29	142	3.86	1,470	7.62	7,250	24.60	60,900	10.30	11,800
2	2.65	295	3.68	1,250	9.20	9,940	25.90	56,800	9.40	10,300
3	3.05	565	3.61	1,160	16.70	26,100	23.10	52,800	9.10	9,770
4	3.12	630	3.57	1,110	23.70	55,800	22.3	48,800	9.30	10,100
5	3.12	630	3.58	1,130	28.30	89,700	21.5	44,800	9.90	11,100
6	3.14	650	3.64	1,200	31.4	120,000	20.8	41,600	10.6	12,400
7	3.16	670	3.66	1,220	33.2	138,000	20.0	38,000	11.1	13,300
8	3.21	720	3.72	1,290	35.0	158,000	19.50	35,800	11.5	14,000
9	3.40	920	4.00	1,650	35.9	168,000	18.70	32,600	11.8	14,600
10	4.05	1,720	4.55	2,400	36.50	174,000	18.00	30,100	12.0	15,000
11	4.46	2,260	4.69	2,620	36.75	177,000	17.23	27,600	12.25	15,400
N	4.52	2,330	4.72	2,620	36.75	177,000	16.50	25,500	12.5	16,000
1	4.53	2,400	4.58	2,470	36.4	173,000	15.80	23,700	12.6	16,200
2	4.22	1,910	4.72	2,620	33.8	144,000	15.50	23,000	12.7	16,400
3	4.40	2,190	4.84	2,840	31.4	120,000	15.30	22,500	12.65	16,200
4	4.46	2,260	4.88	2,920	29.70	103,000	15.05	21,800	12.5	16,000
5	4.50	2,330	4.86	2,840	28.70	93,300	14.95	21,800	12.2	15,400
6	4.52	2,330	5.00	3,070	27.70	84,300	14.9	21,600	11.8	14,600
7	4.26	1,980	5.90	4,450	27.28	81,000	14.9	21,600	11.1	13,300
8	4.15	1,840	6.10	4,780	26.98	78,600	14.72	21,100	10.5	12,200
9	4.10	1,780	6.18	4,940	26.68	76,200	14.20	19,900	10.0	11,300
10	4.07	1,720	6.34	5,100	26.12	71,400	13.45	18,000	9.5	10,400
11	4.03	1,720	6.98	6,260	25.56	67,800	12.45	15,800	9.2	9,940
12	3.96	1,600	7.72	7,420	25.00	63,600	11.45	13,900	8.9	9,430

SUPPLEMENTAL RECORD.—Aug. 14, 11:30 a.m., gage height, 36.8 feet (from floodmark), discharge, 177,000 second-feet.

**CATAWBA RIVER AT MOUNTAIN ISLAND RESERVOIR,
NEAR MOUNT HOLLY, N. C.**

LOCATION.—Lat. 35°20', long. 80°59', at powerhouse forebay at Mountain Island Dam, 1½ miles downstream from State Highway 16, and 3 miles northeast of Mount Holly, Gaston County. Datum of gage is 548.0 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—1,860 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and manufacturer's rating for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 124,230 second-feet for hour ending 1 a.m. Aug. 15; outflow, 117,200 second-feet 6 a.m. Aug. 15; reservoir gage height, 109.6 feet 5 to 8 a.m. Aug. 15 (contents, 3,444,000,000 cubic feet).

REMARKS.—Reservoir, first put in use Dec. 16, 1923, has a total storage capacity of 1,826,000,000 cubic feet between gage heights of about 76.0 and 100.0 feet (crest of spillway) and a usable storage capacity of 1,132,000,00 cubic feet between gage heights 90.0 and 100.0 feet. River affected by storage in Bridge-water, Rhodhiss, Oxford, and Lookout Shoals Reservoirs upstream having a combined capacity under normal operation of 14,975,00,000 cubic feet. Records furnished by Duke Power Co.

Mountain Island Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	96.1	1,321	101.8	2,089	16	102.0	2,120	96.1	1,321
2	96.3	1,345	100.1	1,839	17	101.0	1,969	95.1	1,204
3	97.0	1,430	99.6	1,771	18	100.6	1,911	94.7	1,160
4	97.0	1,430	98.8	1,663	19	99.8	1,799	95.2	1,216
5	95.3	1,228	97.7	1,519	20	99.2	1,716	95.7	1,274
6	94.5	1,138	97.0	1,430	21	98.5	1,623	97.0	1,430
7	94.2	1,105	99.1	1,703	22	96.6	1,381	97.2	1,455
8	93.9	1,072	99.5	1,758	23	95.4	1,239	95.9	1,297
9	94.1	1,094	97.7	1,519	24	97.5	1,494	96.0	1,309
10	95.2	1,216	97.0	1,430	25	98.5	1,623	95.5	1,250
11	95.7	1,274	96.1	1,321	26	95.2	1,216	95.7	1,274
12	94.8	1,171	94.8	1,171	27	92.8	958	95.1	1,204
13	95.2	1,216	94.2	1,105	28	92.9	968	96.0	1,309
14	109.0	3,330	96.9	1,418	29	93.8	1,062	96.1	1,321
15	105.5	2,690	98.0	1,557	30	92.1	888	94.2	1,105
					31	101.9	2,104		
Change in contents, equivalent, in second-feet.....						August		Sep-tember	
						+314		-385	

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 95.6 feet; contents, 1,262 million cubic feet.

230 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mountain Island Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	95.68	1,271.2	1,280	0	94.85	1,176.5	1,530	0
2	95.72	1,275.8	1,280	0	94.90	1,182.0	1,530	0
3	95.76	1,280.4	1,280	0	94.95	1,187.5	1,530	0
4	95.80	1,285.0	1,280	0	95.00	1,193.0	1,530	0
5	95.86	1,291.9	1,920	0	95.10	1,204.5	3,190	0
6	95.90	1,296.5	2,230	1,900	95.15	1,210.3	1,610	0
7	95.87	1,293.1	1,460	2,900	95.20	1,216.0	2,880	2,600
8	95.80	1,285.0	900	3,400	95.25	1,221.8	4,710	3,600
9	95.69	1,272.4	300	4,200	95.30	1,227.5	5,380	4,000
10	95.57	1,258.6	370	4,200	95.30	1,227.5	3,950	3,900
11	95.45	1,244.8	420	4,300	95.30	1,227.5	3,650	3,400
N	95.34	1,232.1	620	4,000	95.30	1,227.5	3,050	2,700
1	95.23	1,219.5	250	3,500	95.30	1,227.5	2,450	2,200
2	95.13	1,208.0	310	3,500	95.33	1,231.0	2,870	1,600
3	95.03	1,196.5	260	3,400	95.36	1,234.4	2,540	1,600
4	94.93	1,185.3	240	3,300	95.39	1,237.9	2,720	1,900
5	94.85	1,176.5	410	2,400	95.40	1,239.0	2,260	2,000
6	94.80	1,171.0	870	2,400	95.40	1,239.0	2,750	3,500
7	94.80	1,171.0	1,950	1,500	95.40	1,239.0	3,500	3,500
8	94.76	1,166.6	730	2,400	95.40	1,239.0	3,750	4,000
9	94.71	1,161.1	1,420	3,500	95.38	1,236.7	3,260	3,800
10	94.70	1,160.0	1,890	900	95.36	1,234.4	3,010	3,500
11	94.74	1,164.4	1,670	0	95.30	1,227.5	2,930	6,200
12	94.80	1,170.0	1,830	0	95.20	1,216.0	3,160	6,500

Hour	Aug. 14				Aug. 15			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	95.2	1,216.0	6,450	6,400	109.3	3,387.0	124,230	111,400
2	95.2	1,216.0	6,600	6,800	109.4	3,406.0	117,730	113,500
3	95.2	1,216.0	6,800	6,800	109.5	3,425.0	119,730	115,400
4	95.2	1,216.0	6,800	6,800	109.5	3,425.0	115,400	115,400
5	95.3	1,227.5	9,900	6,800	109.6	3,444.0	121,530	117,100
6	95.4	1,239.0	9,890	6,600	109.6	3,444.0	117,150	117,200
7	95.6	1,262.0	11,590	3,800	109.6	3,444.0	116,950	116,700
8	95.8	1,285.0	11,090	5,600	109.6	3,444.0	116,850	117,000
9	96.3	1,344.6	22,560	6,400	109.4	3,406.0	105,740	115,600
10	97.0	1,430.0	30,670	7,500	109.1	3,349.0	97,020	110,100
11	98.1	1,568.5	46,020	7,600	108.7	3,273.0	85,340	102,800
N	99.1	1,703.5	45,200	7,800	108.6	3,254.0	96,620	101,000
1	100.2	1,853.0	49,480	8,100	108.3	3,197.0	81,870	94,400
2	101.5	2,042.5	63,490	13,600	108.1	3,159.0	82,590	91,900
3	102.6	2,216.0	65,690	21,400	107.8	3,104.0	74,470	87,600
4	103.5	2,360.0	65,350	29,300	107.5	3,050.0	70,300	83,000
5	104.4	2,504.0	74,000	38,700	107.3	3,014.0	71,350	79,700
6	105.2	2,636.0	78,870	45,700	107.0	2,960.0	62,300	74,900
7	106.3	2,834.0	108,800	61,900	106.7	2,906.0	57,550	70,200
8	107.0	2,960.0	102,800	73,700	106.4	2,852.0	53,050	65,900
9	107.6	3,068.0	108,250	82,800	106.1	2,798.0	48,800	61,700
10	108.1	3,159.0	112,030	90,700	105.7	2,726.0	38,950	56,200
11	108.6	3,254.0	120,340	97,200	105.5	2,690.0	44,350	52,500
12	109.0	3,330.0	122,410	105,400	105.5	2,690.0	52,000	51,500

Hour	Aug. 16				Hour	Aug. 16—Con.			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)		Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	105.1	2,618.0	29,350	47,200	1	102.4	2,184.0	12,010	19,300
2	104.8	2,568.0	31,460	43,500	2	102.2	2,152.0	10,560	19,600
3	104.6	2,536.0	33,560	41,400	3	102.1	2,136.0	14,960	19,200
4	104.3	2,488.0	26,120	37,500	4	102.0	2,120.0	14,760	19,200
5	104.2	2,472.0	32,460	36,300	5	102.0	2,120.0	17,550	15,900
6	104.0	2,440.0	25,710	32,900	6	102.0	2,120.0	16,000	16,100
7	103.9	2,424.0	26,810	29,600	7	102.0	2,120.0	16,000	15,900
8	103.6	2,376.0	16,220	29,500	8	102.0	2,120.0	16,500	17,100
9	103.3	2,328.0	15,770	28,700	9	102.0	2,120.0	17,000	16,900
10	103.0	2,280.0	14,120	26,200	10	102.0	2,120.0	16,300	15,700
11	102.8	2,248.0	16,260	24,100	11	102.0	2,120.0	15,800	15,900
N	102.6	2,216.0	14,410	22,500	12	102.0	2,120.0	16,100	16,300

¹ Gage heights from graph based on hourly observations.
 SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 95.64 feet; contents, 1,266.6 million cubic feet.

CATAWBA RIVER AT CATAWBA RESERVOIR, NEAR ROCK HILL, S. C.

LOCATION.—Lat. 35°01', long. 81°00', at powerhouse forebay at Catawba Dam, 6 miles north of Rock Hill, York County, and 10 miles upstream from Sugar Creek. Datum of gage is 470.0 feet above mean sea level (levels by Duke Power Co.).

DRAINAGE AREA.—3,020 square miles.

GAUGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and manufacturer's rating for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 169,160 second-feet for hour ending 9 a.m. Aug. 15; outflow, 138,640 second-feet 2 p.m. Aug. 15; reservoir gage height, 100.0 feet 1 p.m. Aug. 15 to 7 p.m. Aug. 16 (contents, 6,542,000,000 cubic feet).

1895-1903: Discharge, 151,000 second-feet May 23, 1901.

REMARKS.—Reservoir, first put in use Aug. 8, 1925, has a storage capacity of 6,542,000,000 cubic feet under normal operation between gage heights 85.0 and 100.0 feet (top of flood gates in closed position). River affected by storage in Bridgewater, Rhodhiss, Oxford, Lookout Shoals, and Mountain Island Reservoirs upstream having a combined capacity under normal operation of 16,107,000,000 cubic feet. Records furnished by Duke Power Co.

Catawba Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	95.0	4,022	100.0	6,542	16	99.9	6,488	97.2	5,086
2	95.0	4,022	99.6	6,327	17	99.8	6,434	96.8	4,887
3	94.9	3,975	99.9	6,488	18	99.5	6,274	96.2	4,594
4	94.7	3,882	99.7	6,381	19	99.9	6,488	95.6	4,305
5	94.8	3,929	99.6	6,327	20	99.7	6,381	95.0	4,022
6	95.0	4,022	99.4	6,220	21	99.8	6,434	94.5	3,790
7	95.1	4,069	99.0	6,009	22	99.6	6,327	94.2	3,652
8	95.2	4,116	99.1	6,061	23	99.6	6,327	93.9	3,516
9	95.3	4,163	99.0	6,009	24	99.6	6,327	93.7	3,427
10	95.2	4,116	98.8	5,904	25	99.5	6,274	93.5	3,338
11	95.1	4,069	98.4	5,696	26	99.3	6,167	93.2	3,203
12	95.2	4,116	98.2	5,592	27	98.9	5,956	92.9	3,071
13	95.5	4,258	98.0	5,489	28	98.3	5,644	92.7	2,984
14	94.7	3,882	97.9	5,439	29	97.8	5,388	92.5	2,897
15	100.0	6,542	97.7	5,337	30	97.9	5,439	92.4	2,854
					31	98.4	5,696		
Change in contents, equivalent, in second-feet-----								August	September
								+608	-1,096

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 95.1 feet; contents, 4,069 million cubic feet.

804331—49—17

232 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Catawba Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13				
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	
1	95.10	4,068.8	600	1,200	95.20	4,115.8	1,200	1,200	
2	95.095	4,066.5	560	1,200	95.20	4,115.8	1,200	1,200	
3	95.09	4,064.1	530	1,200	95.20	4,115.8	1,200	1,200	
4	95.085	4,061.8	560	1,200	95.20	4,115.8	1,200	1,200	
5	95.08	4,059.4	530	1,200	95.21	4,120.5	2,510	1,200	
6	95.075	4,057.1	560	1,200	95.22	4,125.2	2,510	1,200	
7	95.07	4,054.8	560	1,200	95.23	4,130.0	2,530	1,200	
8	95.063	4,051.5	430	1,500	95.24	4,134.7	2,510	1,200	
9	95.054	4,047.3	330	1,500	95.25	4,139.4	2,510	1,200	
10	95.043	4,042.1	60	1,500	95.26	4,144.1	2,510	1,200	
11	95.032	4,037.0	80	1,500	95.27	4,148.8	2,510	1,200	
N	95.021	4,031.8	60	1,500	95.28	4,153.6	2,530	1,200	
1	95.01	4,026.7	80	1,500	95.29	4,158.3	2,510	1,200	
2	95.00	4,022.0	190	1,500	95.30	4,163.0	2,510	1,200	
3	95.02	4,031.4	4,110	1,500	95.32	4,172.4	3,810	1,200	
4	95.04	4,040.7	4,080	1,500	95.34	4,181.8	3,810	1,200	
5	95.06	4,050.1	4,110	1,500	95.36	4,191.3	4,540	2,600	
6	95.08	4,059.4	4,080	1,500	95.38	4,200.7	6,310	4,800	
7	95.10	4,068.8	4,110	1,500	95.40	4,210.1	6,310	2,600	
8	95.12	4,078.2	4,110	1,500	95.42	4,219.6	5,340	2,800	
9	95.14	4,087.6	4,110	1,500	95.44	4,229.1	5,440	2,800	
10	95.16	4,097.0	4,110	1,500	95.46	4,238.5	5,410	2,800	
11	95.18	4,106.4	3,960	1,200	95.48	4,248.0	6,390	4,700	
12	95.20	4,115.8	3,810	1,200	95.50	4,257.5	7,640	5,300	
	Aug. 14				Aug. 15				
1	95.55	4,281.3	12,510	6,500	95.1	4,068.8	121,730	70,480	
2	95.60	4,305.1	13,110	6,500	95.5	4,257.5	123,530	71,740	
3	95.65	4,328.9	13,110	6,500	96.0	4,496.6	138,750	72,910	
4	95.70	4,352.7	13,110	6,500	96.5	4,739.4	141,160	74,530	
5	95.80	4,400.6	30,740	28,350	97.0	4,985.7	143,700	76,030	
6	95.80	4,400.6	28,500	28,650	97.5	5,235.6	146,220	77,580	
7	95.70	4,352.7	26,130	50,240	98.0	5,489.3	148,670	78,810	
8	95.50	4,257.5	25,750	54,130	98.6	5,798.7	165,680	80,680	
9	95.30	4,163.0	31,080	60,540	99.2	6,113.7	169,160	82,640	
10	95.10	4,068.8	37,040	65,880	99.6	6,326.8	148,770	96,520	
11	94.90	3,975.3	41,160	68,370	99.8	6,434.3	132,140	108,040	
N	94.70	3,882.3	42,290	67,870	99.9	6,488.3	126,200	114,350	
1	94.40	3,743.8	28,950	66,970	100.0	6,542.5	133,650	122,840	
2	94.30	3,697.9	54,080	66,690	100.0	6,542.5	130,740	138,640	
3	94.10	3,606.5	41,100	66,290	100.0	6,542.5	137,440	136,240	
4	94.00	3,561.1	53,530	65,990	100.0	6,542.5	136,490	136,740	
5	93.90	3,515.8	53,250	65,670	100.0	6,542.5	136,490	136,240	
6	93.90	3,515.8	65,670	65,670	100.0	6,542.5	130,950	125,650	
7	93.90	3,515.8	65,670	65,670	100.0	6,542.5	117,050	108,450	
8	94.00	3,561.1	78,410	65,990	100.0	6,542.5	108,700	108,950	
9	94.10	3,606.5	78,950	66,690	100.0	6,542.5	106,830	104,720	
10	94.20	3,652.2	79,680	67,290	100.0	6,542.5	104,620	104,520	
11	94.50	3,789.8	106,260	68,790	100.0	6,542.5	97,550	90,570	
12	94.70	3,882.3	94,770	69,370	100.0	6,542.5	90,570	90,570	
	Aug. 16				Aug. 16—Con.				
Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	100.00	6,542.5	83,170	75,770	1	100.00	6,542.5	41,040	40,990
2	100.00	6,542.5	75,420	75,070	2	100.00	6,542.5	40,240	39,490
3	100.00	6,542.5	75,070	75,070	3	100.00	6,542.5	39,490	39,490
4	100.00	6,542.5	68,580	62,080	4	100.00	6,542.5	36,760	34,030
5	100.00	6,542.5	61,980	61,880	5	100.00	6,542.5	31,830	29,620
6	100.00	6,542.5	61,880	61,880	6	100.00	6,542.5	29,010	28,400
7	100.00	6,542.5	56,690	51,510	7	100.00	6,542.5	24,700	21,010
8	100.00	6,542.5	46,920	42,320	8	99.98	6,531.7	18,010	21,010
9	100.00	6,542.5	42,220	42,120	9	99.96	6,520.8	17,980	21,000
10	100.00	6,542.5	39,450	36,790	10	99.94	6,510.0	17,900	20,800
11	100.00	6,542.5	36,790	36,790	11	99.92	6,499.1	17,760	20,790
N	100.00	6,542.5	38,940	41,090	12	99.90	6,488.3	15,990	17,190

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage heights, 95.10 feet; contents, 4,068.8 million cubic feet.

**CATAWBA RIVER AT FISHING CREEK RESERVOIR,
NEAR GREAT FALLS, S. C.**

LOCATION.—Lat. 34°36', long. 80°53', at powerhouse forebay at Fishing Creek Dam, 2½ miles north of Great Falls, Chester County. Datum of gage is 316.85 feet above mean sea level (levels by Duke Power Co.). Some Duke Power Co. records for this station, not published herein, are referred to a datum 8.85 feet lower.

DRAINAGE AREA.—3,810 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for flood gates and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 110,180 second-feet for hour ending 5 a.m. Aug. 16; outflow, 115,490 second-feet 7 a.m. Aug. 16; reservoir gage height, 99.8 feet, 1, 5, and 6 a.m. Aug. 16 (contents, 1,601,000,000 cubic feet).

REMARKS.—Reservoir, first put in use Nov. 22, 1916, has a storage capacity of 1,630,000,000 cubic feet under normal operation between gage heights of 85.0 and 100.0 feet (top of flood gates in closed position). River affected by storage in Bridgewater, Rhodhiss, Oxford, Lookout Shoals, Mountain Island, and Catawba Reservoirs upstream having a combined capacity under normal operation of 22,649,000,000 cubic feet. Records furnished by Duke Power Co.

Fishing Creek Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	90.6	482	97.9	1,334	16	97.9	1,334	94.9	952
2	90.8	501	99.2	1,514	17	99.2	1,514	94.7	928
3	91.8	603	98.0	1,347	18	99.9	1,615	94.9	952
4	92.7	700	98.1	1,361	19	99.5	1,557	95.2	988
5	92.5	678	98.4	1,402	20	99.8	1,601	94.6	916
6	92.3	656	98.6	1,430	21	99.0	1,486	94.3	880
7	92.0	624	98.5	1,416	22	98.9	1,472	94.3	880
8	92.1	635	98.8	1,458	23	98.4	1,402	92.2	646
9	92.1	635	97.4	1,267	24	97.0	1,214	90.6	482
10	93.2	755	97.3	1,254	25	96.7	1,175	88.5	286
11	93.8	822	97.7	1,307	26	94.7	928	87.4	190
12	93.5	788	98.2	1,375	27	96.1	1,099	87.1	164
13	92.3	656	99.1	1,500	28	97.6	1,293	90.5	472
14	97.5	1,280	97.1	1,227	29	96.7	1,175	91.5	572
15	99.7	1,586	96.2	1,111	30	94.2	868	90.2	443
					31	96.0	1,086		
Change in contents, equivalent, in second-feet.....								August	Sep-tember
								+226	-248

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 90.6 feet; contents, 482 million cubic feet.

234 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Fishing Creek Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug.'13				
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	
1	93.84	826.7	1,280	0	93.55	793.9	1,580	0	
2	93.88	831.5	1,280	0	93.60	799.5	1,560	0	
3	93.92	836.1	1,280	0	93.65	805.2	1,580	0	
4	93.96	840.7	1,280	0	93.70	810.9	1,580	0	
5	94.00	845.3	1,280	0	93.75	816.6	1,580	0	
6	94.00	845.3	1,100	2,200	93.80	822.3	2,130	1,100	
7	93.98	843.0	1,340	1,750	93.80	822.3	1,100	1,100	
8	93.96	840.7	1,960	1,450	93.77	818.9	1,160	3,100	
9	93.94	838.4	1,180	2,200	93.70	810.9	1,950	5,200	
10	93.92	836.1	1,610	2,300	93.60	799.5	2,080	5,300	
11	93.89	832.7	1,890	3,350	93.45	782.6	1,460	7,000	
N	93.82	824.6	1,000	3,150	93.30	765.8	1,430	5,200	
1	93.78	820.0	990	1,400	93.20	754.6	1,340	3,700	
2	93.74	815.5	1,030	3,150	93.15	749.0	2,790	5,000	
3	93.70	810.9	1,840	3,100	93.10	743.5	3,470	5,000	
4	93.66	806.3	1,820	3,100	93.00	732.4	1,220	3,600	
5	93.63	802.9	1,560	1,900	92.90	721.4	990	4,500	
6	93.60	799.5	1,060	2,100	92.80	710.5	1,320	4,200	
7	93.58	797.2	1,310	1,800	92.70	699.6	720	3,300	
8	93.55	793.9	1,330	2,700	92.60	688.7	470	3,700	
9	93.52	790.5	1,660	2,500	92.50	677.9	950	4,200	
10	93.50	788.2	1,560	1,900	92.40	667.1	1,250	4,300	
11	93.50	788.2	1,530	1,150	92.30	656.4	1,830	5,300	
12	93.50	788.2	1,250	1,350	92.20	645.7	2,330	5,300	
Aug. 14				Aug. 15					
1	92.10	635.1	2,060	4,700	97.7	1,306.8	48,920	41,700	
2	92.00	624.5	1,210	3,600	97.9	1,333.8	49,700	42,700	
3	92.00	624.5	3,350	3,100	98.1	1,361.0	50,710	43,600	
4	92.00	624.5	3,050	3,000	98.3	1,388.4	51,410	44,000	
5	92.00	624.5	2,650	2,300	98.6	1,429.9	55,810	44,560	
6	92.00	624.5	4,300	6,300	98.9	1,471.9	57,060	46,220	
7	92.00	624.5	4,600	2,900	99.2	1,514.4	61,540	53,230	
8	92.00	624.5	2,900	2,900	99.2	1,514.4	60,970	68,720	
9	92.10	635.1	5,840	2,900	98.9	1,471.9	56,390	67,680	
10	92.20	645.7	7,540	6,300	98.8	1,457.9	63,610	67,320	
11	92.30	656.4	9,070	5,900	98.7	1,443.9	63,240	66,930	
N	92.80	710.5	21,230	6,500	98.7	1,443.9	66,930	66,930	
1	93.50	788.2	27,830	6,000	98.7	1,443.9	66,380	65,830	
2	94.40	891.8	34,930	6,300	98.8	1,457.9	70,460	67,320	
3	95.40	1,011.7	39,760	6,600	98.9	1,471.9	70,040	64,980	
4	96.00	1,086.0	35,130	22,380	99.0	1,486.0	69,750	66,670	
5	96.30	1,123.9	40,860	38,280	99.2	1,514.4	74,680	66,920	
6	96.40	1,136.6	42,180	39,020	99.4	1,543.0	75,290	67,770	
7	96.50	1,149.4	43,050	39,960	99.5	1,557.4	81,550	87,340	
8	96.70	1,175.1	47,240	40,240	99.4	1,543.0	84,200	89,060	
9	96.90	1,201.0	47,370	40,120	99.4	1,543.0	88,960	88,860	
10	97.10	1,227.2	47,290	39,900	99.4	1,543.0	89,310	89,760	
11	97.30	1,253.5	46,560	38,600	99.6	1,571.8	97,940	90,120	
12	97.50	1,280.1	47,340	41,300	99.7	1,586.3	100,260	102,340	
Aug. 16				Aug. 16—Con.					
Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Hour	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	99.8	1,600.8	109,400	108,400	1	98.9	1,471.9	93,920	82,800
2	99.7	1,586.3	103,670	107,000	2	99.1	1,500.2	90,780	83,040
3	99.7	1,586.3	106,950	106,900	3	99.2	1,514.4	87,790	84,660
4	99.7	1,586.3	106,550	106,200	4	99.0	1,486.0	76,870	84,860
5	99.8	1,600.8	110,180	106,100	5	98.9	1,471.9	74,540	72,050
6	99.8	1,600.8	108,200	110,300	6	99.0	1,486.0	73,380	66,870
7	99.5	1,557.4	100,890	115,490	7	98.9	1,471.9	62,350	65,680
8	99.3	1,528.7	106,310	113,080	8	98.8	1,457.9	62,460	67,020
9	99.2	1,514.4	108,750	112,360	9	98.5	1,416.0	55,010	66,280
10	99.0	1,486.0	104,030	111,470	10	98.2	1,374.7	53,280	63,210
11	98.7	1,443.9	98,660	109,230	11	98.0	1,347.4	53,050	58,060
N	98.6	1,429.9	91,570	81,700	12	97.9	1,333.8	54,100	57,700

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 93.80 feet; contents 822.3 million cubic feet.

**CATAWBA RIVER AT ROCKY CREEK RESERVOIR,
NEAR GREAT FALLS, S. C.**

LOCATION.—Lat. 34°32', long. 80°52', at powerhouse forebay at Rocky Creek Dam, 3 miles southeast of Great Falls, Chester County. Datum of gage is 184.85 feet above mean sea level (levels by Duke Power Co.). Some Duke Power Co. records for this station, not published herein, are referred to a datum 8.85 feet lower.

DRAINAGE AREA.—4,360 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and flood gates and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 114,940 second-feet for hours ending 9 and 10 a.m. Aug. 16; outflow, 115,310 second-feet 7 a.m. Aug. 16; reservoir gage height, 106.0 feet 4 to 7 a.m. Aug. 16 (contents 632,000,000 cubic feet).

1909-39: Discharge, 382,000 second-feet July 1916.

REMARKS.—Reservoir, first put in use Apr. 28, 1909, has a total storage capacity of 419,000,000 cubic feet between gage heights 85.0 and 100.0 feet (crest of spillway) and a storage capacity of 163,000,000 cubic feet under normal operation between gage heights 95.0 and 100.0 feet. River affected by storage in Bridgewater, Rhodhiss, Oxford, Lookout Shoals, Mountain Island, Catawba, and Fishing Creek Reservoirs upstream having a combined capacity under normal operation of 24,279,000,000 cubic feet. Records furnished by Duke Power Co.

Rocky Creek Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	98.5	368	97.8	345	16	102.6	510	97.1	322
2	98.4	365	100.9	450	17	99.3	395	97.2	325
3	98.0	351	96.9	316	18	99.0	385	97.3	329
4	98.0	351	97.2	325	19	99.6	405	96.8	313
5	97.6	338	97.4	332	20	98.8	378	98.0	351
6	97.0	319	97.3	329	21	97.6	338	98.4	365
7	97.1	322	97.5	335	22	97.5	335	98.6	371
8	98.3	361	97.8	345	23	97.5	335	97.5	335
9	97.9	348	96.6	306	24	98.2	358	98.1	354
10	97.9	348	97.1	322	25	97.7	341	97.2	325
11	97.9	348	96.7	309	26	97.0	319	97.4	332
12	98.0	351	95.8	281	27	95.8	281	97.8	345
13	96.8	313	96.3	297	28	95.5	272	97.8	345
14	97.8	345	97.6	338	29	97.9	348	97.8	345
15	105.0	596	97.9	348	30	99.1	388	98.0	351
					31	96.6	306		
								August	September
Change in contents, equivalent, in second-feet.....								-3.73	+17.4

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 96.9 feet; contents, 316 million cubic feet

236 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Rocky Creek Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	97.91	348.1	80	0	98.04	352.4	390	0
2	97.92	348.4	80	0	98.08	353.7	360	0
3	97.93	348.8	110	0	98.12	355.1	390	0
4	97.94	349.1	80	0	98.16	356.4	360	0
5	97.90	347.8	340	1,400	98.20	357.8	390	0
6	97.80	344.6	410	1,200	98.24	359.2	390	0
7	97.70	341.4	210	1,000	98.30	361.2	560	0
8	97.90	347.8	2,780	1,000	98.30	361.2	1,300	2,600
9	98.00	351.0	1,890	1,000	98.30	361.2	2,600	2,600
10	98.10	354.4	2,090	1,300	98.30	361.2	2,600	2,600
11	98.30	361.2	3,190	1,300	98.10	354.4	3,210	7,600
N	98.50	368.0	4,540	4,000	98.00	351.0	5,460	5,200
1	98.30	361.2	2,060	3,900	97.90	347.8	3,210	3,000
2	98.10	354.4	1,560	3,000	97.80	344.6	2,110	3,000
3	98.00	351.0	2,060	3,000	97.60	338.2	1,220	3,000
4	97.90	347.8	2,110	3,000	97.40	331.8	1,220	3,000
5	97.70	341.4	1,220	3,000	97.40	331.8	3,000	3,000
6	97.60	338.2	2,110	3,000	97.30	328.6	3,260	5,300
7	97.60	338.2	2,800	2,600	97.30	328.6	5,300	5,300
8	97.60	338.2	2,600	2,600	97.30	328.6	6,300	7,300
9	97.60	338.2	2,600	2,600	97.10	322.2	5,020	6,300
10	97.60	338.2	2,400	2,200	96.90	315.8	4,520	6,300
11	97.80	344.6	2,880	0	96.90	315.8	4,900	3,500
12	98.00	351.0	1,780	0	96.80	312.6	2,610	3,500

Hour	Aug. 14				Aug. 15			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	96.8	312.6	3,650	3,800	98.0	351.0	42,920	41,380
2	96.9	315.8	4,090	2,600	98.5	368.0	45,900	40,980
3	97.0	319.0	3,590	2,800	99.4	398.6	49,730	41,480
4	97.1	322.2	3,390	2,200	99.8	412.2	45,670	42,300
5	97.2	325.4	3,490	3,000	100.2	425.8	46,740	43,620
6	97.1	322.2	3,110	5,000	100.2	425.8	44,670	45,720
7	97.0	319.0	5,110	7,000	100.2	425.8	46,770	47,820
8	96.8	312.6	5,250	7,050	100.7	442.8	54,040	50,810
9	96.5	303.0	4,450	7,200	100.7	442.8	50,860	50,910
10	96.4	299.8	6,290	7,150	102.2	495.2	72,750	65,480
11	96.2	293.4	5,390	7,200	102.4	502.4	68,590	67,700
N	96.3	296.6	8,090	7,200	102.4	502.4	67,700	67,700
1	96.0	287.0	4,530	7,200	102.4	502.4	67,630	67,550
2	95.7	278.0	4,750	7,300	102.7	513.2	71,530	69,510
3	95.6	275.0	5,770	5,900	102.7	513.2	68,880	68,260
4	95.6	275.0	5,900	5,900	102.7	513.2	68,260	68,260
5	95.0	257.0	5,170	14,440	102.8	516.8	69,870	69,470
6	96.1	290.2	23,670	14,460	102.8	516.8	69,470	69,470
7	97.6	338.2	39,870	38,620	102.8	516.8	68,820	68,170
8	98.2	357.8	44,780	40,060	104.2	567.2	91,470	86,760
9	98.0	351.0	38,830	41,380	104.3	570.8	89,150	89,510
10	98.0	351.0	41,380	41,380	104.4	574.4	91,270	91,040
11	98.0	351.0	41,380	41,380	105.0	596.0	100,670	98,300
12	97.8	344.6	39,360	40,900	105.0	596.0	98,300	98,300

Hour	Aug. 16				Hour	Aug. 16—Con.			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)		Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	105.6	617.6	108,970	107,640	1	104.7	585.2	94,810	95,150
2	105.7	621.2	109,490	109,350	2	104.5	578.0	91,600	92,050
3	105.9	628.4	113,110	112,860	3	104.4	574.4	90,290	90,540
4	106.0	632.0	114,490	114,110	4	104.4	574.4	90,590	90,640
5	106.0	632.0	114,110	114,110	5	104.3	570.8	89,130	89,610
6	106.0	632.0	114,110	114,110	6	104.3	570.8	89,610	89,610
7	106.0	632.0	114,710	115,310	7	103.3	534.8	72,680	75,760
8	105.8	624.8	113,120	114,940	8	103.0	524.0	70,870	71,970
9	105.8	624.8	114,940	114,940	9	102.8	516.8	68,770	69,570
10	105.8	624.8	114,940	114,940	10	102.6	509.6	66,570	67,580
11	105.5	614.0	109,320	109,690	11	102.6	509.6	65,980	64,380
N	105.3	606.8	106,070	106,460	12	102.6	509.6	64,680	64,980

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 97.9 feet; contents, 347.8 million cubic feet.

WATEREE RIVER AT WATEREE RESERVOIR, NEAR CAMDEN, S. C.

LOCATION.—Lat. 34°20', long. 80°42', at powerhouse forebay at Wateree Dam, 1 mile upstream from Sawneys Creek, and 7½ miles northwest of Camden, Kershaw County. Datum of gage is 126.85 feet above mean sea level (levels by Duke Power Co.). Some Duke Power Co. records for this station, not published herein, are referred to a datum 8.85 feet lower.

DRAINAGE AREA.—4,750 square miles.

GAGE-HEIGHT RECORD.—Staff gage read to tenths hourly. Adjusted gage heights Aug. 12-16 taken from graph based on hourly readings.

DISCHARGE RECORD.—Record of outflow based on formula for spillway and manufacturer's ratings for turbines. Record of inflow based on outflow and change in contents.

MAXIMA.—1940: Mean inflow, 132,200 second-feet for hour ending 8 a.m. Aug. 16; outflow, 85,040 second-feet 3 p.m. Aug. 16; reservoir gage height, 106.30 feet 2 p.m. Aug. 16 (contents 11,621,000,000 cubic feet).

REMARKS.—Reservoir, first put in use Oct. 7, 1919, has a storage capacity of 7,626,000,000 cubic feet under normal operation between gage heights of 84.0 and 100.0 feet (crest of spillway). River affected by storage in Bridgewater, Rhodhiss, Oxford, Lookout Shoals, Mountain Island, Catawba, Fishing Creek, and Rocky Creek Reservoirs upstream having a combined storage capacity under normal operation of 24,442,000,000 cubic feet. Records furnished by Duke Power Co.

Wateree Reservoir, gage height and contents at midnight, 1940

Day	August		September		Day	August		September	
	Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)		Gage height (feet)	Contents (million cubic feet)	Gage height (feet)	Contents (million cubic feet)
1	95.1	4,884	96.7	5,738	16	106.1	11,487	96.4	5,575
2	94.9	4,780	98.1	6,518	17	103.3	9,662	96.2	5,467
3	94.6	4,625	99.2	7,152	18	102.4	9,092	96.1	5,413
4	94.6	4,625	99.1	7,094	19	101.0	8,222	96.0	5,359
5	94.5	4,574	99.1	7,094	20	100.9	8,161	95.9	5,306
6	94.5	4,574	99.3	7,211	21	100.1	7,685	95.6	5,146
7	94.3	4,472	99.3	7,211	22	99.5	7,329	95.8	5,253
8	93.9	4,269	99.3	7,211	23	98.9	6,978	95.7	5,199
9	93.6	4,118	99.1	7,094	24	98.3	6,633	95.4	5,040
10	93.2	3,920	98.7	6,862	25	98.3	6,633	95.0	4,832
11	93.2	3,920	98.3	6,633	26	97.9	6,405	94.8	4,728
12	93.1	3,871	97.5	6,180	27	97.2	6,013	94.4	4,522
13	93.3	3,969	96.5	5,629	28	96.3	5,521	94.1	4,370
14	94.7	4,676	95.9	5,306	29	95.9	5,306	94.1	4,370
15	102.3	9,029	96.3	5,521	30	96.1	5,413	93.8	4,218
					31	96.7	5,738		
Change in contents, equivalent, in second-feet.....								August	September
								+299	-586

SUPPLEMENTAL RECORD.—July 31, midnight, gage height, 95.2 feet; contents, 4,936 million cubic feet.

238 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Wateree Reservoir, gage height, contents, mean inflow for preceding hour, and outflow, at indicated time, 1940

Hour	Aug. 12				Aug. 13			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	93.12	3,880.6	2,720	0	93.04	3,841.3	1,360	0
2	93.14	3,890.5	2,750	0	93.05	3,846.3	1,390	0
3	93.16	3,900.3	2,720	0	93.06	3,851.2	1,360	0
4	93.18	3,910.2	2,750	0	93.07	3,856.1	1,360	0
5	93.20	3,920.0	2,720	0	93.08	3,861.0	1,360	0
6	93.20	3,920.0	1,750	3,500	93.09	3,865.9	2,910	3,100
7	93.19	3,915.1	1,590	2,400	93.09	3,865.9	2,750	2,400
8	93.18	3,910.2	2,240	4,800	93.10	3,870.8	3,760	2,400
9	93.16	3,900.3	2,050	4,800	93.11	3,875.7	3,760	2,400
10	93.14	3,890.4	2,100	4,900	93.12	3,880.6	3,760	2,400
11	93.12	3,880.6	2,180	4,900	93.13	3,885.6	4,990	4,800
N	93.10	3,870.8	930	2,400	93.14	3,890.5	4,960	2,400
1	93.09	3,865.9	1,040	2,400	93.15	3,895.4	3,760	2,400
2	93.08	3,861.0	1,040	2,400	93.16	3,900.3	3,760	2,400
3	93.07	3,856.1	1,040	2,400	93.17	3,905.2	3,760	2,400
4	93.06	3,851.2	1,040	2,400	93.18	3,910.2	3,790	2,400
5	93.05	3,846.3	590	1,500	93.19	3,915.1	3,310	1,500
6	93.04	3,841.3	110	1,500	93.20	3,920.0	3,810	3,400
7	93.03	3,836.4	140	1,500	93.21	3,924.9	4,960	3,800
8	93.02	3,831.5	590	2,400	93.22	3,929.9	5,640	4,700
9	93.01	3,826.6	1,040	2,400	93.23	3,934.8	7,410	7,400
10	93.01	3,826.6	1,200	0	93.24	3,939.8	8,790	7,400
11	93.02	3,831.5	1,360	0	93.24	3,939.8	4,900	2,400
12	93.03	3,836.4	1,360	0	93.25	3,944.7	4,510	3,900

Hour	Aug. 14				Aug. 15			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	93.25	3,944.7	2,650	1,400	94.95	4,805.7	40,440	2,300
2	93.26	3,949.6	2,060	0	95.20	4,935.9	38,820	3,000
3	93.28	3,959.5	2,750	0	95.45	5,067.1	39,440	3,000
4	93.30	3,969.4	2,750	0	95.70	5,199.3	39,720	3,000
5	93.37	4,004.1	9,640	0	96.00	5,359.2	47,420	3,000
6	93.45	4,043.7	12,350	2,700	96.35	5,547.5	55,360	3,100
7	93.50	4,068.6	11,870	7,200	96.60	5,683.0	41,940	5,500
8	93.54	4,088.5	14,580	10,900	96.85	5,819.6	45,840	10,300
9	93.56	4,098.5	14,630	12,800	97.10	5,957.1	48,490	10,300
10	93.57	4,103.5	14,190	12,800	97.40	6,123.5	56,920	11,100
11	93.58	4,108.4	14,160	12,800	97.70	6,291.7	57,820	11,100
N	93.59	4,113.4	14,190	12,800	98.10	6,518.2	74,020	11,100
1	93.60	4,118.4	12,990	10,400	98.50	6,747.1	74,680	11,100
2	93.61	4,123.4	12,540	11,900	98.85	6,949.0	67,180	11,100
3	93.62	4,128.4	12,940	11,200	99.20	7,152.7	67,680	11,100
4	93.63	4,133.4	11,790	9,600	99.50	7,328.9	60,040	11,100
5	93.64	4,138.4	10,990	9,600	99.80	7,506.5	60,080	10,400
6	93.65	4,143.4	12,040	11,700	100.10	7,685.0	60,340	11,120
7	93.70	4,168.4	18,090	10,600	100.50	7,922.8	77,830	12,410
8	93.80	4,218.5	25,020	11,600	100.85	8,130.9	71,120	14,210
9	93.90	4,268.7	24,690	9,900	101.20	8,344.0	74,700	16,810
10	94.10	4,369.7	38,860	11,700	101.60	8,592.0	87,240	19,890
11	94.40	4,522.3	50,640	4,800	102.00	8,840.0	88,470	19,270
12	94.70	4,676.3	48,530	6,700	102.30	9,029.0	71,610	18,960

Hour	Aug. 16				Hour	Aug. 16—Con.			
	Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)		Gage height ¹ (feet)	Contents (million cubic feet)	Inflow (second- feet)	Outflow (second- feet)
1	102.80	9,344.0	108,830	23,690	1	106.20	11,554.0	100,250	82,620
2	103.30	9,662.0	114,680	29,020	2	106.30	11,621.0	102,160	84,490
3	103.70	9,918.0	103,150	35,050	3	106.28	11,607.6	81,050	85,040
4	104.05	10,142.5	99,850	39,940	4	106.26	11,594.2	81,140	84,680
5	104.40	10,370.0	105,120	43,920	5	106.24	11,580.8	80,780	84,330
6	104.70	10,565.0	102,480	52,700	6	106.22	11,567.4	80,480	84,070
7	105.00	10,760.0	111,080	61,110	7	106.20	11,554.0	80,180	83,720
8	105.37	11,004.0	132,200	67,730	8	106.18	11,540.6	79,800	83,330
9	105.60	11,156.0	111,760	71,350	9	106.16	11,527.2	79,410	82,930
10	105.80	11,288.0	108,990	73,290	10	106.14	11,513.8	78,720	81,940
11	105.95	11,387.0	102,670	77,050	11	106.12	11,500.4	76,220	77,940
N	106.10	11,487.0	106,630	80,650	12	106.10	11,487.0	72,920	75,350

¹ Gage heights from graph based on hourly observations.

SUPPLEMENTAL RECORD.—Aug. 11, 12 p.m., gage height, 93.1 feet; contents, 3,870 million cubic feet.

WATEREE RIVER NEAR CAMDEN, S. C.

LOCATION.—Lat. 34°14'50", long. 80°39'20", at bridge on U. S. Highway 1, 500 feet downstream from Twentyfivemile Creek, 5,000 feet upstream from Seaboard Railway bridge, 3 miles southwest of Camden, Kershaw County, and 7 miles downstream from Wateree Dam. Datum of gage is 119.36 feet (revised) above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—5,070 square miles (1942 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 130,000 second-feet.

MAXIMA.—1940: Discharge, 89,000 second-feet 11 p.m. Aug. 16 (gage height, 30.50 feet).

1903-10, 1929-39: Discharge, 198,000 second-feet (estimated) Aug. 26, 1908 (gage height, 39.7 feet, at site 1½ miles downstream, from records of U. S. Weather Bureau).

1891-1940: Stage known, 40.4 feet July 18, 1916, at site 1½ miles downstream, from records of U. S. Weather Bureau (discharge uncertain, figure previously published believed to be too small).

REMARKS.—Flood discharge affected by artificial storage in Wateree Reservoir (capacity, 7,626,000,000 cubic feet) and other reservoirs on the Catawba River in North and South Carolina.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,980	416	9	3,550	5,950	17	61,000	9,260	25	4,020	8,330
2	2,140	2,820	10	2,400	9,990	18	26,600	9,500	26	8,670	7,570
3	1,800	5,900	11	560	10,900	19	17,500	8,780	27	11,800	6,650
4	447	7,280	12	2,050	11,700	20	13,600	9,360	28	12,800	2,440
5	1,420	8,090	13	2,380	12,300	21	13,400	7,840	29	11,100	461
6	2,030	7,750	14	7,840	11,200	22	12,600	2,030	30	7,570	4,190
7	2,880	6,130	15	9,980	1,660	23	12,200	5,880	31	2,210	-----
8	3,060	2,490	16	54,600	5,780	24	10,800	8,270			
Monthly mean discharge, in second-feet.....										10,480	6,697
Runoff, in inches.....										2.38	1.47

SANTÉE RIVER AT FERGUSON, S. C.

LOCATION.—Lat. 33°26'15", long. 80°16'20", at Ferguson, Orangeburg County, 4 miles downstream from Eutaw Creek. Datum of gage is 42.30 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—14,600 square miles (1944 revision); 2,420 square miles affected by storage in Lake Murray.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 260,000 second-feet and extended to crest gage height.

MAXIMA.—1940: Discharge, 56,000 second-feet 10 a.m. Aug. 21 (gage height, 14.07 feet).

1907-39: Discharge observed, 368,000 second-feet July 22, 1916 (gage height, 24.5 feet).

REMARKS.—Flood discharge affected by artificial storage in Lake Murray on Saluda River and other reservoirs on the Broad and Catawba-Wateree Rivers in North and South Carolina; also by natural storage in large swampy areas above station.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			2.02	95	5.35	2,980	8.70	14,100		
2	1.83	57	2.08	109	5.24	2,830	8.00	10,400		
3			2.19	139	5.12	2,620	7.45	8,150		
4	1.87	65	2.25	158	5.16	2,690	6.95	6,450	4.22	1,570
5			2.28	168	5.50	3,200	6.55	5,320		
6	1.87	65	2.31	179	5.80	3,700	6.28	4,700		
7			2.34	190	5.93	4,000	6.02	4,100		
8	1.87	65	2.39	208	5.92	3,900	5.83	3,800	4.00	1,370
9			2.58	296	6.00	4,100	5.60	3,360		
10	1.87	65	2.87	462	6.45	5,080	5.44	3,120		
11			2.93	500	7.05	6,750	5.26	2,830		
N	1.92	74	2.91	486	7.60	8,750	5.18	2,760	3.81	1,180
1			2.92	493	7.85	9,780	5.13	2,690		
2	2.00	90	2.95	512	8.03	10,700	5.10	2,620		
3			3.01	552	8.30	11,900	5.06	2,560		
4	2.01	92	3.23	701	9.80	22,100	5.01	2,490	3.64	1,030
5			4.07	1,420	11.4	39,500	4.93	2,420		
6	2.02	95	5.00	2,490	11.00	34,600	4.85	2,300		
7			5.50	3,200	10.55	30,000	4.80	2,240		
8	2.02	95	5.59	3,360	10.62	30,000	4.76	2,180	3.49	902
9			5.54	3,280	10.20	25,800	4.70	2,120		
10	2.02	95	5.40	3,050	10.70	31,100	4.62	2,010		
11			5.35	2,980	10.40	27,800	4.53	1,960		
12	2.02	95	5.41	3,050	9.60	20,400	4.44	1,840	3.38	814
	Aug. 16		Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2					2.65	333				
4	3.28	736	2.89	474	2.63	322				
6					2.62	317	2.52	268	2.38	209
8	3.19	673	2.84	444	2.61	311				
10					2.59	301				
N	3.14	638	2.80	420	2.58	296	2.48	250	2.35	198
2					2.65	333				
4	3.07	590	2.75	390	2.74	384				
6					2.66	338	2.44	233	2.33	192
8	3.01	552	2.71	366	2.61	311				
10					2.58	296				
12	2.94	506	2.67	344	2.56	287	2.42	224	2.31	184

SUPPLEMENTAL RECORDS.—Aug. 13, 3:30 a.m., gage height, 5.08 feet, discharge, 2,620 second-feet; 6:45 p.m., gage height, 10.26 feet, discharge, 26,800 second-feet; 7:30 p.m., gage height, 10.68 feet, discharge, 31,100 second-feet; 10:30 p.m., gage height, 11.07 feet, discharge, 35,800 second-feet.

LITTLE SUGAR CREEK NEAR CHARLOTTE, N. C.

LOCATION.—Lat. 35°09'15", long. 80°51'10", just upstream from sewage-disposal plant of city of Charlotte, a quarter of a mile downstream from Brier Creek, and 5 miles south of Charlotte, Mecklenburg County. Datum of gage is 571.6 feet above mean sea level (city of Charlotte datum).

DRAINAGE AREA.—41.4 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,000 second-feet and extended above by area-velocity method. Gage heights used to half-tenths between 3.0 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 2,230 second-feet 4 a.m. Aug. 14 (gage height, 8.75 feet).

1924-39: Discharge, 8,370 second-feet Apr. 6, 1936 (gage height, 16.2 feet, from floodmarks).

REMARKS.—Flood runoff not affected by artificial storage.

242 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	7.8	22	9	6.5	8.9	17	44	7.8	25	10	9.6
2	7.4	11	10	6.9	9.5	18	28	8.9	26	11	6.9
3	6.9	11	11	21	9.5	19	20	7.8	27	10	6.1
4	6.5	10	12	46	8.3	20	14	7.4	28	9.5	6.1
5	7.8	10	13	42	7.8	21	13	7.4	29	10	5.6
6	7.8	12	14	554	7.8	22	11	6.5	30	26	6.9
7	7.4	9.5	15	187	7.4	23	11	6.9	31	23	-----
8	6.9	8.9	16	41	8.3	24	11	7.4			
Monthly mean discharge, in second-feet.....										39.2	8.77
Runoff, in inches.....										1.09	0.24

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.87	20	1.94	26	4.60	668	2.02	36
2	1.85	18	2.70	171	4.65	668	2.01	34
3	1.82	16	6.0	1,010	4.66	690	2.00	33
4	1.82	16	8.75	2,230	4.12	554	1.99	32
5	1.82	16	7.3	1,500	2.99	246	1.98	31
6	1.85	18	6.1	1,040	2.65	160	1.97	30
7	2.34	90	5.45	850	2.51	127	1.97	30
8	2.27	76	4.77	710	2.43	110	1.96	29
9	2.26	74	4.42	624	2.37	97	1.96	29
10	2.24	71	4.10	554	2.32	86	1.95	28
11	2.27	76	3.55	354	2.29	80	1.94	26
N	2.26	74	2.77	188	2.25	72	1.94	26
1	2.25	72	2.55	136	2.23	69	1.94	26
2	2.19	61	2.45	114	2.21	65	1.94	26
3	2.13	52	2.37	97	2.18	60	1.94	26
4	2.07	43	2.37	97	2.17	58	1.95	28
5	2.02	36	2.56	139	2.17	58	1.95	28
6	1.98	31	2.89	219	2.15	55	2.07	43
7	1.96	29	3.52	400	2.12	50	2.24	71
8	1.94	26	4.91	730	2.10	47	2.36	95
9	1.91	23	4.67	690	2.08	44	2.26	74
10	1.89	21	3.96	518	2.06	41	2.19	61
11	1.88	20	4.17	566	2.05	40	2.19	61
12	1.88	20	4.53	646	2.03	37	2.39	101

BROAD RIVER NEAR CHIMNEY ROCK, N. C.

LOCATION.—Lat. 35°25'35", long. 82°10'45", 1,000 feet downstream from Lake Lure Dam and 3 miles east of Chimney Rock, Rutherford County.

DRAINAGE AREA.—97 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,200 second-feet and extended above on basis of computation of flood flow over Lake Lure Dam and through power plant at gage heights 16.8 and 12.2 feet. Gage heights used to half-tenths between 3.2 and 5.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 17,300 second-feet 2 p.m. Aug. 13 (gage height, 12.20 feet).

1907-9, 1927-39: Discharge, 26,000 second-feet Aug. 15, 1928 (gage height, 16.8 feet).

REMARKS.—Flood runoff affected only slightly by artificial storage in Lake Lure.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	86	558	9	244	187	17	472	155	25	174	360
2	4.2	518	10	46	257	18	504	148	26	134	82
3	4.2	504	11	93	88	19	504	148	27	153	86
4	4.2	426	12	353	156	20	468	84	28	150	86
5	85	342	13	6,430	159	21	497	83	29	310	3.7
6	89	336	14	1,390	155	22	298	3.5	30	1,450	84
7	87	343	15	869	3.9	23	131	238	31	773	-----
8	91	178	16	572	152	24	167	355			
Monthly mean discharge, in second-feet-----										537	209
Runoff, in inches-----										6.38	2.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	0.52	5.1	0.52	5.1	2.29	628	4.56	3,420	-----	-----	-----	-----
2	.52	5.1	.52	5.1	2.29	628	4.15	2,760	2.66	984	2.33	712
3	.52	5.1	.52	5.1	2.30	635	3.90	2,400	-----	-----	-----	-----
4	.52	5.1	.52	5.1	2.30	635	3.90	2,400	2.64	966	2.33	712
5	.52	5.1	.52	5.1	2.43	721	3.47	1,820	-----	-----	-----	-----
6	.52	5.1	.52	5.1	2.44	728	3.17	1,480	2.62	948	2.33	712
7	.52	5.1	1.27	121	2.46	742	3.17	1,480	-----	-----	-----	-----
8	.52	5.1	1.78	325	2.47	749	2.59	922	2.60	930	2.16	587
9	.52	5.1	1.78	325	2.52	784	2.61	939	-----	-----	-----	-----
10	.52	5.1	1.78	325	7.30	8,260	2.63	957	2.59	922	2.04	504
11	.52	5.1	1.78	325	10.04	13,200	2.64	966	-----	-----	-----	-----
N	1.47	190	1.78	325	10.05	13,200	2.65	975	2.57	904	2.04	504
1	1.78	325	1.93	408	10.36	13,900	2.67	993	-----	-----	-----	-----
2	1.78	325	2.11	516	12.20	17,300	2.68	1,000	2.55	888	2.04	504
3	1.78	325	2.11	516	10.75	14,700	2.70	1,020	-----	-----	-----	-----
4	1.78	325	2.16	546	10.30	13,700	2.71	1,030	2.53	870	2.04	504
5	1.78	325	2.29	628	9.70	12,600	2.71	1,030	-----	-----	-----	-----
6	1.78	325	2.29	628	9.05	11,300	2.71	1,030	2.34	720	2.04	504
7	.69	12	2.29	628	6.78	7,360	2.70	1,020	-----	-----	-----	-----
8	.58	7.3	2.29	628	6.78	7,360	2.70	1,020	2.34	720	2.04	504
9	.54	5.8	2.29	628	6.58	7,000	2.70	1,020	-----	-----	-----	-----
10	.53	5.5	2.29	628	5.42	4,900	2.69	1,010	2.34	720	2.04	504
11	.53	5.5	2.29	628	3.57	1,820	2.68	1,000	-----	-----	-----	-----
12	.52	5.1	2.29	628	3.95	2,410	2.68	1,000	2.33	712	2.04	504

BROAD RIVER NEAR BOILING SPRINGS, N. C.

LOCATION.—Lat. 35°12'35", long. 81°41'55", half a mile upstream from Sandy Run Creek and 3½ miles southwest of Boiling Springs, Cleveland County.

DRAINAGE AREA.—864 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 58,200 second-feet. Gage heights used to half-tenths between 2.6 and 4.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 60,400 second-feet 12:30 to 1 p.m. Aug. 14 (gage height, 22.10 feet).

1925-39: Discharge, 73,300 second-feet Aug. 16, 1928 (gage height, 24.3 feet, present datum).

REMARKS.—Flood runoff affected only slightly by artificial storage.

244 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	472	2,950	9	680	946	17	2,810	1,070	25	1,010	1,080
2	406	1,910	10	489	1,480	18	2,340	1,040	26	946	1,050
3	278	1,970	11	283	1,500	19	1,990	950	27	1,130	806
4	175	1,620	12	357	1,050	20	2,650	944	28	1,120	826
5	194	1,450	13	7,740	980	21	1,720	1,030	29	1,620	472
6	662	1,360	14	49,000	931	22	1,670	694	30	5,360	478
7	550	1,330	15	13,300	620	23	1,360	502	31	5,050	-----
8	668	968	16	3,790	568	24	1,190	872			
Monthly mean discharge, in second-feet.....										3,562	1,115
Runoff, in inches.....										4.75	1.44

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.83	566	16.15	32,000	16.60	33,500	-----	-----	-----	-----
2	-----	-----	1.82	557	17.05	35,000	15.80	30,500	-----	-----	4.30	3,390
3	-----	-----	1.79	532	17.95	39,000	15.05	27,700	-----	-----	-----	-----
4	1.38	221	1.76	506	18.77	42,600	14.15	25,100	4.96	4,310	4.39	3,520
5	-----	-----	1.76	506	19.45	45,500	13.15	22,100	-----	-----	-----	-----
6	-----	-----	1.78	523	20.00	48,600	12.10	18,900	-----	-----	4.30	3,390
7	-----	-----	1.85	582	20.50	51,300	11.00	16,000	-----	-----	-----	-----
8	1.37	215	2.13	828	21.00	54,100	9.95	13,600	4.71	3,910	4.13	3,200
9	-----	-----	3.45	2,180	21.35	56,300	9.25	11,800	-----	-----	-----	-----
10	-----	-----	4.60	3,600	21.60	57,500	8.70	10,600	-----	-----	4.04	3,060
11	-----	-----	6.10	5,860	21.88	59,200	8.30	9,800	-----	-----	-----	-----
N	1.58	360	6.90	7,180	22.05	59,800	7.90	9,010	4.52	3,650	3.90	2,880
1	-----	-----	6.97	7,350	22.10	60,400	7.55	8,450	-----	-----	-----	-----
2	-----	-----	6.87	7,180	22.00	59,800	7.25	7,750	-----	-----	3.85	2,820
3	-----	-----	7.05	7,350	21.80	58,600	6.95	7,410	-----	-----	-----	-----
4	1.63	399	7.17	7,710	21.45	56,300	6.65	6,740	4.39	3,520	3.20	2,050
5	-----	-----	7.25	7,710	21.00	54,100	6.42	6,420	-----	-----	-----	-----
6	-----	-----	7.50	8,250	20.75	53,000	6.18	6,100	-----	-----	3.89	2,880
7	-----	-----	9.10	11,500	20.20	49,700	5.98	5,780	-----	-----	-----	-----
8	1.82	557	12.02	18,600	19.65	46,500	5.79	5,470	4.29	3,390	3.10	1,940
9	-----	-----	12.75	20,900	19.10	44,000	5.65	5,170	-----	-----	-----	-----
10	-----	-----	13.95	24,500	18.60	41,700	5.52	5,020	-----	-----	3.17	2,000
11	-----	-----	14.58	26,400	18.00	39,000	5.40	4,870	-----	-----	-----	-----
12	1.82	557	15.45	29,100	17.30	36,200	5.28	4,730	4.16	3,200	3.22	2,050

SUPPLEMENTAL RECORDS.—Aug. 14, 12:30 p.m., gage height, 22.10 feet, discharge, 60,400 second-feet. Aug. 17, 12:30 p.m., gage height, 3.80 feet, discharge, 2,760 second-feet; 4:30 p.m., gage height, 3.06 feet, discharge, 1,880 second-feet; 5 p.m., gage height, 3.30 feet, discharge, 2,160 second-feet; 6:15 p.m., gage height, 3.90 feet, discharge, 2,880 second-feet.

BROAD RIVER NEAR GAFFNEY, S. C.

LOCATION.—Lat. 35°05'20", long. 81°34'20", at bridge on U. S. Highway 29, 0.3 mile upstream from Cherokee Creek, 4.4 miles downstream from Gaston Shoals Dam, and 4.5 miles east of Gaffney, Cherokee County.

DRAINAGE AREA.—1,490 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods Aug. 3-13, 11 a.m. Aug. 30 to 12 m. Sept. 9, record for which was computed on basis of power-plant operation records, weather records, and records for station near Carlisle.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,000 second-feet and extended to crest gage height on basis of determination of flood flow over Gaston Shoals Dam.

MAXIMA.—1940: Discharge, 119,000 second-feet 7:30 p.m. Aug. 14 (gage height, 19.78 feet).

1896-99, 1938-39: Discharge, observed, 25,400 second-feet Mar. 19, 1899 (gage height, 12.20 feet, site and datum then in use).

REMARKS.—Flood discharge not appreciably affected by artificial storage or diversion. Flow regulated during medium and low stages by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	766	7,500	9	1,000	1,100	17	4,550	1,290	25	1,330	1,520
2	696	4,800	10	700	2,130	18	3,670	1,230	26	1,270	1,440
3	550	3,600	11	600	2,610	19	3,370	1,180	27	1,340	953
4	480	3,000	12	500	1,580	20	3,150	1,010	28	1,310	866
5	460	2,600	13	3,000	1,270	21	2,390	1,310	29	1,990	820
6	500	2,200	14	80,600	1,340	22	2,170	972	30	8,500	602
7	950	1,800	15	36,000	962	23	1,840	825	31	9,500	-----
8	900	1,200	16	6,000	926	24	1,530	985			
Monthly mean discharge, in second-feet.....										5,858	1,787
Runoff, in inches.....										4.53	1.34

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	11.60	26,600	18.29	96,000	6.42	7,600
2	12.84	35,200	17.82	89,400	6.30	7,310
3	13.33	39,000	17.22	81,200	6.21	7,090
4	13.73	42,500	16.60	73,100	6.13	6,900
5	14.17	46,400	16.03	66,300	6.05	6,710
6	14.64	51,100	15.40	59,100	5.98	6,540
7	15.10	55,800	14.70	51,700	5.92	6,400
8	15.57	61,000	13.96	44,500	5.87	6,280
9	16.07	66,700	13.21	38,100	5.80	6,110
10	16.57	72,700	12.40	32,000	5.76	6,010
11	17.03	78,700	11.61	26,700	5.70	5,870
N	17.53	85,300	10.71	21,900	5.67	5,800
1	18.09	93,200	9.97	18,800	5.57	5,560
2	18.58	100,000	9.28	16,100	5.53	5,470
3	18.89	105,000	8.74	14,200	5.49	5,380
4	19.21	110,000	8.22	12,600	5.52	5,450
5	19.52	115,000	7.85	11,400	5.52	5,450
6	19.67	117,000	7.58	10,700	5.48	5,350
7	19.74	119,000	7.38	10,100	5.44	5,260
8	19.73	118,000	7.08	9,320	5.31	4,960
9	19.62	117,000	6.94	8,950	5.46	5,310
10	19.40	113,000	6.88	8,800	5.51	5,420
11	19.08	108,000	6.69	8,300	5.43	5,240
12	18.70	102,000	6.55	7,940	5.36	5,080

SUPPLEMENTAL RECORD.—Aug. 14, 7:30 p.m., gage height, 19.78 feet; discharge, 119,000 second-feet.

BROAD RIVER NEAR CARLISLE, S. C.

LOCATION.—Lat. 34°36', long. 81°25'; at bridge on State Highway 7, 2 miles upstream from Sandy River, 2 miles downstream from Seaboard Railway bridge, 2½ miles east of Carlisle, Union County, and 5 miles downstream from Neals Shoals Dam. Datum of gage is 290.70 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,790 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 34,000 second-feet and extended to crest gage height on basis of determination of flood flow over Neals Shoals Dam.

MAXIMA.—1940: Discharge, 103,000 second-feet 4:30 p.m. Aug. 15 (gage height, 29.41 feet).

1938-39: Discharge, 34,900 second-feet Mar. 1, 1939 (gage height, 16.27 feet).

246 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—Flood discharge not appreciably affected by artificial storage or diversion. Flow regulated during medium and low stages by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,050	7,530	9	1,620	2,560	17	7,740	1,070	25	1,100	1,330
2	1,730	5,130	10	672	2,080	18	5,640	1,730	26	2,340	1,750
3	702	4,180	11	95	2,320	19	4,940	1,680	27	2,190	2,190
4	92	3,710	12	1,240	3,360	20	4,740	1,840	28	1,960	1,210
5	958	2,460	13	2,990	2,740	21	4,640	1,140	29	2,160	221
6	1,190	3,300	14	29,100	1,240	22	2,920	193	30	6,150	1,380
7	1,010	1,470	15	85,500	503	23	2,690	1,630	31	11,100	-----
8	1,110	1,130	16	43,900	1,690	24	1,780	1,520			-----
Monthly mean discharge, in second-feet.....										7,582	2,143
Runoff, in inches.....										3.14	0.86

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	2.73	1,380	6.44	8,510	21.02	53,300	26.94	86,200	-----	-----
2	2.54	1,140	7.22	10,200	21.73	56,800	26.29	82,000	-----	-----
3	2.25	807	8.08	12,100	22.43	60,400	25.79	79,000	6.71	9,100
4	2.00	565	9.52	15,600	23.25	64,600	25.18	75,400	-----	-----
5	1.85	440	10.59	18,300	24.02	68,800	24.49	71,400	-----	-----
6	1.72	342	11.32	20,200	24.57	71,800	23.83	67,800	6.19	7,960
7	1.64	289	12.16	22,500	25.10	74,900	23.11	63,800	-----	-----
8	1.58	251	12.94	24,700	25.28	76,000	22.35	60,000	-----	-----
9	1.80	400	13.44	26,100	26.78	85,100	21.53	55,800	5.81	7,160
10	3.40	2,400	13.89	27,400	27.35	88,800	20.63	51,500	-----	-----
11	3.76	3,060	14.25	28,500	27.93	92,600	19.49	46,500	-----	-----
N	4.33	4,200	14.65	29,700	28.33	95,300	18.18	41,400	5.42	6,380
1	4.54	4,620	15.04	30,900	28.70	97,900	16.82	36,600	-----	-----
2	4.60	4,740	15.47	32,200	28.95	99,600	15.37	31,900	-----	-----
3	4.60	4,740	16.04	34,100	29.13	101,000	13.93	27,600	5.33	6,200
4	4.60	4,740	16.56	35,700	29.40	103,000	12.42	23,200	-----	-----
5	4.60	4,740	16.94	37,000	29.40	103,000	11.16	19,800	-----	-----
6	4.60	4,740	17.31	38,300	29.34	102,000	10.08	17,000	6.07	7,690
7	4.60	4,740	17.69	39,600	29.18	101,000	9.42	15,300	-----	-----
8	4.60	4,740	18.17	41,400	28.98	99,900	8.84	14,000	-----	-----
9	4.60	4,740	18.69	43,300	28.68	97,800	8.39	12,900	6.25	8,090
10	4.65	4,840	19.22	45,400	28.31	95,200	8.03	12,000	-----	-----
11	4.78	5,100	19.74	47,500	27.90	92,400	7.71	11,300	-----	-----
12	5.55	6,640	20.43	50,600	27.43	89,300	7.47	10,800	6.16	7,890

SUPPLEMENTAL RECORD.—Aug. 15, 4:30 p.m., gage height, 29.41 feet; discharge, 103,000 second-feet.

BROAD RIVER AT RICHTEX, S. C.

LOCATION.—Lat. 34°11', long. 81°12', 1 mile upstream from Little River and Richtex, Fairfield County, and 11 miles downstream from Parr Shoals Dam. Datum of gage is 184.84 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—4,850 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 80,000 second-feet and extended to crest gage height on basis of determinations of flood flows over Parr Shoals Dam.

MAXIMA.—1940: Discharge, 120,000 second-feet 8 a.m. Aug. 16 (gage height, 21.08 feet).

1925-39: Discharge, 228,000 second-feet Oct. 3, 1929 (gage height, 30.7 feet, from floodmarks).

REMARKS.—Flood discharge not appreciably affected by artificial storage or diversion. Flow regulated by power plants above station during low and medium stages.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,730	10,800	9	1,440	2,680	17	39,900	1,940	25	1,190	2,050
2	1,030	7,690	10	2,080	2,710	18	12,100	1,330	26	2,580	1,420
3	1,960	5,550	11	535	2,530	19	7,030	2,200	27	3,050	1,740
4	389	4,480	12	2,120	3,290	20	6,280	1,840	28	2,600	2,040
5	645	3,760	13	4,270	3,490	21	5,900	2,400	29	2,780	516
6	1,410	3,460	14	22,600	2,750	22	5,410	671	30	5,170	1,220
7	1,550	3,200	15	71,800	606	23	2,940	1,050	31	5,490	-----
8	1,410	672	16	109,000	1,580	24	3,400	2,720			-----
Monthly mean discharge, in second-feet.....										10,620	2,746
Runoff, in inches.....										2.52	0.63

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.09	1,040	3.60	7,400	11.95	46,500	20.17	111,000	16.04	74,100	-----	-----
2	.99	880	3.59	7,370	12.19	48,000	20.42	113,000	15.41	69,700	6.08	16,400
3	.89	736	3.50	7,100	12.44	49,700	20.63	115,000	14.76	65,100	-----	-----
4	.80	615	3.50	7,100	12.69	51,300	20.79	117,000	14.10	60,500	5.77	15,200
5	.76	569	3.51	7,130	12.97	53,100	20.93	118,000	13.46	56,300	-----	-----
6	1.33	1,460	3.54	7,220	13.24	54,900	21.02	119,000	12.84	52,300	5.50	14,100
7	1.88	2,610	3.82	8,080	13.54	56,800	21.07	120,000	12.27	48,600	-----	-----
8	1.87	2,590	4.54	10,500	13.83	58,700	21.08	120,000	11.74	45,200	5.27	13,200
9	1.78	2,390	5.35	13,500	14.13	60,700	21.07	120,000	11.25	42,300	-----	-----
10	1.75	2,320	5.99	16,000	14.44	62,900	21.03	119,000	10.78	39,500	5.26	13,200
11	1.99	2,880	6.67	18,800	14.77	65,200	20.94	118,000	10.36	37,000	-----	-----
N	2.49	4,190	7.29	21,400	15.14	67,800	20.81	117,000	9.92	34,600	4.99	12,200
1	2.88	5,300	7.91	24,200	15.51	70,400	20.67	116,000	9.64	33,100	-----	-----
2	3.11	5,970	8.44	26,800	15.92	73,200	20.48	114,000	9.37	31,600	4.71	11,100
3	3.30	6,520	8.93	29,200	16.34	76,400	20.26	112,000	9.04	29,800	-----	-----
4	3.37	6,720	9.34	31,400	16.76	79,500	20.01	109,000	8.68	28,000	4.41	10,100
5	3.39	6,780	9.74	33,600	17.19	82,900	19.72	106,000	8.40	26,600	-----	-----
6	3.40	6,810	10.14	35,800	17.59	86,300	19.38	103,000	8.14	25,300	4.14	9,160
7	3.23	6,320	10.43	37,400	18.00	90,000	19.00	99,500	7.79	23,700	-----	-----
8	3.41	6,840	10.70	39,000	18.44	94,200	18.64	96,100	7.52	22,400	3.93	8,440
9	3.83	8,120	10.97	40,600	18.85	98,100	18.18	91,700	7.38	21,800	-----	-----
10	3.90	8,340	11.23	42,200	19.23	102,000	17.70	87,300	7.18	20,900	4.01	8,710
11	3.80	8,020	11.47	43,600	19.57	105,000	17.18	82,800	6.90	19,700	-----	-----
12	3.67	7,610	11.70	45,000	19.89	108,000	16.63	78,500	6.65	18,700	3.81	8,050

GREEN RIVER NEAR MILL SPRING, N. C.

LOCATION.—Lat. 35°20'10", long. 82°04'50", at abandoned ford 1½ miles northeast of Pea Ridge Church, about 2 miles downstream from Walnut Creek and 5¼ miles northeast of Mill Spring, Polk County.

DRAINAGE AREA.—174 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,700 second-feet and extended logarithmically to crest gage height on basis of computation of flood flow over dam and through wheels at Turner Shoals power plant, about 4 miles above station. Gage heights used to half-tenths between 3.2 and 3.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 10,800 second-feet 8:30 p.m. Aug. 13 (gage height, 22.15 feet).

Stage known, 24.2 feet sometime in July 1916, from flood reference mark placed by local resident (discharge not determined).

248 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—Flood runoff affected by storage in Lake Summit, about 25 miles upstream, which has a total storage capacity of 211,015,000 cubic feet and a usable storage capacity of 110,580,000 cubic feet, and in Turner Shoals Reservoir, about 4 miles upstream, which has a total storage capacity of about 519,547,000 cubic feet and a usable storage capacity of 153,875,000 cubic feet.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	76	748	9	51	740	17	587	444	25	60	244
2	35	815	10	34	671	18	327	347	26	285	255
3	35	554	11	34	385	19	825	345	27	330	296
4	34	464	12	221	324	20	472	568	28	345	93
5	429	357	13	4,880	296	21	434	328	29	422	43
6	210	478	14	4,650	142	22	402	58	30	1,540	456
7	260	153	15	1,420	51	23	404	220	31	1,420	-----
8	310	111	16	1,080	418	24	103	299			
Monthly mean discharge, in second-feet-----										700	357

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.51	36	2.07	167	19.82	9,380				
2	1.51	36	1.97	134	19.15	9,020	5.64	1,970	3.68	1,120
3	1.51	36	1.93	123	18.45	8,570				
4	1.51	36	1.97	134	17.70	8,180	5.05	1,700	3.67	1,090
5	1.50	35	1.91	117	16.84	7,690				
6	1.50	35	1.92	120	15.95	7,250	4.72	1,560	3.62	1,070
7	1.50	35	2.20	216	14.94	6,640				
8	1.50	35	3.55	1,040	13.83	6,040	4.47	1,480	3.62	1,070
9	1.50	35	5.20	1,790	12.65	5,400				
10	1.50	35	8.90	3,550	11.30	4,750	4.33	1,380	3.60	1,070
11	1.50	35	10.62	4,400	9.87	4,050				
N	1.93	123	11.32	4,750	8.80	3,500	4.17	1,340	3.60	1,070
1	2.25	238	11.95	5,100	7.95	3,100				
2	2.44	332	13.00	5,600	7.31	2,750	4.08	1,300	3.58	1,070
3	2.56	401	14.15	6,260	6.84	2,510				
4	2.48	354	16.67	7,640	6.51	2,380	4.02	1,250	3.57	1,040
5	2.63	444	18.50	8,620	6.22	2,240				
6	2.72	504	20.10	9,560	5.93	2,100	3.88	1,200	3.56	1,040
7	2.75	525	21.76	10,600	5.76	2,060				
8	2.77	539	22.14	10,800	5.70	2,020	3.80	1,160	3.68	1,120
9	2.78	546	22.03	10,700	5.61	1,970				
10	2.66	464	21.65	10,500	5.56	1,970	3.72	1,120	3.65	1,090
11	2.43	326	21.11	10,200	5.75	2,060				
12	2.22	225	20.52	9,800	6.03	2,150	3.69	1,120	3.64	1,090

SUPPLEMENTAL RECORD.—Aug. 13, 8:30 p.m., gage height, 22.15 feet; discharge 10,800 second-feet

SECOND BROAD RIVER AT CLIFFSIDE, N. C.

LOCATION.—Lat. 35°14'15", long. 81°46'25", at Cliffside, Rutherford County, 2 miles upstream from mouth.

DRAINAGE AREA.—211 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,100 second-feet and extended to crest gage height on basis of computation of flood flow over Cliffside Mills Dam, about a quarter of a mile upstream. Gage heights used to half-tenths between 2.5 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 15,000 second-feet 1 p.m. Aug. 14 (gage height, 17.93 feet).

1925-39: Discharge, 14,500 second-feet Aug. 16, 1928 (gage height, 17.26 feet).

REMARKS.—Flood runoff not affected by artificial storage.

SANTEE RIVER BASIN

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Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	42	420	9	94	171	17	454	132	25	237	144
2	83	293	10	48	154	18	369	119	26	245	129
3	53	229	11	9	209	19	443	118	27	177	118
4	10	197	12	109	164	20	253	126	28	191	119
5	61	189	13	1,180	134	21	221	72	29	373	45
6	67	177	14	12,000	80	22	224	56	30	1,520	95
7	68	124	15	4,230	12	23	120	124	31	965	-----
8	72	132	16	669	140	24	179	138			
Monthly mean discharge, in second-feet-----										799	145
Runoff, in inches-----										4.37	0.77

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	1.15	106	6.96	5,500	11.70	9,940	-----	-----
2	0.55	10	1.02	75	7.80	6,300	10.93	9,260	-----	-----
3	-----	-----	1.02	75	9.20	7,690	10.13	8,540	-----	-----
4	.55	10	1.02	75	10.45	8,810	9.33	7,780	2.49	764
5	-----	-----	1.03	77	11.85	10,000	8.53	7,000	-----	-----
6	.63	16	1.03	77	13.15	11,200	7.85	6,300	-----	-----
7	-----	-----	1.32	157	14.45	12,200	7.20	5,700	-----	-----
8	1.27	141	1.55	250	15.60	13,100	6.63	5,100	2.40	710
9	-----	-----	1.65	296	16.30	13,700	6.23	4,700	-----	-----
10	1.30	150	2.94	1,080	17.05	14,200	5.80	4,300	-----	-----
11	-----	-----	2.52	770	17.60	14,700	5.45	3,900	-----	-----
N	1.28	144	3.15	1,240	17.88	15,000	5.09	3,600	2.31	656
1	-----	-----	2.80	970	17.93	15,000	4.70	3,170	-----	-----
2	1.32	157	3.16	1,240	17.83	14,900	4.45	2,880	-----	-----
3	-----	-----	3.00	1,120	17.61	14,700	4.17	2,480	-----	-----
4	1.27	141	2.93	1,080	17.26	14,500	3.93	2,160	2.24	614
5	-----	-----	2.90	1,040	16.95	14,200	3.68	1,820	-----	-----
6	1.29	147	2.94	1,080	16.50	13,800	3.45	1,540	-----	-----
7	-----	-----	3.00	1,120	16.00	13,400	3.28	1,380	-----	-----
8	1.32	157	4.98	3,500	15.35	13,000	3.12	1,200	2.15	560
9	-----	-----	4.40	2,820	14.62	12,300	3.00	1,120	-----	-----
10	1.32	157	5.30	3,800	13.90	11,800	2.88	1,040	-----	-----
11	-----	-----	5.40	3,900	13.20	11,200	2.78	970	-----	-----
12	1.28	144	6.18	4,700	12.43	10,500	2.69	900	2.08	519
Hour	Aug. 17		Aug. 18		SUPPLEMENTAL RECORDS					
	Gage height	Dis-charge	Gage height	Dis-charge						
6	2.02	486	1.82	380	Aug. 12, 1:45 p.m.-----					
N	1.93	436	1.81	375	Aug. 13, 12:15 p.m.-----					
6	1.92	431	1.77	355	12:45 p.m.-----					
12	1.88	410	1.70	320	8:30 p.m.-----					
					Aug. 17, 12:15 p.m.-----					
								1.39	182	
								3.24	1,340	
								2.75	935	
								5.15	3,700	
								1.75	345	

FIRST BROAD RIVER NEAR LAWNDALE, N. C.

LOCATION.—Lat. 35°22'50", long. 81°32'40", 500 feet downstream from dam at Double Shoals, about one-eighth of a mile upstream from Barnes Creek, and 2½ miles southeast of Lawndale, Cleveland County.

DRAINAGE AREA.—198 square miles (1942 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,300 second-feet and extended above on basis of records for nearby streams. The flood of Aug. 13-14 deposited large quantities of sand in the river and upset the normal stage-discharge relation very seriously from Aug. 13 to Sept. 30. The result of a slope-area determination of the discharge at crest gage height was valueless because of sand movement. Shifting-control method used 3-8 p.m. Aug. 13 and 8 p.m. Aug. 14 to Sept. 30 based on four current-meter measurements. Gage heights used to half-tenths between 3.1 and 4.5 feet; hundredths below and tenths above these limits.

250 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Discharge, 32,500 second-feet 6 a.m. Aug. 14 (gage height, 37.8 feet).

The flood of July 1916 reached a stage about 0.03 foot higher than that of Aug. 14, 1940, from flood reference mark placed by local resident (discharge not determined).

REMARKS.—Runoff for major floods not affected by artificial storage. Records of discharge above 10,000 second-feet are of doubtful accuracy because of poor definition of stage-discharge relation.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	88	352	9	53	111	17	594	40	25	195	72
2	71	226	10	51	244	18	715	82	26	179	66
3	54	177	11	53	286	19	657	78	27	163	55
4	42	172	12	181	86	20	329	74	28	135	55
5	57	159	13	3,500	101	21	246	70	29	378	46
6	55	134	14	19,900	132	22	189	58	30	2,200	57
7	88	121	15	981	100	23	166	81	31	1,070	-----
8	103	97	16	604	93	24	201	62			
Monthly mean discharge, in second-feet-----										1,074	116
Runoff, in inches-----										6.25	0.65

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.03	230	30.40	22,500	5.45	1,660	-----	-----	-----	-----
2	1.77	135	1.98	209	31.95	24,600	5.02	1,420	3.63	644	3.68	628
3	-----	-----	1.92	185	33.80	26,900	4.80	1,300	-----	-----	-----	-----
4	1.75	129	1.91	181	35.65	29,400	4.50	1,140	3.56	604	3.66	619
5	-----	-----	1.92	185	37.10	31,500	4.38	1,080	-----	-----	-----	-----
6	1.70	115	1.75	129	37.8	32,500	4.30	1,030	3.52	580	3.63	606
7	-----	-----	2.10	260	37.50	32,100	4.24	1,000	-----	-----	-----	-----
8	1.77	135	2.36	393	36.75	31,100	4.20	979	3.58	601	3.58	582
9	-----	-----	2.33	376	35.60	29,400	4.16	957	-----	-----	-----	-----
10	1.98	209	2.40	415	34.10	27,300	4.12	935	3.56	586	3.52	555
11	-----	-----	2.53	488	32.50	25,200	4.09	919	-----	-----	-----	-----
N	1.93	189	2.57	512	31.00	23,300	4.07	908	3.54	564	3.46	528
1	-----	-----	3.35	998	29.30	21,100	4.11	930	-----	-----	-----	-----
2	1.86	163	4.90	2,040	27.75	19,300	4.10	917	3.57	578	3.41	506
3	-----	-----	6.93	3,060	26.10	17,200	4.06	895	-----	-----	-----	-----
4	1.81	146	5.85	2,210	24.50	15,400	3.98	845	3.62	601	3.39	498
5	-----	-----	6.95	2,820	22.90	13,600	3.91	811	-----	-----	-----	-----
6	1.88	170	7.10	2,910	21.10	11,800	3.99	844	3.65	614	3.38	493
7	-----	-----	7.00	2,850	18.90	9,760	3.95	824	-----	-----	-----	-----
8	2.27	344	14.50	6,530	16.10	7,490	3.75	720	3.67	624	3.38	493
9	-----	-----	20.70	11,400	13.55	5,840	3.51	606	-----	-----	-----	-----
10	2.14	279	25.00	15,900	11.10	4,540	3.65	666	3.67	624	3.45	524
11	-----	-----	27.70	19,100	8.70	3,430	3.81	742	-----	-----	-----	-----
12	2.05	238	29.20	21,000	6.40	2,190	3.60	635	3.68	628	5.50	1,560
Hour	Aug. 18		Aug. 19		SUPPLEMENTAL RECORDS							
	Gage ht.	Dis-charge	Gage ht.	Dis-charge								
2	5.50	1,560	4.86	1,220	Aug. 13, 5:45 a.m.-----						1.93	189
4	4.35	959	4.50	1,040	6:15 a.m.-----						1.69	113
6	3.85	706	4.10	828	3:45 p.m.-----						5.57	2,040
8	3.54	564	3.75	660	4:45 p.m.-----						7.41	3,070
10	3.42	510	3.65	614	5:45 p.m.-----						7.45	3,100
N	3.37	488	3.47	533	6:45 p.m.-----						6.78	2,730
2	3.34	475	3.38	493	Aug. 17, 11 p.m.-----						3.60	591
4	3.27	446	3.32	467	Aug. 18, 12:45 a.m.-----						5.95	1,810
6	3.26	441	3.30	458	9 p.m.-----						3.81	688
8	3.23	429	3.23	429	Aug. 19, 1:30 a.m.-----						4.92	1,250
10	3.80	683	3.17	403								
12	4.60	1,090	3.15	396								

NORTH PACOLET RIVER AT FINGERVILLE, S. C.

LOCATION.—Lat. 35°07', long. 81°59', at McMillin Mill, about 400 feet downstream from Obed Creek and 1 mile south of Fingerville, Spartanburg County. Datum of gage is 715.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—116 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 850 second-feet and extended to crest gage height on basis of determination of flood flow over dam 2 miles upstream.

MAXIMA.—1940: Discharge, 12,500 second-feet 1:15 a.m. Aug. 14 (gage height, 27.13 feet).

1929-39: Discharge, 7,290 second-feet Oct. 17, 1936 (gage height, 21.23 feet), from rating curve extended above 1,100 second-feet.

REMARKS.—Flood discharge not affected by artificial storage or regulation. Some diurnal fluctuation at low and medium stages caused by mills upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	52	182	9	59	93	17	428	80	25	105	80
2	51	146	10	54	101	18	332	79	26	112	91
3	51	120	11	48	97	19	282	82	27	102	69
4	40	114	12	71	86	20	176	75	28	111	91
5	52	105	13	3,310	88	21	152	90	29	164	63
6	49	104	14	6,450	99	22	144	58	30	446	69
7	75	109	15	1,080	78	23	125	69	31	292	-----
8	83	91	16	571	76	24	134	69			
Monthly mean discharge, in second-feet.....										490	91.8
Runoff, in inches.....										4.86	0.88

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	3.37	102	27.10	12,400	9.49	1,540	7.10	744	7.17	764
2	3.54	133	27.04	12,400	9.23	1,450	6.93	696	6.74	644
3	3.90	204	26.62	12,100	9.26	1,460	6.83	668	6.38	548
4	4.01	227	26.16	11,700	8.94	1,350	6.75	646	6.21	504
5	4.15	256	25.62	10,900	8.90	1,340	6.62	611	6.05	464
6	4.44	319	24.99	10,100	8.58	1,220	6.57	598	5.99	448
7	5.40	553	24.35	9,300	8.40	1,160	6.50	579	5.92	431
8	7.62	1,240	23.52	8,370	8.19	1,090	6.45	566	5.86	416
9	7.43	1,170	22.81	7,590	8.13	1,070	6.36	543	5.83	409
10	8.77	1,640	21.94	7,020	8.07	1,040	6.32	532	5.79	400
11	9.10	1,760	21.00	6,440	8.06	1,040	6.25	514	5.77	395
N	9.71	2,000	20.18	5,650	7.94	999	6.18	496	5.64	364
1	10.03	2,130	19.32	5,160	7.93	996	5.70	378	5.65	366
2	10.25	2,220	18.39	4,650	7.88	978	5.72	383	5.66	369
3	10.10	2,160	17.43	4,140	7.85	968	6.01	454	5.64	364
4	9.91	2,080	16.52	3,690	7.85	968	6.08	471	5.63	362
5	12.17	3,050	15.48	3,190	7.79	947	5.95	438	5.62	360
6	14.30	4,080	14.42	2,710	7.70	920	5.91	428	5.60	355
7	17.16	5,640	13.52	2,530	7.66	908	5.87	419	5.58	350
8	21.99	8,700	12.71	2,200	7.54	872	5.90	426	5.56	346
9	24.32	10,300	12.06	2,140	7.46	848	6.89	685	5.54	341
10	25.82	11,400	11.42	1,890	7.36	819	7.23	782	5.52	337
11	26.47	11,900	10.76	1,640	7.29	799	7.39	828	5.50	332
12	26.80	12,200	10.13	1,590	7.19	770	7.48	854	5.48	328

SUPPLEMENTAL RECORD.—Aug. 14, 1:15 a.m., gage height, 27.13 feet; discharge, 12,500 second-feet.

PACOLET RIVER NEAR FINGERVILLE, S. C.

LOCATION.—Lat. 35°07', long. 81°58', 100 feet upstream from county highway bridge, a quarter of a mile downstream from confluence of North and South

252 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Pacolet Rivers, and 2½ miles southeast of Fingerville, Spartanburg County. Datum of gage is 706.33 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—212 square miles; 92 square miles affected by storage in South Pacolet River Reservoir.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods of doubtful gage-height record, Aug. 3, 4, 10, 11, Sept. 22, 29, record for which was computed on basis of records for North Pacolet River at Fingerville.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,600 second-feet and extended to crest gage height on basis of velocity-area studies.

MAXIMA.—1940: Discharge, 22,800 second-feet 1:45 a.m. Aug. 14 (gage height, 22.43 feet).

1929-39: Discharge, 11,300 second-feet Oct. 17, 1936 (gage height, 13.63 feet).

REMARKS.—Flood discharge affected by storage in South Pacolet River Reservoir. For information on storage see records for South Pacolet River Reservoir near Fingerville, S. C.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	114	252	9	97	160	17	660	147	25	175	128
2	102	213	10	55	164	18	403	147	26	182	138
3	50	196	11	50	167	19	531	149	27	171	109
4	40	188	12	123	156	20	387	131	28	177	93
5	97	176	13	3,660	141	21	242	92	29	236	65
6	102	175	14	13,500	101	22	213	60	30	523	106
7	122	179	15	2,280	85	23	196	134	31	366	-----
8	128	157	16	1,040	142	24	200	121			
Monthly mean discharge, in second-feet.....										846	142
Runoff, in inches.....										4.60	0.75

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.75	166	22.32	22,600	6.35	3,720	3.25	1,380	2.93	1,220
2	.82	185	22.40	22,700	6.13	3,520	3.14	1,310	2.67	1,060
3	.99	235	22.20	22,400	5.84	3,270	3.05	1,260	2.42	914
4	1.15	290	21.80	21,900	5.59	3,070	2.97	1,210	2.26	826
5	1.30	346	21.22	21,100	5.38	2,900	2.87	1,150	2.12	750
6	1.38	378	20.51	20,100	5.13	2,700	2.80	1,100	2.04	710
7	1.60	472	19.75	19,000	4.95	2,560	2.76	1,080	1.98	680
8	2.68	1,030	18.91	17,900	4.77	2,420	2.69	1,040	1.92	650
9	3.57	1,590	18.07	16,900	4.59	2,290	2.62	997	1.83	631
10	3.48	1,530	17.17	15,700	4.46	2,200	2.56	961	1.86	622
11	3.94	1,840	16.12	14,400	4.35	2,120	2.49	920	1.85	617
N	3.99	1,870	15.12	13,200	4.25	2,060	2.43	886	1.81	598
1	4.19	2,010	14.03	11,800	4.15	1,980	2.24	782	1.74	564
2	4.31	2,100	13.08	10,700	4.06	1,920	2.05	685	1.77	578
3	4.63	2,320	12.18	9,710	4.00	1,880	2.27	798	1.78	583
4	4.62	2,310	11.27	8,710	3.93	1,830	2.32	826	1.76	574
5	4.65	2,340	10.52	7,880	3.86	1,780	2.23	776	1.74	564
6	5.22	2,780	9.81	7,100	3.78	1,730	2.22	771	1.75	569
7	5.93	3,340	9.22	6,470	3.75	1,710	2.18	750	1.72	555
8	7.00	4,300	8.63	5,880	3.68	1,660	2.79	1,100	1.71	550
9	11.73	9,210	8.02	5,270	3.57	1,590	3.10	1,280	1.39	407
10	17.50	16,100	7.51	4,760	3.51	1,550	2.95	1,200	1.29	366
11	20.49	20,000	7.09	4,380	3.43	1,500	3.11	1,290	1.41	415
12	21.73	21,800	6.71	4,040	3.33	1,430	3.10	1,280	1.36	394

SUPPLEMENTAL RECORD.—Aug. 14, 1:45 a.m., gage height, 22.43 feet; discharge, 22,800 second-feet.

PACOLET RIVER NEAR CLIFTON, S. C.

LOCATION.—Lat. $34^{\circ}58'$, long. $81^{\circ}48'$, 1 mile downstream from dam at Clifton Mill 2, 1.5 miles southeast of Clifton, Spartanburg County, 2.2 miles upstream from Lawson Fork, and 2.5 miles northeast of Glendale.

DRAINAGE AREA.—320 square miles; 92 square miles affected by storage in South Pacolet River Reservoir.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,400 second-feet; extended to peak stage on basis of determination of flood flow over dam at Clifton Mill 2. Shifting-control method used Aug. 15-31.

MAXIMA.—Discharge, 26,800 second-feet 12 m., Aug. 14 (gage height, 21.19 feet).

REMARKS.—Flood discharge affected by storage in South Pacolet River Reservoir.

For information on storage see records for South Pacolet River Reservoir near Fingerville, S. C. Low and medium flow regulated by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	147		9	136		17	926		25	222	
2	126		10	114		18	594		26	225	
3	149		11	53		19	700		27	225	
4	53		12	177		20	513		28	214	
5	111		13	3,030		21	365		29	330	
6	121		14	18,200		22	271		30	718	
7	121		15	3,070		23	260		31	466	
8	149		16	1,370		24	261				
Monthly mean discharge, in second-feet-----										1,078	
Runoff, in inches-----										3.88	

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	0.75	42	6.83	5,660	10.36	8,660
2	.80	50	9.96	9,660	9.77	7,890
3	1.03	106	13.07	14,000	8.68	6,510
4	1.49	301	15.20	17,200	7.25	4,800
5	1.62	384	16.17	18,700	6.16	3,600
6	1.99	697	17.77	21,200	5.88	3,300
7	2.39	1,050	18.65	22,600	5.68	3,090
8	5.28	3,890	19.46	23,900	5.55	2,960
9	3.50	2,070	20.16	25,100	5.37	2,780
10	5.04	3,630	20.69	26,000	5.07	2,480
11	5.25	3,860	21.05	26,600	4.91	2,320
N	4.74	3,310	21.19	26,800	4.83	2,240
1	4.40	2,960	20.36	25,400	4.48	1,910
2	4.06	2,620	19.29	23,600	4.35	1,780
3	4.39	2,940	18.20	21,900	4.09	1,550
4	4.20	2,760	17.09	20,100	4.75	2,160
5	3.84	2,400	15.90	18,300	4.44	1,870
6	5.96	4,640	14.59	16,300	4.35	1,780
7	7.35	6,290	13.74	15,000	4.34	1,780
8	8.06	7,180	12.92	13,800	4.32	1,760
9	8.15	7,290	12.40	13,000	2.16	1,100
10	7.37	6,310	11.81	12,200	4.37	1,800
11	6.97	5,830	11.30	11,500	4.51	1,940
12	6.80	5,620	10.81	10,800	4.42	1,850

SOUTH PACOLET RIVER RESERVOIR NEAR FINGERVILLE, S. C.

LOCATION.—Lat. $35^{\circ}07'$, long. $81^{\circ}59'$, at highway bridge across South Pacolet River Reservoir, 1 mile upstream from dam and $1\frac{3}{4}$ miles south of Fingerville, Spartanburg County. Datum of gage is 761.18 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

254 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—92 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

MAXIMA.—1940: Gage height, 17.58 feet 2 a.m. Aug. 14 (contents, 1,179,000,000 gallons).

1930-39: Gage height, 17.68 feet Oct. 19, 1937 (contents, 1,192,000,000 gallons).

REMARKS.—Usable capacity, 879,000,000 gallons between gage heights 0.0 foot (draw-down limit) and 15.0 feet (top of flashboards). City of Spartanburg diverts about 5,000,000 gallons daily from reservoir for municipal use. Figures given herein represent usable contents.

Gage height, and contents, 1940

Day	August		September		Day	August		September		
	Gage height (feet)	Contents (million gallons)	Gage height (feet)	Contents (million gallons)		Gage height (feet)	Contents (million gallons)	Gage height (feet)	Contents (million gallons)	
1	6.67	265	10.92	529	16	12.65	663	8.68	381	
2	6.22	241	10.95	531	17	11.98	609	8.26	355	
3	6.21	241	10.83	523	18	11.94	606	7.77	326	
4	6.44	253	10.62	508	19	12.02	612	7.23	296	
5	6.45	253	10.41	493	20	10.82	522	6.69	266	
6	6.27	244	10.20	479	21	10.12	473	6.90	277	
7	6.07	233	9.97	463	22	10.06	469	7.35	302	
8	6.01	230	9.70	445	23	9.96	463	7.30	299	
9	6.01	230	9.38	424	24	9.82	453	6.75	269	
10	6.15	238	9.08	405	25	9.63	441	6.65	264	
11	6.46	254	8.81	389	26	9.41	426	6.62	262	
12	6.70	267	8.40	364	27	9.16	410	6.48	255	
13	9.80	452	7.99	339	28	8.98	399	6.79	271	
14	16.18	1,007	8.24	354	29	8.78	386	7.27	298	
15	13.49	735	8.70	381	30	9.74	448	7.32	301	
					31	10.64	509			
									August	September
Change in contents, equivalent, in second-feet.....									+12.2	-11.5

Gage height, in feet, and contents in millions of gallons, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Contents	Gage height	Contents	Gage height	Contents	Gage height	Contents
1	6.78	271						
2	6.79	271						
3	6.82	273						
4	6.86	275	17.51	1,169			12.90	684
5	6.93	279						
6	7.04	285			13.73	756		
7	7.13	290						
8	7.23	296	17.05	1,111			12.76	672
9	7.37	303						
10	7.81	329						
11	8.38	362						
N	9.08	405	16.27	1,017	13.42	728	12.66	663
1	9.87	457						
2	10.34	489						
3	10.66	511						
4	10.94	531	15.50	932			12.50	650
5	11.18	548						
6	11.44	568			13.18	708		
7	11.86	600						
8	12.58	657	14.86	865			12.34	637
9	13.58	743						
10	15.27	907						
11	17.04	1,109						
12	17.44	1,160	14.29	809	13.00	692	12.51	651

NORTH TYGER RIVER NEAR MOORE, S. C.

LOCATION.—Lat. $34^{\circ}48'$, long. $81^{\circ}58'$; at Ott Shoals, $1\frac{1}{4}$ miles upstream from Wards Creek, $2\frac{1}{2}$ miles southeast of Moore, Spartanburg County, and $3\frac{3}{8}$ miles upstream from confluence of North and South Tyger Rivers. Datum of gage is 564.79 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—162 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 7,800 second-feet and extended to crest gage height on basis of velocity-area studies.

MAXIMA.—1940: Discharge, 12,300 second-feet 3:45 p.m. Aug. 14 (gage height, 7.15 feet).

1934-39: Discharge, 8,640 second-feet Apr. 7, 1936 (gage height, 6.15 feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Some diurnal fluctuation caused by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	77	151	9	48	87	17	416	80	25	74	67
2	72	159	10	51	98	18	223	73	26	114	60
3	54	128	11	28	82	19	205	76	27	123	69
4	32	98	12	69	75	20	164	74	28	99	54
5	59	88	13	1,090	73	21	124	61	29	122	30
6	72	106	14	9,340	63	22	139	37	30	222	53
7	64	87	15	3,700	40	23	135	68	31	182	-----
8	46	47	16	902	81	24	111	75			
Monthly mean discharge, in second-feet-----										586	78.0
Runoff, in inches-----										4.17	0.54

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.13	106	4.60	4,350	5.75	7,320	2.77	1,320
2	1.16	115	4.92	5,080	5.71	7,190	2.71	1,260
3	1.26	150	5.37	6,210	5.49	6,540	2.65	1,200
4	1.32	174	5.47	6,490	5.33	6,100	2.60	1,140
5	1.41	213	5.68	7,100	5.18	5,710	2.55	1,100
6	1.63	329	5.85	7,630	4.98	5,220	2.50	1,050
7	1.89	513	6.01	8,150	4.76	4,710	2.45	1,000
8	2.32	883	6.18	8,740	4.65	4,460	2.41	965
9	2.48	1,030	6.39	9,480	4.49	4,110	2.38	938
10	2.36	920	6.61	10,300	4.31	3,730	2.34	901
11	2.36	920	6.77	10,900	4.16	3,430	2.31	874
N	2.37	929	6.92	11,400	3.98	3,080	2.27	838
1	2.38	938	7.06	11,900	3.88	2,890	2.24	812
2	2.39	947	7.10	12,100	3.74	2,640	2.21	785
3	2.40	956	7.13	12,200	3.62	2,430	2.18	759
4	2.42	975	7.10	12,100	3.50	2,240	2.15	732
5	2.47	1,020	7.06	11,900	3.38	2,060	2.13	715
6	2.57	1,120	6.93	11,500	3.29	1,940	2.10	689
7	3.06	1,650	6.85	11,200	3.20	1,820	2.08	672
8	3.24	1,870	6.70	10,600	3.12	1,720	2.05	646
9	3.50	2,240	6.59	10,200	3.04	1,620	2.06	655
10	3.82	2,790	6.42	9,590	2.95	1,520	2.22	794
11	4.13	3,370	6.21	8,840	2.88	1,440	2.17	750
12	4.39	3,900	6.05	8,290	2.82	1,370	2.14	724

SUPPLEMENTAL RECORD.—Aug. 14, 3:45 p.m., gage height, 7.15 feet; discharge, 12,300 second-feet.

256 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TYGER RIVER NEAR WOODRUFF, S. C.

LOCATION.—Lat. 34°45', long. 81°55', at Nesbitts Bridge, half a mile downstream from confluence of North and South Tyger Rivers and 6½ miles east of Woodruff, Spartanburg County. Datum of gage is 489.44 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—351 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,000 second-feet and extended to crest gage height on basis of rating curves for North Tyger River near Moore and South Tyger River near Woodruff.

MAXIMA.—1940: Discharge, 19,200 second-feet 4 p.m. Aug. 14 (gage height, 13.27 feet).

October 1929 to 1939: Discharge, 17,100 second-feet Apr. 6, 1936 (gage height, 13.16 feet).

Stage known, about 20.0 feet, during flood of August 1928 (discharge not determined). Flood of September 1929 reached a stage of 14.65 feet, from floodmarks (discharge, 19,600 second-feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Flow regulated by power plants above station during low and medium stages.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	155	270	9	75	172	17	898	144	25	196	106
2	106	451	10	86	210	18	410	108	26	254	90
3	92	490	11	116	128	19	379	106	27	305	98
4	112	273	12	180	146	20	455	106	28	196	165
5	136	222	13	2,980	220	21	358	98	29	200	124
6	218	192	14	15,200	202	22	286	122	30	342	133
7	108	175	15	7,120	134	23	301	132	31	398	-----
8	86	146	16	1,850	164	24	218	163	-----	-----	-----
Monthly mean discharge, in second-feet-----										1,091	176
Runoff, in inches-----										3.58	0.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	2.42	291	7.26	6,900	10.83	14,000	5.11	3,000	-----	-----
2	2.57	373	7.70	7,780	10.52	13,200	4.92	2,720	3.76	1,310
3	2.66	429	8.15	8,720	10.20	12,500	4.80	2,550	-----	-----
4	2.79	520	8.85	10,000	9.88	11,800	4.69	2,400	3.64	1,180
5	2.99	686	9.60	11,700	9.47	10,800	4.63	2,320	-----	-----
6	3.19	876	9.98	12,600	9.14	10,100	4.53	2,190	3.53	1,060
7	3.64	1,340	10.58	13,700	8.66	9,050	4.40	2,020	-----	-----
8	4.45	2,340	11.20	15,200	8.33	8,360	4.33	1,930	3.47	1,000
9	5.41	3,770	11.45	15,700	7.95	7,580	4.26	1,840	-----	-----
10	5.60	4,070	11.82	16,300	7.61	6,900	4.17	1,730	3.40	935
11	5.49	3,890	12.10	17,000	7.42	6,520	4.11	1,660	-----	-----
N	5.29	3,570	12.35	17,600	7.29	6,280	4.05	1,590	3.35	885
1	5.15	3,360	12.63	18,000	6.80	5,360	4.01	1,540	-----	-----
2	4.95	3,060	12.87	18,500	6.71	5,200	3.95	1,470	3.32	856
3	4.97	3,080	13.12	19,100	6.66	5,110	3.90	1,410	-----	-----
4	5.01	3,140	13.27	19,200	6.25	4,400	3.87	1,380	3.24	780
5	5.20	3,430	13.20	19,100	6.38	4,620	3.84	1,540	-----	-----
6	5.61	4,090	12.97	18,500	5.86	3,770	3.79	1,290	3.11	660
7	5.71	4,250	12.89	18,300	5.85	3,750	3.75	1,240	-----	-----
8	6.05	4,820	12.89	18,300	5.70	3,510	3.71	1,200	2.99	559
9	6.50	5,630	12.64	18,100	5.55	3,280	3.66	1,150	-----	-----
10	6.38	5,410	12.26	17,200	5.39	3,040	4.43	2,060	2.90	491
11	6.57	5,760	11.92	16,500	5.22	2,790	4.47	2,110	-----	-----
12	6.95	6,480	11.45	15,400	5.19	2,750	4.13	1,690	2.83	442

MIDDLE TYGER RIVER AT LYMAN, S. C.

LOCATION.—Lat. 34°56'35", long. 82°08'00", at Lyman, Spartanburg County, 200 feet upstream from bridge on U. S. Highway 29, 600 feet downstream from Southern Railway bridge, and three-quarters of a mile northeast of Duncan.

DRAINAGE AREA.—68.3 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Artificial control of masonry. Stage-discharge relation defined by current-meter measurements up to 2,900 second-feet and extended to crest gage height on basis of determination of flood flow over dam.

MAXIMA.—1940: Discharge, 4,800 second-feet 12:30 a.m. Aug. 14 (gage height, 16.16 feet).

1938-39: Discharge, 2,730 second-feet Aug. 18, 1939 (gage height, 9.28 feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	27	95	9	26	36	17	105	30	25	41	28
2	24	57	10	20	36	18	82	27	26	37	31
3	21	49	11	26	32	19	65	28	27	38	28
4	24	45	12	40	32	20	59	29	28	42	28
5	23	41	13	1,730	33	21	53	28	29	48	26
6	26	40	14	3,110	28	22	48	30	30	151	21
7	27	37	15	566	31	23	45	26	31	100	-----
8	29	39	16	187	29	25	48	28			
Monthly mean discharge, in second-feet-----										222	34.9
Runoff, in inches-----										3.75	0.37

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.46	43	16.14	4,790	5.13	1,050	-----	-----
2	1.57	53	15.92	4,730	4.94	963	2.84	269
3	1.84	84	15.45	4,580	4.76	886	-----	-----
4	1.98	105	14.90	4,420	4.61	823	2.74	247
5	2.05	116	14.39	4,270	4.45	760	-----	-----
6	2.14	131	13.90	4,120	4.30	702	2.64	226
7	2.69	236	13.38	3,960	4.17	655	-----	-----
8	4.15	648	12.86	3,810	4.07	620	2.56	210
9	5.05	1,010	12.30	3,640	3.97	586	-----	-----
10	5.04	1,010	11.79	3,490	3.88	556	2.49	196
11	5.46	1,200	11.26	3,330	3.80	530	-----	-----
N	5.90	1,400	10.73	3,170	3.69	495	2.43	184
1	6.30	1,580	10.28	3,030	3.60	468	-----	-----
2	6.60	1,710	9.75	2,880	3.52	444	2.38	174
3	6.73	1,770	9.17	2,680	3.47	430	-----	-----
4	7.35	2,020	8.63	2,500	3.40	410	2.32	164
5	8.70	2,520	8.12	2,320	3.35	396	-----	-----
6	9.85	2,900	7.61	2,120	3.30	382	2.20	142
7	11.50	3,400	7.14	1,940	3.24	366	-----	-----
8	12.74	3,770	6.68	1,750	3.19	353	2.04	114
9	14.25	4,220	6.24	1,550	3.14	340	-----	-----
10	15.28	4,530	5.88	1,390	3.08	325	1.98	105
11	15.83	4,700	5.59	1,260	3.02	311	-----	-----
12	16.14	4,790	5.36	1,150	2.97	299	2.12	128

SUPPLEMENTAL RECORD.—Aug. 14, 12:30 a.m., gage height, 16.16 feet; discharge, 4,800 second-feet.

SOUTH TYGER RIVER NEAR REIDVILLE, S. C.

LOCATION.—Lat. 34°52'35", long. 82°05'10", 0.4 mile upstream from county highway bridge, 1.2 miles downstream from Berry Shoals, 1.8 miles northeast of Reidville, Spartanburg County, and 4 miles upstream from Bens Creek. Datum of gage is 626.28 feet above mean sea level, datum of 1929, supple-

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mentary adjustment of 1936.

DRAINAGE AREA.—106 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage discharge relation defined by current-meter measurements.

MAXIMA.—1940: Discharge, 5,510 second-feet 8:30 p.m. Aug. 13 (gage height, 12.68 feet).

1934-39: Discharge, 6,080 second-feet Apr. 6, 1936 (gage height, 13.66 feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Flow regulated by power plants above station during low and medium stages.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	12	122	9	9.4	105	17	178	9.9	25	71	9.9
2	-7.7	361	10	58	20	18	67	9.9	26	153	9.9
3	56	153	11	64	10	19	155	9.9	27	77	70
4	64	123	12	53	148	20	194	11	28	16	72
5	92	69	13	2,350	113	21	94	57	29	22	64
6	20	14	14	3,240	76	22	115	62	30	84	80
7	9.9	80	15	1,020	62	23	36	75	31	115	-----
8	9.4	61	16	410	62	24	81	9.4	-----	-----	-----
Monthly mean discharge, in second-feet-----										288	71.0
Runoff, in inches-----										3.14	0.75

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	0.88	20	11.39	4,800	5.90	1,820	-----	-----
2	1.14	47	11.64	4,940	5.87	1,800	3.15	576
3	1.29	67	11.77	5,010	5.65	1,700	-----	-----
4	1.37	78	11.61	4,930	5.47	1,600	2.93	496
5	1.47	95	11.15	4,670	5.25	1,500	-----	-----
6	1.67	133	10.45	4,290	4.95	1,340	2.67	409
7	2.30	293	9.65	3,850	4.77	1,260	-----	-----
8	3.36	655	9.01	3,500	4.55	1,160	2.57	376
9	3.30	632	8.45	3,190	4.35	1,070	-----	-----
10	5.09	1,420	8.02	2,950	4.18	996	2.55	370
11	4.42	1,100	7.75	2,800	4.03	928	-----	-----
N	3.84	846	7.53	2,680	3.91	874	2.53	364
1	3.36	655	7.40	2,610	3.82	838	-----	-----
2	6.90	2,340	7.36	2,590	3.75	810	2.53	364
3	10.75	4,450	7.39	2,600	3.83	842	-----	-----
4	11.80	5,030	7.29	2,550	3.73	802	2.60	386
5	12.21	5,260	7.43	2,630	3.64	766	-----	-----
6	12.38	5,350	7.17	2,480	3.55	730	2.59	383
7	12.44	5,380	7.07	2,430	3.44	687	-----	-----
8	12.17	5,230	6.94	2,360	3.35	652	2.63	396
9	12.40	5,360	6.82	2,290	2.81	455	-----	-----
10	11.50	4,860	6.64	2,190	2.20	265	2.64	399
11	11.14	4,670	6.58	2,160	2.45	338	-----	-----
12	11.18	4,690	6.32	2,030	2.65	402	2.62	393

SUPPLEMENTAL RECORD.—Aug. 13, 8:30 p.m., gage height, 12.68 feet; discharge, 5,510 second-feet.

SOUTH TYGER RIVER NEAR WOODRUFF, S. C.

LOCATION.—Lat. 34°45', long. 81°56', at Chesnee Shoals, three-eighths of a mile upstream from confluence of North and South Tyger Rivers and 5¼ miles east of Woodruff, Spartanburg County. Datum of gage is 508.35 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—174 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Artificial control of concrete. Stage-discharge relation defined

by current-meter measurements up to 2,500 second-feet and extended above by velocity-area studies.

MAXIMA.—1940: Discharge, 6,960 second-feet 1:45 p.m. Aug. 14 (gage height, 8.18 feet).

1934-39: Discharge, 9,510 second-feet Apr. 6, 1936 (gage height, 9.78 feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Flow regulated by power plants above station during low and medium stages.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	68	120	9	28	97	17	438	53	25	130	31
2	28	257	10	29	98	18	177	32	26	149	29
3	28	297	11	79	39	19	177	32	27	172	33
4	76	149	12	71	72	20	248	31	28	105	96
5	84	121	13	1,590	142	21	211	33	29	71	81
6	137	79	14	5,600	129	22	152	32	30	113	90
7	35	67	15	2,890	90	23	162	87	31	199	-----
8	30	88	16	873	97	24	105	68			
Monthly mean discharge, in second-feet-----										461	90.7
Runoff, in inches-----										3.06	0.58

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.24	147	5.66	3,180	-----	-----	-----	-----
2	2.35	175	5.86	3,480	6.48	4,410	-----	-----
3	2.41	192	6.03	3,740	-----	-----	-----	-----
4	2.56	243	6.34	4,200	6.15	3,920	-----	-----
5	2.71	300	6.55	4,520	-----	-----	-----	-----
6	2.99	426	6.95	5,120	5.90	3,540	3.93	1,060
7	3.39	648	7.33	5,680	-----	-----	-----	-----
8	3.96	1,090	7.65	6,160	5.67	3,200	-----	-----
9	4.56	1,690	7.92	6,570	-----	-----	-----	-----
10	4.76	1,920	8.05	6,760	5.55	3,020	-----	-----
11	4.75	1,900	8.12	6,870	-----	-----	-----	-----
N	4.70	1,840	8.07	6,800	5.37	2,740	3.53	752
1	4.64	1,780	8.12	6,870	-----	-----	-----	-----
2	4.61	1,740	8.13	6,880	5.22	2,520	-----	-----
3	4.65	1,790	8.05	6,760	-----	-----	-----	-----
4	4.86	2,040	8.04	6,750	5.08	2,330	-----	-----
5	5.01	2,230	7.81	6,400	-----	-----	-----	-----
6	5.28	2,610	7.77	6,340	4.94	2,140	3.31	613
7	5.25	2,570	7.62	6,120	-----	-----	-----	-----
8	5.28	2,610	7.42	5,820	4.80	1,960	-----	-----
9	5.34	2,700	7.22	5,520	-----	-----	-----	-----
10	5.46	2,880	7.00	5,190	4.64	1,780	-----	-----
11	5.48	2,910	6.77	4,840	-----	-----	-----	-----
12	5.61	3,100	6.72	4,770	4.45	1,570	3.23	566

SUPPLEMENTAL RECORD.—Aug. 14, 1:45 p.m., gage height, 8.18 feet; discharge, 6,960 second-feet.

FAIR FOREST CREEK NEAR UNION, S. C.

LOCATION.—Lat. 34°41', long. 81°41', at bridge on State Highway 92, 0.3 mile downstream from Buffalo Creek and 4.3 miles southwest of Union, Union County. Datum of gage is 393.91 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—183 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,300 second-feet and extended to crest gage height by velocity-area studies and logarithmic plotting.

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MAXIMA.—1940: Discharge, 7,520 second-feet 9:15 a.m. Aug. 14 (gage height, 7.15 feet).

REMARKS.—Flood discharge not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	43	76	9	25	38	17	306	33	25	53	31
2	30	60	10	21	38	18	203	33	26	51	32
3	24	53	11	21	42	19	110	33	27	51	28
4	21	49	12	51	37	20	83	36	28	49	26
5	28	48	13	1,850	34	21	70	32	29	96	26
6	27	46	14	5,570	34	22	64	31	30	288	25
7	24	44	15	2,510	34	23	60	28	31	149	-----
8	21	42	16	433	34	24	57	28			
Monthly mean discharge, in second-feet										400	37.7
Runoff, in inches										2.52	0.23

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.21	70	5.87	4,400	5.74	4,120	-----	-----	2.82	338
2	1.92	25	2.24	78	5.90	4,470	5.69	4,010	3.43	774	2.96	431
3	-----	-----	2.32	99	6.10	4,930	5.61	3,830	-----	-----	3.01	465
4	1.93	26	2.54	181	6.54	5,990	5.55	3,710	3.30	674	3.02	472
5	-----	-----	2.71	270	6.85	6,740	5.50	3,610	-----	-----	3.02	472
6	1.94	27	2.92	404	6.94	6,970	5.42	3,450	3.18	586	3.01	465
7	-----	-----	3.19	593	7.01	7,160	5.37	3,350	-----	-----	2.96	431
8	1.97	31	3.85	1,150	6.63	6,200	5.28	3,170	3.05	493	2.86	364
9	-----	-----	4.50	1,910	7.08	7,340	5.19	3,010	-----	-----	2.77	307
10	2.04	40	4.84	2,410	6.84	6,710	5.10	2,850	2.94	417	2.71	270
11	-----	-----	4.96	2,610	6.70	6,370	5.00	2,670	-----	-----	2.67	248
N	2.14	57	4.82	2,380	6.79	6,590	4.90	2,510	2.85	358	2.66	242
1	-----	-----	4.81	2,370	6.61	6,150	4.79	2,340	-----	-----	2.64	231
2	2.18	64	4.86	2,450	6.54	5,990	4.67	2,160	2.78	313	2.64	231
3	-----	-----	4.96	2,610	6.34	5,510	4.55	1,980	-----	-----	2.63	226
4	2.21	70	4.94	2,570	6.35	5,530	4.43	1,820	2.73	282	2.63	226
5	-----	-----	4.82	2,380	6.19	5,150	4.31	1,660	-----	-----	2.64	231
6	2.23	76	4.78	2,320	6.15	5,050	4.20	1,530	2.69	258	2.64	231
7	-----	-----	4.89	2,490	6.02	4,740	4.09	1,400	-----	-----	2.65	236
8	2.23	76	4.91	2,530	5.91	4,490	3.98	1,280	2.65	236	2.65	236
9	-----	-----	5.15	2,940	5.88	4,430	3.88	1,180	-----	-----	2.66	242
10	2.21	70	5.39	3,390	5.84	4,340	3.78	1,080	2.64	231	2.67	248
11	-----	-----	5.71	4,050	5.83	4,320	3.68	987	-----	-----	2.68	253
12	2.21	70	5.79	4,230	5.78	4,210	3.59	906	2.64	231	2.69	258

SUPPLEMENTAL RECORDS.—Aug. 13, 11:15 a.m., gage height, 4.99 feet, discharge, 2,650 second-feet; 2:30 p.m., gage height, 5.02 feet, discharge, 2,710 second-feet. Aug. 14, 9:15 a.m., gage height, 7.15 feet, discharge, 7,520 second-feet.

ENOREE RIVER NEAR ENOREE, S. C.

LOCATION.—Lat. 34°36', long. 81°54', half a mile upstream from Yarboroughs Bridge, three-quarters of a mile upstream from Warrior Creek, and 4 miles southeast of Enoree, Spartanburg County. Datum of gage is 448.07 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—307 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 17,000 second-feet and extended above by logarithmic plotting.

MAXIMA.—1940: Discharge, 12,800 second-feet 12 m. Aug. 14 (gage height, 6.86 feet).

1929-39: Discharge, 30,000 second-feet Oct. 2, 1929 (gage height, 10.5 feet, from floodmark).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Flow regulated by power plants above station during low and medium stages.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	64	303	9	106	133	17	554	105	25	206	97
2	71	215	10	64	133	18	380	100	26	164	93
3	52	154	11	90	132	19	330	108	27	260	85
4	50	154	12	231	124	20	276	99	28	122	107
5	71	148	13	4,100	88	21	224	127	29	122	35
6	219	148	14	10,800	128	22	215	102	30	362	62
7	124	156	15	5,820	79	23	215	83	31	421	-----
8	235	128	16	1,160	108	24	200	92			
Monthly mean discharge, in second-feet										881	121
Runoff, in inches										3.31	0.44

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.81	95	2.58	738	5.75	8,600	5.99	9,460	-----	-----
2	1.80	91	2.64	818	5.89	9,100	5.91	9,180	3.37	2,100
3	1.77	82	2.72	931	5.73	8,540	5.77	8,680	-----	-----
4	1.75	76	2.83	1,100	5.86	9,000	5.67	8,320	3.18	1,750
5	1.75	76	2.91	1,230	5.99	9,460	5.58	8,010	-----	-----
6	1.74	74	3.09	1,530	6.12	9,940	5.50	7,740	3.00	1,430
7	1.74	74	3.55	2,400	6.24	10,400	5.39	7,370	-----	-----
8	1.74	74	3.88	3,110	6.42	11,100	5.30	7,070	2.86	1,190
9	1.74	74	4.14	3,730	6.52	11,500	5.19	6,720	-----	-----
10	1.75	76	4.26	4,040	6.65	12,000	5.08	6,370	2.77	1,050
11	1.76	79	4.31	4,170	6.82	12,700	4.94	5,940	-----	-----
N	1.79	88	4.45	4,540	6.86	12,800	4.86	5,700	2.70	946
1	1.90	132	4.54	4,780	6.78	12,500	4.75	5,380	-----	-----
2	2.04	217	4.63	5,030	6.69	12,100	4.65	5,090	2.65	873
3	2.08	244	4.55	4,810	6.71	12,200	4.51	4,700	-----	-----
4	2.07	237	4.65	5,090	6.68	12,100	4.41	4,430	2.59	791
5	2.05	224	4.66	5,120	6.53	11,500	4.30	4,140	-----	-----
6	2.07	237	4.96	6,000	6.52	11,500	4.18	3,830	2.58	777
7	2.19	333	4.99	6,090	6.52	11,500	4.06	3,530	-----	-----
8	2.35	489	5.28	7,010	6.43	11,100	3.97	3,320	2.56	750
9	2.46	613	5.26	6,940	6.28	10,500	3.86	3,070	-----	-----
10	2.53	700	5.31	7,100	6.25	10,400	3.76	2,840	2.54	725
11	2.56	738	5.53	7,840	6.15	10,000	3.66	2,630	-----	-----
12	2.56	738	5.55	7,910	6.09	9,820	3.56	2,420	2.53	712

SALUDA RIVER NEAR PELZER, S. C.

LOCATION.—Lat. 34°40', long. 82°28', half a mile downstream from Hurricane Creek and 2 miles north of Pelzer, Anderson County. Datum of gage is 727.75 feet above mean sea level (from partly adjusted network of levels).

DRAINAGE AREA.—405 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 12,000 second-feet.

MAXIMA.—1940: Discharge, 9,920 second-feet 6 a.m. Aug. 14 (gage height, 8.31 feet).

1929-39: Discharge, 13,300 second-feet Apr. 7, 1936 (gage height, 10.26 feet).

REMARKS.—Flood runoff not affected by artificial storage or diversion. Diurnal fluctuation caused by power plants above station.

262 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	218	2,320	9	202	469	17	1,250	372	25	404	284
2	208	1,470	10	208	473	18	1,090	352	26	411	292
3	214	1,020	11	216	472	19	720	314	27	306	300
4	201	578	12	330	312	20	641	316	28	368	332
5	230	605	13	3,660	382	21	537	344	29	426	294
6	189	568	14	8,490	391	22	514	241	30	938	267
7	215	558	15	6,250	262	23	409	320	31	2,460	-----
8	216	458	16	2,680	374	24	411	312			
Monthly mean discharge, in second-feet.....										1,117	502
Runoff, in inches.....										3.18	1.38

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.27	152	2.10	637	7.78	9,020	6.50	6,840	-----	-----
2	1.14	105	2.22	735	7.99	9,370	6.51	6,860	-----	-----
3	1.05	78	2.35	851	8.15	9,640	6.50	6,840	-----	-----
4	1.00	64	2.78	1,290	8.26	9,830	6.51	6,860	-----	-----
5	.99	62	3.05	1,620	8.30	9,900	6.52	6,870	-----	-----
6	1.12	99	3.27	1,900	8.31	9,920	6.44	6,740	4.24	3,250
7	1.36	188	3.49	2,190	8.28	9,870	6.51	6,860	-----	-----
8	1.81	430	3.69	2,460	8.22	9,760	6.55	6,920	-----	-----
9	1.81	430	3.70	2,470	8.13	9,610	6.51	6,860	-----	-----
10	1.78	411	3.87	2,710	7.98	9,360	6.52	6,870	-----	-----
11	1.78	411	4.09	3,020	7.83	9,100	6.41	6,700	-----	-----
N	1.71	367	4.40	3,490	7.61	8,730	6.34	6,580	3.68	2,440
1	1.72	373	4.58	3,770	7.46	8,470	6.37	6,630	-----	-----
2	1.69	355	4.90	4,280	7.19	8,010	6.26	6,460	-----	-----
3	1.61	310	5.22	4,790	7.10	7,860	6.09	6,180	-----	-----
4	1.57	288	5.10	4,600	7.06	7,790	6.04	6,100	-----	-----
5	1.66	338	4.84	4,180	6.95	7,600	5.95	5,960	-----	-----
6	1.76	398	4.95	4,360	6.79	7,330	5.86	5,820	3.35	2,000
7	1.78	411	5.44	5,140	6.68	7,150	5.68	5,530	-----	-----
8	1.90	490	6.04	6,100	6.67	7,130	5.56	5,340	-----	-----
9	1.98	547	6.56	6,940	6.56	6,940	5.43	5,130	-----	-----
10	2.03	584	6.93	7,570	6.55	6,920	5.31	4,940	-----	-----
11	2.10	637	7.27	8,150	6.50	6,840	5.12	4,630	-----	-----
12	2.01	569	7.53	8,590	6.44	6,740	4.99	4,420	3.06	1,630

SALUDA RIVER NEAR WARE SHOALS, S. C.

LOCATION.—Lat. 34°23', long. 82°14', 2 miles southeast of Ware Shoals, Greenwood County, 2½ miles downstream from Ware Shoals Dam, and 5 miles upstream from Turkey Creek.

DRAINAGE AREA.—569 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,200 second-feet and extended to crest gage height on basis of determination of peak flow over Ware Shoals Dam.

MAXIMA.—1940: Discharge, 20,600 second-feet 2:30 p.m. Aug. 13 (gage height, 20.48 feet).

1939: Discharge, 10,500 second-feet Aug. 18 (gage height, 14.29 feet).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Diurnal fluctuation caused by power plant above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	152	3,120	9	447	784	17	2,080	509	25	591	240
2	159	2,420	10	351	805	18	1,610	323	26	746	250
3	293	1,590	11	156	649	19	1,830	430	27	632	493
4	164	1,140	12	1,340	672	20	1,010	706	28	642	422
5	383	722	13	12,600	535	21	902	447	29	816	230
6	359	848	14	14,400	379	22	805	330	30	1,050	462
7	154	668	15	9,210	347	23	1,120	559	31	1,340	-----
8	393	390	16	5,220	545	24	741	515			
Monthly mean discharge, in second-feet.....										1,990	718
Runoff, in inches.....										4.04	1.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.99	176	3.44	1,360						
2	1.05	196	3.24	1,250	16.80	14,000	14.95	11,400	11.80	7,550
3	1.04	193	4.43	1,900						
4	1.03	189	5.98	2,750	16.75	13,900	14.15	10,300	11.17	6,870
5	1.08	206	9.28	4,990						
6	1.45	352	9.88	5,550	16.91	14,200	13.48	9,480	10.60	6,270
7	2.32	760	11.23	6,930						
8	3.65	1,470	13.18	9,120	17.14	14,600	13.11	9,030	9.78	5,460
9	3.28	1,270	15.30	11,800						
10	3.36	1,310	17.48	15,100	17.30	14,800	12.97	8,860	9.88	5,550
11	3.42	1,350	18.92	17,600						
N	3.27	1,260	19.78	19,200	17.50	15,100	12.98	8,880	9.77	5,450
1	3.13	1,190	20.21	20,000						
2	4.41	1,890	20.44	20,500	17.57	15,300	12.90	8,780	9.21	4,930
3	5.11	2,280	20.46	20,500						
4	5.42	2,450	20.20	20,000	17.46	15,100	12.77	8,620	8.50	4,350
5	5.50	2,490	19.70	19,000						
6	5.48	2,480	19.02	17,800	17.25	14,700	12.66	8,500	7.72	3,810
7	5.36	2,410	18.48	16,800						
8	4.98	2,200	18.15	16,200	16.86	14,100	12.54	8,360	7.58	3,720
9	4.38	1,870	18.00	16,000						
10	4.03	1,680	17.83	15,700	16.28	13,200	12.40	8,210	6.73	3,200
11	4.00	1,660	17.48	15,100						
12	3.79	1,550	17.15	14,600	15.65	12,300	12.15	7,940	6.40	3,000

SUPPLEMENTAL RECORD.—Aug. 13, 2:30 p.m., gage height, 20.48 feet; discharge, 20,600 second-feet.

LAKE GREENWOOD NEAR CHAPPELLE, S. C.

LOCATION.—Lat. 34°10', long. 81°54', at dam on Saluda River 0.7 mile upstream from Wilson Creek and 2.4 miles west of Chappells, Newberry County. Datum of gage is 400.00 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—1,150 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph. Gage readings have been reduced to elevations above mean sea level.

MAXIMA.—1940: Elevation, 441.09 feet 2-8 a.m. Aug. 20 (contents, about 8,150,000,000 cubic feet).

REMARKS.—Usable capacity, about 7,640,000,000 cubic feet between elevations 420.0 feet (draw-down limit) and 440.0 feet (normal reservoir level and top of spill-way gates). Figures given herein represent usable contents.

264 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Daily mean elevation, in feet, and contents, in billions of cubic feet, 1940

Day	August		September		Day	August		September	
	Elevation	Contents	Elevation	Contents		Elevation	Contents	Elevation	Contents
1	430.84	3.64	440.86	8.03	16	439.72	7.51	440.20	7.73
2	430.86	3.64	440.98	8.09	17	440.50	7.87	440.19	7.73
3	430.90	3.66	440.67	7.95	18	440.82	8.02	440.13	7.70
4	430.91	3.66	440.59	7.92	19	440.99	8.10	440.04	7.66
5	430.97	3.69	440.59	7.92	20	441.07	8.14	440.01	7.64
6	431.10	3.74	440.54	7.89	21	441.01	8.10	440.01	7.64
7	431.19	3.78	440.41	7.82	22	440.97	8.08	440.00	7.64
8	431.29	3.82	440.38	7.81	23	440.92	8.06	439.97	7.62
9	431.39	3.86	440.35	7.80	24	440.90	8.05	439.88	7.58
10	431.54	3.91	440.40	7.82	25	440.87	8.04	439.75	7.52
11	431.60	3.93	440.39	7.82	26	440.83	8.02	439.58	7.45
12	432.54	4.32	440.37	7.81	27	440.78	8.00	439.42	7.37
13	436.40	6.00	440.33	7.79	28	440.70	7.96	439.35	7.34
14	439.08	7.22	440.27	7.76	29	440.63	7.93	439.32	7.33
15	439.34	7.34	440.23	7.74	30	440.70	7.96	439.23	7.28
					31	440.75	7.98		
Change in contents, equivalent, in second-feet -----								August	Sep- tember
								+1,620	-278

Elevation, in feet, and contents, in billions of cubic feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Eleva- tion	Con- tents	Eleva- tion	Con- tents	Eleva- tion	Con- tents	Eleva- tion	Con- tents	Eleva- tion	Con- tents
2	---	---	433.90	4.90	---	---	---	---	---	---
4	431.64	3.95	434.22	5.04	---	---	---	---	---	---
6	---	---	434.99	5.38	439.24	7.29	439.64	7.48	439.42	7.37
8	432.23	4.18	435.52	5.61	---	---	---	---	---	---
10	---	---	435.98	5.81	---	---	---	---	---	---
N	432.63	4.35	436.40	6.00	438.89	7.13	439.42	7.37	439.78	7.54
2	---	---	436.88	6.21	---	---	---	---	---	---
4	432.91	4.47	437.28	6.39	---	---	---	---	---	---
6	---	---	437.86	6.66	438.86	7.11	439.03	7.20	440.06	7.67
8	433.22	4.61	438.44	6.92	---	---	---	---	---	---
10	---	---	438.89	7.13	---	---	---	---	---	---
12	433.68	4.80	439.10	7.23	439.56	7.44	438.94	7.15	440.26	7.76

SALUDA RIVER AT CHAPPELLE, S. C.

LOCATION.—Lat. 34°11', long. 81°52', at bridge on State Highway 39, at Chappelle, Newberry County, 7 miles downstream from Lake Greenwood Dam, and 8¼ miles upstream from Little River. Datum of gage is 363.89 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,350 square miles; 1,150 square miles affected by storage in Lake Greenwood since May 1940 (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 27,000 second-feet and extended to crest gage height on basis of velocity-area studies.

MAXIMA.—1940: Discharge, 49,700 second-feet 6 p.m. Aug. 14 (gage height, 28.66 feet).

1927-39: Discharge, 63,700 second-feet Oct. 2, 1929 (gage height 31.5 feet).

1905-27: Stage known, 35.7 feet (present datum) Aug. 26, 1908, from records of United States Weather Bureau (discharge not determined).

REMARKS.—Flood discharge affected by storage in Lake Greenwood. For information on storage see records for Lake Greenwood near Chappelle, S. C.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	114	1,850	9	86	719	17	684	832	25	800	1,100
2	32	2,640	10	85	864	18	898	832	26	966	1,080
3	92	4,050	11	73	898	19	1,100	832	27	1,040	1,100
4	88	1,120	12	1,270	864	20	1,300	898	28	1,000	810
5	80	1,000	13	8,650	898	21	1,260	663	29	1,000	376
6	80	1,480	14	43,200	661	22	1,180	400	30	1,040	1,160
7	93	1,540	15	29,000	486	23	1,180	857	31	1,900	-----
8	88	564	16	10,300	671	24	966	1,180			
Monthly mean discharge, in second-feet.....										3,537	1,081
Runoff, in inches.....										3.02	0.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.12	75	5.62	1,760	24.00	29,000	25.94	37,200	22.94	24,800
2	.11	74	5.64	1,770	24.80	32,300	25.50	35,300	22.52	23,300
3	.13	77	5.84	1,860	25.50	35,300	25.08	33,500	22.00	21,400
4	.14	78	6.20	2,020	26.00	37,500	24.73	32,000	21.46	19,700
5	.20	85	6.90	2,340	26.46	39,600	24.48	30,900	20.92	18,000
6	.60	139	10.00	3,820	26.82	41,200	24.26	30,000	20.33	16,300
7	1.40	281	12.00	4,960	27.10	42,500	24.12	29,400	19.73	14,700
8	3.10	765	12.80	5,520	27.30	43,400	24.00	29,000	19.12	13,200
9	4.05	1,100	13.70	6,240	27.48	44,200	23.90	28,500	18.50	11,800
10	4.80	1,400	14.56	6,980	27.65	45,000	23.80	28,100	17.78	10,500
11	5.42	1,670	15.00	7,400	27.82	45,800	23.70	27,700	17.02	9,480
N	5.88	1,880	15.40	7,800	28.06	46,900	23.61	27,400	16.20	8,600
1	6.07	1,960	15.82	8,220	28.23	47,700	23.52	27,000	15.30	7,700
2	6.16	2,000	16.20	8,600	28.36	48,300	23.49	26,900	14.10	6,570
3	6.21	2,020	16.50	8,900	28.48	48,900	23.46	26,800	12.80	5,520
4	6.27	2,050	17.15	9,640	28.60	49,400	23.44	26,700	11.50	4,660
5	6.28	2,060	17.62	10,200	28.64	49,600	23.43	26,700	10.20	3,920
6	6.26	2,050	18.26	11,300	28.66	49,700	23.44	26,700	9.08	3,300
7	6.20	2,020	19.00	12,900	28.52	49,100	23.45	26,700	7.96	2,700
8	6.11	1,980	19.70	14,700	28.22	47,700	23.45	26,700	7.00	2,220
9	6.02	1,940	20.40	16,500	27.80	45,700	23.42	26,600	6.20	1,850
10	5.94	1,900	21.20	18,900	27.40	43,800	23.40	26,600	5.50	1,540
11	5.80	1,840	22.10	21,800	26.90	41,500	23.32	26,200	4.92	1,310
12	5.67	1,780	23.06	25,300	26.43	39,400	23.19	25,700	4.38	1,100

SALUDA RIVER NEAR SILVERSTREET, S. C.

LOCATION.—Lat. 34°11', long. 81°44', 200 feet upstream from new Higgins Ferry Bridge on State Highway 19, 1 mile downstream from Little River, and 2½ miles south of Silverstreet, Newberry County. Datum of gage is 345.13 feet above mean sea level (from partly adjusted network of levels).

DRAINAGE AREA.—1,620 square miles; 1,150 square miles affected by storage in Lake Greenwood since May 1940 (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 19,000 second-feet and extended above on basis of current-meter measurements made at Chappells and near Chapin.

MAXIMA.—1940: Discharge, 58,300 second-feet 2:30 a.m. Aug. 15 (gage height, 30.29 feet).

1927-39: Discharge, 83,800 second-feet Oct. 3, 1929 (gage height, 33.97 feet, from floodmarks).

REMARKS.—Flood runoff affected by storage in Lake Greenwood. For information on storage see records for Lake Greenwood near Chappells, S. C.

266 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	138	1,920	9	155	638	17	3,630	805	25	805	1,180
2	98	2,270	10	116	855	18	990	805	26	908	1,130
3	70	4,120	11	106	880	19	1,100	830	27	1,100	1,070
4	111	1,600	12	1,920	855	20	1,380	855	28	1,020	952
5	106	1,020	13	7,940	855	21	1,320	764	29	1,020	405
6	111	1,270	14	33,100	752	22	1,260	420	30	1,040	765
7	119	1,930	15	49,200	475	23	1,240	612	31	1,730	-----
8	130	597	16	25,400	550	24	1,100	1,240			
Monthly mean discharge, in second-feet-----										4,467	1,081
Runoff, in inches-----										3.18	0.74

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	3.16	106	8.08	2,700	18.58	13,800	30.23	57,900	26.28	36,100	17.38	11,800
2	3.17	108	8.21	2,780	18.98	14,500	30.28	58,300	26.11	35,300	16.64	10,700
3	3.17	108	8.46	2,930	19.40	15,200	30.28	58,300	25.93	34,500	15.87	9,620
4	3.18	111	8.72	3,080	19.92	16,200	30.25	57,900	25.76	33,700	14.88	8,340
5	3.19	113	9.06	3,290	20.62	17,600	30.14	57,400	25.56	32,800	13.72	6,990
6	3.21	119	9.71	3,720	21.30	19,100	30.01	56,500	25.36	32,000	12.40	5,740
7	3.29	145	10.81	4,490	22.00	20,900	29.89	55,800	25.12	31,100	10.80	4,480
8	3.35	167	12.21	5,580	22.68	22,800	29.69	54,500	24.84	30,000	9.30	3,450
9	4.10	530	13.32	6,580	23.37	24,900	29.51	53,400	24.56	29,000	8.20	2,770
10	5.80	1,430	14.30	7,640	24.04	27,100	29.30	52,200	24.29	28,000	7.26	2,230
11	7.50	2,360	14.84	8,290	24.70	29,500	29.10	51,000	23.95	26,800	6.54	1,840
N	8.75	3,100	15.30	8,870	25.30	31,800	28.89	49,700	23.62	25,700	6.00	1,540
1	9.51	3,590	15.72	9,420	25.84	34,100	28.68	48,500	23.23	24,400	5.62	1,330
2	9.85	3,810	16.07	9,900	26.40	36,600	28.47	47,300	22.84	23,200	5.34	1,180
3	9.91	3,850	16.30	10,200	26.92	39,200	28.27	46,200	22.49	22,200	5.20	1,100
4	9.73	3,730	16.52	10,500	27.38	41,500	28.02	44,900	22.10	21,100	5.09	1,040
5	9.43	3,530	16.74	10,800	27.87	44,100	27.81	43,800	21.64	19,900	4.98	979
6	9.12	3,330	16.95	11,200	28.34	46,600	27.61	42,700	21.19	18,800	4.88	924
7	8.83	3,150	17.16	11,500	28.71	48,700	27.41	41,700	20.74	17,800	4.80	880
8	8.59	3,000	17.37	11,800	29.09	50,900	27.19	40,500	20.20	16,700	4.74	850
9	8.39	2,880	17.56	12,100	29.45	53,100	26.99	39,500	19.72	15,800	4.71	835
10	8.22	2,780	17.76	12,400	29.70	54,600	26.80	38,600	19.20	14,900	4.70	830
11	8.13	2,730	18.00	12,800	29.96	56,200	26.61	37,700	18.62	13,900	4.70	830
12	8.08	2,700	18.30	13,300	30.12	57,200	26.45	36,900	18.08	12,900	4.72	840

SUPPLEMENTAL RECORD.—Aug. 15, 2:30 a.m., gage height, 30.29 feet; discharge, 58,300 second-feet.

LAKE MURRAY NEAR COLUMBIA, S. C.

LOCATION.—Lat. 34°03' long. 81°13', about 500 feet upstream from dam on Saluda River, 10 miles upstream from mouth, and 11 miles northwest of Columbia, Richland County. Datum of gage is 0.64 foot below mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,420 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 4:30 a.m.

Aug. 4 to 2 p.m. Aug. 14, 8 a.m. Aug. 27 to 11:30 a.m. Aug. 31, for which record was obtained from graph based on four gage readings daily at power plant.

MAXIMA.—1940: Gage height, 346.43 feet 6 a.m. Aug. 21 (contents, 45,380,000,000 cubic feet).

1929-39: Gage height, 361.51 feet Apr. 10, 1936 (contents, about 74,540,000,000 cubic feet).

REMARKS.—Usable capacity, 71,110,000,000 cubic feet between gage heights 300.0 feet (draw-down limit) and 360.0 feet (maximum normal lake level). Gage height of top of spillway gates, 365.0 feet. Figures given herein represent usable contents.

Daily mean gage height, in feet, and contents, in billions of cubic feet, 1940

Day	August		September		Day	August		September	
	Gage height	Contents	Gage height	Contents		Gage height	Contents	Gage height	Contents
1	337.98	33.13	345.62	44.10	16	345.33	43.64	344.54	42.42
2	337.89	33.02	345.70	44.22	17	346.25	45.09	344.31	42.07
3	337.83	32.94	345.81	44.39	18	346.36	45.27	344.08	41.72
4	337.79	32.89	345.91	44.55	19	346.41	45.35	343.85	41.38
5	337.74	32.82	345.79	44.39	20	346.41	45.35	343.64	41.07
6	337.65	32.71	345.64	44.13	21	346.42	45.37	343.47	40.81
7	337.56	32.59	345.58	44.03	22	346.42	45.37	343.41	40.72
8	337.49	32.50	345.61	44.08	23	346.42	45.37	343.33	40.60
9	337.45	32.45	345.58	44.03	24	346.40	45.33	343.24	40.47
10	337.41	32.39	345.36	43.69	25	346.39	45.32	343.16	40.35
11	337.37	32.34	345.20	43.44	26	346.32	45.20	342.99	40.10
12	337.63	32.68	344.98	43.09	27	346.14	44.92	342.84	39.88
13	338.65	34.02	344.77	42.77	28	345.82	44.41	342.74	39.74
14	340.84	37.01	344.64	42.58	29	345.59	44.05	342.75	39.75
15	343.42	40.74	344.64	42.58	30	345.53	43.96	342.70	39.68
					31	345.54	43.97		
Change in contents, equivalent, in second-feet -----								August	Sep- tember
								+4,050	-1,730

Gage height, in feet, and content in billions of cubic feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Con- tents	Gage height	Con- tents	Gage height	Con- tents	Gage height	Con- tents	Gage height	Con- tents	Gage height	Con- tents
6	337.40	32.38	338.16	33.37	340.26	36.20	342.85	39.90	345.00	43.12	346.21	45.03
N	337.60	32.64	338.41	33.70	340.81	36.97	343.47	40.81	345.37	43.70	346.30	45.17
6	337.82	32.93	339.17	34.72	341.42	37.83	344.03	41.65	345.71	44.24	346.32	45.20
12	338.08	33.27	339.62	35.32	342.11	38.82	344.53	42.41	345.98	44.66	346.34	45.24

SALUDA RIVER NEAR COLUMBIA, S. C.

LOCATION.—Lat. 34°01', long. 81°06', a quarter of a mile upstream from site of old Saluda mill and 2 miles upstream from mouth and from Columbia, Richland County. Datum of gage is 149.46 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,510 square miles; 2,420 square miles affected by storage in Lake Murray since August 1929 (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 39,000 second-feet and extended above on basis of discharge measurements made at Wise Ferry Bridge near Chapin, S. C.

MAXIMA.—1940: Discharge, 9,950 second-feet 1:15 p.m. Aug. 28 (gage height, 5.95 feet).

1925-39: Discharge, 67,000 second-feet Oct. 2, 1929 (gage height, 15.22 feet).

REMARKS.—Discharge materially affected by storage in Lake Murray and Lake Greenwood. For information on storage see records for Lake Murray near Columbia, S. C., and Lake Greenwood near Chappells, S. C.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.90	22	2.72	818	12.80	7,520	8.45	5,440	-----	-----
2	.92	24	2.72	818	13.01	7,610	8.19	5,300	-----	-----
3	.92	24	2.74	836	13.20	7,700	7.92	5,150	-----	-----
4	.93	24	2.88	962	13.30	7,740	7.73	5,040	3.81	1,800
5	.93	24	3.57	1,580	13.32	7,750	7.54	4,930	-----	-----
6	.96	27	3.69	1,690	13.30	7,740	7.61	4,970	-----	-----
7	1.67	135	4.90	2,880	13.25	7,720	7.29	4,780	-----	-----
8	1.76	158	5.59	3,550	13.14	7,670	7.03	4,620	3.49	1,510
9	1.79	166	5.94	3,850	12.99	7,600	6.79	4,460	-----	-----
10	1.85	186	6.55	4,300	12.85	7,540	6.58	4,330	-----	-----
11	1.86	189	7.35	4,820	12.62	7,430	6.38	4,190	-----	-----
N	1.82	176	8.21	5,310	12.39	7,330	6.20	4,060	3.33	1,370
1	1.79	166	8.62	5,540	12.15	7,220	5.97	3,880	-----	-----
2	1.78	164	9.46	5,960	11.90	7,110	5.77	3,710	-----	-----
3	1.77	161	10.45	6,460	11.62	6,980	5.61	3,570	-----	-----
4	1.75	156	10.80	6,620	11.33	6,850	5.42	3,400	3.17	1,220
5	1.76	158	10.93	6,670	11.05	6,730	5.24	3,220	-----	-----
6	1.86	189	11.22	6,800	10.75	6,590	5.07	3,050	-----	-----
7	1.92	210	11.67	7,010	10.45	6,460	4.93	2,910	-----	-----
8	2.05	268	11.88	7,100	10.00	6,240	4.77	2,750	3.02	1,090
9	2.38	512	12.06	7,180	9.68	6,080	4.63	2,610	-----	-----
10	2.50	620	12.13	7,210	9.36	5,920	4.49	2,470	-----	-----
11	2.68	782	12.27	7,280	9.03	5,750	4.36	2,340	-----	-----
12	2.73	827	12.51	7,380	8.72	5,590	4.25	2,230	2.91	989

EDISTO RIVER BASIN

SOUTH FORK EDISTO RIVER NEAR MONTMORENCI, S. C.

LOCATION.—Lat. 33°34'35", long. 81°30'50", 0.4 mile upstream from Cedar Creek and 7.6 miles northeast of Montmorenci, Aiken County. Datum of gage is 250.18 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—198 square miles (1945 revision).

GAGE-HEIGHT RECORD.—Graph based on twice-daily readings of wire-weight gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

MAXIMA.—1940: Discharge, 2,460 second-feet 8 a.m. Aug. 15 (gage height, 8.81 feet, from graph based on gage readings).

REMARKS.—Flood discharge not affected by artificial storage or diversion. Natural storage in swampy areas above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	90	148	9	154	106	17	450	94	25	116	88
2	94	146	10	156	102	18	339	94	26	118	84
3	98	118	11	131	108	19	256	92	27	112	92
4	90	108	12	204	108	20	204	90	28	108	100
5	92	110	13	410	100	21	174	86	29	104	116
6	102	124	14	1,280	94	22	148	84	30	114	124
7	108	122	15	2,140	90	23	136	90	31	136	-----
8	128	108	16	1,020	92	24	128	92	-----	-----	-----
Monthly mean discharge, in second-feet-----										288	104
Runoff, in inches-----										1.68	0.58

SOUTH FORK EDISTO RIVER NEAR DENMARK, S. C.

LOCATION.—Lat. 33°23'35", long. 81°08'00", at bridge on State Highway 5, 200 feet downstream from Seaboard Railway bridge, 1½ miles downstream from Little River, and 4¾ miles north of Denmark, Bamberg County. Datum of gage is 155.68 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

270 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—720 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,800 second-feet and extended to crest gage height on basis of velocity-area studies and logarithmic plotting.

MAXIMA.—1940: Discharge, 2,060 second-feet 4:45 a.m. Aug. 19 (gage height, 7.92 feet).

1931-39: Discharge, 13,500 second-feet Apr. 11, 1936 (gage height, 10.91 feet).

REMARKS.—Natural storage in large swampy areas above station.

Mean discharge, in second-feet, 1940

[illegible]

EDISTO RIVER NEAR GIVHANS, S. C.

LOCATION.—Lat. 33°01'40", long. 80°23'30", at bridge on State Highway 65, 2.3 miles downstream from Four Hole Swamp, and 2.8 miles west of Givhans, Dorchester County. Datum of gage is 20.46 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,730 square miles (1945 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 11 p.m. Aug. 11 to 8:30 p.m. Aug. 13 and 11:30 a.m. Aug. 16 to 4 p.m. Sept. 27, which were obtained from graph based on partial record, weather records, and records for North Fork Edisto River at Orangeburg and South Fork Edisto River near Denmark.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,000 second-feet and extended to crest gage height.

MAXIMA.—1940: Discharge, 12,600 second-feet 12:15 a.m. Aug. 15 (gage height, 13.03 feet).

1939: Discharge, 16,900 second-feet Mar. 6, 1939 (gage height, 14.68 feet).

REMARKS.—Flood runoff not affected by artificial storage. Natural storage in large swampy areas. About 23,700,000 gallons a day diverted above station for Charleston water supply during August and September.

Mean discharge, in second-feet, 1940

[illegible]

272 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.12	196	3.34	2,090	4.94	4,330	-----	-----	-----	-----
2	1.12	196	3.48	2,280	4.80	4,170	-----	-----	-----	-----
3	1.13	200	3.86	2,740	4.64	3,930	-----	-----	-----	-----
4	1.13	200	4.28	3,390	4.47	3,620	2.91	1,570	2.43	1,100
5	1.14	204	5.25	4,840	4.35	3,460	-----	-----	-----	-----
6	1.14	204	6.14	6,500	4.23	3,320	-----	-----	-----	-----
7	1.15	208	6.36	7,100	4.12	3,090	-----	-----	-----	-----
8	1.18	220	7.23	8,840	4.01	2,950	2.80	1,460	2.39	1,060
9	1.20	228	7.87	10,500	3.91	2,810	-----	-----	-----	-----
10	1.24	246	8.54	11,900	3.81	2,670	-----	-----	-----	-----
11	1.39	317	9.30	14,000	3.69	2,540	-----	-----	-----	-----
N	1.50	378	9.74	15,100	3.64	2,480	2.72	1,360	2.35	1,020
1	1.54	403	9.92	15,700	3.55	2,340	-----	-----	-----	-----
2	1.55	409	9.94	15,700	3.50	2,280	-----	-----	-----	-----
3	1.50	378	9.87	15,700	3.40	2,150	-----	-----	-----	-----
4	1.51	384	9.77	15,400	3.34	2,090	2.64	1,310	2.31	989
5	1.64	466	9.51	14,600	3.29	2,030	-----	-----	-----	-----
6	1.72	519	9.18	13,700	3.24	1,970	-----	-----	-----	-----
7	1.84	605	8.74	12,400	3.20	1,910	-----	-----	-----	-----
8	1.96	698	8.15	11,200	3.16	1,850	2.55	1,210	2.26	944
9	2.14	842	7.43	9,280	3.12	1,790	-----	-----	-----	-----
10	2.40	1,070	6.62	7,520	3.07	1,740	-----	-----	-----	-----
11	2.91	1,570	5.90	6,110	3.05	1,740	-----	-----	-----	-----
12	3.22	1,910	5.20	4,840	3.01	1,680	2.48	1,140	2.22	908

Hour	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.47	361	9.00	13,200	-----	-----	-----	-----	-----	-----
2	1.47	361	11.65	20,900	4.11	3,090	-----	-----	-----	-----
3	1.47	361	13.00	25,800	-----	-----	-----	-----	-----	-----
4	1.47	361	13.43	27,400	4.00	2,950	3.14	1,850	-----	-----
5	1.46	356	13.51	27,800	-----	-----	-----	-----	-----	-----
6	1.47	361	13.78	29,000	3.91	2,810	-----	-----	2.77	1,410
7	1.49	372	13.63	28,200	-----	-----	-----	-----	-----	-----
8	1.53	397	13.00	25,800	3.79	2,670	3.08	1,790	-----	-----
9	1.64	466	12.15	23,000	-----	-----	-----	-----	-----	-----
10	1.95	690	11.17	19,600	3.70	2,540	-----	-----	-----	-----
11	2.06	778	10.00	16,000	-----	-----	-----	-----	-----	-----
N	1.93	674	8.67	12,400	3.64	2,480	3.01	1,680	2.72	1,360
1	2.02	746	7.51	9,500	-----	-----	-----	-----	-----	-----
2	2.30	980	6.74	7,740	3.55	2,340	-----	-----	-----	-----
3	2.76	1,410	6.16	6,700	-----	-----	-----	-----	-----	-----
4	2.71	1,360	5.69	5,730	3.50	2,280	2.96	1,620	-----	-----
5	2.69	1,360	5.29	5,010	-----	-----	-----	-----	-----	-----
6	3.03	1,740	5.11	4,670	3.46	2,220	-----	-----	2.66	1,310
7	3.19	1,910	4.91	4,330	-----	-----	-----	-----	-----	-----
8	3.52	2,280	4.76	4,170	3.36	2,090	2.88	1,570	-----	-----
9	4.90	4,330	4.63	3,930	-----	-----	-----	-----	-----	-----
10	5.95	6,300	4.49	3,690	3.28	2,030	-----	-----	-----	-----
11	6.20	6,700	4.41	3,540	-----	-----	-----	-----	-----	-----
12	7.38	9,280	4.33	3,460	3.22	1,910	2.82	1,460	2.59	1,260

TUGALOO RIVER NEAR HARTWELL, GA.

LOCATION.—Lat. 34°29', long. 82°55', three quarters of a mile upstream from Beaver-dam Creek, 5 miles upstream from confluence with Seneca River to form Savannah River, and 10 miles north of Hartwell, Hart County.

DRAINAGE AREA.—905 square miles; 150 square miles affected by storage in Burton and Mathis Reservoirs.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 25,000 second-feet. Gage heights used to half-tenths between 3.2 and 6.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 28,600 second-feet 4 a.m. Aug. 31 (gage height, 10.76 feet).

1925-27: Discharge, 15,400 second-feet Jan. 18, 1926 (gage height, 7.76 feet, datum then in use).

REMARKS.—Monthly mean discharge and runoff, in inches, adjusted for storage in Burton and Mathis Reservoirs.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,030	5,280	9	1,400	700	17	3,450	1,710	25	500	1,420
2	955	2,350	10	675	2,060	18	1,940	1,300	26	452	1,800
3	1,040	3,070	11	247	2,120	19	742	1,560	27	1,210	1,780
4	246	2,930	12	2,040	2,360	20	1,940	1,780	28	1,360	1,460
5	190	3,080	13	21,700	2,180	21	1,910	1,860	29	2,340	425
6	280	3,030	14	23,700	1,980	22	1,800	1,460	30	16,300	365
7	995	1,910	15	7,290	530	23	2,140	395	31	20,600	-----
8	885	1,780	16	3,390	615	24	1,930	1,430			
Monthly mean discharge, in second-feet { observed ----- adjusted -----										4,022	1,794
Runoff, in inches, adjusted -----										4,168	1,651
										5.32	2.03

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	2.00	390	1.57	190	6.90	9,860	9.88	23,200	8.50	16,100
2	1.95	365	1.58	194	7.74	12,800	9.85	22,700	8.17	14,800
3	1.90	340	1.59	198	8.44	15,700	9.88	23,200	7.80	13,200
4	1.85	315	1.60	202	8.93	18,000	9.92	23,200	7.43	11,700
5	1.81	295	1.62	210	9.32	20,000	9.94	23,200	7.03	10,200
6	1.77	275	1.78	280	9.56	21,600	10.02	23,800	6.67	9,180
7	1.74	260	1.92	350	9.82	22,700	10.12	24,400	6.33	7,900
8	1.72	250	2.10	448	9.93	23,200	10.19	25,000	6.05	7,150
9	1.69	238	2.90	1,080	10.00	23,800	10.29	25,600	5.81	6,440
10	1.68	234	3.30	1,520	10.02	23,800	10.32	25,600	5.60	5,900
11	1.66	226	3.31	1,540	10.04	23,800	10.37	26,200	5.43	5,520
N	1.65	222	3.37	1,600	10.03	23,800	10.40	26,200	5.27	5,050
1	1.64	218	3.65	1,920	10.08	24,400	10.42	26,200	5.14	4,830
2	1.62	210	4.18	2,740	10.12	24,400	10.40	26,200	5.05	4,610
3	1.60	202	4.52	3,340	10.13	24,400	10.37	26,200	5.03	4,610
4	1.60	202	4.61	3,520	10.19	25,000	10.25	25,000	5.10	4,720
5	1.60	202	4.56	3,430	10.19	25,000	10.10	24,400	5.18	4,940
6	1.60	202	4.48	3,250	10.14	24,400	10.02	23,800	5.22	4,490
7	1.60	202	4.39	3,070	10.11	24,400	9.89	23,200	5.22	4,940
8	1.60	202	4.37	3,070	10.04	23,800	9.78	22,700	5.17	4,830
9	1.60	202	4.53	3,340	10.03	23,800	9.48	21,000	5.07	4,610
10	1.59	198	4.95	4,200	9.94	23,200	9.28	20,000	4.93	4,400
11	1.58	194	5.57	5,520	9.89	23,200	9.03	18,500	4.77	4,000
12	1.58	194	6.24	7,300	9.84	22,700	8.74	17,060	4.60	3,700
	Aug. 29		Aug. 30		Aug. 31		Sept. 1			
1	3.29	1,660	6.55	8,860	10.52	26,800				
2	3.24	1,600	6.74	9,180	10.60	27,400	5.89	6,720		
3	3.16	1,490	6.98	10,200	10.69	28,000				
4	3.09	1,410	7.05	10,200	10.76	28,600	5.71	6,160		
5	3.00	1,300	7.17	10,900	10.74	28,000				
6	2.94	1,240	7.28	11,300	10.59	27,400	5.59	5,900		
7	2.97	1,270	7.41	11,700	10.46	26,800				
8	3.09	1,410	7.51	12,000	10.38	26,200	5.50	5,640		
9	3.21	1,540	7.75	13,200	10.31	25,600				
10	3.29	1,660	8.02	14,000	10.13	24,400	5.44	5,520		
11	3.29	1,660	8.18	14,800	9.92	23,200				
N	3.24	1,600	8.44	15,700	9.73	22,200	5.39	5,400		
1	3.17	1,500	8.69	17,100	9.48	21,000				
2	3.06	1,370	8.76	17,500	9.27	20,000	5.30	5,160		
3	2.97	1,270	8.98	18,500	9.06	19,000				
4	2.91	1,210	9.12	19,000	8.78	17,500	5.14	4,830		
5	3.04	1,350	9.28	20,000	8.52	16,100				
6	3.10	1,420	9.61	21,600	8.20	14,800	4.94	4,400		
7	3.16	1,490	9.68	22,200	7.84	13,200				
8	3.35	1,720	9.68	22,200	7.47	12,000	4.79	4,100		
9	5.20	4,940	9.98	23,800	7.10	10,600				
10	6.35	8,220	10.06	24,400	6.86	9,860	4.71	3,900		
11	6.62	8,860	10.22	25,000	6.50	8,540				
12	6.50	8,540	10.34	25,600	6.22	7,600	4.60	3,700		

SAVANNAH RIVER NEAR CALHOUN FALLS, S. C.

LOCATION.—Lat. 34°04', long. 82°38', 150 feet upstream from bridge on State Highway 7, 1 mile downstream from Seaboard Railway bridge, 1½ miles downstream from Rocky River, and 3 miles southwest of Calhoun Falls, Abbeville County. Datum of gage is 363.53 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,876 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 50,000 second-feet and extended to crest gage height on basis of velocity-area studies and logarithmic plotting.

MAXIMA.—1940: Discharge, 96,500 second-feet 7 p.m. Aug. 13 (gage height, 11.52 feet).

1896-1903, 1930-32, 1938-39: Discharge observed, about 75,200 second-feet Feb. 14, 1900 (gage height, 19.4 feet, former site and datum).

Stage known, 28.2 feet Aug. 25, 1908, original site and datum.

A flood of 97,600 second-feet occurred Oct. 17, 1932 (gage height, 11.6 feet).

REMARKS.—Flood discharge not materially affected by artificial storage. Flow regulated during medium and low stages by power plants above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,800	19,200	9	2,310	3,170	17	8,080	2,860	25	3,060	2,850
2	1,890	8,360	10	2,110	3,340	18	6,970	2,840	26	2,180	3,180
3	1,840	6,730	11	1,650	4,230	19	4,400	3,070	27	2,360	3,340
4	1,840	6,060	12	2,740	4,210	20	4,280	3,380	28	2,840	3,020
5	1,110	6,280	13	68,100	4,300	21	4,300	3,740	29	3,020	2,410
6	1,020	5,840	14	74,700	4,020	22	4,020	2,720	30	25,200	1,540
7	1,260	5,490	15	42,200	2,930	23	4,140	1,410	31	46,800	-----
8	3,600	4,040	16	11,300	2,020	24	4,260	2,090			
Monthly mean discharge, in second-feet.....										11,140	4,296
Runnoff, in inches.....										4.46	1.66

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	4.92	20,100	10.67	85,000	9.44	68,700	-----	-----
2	-----	-----	5.70	26,700	10.50	82,800	9.34	67,400	-----	-----
3	-----	-----	6.04	29,800	10.36	80,900	9.20	65,600	-----	-----
4	-----	-----	6.33	32,600	10.19	78,600	9.03	63,400	4.07	13,800
5	-----	-----	6.71	36,400	10.07	76,900	8.84	61,000	-----	-----
6	-----	-----	7.20	41,600	9.96	75,500	8.61	58,100	-----	-----
7	-----	-----	7.76	47,700	9.88	74,400	8.34	54,800	-----	-----
8	-----	-----	8.32	54,500	9.81	73,500	8.10	51,900	3.77	12,000
9	-----	-----	8.83	60,900	9.79	73,300	7.83	48,700	-----	-----
10	-----	-----	9.34	67,400	9.74	72,600	7.57	45,700	-----	-----
11	-----	-----	9.79	73,300	9.72	72,400	7.47	44,600	-----	-----
N	1.05	1,240	10.16	78,200	9.71	72,200	7.22	41,800	3.46	10,300
1	1.06	1,250	10.55	83,400	9.71	72,200	6.93	38,700	-----	-----
2	1.06	1,250	10.90	88,200	9.73	72,500	6.66	35,900	-----	-----
3	1.07	1,270	11.08	90,600	9.73	72,500	6.39	33,200	-----	-----
4	1.09	1,300	11.29	93,400	9.73	72,500	6.12	30,600	3.34	9,630
5	1.12	1,350	11.46	95,700	9.75	72,800	5.86	28,100	-----	-----
6	1.34	1,750	11.50	96,200	9.74	72,600	5.68	26,500	-----	-----
7	1.57	2,260	11.52	96,500	9.75	72,800	5.43	24,300	-----	-----
8	1.94	3,300	11.41	95,000	9.72	72,400	5.22	22,500	3.25	9,170
9	2.94	7,230	11.30	93,600	9.71	72,200	5.01	20,800	-----	-----
10	3.42	9,610	11.19	92,100	9.69	72,000	4.82	19,300	-----	-----
11	3.80	11,800	11.03	89,900	9.64	71,300	4.65	17,900	-----	-----
12	4.30	14,800	10.85	87,500	9.57	70,400	4.50	16,800	3.11	8,470
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	2.18	4,530	7.07	40,200	6.68	36,100	-----	-----
2	-----	-----	2.30	4,970	7.18	41,400	6.44	33,700	-----	-----
3	-----	-----	2.51	5,780	7.30	42,700	6.22	31,500	-----	-----
4	1.78	3,160	2.70	6,560	7.39	43,700	5.97	29,200	3.41	9,990
5	-----	-----	3.50	10,500	7.48	44,700	5.77	27,300	-----	-----
6	-----	-----	4.59	17,500	7.58	45,800	5.54	25,300	-----	-----
7	-----	-----	5.11	21,600	7.69	47,100	5.28	23,000	-----	-----
8	1.67	2,810	5.40	24,000	7.78	48,100	5.05	21,100	3.25	9,170
9	-----	-----	5.60	25,800	7.87	49,200	4.84	19,400	-----	-----
10	-----	-----	5.75	27,200	7.96	50,200	4.65	17,900	-----	-----
11	-----	-----	5.91	28,600	8.01	50,800	4.49	16,700	-----	-----
N	1.54	2,450	6.05	29,900	8.08	51,700	4.35	15,700	3.09	8,370
1	-----	-----	6.15	30,900	8.08	51,700	4.22	14,800	-----	-----
2	-----	-----	6.22	31,500	8.08	51,700	4.12	14,100	-----	-----
3	-----	-----	6.29	32,200	8.05	51,300	4.03	13,500	-----	-----
4	1.62	2,670	6.35	32,800	8.03	51,100	3.97	13,200	2.87	7,320
5	-----	-----	6.41	33,400	7.99	50,600	3.90	12,800	-----	-----
6	-----	-----	6.48	34,100	7.91	49,600	3.85	12,400	-----	-----
7	-----	-----	6.54	34,700	7.79	48,200	3.80	12,200	-----	-----
8	1.78	3,160	6.59	35,200	7.67	46,900	3.76	11,900	2.73	6,690
9	-----	-----	6.66	35,900	7.52	45,100	3.72	11,700	-----	-----
10	-----	-----	6.75	36,800	7.33	43,000	3.68	11,400	-----	-----
11	-----	-----	6.85	37,900	7.13	40,800	3.65	11,300	-----	-----
12	2.11	4,280	6.96	39,000	6.91	38,500	3.60	11,000	2.63	6,270

SUPPLEMENTAL RECORD.—Aug. 31, 1:30 p.m., gage height, 8.09 feet; discharge, 51,800 second-feet.

276 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

SAVANNAH RIVER AT AUGUSTA, GA.

LOCATION.—Lat. 33°25'15", long. 81°56'40", at Butler Creek, 0.3 mile downstream from New Savannah Bluff lock and dam and 13 miles downstream from Augusta, Richmond County. Datum of gage is 97.00 feet above mean sea level (Corps of Engineers, War Department, bench mark). Auxiliary water-stage recorder at Fifth Street Bridge on U. S. Highway 1 at Augusta used in computation of discharge during floods. Datum of auxiliary gage is 102.56 feet above mean sea level (U. S. Weather Bureau bench mark).

DRAINAGE AREA.—7,508 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graphs.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 240,000 second-feet.

MAXIMA.—1940: Discharge, 239,000 second-feet 6:30 a.m. Aug. 15 (gage height 29.40 feet).

1884-91, 1898-1906, 1927-32, 1938-39: Discharge, 350,000 second-feet Oct. 3, 1929 (gage height, 45.1 feet, at site and datum of present auxiliary gage), from rating curve extended above 310,000 second-feet by computation of flow over dam. Gage height, 46.3 feet Sept. 27, 1929 (at site and datum of present auxiliary gage).

REMARKS.—Flood discharge not materially affected by artificial storage or diversion. Flow regulated during medium and low stages by gates at New Savannah Bluff lock and dam, and by power plants above station. Water-stage recorder graphs and discharge measurements furnished by Corps of Engineers, War Department).

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	8.02	8,200	-----	-----	-----	-----	-----	-----
2	-----	-----	8.82	9,270	-----	-----	-----	-----	-----	-----
3	-----	-----	9.06	9,600	-----	-----	-----	-----	-----	-----
4	-----	-----	9.08	9,630	26.91	145,000	29.36	237,000	28.15	187,000
5	-----	-----	9.40	10,100	-----	-----	-----	-----	-----	-----
6	2.95	2,530	11.16	12,700	-----	-----	-----	-----	-----	-----
7	-----	-----	16.76	23,800	-----	-----	-----	-----	-----	-----
8	-----	-----	20.14	33,600	27.23	155,000	29.39	239,000	27.64	169,000
9	-----	-----	21.40	41,300	-----	-----	-----	-----	-----	-----
10	-----	-----	22.02	47,000	-----	-----	-----	-----	-----	-----
11	-----	-----	22.54	52,800	-----	-----	-----	-----	-----	-----
N	5.09	4,610	23.24	62,800	27.72	171,000	29.30	234,000	27.10	150,000
1	5.82	5,430	23.77	71,600	-----	-----	-----	-----	-----	-----
2	6.19	5,880	24.36	82,500	-----	-----	-----	-----	-----	-----
3	6.85	6,680	24.79	90,800	-----	-----	-----	-----	-----	-----
4	7.48	7,490	25.19	99,500	28.28	193,000	29.13	227,000	26.44	131,000
5	7.70	7,780	25.50	107,000	-----	-----	-----	-----	-----	-----
6	7.77	7,870	25.80	114,000	-----	-----	-----	-----	-----	-----
7	9.25	9,870	26.15	123,000	-----	-----	-----	-----	-----	-----
8	9.51	10,200	26.32	128,000	28.82	214,000	28.89	217,000	25.62	109,000
9	9.60	10,400	26.45	131,000	-----	-----	-----	-----	-----	-----
10	9.61	10,400	26.54	134,000	-----	-----	-----	-----	-----	-----
11	9.59	10,300	26.62	136,000	-----	-----	-----	-----	-----	-----
12	8.70	9,100	26.70	138,000	29.22	231,000	28.56	203,000	24.62	87,600

Hour	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
4	23.78	71,900	17.97	26,900	14.57	18,700	11.89	13,800
8	22.90	57,600	17.27	25,100	14.18	17,900	11.56	13,300
N	21.98	26,400	16.46	23,100	13.67	16,900	10.56	11,800
4	20.92	37,900	15.98	21,900	13.16	15,900	9.63	10,400
8	19.92	32,400	15.33	20,400	12.68	15,100	8.45	8,760
12	18.79	29,200	14.93	19,500	12.43	14,700	7.98	8,140

Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	11.00	12,400	-----	-----	-----	-----	-----	-----
2	4.69	4,170	11.80	13,600	-----	-----	22.76	55,500	16.70	23,600
3	-----	-----	12.55	14,900	-----	-----	-----	-----	-----	-----
4	4.66	4,140	13.00	15,600	21.98	46,400	22.52	52,500	16.25	22,600
5	-----	-----	13.55	16,700	-----	-----	-----	-----	-----	-----
6	4.66	4,140	14.60	18,800	-----	-----	22.17	48,400	15.88	21,700
7	-----	-----	15.28	20,300	-----	-----	-----	-----	-----	-----
8	5.13	4,650	15.90	21,700	22.37	50,600	21.73	44,000	15.43	20,600
9	-----	-----	16.53	23,200	-----	-----	-----	-----	-----	-----
10	5.52	5,080	17.12	24,700	-----	-----	21.25	40,100	15.10	19,900
11	-----	-----	17.64	26,100	-----	-----	-----	-----	-----	-----
N	5.67	5,250	18.11	27,300	22.65	54,400	20.64	36,000	14.75	19,100
1	-----	-----	18.53	28,500	-----	-----	-----	-----	-----	-----
2	6.62	6,390	18.97	29,700	-----	-----	20.05	33,100	14.38	18,300
3	-----	-----	19.32	30,700	-----	-----	-----	-----	-----	-----
4	7.54	7,570	19.67	31,700	22.88	57,400	19.52	31,200	13.78	17,100
5	-----	-----	19.93	32,400	-----	-----	-----	-----	-----	-----
6	7.66	7,730	20.20	33,800	-----	-----	18.93	29,600	13.17	16,000
7	-----	-----	20.44	24,900	-----	-----	-----	-----	-----	-----
8	7.75	7,840	20.65	36,200	23.02	59,600	18.38	28,000	12.62	15,000
9	-----	-----	20.83	37,300	-----	-----	-----	-----	-----	-----
10	8.24	8,480	21.01	38,400	-----	-----	17.89	26,700	12.46	14,700
11	-----	-----	21.17	39,500	-----	-----	-----	-----	-----	-----
12	9.92	10,800	21.38	41,100	22.92	57,800	17.15	24,800	12.20	14,300

SUPPLEMENTAL RECORDS.—Aug. 15, 6:30 a.m., gage height, 29.40 feet; discharge, 239,000 second-feet. Sept. 1, 9 p.m., gage height, 23.03 feet; discharge, 59,800 second-feet.

SAVANNAH RIVER AT BURTONS FERRY BRIDGE, NEAR MILLHAVEN, GA.
LOCATION.—Lat. 32°56'20", long. 81°30'10", at bridge on State Highway 73, 2 miles downstream from Rocky Creek and 9 miles east of Millhaven, Screven

278 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

County. Datum of gage is 52.42 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—8,650 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

Gage heights used to tenths.

MAXIMA.—1939-40: Discharge, 141,000 second-feet 9 to 11 a.m. Aug. 18 (gage height, 27.0 feet).

REMARKS.—Flood runoff not seriously affected by storage. Gage-height record and results of current-meter measurements furnished by Corps of Engineers, War Department.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	3,360	10,300	9	3,040	14,600	17	118,000	5,800	25	21,000	4,540
2	3,440	12,100	10	3,920	10,600	18	138,000	5,080	26	14,000	4,270
3	3,280	13,900	11	4,080	8,300	19	121,000	4,450	27	10,000	3,600
4	3,120	19,300	12	5,020	7,060	20	96,400	4,630	28	7,460	3,920
5	3,040	28,100	13	8,080	6,880	21	73,100	4,720	29	6,070	4,360
6	3,200	29,300	14	11,900	6,790	22	53,900	4,810	30	5,620	4,540
7	3,680	25,500	15	15,000	6,520	23	39,500	5,080	31	6,610	-----
8	3,440	20,100	16	51,300	6,160	24	29,600	4,990			
Monthly mean discharge, in second-feet.....										28,040	9,677
Runoff, in inches.....										3.74	1.25

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
4	12.60	13,400	16.23	26,000	24.30	101,000	26.92	139,000	26.20	128,000
6	12.78	13,900	18.00	37,000	25.10	112,000	26.95	140,000	25.80	122,000
8	12.96	14,300	19.60	49,400	25.70	120,000	26.96	141,000	25.34	115,000
N	13.32	15,000	21.20	64,500	26.20	128,000	26.85	137,000	24.88	109,000
4	13.32	15,000	21.20	64,500	26.20	128,000	26.85	137,000		
6	13.98	17,000	22.30	76,300	26.55	134,000	26.70	136,000		
8	14.92	20,100	23.40	89,300	26.78	137,000	26.54	132,000		
6	24.42	102,000	22.50	78,500	20.60	58,500	18.70	42,100	17.29	32,300
N	23.95	97,000	22.00	73,000	20.10	53,900	18.30	39,100	16.83	29,300
6	23.46	90,000	21.50	67,500	19.58	49,400	17.98	37,000	16.45	27,000
12	23.00	84,500	21.03	62,500	19.12	45,300	17.58	34,200	16.02	25,000

SAVANNAH RIVER NEAR CLYO, GA.

LOCATION.—Lat. 32°31'30", long. 81°15'45", at bridge on Seaboard Railway 3 miles north of Clyo, Effingham County. Datum of gage is 13.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—9,850 square miles.

GAGE-HEIGHT RECORD.—Graph based on twice-daily gage readings of staff gage except Aug. 18-24 where hourly gage readings were available.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 119,000 second-feet. Gage heights used to tenths.

MAXIMA.—1940: Discharge, 128,000 second-feet 6 a.m. Aug. 21 to 5 a.m. Aug. 22 (gage height, 23.6 feet).

1937-39: Discharge, 70,100 second-feet Mar. 7, 8, 1939 (gage height, 20.4 feet).

1921-40: Gage height, 29.7 feet Oct. 6, 1929 from records of U. S. Weather Bureau (discharge not determined).

REMARKS.—Flood runoff not seriously affected by headwater storage reservoirs.

Gage-height record and results of discharge measurements furnished by Corps of Engineers, War Department.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4,180	10,400	9	4,180	19,500	17	12,400	7,800	25	73,000	5,620
2	4,000	10,400	10	3,910	21,600	18	16,100	7,200	26	58,000	5,440
3	3,820	10,800	11	4,180	20,700	19	68,100	6,400	27	44,700	5,080
4	3,820	11,200	12	6,200	18,300	20	114,000	5,710	28	33,700	4,720
5	3,820	11,800	13	7,600	15,000	21	127,000	5,440	29	25,600	4,540
6	3,640	12,200	14	9,670	11,800	22	124,000	5,440	30	18,300	4,810
7	3,550	12,700	15	11,100	9,780	23	110,000	5,440	31	12,700	-----
8	3,820	15,000	16	11,800	8,680	24	91,600	5,620			
Monthly mean discharge, in second-feet.....										32,850	9,971
Runoff, in inches.....										3.85	1.13

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	11.1	12,900	15.7	32,300				
2			16.2	35,800				
3			16.7	39,700				
4	11.2	13,100	17.1	42,900	22.3	106,000	23.5	126,000
5			17.6	47,400				
6			18.0	51,000				
7			18.2	53,000				
8	11.4	13,500	18.5	56,000	22.6	111,000	23.6	128,000
9			18.9	60,200				
10			19.2	63,500				
11			19.5	67,000				
N	11.8	14,500	19.8	70,600	22.8	114,000	23.6	128,000
1			20.0	73,000				
2	12.0	15,000	20.3	76,900				
3			20.5	79,500				
4	12.3	15,900	20.7	82,100	23.1	119,000	23.6	128,000
5			20.9	84,900				
6	12.7	17,100	21.1	87,700				
7			21.2	89,200				
8	13.3	19,500	21.3	90,700	23.2	121,000	23.6	128,000
9			21.5	93,700				
10	14.1	23,100	21.6	95,200				
11			21.7	96,700				
12	15.2	29,100	21.9	99,700	23.4	125,000	23.6	128,000

Hour	Aug. 22		Aug. 23		Aug. 24	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
4	23.6	128,000	22.9	116,000	21.8	98,200
8	23.5	126,000	22.7	112,000	21.6	95,200
N	23.4	125,000	22.5	109,000	21.4	92,200
4	23.3	123,000	22.4	108,000	21.1	87,700
8	23.2	121,000	22.2	104,000	20.9	84,900
12	23.0	118,000	22.0	101,000	20.7	82,100

KEOWEE RIVER NEAR NEWRY, S. C.

LOCATION.—Lat. 34°44', long. 82°53', 0.4 mile upstream from Six Mile Creek, 1 mile downstream from Little River, and 1.5 miles east of Newry, Oconee County.

DRAINAGE AREA.—455 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 20,000 second-feet; extended to peak stage by logarithmic plotting. Shifting-control method used Aug. 14 to Sept. 30. Rate of change of stage used as a factor in computing discharge Aug. 12-15, 29-31, Sept. 1.

MAXIMA.—Discharge, 25,200 second-feet 10 p.m. Aug. 13; maximum gage height, 24.60 feet 12 p.m. Aug. 13.

280 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—Flood discharge not affected by artificial storage or diversion. Low flow regulated by power plant above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	400	3,240	9	443	1,180	17	1,420	655	25	828	564
2	441	2,560	10	379	1,070	18	1,420	612	26	775	514
3	378	2,130	11	344	956	19	1,120	598	27	647	464
4	357	1,850	12	703	871	20	962	578	28	614	390
5	355	1,680	13	16,500	825	21	910	512	29	4,370	480
6	360	1,540	14	10,600	716	22	868	503	30	19,600	489
7	369	1,360	15	2,660	723	23	816	478	31	5,340	-----
8	407	1,290	16	1,840	728	24	762	473			
Monthly mean discharge, in second-feet-----										2,483	1,001
Runoff, in inches-----										6.30	2.46

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	4.65	2,570	24.47	23,400	-----	-----	-----	-----
2	-----	-----	5.16	3,060	24.18	22,600	-----	-----	-----	-----
3	-----	-----	6.09	4,130	23.77	20,800	-----	-----	-----	-----
4	2.16	375	7.55	5,880	23.24	19,400	6.48	3,130	-----	-----
5	-----	-----	9.75	8,310	22.62	18,300	-----	-----	-----	-----
6	-----	-----	11.88	11,100	21.88	16,800	-----	-----	4.94	1,960
7	-----	-----	14.50	14,700	21.06	15,600	-----	-----	-----	-----
8	2.44	574	16.70	16,800	20.05	13,600	6.09	2,800	-----	-----
9	-----	-----	17.66	16,900	18.80	11,600	-----	-----	-----	-----
10	-----	-----	18.44	17,400	17.45	9,970	-----	-----	-----	-----
11	-----	-----	18.94	17,700	15.96	8,840	-----	-----	-----	-----
N	2.64	733	19.24	18,000	14.64	7,870	5.80	2,560	4.78	1,830
1	-----	-----	19.51	18,400	13.37	6,980	-----	-----	-----	-----
2	-----	-----	19.87	19,000	12.20	6,130	-----	-----	-----	-----
3	-----	-----	20.31	19,800	11.24	5,840	-----	-----	-----	-----
4	2.68	781	20.86	20,800	10.35	5,260	5.56	2,410	-----	-----
5	-----	-----	21.54	21,900	9.68	4,960	-----	-----	-----	-----
6	-----	-----	22.20	22,900	9.02	4,760	-----	-----	4.64	1,710
7	-----	-----	22.88	23,900	8.52	4,480	-----	-----	-----	-----
8	2.97	1,000	23.50	24,400	8.14	4,190	5.36	2,240	-----	-----
9	-----	-----	23.99	24,900	7.82	4,070	-----	-----	-----	-----
10	-----	-----	24.37	25,200	7.55	3,850	-----	-----	-----	-----
11	-----	-----	24.54	25,000	7.29	3,720	-----	-----	-----	-----
12	4.04	2,010	24.60	24,500	7.09	3,560	5.21	2,110	4.50	1,590

Hour	Aug. 29		Aug. 30		Aug. 31		Sept. 1	
1	-----	-----	19.04	18,000	15.94	8,830	-----	-----
2	2.84	859	19.47	18,500	14.58	7,730	-----	-----
3	-----	-----	19.81	18,800	13.35	7,110	-----	-----
4	2.83	850	20.09	19,100	12.26	6,650	-----	-----
5	-----	-----	20.38	19,600	11.34	6,190	-----	-----
6	2.82	842	20.71	20,000	10.48	5,930	6.41	3,480
7	-----	-----	21.08	20,700	9.86	5,590	-----	-----
8	2.83	850	21.50	21,200	9.38	5,530	-----	-----
9	-----	-----	21.93	22,300	9.01	5,410	-----	-----
10	2.84	859	22.41	22,800	8.69	5,160	-----	-----
11	-----	-----	22.97	23,600	8.42	5,050	-----	-----
N	2.83	850	23.32	23,800	8.21	4,880	6.08	3,270
1	2.83	850	23.60	23,600	8.04	4,740	-----	-----
2	2.86	876	23.66	23,200	7.87	4,600	-----	-----
3	2.99	1,020	23.61	22,700	7.73	4,590	-----	-----
4	3.20	1,230	23.43	22,000	7.60	4,470	-----	-----
5	4.00	2,170	23.08	20,400	7.47	4,360	-----	-----
6	6.41	5,370	22.58	19,300	7.37	4,280	5.82	3,050
7	10.90	11,000	22.03	18,000	7.26	4,190	-----	-----
8	14.17	14,300	21.36	16,300	7.16	4,110	-----	-----
9	15.80	15,300	20.46	14,900	7.10	4,060	-----	-----
10	17.02	16,200	19.55	13,500	7.03	4,000	-----	-----
11	17.94	17,100	18.45	12,100	6.93	3,920	-----	-----
12	18.58	17,700	17.18	10,200	6.86	3,860	5.50	2,780

LOCATION.—Lat. 34°30', long. 82°50', at highway bridge 1½ miles downstream from Deep Creek, 4 miles upstream from confluence of Seneca and Tugaloo Rivers, and 10½ miles west of Anderson, Anderson County.

REMARKS.—Flood discharge not affected by artificial storage or diversion. Flow regulated by power plant above station during low stages.

[illegible]

282 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.87	513	4.90	2,980	15.32	31,600	14.78	29,400
2	2.89	531	5.54	3,860	15.72	33,400	14.31	27,500
3	2.93	568	7.09	6,340	16.07	35,000	13.77	25,400
4	2.90	540	8.90	10,200	16.47	36,800	13.35	23,800
5	2.90	540	9.97	13,000	16.97	39,000	12.96	22,400
6	2.92	559	11.12	16,300	17.27	40,400	12.56	21,000
7	3.13	766	11.52	17,500	17.56	41,900	12.08	19,300
8	3.80	1,530	11.87	18,600	17.86	43,400	11.68	17,900
9	4.40	2,300	12.24	19,900	18.03	44,200	11.30	16,800
10	5.00	3,110	12.56	21,000	18.17	45,000	10.85	15,400
11	5.29	3,510	12.88	22,100	18.27	45,400	10.41	14,200
N	5.38	3,630	13.21	23,300	18.28	45,500	9.92	12,800
1	5.26	3,460	13.49	24,300	18.27	45,400	9.38	11,400
2	4.94	3,030	13.75	25,300	18.24	45,300	8.84	10,100
3	4.80	2,840	13.94	26,100	18.18	45,000	8.33	9,920
4	4.84	2,890	14.03	26,400	18.06	44,400	7.87	7,910
5	4.93	3,020	14.07	26,600	17.92	43,700	7.50	7,140
6	4.78	2,810	14.10	26,700	17.66	42,400	7.23	6,610
7	4.48	2,410	14.18	27,000	17.41	41,200	6.99	6,150
8	4.34	2,220	14.28	27,400	17.08	39,500	6.83	5,860
9	4.31	2,180	14.40	27,900	16.60	37,400	6.66	5,560
10	4.36	2,250	14.51	28,300	16.17	35,400	6.52	5,320
11	4.47	2,390	14.68	29,000	15.70	33,300	6.42	5,150
12	4.67	2,660	14.93	30,000	15.23	31,200	6.34	5,020
Hour	Aug. 29		Aug. 30		Aug. 31		Sept. 1	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	3.56	1,130	8.88	10,200	14.58	28,600	-----	-----
2	3.61	1,190	9.50	11,700	14.67	29,000	8.51	9,330
3	3.61	1,190	10.07	13,200	14.74	29,300	-----	-----
4	3.50	1,060	10.51	14,500	14.78	29,400	7.77	7,700
5	3.69	1,290	10.84	15,400	14.80	29,500	-----	-----
6	3.76	1,380	11.03	16,000	14.74	29,300	7.26	6,660
7	3.68	1,280	11.10	16,200	14.70	29,100	-----	-----
8	3.63	1,220	11.22	16,600	14.59	28,700	6.90	5,990
9	3.56	1,130	11.26	16,700	14.46	28,100	-----	-----
10	3.55	1,120	11.34	16,900	14.26	27,300	6.66	5,560
11	3.56	1,130	11.45	17,200	13.96	26,100	-----	-----
N	3.58	1,160	11.57	17,600	13.61	24,700	6.50	5,290
1	3.59	1,170	11.77	18,200	13.26	23,500	-----	-----
2	3.60	1,180	11.96	18,900	12.93	22,300	6.31	4,980
3	3.58	1,160	12.15	19,600	12.60	21,200	-----	-----
4	3.63	1,220	12.39	20,400	12.28	20,000	6.19	4,780
5	3.61	1,190	12.62	21,200	11.93	18,800	-----	-----
6	3.63	1,220	12.92	22,300	11.60	17,700	6.09	4,620
7	3.66	1,250	13.11	22,900	11.23	16,600	-----	-----
8	4.18	1,910	13.38	23,900	10.90	15,600	5.96	4,420
9	4.98	3,000	13.63	24,800	10.50	14,400	-----	-----
10	5.84	4,240	13.79	25,500	10.10	13,300	5.88	4,300
11	6.85	5,900	14.18	27,000	9.75	12,400	-----	-----
12	8.00	8,100	14.40	27,900	9.32	11,300	5.78	4,150

SUPPLEMENTAL RECORDS.—Aug. 14, 12:45 p.m., gage height, 18.30 feet; discharge, 45,600 second-feet.
Aug. 31, 4:30 a.m., gage height, 14.82 feet; discharge, 29,600 second-feet.

BROAD RIVER NEAR BELL, GA.

LOCATION.—Lat. 33°58', long. 82°46', at bridge on State Highway 17, half a mile downstream from Long Creek, 1 mile south of Bell's crossroads, and 12 miles southeast of Elberton, Elbert County. Datum of gage is 357.16 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,420 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 25,000 second-feet and extended logarithmically to crest gage height. Gage heights used to half-tenths between 3.5 and 5.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 28,400 second-feet 4 a.m. Aug. 14 (gage height, 25.10 feet).

1926-32, 1937-39: Gage height, 34.8 feet Oct. 2, 1929 (discharge uncertain).

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	460	3,820	9	605	670	17	1,540	525	25	670	445
2	370	1,510	10	435	645	18	1,210	505	26	615	440
3	375	1,120	11	361	615	19	1,040	490	27	620	430
4	370	925	12	1,190	575	20	925	500	28	575	460
5	307	845	13	23,400	555	21	820	475	29	595	440
6	361	795	14	26,100	550	22	770	470	30	4,720	370
7	380	770	15	16,300	535	23	720	410	31	8,270	-----
8	670	720	16	3,110	505	24	695	445			
Monthly mean discharge, in second-feet.....										3,180	719
Runoff, in inches.....										2.58	0.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	16.80	13,100	24.93	28,000	21.66	21,300	12.20	7,500
2	-----	-----	18.50	15,700	25.00	28,200	21.44	20,800	11.20	6,500
3	-----	-----	19.70	17,700	25.07	28,400	21.20	20,400	10.00	5,360
4	-----	-----	20.58	19,300	25.10	28,400	21.00	20,000	9.10	4,550
5	-----	-----	21.30	20,600	25.06	28,400	20.77	19,600	8.30	3,850
6	12.91	1330	21.90	21,700	25.00	28,200	20.56	19,300	7.68	3,370
7	-----	-----	22.43	22,700	24.96	28,200	20.35	18,900	7.36	3,050
8	-----	-----	22.90	23,700	24.88	28,000	20.14	18,400	7.08	2,820
9	-----	-----	23.20	24,300	24.76	27,800	19.83	17,900	6.88	2,670
10	-----	-----	23.48	25,000	24.64	27,300	19.62	17,500	6.70	2,520
11	-----	-----	23.66	25,400	24.50	27,100	19.42	17,200	6.58	2,450
N	-----	-----	23.74	25,400	24.37	26,900	19.14	16,700	6.46	2,380
1	2.95	348	23.76	25,600	24.20	26,400	18.90	16,300	6.34	2,310
2	2.96	352	23.78	25,600	24.00	26,000	18.60	15,900	6.28	2,240
3	2.98	361	23.80	25,600	23.82	25,600	18.30	15,400	6.19	2,170
4	3.00	370	23.84	25,600	23.64	25,200	18.00	14,900	6.10	2,100
5	3.04	390	23.90	25,800	23.45	24,700	17.66	14,400	6.04	2,040
6	3.10	420	24.00	26,000	23.20	24,300	17.28	13,800	5.97	2,040
7	3.21	475	24.10	26,200	23.00	23,900	16.88	13,300	5.91	1,970
8	3.65	695	24.24	26,400	22.76	23,500	16.40	12,600	5.85	1,970
9	6.20	2,240	24.40	26,900	22.56	23,100	15.76	11,700	5.79	1,900
10	10.30	5,630	24.56	27,300	22.37	22,700	15.00	10,700	5.72	1,840
11	12.70	8,040	24.70	27,500	22.14	22,100	14.20	9,740	5.69	1,840
12	14.90	10,600	24.84	27,800	21.88	21,700	13.20	8,590	5.63	1,780

¹ Mean for 12 hours.

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			12.35	2,950	29.08	19,700	19.34	6,500		
2	0.95	40	15.11	4,120	29.30	20,100	18.50	5,940		
3			15.17	4,150	29.50	20,600	17.61	5,410		
4	.96	42	15.37	4,240	29.60	20,800	16.78	4,950	3.95	504
5			15.89	4,500	29.41	20,400	15.97	4,540		
6	.97	43	16.90	5,020	29.10	19,700	15.09	4,120		
7			17.79	5,510	28.81	19,200	14.29	3,760		
8	1.00	47	18.47	5,920	28.56	18,600	13.50	3,410	3.66	447
9			19.90	6,910	28.28	18,100	12.69	3,090		
10	1.06	55	21.61	8,420	27.87	17,300	12.05	2,830		
11			23.01	9,920	27.48	16,600	11.45	2,620		
N	1.13	64	23.93	11,100	27.03	15,800	10.83	2,400	3.44	407
1			24.72	12,100	26.56	15,000	10.32	2,220		
2	1.24	80	25.24	12,900	26.07	14,200	9.47	1,950		
3			25.59	13,400	25.56	13,400	8.44	1,640		
4	1.38	99	25.91	13,900	25.04	12,600	7.61	1,400	3.28	378
5			26.14	14,300	24.52	11,800	6.82	1,190		
6	2.62	287	26.47	14,800	23.99	11,100	6.09	1,000		
7			27.19	16,100	23.48	10,500	5.56	876		
8	3.82	498	27.98	17,500	22.94	9,840	5.16	783	3.11	349
9			28.24	18,000	22.34	9,170	4.89	724		
10	4.53	645	28.37	18,300	21.70	8,510	4.66	673		
11			28.58	18,700	20.99	7,830	4.49	636		
12	5.64	896	28.87	19,300	20.21	7,160	4.33	601	2.97	325

LOCATION.—Lat. 33°43'45", long. 82°10'55", at bridge on State Highway 23, 1.4 miles east of Modoc, McCormick County, and 3.2 miles downstream from Turkey Creek.

MAXIMA.—Discharge, 35,100 second-feet 6:30 a.m. Aug. 14; maximum gage height, 41.08 feet 9:30 a.m. Aug. 14.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	15.50	7,520	39.08	33,300	35.67	21,800	-----	-----	-----	-----
2	-----	-----	21.08	12,100	39.43	33,900	35.01	21,000	10.18	2,070	-----	-----
3	-----	-----	25.60	18,000	39.80	34,600	34.27	20,000	-----	-----	-----	-----
4	-----	-----	27.38	17,100	40.18	35,000	33.52	18,600	8.34	1,630	-----	-----
5	-----	-----	28.86	19,600	40.49	35,000	32.77	17,600	-----	-----	-----	-----
6	0.97	49	30.70	23,100	40.72	35,000	32.00	16,800	6.62	1,280	2.53	428
7	-----	-----	32.26	24,800	40.90	35,000	31.19	16,000	-----	-----	-----	-----
8	-----	-----	33.44	25,700	41.02	34,800	30.40	15,000	5.24	1,020	-----	-----
9	-----	-----	34.34	25,700	41.07	34,600	29.62	14,100	-----	-----	-----	-----
10	-----	-----	35.10	27,200	41.07	34,600	28.74	12,600	4.33	859	-----	-----
11	-----	-----	35.63	27,400	41.00	33,800	27.80	11,700	-----	-----	-----	-----
N	1.03	58	36.13	28,000	40.88	34,200	26.90	10,900	3.86	746	2.26	358
1	1.00	53	36.50	28,700	40.70	32,500	25.90	10,000	-----	-----	-----	-----
2	1.00	53	36.84	28,700	40.48	32,200	24.88	8,250	3.56	682	-----	-----
3	1.00	53	37.10	28,500	40.24	33,100	23.59	6,260	-----	-----	-----	-----
4	1.00	53	37.27	28,800	39.92	30,900	22.20	4,800	3.38	636	-----	-----
5	1.00	53	37.46	29,100	39.56	29,700	20.80	4,150	-----	-----	-----	-----
6	1.08	66	37.62	29,500	39.20	29,700	19.29	3,470	3.21	605	2.08	311
7	1.37	128	37.78	29,200	38.80	28,500	17.95	2,970	-----	-----	-----	-----
8	1.77	253	37.86	29,300	38.37	27,200	16.66	3,010	3.07	568	-----	-----
9	3.60	1,000	38.05	30,200	37.88	27,100	15.48	2,990	-----	-----	-----	-----
10	6.32	1,900	38.28	30,600	37.41	25,800	14.37	2,910	2.90	524	-----	-----
11	8.18	2,470	38.45	30,900	36.89	24,400	13.20	2,890	-----	-----	-----	-----
12	11.46	4,880	38.72	30,500	36.30	23,500	12.13	2,460	2.78	493	1.94	274

SUPPLEMENTAL RECORD.—Aug. 14, 6:30 a.m., gage height, 40.82 feet; discharge, 35,100 second-feet.

BRIER CREEK AT MILLHAVEN, GA.

LOCATION.—Lat. $32^{\circ}56'00''$, long. $81^{\circ}39'05''$, at Savannah & Atlanta Railway trestle at Millhaven, Screven County, $8\frac{1}{2}$ miles above Beaver Dam Creek.

DRAINAGE AREA.—656 square miles.

GAGE-HEIGHT RECORD.—Graph based on highwater mark and twice daily gage readings of staff gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 20,000 second-feet and extended to crest gage height by logarithmic plotting. Gage heights used to tenths.

MAXIMA.—1940: Discharge, 25,400 second-feet 7 to 9 p.m. Aug. 16 (gage height, 17.4 feet, from floodmark).

1937-39: Discharge, 5,900 second-feet Mar. 3, 5, 1939 (gage height, 12.2 feet).

REMARKS.—Flood runoff not affected by storage or diversion. Local residents state that the flood of August 1940 equaled any within their memory.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
4	6.9	1,260	16.0	18,200	17.1	23,700	-----	-----	-----	-----
6	-----	-----	-----	-----	-----	-----	14.9	13,600	13.0	7,700
8	7.2	1,400	16.7	21,700	16.8	22,200	-----	-----	-----	-----
N	8.0	1,800	17.1	23,700	16.4	20,200	14.4	11,700	12.5	6,550
4	9.8	3,040	17.3	24,800	16.1	18,700	-----	-----	-----	-----
6	-----	-----	-----	-----	-----	-----	13.8	9,900	12.0	5,600
8	13.0	7,700	17.4	25,400	15.7	16,800	-----	-----	-----	-----
12	14.8	13,200	17.3	24,800	15.4	15,600	13.5	9,000	11.5	4,840

OGEECHEE RIVER BASIN

OGEECHEE RIVER NEAR LOUISVILLE, GA.

LOCATION.—Lat. 32°58', long. 82°23', at bridge on U. S. Highway 1, 1 mile downstream from Louisville & Wadley Railroad bridge, 2 miles south of Louisville, Jefferson County, 2 miles downstream from Rocky Comfort Creek, and 2 miles upstream from Big Creek. Datum of gage is 199.24 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—800 square miles.

GAGE-HEIGHT RECORD.—Graph based on two or more readings daily of staff gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 17,000 second-feet and extended to crest gage height by logarithmic plotting. Gage heights used to tenths.

MAXIMA.—1940: Discharge, 20,600 second-feet 4 a.m. Aug. 16 (gage height, 17.6 feet, from graph based on gage readings).

1937-39: Discharge, 12,800 second-feet May 2, 1937, Mar. 2, 1938 (gage height, 16.1 feet).

Stage known, 21.3 feet October 1929 (from data furnished by Central of Georgia Railroad); discharge not determined.

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	150	704	9	190	418	17	11,100	258	25	840	222
2	160	780	10	234	404	18	5,290	258	26	704	222
3	160	860	11	240	376	19	3,310	246	27	632	246
4	150	840	12	625	348	20	2,360	246	28	560	246
5	170	722	13	13,200	334	21	1,850	234	29	528	320
6	180	614	14	13,400	306	22	1,520	234	30	650	390
7	160	496	15	16,100	294	23	1,160	222	31	668	-----
8	180	432	16	18,900	282	24	940	234	-----	-----	-----

Monthly mean discharge, in second-feet.....

3,107

Runoff, in inches.....

4.47 0.55

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
4	4.1	282	13.4	4,320	16.7	15,500	16.1	12,500	17.6	20,600	16.4	14,000
8	4.6	348	15.5	9,900	16.4	14,000	16.4	14,000	17.5	20,000	16.1	12,500
N	5.3	448	17.1	17,600	16.1	12,500	16.8	16,000	17.4	19,400	15.8	11,100
4	6.4	632	17.4	19,400	16.0	12,000	17.2	18,200	17.2	18,200	15.4	9,500
8	8.2	980	17.3	18,800	16.0	12,000	17.4	19,400	17.0	17,000	15.0	8,100
12	10.8	1,870	17.0	17,000	16.0	12,000	17.5	20,000	16.7	15,500	14.7	7,200

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OGEECHEE RIVER AT SCARBORO, GA.

LOCATION.—Lat. $32^{\circ}42'40''$, long. $81^{\circ}52'45''$, at county highway bridge at Scarboro, Jenkins County, $3\frac{1}{2}$ miles downstream from Sculls Creek, $6\frac{1}{2}$ miles upstream from Horse Creek, and $7\frac{1}{2}$ miles southeast of Millen. Datum of gage is 111.81 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,940 square miles.

GAGE-HEIGHT RECORD.—Graph based on twice-daily readings of staff gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 24,000 second-feet. Gage heights used to tenths, except Aug. 17-19 when hundredths were used.

MAXIMA.—1940: Discharge, 24,600 second-feet 12 p.m. Aug. 17 (gage height, 12.8 feet, from graph based on gage readings).

1937-39: Discharge, 20,600 Mar. 5, 1938 (gage height, 12.12 feet).

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	395	1,670	9	425	1,350	17	23,100	690	25	5,240	488
2	395	1,550	10	410	1,310	18	24,000	650	26	4,240	504
3	337	1,450	11	418	1,270	19	22,400	610	27	3,560	488
4	323	1,350	12	699	1,190	20	19,700	574	28	2,820	472
5	365	1,450	13	928	995	21	16,200	556	29	2,540	472
6	410	1,500	14	1,310	855	22	12,600	538	30	2,300	472
7	440	1,450	15	1,770	780	23	9,300	504	31	1,870	-----
8	440	1,400	16	11,600	730	24	6,600	488			
Monthly mean discharge, in second-feet.....										5,714	927
Runoff, in inches.....										3.40	0.53

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	6.0	1,550	7.9	3,780	12.2	21,000	-----	-----
4	6.0	1,550	8.5	5,240	12.3	21,600	12.78	24,500
6	6.1	1,610	9.0	6,600	12.4	22,200	-----	-----
8	6.1	1,610	9.6	8,550	12.5	22,800	12.75	24,300
10	6.2	1,670	10.0	10,100	12.55	23,100	-----	-----
N	6.2	1,670	10.4	11,700	12.60	23,400	12.72	24,100
2	6.2	1,670	10.8	13,500	12.65	23,700	-----	-----
4	6.3	1,730	11.1	15,000	12.70	24,000	12.68	23,900
6	6.4	1,800	11.40	16,500	12.72	24,100	-----	-----
8	6.6	1,940	11.6	17,500	12.76	24,400	12.60	23,400
10	7.0	2,500	11.8	18,600	12.78	24,500	-----	-----
12	7.4	2,820	12.0	20,400	12.80	24,600	12.55	23,100

OGEECHEE RIVER NEAR EDEN, GA.

LOCATION.—Lat. $32^{\circ}10'$, long. $81^{\circ}25'$, 600 feet downstream from bridge on U. S. Highways 25, 80, and 280, 2 miles west of Eden, Effingham County, 2 miles upstream from Seaboard Railway bridge, and 3 miles upstream from Black Creek. Datum of gage is 19.64 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—2,650 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements throughout. Gage heights used to half-tenths between 0.8 feet and 2.4 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 20,200 second-feet 11 a.m. to 5 p.m. Aug. 23 (gage height, 13.78 feet).

ALTAMAHA RIVER BASIN

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1937-39: Discharge, 23,700 second-feet Mar. 8, 9, 1939 (gage height, 14.2 feet, at former staff gage 600 feet upstream).

Stage known, 20.0 feet in October 1929, from data furnished by Central of Georgia Railroad.

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	705	6,000	9	688	2,060	17	4,620	1,380	25	17,800	625
2	722	4,900	10	758	1,860	18	4,230	1,260	26	15,500	580
3	722	4,280	11	798	1,740	19	3,940	1,160	27	13,300	580
4	640	3,600	12	1,590	1,700	20	4,080	1,020	28	11,200	565
5	580	3,060	13	2,300	1,620	21	7,930	880	29	9,460	580
6	520	2,690	14	3,600	1,580	22	17,100	792	30	8,180	580
7	460	2,400	15	5,000	1,540	23	20,100	722	31	7,040	-----
8	565	2,200	16	5,150	1,460	24	19,600	655			
Monthly mean discharge, in second-feet.....										6,093	1,802
Runoff, in inches.....										2.65	0.76

CANOCHEE RIVER NEAR CLAXTON, GA.

LOCATION.—Lat. 32°11'05", Long. 81°53'25", at bridge on State Highway 73, 2 miles northeast of Claxton, Evans County, and 10 miles above Lotts Creek.

DRAINAGE AREA.—555 square miles.

GAGE-HEIGHT RECORD.—Graph based on twice-daily staff gage readings supplemented by occasional additional readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements, up to 5,000 second-feet and extended to crest gage height by logarithmic plotting. Gage heights used to tenths.

MAXIMA.—1940: Discharge, 5,910 second-feet 10 p.m. Aug. 16 to 4 a.m. Aug. 17 (gage height, 12.9 feet, from graph based on gage readings).

1937-39: Discharge, 7,980 second-feet Feb. 28, Mar. 1, 1939 (gage height 13.8 feet, from floodmark).

REMARKS.—Flood runoff not affected by artificial storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	46	284	9	58	318	17	5,420	50	25	678	23
2	107	248	10	48	229	18	3,970	46	26	457	25
3	111	302	11	75	176	19	2,690	38	27	428	27
4	70	398	12	674	115	20	2,000	31	28	398	28
5	62	573	13	916	92	21	1,480	28	29	382	28
6	53	592	14	1,150	75	22	1,120	28	30	367	31
7	55	509	15	1,800	62	23	916	25	31	335	-----
8	67	398	16	4,650	58	24	826	24			
Monthly mean discharge, in second-feet.....										1,013	162
Runoff, in inches.....										2.11	0.33

ALTAMAHA RIVER BASIN

OCONEE RIVER NEAR GREENSBORO, GA.

LOCATION.—Lat. 33°35', long. 83°16', at bridge on State Highway 12, 1 mile downstream from Town Creek, 5 miles upstream from Apalachee River, 5 miles west of Greensboro, Greene County, and 12 miles downstream from Barnett Shoals Dam. Datum of gage is 409.82 feet above mean sea level (unadjusted).

DRAINAGE AREA.—1,090 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge record defined by current-meter measurements.

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MAXIMA.—1940: Discharge, 12,200 second-feet 4 a.m. Aug. 14 (gage height, 19.0 feet).

1903-31, 1937-39: Gage height observed, 35.4 feet Aug. 26, 1908 (discharge uncertain).

REMARKS.—Low flow regulated by Barnett Shoals power plant.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	378	5,320	9	376	691	17	3,060	532	25	582	421
2	376	4,460	10	367	684	18	1,130	482	26	568	473
3	406	1,350	11	272	618	19	939	469	27	580	534
4	348	1,010	12	1,370	580	20	834	453	28	514	432
5	348	887	13	8,210	558	21	730	463	29	941	456
6	368	848	14	11,700	524	22	694	440	30	4,680	408
7	308	751	15	9,420	521	23	648	434	31	5,450	-----
8	378	672	16	8,020	498	24	621	448			
Monthly mean discharge, in second-feet.....										2,082	881
Runoff, in inches.....										2.20	0.90

OCONEE RIVER AT MILLEDGEVILLE, GA.

LOCATION.—Lat. 33°05', long. 83°13', at Milledgeville, Baldwin County, 900 feet upstream from bridge on State Highway 24, half a mile upstream from Fishing Creek, and 4 miles downstream from partly completed Furman Shoals Dam of Georgia Power Co. Datum of gage is 230.84 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,950 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 50,000 second-feet.

MAXIMA.—1940: Discharge, 27,400 second-feet 2 a.m. Aug. 14 (gage height, 24.4 feet).

1903-31, 1937-39: Discharge, 77,500 second-feet (possibly in error) Aug. 16, 1928 (gage height, 38.8 feet, present site and datum from records of U. S. Weather Bureau) from rating curve developed in 1937.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	952	7,940	9	888	1,230	17	10,200	855	25	1,300	822
2	952	7,460	10	855	1,160	18	4,130	888	26	1,230	766
3	888	5,170	11	822	1,120	19	2,450	855	27	1,160	822
4	888	2,360	12	3,520	1,020	20	2,000	822	28	1,120	888
5	855	1,920	13	15,400	952	21	1,760	790	29	1,120	888
6	822	1,640	14	21,900	952	22	1,560	790	30	4,100	855
7	822	1,560	15	15,800	888	23	1,490	790	31	8,420	-----
8	855	1,380	16	13,400	855	24	1,380	748			
Monthly mean discharge, in second-feet.....										3,969	1,640
Runoff, in inches.....										1.56	0.62

OCONEE RIVER AT DUBLIN, GA.

LOCATION.—Lat. 32°32', long. 82°54', at bridge on U. S. Highway 80 at Dublin, Laurens County. Datum of gage is 149.08 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—4,400 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements. Shifting-control method used Sept. 12-30.

MAXIMA.—1940: Discharge, 18,800 second-feet 10 a.m. Aug. 19 (gage height, 18.0 feet).

1898-1913, 1929-39: Discharge, 96,700 second-feet Apr. 12, 13, 1936 (gage height, 32.97 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,320	6,200	9	1,560	2,330	17	15,900	1,280	25	2,610	1,040
2	1,740	7,130	10	1,420	2,050	18	18,000	1,280	26	2,260	1,040
3	1,740	7,600	11	1,380	1,910	19	18,600	1,240	27	2,120	1,070
4	1,490	7,500	12	4,520	1,700	20	17,600	1,210	28	1,980	1,070
5	1,560	5,480	13	11,500	1,600	21	13,800	1,180	29	1,910	1,320
6	1,520	3,480	14	12,100	1,460	22	6,950	1,140	30	1,980	1,420
7	1,380	3,000	15	13,000	1,420	23	3,960	1,100	31	3,190	-----
8	1,380	2,680	16	14,000	1,350	24	3,000	1,070			
Monthly mean discharge, in second-feet.....										5,983	2,445
Runoff, in inches.....										1.57	0.62

OCONEE RIVER NEAR MOUNT VERNON, GA.

LOCATION.—Lat. 32°12', long. 82°38', at bridge on U. S. Highway 280, a quarter of a mile downstream from Seaboard Railway bridge, half a mile upstream from Okeewalkee Creek, 2 miles upstream from Flat Creek, and 2 miles west of Mount Vernon, Montgomery County. Datum of gage is 103.34 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—5,110 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

MAXIMA.—1940: Discharge, 20,000 second-feet 8 p.m. Aug. 21 (gage height, 15.9 feet).

1937-39: Discharge, 48,300 second-feet Mar. 6, 1939 (gage height, 20.4 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,690	3,480	9	1,930	3,270	17	15,800	1,570	25	7,180	1,270
2	2,110	5,390	10	1,930	2,850	18	16,400	1,510	26	4,510	1,240
3	2,290	6,280	11	1,810	2,500	19	17,300	1,480	27	3,630	1,220
4	2,170	6,940	12	3,600	2,230	20	18,800	1,450	28	3,200	1,220
5	2,360	7,420	13	9,360	2,050	21	19,600	1,420	29	2,990	1,220
6	2,230	7,300	14	11,300	1,930	22	19,200	1,390	30	2,780	1,330
7	2,170	5,300	15	12,500	1,810	23	17,000	1,330	31	2,920	-----
8	2,050	3,870	16	14,800	1,690	24	12,800	1,300			
Monthly mean discharge, in second-feet.....										7,691	2,775
Runoff, in inches.....										1.74	0.61

MIDDLE OCONEE RIVER NEAR ATHENS, GA.

LOCATION.—Lat. 33°55', long. 82°23', at Princeton Bridge on U. S. Highway 129, half a mile downstream from Princeton Mill Dam, 1¼ miles upstream from Barber Creek, 2 miles south of Athens, Clarke County, and 6 miles upstream from mouth. Datum of gage is 531.30 feet above mean sea level (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—404 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements at present site. Shifting-control method used.

MAXIMA.—1940: Discharge, 5,930 second-feet 10 p.m. Aug. 14 (gage height, 20.3 feet).

1901-2, 1929-32, 1937-39: Discharge observed, 19,600 second-feet Feb. 28, 1902 (gage height, 25.5 feet, site and datum then in use).

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Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	175	2,190	9	174	304	17	522	215	25	226	226
2	220	712	10	154	284	18	432	210	26	221	224
3	194	534	11	148	268	19	382	197	27	204	218
4	162	456	12	1,170	278	20	329	202	28	192	216
5	152	418	13	4,470	228	21	291	195	29	711	180
6	153	368	14	5,300	237	22	277	193	30	2,670	168
7	164	336	15	3,800	234	23	260	181	31	3,830	-----
8	185	329	16	730	225	24	242	182			
Monthly mean discharge, in second-feet.....										908	340
Runoff, in inches.....										2.59	0.94

OHOOPÉE RIVER NEAR REIDSVILLE, GA.

LOCATION.—Lat. 32°04', long. 82°11', at Sheppard Bridge, half a mile downstream from Brazells Creek, 1½ miles downstream from Rocky Creek, 3½ miles west of Reidsville, Tattnall County, about 6 miles downstream from Pendleton Creek, and about 14 miles upstream from mouth.

DRAINAGE AREA.—1,110 square miles.

GAGE-HEIGHT RECORD.—Staff gage read twice daily; graph based on staff-gage readings used Aug. 12-27.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements.

MAXIMA.—1940: Discharge, 14,900 second-feet 12-2 p.m. Aug. 16 (gage height, 19.7 feet, from graph based on gage readings).

1903-7, 1937-39: Discharge observed, 15,100 second-feet Mar. 3, 1939 (gage height, 19.8 feet).

REMARKS.—Some diurnal fluctuation at low flow.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	104	940	9	86	850	17	12,100	265	25	2,060	127
2	104	880	10	81	730	18	9,200	230	26	1,730	142
3	98	940	11	98	646	19	6,860	213	27	1,490	134
4	132	1,030	12	196	542	20	5,200	196	28	1,310	127
5	140	1,170	13	562	470	21	3,950	188	29	1,170	114
6	125	1,060	14	1,720	404	22	3,140	164	30	1,170	107
7	104	1,030	15	7,980	342	23	2,600	134	31	1,030	-----
8	98	940	16	14,700	302	24	2,190	127			
Monthly mean discharge, in second-feet.....										2,630	485
Runoff, in inches.....										2.73	0.49

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
6	-----	-----	-----	-----	-----	-----	12.2	4,350	19.5	14,500	-----	-----
N	2.40	187	4.1	562	7.2	1,640	15.2	7,580	19.7	14,900	18.7	12,300
6	-----	-----	-----	-----	-----	-----	17.8	11,600	19.6	14,700	-----	-----
12	3.10	318	5.4	960	10.1	3,000	18.9	13,700	19.4	14,300	17.8	10,500

APALACHICOLA RIVER BASIN**CHATTAHOOCHEE RIVER NEAR LEAF, GA.**

LOCATION.—Lat. 34°35', long. 83°38', 700 feet upstream from bridge on State Highway 115, 1½ miles east of Leaf, White County, 2½ miles downstream from Blue Creek, 3 miles upstream from Soque River, and 7½ miles southeast of Cleveland. Datum of gage is 1,219.47 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE RECORD.—150 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements

up to 11,000 second-feet. Gage heights used to half-tenths between 3.2 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 11,200 second-feet 2 p.m. Aug. 13 (gage height, 11.75 feet).

REMARKS.—Flood runoff not affected by storage or diversion. No accurate flood-discharge data available prior to August 1940.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	124	424	9	117	238	17	380	189	25	216	245
2	140	344	10	110	230	18	349	186	26	212	192
3	117	310	11	106	220	19	305	183	27	206	177
4	114	292	12	468	212	20	266	183	28	196	171
5	112	270	13	7,670	209	21	258	180	29	1,050	165
6	127	292	14	1,370	206	22	262	174	30	1,340	165
7	134	262	15	649	202	23	242	168	31	595	-----
8	124	250	16	464	195	24	230	228			
Monthly mean discharge, in second feet.....										582	225
Runoff, in inches.....										4.47	1.67

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 28		Aug. 29		Aug. 30	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.59	110	5.17	2,580	5.18	2,580	-----	-----	1.87	186	5.24	2,580
2	1.59	110	7.32	4,860	4.88	2,300	-----	-----	1.87	186	5.06	2,490
3	1.60	112	8.45	6,220	4.68	2,120	-----	-----	1.87	186	4.85	2,260
4	1.61	114	8.99	7,000	4.45	1,900	-----	-----	1.87	186	4.67	2,080
5	1.60	112	9.10	7,140	4.30	1,770	-----	-----	1.90	195	4.53	1,980
6	1.58	108	9.23	7,280	4.13	1,640	1.89	192	1.93	206	4.36	1,810
7	1.59	110	9.25	7,280	4.03	1,560	-----	-----	1.93	206	4.18	1,680
8	1.66	127	9.53	7,700	3.91	1,440	-----	-----	1.94	209	4.02	1,520
9	1.74	148	10.10	8,550	3.83	1,400	-----	-----	2.02	238	3.85	1,400
10	2.07	258	10.67	9,450	3.73	1,320	-----	-----	2.50	472	3.70	1,280
11	2.72	599	11.00	9,900	3.66	1,240	-----	-----	2.48	461	3.52	1,120
N	2.70	587	11.24	10,200	3.59	1,200	1.92	202	2.58	518	3.39	1,050
1	2.58	518	11.66	11,000	3.53	1,160	-----	-----	2.82	660	3.28	980
2	2.62	541	11.75	11,200	3.46	1,090	-----	-----	3.10	840	3.34	1,020
3	2.73	605	11.68	11,000	3.41	1,050	-----	-----	3.46	1,090	3.19	903
4	2.78	635	11.39	10,500	3.35	1,020	-----	-----	3.53	1,160	3.12	854
5	2.79	641	11.30	10,400	3.31	980	-----	-----	3.60	1,200	3.04	801
6	2.77	629	11.10	10,100	3.27	945	1.92	202	3.79	1,360	3.04	801
7	2.71	593	10.50	9,150	3.23	945	-----	-----	4.65	2,080	3.10	840
8	2.71	593	9.40	7,560	3.21	910	-----	-----	5.42	2,780	3.07	820
9	3.02	788	7.75	5,460	3.15	875	-----	-----	5.84	3,190	2.99	768
10	3.40	1,050	6.55	4,060	3.12	854	-----	-----	5.84	3,190	2.95	742
11	3.68	1,280	5.92	3,300	3.09	834	-----	-----	5.63	2,980	2.92	723
12	4.13	1,640	5.50	2,880	3.05	808	1.87	186	5.44	2,780	2.91	716

CHATTAHOOCHEE RIVER NEAR GAINESVILLE, GA.

LOCATION.—Lat. 34°20', long. 83°52', 1,100 feet upstream from bridge on State Highway 53, half a mile upstream from Eddie Creek, 3½ miles downstream from Little River, 4 miles northwest of Gainesville, Hall County, and 6 miles upstream from Chestatee River. Datum of gage is 974.98 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—559 square miles (1941 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 20,000 second-feet and extended to crest gage height by velocity-area studies. Gage heights used to half-tenths between 2.1 and 3.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 30,500 second-feet 3 a.m. Aug. 14 (gage height, 18.74 feet).

1901-03, 1937-39: Gage height, 28.4 feet, site and datum then in use, Dec. 29,

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1901 (discharge probably exceeded that of Aug. 14, 1940; previously published figure in error).

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	520	1,670	9	411	674	17	1,450	528	25	610	558
2	535	1,210	10	383	642	18	1,160	512	26	588	572
3	418	1,100	11	351	618	19	1,080	505	27	565	498
4	370	922	12	674	588	20	922	505	28	542	475
5	377	834	13	13,900	565	21	826	490	29	2,150	446
6	439	794	14	18,900	565	22	762	498	30	6,000	446
7	468	754	15	2,980	542	23	746	453	31	2,670	-----
8	520	714	16	1,920	535	24	674	482			
Monthly mean discharge, in second-feet-----										2,062	656
Runoff, in inches-----										4.25	1.31

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.16	363	4.93	4,130	18.52	29,800				
2	1.17	370	5.37	4,640	18.68	30,500	4.81	3,800	3.41	2,230
3	1.17	370	5.95	5,240	18.74	30,500				
4	1.17	370	6.65	5,840	18.67	30,500	4.51	3,470	3.31	2,120
5	1.17	370	7.32	6,540	18.51	29,800				
6	1.17	370	7.90	7,190	18.29	29,100	4.35	3,360	3.25	2,060
7	1.17	370	8.53	7,900	18.00	28,100				
8	1.17	370	9.07	8,630	17.56	26,900	4.17	3,120	3.19	2,010
9	1.17	370	9.57	9,280	17.04	25,000				
10	1.17	370	10.00	9,830	16.50	23,600	4.05	2,890	3.13	1,960
11	1.18	377	10.50	10,600	15.89	21,900				
N	1.19	383	11.23	11,600	15.22	20,100	3.96	2,890	3.06	1,850
1	1.20	390	11.95	13,000	14.43	18,200				
2	1.22	404	12.62	14,200	13.74	16,500	3.85	2,720	3.02	1,800
3	1.24	418	13.21	15,400	12.78	14,600				
4	1.27	439	13.95	17,200	11.86	12,800	3.75	2,620	2.99	1,800
5	1.34	490	14.64	18,600	10.76	11,000				
6	1.49	602	15.30	20,400	9.25	8,760	3.73	2,620	2.95	1,750
7	1.69	762	15.92	21,900	7.85	7,080				
8	1.92	958	16.58	23,900	6.95	6,240	3.65	2,500	2.94	1,750
9	2.30	1,300	17.15	25,600	6.25	5,440				
10	2.74	1,750	17.62	26,900	5.64	4,840	3.54	2,400	2.91	1,700
11	3.33	2,400	18.03	28,100	5.31	4,540				
12	4.12	3,240	18.31	29,100	5.11	4,340	3.45	2,280	2.85	1,650
	Aug. 28		Aug. 29		Aug. 30		Aug. 31		Sept. 1	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			1.56	505	6.54	5,640				
2			1.58	520	6.60	5,740	4.38	3,470		
3			1.60	535	6.76	5,940				
4			1.65	572	6.93	6,040	4.16	3,240	2.97	1,850
5			2.45	1,260	7.14	6,240				
6	1.64	565	3.05	1,850	7.33	6,440	4.01	3,000		
7			2.64	1,450	7.54	6,640				
8			2.25	1,080	7.68	6,860	3.85	2,890	2.85	1,750
9			2.35	1,160	7.84	6,970				
10			2.44	1,260	7.92	7,080	3.75	2,720		
11			2.51	1,300	8.00	7,190				
N	1.63	558	2.55	1,350	8.01	7,190	3.61	2,560	2.74	1,650
1			2.78	1,600	7.91	7,080				
2			3.02	1,800	7.76	6,970	3.50	2,450		
3			3.33	2,180	7.53	6,640				
4			3.57	2,400	7.25	6,440	3.40	2,340	2.65	1,550
5			4.05	2,890	6.83	5,940				
6	1.58	520	4.37	3,360	6.43	5,540	3.31	2,230		
7			4.57	3,580	6.04	5,140				
8			4.88	3,910	5.72	4,840	3.23	2,180	2.59	1,500
9			5.25	4,240	5.40	4,540				
10			5.70	4,740	5.12	4,240	3.15	2,060		
11			6.05	5,040	4.90	4,020				
12	1.53	482	6.31	5,340	4.72	3,800	3.10	2,010	2.53	1,450

CHATTAHOOCHEE RIVER NEAR VININGS, GA.

LOCATION.—Lat. 33°52', long. 84°27', at Pace Ferry Bridge, 1 mile southeast of Vining, Cobb County, 1 mile downstream from Rotten Wood Creek, 2½ miles upstream from Peachtree Creek, and 8 miles northwest of Atlanta. Datum of gage is 749.60 feet above mean sea level, datum of 1929, supplementary adjustment of 1936 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,450 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 22,000 second-feet. Gage-heights used to half-tenths between 2.8 and 4.8 feet; tenths above and hundredths below these limits.

MAXIMA.—1940: Discharge, 24,200 second-feet 8 p.m. Aug. 15 (gage height, 17.48 feet).

1928-31, 1936-39: Discharge, 28,700 second-feet Sept. 28, 1929 (gage height, 18.84 feet).

REMARKS.—Flood runoff not affected by storage in Morgan Falls Reservoir 9½ miles upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	828	4,190	9	887	1,380	17	3,340	1,030	25	1,440	918
2	772	2,620	10	780	1,320	18	2,600	1,000	26	1,270	974
3	1,020	2,080	11	678	1,270	19	2,210	960	27	1,310	1,220
4	822	1,910	12	1,240	1,180	20	2,000	980	28	1,250	940
5	716	1,660	13	12,400	1,150	21	1,800	940	29	1,700	931
6	705	1,600	14	15,200	1,080	22	1,640	930	30	5,350	886
7	660	1,650	15	21,800	1,070	23	1,570	914	31	9,050	-----
8	748	1,420	16	12,100	1,080	24	1,540	850			
Monthly mean discharge, in second-feet.....										3,530	1,338
Runoff, in inches.....										2.80	1.03

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.08	622	7.30	7,550	11.36	13,900	13.92	18,000	16.98	23,300	-----	-----
2	2.07	615	8.08	8,750	11.41	13,900	14.10	18,300	16.74	22,800	4.89	3,950
3	2.08	622	8.64	9,500	11.47	14,100	14.31	18,700	16.35	22,200	-----	-----
4	2.12	652	9.07	10,300	11.52	14,100	14.52	19,000	15.90	21,400	4.70	3,650
5	2.15	675	9.52	10,900	11.55	14,300	14.74	19,400	15.38	20,600	-----	-----
6	2.14	668	10.02	11,700	11.60	14,300	14.99	19,900	14.75	19,500	4.52	3,350
7	2.13	660	10.41	12,300	11.68	14,400	15.23	20,200	14.00	18,200	-----	-----
8	2.12	652	10.72	12,800	11.75	14,600	15.50	20,700	13.08	16,700	4.62	3,500
9	2.10	638	10.94	13,100	11.83	14,600	15.74	21,100	12.25	15,200	-----	-----
10	2.11	645	11.14	13,500	11.92	14,700	16.02	21,600	11.30	13,800	4.52	3,350
11	2.15	675	11.31	13,800	12.02	14,900	16.25	21,900	10.30	12,200	-----	-----
12	2.21	722	11.44	13,900	12.12	15,100	16.50	22,400	9.28	10,600	4.92	3,950
1	2.25	754	11.53	14,100	12.23	15,200	16.72	22,800	8.36	9,200	-----	-----
2	2.33	818	11.58	14,300	12.34	15,400	16.89	23,200	7.57	8,000	4.36	3,120
3	2.39	866	11.61	14,300	12.49	15,700	17.04	23,300	6.86	6,950	-----	-----
4	2.45	914	11.57	14,300	12.65	15,900	17.19	23,700	6.28	6,050	4.34	3,120
5	2.51	966	11.47	14,100	12.80	16,200	17.30	23,900	5.83	5,300	-----	-----
6	2.63	1,080	11.37	13,900	12.93	16,300	17.38	24,000	5.53	4,850	4.14	2,840
7	2.87	1,320	11.27	13,800	13.05	16,500	17.45	24,000	5.35	4,700	-----	-----
8	3.43	1,930	11.19	13,600	13.18	16,800	17.48	24,200	5.22	4,400	4.15	2,840
9	3.73	2,300	11.17	13,600	13.31	17,000	17.45	24,000	5.12	4,250	-----	-----
10	4.30	3,050	11.19	13,600	13.44	17,200	17.42	24,000	4.98	4,100	4.26	2,980
11	5.34	4,550	11.23	13,600	13.58	17,500	17.32	23,900	4.93	3,950	-----	-----
12	6.34	6,050	11.30	13,800	13.74	17,700	17.14	23,500	4.93	3,950	4.24	2,980

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CHATTAHOOCHEE RIVER NEAR WHITESBURG, GA.

LOCATION.—Lat. 33°29', long. 84°53', at bridge on State Highway 16, half a mile downstream from Cedar Creek, 1 mile downstream from Snake Creek, 1½ miles upstream from Central of Georgia Railroad, 1¾ miles southeast of Whitesburg, Carroll County. Datum of gage is 684.06 feet above mean sea level datum of 1929 (Corps of Engineers, War Department, bench mark), levels by Corps of Engineers.

DRAINAGE AREA.—2,430 square miles.

GAGE-HEIGHT RECORD.—Graph based on twice-daily readings of wire-weight gage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 19,000 second-feet and extended to peak discharge by logarithmic plotting and use of velocity-area curves. Gage heights used to tenths above 1.9 feet and to half-tenths below.

MAXIMA.—1940: Discharge, 20,800 second-feet 7 to 8 p.m. Aug. 16 (gage height, 14.5 feet, from graph based on gage readings).

1938-39: Discharge, 23,300 second-feet Feb. 28, 1939 (gage height, 15.7 feet, from graph based on gage readings).

REMARKS.—Flood runoff not affected by storage. City of Atlanta at point 40 miles upstream pumps average of 35 million gallons daily for municipal water supply, most of which is returned to stream through sewage plants.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,520	9,020	9	1,120	1,820	17	13,400	1,320	25	1,930	1,120
2	1,320	4,230	10	1,170	1,720	18	4,110	1,270	26	1,820	1,270
3	1,220	3,030	11	1,070	1,720	19	3,270	1,270	27	1,620	1,320
4	1,420	2,480	12	1,120	1,620	20	2,810	1,220	28	1,720	1,520
5	1,170	2,370	13	9,680	1,520	21	2,590	1,170	29	2,370	1,220
6	1,070	2,040	14	16,500	1,420	22	2,370	1,170	30	3,990	1,170
7	1,120	2,150	15	17,600	1,320	23	2,150	1,170	31	9,090	-----
8	1,120	1,930	16	19,800	1,320	24	2,040	1,120			
Monthly mean discharge, in second-feet-----										4,300	1,901
Runoff, in inches-----										2.04	0.87

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.1	2,590	11.7	15,400	12.7	17,200	13.3	18,400	-----	-----
2	1.60	1,020	3.6	3,150	11.8	15,500	12.7	17,200	13.4	18,600	14.4	20,600
3	-----	-----	4.1	3,750	11.9	15,700	12.7	17,200	13.4	18,600	-----	-----
4	1.55	980	4.6	4,350	11.9	15,700	12.7	17,200	13.5	18,800	14.3	20,400
5	-----	-----	5.3	5,240	12.0	15,900	12.7	17,200	13.6	19,000	-----	-----
6	1.55	980	5.9	6,020	12.1	16,100	12.7	17,200	13.6	19,000	14.1	20,000
7	-----	-----	6.5	6,850	12.1	16,100	12.7	17,200	13.7	19,200	-----	-----
8	1.55	980	7.0	7,550	12.2	16,300	12.8	17,400	13.8	19,400	13.5	18,800
9	-----	-----	7.5	8,280	12.2	16,300	12.8	17,400	13.9	19,600	-----	-----
10	1.55	980	8.0	9,030	12.3	16,500	12.8	17,400	13.9	19,600	12.3	16,500
11	-----	-----	8.5	9,810	12.3	16,500	12.8	17,400	14.0	19,800	-----	-----
N	1.60	1,020	8.9	10,400	12.4	16,700	12.8	17,400	14.1	20,000	10.8	13,700
1	-----	-----	9.3	11,100	12.4	16,700	12.8	17,400	14.2	20,200	-----	-----
2	1.60	1,020	9.6	11,600	12.5	16,800	12.9	17,600	14.2	20,200	9.4	11,300
3	-----	-----	9.9	12,100	12.5	16,800	12.9	17,600	14.3	20,400	-----	-----
4	1.60	1,020	10.2	12,700	12.6	17,000	12.9	17,600	14.3	20,400	8.0	9,030
5	-----	-----	10.5	13,200	12.6	17,000	13.0	17,800	14.4	20,600	-----	-----
6	1.65	1,070	10.7	13,600	12.6	17,000	13.0	17,800	14.4	20,600	6.6	6,990
7	-----	-----	10.9	13,900	12.6	17,000	13.0	17,800	14.5	20,800	-----	-----
8	1.85	1,270	11.1	14,300	12.7	17,200	13.1	18,000	14.5	20,800	5.7	5,760
9	-----	-----	11.2	14,500	12.7	17,200	13.1	18,000	14.4	20,600	-----	-----
10	2.2	1,620	11.3	14,600	12.7	17,200	13.2	18,200	14.4	20,600	5.3	5,240
11	-----	-----	11.5	15,000	12.7	17,200	13.2	18,200	14.4	20,600	-----	-----
12	2.6	2,040	11.6	15,200	12.7	17,200	13.3	18,400	14.4	20,600	5.0	4,850

CHATTAHOOCHEE RIVER AT WEST POINT, GA.

LOCATION.—Lat. 32°53', long. 85°11', just downstream from Oseligee Creek and 1 mile upstream from West Point, Troup County. Datum of gage is 551.67 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—3,550 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 50,000 second-feet. Gage heights used to half-tenths between 3.1 and 4.4 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 20,300 second-feet 4 to 6 p.m., Aug. 17 (gage height, 11.60 feet).

1896-1910, 1912 to July 1940: Discharge, 134,000 second-feet, Dec. 10, 1919 (gage height, 30.0 feet).

REMARKS.—Flood runoff not affected by storage or diversion.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,200	10,600	9	1,540	2,220	17	19,700	1,600	25	2,360	1,470
2	2,180	8,020	10	1,620	2,100	18	9,640	1,600	26	2,250	1,570
3	1,880	4,340	11	1,730	2,020	19	4,430	1,520	27	2,120	1,760
4	1,760	3,290	12	1,520	2,030	20	3,630	1,500	28	2,020	1,780
5	1,880	2,860	13	1,800	1,840	21	3,120	1,460	29	2,050	1,830
6	1,700	2,700	14	12,700	1,740	22	3,200	1,440	30	2,950	1,570
7	1,550	2,440	15	16,700	1,710	23	2,780	1,420	31	5,240	-----
8	1,570	2,440	16	17,700	1,650	24	2,520	1,390			
Monthly mean discharge, in second-feet-----										4,453	2,464
Runoff, in inches-----										1.44	0.77

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.65	1,520	5.74	6,880	10.05	16,000	-----	-----	-----	-----	-----	-----
2	2.64	1,500	6.37	8,210	10.10	16,200	10.47	17,200	11.08	18,800	10.54	17,2000
3	2.64	1,500	6.86	9,180	10.13	16,200	-----	-----	-----	-----	-----	-----
4	2.64	1,500	7.27	9,980	10.18	16,400	10.50	17,200	11.15	19,100	9.70	15,200
5	2.64	1,500	7.52	10,400	10.21	16,400	-----	-----	-----	-----	-----	-----
6	2.64	1,500	7.88	11,200	10.25	16,400	10.53	17,200	11.26	19,400	8.74	12,900
7	2.64	1,500	8.13	11,600	10.27	16,700	-----	-----	-----	-----	-----	-----
8	2.65	1,520	8.34	12,100	10.30	16,700	10.56	17,500	11.32	19,400	7.80	11,000
9	2.65	1,520	8.52	12,500	10.32	16,700	-----	-----	-----	-----	-----	-----
10	2.65	1,520	8.68	12,900	10.34	16,700	10.60	17,500	11.40	19,700	6.98	9,380
11	2.66	1,540	8.81	13,200	10.35	17,000	-----	-----	-----	-----	-----	-----
N	2.67	1,550	8.94	13,400	10.36	17,000	10.64	17,500	11.47	20,000	6.30	8,020
1	2.68	1,570	9.07	13,800	10.37	17,000	-----	-----	-----	-----	-----	-----
2	2.69	1,580	9.19	14,100	10.38	17,000	10.69	17,700	11.54	20,000	5.90	7,260
3	2.70	1,600	9.30	14,300	10.39	17,000	-----	-----	-----	-----	-----	-----
4	2.71	1,620	9.39	14,500	10.40	17,000	10.74	17,700	11.60	20,300	5.44	6,320
5	2.73	1,650	9.47	14,800	10.41	17,000	-----	-----	-----	-----	-----	-----
6	2.75	1,680	9.57	15,000	10.42	17,000	10.80	18,000	11.60	20,300	5.14	5,780
7	2.76	1,700	9.64	15,000	10.42	17,000	-----	-----	-----	-----	-----	-----
8	2.77	1,710	9.71	15,200	10.42	17,000	10.86	18,300	11.57	20,300	4.93	5,420
9	2.79	1,740	9.79	15,500	10.43	17,000	-----	-----	-----	-----	-----	-----
10	3.16	2,360	9.86	15,700	10.43	17,000	10.93	18,300	11.42	20,000	4.77	5,240
11	4.17	4,070	9.91	15,700	10.43	17,000	-----	-----	-----	-----	-----	-----
12	5.06	5,780	10.00	16,000	10.44	17,000	11.01	18,500	11.10	18,800	4.64	4,880

298 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

SOQUE RIVER NEAR DEMOREST, GA.

LOCATION.—Lat. 83°35', long. 34°34', at Cannon Bridge, 2½ miles west of Demorest, Habersham County, 3 miles downstream from Habersham Mill dam, and 3 miles upstream from mouth. Datum of gage is 1,152.16 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—156 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,900 second-feet. Gage heights used to half-tenths between 2.8 and 4.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 11,900 second-feet 12 m. Aug. 13 (gage height, 20.04 feet).

1904-9, 1929-31: Discharge, 9,500 second-feet Aug. 18, 1906 (gage height, 17.0 feet).

Discharge known, 14,400 second-feet July 21 or 22, 1938 (gage height, 22.8 feet from floodmark).

REMARKS.—Storage capacity of reservoir at Habersham Mills insufficient to cause regulation of flood runoff.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	117	360	9	110	210	17	295	161	25	184	177
2	116	332	10	81	190	18	266	162	26	198	165
3	86	279	11	102	184	19	259	160	27	176	157
4	104	245	12	684	173	20	225	159	28	169	129
5	127	235	13	9,190	172	21	214	161	29	1,000	149
6	109	216	14	2,280	156	22	222	133	30	2,150	165
7	152	186	15	535	167	23	210	166	31	567	-----
8	117	202	16	372	177	24	175	149			
Monthly mean discharge, in second-feet.....										664	189
Runoff, in inches.....										4.91	1.35

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.43	106	7.50	2,850	12.32	5,960	-----	-----
2	1.43	106	10.65	4,790	11.62	5,470	-----	-----
3	1.43	106	14.20	7,350	10.84	4,920	-----	-----
4	1.43	106	15.75	8,550	10.15	4,530	3.04	608
5	1.44	108	16.95	9,500	9.50	4,080	-----	-----
6	1.44	108	18.15	10,500	8.80	3,630	-----	-----
7	1.45	110	18.75	10,900	8.02	3,150	-----	-----
8	1.80	189	18.71	10,900	7.47	2,850	3.07	608
9	1.92	220	18.78	10,900	6.95	2,560	-----	-----
10	1.97	224	19.25	11,300	5.22	1,590	-----	-----
11	3.15	648	19.78	11,700	4.78	1,400	-----	-----
N	3.41	752	20.04	11,900	4.53	1,250	2.83	529
1	3.54	816	19.82	11,700	4.29	1,160	-----	-----
2	3.88	974	19.50	11,500	4.14	1,090	-----	-----
3	4.00	1,020	19.05	11,100	4.02	1,020	-----	-----
4	3.98	1,020	18.44	10,600	3.82	928	2.74	487
5	4.01	1,020	17.86	10,200	3.80	928	-----	-----
6	3.98	1,020	17.20	9,660	3.63	860	-----	-----
7	4.40	1,200	16.55	9,180	3.53	816	-----	-----
8	4.69	1,350	15.93	8,620	3.53	816	2.62	443
9	4.76	1,400	15.20	8,100	3.43	773	-----	-----
10	4.90	1,440	14.46	7,580	3.31	710	-----	-----
11	5.04	1,490	13.75	7,050	3.20	668	-----	-----
12	5.26	1,650	13.00	6,450	3.14	648	2.57	425

300 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	0.76	79	7.40	2,130	7.74	2,240	5.00	1,300	2.64	542
2	.76	79	7.43	2,130	7.72	2,240	4.85	1,230	2.59	526
3	.75	78	7.44	2,130	7.68	2,240	4.64	1,160	2.54	510
4	.75	78	7.43	2,130	7.65	2,200	4.49	1,130	2.49	495
5	.75	78	7.42	2,130	7.61	2,200	4.34	1,070	2.44	480
6	.74	77	7.43	2,130	7.57	2,200	4.18	1,030	2.37	450
7	.74	77	7.43	2,130	7.53	2,160	4.03	970	2.32	435
8	.75	78	7.43	2,130	7.47	2,160	3.92	938	2.26	420
9	.75	78	7.42	2,130	7.41	2,130	3.81	906	2.20	406
10	.76	79	7.44	2,130	7.32	2,090	3.70	874	2.15	392
11	.78	82	7.45	2,130	7.23	2,060	3.59	842	2.09	374
N	.80	84	7.45	2,130	7.12	2,020	3.51	810	2.04	360
1	.84	89	7.48	2,160	7.00	1,980	3.43	794	2.00	349
2	.89	96	7.52	2,160	6.88	1,950	3.35	762	1.96	338
3	.97	108	7.54	2,160	6.74	1,880	3.28	746	1.92	327
4	1.16	139	7.58	2,200	6.58	1,840	3.21	714	1.89	318
5	1.85	307	7.61	2,200	6.42	1,770	3.12	682	1.86	310
6	2.90	619	7.63	2,200	6.25	1,700	3.06	666	1.83	301
7	4.13	1,000	7.65	2,200	6.08	1,660	2.99	650	1.81	296
8	5.20	1,360	7.68	2,240	5.89	1,600	2.92	619	1.78	288
9	6.22	1,700	7.71	2,240	5.72	1,530	2.86	604	1.75	280
10	6.70	1,880	7.74	2,240	5.53	1,460	2.80	588	1.73	274
11	7.12	2,020	7.74	2,240	5.34	1,390	2.75	572	1.71	269
12	7.33	2,090	7.76	2,280	5.17	1,360	2.69	557	1.69	263

KANAWHA RIVER BASIN

SOUTH FORK NEW RIVER NEAR JEFFERSON, N. C.

LOCATION.—Lat. 36°23'35", long. 81°24'35", 400 feet upstream from highway bridge, a quarter of a mile downstream from Bear Creek, and 4 miles southeast of Jefferson, Ashe County.

DRAINAGE AREA.—207 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph Aug. 1 to 3 a.m. Aug. 14. Recorder house was tipped over by the flood on Aug. 14. Staff gage read twice daily Aug. 21-29 and Sept. 4-30. Graph based on gage readings used Aug. 21, 28, 29. No gage-height record from 3 a.m. Aug. 14 to Aug. 20 and Aug. 30 to Sept. 3; gage heights for the period 3 a.m. Aug. 14 to Aug. 16 were computed from estimated discharge.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,900 second-feet and extended to slope-area measurement for crest gage height. The 1940 rating verifies the 1935 extension reasonably well. Gage heights used to half-tenths between 3.3 and 5.4 feet prior to Aug. 14; hundredths below and tenths above these limits. Subsequent to Aug. 14 gage heights used to half-tenths below 3.3 feet and tenths above. Discharge for periods of no gage-height record is based on records for nearby streams.

MAXIMA.—1940: Discharge, 52,800 second-feet 3 a.m. Aug. 14 (gage height, 22.50 feet).

1924-26, 1928-39: Discharge, 6,930 second-feet Jan. 9, 1935 (gage height, 8.50 feet, from graph based on gage readings).

1892-1924: Stage known, 18.0 feet July 15, 1916, from flood reference marks as witnessed by local residents (discharge, 35,200 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	632	3,200	9	326	730	17	2,200	513	25	695	459
2	430	2,000	10	287	730	18	1,800	513	26	695	433
3	336	1,400	11	413	695	19	1,400	513	27	630	407
4	304	1,160	12	1,330	630	20	1,200	486	28	630	407
5	340	1,040	13	8,920	600	21	1,060	459	29	630	384
6	367	920	14	27,700	570	22	920	433	30	8,500	360
7	627	840	15	5,610	570	23	802	433	31	8,000	-----
8	435	780	16	3,060	542	24	730	433			
Monthly mean discharge, in second-feet.....										2,613	755
Runoff, in inches.....										14.55	4.07

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.30	1,000	5.40	3,030	-----	-----	-----	-----	-----	-----
2	2.07	283	3.32	1,000	5.35	2,970	22.00	50,800	-----	-----	-----	-----
3	-----	-----	3.23	948	5.30	2,910	-----	-----	-----	-----	-----	-----
4	2.07	283	3.03	798	5.28	2,910	22.30	52,000	-----	-----	-----	-----
5	-----	-----	2.85	676	5.34	2,970	-----	-----	-----	-----	-----	-----
6	2.05	275	2.67	572	5.35	2,970	20.8	46,000	7.8	6,600	5.6	3,300
7	-----	-----	2.49	480	5.10	2,690	-----	-----	-----	-----	-----	-----
8	2.03	267	2.35	410	5.90	3,650	18.5	37,000	-----	-----	-----	-----
9	-----	-----	2.40	435	5.87	3,650	-----	-----	-----	-----	-----	-----
10	2.08	287	2.50	485	5.80	3,520	16.2	29,000	-----	-----	-----	-----
11	-----	-----	2.67	572	5.72	3,390	-----	-----	-----	-----	-----	-----
N	2.14	313	2.95	741	5.78	3,520	14.4	23,000	7.0	5,200	5.4	3,000
1	-----	-----	3.16	895	5.95	3,780	-----	-----	-----	-----	-----	-----
2	2.27	372	3.48	1,160	6.20	4,060	13.1	19,000	-----	-----	-----	-----
3	-----	-----	3.75	1,370	6.85	4,950	-----	-----	-----	-----	-----	-----
4	2.39	430	4.05	1,640	7.40	5,900	12.0	16,000	-----	-----	-----	-----
5	-----	-----	4.30	1,870	8.50	7,870	-----	-----	-----	-----	-----	-----
6	2.52	495	4.50	2,070	9.40	9,700	11.2	14,000	6.4	4,300	5.2	2,800
7	-----	-----	4.62	2,170	10.50	12,200	-----	-----	-----	-----	-----	-----
8	2.72	599	4.75	2,320	11.60	15,000	10.4	12,000	-----	-----	-----	-----
9	-----	-----	4.98	2,580	13.10	19,100	-----	-----	-----	-----	-----	-----
10	2.95	741	5.20	2,800	14.30	22,700	9.5	10,000	-----	-----	-----	-----
11	-----	-----	5.34	2,970	16.80	30,900	-----	-----	-----	-----	-----	-----
12	3.20	925	5.42	3,030	18.80	38,200	9.1	9,000	5.9	3,700	5.0	2,600

SUPPLEMENTAL RECORD.—Aug. 14, 3 a.m., gage height, 22.50 feet; discharge, 52,800 second-feet.

NEW RIVER NEAR GALAX, VA.

LOCATION.—Lat. 36°38'50", long. 80°58'45", at highway bridge 500 feet downstream from Meadow Creek, 1½ miles southwest of Old Town, and 3 miles southwest of Galax, Carroll County. Datum of gage is 2,208.04 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,131 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period 5 a.m. Aug. 14 to 8 a.m. Aug. 15, where record was based on floodmark and comparison with flood records for station at Ivanhoe.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 30,000 second-feet and extended to crest gage height by logarithmic plotting on basis of computation of flood flow over dam at Fries and verified by slope-area determination. Gage heights used to half-tenths between 2.5 and 4.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 141,000 second-feet 9:30 a.m. Aug. 14 (gage height, 25.7 feet, from floodmark).

1929-39: Discharge, 24,900 second-feet Sept. 6, 1935 (gage height, 7.38 feet).

Flood of Oct. 2, 1929, reached a stage of about 9 feet from floodmark (discharge, 33,100 second-feet).

302 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4,010	8,350	9	1,640	2,300	17	9,890	1,780	25	2,520	1,540
2	2,330	5,280	10	1,360	2,230	18	7,330	1,740	26	2,350	1,620
3	1,660	4,000	11	1,280	2,330	19	6,020	1,720	27	2,230	1,560
4	1,450	3,360	12	1,640	2,160	20	4,790	1,660	28	2,140	1,470
5	1,360	3,020	13	7,910	2,030	21	3,830	1,600	29	2,120	1,430
6	1,800	2,830	14	86,200	1,950	22	3,370	1,560	30	16,100	1,410
7	3,130	2,620	15	31,800	1,880	23	3,090	1,490	31	19,000	-----
8	2,280	2,470	16	15,200	1,840	24	2,750	1,490			
Monthly mean discharge, in second-feet-----										8,148	2,357
Runoff, in inches-----										8.30	2.32

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	1.90	2,470	8.05	27,900	12.56	53,400	-----	-----	-----	-----
2	1.39	1,390	1.96	2,620	9.00	33,100	12.00	49,900	6.02	18,200	4.51	11,500
3	-----	-----	2.02	2,770	10.30	40,200	11.50	47,000	-----	-----	-----	-----
4	1.42	1,450	2.09	2,960	12.50	52,800	11.06	44,700	5.86	17,700	4.43	11,000
5	-----	-----	2.17	3,190	14.90	67,100	10.65	41,900	-----	-----	-----	-----
6	1.44	1,490	2.24	3,390	17.80	85,900	10.22	39,600	5.70	16,800	4.33	10,600
7	-----	-----	2.32	3,630	21.10	108,000	9.82	37,400	-----	-----	-----	-----
8	1.45	1,500	2.55	4,360	24.50	132,000	9.46	35,800	5.58	16,400	4.25	10,300
9	-----	-----	2.93	5,720	25.62	140,000	9.08	33,600	-----	-----	-----	-----
10	1.45	1,500	3.22	6,600	25.56	140,000	8.75	32,100	5.46	15,900	4.17	10,300
11	-----	-----	3.41	7,310	24.64	133,000	8.46	30,500	-----	-----	-----	-----
N	1.46	1,520	3.52	7,670	23.65	126,000	8.16	28,900	5.35	15,400	4.09	9,880
1	-----	-----	3.60	8,030	22.58	119,000	7.88	27,400	-----	-----	-----	-----
2	1.52	1,640	3.66	8,210	21.43	110,000	7.66	26,400	5.23	14,500	4.02	9,500
3	-----	-----	3.73	8,580	20.32	102,000	7.43	24,900	-----	-----	-----	-----
4	1.55	1,700	3.80	8,760	19.28	95,600	7.23	23,900	5.08	14,100	3.94	9,320
5	-----	-----	3.88	9,130	18.35	89,800	7.08	23,400	-----	-----	-----	-----
6	1.54	1,680	4.01	9,500	17.40	83,300	6.92	22,500	4.93	13,200	3.87	8,940
7	-----	-----	4.27	10,600	16.60	78,100	6.69	21,500	-----	-----	-----	-----
8	1.64	1,880	4.65	11,900	15.82	72,900	6.56	21,000	4.82	12,700	3.81	8,760
9	-----	-----	5.13	14,100	15.05	67,700	6.47	20,600	-----	-----	-----	-----
10	1.74	2,100	5.64	16,400	14.35	64,100	6.37	20,100	4.71	12,300	3.74	8,580
11	-----	-----	6.15	19,100	13.73	59,900	6.25	19,100	-----	-----	-----	-----
12	1.84	2,330	7.08	23,400	13.10	56,300	6.14	18,700	4.61	11,900	3.67	8,210
	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.77	2,160	7.18	23,900	-----	-----	-----	-----	-----	-----	-----	-----
2	1.77	2,160	7.01	23,000	4.35	11,000	-----	-----	-----	-----	-----	-----
3	1.78	2,190	6.86	22,500	-----	-----	-----	-----	-----	-----	-----	-----
4	1.78	2,190	6.71	21,500	4.16	10,300	-----	-----	-----	-----	-----	-----
5	1.78	2,190	6.57	21,000	-----	-----	-----	-----	-----	-----	-----	-----
6	1.79	2,210	6.48	20,600	3.98	9,500	-----	-----	-----	-----	-----	-----
7	1.80	2,230	6.46	20,600	-----	-----	-----	-----	-----	-----	-----	-----
8	2.00	2,720	6.47	20,600	3.86	8,940	-----	-----	-----	-----	-----	-----
9	3.25	6,780	6.44	20,100	-----	-----	-----	-----	-----	-----	-----	-----
10	4.30	10,600	6.37	20,100	3.73	8,580	-----	-----	-----	-----	-----	-----
11	5.33	15,000	6.26	19,600	-----	-----	-----	-----	-----	-----	-----	-----
N	6.64	21,000	6.20	19,100	3.59	8,030	2.80	5,210	2.43	3,980	2.22	3,330
1	7.46	25,400	6.19	19,100	-----	-----	-----	-----	-----	-----	-----	-----
2	7.87	27,400	6.21	19,100	3.48	7,670	-----	-----	-----	-----	-----	-----
3	8.05	27,900	6.23	19,100	-----	-----	-----	-----	-----	-----	-----	-----
4	8.06	28,400	6.17	19,100	3.37	7,130	-----	-----	-----	-----	-----	-----
5	8.08	28,400	6.04	18,200	-----	-----	-----	-----	-----	-----	-----	-----
6	8.06	28,400	5.88	17,700	3.28	6,950	-----	-----	-----	-----	-----	-----
7	7.99	27,900	5.68	16,800	-----	-----	-----	-----	-----	-----	-----	-----
8	7.94	27,400	5.45	15,400	3.21	6,600	-----	-----	-----	-----	-----	-----
9	7.86	27,400	5.22	14,500	-----	-----	-----	-----	-----	-----	-----	-----
10	7.75	26,900	4.96	13,600	3.16	6,420	-----	-----	-----	-----	-----	-----
11	7.57	25,900	4.76	12,700	-----	-----	-----	-----	-----	-----	-----	-----
12	7.35	24,900	4.58	11,900	3.11	6,250	2.60	4,530	2.31	3,600	2.16	3,160

SUPPLEMENTAL RECORD.—Aug. 14, 9:30 a. m., gage height, 25.7 feet; discharge, 141,000 second-feet.

LOCATION.—Lat. 36°50'05", long. 80°57'10", at Ivanhoe, Wythe County, 2½ miles upstream from Cripple Creek. Datum of gage is 1,943.09 feet above mean sea level, datum of 1929.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for 11 a.m. to 12:30 p.m. Aug. 14 when float was stopped by recorder shelf at stage 37.65 feet. Graph completed on basis of high-water mark in gage house and extension of rising and receding recorder graphs. Intake pipe stopped Aug. 22-29.

MAXIMA.—1940: Discharge, 155,000 second-feet 12 m. Aug. 14 (gage height, 38.1 feet, from floodmarks).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	5,560	11,000	9	2,060	2,650	17	11,500	2,120	25	3,000	1,770
2	2,910	6,300	10	1,890	2,840	18	8,120	2,040	26	2,800	1,510
3	2,020	5,100	11	1,390	2,520	19	6,760	2,070	27	2,600	2,080
4	1,680	3,550	12	1,840	2,640	20	5,240	2,250	28	2,500	1,970
5	1,780	3,170	13	5,490	2,370	21	4,410	1,670	29	2,500	1,440
6	2,860	3,160	14	87,600	2,240	22	4,000	1,860	30	15,800	1,830
7	3,700	3,200	15	36,900	2,290	23	3,500	1,910	31	23,000	-----
8	3,030	2,850	16	17,900	2,170	24	3,200	1,980			
Monthly mean discharge, in second-feet -----										8,953	2,818
Runoff, in inches -----										7.70	2.34

304 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	3.22	2,110	10.16	17,400	22.26	61,500	11.68	21,300	8.67	13,800
2	2.46	1,140	11.41	20,500	21.56	58,300				
3	2.33	996	13.01	24,700	20.71	54,200				
4	2.24	905	14.16	28,200	19.96	51,100	11.35	20,500	8.45	13,100
5	2.13	798	16.66	37,300	19.31	48,000				
6	2.12	789	19.21	47,500	18.76	45,700	11.07	19,700	8.23	12,600
7	3.71	2,940	24.00	70,000	18.16	43,300				
8	3.94	3,360	28.46	94,000	17.56	40,900	10.80	19,000	8.04	12,100
9	3.98	3,450	33.56	125,000	17.08	38,900				
10	4.66	4,620	36.66	145,000	16.56	36,900	10.55	18,400	7.85	11,600
11	5.01	5,290	37.84	153,000	16.11	34,900				
N	5.04	5,290	38.10	155,000	15.66	33,400	10.32	17,700	7.70	11,400
1	5.06	5,500	37.36	150,000	15.21	31,700				
2	5.08	5,500	35.76	139,000	14.79	30,300	10.07	17,200	7.55	11,100
3	5.12	5,500	34.06	128,000	14.56	29,600				
4	5.23	5,710	32.46	118,000	14.35	28,900	9.82	16,400	7.40	10,700
5	6.37	8,380	30.91	108,000	13.88	27,300				
6	6.11	7,690	29.36	99,000	13.55	26,400	9.58	16,000	7.25	10,200
7	5.95	7,460	28.11	91,800	13.25	25,200				
8	6.13	7,690	26.96	85,700	13.00	24,700	9.34	15,200	7.10	9,990
9	7.26	10,400	25.96	80,200	12.73	23,900				
10	8.31	12,800	24.96	75,000	12.47	23,400	9.13	14,700	6.96	9,760
11	8.71	13,800	24.01	70,000	12.25	22,600				
12	9.76	16,400	23.11	65,500	12.05	22,000	8.90	14,300	6.83	9,300

Hour	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	6.72	9,070	6.02	7,460	5.24	5,710	4.69	4,710
4	6.60	8,840	6.01	7,460	5.14	5,500	4.58	4,530
6	6.49	8,610	5.89	7,230	5.11	5,500	4.58	4,530
8	6.38	8,380	5.75	7,010	5.06	5,500	4.57	4,440
10	6.30	8,150	5.71	6,790	5.05	5,290	4.57	4,440
N	6.22	7,920	5.55	6,570	5.02	5,290	4.59	4,530
2	6.12	7,690	5.56	6,570	4.93	5,090	4.45	4,260
4	6.08	7,690	5.68	6,790	4.91	5,090	4.49	4,350
6	6.10	7,690	5.50	6,350	4.73	4,800	4.45	4,260
8	6.07	7,690	5.44	6,130	4.80	4,900	4.43	4,260
10	5.97	7,460	5.37	6,130	4.76	4,800	4.42	4,170
12	5.88	7,230	5.31	5,920	4.73	4,800	4.40	4,170

Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	3.33	2,380	15.13	31,400	9.66	16,200	6.20	7,920	5.08	5,500
2	3.47	2,540	14.68	30,000	9.53	15,700	6.12	7,690	5.06	5,500
3	3.37	2,380	14.27	28,600	9.27	15,200	6.05	7,460	5.06	5,500
4	3.31	2,310	13.85	27,000	9.03	14,500	5.96	7,460	5.02	5,290
5	3.28	2,310	13.43	25,800	8.78	14,000	5.89	7,230	4.97	5,290
6	3.46	2,540	13.06	25,000	8.53	13,300	5.83	7,010	4.93	5,090
7	3.77	3,020	12.74	23,900	7.17	10,200	5.76	7,010	4.92	5,090
8	3.74	3,020	12.45	23,100	7.00	9,760	5.70	6,790	4.65	4,620
9	3.82	3,110	12.20	22,600	7.11	9,990	5.40	6,130	4.87	5,090
10	3.98	3,450	12.02	22,000	7.24	10,200	4.85	4,900	5.00	5,290
11	4.17	3,720	11.90	21,800	7.28	10,400	5.08	5,500	5.94	7,230
N	4.77	4,800	11.83	21,500	7.25	10,200	5.14	5,500	5.55	6,570
1	6.80	9,300	11.82	21,500	7.19	10,200	5.18	5,710	5.27	5,920
2	10.15	17,400	11.55	21,000	7.13	9,990	5.21	5,710	4.92	5,090
3	13.10	25,000	11.23	20,000	7.06	9,990	5.25	5,710	4.77	4,800
4	15.10	31,400	11.34	20,200	6.98	9,760	5.35	6,130	4.72	4,710
5	15.80	33,800	11.27	20,200	6.89	9,530	5.35	6,130	4.67	4,440
6	16.20	35,300	11.52	20,800	6.83	9,300	5.30	5,920	4.58	4,530
7	16.24	35,300	11.59	21,000	6.73	9,070	5.25	5,710	4.57	4,440
8	16.17	35,300	11.51	20,800	6.63	8,840	5.18	5,710	4.55	4,440
9	16.08	34,900	11.35	20,500	6.56	8,840	5.17	5,710	4.53	4,440
10	15.93	34,200	11.13	19,700	6.47	8,610	5.15	5,710	4.52	4,350
11	15.74	33,400	10.55	18,400	6.37	8,380	5.14	5,500	4.50	4,350
12	15.55	33,100	9.62	16,000	6.28	8,150	5.12	5,500	4.52	4,350

SUPPLEMENTAL RECORD.—Aug. 30, 6:30 p.m., gage height, 16.26 feet; discharge, 35,700 second-feet.

NEW RIVER AT ALLISONIA, VA.

LOCATION.—Lat. 36°56', long. 80°45', a quarter of a mile downstream from Big Reed Island Creek and half a mile upstream from Allisonia, Pulaski County.

Datum of gage is 1,848.36 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—2,202 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph. Intake pipe not functioning properly Aug. 25–29, Sept. 4, 5.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 43,000 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for other stations on New River. Gage heights used to half-tenths between 2.6 and 5.0 feet; hundredths below and tenths above these limits. Discharge for period when intake was not functioning computed on basis of records for station at Ivanhoe.

MAXIMA.—1940: Discharge, 185,000 second-feet 3 p.m. Aug. 14 (gage height, 23.42 feet).

1929-39: Discharge, 59,800 second-feet Oct. 2, 1929 (gage height, 11.14 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	7,710	15,200	9	2,700	3,900	17	17,200	2,860	25	4,300	2,860
2	4,410	8,500	10	2,440	4,060	18	11,300	2,830	26	4,100	2,590
3	2,920	6,880	11	1,840	3,380	19	9,740	2,860	27	3,800	2,420
4	2,560	5,000	12	2,570	3,820	20	7,830	2,890	28	3,700	2,420
5	2,550	4,500	13	4,680	3,240	21	6,430	2,260	29	3,700	2,220
6	2,940	4,460	14	95,000	3,150	22	5,710	2,520	30	17,200	2,320
7	4,820	4,440	15	54,200	3,100	23	5,210	2,440	31	31,000	-----
8	4,370	3,920	16	27,000	3,070	24	4,720	2,740			
Monthly mean discharge, in second-feet-----										11,570	3,895
Runoff, in inches-----										6.05	1.98

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.83	2,270	4.27	11,300	15.00	93,000	-----	-----	-----	-----	-----	-----
2	2.05	2,860	4.72	13,800	14.35	87,300	7.50	31,500	5.78	20,600	-----	-----
3	2.42	3,990	5.15	16,800	13.70	80,600	-----	-----	-----	-----	-----	-----
4	2.53	4,360	5.56	19,300	13.15	76,100	7.34	30,200	5.65	19,300	-----	-----
5	2.47	4,150	6.03	21,800	12.65	70,700	-----	-----	-----	-----	-----	-----
6	2.32	3,660	6.75	27,000	12.15	67,200	7.20	29,600	5.52	18,700	-----	-----
7	2.13	3,090	7.70	32,800	11.72	63,000	-----	-----	-----	-----	-----	-----
8	1.96	2,630	9.00	41,700	11.32	59,600	7.07	28,900	5.43	18,000	-----	-----
9	1.82	2,240	11.05	57,100	10.95	57,100	-----	-----	-----	-----	-----	-----
10	1.71	1,960	13.50	78,800	10.58	53,900	6.95	28,200	5.38	18,000	-----	-----
11	1.63	1,780	15.95	103,000	10.25	50,700	-----	-----	-----	-----	-----	-----
N	1.63	1,780	18.45	128,000	9.92	48,400	6.83	27,000	5.28	17,400	4.20	11,100
1	2.07	2,920	21.50	163,000	9.62	46,100	-----	-----	-----	-----	-----	-----
2	2.45	4,080	23.10	181,000	9.33	43,800	6.67	26,300	5.17	16,800	-----	-----
3	2.83	5,490	23.42	185,000	9.07	42,400	-----	-----	-----	-----	-----	-----
4	3.05	6,230	23.00	180,000	8.85	40,300	6.53	25,000	5.07	16,200	-----	-----
5	3.12	6,420	22.25	171,000	8.64	38,900	-----	-----	-----	-----	-----	-----
6	3.15	6,610	21.25	159,000	8.46	38,200	6.38	24,400	4.95	15,300	-----	-----
7	3.20	6,800	20.30	149,000	8.30	36,800	-----	-----	-----	-----	-----	-----
8	3.27	7,000	19.15	137,000	8.18	36,200	6.26	23,700	4.84	14,700	-----	-----
9	3.53	8,180	18.10	125,000	8.08	35,500	-----	-----	-----	-----	-----	-----
10	3.72	8,810	17.30	116,000	7.97	34,800	6.09	22,500	4.74	14,100	-----	-----
11	3.74	9,020	16.45	107,000	7.84	33,500	-----	-----	-----	-----	-----	-----
12	3.83	9,460	15.70	100,000	7.72	32,800	5.93	21,200	4.64	13,500	3.99	10,100

306 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940—Con.

Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	2.37	3,820	9.40	44,600	-----	-----	-----	-----	-----	-----
2	2.39	3,890	9.17	43,100	6.00	21,800	-----	-----	-----	-----
3	2.39	3,890	8.92	41,000	-----	-----	-----	-----	-----	-----
4	2.35	3,760	8.64	38,900	5.68	19,900	-----	-----	-----	-----
5	2.30	3,600	8.37	37,500	-----	-----	-----	-----	-----	-----
6	2.27	3,510	8.12	35,500	5.50	18,700	-----	-----	-----	-----
7	2.27	3,510	7.84	33,500	-----	-----	-----	-----	-----	-----
8	2.27	3,510	7.60	32,200	5.27	17,400	-----	-----	-----	-----
9	2.31	3,630	7.37	30,800	-----	-----	-----	-----	-----	-----
10	2.38	3,860	7.18	29,600	4.73	14,100	-----	-----	-----	-----
11	2.61	4,600	7.02	28,200	-----	-----	-----	-----	-----	-----
N	2.87	5,490	6.88	27,600	4.48	12,600	3.62	8,390	3.13	6,610
1	3.40	7,580	6.80	27,000	-----	-----	-----	-----	-----	-----
2	4.05	10,400	6.75	27,000	4.52	12,600	-----	-----	-----	-----
3	4.62	13,200	6.73	26,300	-----	-----	-----	-----	-----	-----
4	5.60	19,300	6.73	26,300	4.47	12,600	-----	-----	-----	-----
5	6.92	27,600	6.62	25,700	-----	-----	-----	-----	-----	-----
6	7.70	32,800	6.61	25,700	4.40	12,100	-----	-----	-----	-----
7	9.15	43,100	6.58	25,700	-----	-----	-----	-----	-----	-----
8	9.47	45,400	6.55	25,700	4.30	11,600	-----	-----	-----	-----
9	9.68	46,800	6.57	25,700	-----	-----	-----	-----	-----	-----
10	9.77	47,600	6.58	25,700	4.22	11,100	-----	-----	-----	-----
11	9.70	46,800	6.54	25,000	-----	-----	-----	-----	-----	-----
12	9.58	46,100	6.46	25,000	4.12	10,600	3.33	7,380	3.00	6,040

NEW RIVER AT RADFORD, VA.

LOCATION.—Lat. 37°08', long. 80°34', at Radford, Montgomery County, 2,000 feet downstream from bridge on U. S. Highway 11, 5 miles downstream from Little River, and 5½ miles downstream from Claytor Dam. Datum of gage is 1,712.36 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—2,748 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 73,000 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for other stations on New River and flow over Claytor Dam. Gage heights used to half-tenths between 3.1 and 4.4 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 218,000 second-feet 4 p.m. Aug. 14 (gage height, 35.96 feet).

1907-15, 1939: Discharge recorded, about 138,000 second-feet May 22, 1901 (gage height, 30.2 feet, former site and datum).

The floods of Sept. 15, 1878, and July 16, 1916, reached stages of 37.4 feet and 35.7 feet, respectively, site and datum used by Geological Survey 1904-7, from reports of United States Weather Bureau (discharge not determined).

REMARKS.—Flood discharge slightly affected by operation of Claytor Dam and power plant of Appalachian Electric Power Co.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	8,420	18,700	9	4,260	4,970	17	22,000	4,190	25	5,810	3,520
2	5,640	12,000	10	3,200	5,080	18	14,900	4,640	26	5,260	3,380
3	3,300	8,710	11	1,160	4,250	19	12,700	4,630	27	5,280	3,540
4	2,960	8,330	12	3,110	4,140	20	10,800	4,340	28	5,040	1,940
5	4,120	6,370	13	5,790	3,910	21	8,210	3,100	29	5,420	1,040
6	5,260	6,380	14	105,000	3,880	22	7,540	1,480	30	18,000	3,110
7	4,830	6,140	15	69,200	1,720	23	8,060	3,830	31	36,200	-----
8	4,880	2,490	16	37,000	3,700	24	5,960	4,930			
Monthly mean discharge, in second-feet { observed -----										14,170	4,948
Runoff, in inches -----										14,216	4,690
										5.96	1.91

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.78	962	2.25	2,140	3.95	8,920	26.52	128,000	12.81	43,000	9.38	28,500
2	1.76	924	2.02	1,520	3.95	8,920	24.70	113,000	12.88	43,400	9.22	27,800
3	1.74	886	1.93	1,300	3.95	8,920	22.95	100,000	12.93	43,400	8.96	27,000
4	1.72	848	1.92	1,270	3.98	9,150	21.65	89,900	12.96	43,900	8.45	24,700
5	1.72	848	1.90	1,220	4.08	9,600	20.80	84,400	12.97	43,900	8.10	23,600
6	1.73	867	1.90	1,220	4.75	12,500	20.25	80,500	12.71	42,600	7.95	23,200
7	1.73	867	1.90	1,220	5.79	15,800	19.90	78,600	12.16	40,300	7.88	22,800
8	1.74	886	2.00	1,470	8.44	24,700	19.60	76,800	11.73	38,000	7.85	22,500
9	2.00	1,470	3.00	4,730	14.88	52,400	19.26	75,000	11.65	37,600	7.85	22,500
10	3.30	5,940	3.60	7,290	17.32	64,200	18.90	72,600	11.45	36,700	7.85	22,500
11	3.36	6,160	3.67	7,520	19.52	76,200	18.71	71,600	11.30	36,200	7.86	22,800
N	3.32	5,940	3.68	7,750	25.20	117,000	18.05	67,700	11.22	35,800	7.67	22,100
1	2.96	4,580	3.55	7,060	28.05	140,000	17.41	64,700	11.30	36,200	7.57	21,800
2	3.15	5,320	3.65	7,520	31.99	176,000	16.41	59,700	11.44	36,700	7.56	21,800
3	3.24	5,730	3.85	8,460	35.48	213,000	15.31	54,200	11.17	35,800	7.47	21,400
4	3.28	5,940	3.95	8,920	35.96	218,000	14.36	50,200	10.75	34,100	7.28	20,700
5	2.90	4,350	3.96	8,920	35.81	216,000	13.67	47,000	10.56	33,300	7.02	19,600
6	2.45	2,760	3.95	8,920	35.12	209,000	13.11	44,400	10.45	32,500	6.80	19,000
7	2.40	2,600	3.95	8,920	34.56	203,000	12.87	43,400	10.38	32,500	6.70	18,600
8	2.42	2,670	3.95	8,920	34.06	198,000	12.76	43,000	10.30	32,100	6.63	18,300
9	2.63	3,380	3.96	8,920	31.86	176,000	12.58	42,100	10.25	31,700	6.57	18,300
10	2.98	4,650	3.95	8,920	29.77	157,000	12.56	42,100	10.18	31,700	6.53	18,000
11	2.83	4,090	3.95	8,920	28.07	141,000	12.64	42,100	10.06	31,300	6.48	18,000
12	2.48	2,860	3.94	8,920	27.37	135,000	12.72	42,600	9.65	29,300	6.45	17,600
Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.97	4,620	14.52	50,600	8.79	26,200	5.09	13,600	-----	-----	-----	-----
2	2.62	3,340	14.72	51,600	9.08	27,400	5.04	13,200	-----	-----	-----	-----
3	2.35	2,440	15.00	52,900	9.17	27,800	5.01	13,200	-----	-----	-----	-----
4	2.27	2,200	15.32	54,200	8.85	26,200	4.91	12,800	-----	-----	-----	-----
5	2.27	2,200	15.15	53,800	8.30	24,300	4.86	12,800	-----	-----	-----	-----
6	2.28	2,230	14.47	50,600	7.63	21,800	4.85	12,500	-----	-----	-----	-----
7	2.29	2,260	13.55	46,600	7.39	21,000	4.90	12,800	-----	-----	-----	-----
8	2.30	2,290	12.35	41,200	7.27	20,700	4.78	12,500	-----	-----	-----	-----
9	3.03	4,850	11.80	38,500	7.30	20,700	4.65	11,700	-----	-----	-----	-----
10	4.00	9,150	11.22	35,800	7.29	20,700	4.56	11,700	-----	-----	-----	-----
11	4.37	10,700	10.80	34,100	6.96	19,600	4.55	11,700	-----	-----	-----	-----
N	5.05	13,200	10.33	32,100	6.50	18,000	4.54	11,300	4.21	10,000	4.06	9,380
1	5.42	14,500	9.65	29,300	5.93	16,100	4.52	11,300	-----	-----	-----	-----
2	5.50	14,900	9.17	27,800	5.77	15,800	4.44	10,900	-----	-----	-----	-----
3	8.20	24,000	8.75	26,200	5.42	14,500	4.48	11,300	-----	-----	-----	-----
4	10.10	31,300	8.70	25,900	5.33	14,200	4.59	11,700	-----	-----	-----	-----
5	10.65	33,300	8.82	26,200	5.37	14,500	4.61	11,700	-----	-----	-----	-----
6	10.57	33,300	8.88	26,600	5.13	13,600	4.59	11,700	-----	-----	-----	-----
7	10.41	32,500	8.72	25,900	5.03	13,200	4.55	11,700	-----	-----	-----	-----
8	10.95	34,903	8.67	25,900	5.01	13,200	4.55	11,700	-----	-----	-----	-----
9	11.90	39,000	8.65	25,500	5.00	13,200	4.54	11,300	-----	-----	-----	-----
10	12.65	42,100	8.63	25,500	5.01	13,200	4.50	11,300	-----	-----	-----	-----
11	13.60	46,600	8.60	25,500	5.02	13,200	4.48	11,300	-----	-----	-----	-----
12	14.27	49,800	8.61	25,500	5.07	13,600	4.40	10,900	4.36	10,700	4.05	9,380

308 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

NEW RIVER AT EGGLESTON, VA.

LOCATION.—Lat. 37°17'22", long. 80°37'01", at highway bridge at Eggleston, Giles County, 2 miles downstream from Spruce Run. Datum of gage is 1,615.59 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—2,941 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 35,000 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for other stations on New River. Gage heights used to half-tenths between 3.6 and 5.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 219,000 second-feet 8:30 p.m. Aug. 14 (gage height, 41.16 feet).

1914-39: Discharge observed, 204,000 second-feet July 16, 1916 (gage height, 39.5 feet).

Flood of 1878 reached a stage of about 40 feet (discharge, about 209,000 second-feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	8,820	23,100	9	4,170	3,720	17	25,900	4,060	25	5,300	4,740
2	6,160	13,300	10	3,380	5,600	18	16,900	4,570	26	6,240	3,740
3	4,460	9,500	11	2,440	4,340	19	13,600	5,140	27	5,600	3,540
4	2,780	9,440	12	2,200	4,770	20	11,900	4,540	28	4,900	3,100
5	3,540	7,060	13	4,360	4,050	21	9,360	4,180	29	5,380	1,850
6	4,880	6,620	14	86,900	3,970	22	7,450	2,440	30	12,000	2,220
7	5,960	6,600	15	91,100	2,960	23	8,540	3,100	31	41,100	-----
8	4,750	4,300	16	40,600	3,490	24	7,050	4,680			
Monthly mean discharge, in second-feet										observed-----	14,770
Runoff, in inches-----										adjusted for storage-----	5.81
											5,491
											5,233
											1.99

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	4.87	4,240	6.81	8,970	35.20	169,000	15.78	44,700	13.35	33,700	-----	-----
2	4.65	3,840	6.82	8,970	33.70	157,000	15.78	44,700	13.25	32,800	9.92	19,500
3	4.48	3,550	6.83	8,970	32.50	148,000	15.82	44,700	13.05	31,900	-----	-----
4	4.42	3,360	6.84	8,970	31.25	138,000	15.87	45,200	12.83	31,100	9.82	19,100
5	4.50	3,550	6.90	9,260	29.75	128,000	15.92	45,200	12.63	30,200	-----	-----
6	4.60	3,740	7.07	9,840	27.90	114,000	15.95	45,700	12.40	29,400	9.75	19,100
7	4.56	3,640	7.48	11,000	26.10	102,000	15.95	45,700	12.12	28,100	-----	-----
8	4.44	3,460	8.13	13,000	24.90	94,600	15.92	45,200	11.80	26,900	9.68	18,700
9	4.27	3,080	9.05	16,100	24.05	89,200	15.77	44,700	11.55	26,100	-----	-----
10	4.08	2,810	10.40	21,400	23.45	85,600	15.46	43,300	11.37	25,300	9.61	18,300
11	3.91	2,470	11.70	26,500	22.97	83,200	15.12	41,400	11.26	24,900	-----	-----
N	3.75	2,230	16.00	45,700	22.60	80,800	14.90	40,400	11.20	24,500	9.40	17,600
1	3.60	2,000	19.00	60,700	22.27	79,000	14.68	39,500	11.17	24,500	-----	-----
2	3.48	1,820	22.50	80,200	21.95	77,200	14.52	38,600	11.15	24,500	9.03	16,100
3	3.41	1,720	26.70	106,000	21.45	73,900	14.44	38,100	11.10	24,100	-----	-----
4	3.47	1,810	29.75	128,000	20.85	70,600	14.42	38,100	11.02	23,700	8.67	15,000
5	4.40	3,360	34.90	166,000	20.15	67,300	14.38	38,100	10.92	23,300	-----	-----
6	5.85	6,320	38.25	193,000	19.20	61,800	14.25	37,200	10.85	22,900	8.50	14,300
7	6.15	7,320	39.85	207,000	18.25	56,700	14.03	36,300	10.75	22,900	-----	-----
8	6.33	7,580	41.08	218,000	17.40	52,700	13.85	35,400	10.60	22,100	8.42	14,000
9	6.52	8,120	41.10	218,000	16.70	49,200	13.68	35,000	10.44	21,400	-----	-----
10	6.67	8,680	40.80	216,000	16.30	47,200	13.58	34,500	10.28	21,000	8.38	14,000
11	6.75	8,970	39.65	205,000	16.00	45,700	13.50	34,100	10.14	20,200	-----	-----
12	6.79	8,970	37.50	187,000	15.86	45,200	13.42	33,700	10.05	19,800	8.36	14,000

310 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	4.45	6,020	27.30	224,000	12.80	59,600	10.70	41,500	-----	-----
2	-----	-----	4.90	7,580	26.80	217,000	12.53	56,900	10.60	40,700	-----	-----
3	-----	-----	5.13	8,520	25.85	204,000	12.32	55,100	10.51	39,900	-----	-----
4	-----	-----	5.26	8,920	24.80	191,000	12.20	54,200	10.44	39,200	-----	-----
5	-----	-----	5.37	9,310	23.80	179,000	12.14	53,300	10.38	39,200	-----	-----
6	4.26	5,380	5.43	9,720	22.90	168,000	12.10	53,300	10.30	38,400	8.01	22,400
7	-----	-----	5.48	9,920	22.00	157,000	12.10	53,300	10.20	37,600	-----	-----
8	-----	-----	5.52	9,920	21.00	145,000	12.12	53,300	10.08	36,900	-----	-----
9	-----	-----	5.58	10,300	20.10	135,000	12.14	53,300	9.97	36,200	-----	-----
10	-----	-----	5.67	10,600	19.10	124,000	12.14	53,300	9.77	34,600	-----	-----
11	-----	-----	5.77	11,200	18.20	114,000	12.15	54,200	9.58	33,200	-----	-----
N	3.79	4,040	6.12	12,500	17.30	104,000	12.13	53,300	9.40	31,700	7.78	21,300
1	-----	-----	6.95	16,800	16.75	99,000	12.07	53,300	9.24	30,300	-----	-----
2	-----	-----	8.25	23,700	16.35	95,000	11.96	52,400	9.12	29,600	-----	-----
3	-----	-----	9.70	33,900	16.00	91,000	11.82	50,600	9.00	28,900	-----	-----
4	-----	-----	11.80	50,600	15.75	89,000	11.65	48,800	8.93	28,200	-----	-----
5	-----	-----	14.30	74,000	15.52	86,000	11.50	47,900	8.89	28,200	-----	-----
6	3.61	3,500	16.50	96,000	15.30	84,000	11.37	47,100	8.86	28,200	7.42	19,000
7	-----	-----	18.50	118,000	15.05	81,000	11.26	46,300	8.82	27,600	-----	-----
8	-----	-----	22.10	158,000	14.75	79,000	11.20	45,500	8.77	27,600	-----	-----
9	-----	-----	24.75	191,000	14.40	75,000	11.16	45,500	8.72	26,900	-----	-----
10	-----	-----	26.30	211,000	13.97	71,000	11.10	44,700	8.66	26,900	-----	-----
11	-----	-----	27.20	223,000	13.55	67,000	10.94	43,100	8.60	26,200	-----	-----
12	3.47	3,160	27.50	226,000	13.15	63,200	10.82	42,300	8.51	25,600	6.92	16,300
	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	5.08	8,330	9.73	33,900	-----	-----	-----	-----	-----	-----	-----	-----
2	5.08	8,330	10.00	36,200	-----	-----	-----	-----	-----	-----	-----	-----
3	5.06	8,140	10.25	37,600	-----	-----	-----	-----	-----	-----	-----	-----
4	5.00	7,950	10.60	40,700	-----	-----	-----	-----	-----	-----	-----	-----
5	4.91	7,580	11.05	43,900	-----	-----	-----	-----	-----	-----	-----	-----
6	4.82	7,220	11.52	47,900	8.98	28,900	-----	-----	-----	-----	-----	-----
7	4.70	6,870	11.85	50,600	-----	-----	-----	-----	-----	-----	-----	-----
8	4.62	6,520	12.07	53,300	-----	-----	-----	-----	-----	-----	-----	-----
9	4.56	6,350	12.24	54,200	-----	-----	-----	-----	-----	-----	-----	-----
10	4.55	6,350	12.38	56,000	-----	-----	-----	-----	-----	-----	-----	-----
11	4.54	6,350	12.45	56,000	-----	-----	-----	-----	-----	-----	-----	-----
N	4.53	6,350	12.36	56,000	9.05	28,900	6.58	14,800	5.94	11,600	5.84	11,200
1	4.51	6,180	12.17	54,200	-----	-----	-----	-----	-----	-----	-----	-----
2	4.47	6,020	11.90	51,500	-----	-----	-----	-----	-----	-----	-----	-----
3	4.43	6,020	11.48	47,900	-----	-----	-----	-----	-----	-----	-----	-----
4	4.38	5,850	11.10	44,700	-----	-----	-----	-----	-----	-----	-----	-----
5	4.32	5,530	10.78	42,300	-----	-----	-----	-----	-----	-----	-----	-----
6	4.26	5,380	10.50	39,900	8.15	23,700	-----	-----	-----	-----	-----	-----
7	4.22	5,220	10.23	37,600	-----	-----	-----	-----	-----	-----	-----	-----
8	4.21	5,220	10.00	36,200	-----	-----	-----	-----	-----	-----	-----	-----
9	4.50	6,180	9.78	34,600	-----	-----	-----	-----	-----	-----	-----	-----
10	5.94	11,600	9.54	32,400	-----	-----	-----	-----	-----	-----	-----	-----
11	7.95	22,400	9.34	31,000	-----	-----	-----	-----	-----	-----	-----	-----
12	9.10	29,600	9.20	30,300	7.20	17,900	6.23	13,000	5.50	9,920	5.44	9,720

NEW RIVER NEAR HINTON, W. VA.

LOCATION.—Lat. 37°37'35", long. 80°53'50", 2 miles upstream from Greenbrier River and 3½ miles south of Hinton, Summers County. Datum of gage is 1,368.49 feet above mean sea level, datum of 1929 (levels by West Virginia Power Co.).

DRAINAGE AREA.—4,600 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 50,000 second-feet and extended to slope-area measurement for crest gage height.

MAXIMA.—1940: Discharge, 232,000 second-feet 4:45 a.m. Aug. 15 (gage height, 24.08 feet).

KANAWHA RIVER BASIN

311

1923-39: Discharge, 105,000 second-feet Oct. 3, 1929 (gage height, 17.2 feet).

Floods of Apr. 21 and May 23, 1901 reached a stage of 24.2 feet on present gage (discharge, 234,000 second-feet). Flood of 1878 probably reached a higher stage.

REMARKS.—Low and medium flow regulated by Claytor Dam and power plant in Virginia, 82 miles upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	11,000	33,400	9	5,020	3,690	17	39,300	4,150	25	7,200	5,420
2	10,200	17,600	10	4,760	5,700	18	25,400	4,640	26	7,350	4,390
3	6,900	12,600	11	3,690	6,000	19	17,100	5,280	27	7,200	4,040
4	4,270	10,600	12	2,350	5,020	20	15,300	5,150	28	6,750	4,150
5	3,690	8,800	13	3,000	4,890	21	12,600	4,890	29	7,200	2,730
6	4,760	7,650	14	27,100	4,640	22	9,850	3,800	30	7,650	2,120
7	6,150	7,500	15	153,000	4,520	23	9,150	2,350	31	40,100	-----
8	5,420	6,900	16	57,800	2,730	24	9,150	3,920			
Monthly mean discharge, in second-feet.....										17,110	6,642
Runoff, in inches.....										4.29	1.61

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	3.87	4,040	21.60	179,000								
2	3.81	3,920	22.70	202,000	14.75	73,300	12.06	47,800				
3	3.75	3,800	23.55	221,000								
4	3.67	3,580	24.00	230,000	14.10	65,800	11.90	46,200	9.62	29,200	7.60	17,600
5	3.62	3,470	24.05	230,000								
6	3.56	3,360	23.90	228,000	13.55	60,800	11.65	43,800				
7	3.55	3,360	23.50	219,000								
8	3.57	3,360	23.00	208,000	13.20	57,200	11.48	43,000	9.37	28,000	7.52	17,100
9	3.77	3,800	22.35	195,000								
10	4.85	6,750	21.70	181,000	13.07	56,300	11.37	42,300				
11	5.67	9,500	21.00	168,000								
N	6.08	11,000	20.25	154,000	13.05	55,400	11.18	40,800	9.03	25,400	7.51	17,100
1	6.32	11,800	19.60	143,000								
2	6.55	13,000	18.95	133,000	13.05	55,400	10.90	38,600				
3	6.80	14,000	18.30	122,000								
4	7.10	15,300	17.70	112,000	13.02	55,400	10.58	36,300	8.65	23,000	7.48	17,100
5	7.40	16,600	17.20	105,000								
6	8.00	19,600	16.90	101,000	12.87	54,500	10.35	34,800				
7	9.70	30,000	16.60	96,400								
8	11.80	45,400	16.35	93,600	12.60	51,800	10.10	32,800	8.32	21,200	7.47	17,100
9	14.00	64,800	16.10	89,400								
10	16.00	88,000	15.90	86,700	12.36	50,200	9.87	31,400				
11	18.00	117,000	15.70	84,100								
12	20.30	155,000	15.40	80,300	12.20	48,600	9.80	30,600	7.95	19,600	7.42	16,600

SUPPLEMENTAL RECORD.—Aug. 15, 4:45 a.m., gage height, 24.08 feet; discharge, 232,000 second-feet.

NEW RIVER AT CAPERTON, W. VA.

LOCATION.—Lat. 38°01'20", long. 81°01'45", at suspension foot-bridge at Caperton, Fayette County, 2 miles southeast of Nuttallburg, Fayette County. Datum of gage is 938.44 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—6,826 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for periods 11 p.m. Aug. 15 to 11 a.m. Aug. 18 and Sept. 16-21 where record was based on those for stations near Hinton and Kanawha River at Kanawha Falls.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 201,000 second-feet and extended above.

MAXIMA.—1940: Discharge, 244,000 second-feet 9 a.m. Aug. 15 (gage height, 36.0 feet).

312 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

1928-39: Discharge, 142,000 second-feet Jan. 23, 1935 (gage height, 23.60 feet).

REMARKS.—Some regulation of low flow at Claytor Dam and power plant 127 miles upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	15,100	44,900	9	7,220	6,540	17	59,300	3,000	25	9,200	5,210
2	15,600	28,400	10	5,870	4,440	18	36,800	4,600	26	8,060	5,740
3	9,500	18,300	11	5,210	6,950	19	25,700	5,200	27	8,900	4,560
4	7,500	12,800	12	4,180	5,870	20	21,200	5,800	28	9,800	4,310
5	4,820	11,600	13	2,380	6,000	21	16,600	5,080	29	9,200	4,560
6	4,950	9,200	14	13,100	5,080	22	12,800	5,210	30	10,800	3,040
7	6,410	8,340	15	177,000	4,950	23	10,500	3,700	31	35,100	-----
8	7,780	8,340	16	89,300	5,080	24	10,800	2,300			
Monthly mean discharge, in second-feet.....										21,310	8,303
Runoff, in inches.....										3.60	1.36

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.95	2,460	13.00	55,600								
2	3.06	2,640	17.50	91,600	21.00	120,000	14.80	69,900				
3	3.65	3,940	22.00	128,000								
4	4.12	5,080	26.50	165,000	20.00	112,000	14.55	68,300	11.40	43,400	9.40	29,100
5	4.27	5,470	29.00	186,000								
6	4.30	5,600	32.20	213,000	19.10	105,000	14.35	66,700				
7	4.31	5,600	35.00	236,000								
8	4.35	5,740	35.50	240,000	18.25	97,300	14.10	64,300	10.90	39,700	9.17	27,700
9	4.48	6,140	36.00	244,000								
10	4.78	6,950	35.50	240,000	17.45	90,800	13.85	61,900				
11	4.97	7,360	35.00	236,000								
N	5.18	8,060	34.00	228,000	16.75	86,000	13.55	60,300	10.45	36,100	8.80	25,100
1	5.42	8,620	32.50	215,000								
2	5.80	9,800	30.90	202,000	16.15	81,100	13.30	58,000				
3	6.35	12,000	30.00	194,000								
4	6.75	13,700	29.00	186,000	15.65	76,300	13.00	55,600	10.04	33,200	8.60	23,800
5	7.15	15,600	27.50	174,000								
6	7.80	18,800	26.20	163,000	15.35	74,700	12.70	53,300				
7	8.60	23,800	25.50	157,000								
8	9.00	26,400	24.50	149,000	15.20	73,100	12.45	51,000	9.75	31,800	8.50	23,100
9	9.20	27,700	23.60	142,000								
10	9.35	29,100	23.00	137,000	15.15	73,100	12.15	49,400				
11	9.57	30,400	22.50	133,000								
12	10.15	34,600	22.00	128,000	15.00	71,500	11.90	47,200	9.54	29,800	8.40	22,400

KANAWHA RIVER AT KANAWHA FALLS, W. VA.

LOCATION.—Lat. 38°08'20", long. 81°12'45", at toll bridge, three-quarters of a mile downstream from village of Kanawha Falls, Fayette County, 2 miles downstream from Gauley Bridge, and 2 miles downstream from confluence of New River and Gauley River. Datum of gage is 623.20 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—8,367 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period of doubtful gage heights, Aug. 20 to Sept. 14, where record was based on those for stations on New River at Caperton and Gauley River at Belva.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 150,000 second-feet and extended above on basis of area-velocity studies and logarithmic plotting.

MAXIMA.—1940: Discharge, 248,000 second-feet 11:30 a.m. Aug. 15 (gage height, 29.60 feet).

1877-1939: Discharge, 320,000 second-feet (revised) Sept. 14, 1878 (gage height, 37.8 feet, site then in use and present datum).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	15,100	55,600	9	8,030	7,200	17	66,900	3,190	25	10,000	5,160
2	18,900	39,400	10	7,180	5,000	18	43,800	4,920	26	10,800	7,020
3	13,600	25,000	11	6,220	7,400	19	31,900	5,340	27	20,000	6,220
4	10,600	17,000	12	4,780	6,400	20	25,000	5,920	28	17,800	5,340
5	6,540	14,000	13	3,410	6,500	21	19,000	5,480	29	17,800	5,060
6	5,920	11,000	14	3,880	5,500	22	15,000	5,480	30	16,200	3,520
7	6,700	9,500	15	163,000	5,480	23	12,000	4,000	31	26,800	-----
8	7,860	9,200	16	97,600	5,340	24	11,500	2,600			
Monthly mean discharge, in second-feet.....										23,350	9,959
Runoff, in inches.....										3.22	1.33

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.50	11,400	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	4.70	17,200	18.30	128,000	12.88	78,600	-----	-----	-----	-----
3	-----	-----	5.70	23,000	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	7.00	31,200	17.40	120,000	12.62	75,900	9.52	49,000	7.48	34,500
5	-----	-----	12.70	76,800	-----	-----	-----	-----	-----	-----	-----	-----
6	0.75	2,880	18.80	134,000	16.80	114,000	12.28	73,200	-----	-----	-----	-----
7	-----	-----	23.00	176,000	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	26.00	208,000	16.03	106,000	11.98	70,500	9.03	45,300	7.32	33,200
9	-----	-----	27.60	226,000	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	28.60	237,000	15.13	98,400	11.76	68,700	-----	-----	-----	-----
11	-----	-----	29.40	246,000	-----	-----	-----	-----	-----	-----	-----	-----
N	1.12	3,640	29.60	248,000	14.60	93,900	11.57	66,900	8.72	43,000	7.06	31,900
1	-----	-----	29.33	245,000	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	28.60	237,000	13.99	88,500	11.32	64,200	-----	-----	-----	-----
3	-----	-----	27.50	225,000	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	26.50	214,000	13.60	84,900	11.10	62,400	8.40	40,800	6.80	30,000
5	-----	-----	25.50	203,000	-----	-----	-----	-----	-----	-----	-----	-----
6	1.49	4,650	24.45	191,000	13.25	81,300	10.92	60,600	-----	-----	-----	-----
7	-----	-----	23.50	182,000	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	22.50	171,000	13.13	80,400	10.65	58,100	8.00	38,000	6.60	28,600
9	-----	-----	21.65	162,000	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	20.90	154,000	13.08	80,400	10.40	56,400	-----	-----	-----	-----
11	-----	-----	20.12	146,000	-----	-----	-----	-----	-----	-----	-----	-----
12	2.48	7,690	19.55	142,000	13.02	79,500	10.13	53,800	7.72	35,900	6.40	27,400

SUPPLEMENTAL RECORD.—Aug. 15, 11:30 a.m., gage height, 29.60 feet; discharge, 248,000 second-feet.

KANAWHA RIVER AT CHARLESTON, W. VA.

LOCATION.—Lat. 38°22'10", long. 81°42'05", at old lock 6, 1.0 mile upstream from Davis Creek, 1½ miles downstream from Twomile Creek, 2.0 miles downstream from Patrick Street Bridge in Charleston, Kanawha County, and 3.5 miles downstream from Elk River. Datum of gage is 548.00 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department). Auxiliary gage used in determining slope, lat. 38°21'15", long. 81°38'35", at Kanawha Boulevard Bridge over Elk River at its mouth.

DRAINAGE AREA.—10,420 square miles at the measuring section at Patrick Street Bridge.

GAGE-HEIGHT RECORD.—Water-stage recorder graphs except for stages above 14.6 feet on the auxiliary gage. The auxiliary gage becomes submerged above 14.6 feet, and gage heights are obtained from graph based on readings obtained from wire-weight gage in the mouth of Elk River, about 300 feet upstream from recorder. Gage heights given are those for gage at old lock 6.

DISCHARGE RECORD.—Stage-slope-discharge relation defined by current-meter meas-

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urements up to 214,000 second-feet. Discharge computed using fall between gages as a factor.

MAXIMA.—1940: Discharge, 216,000 second-feet 8 p.m. Aug. 15; gage height, 38.25 feet at 9 p.m. Aug. 15.

REMARKS.—Low flow regulated by power plants in Virginia and at London and Marmet in West Virginia.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	17,700	57,100	9	7,220	7,220	17	62,900	5,880	25	10,200	9,770
2	19,800	41,300	10	5,350	5,340	18	41,200	5,840	26	12,900	13,100
3	14,100	25,700	11	3,390	4,860	19	29,900	5,840	27	24,000	8,650
4	8,250	21,700	12	2,330	6,330	20	24,400	4,370	28	20,200	6,320
5	6,600	16,200	13	2,330	5,840	21	19,900	5,840	29	19,800	3,870
6	6,600	12,000	14	6,320	5,170	22	15,500	4,870	30	17,500	3,870
7	8,000	10,300	15	130,000	5,840	23	12,900	4,230	31	26,700	-----
8	9,170	7,680	16	120,000	5,840	24	11,700	4,230			
Monthly mean discharge, in second-feet.....										23,120	10,840
Runoff, in inches.....										2.56	1.16

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	18.60	21,900	37.47	197,000	-----	-----	-----	-----	-----	-----
2	-----	-----	19.04	25,000	37.05	187,000	24.88	69,300	-----	-----	-----	-----
3	-----	-----	19.42	28,600	36.60	180,000	-----	-----	-----	-----	-----	-----
4	17.99	4,860	19.72	32,400	36.10	170,000	24.77	68,900	22.06	43,900	-----	-----
5	-----	-----	19.95	42,800	35.55	162,000	-----	-----	-----	-----	-----	-----
6	-----	-----	21.00	57,400	35.00	154,000	24.73	68,500	-----	-----	19.84	31,000
7	-----	-----	22.35	73,700	34.43	142,000	-----	-----	-----	-----	-----	-----
8	17.93	1,850	24.00	82,100	33.87	137,000	24.56	68,600	21.19	43,700	-----	-----
9	-----	-----	25.90	94,900	33.30	130,000	-----	-----	-----	-----	-----	-----
10	-----	-----	27.90	103,000	32.73	123,000	24.40	66,700	-----	-----	-----	-----
11	-----	-----	29.50	119,000	32.20	115,000	-----	-----	-----	-----	-----	-----
N	18.06	9,870	31.20	136,000	31.60	110,000	24.16	65,500	20.80	41,800	19.63	30,200
1	-----	-----	32.70	153,000	30.90	105,000	-----	-----	-----	-----	-----	-----
2	-----	-----	34.00	173,000	30.20	104,000	23.92	62,400	-----	-----	-----	-----
3	-----	-----	35.25	185,000	29.60	98,600	-----	-----	-----	-----	-----	-----
4	18.04	6,820	36.25	196,000	29.00	92,200	23.65	60,400	20.70	38,700	-----	-----
5	-----	-----	36.92	205,000	28.43	87,000	-----	-----	-----	-----	-----	-----
6	-----	-----	37.50	211,000	27.88	84,800	23.33	58,600	-----	-----	19.20	25,900
7	-----	-----	37.90	215,000	27.30	79,800	-----	-----	-----	-----	-----	-----
8	18.17	8,510	38.15	216,000	26.70	76,400	23.06	56,100	20.37	35,900	-----	-----
9	-----	-----	38.25	214,000	26.27	71,600	-----	-----	-----	-----	-----	-----
10	-----	-----	38.23	214,000	25.88	66,600	22.84	51,700	-----	-----	-----	-----
11	-----	-----	38.14	206,000	25.42	66,600	-----	-----	-----	-----	-----	-----
12	18.35	17,600	37.90	204,000	25.10	68,800	22.60	48,500	20.00	33,900	19.18	25,600

NORTH FORK NEW RIVER AT CRUMPLER, N. C.

LOCATION.—Lat. 36°31'30", long. 81°23'35", a quarter of a mile downstream from State highway bridge at Crumpler, Ashe County, and 6 miles upstream from confluence with South Fork.

DRAINAGE AREA.—277 square miles.

GAGE-HEIGHT RECORD.—Recorder house and water-stage recorder were destroyed by the flood on Aug. 13. No gage-height record Aug. 1-6, 8-25, 30, Sept. 14-19. Staff gage read once or twice daily Aug. 7, 26-29, Aug. 31 to Sept. 13, Sept. 20-30. Graphs based on gage readings used Aug. 29, Aug. 31 to Sept. 5, Sept. 10, 21.

DISCHARGE RECORD.—Stage-discharge relation for 1940 defined by current-meter measurements up to 2,600 second-feet and extended logarithmically to slope-area measurement at crest gage height. Gage heights used to half-tenths be-

REMARKS.—Flood runoff not affected by artificial storage.

[illegible][illegible]

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Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.62	127	4.60	3,380	-----	-----	-----	-----
2	1.64	133	4.46	3,120	3.47	1,590	-----	-----
3	1.67	143	4.36	2,960	-----	-----	-----	-----
4	1.72	160	4.30	2,870	3.52	1,660	-----	-----
5	1.74	168	4.25	2,790	-----	-----	-----	-----
6	1.76	175	4.22	2,710	3.60	1,770	3.15	1,190
7	1.81	194	4.17	2,630	-----	-----	-----	-----
8	1.83	202	4.10	2,550	3.68	1,890	-----	-----
9	1.87	218	4.02	2,390	-----	-----	-----	-----
10	2.01	280	3.94	2,310	3.75	2,000	-----	-----
11	2.52	590	3.85	2,150	-----	-----	-----	-----
N	2.80	820	3.77	2,000	3.82	2,070	2.96	980
1	2.95	970	3.70	1,920	-----	-----	-----	-----
2	3.04	1,060	3.64	1,830	3.82	2,070	-----	-----
3	3.42	1,530	3.60	1,770	-----	-----	-----	-----
4	3.92	2,230	3.57	1,730	3.78	2,070	-----	-----
5	4.22	2,710	3.56	1,710	-----	-----	-----	-----
6	4.42	3,040	3.53	1,670	3.70	1,920	2.82	840
7	4.57	3,300	3.51	1,640	-----	-----	-----	-----
8	4.70	3,550	3.48	1,600	3.58	1,740	-----	-----
9	4.79	3,730	3.45	1,560	-----	-----	-----	-----
10	4.82	3,730	3.43	1,540	3.48	1,600	-----	-----
11	4.80	3,730	3.43	1,540	-----	-----	-----	-----
12	4.72	3,550	3.43	1,540	3.39	1,490	2.67	706

Hour	Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	-----	-----	2.54	605	-----	-----
4	-----	-----	2.61	658	2.78	802
6	2.55	612	2.83	850	-----	-----
8	-----	-----	2.95	970	2.67	706
10	-----	-----	2.95	970	-----	-----
N	2.47	554	2.93	950	2.59	642
2	-----	-----	2.92	940	-----	-----
4	-----	-----	2.90	920	2.52	590
6	2.40	505	2.87	890	-----	-----
8	-----	-----	2.86	880	2.45	540
10	-----	-----	2.86	880	-----	-----
12	2.56	620	2.87	890	2.40	505

BIG REED ISLAND CREEK NEAR ALLISONIA, VA.

LOCATION.—Lat. 36°53', long. 80°44', 700 feet downstream from highway bridge, 3½ miles southeast of Allisonia, Pulaski County, 4 miles upstream from Little Reed Island Creek, and 4½ miles upstream from mouth. Datum of gage is 1,902.74 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—278 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,900 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for other stations in New River Basin. Gage heights used to half-tenths between 3.9 and 5.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 20,900 second-feet 7:45 a.m. Aug. 14 (gage height, 11.70 feet).

1908-16, 1939: Gage height, 14.8 feet July 16, 1916, site and datum then in use, caused partly by backwater from New River (discharge not determined).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	452	1,160	9	262	452	17	1,950	379	25	493	764
2	340	747	10	245	452	18	1,210	379	26	509	544
3	300	624	11	279	472	19	1,120	374	27	504	384
4	292	570	12	536	427	20	771	365	28	493	360
5	296	580	13	507	412	21	661	356	29	2,600	351
6	296	514	14	12,300	403	22	608	346	30	2,710	342
7	318	488	15	3,440	398	23	553	337	31		
8	365	462	16	2,860	393	24	509	337			
Monthly mean discharge, in second-feet.....										1,234	472
Runoff, in inches.....										5.12	1.90

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					3.62	917	7.65	5,920				
2	2.76	367	3.12	562	4.03	1,320	7.25	5,210	5.89	3,360	4.63	1,960
3					4.25	1,520	6.90	4,740				
4	2.77	372	3.05	520	4.85	2,200	6.55	4,300	5.87	3,360	4.59	1,900
5					6.40	4,020	6.27	3,880				
6	2.95	462	2.98	479	8.45	7,690	6.05	3,490	5.85	3,230	4.61	1,900
7					11.10	17,900	5.85	3,230				
8	2.97	474	2.94	457	11.67	20,900	5.68	3,110	5.80	3,230	4.85	2,200
9					11.45	19,400	5.55	2,930				
10	2.93	452	2.90	435	11.53	19,900	5.45	2,810	5.67	3,050	5.03	2,460
11					11.64	20,400	5.37	2,690				
N	2.94	457	2.89	430	11.47	19,900	5.30	2,630	5.53	2,930	4.87	2,200
1					11.05	17,400	5.26	2,570				
2	3.17	592	2.89	430	10.67	16,000	5.27	2,570	5.37	2,690	4.77	2,080
3					10.58	15,600	5.32	2,630				
4	3.33	696	2.90	435	10.52	15,200	5.38	2,750	5.25	2,570	4.66	1,960
5					10.62	15,600	5.50	2,870				
6	3.37	724	2.98	479	10.68	16,000	5.65	3,050	5.18	2,510	4.50	1,790
7					10.50	15,200	5.80	3,230				
8	3.33	696	3.08	538	10.10	13,500	5.96	3,490	5.09	2,390	4.40	1,680
9					9.57	11,600	6.04	3,990				
10	3.27	656	3.20	610	9.10	9,800	6.05	3,490	4.90	2,260	4.29	1,570
11					8.62	8,220	6.02	3,490				
12	3.21	616	3.47	798	8.12	6,970	5.94	3,360	4.72	2,020	4.20	1,470

	Aug. 18		Aug. 19		Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					2.97	509	6.87	4,740				
2			3.97	1,220	2.97	509	6.68	4,440	4.27	1,520		
3					2.97	509	6.47	4,160				
4			4.16	1,420	2.97	509	6.22	3,750	4.16	1,420		
5					2.99	520	6.00	3,490				
6	4.04	1,320	4.10	1,370	3.00	525	5.78	3,230	4.07	1,320		
7					3.01	530	5.54	2,930				
8			3.98	1,270	3.02	536	5.32	2,630	3.98	1,270		
9					3.18	628	5.12	2,390				
10			3.87	1,140	3.32	713	4.93	2,320	3.90	1,170		
11					3.44	793	4.81	2,140				
N	3.89	1,160	3.82	1,090	3.70	990	4.72	2,020	3.83	1,100	3.36	739
1					5.11	2,390	4.66	1,960				
2			3.76	1,040	6.20	3,750	4.66	1,960	3.77	1,050		
3					6.53	4,160	5.10	2,390				
4			3.73	1,020	6.98	4,890	4.95	2,320	3.72	1,010		
5					7.78	6,320	5.27	2,570				
6	3.83	1,100	3.70	990	7.67	6,120	5.32	2,630	3.67	966		
7					7.15	5,210	4.85	2,200				
8			3.67	966	6.96	4,890	4.66	1,960	3.63	934		
9					7.04	4,890	4.62	1,900				
10			3.62	926	6.98	4,890	4.54	1,840	3.58	895		
11					7.00	4,890	4.46	1,740				
12	3.82	1,090	3.57	888	7.02	4,890	4.38	1,680	3.53	858	3.25	670

SUPPLEMENTAL RECORDS.—Aug. 14, 7:45 a.m., gage height 11.70 feet; discharge 20,900 second-feet. Aug. 30, 5:30 p.m., gage height, 7.85 feet; discharge, 6,320 second-feet.

318 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

LITTLE RIVER AT GRAYSONTON, VA.

LOCATION.—Lat. 37°03', long. 80°34', 900 feet downstream from highway bridge at Graysonton, Montgomery County, 7 miles south of Radford, and 7 miles upstream from mouth. Datum of gage is 1,795.43 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—302 square miles (revised).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,500 second-feet and extended to crest gage height by logarithmic plotting on basis of two slope-area determinations at sites upstream and comparisons of flood records with those for other stations in New River Basin. Gage heights used to half-tenths between 2.1 and 3.3 feet (Oct. 1 to Aug. 14), between 1.6 and 3.3 (Aug. 15 to Sept. 30); hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 17,700 second-feet 10 p.m. Aug. 14 (gage height, 16.44 feet).

1928-39: Discharge observed, about 13,500 second-feet Oct. 2, 1929 (gage height, 12.84 feet, former site and datum).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	301	1,650	9	212	508	17	3,990	426	25	594	527
2	247	882	10	188	500	18	1,920	424	26	660	582
3	214	710	11	202	506	19	1,260	420	27	644	404
4	209	644	12	472	474	20	939	409	28	612	384
5	222	616	13	488	461	21	780	402	29	790	376
6	234	572	14	7,820	444	22	708	383	30	2,610	366
7	282	542	15	8,470	444	23	658	370	31	5,610	-----
8	232	524	16	6,980	436	24	558	368			
Monthly mean discharge, in second-feet.....										1,584	525
Runoff, in inches.....										16.05	11.94

¹Based on revised drainage area.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1					1.59	554	15.90	17,000	9.08	7,200		
2	1.08	270	1.51	506	1.68	608	15.55	16,500	9.17	7,330	6.62	4,320
3					1.78	668	15.00	15,600	9.20	7,330		
4	1.21	335	1.52	512	1.85	712	14.05	14,100	9.22	7,330	6.37	4,120
5					2.00	810	13.10	12,800	9.23	7,330		
6	1.30	384	1.52	512	2.37	1,040	12.00	11,100	9.26	7,460	6.36	4,120
7					3.60	1,960	10.95	9,740	9.32	7,460		
8	1.36	418	1.49	494	7.25	4,960	10.00	8,370	9.37	7,590	6.52	4,220
9					8.95	7,070	8.95	7,070	9.47	7,720		
10	1.47	482	1.43	458	9.67	7,980	8.20	6,100	9.59	7,850	6.88	4,630
11					9.30	7,460	7.60	5,400	9.60	7,850		
N	1.64	584	1.38	429	8.50	6,460	7.30	5,070	9.58	7,850	7.17	4,960
1					8.07	5,980	7.22	4,960	9.48	7,720		
2	1.70	620	1.39	434	8.25	6,100	7.36	5,180	9.39	7,590	6.88	4,630
3					9.00	7,070	7.57	5,400	9.23	7,330		
4	1.68	608	1.49	494	10.30	8,760	7.63	5,400	9.05	7,070	6.25	3,920
5					11.95	11,100	7.65	5,400	8.90	6,940		
6	1.61	566	1.51	506	13.65	13,500	7.70	5,510	8.64	6,580	5.75	3,530
7					15.00	15,600	7.80	5,620	8.46	6,460		
8	1.53	518	1.49	494	16.00	17,100	7.90	5,740	8.05	5,860	5.38	3,170
9					16.37	17,700	8.08	5,980	7.75	5,620		
10	1.50	500	1.50	500	16.44	17,700	8.40	6,340	7.47	5,290	4.95	2,820
11					16.36	17,700	8.72	6,700	7.17	4,960		
12	1.50	500	1.56	536	16.16	17,400	8.94	6,940	6.92	4,630	4.64	2,510
Hour	Aug. 18		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			1.38	610	10.20	8,630	3.46	1,900				
2			1.38	610	11.20	10,000	3.45	1,840	2.12	1,000		
3			1.40	621	11.90	11,000	3.80	2,050				
4			1.42	632	12.14	11,300	4.20	2,240	2.06	972	1.64	755
5			1.45	648	11.90	11,000	4.47	2,440				
6	3.88	2,090	1.47	658	11.47	10,400	4.50	2,440	1.99	945		
7			1.47	658	10.80	9,460	4.32	2,300				
8			1.49	669	10.00	8,370	4.00	2,130	1.93	918	1.58	717
9			1.49	669	9.05	7,070	3.66	2,010				
10			1.57	712	8.05	5,860	3.36	1,840	1.89	890		
11			2.00	945	7.15	4,960	3.13	1,660				
N	3.41	1,840	2.11	1,000	6.30	4,020	2.97	1,520	1.86	863	1.54	696
1			2.32	1,110	5.58	3,350	2.85	1,460				
2			9.00	7,070	4.90	2,740	2.75	1,380	1.78	836		
3			7.00	4,740	4.63	2,510	2.68	1,350				
4			5.80	3,530	4.85	2,660	2.60	1,250	1.81	836	1.53	690
5			6.15	3,920	5.20	2,990	2.53	1,260				
6	3.25	1,740	6.70	4,420	5.00	2,820	2.48	1,230	1.77	809		
7			6.99	4,740	4.36	2,370	2.42	1,170				
8			6.90	4,630	4.12	2,180	2.37	1,140	1.75	809	1.50	674
9			7.05	4,740	3.95	2,130	2.33	1,140				
10			7.50	5,290	3.82	2,050	2.28	1,110	1.72	782		
11			8.25	6,100	3.68	2,010	2.25	1,080				
12	3.00	1,560	9.15	7,330	3.55	1,960	2.20	1,060	1.71	782	1.50	674

WALKER CREEK AT BANE, VA.

LOCATION.—Lat. 37°16'05", long. 80°42'35", a quarter of a mile downstream from highway bridge at Bane, Giles County, a quarter of a mile downstream from Sugar Run, and 8 miles upstream from mouth. Datum of gage is 1,665.92 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—305 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,900 second-feet and extended above by logarithmic plotting. Gage heights used to half-tenths between 5.0 and 7.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,660 second-feet 12 m. Aug. 14 (gage height, 10.08 feet).

320 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

1938 to July 1940: Discharge, 8,020 second-feet Apr. 20, 1940 (gage height, 12.64 feet).

Stage known, about 23.5 feet, in September 1878.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	276	1,040	9	106	156	17	1,760	105	25	230	90
2	272	608	10	94	152	18	1,100	102	26	400	94
3	183	422	11	93	152	19	782	99	27	402	92
4	152	319	12	95	142	20	583	96	28	300	87
5	132	252	13	94	126	21	434	93	29	272	84
6	134	211	14	2,430	121	22	353	90	30	554	83
7	116	188	15	2,540	116	23	299	86	31	918	-----
8	114	170	16	2,770	110	24	248	86			
Monthly mean discharge, in second-feet.....										588	186
Runoff, in inches.....										2.22	0.68

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	3.48	115	8.54	3,020	-----	-----	-----	-----	-----	-----
2	3.50	118	8.42	2,930	8.22	2,750	-----	-----	-----	-----
3	3.52	121	8.34	2,840	-----	-----	-----	-----	-----	-----
4	3.55	126	8.27	2,840	8.34	2,840	-----	-----	-----	-----
5	3.62	139	8.17	2,750	-----	-----	-----	-----	-----	-----
6	3.75	164	8.07	2,660	8.39	2,930	7.22	1,940	-----	-----
7	4.90	196	7.96	2,580	-----	-----	-----	-----	-----	-----
8	6.55	1,520	7.86	2,500	8.42	2,930	-----	-----	-----	-----
9	5.93	1,140	7.78	2,420	-----	-----	-----	-----	-----	-----
10	8.90	3,500	7.72	2,340	8.43	2,930	-----	-----	-----	-----
N	9.67	4,220	7.69	2,340	-----	-----	-----	-----	-----	-----
1	10.08	4,660	7.70	2,340	8.42	2,930	6.90	1,730	5.90	1,080
2	9.83	4,440	7.70	2,340	-----	-----	-----	-----	-----	-----
3	9.66	4,220	7.69	2,340	8.36	2,930	-----	-----	-----	-----
4	9.40	3,900	7.68	2,340	-----	-----	-----	-----	-----	-----
5	9.27	3,800	7.68	2,340	8.26	2,840	-----	-----	-----	-----
6	9.23	3,800	7.70	2,340	-----	-----	-----	-----	-----	-----
7	9.14	3,700	7.73	2,340	8.13	2,660	6.62	1,520	-----	-----
8	9.00	3,500	7.77	2,420	-----	-----	-----	-----	-----	-----
9	8.85	3,400	7.80	2,420	7.97	2,580	-----	-----	-----	-----
10	8.72	3,300	7.88	2,500	-----	-----	-----	-----	-----	-----
11	8.70	3,300	7.95	2,580	7.80	2,420	-----	-----	-----	-----
12	8.70	3,300	8.02	2,580	-----	-----	-----	-----	-----	-----
	8.67	3,200	8.07	2,660	7.65	2,260	6.37	1,350	5.59	910
	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	4.16	252	5.68	965	6.17	1,230	-----	-----	-----	-----
2	4.17	255	5.70	965	6.32	1,320	5.27	720	-----	-----
3	4.17	255	5.77	992	6.35	1,350	-----	-----	-----	-----
4	4.16	252	5.78	1,020	6.32	1,320	5.22	695	-----	-----
5	4.15	249	5.77	992	6.25	1,290	-----	-----	-----	-----
6	4.15	249	5.74	992	6.18	1,260	5.15	670	-----	-----
7	4.14	246	5.72	965	6.10	1,200	-----	-----	-----	-----
8	4.14	246	5.67	938	6.03	1,170	5.09	645	-----	-----
9	4.16	252	5.65	938	5.95	1,110	-----	-----	-----	-----
10	4.18	258	5.61	910	5.90	1,080	5.05	620	-----	-----
11	4.26	285	5.57	882	5.85	1,050	-----	-----	-----	-----
N	4.48	369	5.53	882	5.80	1,020	5.01	595	4.60	418
1	4.50	377	5.56	882	5.75	992	-----	-----	-----	-----
2	4.50	377	5.67	938	5.70	965	4.96	576	-----	-----
3	5.00	595	5.62	910	5.66	938	-----	-----	-----	-----
4	5.47	828	5.56	882	5.62	910	4.92	557	-----	-----
5	5.72	965	5.56	882	5.57	882	-----	-----	-----	-----
6	5.86	1,050	5.56	882	5.54	882	4.89	544	-----	-----
7	5.93	1,110	5.54	882	5.50	855	-----	-----	-----	-----
8	5.93	1,110	5.51	855	5.47	828	4.86	530	-----	-----
9	5.90	1,080	5.48	855	5.44	828	-----	-----	-----	-----
10	5.83	1,050	5.46	828	5.40	800	4.82	512	-----	-----
11	5.76	992	5.46	828	5.37	772	-----	-----	-----	-----
12	5.71	965	5.77	992	5.34	772	4.78	494	4.47	365

LOCATION.—Lat. 37°18'20", long. 80°51'00", at highway bridge 3 miles upstream from Narrows, Giles County, and 3½ miles upstream from mouth. Datum of gage is 1,583.83 feet above mean sea level, datum of 1929.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 9 a.m. Aug. 14 to 8:45 a.m. Aug. 16, when clock was stopped.

MAXIMA.—August 1940: Discharge, 2,820 second-feet Aug. 15 or 16 (gage height, 7.2 feet, from crest indicated by pen on recorder chart).

1908-16, 1938 to July 1940: Gage height observed, 13.0 feet, from floodmarks, July 16, 1916 (discharge not determined).

[illegible]

322 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
2	-----	-----	2.95	110	-----	-----	-----	-----	-----	-----
4	-----	-----	3.02	125	-----	-----	-----	-----	-----	-----
6	-----	-----	3.11	140	-----	-----	-----	-----	5.76	1,680
8	-----	-----	3.14	153	-----	-----	-----	-----	-----	-----
10	-----	-----	-----	-----	-----	-----	6.75	2,500	-----	-----
N	2.87	93	-----	-----	-----	-----	6.67	2,420	5.53	1,530
2	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	-----	-----	-----	-----	6.32	2,100	5.32	1,340
8	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	2.93	105	-----	-----	-----	-----	6.02	1,860	5.10	1,200

	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	4.45	765	-----	-----	-----	-----	-----	-----
2	-----	-----	4.77	958	-----	-----	-----	-----	-----	-----
3	-----	-----	4.87	1,020	-----	-----	-----	-----	-----	-----
4	-----	-----	4.83	1,020	-----	-----	-----	-----	-----	-----
5	-----	-----	4.70	925	-----	-----	-----	-----	-----	-----
6	3.30	197	4.58	847	4.50	796	-----	-----	-----	-----
7	-----	-----	4.50	796	-----	-----	-----	-----	-----	-----
8	-----	-----	4.45	765	-----	-----	-----	-----	-----	-----
9	-----	-----	4.40	734	-----	-----	-----	-----	-----	-----
10	-----	-----	4.37	715	-----	-----	-----	-----	-----	-----
11	-----	-----	4.34	697	-----	-----	-----	-----	-----	-----
N	3.37	219	4.32	684	4.33	691	3.88	434	3.61	309
1	3.39	226	4.31	678	-----	-----	-----	-----	-----	-----
2	3.44	243	4.30	672	-----	-----	-----	-----	-----	-----
3	3.44	243	4.30	672	-----	-----	-----	-----	-----	-----
4	3.46	251	4.38	722	-----	-----	-----	-----	-----	-----
5	3.52	273	4.55	828	-----	-----	-----	-----	-----	-----
6	3.60	305	4.80	990	4.18	600	-----	-----	-----	-----
7	3.71	353	4.91	1,060	-----	-----	-----	-----	-----	-----
8	3.76	376	4.90	1,060	-----	-----	-----	-----	-----	-----
9	3.79	389	4.85	1,020	-----	-----	-----	-----	-----	-----
10	3.86	424	4.82	990	-----	-----	-----	-----	-----	-----
11	3.91	449	4.78	990	-----	-----	-----	-----	-----	-----
12	4.05	526	4.72	925	4.06	532	3.73	362	3.52	273

SUPPLEMENTAL RECORD.—Aug. 15 or 16, peak gage height, 7.2 feet; peak discharge, 2,820 second-feet.

BLUESTONE RIVER AT LILLY, W. VA.

LOCATION.—Lat. 37°35'05", long. 80°57'55", at Lilly, Summers County, 1,200 feet downstream from Little Bluestone River and 5 miles upstream from mouth.

Datum of gage is 1,433.7 feet above mean sea level, datum of 1929 (levels by The Virginia Power Co.).

DRAINAGE AREA.—438 square miles.

GAGE-HEIGHT RECORD.—Staff gage read twice daily. Graph based on gage readings used Aug. 14, 15.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,500 second-feet and extended to crest gage height on basis of logarithmic plotting and area-velocity studies.

MAXIMA.—August 1940: Discharge, 6,400 second-feet 8 p.m. Aug. 14 (gage height, 7.05 feet, from graph based on gage readings).

1908-16, 1929 to July 1940: Discharge, 14,400 second-feet Mar. 25, 1935 (gage height, 11.0 feet, from graph based on gage readings).

REMARKS.—Flow not affected by regulation, storage, or diversion.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Hour	Aug. 14—Con.		Aug. 15—Con.	
	Gage height	Discharge	Gage height	Discharge		Gage height	Discharge	Gage height	Discharge
4	1.75	128	5.95	4,520	4	6.10	4,700	5.20	3,170
8	2.00	191	5.60	3,820	8	7.05	6,400	4.95	2,870
N	3.45	1,060	5.40	3,490	12	6.60	5,640	4.65	2,300

GREENBRIER RIVER AT HILLDALE, W. VA.

LOCATION.—Lat. 37°38'25", long. 80°48'20", at Hilldale, Summers County, opposite Howard Creek, 0.9 mile upstream from Powley Creek, 5 miles southeast of Hinton, and 5.6 miles upstream from mouth. Datum of gage is 1,388.66 feet above mean sea level, datum of 1929 (levels by Corps of Engineers, War Department).

DRAINAGE AREA.—1,625 square miles, including area of Howard Creek.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 1-5, and 9-14, records for which were based on those for station at Alderson and recorded range in stage.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 20,000 second-feet and extended above by logarithmic plotting.

MAXIMA.—August 1940: Discharge, 18,100 second-feet 9 a.m. Aug. 15 (gage height, 11.34 feet).

June 1936 to July 1940: Discharge, 40,000 second-feet Feb. 4, 1939 (gage height, 17.99 feet).

Stage known, 21.85 feet Mar. 18, 1936 (discharge, 60,800 second-feet), from data furnished by Corps of Engineers, War Department.

REMARKS.—Flow not affected by regulation, storage, or diversion.

Mean discharge, in second-feet, 1940

[illegible]

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.60	239										
2			6.55	8,470								
4			6.50	8,200	6.20	7,420	5.17	4,870				
6			6.44	7,940					4.15	2,960	3.52	1,990
8	1.60	239	6.50	8,200	5.95	6,770	5.03	4,660				
10			7.06	9,830								
N	1.62	248	7.01	9,550	5.73	6,260	4.88	4,340	3.95	2,640	3.44	1,920
2	1.63	252	6.89	9,280								
4	1.64	237	6.76	9,010	5.54	5,780	4.71	3,940				
6	1.66	265	6.66	8,740					3.78	2,420	3.44	1,920
8	1.69	279	6.69	8,740	5.38	5,430	4.55	3,660				
10	6.30	7,680	6.59	8,470								
12	6.63	8,470	6.46	8,200	5.25	5,090	4.38	3,380	3.65	2,200	3.43	1,920

ELK RIVER AT QUEEN SHOALS, W. VA.

REMARKS.—Flow not affected by storage, regulation, or diversion.

[illegible]

TENNESSEE RIVER BASIN

FRENCH BROAD RIVER AT ROSMAN, N. C.

LOCATION.—Lat. 35°08'20", long. 82°49'30", at bridge on State Highway 283 at Rosman, Transylvania County, half a mile upstream from East Fork. Datum of gage is 2,173.83 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—67.9 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,300 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 3.2 and 4.7 feet; hundredths below and tenths above these limits. Shifting-control method used Aug. 14 to 7 p.m. Aug. 29.

MAXIMA.—1940: Discharge, 9,410 second-feet 6 a.m. Aug. 30 (gage height, 11.86 feet).

1907-9, 1935-39: Discharge observed, 6,900 second-feet on night of Feb. 14-15, 1908 (gage height, 9.0 feet). River channel has become greatly restricted since 1908.

Stage known, 13.9 feet in July 1916, from floodmarks (discharge not determined). Surveys by the Tennessee Valley Authority show that the flood of August 1928 reached a stage of 12.5 feet (discharge, 11,800 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	81	546	9	104	228	17	320	163	25	190	166
2	79	441	10	74	219	18	284	160	26	181	135
3	76	381	11	90	212	19	256	157	27	175	127
4	74	343	12	446	196	20	231	152	28	167	124
5	74	333	13	3,920	187	21	219	143	29	923	121
6	74	312	14	976	184	22	213	141	30	3,240	118
7	74	290	15	524	175	23	204	138	31	776	-----
8	76	259	16	385	172	24	210	141			
Monthly mean discharge, in second-feet -----										475	215
Runoff, in inches -----										8.06	3.54

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.98	117	4.85	1,200	5.55	1,570	-----	-----	-----	-----	-----	-----
2	1.98	117	4.68	1,150	5.26	1,470	-----	-----	-----	-----	-----	-----
3	1.98	117	4.70	1,150	5.04	1,330	-----	-----	-----	-----	-----	-----
4	1.98	117	5.30	1,420	4.86	1,280	3.32	595	-----	-----	-----	-----
5	1.99	120	5.60	1,570	4.71	1,200	-----	-----	-----	-----	-----	-----
6	2.00	122	5.98	1,770	4.59	1,150	-----	-----	-----	-----	-----	-----
7	2.03	130	6.78	2,190	4.49	1,100	-----	-----	-----	-----	-----	-----
8	2.09	145	8.65	3,460	4.37	1,040	3.22	555	-----	-----	-----	-----
9	2.14	159	10.20	5,400	4.27	992	-----	-----	-----	-----	-----	-----
10	2.19	172	11.16	7,340	4.17	948	-----	-----	-----	-----	-----	-----
11	2.29	201	11.78	9,040	4.09	925	-----	-----	-----	-----	-----	-----
N	2.57	287	11.18	7,340	4.03	880	3.13	515	2.77	387	2.59	323
1	2.70	330	11.05	6,890	3.99	880	-----	-----	-----	-----	-----	-----
2	3.14	492	10.73	6,290	3.96	858	-----	-----	-----	-----	-----	-----
3	3.29	555	10.68	6,290	3.86	815	-----	-----	-----	-----	-----	-----
4	3.45	615	10.60	6,100	3.80	795	3.04	488	-----	-----	-----	-----
5	3.65	695	10.29	5,570	3.75	775	-----	-----	-----	-----	-----	-----
6	3.83	775	9.70	4,660	3.69	755	-----	-----	-----	-----	-----	-----
7	3.90	795	9.05	3,840	3.66	735	-----	-----	-----	-----	-----	-----
8	4.04	858	8.20	3,130	3.60	715	2.93	446	-----	-----	-----	-----
9	4.15	902	7.40	2,550	3.55	695	-----	-----	-----	-----	-----	-----
10	4.20	925	6.83	2,190	3.52	675	-----	-----	-----	-----	-----	-----
11	4.80	1,200	6.26	1,920	3.48	655	-----	-----	-----	-----	-----	-----
12	5.21	1,380	5.87	1,720	3.45	655	2.89	431	2.65	344	2.51	297
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.05	159	9.05	3,840	-----	-----	-----	-----	-----	-----	-----	-----
2	2.05	159	9.73	4,660	4.21	925	-----	-----	-----	-----	-----	-----
3	2.06	162	10.40	5,740	-----	-----	-----	-----	-----	-----	-----	-----
4	2.07	164	11.10	7,110	4.10	880	-----	-----	-----	-----	-----	-----
5	2.11	175	11.73	8,700	-----	-----	-----	-----	-----	-----	-----	-----
6	2.19	198	11.86	9,410	3.99	835	-----	-----	-----	-----	-----	-----
7	2.21	204	10.70	6,290	-----	-----	-----	-----	-----	-----	-----	-----
8	2.25	216	9.65	4,530	4.06	858	-----	-----	-----	-----	-----	-----
9	2.31	234	8.65	3,460	-----	-----	-----	-----	-----	-----	-----	-----
10	2.45	278	7.75	2,830	3.96	815	-----	-----	-----	-----	-----	-----
11	2.55	310	7.03	2,310	-----	-----	-----	-----	-----	-----	-----	-----
N	2.65	344	6.50	2,020	3.82	755	3.28	555	3.02	446	2.86	387
1	2.85	416	6.12	1,820	-----	-----	-----	-----	-----	-----	-----	-----
2	3.41	635	5.88	1,720	3.75	735	-----	-----	-----	-----	-----	-----
3	4.10	925	5.57	1,570	-----	-----	-----	-----	-----	-----	-----	-----
4	4.50	1,100	5.30	1,420	3.70	715	-----	-----	-----	-----	-----	-----
5	5.06	1,380	5.11	1,330	-----	-----	-----	-----	-----	-----	-----	-----
6	5.19	1,420	4.96	1,280	3.63	695	-----	-----	-----	-----	-----	-----
7	5.85	1,720	4.81	1,200	-----	-----	-----	-----	-----	-----	-----	-----
8	6.60	2,070	4.71	1,150	3.56	655	-----	-----	-----	-----	-----	-----
9	7.30	2,490	4.60	1,100	-----	-----	-----	-----	-----	-----	-----	-----
10	7.71	2,760	4.48	1,060	3.51	635	-----	-----	-----	-----	-----	-----
11	7.94	2,900	4.41	1,020	-----	-----	-----	-----	-----	-----	-----	-----
12	8.35	3,290	4.35	992	3.47	615	3.10	476	2.89	397	2.77	354

SUPPLEMENTAL RECORDS.—Aug. 12, 8:45 p.m., gage height, 4.17 feet, discharge, 902 second-feet; 11:45 p.m., gage height, 5.26 feet, discharge, 1,420 second-feet. Aug. 31, 8:30 a.m., gage height, 4.09 feet, discharge, 880 second-feet.

FRENCH BROAD RIVER AT CALVERT, N. C.

LOCATION.—Lat. 35°08'45", long. 82°48'05", at township bridge 1 mile downstream from East Fork and 1 mile southeast of railroad station at Calvert, Transylvania County. Datum of gage is 2,154.63 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—103 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,600 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.1 and 3.4 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 12,300 second-feet 1 p.m. Aug. 13 (gage height, 11.66 feet).

1924-39: Discharge, 16,100 second-feet Aug. 15, 1928 (gage height, 13.0 feet).

Stage known, 18.3 feet in July, 1916, from flood reference mark (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	0.86	169	3.46	1,600	5.86	2,980	-----	-----	-----	-----	-----	-----
2	.87	172	3.41	1,540	5.40	2,680	-----	-----	-----	-----	-----	-----
3	.87	172	3.51	1,600	5.02	2,450	-----	-----	-----	-----	-----	-----
4	.88	174	4.15	2,010	4.67	2,280	-----	-----	-----	-----	-----	-----
5	.89	177	4.80	2,340	4.43	2,120	-----	-----	-----	-----	-----	-----
6	.90	180	5.65	2,800	4.19	2,010	-----	-----	-----	-----	-----	-----
7	.95	196	6.70	3,460	3.99	1,900	-----	-----	-----	-----	-----	-----
8	1.00	211	7.70	4,150	3.84	1,780	-----	-----	-----	-----	-----	-----
9	1.03	221	8.70	5,130	3.70	1,720	-----	-----	-----	-----	-----	-----
10	1.08	238	9.35	6,140	3.58	1,660	-----	-----	-----	-----	-----	-----
11	1.19	278	10.15	7,790	3.47	1,600	-----	-----	-----	-----	-----	-----
N	1.40	369	11.22	10,600	3.37	1,500	2.28	875	1.89	634	1.68	519
1	1.54	442	11.66	12,300	3.32	1,480	-----	-----	-----	-----	-----	-----
2	1.84	607	11.53	11,600	3.28	1,480	-----	-----	-----	-----	-----	-----
3	2.00	695	11.31	10,900	3.17	1,380	-----	-----	-----	-----	-----	-----
4	2.19	815	11.11	10,300	3.09	1,360	-----	-----	-----	-----	-----	-----
5	2.34	905	10.87	9,680	3.01	1,300	-----	-----	-----	-----	-----	-----
6	2.52	995	10.55	8,810	2.94	1,260	-----	-----	-----	-----	-----	-----
7	2.64	1,080	10.12	7,560	2.89	1,240	-----	-----	-----	-----	-----	-----
8	2.77	1,140	9.60	6,510	2.82	1,180	-----	-----	-----	-----	-----	-----
9	2.72	1,120	9.02	5,520	2.76	1,140	-----	-----	-----	-----	-----	-----
10	2.85	1,200	8.30	4,700	2.72	1,120	-----	-----	-----	-----	-----	-----
11	3.24	1,440	7.40	3,930	2.68	1,120	-----	-----	-----	-----	-----	-----
12	3.58	1,660	6.52	3,340	2.64	1,080	2.02	707	1.75	558	1.59	470
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.03	221	8.20	4,600	3.25	1,440	-----	-----	-----	-----	-----	-----
2	1.03	221	8.78	5,250	3.19	1,420	-----	-----	-----	-----	-----	-----
3	1.03	221	9.20	5,810	3.12	1,360	-----	-----	-----	-----	-----	-----
4	1.04	225	9.70	6,700	3.06	1,320	2.35	905	-----	-----	-----	-----
5	1.05	228	10.37	8,280	3.00	1,300	-----	-----	-----	-----	-----	-----
6	1.09	242	10.79	9,380	2.96	1,260	-----	-----	-----	-----	-----	-----
7	1.20	282	10.75	9,380	2.92	1,240	-----	-----	-----	-----	-----	-----
8	1.22	290	10.30	8,030	2.92	1,240	2.28	875	-----	-----	-----	-----
9	1.25	302	9.75	6,900	2.98	1,300	-----	-----	-----	-----	-----	-----
10	1.34	341	9.00	5,520	2.91	1,240	-----	-----	-----	-----	-----	-----
11	1.50	420	7.88	4,320	2.84	1,200	-----	-----	-----	-----	-----	-----
N	1.64	497	6.73	3,460	2.77	1,140	2.23	845	1.96	673	1.81	590
1	1.64	497	5.88	2,980	2.74	1,140	-----	-----	-----	-----	-----	-----
2	1.84	607	5.35	2,680	2.74	1,140	-----	-----	-----	-----	-----	-----
3	2.27	845	4.92	2,400	2.72	1,120	-----	-----	-----	-----	-----	-----
4	2.67	1,080	4.60	2,230	2.67	1,080	2.15	785	-----	-----	-----	-----
5	3.22	1,420	4.34	2,060	2.65	1,080	-----	-----	-----	-----	-----	-----
6	3.80	1,780	4.10	1,960	2.60	1,060	-----	-----	-----	-----	-----	-----
7	4.17	2,010	3.90	1,840	2.56	1,020	-----	-----	-----	-----	-----	-----
8	5.40	2,680	3.76	1,780	2.52	995	2.08	743	-----	-----	-----	-----
9	6.55	3,400	3.63	1,660	2.49	995	-----	-----	-----	-----	-----	-----
10	7.12	3,720	3.51	1,600	2.47	965	-----	-----	-----	-----	-----	-----
11	7.45	3,930	3.42	1,540	2.44	965	-----	-----	-----	-----	-----	-----
12	7.74	4,150	3.33	1,500	2.42	935	2.05	725	1.85	612	1.72	541

SUPPLEMENTAL RECORD.—Aug. 30, 6:30 a.m., gage height, 10.83 feet, discharge, 9,380 second-feet.

FRENCH BROAD RIVER AT BLANTYRE, N. C.

LOCATION.—Lat. 35°17'50", long. 82°37'25", at highway bridge 700 feet east of railroad station at Blantyre, Transylvania County, and 3 miles downstream from Little River. Datum of gage is 2,060.32 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—296 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 11,600 second-feet and extended to the 1928 crest gage height on basis of flood runoff comparisons. Gage heights used to half-tenths between 3.3 and 4.8 feet; hundredths below and tenths above these limits.

330 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Discharge, 20,800 second-feet (revised) 9 a.m. Aug. 14 (gage height, 21.89 feet).

1920-39: Discharge, 26,500 second-feet Aug. 16, 1928 (gage height, 22.9 feet).

Stage known, 27.1 feet in July 1916, from floodmarks (discharge not determined). Surveys by the Tennessee Valley Authority show that the flood of June 1876 was 5 feet below that of 1916 at Penrose, 3 miles upstream.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	375	5,050	9	364	984	17	1,540	703	25	813	677
2	310	2,260	10	310	926	18	1,250	651	26	730	626
3	310	1,620	11	321	897	19	1,100	651	27	677	576
4	290	1,400	12	832	841	20	955	651	28	651	564
5	300	1,280	13	6,370	785	21	869	626	29	1,200	479
6	310	1,280	14	18,300	757	22	841	564	30	6,400	515
7	364	1,130	15	8,550	730	23	785	601	31	9,870	-----
8	321	1,040	16	3,090	730	24	813	588			
Monthly mean discharge, in second-feet-----										2,233	1,006
Runoff, in inches-----										8.70	3.79

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	13.80	386	10.67	2,560	21.22	17,600	-----	-----	-----	-----	-----	-----
4	13.83	398	11.55	2,840	21.48	18,900	-----	-----	-----	-----	-----	-----
6	13.89	409	13.76	3,700	21.73	19,900	19.21	10,600	14.37	8,940	-----	-----
8	3.97	420	13.95	3,780	21.88	20,800	-----	-----	-----	-----	-----	-----
10	4.13	467	14.80	4,120	21.88	20,800	-----	-----	-----	-----	-----	-----
N	4.67	588	15.73	4,520	21.80	20,300	18.35	8,330	11.87	2,940	7.91	1,540
2	5.28	757	16.62	5,020	21.65	19,400	-----	-----	-----	-----	-----	-----
4	6.04	955	17.42	5,920	21.41	18,500	-----	-----	-----	-----	-----	-----
6	6.82	1,190	18.43	8,330	21.13	17,200	17.50	6,070	9.83	2,200	-----	-----
8	7.45	1,370	19.56	11,800	20.82	16,000	-----	-----	-----	-----	-----	-----
10	8.47	1,750	20.40	14,500	20.50	14,900	-----	-----	-----	-----	-----	-----
12	9.82	2,200	20.90	16,400	20.18	13,800	16.34	4,840	8.66	1,820	7.30	1,340
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	4.80	626	14.30	3,900	19.00	10,000	17.88	6,940	-----	-----	-----	-----
4	4.78	626	15.00	4,200	19.15	10,600	17.62	6,240	-----	-----	-----	-----
6	4.79	626	15.55	4,470	19.27	10,900	17.38	5,920	10.74	2,520	-----	-----
8	4.79	626	16.05	4,670	19.32	10,900	17.10	5,540	-----	-----	-----	-----
10	4.86	651	16.62	5,020	19.29	10,900	16.78	5,210	-----	-----	-----	-----
N	5.16	730	17.22	5,660	19.20	10,600	16.38	4,890	9.65	2,140	8.16	1,640
2	6.05	955	17.83	6,680	19.07	10,300	15.94	4,620	-----	-----	-----	-----
4	6.98	1,250	18.27	8,040	18.91	9,760	15.40	4,380	-----	-----	-----	-----
6	7.78	1,500	18.58	8,900	18.72	9,180	14.80	4,120	9.00	1,920	-----	-----
8	9.14	1,960	18.70	9,180	18.52	8,620	14.14	3,820	-----	-----	-----	-----
10	11.28	2,730	18.78	9,470	18.32	8,040	13.42	3,540	-----	-----	-----	-----
12	13.30	3,500	18.86	9,760	18.10	7,480	12.68	3,260	8.56	1,780	7.68	1,470

¹ Partly estimated.

SUPPLEMENTAL RECORD.—Aug. 14, 9 a.m., gage height 21.89 feet, discharge, 20,800 second-feet.

LOCATION.—Lat. 35°30'10", long. 82°35'30", about 50 feet downstream from Bent Creek, 6 miles upstream from Hominy Creek, and 7 miles south of Asheville, Buncombe County. Datum of gage is 1,995.95 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,500 second-feet and extended logarithmically to crest gage height. Gage heights used to half-tenths between 3.5 and 5.5 feet; hundredths below and tenths above these limits.

Stage known, about 27.3 feet July 15, 1916, from floodmarks (discharge not determined). The flood of August 1928 reached a stage of about 16.1 feet (discharge not determined).

Mean discharge, in second-feet, 1940

[illegible]

332 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	4.22	2,650	11.45	19,800	---	---	---	---	---	---
2	2.67	733	4.38	2,960	11.95	21,700	---	---	---	---	---	---
3	---	---	4.55	3,200	12.25	22,300	---	---	---	---	---	---
4	2.68	742	4.80	3,630	12.50	23,300	11.30	19,500	8.13	10,500	5.62	5,100
5	---	---	5.00	3,980	12.58	23,600	---	---	---	---	---	---
6	2.68	742	5.14	4,250	12.60	23,600	---	---	---	---	---	---
7	---	---	5.30	4,530	12.57	23,600	---	---	---	---	---	---
8	2.69	751	5.48	4,910	12.46	23,300	10.98	18,600	7.75	9,820	5.00	3,980
9	---	---	5.65	5,100	12.37	23,000	---	---	---	---	---	---
10	2.71	769	5.83	5,500	12.25	22,300	---	---	---	---	---	---
11	---	---	6.20	6,300	12.10	22,000	---	---	---	---	---	---
N	2.81	860	6.56	7,140	11.94	21,400	10.55	17,400	7.38	8,890	4.63	3,380
1	---	---	6.91	7,780	11.80	21,000	---	---	---	---	---	---
2	2.90	950	7.20	8,440	11.67	20,700	---	---	---	---	---	---
3	---	---	7.50	9,120	11.55	20,400	---	---	---	---	---	---
4	3.00	1,060	7.90	10,100	11.48	20,100	9.94	15,400	7.05	8,000	4.43	3,040
5	---	---	8.23	10,800	11.43	19,800	---	---	---	---	---	---
6	3.12	1,190	8.40	11,300	11.42	19,800	---	---	---	---	---	---
7	---	---	8.47	11,500	11.43	19,800	---	---	---	---	---	---
8	3.30	1,410	8.56	11,800	11.43	19,800	9.35	13,900	6.70	7,350	4.28	2,800
9	---	---	9.20	13,400	11.44	19,800	---	---	---	---	---	---
10	3.63	1,860	9.70	14,800	11.45	19,800	---	---	---	---	---	---
11	---	---	10.30	16,500	11.46	20,100	---	---	---	---	---	---
12	4.00	2,350	10.87	18,300	11.47	20,100	8.65	11,800	6.25	6,300	4.16	2,580
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.96	1,020	7.53	9,120	10.23	16,200	---	---	---	---	---	---
2	2.96	1,020	7.59	9,350	10.00	15,600	---	---	---	---	---	---
3	2.95	1,000	7.95	10,300	9.85	15,100	---	---	---	---	---	---
4	2.95	1,000	8.60	11,800	9.67	14,800	8.34	11,000	7.10	8,220	4.81	3,630
5	2.95	1,000	9.35	13,900	9.52	14,200	---	---	---	---	---	---
6	2.95	1,000	9.95	15,600	9.35	13,900	---	---	---	---	---	---
7	2.94	994	9.83	15,100	9.23	13,400	---	---	---	---	---	---
8	2.94	994	9.50	14,200	9.11	13,100	8.25	10,800	6.82	7,560	4.66	3,380
9	2.96	1,020	9.27	13,700	9.00	12,800	---	---	---	---	---	---
10	2.97	1,030	9.29	13,700	8.85	12,300	---	---	---	---	---	---
11	2.97	1,030	9.45	13,900	8.75	12,300	---	---	---	---	---	---
N	2.97	1,030	9.70	14,800	8.66	12,100	8.08	10,500	6.50	6,930	4.56	3,200
1	3.02	1,080	10.00	15,600	8.59	11,800	---	---	---	---	---	---
2	3.17	1,250	10.38	16,800	8.53	11,500	---	---	---	---	---	---
3	3.50	1,670	10.67	17,700	8.48	11,500	---	---	---	---	---	---
4	4.40	2,960	10.90	18,300	8.44	11,300	7.85	9,820	6.04	5,900	4.48	3,120
5	5.58	5,100	11.04	18,600	8.41	11,300	---	---	---	---	---	---
6	6.16	6,300	11.08	18,900	8.39	11,300	---	---	---	---	---	---
7	6.45	6,720	11.06	18,900	8.38	11,300	---	---	---	---	---	---
8	6.63	7,140	10.97	18,600	8.38	11,300	7.57	9,350	5.51	4,910	4.41	2,960
9	6.82	7,560	10.87	18,300	8.36	11,300	---	---	---	---	---	---
10	7.10	8,220	10.72	17,700	8.37	11,300	---	---	---	---	---	---
11	7.27	8,660	10.58	17,400	8.36	11,300	---	---	---	---	---	---
12	7.45	8,890	10.42	16,800	8.36	11,300	7.35	8,890	5.07	4,070	4.34	2,880

¹ Partly estimated.

LOCATION.—Lat. 35°36'25"; long. 82°34'30", at Bingham School Bridge at Asheville, Buncombe County, 2¼ miles downstream from Southern Railway station and 3 miles downstream from Swannanoa River. Datum of gage is 1,950.28 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 43,000 second-feet and extended logarithmically to the 1916 crest gage height. Gage heights used to half-tenths between 1.8 and 3.7 feet; hundredths below and tenths above these limits.

1895-1901, 1903-39: Discharge, 110,000 second-feet July 16, 1916 (gage height, 23.1 feet, from floodmarks).

Surveys by the Tennessee Valley Authority show that the flood of June 1876 reached a stage of 18 feet, from floodmarks.

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

334 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	0.95	885	2.77	3,560	11.65	31,800	-----	-----	-----	-----	-----	-----
2	1.04	988	3.14	4,360	11.64	31,800	-----	-----	-----	-----	-----	-----
3	1.08	1,040	3.52	5,110	11.59	31,800	-----	-----	-----	-----	-----	-----
4	1.09	1,050	3.92	5,990	11.47	31,300	8.91	20,500	6.50	12,800	4.43	7,140
5	1.14	1,110	4.30	6,910	11.33	30,400	-----	-----	-----	-----	-----	-----
6	1.22	1,210	4.57	7,620	11.10	29,500	-----	-----	-----	-----	-----	-----
7	1.27	1,270	4.60	7,620	10.88	28,600	-----	-----	-----	-----	-----	-----
8	1.30	1,310	4.70	7,860	10.69	27,700	8.75	20,200	6.07	11,600	3.88	5,990
9	1.35	1,380	4.90	8,350	10.54	26,900	-----	-----	-----	-----	-----	-----
10	1.46	1,520	5.40	9,640	10.43	26,400	-----	-----	-----	-----	-----	-----
11	1.79	1,980	5.92	11,000	10.25	25,600	-----	-----	-----	-----	-----	-----
N	1.81	2,000	6.45	12,500	10.08	25,200	8.45	18,800	5.71	10,500	3.39	4,890
1	1.77	1,960	7.02	14,300	9.95	24,800	-----	-----	-----	-----	-----	-----
2	1.73	1,900	7.50	15,800	9.81	24,000	-----	-----	-----	-----	-----	-----
3	1.73	1,900	8.03	17,400	9.67	23,600	-----	-----	-----	-----	-----	-----
4	1.75	1,920	8.36	18,800	9.55	23,200	8.07	17,800	5.41	9,640	3.07	4,150
5	1.77	1,960	8.70	19,800	9.42	22,400	-----	-----	-----	-----	-----	-----
6	1.88	2,150	9.10	21,300	9.30	22,000	-----	-----	-----	-----	-----	-----
7	1.90	2,150	9.45	22,400	9.20	21,700	-----	-----	-----	-----	-----	-----
8	1.89	2,150	10.05	24,800	9.13	21,300	7.61	16,200	5.09	8,850	2.87	3,760
9	1.97	2,220	10.90	28,600	9.07	21,300	-----	-----	-----	-----	-----	-----
10	2.10	2,450	11.35	30,900	9.02	20,900	-----	-----	-----	-----	-----	-----
11	2.26	2,690	11.54	31,300	8.99	20,900	-----	-----	-----	-----	-----	-----
12	2.50	3,110	11.62	31,800	8.96	20,900	7.04	14,300	4.79	8,100	2.72	3,470
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.31	1,320	7.40	15,500	9.13	21,300	-----	-----	-----	-----	-----	-----
2	1.29	1,300	7.69	16,500	8.92	20,500	-----	-----	-----	-----	-----	-----
3	1.28	1,280	8.25	18,100	8.76	20,200	-----	-----	-----	-----	-----	-----
4	1.25	1,240	9.00	20,900	8.61	19,500	6.42	12,500	5.46	9,910	3.36	4,780
5	1.24	1,230	10.35	26,400	8.44	18,800	-----	-----	-----	-----	-----	-----
6	1.24	1,230	10.35	26,400	8.25	18,100	-----	-----	-----	-----	-----	-----
7	1.24	1,230	10.62	27,300	8.02	17,400	-----	-----	-----	-----	-----	-----
8	1.24	1,230	11.15	29,900	7.84	16,800	6.35	12,500	5.22	9,110	3.16	4,360
9	1.25	1,240	11.58	31,800	7.66	16,500	-----	-----	-----	-----	-----	-----
10	1.26	1,260	11.90	33,300	7.55	16,200	-----	-----	-----	-----	-----	-----
11	1.27	1,270	12.08	34,300	7.41	15,500	-----	-----	-----	-----	-----	-----
N	1.28	1,280	12.15	34,800	7.29	15,200	6.24	11,900	4.98	8,600	3.03	4,150
1	1.32	1,340	12.12	34,300	7.12	14,600	-----	-----	-----	-----	-----	-----
2	1.38	1,410	12.03	33,800	7.02	14,300	-----	-----	-----	-----	-----	-----
3	1.55	1,640	11.94	33,300	6.90	14,000	-----	-----	-----	-----	-----	-----
4	2.50	3,110	11.80	32,800	6.84	13,700	6.08	11,600	4.60	7,620	2.93	3,950
5	3.55	5,220	11.60	31,800	6.77	13,700	-----	-----	-----	-----	-----	-----
6	4.25	6,680	11.25	29,900	6.74	13,400	-----	-----	-----	-----	-----	-----
7	5.10	8,850	10.80	28,100	6.69	13,400	-----	-----	-----	-----	-----	-----
8	5.76	10,700	10.36	26,400	6.65	13,100	5.85	10,700	4.18	6,680	2.85	3,760
9	6.32	12,200	10.00	24,800	6.60	13,100	-----	-----	-----	-----	-----	-----
10	6.57	13,100	9.76	24,000	6.56	13,100	-----	-----	-----	-----	-----	-----
11	6.80	13,700	9.52	22,800	6.55	13,100	-----	-----	-----	-----	-----	-----
12	7.07	14,600	9.32	22,000	6.52	12,800	5.62	10,200	3.72	5,550	2.77	3,560

LOCATION.—Lat. 35°53'45", long. 82°49'10", at Hot Springs, Madison County, a quarter of a mile upstream from bridge on U. S. Highways 25 and 70 and half a mile upstream from Spring Creek. Datum of gage is 1,311.55 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except 11 p.m. Aug. 31 to 9 a.m. Sept. 6, record for which is from graph based on records for station near Newport, Tenn.

MAXIMA.—1940: Discharge, 75,900 second-feet 7:30 a.m. Aug. 30 (gage height, 16.1 feet).

1934-39: Discharge, 38,600 second-feet Jan. 19, 1936 (gage height, 8.75 feet).

Stage known, about 19.3 feet in July 1916, derived from floodmarks a quarter of a mile downstream (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,110	13,800	9	1,110	2,550	17	7,730	1,790	25	1,940	1,480
2	980	10,400	10	920	2,580	18	4,190	1,690	26	1,860	1,550
3	1,000	6,280	11	920	2,490	19	3,590	1,640	27	1,720	1,500
4	860	4,070	12	1,270	2,210	20	2,950	1,620	28	1,660	1,400
5	840	3,590	13	12,900	2,100	21	2,490	1,590	29	6,780	1,300
6	940	3,260	14	30,700	1,990	22	2,290	1,520	30	49,900	1,200
7	1,820	3,080	15	21,300	1,920	23	2,120	1,460	31	22,200	-----
8	1,170	2,760	16	13,600	1,790	24	1,990	1,430			
Monthly mean discharge, in second-feet -----										6,608	2,868
Runnoff, in inches -----										4.86	2.04

336 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	-----	-----	3.33	2,830	8.87	36,500	-----	-----	-----	-----	-----	-----
4	-----	-----	3.42	3,120	9.06	37,100	6.94	22,900	-----	-----	-----	-----
6	2.56	900	3.51	3,440	9.07	37,100	-----	-----	5.64	15,600	4.68	9,450
8	-----	-----	3.69	4,150	9.03	34,700	6.83	22,200	-----	-----	-----	-----
10	-----	-----	4.19	6,540	8.87	32,200	-----	-----	-----	-----	-----	-----
N	2.56	900	4.62	8,850	8.65	30,300	6.70	21,500	5.30	13,200	4.42	7,690
1	2.57	920	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	2.61	1,010	4.82	10,000	8.36	28,400	-----	-----	-----	-----	-----	-----
3	2.68	1,150	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	2.79	1,390	5.60	15,200	8.15	27,700	6.50	20,800	-----	-----	-----	-----
5	2.80	1,410	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	2.89	1,620	6.65	22,200	7.92	26,400	-----	-----	5.07	11,600	4.10	6,070
7	2.95	1,760	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	2.95	1,760	7.55	29,000	7.62	25,000	6.29	19,400	-----	-----	-----	-----
9	2.98	1,840	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	3.16	2,320	7.90	31,000	7.37	24,300	-----	-----	-----	-----	-----	-----
11	3.27	2,640	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	3.30	2,730	8.34	33,500	7.17	23,600	6.05	18,000	4.86	10,400	3.88	5,000
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.82	1,460	8.76	36,500	-----	-----	-----	-----	-----	-----	-----	-----
2	2.84	1,500	9.00	37,700	-----	-----	-----	-----	-----	-----	-----	-----
3	2.86	1,550	9.50	40,700	-----	-----	-----	-----	-----	-----	-----	-----
4	2.87	1,570	11.75	53,400	7.77	29,000	-----	-----	-----	-----	-----	-----
5	2.87	1,570	12.82	58,900	-----	-----	-----	-----	-----	-----	-----	-----
6	2.87	1,570	13.60	63,300	-----	-----	5.60	14,600	5.00	11,300	4.32	7,130
7	2.87	1,570	15.60	73,400	-----	-----	-----	-----	-----	-----	-----	-----
8	2.87	1,570	15.90	74,900	7.11	23,600	-----	-----	-----	-----	-----	-----
9	2.87	1,570	14.75	69,400	-----	-----	-----	-----	-----	-----	-----	-----
10	2.89	1,620	13.67	63,800	-----	-----	-----	-----	-----	-----	-----	-----
11	2.89	1,620	12.61	57,800	-----	-----	-----	-----	-----	-----	-----	-----
N	2.90	1,640	12.00	54,500	6.69	20,100	5.41	13,600	4.86	10,400	4.12	6,170
1	2.90	1,640	11.48	51,800	-----	-----	-----	-----	-----	-----	-----	-----
2	2.95	1,760	11.12	49,000	-----	-----	-----	-----	-----	-----	-----	-----
3	2.99	1,860	10.86	47,400	-----	-----	-----	-----	-----	-----	-----	-----
4	3.11	2,180	10.65	45,200	6.30	18,000	-----	-----	-----	-----	-----	-----
5	3.43	3,160	10.44	44,000	-----	-----	-----	-----	-----	-----	-----	-----
6	3.82	4,720	10.23	43,000	-----	-----	5.26	12,900	4.71	9,450	3.93	5,230
7	5.42	13,900	10.02	41,800	-----	-----	-----	-----	-----	-----	-----	-----
8	6.27	20,100	9.95	41,300	6.04	17,000	-----	-----	-----	-----	-----	-----
9	6.59	22,200	9.65	40,100	-----	-----	-----	-----	-----	-----	-----	-----
10	7.08	25,700	9.55	38,900	-----	-----	-----	-----	-----	-----	-----	-----
11	7.68	29,600	9.04	37,100	-----	-----	-----	-----	-----	-----	-----	-----
12	8.15	32,900	8.66	35,300	5.86	15,600	5.13	12,300	4.56	8,560	3.80	4,630

SUPPLEMENTAL RECORDS.—Aug. 14, 5:30 a.m., gage height, 9.07 feet, discharge, 37,100 second-feet.
Aug. 30, 7:30 a.m., gage height, 16.1 feet, discharge, 75,900 second-feet.

LOCATION.—Lat. 35°58'54", long. 83°09'40", at bridge on State Highway 35 at Oldtown, 1¾ miles northeast of Newport, Cocke County, and 4 miles upstream from Pigeon River. Datum of gage is 1,011.61 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 75,800 second-feet. Gage heights used to half-tenths between 2.8 and 4.6 feet; hundredths below and tenths above these limits.

1900-1905, 1907, 1920-39: Discharge observed, 62,200 second-feet (subject to large error) Apr. 8, 1903 (gage height, 12.0 feet, former datum); gage height, 13.45 feet Aug. 16, 1928.

Floods of Feb. 28, 1902 and July 17, 1916 reached stages of about 23 feet (discharge 101,000 second-feet) and 22.5 feet (discharge 97,000 second-feet) respectively, present datum, from floodmarks.

REMARKS.—Flood runoff probably affected slightly by storage in small lakes and ponds.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,450	16,500	9	1,370	2,990	17	8,690	2,010	25	1,900	1,590
2	1,180	12,000	10	1,100	2,850	18	4,580	1,950	26	1,850	1,660
3	1,090	7,720	11	1,030	2,950	19	3,790	1,860	27	1,670	1,660
4	994	5,150	12	1,010	2,650	20	3,160	1,810	28	1,620	1,500
5	890	4,170	13	8,060	2,420	21	2,650	1,790	29	2,560	1,420
6	1,010	3,680	14	33,500	2,320	22	2,450	1,740	30	54,400	1,360
7	3,480	3,550	15	24,600	2,210	23	2,180	1,670	31	29,000	-
8	1,640	3,250	16	16,000	2,130	24	2,010	1,590			
Monthly mean discharge, in second-feet.....										7,126	3,338
Runoff, in inches-----										4.42	2.00

338 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.93	1,200	11.06	30,900	10.20	26,900	8.75	21,200	6.05	11,300	-----	-----
2	2.08	1,440	11.32	31,800	10.10	26,500	8.63	20,500	5.97	11,300	-----	-----
3	2.23	1,690	11.57	33,200	10.03	26,100	8.52	20,100	5.89	10,900	-----	-----
4	2.32	1,860	11.87	34,600	9.93	25,700	8.37	19,700	5.82	10,600	-----	-----
5	2.43	2,060	12.20	36,100	9.90	25,700	8.26	19,400	5.73	10,300	-----	-----
6	2.69	2,580	12.47	37,500	9.85	25,300	8.14	18,600	5.66	10,300	-----	-----
7	2.86	2,920	12.57	38,000	9.82	25,300	7.90	17,900	5.59	9,920	-----	-----
8	2.92	3,030	12.57	38,000	9.79	25,300	7.75	17,500	5.53	9,590	-----	-----
9	2.97	3,140	12.50	37,500	9.76	25,300	7.64	16,800	5.48	9,590	-----	-----
10	3.01	3,250	12.46	37,500	9.76	25,300	7.52	16,400	5.41	9,260	-----	-----
11	3.09	3,480	12.37	37,000	9.76	25,300	7.38	16,100	5.33	8,940	-----	-----
N	3.20	3,710	12.25	36,100	9.70	24,800	7.27	15,800	5.25	8,630	3.68	4,490
1	3.33	4,060	12.07	35,600	9.67	24,800	7.14	15,000	5.18	8,630	-----	-----
2	3.62	4,640	11.88	34,600	9.65	24,400	7.03	14,700	5.09	8,320	-----	-----
3	4.36	6,540	11.71	33,700	9.57	24,400	6.90	14,400	5.00	8,010	-----	-----
4	4.98	8,400	11.50	32,700	9.53	24,000	6.80	14,000	4.90	7,710	-----	-----
5	5.42	9,630	11.34	31,800	9.47	24,000	6.70	13,700	4.81	7,410	-----	-----
6	5.86	11,300	11.16	31,300	9.42	23,600	6.60	13,300	4.70	7,110	-----	-----
7	6.55	13,600	11.05	30,400	9.34	23,200	6.51	13,000	4.60	6,820	-----	-----
8	7.55	17,200	11.02	30,000	9.30	23,200	6.42	12,600	4.50	6,540	-----	-----
9	8.65	20,800	10.85	29,500	9.20	22,800	6.35	12,600	4.42	6,270	-----	-----
10	9.57	24,500	10.61	28,600	9.10	22,400	6.27	12,300	4.41	6,270	-----	-----
11	10.27	27,400	10.47	28,200	8.97	22,000	6.20	12,000	4.36	6,140	-----	-----
12	10.70	29,100	10.39	27,800	8.87	21,600	6.12	11,600	4.25	5,870	3.49	4,020
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
1	2.28	1,610	10.55	28,600	13.70	43,700	8.30	19,400	6.77	14,000	-----	-----
2	2.27	1,590	11.70	33,700	13.30	41,600	8.22	19,000	6.72	13,700	-----	-----
3	2.26	1,570	12.70	38,500	12.89	39,500	8.19	19,000	6.67	13,700	-----	-----
4	2.23	1,520	13.55	43,100	12.58	38,000	8.13	18,600	6.61	13,300	-----	-----
5	2.19	1,450	14.23	46,400	12.28	36,500	8.04	18,200	6.57	13,300	-----	-----
6	2.19	1,450	14.85	49,700	11.92	34,600	7.92	17,900	6.51	13,000	5.23	8,630
7	2.12	1,340	15.60	54,300	11.60	33,200	7.87	17,900	6.47	13,000	-----	-----
8	2.11	1,330	16.50	59,600	11.27	31,800	7.70	17,200	6.42	12,600	-----	-----
9	2.12	1,340	17.40	65,100	10.97	30,400	7.59	16,800	6.36	12,600	-----	-----
10	2.14	1,370	18.30	70,700	10.73	29,100	7.50	16,400	6.30	12,300	-----	-----
11	2.18	1,440	19.01	75,000	10.48	28,200	7.42	16,100	6.25	12,000	-----	-----
N	2.23	1,520	19.25	76,300	10.30	27,400	7.37	16,100	6.21	12,000	4.85	7,560
1	2.26	1,570	18.95	75,000	10.06	26,500	7.33	15,800	6.17	12,000	-----	-----
2	2.27	1,590	18.30	70,700	9.82	25,300	7.27	15,800	6.12	11,600	-----	-----
3	2.28	1,610	17.50	65,700	9.62	24,400	7.25	15,400	6.07	11,600	-----	-----
4	2.29	1,620	16.75	61,400	9.46	24,000	7.22	15,400	6.02	11,300	-----	-----
5	2.32	1,670	16.20	57,800	9.28	23,200	7.18	15,400	5.97	11,300	-----	-----
6	2.38	1,780	15.68	54,900	9.13	22,400	7.13	15,000	5.92	10,900	4.54	6,680
7	2.41	1,830	15.25	52,000	9.00	22,000	7.08	15,000	5.86	10,900	-----	-----
8	2.45	1,900	14.95	50,800	8.86	21,600	7.03	14,700	5.81	10,600	-----	-----
9	2.48	1,950	14.62	48,600	8.72	20,900	6.98	14,700	5.75	10,600	-----	-----
10	2.62	2,210	14.37	47,500	8.60	20,500	6.94	14,400	5.70	10,300	-----	-----
11	6.80	14,000	14.15	46,400	8.52	20,100	6.89	14,400	5.64	9,920	-----	-----
12	9.20	22,800	13.93	44,800	8.41	19,700	6.84	14,000	5.59	9,920	4.30	6,000

SUPPLEMENTAL RECORD.—Aug. 14, 7:30 a.m., gage height, 12.59 feet; discharge, 38,000 second-feet.

LOCATION.—Lat. $36^{\circ}00'53''$, long. $83^{\circ}24'43''$, at highway bridge at Dandridge, Jefferson County. Datum of gage is 903.33 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 87,200 second-feet. Gage heights used to half-tenths between 0.7 foot and 2.4 feet; hundredths below and tenths above these limits.

Flood of May 21, 1901, reached a stage of 28.0 feet (discharge not determined).

Stages of 32 feet in May 1875 or 1876 and 40 feet in March 1867 are said to have occurred.

REMARKS.—Flood runoff probably affected slightly by storage in small reservoirs upstream.

[illegible]

340 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	0.17	1,630	11.67	42,000	17.95	77,000	11.60	41,500	-----	-----	-----	-----
2	.23	1,730	12.50	45,800	18.15	78,300	11.42	40,600	-----	-----	-----	-----
3	.38	2,010	13.14	48,800	18.30	78,900	11.22	39,700	7.58	24,400	-----	-----
4	.52	2,290	13.76	52,400	18.46	80,200	11.03	38,800	-----	-----	-----	-----
5	.63	2,510	14.28	55,100	18.60	80,800	10.87	38,300	-----	-----	-----	-----
6	.68	2,620	14.67	57,300	18.70	81,400	10.68	37,500	7.31	23,200	-----	-----
7	.78	2,870	15.04	59,000	18.73	81,400	10.49	36,600	-----	-----	-----	-----
8	.99	3,310	15.35	61,300	18.70	81,400	10.25	35,300	-----	-----	-----	-----
9	1.23	3,880	15.60	62,400	18.60	80,800	10.07	34,800	6.92	21,600	-----	-----
10	1.45	4,350	15.82	63,600	18.42	79,500	9.86	34,000	-----	-----	-----	-----
11	1.64	4,840	16.00	64,800	18.15	78,300	9.69	33,100	-----	-----	-----	-----
N	1.90	5,470	16.14	65,400	17.82	75,800	9.57	32,700	6.58	20,500	4.69	13,700
1	2.57	7,360	16.23	66,000	17.38	73,300	9.41	31,800	-----	-----	-----	-----
2	3.50	9,930	16.30	66,600	16.80	69,700	9.26	31,400	-----	-----	-----	-----
3	4.38	12,700	16.40	67,200	16.22	66,000	9.15	31,000	6.40	19,800	-----	-----
4	4.94	14,400	16.49	67,800	15.68	63,000	9.02	30,200	-----	-----	-----	-----
5	5.31	15,800	16.60	68,400	15.06	59,500	8.88	29,700	-----	-----	-----	-----
6	5.69	17,200	16.71	69,000	14.47	56,200	8.74	28,900	6.26	19,400	-----	-----
7	6.30	19,400	16.86	70,300	13.90	52,900	8.61	28,500	-----	-----	-----	-----
8	7.22	22,800	17.02	70,900	13.34	49,800	8.46	28,000	-----	-----	-----	-----
9	8.14	26,400	17.17	72,100	12.90	47,800	8.33	27,200	6.10	18,600	-----	-----
10	9.01	30,200	17.35	73,300	12.49	45,800	8.22	26,800	-----	-----	-----	-----
11	9.84	33,600	17.52	74,000	12.11	43,900	8.11	26,400	-----	-----	-----	-----
12	10.73	37,500	17.72	75,200	11.83	42,500	7.98	26,000	5.73	17,200	4.18	12,100
	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.00	5,730	20.93	95,600	12.55	46,300	7.99	26,000	-----	-----	-----	-----
2	2.03	5,860	20.90	95,600	12.05	43,400	7.92	25,600	-----	-----	-----	-----
3	2.15	6,140	20.71	94,200	11.59	41,500	7.83	25,200	6.04	18,300	-----	-----
4	3.06	8,770	20.55	93,600	11.18	39,700	7.76	25,200	-----	-----	-----	-----
5	6.05	18,300	20.33	91,600	10.82	37,900	7.70	24,800	-----	-----	-----	-----
6	8.21	26,800	20.05	89,700	10.45	36,100	7.65	24,400	5.70	17,200	4.07	11,800
7	9.62	32,700	19.75	88,400	10.15	35,300	7.58	24,400	-----	-----	-----	-----
8	10.90	38,300	19.55	87,100	9.92	34,000	7.46	24,000	-----	-----	-----	-----
9	12.23	44,400	19.25	84,600	9.70	33,100	7.33	23,200	5.33	15,800	-----	-----
10	13.25	49,300	19.10	83,900	9.53	32,500	7.16	22,800	-----	-----	-----	-----
11	14.14	54,000	18.83	82,000	9.36	31,800	7.05	22,000	-----	-----	-----	-----
N	14.95	59,000	18.60	80,800	9.16	31,000	6.96	22,000	4.94	14,400	3.77	10,800
1	15.75	63,600	18.25	78,300	8.98	30,200	6.90	21,600	-----	-----	-----	-----
2	16.48	67,800	18.05	77,000	8.79	29,300	6.85	21,300	-----	-----	-----	-----
3	17.34	72,700	17.73	75,200	8.64	28,500	6.85	21,300	4.69	13,700	-----	-----
4	17.95	77,000	17.41	73,300	8.55	28,500	6.87	21,600	-----	-----	-----	-----
5	18.55	80,800	16.93	70,300	8.50	28,000	6.86	21,600	-----	-----	-----	-----
6	19.05	83,300	16.50	67,800	8.48	28,000	6.77	21,300	4.77	14,000	3.81	10,800
7	19.52	86,500	16.06	65,400	8.47	28,000	6.68	20,900	-----	-----	-----	-----
8	20.02	89,700	15.55	62,400	8.46	28,000	6.57	20,500	-----	-----	-----	-----
9	20.35	92,300	14.95	59,000	8.38	27,600	6.45	19,800	4.59	13,400	-----	-----
10	20.60	93,600	14.35	55,600	8.25	26,800	6.34	19,400	-----	-----	-----	-----
11	20.80	94,900	13.72	51,900	8.13	26,400	6.26	19,400	-----	-----	-----	-----
12	20.90	95,600	13.10	48,800	8.03	26,000	6.23	19,000	4.30	12,400	3.66	10,500

LOCATION.—Lat. 35°57'47", long. 83°54'27", at old city pumping plant at Knoxville, Knox County, three-eighths of a mile upstream from First Creek, half a mile upstream from Gay Street Bridge, and 4 miles downstream from confluence of French Broad and Holston Rivers. Datum of gage is 797.68 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 6:30 p.m.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 122,000 second-feet. Gage heights used to half-tenths below 3.0 feet; tenths above this limit.

1899-1939: Discharge observed, 195,000 second-feet Mar. 1, 1902 (36.0 feet present site and datum) from rating curve extended above 130,000 second-feet.

Stage known, 45.8 feet (present site and datum, from high-water profile by Corps of Engineers, War Department, and Tennessee Valley Authority) Mar. 10, 1867 (discharge, 270,000 second-feet).

REMARKS.—Flood runoff doubtless affected by storage in several lakes and ponds and large overflow areas.

[illegible]

342 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.60	6,900	13.95	64,100	23.85	118,000	-----	-----	-----	-----
2	-----	-----	2.50	10,500	14.20	65,100	23.90	118,000	-----	-----	-----	-----
3	-----	-----	3.25	13,900	14.45	66,200	23.90	118,000	-----	-----	-----	-----
4	-----	-----	3.90	16,900	14.80	68,200	23.85	118,000	16.60	77,700	-----	-----
5	-----	-----	4.60	19,700	15.20	70,300	23.75	118,000	-----	-----	-----	-----
6	0.60	4,430	5.30	22,600	15.70	72,900	23.55	117,000	-----	-----	-----	-----
7	-----	-----	6.00	25,700	16.25	75,600	23.35	115,000	-----	-----	-----	-----
8	-----	-----	6.80	29,300	16.80	78,800	23.10	114,000	14.60	67,200	-----	-----
9	-----	-----	7.50	32,600	17.30	81,500	22.85	112,000	-----	-----	-----	-----
10	-----	-----	8.20	35,900	18.00	85,300	22.60	111,000	-----	-----	-----	-----
11	-----	-----	8.80	38,700	18.50	88,000	22.30	109,000	-----	-----	-----	-----
N	.60	4,430	9.40	41,500	19.10	91,300	22.00	108,000	12.70	57,500	7.64	33,100
1	-----	-----	9.90	43,900	19.70	94,600	21.75	106,000	-----	-----	-----	-----
2	-----	-----	10.35	46,200	20.20	97,400	21.45	104,000	-----	-----	-----	-----
3	-----	-----	10.80	48,100	20.75	101,000	21.20	103,000	-----	-----	-----	-----
4	-----	-----	11.20	50,100	21.20	103,000	20.90	101,000	11.15	50,100	-----	-----
5	-----	-----	11.70	52,500	21.65	105,000	20.65	99,700	-----	-----	-----	-----
6	.70	4,620	12.00	54,000	22.05	108,000	20.35	98,500	-----	-----	-----	-----
7	-----	-----	12.35	56,000	22.45	110,000	20.05	96,300	-----	-----	-----	-----
8	-----	-----	12.70	57,500	22.80	112,000	19.70	94,600	10.05	44,300	-----	-----
9	-----	-----	13.00	59,000	23.10	114,000	19.40	92,900	-----	-----	-----	-----
10	-----	-----	13.30	60,500	23.40	115,000	19.10	91,300	-----	-----	-----	-----
11	-----	-----	13.50	61,500	23.60	117,000	18.75	89,600	-----	-----	-----	-----
12	1.60	6,900	13.75	63,000	23.75	118,000	18.40	87,400	9.25	40,600	7.00	30,200

Hour	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.01	8,340	14.05	64,100	19.40	92,900	11.00	49,100	-----	-----	-----	-----
2	2.02	8,340	14.65	67,200	19.12	91,300	10.70	47,700	-----	-----	-----	-----
3	2.02	8,340	15.20	70,300	18.80	89,600	10.40	46,200	-----	-----	-----	-----
4	2.02	8,340	15.80	73,400	18.46	88,000	10.10	44,800	-----	-----	-----	-----
5	2.03	8,540	16.30	76,100	18.00	85,300	9.78	43,400	-----	-----	-----	-----
6	2.04	8,540	16.80	78,800	17.60	83,100	9.46	42,000	6.71	28,800	4.64	19,700
7	2.06	8,540	17.30	81,500	17.16	81,000	9.15	40,600	-----	-----	-----	-----
8	2.10	8,740	17.70	83,700	16.78	78,800	9.00	39,600	-----	-----	-----	-----
9	2.15	8,950	18.20	86,400	16.39	76,600	8.90	39,200	-----	-----	-----	-----
10	2.25	9,380	18.60	88,500	16.02	74,500	8.80	38,700	-----	-----	-----	-----
11	2.39	10,100	18.95	90,700	15.66	72,900	8.68	38,200	-----	-----	-----	-----
N	2.56	10,800	19.25	91,800	15.30	70,800	8.56	37,800	6.21	26,600	4.16	18,100
1	2.90	12,500	19.50	93,500	14.97	69,300	8.48	37,300	-----	-----	-----	-----
2	4.32	18,500	19.75	95,200	14.60	67,200	8.36	36,800	-----	-----	-----	-----
3	5.50	23,500	19.95	96,300	14.28	65,600	8.25	35,900	-----	-----	-----	-----
4	6.67	28,800	20.05	96,300	13.90	63,600	8.15	35,900	-----	-----	-----	-----
5	7.90	34,500	20.15	97,400	13.60	62,000	8.03	34,900	-----	-----	-----	-----
6	9.00	39,600	20.25	97,400	13.26	60,500	7.92	34,500	5.70	24,400	3.77	16,500
7	9.80	43,400	20.28	98,000	12.95	59,000	7.80	34,000	-----	-----	-----	-----
8	10.60	47,200	20.25	97,400	12.60	57,000	7.66	33,500	-----	-----	-----	-----
9	11.40	51,000	20.17	97,400	12.30	55,500	7.54	32,600	-----	-----	-----	-----
10	12.20	55,000	20.03	96,300	11.96	54,000	7.43	32,100	-----	-----	-----	-----
11	12.80	58,000	19.86	95,700	11.62	52,000	7.33	31,600	-----	-----	-----	-----
12	13.40	61,000	19.60	94,100	11.30	50,500	7.22	31,200	5.16	22,200	3.58	15,700

TENNESSEE RIVER AT LOUDON, TENN.

LOCATION.—Lat. 35°44'33", long. 84°19'56", at bridge on U. S. Highway 11 at Loudon, Loudon County, 9¾ miles downstream from Little Tennessee River. Datum of gage is 726.29 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—12,220 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph except for 3 a.m. to 12 m. Aug. 31, where it was determined by the shape of the graph at beginning and end of period.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 151,000 second-feet. Gage heights used to half-tenths between 2.5 and 4.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 123,000 second-feet 4 p.m. Aug. 16 (gage height, 19.86 feet).

1922-39: Discharge, 169,000 second-feet Mar. 28, 1936 (gage height, 25.75 feet).

Flood of Mar. 5, 1917, reached a stage of 32.9 feet, present site and datum (discharge, 225,000 second-feet).

The United States Weather Bureau reports stages of 49.7 feet Mar. 10 or 11, 1867, 42.7 feet Feb. 27, 1875, and 34.9 feet Mar. 31, 1886 (all referred to gage at present site and datum). Flood of Mar. 31, 1886, may have reached a higher stage; no readings were obtained after Mar. 31.

REMARKS.—Flood runoff not appreciably affected by storage or regulation.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	27,400	108,000	9	13,400	14,300	17	95,400	10,500	25	15,500	8,180
2	34,600	62,700	10	12,600	12,300	18	50,100	10,300	26	12,800	8,850
3	21,600	39,700	11	10,500	12,600	19	31,400	10,500	27	12,100	9,540
4	15,500	29,300	12	8,720	13,700	20	27,700	10,000	28	11,200	8,400
5	11,200	21,800	13	9,360	12,600	21	24,500	10,000	29	12,000	7,300
6	10,500	19,900	14	38,000	12,600	22	22,500	9,540	30	26,200	6,460
7	10,800	17,800	15	81,300	12,000	23	19,700	7,520	31	95,800	-----
8	13,700	16,100	16	117,000	11,200	24	17,100	8,180			
Monthly mean discharge, in second-feet.....										29,360	18,060
Runoff, in inches.....										2.77	1.65

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	4.28	12,600										
4	5.45	19,100	13.02	71,100	18.40	111,000						
6	6.42	25,400					18.12	109,000	11.07	57,600		
8	7.08	30,000	13.44	74,000	19.22	117,000						
10	7.52	32,600										
N	8.00	36,000	13.99	78,300	19.69	121,000	16.52	96,800	9.80	48,500	7.22	30,600
2	8.89	42,200										
4	9.80	48,500	15.04	85,700	19.86	123,000						
6	10.51	53,400					14.55	82,700	8.87	42,200		
8	11.12	57,600	16.13	93,800	19.72	121,000						
10	11.69	61,800										
12	12.17	65,300	17.30	103,000	19.24	117,000	12.51	67,500	8.22	37,400	7.10	30,000
	Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		Sept. 4	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	13.00	71,100								
4	-----	-----	14.30	80,500	18.57	113,000	14.25	79,800	-----	-----	-----	-----
6	4.67	14,600	15.28	87,900					8.94	42,200	-----	-----
8	-----	-----	16.00	93,100	18.65	113,000	12.50	67,500			-----	-----
10	-----	-----	16.57	97,500							-----	-----
N	5.20	17,900	17.07	101,000	18.48	112,000	11.17	58,300	8.45	38,700	6.96	29,300
2	6.02	22,900									-----	-----
4	6.94	28,700	17.60	105,000	17.97	108,000	10.32	52,000			-----	-----
6	8.40	38,700							8.11	36,700	-----	-----
8	9.20	44,300	18.01	108,000	17.15	102,000	9.79	48,500			-----	-----
10	10.28	52,000									-----	-----
12	11.56	61,100	18.37	111,000	15.94	92,400	9.68	47,800	7.77	34,600	6.36	25,400

SUPPLEMENTAL RECORD.—Sept. 1, 7 a.m., gage height, 18.66 feet; discharge, 113,000 second-feet.

CHICKAMAUGA RESERVOIR NEAR CHATTANOOGA, TENN.

LOCATION.—Lat. 35°06'07", long. 85°13'42", at Chickamauga Dam on Tennessee River, 1,000 feet upstream from North Chickamauga Creek, 1,500 feet upstream from Southern Railway bridge, and 5¾ miles northeast of Chattanooga, Hamilton County. Datum of gage is mean sea level, datum of 1929, supplementary adjustment of 1936.

344 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—20,790 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

STORAGE RECORD.—Figures represent total capacity or contents for level pool.

REMARKS.—Controlled storage, between elevations 673.00 (minimum pool) and 685.44 feet (top of gates) is 376,900 acre-feet. Records furnished by the Tennessee Valley Authority. Chickamauga Reservoir is drawn down in advance of floods.

Day	August		September		Day	August—Con.		September—Con.	
	Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)		Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)
1	681.40	559.6	681.73	570.6	16	679.32	494.1	681.19	552.7
2	682.19	586.1	682.76	605.7	17	681.89	575.9	681.14	551.0
3	682.38	592.6	682.30	589.8	18	682.45	595.0	681.10	549.7
4	682.23	587.4	681.92	576.9	19	682.32	590.5	681.02	547.1
5	682.00	579.5	681.52	563.6	20	682.21	586.7	681.00	546.4
6	681.90	576.2	681.21	553.4	21	682.27	588.8	680.93	544.2
7	681.67	568.6	681.20	553.0	22	682.28	589.2	681.20	553.0
8	681.45	561.3	681.07	548.7	23	682.35	591.6	681.32	557.0
9	681.38	559.0	681.00	546.4	24	682.52	597.4	681.03	547.4
10	681.24	554.3	681.06	548.4	25	682.31	590.2	680.82	540.7
11	681.22	553.7	681.14	551.0	26	681.91	576.5	680.47	529.6
12	681.21	553.4	681.16	551.7	27	681.60	566.3	680.46	529.3
13	680.48	529.9	681.15	551.4	28	681.35	558.0	680.40	527.4
14	678.62	473.4	681.04	547.7	29	681.37	558.6	680.40	527.4
15	677.78	449.3	681.15	551.4	30	680.62	534.4	680.37	526.4
					31	680.12	518.5		
Change in contents, equivalent, in second-feet								August	September
								—598	+133

TENNESSEE RIVER AT CHATTANOOGA, TENN.

LOCATION.—Lat. 35°05'12", long. 85°16'43", near southeast corner of Meadow Lake Country Club golf course, half a mile downstream from South Chickamauga Creek, 3 miles downstream from Chickamauga Dam, and 3½ miles upstream from Walnut Street Bridge in Chattanooga, Hamilton County. Auxiliary water-stage recorder at Citico Bar, 2¼ miles downstream and 1¼ miles upstream from Walnut Street Bridge. Datum of gages is 621.12 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—21,400 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Slope-stage-discharge relation defined by current-meter measurements up to 185,000 second-feet. Gage height used to tenths throughout.

MAXIMA.—1940: Discharge, 89,400 second-feet at 10 a.m. Sept. 2 (gage height, 21.03 feet); gage height, 21.07 feet 12:15 p.m. Sept. 2.

1874-1939: Discharge observed, 410,000 second-feet Mar. 1, 1875 (gage height, 53.8 feet), from rating curve extended above 250,000 second-feet.

Stage known, 57.9 feet present datum, Mar. 11, 1867 (discharge, about 459,000 second-feet) at Walnut Street.

REMARKS.—Flow regulated by operation of power plants and storage at Norris, Parksville, Hiwassee, and Chickamauga Reservoirs.

345

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	21, 100	85, 100	9	17, 200	17, 600	17	80, 500	19, 500	25	22, 400	25, 300
2	23, 600	82, 700	10	14, 300	16, 500	18	74, 200	19, 600	26	23, 500	21, 800
3	27, 600	61, 900	11	13, 400	14, 200	19	49, 100	19, 700	27	21, 100	21, 700
4	24, 000	46, 500	12	14, 400	15, 600	20	35, 200	19, 700	28	21, 000	21, 200
5	18, 200	37, 500	13	19, 100	17, 300	21	27, 900	20, 100	29	21, 000	19, 200
6	17, 600	30, 700	14	43, 000	17, 100	22	26, 800	15, 200	30	33, 100	19, 300
7	18, 300	23, 400	15	68, 600	15, 600	23	23, 100	16, 300	31	65, 000	
8	16, 500	20, 800	16	80, 000	17, 700	24	18, 800	22, 600			
Monthly mean discharge, in second-feet-----										31, 600	26, 710

LOCATION.—Lat. 35°16'23", long. 82°42'21", 150 feet upstream from bridge on State Highway 280, 2.0 miles upstream from mouth, 2.1 miles downstream from Avery Creek, and 3½ miles northeast of Brevard, Transylvania County. Datum of gage is 2,115.13 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,300 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.0 and 5.3 feet; hundredths below and tenths above these limits. Rating for 1928 defined by current-meter measurements up to 360 second-feet and extended to crest gage height on basis of flood runoff comparisons.

MAXIMA.—1940: Discharge, 6,100 second-feet 10:30 a.m. Aug. 13 (gage height, 9.20 feet).

1920-39: Discharge, 8,400 second-feet Aug. 15, 1928 (gage height, 11.8 feet).

Surveys by the Tennessee Valley Authority show that the floods of June 1876, July 1916, and October 1918 reached stages of 11.9 feet, 10.3 feet, and 10.9 feet, respectively, from flood profiles.

REMARKS.—Flood runoff not affected by artificial storage. In 1938 a canal was put in service to deliver water to Ecusta Paper Corp. from the river at a point a short distance below the gage. This and improved channel conditions doubtless increased the flood-flow capacity of the river.

[illegible]

346 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	0.99	97	3.15	748								
2	.98	96	3.19	770	3.48	920						
3	.98	96	3.60	970								
4	.98	96	3.78	1,070	3.26	795						
5	1.00	99	3.76	1,040								
6	1.03	104	3.96	1,140	3.08	725						
7	1.08	113	4.65	1,580								
8	1.13	123	5.85	2,460	2.95	658						
9	1.19	134	7.30	3,880								
10	1.25	146	8.80	5,600	2.82	590						
11	1.41	179	8.85	5,600								
N	1.63	227	7.88	4,530	2.72	554	2.01	318	1.69	241	1.51	200
1	2.07	332	7.55	4,200								
2	2.34	414	7.74	4,310	2.61	509						
3	2.52	477	8.00	4,640								
4	2.69	541	7.30	3,880	2.53	480						
5	2.72	554	6.36	2,990								
6	2.61	509	5.67	2,380	2.45	452						
7	2.74	563	5.05	1,860								
8	3.10	725	4.65	1,580	2.37	424						
9	3.81	1,070	4.36	1,380								
10	3.92	1,120	4.10	1,230	2.32	407						
11	3.76	1,040	3.90	1,120								
12	3.37	845	3.73	1,040	2.27	391	1.81	268	1.57	213	1.41	179

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
1	0.80	66	5.91	2,540								
2	.81	68	6.27	2,900	2.47	475						
3	.81	68	6.82	3,380								
4	.81	68	7.50	4,090	2.40	460						
5	.81	68	7.68	4,310								
6	.82	69	7.15	3,780	2.33	445						
7	.82	69	6.05	2,630								
8	.83	71	5.20	1,980	2.28	430						
9	.87	77	4.68	1,610								
10	.94	89	4.29	1,350	2.23	415						
11	.99	97	4.00	1,170								
N	1.17	130	3.76	1,040	2.19	400	1.81	296	1.60	245	1.44	207
1	1.29	154	3.57	945								
2	1.39	175	3.40	870	2.20	400						
3	1.45	188	3.25	795								
4	1.86	280	3.13	748	2.17	386						
5	2.50	470	3.02	680								
6	2.83	612	2.93	660	2.08	372						
7	2.89	635	2.85	620								
8	3.95	1,140	2.78	600	2.02	345						
9	5.20	1,980	2.72	560								
10	5.78	2,460	2.66	542	1.99	342						
11	5.50	2,220	2.61	525								
12	5.85	2,460	2.56	508	1.96	335	1.67	262	1.48	216	1.36	189

SUPPLEMENTAL RECORDS.—Aug. 12, 4:30 p.m., gage height, 2.77 feet, discharge, 576 second-feet. Aug. 13, 1:30 a.m., gage height, 3.13 feet, discharge, 748 second-feet; 10:30 a.m., gage height, 9.20 feet, discharge, 6,100 second-feet; 2:30 p.m., gage height, 8.10 feet, discharge, 4,760 second-feet. Aug. 31, 3 p.m., gage height, 2.23 feet, discharge, 415 second-feet.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.68	30	4.96	486	-----	-----	-----	-----	-----	-----	-----	-----
2	2.70	31	4.98	504	-----	-----	-----	-----	-----	-----	-----	-----
3	2.77	37	5.00	504	-----	-----	-----	-----	-----	-----	-----	-----
4	2.94	51	5.05	522	4.60	370	-----	-----	-----	-----	-----	-----
5	3.17	73	5.09	541	-----	-----	-----	-----	-----	-----	-----	-----
6	3.39	98	5.17	560	-----	-----	3.80	160	-----	-----	-----	-----
7	3.58	123	5.53	722	-----	-----	-----	-----	-----	-----	-----	-----
8	3.84	168	6.00	928	4.38	303	-----	-----	-----	-----	-----	-----
9	4.01	204	6.80	1,380	-----	-----	-----	-----	-----	-----	-----	-----
10	4.23	260	6.94	1,480	-----	-----	-----	-----	-----	-----	-----	-----
11	4.33	289	6.89	1,440	-----	-----	-----	-----	-----	-----	-----	-----
N	4.44	321	6.75	1,350	4.21	255	3.71	144	3.44	104	3.24	80
1	4.56	358	6.90	1,440	-----	-----	-----	-----	-----	-----	-----	-----
2	4.57	361	7.16	1,610	-----	-----	-----	-----	-----	-----	-----	-----
3	4.54	351	7.00	1,510	-----	-----	-----	-----	-----	-----	-----	-----
4	4.58	364	6.50	1,200	4.08	221	-----	-----	-----	-----	-----	-----
5	4.62	376	6.10	978	-----	-----	-----	-----	-----	-----	-----	-----
6	4.74	414	5.81	833	-----	-----	3.62	129	-----	-----	-----	-----
7	5.00	504	5.60	743	-----	-----	-----	-----	-----	-----	-----	-----
8	5.08	541	5.43	679	3.98	198	-----	-----	-----	-----	-----	-----
9	5.02	504	5.29	618	-----	-----	-----	-----	-----	-----	-----	-----
10	4.97	486	5.16	560	-----	-----	-----	-----	-----	-----	-----	-----
11	4.92	468	5.04	522	-----	-----	-----	-----	-----	-----	-----	-----
12	4.96	486	4.93	486	3.91	182	3.57	122	3.33	91	3.16	72

Hour	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.64	27	5.59	743	-----	-----	-----	-----	-----	-----	-----	-----
2	2.66	28	5.66	765	-----	-----	-----	-----	-----	-----	-----	-----
3	2.67	29	6.05	953	-----	-----	-----	-----	-----	-----	-----	-----
4	2.68	30	6.34	1,110	3.77	155	-----	-----	-----	-----	-----	-----
5	2.68	30	6.28	1,080	-----	-----	-----	-----	-----	-----	-----	-----
6	2.68	30	5.94	904	-----	-----	-----	-----	-----	-----	-----	-----
7	2.70	31	5.55	722	-----	-----	-----	-----	-----	-----	-----	-----
8	2.71	32	5.27	599	3.68	139	-----	-----	-----	-----	-----	-----
9	2.75	35	5.05	522	-----	-----	-----	-----	-----	-----	-----	-----
10	2.87	45	4.86	451	-----	-----	-----	-----	-----	-----	-----	-----
11	3.16	72	4.72	408	-----	-----	-----	-----	-----	-----	-----	-----
N	3.40	99	4.58	364	3.62	129	3.32	89	3.17	73	3.07	63
1	3.79	158	4.45	324	-----	-----	-----	-----	-----	-----	-----	-----
2	4.04	212	4.35	294	-----	-----	-----	-----	-----	-----	-----	-----
3	3.82	164	4.28	274	-----	-----	-----	-----	-----	-----	-----	-----
4	3.63	131	4.21	255	3.55	119	-----	-----	-----	-----	-----	-----
5	3.72	146	4.14	236	-----	-----	-----	-----	-----	-----	-----	-----
6	4.26	269	4.09	224	-----	-----	-----	-----	-----	-----	-----	-----
7	4.57	361	4.04	212	-----	-----	-----	-----	-----	-----	-----	-----
8	4.60	370	4.00	202	3.48	109	-----	-----	-----	-----	-----	-----
9	5.10	541	3.96	193	-----	-----	-----	-----	-----	-----	-----	-----
10	5.69	787	3.93	187	-----	-----	-----	-----	-----	-----	-----	-----
11	5.84	857	3.89	178	-----	-----	-----	-----	-----	-----	-----	-----
12	5.68	787	3.87	174	3.45	106	3.24	80	3.12	68	3.02	58

LOCATION.—Lat. 35°23'45", long. 82°35'25", at ford 1½ miles downstream from confluence of North and South Forks, 2 miles upstream from village of Mills River, Henderson County, and 4½ miles northwest of Horseshoe. Datum of gage is 2,088.47 feet (revised) above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,600 second-feet and extended to crest gage height on basis of studies by Tennessee Valley Authority. Gage heights used to half-tenths between 3.7 and 4.7 feet; hundredths below and tenths above these limits.

1924-26, 1934-39: Discharge, 3,560 second-feet Jan. 9, 1935 (gage height, 8.36 feet); gage height, 8.38 feet Oct. 16, 1936.

Surveys by the Tennessee Valley Authority show that the floods of June 1876, July 1916, and August 1928 reached stages of 12 feet, 12.5 feet, and 13.5 feet, respectively, from flood profiles.

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	53	578	9	48	235	17	334	153	25	165	134
2	48	476	10	50	221	18	282	153	26	152	122
3	48	409	11	70	208	19	249	153	27	144	115
4	47	360	12	373	198	20	219	142	28	138	115
5	48	326	13	4,470	185	21	200	137	29	574	112
6	50	300	14	1,260	179	22	191	129	30	4,140	108
7	83	279	15	580	173	23	180	127	31	828	-----
8	53	254	16	424	164	24	171	127			
Monthly mean discharge, in second-feet.....										506	212
Runoff, in inches.....										8.74	3.55

350 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.89	91	4.02	1,100	6.52	2,550	-----	-----	-----	-----	-----	-----
2	1.90	93	4.04	1,130	5.95	2,270	-----	-----	-----	-----	-----	-----
3	1.90	93	4.09	1,160	5.35	1,920	-----	-----	-----	-----	-----	-----
4	1.90	93	4.08	1,160	4.85	1,570	3.33	663	-----	-----	-----	-----
5	1.90	93	4.16	1,190	4.75	1,570	-----	-----	-----	-----	-----	-----
6	1.90	93	4.24	1,250	4.55	1,430	-----	-----	-----	-----	-----	-----
7	1.91	95	4.41	1,340	4.42	1,340	-----	-----	-----	-----	-----	-----
8	1.92	98	4.85	1,570	4.27	1,250	3.24	612	-----	-----	-----	-----
9	1.95	104	5.80	2,150	4.19	1,220	-----	-----	-----	-----	-----	-----
10	2.00	116	6.95	2,850	4.08	1,160	-----	-----	-----	-----	-----	-----
11	2.09	138	8.00	3,480	4.03	1,130	-----	-----	-----	-----	-----	-----
N	2.17	160	9.50	4,810	4.00	1,100	3.15	562	12.89	426	2.69	336
1	2.38	223	11.10	6,650	3.92	1,040	-----	-----	-----	-----	-----	-----
2	2.77	371	12.20	8,060	3.94	1,070	-----	-----	-----	-----	-----	-----
3	3.00	482	12.95	9,160	3.84	1,000	-----	-----	-----	-----	-----	-----
4	3.13	552	13.15	9,440	3.82	970	3.10	535	-----	-----	-----	-----
5	3.25	618	13.08	9,300	3.77	935	-----	-----	-----	-----	-----	-----
6	3.30	645	12.75	8,880	3.70	900	-----	-----	-----	-----	-----	-----
7	3.36	681	12.30	8,190	3.65	865	-----	-----	-----	-----	-----	-----
8	3.44	729	11.68	7,410	3.58	817	3.04	503	-----	-----	-----	-----
9	3.60	830	10.65	6,050	3.55	798	-----	-----	-----	-----	-----	-----
10	3.78	970	9.55	4,910	3.51	772	-----	-----	-----	-----	-----	-----
11	3.86	1,000	8.55	3,960	3.45	735	-----	-----	-----	-----	-----	-----
12	4.01	1,100	7.40	3,090	3.44	729	3.00	482	2.77	371	2.59	296
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.06	131	8.05	3,480	-----	-----	-----	-----	-----	-----	-----	-----
2	2.06	131	8.35	3,790	3.90	1,040	-----	-----	-----	-----	-----	-----
3	2.06	131	8.82	4,140	-----	-----	-----	-----	-----	-----	-----	-----
4	2.06	131	9.40	4,710	3.80	970	-----	-----	-----	-----	-----	-----
5	2.06	131	10.45	5,810	-----	-----	-----	-----	-----	-----	-----	-----
6	2.06	131	12.70	8,740	3.74	935	-----	-----	-----	-----	-----	-----
7	2.06	131	13.62	10,000	-----	-----	-----	-----	-----	-----	-----	-----
8	2.08	136	13.35	9,720	3.66	872	-----	-----	-----	-----	-----	-----
9	2.11	144	12.57	8,600	-----	-----	-----	-----	-----	-----	-----	-----
10	2.12	146	11.49	7,150	3.59	824	-----	-----	-----	-----	-----	-----
11	2.15	154	10.20	5,570	-----	-----	-----	-----	-----	-----	-----	-----
N	2.22	174	9.17	4,510	3.55	798	3.18	579	2.98	476	2.84	410
1	2.52	270	7.95	3,480	-----	-----	-----	-----	-----	-----	-----	-----
2	2.87	417	7.02	2,850	3.50	765	-----	-----	-----	-----	-----	-----
3	3.10	535	6.37	2,490	-----	-----	-----	-----	-----	-----	-----	-----
4	3.32	657	5.82	2,150	3.49	759	-----	-----	-----	-----	-----	-----
5	3.56	804	5.37	1,920	-----	-----	-----	-----	-----	-----	-----	-----
6	3.44	729	5.02	1,690	3.43	723	-----	-----	-----	-----	-----	-----
7	3.55	798	4.72	1,520	-----	-----	-----	-----	-----	-----	-----	-----
8	3.81	970	4.47	1,370	3.39	699	-----	-----	-----	-----	-----	-----
9	4.10	1,160	4.32	1,280	-----	-----	-----	-----	-----	-----	-----	-----
10	4.72	1,520	4.16	1,190	3.35	675	-----	-----	-----	-----	-----	-----
11	6.55	2,610	4.08	1,160	-----	-----	-----	-----	-----	-----	-----	-----
12	7.50	3,150	4.01	1,100	3.32	657	3.07	520	2.90	452	2.77	378

¹ Partly estimated.

LOCATION.—Lat. 35°22'51", long. 82°29'53", at bridge on old Asheville-Hendersonville highway just downstream from Byers Creek, 0.8 mile south of Naples, Henderson County, and 2.2 miles upstream from mouth. Datum of gage is 2,047.48 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for Aug. 10 to 5 p.m. Aug. 13, where gage heights were obtained from estimated discharge, and 4 p.m. Sept. 1 to 6 p.m. Sept. 3, where recorder graph was completed from characteristic shape of record.

MAXIMA.—1940: Discharge, 10,800 second-feet 11-12 p.m. Aug. 13 (gage height, 13.07 feet).

1907, 1938-39: Discharge, 1,520 second-feet Mar. 1, 1939 (gage height, 8.47 feet); gage height, 8.53 feet Aug. 19, 1939.

Surveys by the Tennessee Valley Authority show that the floods of July 1916 and August 1928 reached stages of 21 feet and 15 feet, respectively.

REMARKS.—Flood runoff slightly affected by numerous small artificial ponds above station.

Mean discharge, in second-feet, 1940

[illegible]

352 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	---	---	13.03	10,400	---	---	---	---	---	---
2	---	---	---	---	12.91	10,000	---	---	---	---	---	---
3	1.70	100	8.27	1,500	12.76	9,640	---	---	---	---	---	---
4	---	---	---	---	12.60	8,880	9.45	1,820	6.20	702	3.64	390
5	---	---	---	---	12.40	7,880	---	---	---	---	---	---
6	1.90	120	8.89	1,900	12.20	6,950	---	---	---	---	---	---
7	---	---	---	---	12.00	6,230	---	---	---	---	---	---
8	---	---	---	---	11.80	5,560	9.06	1,410	5.78	660	3.51	363
9	1.99	130	9.19	2,200	11.58	4,990	---	---	---	---	---	---
10	---	---	---	---	11.39	4,440	---	---	---	---	---	---
11	---	---	---	---	11.21	3,940	---	---	---	---	---	---
N	2.66	220	9.46	2,500	11.04	3,630	8.58	1,120	5.37	639	3.42	345
1	---	---	---	---	10.89	3,490	---	---	---	---	---	---
2	---	---	---	---	10.74	3,210	---	---	---	---	---	---
3	3.69	400	9.70	2,800	10.62	3,070	---	---	---	---	---	---
4	---	---	---	---	10.50	2,930	7.89	900	4.90	597	3.28	327
5	---	---	---	---	10.38	2,800	---	---	---	---	---	---
6	4.95	650	10.50	3,940	10.27	2,670	---	---	---	---	---	---
7	---	---	11.68	6,230	10.17	2,550	---	---	---	---	---	---
8	---	---	12.60	8,880	10.08	2,430	7.21	787	4.37	537	3.13	300
9	6.10	900	13.00	10,400	9.99	2,310	---	---	---	---	---	---
10	---	---	13.06	10,800	9.90	2,210	---	---	---	---	---	---
11	---	---	13.07	10,800	9.82	2,110	---	---	---	---	---	---
12	7.30	1,200	13.07	10,800	9.75	2,010	6.65	744	3.87	428	2.97	266
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	---	---	9.19	2,210	---	---	---	---	---	---	---	---
4	---	---	9.44	2,430	10.13	3,350	7.91	1,380	---	---	---	---
6	1.88	118	9.86	3,070	---	---	---	---	4.95	660	3.48	363
8	---	---	10.16	3,490	9.72	2,800	7.29	1,200	---	---	---	---
10	---	---	10.47	3,940	---	---	---	---	---	---	---	---
N	2.10	143	10.70	4,270	9.38	2,430	6.70	1,040	4.42	537	3.29	327
1	2.19	154	---	---	---	---	---	---	---	---	---	---
2	2.30	168	10.86	4,620	---	---	---	---	---	---	---	---
3	2.90	258	---	---	---	---	---	---	---	---	---	---
4	6.00	877	10.97	4,800	9.10	2,110	6.19	923	---	---	---	---
5	8.30	1,510	---	---	---	---	---	---	---	---	---	---
6	8.70	1,740	10.98	4,800	---	---	---	---	4.07	467	3.11	292
7	8.75	1,820	---	---	---	---	---	---	---	---	---	---
8	8.83	1,820	10.91	4,620	8.80	1,820	5.81	831	---	---	---	---
9	8.91	1,910	---	---	---	---	---	---	---	---	---	---
10	8.99	2,010	10.75	4,440	---	---	---	---	---	---	---	---
11	9.02	2,010	---	---	---	---	---	---	---	---	---	---
12	9.06	2,110	10.56	4,100	8.42	1,550	5.45	744	3.75	410	2.99	275

SUPPLEMENTAL RECORD.—Aug. 30, 5 p.m., gage height, 10.99 feet, discharge, 4,800 second-feet.

LOCATION.—Lat. 35°33'55", long. 82°32'35", at Biltmore, Buncombe County, 100 feet downstream from Biltmore Avenue Bridge, 200 feet upstream from Southern Railway bridge, and 1½ miles upstream from mouth. Datum of gage is 1,976.58 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Artificial control is of masonry. Stage-discharge relation for 1940 is defined by current-meter measurements up to 63,000 second-feet and extended to crest gage height on basis of determination of Aug. 13 and Aug. 30, 1940, flood flows over dam at recreation park 3 miles upstream, as computed by the Tennessee Valley Authority. The relation for 1923 was extended above 1,300 second-feet and is verified by the 1940 rating when allowance is made for the effect of a control built in 1935. Gage heights used to half-tenths between 3.2 and 4.8 feet; hundredths below and tenths above these limits.

1920-26, 1934-39: Discharge, 4,690 second-feet May 29, 1923 (gage height, 8.2 feet).

Stage known, 21.5 feet July 1916, from floodmarks (discharge not determined). The flood of Aug. 16, 1928, reached a stage of 18.74 feet, from floodmarks (discharge not determined). Research by the Tennessee Valley Authority shows that a flood in April 1791 probably reached a stage about 5 feet higher than that of July 1916. Extremely high stages are subject to backwater from the French Broad River.

REMARKS.—Flood runoff practically unaffected by artificial storage. Monthly flow adjusted for storage (in Beeteé Reservoir, capacity 700,000,000 gallons) and diversion (from North Fork Swannanoa River) for water supply of city of Asheville.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	68	677	9	54	178	17	525	97	25	132	77
2	58	558	10	58	187	18	390	93	26	114	72
3	56	392	11	69	193	19	313	90	27	103	77
4	61	329	12	878	146	20	264	97	28	97	77
5	50	290	13	7,560	141	21	196	88	29	738	73
6	58	256	14	3,920	134	22	181	84	30	6,420	66
7	60	219	15	998	118	23	161	77	31	1,270	-----
8	56	193	16	621	105	24	148	80			
Monthly mean discharge, in second-feet ----- observed ----- Runoff, in inches, adjusted ----- adjusted -----										828 841 7.46	175 188 1.62

354 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.19	223	5.83	2,320	16.50	13,400						
2	2.40	293	6.19	2,600	15.35	11,300	4.56	1,300				
3	2.58	358	6.39	2,740	14.10	8,950						
4	2.69	401	7.40	3,480	12.50	6,690	4.34	1,190	3.40	700	3.18	596
5	2.72	414	6.57	2,510	10.58	5,200						
6	2.75	428	6.38	2,390	9.27	4,290	4.22	1,110				
7	2.86	480	6.42	2,390	8.52	3,730						
8	3.12	611	6.71	2,570	7.96	3,380	4.12	1,060	3.27	628	3.11	564
9	4.15	1,220	7.34	2,930	7.55	3,120						
10	4.02	1,120	8.11	3,450	6.50	2,450	4.03	1,030				
11	3.90	1,060	8.85	3,940	5.60	1,910						
N	3.80	1,000	10.05	4,780	5.99	2,150	3.94	975	3.22	605	3.03	528
1	3.73	975	10.61	5,200	5.96	2,150						
2	3.69	945	11.26	5,690	5.80	2,030	3.87	925				
3	3.65	915	12.46	6,690	5.68	1,970						
4	3.62	885	13.55	8,120	5.56	1,910	3.79	900	3.16	587	2.95	493
5	3.72	945	14.40	9,480	5.38	1,790						
6	3.78	1,000	16.8	14,000	5.28	1,730	3.68	850				
7	3.91	1,060	18.85	18,000	5.16	1,670						
8	4.05	1,160	18.97	18,400	5.01	1,550	3.60	800	3.08	551	2.90	471
9	4.26	1,290	18.60	17,600	4.92	1,500						
10	4.53	1,480	18.30	17,000	4.86	1,500	3.55	775				
11	4.86	1,710	18.03	16,400	4.80	1,440						
12	5.32	1,970	17.46	15,400	4.73	1,380	3.50	750	3.10	560	2.82	437

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1			8.44	3,660	5.50	1,850						
2			8.96	4,080	5.48	1,850	3.56	775	3.27	628		
3			9.78	4,640	5.39	1,790						
4			11.70	5,970	5.28	1,730	3.52	750	3.29	650		
5			13.42	7,820	5.00	1,550						
6	1.72	84	14.10	8,950	4.62	1,330	3.48	750	3.29	650	2.77	415
7			14.05	8,780	4.62	1,330						
8			14.04	8,780	4.50	1,280	3.43	725	3.28	650		
9			14.15	9,120	4.64	1,360						
10			14.31	9,300	4.62	1,330	3.39	700	3.25	628		
11			14.50	9,660	4.48	1,280						
N	1.80	99	14.88	10,400	4.34	1,190	3.35	675	3.21	605	2.73	399
1	1.83	105	15.30	11,100	4.28	1,160						
2	1.96	134	15.22	10,900	4.14	1,080	3.31	650	3.01	520		
3	3.07	546	14.37	9,480	4.07	1,030						
4	3.90	950	12.62	6,800	3.99	1,000	3.25	628	2.94	489		
5	4.04	1,030	10.45	5,060	4.05	1,030						
6	3.92	950	8.78	3,940	4.05	1,030	3.19	600	2.90	471	2.67	374
7	5.0	1,550	7.88	3,320	4.03	1,030						
8	5.68	1,970	7.25	2,870	4.04	1,030	3.18	596	2.89	467		
9	6.62	2,510	6.37	2,390	3.97	975						
10	6.57	2,510	6.24	2,270	3.92	950	3.11	564	2.84	445		
11	7.20	2,870	6.10	2,210	3.83	925						
12	7.47	3,060	5.62	1,910	3.70	850	3.11	564	2.77	415	2.61	349

SUPPLEMENTAL RECORDS

Day	Gage height	Discharge	Day	Gage height	Discharge
Aug. 13, 7:30 p.m.-----	19.00	18,400	Aug. 29, 4:30 p.m.-----	4.19	1,110
Aug. 14, 10:30 a.m.-----	5.32	1,730	5:30 p.m.-----	3.60	800
12:30 p.m.-----	6.00	2,150	9:45 p.m.-----	6.49	2,450
			Aug. 30, 1:30 p.m.-----	15.34	11,200

LOCATION.—Lat. 35°39'25", long. 82°21'05", a quarter of a mile downstream from emergency pumping plant of Asheville Water Department, 3 miles downstream from forks of North Fork, and 3 miles northwest of Black Mountain, Buncombe County. Datum of gage is 2,428.03 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

MAXIMA.—1940: Discharge, 8,200 second-feet 12 m. Aug. 13 (gage height, 8.55 feet).

1926-39: Discharge, 5,050 second-feet Aug. 15, 1928 (gage height, 7.04 feet).

REMARKS.—Flood runoff not materially affected by diversion or artificial storage.

Monthly flow adjusted for diversions of city of Asheville for water supply.

[illegible]

356 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.68	236	4.12	1,290	4.67	1,890	-----	-----	-----	-----	-----	-----
2	2.85	322	4.15	1,340	4.51	1,720	-----	-----	-----	-----	-----	-----
3	3.05	440	4.32	1,500	4.36	1,560	-----	-----	-----	-----	-----	-----
4	3.54	777	4.72	1,950	4.23	1,450	2.98	428	2.62	242	-----	-----
5	3.54	777	4.79	2,070	4.12	1,300	-----	-----	-----	-----	-----	-----
6	3.35	635	5.00	2,310	4.02	1,210	-----	-----	-----	-----	-----	-----
7	3.24	561	5.58	3,110	3.93	1,150	-----	-----	-----	-----	-----	-----
8	3.16	509	5.38	2,830	3.84	1,070	2.90	380	2.60	233	-----	-----
9	3.15	502	5.07	2,380	3.77	1,010	-----	-----	-----	-----	-----	-----
10	3.13	490	5.05	2,380	3.69	942	-----	-----	-----	-----	-----	-----
11	3.11	476	6.10	3,850	3.63	894	-----	-----	-----	-----	-----	-----
N	3.13	490	8.55	8,200	3.57	848	2.81	332	2.57	222	2.47	188
1	3.28	587	7.96	7,100	3.52	810	-----	-----	-----	-----	-----	-----
2	3.52	761	8.12	7,280	3.48	780	-----	-----	-----	-----	-----	-----
3	3.53	769	7.25	5,670	3.42	735	-----	-----	-----	-----	-----	-----
4	3.62	842	6.80	4,990	3.37	698	2.76	307	2.54	210	-----	-----
5	3.71	919	8.10	7,280	3.32	660	-----	-----	-----	-----	-----	-----
6	3.88	1,070	8.00	7,100	3.27	623	-----	-----	-----	-----	-----	-----
7	4.02	1,210	6.83	4,990	3.24	602	-----	-----	-----	-----	-----	-----
8	4.30	1,500	6.05	3,780	3.20	573	2.70	278	2.67	264	-----	-----
9	4.43	1,660	5.66	3,180	3.17	553	-----	-----	-----	-----	-----	-----
10	4.46	1,660	5.38	2,830	3.14	532	-----	-----	-----	-----	-----	-----
11	4.33	1,560	5.12	2,440	3.11	512	-----	-----	-----	-----	-----	-----
12	4.13	1,340	4.85	2,130	3.08	492	2.66	260	2.59	229	2.38	159
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	5.69	3,250	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	5.44	2,900	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	5.31	2,700	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	5.27	2,640	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	5.55	3,040	-----	-----	-----	-----	-----	-----	-----	-----
6	1.65	28	6.90	5,160	3.05	472	-----	-----	-----	-----	-----	-----
7	-----	-----	7.43	6,020	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	6.10	3,850	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	5.45	2,900	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	5.00	2,310	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	4.72	1,950	-----	-----	-----	-----	-----	-----	-----	-----
N	2.10	84	4.48	1,720	2.91	386	2.59	221	2.43	163	2.32	131
1	2.17	99	4.29	1,500	-----	-----	-----	-----	-----	-----	-----	-----
2	2.28	127	4.09	1,300	-----	-----	-----	-----	-----	-----	-----	-----
3	2.51	199	3.94	1,160	-----	-----	-----	-----	-----	-----	-----	-----
4	2.72	288	3.86	1,080	-----	-----	-----	-----	-----	-----	-----	-----
5	3.09	498	3.71	958	-----	-----	-----	-----	-----	-----	-----	-----
6	3.69	942	3.62	886	2.80	323	-----	-----	-----	-----	-----	-----
7	3.95	1,160	3.55	832	-----	-----	-----	-----	-----	-----	-----	-----
8	4.24	1,450	3.48	790	-----	-----	-----	-----	-----	-----	-----	-----
9	5.00	2,310	3.42	735	-----	-----	-----	-----	-----	-----	-----	-----
10	5.45	2,900	3.36	690	-----	-----	-----	-----	-----	-----	-----	-----
11	5.97	3,620	3.30	645	-----	-----	-----	-----	-----	-----	-----	-----
12	5.72	3,250	3.26	616	2.72	281	2.49	183	2.37	145	2.28	120

SUPPLEMENTAL RECORDS.—Aug. 13, 5:30 p.m., gage height, 8.42 feet; discharge, 7,820 second-feet!
 Aug. 30, 6:30 a.m., gage height, 7.72 feet; discharge, 6,560 second-feet.

LOCATION.—Lat. 35°39'15", long. 82°24'20", 200 feet upstream from upper intake to Asheville water supply, 1,000 feet upstream from Beetree Reservoir, and 4 miles north of Swannanoa, Buncombe County. Datum of gage is 2,728.39 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—5.46 square miles.

DISCHARGE RECORD.—Artificial control is 1-foot Cippoletti weir in masonry dam. Stage-discharge relation defined by current-meter measurements up to 150 second-feet and extended above on basis of computation of the flow over control at half-foot stage intervals and at peak stage. The floods filled the weir basin with debris, causing a large shift in stage-discharge relation Aug. 13 and necessitated estimates of discharge 12 m. Aug. 30 to Sept. 3 and Sept. 23-30 and the use of shifting-control method Sept. 4-22. The estimates of discharge are based on weather records and records for nearby streams. Gage heights Aug. 1 to 3 p.m. Aug. 13 used to half-tenths above and hundredths below 4.3 feet. Gage heights 3 p.m. Aug. 13 to Sept. 30 used to half-tenths between 3.1 and 4.0 feet; hundredths below and tenths above these limits.

1926-39: Discharge, 830 second-feet Aug. 15, 1928 (gage height, 5.40 feet).

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

358 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.94	15	3.76	240	-----	-----	-----	-----	-----	-----	-----	-----
2	2.27	26	3.79	248	-----	-----	-----	-----	-----	-----	-----	-----
3	2.54	40	3.75	238	3.67	252	-----	-----	-----	-----	-----	-----
4	2.46	36	3.86	266	-----	-----	-----	-----	-----	-----	-----	-----
5	2.38	31	4.12	340	-----	-----	-----	-----	-----	-----	-----	-----
6	2.33	28	4.14	346	3.46	203	-----	-----	-----	-----	-----	-----
7	2.28	26	4.09	331	-----	-----	-----	-----	-----	-----	-----	-----
8	2.28	26	4.06	322	-----	-----	-----	-----	-----	-----	-----	-----
9	2.31	28	4.56	480	3.30	169	-----	-----	-----	-----	-----	-----
10	2.41	33	5.20	733	-----	-----	-----	-----	-----	-----	-----	-----
11	2.73	55	5.17	710	-----	-----	-----	-----	-----	-----	-----	-----
N	2.97	82	5.53	910	3.20	149	2.77	80	2.58	57	2.43	43
1	2.98	83	5.16	710	-----	-----	-----	-----	-----	-----	-----	-----
2	2.94	78	5.11	688	-----	-----	-----	-----	-----	-----	-----	-----
3	3.06	96	6.20	1,370	-----	-----	-----	-----	-----	-----	-----	-----
4	3.18	116	5.25	860	-----	-----	-----	-----	-----	-----	-----	-----
5	3.24	128	4.91	725	-----	-----	-----	-----	-----	-----	-----	-----
6	3.55	191	4.66	635	3.03	119	-----	-----	-----	-----	-----	-----
7	3.78	245	4.50	550	-----	-----	-----	-----	-----	-----	-----	-----
8	3.77	242	4.37	510	-----	-----	-----	-----	-----	-----	-----	-----
9	3.66	216	4.24	430	-----	-----	-----	-----	-----	-----	-----	-----
10	3.62	207	4.11	395	-----	-----	-----	-----	-----	-----	-----	-----
11	3.58	198	4.02	360	-----	-----	-----	-----	-----	-----	-----	-----
12	3.60	202	3.90	325	2.93	103	2.66	66	2.52	51	2.36	38
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	4.50	550	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	4.35	510	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	4.65	590	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	4.95	770	3.61	130	-----	-----	-----	-----	-----	-----
5	-----	-----	5.85	1,160	-----	-----	-----	-----	-----	-----	-----	-----
6	1.56	10	5.25	860	-----	-----	-----	-----	-----	-----	-----	-----
7	-----	-----	4.90	725	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	4.70	635	3.51	118	-----	-----	-----	-----	-----	-----
9	-----	-----	4.53	550	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	4.42	510	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	4.32	470	-----	-----	-----	-----	-----	-----	-----	-----
N	2.13	24	4.23	400	3.44	102	3.10	60	2.92	44	2.79	34
1	2.36	38	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	2.46	46	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	2.61	60	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	2.97	109	3.96	260	3.36	90	-----	-----	-----	-----	-----	-----
5	3.11	131	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	3.15	140	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7	3.61	240	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	4.35	510	3.83	200	3.30	84	-----	-----	-----	-----	-----	-----
9	4.80	680	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	4.80	680	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11	4.68	635	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	4.66	635	3.73	160	3.26	76	3.00	50	2.83	38	2.74	30

IVY RIVER NEAR MARSHALL, N. C.

LOCATION.—Lat. $35^{\circ}46'05''$, long. $82^{\circ}37'15''$, 300 feet downstream from county bridge, 1.8 miles upstream from mouth, and 4 miles southeast of Marshall, Madison County. Datum of gage is 1,700.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—158 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,500 second-feet and extended to the 1940 crest gage height on basis of determination of flood flow by slope-area method. This rating verifies the 1936 extension. Shifting-control method used Aug. 1 to 1 p.m. Aug. 13. Gage heights used to half-tenths between 3.7 and 6.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 8,880 second-feet 5:30 a.m. Aug. 30 (gage height, 12.67 feet).

1934-39: Discharge, 5,850 second-feet Aug. 8, 1936 (gage height, 10.68 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	97	485	9	57	103	17	383	62	25	97	50
2	70	331	10	51	102	18	304	59	26	90	57
3	63	244	11	51	103	19	248	58	27	84	50
4	59	195	12	272	86	20	190	56	28	76	48
5	58	162	13	2,460	80	21	158	53	29	435	46
6	82	141	14	1,460	73	22	151	50	30	4,340	44
7	125	127	15	647	69	23	122	50	31	918	-----
8	69	113	16	441	67	24	108	48			
Monthly mean discharge, in second-feet-----										444	107
Runoff, in inches-----										3.24	0.76

360 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.58	56	4.86	663	---	---	---	---	---	---	---	---
2	2.62	60	4.85	685	6.95	2,430	---	---	---	---	---	---
3	2.68	68	4.82	685	---	---	---	---	---	---	---	---
4	2.72	73	5.06	829	6.42	1,930	---	---	---	---	---	---
5	2.76	78	5.33	1,020	---	---	---	---	---	---	---	---
6	2.82	88	5.10	908	6.07	1,660	---	---	---	---	---	---
7	2.84	90	5.29	1,050	---	---	---	---	---	---	---	---
8	2.87	95	5.39	1,140	5.80	1,490	---	---	---	---	---	---
9	2.94	106	5.53	1,260	---	---	---	---	---	---	---	---
10	3.42	197	5.87	1,490	5.64	1,380	---	---	---	---	---	---
11	3.56	228	5.93	1,560	---	---	---	---	---	---	---	---
N	3.63	245	5.90	1,520	5.61	1,350	4.29	641	3.73	438	3.57	380
1	3.68	258	5.89	1,520	---	---	---	---	---	---	---	---
2	3.73	270	6.60	2,090	5.49	1,290	---	---	---	---	---	---
3	3.78	283	7.65	2,970	---	---	---	---	---	---	---	---
4	3.90	315	8.60	3,970	5.29	1,170	---	---	---	---	---	---
5	4.11	377	9.07	4,510	---	---	---	---	---	---	---	---
6	4.62	542	9.82	5,280	5.07	1,020	---	---	---	---	---	---
7	4.62	561	9.82	5,280	---	---	---	---	---	---	---	---
8	4.59	561	10.32	5,860	4.89	935	---	---	---	---	---	---
9	4.57	542	9.85	5,280	---	---	---	---	---	---	---	---
10	4.54	542	8.90	4,290	4.84	908	---	---	---	---	---	---
11	4.59	561	8.10	3,470	---	---	---	---	---	---	---	---
12	4.71	600	7.55	2,970	4.74	855	3.95	506	3.76	438	3.37	321
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	8.00	3,370	---	---	---	---	---	---	---	---
2	---	---	8.22	3,570	---	---	---	---	---	---	---	---
3	---	---	8.87	4,290	---	---	---	---	---	---	---	---
4	---	---	10.50	6,100	---	---	---	---	---	---	---	---
5	---	---	12.50	8,620	---	---	---	---	---	---	---	---
6	2.13	68	12.30	8,360	5.16	1,080	---	---	---	---	---	---
7	---	---	11.68	7,580	---	---	---	---	---	---	---	---
8	---	---	11.87	7,840	---	---	---	---	---	---	---	---
9	---	---	12.04	7,970	---	---	---	---	---	---	---	---
10	---	---	11.80	7,710	---	---	---	---	---	---	---	---
11	---	---	10.75	6,460	---	---	---	---	---	---	---	---
N	2.15	70	9.10	4,510	4.76	855	3.89	488	3.42	335	3.10	250
1	2.20	77	8.35	3,770	---	---	---	---	---	---	---	---
2	2.26	86	7.90	3,270	---	---	---	---	---	---	---	---
3	2.40	108	7.46	2,880	---	---	---	---	---	---	---	---
4	2.80	182	7.15	2,610	---	---	---	---	---	---	---	---
5	3.00	226	6.86	2,340	---	---	---	---	---	---	---	---
6	3.13	258	6.62	2,090	4.43	708	---	---	---	---	---	---
7	3.50	358	6.41	1,930	---	---	---	---	---	---	---	---
8	4.05	542	6.22	1,770	---	---	---	---	---	---	---	---
9	5.20	1,110	6.05	1,660	---	---	---	---	---	---	---	---
10	6.65	2,090	5.93	1,600	---	---	---	---	---	---	---	---
11	7.57	2,970	5.87	1,520	---	---	---	---	---	---	---	---
12	7.84	3,170	5.74	1,460	4.18	600	3.58	383	3.18	270	2.92	208

SUPPLEMENTAL RECORD.—Aug. 30, 5:30 a.m., gage height, 12.67 feet; discharge, 8,880 second-feet

BIG LAUREL CREEK NEAR STACKHOUSE, N. C.

LOCATION.—Lat. 35°55'05", long. 82°45'45", midway between Big Hurricane and Little Hurricane Creeks, 50 feet west of State Highway 208, and 3 miles north of Stackhouse, Madison County. Datum of gage is 1,595.68 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—126 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,500 second-feet and extended to the 1935 crest gage height. Gage heights used to half-tenths between 3.7 and 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,920 second-feet 8 a.m. Aug. 30 (gage height, 6.66 feet).

1934-39: Discharge, 7,260 second-feet Mar. 25, 1935 (gage height, 7.94 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	169	432	9	235	104	17	319	67	25	98	77
2	117	291	10	153	129	18	235	65	26	92	84
3	96	215	11	124	113	19	231	64	27	88	59
4	82	172	12	110	92	20	184	62	28	80	54
5	80	148	13	273	84	21	156	59	29	337	52
6	148	129	14	473	80	22	146	56	30	2,980	49
7	772	121	15	634	75	23	121	54	31	864	-----
8	258	108	16	462	72	24	106	55			
Monthly mean discharge, in second-feet.....										330	107
Runoff, in inches.....										3.02	0.95

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	-----	-----	2.67	444	-----	-----	-----	-----	-----	-----
4	-----	-----	-----	-----	2.60	407	3.04	668	-----	-----	-----	-----
6	-----	-----	1.84	129	2.60	407	-----	-----	-----	-----	-----	-----
8	-----	-----	-----	-----	2.61	412	3.10	710	-----	-----	-----	-----
10	-----	-----	-----	-----	2.63	423	-----	-----	-----	-----	-----	-----
N	1.75	108	1.90	143	2.68	449	3.04	668	2.70	460	2.41	317
2	-----	-----	2.05	184	2.79	510	-----	-----	-----	-----	-----	-----
4	-----	-----	2.30	269	2.81	521	2.96	614	-----	-----	-----	-----
6	-----	-----	2.66	439	2.81	521	-----	-----	-----	-----	-----	-----
8	-----	-----	3.04	668	2.81	521	2.91	582	-----	-----	-----	-----
10	-----	-----	2.98	627	2.81	521	-----	-----	-----	-----	-----	-----
12	1.78	115	2.79	510	2.88	563	2.87	557	2.54	378	2.28	261
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	4.74	2,360	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	5.23	2,950	3.62	1,170	-----	-----	-----	-----	-----	-----
6	1.52	65	6.35	4,480	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	6.66	4,920	3.38	942	-----	-----	-----	-----	-----	-----
10	-----	-----	6.39	4,480	-----	-----	-----	-----	-----	-----	-----	-----
N	1.61	80	6.02	3,920	3.22	806	2.64	428	2.36	295	2.16	218
2	1.68	94	5.41	3,130	-----	-----	-----	-----	-----	-----	-----	-----
4	1.95	156	4.98	2,650	3.07	689	-----	-----	-----	-----	-----	-----
6	2.52	368	4.47	2,040	-----	-----	-----	-----	-----	-----	-----	-----
8	3.27	846	4.22	1,760	2.94	601	-----	-----	-----	-----	-----	-----
10	3.70	1,250	4.01	1,550	-----	-----	-----	-----	-----	-----	-----	-----
12	4.20	1,760	3.87	1,400	2.86	551	2.46	340	2.22	239	2.06	186

PIGEON RIVER AT CANTON, N. C.

LOCATION.—Lat. $35^{\circ}31'50''$, long. $82^{\circ}50'30''$, a third of a mile upstream from State Highway bridge at Canton, Haywood County. Datum of gage is 2,572.22 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—133 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except from 5:30 to 7:30 a.m. Aug. 30, for which a graph based on recorder record and floodmark in gage well was used.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 24,500 second-feet and extended logarithmically to crest gage height. Shifting-control method used 8 p.m. Aug. 13 to 2 a.m. Aug. 30. Gage heights used to half-tenths between 2.5 and 4.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 31,600 second-feet 6:30 a.m. Aug. 30 (gage height, 20.75 feet, from floodmark).

1907-9, 1928-39: Discharge, 8,690 second-feet Jan. 30, 1939 (gage height, 9.45 feet).

Surveys by the Tennessee Valley Authority show that the floods of June 1876 and September 1893 reached a stage of 18 feet and that of August 1928 reached 16 feet, from flood profiles.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	1.98	512	9.27	8,380	---	---	---	---	---	---
2	1.27	208	1.97	507	8.46	7,180	7.29	5,080	---	---	---	---
3	---	---	1.93	488	8.37	7,040	---	---	---	---	---	---
4	1.30	218	1.91	478	9.06	8,080	6.82	4,430	---	---	---	---
5	---	---	1.90	473	9.69	8,990	---	---	---	---	---	---
6	1.33	229	1.91	478	9.97	9,470	6.40	3,940	4.38	1,920	---	---
7	---	---	2.00	522	10.03	9,470	---	---	---	---	---	---
8	1.39	251	2.39	734	10.35	10,100	6.05	3,480	---	---	3.52	1,260
9	---	---	2.80	980	11.28	11,600	---	---	---	---	---	---
10	1.46	279	3.20	1,230	12.35	13,500	5.82	3,260	---	---	---	---
11	---	---	3.76	1,640	14.20	17,000	---	---	---	---	---	---
N	1.52	303	4.52	2,280	17.43	24,000	5.58	3,050	4.11	1,720	---	---
1	---	---	5.36	3,150	17.83	24,900	---	---	---	---	---	---
2	1.65	359	6.05	3,820	16.80	22,500	5.35	2,750	---	---	---	---
3	---	---	6.54	4,430	15.23	19,000	---	---	---	---	---	---
4	1.78	417	6.94	4,950	14.26	17,200	5.16	2,550	---	---	3.35	1,160
5	---	---	7.23	5,360	14.28	17,200	---	---	---	---	---	---
6	1.85	450	7.39	5,640	13.79	16,200	5.00	2,460	3.90	1,560	---	---
7	---	---	7.22	5,360	12.42	13,500	---	---	---	---	---	---
8	2.00	522	7.37	5,640	10.93	10,800	4.87	2,370	---	---	---	---
9	---	---	7.61	5,920	9.74	8,680	---	---	---	---	---	---
10	2.04	542	8.27	6,900	8.85	7,330	4.80	2,280	---	---	---	---
11	---	---	9.14	8,080	8.32	6,480	---	---	---	---	---	---
12	2.01	527	9.70	8,990	7.92	5,920	4.71	2,190	3.72	1,400	3.17	1,070
	Aug. 29		Aug. 30		Aug. 31		SUPPLEMENTAL RECORDS					
							Day		Gage height	Discharge		
1	---	---	10.77	10,400	---	---			---			
2	---	---	11.70	12,300	5.03	2,750			---			
3	---	---	13.95	16,600	---	---			---			
4	---	---	15.85	20,300	4.86	2,650			---			
5	---	---	17.75	24,700	---	---			---			
6	1.56	283	20.00	29,700	4.72	2,460			---			
7	---	---	20.00	29,700	---	---			---			
8	---	---	18.10	25,300	4.59	2,370			---			
9	---	---	15.10	18,800	---	---			---			
10	---	---	11.70	12,300	4.50	2,280			---			
11	---	---	9.45	8,530	---	---			---			
N	1.70	333	8.48	7,180	4.38	2,190			---			
1	1.74	346	7.83	6,200	---	---			---			
2	1.80	372	7.35	5,640	4.28	2,100			---			
3	1.98	450	7.01	5,080	---	---			---			
4	2.33	605	6.68	4,690	4.20	2,010			---			
5	3.90	1,560	6.45	4,300	---	---			---			
6	4.72	2,240	6.17	4,060	4.11	1,920			---			
7	5.68	3,150	5.94	3,700	---	---			---			
8	6.09	3,590	5.75	3,590	4.01	1,840			---			
9	6.76	4,300	5.60	3,370	---	---			---			
10	8.18	6,340	5.47	3,260	3.95	1,800			---			
11	9.10	7,780	5.34	3,050	---	---			---			
12	9.81	8,830	5.23	2,950	3.87	1,720			---			

Day		Gage height	Discharge
Aug. 13,	2:30 a.m.	8.29	6,900
	12:30 p.m.	18.00	25,100
Aug. 30,	6:30 a.m.	20.75	31,600

PIGEON RIVER NEAR HEPCO, N. C.

LOCATION.—Lat. 35°38'15", long. 82°59'15", three-quarters of a mile downstream from Jonathan Creek and 2½ miles upstream from Fines Creek and from Hepeco, Haywood County. Datum of gage is 2,335.95 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—350 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for 2-11 p.m. Aug. 13 and Aug. 29 to noon Aug. 30, where graph based on floodmarks in gage house and records for stations at Canton and Waterville power plant and for tributary streams was used, and Aug. 23-28, where only fragmentary recorder graph was available.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 10,600 second-feet and extended to crest gage height on basis of determination of flood flows by slope-area method at gage heights 14.94 feet and 15.82 feet. Shifting-control method used Aug. 17 to 6 p.m. Aug. 29. Gage heights used to half-tenths between 2.4 and 5.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 32,700 second-feet about 10:30 a.m. Aug. 30 (gage height, 15.82 feet, from floodmarks in gage house).

1927-39: Discharge, 21,900 second-feet Aug. 16, 1928 (gage height, 12.63 feet).

Surveys by the Tennessee Valley Authority show that the floods of June 1876 and February 1902 reached a stage of about 18 feet, from flood profiles. REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	7.61	7,740	9.30	12,100	-----	-----	-----	-----
2	-----	-----	8.01	8,680	8.70	10,500	-----	-----	-----	-----
3	-----	-----	8.68	10,500	8.40	9,690	-----	-----	-----	-----
4	-----	-----	8.64	10,200	8.07	8,930	-----	-----	-----	-----
5	-----	-----	8.45	9,690	7.79	8,200	-----	-----	-----	-----
6	2.60	808	8.14	8,930	7.55	7,740	5.37	3,580	4.53	2,470
7	-----	-----	8.03	8,680	7.38	7,300	-----	-----	-----	-----
8	-----	-----	8.56	10,200	7.17	6,880	-----	-----	-----	-----
9	-----	-----	9.29	12,100	7.02	6,470	-----	-----	-----	-----
10	-----	-----	9.86	13,800	6.86	6,270	-----	-----	-----	-----
11	-----	-----	10.25	14,700	6.74	5,880	-----	-----	-----	-----
N	2.66	839	10.52	15,600	6.62	5,690	5.12	3,210	4.38	2,290
1	2.85	968	11.10	17,300	-----	-----	-----	-----	-----	-----
2	3.50	1,430	12.20	20,600	6.42	5,320	-----	-----	-----	-----
3	4.08	1,970	13.08	23,400	-----	-----	-----	-----	-----	-----
4	4.67	2,600	13.80	25,700	6.28	5,140	-----	-----	-----	-----
5	5.34	3,580	14.48	28,100	-----	-----	-----	-----	-----	-----
6	5.88	4,460	14.90	29,500	6.12	4,800	4.89	2,930	4.23	2,120
7	6.30	5,140	14.87	29,500	-----	-----	-----	-----	-----	-----
8	6.74	5,880	14.35	27,800	5.76	4,300	-----	-----	-----	-----
9	7.08	6,670	13.65	25,100	-----	-----	-----	-----	-----	-----
10	7.37	7,300	12.72	22,200	5.41	3,660	-----	-----	-----	-----
11	7.42	7,300	11.50	18,500	-----	-----	-----	-----	-----	-----
12	7.49	7,520	10.14	14,400	5.43	3,740	4.69	2,660	4.09	1,970
Hour	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	-----	-----	10.00	14,100	-----	-----	-----	-----	-----	-----
2	-----	-----	11.70	19,100	6.25	4,970	-----	-----	-----	-----
3	-----	-----	13.00	23,100	-----	-----	-----	-----	-----	-----
4	-----	-----	12.97	23,100	6.03	4,630	4.37	2,240	-----	-----
5	-----	-----	12.93	22,800	-----	-----	-----	-----	-----	-----
6	2.27	533	12.88	22,800	5.92	4,460	-----	-----	-----	-----
7	-----	-----	12.83	22,500	-----	-----	-----	-----	-----	-----
8	-----	-----	12.81	22,500	5.81	4,300	4.25	2,120	-----	-----
9	-----	-----	13.50	24,800	-----	-----	-----	-----	-----	-----
10	-----	-----	15.40	31,200	5.72	4,140	-----	-----	-----	-----
11	-----	-----	15.40	31,200	-----	-----	-----	-----	-----	-----
N	2.37	588	13.80	25,700	5.59	3,980	4.34	2,240	4.31	2,180
1	-----	-----	12.27	20,900	-----	-----	-----	-----	-----	-----
2	2.60	722	10.90	16,700	5.56	3,900	-----	-----	-----	-----
3	-----	-----	9.07	11,500	-----	-----	-----	-----	-----	-----
4	3.03	1,030	8.32	9,430	5.43	3,740	4.30	2,180	-----	-----
5	-----	-----	7.63	7,970	-----	-----	-----	-----	-----	-----
6	3.58	1,470	7.36	7,300	4.92	2,930	-----	-----	-----	-----
7	-----	-----	7.16	6,880	-----	-----	-----	-----	-----	-----
8	4.32	2,180	6.91	6,270	4.66	2,600	4.20	2,070	-----	-----
9	-----	-----	6.88	6,270	-----	-----	-----	-----	-----	-----
10	5.57	3,900	6.07	5,880	4.57	2,470	-----	-----	-----	-----
11	-----	-----	6.51	5,500	-----	-----	-----	-----	-----	-----
12	7.90	8,440	6.50	5,500	4.50	2,410	4.10	1,970	3.45	1,390

SUPPLEMENTAL RECORDS.—Aug. 13, 6:30 p.m., gage height, 14.94 feet; discharge, 29,500 second-feet.
 Aug. 30, 10:30 a.m., gage height, 15.82 feet; discharge, 32,700 second-feet.

PIGEON RIVER AT HARTFORD, TENN.

LOCATION.—Lat. 35°48'52", long. 83°08'42", 600 feet downstream from highway bridge at Hartford, Cocke County, and 4.5 miles downstream from Big Creek and North Carolina-Tennessee State line. Datum of gage is 1,245.74 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—547 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 28,800 second-feet. Gage heights used to half-tenths between 3.3 and 5.1 feet; hundredths below and tenths above these limits.

366 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Discharge, 38,600 second-feet 1:30 p.m. Aug. 30 (gauge height, 12.79 feet).

1925-39: Discharge, 25,500 second-feet Jan. 19, 1936 (gauge height, 10.68 feet).

REMARKS.—Regulation of flood flow caused by operation of gates at Waterville dam of Carolina Power & Light Co. 4.5 miles upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	718	3,350	9	764	1,320	17	2,780	1,120	25	788	813
2	656	3,150	10	170	1,380	18	2,210	1,080	26	1,090	740
3	202	2,110	11	93	1,370	19	2,090	970	27	1,240	690
4	75	2,150	12	637	1,300	20	1,760	656	28	1,180	115
5	629	1,950	13	15,400	1,200	21	1,750	100	29	1,370	83
6	630	1,790	14	9,860	1,040	22	1,480	91	30	22,100	706
7	756	1,620	15	5,740	828	23	1,460	880	31	6,330	
8	758	860	16	3,660	1,150	24	926	819			
Monthly mean discharge, in second-feet.....										2,881	1,183
Runoff, in inches.....										6.07	2.41

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 29		Aug. 30		Aug. 31	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.20	88	2.57	853	9.89	21,300	2.63	908	4.16	2,970	6.58	8,200
2	1.21	89	2.66	937	9.60	19,800	2.58	862	4.67	3,800	6.57	8,200
3	1.21	90	2.23	572	9.21	17,900	2.55	835	6.05	6,500	6.54	7,900
4	1.22	92	6.90	9,120	7.85	12,200	2.55	835	11.85	32,200	6.52	7,900
5	1.22	92	6.92	9,120	7.14	9,760	2.54	826	12.47	36,700	6.49	7,900
6	1.22	92	6.99	9,440	7.18	10,100	2.53	817	12.47	36,700	6.30	7,220
7	1.23	94	7.46	11,100	7.11	9,760	2.54	826	11.85	32,200	6.04	6,500
8	1.23	94	7.45	10,800	5.75	6,000	2.56	844	11.78	32,200	5.94	6,240
9	2.10	475	7.53	11,100	6.99	9,440	2.75	1,020	11.77	32,200	6.01	6,500
10	3.16	1,490	7.53	11,100	6.95	9,440	3.32	1,670	11.98	33,400	6.00	6,500
11	3.06	1,360	7.43	10,800	6.67	8,500	3.43	1,880	12.00	33,400	5.80	6,000
N	3.07	1,370	7.60	11,500	6.55	8,200	3.36	1,740	12.52	36,700	5.72	5,780
1	3.11	1,420	8.27	14,100	6.31	7,220	3.43	1,880	12.62	37,300	5.88	6,240
2	2.90	1,180	8.64	15,300	6.44	7,600	2.98	1,270	12.50	36,700	5.72	5,780
3	2.94	1,220	9.06	17,500	6.16	7,040	3.34	1,740	11.40	29,700	5.43	5,160
4	2.66	938	9.54	19,300	6.11	6,760	3.17	1,500	10.00	21,800	5.48	5,360
5	2.12	490	10.46	24,500	5.89	6,240	2.95	1,240	8.03	13,000	5.72	5,780
6	1.85	310	11.08	27,900	5.94	6,240	2.93	1,210	8.30	14,100	5.70	5,780
7	1.87	322	11.75	31,600	6.00	6,500	2.96	1,250	7.77	12,200	5.68	5,780
8	2.00	405	11.90	32,800	6.55	8,200	3.13	1,450	7.68	11,900	5.62	5,560
9	2.25	588	11.10	27,900	6.70	8,500	3.63	2,180	7.30	10,400	5.63	5,560
10	3.03	1,330	11.10	27,900	6.63	8,200	3.73	2,330	7.18	10,100	5.45	5,160
11	2.91	1,190	10.10	22,400	6.30	7,220	3.66	2,180	7.07	9,760	5.09	4,580
12	2.57	853	10.05	21,800	6.27	7,220	3.85	2,490	6.60	8,200	5.03	4,490

SUPPLEMENTAL RECORDS.—Aug. 13, 7:30 p.m., gage height, 12.10 feet; discharge, 34,100 second-feet. Aug. 30, 1:30 p.m., gage height, 12.79 feet; discharge, 38,600 second-feet.

LOCATION.—Lat. 35°37'40", long. 83°00'00", 1,500 feet downstream from ford, three-quarters of a mile upstream from mouth, and 2 miles downstream from Cove Creek and Cove Creek post office, Haywood County. Datum of gage is 2,383.89 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,350 second-feet and extended to crest gage height on basis of logarithmic plotting, giving some weight to a determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.8 and 5.3 feet; hundredths below and tenths above these limits.

1930-39: Discharge, 2,270 second-feet Jan. 19, 1936 (gage height, 6.20 feet).

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

368 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.62	117	3.14	501	---	---	---	---	---	---	---	---
2	1.61	116	3.03	468	4.15	958	---	---	---	---	---	---
3	1.61	116	2.98	452	---	---	---	---	---	---	---	---
4	1.64	121	2.93	436	4.00	880	---	---	---	---	---	---
5	1.70	131	2.86	405	---	---	---	---	---	---	---	---
6	1.73	137	2.80	390	3.90	830	3.04	468	---	---	---	---
7	1.74	139	2.78	384	---	---	---	---	---	---	---	---
8	1.75	140	2.85	405	3.79	780	---	---	---	---	---	---
9	1.76	142	3.62	685	---	---	---	---	---	---	---	---
10	1.80	150	4.25	1,010	3.68	730	---	---	---	---	---	---
11	1.85	160	4.48	1,160	---	---	---	---	---	---	---	---
N	1.93	175	4.65	1,250	3.62	685	2.90	420	2.55	318	2.33	262
1	2.06	202	4.79	1,340	---	---	---	---	---	---	---	---
2	2.25	244	4.94	1,430	3.52	640	---	---	---	---	---	---
3	2.45	292	5.09	1,520	---	---	---	---	---	---	---	---
4	2.62	337	5.39	1,710	3.45	619	---	---	---	---	---	---
5	2.70	360	5.69	1,910	---	---	---	---	---	---	---	---
6	2.68	354	5.93	2,050	3.38	598	2.77	381	---	---	---	---
7	2.74	372	6.08	2,190	---	---	---	---	---	---	---	---
8	2.97	436	5.66	1,910	3.33	577	---	---	---	---	---	---
9	3.15	501	5.14	1,550	---	---	---	---	---	---	---	---
10	3.25	537	4.80	1,340	3.27	537	---	---	---	---	---	---
11	3.31	556	4.55	1,190	---	---	---	---	---	---	---	---
12	3.27	537	4.40	1,100	3.20	518	2.69	357	2.42	284	2.22	237
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.50	99	6.09	2,190	3.47	619	---	---	---	---	---	---
2	1.51	100	7.07	2,900	3.42	598	---	---	---	---	---	---
3	1.52	102	7.39	3,120	3.38	598	---	---	---	---	---	---
4	1.52	102	7.51	3,200	3.33	577	---	---	---	---	---	---
5	1.53	104	7.37	3,120	3.28	556	---	---	---	---	---	---
6	1.53	104	7.39	3,120	3.25	537	---	---	---	---	---	---
7	1.54	106	6.46	2,470	3.25	537	---	---	---	---	---	---
8	1.55	106	5.51	1,780	3.23	537	---	---	---	---	---	---
9	1.57	110	5.08	1,520	3.21	518	---	---	---	---	---	---
10	1.61	116	4.77	1,310	3.19	518	---	---	---	---	---	---
11	1.66	124	4.56	1,190	3.15	501	---	---	---	---	---	---
N	1.79	148	4.39	1,100	3.11	484	2.70	360	2.47	296	2.30	255
1	2.16	223	4.24	1,010	3.18	518	---	---	---	---	---	---
2	2.55	318	4.11	930	3.36	577	---	---	---	---	---	---
3	2.80	390	4.00	880	3.26	537	---	---	---	---	---	---
4	3.03	468	3.91	830	3.17	501	---	---	---	---	---	---
5	3.28	556	3.83	805	3.08	484	---	---	---	---	---	---
6	3.52	640	3.76	755	3.02	452	---	---	---	---	---	---
7	3.96	855	3.69	730	2.98	452	---	---	---	---	---	---
8	4.40	1,100	3.66	708	2.96	436	---	---	---	---	---	---
9	4.69	1,280	3.62	685	2.94	436	---	---	---	---	---	---
10	5.02	1,460	3.63	708	2.91	420	---	---	---	---	---	---
11	5.28	1,640	3.60	685	2.90	420	---	---	---	---	---	---
12	5.48	1,780	3.54	662	2.87	405	2.55	318	2.36	269	2.21	234

LOCATION.—Lat. 35°39'55", long. 83°04'50", at bridge on State Highway 284, just upstream from Little Cataloochee Creek and 2 miles north of Cataloochee, Haywood County. Datum of gage is 2,457.48 feet above mean sea level, datum of 1929.

DISCHARGE RECORD.—Artificial control is concrete. Stage-discharge relation defined by current-meter measurements up to 1,500 second-feet and extended to crest gage height logarithmically, allowing for slight over-bank flow. Shifting-control method used from 2 p.m. Aug. 30 to Sept. 30. Gage heights used to half-tenths above and hundredths below 4.1 feet.

REMARKS.—Flood runoff not affected by artificial storage.

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	105	312	9	71	101	17	249	69	25	108	62
2	94	246	10	68	124	18	217	68	26	98	56
3	90	204	11	80	101	19	196	66	27	92	53
4	82	178	12	133	88	20	163	62	28	86	51
5	80	154	13	742	84	21	145	62	29	252	49
6	86	137	14	589	82	22	137	59	30	1,310	48
7	80	122	15	455	76	23	122	57	31	459	-----
8	73	112	16	320	73	24	119	57			
Monthly mean discharge, in second-feet-----										223	
Runoff, in inches-----										5.22	100 2.28

370 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1			3.11	274								
2			3.11	274	4.04	677						
3			3.14	284								
4			3.15	288	4.00	655						
5			3.15	288								
6	2.44	84	3.15	288	3.98	645						
7			3.22	312								
8			3.50	420	3.93	620						
9			4.16	738								
10			4.42	880	3.89	600						
11			4.41	880								
N	2.48	92	4.30	820	3.83	570	3.57	452	3.24	319	3.04	249
1			4.33	850								
2	2.51	98	4.70	1,070	3.80	555						
3			5.05	1,320								
4	2.63	127	5.12	1,360	3.75	532						
5			4.99	1,280								
6	2.64	129	4.80	1,140	3.72	519						
7			4.65	1,040								
8	3.00	235	4.52	940	3.72	519						
9			4.43	910								
10	3.22	312	4.34	850	3.75	532						
11			4.23	792								
12	3.13	280	4.16	738	3.78	546	3.37	368	3.13	280	2.97	226
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
1			5.08	1,360								
2			6.10	2,240	3.87	565						
3			7.01	3,390								
4			6.70	2,960	3.80	532						
5			6.22	2,350								
6	2.44	84	5.86	1,990	3.74	501						
7			5.51	1,680								
8			5.30	1,520	3.70	483						
9			5.10	1,360								
10			4.90	1,210	3.67	470						
11			4.75	1,100								
N	2.56	110	4.65	1,040	3.64	456	3.28	312	3.09	246	2.96	205
1	2.67	137	4.52	940								
2	3.00	235	4.41	880	3.64	456						
3	3.23	316	4.32	820								
4	3.27	330	4.25	765	3.56	420						
5	3.30	340	4.17	738								
6	3.32	348	4.10	688	3.50	396						
7	3.35	360	4.22	765								
8	3.41	384	4.20	738	3.46	380						
9	3.71	514	4.15	710								
10	4.00	655	4.07	672	3.43	368						
11	4.29	820	4.00	630								
12	4.65	1,040	3.95	605	3.41	360	3.17	274	3.02	223	2.90	187

SUPPLEMENTAL RECORDS.—Aug. 13, 10.30 a.m., gage height, 4.45 feet, discharge, 910 second-feet; 3.30 p.m., gage height, 5.12 feet, discharge, 1,360 second-feet. Aug. 30, 6.30 p.m., gage height, 4.08 feet, discharge, 677 second-feet.

LOCATION.—Lat. 35°53'59", long. 82°01'50", 0.1 mile upstream from Rose Creek and about 1 mile northwest of Altapass, Mitchell County. Datum of gage is 2,542.91 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. DRAINAGE AREA.—104 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph except 8:30-10 p.m. Aug. 13, when recorder float was stopped by gage house floor and for which period the graph was completed on basis of floodmark in gage house, and Sept. 14-20, 23-30, when clock was stopped.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,600 second-feet and extended logarithmically to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.8 and 4.6 feet Aug. 1-13 and between 3.2 and 4.8 feet Aug. 14 to Sept. 30; hundredths below and tenths above these limits. Discharge for periods of no gage-height record based on recorded range in gage heights and records for nearby streams.

MAXIMA.—1940: Discharge, 22,200 second-feet 9 p.m. Aug. 13 (gage height, 19.5 feet, from floodmark).

1934-39: Discharge, 4,450 second-feet Jan. 9, 1935 (gage height, 11.75 feet, site and datum then in use).

Surveys by the Tennessee Valley Authority show that the flood of July 1916 reached a stage of 24 feet, from floodmarks, and flood of May 1901 reached a stage of 23 feet, from local residents' comparison with 1916 flood.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

372 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	1.47	123	5.13	1,880	16.73	16,800				
2	1.48	126	5.11	1,880	14.32	12,600	4.89	1,740		
3	1.54	142	5.12	1,880	11.85	8,780				
4	1.62	164	5.13	1,880	10.44	6,980	4.72	1,620		
5	1.77	206	5.23	1,950	9.51	5,920				
6	1.89	243	5.42	2,090	8.80	5,150	4.57	1,520		
7	1.86	234	5.63	2,230	8.23	4,530				
8	1.87	237	5.90	2,460	7.77	4,130	4.42	1,420		
9	2.02	286	6.20	2,700	7.35	3,740				
10	2.27	374	6.56	3,020	6.99	3,380	4.30	1,360		
11	2.35	404	7.14	3,470	6.69	3,110				
N	2.36	407	7.79	4,130	6.51	2,940	4.24	1,320	3.48	880
1	2.45	440	8.21	4,530	6.37	2,860				
2	2.53	470	8.58	4,930	6.23	2,700	4.12	1,230		
3	2.81	580	9.56	6,030	6.07	2,620				
4	3.09	720	11.70	8,640	5.91	2,460	4.02	1,170		
5	3.67	1,010	14.78	13,400	5.82	2,380				
6	4.17	1,290	18.22	19,600	5.75	2,380	3.93	1,140		
7	4.53	1,520	18.06	19,400	5.69	2,300				
8	4.78	1,670	18.45	20,000	5.64	2,230	3.87	1,080		
9	5.10	1,880	19.5	22,200	5.50	2,160				
10	5.25	1,950	18.93	21,000	5.36	2,090	3.80	1,050		
11	5.27	2,020	18.56	20,400	5.23	1,950				
12	5.22	1,950	18.13	19,400	5.09	1,880	3.74	1,020	3.27	745

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1			5.92	2,460						
2			6.15	2,700	4.85	1,680				
3			6.44	2,860						
4			6.68	3,110	4.61	1,550	3.34	798	2.87	562
5			6.95	3,380						
6	1.85	197	7.45	3,740	4.40	1,420				
7			8.20	4,530						
8			9.30	5,700	4.22	1,290	3.25	745	2.84	548
9			9.82	6,260						
10			9.90	6,380	4.06	1,200				
11			10.07	6,620						
N	1.88	205	9.72	6,140	3.94	1,140	3.17	705	2.80	530
1	1.90	210	9.00	5,370						
2	1.97	230	8.33	4,630	3.83	1,080				
3	2.13	278	7.83	4,130						
4	2.28	328	7.32	3,650	3.73	1,020	3.07	655	2.74	506
5	2.83	544	6.85	3,200						
6	3.00	620	6.32	2,780	3.63	962				
7	3.07	655	5.92	2,460						
8	3.48	880	5.60	2,230	3.57	908	2.98	611	2.67	478
9	4.48	1,480	5.36	2,090						
10	5.42	2,090	5.16	1,950	3.50	880				
11	5.90	2,460	5.00	1,810						
12	5.94	2,460	4.82	1,680	3.44	852	2.92	584	2.63	462

SUPPLEMENTAL RECORDS.—Aug. 13, 6:30 p.m., gage height, 18.33 feet, discharge, 19,800 second-feet. Aug. 29, 5:30 p.m., gage height, 3.06 feet, discharge, 650 second-feet; 6:30 p.m., gage height, 2.97 feet, discharge, 606 second-feet.

LOCATION.—Lat. 36°04'25", long. 82°20'20", at Poplar, Mitchell County, 4 miles downstream from Cane River and 6 miles upstream from State line. Datum of gage is 1,971.96 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph. Recorder graph reconstructed from 11 p.m. Aug. 30 to 11 a.m. Aug. 31 owing to partly obstructed intake.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 16,000 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.7 and 4.5 feet prior to Aug. 14 and between 3.0 and 4.5 feet subsequently; hundredths below and tenths above these limits.

1925-39: Discharge, 41,400 second-feet (revised) Aug. 16, 1928 (gage height, 14.7 feet).

Floods of 1901 and 1916 reached a stage slightly over 21 feet, from flood-marks (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

374 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.95	2,050	8.06	12,700	-----	-----	-----	-----	-----	-----
2	-----	-----	2.93	2,050	8.09	12,700	15.00	43,100	-----	-----	-----	-----
3	-----	-----	3.01	2,120	8.16	13,000	-----	-----	-----	-----	-----	-----
4	-----	-----	3.21	2,400	8.45	13,600	13.95	37,200	6.72	8,850	-----	-----
5	-----	-----	3.30	2,540	8.47	13,900	-----	-----	-----	-----	-----	-----
6	1.63	502	3.27	2,470	8.35	13,600	13.15	33,000	-----	-----	-----	-----
7	-----	-----	3.26	2,470	8.19	13,000	-----	-----	-----	-----	-----	-----
8	-----	-----	3.30	2,540	7.97	12,400	11.95	27,200	6.25	7,690	-----	-----
9	-----	-----	3.38	2,680	8.01	12,400	-----	-----	-----	-----	-----	-----
10	-----	-----	3.61	2,980	8.42	13,600	10.90	22,600	-----	-----	-----	-----
11	-----	-----	3.91	3,430	9.00	15,500	-----	-----	-----	-----	-----	-----
N	1.61	486	4.03	3,670	10.35	20,600	10.12	19,500	5.85	6,840	4.48	4,410
1	1.60	478	4.10	3,750	11.10	23,400	-----	-----	-----	-----	-----	-----
2	1.60	478	4.44	4,320	11.60	25,400	9.45	16,900	-----	-----	-----	-----
3	1.94	794	4.78	4,930	12.60	30,000	-----	-----	-----	-----	-----	-----
4	2.04	904	5.00	5,290	14.75	41,900	8.85	14,900	5.50	6,240	-----	-----
5	2.21	1,090	5.27	5,850	18.00	62,500	-----	-----	-----	-----	-----	-----
6	2.34	1,250	5.90	7,050	19.25	70,900	8.35	13,600	-----	-----	-----	-----
7	2.39	1,310	6.53	8,370	19.70	74,500	-----	-----	-----	-----	-----	-----
8	2.42	1,350	7.00	9,600	19.45	72,300	7.95	12,400	5.22	5,660	-----	-----
9	2.45	1,380	7.42	10,700	19.00	69,500	-----	-----	-----	-----	-----	-----
10	2.54	1,500	7.65	11,200	18.60	66,700	7.65	11,200	-----	-----	-----	-----
11	2.72	1,710	7.90	12,100	17.80	61,100	-----	-----	-----	-----	-----	-----
12	2.92	1,980	8.00	12,400	16.65	53,200	7.30	10,400	4.96	5,290	4.20	3,900
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.23	998	9.75	18,300	-----	-----	-----	-----	-----	-----	-----	-----
2	2.20	965	10.60	21,400	7.02	9,600	-----	-----	-----	-----	-----	-----
3	2.18	945	11.50	25,000	-----	-----	-----	-----	-----	-----	-----	-----
4	2.17	935	12.08	27,700	6.64	8,610	-----	-----	-----	-----	-----	-----
5	2.17	935	12.35	29,000	-----	-----	-----	-----	-----	-----	-----	-----
6	2.19	955	12.65	30,000	6.33	7,910	-----	-----	-----	-----	-----	-----
7	2.22	987	12.92	31,500	-----	-----	-----	-----	-----	-----	-----	-----
8	2.22	987	13.07	32,500	6.08	7,470	-----	-----	-----	-----	-----	-----
9	2.23	998	12.98	32,000	-----	-----	-----	-----	-----	-----	-----	-----
10	2.24	1,010	12.72	30,500	5.87	7,050	-----	-----	-----	-----	-----	-----
11	2.25	1,020	12.52	29,500	-----	-----	-----	-----	-----	-----	-----	-----
N	2.26	1,030	12.47	29,500	5.70	6,640	4.25	3,980	3.64	3,020	3.28	2,460
1	2.28	1,050	12.50	29,500	-----	-----	-----	-----	-----	-----	-----	-----
2	2.33	1,110	12.17	28,200	5.52	6,240	-----	-----	-----	-----	-----	-----
3	2.36	1,140	11.50	25,000	-----	-----	-----	-----	-----	-----	-----	-----
4	2.44	1,240	10.80	22,200	5.37	6,040	-----	-----	-----	-----	-----	-----
5	2.57	1,400	10.35	20,600	-----	-----	-----	-----	-----	-----	-----	-----
6	2.66	1,520	9.85	18,300	5.24	5,660	-----	-----	-----	-----	-----	-----
7	2.90	1,850	9.45	16,900	-----	-----	-----	-----	-----	-----	-----	-----
8	3.16	2,220	9.00	15,500	5.11	5,470	-----	-----	-----	-----	-----	-----
9	3.57	2,860	8.58	14,200	-----	-----	-----	-----	-----	-----	-----	-----
10	4.70	4,750	8.20	13,000	4.90	5,110	-----	-----	-----	-----	-----	-----
11	7.40	10,700	7.84	11,800	-----	-----	-----	-----	-----	-----	-----	-----
12	8.90	15,200	7.50	10,900	4.76	4,930	3.86	3,340	3.42	2,620	3.12	2,150

NOLICHUCKY RIVER AT EMBREEVILLE, TENN.

LOCATION.—Lat. $36^{\circ}10'35''$, long. $82^{\circ}27'27''$, 2,000 feet upstream from bridge on State Highway 81 at Embreeville, Washington County, 3 miles northwest of Erwin, and $5\frac{1}{4}$ miles downstream from North Indian Creek. Datum of gage is 1,519.30 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—805 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 47,600 second-feet and extended to crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.7 and 5.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 82,500 second-feet 9:30 p.m. Aug. 13 (gage height, 18.57 feet).

1920-39: Discharge, 36,600 second-feet Mar. 26, 1935 (gage height, 10.69 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,510	4,780	9	927	1,380	17	4,370	922	25	1,320	780
2	1,050	3,400	10	772	1,350	18	3,330	855	26	1,260	844
3	814	2,690	11	804	1,300	19	3,120	833	27	1,060	740
4	720	2,260	12	3,590	1,160	20	2,480	822	28	1,080	673
5	664	1,980	13	30,700	1,100	21	2,060	780	29	1,380	637
6	1,050	1,790	14	27,900	1,060	22	1,860	740	30	27,200	628
7	2,290	1,620	15	8,730	970	23	1,610	720	31	9,030	-----
8	1,280	1,470	16	5,770	958	24	1,430	730			
Monthly mean discharge, in second-feet -----										4,876	1,332
Runoff, in inches -----										6.98	1.85

376 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.04	1,410	5.68	11,800	16.45	69,000	---	---	---	---	---	---
2	2.07	1,450	5.80	12,200	14.90	60,100	5.34	10,000	---	---	---	---
3	2.12	1,530	5.87	12,700	13.50	52,200	---	---	---	---	---	---
4	2.25	1,740	5.89	12,700	12.50	46,600	5.27	9,820	---	---	---	---
5	2.39	1,980	5.92	12,700	11.75	42,800	---	---	---	---	---	---
6	2.43	2,050	6.02	13,100	11.07	39,000	5.20	9,620	---	---	---	---
7	2.44	2,070	6.12	13,500	10.52	35,800	---	---	---	---	---	---
8	2.51	2,200	6.14	13,500	9.92	32,500	5.15	9,420	---	---	---	---
9	2.63	2,430	6.07	13,500	9.32	29,300	---	---	---	---	---	---
10	2.66	2,480	5.93	12,700	8.70	26,200	5.11	9,230	---	---	---	---
11	2.66	2,480	5.88	12,700	8.12	23,100	---	---	---	---	---	---
N	2.66	2,480	5.97	13,100	7.78	21,600	5.04	9,040	4.07	5,660	3.60	4,440
1	2.69	2,540	6.32	14,400	7.30	19,100	---	---	---	---	---	---
2	2.79	2,760	6.97	17,600	7.00	17,600	---	---	---	---	---	---
3	3.02	3,190	7.95	22,600	6.58	15,800	---	---	---	---	---	---
4	3.13	3,520	8.45	24,600	6.40	14,800	4.75	7,940	---	---	---	---
5	3.22	3,640	9.70	31,500	6.13	13,500	---	---	---	---	---	---
6	3.52	4,350	11.70	42,200	5.92	12,600	---	---	---	---	---	---
7	3.70	4,860	16.00	66,600	5.78	12,100	---	---	---	---	---	---
8	3.88	5,410	17.80	77,600	5.66	11,700	4.61	7,410	---	---	---	---
9	4.35	6,800	18.48	81,900	5.56	11,300	---	---	---	---	---	---
10	4.82	8,360	18.45	81,300	5.47	10,800	---	---	---	---	---	---
11	5.28	10,200	18.00	78,800	5.38	10,400	---	---	---	---	---	---
12	5.51	11,000	17.54	75,700	5.33	10,000	4.43	6,900	3.80	4,970	3.29	3,710
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	5.23	9,820	---	---	---	---	---	---	---	---
2	---	---	6.60	15,800	6.11	13,500	---	---	---	---	---	---
3	---	---	7.14	18,100	---	---	---	---	---	---	---	---
4	---	---	8.14	23,100	5.78	12,100	---	---	---	---	---	---
5	---	---	9.06	28,300	---	---	---	---	---	---	---	---
6	---	---	9.78	32,000	5.50	10,800	---	---	---	---	---	---
7	---	---	10.45	35,200	---	---	---	---	---	---	---	---
8	---	---	10.77	37,400	5.12	9,230	---	---	---	---	---	---
9	---	---	11.11	39,000	---	---	---	---	---	---	---	---
10	---	---	11.23	39,500	4.95	8,660	---	---	---	---	---	---
11	---	---	11.08	39,000	---	---	---	---	---	---	---	---
N	1.86	1,110	10.77	37,400	4.89	8,480	3.69	4,700	3.16	3,370	2.82	2,640
1	---	---	10.50	35,800	---	---	---	---	---	---	---	---
2	---	---	10.30	34,700	---	---	---	---	---	---	---	---
3	---	---	10.30	34,700	---	---	---	---	---	---	---	---
4	---	---	9.92	32,500	4.57	7,240	---	---	---	---	---	---
5	---	---	9.34	29,300	---	---	---	---	---	---	---	---
6	2.08	1,400	8.66	26,200	---	---	---	---	---	---	---	---
7	---	---	8.06	23,100	---	---	---	---	---	---	---	---
8	---	---	7.71	21,100	4.38	6,740	---	---	---	---	---	---
9	---	---	7.18	18,600	---	---	---	---	---	---	---	---
10	---	---	6.90	17,200	---	---	---	---	---	---	---	---
11	---	---	6.60	15,800	---	---	---	---	---	---	---	---
12	3.40	3,950	6.41	14,800	4.19	6,110	3.38	3,950	2.98	3,050	2.72	2,450

SUPPLEMENTARY RECORD.—Aug. 13, 9:30 p.m., gage height, 18.57 feet; discharge, 82,500 second-feet.

NOLICHUCKY RIVER AT GREENEVILLE DAM, NEAR GREENEVILLE, TENN.

LOCATION.—Lat. 36°03'55", long. 82°52'01", at dam of East Tennessee Power & Light Co., 300 feet upstream from bridge on State Highway 70, 7 miles south of Greeneville, Greene County, and 22 miles upstream from Morristown gage. Datum of gage 1,175.5 feet above mean sea level (levels by East Tennessee Power & Light Co.).

DRAINAGE AREA.—1,183 square miles.

GAGE-HEIGHT RECORD.—Head-water gage readings hourly, Aug. 13-15.

DISCHARGE RECORD.—Stage-discharge relation based on determination of flow over dam. Discharge, Aug. 13 to 12 m. Aug. 14 based on flow over dam plus discharge through turbines. Secondary flashboards at 72.0 feet assumed to be down at

9 a.m. Aug. 13. Main flashboards at 70.0 feet were washed out at 3 a.m. Aug. 14. Discharges for indicated time Aug. 12 and 1 p.m. Aug. 14 to Aug. 17 were computed on basis of records for stations at Embreeville and near Morristown. **MAXIMA.**—1940: Discharge, 73,500 second-feet 8 a.m. Aug. 14 (gage height, 80.0 feet).

1903-8, 1919-25: Discharge observed, about 73,500 second-feet Jan. 23, 1906 (gage height, 19.3 feet, at site 8 miles upstream and datum then in use).

REMARKS.—Crest of spillway is at gage height of 65 feet. Gage readings furnished by East Tennessee Power & Light Co.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	---	---	71.6	1,650	76.9	23,600	72.1	15,800	---	---	---	---
2	---	---	71.8	2,050	77.4	26,400	71.9	14,900	---	---	---	---
3	---	---	72.1	2,580	77.7	42,500	71.7	14,200	---	---	---	---
4	---	---	72.5	2,900	77.8	58,600	71.5	13,600	---	8,600	---	---
5	---	---	72.9	3,610	79.2	65,000	71.4	13,200	---	---	---	---
6	---	---	73.2	6,150	79.6	70,700	71.2	12,800	---	---	---	5,950
7	---	---	73.6	8,800	80.0	73,100	71.2	12,500	---	---	---	---
8	---	---	73.7	11,000	80.0	73,500	71.1	12,200	---	8,050	---	---
9	---	---	73.7	11,000	79.9	72,900	71.1	11,900	---	---	---	---
10	---	---	73.7	11,000	79.4	69,500	71.1	11,700	---	---	---	---
11	---	---	73.7	11,000	79.0	66,300	71.1	11,500	---	---	---	---
N	---	150	73.7	11,000	78.4	61,200	71.1	11,300	---	7,600	---	5,500
1	---	---	74.2	12,800	77.9	56,200	71.0	11,100	---	---	---	---
2	---	---	74.2	12,800	77.3	51,300	71.0	10,900	---	---	---	---
3	---	---	74.2	12,800	76.6	46,300	70.9	10,700	---	---	---	---
4	---	---	74.2	12,800	75.9	42,000	70.9	10,500	---	7,250	---	---
5	---	---	74.3	13,000	75.4	38,100	70.8	10,300	---	---	---	---
6	---	---	74.3	13,100	74.6	34,300	70.7	10,100	---	---	---	5,050
7	---	---	74.4	13,400	74.2	31,000	70.7	10,000	---	---	---	---
8	---	---	74.5	13,900	73.7	28,200	70.6	9,800	---	6,850	---	---
9	---	---	74.8	15,200	73.3	25,100	70.6	9,750	---	---	---	---
10	---	---	75.2	16,600	72.9	22,100	70.5	9,500	---	---	---	---
11	---	---	75.6	18,600	72.6	20,000	70.5	9,350	---	---	---	---
12	---	---	76.4	21,800	72.3	17,600	70.4	9,120	---	6,500	---	4,700
Mean	---	150	---	10,400	---	46,600	---	11,700	---	7,690	---	5,520

NOLICHUCKY RIVER NEAR MORRISTOWN, TENN.

LOCATION.—Lat. 36°07'59", long. 83°10'31", 150 feet upstream from Jones Bridge on old Morristown-Newport road, 4 miles (revised) downstream from Bent Creek, and 9 miles southeast of Morristown, Hamblen County. Datum of gage is 1,005.44 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,686 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods 1 a.m. Aug. 12 to 9 p.m. Aug. 13, 5 p.m. Aug. 21 to 11 a.m. Aug. 22, and 1 p.m. Aug. 22 to 10 a.m. Aug. 23, for which graph was based on study of regulation, range in stage, and several gage readings.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 38,800 second-feet and extended to crest gage heights on basis of study of overflow areas and by comparison of flood flows at other places in the Nolichucky River Basin. Special backwater rating curves were used for falling stages to account for backwater due to return flow of over-bank storage. Gage heights used to half-tenths between 2.9 and 4.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 61,900 second-feet 8 p.m. Aug. 14 (gage height, 22.68 feet).

1920-39: Discharge, 56,600 second-feet Mar. 26, 1935 (gage height, 22.0 feet).

378 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

REMARKS.—Flood flows affected slightly by storage and regulation at Greenville Dam, 22 miles upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	6,000	9,150	9	2,040	510	17	6,060	1,180	25	784	2,100
2	3,800	5,520	10	1,260	1,450	18	4,760	1,180	26	332	1,090
3	1,520	4,100	11	692	1,370	19	3,900	1,160	27	1,300	958
4	972	3,470	12	294	1,500	20	3,600	1,140	28	1,430	878
5	350	3,130	13	8,270	1,780	21	3,090	1,130	29	1,690	677
6	1,400	2,930	14	40,800	1,760	22	2,780	904	30	14,200	219
7	2,750	2,760	15	19,100	1,260	23	2,320	638	31	25,700	-----
8	3,120	1,110	16	8,720	742	24	1,900	1,120			
Monthly mean discharge, in second-feet.....										5,643	1,897
Runoff, in inches.....										3.86	1.26

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.64	1,620	12.68	15,500	21.20	43,500	-----	-----	-----	-----
2	-----	-----	3.67	1,620	13.09	16,300	20.55	38,000	-----	-----	-----	-----
3	-----	-----	3.72	1,660	13.64	17,400	19.85	32,200	-----	-----	-----	-----
4	-----	-----	3.83	1,800	14.35	19,200	19.00	27,700	-----	-----	-----	-----
5	-----	-----	3.95	1,900	15.15	21,000	18.05	24,500	-----	-----	-----	-----
6	1.67	242	4.12	2,050	16.05	22,800	17.05	22,400	9.83	9,740	-----	-----
7	-----	-----	4.55	2,520	17.15	25,800	16.18	20,800	-----	-----	-----	-----
8	-----	-----	5.70	3,800	17.80	28,000	15.18	18,900	-----	-----	-----	-----
9	-----	-----	6.65	4,860	18.70	33,600	14.34	17,300	-----	-----	-----	-----
10	-----	-----	7.68	6,280	19.30	37,500	13.67	16,200	-----	-----	-----	-----
11	-----	-----	9.00	8,300	19.82	40,900	13.22	15,300	-----	-----	-----	-----
N	1.57	198	9.55	9,380	20.35	45,100	12.80	14,700	9.19	8,660	7.51	6,000
1	1.55	190	10.10	10,300	20.86	48,600	12.52	14,100	-----	-----	-----	-----
2	1.53	182	10.60	11,200	21.32	51,500	12.23	13,600	-----	-----	-----	-----
3	1.52	178	10.96	12,000	21.70	54,400	12.02	13,300	-----	-----	-----	-----
4	1.51	174	11.30	12,600	22.00	56,600	11.84	13,000	-----	-----	-----	-----
5	1.50	170	11.56	13,200	22.26	58,900	11.65	12,600	-----	-----	-----	-----
6	1.50	170	11.80	13,600	22.52	60,400	11.50	12,400	8.56	7,660	-----	-----
7	1.50	170	11.99	14,000	22.67	61,900	11.34	12,200	-----	-----	-----	-----
8	1.50	170	12.11	14,200	22.68	61,900	11.19	12,000	-----	-----	-----	-----
9	1.50	170	12.20	14,400	22.62	59,500	11.04	11,700	-----	-----	-----	-----
10	1.95	375	12.24	14,400	22.44	57,000	10.91	11,500	-----	-----	-----	-----
11	3.21	1,220	12.28	14,600	22.14	53,000	10.74	11,100	-----	-----	-----	-----
12	3.52	1,480	12.43	14,800	21.73	48,500	10.60	10,900	8.15	7,020	7.08	5,480
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	6.55	4,860	19.33	37,500	-----	-----	-----	-----	-----	-----
2	-----	-----	7.48	6,000	19.55	39,500	-----	-----	-----	-----	-----	-----
3	-----	-----	8.07	6,860	19.70	40,200	-----	-----	-----	-----	-----	-----
4	-----	-----	8.48	7,500	19.78	40,900	-----	-----	-----	-----	-----	-----
5	-----	-----	8.77	7,980	19.79	40,900	-----	-----	-----	-----	-----	-----
6	3.50	1,480	9.04	8,300	19.73	39,200	10.11	10,100	7.57	6,140	-----	-----
7	-----	-----	9.25	8,660	19.58	37,900	-----	-----	-----	-----	-----	-----
8	-----	-----	9.30	8,840	19.34	34,700	-----	-----	-----	-----	-----	-----
9	-----	-----	9.30	8,840	18.90	30,800	-----	-----	-----	-----	-----	-----
10	-----	-----	9.19	8,660	18.44	27,000	-----	-----	-----	-----	-----	-----
11	-----	-----	9.00	8,300	17.94	24,700	-----	-----	-----	-----	-----	-----
N	2.82	930	8.68	7,820	17.33	23,000	9.40	9,020	6.95	5,350	5.97	4,140
1	2.70	845	8.30	7,180	16.60	21,600	-----	-----	-----	-----	-----	-----
2	2.60	775	9.20	8,660	15.93	20,200	-----	-----	-----	-----	-----	-----
3	2.52	719	11.25	12,400	15.14	18,700	-----	-----	-----	-----	-----	-----
4	2.47	686	13.14	16,300	14.38	17,400	-----	-----	-----	-----	-----	-----
5	2.46	679	14.52	19,400	13.82	16,300	-----	-----	-----	-----	-----	-----
6	3.55	1,520	15.66	22,100	13.28	15,500	8.79	7,980	6.59	4,860	-----	-----
7	4.54	2,520	16.43	23,800	12.80	14,700	-----	-----	-----	-----	-----	-----
8	4.87	2,900	17.13	25,500	12.44	13,900	-----	-----	-----	-----	-----	-----
9	4.99	3,010	17.76	28,000	12.07	13,400	-----	-----	-----	-----	-----	-----
10	5.21	3,230	18.32	31,000	11.75	13,000	-----	-----	-----	-----	-----	-----
11	5.43	3,460	18.72	33,600	11.47	12,400	-----	-----	-----	-----	-----	-----
12	5.77	3,920	19.11	36,200	11.23	12,000	8.30	7,180	6.34	4,500	5.60	3,680

LOCATION.—Lat. 35°54'30", long. 82°11'30", at bridge on State Highway 69 at Newdale, Yancey County, 1¼ miles upstream from Little Crabtree Creek, and 6¼ miles east of Burnsville. Datum of gage is 2,443.98 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,500 second-feet and extended to crest gage height on basis of discharge measurement at gage height 16.9 feet and contracted-opening computation for gage height of 17.4 feet. Shifting-control method used from 11 p.m. Aug. 13 to Aug. 19 and 5-10 p.m. Aug. 29. Gage heights used to half-tenths between 3.3 and 5.2 feet prior to 4 p.m. Aug. 13 and between 3.5 and 5.2 feet subsequently; hundredths below and tenths above these limits.

1934-39: Discharge, 12,100 second-feet Oct. 16, 1936 (gage height, 10.15 feet) from rating curve extended logarithmically above 2,500 second-feet.

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

380 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.54	91	3.56	1,400	6.39	4,940	-----	-----	-----	-----	-----	-----
2	1.65	125	3.45	1,300	5.90	4,240	-----	-----	-----	-----	-----	-----
3	1.91	212	3.35	1,200	5.64	3,820	6.33	4,520	-----	-----	-----	-----
4	2.05	268	3.28	1,140	5.41	3,550	-----	-----	-----	-----	-----	-----
5	2.19	335	3.25	1,120	5.43	3,550	-----	-----	-----	-----	-----	-----
6	2.40	455	3.47	1,300	5.76	4,100	5.67	3,540	3.82	1,260	-----	-----
7	2.51	522	4.00	1,870	6.48	5,080	-----	-----	-----	-----	-----	-----
8	2.64	608	4.45	2,360	7.11	5,980	-----	-----	-----	-----	-----	-----
9	2.68	636	4.32	2,200	7.26	6,300	5.23	2,940	-----	-----	-----	-----
10	2.71	658	4.18	2,090	7.11	5,980	-----	-----	-----	-----	-----	-----
11	2.75	690	4.15	2,040	7.08	5,980	-----	-----	-----	-----	-----	-----
N	2.78	714	4.49	2,420	8.28	7,960	4.88	2,430	3.63	1,100	3.12	756
1	2.76	698	4.88	2,900	11.16	13,700	-----	-----	-----	-----	-----	-----
2	2.73	674	5.21	3,290	14.29	21,000	-----	-----	-----	-----	-----	-----
3	2.73	674	5.48	3,680	17.1	28,600	4.67	2,190	-----	-----	-----	-----
4	2.75	690	5.61	3,820	17.4	29,400	-----	-----	-----	-----	-----	-----
5	2.87	786	5.68	3,960	16.9	28,000	-----	-----	-----	-----	-----	-----
6	3.06	944	5.84	4,100	16.2	26,000	4.44	1,890	3.47	994	-----	-----
7	3.31	1,160	6.12	4,520	14.7	22,000	-----	-----	-----	-----	-----	-----
8	3.64	1,500	6.33	4,800	13.0	17,800	-----	-----	-----	-----	-----	-----
9	3.71	1,550	6.21	4,660	11.23	13,700	4.24	1,670	-----	-----	-----	-----
10	3.61	1,450	6.05	4,380	8.97	9,230	-----	-----	-----	-----	-----	-----
11	3.58	1,450	6.09	4,520	8.02	7,450	-----	-----	-----	-----	-----	-----
12	3.61	1,450	6.33	4,800	7.46	6,460	4.06	1,510	3.33	890	2.93	649
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	9.66	10,600	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	9.39	9,990	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	9.62	10,400	4.25	2,070	-----	-----	-----	-----	-----	-----
4	-----	-----	9.44	9,990	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	9.29	9,800	-----	-----	-----	-----	-----	-----	-----	-----
6	1.88	185	9.14	9,420	4.04	1,840	3.30	1,070	2.91	713	-----	-----
7	-----	-----	8.94	9,040	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	8.96	9,230	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	9.84	10,800	3.89	1,670	-----	-----	-----	-----	-----	-----
10	-----	-----	10.52	12,200	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	8.84	8,860	-----	-----	-----	-----	-----	-----	-----	-----
N	1.88	185	7.38	6,460	3.77	1,510	3.18	956	2.86	673	2.64	518
1	1.93	202	6.60	5,230	-----	-----	-----	-----	-----	-----	-----	-----
2	2.01	231	6.09	4,520	-----	-----	-----	-----	-----	-----	-----	-----
3	2.05	245	5.73	3,960	3.69	1,460	-----	-----	-----	-----	-----	-----
4	2.17	290	5.48	3,680	-----	-----	-----	-----	-----	-----	-----	-----
5	2.68	512	5.32	3,400	-----	-----	-----	-----	-----	-----	-----	-----
6	4.74	2,250	5.15	3,200	3.60	1,360	3.06	844	2.77	605	-----	-----
7	6.20	4,380	4.98	3,010	-----	-----	-----	-----	-----	-----	-----	-----
8	6.82	5,380	4.81	2,750	-----	-----	-----	-----	-----	-----	-----	-----
9	6.66	5,080	4.72	2,620	3.51	1,260	-----	-----	-----	-----	-----	-----
10	7.10	5,830	4.80	2,750	-----	-----	-----	-----	-----	-----	-----	-----
11	8.76	8,860	4.72	2,620	-----	-----	-----	-----	-----	-----	-----	-----
12	9.86	11,000	4.54	2,430	3.43	1,190	2.98	773	2.71	563	2.55	465

LOCATION.—Lat. 36°00'52", long. 82°19'40", on State Highway 19, 1¼ miles east of Sioux, Yancey County, and 1.4 miles upstream from mouth. Datum of gage is 2,045.24 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 11 a.m. Aug. 12 to 2 p.m. Aug. 13 for which gage heights were computed from estimated discharge.

MAXIMA.—1940: Discharge, 27,300 second-feet 4:30 p.m. Aug. 13 (gage height, 17.8 feet).

1934-39: Discharge, 11,400 second-feet July 15, 1934 (gage height, 12.10 feet).

Surveys by the Tennessee Valley Authority show that the floods of August 1893 and May 1901 reached a stage of 16 feet (discharge, 21,700 second-feet, from 1940 rating).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

382 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 11		Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	4.23	1,110	7.7	4,380	10.80	8,780	---	---	---	---
2	2.12	163	4.14	1,050	7.8	4,500	10.15	7,760	---	---	---	---
3	---	---	4.11	1,020	7.7	4,380	9.55	6,860	---	---	---	---
4	2.15	170	4.18	1,080	7.6	4,260	9.03	6,030	---	---	---	---
5	---	---	4.12	1,020	7.4	4,020	8.60	5,510	---	---	---	---
6	2.15	170	4.02	955	8.05	4,800	8.25	4,990	5.36	1,940	---	---
7	---	---	4.00	955	8.4	5,250	7.98	4,740	---	---	---	---
8	2.12	163	4.17	1,050	8.7	5,640	7.67	4,380	---	---	---	---
9	---	---	4.45	1,240	9.0	6,030	7.42	4,020	---	---	---	---
10	2.01	139	5.06	1,700	9.0	6,030	7.10	3,670	---	---	---	---
11	---	---	4.9	1,580	9.0	6,030	6.93	3,450	---	---	---	---
N	1.95	126	4.8	1,500	9.0	6,030	6.82	3,340	5.12	1,740	4.28	1,140
1	---	---	4.8	1,500	9.3	6,440	---	---	---	---	---	---
2	3.04	464	4.8	1,500	10.35	8,000	---	---	---	---	---	---
3	---	---	4.8	1,500	11.65	10,300	---	---	---	---	---	---
4	3.12	496	5.15	1,780	16.25	22,300	---	---	---	---	---	---
5	---	---	6.0	2,520	17.45	26,000	---	---	---	---	---	---
6	3.07	476	6.7	3,230	16.40	22,900	6.11	2,620	4.80	1,500	---	---
7	---	---	6.85	3,400	15.50	20,200	---	---	---	---	---	---
8	3.14	505	6.95	3,500	14.30	16,800	---	---	---	---	---	---
9	---	---	6.95	3,500	13.65	15,000	---	---	---	---	---	---
10	3.68	780	7.05	3,620	13.50	14,700	---	---	---	---	---	---
11	---	---	7.4	4,020	12.70	12,700	---	---	---	---	---	---
12	4.29	1,140	7.55	4,200	11.65	10,300	5.68	2,250	4.62	1,340	4.07	985
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	8.20	4,990	---	---	---	---	---	---	---	---
2	---	---	9.20	6,300	---	---	---	---	---	---	---	---
3	2.17	153	9.73	7,000	---	---	---	---	---	---	---	---
4	---	---	9.86	7,300	---	---	---	---	---	---	---	---
5	---	---	10.20	7,760	---	---	---	---	---	---	---	---
6	2.50	237	10.55	8,420	4.90	1,580	---	---	---	---	---	---
7	---	---	10.75	8,780	---	---	---	---	---	---	---	---
8	---	---	10.82	8,780	---	---	---	---	---	---	---	---
9	2.51	240	10.57	8,420	---	---	---	---	---	---	---	---
10	---	---	10.20	7,760	---	---	---	---	---	---	---	---
11	---	---	9.87	7,300	---	---	---	---	---	---	---	---
N	2.54	249	9.93	7,300	4.67	1,380	4.00	955	3.50	660	3.19	500
1	2.57	257	9.65	6,860	---	---	---	---	---	---	---	---
2	2.65	282	8.75	5,770	---	---	---	---	---	---	---	---
3	2.69	295	8.00	4,740	---	---	---	---	---	---	---	---
4	2.77	322	7.30	3,900	---	---	---	---	---	---	---	---
5	2.95	390	6.70	3,230	---	---	---	---	---	---	---	---
6	3.07	442	6.38	2,920	4.55	1,310	---	---	---	---	---	---
7	3.15	480	6.08	2,620	---	---	---	---	---	---	---	---
8	3.37	590	5.88	2,430	---	---	---	---	---	---	---	---
9	3.49	654	5.70	2,250	---	---	---	---	---	---	---	---
10	4.75	1,460	5.60	2,160	---	---	---	---	---	---	---	---
11	6.85	3,340	5.45	2,030	---	---	---	---	---	---	---	---
12	7.73	4,380	5.28	1,900	4.32	1,140	3.69	769	3.30	555	3.05	432

SUPPLEMENTAL RECORDS.—Aug. 11, 1 p.m., gage height, 1.94 feet; discharge, 126 second-feet. Aug. 13, 4:30 p.m., gage height, 17.8 feet; discharge, 27,300 second-feet. Aug. 30, 7:45 a.m., gage height, 10.84 feet; discharge, 8,780 second-feet.

LOCATION.—Lat. 35°52'34", long. 83°34'36", at Eckel farmhouse, half a mile downstream from Sevierville, Sevier County, and half a mile downstream from confluence of East and West Forks. Datum of gage is 881.44 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 18,400 second-feet. Gage heights used to half-tenths between 2.6 and 4.2 feet; hundredths below and tenths above these limits.

1920-39: Discharge, 32,000 second-feet June 29, 1928 (gage height, 15.4 feet), from rating curve extended above 20,000 second-feet.

Mean discharge, in second-feet, 1940

[illegible]

384 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.22	1,580	9.08	8,630	-----	-----	-----	-----	-----	-----
2	-----	-----	3.09	1,480	8.60	7,980	-----	-----	-----	-----	-----	-----
3	-----	-----	2.98	1,400	8.00	7,200	-----	-----	-----	-----	-----	-----
4	-----	-----	2.89	1,300	7.40	6,420	-----	-----	-----	-----	-----	-----
5	-----	-----	2.82	1,220	6.85	5,640	-----	-----	-----	-----	-----	-----
6	1.19	194	2.76	1,180	6.32	4,990	3.00	1,400	-----	-----	-----	-----
7	-----	-----	2.72	1,140	5.92	4,510	-----	-----	-----	-----	-----	-----
8	-----	-----	2.80	1,220	5.56	4,150	-----	-----	-----	-----	-----	-----
9	-----	-----	3.02	1,400	5.27	3,790	-----	-----	-----	-----	-----	-----
10	-----	-----	3.13	1,530	5.03	3,430	-----	-----	-----	-----	-----	-----
11	-----	-----	3.12	1,480	4.82	3,190	-----	-----	-----	-----	-----	-----
N	1.23	211	3.07	1,440	4.63	2,970	2.78	1,220	2.16	729	1.84	533
1	1.28	233	3.02	1,400	-----	-----	-----	-----	-----	-----	-----	-----
2	1.30	242	3.00	1,400	4.32	2,650	-----	-----	-----	-----	-----	-----
3	1.33	257	2.98	1,400	-----	-----	-----	-----	-----	-----	-----	-----
4	1.34	262	2.96	1,350	4.06	2,400	-----	-----	-----	-----	-----	-----
5	1.34	262	2.96	1,350	-----	-----	-----	-----	-----	-----	-----	-----
6	2.90	1,300	2.98	1,400	3.82	2,150	2.55	1,020	-----	-----	-----	-----
7	4.00	2,350	3.06	1,440	-----	-----	-----	-----	-----	-----	-----	-----
8	4.07	2,400	3.50	1,860	3.62	1,960	-----	-----	-----	-----	-----	-----
9	3.92	2,250	5.85	4,390	-----	-----	-----	-----	-----	-----	-----	-----
10	3.72	2,050	7.70	6,810	3.48	1,860	-----	-----	-----	-----	-----	-----
11	3.56	1,910	8.65	7,980	-----	-----	-----	-----	-----	-----	-----	-----
12	3.38	1,760	9.17	8,760	3.36	1,720	2.38	885	1.96	604	1.75	482
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.12	167	3.28	1,670	3.81	2,160	-----	-----	-----	-----	-----	-----
2	1.12	167	3.72	2,050	3.96	2,300	-----	-----	-----	-----	-----	-----
3	1.11	163	4.85	3,190	4.04	2,400	-----	-----	-----	-----	-----	-----
4	1.11	163	6.30	4,990	4.04	2,400	-----	-----	-----	-----	-----	-----
5	1.11	163	7.60	6,680	4.02	2,350	-----	-----	-----	-----	-----	-----
6	1.10	159	7.85	6,940	3.97	2,300	-----	-----	-----	-----	-----	-----
7	1.12	167	7.15	6,160	3.93	2,300	-----	-----	-----	-----	-----	-----
8	1.18	190	6.30	4,990	3.88	2,250	-----	-----	-----	-----	-----	-----
9	1.21	202	5.55	4,150	3.75	2,110	-----	-----	-----	-----	-----	-----
10	1.22	207	5.04	3,430	3.60	1,960	-----	-----	-----	-----	-----	-----
11	1.22	207	4.68	3,080	3.42	1,780	-----	-----	-----	-----	-----	-----
N	1.17	186	4.43	2,760	3.27	1,650	2.28	850	1.89	581	1.67	450
1	1.20	198	4.23	2,550	3.17	1,560	-----	-----	-----	-----	-----	-----
2	1.19	194	4.04	2,400	3.09	1,520	-----	-----	-----	-----	-----	-----
3	1.22	207	3.87	2,200	3.02	1,440	-----	-----	-----	-----	-----	-----
4	1.29	238	3.70	2,060	2.95	1,390	-----	-----	-----	-----	-----	-----
5	1.33	257	3.56	1,920	2.89	1,350	-----	-----	-----	-----	-----	-----
6	1.46	322	3.44	1,830	2.82	1,260	-----	-----	-----	-----	-----	-----
7	1.61	403	3.36	1,740	2.78	1,260	-----	-----	-----	-----	-----	-----
8	1.90	568	3.31	1,700	2.73	1,220	-----	-----	-----	-----	-----	-----
9	2.15	722	3.43	1,830	2.68	1,180	-----	-----	-----	-----	-----	-----
10	2.62	1,060	3.55	1,920	2.64	1,100	-----	-----	-----	-----	-----	-----
11	2.75	1,180	3.58	1,960	2.62	1,100	-----	-----	-----	-----	-----	-----
12	2.91	1,300	3.66	2,010	2.58	1,100	2.05	671	1.75	497	1.57	394

SOUTH FORK HOLSTON RIVER AT VESTAL, VA.

LOCATION.—Lat. 36°39'06", long. 81°50'39", at highway bridge at Vestal, Washington County, three-quarters of a mile downstream from Laurel Creek and 4¼ miles upstream from Middle Fork Holston River. Datum of gage is 1,792.30 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—301 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 9,800 second-feet. Gage heights used to half-tenths between 4.3 and 6.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 10,600 second-feet 6 to 7 a.m. Aug. 14 (gage height, 13.25 feet).

1931-39: Discharge, 10,700 second-feet Mar. 26, 1935 (gage height, 13.26 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,190	552	9	272	226	17	2,080	170	25	419	185
2	1,100	441	10	248	282	18	1,840	165	26	378	203
3	708	370	11	240	264	19	1,400	158	27	349	155
4	536	322	12	238	222	20	1,050	158	28	337	146
5	442	293	13	1,040	204	21	814	150	29	352	136
6	394	268	14	9,180	192	22	684	146	30	500	138
7	363	252	15	4,790	186	23	572	146	31	559	-----
8	312	234	16	3,130	182	24	478	143			
Monthly mean discharge, in second-feet.....										1,193	223
Runoff, in inches.....										4.57	0.83

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	11.10	7,460	10.82	7,040	-----	-----	-----	-----	-----	-----
2	-----	-----	11.65	8,160	10.60	6,760	7.83	3,410	6.84	2,450	6.35	2,050
3	-----	-----	12.20	9,050	10.38	6,500	-----	-----	-----	-----	-----	-----
4	-----	-----	12.74	9,800	10.15	6,240	7.79	3,410	6.73	2,360	6.97	2,630
5	-----	-----	13.03	10,300	9.92	5,850	-----	-----	-----	-----	-----	-----
6	3.43	293	13.25	10,600	9.71	5,590	7.75	3,410	6.63	2,270	6.45	2,140
7	-----	-----	13.25	10,600	9.52	5,350	-----	-----	-----	-----	-----	-----
8	-----	-----	13.08	10,400	9.35	5,230	7.70	3,310	6.53	2,220	6.25	1,970
9	-----	-----	12.90	10,100	9.20	4,990	-----	-----	-----	-----	-----	-----
10	-----	-----	12.65	9,650	9.04	4,750	7.63	3,210	6.45	2,140	6.12	1,850
11	-----	-----	12.53	9,500	8.88	4,630	-----	-----	-----	-----	-----	-----
N	3.53	325	12.55	9,650	8.74	4,390	7.55	3,210	6.37	2,050	6.00	1,770
1	3.53	325	12.60	9,650	8.62	4,280	-----	-----	-----	-----	-----	-----
2	3.57	339	12.54	9,500	8.50	4,170	7.47	3,110	6.30	2,010	5.90	1,690
3	3.64	363	12.46	9,500	8.40	4,060	-----	-----	-----	-----	-----	-----
4	3.78	415	12.27	9,200	8.31	3,950	7.37	3,010	6.21	1,930	5.88	1,690
5	3.98	497	12.17	9,050	8.22	3,840	-----	-----	-----	-----	-----	-----
6	4.30	650	12.20	9,050	8.13	3,730	7.26	2,910	6.13	1,890	5.80	1,610
7	5.00	1,040	12.24	9,050	8.10	3,730	-----	-----	-----	-----	-----	-----
8	6.10	1,850	12.05	8,750	8.06	3,730	7.16	2,810	6.05	1,810	5.74	1,570
9	7.33	2,910	11.80	8,450	8.03	3,620	-----	-----	-----	-----	-----	-----
10	8.55	4,280	11.53	8,020	7.99	3,620	7.06	2,720	5.93	1,730	5.68	1,530
11	9.50	5,350	11.32	7,740	7.94	3,510	-----	-----	-----	-----	-----	-----
12	10.35	6,500	11.07	7,460	7.90	3,510	6.95	2,630	5.85	1,650	5.63	1,490

SOUTH FORK HOLSTON RIVER AT BLUFF CITY, TENN.

LOCATION.—Lat. 36°28'38", long. 82°15'47", 100 feet upstream from bridge on U. S.

Highways 11E and 19 at Bluff City, Sullivan County, 600 feet downstream from Southern Railway bridge, three-quarters of a mile downstream from Indian Creek, and 5 miles upstream from Beaver Creek. Datum of gage is 1,368.35 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—813 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 18,900 second-feet. Gage heights used to half-tenths between 2.2 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 18,200 second-feet at 4 p.m. Aug. 14 and 4 a.m. Aug. 15 (gage height, 11.60 feet).

1900-1939: Discharge observed, 28,000 second-feet May 22, 1901 (gage height, 15.0 feet, former site), from rating curve extended above 5,500 second-feet.

REMARKS.—Flood runoff probably affected slightly by storage in millponds upstream.

386 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	4,310	1,440	9	682	589	17	4,640	471	25	1,180	424
2	2,620	1,140	10	622	668	18	3,850	440	26	1,070	488
3	1,610	955	11	583	682	19	3,670	424	27	992	434
4	1,220	867	12	540	596	20	3,490	419	28	911	404
5	1,030	787	13	642	539	21	2,280	414	29	853	379
6	911	723	14	11,800	505	22	1,810	399	30	1,220	337
7	875	668	15	13,400	482	23	1,650	374	31	1,390	-----
8	795	648	16	6,480	440	24	1,390	384			
Monthly mean discharge, in second-feet-----										2,533	584
Runoff, in inches-----										3.59	0.80

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	2.29	1,030	11.46	17,900	7.28	7,800	6.02	5,450	-----	-----	-----	-----
2	2.40	1,100	11.50	17,900	7.16	7,600	6.00	5,450	4.84	3,590	4.66	3,460
3	2.63	1,310	11.56	18,200	7.07	7,400	5.95	5,450	-----	-----	-----	-----
4	3.07	1,660	11.60	18,200	6.99	7,200	5.90	5,280	4.73	3,460	4.56	3,260
5	3.80	2,400	11.55	18,200	6.92	7,020	5.86	5,280	-----	-----	-----	-----
6	5.35	4,470	11.38	17,600	6.86	7,020	5.80	5,110	4.64	3,330	4.53	3,260
7	6.65	6,480	11.18	17,100	6.79	6,840	5.75	5,110	-----	-----	-----	-----
8	7.72	8,620	10.91	16,300	6.71	6,660	5.70	4,950	4.36	3,260	4.55	3,260
9	8.80	11,100	10.63	15,500	6.65	6,480	5.64	4,790	-----	-----	-----	-----
10	9.43	12,500	10.33	14,700	6.59	6,480	5.58	4,790	4.53	3,260	4.60	3,330
11	10.08	14,200	10.03	14,000	6.54	6,300	5.52	4,630	-----	-----	-----	-----
N	10.62	15,500	9.70	13,200	6.50	6,300	5.47	4,630	5.08	4,010	4.71	3,460
1	11.00	16,500	9.40	12,500	6.47	6,300	5.40	4,470	-----	-----	-----	-----
2	11.35	17,600	9.12	11,800	6.44	6,130	5.35	4,470	5.11	4,010	4.87	3,730
3	11.53	17,900	8.88	11,300	6.40	6,130	5.31	4,310	-----	-----	-----	-----
4	11.60	18,200	8.65	10,600	6.37	6,130	5.27	4,310	5.51	4,630	5.07	4,010
5	11.54	17,900	8.45	10,200	6.34	5,960	5.21	4,160	-----	-----	-----	-----
6	11.43	17,600	8.26	9,940	6.32	5,960	5.18	4,160	5.56	4,790	5.16	4,160
7	11.35	17,600	8.10	9,500	6.28	5,960	5.15	4,160	-----	-----	-----	-----
8	11.28	17,400	7.93	9,060	6.25	5,790	5.11	4,010	5.33	4,310	5.19	4,160
9	11.31	17,400	7.78	8,840	6.21	5,790	5.08	4,010	-----	-----	-----	-----
10	11.35	17,600	7.63	8,400	6.16	5,790	5.03	3,870	5.02	3,870	5.17	4,160
11	11.40	17,600	7.50	8,200	6.12	5,620	4.98	3,870	-----	-----	-----	-----
12	11.44	17,600	7.38	8,000	6.08	5,620	4.93	3,730	4.83	3,590	5.14	4,010

SOUTH FORK HOLSTON RIVER AT KINGSPORT, TENN.

LOCATION.—Lat. 36°30'37", long. 82°32'10", 0.5 mile downstream from Clinchfield Railroad bridge, 1 mile upstream from bridge on State Highway 81, 3 miles southeast of Kingsport postoffice, Sullivan County, and 5¼ miles upstream from confluence with North Fork Holston River. Datum of gage is 1,184.31 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,931 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 67,200 second-feet. Gage heights used to half-tenths between 1.4 and 3.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 68,800 second-feet 9:30 a.m. Aug. 14 (gage height, 18.80 feet).

1925-39: Discharge, 45,200 second-feet Mar. 26, 1935 (gage height, 15.18 feet).

REMARKS.—Flood runoff possibly affected by storage.

TENNESSEE RIVER BASIN

387

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	8,560	5,270	9	1,900	1,700	17	10,200	1,240	25	2,680	1,060
2	5,740	3,830	10	1,650	1,740	18	7,460	1,170	26	2,510	1,190
3	3,770	3,080	11	1,420	1,940	19	6,760	1,140	27	2,340	1,130
4	2,740	2,680	12	1,400	1,710	20	6,300	1,100	28	2,100	1,020
5	2,400	2,340	13	4,390	1,500	21	4,620	1,070	29	2,110	951
6	2,150	2,180	14	39,900	1,410	22	3,830	1,030	30	6,120	828
7	2,400	1,940	15	29,200	1,330	23	3,470	1,010	31	9,400	-----
8	2,400	1,800	16	14,500	1,270	24	3,020	986			
Monthly mean discharge, in second-feet.....										6,369	1,688
Runoff, in inches.....										3.80	0.98

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.17	1,650	6.01	11,900	12.31	33,400	8.15	18,700	6.00	11,900	-----	-----
2	1.30	1,840	6.30	12,700	12.20	33,000	7.97	18,000	5.95	11,900	4.62	8,130
3	1.34	1,900	6.85	14,200	12.17	33,000	7.80	17,400	5.90	11,600	-----	-----
4	1.34	1,900	8.02	18,000	12.16	33,000	7.66	17,100	5.87	11,600	4.53	7,880
5	1.32	1,870	9.86	24,500	12.15	33,000	7.50	16,400	5.83	11,300	-----	-----
6	1.25	1,760	12.80	35,400	12.15	33,000	7.36	16,100	5.78	11,300	4.42	7,640
7	1.16	1,630	15.80	49,200	12.15	33,000	7.23	15,500	5.72	11,000	-----	-----
8	1.08	1,520	17.80	61,900	12.17	33,000	7.11	15,200	5.66	11,000	4.31	7,400
9	1.02	1,440	18.65	67,400	12.18	33,000	7.00	14,800	5.60	10,800	-----	-----
10	.98	1,380	18.76	68,800	12.14	32,600	6.91	14,500	5.53	10,500	4.22	7,170
11	1.20	1,690	18.25	64,600	12.03	32,200	6.82	14,200	5.48	10,500	-----	-----
N	1.51	2,150	17.35	59,200	11.85	31,400	6.72	13,900	5.41	10,200	4.12	6,940
1	1.90	2,830	16.27	52,200	11.63	30,700	6.64	13,600	5.34	9,940	-----	-----
2	2.46	3,860	15.43	47,000	11.38	29,900	6.55	13,600	5.28	9,940	4.03	6,720
3	2.88	4,740	14.70	43,500	11.08	28,800	6.47	13,300	5.21	9,670	-----	-----
4	3.27	5,540	14.26	41,700	10.80	27,700	6.42	13,000	5.15	9,670	4.03	6,720
5	3.75	6,580	13.95	40,400	10.50	26,600	6.36	13,000	5.08	9,410	-----	-----
6	4.25	7,460	13.73	39,100	10.15	25,500	6.31	12,700	5.01	9,150	4.22	7,170
7	4.64	8,340	13.54	38,300	9.83	24,100	6.26	12,700	4.96	9,150	-----	-----
8	4.95	9,250	13.36	37,900	9.56	23,400	6.21	12,400	4.90	8,890	4.30	7,400
9	5.14	9,480	13.20	37,000	9.30	22,400	6.16	12,400	4.85	8,630	-----	-----
10	5.31	9,940	12.90	35,800	9.00	21,400	6.12	12,100	4.80	8,630	4.58	8,130
11	5.52	10,400	12.70	35,000	8.77	20,700	6.08	12,100	4.75	8,630	-----	-----
12	5.78	11,100	12.50	34,200	8.55	20,000	6.03	11,900	4.70	8,380	4.56	8,130
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.50	2,020	1.85	2,600	7.57	16,800	-----	-----	-----	-----	-----	-----
2	1.48	2,020	1.88	2,680	6.95	14,800	-----	-----	-----	-----	-----	-----
3	1.48	2,020	1.94	2,760	6.30	12,700	-----	-----	-----	-----	-----	-----
4	1.48	2,020	2.02	2,850	5.80	11,300	-----	-----	-----	-----	-----	-----
5	1.48	2,020	2.09	3,020	5.40	10,200	-----	-----	-----	-----	-----	-----
6	1.47	1,940	2.14	3,100	5.10	9,410	3.50	5,650	-----	-----	-----	-----
7	1.46	1,940	2.19	3,190	4.88	8,890	-----	-----	-----	-----	-----	-----
8	1.45	1,940	2.30	3,370	4.76	8,630	-----	-----	-----	-----	-----	-----
9	1.45	1,940	2.47	3,640	4.81	8,630	-----	-----	-----	-----	-----	-----
10	1.48	2,020	2.54	3,820	5.00	9,150	-----	-----	-----	-----	-----	-----
11	1.52	2,020	2.55	3,820	5.17	9,670	-----	-----	-----	-----	-----	-----
N	1.54	2,100	2.59	3,910	5.14	9,410	3.30	5,250	2.54	3,820	2.15	3,100
1	1.55	2,100	2.65	4,000	5.03	9,150	-----	-----	-----	-----	-----	-----
2	1.55	2,100	2.74	4,180	4.87	8,890	-----	-----	-----	-----	-----	-----
3	1.55	2,100	2.91	4,470	4.68	8,380	-----	-----	-----	-----	-----	-----
4	1.55	2,100	3.13	4,950	4.52	7,880	-----	-----	-----	-----	-----	-----
5	1.54	2,100	3.30	5,250	4.39	7,640	-----	-----	-----	-----	-----	-----
6	1.58	2,180	3.46	5,650	4.30	7,400	3.09	4,850	-----	-----	-----	-----
7	1.60	2,180	4.05	6,720	4.25	7,170	-----	-----	-----	-----	-----	-----
8	1.64	2,260	5.70	11,000	4.18	7,170	-----	-----	-----	-----	-----	-----
9	1.68	2,340	7.10	15,200	4.09	6,940	-----	-----	-----	-----	-----	-----
10	1.72	2,340	7.90	17,700	4.00	6,720	-----	-----	-----	-----	-----	-----
11	1.78	2,510	8.15	18,700	3.91	6,500	-----	-----	-----	-----	-----	-----
12	1.84	2,600	8.02	18,000	3.84	6,280	2.86	4,380	2.31	3,370	2.00	2,850

SUPPLEMENTAL RECORD.—Aug. 14, 9:30 a.m., gage height, 18.80 feet; discharge, 68,800 second-feet.

388 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

HOLSTON RIVER NEAR ROGERSVILLE, TENN.

LOCATION.—Lat. 36°22'13", long. 82°59'58", 300 feet downstream from bridge on State Highways 66 and 70, half a mile upstream from Southern Railway bridge, half a mile downstream from Dodson Creek, and 3 miles south of Rogersville, Hawkins County. Datum of gage is 1,054.83 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—3,035 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 56,700 second-feet. Gage heights used to half-tenths between 1.1 and 2.8 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 59,000 second-feet 6:00 a.m. Aug. 15 (gage height, 17.76 feet).

1902-39: Discharge, 70,900 second-feet Jan. 29, 1918 (gage height, 20.0 feet, former site and datum), from rating curve extended above 35,000 second-feet.

Stage known, 38.4 feet Mar. 10, 1867, former site and datum (discharge not determined).

REMARKS.—Flood runoff not appreciably affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	13,300	9,870	9	2,880	2,290	17	15,300	1,600	25	3,800	1,270
2	9,280	6,600	10	2,370	2,130	18	10,800	1,550	26	3,420	1,350
3	5,870	4,730	11	1,970	2,290	19	9,700	1,490	27	3,140	1,460
4	4,200	3,800	12	1,780	2,370	20	10,100	1,440	28	2,880	1,390
5	3,230	3,230	13	1,990	2,050	21	7,940	1,390	29	2,700	1,270
6	2,960	3,050	14	25,100	1,880	22	5,950	1,370	30	5,870	1,200
7	2,790	2,700	15	54,700	1,790	23	5,380	1,300	31	13,700	
8	3,140	2,450	16	28,100	1,670	24	4,620	1,250			
Monthly mean discharge, in second-feet.....										8,676	2,408
Runoff, in inches.....										3.30	0.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	1.50	2,790	17.26	57,100	13.70	43,200	6.90	17,800
2	2.20	4,100	17.50	57,800	13.25	41,300	6.81	17,400
3	3.00	5,870	17.62	58,200	12.80	39,700	6.72	17,100
4	3.64	7,360	17.71	58,600	12.31	37,800	6.64	16,800
5	4.11	8,710	17.74	58,600	11.85	35,900	6.57	16,800
6	4.48	9,870	17.76	59,000	11.40	34,400	6.50	16,400
7	4.74	10,500	17.74	58,600	10.98	32,900	6.43	16,100
8	5.00	11,400	17.71	58,600	10.54	31,000	6.37	16,100
9	5.26	12,400	17.64	58,200	10.18	29,900	6.30	15,700
10	5.64	13,400	17.54	57,800	9.80	28,300	6.24	15,400
11	6.28	15,700	17.40	57,500	9.50	27,200	6.20	15,400
N	7.24	18,800	17.26	57,100	9.20	26,100	6.13	15,100
1	8.35	23,100	17.08	56,300	8.93	25,000	6.11	15,100
2	9.58	27,600	16.89	55,500	8.66	24,200	6.06	15,100
3	10.75	32,100	16.66	54,700	8.45	23,100	6.00	14,700
4	11.80	35,900	16.40	53,600	8.25	22,400	5.94	14,400
5	12.68	39,400	16.16	52,800	8.05	21,700	5.88	14,400
6	13.50	42,400	15.93	51,600	7.86	21,300	5.81	14,100
7	14.30	45,400	15.67	50,800	7.68	20,600	5.75	14,100
8	15.00	48,100	15.40	49,700	7.54	19,900	5.69	13,700
9	15.60	50,400	15.13	48,500	7.40	19,500	5.63	13,400
10	16.20	52,800	14.79	47,300	7.26	19,200	5.56	13,400
11	16.63	54,300	14.45	45,800	7.14	18,500	5.50	13,100
12	17.00	55,900	14.08	44,700	7.02	18,100	5.44	12,700

Hour	Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	5.30	12,400	4.33	9,280	4.28	9,280
4	5.18	12,100	4.46	9,870	4.39	9,570
6	5.06	11,800	4.58	10,200	4.56	10,200
8	4.97	11,400	4.69	10,500	4.70	10,500
10	4.87	11,100	4.70	10,500	4.76	10,800
N	4.78	10,800	4.63	10,200	4.76	10,800
2	4.68	10,500	4.53	9,870	4.71	10,500
4	4.58	10,200	4.42	9,570	4.66	10,500
6	4.48	9,870	4.31	9,280	4.61	10,200
8	4.38	9,570	4.24	8,990	4.55	10,200
10	4.30	9,280	4.20	8,990	4.48	9,870
12	4.27	9,280	4.21	8,990	4.39	9,570

[illegible]

390 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	5.38	2,070	22.00	43,600	24.74	52,300	13.75	20,300
2	5.46	2,140	22.74	45,800	24.40	51,300	13.56	19,800
3	5.51	2,220	23.40	48,100	24.00	50,000	13.34	19,100
4	5.58	2,370	24.05	50,000	23.58	48,700	13.18	18,800
5	5.61	2,370	24.60	52,000	23.10	47,100	13.05	18,300
6	5.63	2,440	25.10	53,600	22.61	45,500	12.86	18,100
7	5.64	2,440	25.50	55,000	22.06	43,900	12.72	17,600
8	5.82	2,680	25.82	55,900	21.50	42,000	12.59	17,400
9	6.62	4,050	26.10	56,900	20.90	40,100	12.49	17,100
10	7.73	6,120	26.30	57,600	20.30	38,200	12.35	16,900
11	8.55	7,930	26.45	57,900	19.65	36,000	12.25	16,400
N	9.11	9,020	26.56	58,600	19.05	34,200	12.15	16,400
1	9.58	10,200	26.65	58,600	18.40	32,400	12.05	15,900
2	10.10	11,400	26.70	58,900	17.84	30,700	11.96	15,900
3	10.62	12,600	26.68	58,900	17.30	29,300	11.88	15,700
4	11.62	15,000	26.63	58,600	16.85	27,900	11.80	15,400
5	12.80	17,800	26.55	58,600	16.35	26,900	11.70	15,200
6	14.30	21,600	26.42	57,900	15.90	25,600	11.62	15,000
7	15.60	24,800	26.28	57,600	15.50	24,600	11.54	14,700
8	16.95	28,400	26.08	56,900	15.15	23,800	11.46	14,700
9	18.10	31,500	25.88	56,300	14.85	22,800	11.39	14,500
10	19.12	34,500	25.64	55,300	14.55	22,300	11.32	14,200
11	20.30	38,200	25.38	54,600	14.25	21,300	11.21	14,000
12	21.15	41,000	25.06	53,600	14.04	20,800	11.12	13,800

Hour	Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	10.94	13,300	9.32	9,470	9.01	8,800
4	10.77	13,000	9.27	9,470	8.96	8,800
6	10.60	12,600	9.18	9,240	8.97	8,800
8	10.43	12,100	9.23	9,240	9.05	8,800
10	10.26	11,800	9.35	9,700	9.22	9,240
N	10.11	11,400	9.48	9,930	9.41	9,700
2	10.01	11,100	9.58	10,200	9.56	10,200
4	9.86	10,900	9.59	10,200	9.66	10,400
6	9.74	10,400	9.50	9,930	9.65	10,200
8	9.58	10,200	9.38	9,700	9.60	10,200
10	9.46	9,930	9.23	9,240	9.53	9,930
12	9.38	9,700	9.11	9,020	9.46	9,930

SUPPLEMENTAL RECORD.—Aug. 15, 2:30 p.m., gage height, 26.70 feet; discharge, 58,900 second-feet.

HOLSTON RIVER NEAR JEFFERSON CITY, TENN.

LOCATION.—Lat. 36°10'07", long. 83°30'10", 250 feet upstream from bridge on State Highway 92, 0.4 mile downstream from Mossy Creek, and 3 miles north of Jefferson City, Jefferson County. Datum of gage is 920.02 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—3,429 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 57,700 second-feet. Gage heights used to half-tenths between 2.1 and 4.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 58,700 second-feet 9 p.m. Aug. 15 (gage height, 21.80 feet).

1937-39: Discharge, 27,600 second-feet Oct. 29, 1937 (gage height, 12.86 feet).

REMARKS.—Flood runoff not appreciably affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	21,000	11,300	9	3,310	2,470	17	18,700	1,720	25	4,340	1,410
2	10,400	7,840	10	2,760	2,330	18	12,400	1,720	26	3,720	1,400
3	7,420	5,650	11	2,330	2,260	19	9,840	1,660	27	3,390	1,470
4	5,080	4,430	12	2,100	2,400	20	9,510	1,580	28	3,150	1,550
5	3,810	3,640	13	2,020	2,190	21	9,170	1,490	29	2,990	1,470
6	3,230	3,230	14	6,160	2,120	22	6,630	1,480	30	4,700	1,360
7	2,990	2,990	15	49,000	1,920	23	5,640	1,430	31	10,200	-----
8	2,990	2,690	16	43,800	1,850	24	5,270	1,370			
Monthly mean discharge, in second-feet.....										8,969	2,681
Runoff, in inches.....										3.02	0.87

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	13.00	27,900	21.54	57,500	12.00	24,900
2	-----	-----	14.00	31,000	21.40	57,100	11.70	24,000
3	-----	-----	14.95	34,200	21.22	56,300	11.39	23,100
4	-----	-----	15.80	36,800	21.00	55,500	11.11	22,200
5	-----	-----	16.60	39,400	20.79	54,700	10.87	21,600
6	2.45	2,050	17.40	42,100	20.50	53,500	10.62	20,700
7	-----	-----	18.03	44,100	20.17	52,300	10.40	20,100
8	-----	-----	18.60	46,300	19.85	50,700	10.23	19,500
9	-----	-----	19.10	48,100	19.45	49,200	10.06	19,200
10	-----	-----	19.55	50,000	19.10	48,100	9.90	18,600
11	-----	-----	20.00	51,500	18.63	46,300	9.75	18,300
N	2.70	2,400	20.34	52,700	18.15	44,800	9.62	17,800
1	2.75	2,470	20.66	54,300	17.75	43,400	9.50	17,500
2	2.93	2,760	20.92	55,100	17.23	41,400	9.38	17,200
3	3.65	3,900	21.15	56,300	16.74	39,700	9.29	16,900
4	4.80	6,030	21.33	56,700	16.17	38,100	9.19	16,700
5	5.65	7,620	21.50	57,500	15.60	36,100	9.09	16,400
6	6.30	9,160	21.61	57,900	15.09	34,500	9.00	16,100
7	6.90	10,600	21.70	58,300	14.59	32,900	8.92	15,800
8	7.60	12,400	21.76	58,700	14.09	31,300	8.83	15,500
9	8.50	14,700	21.80	58,700	13.60	29,700	8.75	15,300
10	9.57	17,800	21.78	58,700	13.15	28,500	8.68	15,300
11	10.74	21,000	21.74	58,300	12.74	27,000	8.61	15,000
12	11.90	24,600	21.69	58,300	12.37	26,100	8.57	15,000
	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	8.38	14,400	6.75	10,400	6.49	9,640	6.72	10,100
4	8.23	13,900	6.66	10,100	6.38	9,400	6.67	10,100
6	8.07	13,700	6.57	9,880	6.27	9,160	6.60	9,880
8	7.92	13,100	6.49	9,640	6.19	8,940	6.52	9,640
10	7.75	12,900	6.43	9,400	6.16	8,940	6.43	9,400
N	7.60	12,400	6.39	9,400	6.18	8,940	6.35	9,400
2	7.45	11,800	6.41	9,400	6.26	9,160	6.23	8,940
4	7.30	11,600	6.52	9,640	6.41	9,400	6.11	8,720
6	7.17	11,300	6.63	9,880	6.58	9,880	5.99	8,500
8	7.05	10,800	6.69	10,100	6.71	10,100	5.87	8,280
10	6.93	10,600	6.68	10,100	6.77	10,400	5.75	8,060
12	6.81	10,400	6.60	9,880	6.77	10,400	5.63	7,620

HOLSTON RIVER AT STRAWBERRY PLAINS, TENN.

LOCATION.—Lat. 36°03'29", long. 83°42'18", 100 feet downstream from concrete highway bridge, 1 mile west of Strawberry Plains, Jefferson County, and 17 miles upstream from confluence with French Broad River. Datum of gage is 838.39 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—3,626 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements

392 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

up to 57,100 second-feet. Gage heights used to half-tenths between 1.9 and 3.9 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 57,100 second-feet 9 a.m. Aug. 16 (gage height, 18.62 feet).

1930-39: Discharge, 62,900 second-feet Mar. 28, 1935 (gage height, 20.20 feet).

REMARKS.—Flood runoff not affected appreciably by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	22,400	13,000	9	3,310	2,600	17	24,600	1,830	25	4,820	1,460
2	11,400	9,210	10	3,100	2,420	18	13,700	1,740	26	4,100	1,420
3	8,620	6,500	11	2,510	2,260	19	10,300	1,690	27	3,640	1,440
4	6,090	4,940	12	2,260	2,330	20	9,640	1,640	28	3,420	1,520
5	4,460	4,100	13	2,120	2,510	21	9,900	1,580	29	3,100	1,540
6	3,530	3,530	14	2,320	2,190	22	7,690	1,520	30	3,530	1,440
7	3,200	3,200	15	32,600	2,040	23	6,100	1,500	31	7,190	-----
8	2,990	2,890	16	53,400	1,910	24	5,700	1,440			
Monthly mean discharge, in second-feet-----										9,088	2,913
Runoff, in inches-----										2.89	0.90

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	3.60	6,360	17.59	53,600	13.19	39,700
2	-----	-----	4.50	8,910	17.80	54,300	12.70	38,200
3	-----	-----	5.30	11,400	18.05	55,000	12.10	36,300
4	-----	-----	6.15	14,300	18.22	55,700	11.50	34,400
5	-----	-----	6.95	17,100	18.35	56,400	10.93	32,200
6	1.84	2,310	7.75	20,100	18.45	56,400	10.40	30,300
7	-----	-----	8.52	22,800	18.55	57,100	9.92	28,400
8	-----	-----	9.23	25,600	18.60	57,100	9.48	26,800
9	-----	-----	9.90	28,400	18.62	57,100	9.12	25,200
10	-----	-----	10.52	30,700	18.60	57,100	8.79	24,000
11	-----	-----	11.26	33,700	18.55	57,100	8.48	22,800
N	1.87	2,370	11.83	35,300	18.50	56,700	8.24	21,600
1	-----	-----	12.43	37,300	18.35	56,400	8.03	20,800
2	-----	-----	13.10	39,400	18.21	55,700	7.80	20,100
3	1.83	2,290	13.75	41,500	18.00	55,000	7.68	19,700
4	-----	-----	14.30	43,000	17.70	54,000	7.52	18,900
5	-----	-----	14.80	44,600	17.40	53,000	7.39	18,600
6	1.79	2,220	15.27	46,200	17.05	51,600	7.26	18,200
7	-----	-----	15.69	47,400	16.64	50,300	7.15	17,800
8	-----	-----	16.05	48,400	16.16	49,000	7.03	17,100
9	1.81	2,260	16.40	49,700	15.60	47,100	6.95	17,100
10	-----	-----	16.75	51,000	15.03	45,200	6.86	16,700
11	-----	-----	17.05	51,600	14.40	43,300	6.78	16,400
12	2.55	3,760	17.33	52,600	13.76	41,500	6.71	16,000

	Aug. 18		Aug. 19		Aug. 20		Aug. 21	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	6.58	15,700	5.32	11,400	4.89	10,100	4.82	9,810
4	6.45	15,000	5.23	11,000	4.91	10,100	4.91	10,100
6	6.32	14,600	5.14	10,700	4.91	10,100	4.97	10,400
8	6.22	14,300	5.05	10,400	4.87	10,100	4.97	10,400
10	6.12	14,000	5.00	10,400	4.80	9,810	4.97	10,400
N	6.01	13,600	4.94	10,100	4.72	9,510	4.91	10,100
2	5.90	13,300	4.87	10,100	4.66	9,510	4.87	10,100
4	5.80	13,000	4.82	9,810	4.61	9,210	4.81	9,810
6	5.69	12,600	4.78	9,810	4.59	9,210	4.77	9,810
8	5.58	12,300	4.76	9,810	4.59	9,210	4.69	9,510
10	5.50	12,000	4.77	9,810	4.62	9,210	4.61	9,210
12	5.40	11,700	4.83	9,810	4.71	9,510	4.52	8,910

LOCATION.—Lat. $36^{\circ}42'47''$, long. $81^{\circ}49'08''$, at highway bridge three-quarters of a mile upstream from Cedar Creek and 4 miles southeast of Meadowview, Washington County. Datum of gage is 1,820.22 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,500 second-feet. Gage heights used to half-tenths between 3.7 and 6.0 feet; hundredths below and tenths above these limits.

1931-39: Discharge, 5,360 second-feet Jan. 23, 1935 (gage height, 8.59 feet).

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,420	262	9	167	157	17	999	120	25	318	98
2	518	228	10	150	154	18	1,370	112	26	288	102
3	326	203	11	122	152	19	1,870	108	27	264	106
4	246	186	12	143	139	20	1,230	105	28	237	104
5	230	174	13	164	130	21	701	109	29	240	70
6	197	161	14	2,600	124	22	608	83	30	258	105
7	222	163	15	2,390	103	23	492	112	31	300	-----
8	182	130	16	1,480	133	24	393	105			
Monthly mean discharge, in second-feet.....										649	135
Runoff, in inches.....										3.55	0.71

394 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	2.40	179						
2	2.90	366	6.80	3,300	4.92	1,560	4.40	1,220
3	3.38	596						
4	3.71	775	6.52	3,000	4.88	1,560	4.32	1,150
5	4.02	955						
6	4.43	1,250	6.34	2,800	4.89	1,560	4.26	1,120
7	4.68	1,420						
8	4.85	1,520	6.12	2,600	4.86	1,520	4.22	1,080
9	5.15	1,750						
10	5.47	2,000	5.95	2,460	4.83	1,520	4.10	1,020
11	5.76	2,280						
N	6.07	2,600	5.81	2,320	4.80	1,490	4.05	988
1	6.43	2,900						
2	6.84	3,300	5.61	2,140	4.79	1,490	3.98	955
3	7.20	3,700						
4	7.52	4,020	5.46	2,000	4.75	1,460	3.89	895
5	7.70	4,240						
6	7.88	4,460	5.33	1,920	4.72	1,420	3.85	865
7	7.96	4,570						
8	8.00	4,570	5.21	1,790	4.64	1,380	3.85	865
9	7.96	4,570						
10	7.84	4,350	5.06	1,670	4.55	1,320	3.79	835
11	7.63	4,130						
12	7.30	3,800	4.98	1,630	4.44	1,250	3.65	745

Hour	Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	3.72	775	4.66	1,380	5.07	1,670
4	5.30	1,870	4.95	1,600	4.87	1,520
6	5.85	2,260	5.06	1,670	4.73	1,460
8	5.67	2,180	5.17	1,750	4.63	1,380
10	5.03	1,670	5.25	1,830	4.47	1,250
N	4.63	1,380	5.35	1,920	4.33	1,180
2	4.31	1,150	5.60	2,140	4.22	1,080
4	4.18	1,080	5.68	2,230	4.15	1,050
6	4.06	988	5.70	2,230	4.07	988
8	4.05	988	5.62	2,140	3.99	955
10	4.24	1,120	5.45	2,000	3.91	895
12	4.35	1,180	5.24	1,830	3.71	775

SUPPLEMENTAL RECORDS.—Aug. 18, 1 a.m., gage height, 3.60 feet; discharge, 715 second-feet; 6:30 a.m., gage height, 5.87 feet; discharge, 2,260 second-feet.

WATAUGA RIVER NEAR SUGAR GROVE, N. C.

LOCATION.—Lat. 36°14'18", long. 81°49'22", 300 feet downstream from Cove Creek and 2½ miles southwest of Sugar Grove, Watauga County. Datum of gage is 2,607.66 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—90.8 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph Aug. 1 to 4:30 p.m. Aug. 13 (recorder was inundated Aug. 13) and 5 p.m. Aug. 17 to Sept. 30. Gage heights for period 4:30 to 12 p.m. Aug. 13 obtained from crest gage height determined from flood profiles, and estimated discharge.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,300 second-feet and extended logarithmically to slope-area measurement at crest gage height. Gage heights used to half-tenths between 3.4 and 5.3 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record is based on records for stations at Stump Knob and Butler, Tenn., and nearby streams.

MAXIMA.—1940: Discharge, 50,800 second-feet 7:30 p.m. Aug. 13 (gage height, 29.6 feet, from profile based on floodmarks).

The flood of July 1916 reached a stage of about 22.1 feet, from flood reference

marks on barn a quarter of a mile above station, as witnessed by local resident (discharge, 28,000 second-feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	246	662	9	164	217	17	622	117	25	194	110
2	176	452	10	140	202	18	503	110	26	194	106
3	145	357	11	164	184	19	401	108	27	172	94
4	129	318	12	836	165	20	326	104	28	192	90
5	136	340	13	15,900	148	21	285	100	29	212	86
6	234	258	14	4,570	141	22	261	96	30	4,440	85
7	377	230	15	2,190	132	23	227	94	31	1,340	-----
8	212	222	16	1,050	125	24	204	92			

Monthly mean discharge, in second-feet.....

1,169

185

Runoff, in inches.....

14.84

2.27

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	8.53	4,150	12.2	8,480	-----	-----	-----	-----	-----	-----
2	-----	-----	8.81	4,450	11.1	7,020	-----	-----	-----	-----	-----	-----
3	-----	-----	8.77	4,450	10.4	6,190	-----	-----	-----	-----	-----	-----
4	-----	-----	8.68	4,350	10.0	5,750	-----	-----	-----	-----	-----	-----
5	-----	-----	8.78	4,450	9.6	5,310	-----	-----	-----	-----	-----	-----
6	2.59	247	8.97	4,650	9.3	4,980	6.8	2,570	-----	-----	-----	-----
7	-----	-----	9.00	4,650	9.0	4,650	-----	-----	-----	-----	-----	-----
8	-----	-----	8.95	4,650	8.8	4,450	-----	-----	-----	-----	-----	-----
9	-----	-----	8.90	4,550	8.6	4,250	-----	-----	-----	-----	-----	-----
10	-----	-----	9.04	4,650	8.4	4,050	-----	-----	-----	-----	-----	-----
11	-----	-----	9.33	4,980	8.3	3,950	-----	-----	-----	-----	-----	-----
N	3.28	500	10.10	5,860	8.2	3,850	6.2	2,100	4.45	1,020	3.60	634
1	3.45	571	12.20	8,480	-----	-----	-----	-----	-----	-----	-----	-----
2	3.62	634	15.60	14,000	-----	-----	-----	-----	-----	-----	-----	-----
3	4.00	812	17.80	18,300	8.2	3,850	-----	-----	-----	-----	-----	-----
4	4.22	904	20.10	23,200	-----	-----	-----	-----	-----	-----	-----	-----
5	4.46	1,020	24.7	34,900	-----	-----	-----	-----	-----	-----	-----	-----
6	4.71	1,160	27.3	42,900	8.1	3,750	5.8	1,820	-----	-----	-----	-----
7	4.98	1,320	29.0	48,100	-----	-----	-----	-----	-----	-----	-----	-----
8	5.28	1,500	29.0	48,100	-----	-----	-----	-----	-----	-----	-----	-----
9	5.71	1,760	26.5	40,300	7.8	3,470	-----	-----	-----	-----	-----	-----
10	6.30	2,180	20.9	25,000	-----	-----	-----	-----	-----	-----	-----	-----
11	7.20	2,930	16.1	15,000	-----	-----	-----	-----	-----	-----	-----	-----
12	7.85	3,470	13.3	10,100	7.4	3,110	5.3	1,500	3.70	678	3.40	550
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.21	472	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	3.26	492	6.09	2,030	-----	-----	-----	-----	-----	-----
3	-----	-----	3.30	508	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	3.70	678	5.76	1,820	-----	-----	-----	-----	-----	-----
5	-----	-----	4.70	1,160	-----	-----	-----	-----	-----	-----	-----	-----
6	2.32	184	6.10	2,030	5.47	1,620	3.83	744	-----	-----	-----	-----
7	-----	-----	9.30	4,980	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	11.80	7,920	5.21	1,440	-----	-----	-----	-----	-----	-----
9	-----	-----	13.40	10,300	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	14.40	11,900	5.01	1,320	-----	-----	-----	-----	-----	-----
11	-----	-----	14.42	11,900	-----	-----	-----	-----	-----	-----	-----	-----
N	2.35	192	13.60	10,600	4.84	1,240	3.65	656	3.17	456	2.91	358
1	-----	-----	12.00	8,200	-----	-----	-----	-----	-----	-----	-----	-----
2	2.33	186	10.50	6,300	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	9.08	4,760	-----	-----	-----	-----	-----	-----	-----	-----
4	2.34	189	8.20	3,850	4.53	1,080	-----	-----	-----	-----	-----	-----
5	-----	-----	7.60	3,290	-----	-----	-----	-----	-----	-----	-----	-----
6	2.40	204	7.16	2,930	-----	-----	3.46	571	-----	-----	-----	-----
7	-----	-----	6.92	2,660	-----	-----	-----	-----	-----	-----	-----	-----
8	2.59	255	6.79	2,570	4.27	928	-----	-----	-----	-----	-----	-----
9	-----	-----	6.72	2,490	-----	-----	-----	-----	-----	-----	-----	-----
10	2.69	285	6.80	2,570	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	6.86	2,660	-----	-----	-----	-----	-----	-----	-----	-----
12	3.16	452	6.54	2,330	4.07	835	3.33	521	3.00	390	2.80	320

SUPPLEMENTAL RECORDS.—Aug. 13, 7:30 p.m., gage height, 29.6 feet; discharge, 50,800 second-feet.
Aug. 30, 10:20 a.m., gage height, 14.63 feet; discharge, 12,300 second-feet.

WATAUGA RIVER AT STUMP KNOB, TENN.

LOCATION.—Lat. 36°18'36", long. 81°57'39", at former post office at Stump Knob, 1,000 feet downstream from Dugger Bridge, 2¼ miles upstream from Elk Creek, and 4½ miles upstream from Butler, Johnson County. Datum of gage is 1,869.03 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—171 square miles.

GAGE-HEIGHT RECORD.—Aug. 1-15, from graph based on floodmark and shape of stage graphs for nearby stations; Aug. 16 to Sept. 30 from graph based on two or more staff gage readings daily.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 4,050 second-feet and extended to crest gage height on basis of a study of the peak discharge at Butler. Gage heights used to half-tenths from 2.7 to 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, about 50,000 second-feet 8:30 p.m. Aug. 13 (gage height, 24.0 feet, from floodmark).

1927-31, 1934-39: Discharge, 16,100 second-feet Jan. 9, 1935 (gage height, 12.44 feet).

On May 21, 1901, a stage of about 19.5 feet was reached, discharge 34,400 second-feet.

REMARKS.—Flood runoff not affected by storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	4.30	1,960	13.70	17,600	-----	-----	-----	-----	-----	-----
2	-----	-----	4.70	2,390	12.50	15,000	-----	-----	-----	-----	-----	-----
3	-----	-----	5.10	2,860	11.80	13,600	-----	-----	-----	-----	-----	-----
4	-----	-----	5.80	3,750	11.20	12,400	-----	-----	-----	-----	-----	-----
5	-----	-----	6.40	4,560	10.70	11,500	-----	-----	-----	-----	-----	-----
6	1.40	117	6.80	5,120	10.20	10,600	6.30	4,420	4.60	2,280	3.28	1,090
7	-----	-----	7.10	5,550	9.70	9,690	-----	-----	-----	-----	-----	-----
8	-----	-----	7.40	6,000	9.30	9,010	-----	-----	-----	-----	-----	-----
9	-----	-----	7.60	6,300	8.80	8,180	-----	-----	-----	-----	-----	-----
10	-----	-----	7.80	6,600	8.50	7,700	-----	-----	-----	-----	-----	-----
11	-----	-----	7.90	6,750	8.20	7,220	-----	-----	-----	-----	-----	-----
N	1.40	117	7.90	6,750	7.90	6,750	5.80	3,750	4.26	1,910	3.21	1,020
1	1.42	123	7.80	6,600	-----	-----	-----	-----	-----	-----	-----	-----
2	1.50	146	7.90	6,750	7.40	6,000	-----	-----	-----	-----	-----	-----
3	1.62	186	8.80	8,180	-----	-----	-----	-----	-----	-----	-----	-----
4	1.75	237	10.20	10,600	7.20	5,700	-----	-----	-----	-----	-----	-----
5	1.95	322	13.40	17,000	-----	-----	-----	-----	-----	-----	-----	-----
6	2.15	420	16.80	26,000	7.20	5,700	5.30	3,100	3.92	1,570	3.31	1,090
7	2.40	550	21.20	40,100	-----	-----	-----	-----	-----	-----	-----	-----
8	2.70	715	23.60	48,600	7.20	5,700	-----	-----	-----	-----	-----	-----
9	3.00	895	23.60	48,600	-----	-----	-----	-----	-----	-----	-----	-----
10	3.30	1,090	21.60	41,400	7.10	5,550	-----	-----	-----	-----	-----	-----
11	3.55	1,270	18.60	31,500	-----	-----	-----	-----	-----	-----	-----	-----
12	3.85	1,520	15.00	20,800	6.90	5,260	4.92	2,620	3.59	1,310	3.32	1,090
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.32	506	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	2.35	522	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	2.38	529	5.80	3,750	-----	-----	-----	-----	-----	-----
4	-----	-----	2.42	561	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	2.46	583	-----	-----	-----	-----	-----	-----	-----	-----
6	1.81	267	2.54	627	5.15	2,920	3.34	1,120	2.71	721	-----	-----
7	-----	-----	3.60	1,310	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	7.50	6,150	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	9.00	8,500	4.68	2,390	-----	-----	-----	-----	-----	-----
10	-----	-----	9.90	10,000	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	10.35	10,900	-----	-----	-----	-----	-----	-----	-----	-----
N	1.84	280	10.00	10,200	4.37	2,010	3.16	992	2.59	654	2.34	517
1	1.84	280	8.50	7,700	-----	-----	-----	-----	-----	-----	-----	-----
2	1.84	280	7.80	6,600	-----	-----	-----	-----	-----	-----	-----	-----
3	1.85	284	7.25	5,700	4.12	1,760	-----	-----	-----	-----	-----	-----
4	1.86	288	6.75	5,120	-----	-----	-----	-----	-----	-----	-----	-----
5	1.87	292	6.25	4,280	-----	-----	-----	-----	-----	-----	-----	-----
6	1.87	292	5.90	3,880	3.92	1,570	3.00	895	2.49	600	-----	-----
7	1.87	292	5.66	3,620	-----	-----	-----	-----	-----	-----	-----	-----
8	1.87	292	5.60	3,490	-----	-----	-----	-----	-----	-----	-----	-----
9	1.88	297	5.87	3,880	3.75	1,440	-----	-----	-----	-----	-----	-----
10	1.90	305	6.10	4,140	-----	-----	-----	-----	-----	-----	-----	-----
11	2.17	430	6.30	4,420	-----	-----	-----	-----	-----	-----	-----	-----
12	2.33	512	6.39	4,560	3.59	1,310	2.85	805	2.41	556	2.28	485

398 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

WATAUGA RIVER AT BUTLER, TENN.

LOCATION.—Lat. 36°19'59", long. 82°00'16", at Butler, Johnson County, 1,000 feet downstream from highway bridge and 1,100 feet downstream from Roan Creek.

Datum of gage is 1,809.38 feet above mean sea level, datum of 1929, supplementary adjustment of 1930.

DRAINAGE AREA.—427 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 7 p.m. Aug. 13 to noon Aug. 15, record for which was based on floodmarks and shape of graphs at nearby stations.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,200 second-feet and extended to crest gage height on basis of determination of peak flows by contracted-opening method, verified by runoff comparison with other stations in the Watauga River Basin. Gage heights used to half-tenths between 2.0 and 5.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 71,500 second-feet 10 p.m. Aug. 13 (gage height, 25.4 feet).

1920-39: Discharge, 18,500 second-feet Jan. 9, 1935 (gage height, 11.85 feet).

The flood of May 21, 1901, reached a stage of 16.27 feet, former site and datum (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	3.92	2,800	19.05	41,000	---	---	---	---	---	---
2	---	---	4.25	3,280	17.00	33,700	---	---	---	---	---	---
3	---	---	4.52	3,670	15.60	29,100	---	---	---	---	---	---
4	---	---	4.88	4,350	14.50	25,800	---	---	---	---	---	---
5	---	---	5.44	5,250	13.70	23,600	---	---	---	---	---	---
6	1.28	469	5.94	6,200	12.70	20,900	7.08	8,160	---	---	---	---
7	---	---	6.29	6,960	12.10	19,400	---	---	---	---	---	---
8	---	---	6.48	7,340	11.50	17,900	---	---	---	---	---	---
9	---	---	6.64	7,530	10.90	16,500	---	---	---	---	---	---
10	---	---	6.86	8,120	10.40	15,400	---	---	---	---	---	---
11	---	---	7.00	8,320	9.90	14,200	---	---	---	---	---	---
N	1.34	501	7.03	8,320	9.40	13,100	6.40	6,740	4.84	3,880	4.07	2,700
1	1.41	539	7.00	8,320	---	---	---	---	---	---	---	---
2	1.50	592	7.12	8,520	---	---	---	---	---	---	---	---
3	1.55	624	7.38	9,120	8.40	10,900	---	---	---	---	---	---
4	1.64	681	7.90	10,100	---	---	---	---	---	---	---	---
5	1.83	811	10.20	15,000	---	---	---	---	---	---	---	---
6	2.06	975	13.30	22,500	7.60	9,210	5.79	5,560	---	---	---	---
7	2.40	1,265	16.20	31,000	---	---	---	---	---	---	---	---
8	2.65	1,490	19.50	43,000	---	---	---	---	---	---	---	---
9	2.88	1,725	23.30	60,600	7.50	9,000	---	---	---	---	---	---
10	3.13	1,970	25.40	71,500	---	---	---	---	---	---	---	---
11	3.40	2,225	24.20	65,200	---	---	---	---	---	---	---	---
12	3.65	2,500	21.20	50,400	7.50	9,000	5.34	4,640	4.43	3,260	3.72	2,270
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	2.48	1,080	6.24	6,340	---	---	---	---	---	---
2	---	---	2.66	1,200	6.04	5,940	---	---	---	---	---	---
3	---	---	2.71	1,250	5.74	5,370	---	---	---	---	---	---
4	---	---	2.73	1,300	5.54	5,000	---	---	---	---	---	---
5	---	---	2.81	1,340	5.36	4,820	---	---	---	---	---	---
6	1.72	532	3.14	1,670	5.22	4,470	---	---	---	---	---	---
7	---	---	3.44	1,980	5.10	4,300	---	---	---	---	---	---
8	---	---	3.86	2,450	4.97	4,040	---	---	---	---	---	---
9	---	---	5.63	5,180	4.87	3,880	---	---	---	---	---	---
10	---	---	8.33	10,700	4.77	3,720	---	---	---	---	---	---
11	---	---	9.33	12,900	4.69	3,640	---	---	---	---	---	---
N	1.72	532	9.85	14,000	4.61	3,480	3.40	1,930	2.80	1,340	2.44	1,040
1	1.72	532	9.73	13,800	---	---	---	---	---	---	---	---
2	1.73	538	9.23	12,700	---	---	---	---	---	---	---	---
3	1.74	544	8.37	10,900	4.38	3,180	---	---	---	---	---	---
4	1.79	574	7.38	8,790	---	---	---	---	---	---	---	---
5	1.80	580	6.78	7,540	---	---	---	---	---	---	---	---
6	1.82	592	6.25	6,340	4.16	2,840	---	---	---	---	---	---
7	1.85	610	5.88	5,750	---	---	---	---	---	---	---	---
8	1.84	604	5.58	5,180	---	---	---	---	---	---	---	---
9	1.83	598	5.34	4,640	4.00	2,640	---	---	---	---	---	---
10	1.85	610	5.31	4,640	---	---	---	---	---	---	---	---
11	1.90	640	5.83	5,560	---	---	---	---	---	---	---	---
12	1.93	658	6.15	6,340	3.85	2,450	2.99	1,520	2.54	1,120	2.26	888

WATAUGA RIVER AT HORSESHOE DAM, AT WILBUR, TENN.

LOCATION.—Lat. 36°20'28", long. 82°07'26", at dam of East Tennessee Power & Light Co., at Wilbur, Carter County, and 7½ miles upstream from Doe River and Elizabethton. Datum of gage is 1,640.0 feet above mean sea level.

DRAINAGE AREA.—471 square miles.

GAGE-HEIGHT RECORD.—Hourly head-water readings 1 a.m. to 8 p.m. Aug. 13.

DISCHARGE RECORD.—Peak discharge based on determination of flow over dam. Hourly discharges computed on basis of records of Watauga River at Elizabethton and Doe River at Elizabethton adjusted for difference in drainage areas and time interval.

MAXIMA.—1940: Discharge, 73,800 second-feet 11:30 p.m. Aug. 13 (gage height, 17.47 feet, from floodmark).

400 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

1903-8: Discharge, 10,100 second-feet July 12, 1905 (gage height, 8.4 feet at site near Elizabethton and datum then in use).

REMARKS.—Crest of dam is 0.0 foot gage height, and top of flashboards is 3.5 feet gage height.

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge	Gage height	Dis-charge
1	4.2	994	-----	64,000	-----	13,400	-----	-----	-----	-----
2	5.4	1,010	-----	54,000	-----	13,400	-----	5,750	-----	3,710
3	5.8	1,190	-----	44,000	-----	13,100	-----	-----	-----	-----
4	5.8	2,100	-----	36,100	-----	12,700	-----	5,540	-----	3,750
5	5.8	2,570	-----	30,600	-----	12,400	-----	-----	-----	-----
6	5.8	2,930	-----	28,200	-----	11,800	-----	5,330	-----	3,610
7	6.1	3,440	-----	25,800	-----	11,300	-----	-----	-----	-----
8	6.4	3,930	-----	23,400	-----	10,700	-----	4,940	-----	3,470
9	6.6	4,460	-----	22,200	-----	10,100	-----	-----	-----	-----
10	6.8	5,400	-----	20,400	-----	9,900	-----	4,950	-----	3,340
11	7.1	6,460	-----	18,600	-----	9,300	-----	-----	-----	-----
N	7.2	7,170	-----	17,300	-----	9,110	-----	4,740	-----	3,210
1	7.3	7,630	-----	16,100	-----	8,540	-----	-----	-----	-----
2	7.4	7,990	-----	15,300	-----	8,290	-----	4,540	-----	3,080
3	7.4	8,070	-----	14,500	-----	8,030	-----	-----	-----	-----
4	7.5	8,000	-----	13,800	-----	7,780	-----	4,520	-----	3,040
5	7.6	7,860	-----	13,500	-----	7,510	-----	-----	-----	-----
6	7.7	7,900	-----	13,200	-----	7,280	-----	4,240	-----	2,930
7	8.9	7,580	-----	12,900	-----	7,050	-----	-----	-----	-----
8	10.0	12,100	-----	12,900	-----	6,820	-----	3,950	-----	2,800
9	-----	25,600	-----	13,300	-----	6,600	-----	-----	-----	-----
10	-----	48,500	-----	13,000	-----	6,380	-----	3,970	-----	2,760
11	-----	70,000	-----	13,300	-----	6,160	-----	-----	-----	-----
12	-----	70,500	-----	13,100	-----	6,170	-----	4,020	-----	2,660
Mean	-----	12,000	-----	24,100	-----	9,470	-----	4,800	-----	3,250

SUPPLEMENTAL RECORD.—Aug. 13, 11:30 p.m., gage height, 17.47 feet; discharge, 73,800 second-feet

WATAUGA RIVER AT ELIZABETHTON, TENN.

LOCATION.—Lat. 36°21'21", long. 82°13'26", between bridge on U. S. Highway 19E and Southern Railway bridge at Elizabethton, Carter County, 0.6 mile downstream from Doe River. Datum of gage is 1,486.23 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—692 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for the period 3 to 6 a.m. Aug. 14, record for which was based on the shape of graph at beginning and end of period.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 28,500 second-feet and extended to crest gage height on basis of flood determination by contracted-opening method, and flow over Horseshoe Dam, at Wilbur, 7 miles upstream. Gage heights used to half-tenths between 3.6 and 6.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 75,100 second-feet 12:30 a.m. Aug. 14 (gage height, 20.87 feet).

1926-39: Discharge, 25,700 second-feet Mar. 26, 1935 (gage height, 12.97 feet).

Stage known, 22.0 feet Feb. 27 or 28, 1902; discharge, 83,700 second-feet. Flood of July 16, 1916, reached a stage of 15.6 feet (discharge, 40,000 second-feet).

REMARKS.—Flood runoff affected slightly by Horseshoe Dam, at Wilbur, 7 miles upstream. Flashboards on dam swept out sometime before crest of flood on August 14; no regulation thereafter.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,980	2,720	9	816	781	17	4,260	567	25	986	516
2	1,780	1,850	10	674	864	18	2,960	538	26	1,030	538
3	1,270	1,440	11	704	904	19	2,440	510	27	915	488
4	978	1,220	12	748	737	20	1,940	510	28	849	446
5	949	1,200	13	10,900	687	21	1,610	488	29	900	368
6	862	1,020	14	28,400	638	22	1,450	467	30	6,970	354
7	1,430	913	15	10,900	608	23	1,230	467	31	5,450	-----
8	1,170	834	16	5,890	579	24	1,090	494			
Monthly mean discharge, in second-feet.....										3,372	792
Runoff, in inches.....										5.62	1.28

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	3.48	869	4.28	1,540	20.80	74,300	10.65	14,300	-----	-----	-----	-----
2	3.47	863	4.29	1,540	19.90	67,500	10.67	14,600	-----	-----	-----	-----
3	3.18	675	4.29	1,540	18.50	57,200	10.67	14,600	-----	-----	-----	-----
4	2.84	478	4.50	1,720	16.95	46,800	10.60	14,300	-----	-----	-----	-----
5	2.62	367	5.34	2,620	15.70	38,600	10.50	13,900	-----	-----	-----	-----
6	2.48	306	5.70	3,100	14.74	33,000	10.40	13,600	7.60	6,310	6.71	4,640
7	2.40	273	5.96	3,480	14.22	30,400	10.22	13,000	-----	-----	-----	-----
8	2.34	250	6.28	4,000	13.67	27,900	10.00	12,400	-----	-----	-----	-----
9	2.30	235	6.70	4,640	13.20	25,400	9.80	11,800	-----	-----	-----	-----
10	2.90	510	7.12	5,330	12.86	24,000	9.65	11,200	-----	-----	-----	-----
11	3.50	883	7.65	6,310	12.50	22,100	9.50	11,000	-----	-----	-----	-----
N	3.52	897	8.12	7,400	12.12	20,300	9.33	10,400	7.31	5,710	6.42	4,160
1	3.80	1,100	8.36	8,110	11.80	18,900	-----	-----	-----	-----	-----	-----
2	3.90	1,180	8.58	8,600	11.50	17,700	9.03	9,620	-----	-----	-----	-----
3	3.95	1,230	8.77	9,100	11.26	16,900	-----	-----	-----	-----	-----	-----
4	3.94	1,230	8.95	9,620	11.12	16,100	8.80	9,100	-----	-----	-----	-----
5	3.95	1,230	9.15	10,200	10.92	15,300	-----	-----	-----	-----	-----	-----
6	3.90	1,180	9.40	10,700	10.80	15,000	8.57	8,600	7.12	5,330	6.19	3,850
7	3.52	897	9.65	11,200	10.70	14,600	-----	-----	-----	-----	-----	-----
8	3.07	608	10.00	12,400	10.65	14,300	8.36	8,110	-----	-----	-----	-----
9	2.90	510	11.60	18,100	10.65	14,300	-----	-----	-----	-----	-----	-----
10	2.87	494	14.40	31,400	10.66	14,600	8.18	7,630	-----	-----	-----	-----
11	2.96	544	18.00	53,700	10.65	14,300	-----	-----	-----	-----	-----	-----
12	4.15	1,400	20.13	69,000	10.66	14,600	8.00	7,170	7.00	5,150	5.96	3,480
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	4.40	1,630	7.56	6,310	-----	-----	-----	-----	-----	-----
2	-----	-----	4.39	1,630	7.72	6,320	-----	-----	-----	-----	-----	-----
3	-----	-----	4.45	1,680	8.10	7,400	-----	-----	-----	-----	-----	-----
4	-----	-----	4.56	1,770	8.30	7,870	-----	-----	-----	-----	-----	-----
5	-----	-----	4.65	1,870	8.27	7,870	-----	-----	-----	-----	-----	-----
6	3.41	822	4.72	1,920	8.05	7,170	5.65	3,030	-----	-----	-----	-----
7	-----	-----	5.07	2,280	7.80	6,730	-----	-----	-----	-----	-----	-----
8	-----	-----	5.42	2,680	7.62	6,310	-----	-----	-----	-----	-----	-----
9	-----	-----	5.61	2,960	7.45	5,910	-----	-----	-----	-----	-----	-----
10	-----	-----	5.76	3,180	7.30	5,710	-----	-----	-----	-----	-----	-----
11	-----	-----	6.09	3,700	7.18	5,520	-----	-----	-----	-----	-----	-----
N	3.40	815	6.80	4,800	7.06	5,330	5.37	2,620	4.62	1,820	4.17	1,400
1	3.41	822	9.00	9,620	-----	-----	-----	-----	-----	-----	-----	-----
2	3.41	822	10.80	15,000	-----	-----	-----	-----	-----	-----	-----	-----
3	3.41	822	11.35	17,300	-----	-----	-----	-----	-----	-----	-----	-----
4	3.44	842	11.30	16,900	-----	-----	-----	-----	-----	-----	-----	-----
5	3.46	856	10.95	15,700	-----	-----	-----	-----	-----	-----	-----	-----
6	3.49	876	10.40	13,600	6.47	4,320	5.14	2,380	-----	-----	-----	-----
7	3.50	883	9.74	11,500	-----	-----	-----	-----	-----	-----	-----	-----
8	3.54	912	9.18	10,200	-----	-----	-----	-----	-----	-----	-----	-----
9	3.58	941	8.65	8,600	-----	-----	-----	-----	-----	-----	-----	-----
10	3.77	1,070	8.25	7,630	-----	-----	-----	-----	-----	-----	-----	-----
11	4.31	1,540	7.94	6,950	-----	-----	-----	-----	-----	-----	-----	-----
12	4.42	1,630	7.70	6,520	5.99	3,550	4.91	2,120	4.38	1,630	4.06	1,320

SUPPLEMENTAL RECORDS.—Aug. 14, 12:30 a.m., gage height, 20.87 feet; discharge, 75,100 second-feet.
 Aug. 30, 3:30 p.m., gage height, 11.38 feet; discharge, 17,300 second-feet.

402 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

ELK CREEK NEAR ELK PARK, N. C.

LOCATION.—Lat. $36^{\circ}11'10''$, long. $81^{\circ}57'40''$, 1 mile downstream from Little Elk Creek, 2 miles northeast of Elk Park, Avery County, and 3 miles upstream from State line.

DRAINAGE AREA.—42.0 square miles.

GAGE-HEIGHT RECORD.—The water-stage recorder was lost in the flood of Aug. 13 and not recovered. Water-stage recorder graph available only to 12:30 p.m. Aug. 1. One staff-gage reading daily to hundredths Aug. 3, 9, and staff-gage readings twice daily to hundredths Aug. 18-24, 28-29, and Sept. 1-30. Graph based on two readings was used Aug. 29. No gage-height record for remaining period.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 1,300 second-feet and extended to crest gage height on basis of peak flow determination by slope-area method. Gage heights used to half-tenths between 2.4 and 3.9 feet; hundredths below and tenths above these limits. Discharge for periods of no-gage height record is based on weather records and records for nearby streams.

MAXIMA.—1940: Discharge, 27,500 second-feet 6:30 p.m. Aug. 13 (gage height, 17.8 feet, from floodmarks).

1934-39: Discharge, 3,640 second-feet Jan. 9, 1935 (gage height, 7.15 feet).

Surveys by the Tennessee Valley Authority show that the floods of May 1901 and July 1916 probably were exceeded by the flood of August 1940.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	126	410	9	70	91	17	350	58	25	90	52
2	80	281	10	65	108	18	297	55	26	90	47
3	70	208	11	80	89	19	235	54	27	80	42
4	60	160	12	350	89	20	183	52	28	86	37
5	70	160	13	5,000	72	21	160	48	29	195	36
6	80	128	14	1,500	69	22	132	46	30	1,800	36
7	120	112	15	800	66	23	115	46	31	700	
8	90	105	16	500	62	24	101	45			
Monthly mean discharge, in second-feet.....										441	95.5
Runoff, in inches.....										12.11	2.54

ROAN CREEK AT BUTLER, TENN.

LOCATION.—Lat. $36^{\circ}20'22''$, long. $81^{\circ}59'36''$, half a mile northeast of Butler, Johnson County, and 0.7 mile upstream from mouth. Datum of gage is 1,826.78 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—166 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,500 second-feet. Station affected by backwater from Watauga River 7 p.m. Aug. 13 to 1 a.m. Aug. 14; discharge computed from effective gage heights obtained from graph based on shape of graph at beginning and end of period. Gage heights used to half-tenths from 2.6 to 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 3,920 second-feet 4 a.m. Aug. 14; gage height, 10.09 feet 9:50 p.m. Aug. 13.

1934-39: Discharge, 4,940 second-feet Mar. 26, 1935 (gage height, 7.68 feet).

REMARKS.—Flood runoff not appreciably affected by storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	632	140	9	97	77	17	649	64	25	147	57
2	342	118	10	85	132	18	466	61	26	140	64
3	232	105	11	83	118	19	387	60	27	129	54
4	177	97	12	96	87	20	301	57	28	115	52
5	151	97	13	559	77	21	248	55	29	113	50
6	132	87	14	3,120	72	22	216	54	30	190	49
7	145	82	15	2,140	68	23	187	53	31	152	-----
8	112	77	16	998	66	24	162	53			
Monthly mean discharge, in second-feet.....										410	76.1
Runoff, in inches.....										2.85	0.51

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.23	167	6.88	3,560	-----	-----	-----	-----	-----	-----	-----	-----
2	1.19	158	6.40	3,740	-----	-----	-----	-----	-----	-----	-----	-----
3	1.18	156	6.60	3,920	-----	-----	-----	-----	-----	-----	-----	-----
4	1.16	151	6.61	3,920	-----	-----	-----	-----	-----	-----	-----	-----
5	1.15	149	6.53	3,830	-----	-----	-----	-----	-----	-----	-----	-----
6	1.13	145	6.35	3,740	5.16	2,670	-----	-----	-----	-----	-----	-----
7	1.13	145	6.29	3,650	-----	-----	-----	-----	-----	-----	-----	-----
8	1.15	149	6.13	3,470	-----	-----	-----	-----	-----	-----	-----	-----
9	1.19	158	5.99	3,380	-----	-----	-----	-----	-----	-----	-----	-----
10	1.27	177	5.84	3,200	-----	-----	-----	-----	-----	-----	-----	-----
11	1.38	205	5.65	3,020	-----	-----	-----	-----	-----	-----	-----	-----
N	1.36	200	5.54	2,930	4.43	2,040	2.99	990	2.40	645	2.01	450
1	1.34	194	5.35	2,840	-----	-----	-----	-----	-----	-----	-----	-----
2	1.40	210	5.23	2,670	-----	-----	-----	-----	-----	-----	-----	-----
3	1.45	224	5.13	2,580	-----	-----	-----	-----	-----	-----	-----	-----
4	1.50	238	5.04	2,500	-----	-----	-----	-----	-----	-----	-----	-----
5	1.65	284	5.00	2,500	-----	-----	-----	-----	-----	-----	-----	-----
6	2.05	437	4.92	2,420	3.87	1,570	-----	-----	-----	-----	-----	-----
7	2.70	664	4.86	2,420	-----	-----	-----	-----	-----	-----	-----	-----
8	5.50	1,020	5.02	2,500	-----	-----	-----	-----	-----	-----	-----	-----
9	8.60	1,660	5.33	2,760	-----	-----	-----	-----	-----	-----	-----	-----
10	10.07	2,080	5.57	3,020	-----	-----	-----	-----	-----	-----	-----	-----
11	9.10	2,760	5.70	3,110	-----	-----	-----	-----	-----	-----	-----	-----
12	7.55	3,200	5.89	3,290	3.46	1,280	2.67	782	2.17	525	1.95	426

DOE RIVER AT ELIZABETHTON, TENN.

LOCATION.—Lat. 36°20'40", long. 82°12'37", 0.2 mile upstream from covered highway bridge at Elizabethton, Carter County, and 1 mile upstream from mouth. Datum of gage is 1,524.73 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—137 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,800 second-feet. Gage heights used to half-tenths between 3.0 and 5.4 feet; hundredths below and tenths above these limits.

MAXIMA.—August, 1940: Discharge, 4,830 second-feet 9 p.m. Aug. 13 (gage height, 5.48 feet).

1932 to July 1940: Discharge, 7,300 second-feet July 30, 1940 (gage height, 6.75 feet).

REMARKS.—Flood runoff not appreciably affected by storage.

404 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	665	423	9	172	152	17	765	108	25	186	106
2	432	323	10	152	172	18	531	104	26	204	127
3	304	266	11	155	169	19	448	100	27	174	95
4	241	234	12	188	142	20	345	97	28	169	87
5	214	204	13	1,510	132	21	288	95	29	156	85
6	208	186	14	1,630	127	22	262	91	30	1,120	82
7	296	174	15	895	122	23	225	89	31	630	-----
8	201	160	16	817	112	24	201	89			
Monthly mean discharge, in second-feet-----										445	148
Runoff, in inches-----										3.74	1.21

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.88	456	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	1.84	437	4.32	2,790	-----	-----	-----	-----	-----	-----
3	-----	-----	1.82	427	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	1.81	423	3.94	2,270	-----	-----	-----	-----	-----	-----
5	-----	-----	1.80	418	-----	-----	-----	-----	-----	-----	-----	-----
6	1.03	142	1.81	423	3.66	1,880	2.69	933	2.47	786	2.55	838
7	-----	-----	1.84	437	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	1.87	451	3.49	1,700	-----	-----	-----	-----	-----	-----
9	-----	-----	2.10	568	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	2.32	695	3.29	1,480	-----	-----	-----	-----	-----	-----
11	-----	-----	2.38	731	-----	-----	-----	-----	-----	-----	-----	-----
N	1.04	144	2.42	755	3.16	1,330	2.62	884	2.44	768	2.44	768
1	-----	-----	2.42	755	-----	-----	-----	2.45	774	-----	-----	-----
2	-----	-----	2.45	774	-----	-----	-----	2.45	774	-----	-----	-----
3	1.07	152	2.63	891	3.09	1,280	-----	2.46	780	-----	-----	-----
4	-----	-----	3.04	1,240	-----	-----	-----	2.48	793	-----	-----	-----
5	-----	-----	3.57	1,760	-----	-----	-----	2.49	799	-----	-----	-----
6	1.13	169	3.94	2,270	2.99	1,180	2.60	870	2.52	818	2.32	695
7	-----	-----	4.21	2,640	-----	-----	-----	2.60	870	-----	-----	-----
8	-----	-----	4.95	3,860	-----	-----	-----	2.61	877	-----	-----	-----
9	1.53	304	5.48	4,830	2.89	1,090	-----	2.72	956	-----	-----	-----
10	-----	-----	5.39	4,650	-----	-----	-----	2.75	980	-----	-----	-----
11	-----	-----	5.14	4,200	-----	-----	-----	2.71	948	-----	-----	-----
12	1.89	460	4.79	3,600	2.79	1,010	2.50	805	2.67	919	2.20	624

NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA.

LOCATION.—Lat. 36°53'48", long. 81°44'47", half a mile upstream from Cedar Branch Bridge, 1½ miles northeast of Saltville, Smyth County, and 4½ miles upstream from McHenry Creek. Datum of gage is 1,703.53 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—222 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,100 second-feet. Gage heights used to half-tenths between 2.9 and 5.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 5,840 second-feet 10 p.m. Aug. 14 (gage height, 6.23 feet).

1907-8, 1920-39: Discharge observed, 8,220 second-feet Feb. 3, 1923 (gage height, 13.97 feet, site and datum then in use).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	478	198	9	95	91	17	984	68	25	252	57
2	330	168	10	85	95	• 18	828	66	26	219	66
3	211	148	11	78	100	19	1,270	64	27	190	61
4	161	126	12	74	91	20	1,000	61	28	170	55
5	136	116	13	103	82	21	618	59	29	162	53
6	124	107	14	3,510	78	22	547	57	30	207	51
7	131	100	15	3,530	74	23	408	55	31	255	
8	118	95	16	1,530	72	24	314	51			
Monthly mean discharge, in second-feet.....										584	85.5
Runoff, in inches.....										3.03	0.43

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	-----	-----	2.07	556	5.92	5,300	-----	-----
4	-----	-----	2.73	1,050	5.69	4,960	3.46	1,740
6	.91	74	3.42	1,690	5.47	4,620	-----	-----
8	-----	-----	4.06	2,460	5.20	4,130	3.34	1,640
10	-----	-----	4.60	3,210	4.95	3,740	-----	-----
N	.93	78	5.00	3,810	4.68	3,360	3.23	1,540
2	.96	85	5.34	4,290	4.44	3,000	-----	-----
4	.99	91	5.68	4,960	4.25	2,720	3.13	1,440
6	1.06	107	5.99	5,480	4.07	2,460	-----	-----
8	1.15	128	6.20	5,840	3.86	2,210	3.02	1,290
10	1.34	183	6.23	5,840	3.73	2,090	-----	-----
12	1.62	299	6.10	5,660	3.62	1,910	2.92	1,200
	Aug. 17		Aug. 18		Aug. 19		Aug. 20	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
2	-----	-----	2.71	1,030	2.71	1,030	-----	-----
4	2.82	1,130	2.68	1,000	2.75	1,060	2.89	1,190
6	-----	-----	2.58	924	2.82	1,130	-----	-----
8	2.73	1,050	2.48	844	2.88	1,180	2.76	1,070
10	-----	-----	2.42	796	2.95	1,240	-----	-----
N	2.64	972	2.37	759	3.05	1,340	2.65	980
2	-----	-----	2.33	731	3.10	1,390	-----	-----
4	2.55	900	2.35	745	3.15	1,440	2.54	892
6	-----	-----	2.34	738	3.16	1,440	-----	-----
8	2.47	836	2.33	731	3.15	1,440	2.45	820
10	-----	-----	2.35	745	3.10	1,390	-----	-----
12	2.47	836	2.62	956	3.04	1,340	2.36	752

NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA.

LOCATION.—Lat. 36°36'31", long. 82°34'05", at highway bridge 1½ miles downstream from Big Moccasin Creek and 2 miles southeast of Gate City, Scott County. Datum of gage is 1,197.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—672 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 21,000 second-feet. Gage heights used to half-tenths between 3.0 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 23,700 second-feet 10 p.m. Aug. 14 (gage height, 14.75 feet).

1931-39: Discharge, 13,400 second-feet Jan. 30, 1932, Mar. 26, 1935 (gage height, 10.6 feet).

406 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,840	2,400	9	435	360	17	2,740	228	25	898	177
2	1,500	1,380	10	335	360	18	1,880	216	26	758	196
3	942	940	11	273	365	19	2,330	204	27	647	212
4	634	730	12	234	340	20	3,020	200	28	564	196
5	486	589	13	315	310	21	1,930	192	29	536	180
6	402	515	14	10,600	282	22	1,660	180	30	1,600	162
7	381	446	15	13,900	246	23	1,580	177	31	2,630	-----
8	621	407	16	5,410	242	24	1,150	173			
Monthly mean discharge, in second-feet.....										2,007	420
Runoff, in inches.....										3.45	0.70

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.70	800	14.00	21,700						
2	-----	-----	2.85	912	13.50	20,400	7.99	7,950				
3	-----	-----	3.05	1,070	12.95	19,200						
4	-----	-----	3.21	1,190	12.45	17,800	7.61	7,190				
5	-----	-----	3.39	1,360	12.05	16,800						
6	1.87	224	3.65	1,590	11.65	15,800	7.30	6,620				
7	-----	-----	3.90	1,840	11.35	15,400						
8	-----	-----	4.05	1,990	11.13	14,700	6.97	6,080				
9	-----	-----	4.50	2,470	10.90	14,200						
10	-----	-----	5.70	3,920	10.74	13,800	6.65	5,360				
11	-----	-----	6.85	5,720	10.60	13,500						
N	1.87	224	8.23	8,350	10.46	13,300	6.38	5,020	4.70	2,690	3.90	1,840
1	-----	-----	9.35	10,900	10.33	12,800						
2	1.92	246	10.40	13,100	10.20	12,600	6.15	4,680				
3	-----	-----	11.40	15,400	10.05	12,200						
4	2.01	287	12.20	17,300	9.87	12,000	5.97	4,360				
5	-----	-----	13.00	19,200	9.72	11,500						
6	2.26	413	13.65	20,700	9.54	11,100	5.77	4,060				
7	-----	-----	14.10	22,000	9.37	10,900						
8	2.44	515	14.45	22,700	9.18	10,400	5.61	3,780				
9	-----	-----	14.65	23,200	8.98	10,000						
10	2.51	558	14.75	23,700	8.78	9,580	5.48	3,650				
11	-----	-----	14.65	23,200	8.59	9,160						
12	2.60	614	14.38	22,700	8.39	8,750	5.36	3,520	4.27	2,200	3.84	1,790
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	2.68	786	4.26	2,200	-----	-----	-----	-----	-----	-----
4	-----	-----	2.95	990	4.28	2,250	-----	-----	-----	-----	-----	-----
6	2.28	521	3.37	1,320	4.24	2,200	4.81	2,800	-----	-----	-----	-----
8	-----	-----	3.57	1,500	4.21	2,140	-----	-----	-----	-----	-----	-----
10	-----	-----	3.75	1,690	4.57	2,520	-----	-----	-----	-----	-----	-----
N	2.25	504	3.77	1,690	4.88	2,920	4.47	2,420	3.39	1,360	2.88	935
2	2.25	504	3.81	1,740	5.00	3,040	-----	-----	-----	-----	-----	-----
4	2.25	504	3.98	1,940	4.92	2,920	-----	-----	-----	-----	-----	-----
6	2.32	545	4.07	1,990	4.87	2,860	4.09	2,040	-----	-----	-----	-----
8	2.37	576	4.10	2,040	4.98	3,040	-----	-----	-----	-----	-----	-----
10	2.42	608	4.15	2,090	4.94	2,980	-----	-----	-----	-----	-----	-----
12	2.53	681	4.21	2,140	4.88	2,920	3.80	1,740	3.10	1,110	2.71	808

LITTLE RIVER NEAR WALLAND, TENN.

LOCATION.—Lat. 35°45'48", long. 83°51'00", half a mile upstream from bridge on State Highway 73, 1 mile upstream from Ellejoy Creek, and 3 miles downstream from Walland, Blount County. Datum of gage is 877.36 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—192 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,540 second-feet. Gage heights used to half-tenths between 3.3 and 5.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 2,900 second-feet 6 a.m. Aug. 30 (gage height, 4.86 feet).

1931-39: Discharge, 16,200 second-feet Feb. 4, 1936 (gage height, 13.18 feet), from rating curve extended above 9,000 second-feet.

REMARKS.—Flood runoff affected slightly by small dams above station.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	381	598	9	147	174	17	490	120	25	198	114
2	222	413	10	142	175	18	379	117	26	181	159
3	188	329	11	133	185	19	412	109	27	169	112
4	172	280	12	141	156	20	359	109	28	159	125
5	159	243	13	331	144	21	312	107	29	257	94
6	156	218	14	1,000	136	22	278	99	30	1,400	94
7	191	201	15	1,560	133	23	243	99	31	1,180	-----
8	153	186	16	749	125	24	212	99			

Monthly mean discharge, in second-feet.....	389	175
Runoff, in inches.....	2.33	1.02

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	3.02	968	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	2.94	899	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	2.87	841	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	2.82	801	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	2.77	762	-----	-----	-----	-----	-----	-----	-----	-----
6	1.54	142	2.72	725	3.98	1,920	-----	-----	-----	-----	-----	-----
7	-----	-----	2.66	681	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	2.64	667	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	2.64	667	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	2.77	762	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	2.97	924	-----	-----	-----	-----	-----	-----	-----	-----
N	1.61	162	2.96	916	3.53	1,460	2.74	740	2.37	491	2.16	381
1	1.63	169	2.92	882	-----	-----	-----	-----	-----	-----	-----	-----
2	1.64	172	2.89	857	-----	-----	-----	-----	-----	-----	-----	-----
3	1.66	178	2.88	849	-----	-----	-----	-----	-----	-----	-----	-----
4	1.67	181	2.89	857	-----	-----	-----	-----	-----	-----	-----	-----
5	1.67	181	2.90	865	-----	-----	-----	-----	-----	-----	-----	-----
6	1.65	175	2.93	890	3.24	1,170	-----	-----	-----	-----	-----	-----
7	1.66	178	3.02	968	-----	-----	-----	-----	-----	-----	-----	-----
8	3.03	977	3.37	1,270	-----	-----	-----	-----	-----	-----	-----	-----
9	3.20	1,130	3.70	1,620	-----	-----	-----	-----	-----	-----	-----	-----
10	3.17	1,100	3.83	1,770	-----	-----	-----	-----	-----	-----	-----	-----
11	3.13	1,070	4.05	1,980	-----	-----	-----	-----	-----	-----	-----	-----
12	3.09	1,030	4.35	2,300	3.02	968	2.51	577	2.22	410	2.13	366
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.62	652	4.20	2,140	-----	-----	-----	-----	-----	-----
2	-----	-----	2.73	732	4.05	1,980	-----	-----	-----	-----	-----	-----
3	-----	-----	2.78	770	3.84	1,770	-----	-----	-----	-----	-----	-----
4	-----	-----	3.08	1,020	3.68	1,620	-----	-----	-----	-----	-----	-----
5	-----	-----	4.10	2,030	3.55	1,460	-----	-----	-----	-----	-----	-----
6	1.57	150	4.86	2,900	3.45	1,370	2.65	674	-----	-----	-----	-----
7	-----	-----	4.50	2,480	3.35	1,270	-----	-----	-----	-----	-----	-----
8	-----	-----	4.10	2,030	3.28	1,210	-----	-----	-----	-----	-----	-----
9	-----	-----	3.79	1,720	3.21	1,140	-----	-----	-----	-----	-----	-----
10	-----	-----	3.57	1,460	3.17	1,100	-----	-----	-----	-----	-----	-----
11	-----	-----	3.42	1,320	3.13	1,070	-----	-----	-----	-----	-----	-----
N	1.61	162	3.30	1,220	3.10	1,040	2.56	611	2.23	416	2.05	330
1	-----	-----	3.20	1,130	3.07	1,010	-----	-----	-----	-----	-----	-----
2	-----	-----	3.12	1,060	3.02	968	-----	-----	-----	-----	-----	-----
3	-----	-----	3.04	986	3.00	950	-----	-----	-----	-----	-----	-----
4	-----	-----	2.97	924	2.96	916	-----	-----	-----	-----	-----	-----
5	-----	-----	2.92	882	2.92	882	-----	-----	-----	-----	-----	-----
6	1.77	216	2.91	874	2.90	865	2.40	508	-----	-----	-----	-----
7	1.87	253	2.97	924	2.87	841	-----	-----	-----	-----	-----	-----
8	1.97	294	2.99	942	2.85	825	-----	-----	-----	-----	-----	-----
9	2.63	660	3.30	1,220	2.82	801	-----	-----	-----	-----	-----	-----
10	2.72	725	4.40	2,360	2.80	785	-----	-----	-----	-----	-----	-----
11	2.65	674	4.44	2,420	2.78	770	-----	-----	-----	-----	-----	-----
12	2.62	652	4.32	2,250	2.75	748	2.33	469	2.13	366	1.98	299

LITTLE TENNESSEE RIVER AT IOTLA, N. C.

LOCATION.—Lat. $35^{\circ}14'05''$, long. $85^{\circ}23'35''$, 1,000 feet upstream from State highway bridge at Iotla, Macon County, and 1,100 feet upstream from Iotla Creek. Datum of gage is 1,958.62 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—323 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for period 9 p.m. Aug. 29 to 2 p.m. Aug. 31, where a graph based on floodmarks, records of Aluminum Company of America power plant 2½ miles upstream, and records for nearby streams was used and Sept. 6-12 for which there is no gage-height record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,300 second-feet and extended to crest gage height on basis of computation of flood flow over the dam of the Aluminum Company of America power plant 2½ miles upstream. Gage heights used to half-tenths between 2.9 and 5.3 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record is based on records for station at Judson and for nearby streams.

MAXIMA.—1940: Discharge, 19,600 second-feet 10 a.m. Aug. 30 (gage height, 13.5 feet, from floodmarks).

1929-39: Discharge, 10,900 second-feet Sept. 30, 1936 (gage height, 8.84 feet).

The flood of October 1898 reached a stage of 13 feet (from survey by the Tennessee Valley Authority) discharge, 18,600 second-feet, from 1940 rating.

REMARKS.—Flood runoff practically unaffected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	3.38	1,510	7.01	6,680	-----	-----	-----	-----	-----	-----
2	-----	-----	3.45	1,560	6.95	6,680	4.88	3,260	3.24	1,380	2.78	974
3	-----	-----	3.59	1,710	6.60	5,960	-----	-----	-----	-----	-----	-----
4	-----	-----	3.86	1,960	6.48	5,790	4.40	2,600	3.24	1,380	2.74	942
5	-----	-----	3.90	2,010	6.47	5,790	-----	-----	-----	-----	-----	-----
6	1.52	232	4.00	2,120	6.45	5,620	4.23	2,410	3.24	1,380	2.74	942
7	-----	-----	4.35	2,540	6.44	5,620	-----	-----	-----	-----	-----	-----
8	-----	-----	4.65	2,920	6.43	5,620	3.95	2,060	3.00	1,150	2.74	942
9	-----	-----	4.81	3,120	6.40	5,620	-----	-----	-----	-----	-----	-----
10	-----	-----	4.85	3,190	6.28	5,450	3.94	2,060	3.08	1,240	2.78	974
11	-----	-----	5.25	3,760	6.28	5,450	-----	-----	-----	-----	-----	-----
N	1.58	252	5.73	4,460	6.27	5,450	3.68	1,810	3.10	1,240	2.86	1,040
1	1.58	252	6.03	4,940	6.12	5,110	-----	-----	-----	-----	-----	-----
2	1.64	274	6.36	5,620	6.05	4,940	2.97	1,110	3.10	1,240	2.78	974
3	1.90	392	6.55	5,960	5.90	4,780	-----	-----	-----	-----	-----	-----
4	1.98	436	6.90	6,500	5.80	4,620	3.91	2,010	3.09	1,240	2.66	882
5	2.00	447	7.09	6,860	5.79	4,620	-----	-----	-----	-----	-----	-----
6	2.13	524	7.20	7,040	5.75	4,620	3.41	1,510	2.93	1,110	2.66	882
7	2.30	633	7.41	7,400	5.52	4,140	-----	-----	-----	-----	-----	-----
8	2.70	910	7.47	7,580	5.51	4,140	3.24	1,380	2.93	1,110	2.66	882
9	3.20	1,330	7.58	7,770	5.30	3,840	-----	-----	-----	-----	-----	-----
10	3.25	1,380	7.60	7,770	5.24	3,760	3.24	1,380	2.93	1,110	2.76	958
11	3.25	1,380	7.47	7,580	5.05	3,470	-----	-----	-----	-----	-----	-----
12	3.26	1,380	7.23	7,040	4.99	3,400	3.24	1,380	2.93	1,110	2.68	896
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.96	425	7.3	7,220	6.9	6,500	-----	-----	-----	-----	-----	-----
2	1.96	425	7.8	8,150	6.7	6,140	4.38	2,600	3.52	1,610	-----	-----
3	1.96	425	8.4	9,290	6.6	5,960	-----	-----	-----	-----	-----	-----
4	1.97	430	9.1	10,600	6.4	5,620	4.12	2,230	3.47	1,560	-----	-----
5	1.98	436	10.0	12,400	6.1	5,110	-----	-----	-----	-----	-----	-----
6	1.98	436	10.7	13,800	5.8	4,620	3.82	1,910	3.46	1,560	3.19	1,330
7	1.97	430	11.8	16,000	5.5	4,140	-----	-----	-----	-----	-----	-----
8	1.97	430	12.7	17,900	5.6	4,300	3.82	1,910	3.24	1,380	-----	-----
9	2.25	600	13.2	19,000	5.8	4,620	-----	-----	-----	-----	-----	-----
10	2.54	798	13.5	19,600	5.8	4,620	3.94	2,060	3.24	1,380	-----	-----
11	3.40	1,510	13.3	19,200	5.8	4,620	-----	-----	-----	-----	-----	-----
N	3.33	1,460	12.5	17,500	5.8	4,620	3.95	2,060	3.41	1,510	3.18	1,330
1	3.80	1,910	11.7	15,800	-----	-----	-----	-----	-----	-----	-----	-----
2	4.20	2,350	11.1	14,600	5.3	3,840	3.80	1,910	3.41	1,510	-----	-----
3	4.31	2,470	10.4	13,200	-----	-----	-----	-----	-----	-----	-----	-----
4	4.50	2,730	9.9	12,200	5.00	3,400	3.68	1,810	3.41	1,510	-----	-----
5	4.72	2,990	9.3	11,000	-----	-----	-----	-----	-----	-----	-----	-----
6	4.75	3,060	8.8	10,000	5.00	3,400	3.69	1,810	3.40	1,510	2.98	1,150
7	4.80	3,120	8.3	9,100	-----	-----	-----	-----	-----	-----	-----	-----
8	4.89	3,260	7.9	8,340	4.62	2,860	3.69	1,810	3.21	1,330	-----	-----
9	5.3	3,840	7.7	7,960	-----	-----	-----	-----	-----	-----	-----	-----
10	5.8	4,620	7.5	7,580	4.38	2,600	3.68	1,810	3.19	1,330	-----	-----
11	6.3	5,450	7.3	7,220	-----	-----	-----	-----	-----	-----	-----	-----
12	6.8	6,320	7.1	6,860	4.38	2,600	3.66	1,760	3.19	1,330	2.98	1,150

SUPPLEMENTAL RECORD.—Aug. 13, 9:30 p.m., gage height, 7.63 feet; discharge, 7,770 second-feet.

LITTLE TENNESSEE RIVER AT JUDSON, N. C.

LOCATION.—Lat. 35°24'20", long. 83°33'45", a quarter of a mile downstream from highway bridge at railroad station at Judson, Swain County, and a quarter of a mile upstream from Sawyer Branch. Datum of gage is 1,521.76 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—664 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 14,500 second-feet and extended logarithmically to crest gage height. Shifting-control method used Sept. 1-30, 1940. The 1902 rating at former site

410 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

and datum was defined by current-meter measurements up to 22,000 second-feet. Gage heights used to half-tenths between 18.4 and 20.7 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 22,100 second-feet 3:30 p.m. Aug. 30 (gage height, 27.62 feet).

1896-1939: Discharge, 40,800 second-feet Feb. 28, 1902 (gage height, 16.19 feet, former site and datum). The available field data indicate that the 1902 maximum at present site and datum was from 3 to 5 feet higher than that of 1940.

Surveys by the Tennessee Valley Authority show that the flood of March 1917 reached a stage of 32 feet, present site and datum, from flood profile.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	---	---	18.38	1,300	---	---	---	---	---	---	---	---
2	17.76	750	18.39	1,310	23.78	10,800	21.49	5,820	19.61	2,720	---	---
3	---	---	18.39	1,310	---	---	---	---	---	---	---	---
4	17.63	656	18.54	1,480	23.70	10,600	21.26	5,440	19.45	2,520	---	---
5	---	---	18.65	1,580	---	---	---	---	---	---	---	---
6	17.53	590	19.34	2,380	23.49	10,100	21.07	5,080	19.41	2,450	19.00	1,970
7	---	---	19.47	2,520	---	---	---	---	---	---	---	---
8	17.47	552	19.54	2,650	23.15	9,430	20.97	4,900	19.40	2,450	---	---
9	---	---	19.71	2,860	---	---	---	---	---	---	---	---
10	17.44	534	20.04	3,360	22.74	8,300	20.68	4,390	19.38	2,450	---	---
11	---	---	20.68	4,390	---	---	---	---	---	---	---	---
N	17.40	510	21.13	5,080	22.60	8,080	20.45	3,980	19.37	2,380	18.86	1,800
1	---	---	21.49	5,820	---	---	---	---	---	---	---	---
2	17.39	504	21.89	6,600	22.53	7,860	20.28	3,740	---	---	---	---
3	---	---	22.41	7,640	---	---	---	---	---	---	---	---
4	17.42	522	22.84	8,520	22.38	7,640	20.12	3,440	---	---	---	---
5	---	---	23.22	9,430	---	---	---	---	---	---	---	---
6	17.44	534	23.57	10,400	22.28	7,430	19.97	3,220	19.16	2,140	18.85	1,800
7	---	---	23.81	10,800	---	---	---	---	---	---	---	---
8	17.51	576	23.95	11,300	22.09	7,010	19.83	3,070	---	---	---	---
9	---	---	24.07	11,600	---	---	---	---	---	---	---	---
10	17.68	691	24.15	11,800	21.86	6,600	19.52	2,580	---	---	---	---
11	---	---	24.12	11,600	---	---	---	---	---	---	---	---
12	18.24	1,160	24.01	11,300	21.61	6,010	19.85	3,070	19.14	2,140	18.78	1,750
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	---	---	23.41	9,890	---	---	---	---	---	---	---	---
2	---	---	24.23	11,800	24.08	11,600	---	---	---	---	---	---
3	---	---	25.00	14,000	---	---	---	---	---	---	---	---
4	---	---	25.30	14,800	23.53	10,100	---	---	---	---	---	---
5	---	---	25.38	15,100	---	---	---	---	---	---	---	---
6	17.87	836	25.55	15,700	23.05	8,970	20.38	3,900	19.62	2,790	---	---
7	---	---	25.70	16,000	---	---	---	---	---	---	---	---
8	---	---	25.77	16,300	22.66	8,300	---	---	---	---	---	---
9	---	---	25.80	16,300	---	---	---	---	---	---	---	---
10	---	---	25.75	16,300	22.41	7,640	---	---	---	---	---	---
11	---	---	25.88	16,600	---	---	---	---	---	---	---	---
N	18.24	1,160	26.43	18,100	22.07	7,010	20.09	3,520	19.43	2,520	19.12	2,140
1	18.35	1,270	26.92	19,700	---	---	---	---	---	---	---	---
2	18.53	1,480	27.34	21,000	21.82	6,400	---	---	---	---	---	---
3	18.70	1,640	27.59	22,100	---	---	---	---	---	---	---	---
4	18.94	1,920	27.59	22,100	21.78	6,400	---	---	---	---	---	---
5	19.15	2,140	27.45	21,400	---	---	---	---	---	---	---	---
6	19.93	3,220	27.23	20,700	21.50	5,820	19.91	3,220	19.25	2,320	---	---
7	20.33	3,820	26.91	19,700	---	---	---	---	---	---	---	---
8	20.73	4,560	26.47	18,400	21.23	5,260	---	---	---	---	---	---
9	21.13	5,080	26.05	16,900	---	---	---	---	---	---	---	---
10	21.34	5,440	25.51	15,400	20.98	4,900	---	---	---	---	---	---
11	21.68	6,200	25.14	14,300	---	---	---	---	---	---	---	---
12	22.53	7,860	24.73	13,200	20.91	4,730	19.66	2,860	19.31	2,380	19.02	2,020

SUPPLEMENTAL RECORDS.—Aug. 13, 10:30 p.m., gage height, 24.16 feet; discharge, 11,800 second-feet. Aug. 15, 10:15 p.m., gage height, 19.49 feet; discharge, 2,580 second-feet. Aug. 30, 3:30 p.m., gage height, 27.62 feet; discharge, 22,100 second-feet.

LITTLE TENNESSEE RIVER NEAR FONTANA, N. C.

LOCATION.—Lat. 35°26'50", long. 83°48'25", 0.7 mile downstream from Payne Branch and 1.1 miles southwest of Fontana, Swain County. Datum of gage is 1,275.09 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,571 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 21,000 second-feet and extended to crest gage height on basis of determination of flood flow at Cheoah Dam below the gage, computed by the Aluminum

412 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Company of America, and adjusted to flow at the gage on basis of the square root of the ratio of the drainage areas. Shifting-control method used Aug. 31 to Sept. 30. Gage heights used to half-tenths between 5.1 and 8.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 71,200 second-feet 4:15 p.m. Aug. 30 (gage height, 15.94 feet).

1938-39: Discharge, 37,000 second-feet Feb. 15, 1939 (gage height, 11.02 feet).

Surveys by the Tennessee Valley Authority show that the floods of May 1840 and March 1867 reached stages of 21 feet and 23 feet, respectively, from flood profiles, and that these floods exceeded those of March 1886 and March 1917.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	10.98	35,200	---	---	---	---	---	---	---	---
2	4.36	1,480	11.09	35,900	---	---	---	---	---	---	---	---
3	---	---	11.04	35,200	---	---	---	---	---	---	---	---
4	4.39	1,520	10.89	34,500	7.69	13,000	---	---	---	---	---	---
5	---	---	10.67	33,100	---	---	---	---	---	---	---	---
6	4.45	1,620	10.39	31,000	---	---	6.34	6,900	---	---	---	---
7	---	---	10.20	29,600	---	---	---	---	---	---	---	---
8	4.68	2,040	10.00	28,200	7.76	13,300	---	---	---	---	---	---
9	---	---	9.80	26,800	---	---	---	---	---	---	---	---
10	5.58	4,260	9.58	25,400	---	---	---	---	---	---	---	---
11	---	---	9.33	23,300	---	---	---	---	---	---	---	---
N	6.30	6,700	9.08	21,900	7.37	11,200	6.13	6,120	5.74	4,740	5.47	3,810
1	---	---	8.89	20,500	---	---	---	---	---	---	---	---
2	6.58	7,900	8.69	19,100	---	---	---	---	---	---	---	---
3	---	---	8.55	18,400	---	---	---	---	---	---	---	---
4	6.88	9,150	8.46	17,800	---	---	---	---	---	---	---	---
5	---	---	8.36	17,200	---	---	---	---	---	---	---	---
6	7.63	12,800	8.28	16,500	6.83	8,920	6.05	5,780	---	---	---	---
7	---	---	8.21	15,900	---	---	---	---	---	---	---	---
8	8.90	20,500	8.12	15,300	---	---	---	---	---	---	---	---
9	---	---	8.04	14,700	---	---	---	---	---	---	---	---
10	10.02	28,200	7.88	14,200	---	---	---	---	---	---	---	---
11	---	---	7.86	13,900	---	---	---	---	---	---	---	---
12	10.75	33,800	7.90	14,200	6.48	7,500	5.91	5,250	5.60	4,260	5.40	3,660
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	---	---	6.81	8,700	10.66	33,100	---	---	---	---	---	---
4	---	---	7.47	11,800	10.02	28,900	---	---	---	---	---	---
6	4.66	2,000	9.50	24,700	9.52	25,400	7.10	10,300	---	---	---	---
8	---	---	11.13	35,900	9.12	22,600	---	---	---	---	---	---
10	---	---	11.98	42,200	8.77	19,800	---	---	---	---	---	---
N	4.74	2,160	12.65	46,400	8.50	18,400	6.82	9,150	6.26	6,900	5.92	5,600
2	4.81	2,300	13.75	55,400	8.26	16,500	---	---	---	---	---	---
4	4.90	2,480	15.87	71,200	8.07	15,300	---	---	---	---	---	---
6	5.02	2,730	15.25	65,900	7.78	13,900	6.60	8,100	---	---	---	---
8	5.23	3,260	14.12	57,600	7.74	13,600	---	---	---	---	---	---
10	5.74	4,740	12.80	47,900	7.60	12,800	---	---	---	---	---	---
12	6.05	5,780	11.62	39,400	7.40	11,800	6.49	7,700	6.06	6,120	5.84	5,250

SUPPLEMENTAL RECORDS.—Aug. 15, 6:30 a.m., gage height, 7.87 feet, discharge, 13,900 second-feet. Aug. 30, 3:30 p.m., gage height, 15.70 feet, discharge, 69,600 second-feet; 4:15 p.m., gage height, 15.94 feet, discharge, 71,200 second-feet.

LITTLE TENNESSEE RIVER AT CALDERWOOD, TENN.

LOCATION.—Lat. 35°30'24", long. 84°00'14", at Seona Lodge Ferry, two-thirds of a mile west of Calderwood, Blount County, and 2½ miles downstream from Calderwood Dam. Datum of gage is 861.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,862 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 60,300 second-feet. Gage heights used to half-tenths between 2.0 and 4.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 63,900 second-feet 3:30 p.m. Aug. 30 (gage height, 9.70 feet).

1912-18, 1921-39: Discharge 82,000 second-feet Mar. 4, 1917 (gage height, 10.97 feet), from rating curve extended above 40,000 second-feet.

Gage height observed, 11.75 feet Mar. 4, 1917, before breaking of levee near gage.

REMARKS.—Flood runoff affected by power plants upstream.

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Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,900	9,590	9	2,770	3,920	17	6,510	3,980	25	2,210	2,610
2	2,190	7,000	10	1,910	4,360	18	3,200	3,840	26	3,280	2,470
3	1,620	6,760	11	1,760	4,360	19	4,560	3,410	27	2,860	2,500
4	1,400	5,290	12	2,860	4,360	20	4,030	3,380	28	2,780	1,520
5	1,760	4,880	13	10,600	4,290	21	3,300	3,930	29	4,620	1,070
6	2,010	5,090	14	19,300	3,890	22	3,600	1,610	30	37,700	2,310
7	1,880	4,080	15	10,500	3,430	23	3,770	2,940	31	17,100	-----
8	2,370	3,330	16	6,820	4,030	24	3,120	2,780			
Monthly mean discharge, in second-feet-----										5,622	3,900
Runoff, in inches-----										3.48	2.34

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 30		Aug. 31	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	6.56	32,200	3.85	12,500	6.15	28,900
2	-----	-----	6.57	32,200	3.55	10,900	5.60	24,100
3	1.12	1,850	6.20	28,900	4.00	13,300	5.57	24,100
4	-----	-----	5.82	25,700	5.10	20,300	5.42	22,500
5	-----	-----	5.51	23,300	6.15	28,900	5.32	21,800
6	1.21	2,060	5.46	23,300	6.57	32,200	5.19	21,000
7	-----	-----	5.56	24,100	6.75	34,000	4.95	19,500
8	-----	-----	5.23	21,000	7.00	35,700	4.67	17,500
9	1.66	3,320	5.06	20,300	7.30	38,400	4.67	17,500
10	-----	-----	4.81	18,200	7.60	41,200	4.53	16,200
11	-----	-----	4.77	18,200	7.62	41,200	4.69	17,500
N	1.95	4,260	4.53	16,200	7.76	43,200	4.50	16,200
1	2.03	4,600	4.53	16,200	8.50	50,400	4.23	14,500
2	2.81	7,440	4.53	16,200	9.15	58,100	4.23	14,500
3	2.85	7,660	4.37	15,600	9.62	62,700	4.23	14,500
4	2.85	7,660	4.35	15,600	9.55	62,700	4.10	13,900
5	4.32	15,000	4.24	14,500	9.16	58,100	3.73	12,000
6	4.80	18,200	4.10	13,900	8.30	48,400	3.78	12,200
7	5.69	24,900	4.10	13,900	8.20	47,300	3.82	12,200
8	6.00	27,300	4.10	13,900	7.80	43,200	3.89	12,800
9	6.36	30,600	3.94	13,100	7.15	37,500	3.89	12,800
10	6.60	32,200	3.85	12,500	7.06	36,600	3.80	12,200
11	6.62	32,200	3.67	11,500	6.45	30,600	3.79	12,200
12	6.62	32,200	3.75	12,000	6.34	29,700	3.71	11,700

SUPPLEMENTAL RECORD.—Aug. 30, 3:30 p.m., gage height, 9.70 feet; discharge, 63,900 second-feet.

LITTLE TENNESSEE RIVER AT MCGHEE, TENN.

LOCATION.—Lat. 35°36'16", long. 84°12'43", at mouth of Tellico River, 100 feet upstream from bridge on State Highways 33 and 72, 0.3 mile upstream from Louisville & Nashville Railroad bridge, and 0.5 mile south of McGhee, Monroe County. Datum of gage is 760.18 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,443 square miles, including that of Tellico River.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, except for period 1 a.m. Sept. 24 to 3 p.m. Sept. 25, record for which was based on range in stage and a study of normal regulation at this station.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 65,900 second-feet. Gage heights used to half-tenths between 4.1 and 5.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 52,100 second-feet 11 p.m. Aug. 30 (gage height, 21.56 feet).

1904-39: Discharge observed, 92,000 second-feet Apr. 2, 1920 (gage height, 30.5 feet, at site and datum then in use).

Stage known, 39.0 feet (original site and datum) March 1867 (discharge not determined).

REMARKS.—Flood runoff subject to some regulation from power developments upstream.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,010	11,900	9	2,980	3,890	17	6,820	4,040	25	2,780	2,780
2	2,460	7,240	10	2,480	4,480	18	4,330	3,820	26	2,980	2,780
3	2,100	6,670	11	2,100	4,480	19	4,130	3,600	27	3,180	2,640
4	1,690	6,130	12	2,580	4,590	20	4,820	3,400	28	2,880	1,960
5	1,770	4,550	13	4,540	4,590	21	3,630	4,370	29	4,010	1,410
6	2,210	5,470	14	22,800	4,150	22	3,590	1,940	30	27,600	1,750
7	1,940	4,670	15	12,600	3,710	23	3,940	2,780	31	27,400	-----
8	2,210	3,600	16	7,540	4,040	24	3,500	2,680			
Monthly mean discharge, in second-feet-----										5,794	4,137
Runoff, in inches-----										2.73	1.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	12.40	22,700	9.25	14,500	-----	-----
2	-----	-----	13.50	25,600	9.10	14,300	-----	-----
3	4.59	3,710	14.10	27,200	8.91	13,800	-----	-----
4	-----	-----	14.59	28,500	8.66	13,300	6.38	7,730
5	-----	-----	14.90	29,200	8.53	12,800	-----	-----
6	4.35	3,180	15.07	29,800	8.52	12,800	-----	-----
7	-----	-----	14.99	29,500	8.63	13,000	-----	-----
8	-----	-----	14.67	28,700	8.78	13,500	6.07	7,040
9	3.90	2,290	14.22	27,400	8.88	13,800	-----	-----
10	-----	-----	13.78	26,400	8.90	13,800	-----	-----
11	-----	-----	13.37	25,300	8.89	13,800	-----	-----
N	3.85	2,200	12.98	24,300	8.89	13,800	6.18	7,270
1	3.87	2,230	12.59	23,300	8.87	13,800	-----	-----
2	3.92	2,330	12.13	22,000	8.78	13,500	-----	-----
3	4.02	2,520	11.70	20,900	8.64	13,000	-----	-----
4	4.21	2,880	11.25	19,600	8.33	12,300	-----	-----
5	4.36	3,180	10.90	18,800	8.03	11,500	-----	-----
6	4.51	3,500	10.62	18,100	7.78	11,100	6.44	7,730
7	4.88	4,370	10.42	17,500	7.69	10,800	-----	-----
8	5.62	5,910	10.20	17,000	7.58	10,600	-----	-----
9	6.35	7,730	9.92	16,300	7.42	10,100	-----	-----
10	7.95	11,500	9.73	15,800	7.31	9,860	-----	-----
11	9.65	15,500	9.51	15,300	7.21	9,620	-----	-----
12	11.25	19,600	9.38	15,000	7.05	9,140	6.03	6,810
	Aug. 29		Aug. 30		Aug. 31		Sept. 1	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	5.80	6,350	21.13	50,100	-----	-----
2	-----	-----	6.07	7,040	20.62	48,100	-----	-----
3	-----	-----	6.30	7,500	19.96	45,800	-----	-----
4	-----	-----	6.41	7,730	19.17	42,800	-----	-----
5	-----	-----	6.68	8,420	18.26	39,500	-----	-----
6	4.45	3,400	7.22	9,620	17.39	36,500	8.39	12,500
7	-----	-----	7.82	11,100	16.47	33,700	-----	-----
8	-----	-----	9.18	14,500	15.58	31,100	-----	-----
9	-----	-----	11.12	19,400	14.77	29,000	-----	-----
10	-----	-----	12.64	23,300	14.04	26,900	-----	-----
11	-----	-----	13.88	26,600	13.26	25,100	-----	-----
N	3.91	2,310	14.75	29,000	12.62	23,300	7.56	10,600
1	-----	-----	15.56	31,100	12.02	21,700	-----	-----
2	-----	-----	16.20	32,800	11.58	20,700	-----	-----
3	-----	-----	16.82	34,600	11.28	19,900	-----	-----
4	-----	-----	17.45	36,500	10.97	19,100	-----	-----
5	-----	-----	18.12	38,800	10.60	18,100	-----	-----
6	5.60	5,910	18.90	41,700	10.26	17,300	8.78	13,500
7	-----	-----	19.82	45,000	9.98	16,500	-----	-----
8	-----	-----	20.52	47,700	9.74	15,800	-----	-----
9	-----	-----	21.12	50,100	9.43	15,000	-----	-----
10	-----	-----	21.47	51,700	9.10	14,300	-----	-----
11	-----	-----	21.56	52,100	8.95	14,000	-----	-----
12	5.72	6,130	21.46	51,700	8.93	13,800	6.39	7,730

CULLASAJA CREEK AT HIGHLANDS, N. C.

LOCATION.—Lat. 35°03'55", long. 83°13'30", a quarter of a mile downstream from Highlands municipal dam, half a mile downstream from Big Creek, and 2 miles northwest of Highlands, Macon County. Datum of gage is 3,373.63 feet above mean sea level.

DRAINAGE AREA.—14.9 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 700 second-feet and extended to crest gage height on basis of computation of flood flow over municipal dam. This rating verifies that used in 1928. Shifting-control method used Aug. 16 to 11 a.m. Aug. 29, 1940. Gage heights used to half-tenths between 3.0 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 5,100 second-feet 3 a.m. Aug. 30 (gage height, 9.35 feet).

1927-39: Discharge, 2,420 second-feet Aug. 15, 1928 (gage height, 5.13 feet, former site and datum) from rating curve extended logarithmically above 170 second-feet.

The flood of July 1916 reached a stage of 7 feet, present site and datum (from survey by the Tennessee Valley Authority); discharge, 3,200 second-feet, from 1940 rating.

REMARKS.—Flood runoff affected only slightly by storage in Sequoyah Lake created by Highlands municipal dam.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1			3.12	710								
2	0.75	22	3.16	735	2.95	635						
3			3.22	760								
4	.75	22	3.34	838	2.80	561						
5			3.61	975								
6	.84	28	3.95	1,170	2.69	507						
7			4.42	1,430								
8	.98	38	4.85	1,670	2.61	469						
9			5.20	1,930								
10	1.25	65	5.54	2,120	2.52	427						
11			5.33	2,000								
N	1.75	152	5.32	2,000	2.47	404	2.03	229	1.82	156	1.67	123
1			5.52	2,120								
2	2.25	310	5.80	2,330	2.41	378						
3			5.78	2,330								
4	2.54	436	5.57	2,190	2.35	352						
5			5.20	1,930								
6	2.64	483	4.95	1,800	2.31	334						
7			4.30	1,370								
8	2.76	541	4.00	1,200	2.27	318						
9			3.70	1,030								
10	2.86	590	3.42	865	2.23	302						
11			3.28	810								
12	3.07	685	3.14	735	2.19	286	1.90	189	1.72	134	1.60	110
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.07	41	7.05	3,200								
2	1.07	41	8.50	4,380	2.52	427						
3	1.07	41	9.35	5,100								
4	1.17	50	8.45	4,300	2.68	502						
5	1.25	59	7.05	3,200								
6	1.28	63	5.83	2,330	2.49	414						
7	1.43	82	5.00	1,800								
8	1.53	98	4.50	1,490	2.39	369						
9	1.62	114	4.00	1,200								
10	1.85	163	3.82	1,080	2.34	347						
11	1.99	201	3.55	948								
N	2.04	232	3.36	838	2.31	334	2.05	235	1.85	174	1.73	144
1	2.17	279										
2	2.39	369	3.10	710								
3	2.75	536										
4	2.94	630	2.92	620								
5	2.95	635										
6	2.94	630	2.79	556	2.23	302						
7	3.02	660										
8	3.20	760	2.68	502								
9	3.61	975										
10	4.02	1,200	2.61	469								
11	4.40	1,430										
12	5.20	1,930	2.55	441	2.15	271	1.90	188	1.78	156	1.67	131

SUPPLEMENTAL RECORDS.—Aug. 13, 2:30 p.m., gage height, 5.92 feet; discharge, 2,400 second-feet.

CULLASAJA CREEK AT CULLASAJA, N. C.

LOCATION.—Lat. 35°10'05", long. 83°19'25", at Cullasaja, Macon County, 1 mile downstream from Ellijay Creek and 3½ miles upstream from mouth. Datum of gage is 2,023.37 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—86.5 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 2,200 second-feet and extended to crest gage height on basis of flood flow determination by slope-area method. Shifting-control method used Aug. 15

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to noon Aug. 29. Gage heights used to half-tenths between 2.4 and 4.4 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 19,300 second-feet 3:30 a.m. Aug. 30 (gage height, 20.83 feet).

1907-9, 1921-39: Discharge, 11,800 second-feet Aug. 15, 1928 (gage height, 17.04 feet, from floodmarks).

Records of North Carolina State Highway Commission show a stage of 17.2 feet, from floodmarks, for the flood of July 1916 (discharge, 12,200 second-feet, from 1940 rating) and show that this stage was exceeded a few years prior to 1916 and again between 1916 and Feb. 12, 1920.

REMARKS.—Flood runoff practically unaffected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	5.43	1,310	7.20	2,150	-----	-----	-----	-----	-----	-----
2	-----	-----	5.75	1,480	6.75	1,950	-----	-----	-----	-----	-----	-----
3	-----	-----	6.10	1,620	6.40	1,760	-----	-----	-----	-----	-----	-----
4	-----	-----	6.37	1,760	6.10	1,620	-----	-----	-----	-----	-----	-----
5	-----	-----	6.66	1,900	5.82	1,480	-----	-----	-----	-----	-----	-----
6	1.02	72	7.30	2,200	5.64	1,400	-----	-----	-----	-----	-----	-----
7	-----	-----	8.90	3,100	5.46	1,350	-----	-----	-----	-----	-----	-----
8	-----	-----	10.70	4,280	5.27	1,270	-----	-----	-----	-----	-----	-----
9	-----	-----	12.00	5,350	5.11	1,190	-----	-----	-----	-----	-----	-----
10	-----	-----	13.10	6,410	4.94	1,110	-----	-----	-----	-----	-----	-----
11	-----	-----	13.90	7,290	4.82	1,070	-----	-----	-----	-----	-----	-----
N	1.32	110	14.23	7,640	4.73	1,030	3.45	605	2.89	434	2.54	342
1	1.43	127	14.42	7,880	-----	-----	-----	-----	-----	-----	-----	-----
2	1.65	162	14.63	8,120	4.54	962	-----	-----	-----	-----	-----	-----
3	2.10	248	14.90	8,480	-----	-----	-----	-----	-----	-----	-----	-----
4	2.95	462	15.28	9,020	4.40	926	-----	-----	-----	-----	-----	-----
5	4.00	782	15.00	8,600	-----	-----	-----	-----	-----	-----	-----	-----
6	4.60	998	14.42	7,880	4.27	872	-----	-----	-----	-----	-----	-----
7	4.75	1,070	13.45	6,740	-----	-----	-----	-----	-----	-----	-----	-----
8	4.68	1,030	12.25	5,530	4.12	818	-----	-----	-----	-----	-----	-----
9	4.67	1,030	10.90	4,420	-----	-----	-----	-----	-----	-----	-----	-----
10	4.72	1,030	9.65	3,520	4.00	782	-----	-----	-----	-----	-----	-----
11	4.83	1,070	8.60	2,920	-----	-----	-----	-----	-----	-----	-----	-----
12	5.10	1,190	7.78	2,480	3.90	748	3.10	504	2.65	368	2.42	307
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.44	119	16.90	11,600	-----	-----	-----	-----	-----	-----	-----	-----
2	1.47	124	19.00	15,500	5.55	1,400	-----	-----	-----	-----	-----	-----
3	1.47	124	20.50	18,600	-----	-----	-----	-----	-----	-----	-----	-----
4	1.49	127	20.60	18,800	5.34	1,270	-----	-----	-----	-----	-----	-----
5	1.56	138	19.95	17,500	-----	-----	-----	-----	-----	-----	-----	-----
6	1.64	151	19.00	15,500	5.48	1,350	-----	-----	-----	-----	-----	-----
7	1.75	169	18.05	13,600	-----	-----	-----	-----	-----	-----	-----	-----
8	1.90	198	16.95	11,800	5.14	1,190	-----	-----	-----	-----	-----	-----
9	2.20	261	15.82	9,780	-----	-----	-----	-----	-----	-----	-----	-----
10	3.50	605	14.35	7,880	4.87	1,110	-----	-----	-----	-----	-----	-----
11	4.20	854	12.60	5,900	-----	-----	-----	-----	-----	-----	-----	-----
N	4.52	962	10.98	4,500	4.69	1,030	3.78	714	3.29	560	2.96	462
1	4.65	998	9.82	3,650	-----	-----	-----	-----	-----	-----	-----	-----
2	4.98	1,150	9.00	3,160	-----	-----	-----	-----	-----	-----	-----	-----
3	5.30	1,270	8.37	2,800	4.50	962	-----	-----	-----	-----	-----	-----
4	5.68	1,440	7.88	2,530	-----	-----	-----	-----	-----	-----	-----	-----
5	5.70	1,440	7.45	2,260	-----	-----	-----	-----	-----	-----	-----	-----
6	5.75	1,480	7.09	2,100	4.32	890	-----	-----	-----	-----	-----	-----
7	6.02	1,580	6.80	1,950	-----	-----	-----	-----	-----	-----	-----	-----
8	6.60	1,850	6.55	1,850	-----	-----	-----	-----	-----	-----	-----	-----
9	7.85	2,480	6.33	1,710	4.18	854	-----	-----	-----	-----	-----	-----
10	10.75	4,350	6.13	1,620	-----	-----	-----	-----	-----	-----	-----	-----
11	13.35	6,740	5.96	1,580	-----	-----	-----	-----	-----	-----	-----	-----
12	15.00	8,600	5.80	1,480	4.08	818	3.46	605	3.07	490	2.80	421

SUPPLEMENTAL RECORD.—Aug. 30, 3:30 a.m., gage height, 20.83 feet; discharge, 19,300 second-feet.

NANTAHALA RIVER AT ALMOND, N. C.

LOCATION.—Lat. 35°22'35", long. 83°33'55", at highway bridge at Almond, Swain County, about a quarter of a mile upstream from mouth. Datum of gage is 1,596.53 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—174 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except for periods of partly obstructed intake, noon Aug. 13 to 8 a.m. Aug. 14 and 5 p.m. Aug. 29 to 10 a.m.

Aug. 30, for which a graph based on recorder record and floodmarks was used.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements

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up to 5,500 second-feet. Gage heights used to half-tenths between 2.3 and 4.5 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,000 second-feet 6 p.m. Aug. 13 (gage height, 6.30 feet, from floodmarks).

1912-17, 1921-39: Stage, probably occurred Mar. 4, 1917 (record of crest stage not available; daily mean discharge, 15,200 second-feet, from records furnished by Knoxville Power Co.).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	281	613	9	244	336	17	603	259	25	329	296
2	247	531	10	207	336	18	526	256	26	312	259
3	232	471	11	201	322	19	485	253	27	306	226
4	223	432	12	258	306	20	423	247	28	296	218
5	221	419	13	2,210	300	21	390	241	29	867	215
6	226	390	14	1,670	290	22	371	235	30	1,680	209
7	247	371	15	994	281	23	353	229	31	800	
8	229	353	16	740	271	24	364	229			
Monthly mean discharge, in second-feet										533	313
Runoff, in inches										3.53	2.01

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
2	-----	-----	2.48	775	4.60	2,320	-----	-----	-----	-----	-----	-----
4	-----	-----	2.47	748	4.20	1,970	-----	-----	-----	-----	-----	-----
6	-----	-----	2.54	802	4.00	1,810	-----	-----	-----	-----	-----	-----
8	-----	-----	2.63	860	3.85	1,690	-----	-----	-----	-----	-----	-----
10	-----	-----	3.12	1,140	3.78	1,650	-----	-----	-----	-----	-----	-----
N	1.12	207	4.50	2,230	3.70	1,570	2.85	980	2.43	748	2.17	606
2	1.16	218	5.20	2,880	-----	-----	-----	-----	-----	-----	-----	-----
4	1.14	212	6.20	3,890	-----	-----	-----	-----	-----	-----	-----	-----
6	1.18	223	6.30	4,000	3.43	1,380	-----	-----	-----	-----	-----	-----
8	1.36	278	6.15	3,890	-----	-----	-----	-----	-----	-----	-----	-----
10	1.79	432	5.80	3,480	-----	-----	-----	-----	-----	-----	-----	-----
12	2.48	775	5.15	2,880	3.23	1,240	2.58	830	2.26	650	2.05	550

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
1	-----	-----	4.50	2,230	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	4.40	2,140	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	4.40	2,140	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	4.45	2,180	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	4.65	2,320	-----	-----	-----	-----	-----	-----	-----	-----
6	1.40	290	4.85	2,500	-----	-----	-----	-----	-----	-----	-----	-----
7	-----	-----	4.80	2,500	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	4.55	2,320	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	4.30	2,050	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	4.05	1,850	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	3.88	1,730	-----	-----	-----	-----	-----	-----	-----	-----
N	1.90	480	3.72	1,570	2.53	802	2.18	611	2.02	535	1.89	476
1	2.05	550	3.57	1,460	-----	-----	-----	-----	-----	-----	-----	-----
2	2.20	620	3.46	1,380	-----	-----	-----	-----	-----	-----	-----	-----
3	2.47	748	3.34	1,320	-----	-----	-----	-----	-----	-----	-----	-----
4	2.71	890	3.25	1,240	-----	-----	-----	-----	-----	-----	-----	-----
5	3.00	1,070	3.21	1,210	-----	-----	-----	-----	-----	-----	-----	-----
6	3.45	1,380	3.12	1,140	-----	-----	-----	-----	-----	-----	-----	-----
7	4.00	1,810	3.08	1,140	-----	-----	-----	-----	-----	-----	-----	-----
8	4.25	2,010	3.00	1,070	-----	-----	-----	-----	-----	-----	-----	-----
9	4.25	2,010	2.95	1,040	-----	-----	-----	-----	-----	-----	-----	-----
10	4.20	1,970	2.90	1,010	-----	-----	-----	-----	-----	-----	-----	-----
11	4.55	2,320	2.86	980	-----	-----	-----	-----	-----	-----	-----	-----
12	4.85	2,500	2.82	950	2.30	670	2.07	559	1.93	494	1.82	445

LOCATION.—Lat. 35°16'45", long. 83°07'50", 1 mile downstream from confluence of East and West Forks and from Tuckasegee, Jackson County. Datum of gage is 2,125.16 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

GAGE-HEIGHT RECORD.—Water-stage recorder graph Aug. 1 to 2 a.m. Aug. 30; the recorder house was tipped over by the flood of Aug. 30. From 2 a.m. to 3:30 a.m. Aug. 30 a graph based on recorder record and floodmarks was used. No gage-height record from 3:30 a.m. Aug. 30 to Sept. 6; gage heights in table at indicated time were derived from estimated discharge. Twice-daily gage readings to hundredths used Sept. 7-30.

MAXIMA.—1940: Discharge, 40,800 second-feet 3:30 a.m. Aug. 30 (gage height, 21.1 feet, from floodmarks).

Surveys by the Tennessee Valley Authority show the following flood stages: 18 feet May 1840, 16 feet June 1876, 14 feet August 1928. These stages applied to the 1940 rating give discharges of 23,100, 17,100, and 13,200 second-feet, respectively.

REMARKS.—Flood runoff not affected by artificial storage.

[illegible]

422 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 29		Aug. 30		Aug. 31	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	6.12	3,560	-----	-----	-----	-----	14.60	14,200	-----	-----
2	-----	-----	6.17	3,660	6.69	4,160	-----	-----	17.70	22,000	-----	-----
3	1.73	180	6.29	3,760	-----	-----	2.06	332	20.0	33,000	-----	-----
4	-----	-----	6.48	3,960	6.16	3,660	-----	-----	21.1	40,500	-----	-----
5	-----	-----	6.91	4,360	-----	-----	-----	-----	20.4	36,000	-----	-----
6	1.80	207	8.02	5,560	5.70	3,200	2.14	376	19.7	31,000	5.1	2,700
7	-----	-----	9.69	7,540	-----	-----	-----	-----	18.7	26,000	-----	-----
8	-----	-----	11.55	9,930	5.37	2,930	-----	-----	17.7	22,000	-----	-----
9	1.96	280	12.88	11,700	-----	-----	2.27	452	16.6	18,500	-----	-----
10	-----	-----	13.99	13,200	5.13	2,660	-----	-----	15.5	16,000	-----	-----
11	-----	-----	14.32	13,700	-----	-----	-----	-----	14.2	13,500	-----	-----
N	2.30	470	14.05	13,200	4.84	2,400	2.57	649	12.8	11,500	4.7	2,300
1	2.49	593	13.70	12,800	-----	-----	2.71	747	-----	-----	-----	-----
2	2.60	670	13.50	12,500	4.65	2,230	3.11	1,040	10.7	8,800	-----	-----
3	2.90	885	13.26	12,200	-----	-----	4.10	1,820	-----	-----	-----	-----
4	3.26	1,150	12.87	11,700	4.51	2,140	4.37	2,020	9.0	6,700	-----	-----
5	3.97	1,700	12.30	10,800	-----	-----	4.66	2,320	-----	-----	-----	-----
6	4.67	2,320	11.56	9,930	4.36	2,020	5.65	3,110	7.8	5,300	4.4	2,100
7	5.16	2,750	10.65	8,630	-----	-----	6.70	4,160	-----	-----	-----	-----
8	5.57	3,110	9.89	7,780	4.24	1,940	8.85	6,460	6.9	4,400	-----	-----
9	5.90	3,380	9.21	6,940	-----	-----	9.90	7,780	-----	-----	-----	-----
10	6.10	3,560	8.63	6,220	4.14	1,860	10.41	8,380	6.4	3,900	-----	-----
11	6.14	3,560	7.92	5,450	-----	-----	11.35	9,670	-----	-----	-----	-----
12	6.13	3,560	7.46	5,010	4.04	1,780	12.30	10,800	5.9	3,400	4.1	1,800

SUPPLEMENTAL RECORD.—Aug. 30, 3:30 a.m., gage height, 21.1 feet; discharge, 40,800 second-feet.

TUCKASEGEE RIVER AT DILLSBORO, N. C.

LOCATION.—Lat. 35°21'50", long. 83°15'30", at county footbridge, half a mile downstream from Scott Creek and Dillsboro, Jackson County. Datum of gage is 1,950.15 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—347 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except 12 m. to 3 p.m. Aug. 13, where graph based on partial record and recorded range in gage height was used and Aug. 26 to Sept. 5, Sept. 13-19, 26, 27, for which there is no gage-height record; gage heights in table at indicated time were derived from estimated discharge.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,400 second-feet and extended to crest gage height on basis of determinations of flood flow by slope-area method and computation of flow over power plant dam just above the station. Gage heights used to half-tenths between 3.6 and 5.9 feet; hundredths below and tenths above these limits. Discharge for periods of no gage-height record is based on floodmarks, weather records, records for station at Bryson and for nearby streams.

MAXIMA.—1940: Discharge, 52,600 second-feet 6 a.m. Aug. 30 (gage height, 21.96 feet, from floodmark).

1928-39: Discharge, 14,000 second-feet Aug. 15, 1928 (gage height, 11.2 feet, from graph based on twice-daily gage readings, former site and datum).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	380	2,820	9	446	1,160	17	1,440	700	25	787	634
2	370	2,270	10	370	1,120	18	1,280	700	26	700	580
3	340	1,920	11	335	1,050	19	1,120	700	27	650	540
4	330	1,700	12	794	891	20	1,010	670	28	600	508
5	326	1,550	13	10,900	850	21	926	640	29	2,240	502
6	337	1,450	14	4,900	800	22	884	622	30	21,700	490
7	375	1,320	15	2,350	750	23	821	598	31	4,450	-----
8	420	1,240	16	1,730	750	24	807	580			
Monthly mean discharge, in second-feet.....										2,068	1,004
Runoff, in inches.....										6.87	3.23

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	6.36	3,540	-----	-----	-----	-----	-----	-----	-----	-----
2	2.76	365	6.64	3,800	9.37	8,400	-----	-----	-----	-----	-----	-----
3	-----	-----	6.81	4,060	-----	-----	-----	-----	-----	-----	-----	-----
4	2.78	375	6.90	4,200	8.47	6,690	-----	-----	-----	-----	-----	-----
5	-----	-----	6.92	4,200	-----	-----	-----	-----	-----	-----	-----	-----
6	2.81	390	6.98	4,340	7.90	5,700	-----	-----	-----	-----	-----	-----
7	-----	-----	7.08	4,480	-----	-----	-----	-----	-----	-----	-----	-----
8	2.86	415	7.24	4,630	7.44	4,930	-----	-----	-----	-----	-----	-----
9	-----	-----	7.59	5,230	-----	-----	-----	-----	-----	-----	-----	-----
10	2.90	435	8.20	6,180	7.16	4,630	-----	-----	-----	-----	-----	-----
11	-----	-----	9.10	7,800	-----	-----	-----	-----	-----	-----	-----	-----
N	3.08	538	10.70	11,200	6.92	4,200	5.32	2,300	4.69	1,740	4.36	1,450
1	-----	-----	12.50	15,700	-----	-----	-----	-----	-----	-----	-----	-----
2	2.96	468	13.45	18,200	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	14.15	20,600	-----	-----	-----	-----	-----	-----	-----	-----
4	3.27	652	14.28	20,900	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	14.00	20,000	-----	-----	-----	-----	-----	-----	-----	-----
6	3.61	877	13.62	18,800	6.28	3,420	-----	-----	-----	-----	-----	-----
7	-----	-----	13.35	18,200	-----	-----	-----	-----	-----	-----	-----	-----
8	4.16	1,280	12.98	17,000	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	12.43	15,400	-----	-----	-----	-----	-----	-----	-----	-----
10	4.95	1,960	12.00	14,400	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	11.10	12,100	-----	-----	-----	-----	-----	-----	-----	-----
12	6.06	3,180	10.53	10,700	5.92	2,950	4.91	1,920	4.46	1,530	4.21	1,320
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	11.7	13,600	-----	-----	-----	-----	-----	-----	-----	-----
2	3.18	600	13.1	17,400	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	14.9	23,000	-----	-----	-----	-----	-----	-----	-----	-----
4	3.20	610	16.7	29,400	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	19.3	40,000	-----	-----	-----	-----	-----	-----	-----	-----
6	3.28	660	21.96	52,600	7.4	5,000	-----	-----	-----	-----	-----	-----
7	-----	-----	21.3	49,200	-----	-----	-----	-----	-----	-----	-----	-----
8	3.41	740	20.0	43,200	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	18.6	37,000	-----	-----	-----	-----	-----	-----	-----	-----
10	3.64	900	17.2	31,200	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	16.1	27,000	-----	-----	-----	-----	-----	-----	-----	-----
N	3.9	1,100	14.9	23,000	6.9	4,200	5.75	2,800	5.25	2,250	4.9	1,900
1	4.1	1,250	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	4.4	1,500	13.0	17,000	-----	-----	-----	-----	-----	-----	-----	-----
3	4.75	1,800	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	5.05	2,050	11.5	13,200	-----	-----	-----	-----	-----	-----	-----	-----
5	5.45	2,450	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	5.9	2,900	10.2	10,000	6.5	3,700	-----	-----	-----	-----	-----	-----
7	6.3	3,400	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	6.9	4,200	9.4	8,400	-----	-----	-----	-----	-----	-----	-----	-----
9	7.6	5,200	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	8.3	6,400	8.8	7,200	-----	-----	-----	-----	-----	-----	-----	-----
11	9.2	8,000	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	10.4	10,600	8.4	6,500	6.2	3,300	5.45	2,450	5.1	2,100	4.75	1,800

SUPPLEMENTAL RECORD.—Aug. 13, 3:30 p.m., gage height, 14.32 feet; 20,900 second-feet.

TUCKASEGEE RIVER AT BRYSON CITY, N. C.

LOCATION.—Lat. 35°25'45", long. 83°27'10", 400 feet downstream from bridge on State Highway 288 in Bryson City, Swain County, and half a mile downstream from Deep Creek. Datum of gage is 1,716.54 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—655 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 25,000 second-feet and extended to crest gage height on basis of logarithmic plotting and determination of flood flow by slope-area method. Gage heights used to half-tenths between 2.3 and 4.1 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 61,600 second-feet 10:30 a.m. Aug. 30 (gage height, 15.96 feet).

1897-1939: Discharge observed, 40,300 second-feet Nov. 19, 1906 (gage height, 13.2 feet).

The flood of May 1840 reached a stage of 21 feet (from survey by the Tennessee Valley Authority), discharge not determined.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.03	1,950	7.72	17,400	4.40	7,040	-----	-----	-----	-----
2	-----	-----	2.50	2,780	7.27	16,000	4.32	6,780	-----	-----	-----	-----
3	-----	-----	2.89	3,560	6.76	14,300	4.25	6,520	-----	-----	-----	-----
4	-----	-----	3.12	3,970	6.26	12,600	4.16	6,520	-----	-----	-----	-----
5	-----	-----	3.31	4,390	5.85	11,100	4.02	6,020	-----	-----	-----	-----
6	1.06	630	3.43	4,720	5.48	10,200	3.90	5,770	-----	-----	-----	-----
7	-----	-----	3.52	4,830	5.22	9,270	3.79	5,530	-----	-----	-----	-----
8	-----	-----	3.59	5,060	5.02	8,690	3.72	5,290	-----	-----	-----	-----
9	-----	-----	3.66	5,180	4.91	8,410	3.67	5,180	-----	-----	-----	-----
10	-----	-----	3.78	5,530	4.80	8,130	3.29	4,390	-----	-----	-----	-----
11	-----	-----	3.99	6,020	4.69	7,850	3.34	4,500	-----	-----	-----	-----
N	1.12	692	4.36	7,040	4.57	7,580	3.34	4,500	2.58	2,970	2.23	2,290
1	-----	-----	4.78	8,130	4.44	7,040	3.30	4,390	-----	-----	-----	-----
2	1.14	714	5.32	9,560	4.32	6,780	3.25	4,280	-----	-----	-----	-----
3	-----	-----	6.40	13,000	4.22	6,520	3.20	4,180	-----	-----	-----	-----
4	1.15	725	6.60	13,600	3.80	5,530	3.16	4,080	-----	-----	-----	-----
5	-----	-----	7.10	15,300	3.91	5,770	3.10	3,970	-----	-----	-----	-----
6	1.21	792	8.00	18,500	3.94	5,900	2.82	3,360	-----	-----	-----	-----
7	-----	-----	8.35	20,100	3.88	5,770	2.98	3,760	-----	-----	-----	-----
8	1.24	828	8.72	21,300	3.81	5,530	2.98	3,760	-----	-----	-----	-----
9	-----	-----	9.05	22,500	3.76	5,410	2.95	3,660	-----	-----	-----	-----
10	1.42	1,050	8.89	22,100	3.73	5,410	2.92	3,560	-----	-----	-----	-----
11	-----	-----	8.62	20,900	3.87	5,650	2.87	3,460	-----	-----	-----	-----
12	1.76	1,520	8.30	19,700	4.15	6,520	2.84	3,460	2.37	2,510	2.08	2,040

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	1.27	864	6.25	12,300	5.25	9,270	-----	-----	-----	-----	-----	-----
2	1.29	888	7.15	15,600	5.10	8,980	-----	-----	-----	-----	-----	-----
3	1.30	900	8.10	18,900	4.99	8,690	-----	-----	-----	-----	-----	-----
4	1.29	888	8.77	21,700	4.88	8,410	-----	-----	-----	-----	-----	-----
5	1.30	900	9.50	24,600	4.78	8,130	-----	-----	-----	-----	-----	-----
6	1.31	912	10.10	27,300	4.68	7,850	-----	-----	-----	-----	-----	-----
7	1.32	924	10.85	30,500	4.60	7,580	-----	-----	-----	-----	-----	-----
8	1.33	936	11.23	32,500	4.54	7,310	-----	-----	-----	-----	-----	-----
9	1.35	960	12.80	41,000	4.46	7,310	-----	-----	-----	-----	-----	-----
10	1.39	1,010	15.50	58,100	4.39	7,040	-----	-----	-----	-----	-----	-----
11	1.53	1,190	15.75	60,200	4.32	6,780	-----	-----	-----	-----	-----	-----
N	1.66	1,370	14.90	54,000	4.27	6,780	3.32	4,390	2.86	3,460	2.56	2,880
1	1.73	1,480	13.60	45,800	-----	-----	-----	-----	-----	-----	-----	-----
2	1.84	1,640	12.60	39,900	4.17	6,520	-----	-----	-----	-----	-----	-----
3	1.98	1,870	11.60	34,500	-----	-----	-----	-----	-----	-----	-----	-----
4	2.04	1,970	10.30	28,200	4.06	6,140	-----	-----	-----	-----	-----	-----
5	2.14	2,140	9.00	22,500	-----	-----	-----	-----	-----	-----	-----	-----
6	2.51	2,780	7.95	18,500	3.85	5,650	-----	-----	-----	-----	-----	-----
7	2.70	3,160	7.17	15,600	-----	-----	-----	-----	-----	-----	-----	-----
8	3.15	4,080	6.57	13,600	3.83	5,650	-----	-----	-----	-----	-----	-----
9	2.90	3,560	6.17	12,300	-----	-----	-----	-----	-----	-----	-----	-----
10	3.50	4,830	5.90	11,400	3.75	5,410	-----	-----	-----	-----	-----	-----
11	4.35	7,040	5.65	10,500	-----	-----	-----	-----	-----	-----	-----	-----
12	5.00	8,690	5.42	9,860	3.66	5,180	3.03	3,860	2.67	3,060	2.42	2,600

SUPPLEMENTAL RECORDS

Day	Gage ht.	Dis- charge	Day	Gage ht.	Dis- charge
Aug. 13, 3:15 p.m.	6.56	13,600	Aug. 29, 7:30 p.m.	3.32	4,390
3:45 p.m.	6.48	13,300	8:30 p.m.	2.82	3,360
Aug. 14, 4:15 p.m.	3.71	5,290	Aug. 30, 10:30 a.m.	15.96	61,600
Aug. 15, 12:30 a.m.	4.53	7,310	Aug. 31, 6:15 p.m.	3.74	5,410
5:45 p.m.	2.74	3,260			

SCOTT CREEK AT SYLVA, N. C.

LOCATION.—Lat. 35°22'25", long. 83°13'05", just downstream from Gunter Creek at Sylva, Jackson County. Datum of gage is 2,033.23 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

426 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

DRAINAGE AREA.—55.0 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph, adjusted for partly obstructed intake 5-10 a.m. Aug. 12, 3-7 p.m. Aug. 29, and 10 a.m. Aug. 30 to Sept. 6.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 800 second-feet and extended to crest gage height on basis of determination of flood flow by slop-area method. The extension of the 1929 rating was revised on basis of that for 1940. Gage heights used to half-tenths between 3.1 and 3.5 feet prior to Aug. 30 and between 3.4 and 4.7 feet subsequently; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 3,360 second-feet 4 a.m. Aug. 30 (gage height, 8.61 feet).

1928-39: Discharge, 2,200 second-feet July 10, 1929 (gage height, 6.00 feet).

The flood of 1840 probably exceeded that of August 1940 (from survey by Tennessee Valley Authority).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	2.03	190	-----	-----	-----	-----	-----	-----	-----	-----
2	1.57	66	2.00	179	2.61	486	-----	-----	-----	-----	-----	-----
3	-----	-----	1.99	176	-----	-----	-----	-----	-----	-----	-----	-----
4	1.62	76	1.99	176	2.58	468	-----	-----	-----	-----	-----	-----
5	-----	-----	2.02	186	-----	-----	-----	-----	-----	-----	-----	-----
6	1.69	91	2.04	194	2.60	480	-----	-----	-----	-----	-----	-----
7	-----	-----	2.18	249	-----	-----	-----	-----	-----	-----	-----	-----
8	1.76	107	2.69	538	2.61	486	-----	-----	-----	-----	-----	-----
9	-----	-----	2.85	645	-----	-----	-----	-----	-----	-----	-----	-----
10	1.85	132	3.21	885	2.65	512	-----	-----	-----	-----	-----	-----
11	-----	-----	3.08	806	-----	-----	-----	-----	-----	-----	-----	-----
N	1.94	159	3.08	806	2.60	480	2.28	295	2.14	232	2.06	201
1	-----	-----	3.49	1,020	-----	-----	-----	-----	-----	-----	-----	-----
2	2.00	179	4.25	1,200	2.51	424	-----	-----	-----	-----	-----	-----
3	-----	-----	4.50	1,310	-----	-----	-----	-----	-----	-----	-----	-----
4	2.01	183	4.96	1,510	2.48	406	-----	-----	-----	-----	-----	-----
5	-----	-----	4.08	1,180	-----	-----	-----	-----	-----	-----	-----	-----
6	1.94	159	3.39	975	2.46	395	-----	-----	-----	-----	-----	-----
7	-----	-----	3.06	792	-----	-----	-----	-----	-----	-----	-----	-----
8	1.91	149	2.90	680	2.44	383	-----	-----	-----	-----	-----	-----
9	-----	-----	2.80	610	-----	-----	-----	-----	-----	-----	-----	-----
10	2.11	220	2.77	590	2.43	377	-----	-----	-----	-----	-----	-----
11	-----	-----	2.71	552	-----	-----	-----	-----	-----	-----	-----	-----
12	2.07	205	2.68	532	2.40	360	2.20	257	2.08	209	2.00	179

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	5.50	1,760	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	7.20	2,610	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	7.44	2,710	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	8.61	3,360	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	7.76	2,920	-----	-----	-----	-----	-----	-----	-----	-----
6	1.68	89	5.97	1,930	2.98	435	-----	-----	-----	-----	-----	-----
7	-----	-----	4.90	1,370	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	4.42	1,120	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	4.11	970	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	3.95	895	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	3.82	821	-----	-----	-----	-----	-----	-----	-----	-----
N	1.70	93	3.69	772	2.90	398	2.72	316	2.61	266	2.48	208
1	1.72	98	3.57	700	-----	-----	-----	-----	-----	-----	-----	-----
2	1.80	117	3.45	652	-----	-----	-----	-----	-----	-----	-----	-----
3	1.95	162	3.40	629	-----	-----	-----	-----	-----	-----	-----	-----
4	2.09	212	3.37	615	-----	-----	-----	-----	-----	-----	-----	-----
5	2.24	276	3.31	587	-----	-----	-----	-----	-----	-----	-----	-----
6	2.43	377	3.26	564	2.84	370	-----	-----	-----	-----	-----	-----
7	2.68	532	3.21	541	-----	-----	-----	-----	-----	-----	-----	-----
8	3.05	785	3.16	518	-----	-----	-----	-----	-----	-----	-----	-----
9	3.28	935	3.12	499	-----	-----	-----	-----	-----	-----	-----	-----
10	3.88	1,130	3.08	481	-----	-----	-----	-----	-----	-----	-----	-----
11	4.32	1,240	3.16	518	-----	-----	-----	-----	-----	-----	-----	-----
12	4.87	1,470	3.12	499	2.79	348	2.68	298	2.48	208	2.47	204

SUPPLEMENTARY RECORD.—Aug. 30, 2:30 a.m., gage height, 6.90 feet, discharge 2,460 second-feet.

OCONALUFTY RIVER AT CHEROKEE, N. C.

LOCATION.—Lat. 35°29'15", long. 83°18'45", on State Highway 107, at cable foot-bridge in Cherokee Indian Reservation, three-quarters of a mile north of Cherokee, Swain County, and 2 miles upstream from Soco Creek. Datum of gage is 1,938.37 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—131 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 3,800 second-feet and extended logarithmically to crest gage height of

428 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

1936 flood and verified by a slope-area determination of the discharge of the August 1940 flood. Shifting-control method used Aug. 1 to 3 p.m. Aug. 13. Gage heights used to half-tenths between 4.8 and 6.9 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 6,310 second-feet 4 a.m. Aug. 30 (gage height, 8.84 feet).

1921-39: Discharge, 8,760 second-feet Apr. 6, 1936 (gage height, 10.25 feet).

Surveys by the Tennessee Valley Authority show that the flood of March 1867 probably exceeded that of Apr. 6, 1936, and that the flood of November 1906 reached a stage of 12 feet (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	3.77	311	5.40	1,510	---	---	---	---	---	---
2	---	---	3.82	338	5.32	1,410	6.19	2,460	---	---	---	---
3	---	---	3.85	353	5.25	1,360	---	---	---	---	---	---
4	---	---	3.88	370	5.24	1,360	5.80	1,980	---	---	---	---
5	---	---	3.92	392	5.38	1,510	---	---	---	---	---	---
6	---	---	3.95	409	5.57	1,680	5.52	1,620	---	---	---	---
7	---	---	3.99	432	5.63	1,800	---	---	---	---	---	---
8	---	---	4.05	468	5.60	1,740	5.30	1,410	---	---	---	---
9	---	---	4.10	498	5.53	1,680	---	---	---	---	---	---
10	---	---	4.16	540	5.44	1,560	5.15	1,260	---	---	---	---
11	---	---	4.35	670	5.35	1,460	---	---	---	---	---	---
N	3.42	152	4.63	887	5.27	1,360	5.02	1,130	4.38	648	4.11	480
1	---	---	4.91	1,150	5.22	1,310	---	---	---	---	---	---
2	---	---	5.34	1,510	5.17	1,260	4.92	1,040	---	---	---	---
3	---	---	5.67	1,860	5.14	1,260	---	---	---	---	---	---
4	3.45	163	6.37	2,680	5.09	1,220	4.83	984	---	---	---	---
5	---	---	6.77	3,200	5.04	1,180	---	---	---	---	---	---
6	---	---	6.74	3,200	5.00	1,130	4.75	920	---	---	---	---
7	---	---	6.52	2,850	4.99	1,130	---	---	---	---	---	---
8	3.53	196	6.29	2,590	5.47	1,560	4.70	880	---	---	---	---
9	---	---	6.04	2,280	5.97	2,160	---	---	---	---	---	---
10	---	---	5.84	2,040	6.39	2,720	4.65	842	---	---	---	---
11	---	---	5.67	1,800	6.58	2,990	---	---	---	---	---	---
12	3.66	256	5.52	1,620	6.56	2,920	4.60	805	4.20	533	3.99	414
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	---	---	6.61	2,990	---	---	---	---	---	---	---	---
2	---	---	7.36	4,120	4.84	992	---	---	---	---	---	---
3	---	---	8.09	5,180	---	---	---	---	---	---	---	---
4	---	---	8.84	6,310	4.74	912	---	---	---	---	---	---
5	---	---	8.27	5,500	---	---	---	---	---	---	---	---
6	3.47	188	7.51	4,270	4.68	865	---	---	---	---	---	---
7	---	---	6.93	3,410	---	---	---	---	---	---	---	---
8	---	---	6.51	2,850	4.67	858	---	---	---	---	---	---
9	---	---	6.26	2,520	---	---	---	---	---	---	---	---
10	---	---	6.03	2,280	4.61	812	---	---	---	---	---	---
11	---	---	5.84	2,040	---	---	---	---	---	---	---	---
N	3.61	240	5.69	1,860	4.57	782	4.26	570	4.08	463	3.95	394
1	3.71	281	5.56	1,680	---	---	---	---	---	---	---	---
2	3.87	354	5.45	1,560	---	---	---	---	---	---	---	---
3	4.12	486	5.36	1,460	---	---	---	---	---	---	---	---
4	4.53	752	5.27	1,360	---	---	---	---	---	---	---	---
5	4.79	952	5.18	1,310	---	---	---	---	---	---	---	---
6	4.80	960	5.12	1,220	4.45	696	---	---	---	---	---	---
7	4.84	992	5.06	1,180	---	---	---	---	---	---	---	---
8	4.84	992	5.02	1,130	---	---	---	---	---	---	---	---
9	4.84	992	4.99	1,130	---	---	---	---	---	---	---	---
10	4.92	1,040	4.96	1,080	---	---	---	---	---	---	---	---
11	5.15	1,260	4.92	1,040	---	---	---	---	---	---	---	---
12	5.77	1,920	4.87	1,020	4.37	641	4.14	498	3.99	414	3.87	354

SUPPLEMENTAL RECORDS.—Aug. 13, 5:30 p.m., gage height, 6.80 feet, discharge, 3,270 second-feet.
 Aug. 14, 11:30 p.m., gage height, 6.59 feet, discharge, 2,990 second-feet.

NOLAND CREEK NEAR BRYSON CITY, N. C.

LOCATION.—Lat. 35°29'06", long. 83°30'15", 1.1 miles downstream from Mill Creek, 1.2 miles south of Great Smoky Mountains National Park, and 5 miles north-west of Bryson City, Swain County.

DRAINAGE AREA.—13.8 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 270 second-feet and extended to crest gage height on basis of determination of flood flow by critical-depth section method. Gage heights used to half-tenths above 3.9 feet and hundredths below. The rating curve used in 1936 was revised on basis of that used for 1940.

430 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

MAXIMA.—1940: Discharge, 1,530 second-feet 12:15 a.m. Aug. 30 (gage height, 4.87 feet).

1935-39: Discharge, 1,060 second-feet Apr. 6, 1936 (gage height, 4.44 feet).

Surveys by the Tennessee Valley Authority show that the floods of March 1867 and November 1906 probably exceeded that of Aug. 30, 1940.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	24	79	9	17	29	17	50	20	25	25	18
2	22	62	10	16	36	18	43	19	26	23	16
3	20	52	11	16	28	19	42	19	27	22	15
4	19	46	12	16	25	20	36	18	28	21	14
5	18	41	13	204	24	21	34	17	29	203	14
6	17	37	14	219	23	22	31	16	30	343	13
7	18	34	15	114	22	23	28	16	31	114	-----
8	17	32	16	63	20	24	27	16			

Monthly mean discharge, in second-feet.....

Runoff, in inches.....

60.1

27.4

5.03

2.22

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 29		Aug. 30	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.12	19	2.49	184	-----	-----	-----	-----	1.23	20	4.42	1,130
2	1.13	19	2.49	184	-----	-----	-----	-----	1.23	20	3.80	720
3	1.15	20	2.68	237	-----	-----	-----	-----	1.24	21	3.57	588
4	1.16	20	3.15	395	2.36	153	-----	-----	1.26	22	3.37	486
5	1.17	21	3.15	395	-----	-----	-----	-----	1.29	24	3.22	422
6	1.22	23	2.96	326	-----	-----	-----	-----	1.29	24	3.11	380
7	1.30	26	2.79	271	-----	-----	-----	-----	1.32	25	3.02	347
8	1.40	31	2.70	243	2.19	116	-----	-----	1.34	26	2.93	316
9	1.48	36	2.59	211	-----	-----	-----	-----	1.37	28	2.85	290
10	1.63	46	2.51	190	-----	-----	-----	-----	1.47	35	2.79	271
11	2.10	100	2.45	174	-----	-----	-----	-----	1.72	54	2.73	252
N	2.50	187	2.41	164	2.09	98	1.82	63	2.42	167	2.67	234
1	3.40	500	2.38	157	-----	-----	-----	-----	3.02	347	2.62	220
2	3.48	540	2.36	153	-----	-----	-----	-----	2.78	268	2.57	206
3	3.35	478	2.33	146	-----	-----	-----	-----	2.59	211	2.54	198
4	3.27	443	2.30	139	2.01	86	-----	-----	2.46	177	2.50	187
5	3.24	430	2.30	139	-----	-----	-----	-----	2.41	164	2.48	182
6	3.15	395	2.35	150	-----	-----	-----	-----	2.79	271	2.47	180
7	3.11	380	2.52	192	-----	-----	-----	-----	2.75	258	2.47	180
8	2.97	330	2.62	220	1.95	78	-----	-----	2.72	249	2.45	174
9	2.82	280	2.68	237	-----	-----	-----	-----	3.19	410	2.42	167
10	2.71	246	2.74	255	-----	-----	-----	-----	3.50	550	2.39	160
11	2.62	220	2.78	268	-----	-----	-----	-----	3.87	762	2.36	153
12	2.53	195	2.67	234	1.92	75	1.73	55	4.77	1,440	2.34	148

SUPPLEMENTAL RECORDS.—Aug. 14, 4:15 a.m., gage height, 3.22 feet, discharge, 422 second-feet. Aug. 29, 12:45 p.m., gage height, 3.06 feet, discharge, 362 second-feet; 5:30 p.m., gage height, 2.40 feet, discharge, 162 second-feet. Aug. 30, 12:15 a.m., gage height, 4.87 feet, discharge, 1,530 second-feet.

TELLICO RIVER AT TELLICO PLAINS, TENN.

LOCATION.—Lat. 35°21'42", long. 84°16'44", 200 feet upstream from bridge on Tellico Plains-Rafter road, 0.4 mile downstream from Laurel Creek, and 0.8 mile east of Tellico Plains, Monroe County. Datum of gage is 846.64 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—118 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,530 second-feet. Gage heights used to half-tenths between 2.7 and 4.3 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 750 second-feet 4 p.m. Aug. 13 and 9 p.m. Aug. 14 (gage height, 2.99 feet).

1925 to July 1940: Discharge, 10,900 second-feet Aug. 5, 1938 (gage height, 11.39 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	79	100	9	58	60	17	135	47	25	76	61
2	76	86	10	70	61	18	112	46	26	70	84
3	64	77	11	56	77	19	131	46	27	66	47
4	60	72	12	57	55	20	102	45	28	64	44
5	58	81	13	301	53	21	90	45	29	168	42
6	56	68	14	558	52	22	87	44	30	209	41
7	66	64	15	346	52	23	80	42	31	151	-----
8	61	61	16	184	49	24	85	41			
Monthly mean discharge, in second-feet.....										122	58.3
Runoff, in inches.....										1.19	0.55

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1	-----	-----	2.36	442	2.66	585
2	-----	-----	2.30	415	2.56	537
3	-----	-----	2.24	590	2.47	494
4	-----	-----	2.22	382	2.40	460
5	-----	-----	2.32	424	2.34	433
6	1.07	61	2.48	498	2.28	407
7	-----	-----	2.55	532	2.23	386
8	-----	-----	2.55	532	2.18	367
9	-----	-----	2.53	522	2.14	352
10	-----	-----	2.50	508	2.10	338
11	-----	-----	2.49	503	2.06	325
N	1.32	112	2.46	489	2.02	312
1	1.34	117	2.46	489	-----	-----
2	1.44	143	2.50	508	-----	-----
3	2.90	701	2.65	580	-----	-----
4	2.99	750	2.81	652	-----	-----
5	2.97	726	2.87	676	-----	-----
6	2.92	701	2.89	701	1.85	260
7	2.83	676	2.92	701	-----	-----
8	2.76	628	2.97	726	-----	-----
9	2.63	570	2.99	750	-----	-----
10	2.55	532	2.96	726	-----	-----
11	2.49	503	2.88	701	-----	-----
12	2.42	470	2.76	628	1.72	221

CLINCH RIVER AT CLEVELAND, VA.

LOCATION.—Lat. 36°56'41", long. 82°09'18", 500 feet upstream from highway bridge at Cleveland, Russell County, 0.5 mile downstream from Muddy Hollow, and 2.3 miles downstream from Weaver Creek. Datum of gage is 1,500.24 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—528 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 8,800 second-feet and extended to crest gage height by logarithmic plotting on basis of comparisons of flood records with those for Clinch River at Speers Ferry. Gage heights used to half-tenths between 2.9 and 5.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 22,500 second-feet 8 a.m. Aug. 14 (gage height, 20.60 feet).

1920-39: Discharge, 22,500 second-feet Dec. 22, 1926 (gage height observed, 21.1 feet, site and datum then in use).

432 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,760	2,090	9	322	296	17	2,130	195	25	658	160
2	1,150	1,050	10	259	330	18	1,730	190	26	574	193
3	643	724	11	226	338	19	2,560	176	27	519	187
4	461	555	12	206	299	20	2,160	170	28	470	173
5	367	470	13	371	259	21	1,410	163	29	412	150
6	353	405	14	14,400	232	22	1,300	160	30	522	143
7	901	355	15	5,960	216	23	1,010	148	31	2,450	-----
8	461	322	16	3,310	201	24	792	143			
Monthly mean discharge, in second-feet.....										1,640	350
Runoff, in inches.....										3.58	0.74

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	7.75	4,790	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	10.90	8,390	10.00	7,310	-----	-----	-----	-----	-----	-----
3	-----	-----	13.40	11,500	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	16.05	15,200	9.73	6,950	-----	-----	-----	-----	-----	-----
5	-----	-----	18.10	18,400	-----	-----	-----	-----	-----	-----	-----	-----
6	1.79	198	19.40	20,500	9.48	6,710	6.73	3,680	5.33	2,340	4.41	1,600
7	-----	-----	20.25	21,800	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	20.60	22,500	9.23	6,350	-----	-----	-----	-----	-----	-----
9	-----	-----	20.50	22,300	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	20.10	21,600	8.98	6,110	-----	-----	-----	-----	-----	-----
11	-----	-----	19.50	20,600	-----	-----	-----	-----	-----	-----	-----	-----
N	1.79	198	18.70	19,400	8.77	5,890	6.18	3,180	5.04	2,120	4.23	1,500
1	-----	-----	17.75	17,900	-----	-----	-----	-----	-----	-----	-----	-----
2	1.79	198	16.75	16,400	8.62	5,670	-----	-----	-----	-----	-----	-----
3	-----	-----	15.40	14,300	-----	-----	-----	-----	-----	-----	-----	-----
4	1.81	204	15.00	13,700	8.43	5,450	-----	-----	-----	-----	4.13	1,420
5	-----	-----	14.05	12,300	-----	-----	-----	-----	-----	-----	-----	-----
6	1.92	239	13.30	11,400	8.21	5,230	5.87	2,880	4.80	1,920	-----	-----
7	-----	-----	12.60	10,500	-----	-----	-----	-----	-----	-----	-----	-----
8	2.18	334	12.00	9,710	7.95	5,010	-----	-----	-----	-----	5.47	2,520
9	-----	-----	11.57	9,230	-----	-----	-----	-----	-----	-----	-----	-----
10	3.30	880	11.22	8,750	7.67	4,680	-----	-----	-----	-----	-----	-----
11	-----	-----	10.93	8,390	-----	-----	-----	-----	-----	-----	-----	-----
12	5.55	2,610	10.60	8,030	7.41	4,380	5.62	2,610	4.58	1,760	5.00	2,080
	Aug. 19		Aug. 20		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	-----	-----	2.66	542	-----	-----	-----	-----	-----	-----
2	-----	-----	-----	-----	2.65	537	-----	-----	-----	-----	-----	-----
3	-----	-----	-----	-----	2.64	532	-----	-----	-----	-----	-----	-----
4	4.85	1,960	-----	-----	2.63	528	-----	-----	-----	-----	-----	-----
5	-----	-----	-----	-----	2.63	528	-----	-----	-----	-----	-----	-----
6	-----	-----	5.38	2,430	2.63	528	5.49	2,520	-----	-----	-----	-----
7	-----	-----	-----	-----	2.68	551	-----	-----	-----	-----	-----	-----
8	5.73	2,700	-----	-----	3.23	850	-----	-----	-----	-----	-----	-----
9	-----	-----	-----	-----	3.63	1,090	-----	-----	-----	-----	-----	-----
10	-----	-----	-----	-----	4.05	1,360	-----	-----	-----	-----	-----	-----
11	-----	-----	-----	-----	4.48	1,680	-----	-----	-----	-----	-----	-----
N	5.93	2,880	5.10	2,160	4.92	2,000	4.83	1,960	3.54	1,030	3.01	710
1	-----	-----	-----	-----	5.45	2,430	-----	-----	-----	-----	-----	-----
2	-----	-----	-----	-----	6.00	2,980	-----	-----	-----	-----	-----	-----
3	-----	-----	-----	-----	6.53	3,480	-----	-----	-----	-----	-----	-----
4	-----	-----	-----	-----	7.05	3,980	-----	-----	-----	-----	-----	-----
5	-----	-----	-----	-----	7.58	4,580	-----	-----	-----	-----	-----	-----
6	5.68	2,700	4.77	1,880	8.05	5,010	4.35	1,560	-----	-----	-----	-----
7	-----	-----	-----	-----	8.22	5,230	-----	-----	-----	-----	-----	-----
8	-----	-----	-----	-----	8.10	5,120	-----	-----	-----	-----	-----	-----
9	-----	-----	-----	-----	7.80	4,790	-----	-----	-----	-----	-----	-----
10	-----	-----	-----	-----	7.42	4,380	-----	-----	-----	-----	-----	-----
11	-----	-----	-----	-----	7.02	3,980	-----	-----	-----	-----	-----	-----
12	5.68	2,700	4.51	1,680	6.65	3,580	4.00	1,320	3.23	850	2.84	628

CLINCH RIVER AT SPEERS FERRY, VA.

LOCATION.—Lat. 36°38'55", long. 82°45'02", at highway bridge half a mile down-

stream from Copper Creek, three-quarters of a mile northwest of Speers Ferry, Scott County, and 2 miles downstream from Clinchport. Datum of gage is 1,196.52 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,126 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 18,000 second-feet. Gage heights used to half-tenths between 3.0 and 4.6 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 25,100 second-feet 4 a.m. Aug. 15 (gage height, 20.98 feet).

1920-39: Discharge observed, 37,200 second-feet Feb. 3, 1923 (gage height, 24.35 feet datum then in use, 25.85 feet present datum).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,900	5,910	9	1,030	656	17	3,770	364	25	1,380	279
2	3,030	3,040	10	700	658	18	2,790	346	26	1,170	274
3	1,500	2,010	11	538	698	19	3,870	334	27	1,010	298
4	1,020	1,520	12	443	638	20	4,350	314	28	901	306
5	750	1,180	13	448	548	21	2,970	296	29	860	290
6	630	988	14	8,970	480	22	2,750	292	30	2,410	266
7	1,730	842	15	17,900	428	23	2,230	271	31	3,470	-----
8	1,900	722	16	6,640	400	24	1,700	271			

Monthly mean discharge, in second-feet.....

2,734
2.80

Runoff, in inches.....

831
0.82

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	2.87	764	20.62	24,300	-----	-----	-----	-----	-----	-----
2	-----	-----	2.97	832	20.82	24,700	-----	-----	-----	-----	-----	-----
3	-----	-----	3.11	920	20.97	25,100	-----	-----	-----	-----	-----	-----
4	-----	-----	3.24	1,020	20.98	25,100	-----	-----	-----	-----	-----	-----
5	-----	-----	3.40	1,130	20.92	24,900	-----	-----	-----	-----	-----	-----
6	-----	-----	3.68	1,340	20.73	24,500	9.83	7,600	6.76	4,130	5.65	2,900
7	-----	-----	4.30	1,780	20.43	23,900	-----	-----	-----	-----	-----	-----
8	-----	-----	5.23	2,530	20.00	23,100	-----	-----	-----	-----	-----	-----
9	-----	-----	6.10	3,400	19.47	22,200	-----	-----	-----	-----	-----	-----
10	-----	-----	7.02	4,350	18.80	20,800	-----	-----	-----	-----	-----	-----
11	-----	-----	7.90	5,340	18.04	19,400	-----	-----	-----	-----	-----	-----
N	2.25	403	8.87	6,520	17.28	18,200	8.96	6,640	6.42	3,700	5.43	2,710
1	-----	-----	9.92	7,720	-----	-----	-----	-----	-----	-----	-----	-----
2	2.26	408	11.25	9,410	15.67	15,600	-----	-----	-----	-----	-----	-----
3	-----	-----	12.42	11,000	-----	-----	-----	-----	-----	-----	-----	-----
4	2.28	417	13.67	12,800	14.30	13,600	-----	-----	-----	-----	-----	-----
5	-----	-----	14.80	14,300	-----	-----	-----	-----	-----	-----	-----	-----
6	2.36	456	15.94	16,000	13.14	11,900	8.02	5,450	6.14	3,400	5.24	2,530
7	-----	-----	17.00	17,700	-----	-----	-----	-----	-----	-----	-----	-----
8	2.47	514	17.90	19,200	12.26	10,800	-----	-----	-----	-----	-----	-----
9	-----	-----	18.70	20,700	-----	-----	-----	-----	-----	-----	-----	-----
10	2.58	576	19.30	21,800	11.63	9,930	-----	-----	-----	-----	-----	-----
11	-----	-----	19.80	22,700	-----	-----	-----	-----	-----	-----	-----	-----
12	2.77	696	20.24	23,500	11.00	9,150	7.27	4,680	5.88	3,200	5.47	2,800
	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
6	2.98	838	4.45	1,900	5.22	2,530	8.77	6,400	6.09	3,400	4.78	2,180
N	2.95	818	5.62	2,900	5.77	3,100	9.30	7,000	5.66	3,000	4.58	2,020
6	3.02	852	5.61	2,900	7.08	4,460	8.04	5,450	5.32	2,620	4.40	1,860
12	3.27	1,020	5.41	2,710	7.74	5,120	6.83	4,130	5.06	2,440	4.24	1,740

SUPPLEMENTAL RECORD.—Sept. 1, 11 a.m., gage height, 9.33 feet, discharge, 7,000 second-feet.

CLINCH RIVER ABOVE TAZEWEEL, TENN.

LOCATION.—Lat. 36°25'30", long. 83°23'54", 0.4 mile upstream from Grissom Island, 4.6 miles downstream from Big War Creek, and 10 miles east of Taze-

434 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

well, Claiborne County. Datum of gage is 1,060.7 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,474 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 25,600 second-feet. Gage heights used to half-tenths between 2.1 and 4.2 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 24,300 second-feet 5 p.m. Aug. 15 (gage height, 13.29 feet).

1927-39: Discharge, 37,800 second-feet Jan. 31, 1932 (gage height, 14.90 feet, site and datum then in use).

Stage known, about 24 feet (present site and datum) in 1862, from information supplied by local resident (discharge not determined).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,420	5,920	9	1,450	770	17	5,510	472	25	1,540	360
2	2,660	5,290	10	910	728	18	3,210	436	26	1,310	375
3	2,300	2,720	11	683	728	19	3,100	413	27	1,120	344
4	1,310	1,890	12	565	728	20	4,790	407	28	984	354
5	942	1,450	13	558	676	21	3,810	386	29	941	365
6	751	1,170	14	1,360	610	22	3,030	365	30	2,260	354
7	766	987	15	18,500	548	23	2,540	354	31	3,440	-----
8	2,100	857	16	12,500	503	24	2,010	334			
Monthly mean discharge, in second-feet.....										2,883	1,030
Runoff, in inches.....										2.25	0.78

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 17		Aug. 18		Aug. 19	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	6.15	6,670	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	6.80	7,740	11.70	19,500	-----	-----	-----	-----	-----	-----
3	-----	-----	7.48	9,100	-----	-----	-----	-----	-----	-----	-----	-----
4	1.71	813	8.17	10,500	11.06	17,800	-----	-----	-----	-----	-----	-----
5	-----	-----	8.82	11,900	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	9.50	13,500	10.40	15,800	6.01	6,330	4.40	3,760	3.64	2,780
7	-----	-----	10.07	15,100	-----	-----	-----	-----	-----	-----	-----	-----
8	1.84	918	10.68	16,700	9.76	14,300	-----	-----	-----	-----	-----	-----
9	-----	-----	11.22	18,100	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	11.68	19,500	9.10	12,600	-----	-----	-----	-----	-----	-----
11	-----	-----	12.11	20,700	-----	-----	-----	-----	-----	-----	-----	-----
N	1.91	975	12.46	21,900	8.54	11,200	5.44	5,310	4.17	3,420	3.70	2,840
1	1.92	984	12.75	22,800	-----	-----	-----	-----	-----	-----	-----	-----
2	1.92	984	12.37	23,400	8.10	10,300	-----	-----	-----	-----	-----	-----
3	1.93	992	13.13	23,700	-----	-----	-----	-----	-----	-----	-----	-----
4	1.96	1,020	13.25	24,000	7.72	9,500	-----	-----	-----	-----	-----	-----
5	2.01	1,060	13.29	24,300	-----	-----	-----	-----	-----	-----	-----	-----
6	2.08	1,120	13.28	24,300	7.42	8,900	4.98	4,670	3.95	3,160	4.09	3,350
7	2.21	1,220	13.24	24,000	-----	-----	-----	-----	-----	-----	-----	-----
8	2.52	1,500	13.13	23,700	7.14	8,300	-----	-----	-----	-----	-----	-----
9	3.33	2,420	12.98	23,400	-----	-----	-----	-----	-----	-----	-----	-----
10	4.10	3,350	12.78	22,800	6.88	7,920	-----	-----	-----	-----	-----	-----
11	4.85	4,350	12.54	21,900	-----	-----	-----	-----	-----	-----	-----	-----
12	5.50	5,480	12.30	21,300	6.65	7,380	4.65	4,050	3.78	2,960	4.55	4,050
Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3		
6	-----	-----	2.50	1,500	4.35	3,760	5.14	4,830	6.13	6,500	3.82	2,960
N	1.85	926	3.32	2,360	4.26	3,620	5.61	5,990	5.26	5,150	3.56	2,660
6	-----	-----	3.72	2,840	3.93	3,160	6.48	7,200	4.58	4,050	3.36	2,420
12	2.06	1,100	4.25	3,480	4.15	3,420	6.69	7,560	4.14	3,420	3.17	2,180

SUPPLEMENTAL RECORDS.—Aug. 31, 2 a.m., gage height, 4.34 feet, discharge, 4,620 second-feet; 4 a.m., gage height, 4.37 feet, discharge, 3,760 second-feet. Sept. 1, 10:30 p.m., gage height, 6.72 feet, discharge, 7,560 second-feet.

CLINCH RIVER NEAR TAZEWELL, TENN.

LOCATION.—Lat. $36^{\circ}23'57''$, long. $83^{\circ}27'35''$, 600 feet downstream from bridge on U. S. Highway 25E, 3.5 miles upstream from Indian Creek, 7 miles southeast of Tazewell, Claiborne County, and 72 miles upstream from Norris Dam. Datum of gage is 1,013.5 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,482 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

MAXIMA.—1940: Gage height, 10.62 feet at 8 p.m. Aug. 15.

1937-39: Gage height, 18.58 feet Feb. 10, 1937.

The flood of March 1917 reached a stage of about 21.5 feet; flood of 1862 reached a stage of about 24.5 feet.

REMARKS.—Station is in backwater from Norris Dam.

Mean gage height, in feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	3.31	4.87	9	2.72	2.08	17	5.14	1.74	25	2.72	1.57
2	3.31	4.94	10	2.20	2.02	18	4.01	1.70	26	2.50	1.60
3	3.33	3.58	11	1.96	2.02	19	3.62	1.66	27	2.35	1.55
4	2.54	3.00	12	1.81	2.02	20	4.49	1.64	28	2.23	1.55
5	2.21	2.68	13	1.77	1.98	21	4.22	1.63	29	2.19	1.58
6	2.02	2.43	14	2.15	1.91	22	3.68	1.59	30	3.04	1.57
7	2.01	2.27	15	8.46	1.84	23	3.40	1.57	31	3.91	-----
8	2.86	2.16	16	7.90	1.77	24	3.06	1.55			

NORRIS RESERVOIR AT NORRIS DAM, TENN.

LOCATION.—Lat. $36^{\circ}13'29''$, long. $84^{\circ}05'29''$, at Norris Dam on Clinch River, Anderson County, $2\frac{1}{2}$ miles northwest of Norris, and $3\frac{1}{2}$ miles east of Lake City (formerly known as Coal Creek). Datum of gage is mean sea level, adjustment of 1912, and 0.11 foot above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,912 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

REMARKS.—Controlled storage, 2,020,000 acre-feet between elevations 954.5 and 1,034.0 feet. During extreme floods the elevation of the water surface in the reservoir may reach 1,052.0 feet, owing to the limited capacity of the spillway section. The total storage capacity at this elevation is 3,370,000 acre-feet. Records furnished by the Tennessee Valley Authority.

436 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

Elevation and contents, at midnight, 1940

Elevation and contents, at midnight, 1890									
Day	August		September		Day	August		September	
	Eleva- tion (feet)	Contents (thousand acre-feet)	Eleva- tion (feet)	Contents (thousand acre-feet)		Eleva- tion (feet)	Contents (thousand acre-feet)	Eleva- tion (feet)	Contents (thousand acre-feet)
1	1,005.00	1,578	1,011.80	1,781	16	1,008.40	1,677	1,012.15	1,792
2	1,005.19	1,584	1,012.20	1,793	17	1,008.84	1,690	1,011.89	1,784
3	1,005.39	1,589	1,012.39	1,799	18	1,009.13	1,699	1,011.63	1,776
4	1,005.51	1,593	1,012.53	1,803	19	1,009.35	1,706	1,011.31	1,766
5	1,005.60	1,595	1,012.63	1,806	20	1,009.67	1,715	1,011.00	1,756
6	1,005.68	1,598	1,012.72	1,809	21	1,009.99	1,725	1,010.59	1,743
7	1,005.72	1,599	1,012.79	1,812	22	1,010.20	1,731	1,010.20	1,731
8	1,005.84	1,602	1,012.85	1,813	23	1,010.41	1,738	1,009.87	1,721
9	1,005.94	1,605	1,012.90	1,815	24	1,010.56	1,742	1,009.63	1,714
10	1,006.01	1,607	1,012.94	1,816	25	1,010.67	1,746	1,009.36	1,706
11	1,006.07	1,609	1,012.97	1,817	26	1,010.78	1,749	1,008.92	1,693
12	1,006.11	1,610	1,013.00	1,818	27	1,010.85	1,751	1,008.49	1,680
13	1,006.24	1,614	1,012.90	1,815	28	1,010.89	1,753	1,008.04	1,666
14	1,006.36	1,617	1,012.64	1,807	29	1,010.99	1,756	1,007.60	1,653
15	1,007.43	1,648	1,012.48	1,802	30	1,011.16	1,761	1,007.17	1,641
					31	1,011.38	1,768		
Change in contents, equivalent, in second-feet-----								August	September
								+3,155	-2,134

CLINCH RIVER BELOW NORRIS DAM, TENN.

LOCATION.—Lat. 36°12'56", long. 84°04'56", 0.5 mile upstream from Clear Creek, 0.9 mile downstream from Norris Dam, Anderson County, and 1½ miles north of Norris. Datum of gage is 819.11 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—2,913 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 41,300 second-feet. Gage heights used to half-tenths between 2.9 and 5.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 4,260 second-feet 3:30 a.m. Aug. 22 (gage height, 4.09 feet).

1927 to July 1940: Discharge, 70,000 second-feet Mar. 23, 1929 (gage height, 33.7 feet at site near Coal Creek).

REMARKS.—Flood runoff completely regulated by storage in Norris Reservoir.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	622	62	9	366	62	17	285	4,790	25	57	5,120
2	97	62	10	388	249	18	271	4,680	26	57	6,820
3	84	420	11	72	53	19	73	5,460	27	259	7,080
4	70	62	12	466	53	20	62	5,460	28	558	7,080
5	62	62	13	72	2,590	21	62	6,820	29	293	7,080
6	353	62	14	78	4,790	22	403	6,310	30	272	6,560
7	274	62	15	66	3,180	23	269	5,120	31	69	
8	299	62	16	91	5,580	24	171	4,790			
Monthly mean discharge, in second-feet, observed.....										198	3,353

POWELL RIVER NEAR JONESVILLE, VA.

LOCATION.—Lat. 36°39'43", long. 83°05'42", at highway bridge 2 miles southeast of Jonesville, Lee County, and 10 miles upstream from Wallen Creek. Datum of gage is 1,259.08 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—319 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 17,000 second-feet. Gage heights used to half-tenths between 3.3 and 4.4 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 1,140 second-feet 12 m. Aug. 15 (gage height, 3.89 feet).

1931 to July 1940; Discharge, 22,900 second-feet (revised) Jan. 30, 1932 (gage height, 25.64 feet).

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	982	780	9	140	99	17	399	64	25	151	55
2	506	429	10	113	110	18	280	62	26	129	70
3	293	287	11	99	129	19	765	59	27	121	78
4	204	218	12	89	106	20	731	57	28	108	60
5	160	169	13	89	88	21	414	54	29	114	54
6	137	142	14	438	78	22	291	53	30	632	49
7	184	123	15	1,050	74	23	230	50	31	890	-----
8	212	108	16	692	71	24	184	49			
Monthly mean discharge, in second-feet										349	128
Runoff, in inches										1.26	0.45

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 14		Aug. 15		Aug. 16		Aug. 30		Aug. 31		Sept. 1	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
2	-----	-----	-----	-----	-----	-----	-----	-----	3.65	998	3.74	1,050
4	1.67	148	3.66	998	3.38	860	2.14	272	3.52	915	3.62	970
6	-----	-----	-----	-----	-----	-----	-----	-----	3.42	860	3.50	915
8	1.98	226	3.83	1,110	3.23	758	2.47	381	3.35	830	3.40	860
10	-----	-----	-----	-----	-----	-----	-----	-----	3.32	800	3.31	800
N	2.54	407	3.89	1,140	3.10	680	2.96	598	3.26	776	3.23	758
2	-----	-----	-----	-----	-----	-----	-----	-----	3.19	734	3.15	710
4	2.63	442	3.81	1,080	2.97	604	3.28	788	3.19	734	3.08	668
6	-----	-----	-----	-----	-----	-----	-----	-----	3.36	830	3.02	632
8	3.32	800	3.67	998	2.86	545	3.88	1,140	3.68	1,020	2.97	604
10	-----	-----	-----	-----	-----	-----	-----	-----	3.83	1,110	2.91	570
12	3.61	970	3.52	915	2.76	497	3.77	1,050	3.83	1,110	2.86	545

EMORY RIVER AT OAKDALE, TENN.

LOCATION.—Lat. 35°58'59", long. 84°33'29", at Oakdale, Morgan County, 1,000 feet downstream from highway bridge and 1,100 feet downstream from Mud Lick Creek. Datum of gage is 763.38 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—764 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 80,000 second-feet. Gage heights used to half-tenths between 4.2 and 6.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 6,900 second-feet 1:30 a.m. Aug. 30 (gage height, 8.84 feet).

1929 to July 1940: Discharge, 100,000 second-feet Feb. 3, 1939 (gage height, 30.9 feet, from floodmarks).

Stage known, about 42.3 feet, from floodmarks at highway bridge, Mar. 23, 1929 (discharged, 195,000 second-feet).

REMARKS.—Flood runoff not affected by storage.

Mean discharge, in second-feet, 1940

[illegible]

HIWASSEE RIVER BELOW HAYESVILLE, N. C.

LOCATION.—Lat. 35°04'30", long. 83°49'55", three-quarters of a mile downstream from Tusquitee Creek and 2¼ miles (revised) northwest of Hayesville, Clay County. Datum of gage is 1,760.33 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—252 square miles (1943 revision).

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 10,200 second-feet. Gage heights used to half-tenths between 3.5 and 5.3 feet; hundredths below and tenths above these limits.

MAXIMA.—1940: Discharge, 4,610 second-feet 4:30 p.m. Aug. 13 (gage height, 7.97 feet).

1934-39: Discharge, 10,600 second-feet Apr. 2 1936 (gage height, 12.42 feet).

Stage known, 16.1 feet Oct. 3, 1898, from flood reference mark cut in tree by gage observer shortly after the flood.

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	3.27	638	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	3.43	733	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	3.90	1,020	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	4.65	1,550	-----	-----	3.92	1,020	-----	-----	-----	-----
5	-----	-----	5.35	2,140	-----	-----	-----	-----	-----	-----	-----	-----
6	2.32	177	6.02	2,650	5.03	1,860	-----	-----	-----	-----	-----	-----
7	-----	-----	6.40	3,010	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	6.72	3,280	-----	-----	3.82	955	-----	-----	-----	-----
9	-----	-----	7.08	3,670	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	7.39	3,970	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	7.60	4,170	-----	-----	-----	-----	-----	-----	-----	-----
N	2.37	196	7.80	4,390	4.57	1,470	3.72	895	3.33	673	3.12	556
1	2.40	208	7.91	4,500	-----	-----	-----	-----	-----	-----	-----	-----
2	2.44	225	7.93	4,500	-----	-----	-----	-----	-----	-----	-----	-----
3	2.49	246	7.95	4,610	-----	-----	-----	-----	-----	-----	-----	-----
4	2.72	350	7.97	4,610	-----	-----	3.62	835	-----	-----	-----	-----
5	3.10	545	7.94	4,500	-----	-----	-----	-----	-----	-----	-----	-----
6	3.28	644	7.87	4,500	4.27	1,260	-----	-----	-----	-----	-----	-----
7	3.33	673	7.71	4,280	-----	-----	-----	-----	-----	-----	-----	-----
8	3.29	650	7.37	3,970	-----	-----	3.52	775	-----	-----	-----	-----
9	3.23	616	6.97	3,570	-----	-----	-----	-----	-----	-----	-----	-----
10	3.17	584	6.55	3,190	-----	-----	-----	-----	-----	-----	-----	-----
11	3.16	578	6.18	2,830	-----	-----	-----	-----	-----	-----	-----	-----
12	3.19	594	5.89	2,560	4.05	1,120	3.46	751	3.17	584	3.02	501

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	5.66	2,380	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	5.73	2,380	-----	-----	-----	-----	-----	-----	-----	-----
3	-----	-----	5.81	2,470	-----	-----	-----	-----	-----	-----	-----	-----
4	2.52	259	5.82	2,470	-----	-----	-----	-----	-----	-----	-----	-----
5	-----	-----	5.77	2,470	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	5.60	2,300	-----	-----	-----	-----	-----	-----	-----	-----
7	-----	-----	5.39	2,140	-----	-----	-----	-----	-----	-----	-----	-----
8	2.70	340	5.20	1,980	-----	-----	-----	-----	-----	-----	-----	-----
9	-----	-----	5.03	1,860	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	4.86	1,700	-----	-----	-----	-----	-----	-----	-----	-----
11	-----	-----	4.73	1,620	-----	-----	-----	-----	-----	-----	-----	-----
N	3.38	703	4.62	1,510	3.67	865	3.32	667	3.13	562	3.00	490
1	3.58	835	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2	3.92	1,020	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
3	4.27	1,260	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
4	4.56	1,470	4.27	1,260	-----	-----	-----	-----	-----	-----	-----	-----
5	4.75	1,620	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
6	5.30	2,060	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
7	5.77	2,470	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
8	5.83	2,470	4.12	1,150	-----	-----	-----	-----	-----	-----	-----	-----
9	5.76	2,470	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
10	5.63	2,300	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
11	5.58	2,300	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12	5.61	2,300	3.97	1,050	3.42	727	3.17	584	3.01	496	2.91	445

SUPPLEMENTAL RECORD.—Aug. 13, 4:30 p.m., gage height, 7.97 feet; discharge, 4,610 second-feet.

HIWASSEE RIVER ABOVE MURPHY, N. C.

LOCATION.—Lat. 35°04'50", long. 84°00'10", on U. S. Highway 64, 600 feet upstream from Will Scott Creek and 2 miles east of Murphy, Cherokee County. Datum of gage is 1,538.23 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—404 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Sept. 22-30, for which period there is no record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,000 second-feet. Gage heights used to half-tenths between 3.6 and 5.5

440 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record is based on records for station below Hayesville.

MAXIMA.—1940: Discharge, 5,940 second-feet 7 p.m. Aug. 13 (gage height, 7.88 feet).

1896-1917, 1918-39: Discharge observed, 23,100 second-feet Mar. 19, 1899 (gage height, 18.4 feet, site and datum then in use).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

[illegible]

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 15		Aug. 16		Aug. 17	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	-----	-----	3.40	845	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	3.54	952	6.52	4,020	-----	-----	-----	-----	-----	-----
3	-----	-----	3.52	936	-----	-----	-----	-----	-----	-----	-----	-----
4	-----	-----	3.54	952	6.12	3,520	-----	-----	-----	-----	-----	-----
5	-----	-----	3.65	1,040	-----	-----	-----	-----	-----	-----	-----	-----
6	2.37	212	3.83	1,200	5.64	2,930	4.31	1,590	-----	-----	-----	-----
7	-----	-----	4.07	1,360	-----	-----	-----	-----	-----	-----	-----	-----
8	-----	-----	5.40	2,710	5.35	2,660	-----	-----	-----	-----	-----	-----
9	-----	-----	6.10	3,520	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	6.92	4,540	5.24	2,540	-----	-----	-----	-----	-----	-----
11	-----	-----	6.43	3,890	-----	-----	-----	-----	-----	-----	-----	-----
N	2.51	278	7.05	4,680	4.75	2,020	4.12	1,410	3.62	1,000	3.36	817
1	-----	-----	7.11	4,820	-----	-----	-----	-----	-----	-----	-----	-----
2	-----	-----	7.13	4,820	4.87	2,120	-----	-----	-----	-----	-----	-----
3	-----	-----	7.47	5,380	-----	-----	-----	-----	-----	-----	-----	-----
4	2.55	299	7.54	5,380	4.99	2,270	-----	-----	-----	-----	-----	-----
5	-----	-----	7.55	5,520	-----	-----	-----	-----	-----	-----	-----	-----
6	-----	-----	7.32	5,100	4.94	2,220	3.93	1,280	-----	-----	-----	-----
7	-----	-----	7.88	5,940	-----	-----	-----	-----	-----	-----	-----	-----
8	2.70	381	7.25	4,960	4.47	1,720	-----	-----	-----	-----	-----	-----
9	-----	-----	7.30	5,100	-----	-----	-----	-----	-----	-----	-----	-----
10	-----	-----	7.50	5,380	4.61	1,870	-----	-----	-----	-----	-----	-----
11	-----	-----	7.22	4,960	-----	-----	-----	-----	-----	-----	-----	-----
12	3.17	684	7.20	4,960	4.48	1,770	3.90	1,240	3.56	968	3.31	782

	Aug. 29		Aug. 30		Aug. 31		Sept. 1		Sept. 2		Sept. 3	
	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge	Gage ht.	Dis- charge
1	2.90	503	4.18	1,500	-----	-----	-----	-----	-----	-----	-----	-----
2	2.87	484	4.34	1,640	4.63	1,920	3.55	960	-----	-----	-----	-----
3	2.69	375	4.87	2,120	-----	-----	-----	-----	-----	-----	-----	-----
4	2.66	359	5.08	2,380	4.23	1,540	3.55	960	-----	-----	-----	-----
5	2.63	342	5.82	3,160	-----	-----	-----	-----	-----	-----	-----	-----
6	2.62	336	5.80	3,160	4.30	1,590	3.56	968	3.33	796	3.19	698
7	2.63	342	5.00	2,270	-----	-----	-----	-----	-----	-----	-----	-----
8	2.61	331	5.74	3,040	4.16	1,460	3.56	968	-----	-----	-----	-----
9	2.57	309	5.55	2,930	-----	-----	-----	-----	-----	-----	-----	-----
10	2.54	294	5.32	2,600	3.93	1,280	3.55	960	-----	-----	-----	-----
11	2.54	294	5.35	2,660	-----	-----	-----	-----	-----	-----	-----	-----
N	2.70	381	5.42	2,710	4.07	1,360	3.57	976	3.25	740	3.13	656
1	2.89	497	5.73	3,040	-----	-----	-----	-----	-----	-----	-----	-----
2	2.79	434	5.60	2,930	4.06	1,360	3.33	796	-----	-----	-----	-----
3	2.61	331	5.36	2,660	-----	-----	-----	-----	-----	-----	-----	-----
4	2.57	309	5.00	2,270	3.80	1,160	3.56	968	-----	-----	-----	-----
5	2.75	410	5.19	2,490	-----	-----	-----	-----	-----	-----	-----	-----
6	3.00	568	5.12	2,380	3.79	1,160	3.38	831	3.26	747	3.10	635
7	3.25	740	4.50	1,770	-----	-----	-----	-----	-----	-----	-----	-----
8	3.54	952	4.49	1,770	3.79	1,160	3.34	803	-----	-----	-----	-----
9	3.63	1,040	4.56	1,820	-----	-----	-----	-----	-----	-----	-----	-----
10	3.59	992	4.64	1,920	3.77	1,120	3.35	810	-----	-----	-----	-----
11	3.57	976	4.65	1,920	-----	-----	-----	-----	-----	-----	-----	-----
12	3.53	944	4.77	2,020	3.75	1,120	3.35	810	3.23	726	3.09	628

SUPPLEMENTAL RECORDS

Day	Gage height	Discharge	Day	Gage height	Discharge
Aug. 13, 12:30 p.m.-----	7.16	4,960	Aug. 13, 10:30 p.m.-----	6.95	4,680
8:30 p.m.-----	7.12	4,820	11:30 p.m.-----	7.35	5,240
9:45 p.m.-----	7.58	5,520			

HIWASSEE RESERVOIR AT HIWASSEE DAM, N. C.

LOCATION.—Lat. 35°09'05", long. 84°10'40", at Hiwassee Dam on Hiwassee River, one-third of a mile northwest of village of Hiwassee Dam, Cherokee County, and about 3.9 miles upstream from Shoal Creek. Datum of gage is mean sea level, datum of 1929, preliminary adjustment. Subtract 0.63 foot from all ele-

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uations to reduce to datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—968 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

MAXIMA.—August 1940: Midnight elevation, 1,523.68 feet Aug. 18 (contents, 420,600 acre-feet).

October 1939 to July 1940: Elevation, 1,524.44 feet 7 a.m. July 22 (contents, 425,200 acre-feet).

REMARKS.—Flow of Hiwassee River has been regulated at Hiwassee Dam by this reservoir since Apr. 13, 1939; only slight regulation Apr. 13, 1939, to Jan. 14, 1940, but complete regulation thereafter. Normal available capacity is 364,700 acre-feet between elevations 1,415.0 feet (minimum pool level) and 1,526.5 feet (top of gates). Additional capacity available is 35,600 acre-feet between elevations 1,526.5 and 1,532.0 (maximum high-water level). Records furnished by the Tennessee Valley Authority.

Elevation and contents. at midnight, 1940

Day	August		September		Day	August		September	
	Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)		Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)
1	1,520.30	400.4	1,523.91	422.0	16	1,523.10	417.1	1,520.85	403.6
2	1,520.09	399.2	1,524.28	424.2	17	1,523.32	418.4	1,520.37	400.8
3	1,520.26	400.2	1,524.34	424.5	18	1,523.68	420.6	1,519.92	398.2
4	1,520.43	401.2	1,524.06	422.9	19	1,523.48	419.4	1,519.42	395.4
5	1,520.08	399.2	1,523.81	421.4	20	1,523.27	418.1	1,518.86	392.2
6	1,520.08	399.2	1,523.55	419.8	21	1,522.98	416.4	1,518.03	387.5
7	1,520.20	399.9	1,523.81	421.4	22	1,522.78	415.2	1,517.18	382.7
8	1,520.18	399.8	1,524.06	422.9	23	1,522.50	413.5	1,516.36	378.2
9	1,520.20	399.9	1,523.71	420.8	24	1,522.59	414.0	1,515.50	373.4
10	1,520.37	400.8	1,523.31	418.4	25	1,522.80	415.3	1,514.71	369.2
11	1,520.53	401.8	1,522.89	415.8	26	1,522.43	413.1	1,513.78	364.1
12	1,520.34	400.6	1,522.44	413.1	27	1,522.09	411.0	1,512.77	358.8
13	1,522.13	411.3	1,522.03	410.7	28	1,521.63	408.3	1,511.82	353.8
14	1,522.93	416.1	1,521.61	408.2	29	1,521.81	409.4	1,510.88	348.9
15	1,523.19	417.6	1,521.31	406.4	30	1,522.79	415.2	1,509.89	343.8
					31	1,523.46	419.3		
								August	September
Change in contents, equivalent, in second-feet-----								+276	-1,269

HIWASSEE RIVER AT HIWASSEE DAM, N. C.

LOCATION.—Lat. 35°08'44", long. 84°11'09", 3,500 feet downstream from Hiwassee Dam and Reservoir, Cherokee County, and 3.2 miles upstream from Shoal Creek. Datum of gage is 1,263.40 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—968 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 42,800 second-feet. Gage heights used to half-tenths above 4.4 feet and hundredths below.

MAXIMA.—August 1940: Discharge, 3,430 second-feet 6 p.m. Aug. 16 (gage height, 5.21 feet).

1934 to July 1940: Discharge, 42,800 second-feet Feb. 4, 1936 (gage height, 13.41 feet).

REMARKS.—Flow completely regulated by Hiwassee Reservoir. Monthly mean discharge adjusted for storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,690	31	9	526	1,820	17	555	1,970	25	33	3,000
2	1,240	31	10	33	1,960	18	38	1,950	26	1,820	3,220
3	38	805	11	34	1,970	19	1,580	2,050	27	1,670	3,330
4	33	1,760	12	1,140	2,000	20	1,500	2,230	28	2,000	3,090
5	1,550	1,710	13	742	1,880	21	1,680	2,940	29	1,760	3,090
6	548	1,770	14	1,800	1,860	22	1,410	3,000	30	742	3,120
7	310	31	15	1,380	1,500	23	1,560	2,870	31	33	-----
8	620	31	16	1,850	1,960	24	481	2,980			
Monthly mean discharge, in second-feet										981	1,999
Runoff, in inches, adjusted										1,257	730
										1.50	0.84

HIWASSEE RIVER NEAR RELIANCE, TENN.

LOCATION.—Lat. 35°13'20", long. 84°31'34", on State Highway 40 just upstream from notch between rock bluffs, half a mile downstream from Spring Creek, 3 miles downstream from highway bridge at Reliance, Polk County, and 31 miles downstream from Hiwassee Dam. Datum of gage is 718.34 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—1,223 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 42,200 second-feet. Gage heights used to half-tenths between 3.7 and 6.0 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 3,630 second-feet 6:45 p.m. Aug. 13 (gage height, 6.25 feet).

1926 to July 1940: Discharge, 45,300 second-feet Feb. 4, 1936 (gage height, 23.01 feet).

REMARKS.—Flood runoff regulated by storage in Hiwassee Reservoir since Jan. 14, 1940.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	2,010	245	9	688	378	17	1,290	2,050	25	524	3,030
2	1,560	161	10	606	2,080	18	672	2,030	26	562	3,320
3	1,110	142	11	176	2,060	19	620	2,060	27	1,890	3,370
4	224	1,340	12	493	2,070	20	1,560	2,130	28	1,790	3,200
5	515	1,890	13	1,500	2,050	21	1,620	3,030	29	2,180	3,110
6	1,300	1,770	14	1,260	1,900	22	1,730	3,040	30	1,560	3,170
7	549	1,220	15	1,740	1,880	23	1,500	2,970	31	917	-----
8	424	210	16	1,730	1,720	24	1,340	3,030			
Monthly mean discharge, in second-feet										1,150	2,022

VALLEY RIVER AT TOMOTLA, N. C.

LOCATION.—Lat. 35°08'30", long. 83°58'45", at highway bridge at Tomotla, Cherokee County, half a mile upstream from Rodgers Creek. Datum of gage is 1,556.46 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—104 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 5,000 second-feet and extended to the 1906 crest gage height. Gage heights used to half-tenths between 3.1 and 4.4 feet; hundredths below and tenths above these limits.

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MAXIMA.—August 1940: Discharge, 482 second-feet 3 p.m. Aug. 13 (gage height, 3.21 feet).

1904-9, 1914-17, 1918 to July 1940: Discharge observed, 9,030 second-feet Nov. 19, 1906 (gage height, 17.3 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	66	85	9	75	52	17	86	45	25	59	52
2	63	75	10	59	55	18	76	45	26	56	49
3	61	69	11	57	55	19	75	48	27	55	46
4	59	64	12	59	49	20	69	46	28	53	44
5	58	62	13	278	49	21	66	45	29	209	42
6	57	59	14	232	49	22	66	45	30	173	42
7	64	56	15	140	48	23	61	44	31	106	-----
8	59	55	16	103	46	24	61	44			
Monthly mean discharge, in second-feet.....										89.1	52.0
Runoff, in inches.....										0.99	0.56

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 29		Aug. 30	
	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge	Gage height	Discharge
1					1.81	52		
2	1.93	68			1.82	53		
3					1.82	53		
4	2.00	78	2.63	266	1.82	53	2.53	227
5					1.83	55		
6	2.12	100			1.84	56		
7					1.95	70		
8	2.36	165	2.58	246	2.35	162	2.42	185
9					2.84	351		
10	2.63	266			2.77	323		
11					2.68	287		
N	2.93	385	2.55	234	2.62	262	2.33	155
1					2.53	227		
2	3.17	464			2.48	208		
3					2.52	223		
4	3.15	464	2.47	204	2.63	266	2.27	137
5					2.68	287		
6	3.02	418			2.69	291		
7					2.77	323		
8	2.95	392	2.45	196	2.77	323	2.25	132
9					2.73	307		
10	2.83	347			2.75	315		
11					2.72	303		
12	2.75	315	2.39	175	2.67	283	2.22	123

SUPPLEMENTAL RECORD.—Aug. 13, 3 p.m., gage height, 3.21 feet; discharge, 482 second-feet.

NOTTELY RIVER NEAR IVYLOG, GA.

LOCATION.—Lat. 34°55'32", long. 84°03'39", just downstream from Ivylog Creek and 2½ miles south of Ivylog, Union County. Datum of gage is 1,680.47 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—191 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 6,300 second-feet and extended to 1938 crest gage height on basis of determination of flood flow by slope-area method. Gage heights used to half-tenths between 3.3 and 4.9 feet; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 3,380 second-feet 1 p.m. Aug. 13 (gage height, 4.19 feet).

1936 to July 1940: Discharge, 11,500 second-feet July 22, 1938 (gage height, 12.25 feet).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	138	338	9	146	188	17	287	146	25	165	216
2	165	277	10	119	178	18	248	142	26	157	165
3	126	242	11	108	178	19	260	142	27	153	146
4	119	238	12	183	165	20	210	142	28	146	134
5	116	262	13	2,340	165	21	196	138	29	727	130
6	175	288	14	839	161	22	192	134	30	663	130
7	161	210	15	483	153	23	183	130	31	489	-----
8	130	196	16	350	149	24	174	165			
Monthly mean discharge, in second-feet-----										321	182
Runoff, in inches-----										1.94	1.06

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 12		Aug. 13		Aug. 14		Aug. 29		Aug. 30		Aug. 31	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	-----	-----	1.90	393	-----	-----	1.45	146	2.61	1,000	-----	-----
2	-----	-----	2.10	534	2.81	1,230	1.44	142	2.50	890	-----	-----
3	-----	-----	2.70	1,100	-----	-----	1.44	142	2.42	810	-----	-----
4	-----	-----	3.13	1,640	2.68	1,080	1.45	146	2.34	735	-----	-----
5	-----	-----	3.41	2,020	-----	-----	1.47	153	2.28	678	-----	-----
6	1.36	112	3.72	2,500	2.58	970	1.52	174	2.24	644	2.12	549
7	-----	-----	3.75	2,580	-----	-----	1.67	248	2.21	618	-----	-----
8	-----	-----	3.89	2,840	2.51	900	1.69	260	2.17	587	-----	-----
9	-----	-----	3.95	2,930	-----	-----	1.86	367	2.15	572	-----	-----
10	-----	-----	3.97	2,930	2.43	820	2.00	462	2.12	549	-----	-----
11	-----	-----	4.07	3,110	-----	-----	2.43	820	2.10	534	-----	-----
N	1.41	130	4.17	3,290	2.38	771	2.72	1,120	2.07	512	2.02	476
1	-----	-----	4.19	3,380	-----	-----	2.75	1,160	2.05	498	-----	-----
2	1.41	130	4.17	3,290	-----	-----	2.62	1,010	2.03	484	-----	-----
3	-----	-----	4.13	3,290	-----	-----	2.48	870	2.02	476	-----	-----
4	1.47	153	4.10	3,200	-----	-----	2.42	810	2.04	491	-----	-----
5	-----	-----	4.03	3,110	-----	-----	2.47	860	2.35	742	-----	-----
6	1.66	243	3.92	2,840	2.25	652	2.54	930	2.48	870	1.95	428
7	-----	-----	3.77	2,580	-----	-----	2.72	1,120	2.39	780	-----	-----
8	1.88	380	3.58	2,340	-----	-----	3.04	1,520	2.27	670	-----	-----
9	-----	-----	3.40	2,020	-----	-----	3.10	1,600	2.22	627	-----	-----
10	1.85	360	3.22	1,760	-----	-----	2.99	1,460	2.22	627	-----	-----
11	-----	-----	3.08	1,570	-----	-----	2.86	1,290	2.23	636	-----	-----
12	1.85	360	2.97	1,430	2.17	587	2.73	1,140	2.22	627	1.88	380

SUPPLEMENTAL RECORDS.—Aug. 29, 12:30 p.m., gage height, 2.77 feet, discharge, 1,180 second-feet; 8:30 p.m., gage height, 3.11 feet, discharge, 1,610 second-feet.

NOTTELY RIVER NEAR RANGER, N. C.

LOCATION.—Lat. 35°01'40", long. 84°07'00", 200 feet upstream from highway bridge, half a mile downstream from Ranger, Cherokee County, and 7½ miles southwest of Murphy. Datum of gage is 1,544.28 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—272 square miles.

GAUGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Stage-discharge relation determined by current-meter measurements up to 11,100 second-feet. Shifting-control method used Aug. 1-12. Gage heights used to half-tenths between 2.6 and 4.1 feet prior to Aug. 13, and between 2.6 and 3.6 subsequently; hundredths below and tenths above these limits.

MAXIMA.—August 1940: Discharge, 3,190 second-feet 7-8 p.m. Aug. 13 (gage height, 9.30 feet).

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1901-5, 1914-17, 1918 to July 1940: Discharge observed, 14,100 second-feet

Feb. 28, 1902 (gage height, 21.0 feet, site and datum then in use).

REMARKS.—Flood runoff not affected by artificial storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	177	421	9	168	226	17	346	173	25	201	254
2	196	332	10	140	218	18	290	170	26	192	206
3	152	287	11	132	215	19	307	170	27	187	176
4	137	274	12	141	198	20	260	170	28	184	170
5	134	279	13	1,890	198	21	234	167	29	490	164
6	140	358	14	1,330	192	22	232	162	30	947	159
7	227	254	15	630	187	23	223	162	31	663	-----
8	156	232	16	438	178	24	220	167			
Monthly mean discharge, in second-feet-----										360	217
Runoff, in inches-----										1.52	0.89

Gage height, in feet, and discharge, in second-feet, at indicated time, 1940

Hour	Aug. 13		Aug. 14		Aug. 15		Aug. 29		Aug. 30		Aug. 31	
	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge	Gage ht.	Dis-charge
1	1.84	180							5.40	1,280		
2	1.93	208	7.92	2,370					5.78	1,430	4.18	878
3	2.22	300					1.87	190	5.92	1,470		
4	2.52	396	7.00	1,940					5.82	1,430	3.90	784
5	2.66	438							5.61	1,350		
6	2.74	470	6.21	1,590	3.61	694	1.88	192	5.32	1,240	3.76	739
7	2.83	502							5.00	1,140		
8	3.05	566	5.65	1,350					4.69	1,040	3.66	709
9	4.35	1,030					1.96	215	4.42	942		
10	6.00	1,650	5.25	1,210					4.18	878	3.56	679
11	7.15	2,160							4.00	814		
N	7.82	2,440	4.94	1,100	3.36	619	2.28	304	3.83	754	3.45	649
1	8.30	2,690					2.34	322	3.70	724		
2	8.60	2,840	4.67	1,040			2.44	351	3.60	694	3.34	619
3	8.85	2,940					2.62	397	3.52	664		
4	9.01	3,040	4.46	974			3.00	514	3.45	649	3.25	589
5	9.14	3,090					3.95	814	3.44	649		
6	9.24	3,140	4.27	910	3.17	559	4.60	1,010	3.44	649	3.17	559
7	9.30	3,190					4.83	1,070	3.70	724		
8	9.30	3,190	4.13	846			4.77	1,070	3.92	784	3.10	544
9	9.29	3,190					4.64	1,010	3.99	814		
10	9.24	3,140	4.00	814			4.55	1,010	3.98	814	3.02	514
11	9.11	3,090					4.59	1,010	4.02	814		
12	8.80	2,940	3.87	784	3.00	514	4.87	1,100	4.20	878	2.96	499

BLUE RIDGE RESERVOIR NEAR BLUE RIDGE, GA.

LOCATION.—Lat. 34°52'52", long. 84°16'49", 400 feet above Blue Ridge Dam on Toccoa River, 2 miles west of Morganton, and 2½ miles northeast of Blue Ridge, Fannin County. Datum of gage is 0.12 foot below mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—233 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph. Gage readings have been reduced to mean sea level.

REMARKS.—Controlled storage, 183,000 acre-feet. Records furnished by the Tennessee Valley Authority.

Elevation and contents, at midnight, 1940

Day	August		September		Day	August		September	
	Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)		Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)
1	1,680.49	168.4	1,679.79	166.3	16	1,680.97	169.8	1,676.29	156.2
2	1,680.30	167.8	1,679.83	166.4	17	1,680.97	169.8	1,675.87	154.9
3	1,680.48	168.3	1,679.67	165.9	18	1,681.05	170.0	1,675.45	153.8
4	1,680.60	168.7	1,679.70	166.0	19	1,680.94	169.7	1,675.00	152.5
5	1,680.41	168.1	1,679.50	165.4	20	1,680.76	169.2	1,674.53	151.2
6	1,680.08	167.1	1,679.32	164.9	21	1,680.59	168.7	1,674.08	149.9
7	1,679.89	166.6	1,679.23	164.7	22	1,680.42	168.2	1,673.61	148.5
8	1,679.66	165.9	1,679.27	164.7	23	1,680.08	167.1	1,673.08	147.1
9	1,679.40	165.1	1,679.03	164.1	24	1,680.03	167.0	1,672.51	145.5
10	1,679.25	164.7	1,678.66	163.0	25	1,680.03	167.0	1,671.91	143.8
11	1,679.21	164.6	1,678.27	161.9	26	1,679.74	166.1	1,671.15	141.8
12	1,679.06	164.2	1,677.86	160.7	27	1,679.39	165.1	1,670.25	139.3
13	1,680.48	168.3	1,677.44	159.4	28	1,679.07	164.2	1,669.51	137.3
14	1,681.05	170.0	1,677.05	158.4	29	1,679.11	164.3	1,668.78	135.4
15	1,681.07	170.1	1,676.67	157.2	30	1,679.21	164.6	1,668.04	133.5
					31	1,679.56	165.6		
Change in contents, equivalent, in second-feet.....								August	September
								-56.9	-53

PARKSVILLE RESERVOIR AT PARKSVILLE, TENN.

LOCATION.—Lat. 35°05'44", long. 84°38'51", at Parksville Dam on Ocoee River at Parksville, Polk County, 13¾ miles east of Cleveland. Datum of gage is 7.00 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—595 square miles.

GAGE-HEIGHT RECORD.—Gage read hourly to tenths. Gage readings have been reduced to elevation above mean sea level.

REMARKS.—Controlled storage, 32,900 acre-feet. Elevations and capacity tables furnished by the Tennessee Valley Authority.

Elevation and contents, at midnight, 1940

Day	August		September		Day	August		September	
	Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)		Elevation (feet)	Contents (thousand acre-feet)	Elevation (feet)	Contents (thousand acre-feet)
1	834.6	85.4	836.3	88.6	16	834.1	84.5	833.1	82.7
2	834.1	84.5	836.4	88.7	17	833.9	84.1	832.8	82.1
3	834.1	84.5	836.4	88.7	18	833.5	83.4	832.6	81.8
4	834.1	84.5	835.7	87.4	19	833.6	83.6	832.0	80.7
5	833.2	82.8	835.2	86.5	20	833.8	83.9	831.1	79.1
					21	833.9	84.1	831.7	80.2
6	833.2	82.8	834.9	86.0					
7	833.1	82.7	835.0	86.1	22	834.4	85.0	832.5	81.6
8	832.9	82.3	835.1	86.3	23	834.6	85.4	831.8	80.4
9	833.1	82.7	834.4	85.0	24	834.9	86.0	831.2	79.3
10	833.5	83.4	833.7	83.8	25	835.0	86.1	830.5	78.1
					26	834.5	85.2	829.9	77.1
11	833.6	83.6	833.1	82.7					
12	833.4	83.2	832.7	82.0	27	834.4	85.0	829.8	76.9
13	834.6	85.4	832.1	80.9	28	834.5	85.2	829.6	76.6
14	834.5	85.2	832.8	82.1	29	835.4	86.9	830.6	78.3
15	834.2	84.7	833.5	83.4	30	836.0	88.0	830.0	77.2
					31	836.3	88.6		
Change in contents, equivalent, in second-feet.....								August	September
								+45.5	-192

OCCOEE RIVER AT PARKSVILLE, TENN.

LOCATION.—Lat. 35°05'48", long. 84°39'15", 0.4 mile downstream from dam and Ocoee No. 1 power plant of Tennessee Valley Authority at Parksville, Polk

448 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

County. Datum of gage is 717.09 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

DRAINAGE AREA.—595 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph.

DISCHARGE RECORD.—Obtained by use of discharge integrator. Stage-discharge relation defined by current-meter measurements up to 14,900 second-feet.

MAXIMA.—August 1940: Discharge, 3,080 second-feet 4 p.m. Aug. 15 (gage height, 6.37 feet).

1911-16, 1921 to July 1940: Discharge, 19,000 second-feet Apr. 6, 1936 (gage height, 18.32 feet).

REMARKS.—Flood runoff affected by storage in Blue Ridge and Parksville Reservoirs. Water-stage recorder inspected by employee of Tennessee Valley Authority.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	1,000	198	9	650	1,360	17	1,060	1,340	25	208	2,040
2	1,260	194	10	374	1,550	18	762	1,090	26	1,220	2,020
3	296	732	11	198	1,480	19	753	1,640	27	1,020	1,570
4	204	1,190	12	959	1,410	20	654	1,800	28	870	1,750
5	1,010	1,210	13	394	1,490	21	708	464	29	554	424
6	985	1,040	14	850	410	22	292	246	30	640	1,840
7	1,120	600	15	1,110	224	23	610	1,680	31	308	-----
8	1,040	227	16	1,010	1,380	24	696	1,680			
Monthly mean discharge, in second-feet.-----										736	1,143

SOUTH CHICKAMAUGA CREEK NEAR CHICKAMAUGA, TENN.

LOCATION.—Lat. 35°00'50", long. 85°12'27", a third of a mile upstream from bridge on U. S. Highway 11, 1½ miles south of Chickamauga, Hamilton County, 6 miles east of Chattanooga, and 12 miles upstream from mouth. Datum of gage is 651.12 feet above mean sea level, datum of 1929.

DRAINAGE AREA.—428 square miles.

GAGE-HEIGHT RECORD.—Water-stage recorder graph except Aug. 29 to Sept. 11, and Sept. 26-29. Gage heights for Aug. 29, 30, Sept. 11, 26-29 were estimated on basis of partial record.

DISCHARGE RECORD.—Stage-discharge relation defined by current-meter measurements up to 17,600 second-feet. Gage heights used to half-tenths between 2.2 and 3.4 feet; hundredths below and tenths above these limits. Discharge for period of no gage-height record, Aug. 31 to Sept. 10, computed on basis of records for station on Sequatchie River near Whitwell.

MAXIMA.—August 1940: Discharge, 1,190 second-feet 3 p.m. Aug. 30 (gage height, 4.02 feet).

1928 to July 1940: Discharge, 20,000 second-feet Feb. 5, 1936 (gage height, 18.47 feet).

REMARKS.—Flood runoff not affected by storage.

Mean discharge, in second-feet, 1940

Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.	Day	Aug.	Sept.
1	266	447	9	152	100	17	127	94	25	96	88
2	144	307	10	134	104	18	125	90	26	100	90
3	125	212	11	122	104	19	112	80	27	104	88
4	114	144	12	120	96	20	112	86	28	114	86
5	114	118	13	147	98	21	114	84	29	464	84
6	152	110	14	258	90	22	135	94	30	922	77
7	342	104	15	184	94	23	136	77	31	713	
8	316	100	16	142	84	24	108	88			
Monthly mean discharge, in second-feet.....										204	117
Runoff, in inches.....										0.55	0.31

MAXIMUM DISCHARGES AT STREAM-MEASUREMENT STATIONS FOR THE FLOODS OF AUGUST 1940

Water-Supply Paper 847 contains a summary of maximum flood discharges through September 1938 at all stream-measurement stations in the country; the summary of flood discharges in this report is prepared with a view to its use as a supplement to Water-Supply Paper 847. The index numbers used in tables 12, 13, and 14 and on plate 20 are the same index numbers used for the corresponding stream-measurement points in tables 1, 2, 3, 1-A, 2-A, and 3-A of Water-Supply Paper 847. Where additional points have been added, index numbers have been assigned using the same decimal system.

Tables 12, 13, and 14 summarize the flood discharges given elsewhere in this report. They also give discharges at miscellaneous points where the discharge was obtained by special methods, such as those noted under "Measurement of flood discharge" (pp. 61-62). The headings of the various columns are nearly self-explanatory. Period of record refers to the inclusive calendar years for which gaging-station records are available. The maximum flood previously known may include a flood outside the period of record, the general aim being to list the highest flood for which the discharge was known. When that flood was less than any during August 1940 and the stage is known for another flood greater than any during August 1940, the highest previous flood was listed giving the stage only. For the maximum during the present flood the discharge is the momentary peak discharge, unless otherwise noted, and the time is the time of its occurrence. The gage height is the gage height of the maximum discharge unless it is indicated as occurring at some other time.

The maximum discharge during the present flood was obtained as part of the record at a gaging station, unless otherwise indicated in the tables by letter symbol; it was usually obtained from a stage-discharge relation. The special methods, such as a slope-area measurement (*S*), contracted-opening measurement (*C*), computed flow through a tube (*T*), or over a dam (*D*), were used at gaging stations as well as at miscellaneous points. The use of such methods is considered to be more reliable when made in connection with a gaging-station record

than when made for some other point, owing to the additional information available at a gaging station. In any event, the method used is given as part of the gaging-station records on pages 81-448. The symbol *R*, used for stage-discharge relation, indicates that the peak discharge was obtained as a single isolated value, from a relation defined by previous measurements, by means of a gage height obtained from flood-marks. In connection with reservoir records the computed outflow (*O*) represents the maximum value of the combined discharge as computed for the various spillways, outlet gates, and valves, turbines, or other outlet works. The computed inflow (*I*) is the maximum value of the sum of computed outflow plus the rate of increase in contents expressed in second-feet.

The locations of all the stream-measurement points have been plotted on plate 20.

TABLE 12.—Summary of flood discharges in Potomac, Rappahannock, and York River Basins for the flood of August 1940

[Maximum discharges for flood of August 1940 were obtained from gaging-station records]

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
	POTOMAC RIVER BASIN										
883	North River near Burkettown, Va.-----	375	1926-40	Mar. 17, 1936	26.70	32,300	84.8	Aug. 16, 7 p.m.	10.14	5,370	14.3
885	South Fork Shenandoah River near Lynn- wood, Va.-----	1,076	1930-40	Mar. 18, 1936	26.57	77,000	71.5	Aug. 17, 2 a.m.	19.86	33,100	30.8
886	South Fork Shenandoah River near Luray, Va.-----	1,377	1925-30 1938-40	-----do-----	23.6	81,600	59.3	Aug. 17, 11 a.m.	17.87	41,100	29.8
887	South Fork Shenandoah River at Front Royal, Va.-----	1,638	1899-1906 1930-40	-----do-----	26.01	98,000	59.8	Aug. 17, 10:30 p.m.	15.86	40,400	24.7
888	Shenandoah River at Millville, W.Va.-----	3,040	1895-1909 1928-40	-----do ⁴ -----	26.4	150,000	49.4	Aug. 18, 11 a.m.	13.7	40,100	13.2
890	Middle River near Grottoes, Va.-----	360	1925-40	-----do-----	28.57	24,500	68.1	Aug. 16, 11 p.m.	19.81	12,500	34.7
892	South River at Waynesboro, Va.-----	144	1905-6 1928-40	Mar. 17, 1936	13.9	10,500	72.9	Aug. 16, 12:30 p.m.	13.9	10,500	72.9
893	South River at Harrison, Va.-----	222	1925-40	Mar. 18, 1936	13.07	12,600	56.7	Aug. 16, 6 p.m.	12.91	12,100	54.5
897	North Fork Shenandoah River at Cootes Store, Va.-----	215	1925-40	Mar. 17, 1936	23.25	40,500	188	Aug. 16	-----	1,000	-----
898	North Fork Shenandoah River near Stras- burg, Va.-----	772	1925-40	Mar. 18, 1936	30.21	89,000	115	Aug. 17, 8 p.m.	6.73	3,500	4.5
899.5	Cedar Creek near Winchester, Va.-----	101	1937-40	Mar. 17, 1936	25	18,000	178	Aug. 17, 1 p.m.	2.00	78	.8
900	Passage Creek at Buckton, Va.-----	87	1905-6 1932-40	-----do-----	14.29	12,300	141	Aug. 17, 4 a.m.	4.52	195	2.2
	RAPPAHANNOCK RIVER BASIN										
917	Rappahannock River at Kellys Ford, Va.---	641	1925-40	Apr. 26, 1937	29.22	69,800	109	Aug. 17, 9:30 a.m.	8.49	4,510	7.0
918	Rappahannock River near Fredericksburg, Va.	1,599	1907-40	-----do-----	25.14	134,000	83.8	Aug. 17, 11 p.m.	7.33	17,300	10.8
920	Rapidan River near Culpeper, Va.-----	465	1930-40	-----do-----	28.03	50,000	108	Aug. 17, 11 a.m.	15.36	10,400	22.4
	YORK RIVER BASIN										
922	North Anna River near Doswell, Va.-----	439	1929-40	-----do-----	33.58	18,300	41.7	Aug. 17, 6 p.m.	10.40	3,320	7.6
924	South Anna River near Ashland, Va.-----	393	1930-40	Apr. 28, 1937	22.77	13,700	34.9	Aug. 18, 12 m.	7.69	1,770	4.5

¹ Site and datum then in use.² Based on drainage area at site then in use.³ Revised; supersedes figure published in Water-Supply Paper 891.⁴ Flood of about same magnitude occurred in 1870.⁵ Previously unpublished revision; supersedes figures published in Water-Supply Paper 891.⁶ Daily mean discharge.⁷ About.

TABLE 13.—*Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940*

[Maximum discharges for the floods of August 1940 were obtained from gaging-station records, except as otherwise indicated by the following symbols: *C*, Contracted opening measurement; *D*, Computed flow over dam; *I*, Computed inflow to reservoir; *O*, Computed outflow from reservoir; *S*, Slope-area measurement; *T*, Computed flow through a submerged tube]

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
JAMES RIVER BASIN											
1	Jackson River at Falling Spring, Va.-----	409	1925-40	Mar. 17, 1936	14.74	¹ 24,700	60.4	Aug. 16, 4 a.m.	8.72	4,030	9.9
2	James River at Lick Run, Va.-----	1,369	1925-40	November 1877	¹ 33	²³ 20,000	87.7	Aug. 16, 10 a.m.	13.22	18,700	13.7
3	James River at Buchanan, Va.-----	2,084	1895-1940	do-----	34.9	²¹ 25,000	60.0	Aug. 15, 12 m.	16.00	37,600	18.0
5	James River at Holcombs Rock, Va.-----	3,250	1926-40	March 1913	31.3	²³ 18,000	36.3	Aug. 16, 3 p.m.	24.25	66,800	20.6
7	James River at Bent Creek, Va.-----	3,671	1925-40	Mar. 18, 1936	23.02	²¹ 15,000	31.3	Aug. 16, 4:30 p.m.	19.63	48,200	23.5
8	James River at Scottsville, Va.-----	4,571	1925-40	October 1870	30.7	² 20,000	50.3	Aug. 16, 12 p.m.	25.84	²¹ 30,000	28.4
9	James River at Cartersville, Va.-----	6,242	1899-1940	Mar. 19, 1936	28.77	²¹ 66,000	26.6	Aug. 17, 3 p.m.	28.34	145,000	23.2
10	James River near Richmond, Va.-----	6,757	1934-40	do-----	23.42	²¹ 75,000	25.9	Aug. 18, 8:30 a.m.	21.80	151,000	22.3
11	Dunlap Creek near Covington, Va.-----	166	1928-40	Mar. 17, 1936	10.52	8,370	50.4	Aug. 14, 7 p.m.	10.3	8,500	48.5
12	Potts Creek near Covington, Va.-----	158	1928-40	Jan. 23, 1935	10.10	9,710	61.5	Aug. 14, 11 p.m.	7.90	5,800	36.7
12.5	Cowpasture River at State Highway 629, 7 miles east of Warm Springs, Va.-----	254								7,700 ^S	30
13	Cowpasture River near Clifton Forge, Va.-----	456	1907-8 1925-40	March 1913	20.8	² 45,000	98.7	Aug. 16, 3 p.m.	8.21	46,120	13.4
14	Craig Creek at Parr, Va.-----	331	1925-40	Jan. 23, 1935	15.85	16,700	50.4	Aug. 15, 5 a.m.	15.02	15,200	45.9
15	Meadow Creek at Newcastle, Va.-----	13.8	1929-40	Oct. 2, 1929	53.64	242	17.5	Aug. 16, 8 a.m.	4.80	700	50.7
16	Johns Creek at Newcastle, Va.-----	106	1926-40	Jan. 23, 1935	10.80	8,000	75.5	Aug. 15, 1:30 a.m.	9.53	4,640	43.8
17.5	Calpasture River above Mill Creek at Goshen, Va.-----	147	1939-40	May 31, 1940	9.03	7,010	47.7	Aug. 16, 8 p.m.	8.00	5,370	36.5
19	North River at Rockbridge Baths, Va.-----	329	1928-40	Mar. 17, 1936	13.07	¹ 33,000	100	Aug. 16, 5 p.m.	8.45	49,200	28.0
20	North River near Lexington, Va.-----	487	1925-40	Mar. 18, 1936	23.58	¹ 40,000	82.1	Aug. 16, 9:30 a.m.	12.33	10,600	21.8
20.5	North River near Buena Vista, Va.-----	649	1939-40	Mar. 18, 19, 1936	22	⁽⁶⁾		Aug. 16, 10:30 a.m.	13.36	¹ 4,700	22.7
22	Kerrs Creek near Lexington, Va.-----	34	1927-40	Mar. 17, 1936	12.82	17,600	224	Aug. 14, 10 p.m. Aug. 31, 4 p.m.	7.40 10.07	41,200 3,660	35.3 108
23.5	Buffalo River near Norwood, Va.-----	360	1940	Apr. 9, 1940	4.77	2,900	8.1	Aug. 16, 12 m.	15.25	25,600	71.1
23.8	Tye River at State Highway 682, 4.2 miles north of Massies Mill, Va.-----	40								5,200 ^S	130
24.5	Tye River near Lovington, Va.-----	92	1938-40	Aug. 19, 1939	11.13	6,900	75.0	Aug. 16, 1:30 p.m.	11.94	7,700	83.7
24.8	Rockfish River at dam of Alberene Stone Corporation, at Schuyler, Va.-----	189						Aug. 15, 5 p.m.		14,000 ^D	74

25.5	Hardware River below Briery Run, near Scottsville, Va.	116	1938-40	Feb. 11, 1939	10.04	1,370	11.8	Aug. 16, 11 p.m.	13.73	74,250	36.6
26	Slate River near Arvonias, Va.	235	1926-40	Sept. 6, 1935	22.18	13,600	57.9	Aug. 16, 12 m.	13.62	5,880	25.0
29	Rivanna River at Palmyra, Va.	675	1934-40	Apr. 26, 1937	33.35	56,700	84.0	Aug. 17, 3:30 p.m.	21.78	16,300	24.1
30	Willis River at Flanagan Mills, Va.	247	1926-35	Apr. 27, 1937	23.86	79,580	38.8	Aug. 17, 12 m. to 2 p.m.	21.94	77,380	29.9
31	Appomattox River at Farmville, Va.	306	1926-40	Aug. 12, 1928	21.10	13,900	45.4	Aug. 15, 4 p.m.	23.60	21,000	68.6
32	Appomattox River at Mattoax, Va.	729	1900-1905	Apr. 28, 1937	29.97	20,100	27.6	Aug. 18, 8 a.m. to 12 m.	35.3	35,000	48.0
33	Appomattox River near Petersburg, Va.	1,335	1927-40	Apr. 30, 1937	14.85	18,800	14.1	Aug. 20, 10 am to 12m	18.15	28,000	21.0
CHOWAN RIVER BASIN											
34	Nottoway River near Stony Creek, Va.	586	1930-40	Apr. 28, 1937	20.00	11,500	19.6	Aug. 17, 9 a.m.	23.66	25,200	43.0
35	Meherrin River near Lawrenceville, Va.	553	1928-40	Apr. 27, 1937	30.92	17,300	31.3	Aug. 17, 2 a.m.	42.0	38,000	68.7
ROANOKE RIVER BASIN											
36	Roanoke River at Roanoke, Va.	388	1896-1940	Aug. 6, 1901	14.34	16,900	43.5	Aug. 14, 10:30 p.m.	18.25	28,000	72.2
37	Roanoke River at Niagara, Va.	511	1926-40	Aug. 16, 1928	17.36	93,400	67.3	Aug. 14, about 8-10 pm	17.5	35,000	68.5
38	Roanoke River near Toshes, Va.	1,020	1925-40	Oct. 19, 1937	20.45	109,500	28.9	Aug. 15, 1:30 a.m.	27.36	70,000	68.6
40	Roanoke River at Altavista, Va.	1,802	1930-40	Oct. 20, 1937	31.27	157,000	31.6	Aug. 15, 6 a.m.	40.08	105,000	58.3
41	Roanoke River at Brookneal, Va.	2,420	1923-40	Aug. 12, 1928	37.15	76,300	31.5	Aug. 15, 7 p.m.	46.0	130,000	53.7
43	Roanoke River near Clover, Va.	3,230	1929-40	Mar. 19, 1936	23.49	56,400	17.5	Aug. 16, 6 p.m.	37.15	160,000	49.5
44	Roanoke River at Clarksville, Va.	7,320	1934-40	Jan. 21, 1936	16.88	114,000	15.6	Aug. 17, 6 a.m.	26.66	280,000	38.3
46	Roanoke River at Roanoke Rapids, N.C.	8,410	1911-40	Mar. 18, 1912		158,000	18.8	Aug. 18, 10:30 a.m.	39.0	261,000	31.0
47	Roanoke River near Scotland Neck, N.C.	8,700	1940	1877	37.8	(6)		Aug. 19, 8 a.m.	141.98	260,000	29.9
47.5	Blackwater River at State Highway 122, near Rocky Mount, Va.	119						Aug. 14, about 8-9 pm		17,000S	140
48	Blackwater River near Union Hall, Va.	208	1925-40	Aug. 19, 1939	18.50	17,900	46.1	Aug. 14, 8:30 p.m.	19.52	19,700	94.7
48.2	Maggoty Creek at Boones Mill, Va.	14						Aug. 14, abt 10-11 a.m.		2,900S	210
48.5	Gills Creek at State Highway 655, near Union Hall, Va.	40								12,000S	300
48.8	Pigg River at Hopkins Mill dam, near Glade Hill, Va.	118						Aug. 14, abt 9-11 a.m.		7,600D	64
49	Pigg River near Toshes, Va.	394	1930-40	Oct. 20, 1937	22.23	15,400	39.1	Aug. 15, 8 a.m.	32.5	34,300	87.1
50	Snow Creek at Sago, Va.	60	1934-40	Jan. 19, 1936		151,700	28.3	Aug. 14, 5 p.m.	22.98	12,000	200
50.5	Goose Creek at Joppa Mill dam, near Bedford, Va.	102						Aug. 15, 4 p.m.		2,400D	24
51	Goose Creek near Huddleston, Va.	187	1930-40	Oct. 19, 1937	25.75	17,200	92.0	Aug. 14, 5 p.m.	21.90	12,700	67.9

¹ Revised; see Water-Supply Paper 952*² About.³ Revised; see Water-Supply Paper 972.⁴ Revised; supersedes figure published in Water-Supply Paper 892*⁵ Datum then in use.⁶ Discharge not determined.⁷ Revised; see Water-Supply Paper 1002.⁸ Maximum observed.⁹ Revised; see Water-Supply Paper 892.¹⁰ Revised; see Water-Supply Paper 1032.¹¹ Occurred at 2 p.m.¹² Daily mean discharge.¹³ Estimated.

TABLE 13.—Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
51.5	Otter River at U. S. Highway 460, near Bedford, Va.	116						Aug. 15, about 12 m. to 1 p.m.		9,700S	84
52	Otter River near Evington, Va.	325	1936-40	{Oct. 19, 1937 Aug. 19, 1939}	23.1	\$27,500	84.6	Aug. 14, 5 p.m.	22.42	\$24,400	75.1
53.5	Little Otter River at U. S. Highway 460, near Bedford, Va.	21						Aug. 15, about 12 m. to 1 p.m.		2,400S	110
54	Falling River near Naruna, Va.	172	1929-35	Dec. 1, 1934	14.78	4,500	*26.2		26.5	22,000S	130
55	Falling River near Brookneal, Va.	228	1935-40	Mar. 17 or 18, '36	28.00	\$20,400	89.5	Aug. 15, 3 a.m.	29.35	23,000	101
59	Dan River near Francisco, N.C.	124	1924-40	Oct. 19, 1937	12.45	12,400	100	Aug. 14, 10:30 a.m.	9.40	7,630	61.5
61.5	Dan River near Wentworth, N.C.	1,050	1939-40					Aug. 15, 10-12 a.m.	26.9	50,200	47.8
62	Dan River at Leaksville, N.C.	1,150	1929-40	Oct. 20, 1937	27.90	(⁶)		Aug. 15, 12-2 p.m.	1428.26	\$43,000	37.4
63	Dan River at Danville, Va.	2,050	1934-40	Oct. 21, 1937	18.34	54,100	26.4	Aug. 15, 6:30 p.m.	20.96	75,000	36.6
64	Dan River at South Boston, Va.	2,730	1900-1907 1923-40	Jan. 21, 1936	28.5	\$51,000	18.7	Aug. 16, 12 p.m.	31.8	81,000	29.7
65	Mayo River near Price, N. C.	260	1929-40	Oct. 19, 1937	14.00	30,000	115	Aug. 14, 5 p.m.	11.00	19,000	73.1
66	North Mayo River near Spencer, Va.	108	1928-40 ¹⁵	do.	14.33	14,300	132	Aug. 14, 3 p.m.	10.11	6,800	63.0
66.5	Smith River at Passett, Va.	253	1939-40	do.	\$22.9	38,200	151	Aug. 14, 5 p.m.	18.28	26,600	105
67	Smith River at Martinsville, Va.	374	1929-40	do.	21.50	39,000	104	Aug. 14, 9 p.m.	19.50	34,200	91.4
67.5	Smith River at Spray, N. C.	538	1939-40	Oct. 20, 1937		33,000	61.3	Aug. 15, 1 a.m.	19.28	45,600	84.8
68	Leatherwood Creek near Old Liberty, Va.	68	1925-34	Aug. 11, 1928	14.37	\$2,970	43.7			9,900S	150
69	Sandy River near Danville, Va.	113	1929-40	Sept. 7, 1934	11.60	\$7,140	63.2	Aug. 14, 9 p.m.	17.38	23,000	204
69.5	Banister River at State Highway 607, near Riceville, Va.	267								48,000S	180
70	Banister River at Halifax, Va.	552	1928-40	June 22, 1938	31.22	\$19,000	34.4	Aug. 16, 9 a.m.	37.8	\$34,000	61.6
72	Hycoc River near Omega, Va.	338	1934-40	Sept. 8, 1934	27.50	\$11,000	32.5	Aug. 17, 8:30 a.m.	25.65	\$9,280	27.5
PAMLICO RIVER BASIN											
72.5	Tar River near Tar River, N. C.	161	1939-40	May 25, 1940	11.9	\$5,550	34.5	Aug. 16, 10-10:30 a.m.	7.38	\$2,050	12.7
73	Tar River near Nashville, N. C.	701	1928-40	Dec. 3, 1934	20.8	16,900	24.1	Aug. 18, 8 a.m.	17.37	11,700	16.7
74	Tar River at Tarboro, N. C.	2,100	1896-1900 1931-40	July 27, 1919	34.2	\$52,800	25.1	Aug. 20, 6-8 p.m.	31.77	37,200	17.7
74.5	Tar River at Greenville, N. C.	2,680		July 28, 1919	24.5	(⁶)		Aug. 22, 6-8 a.m.	22.07	36,500	13.6
75	Fishing Creek near Enfield, N. C.	462	1918-23 ¹⁶ 1923-40	July 24, 1919 ¹⁷	19.6	20,300	43.9	Aug. 18, 1-4 a.m.	17.72	12,600	27.3

NEUSE RIVER BASIN											
76	Eno River at Hillsboro, N. C.-----	66.5	1927-40	Oct. 2, 1929	18.0	¹⁰⁶ 750	102	Aug. 14, 5 p.m.	10.90	1,690	25.3
77	Neuse River near Northside, N. C.-----	526	1927-40	Oct. 3, 1929	28.64	¹⁸²⁶ 600	50.6	Aug. 18, 3 a.m.	16.50	4,050	7.7
78	Neuse River near Clayton, N. C.-----	1,140	1927-40	do-----	21.62	¹⁰²² 000	19.3	Aug. 16	14.6	11,500	10.1
80	Neuse River near Goldsboro, N. C.-----	2,370	1930-40	Oct. 5, 1929	¹⁹²⁵ 5.3	38,600	16.3	Aug. 22, 4 a.m.	²⁰¹⁹ 18	11,400	4.8
81	Neuse River at Kinston, N. C.-----	2,690	1930-40	July 1919	25.0	²³⁹ 000	14.5	Aug. 25, 6 a.m.	16.14	10,900	4.1
82	Flat River at Bahama, N. C.-----	150	1925-40	July 26, 1938	-----	16,000	107	Aug. 14, 8:30 p.m.	6.97	4,000	26.7
83	Flat River at dam near Bahama, N. C.-----	²¹¹⁷¹	1927-40	July 26, 1938	19.50	18,600	109	Aug. 16, 3 a.m.	9.28	3,020	17.7
84	Dial Creek near Bahama, N. C.-----	4.9	1925-40	May 24, 1940	7.60	1,270	259	Aug. 14, 3:30 p.m.	3.22	130	26.5
85.5	Middle Creek near Clayton, N. C.-----	80.7	1939-40	Apr. 22, 1940	6.51	¹⁵⁷⁷	7.1	Aug. 18, 5:30 a.m.	5.07	360	4.5
87	Little River near Princeton, N. C.-----	229	1930-40	Dec. 2, 1934 ²²	12.68	4,030	17.6	Aug. 19, 9 a.m.	11.70	3,270	14.3
89	Contentnea Creek near Wilson, N. C.-----	236	1930-40	Sept. 1924	²²⁴ 3	⁽⁶⁾	-----	Aug. 17, 6:30 p.m.	13.80	4,830	20.5
90	Contentnea Creek at Hookerton, N. C.-----	789	1928-40	Oct. 6, 1929 ²³	18.9	11,100	14.1	Aug. 21, 8 p.m.	15.23	6,100	7.7
CAPE FEAR RIVER BASIN											
91	Haw River near Benaja, N. C.-----	168	1928-40	July 1916	²¹⁷ 5	⁽⁶⁾	-----	Aug. 15, 11 p.m. ¹	13.7	5,200	31.0
92	Haw River at Haw River, N. C.-----	599	1928-40	Feb. 28, 1929	23.96	17,000	28.4	Aug. 16, 5 a.m.	20.37	12,700	21.2
93	Haw River near Pittsboro, N. C.-----	1,310	1928-40	August 1908 ²⁴	²³² 1	98,000	74.8	Aug. 14, 11 p.m.	14.68	18,900	14.4
95	Cape Fear River at Lillington, N. C.-----	3,440	1923-40	Oct. 2, 1929	27.55	101,000	29.4	Aug. 17, 8 a.m.	13.87	29,600	8.6
96	Cape Fear River at Fayetteville, N. C.-----	4,370	1889-1917	Aug. 29, 1908	²⁶⁸ 0	²¹³³ 000	30.4	Aug. 17, 5 p.m.	32.25	28,500	6.5
96.5	Cape Fear River at lock 3, near Tarheel, N.C.	4,810	1928-40	July 28, 1938	24.0	⁽⁶⁾	-----	Aug. 18, 2 a.m.	16.49	⁽⁶⁾	-----
98	Reedy Fork near Gibsonville, N. C.-----	133	1928-40	Jan. 20, 1936 ²⁵	13.28	4,390	33.0	Aug. 15, 4 p.m.	12.70	4,130	31.1
99	Horsepen Creek at Battle Ground, N. C.-----	15.9	1925-31	Jan. 19, 1936	7.07	980	61.6	Aug. 14, 11:30 a.m.	6.64	820	51.6
100	Buffalo Creek near Greensboro, N. C.-----	32.8	1928-40	Feb. 28, 1929	8.74	2,680	81.7	Aug. 14, 10 p.m.	7.32	1,060	32.3
101	North Buffalo Creek near Greensboro, N. C.-----	36.4	1928-40	Jan. 19, 1936	11.38	1,750	48.1	Aug. 14, 1 p.m.	8.89	1,200	33.0
103	West Fork Deep River near High Point, N. C.-----	32.1	1923-26	do-----	13.84	2,880	89.7	Aug. 14, 8:30 a.m.	12.74	2,370	73.8
104	Deep River near Randleman, N. C.-----	²¹²⁴	1928-40	Feb. 28, 1929	23.9	8,470	68.3	Aug. 15, 3 a.m.	19.88	5,590	45.1
105	Deep River at Ramseur, N. C.-----	346	1922-40	August 1901	28.75	30,000	86.7	Aug. 14, 5 p.m.	14.53	9,050	26.2
107	Deep River at Moncure, N. C.-----	1,410	1898-99	Apr. 7, 1936	10.47	27,000	19.1	Aug. 16, 11 p.m.	6.64	11,500	8.2
108	East Fork Deep River near High Point, N.C.	14.2	1928-40	Jan. 19, 1936	²⁶⁵ 1	2,170	153	Aug. 14, 7:45 a.m.	5.84	2,520	177
				Aug. 24, 1939							

¹ Revised; see Water-Supply Paper 952.² About.³ Revised; see Water-Supply Paper 972.⁴ Revised; supersedes figure published in Water-Supply Paper 892.⁵ Discharge not determined.⁶ Revised; see Water-Supply Paper 892.⁷ Revised; see Water-Supply Paper 1032.⁸ Daily mean discharge.⁹ Occurred at 6:30 a.m.¹⁰ Incomplete record.¹¹ In North Carolina Department of Conservation and Development Bulletin 39.¹² Greater flood occurred Apr. 19, 1910; gage height 21.0 feet.¹³ Possibly in error.¹⁴ Former site and datum.¹⁵ Occurred at 11 a.m.¹⁶ Affected by storage.¹⁷ Greater flood occurred September 1924; gage height 14.90 feet.¹⁸ Greater flood occurred September 1928; gage height 23.3 feet.¹⁹ Flood of 1865 believed to have been 1 foot higher.²⁰ Greater flood occurred July 1916; discharge, 8,640 second-feet.²¹ A stage of 7.5 feet occurred June 8, 1934, due to backwater.

TABLE 13.—Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
109	Muddy Creek near Archdale, N. C.-----	16.2	1934-40	June 28, 1938	10.46	2,180	135	Aug. 14, 12 m.	8.00	1,240	76.5
109.2	Bear Creek at Robbins, N. C.-----	134	1940					Aug. 14, 6 p.m.	10.08	3,420	25.5
109.5	Lower Little River at Manchester, N. C.-----	348	1938-40	Mar. 3, 1939	12.77	2,960	8.5	Aug. 16, 1 p.m.	2.49	289	.8
110	Lower Little River at Linden, N. C.-----	460	1928-40	Sept. 21, 1928	²³ 37.3	¹³ 13,000	28.3	Aug. 16, 2 a.m.	3.66	383	.8
			{1902-3								
111	Rockfish Creek near Hope Mills (Fayetteville, Brunt), N. C.-----	284	{1928-31	Oct. 3, 1929		¹⁵ 5,200	²⁸ 17.8	Aug. 16, 12:30 p.m.	7.20	791	2.8
			{1939-40								
111.1	Northeast Cape Fear River near Chinquapin, N. C.-----	600	1940					Aug. 23, 4 a.m. ²	8.3	1,700	2.8
WACCAMAW RIVER BASIN											
111.3	Waccamaw River at Freeland, N. C.-----	²¹ 667	1939-40	Feb. 23, 24, 1940	13.15	1,910	2.9	{Aug. 21, 6:15 p.m. Aug. 22, 6:25 a.m.	6.58	398	.6
111.5	Middle Swamp near Elkton, N. C.-----	3.7	1940					Aug. 17, 7 p.m.	3.29	56	15.1
111.7	Beaverdam Swamp at Lebanon, N. C.-----	21.3	do	June 3, 1940	4.09	102	4.8	Aug. 19, 8 a.m.	2.89	18	.8
PEE DEE RIVER BASIN											
111.9	Yadkin River at Patterson, N. C.-----	28.8	1939-40					Aug. 13, 8 p.m.	12.70	16,200	562
112	Yadkin River at Wilkesboro, N. C.-----	493	{1903-9 1920-40	July 1916	34.5	116,000	235	Aug. 14, 3:30 a.m. ²	37.6	160,000	325
115	Yadkin River at Yadkin College, N. C.-----	2,280	1928-40	do	35.0	(⁶)		Aug. 15, 10:30 p.m.	33.75	80,200	35.2
117	Yadkin River at High Rock Reservoir, at High Rock, N. C.-----	²¹³ 980	{1919-27, 1927-40 ²⁹	July 1916	612.1	¹⁸ 184,000	46.2	Aug. 16, 7 a.m.		³⁰ 86,9650	21.9
117.5	Yadkin River at Narrows Reservoir, near Badin, N. C.-----	²¹⁴ 160	1917-40 ²⁹	Oct. 3, 1929		113,200	27.2	Aug. 16		¹² 3082,4830	
118	Pee Dee River at Tillery Reservoir, near Norwood, N. C.-----	²¹⁴ 600	{1896-99, ¹⁵ 1940	Mar. 20, 1899 ²		(⁶)		Aug. 16		¹² 5183,8000	
118.5	Pee Dee River near Ansonville, N. C.-----	²¹⁶ 330	1938-40	1908	41.3	(⁶)		Aug. 16, 11 p.m.	³² 28.27	78,700	12.4
118.8	Pee Dee River at Blewett Reservoir, near Rockingham, N. C.-----	²¹⁶ 830	1940					Aug. 17		¹² 3182,8000	
120	Pee Dee River near Rockingham, N. C.-----	²¹⁶ 870	1927-40	Sept. 19, 1928 ³³	25.38	212,000	30.9	Aug. 17, 7:30-8 a.m.	13.46	84,000	12.2
120.1	Pee Dee River near Mars Bluff, S. C.-----	²¹⁸ 870	{1939-40 1923-40 ³⁴	Mar. 6, 1939 ³⁵	25.61	66,700	7.5	Aug. 22, 8 a.m.	22.35	35,300	4.0
120.2	Buffalo Creek at Patterson School Dam, near Patterson, N. C.-----	31.6						Aug. 13		17,000D	540

SUMMARY OF FLOOD DISCHARGES

457

120.3	Elk Creek at Elkville, N. C.	50	---	---	---	do	---	3,970,000	1,400
120.4	Sony Fork near mouth, near Hendrix, N. C.	27.1	---	---	---	do	---	57,000S	1,400
120.5	Lewis Fork above Cole Creek, near Furler, N. C.	27.3	---	---	---	do	---	7,400C	270
120.6	West Fork Lewis Fork near Champion, N. C.	25.8	---	---	---	Aug. 13 or 14	---	27,000S	1,000
120.7	Reddies River at North Wilkesboro, N. C.	93.9	1939-40	---	---	Aug. 14, 2:45 a.m.	22.02	27,000	288
120.8	Mulberry River below Hay Meadow Creek, near Mulberry, N. C.	39.3	---	---	---	Aug. 14	---	16,000C	410
120.9	Roaring River at G. on cotton mill, near Roaring River, N. C.	136	---	---	---	do	---	17,000D	125
122	Fisher River near Copeland, N. C.	121	1931-40	Oct. 19, 1937	13.59	10,500	86.8	27,300	236
123.05	Ararat River at Duke Power Co. plant No. 3, near Pilot Mountain, N. C.	290	---	---	---	Aug. 14	18.4	24,000D	83
123.1	Little Yadkin River near Donnah, N. C.	59.7	1940	---	---	Aug. 14, 11 a.m.	27.11	3,470	58.1
123.2	Forbush Creek near Yadkinville, N. C.	21.7	do	---	---	Aug. 14, 6:15 a.m.	7.84	819	37.7
123.3	Reedy Creek near Yadkin College, N. C.	13.3	do	---	---	Aug. 14, 10:30 a.m.	5.46	738	55.5
123.4	Dutchman Creek near Cornsater, N. C.	83.6	do	---	---	Aug. 15, 3 a.m.	28.10	3,300	39.5
123.5	South Yadkin River near Mocksville, N. C.	313	1938-40	October 1929	22.6	(6)	12.34	4,600	14.7
124	South Yadkin River at Coolemees, N. C.	569	1928-40	Oct. 3, 1929	32.25	24,800	43.6	8,230	14.5
124.2	Rocky River at Robertson's mill, near Jennings, N. C.	44.9	---	---	---	Aug. 14, 10 a.m. ²	20.62	3,000D	67
124.5	Rocky River at Turnersburg, N. C.	85.5	1940	---	---	Aug. 14, 11 p.m.	8.05	2,840	33.2
124.8	Hunting Creek near Spurgeon, N. C.	14.6	---	---	---	Aug. 14	---	12,000S	820
125.2	Third Creek at Cleveland, N. C.	87.4	1940	---	---	Aug. 14, 9:30 p.m.	8.91	1,380	15.8
125.5	Abbotts Creek at Lexington, N. C.	174	do	---	---	Aug. 15, 4 a.m.	16.92	6,820	39.2
125.8	Fourmile Branch near Southmont, N. C.	19.4	do	---	---	Aug. 14, 8 a.m.	6.95	1,800	92.8
126	Uwharrie River near Trinity, N. C.	11.3	1934-40	Oct. 8, 1936	5.7	1,540	136	2,140	189
126.5	Uwharrie River near Eldorado, N. C.	347	1938-40	Aug. 18, 1939 ²	13.70	9,400	27.1	8,75	13.9
127	Rocky River near Norwood, N. C.	1,370	1929-40	August 1908	35	467,600	49.3	8,500	6.2
127.3	Richardson Creek near Marshville, N. C.	170	1940	July 18, 1940	---	12,500	---	129	8
127.5	Brown Creek near Polkton, N. C.	110	1937-40	August 1908	16.4	12,500	114	535	4.9
128	Little Brown Creek near Polkton, N. C.	13.5	1935-40	July 21, 1939	7.04	2,200	163	668	49.5
128.5	Mountain Creek near Ellerbe, N. C.	33.4	1940	Apr. 13, 1940	3.13	196	5.9	2.94	5.2
129	North Fork Jones Creek near Wadesboro, N. C.	10.0	1935-40	June 4, 1937 July 20, 1939	6.39 6.38	2,410	241	2.48	21.9

² Unpublished records of Aluminum Company of America.³ Records furnished by Aluminum Company of America.⁴ Base data furnished by Carolina Power & Light Co.⁵ Occurred at 1 a.m., Aug. 17.⁶ Greater flood occurred in 1908; discharge 276,000 second-feet.⁷ U. S. Weather Bureau record.⁸ Greater flood occurred Sept. 23, 1928; discharge not determined.⁹ Based on several contracted opening and slope-area measurements.¹⁰ Occurred at 8:30 p.m.; due to backwater.¹¹ Occurred at 4 a.m.¹² Greater flood occurred August 1928; gage height 22.2 feet.¹ About.² Revised; supersedes figure published in Water-Supply Paper 892.³ Discharge not determined.⁴ Daily mean discharge.⁵ Estimated.⁶ Incomplete record.⁷ Possibly in error.⁸ Affected by storage.⁹ Backwater present.¹⁰ Based on drainage area at site then in use.

TABLE 13.—Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood												
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge										
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile									
129.5	Juniper Creek near Cheraw, S. C.-----	64	1940	{	Aug. 30, 1908	20.0	18,000	{	Aug. 16, 4-7 a.m.	1.06	256	4.0								
130	Lynches River at Effingham, S. C.-----	1,030	1891-1940 ³⁴																	
130.3	Little Pee Dee River near Dillon, S. C.-----	524	1929-40	{	July 24, 1939	10.18	2,910	{	Aug. 19, 6 p.m.	7.94	797	1.5								
130.7	Drowning Creek near Hoffman, N. C.-----	178	do.										Feb. 22, 1940	5.28	435	2.4	Aug. 18, 9 a.m.	5.07	354	2.0
131	Lumber River at Boardman, N. C.-----	1,220	1929-40																		August 1928	11.8	125,000	20.5	Aug. 20, 12 m.	4.00	763	.6
131.3	Deep Creek near Roseland, N. C.-----	18.9	1940	{	Sept. 21, 1928	18.0	1041,600	{	Aug. 15, 11 p.m.	2.79	47	2.5								
131.7	Little Raft Swamp at Red Springs, N. C.-----	23.1	do.										Aug. 13, 2 a.m.	2.14	32	1.4				
132	Black River at Kingstree, S. C.-----	101,260	1929-40 1893-1940 ³⁴														Aug. 25, 11 p.m.	4.03	376	.3
SANTEE RIVER BASIN																				
133.5	Catawba River at U. S. Highway 221, near Marion, N. C.	170	-----	-----	-----	-----	-----	-----	Aug. 13	-----	71,000 ^C	418								
133.8	Catawba River at Bridgewater Reservoir, near Bridgewater, N. C. ⁴⁰	380	-----	-----	-----	-----	-----	-----	{Aug. 13, 8-9 p.m.	-----	41141,760 ^I	373								
134.9	Catawba River at Rhodhiss Reservoir, at Rhodhiss, N. C. ⁴⁰	1,088	-----	-----	-----	-----	-----	-----	{Aug. 14, 2-3 a.m.	-----	43,700 ^O	-----								
135.3	Catawba River at Oxford Reservoir, near Taylorsville, N. C. ⁴⁰	1,310	-----	-----	-----	-----	-----	-----	{Aug. 13, 11-12 p.m.	-----	41167,740 ^I	154								
135.7	Catawba River at Lookout Shoals Reservoir, near Catawba, N. C. ⁴⁰	1,449	1915-40 ⁴²	July 16, 1916	-----	45180,000	124	-----	{Aug. 14, 4 a.m.	-----	104,000 ^O	-----								
136	Catawba River at Catawba, N. C.-----	121,535	1896-1902 1934-40	do.	44.1	(⁶)	-----	-----	{Aug. 14, 3-4 a.m.	-----	41183,620 ^I	140								
136.5	Catawba River at Mountain Island Reservoir, near Mountain Holly, N. C. ⁴⁰	1,860	-----	-----	-----	-----	-----	-----	{Aug. 14, 5 a.m.	-----	158,060 ^O	-----								
137	Catawba River at Catawba Reservoir, near Rock Hill, S. C. ⁴⁰	3,020	-----	-----	-----	-----	-----	-----	{Aug. 14, 5-6 a.m.	-----	41191,230 ^I	132								
138.2	Catawba River at Fishing Creek Reservoir, near Great Falls, S. C. ⁴⁰	3,810	-----	-----	-----	-----	-----	-----	{Aug. 14, 6 a.m.	-----	177,400 ^O	-----								
138.5	Catawba River at Rocky Creek Reservoir, near Great Falls, S. C. ⁴⁰	4,360	1909-40 ⁴²	July 1916	-----	382,000	87.6	-----	{Aug. 14, 11:30 a.m.	36.8	177,000	115								
138.8	Wateree River at Wateree Reservoir, near Camden, S. C. ⁴⁰	4,750	-----	-----	-----	-----	-----	-----	{Aug. 15, 12-1 a.m.	-----	41124,230 ^I	66.8								
			-----	-----	-----	-----	-----	-----	{Aug. 15, 6 a.m.	-----	117,200 ^O	-----								
			-----	-----	-----	-----	-----	-----	{Aug. 15, 8-9 a.m.	-----	41169,160 ^I	56.0								
			-----	-----	-----	-----	-----	-----	{Aug. 15, 2 p.m.	-----	138,640 ^O	-----								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 4-5 a.m.	-----	41110,180 ^I	28.9								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 7 a.m.	-----	115,490 ^O	-----								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 8-10 a.m.	-----	41114,940 ^I	26.4								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 7 a.m.	-----	115,310 ^O	-----								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 7-8 a.m.	-----	41132,200 ^I	27.8								
			-----	-----	-----	-----	-----	-----	{Aug. 16, 3 p.m.	-----	85,040 ^O	-----								

139	Wateree River near Camden, S. C.-----	¹ 25,070	{ 1903-10 1929-40 1891-1940 ⁸⁴	July 18, 1916	¹⁹ 40.4	-----	-----	Aug. 16, 11 p.m.	30.50	89,000	17.6
140	Santee River at Ferguson, S. C.-----	⁷ 214,600	{ 1907-40	July 22, 1916	24.5	⁸³ 68,000	25.2	Aug. 21, 10 a.m.	14.07	56,000	3.8
141	Mill Creek at Old Fort, N. C.-----	20.7	{ 1907. 1930-31	Apr. 4, 1931	3.08	248	12.0	Aug. 13	10.1	7,900S	380
141.2	Buck Creek at Lake Tahoma, near Marion, N. C.	22.7	-----	-----	-----	-----	-----	Aug. 13, 7 p.m.	-----	6,200D	270
141.5	North Fork Catawba River at Linville Caverns, near Asheford, N. C.	5.2	-----	-----	-----	-----	-----	Aug. 13	-----	⁴² 15,000	2,900
141.8	North Fork Catawba River above Sevier, near Woodlawn, N. C.	41.8	-----	-----	-----	-----	-----	do.	-----	55,000S	1,300
142	Linville River at Branch, N. C.-----	65	1922-40	July 1916	²¹ 11.0	34,600	532	Aug. 13, 5 p.m.	11.4	39,500	608
144.1	Bailey Fork at mouth, near Morganton, N. C.	8.0	-----	-----	-----	-----	-----	Aug. 13	-----	9,700S	1,200
144.3	Upper Creek above Steels Creek, near Table-rock, N. C.	20.2	-----	-----	-----	-----	-----	do.	-----	25,000C	1,200
144.5	Warrior Fork below Worry, near Morgan-ton, N. C.	80.5	-----	-----	-----	-----	-----	Aug. 13, 11:30 p.m.	-----	38,000S	470
144.7	Steels Creek near Tablerock, N. C.	16.0	-----	-----	-----	-----	-----	Aug. 13, 5 p.m.	-----	24,000S	1,500
144.9	Hunting Creek at Southern Railway cross-ing, near Morganton, N. C.	21.7	-----	-----	-----	-----	-----	Aug. 13	-----	14,000T	650
145	Johns River at Collettsville, N. C.	69.1	-----	-----	-----	-----	-----	Aug. 13, 8 p.m.	-----	31,000S	450
146.5	Little Mulberry Creek near Collettsville, N. C.	27.3	-----	-----	-----	-----	-----	Aug. 13	-----	14,000S	510
147	Wilson Creek near Adako, N. C.	66.0	1921-22	July 1916	27.0	⁴⁵ 52,500	795	Aug. 13, 6 p.m.	36.5	99,000S	1,500
147.2	Lower Creek at Lenoir, N. C.	47.6	-----	-----	-----	-----	-----	Aug. 13	-----	20,000T	420
147.5	Gunpowder Creek at Duke Power Co. Gun-powder Plant 2, near Granite Falls, N. C.	34.9	-----	-----	-----	-----	-----	Aug. 13, 11 p.m.	-----	13,000D	370
147.8	Lower Little River at Liledown Mills, near Taylorsville, N. C.	69.9	-----	-----	-----	-----	-----	Aug. 14, 4 a.m.	-----	23,000D	330
148	Henry Fork near Henry River, N. C.	80.0	1925-31	July 1916	-----	20,700	259	Aug. 13, 11 p.m.	29.2	31,000D	390
148.3	South Fork Catawba River at High Shoals, N. C.	506	-----	do.	-----	31,900	63.0	Aug. 15, 2:30 a.m.	-----	22,000D	43
148.7	Indian Creek near Laboratory, N. C.	69.3	-----	October 1929	-----	9,920	143	August	-----	6,000D	87
151	Little Sugar Creek near Charlotte, N. C.	41.4	1924-40	Apr. 6, 1936	16.2	8,370	202	Aug. 14, 4 a.m.	8.75	42,280	53.9
152	Broad River near Chimney Rock, N. C.	97	{ 1907-9 1927-40	Aug. 15, 1928	16.8	⁹² 26,000	268	Aug. 13, 2 p.m.	12.20	17,300	178
153	Broad River near Boiling Springs, N. C.	864	1925-40	Aug. 16, 1928	24.3	⁹⁷ 3,300	84.8	Aug. 14, 12:30-1 p.m.	22.10	60,400	69.9
154	Broad River near Gaffney, S. C.	⁸¹ 1,490	{ 1896-99 1938-40	Mar. 19, 1899	⁴⁷ 12.20	⁸² 5,400	17.0	Aug. 14, 7:30 p.m.	19.78	119,000	79.9

¹ Revised; see Water-Supply Paper 952.² About.³ Revised; see Water-Supply Paper 972.⁴ Revised; supersedes figure published in Water-Supply Paper 892.⁶ Discharge not determined.⁷ Revised; see Water-Supply Paper 1002.⁸ Maximum observed.⁹ Revised; see Water-Supply Paper 892.¹⁰ Revised; see Water-Supply Paper 1032.¹³ Estimated.¹⁹ Former site and datum.²¹ Affected by storage.³⁴ U. S. Weather Bureau record.⁴⁰ Records furnished by Duke Power Co.⁴¹ Hourly mean discharge.⁴² Unpublished records of Duke Power Co.⁴³ Just prior to failure of earth dike.⁴⁴ Just after failure of earth dike at Lookout Shoals Dam.⁴⁵ Based on slope-area measurement and flow over two falls.⁴⁶ Revised; supersedes figure published in North Carolina Department of Conserva-tion and Development Bulletins 34 and 39.⁴⁷ Site and datum then in use.

TABLE 13.—Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
154.5	Broad River near Carlisle, S. C.-----	⁹² 790	1938-40	Mar. 1, 1939	16.27	34,900	12.5	Aug. 15, 4:30 p.m.	29.41	103,000	36.9
156	Broad River at Richtex, S. C.-----	³⁴ 850	1925-40	Oct. 3, 1929	30.7	228,000	47.0	Aug. 16, 8 a.m.	21.08	120,000	24.7
157.5	Green River near Mill Spring, N. C.-----	²¹ 174	1939-40	July 1916	24.2	(⁶)	-----	Aug. 13, 8:30 p.m.	22.15	10,800	62.1
158	Second Broad River at Cliffside, N. C.-----	⁹² 11	1925-40	Aug. 16, 1928	17.26	⁹¹ 4,500	68.7	Aug. 14, 1 p.m.	17.93	15,000	71.1
159.2	First Broad River near Gambles Store, N. C.-----	25.1	-----	July 1916	(⁴⁸)	-----	-----	Aug. 13, 9:30 p.m.	(⁴⁸)	14,000 ^S	560
159.5	First Broad River near Lawndale, N. C.-----	¹ 198	1940	-----	-----	-----	-----	Aug. 14, 6 a.m.	37.8	32,500	164
159.8	Buffalo Creek at Stubbs, N. C.-----	53.8	-----	-----	-----	-----	-----	Aug. 14, 4 a.m.	-----	8,800 ^D	160
161	North Pacolet River at Fingerville, S. C.-----	116	1929-40	Oct. 17, 1936	21.23	7,290	62.8	Aug. 14, 1:15 a.m.	27.13	12,500	108
162	Pacolet River near Fingerville, S. C.-----	²¹ 212	do-----	do-----	13.63	11,300	53.3	Aug. 14, 1:45 a.m.	22.43	22,800	108
162.5	Pacolet River near Clifton, S. C.-----	²¹ 320	1940	-----	-----	-----	-----	Aug. 14, 12 m.	21.19	26,800	83.8
164	North Tyger River near Moore, S. C.-----	162	1934-40	Apr. 7, 1936	6.15	8,640	53.3	Aug. 14, 3:45 p.m.	7.15	12,300	75.9
165	Tyger River near Woodruff, S. C.-----	351	1929-40	Sept. 1929 ⁴⁹	14.65	19,600	55.8	Aug. 14, 4 p.m.	13.27	19,200	54.7
165.5	Middle Tyger River at Lyman, S. C.-----	68.3	1938-40	Aug. 18, 1939	9.28	2,730	40.0	Aug. 14, 12:30 a.m.	16.16	4,800	70.3
166	South Tyger River near Reidville, S. C.-----	106	1934-40	Apr. 6, 1936	13.66	6,080	57.4	Aug. 13, 8:30 p.m.	12.68	5,510	52.0
167	South Tyger River near Woodruff, S. C.-----	174	do-----	do-----	9.78	9,510	54.7	Aug. 14, 1:45 p.m.	8.18	6,960	40.0
167.5	Fair Forest Creek near Union, S. C.-----	183	1940	-----	-----	-----	-----	Aug. 14, 9:15 a.m.	7.15	7,520	41.1
168	Enoree River near Enoree, S. C.-----	307	1929-40	Oct. 2, 1929	10.5	30,000	97.7	Aug. 14, 12 m.	6.86	12,800	41.7
170	Saluda River near Pelzer, S. C.-----	405	do-----	Apr. 7, 1936	10.26	13,300	32.8	Aug. 14, 6 a.m.	8.31	9,920	24.5
170.5	Saluda River near Ware Shoals, S. C.-----	569	1939-40	Aug. 18, 1939	14.29	10,500	18.5	Aug. 13, 2:30 p.m.	20.48	20,600	36.2
172	Saluda River at Chappells, S. C.-----	³ 501,350	1927-40 1905-40 ⁸⁴	Oct. 2, 1929 ⁵¹	31.5	63,700	47.2	Aug. 14, 6 p.m.	28.66	49,700	36.8
173	Saluda River near Silverstreet, S. C.-----	³ 501,620	1927-40	Oct. 3, 1929	33.97	83,800	51.7	Aug. 15, 2:30 a.m.	30.29	58,300	36.0
175	Saluda River near Columbia, S. C.-----	³ 592,510	1925-40	Oct. 2, 1929	15.22	67,000	26.7	Aug. 28, 1:15 p.m.	5.95	9,950	4.0
176	Reedy River near Ware Shoals (Prince- ton), S. C.-----	³⁸ 228	1929-31 1939-40	August 1908	¹⁹ 34.6	228,000	²⁸ 135	Aug. 14, 5 a.m.	13.32	7,750	34.0
EDISTO RIVER BASIN											
176.5	South Fork Edisto River near Montmorenci, S. C.-----	¹⁰ 198	1940	-----	-----	-----	-----	Aug. 15, 8 a.m.	8.81	2,460	12.4
177	South Fork Edisto River near Denmark, S.C.-----	720	1931-40	Apr. 11, 1936	10.91	13,500	18.8	Aug. 19, 4:45 a.m.	7.92	2,060	2.9
177.3	Edisto River near Givhans, S. C.-----	¹⁶⁰ 2,730	1939-40	Mar. 6, 1939	14.68	16,900	6.2	Aug. 15, 12:15 a.m.	13.03	12,600	4.6
177.7	North Fork Edisto River at Orangeburg, S. C.-----	¹⁶ 683	1938-40	Mar. 3, 1939	9.98	3,910	5.7	Aug. 19, 10 a.m.	8.59	2,340	3.4

SAVANNAH RIVER BASIN											
179	Chattooga River near Clayton, Ga.....	203	1907-8	Aug. 15, 1928	-----	20,700	102	{Aug. 13, 2 p.m.	9.94	15,700	77.3
			1939-40					{Aug. 30, 6 a.m.	13.78	29,000	143
183	Tugaloo River near Hartwell, Ga.....	⁵⁴ 905	1925-27	Jan. 18, 1926	⁵⁷ 7.76	15,400	17.0	{Aug. 14, 1 p.m.	10.42	26,200	29.0
			1940					{Aug. 31, 4 a.m.	10.76	28,600	31.6
184	Savannah River near Calhoun Falls, S. C....	2,876	1896-1903	Oct. 17, 1932 ⁵¹	⁵⁴ 11.6	97,600	33.9	{Aug. 13, 7 p.m.	11.52	96,500	33.6
			1930-32					{Aug. 31, 1:30 p.m.	8.09	51,800	18.0
			1938-40								
			1899-1940 ⁵⁴								
186	Savannah River at Augusta, Ga.....	7,508	1884-91	Oct. 3, 1929	⁴⁷ ⁵⁵ 45.1	350,000	²⁸ 47.9	{Aug. 15, 6:30 a.m.	29.40	239,000	31.8
			1898-1906					{Sept. 1, 9 p.m.	23.03	59,800	8.0
			1927-32								
			1938-40								
			1875-1940 ⁵⁴								
186.3	Savannah River at Burtons Ferry Bridge, near Millhaven, Ga. ⁵⁶	8,650	1939-40	-----	-----	-----	-----	Aug. 18, 9 to 11 a.m.	27.0	141,000	16.3
186.7	Savannah River near Clio, Ga.....	9,850	{1921-37 ⁵⁷	Oct. 6, 1929	29.7	(⁶)	-----	Aug. 21, 6 a.m. to	23.6	128,000	13.0
			{1937-40 ⁵⁸					Aug. 22, 5 a.m.			
192.5	Keowee River near Newry, S. C.....	455	1940	-----	-----	-----	-----	Aug. 13, 10 p.m.	⁵⁸ 24.60	25,200	55.4
								Aug. 30, 12 m.	¹¹ 23.66	23,800	52.3
194	Seneca River near Anderson, S. C.....	1,026	1931-40	Aug. 17, 18,	⁵ ⁵⁹ 25.0	¹³ 77,000	75.0	Aug. 14, 12:45 p.m.	18.30	45,600	44.4
				1928				Aug. 31, 4:30 a.m.	14.82	29,600	28.8
196	Broad River near Bell, Ga.....	1,420	{1926-32	Oct. 2, 1929	34.8	(⁶⁰)	-----	Aug. 14, 4 a.m.	25.10	28,400	20.0
			{1937-40								
			1940								
196.5	Little River near Mount Carmel, S. C.....	217	-----	-----	-----	-----	-----	Aug. 14, 4 a.m.	29.60	20,800	95.9
196.7	Stevens Creek near Modoc, S. C.....	¹⁰ 545	do	-----	-----	-----	-----	Aug. 14, 6:30 a.m.	⁶¹ 41.08	35,100	64.4
197	Brier Creek at Millhaven, Ga.....	656	1937-40	Mar. 3, 5, 1939	12.2	5,900	9.0	Aug. 16, 7 to 9 p.m.	17.4	25,400	38.7
OGEECHEE RIVER BASIN											
198	Ogeechee River near Louisville, Ga.....	800	1937-40	October 1929 ⁶²	21.3	(⁶)	-----	Aug. 16, 4 a.m.	17.6	20,600	25.8
200	Ogeechee River at Scarboro, Ga.....	1,940	-----do-----	Mar. 5, 1939	12.12	20,600	10.6	Aug. 17, 12 p.m.	12.8	24,600	12.7

¹ Revised; see Water-Supply Paper 952.² About.³ Revised; see Water-Supply Paper 972.⁴ Datum then in use.⁶ Discharge not determined.⁸ Maximum observed.⁹ Revised; see Water-Supply Paper 892.¹⁰ Revised; see Water-Supply Paper 1032.¹¹ Occurred at 2 p.m.¹² Estimated.¹³ Former site and datum.²¹ Affected by storage.²⁸ Based on drainage area at site then in use.⁵⁴ U. S. Weather Bureau record.⁴⁷ Site and datum then in use.⁴⁸ Flood of August 1940 reached a stage 3 feet higher than flood of July 1916.⁴⁹ Greater flood occurred August 1928; discharge not determined.⁵⁰ 1,150 square miles affected by storage since May 1940.⁵¹ Greater flood occurred August 1908; discharge not determined.⁵² 2,420 square miles affected by storage since August 1929.⁵³ Revised; see Water-Supply Paper 922.⁵⁴ 150 square miles affected by storage.⁵⁵ A stage of 46.3 feet occurred Sept. 27, 1929.⁵⁶ Base data furnished by Corps of Engineers, War Department.⁵⁷ U. S. Weather Bureau record; 1921-32 unpublished.⁵⁸ Occurred at 12 p.m.⁵⁹ Records of Corps of Engineers, War Department.⁶⁰ Discharge uncertain.⁶¹ Occurred at 9:30 a.m.⁶² Data furnished by Central of Georgia Railway.

TABLE 13.—Summary of flood discharges in south Atlantic slope and eastern Gulf of Mexico basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
201	Ogeechee River near Eden, Ga.-----	2,650	1937-40	Mar. 8, 9, 1939 ⁶³	14.2	23,700	8.9	Aug. 23, 11 a.m. to 5 p.m.	13.78	20,200	7.6
203	Canoochee River near Claxton, Ga.-----	555	---do---	Feb. 28, Mar. 1, 1939	13.8	7,980	14.4	Aug. 16, 10 p.m. to Aug. 17, 4 a.m.	12.9	5,910	10.6
ALTAMAHA RIVER BASIN											
220	Oconee River near Greensboro, Ga.-----	1,090	1903-23 1924-31 ⁵⁹ 1937-40	Aug. 26, 1908	35.4	(⁶⁰)	-----	Aug. 14, 4 a.m.	19.0	12,200	11.2
222	Oconee River at Milledgeville (Fraley's erry), Ga.-----	2,950	1903-23 1924-31 ⁵⁹ 1937-40 1904-40 ⁶⁴ 1898-1913 1929-31 ⁵⁹	Aug. 16, 1928 ²⁸	38.8	1877,500	26.3	Aug. 14, 2 a.m.	24.4	27,400	9.3
224	Oconee River at Dublin, Ga.-----	4,400	1931-40 1937-40	Apr. 12, 13, '36	32.97	96,700	22.0	Aug. 19, 10 a.m.	18.0	18,800	4.3
224.5	Oconee River near Mount Vernon, Ga.-----	5,110	1901-2 1929-32 ⁵⁹ 1937-40	Mar. 6, 1939	20.4	48,300	9.5	Aug. 21, 8 p.m.	15.9	20,000	3.9
225	Middle Oconee River near Athens, Ga.-----	404	1903-7 1937-40	Feb. 28, 1902	4725.5	819,600	48.5	Aug. 14, 10 p.m.	20.3	5,930	14.7
227	Ohoopce River near Reidsville, Ga.-----	1,110	1903-7 1937-40	Mar. 3, 1939	19.8	815,100	13.6	Aug. 16, 12-2 p.m.	19.7	14,900	13.4
APALACHICOLA RIVER BASIN											
273.5	Chattahoochee River near Leaf, Ga.-----	150	1907 1940	-----	-----	-----	-----	Aug. 13, 2 p.m.	11.75	11,200	74.7
274	Chattahoochee River near Gainesville, Ga.---	53559	1901-3 1937-40	Dec. 29, 1901	4728.4	(⁶⁴)	-----	Aug. 14, 3 a.m.	18.74	30,500	54.6
277	Chattahoochee River near Vinings, Ga.-----	1,450	1928-31 1936-40	Sept. 28, 1929	18.84	28,700	19.8	Aug. 15, 8 p.m.	17.48	24,200	16.7
278.5	Chattahoochee River near Whitesburg, Ga.---	2,430	1938-40	Feb. 28, 1939	15.7	23,300	9.6	Aug. 16, 7-8 p.m. ⁶⁵	14.5	20,800	8.6
280	Chattahoochee River at West Point, Ga.-----	3,550	1896-1910 1912-40	Dec. 10, 1919	30.0	134,000	37.8	Aug. 17, 4-6 p.m. ⁶⁵	11.60	20,300	5.7
284	Soque River near Demorest, Ga.-----	156	1904-9 1929-31 1940	July 21 or 22, 1938	22.8	14,400	92.3	Aug. 13, 12 m.	20.04	11,900	76.3

286	Sweetwater Creek near Austell, Ga.-----	246	{ 1904-5, 1913 1937-40	{ Apr. 9, 1938 ⁶⁶	16.18	6,640	27.0	Aug. 13, 12 p.m.	7.76	2,280	9.3
MOBILE RIVER BASIN											
319	Cartecay River near Ellijay, Ga.-----	135	1937-40	Apr. 8, 1938	13.0	20,000	148	Aug. 13, 11 a.m. ⁶⁵	4.43	1,980	14.7
319.5	Coosawattee River near Ellijay, Ga.-----	238	1938-40	Feb. 15, 1939	47.20	⁸ 4,570	19.2	Aug. 13, 12:30 p.m. ⁶⁵	4.70	2,500	10.5
335.9	Etowah River near Dawsonville, Ga.-----	103	1940	-----	-----	-----	-----	Aug. 13, 5 p.m.	7.7	1,840	17.9
337	Etowah River at Canton, Ga.-----	605	{ 1892-1905 1937-40 1907-8 ¹⁵	{ Apr. 8, 1938 ⁶⁷	22.44	⁸ 19,700	32.6	Aug. 13, 7:30 p.m. ⁶⁵	15.98	8,900	14.7
341	Amicalola Creek near Dawsonville, Ga.-----	84.7	{ 1910-13 1939-40	{ Mar. 29, 1912	-----	¹² 6,050	71.4	Aug. 13, 11:30 a.m.	3.48	3,160	37.3
341.5	East Amicalola Creek at Juno, Ga.-----	28.4	1939-40	Apr. 26, 1939	4.25	695	24.5	Aug. 13, 9 a.m.	4.96	930	32.7

⁸ Maximum observed.¹² Daily mean discharge.¹⁵ Incomplete record.¹⁸ Possibly in error.²⁸ Based on drainage area at site then in use.³⁴ U. S. Weather Bureau record.⁴⁷ Site and datum then in use.⁵³ Revised; see Water-Supply Paper 922.⁵⁹ Records of Corps of Engineers, War Department.⁶⁰ Discharge uncertain.⁶³ From data furnished by Central of Georgia Railway; a stage of 20.0 feet occurred October 1929.⁶⁴ Discharge probably exceeded that of 1940; previously published figure in error.⁶⁵ Central standard time.⁶⁶ Greater flood occurred July 8, 1916; gage height 20.0 feet.⁶⁷ Greater flood occurred Dec. 10, 1919; gage height 26.3 feet.

TABLE 14.—Summary of flood discharges in Kanawha, Big Sandy, and Tennessee River Basins for the floods of August 1940

[Maximum discharges for the floods of August 1940 were obtained from gaging-station records, except as otherwise indicated by the following symbols: C, Contracted-opening measurement; D, Computed flow over dam; R, Stage-discharge relation; S, Slope-area measurement]

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time ¹	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
	KANAWHA RIVER BASIN										
176.8	Middle Fork, South Fork New River about 3.3 miles below Blowing Rock, N. C.	9.2						Aug. 13		5,100 ^C	550
177	South Fork New River near Jefferson, N. C.	207	{1924-26 1928-40 1929-40	July 15, 1916	18.0	35,200	170	Aug. 14, 3 a.m.	22.50	52,800	255
180	New River near Galax, Va.	1,131	do	Oct. 2, 1929	9	33,100	29.3	Aug. 14, 9:30 a.m.	25.7	141,000	125
182	New River at Ivanhoe, Va.	1,340	do	Sept. 6, 1935	13.22	25,200	18.8	Aug. 30, 5 p.m.	8.08	28,400	25.1
183	New River at Allisonia, Va.	2,202	do	Oct. 2, 1929	11.14	59,800	27.2	Aug. 14, 12 m.	38.1	155,000	116
								Aug. 30, 6:30 p.m.	16.26	35,700	26.6
								Aug. 14, 3 p.m.	23.42	185,000	84.0
								Aug. 30, 10 p.m.	9.77	47,600	21.6
184	New River at Radford, Va.	2,748	{1898-1906 1907-15 1939-40	Sept. 15, 1878	37.4	(⁴)		Aug. 14, 4 p.m.	35.96	218,000	79.3
185	New River at Eggleston, Va.	2,941	1914-40	1878	40	209,000	71.1	Aug. 31, 4 a.m.	15.32	54,200	19.7
186	New River at Glenlyn, Va.	3,768	1927-40	Oct. 3, 1929 ⁵	16.75	94,400	25.1	Aug. 14, 8:30 p.m.	41.16	219,000	74.5
187	New River near Hinton, W. Va.	4,600	1923-40	{Apr. 21 and May 23, 1901 ⁵	24.2	234,000	50.8	Aug. 31, 7:30 a.m.	17.86	55,200	18.8
188	New River at Caperton, W. Va.	6,826	1928-40	Jan. 23, 1935 ⁵	23.60	142,000	20.8	Aug. 14, 12 p.m.	27.50	226,000	60.0
								Aug. 31, 11 a.m.	12.45	56,000	14.9
								Aug. 15, 4:45 a.m.	24.08	232,000	50.4
190	Kanawha River at Kanawha Falls, W. Va.	8,367	1877-1940	Sept. 14, 1878	37.8	320,000	38.2	Aug. 15, 9 a.m.	36.0	244,000	35.7
190.2	Kanawha River at Charleston, W. Va.	10,420	1939-40					Aug. 15, 11:30 a.m.	29.60	248,000	29.6
190.4	Kanawha River at Point Pleasant, W. Va.	12,240						Aug. 15, 8 p.m.	38.25	216,000	20.7
190.6	Howard Creek near mouth, near Boone, N.C.	11.6						Aug. 15, 11 p.m.		164,000 ^S	13.4
190.8	Rittle Creek at mouth, near Boone, N. C.	3.5						Aug. 13		7,000 ^S	600
								do		1,900 ^S	540
192	North Fork New River at Crumpler, N. C.	277	{1908-16 1928-40	1878	17.6	51,000	184	Aug. 14, 2 a.m.	72.0	79,400	287
192.2	Buffalo Creek near mouth, near West Jefferson, N. C.	12.6						Aug. 13		8,400 ^S	670
192.4	Horse Creek at N&W RR trestle, near Tuckerdale, N. C.	32						do		8,100 ^S	250
192.6	Horse Creek at Lansing, N. C.	58						do		18,000 ^S	310
192.8	Chestnut Creek at Galax, Va.	39						Aug. 14, 8:30 a.m.		11,000 ^C	280

194	Reed Creek at Grahams Forge, Va.-----	247	1908-16 1927-40	July 16, 1916	12.1	¹⁰ 7,110	28.8	Aug. 14, 10 p.m.	4.82	3,730	15.1
195	Big Reed Island Creek near Allisonia, Va.-----	278	1908-16 1939-40	-----do-----	¹¹ 14.8	¹⁰ 118,000	¹² 27.5	Aug. 14, 7:45 a.m.	11.70	20,900	75.2
195.5	Little Reed Island Creek at Sylvatus, Va.-----	70						Aug. 14, 10:30 a.m.		8,100S	120
196.5	Little River near Floyd, Va.-----	193						Aug. 14, 3 p.m.		15,000S	78
197	Little River near Copper Valley, Va.-----	¹² 239	1908-16	July 15, 1916 ^{13a}	9.07	4,500	18.8	Aug. 14		14,000S	59
198	Little River at Grayson, Va.-----	¹³ 302	1928-40	Oct. 2, 1929	¹² 12.84	13,500	44.7	Aug. 14, 10 p.m.	16.44	17,700	58.6
199	Walker Creek at Bane (Staffordsville), Va.-----	305	1908-16 1938-40	Mar. 27, 1913 ⁵	¹⁵ 15.8	12,100	¹² 43.7	Aug. 14, 12 m.	10.08	4,660	15.3
201	Wolf Creek near Narrows, Va.-----	223	1908-16 1938-40	July 16, 1916	13.00	¹⁵ 5,320	23.9	Aug. 15 or 16	7.2	2,820	12.6
203	Bluestone River at Lilly, W. Va.-----	438	1908-16 1929-40	Mar. 25, 1935	11.0	14,400	32.9	Aug. 14, 8 p.m.	7.05	6,400	14.6
206	Greenbrier River at Alderson, W. Va.-----	1,357	1895-1940	Mar. 13, 14, 1918	22.0	77,500	57.1	Aug. 15, 4 a.m.	8.83	16,100	11.9
207	Greenbrier River at Hilldale, W. Va.-----	1,625	1936-40	Mar. 18, 1936 ¹⁴	21.85	60,800	37.4	Aug. 15, 9 a.m.	11.34	18,100	11.1
211	Gauley River above Belva, W. Va.-----	1,315	1928-40	July 5, 1932	28.60	105,000	79.8	Aug. 15, 10:30 a.m.	7.07	9,830	7.5
222	Elk River at Queen Shoals, W. Va.-----	1,145	1928-40	-----do-----	29.2	91,300	79.7	Aug. 27 Aug. 15, 11 p.m. Aug. 26, 9 p.m.	9.25 3.96 7.78	16,200 164 3,380	12.3 .1 3.0
BIG SANDY RIVER BASIN											
237	Russell Fork at Haysi, Va.-----	286	1926-40	Mar. 23, 1929	17.96	⁷ 153,000	115	Aug. 14, 8 a.m.	10.20	⁷ 11,900	41.6
238	Pound River near Haysi, Va.-----	212	1926-40	-----do-----	¹⁶ 16.50	30,000	¹² 138	Aug. 15, 4:30 a.m.	6.94	1,880	8.9
TENNESSEE RIVER BASIN											
454	French Broad River at Rosman, N. C.-----	67.9	1907-9 1935-40	July 1916	13.9	(¹⁶)	-----	Aug. 13, 11 a.m. Aug. 30, 6 a.m.	11.78 11.86	9,040 9,410	133 139
455	French Broad River at Calvert, N. C.-----	103	1924-40	Aug. 15, 1928 ¹⁷	13.0	16,100	156	Aug. 13, 1 p.m. Aug. 30, 6:30 a.m.	11.66 10.83	12,300 9,380	119 91.1
456	French Broad River at Blantyre, N. C.-----	296	1920-40	Aug. 16, 1928 ¹⁸	22.9	26,500	89.5	Aug. 14, 9 a.m. Aug. 31, 8 a.m.	21.89 19.32	⁷²⁰ 800 ⁷¹⁰ 900	70.3 36.8
458	French Broad River at Bent Creek, N. C.-----	676	1934-40	July 15, 1916	27.3	(¹⁶)	-----	Aug. 14, 6 a.m. Aug. 30, 6 p.m.	12.6 11.08	23,600 18,900	34.9 28.0
459	French Broad River at Asheville, N. C.-----	945	1895-1901 1903-40	July 16, 1916	23.1	110,000	116	Aug. 14, 1 a.m. Aug. 30, 12 m.	11.65 12.15	31,800 34,800	33.7 36.8
460	French Broad River at Hot Springs, N. C.-----	1,567	1934-40	July 1916	19.3	(¹⁶)	-----	Aug. 14, 6 a.m. Aug. 30, 7:30 a.m.	9.07 16.1	37,100 75,900	23.7 48.4

¹ See plate 20 for time zone location.² Revised; see Water-Supply Paper 893.³ Site and datum then in use.⁴ Discharge of 175,000 second-feet published in Water-Supply Paper 847 probably in error.⁵ Greater flood probably occurred in 1878; discharge not determined.⁶ Corps of Engineers, War Department, or navigation gage, site then in use, present datum; equivalent to 35.8 feet on present gage.⁷ Revised; supersedes figure published in Water-Supply Paper 893.⁸ Occurred at 9 p.m.⁹ Flow of Ohio River at Pomeroy minus flow at Point Pleasant.¹⁰ Daily mean discharge.¹¹ Possibly in error.¹² Based on drainage area at site then in use.¹³ Supersedes erroneous value previously published.^{13a} Greater flood occurred in 1900; gage height about 13 feet.¹⁴ Data furnished by Corps of Engineers, War Department.¹⁵ Maximum observed.¹⁶ Discharge not determined.¹⁷ Greater flood occurred July 1916; gage height 18.3 feet.¹⁸ Greater flood occurred July 1916; gage height 27.1 feet.

TABLE 14.—Summary of flood discharges in Kanawha, Big Sandy, and Tennessee River Basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time ¹	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
461	French Broad River near Newport, Tenn. . .	1,858	{1900-1905 1907	Feb. 28, 1902	23	101,000	54.4	{Aug. 14, 7:30 a.m. Aug. 30, 12 m.	12.59 19.25	38,000 76,300	20.5 41.1
462	French Broad River at Dandridge, Tenn. . . .	4,446	{1920-40 1918-40	Apr. 2, 1920 ¹⁹	18.7	¹⁵ 84,500	19.0	{Aug. 15, 7 a.m. Aug. 31, 1 a.m.	18.73 20.93	81,400 95,600	18.3 21.5
463	Tennessee River at Knoxville, Tenn.	8,934	1899-1940	Mar. 1, 1902 ²⁰	36.0	¹⁵ 195,000	21.8	{Aug. 16, 2 a.m. Aug. 31, 7 p.m.	23.90 20.28	118,000 98,000	13.2 11.0
464	Tennessee River at Loudon, Tenn.	12,220	1922-40	Mar. 5, 1917 ²¹	32.9	225,000	18.4	{Aug. 16, 4 p.m. Sept. 1, 7 a.m.	19.86 18.66	123,000 113,000	10.1 9.2
465	Tennessee River at Breedenton, Tenn.	17,460	1934-40	Mar. 29, 1936	27.70	205,000	11.7	{Aug. 17, 5-8 a.m. Sept. 1, 6:45-10 p.m.	19.25 19.85	76,300 81,500	41.1 3.8
466	Tennessee River at Chattanooga, Tenn.	²² 21,400	1874-1940	Mar. 11, 1867	²² 57.9	459,000	21.4	{Aug. 16, 4 p.m. Sept. 2, 10 a.m.	²⁴ 21.07 9.20	117,000 89,400	6.7 4.2
478	Davidson River near Brevard, N. C.	40.4	1920-40	Aug. 15, 1928 ²⁵	11.8	8,400	208	{Aug. 13, 10:30 a.m. Aug. 30, 5 a.m.	9.20 7.68	6,100 4,310	151 107
480	South Fork Mills River at The Pink Beds, N. C.	9.99	1926-40	-----do-----	8.0	2,220	222	{Aug. 13, 2 p.m. Aug. 30, 4 a.m.	7.16 6.34	1,610 1,110	161 111
482	Mills River near Mills River, N. C.	66.7	{1924-26 1934-40	{August 1928	13.5	(¹⁶)	-----	{Aug. 13, 4 p.m. Aug. 30, 7 a.m.	13.15 13.62	²⁶⁹ 4,440 ²⁶¹⁰ 0,000	142 150
484	Mud Creek at Naples, N. C.	109	{1907 1938-40	{July 1916	21	(¹⁶)	-----	{Aug. 13, 11-12 p.m. Aug. 30, 5 p.m.	13.07 10.99	²⁶¹⁰ 8,800 ²⁶⁴ 8,300	99.1 44.0
484.1	Hominy Creek above Candler, N. C. ²⁷	28.9	-----	-----	-----	-----	-----	Aug. 30	-----	12,400 ^S	429
484.2	Hominy Creek below Candler, N. C. ²⁷	67.7	-----	Feb. 28, 1902	(²⁸)	-----	-----	do	-----	12,800 ^S	189
484.4	Hominy Creek at American Enka Corpora- tion rayon plant at Enka, N. C. ²⁷	86.4	-----	-----	-----	-----	-----	Aug. 30, 5 a.m.	-----	²⁹ 12,800	148
484.5	North Hominy Creek at mouth, near Can- ton, N. C. ²⁷	7.8	-----	-----	-----	-----	-----	Aug. 30	-----	5,000 ^S	641
484.6	South Hominy Creek above Stony Fork, near Candler, N. C. ²⁷	5.1	-----	-----	-----	-----	-----	do	-----	1,500 ^S	294
484.8	South Hominy Creek above Beaverdam Creek, at Candler, N. C. ²⁷	29.2	-----	-----	-----	-----	-----	do	-----	5,500 ^S	188
484.9	Stony Fork near mouth, near Candler, N.C. ²⁷	4.1	-----	-----	-----	-----	-----	do	-----	1,300 ^S	317
486	Swannanoa River at Biltmore, N. C.	130	{1920-26 1934-40	{July 1916	21.5	(¹⁶)	-----	{Aug. 13, 7:30 p.m. Aug. 30, 1:30 p.m.	19.00 15.34	18,400 11,200	142 86.2
487	North Fork Swannanoa River near Black Mountain, N. C.	23.8	1926-40	Aug. 15, 1928	7.04	5,050	212	{Aug. 13, 12 m. Aug. 30, 6:30 a.m.	8.55 7.72	8,200 6,560	345 276

487.5	Right Hand Fork of North Fork Swannanoa River at Asheville ¹ e water system intake, near Black Mountain, N. C.	5.35						Aug. 13		3,100D	580
488	Beetree Creek near Swannanoa, N. C.	5.46	1926-40	Aug. 15, 1928	5.40	830	152	{Aug. 13, 3 p.m. Aug. 30, 5 a.m. Aug. 30	6.20 5.85	1,370 1,160 3,100D	251 212 250
488.2	Beaverdam Creek at dam near mouth, near Asheville, N. C.	12.4						do.			
488.4	Newfound Creek below Dix Creek, near Leicester, N. C.	34.2						do.		12,000S	350
488.6	Reems Creek at Weaverville, N. C.	30.9						do.		4,400D	140
488.8	Sandymush Creek above Turkey Creek, near Marshall, N. C.	45.5						do.		7,600S	170
489	Ivy River near Marshall, N. C.	158	1934-40	Aug. 8, 1936	10.68	5,850	37.0	{Aug. 13, 8 p.m. Aug. 30, 5:30 a.m. Aug. 13, 8 p.m. Aug. 30, 8 a.m. Aug. 30	10.32 12.67 3.04 6.66	5,860 8,880 668 4,920 6,300S	37.1 56.2 5.3 39.0 88
490	Big Laurel Creek near Stackhouse, N. C.	126	1934-40	Mar. 25, 1935	7.94	7,260	57.6	do.		16,500S	1,350
490.2	Spring Creek at Hot Springs, N. C.	71.5						do.		14,900D	454
490.5	West Fork Pigeon River at Spruce, near Waynesville, N. C. ²⁷	12.2						do.			
490.8	West Fork Pigeon River at Lake Logan dam, near Waynesville, N. C. ²⁷	32.8						do.			
491	Pigeon River at Canton, N. C.	133	{1907-9 1928-40	{June 1876 September 1893	{18 18	{(16) (16)		{Aug. 13, 12:30 p.m. Aug. 30, 6:30 a.m. Aug. 13, 6:30 p.m. Aug. 30, 10:30 a.m.	{18.00 20.75 14.94 15.82	{25,100 31,600 29,500 32,700	{189 238 84.3 93.4
493	Pigeon River near Hepco, N. C.	350	1927-40	February 1902							
495	Pigeon River at Hartford, Tenn.	²² 547	1925-40	Jan. 19, 1936	10.68	25,500	46.6	{Aug. 13, 7:30 p.m. Aug. 30, 1:30 p.m. Aug. 13 Aug. 30	{12.10 12.79 16.0 17.3	{34,100 38,600 ¹⁵³ 1,000R ¹⁵³ 36,000R	{62.3 70.6 47.3 55.0
496	Pigeon River at Newport, Tenn.	655	1900-1929	Apr. 2, 1920 ³¹	³² 17.0	¹⁵ 33,000	50.4	do.		16,400S	1,950
496.2	Middle Prong, West Fork Pigeon River near Spruce, near Waynesville, N. C. ²⁷	8.4						do.		12,900S	9,800
496.4	Big Creek at Lake Logan, near Waynesville, N. C. ²⁷	1.32						do.			
496.6	Big Creek at Lake Logan, near Waynesville, N. C.	1.69						do.		12,000S	7,100
496.8	Big Branch (tributary to Little East Fork Pigeon River) near Waynesville, N. C.	.4						do.		4,500S	11,000
497	Jonathan Creek near Cove Creek, N. C.	65.3	1930-40	Jan. 19, 1936	6.20	2,270	34.8	{Aug. 13, 7 p.m. Aug. 30, 4 a.m.	{6.08 7.51	{2,190 3,200	{33.5 49.0

¹ See plate 20 for time zone location.² Revised; see Water-Supply Paper 893.¹⁵ Maximum observed.¹⁶ Discharge not determined.¹⁹ Greater flood occurred May 21, 1901; gage height 28.0 feet.²⁰ Greater flood occurred Mar. 10, 1867; estimated discharge 270,000 second-feet.²¹ Greater floods occurred in 1867, 1875, and 1886; discharges not determined.²² Affected by storage.²³ At Walnut Street, present datum.²⁴ Occurred at 12:15 p.m.²⁵ Greater flood occurred June 1876; gage height 11.9 feet.²⁶ Revised; supersedes figure published in Water-Supply Paper 893.²⁷ From "Floods of August 1940 in Tennessee River Basin," issued by T.V.A. as supplement to "Precipitation in Tennessee River Basin October 1940."²⁸ 8 inches below that of August 1940, according to local residents.²⁹ Estimated from best available data.³⁰ About.³¹ From Tennessee Division of Geology Bulletin 34.³² Site then in use.

TABLE 14.—Summary of flood discharges in Kanawha, Big Sandy, and Tennessee River Basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time ¹	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
498	Cataloochee Creek near Cataloochee, N. C.---	49.2	1934-40	Jan. 19, 1936	6.64	2,700	54.9	Aug. 13, 3:30 p.m.	5.12	1,360	27.6
499	North Toe River at Altapass, N. C.-----	3104	1934-40	July 1916	24	(¹⁶)	-----	Aug. 30, 3 a.m.	7.01	3,390	68.9
								Aug. 13, 9 p.m.	19.5	22,200	213
								Aug. 30, 11 a.m.	10.07	6,620	63.0
500.5	North Toe River at Toecane, N. C.-----	233	1925-40	1901 and 1916	21	(¹⁶)	-----	Aug. 13	-----	51,000S	220
501	Nolichucky River at Poplar, N. C.-----	608						Aug. 13, 7 p.m.	19.7	74,500	123
								Aug. 30, 8 a.m.	13.07	32,500	53.5
502	Nolichucky River at Embreeville, Tenn.---	805	1920-40	Mar. 26, 1935	10.69	236,600	45.5	Aug. 13, 9:30 p.m.	18.57	82,500	102
								Aug. 30, 10 a.m.	11.23	39,500	49.1
504	Nolichucky River at Greeneville Dam, near Greeneville, Tenn.	1,183	1903-8 ³⁴ 1919-25 ³⁴ 1940	Jan. 23, 1906	³ 1919.3	³⁰ 73,500	³¹ 64.5	Aug. 14, 8 a.m.	80.0	73,500D	62.1
505	Nolichucky River near Morristown, Tenn.---	1,686	1920-40	Mar. 26, 1935	22.00	56,600	33.6	Aug. 14, 8 p.m.	22.68	61,900	36.7
								Aug. 31, 5 a.m.	19.79	40,900	24.3
505.3	Crabtree Creek above Roaring Branch, near Estatoe, N. C.	15.4	-----	-----	-----	-----	-----	Aug. 13	-----	3,400S	220
505.7	South Toe River above Locust Creek, near Busick, N. C.	32.8	-----	-----	-----	-----	-----	do	-----	18,000S	550
06	South Toe River at Newdale, N. C.-----	60.8	1934-40	July 1916	14	20,300	334	Aug. 13, 4 p.m.	17.4	29,400	484
								Aug. 30, 10 a.m.	10.52	12,200	201
06.3	Cane River above Falling Water Branch, near Pensacola, N. C.	18.1	-----	-----	-----	-----	-----	Aug. 13	-----	15,000S	830
506.7	Cane River at dam, near Burnsville, N. C.---	36.6	-----	-----	-----	-----	-----	do	-----	18,000D	490
507	Cane River near Sioux, N. C.-----	157	1934-40	August 1893 May 1901	16	21,700	138	Aug. 13, 4:30 p.m.	17.8	27,300	174
				June 29, 1928	15.4	32,000	90.7	Aug. 30, 7:45 a.m.	10.84	8,780	55.9
508	Little Pigeon River at Sevierville, Tenn.---	353	1920-40	June 29, 1928	15.4	32,000	90.7	Aug. 14, 12 p.m.	9.17	8,760	24.8
								Aug. 30, 6 a.m.	7.85	6,940	19.7
510	South Fork Holston River at Vestal, Va.---	301	1931-40	Mar. 26, 1935	13.26	10,700	35.5	Aug. 14, 6 to 7 a.m.	13.25	10,600	35.2
511	South Fork Holston River at Bluff City, Tenn.	813	1900-1940	May 22, 1901	³² 15.0	28,000	34.4	Aug. 14, 4 p.m.	11.60	18,200	22.4
								Aug. 15, 4 a.m.		18.80	68,800	35.6
512	South Fork Holston River at Kingsport, Tenn.	1,931	1925-40	Mar. 26, 1935	15.18	45,200	23.4	Aug. 14, 9:30 a.m.	8.15	18,700	9.7
								Aug. 30, 11 p.m.	17.76	59,000	19.4
513	Holston River near Rogersville, Tenn.-----	3,035	1902-40	Jan. 29, 1918 ³⁵	³²⁰ 0.0	70,900	23.4	Aug. 15, 6 a.m.	26.70	58,900	18.2
513.3	Holston River near Morristown, Tenn.-----	3,244	1937-40	Mar. 27, 1935	³⁶²⁸ 8.4	65,000	20.0	Aug. 15, 2 to 2:30 p.m.	21.80	58,700	17.1
513.7	Holston River near Jefferson City, Tenn.---	3,429	do	Oct. 29, 1937	12.86	27,600	8.0	Aug. 15, 9 p.m.			

514	Holston River at Strawberry Plains, Tenn.	3,626	1930-40	Mar. 28, 1935	20.20	62,900	17.3	Aug. 16, 9 a.m.	18.62	57,100	15.7
516	Middle Fork Holston River near Meadowview, Va.	211	1931-40	Jan. 23, 1935	8.59	5,360	25.4	Aug. 14, 8 p.m.	8.00	4,570	21.7
517.2	Watauga River below Laurel Fork, near Valle Crucis, N. C.	33.1						Aug. 13		38,000S	1,100
517.5	Watauga River above Cove Creek, near Sugar Grove, N. C. ²⁷	55.1						do.		41,000S	744
517.8	Watauga River near Sugar Grove, N. C.	90.8	1940	July 1916	22.1	28,000	308	Aug. 13, 7:30 p.m.	29.6	50,800	559
518	Watauga River at Stump Knob, Tenn.	171	1927-31	May 21, 1901	³⁷ 19.5	34,400	201	Aug. 13, 8:30 p.m.	³⁶ 24.0	³⁰ 50,000	292
519	Watauga River at Butler, Tenn.	427	1934-40	Jan. 9, 1935 ⁴⁰	11.85	18,500	43.3	Aug. 30, 11 a.m.	³⁸ 10.35	10,900	63.7
520	Watauga River at Horseshoe Dam, at Wilbur (near Elizabethton), Tenn.	471	1900-01 ³⁹					Aug. 13, 10 p.m.	25.4	71,500	167
521	Watauga River at Elizabethton, Tenn.	692	1920-40	July 12, 1905	8.4	⁴¹ 10,100	21.3	Aug. 30, 12 m.	9.85	14,000	32.8
521.1	Dutch Creek near Valle Crucis, N. C. ³⁷	2.42	1903-8 ⁴¹	Feb. 27 or 28, 1902	³⁶ 22.0	83,700	121	Aug. 13, 11:30 p.m.	17.47	73,800D	157
521.3	Dutch Creek at Valle Crucis, N. C. ³⁷	10.6	1940					Aug. 14, 12:30 a.m.	20.87	75,100	109
521.5	Craborchard Creek near Valle Crucis, N.C. ³⁷	2.09						Aug. 30, 3:30 p.m.	11.38	17,300	25.0
521.7	Cove Creek near Sugar Grove, N. C. ³⁷	17.7						Aug. 13		9,200S	3,800
521.9	Linville Creek near Sugar Grove, N. C. ³⁷	4.8						do.		16,000S	1,510
522	Elk Creek near Banner Elk, N. C.	17.8						do.		6,000S	2,870
523	Elk Creek near Elk Park, N. C.	42.0						do.		12,000S	678
524	Roan Creek at Butler, Tenn.	166	1934-40	Jan. 9, 1935	7.34	22,860	161	do.		4,200S	875
527	Doe River at Elizabethton, Tenn.	137	do.	do.	7.15	3,640	86.7	do.		22,000S	1,200
528	North Fork Holston River at and near Saltville, Va.	222	Mar. 26, 1935		7.68	4,940	29.8	Aug. 13, 6:30 p.m.	16.9	27,500	655
530	North Fork Holston River near Gate City, Va.	672	1932-40	July 30, 1940	6.75	7,300	53.3	Aug. 14, 4 a.m.	⁴² 10.09	3,920	23.6
534	Little River near Walland, Tenn.	192	1907-8	Feb. 3, 1923	³¹ 13.97	8,220	37.0	Aug. 13, 9 p.m.	5.48	4,830	35.3
537	Little Tennessee River at Iotla, N. C.	323	1920-40	Jan. 30, 1932	10.6	13,400	19.9	Aug. 14, 10 p.m.	6.23	5,840	26.3
540	Little Tennessee River at Judson, N. C.	664	1931-40	Mar. 26, 1935				do.	14.75	23,700	35.3
540.5	Little Tennessee River near Fontana, N. C.	³³ 1,571	1929-40	October 1898 ¹⁴⁰	13	18,600	57.6	Aug. 15, 1:30 a.m.	4.49	2,480	12.9
			1896-1940	Feb. 28, 1902	³¹ 16.19	¹⁵⁰ 40,800	61.4	Aug. 30, 6 a.m.	4.86	2,900	15.1
			1938-40	March 1867	23	(¹⁶)		Aug. 13, 9:30 p.m.	7.63	7,770	24.1
								Aug. 30, 10 a.m.	13.5	19,600	60.7
								Aug. 13, 10:30 p.m.	24.16	11,800	17.8
								Aug. 30, 3:30 p.m.	27.62	22,100	33.3
								Aug. 14, 2 a.m.	11.09	35,900	22.9
								Aug. 30, 4:15 p.m.	15.94	71,200	45.3

SUMMARY OF FLOOD DISCHARGES

¹ See plate 20 for time zone location.

² Revised; see Water-Supply Paper 893.

³ Site and datum then in use.

¹³ Maximum observed.

¹⁴ Discharge not determined.

²⁷ From "Floods of August 1940 in Tennessee River Basin," issued by T.V.A. as supplement to "Precipitation in Tennessee River Basin October 1940."

³⁰ About.

³¹ From Tennessee Division of Geology Bulletin 34.

³² Site then in use.

³³ Revised; see Water-Supply Paper 973

³⁴ At site upstream; drainage area 1,141 square miles, revised.

³⁵ Greater flood occurred March 1867; discharge not determined.

³⁶ From floodmark.

³⁷ From floodmark by Tennessee Valley Authority.

³⁸ From graph based on gage readings.

³⁹ Incomplete record.

⁴⁰ Greater flood occurred May 21, 1901, but did not exceed 1940 flood; discharge not determined.

⁴¹ At site downstream; drainage area 475 square miles.

⁴² Occurred at 9:50 p.m. Aug. 13.

TABLE 14.—Summary of flood discharges in Kanawha, Big Sandy, and Tennessee River Basins for the floods of August 1940—Continued

No. on pl. 20	Stream and place of determination	Drainage area (square miles)	Period of record	Maximum flood previously known				Maximum during present flood			
				Date	Gage height (feet)	Discharge		Time ¹	Gage height (feet)	Discharge	
						Second- feet	Second- feet per square mile			Second- feet	Second- feet per square mile
541	Little Tennessee River at Calderwood, Tenn.	²² 1,862	{1912-18 1921-40}	Mar. 4, 1917	10.97	82,000	44.0	{Aug. 13, 11 to 12 p.m. Aug. 30, 3:30 p.m.	6.62 9.70	32,200 63,900	17.3 34.3
542	Little Tennessee River at McGhee, Tenn. . .	²² 2,443	1904-40	Apr. 2, 1920 ²⁵	³ 30.5	¹⁶ 92,000	37.7	{Aug. 14, 6 a.m. Aug. 30, 11 p.m.	15.07 21.56	29,800 52,100	12.2 21.3
543	Cullasaja Creek at Highlands, N. C.	14.9	1927-40	July 1916	7	3,200	215	{Aug. 13, 2:30 p.m. Aug. 30, 3 a.m.	5.92 9.35	2,400 5,100	161 342
544	Cullasaja Creek at Cullasaja, N. C.	86.5	{1907-9 1921-40}	-----do-----	⁴ 17.2	12,200	141	{Aug. 13, 4 p.m. Aug. 30, 3:30 a.m.	15.28 20.83	9,020 19,300	104 223
546	Nantahala River at Almond, N. C.	174	{1912-17 1921-40}	Mar. 4, 1917	-----	¹⁰ 15,200	87.4	{Aug. 13, 6 p.m. Aug. 30, 6 a.m.	6.30 4.85	4,000 2,500	23.0 14.4
546.5	East Fork Tuckasegee River near Tuckase- gee, N. C.	80.3	-----	-----	-----	-----	-----	Aug. 30	-----	30,000S	370
547	Tuckasegee River at Tuckasegee, N. C. . . .	143	1934-40	May 1840	18	23,000	160	{Aug. 13, 11 a.m. Aug. 30, 3:30 a.m.	14.32 21.1	13,700 40,800	95.8 285
549	Tuckasegee River at Dillsboro, N.C.	347	1928-40	Aug. 15, 1928	² 11.2	14,000	40.3	{Aug. 13, 3:30 p.m. Aug. 30, 6 a.m.	14.32 21.96	20,900 52,600	60.2 152
550	Tuckasegee River at Bryson City, N. C. . .	655	1897-1940	May 1840	21	(¹⁶)	-----	{Aug. 13, 9 p.m. Aug. 30, 10:30 a.m.	9.05 15.96	22,500 61,600	34.4 94.0
550.2	Wolf Creek near Tuckasegee, N. C. ²⁷	14.1	-----	-----	-----	-----	-----	do	-----	14,500S	1,030
550.4	West Fork Tuckasegee River above Glen- ville Dam, near Glenville, N. C. ²⁷	26.8	-----	-----	-----	-----	-----	-----	-----	10,300S	384
550.6	West Fork Tuckasegee River at Glenville Powerhouse, near Tuckasegee, N. C. ²⁷	52.5	-----	-----	-----	-----	-----	do	-----	14,000S	267
550.8	Caney Fork near East Laport, N. C.	38.1	-----	-----	-----	-----	-----	do	-----	17,000S	450
550.9	Do. ²⁷	⁴ 39.4	-----	-----	-----	-----	-----	do	-----	21,700S	551
551	Scott Creek at Sylva, N. C.	55.0	{1921-22 1928-40}	July 10, 1929	6.00	2,200	40.0	{Aug. 13, 4 p.m. Aug. 30, 4 a.m.	4.96 8.61	1,510 3,360	27.5 61.1
552	Oconalufy River at Cherokee, N. C.	131	{1921-40 1921-40}	Apr. 6, 1936 ⁴⁵	10.25	8,760	66.9	{Aug. 13, 5:30 p.m. Aug. 30, 4 a.m.	6.80 8.84	3,270 6,310	25.0 48.2
553	Noland Creek near Bryson City, N. C. . . .	13.8	1935-40	-----do-----	4.44	1,060	76.8	{Aug. 13, 2 p.m. Aug. 30, 12:15 a.m.	3.48 4.87	540 1,530	39.1 111
556	Tellico River at Tellico Plains, Tenn. . . .	118	1925-40	Aug. 5, 1938	11.39	10,900	92.4	{Aug. 13, 4 p.m. Aug. 14, 9 p.m. Aug. 29, 4:15 p.m.	2.99 ----- 2.62	750 ----- 566	6.4 ----- 4.8

557	Clinch River at Cleveland, Va.....	528	1920-40	Dec. 22, 1926	³² 21.1	22,500	42.6	Aug. 14, 8 a.m.	20.60	22,500	42.6
558	Clinch River at Speers Ferry, Va.....	1,126	-----do-----	Feb. 3, 1923	25.85	¹⁵ 37,200	33.0	Aug. 15, 4 a.m.	20.98	25,100	22.3
559	Clinch River above (near) Tazewell, Tenn..	1,474	1927-40	Jan. 31, 1932 ⁴⁶	³¹ 14.90	37,800	¹² 25.5	Aug. 15, 5 p.m. Sept. 1, 10:30 p.m.	13.29 6.72	24,300 7,560	16.5 5.1
562	Clinch River below Norris Dam (near Coal Creek), Tenn.	⁴² 2,913	1927-40	Mar. 23, 1929	³³ 3.7	70,000	24.0	Aug. 22, 3:30 a.m.	4.09	4,260	-----
567	Powell River near Jonesville, Va.....	319	1931-40	Jan. 30, 1932	25.64	⁴⁸ 22,900	71.8	{Aug. 15, 12 m. Aug. 30, 8 p.m.	3.89 3.88	1,140 1,140	3.6 3.6
572	Emory River at Oakdale, Tenn.....	764	1929-40	Feb. 3, 1939 ⁴⁹	³⁶ 30.9	100,000	131	Aug. 30, 1:30 a.m.	8.84	6,900	9.0
582	Hiwassee River below Hayesville, N. C....	³² 252	1934-40	Apr. 2, 1936 ⁵⁰	12.42	10,600	42.1	Aug. 13, 4:30 p.m.	7.97	4,610	18.3
583	Hiwassee River above (at) Murphy, N. C....	404	{1896-1917 1918-40}	Mar. 19, 1899	³¹ 18.4	¹⁵ 23,100	¹² 55.1	Aug. 13, 7 p.m.	7.88	5,940	14.7
584	Hiwassee River at Hiwassee Dam, N. C....	⁵¹ 968	1934-40	Feb. 4, 1936	13.41	42,800	44.2	Aug. 16, 6 p.m.	5.21	3,430	3.5
587	Hiwassee River near Reliance, Tenn.....	⁵¹ 1,223	1926-40 1904-9	-----do-----	23.01	45,300	37.0	Aug. 13, 6:45 p.m.	6.25	3,630	3.0
591	Valley River at Tomotla, N. C.....	104	{1914-17 1918-40}	Nov. 19, 1906	17.3	¹⁸ 9,030	86.8	Aug. 13, 3 p.m.	3.21	482	4.6
592	Nottely River near Ivylog, Ga.....	191	1936-40	July 22, 1938	12.25	11,500	60.2	Aug. 13, 1 p.m.	4.19	3,380	17.7
593	Nottely River near Ranger, N. C.....	272	{1901-5 1914-17 1918-40}	Feb. 28, 1902	³² 1.0	¹⁵ 14,100	51.8	Aug. 13, 7-8 p.m.	9.30	3,190	11.7
600	Ocoee River at Parksville, Tenn.....	²² 595	{1911-16 1921-40}	Apr. 6, 1936	18.32	19,000	31.9	Aug. 15, 4 p.m.	6.37	3,080	5.2
603	South Chickamauga Creek near Chickamauga, Tenn.	428	1928-40	Feb. 5, 1936	18.47	20,000	46.7	Aug. 30, 3 p.m.	4.02	1,190	2.8

¹ See plate 20 for time zone location.² Site and datum then in use.¹⁰ Daily mean discharge.¹² Based on drainage area at site then in use.¹⁵ Maximum observed.¹⁶ Discharge not determined.²² Affected by storage.²⁷ From "Floods of August 1940 in Tennessee River Basin," issued by T.V.A. as supplement to "Precipitation in Tennessee River Basin October 1940."³² Revised; see Water-Supply Paper 973.³⁵ Greater flood occurred March 1867; discharge not determined.³⁶ From floodmark.⁴³ Greater stage occurred a few years prior to 1916 and again between 1916 and 1920.⁴⁴ Revised.⁴⁵ Greater flood occurred in November 1906; gage height 12 feet.⁴⁶ Greater floods occurred in 1862 and March 1917; gage heights 24.5 feet and 21.5 feet at site near Tazewell.⁴⁷ Affected by storage in Norris Reservoir since Mar. 4, 1936.⁴⁸ Revised; see Water-Supply Paper 1033.⁴⁹ Greater flood occurred Mar. 23, 1929; discharge 195,000 second-feet.⁵⁰ Greater flood occurred October 1898; gage height 16.1 feet.⁵¹ Affected by storage in Hiwassee Reservoir since Jan. 14, 1940.

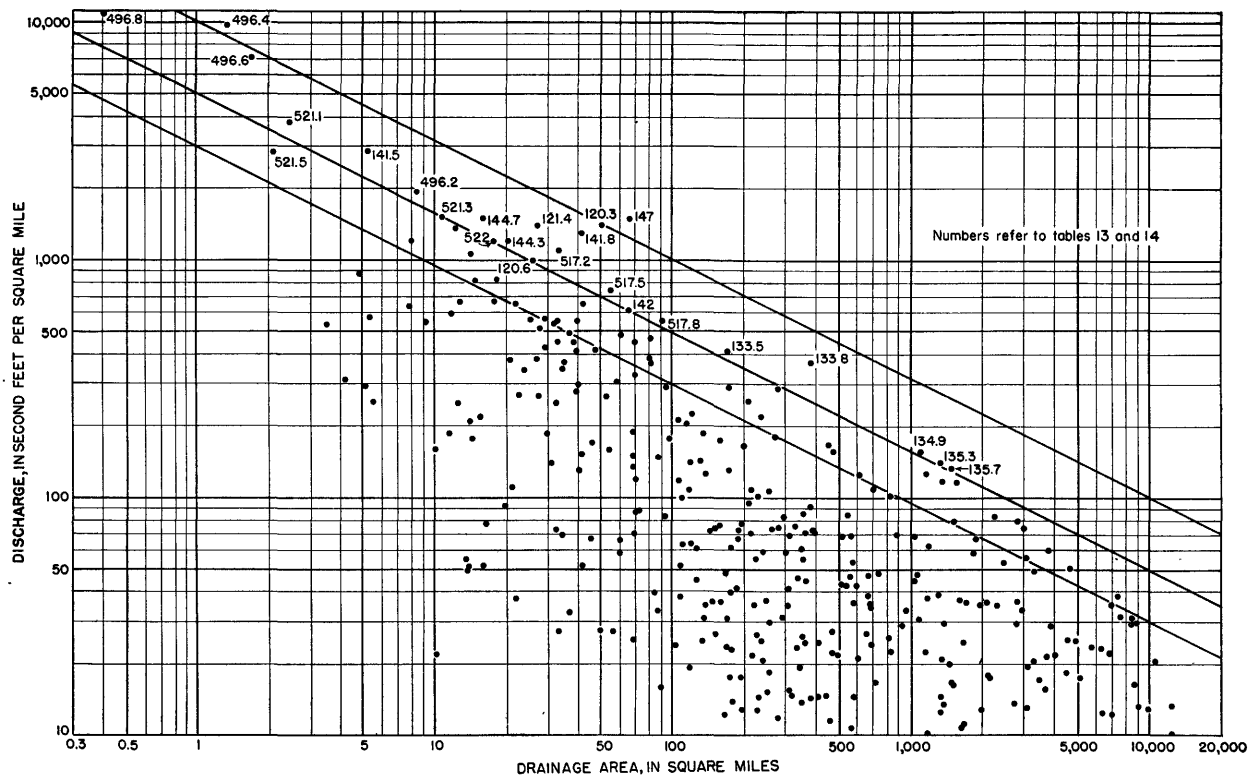


FIGURE 21.—Relation of unit discharge to size of drainage basin.

UNIT DISCHARGES

The maximum discharge in second-feet per square mile has been plotted against the tributary drainage area in square miles in figure 21. Size of drainage basin, though a major factor influencing the magnitude of flood discharge, is only one of the factors. The comparative influence of such basin characteristics as slope, shape, and swamps are not brought out in a study such as that illustrated in figure 21, nor is the effect of artificial storage segregated. The figure is designed merely to provide a convenient method for comparing flood discharges from drainage areas that differ widely in size, and in its use the influence of factors other than drainage area should be kept in mind.

As an aid to those who use a flood formula expressing the discharge in terms of the square root of the drainage area, guide lines representing different values of this relation are drawn on figure 21.¹²

The highest unit rate of discharge measured was 11,000 second-feet per square mile for an area of 0.4 square mile tributary to Little East Fork Pigeon River. There are six discharges shown in tables 12-14 in excess of 2,000 second-feet per square mile for streams draining less than 10 square miles. Of these, three in the Pigeon River Basin occurred in late August. The other three occurred during the mid-August storm. Two of the latter were in the Watauga River Basin, and one was in the headwaters of Santee River. None of these outstanding rates of unit discharge occurred at regular gaging stations, and associated volumes of runoff are unknown.

Considering the size of drainage area, the greatest unit discharge occurred during the mid-August storm on Wilson Creek near Adako, N. C. (the site of a discontinued gaging station), one of the headwater streams of Santee River. (See pl. 5.) This area of 66 square miles received about 12 inches of rainfall and discharged at a maximum rate of 99,000 second-feet, or 1,500 second-feet per square mile.

Relatively high unit discharges also occurred on Catawba River, a tributary of Santee River, where there were discharges of about 150 second-feet per square mile from areas over 1,000 square miles.

Roanoke River produced the greatest unit discharges for large streams. At Clarksville, where the drainage area is 7,320 square miles, there was a discharge of 38.3 second-feet per square mile. The total discharge at Clarksville, 280,000 second-feet, also was greater than the discharge recorded at any other gaging station.

STORAGE

Runoff of some of the streams in the flood area was considerably affected by storage. The storage reservoirs, which served to reduce the

¹² For other flood formulas see Jarvis, C. S., and others, *Floods in the United States, magnitude and frequency*: U. S. Geol. Survey Water-Supply Paper 771, pp. 33-41, 1936.

flood runoff, were located principally in the Pee Dee and Santee River Basins on the Atlantic slope, and in the Tennessee River Basin in the Ohio River Basin. Most of the reservoirs in the first two basins were built by private power companies, primarily for the generation of hydroelectric power, whereas most of the reservoirs in the Tennessee Valley were constructed as multiple-purpose projects, with storage for flood control. Both types of storage reservoirs were effective in reducing the flood peaks, particularly where the reservoirs were located near the headwaters of streams on which extreme unit discharges occurred. Table 15 lists by drainage basins the reservoirs for which storage records have been collected for publication in this report.

TABLE 15.—Principal storage reservoirs in the indicated drainage basins

Reservoir	River	Capacity <i>cubic feet</i>
Pee Dee River Basin:		
High Rock Reservoir.....	Yadkin.....	10,230,000,000
Narrows Reservoir.....	do.....	6,748,000,000
Tillery Reservoir.....	Pee Dee.....	360,000,000
Blewett Reservoir.....	do.....	300,000,000
Santee River Basin:		
Bridgewater Reservoir.....	Catawba.....	10,506,000,000
Rhodhiss Reservoir.....	do.....	1,717,000,000
Oxford Reservoir.....	do.....	2,278,000,000
Lookout Shoals Reservoir.....	do.....	474,000,000
Mountain Island Reservoir.....	do.....	1,132,000,000
Catawba Reservoir.....	do.....	6,542,000,000
Fishing Creek Reservoir.....	do.....	1,630,000,000
Rocky Creek Reservoir.....	do.....	163,000,000
Wateree Reservoir.....	Wateree.....	7,626,000,000
South Pacolet River Reservoir.....	South Pacolet.....	1,117,500,000
Lake Greenwood.....	Saluda.....	7,640,000,000
Lake Murray.....	do.....	71,110,000,000
Tennessee River Basin:		
Chickamauga Reservoir.....	Tennessee.....	<i>acre-feet</i> 376,900
Norris Reservoir.....	Clinch.....	2,020,000
Hiwassee Reservoir.....	Hiwassee.....	364,700
Blue Ridge Reservoir.....	Toccoa.....	183,000
Parksville Reservoir.....	Ocoee.....	32,900

¹ 879,000,000 gallons.

The four reservoirs listed for Yadkin-Pee Dee River are operated by the Aluminum Company of America and the Carolina Power & Light Co. for the generation of electric power. Owing to the subnormal stream-flow conditions prior to the flood, there was available in the four reservoirs listed 5,930,000,000 cubic feet (136,000 acre-feet) of storage below the tops of the various outlet gates, out of a total capacity under normal operation of 17,638,000,000 cubic feet. During the period from midnight August 12 to midnight August 17, 6,165,000,000 cubic feet of water was stored in the reservoirs. This amounted to a mean reduction of approximately 14,000 second-feet for the 5-day period. The retaining of water at the various dams reduced the volume of the floodwaters downstream, which probably had the beneficial result of lowering the crest stages on the lower reaches of the river.

The reservoirs in the Santee River Basin stored 29,200,000,000 cubic feet between midnight August 12 and midnight August 17, amounting to a mean detention of 67,600 second-feet for the 5-day period, with

favorable moderating effect on flood discharges in the river reaches downstream.

Figure 22 illustrates the details of operation of the storage in Bridge-

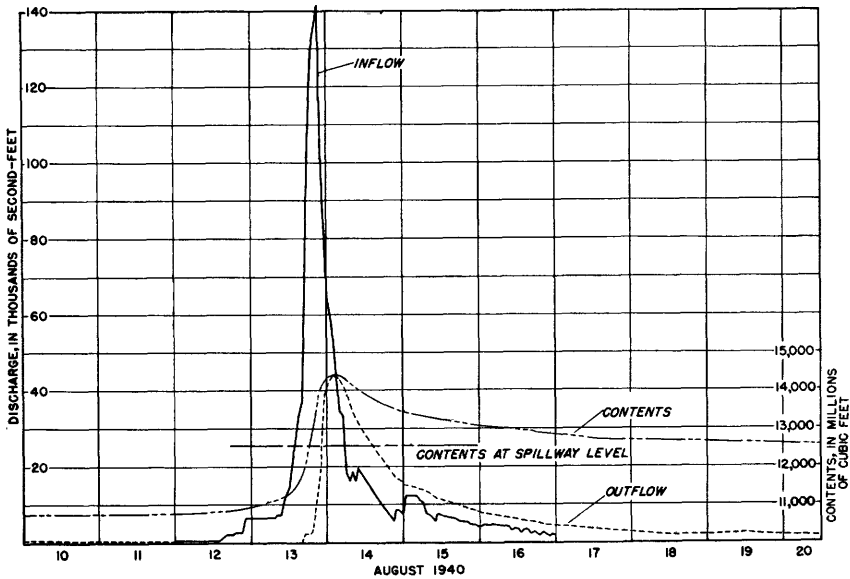


FIGURE 22.—Diagram showing contents, outflow, and computed inflow at Bridgewater Reservoir, near Bridgewater, N. C.

water Reservoir on Catawba River. The graphs of outflow and contents are based on observed or measured data. The graph of inflow into the reservoir approximates the flow at the reservoir site under natural conditions. This graph was computed by adjusting the graph of measured outflow for increments or decrements in measured storage. Similar

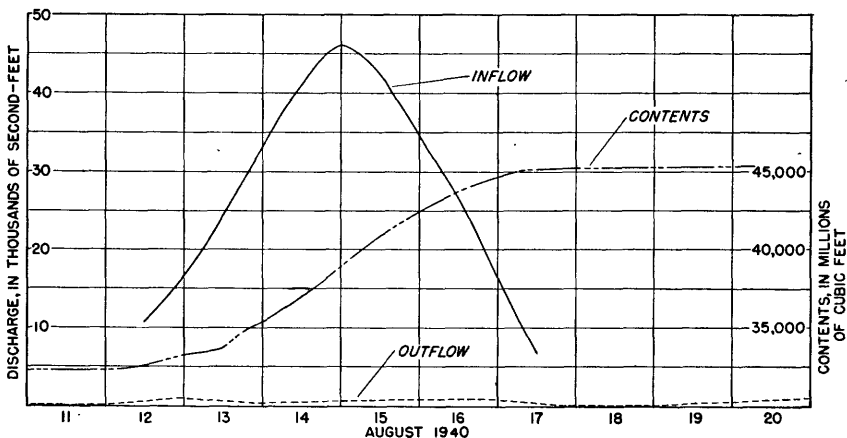


FIGURE 23.—Diagram showing contents, outflow, and computed inflow at Lake Murray, near Columbia, S. C.

graphs are shown on figure 23 for Lake Murray on Saluda River near Columbia, S. C.

The five reservoirs in the upper Tennessee River Basin that are listed stored 126,000 acre-feet in the 5-day period from midnight August 12 to midnight August 17. This gain in storage is equivalent to a mean discharge of 12,700 second-feet. Only parts of the areas above the reservoirs listed were in flood, and flood inflow was accordingly moderate. With regard to the operation of Chickamauga Reservoir the Tennessee Valley Authority reports that the maximum discharge downstream at Chattanooga was reduced from 136,000 second-feet to 80,000 second-feet, and the flood height was reduced 7 feet.

RAINFALL AND RUNOFF STUDIES METHODS OF ANALYSIS

The floods of August 1940 had their cause in storm rainfall, of which a portion reached the streams in excessive rates and volumes, producing serious overflow. The conversion from storm rainfall into flood runoff, although apparent, is not readily definable in quantitative terms, and yet to a very considerable extent the satisfactory solution of the flood problem depends on an understanding and evaluation of the relations between rainfall and runoff. An analysis of past storms and floods can advance such an understanding.

The plan of study to this end with respect to the floods of August 1940 was, briefly, to compute mean areal rainfall over the basins above the several gaging stations, to compute the volume of direct runoff attributable to such rainfall, and finally to compare the values of rainfall and associated direct runoff.

Mean areal rainfall during the two storms over the several basins for which flood-discharge records are available has been computed by means of isohyetal maps of total storm precipitation reproduced as plates 16 and 17. The areas between the lines of equal rainfall and the basin outlines were measured by planimeter, and these partial areas were each multiplied by the average rainfall between the respective isohyetal lines. The sum of such products when divided by the total area of the basin is equal to the mean areal rainfall over the basin. The results of the determinations are listed in table 16.

The accuracy of the determinations of mean rainfall over any given basin depends on the number of rain gages in and near the basin and their adequacy in defining the variation in rainfall. No general estimate of the accuracy of the figures published herein can be given; the accuracy depends on the particular conditions pertaining to the several basins. The density of rain gages is an important factor in this regard. With the average spread of rain gages it is likely that mean areal rainfall can be determined with greater accuracy for a large basin than for a particular small one. It is also likely that determinations of mean areal

rainfall for small basins within or near storm centers are least reliable.

The area covered by the mid-August storm is about 130,000 square miles, within which area there are 679 rain gages, equivalent to an average of 0.0052 rain gage per square mile. The rain-gage density when expressed in this way was greatest in the upper Tennessee Basin, where it was 0.0135, and in general, determinations of rainfall should be fairly reliable in that part of the storm, again excepting the small headwater streams near the storm centers. The density of rain gages was least in the Savannah Basin, where there was a ratio of 0.0025 rain gage per square mile.

The records of flood discharge at the stream-gaging stations published herein have been used as the basis for determining the direct runoff and base runoff associated with the two storms. Discharge hydrographs based on data published in this report have been constructed for each storm, generally covering the dates of August 10-20 for the first and August 28-September 5 for the second. The method used is shown by figures 24 and 25, which illustrate stream behavior in different parts of the region

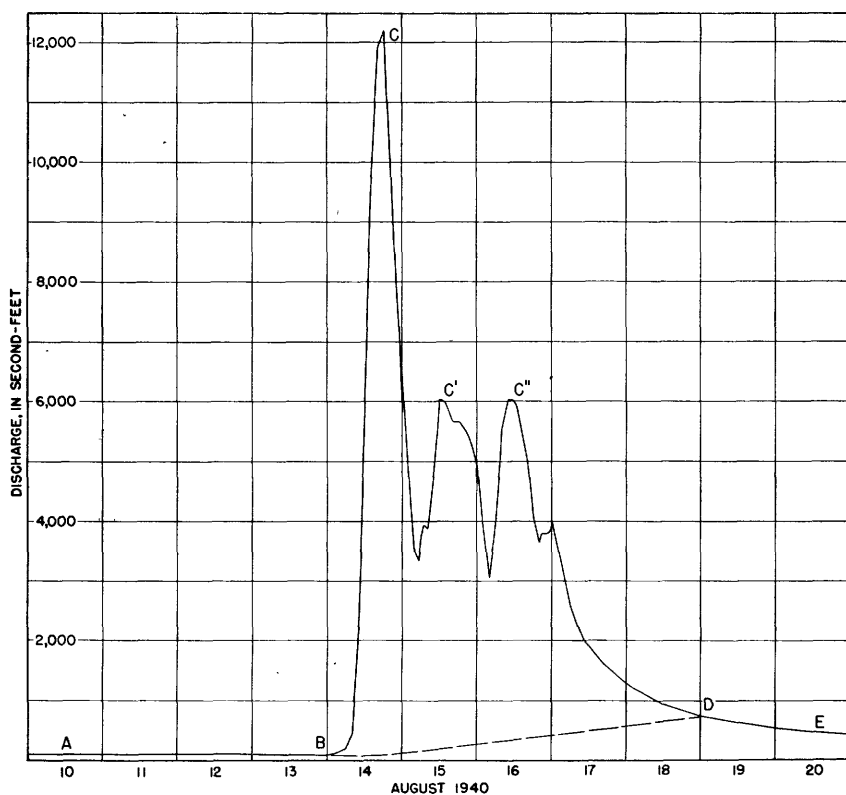


FIGURE 24.—Discharge hydrograph of Goose Creek near Huddleston, Va., August 10-20, 1940, showing method of analysis used to obtain runoff associated with storm of August 10-17, 1940.

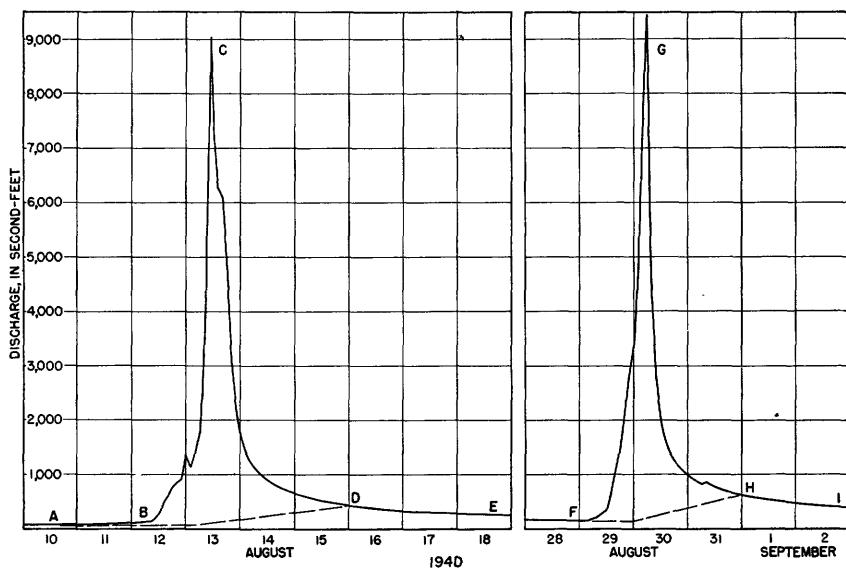


FIGURE 25.—Discharge hydrograph of French Broad River at Rosman, N. C., August 1940, showing method of analysis used to obtain runoff associated with storms of August 1940.

affected by the storm. Although the details of the hydrographs varied, similar methods were employed for all.

On August 10, when the rains began, the streams were low (point A on figs. 24 and 25). The flow on August 10 was largely composed of ground-water drainage. For a day or more, the rainfall was sufficient only to arrest the slow decline in stream flow; there was little, if any, increase in discharge. This period, identified by the segment AB on the hydrographs, represents that initial part of a storm in which rainfall is taken up by vegetal interception, ground wetting, and similar abstractions. During this part of the storm, rainfall was not notably intense. As the storm continued and rainfall became more intense, the runoff generated caused the streams to rise in flood.

On small streams the differences in rainfall distribution resulted in flood hydrographs of corresponding differences in shape. Two kinds are illustrated by figures 24 and 25. In Virginia and parts of North Carolina the rise in stream flow was abrupt, and there were multiple peaks, identified by C, C', C'' on figure 24. The first peak was generally the greatest. In other parts of the storm area there was only one peak, generally on August 13, shown by the letter C on figure 25. On the larger streams these details of distribution were obscured in a single rounded peak. After the cessation of rainfall the streams receded to points D and E. On August 18 or 20 the streams had again returned to a low stage, point E, largely outflow from ground water, but a rate of flow above that of 10 days previous.

There were scattered and infrequent rains of variable amount and intensity over all the region between August 17 and 28. These rains produced small rises in some streams, but in general there was a decline in stream flow until August 28 (point F on fig. 25), when stream flow was composed of ground-water outflow, at a rate lower than on August 20 but still greater than on August 10. The concentrated rains of August 28-31 produced a single peak, point G. The rise on the smaller streams during this flood was slower than the recession. The rains ended sharply so that the smaller streams receded quickly and had returned to base-flow rates by September 1.

The water represented by the hydrographs had its origin in rainfall. Before entering the streams and reaching the gaging station, rain water may collect and flow to the streams along innumerable paths. At present one can do little more than speculate as to the course of the water represented by the hydrographs; there is no direct evidence. According to a widely held theory, some of the rain water falls directly on the river channels and thus becomes an immediate accretion to river discharge; some is shed by the ground and reaches the streams very promptly; some may infiltrate, a portion to reappear soon as wet-weather seeps or springs and a portion reaching the ground water reservoir, from which it drains slowly. The rain water, following different paths, as suggested, then collecting in and flowing through river channels of varying length and size, presents an integrated result when registered at a gaging station. The hydrograph by itself is merely a register of the magnitude of the discharge at given times; it conveys no information as to the courses of flow or the media through which the water flowed (other than the river channel in which the gage is located). The hydrograph might be duplicated in shape or form as a result of any number of hydraulic postulates; in this report, therefore, runoff will be classified only as to its time characteristics. Two classifications are recognized, (1) direct runoff, or that flow which enters the streams with great promptness during and following a rainstorm, and (2) base runoff, or that flow which rises slowly as a result of rainfall and recedes even more slowly after the rain ends. It is the base runoff that accounts for the flow of streams during dry-weather periods; this has its origin mainly in ground-water outflow, and is therefore widely called ground-water runoff.

The separation of the discharge during floods into direct and base components can be made only with difficulty, especially in sluggish streams or where persistent rains keep the streams at flood levels for long periods. The manner of making the separation for the floods of August 1940 is illustrated on figures 24 and 25. It seems evident that point B, before the flood rise, represents base flow. On the recession side, discharge after point D is assumed to be base flow. Point D was selected

by inspection of the hydrograph, by identifying a point of change in curvature, and generally for a discharge below 10 second-feet per square mile. This point on many hydrographs was obscure, and different analysts might reach different conclusions as to its position, but the result of such differences in judgment would be relatively small in comparison with the magnitude of the direct runoff as a whole. On some hydrographs, as for example that for Tar River (see fig. 10), the change from rapidly receding direct runoff to stable base flow was abrupt.

A line was drawn in the manner illustrated connecting points B and D to represent the base-flow contribution during the flood. The position of this line is, of course, only approximate. The area enclosed within the hydrograph above the line BD is equivalent to the volume of direct runoff. This volume has been computed for the several stations and listed for their respective drainage basins in table 16. A similar analysis was made for the flood of August 28-31, 1940.

Base runoff was also computed for many streams and in the following manner: The volume of runoff below the graph ABDE was computed; from this was subtracted the total volume under a base-flow depletion graph extended from point A. The sum of the direct runoff and base runoff is equal to the total runoff discharged through the stream channels as a result of the storm and this sum is unaffected by the position of the line BD.

TABLE 16.—*Rainfall and associated direct runoff of floods of August 1940*

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipitation (inches)	Direct runoff (inches)	Difference (inches)	Precipitation (inches)	Direct runoff (inches)	Difference (inches)
JAMES RIVER BASIN								
1	Jackson River at Falling Spring, Va.	409	4.0	0.8	3.2			
2	James River at Lick Run, Va.	1,369	4.4	1.3	3.1			
3	James River at Buchanan, Va.	2,084	5.1	1.9	3.2			
5	James River at Holcombs Rock, Va.	3,250	5.9	2.0	3.9			
7	James River at Bent Creek, Va.	3,671	6.3	2.3	4.0			
8	James River at Scottsville, Va.	4,571	6.9	2.4	4.5			
9	James River at Cartersville, Va.	6,242	6.8	2.3	4.5			
10	James River near Richmond, Va.	6,757	6.8	2.2	4.6			
11	Dunlap Creek near Covington, Va.	166	4.2	1.7	2.5			
12	Potts Creek near Covington, Va.	158	5.0	2.0	3.0			
13	Cowpasture River near Clifton Forge, Va.	456	5.1	1.2	3.9			
14	Craig Creek at Parr, Va.	331	7.1	2.9	4.2			
15	Meadow Creek at Newcastle, Va.	13.8	8.4	4.6	3.8			
16	Johns Creek at Newcastle, Va.	106	8.2	2.6	5.6			
17.5	Calfpasture River above Mill Creek, at Goshen, Va.	147	5.0	2.0	3.0			
19	North River at Rockbridge Baths, Va.	329	5.1	1.8	3.3			
20	North River near Lexington, Va.	487	5.5	1.4	4.1			
20.5	North River near Buena Vista, Va.	649	5.9	1.5	4.4			
22	Kerrs Creek near Lexington, Va.	34	6.5	1.6	4.9			
23.5	Buffalo River near Norwood, Va.	360	9.4	4.5	4.9			
24.5	Tye River near Lovingsston, Va.	92	10.8	5.3	5.5			
25.5	Hardware River below Briery Run, near Scottsville, Va.	116	7.9	2.5	5.4			
26	Slate River near Arvonnia, Va.	235	8.6	2.2	6.4			
29	Rivanna River at Palmyra, Va.	675	5.9	1.9	4.0			
30	Willis River at Flanagan Mills, Va.	247	8.4	3.0	5.4			
31	Appomattox River at Farmville, Va.	306	12.4	5.5	6.9			
32	Appomattox River at Mattoax, Va.	729	11.8	6.5	5.3			
33	Appomattox River near Peters- burg, Va.	1,335	11.6	5.3	6.3			
CHOWAN RIVER BASIN								
34	Nottoway River near Stony Creek, Va.	586	13.5	5.2	8.3			
35	Meherrin River near Lawrence- ville, Va.	553	14.5	8.0	6.5			
ROANOKE RIVER BASIN								
36	Roanoke River at Roanoke, Va.	388	10.4	4.9	5.5			
37	Roanoke River at Niagara, Va.	511	10.0	5.2	4.8			
38	Roanoke River near Toshes, Va.	1,020	10.1	5.0	5.1			
40	Roanoke River at Altavista, Va.	1,802	10.1	5.2	4.9			
41	Roanoke River at Brookneal, Va.	2,420	10.1	5.5	4.6			
43	Roanoke River near Clover, Va.	3,230	10.8	5.4	5.4			
44	Roanoke River at Clarksville, Va.	7,320	9.7	4.5	5.2			
46	Roanoke River at Roanoke Rap- ids, N. C.	8,410	10.0	4.3	5.7			
47	Roanoke River near Scotland Neck, N. C.	8,700	10.0	4.7	5.3			
48	Blackwater River near Union Hall, Va.	208	11.5	6.4	5.1			
49	Pigg River near Toshes, Va.	394	10.4	5.9	4.5			
50	Snow Creek at Sago, Va.	60	9.5	4.3	5.2			
51	Goose Creek near Huddleston, Va.	187	8.2	3.3	4.9			
52	Otter River near Evington, Va.	325	9.9	3.7	6.2			
55	Falling River near Brookneal, Va.	228	11.0	5.4	5.6			
59	Dan River near Francisco, N. C.	124	8.8	2.1	6.7			
61.5	Dan River near Wentworth, N. C.	1,050	6.8	2.6	4.2			
62	Dan River at Leaksville, N. C.	1,150	6.9	2.5	4.4			
63	Dan River at Danville, Va.	2,050	7.6	3.0	4.6			
64	Dan River at South Boston, Va.	2,730	7.7	2.9	4.8			

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TABLE 16.—*Rainfall and associated direct runoff of floods of August 1940—Continued*

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipi- tation (inches)	Direct runoff (inches)	Differ- ence (inches)	Precipi- tation (inches)	Direct runoff (inches)	Differ- ence (inches)
65	Mayo River near Price, N. C.	260	7.0	2.3	4.7	-----	-----	-----
66	North Mayo River near Spencer, Va.	108	6.7	2.0	4.8	-----	-----	-----
66.5	Smith River at Bassett, Va.	253	9.5	3.3	6.2	-----	-----	-----
67	Smith River at Martinsville, Va.	374	9.1	3.5	5.6	-----	-----	-----
67.5	Smith River at Spray, N. C.	538	8.8	3.2	5.6	-----	-----	-----
69	Sandy River near Danville, Va.	113	9.5	4.6	4.9	-----	-----	-----
70	Banister River at Halifax, Va.	552	11.4	5.1	6.3	-----	-----	-----
72	Hycoc River near Omega, Va.	338	7.7	3.3	4.4	-----	-----	-----
PAMLICO RIVER BASIN								
72.5	Tar River near Tar River, N. C.	161	6.0	.8	5.2	-----	-----	-----
73	Tar River near Nashville, N. C.	701	8.0	2.7	5.3	-----	-----	-----
74	Tar River at Tarboro, N. C.	2,100	9.0	3.7	5.3	-----	-----	-----
74.5	Tar River at Greenville, N. C.	2,680	9.1	3.3	5.8	-----	-----	-----
75	Fishing Creek near Enfield, N. C.	462	9.0	3.5	5.5	-----	-----	-----
NEUSE RIVER BASIN								
76	Eno River at Hillsboro, N. C.	66.5	5.7	.6	5.1	-----	-----	-----
77	Neuse River near Northside, N. C.	526	5.3	.9	4.4	-----	-----	-----
78	Neuse River near Clayton, N. C.	1,140	6.7	1.5	5.2	-----	-----	-----
80	Neuse River near Goldsboro, N. C.	2,370	6.1	1.1	5.0	-----	-----	-----
81	Neuse River at Kinston, N. C.	2,690	6.0	1.1	4.9	-----	-----	-----
82	Flat River at Bahama, N. C.	150	5.8	1.4	4.4	-----	-----	-----
84	Dial Creek near Bahama, N. C.	4.9	4.8	.4	4.4	-----	-----	-----
85.5	Middle Creek near Clayton, N. C.	80.7	4.8	.4	4.4	-----	-----	-----
87	Little River near Princeton, N. C.	229	7.7	2.1	5.6	-----	-----	-----
89	Contentnea Creek near Wilson, N. C.	236	7.9	2.4	5.5	-----	-----	-----
90	Contentnea Creek at Hookerton, N. C.	789	7.5	1.7	5.8	-----	-----	-----
CAPE FEAR RIVER BASIN								
91	Haw River near Benaja, N. C.	168	5.9	2.8	3.1	-----	-----	-----
92	Haw River at Haw River, N. C.	599	5.2	2.2	3.0	-----	-----	-----
93	Haw River near Pittsboro, N. C.	1,310	5.2	1.5	3.7	-----	-----	-----
95	Cape Fear River at Lillington, N. C.	3,440	4.9	.9	4.0	-----	-----	-----
96	Cape Fear River at Fayetteville, N. C.	4,370	4.7	.8	3.9	-----	-----	-----
96.5	Cape Fear River at lock 3, near Tarheel, N. C.	4,810	4.6	.8	3.8	-----	-----	-----
98	Reedy Fork near Gibsonville, N. C.	133	5.0	2.1	2.9	-----	-----	-----
99	Horsepen Creek at Battle Ground, N. C.	15.9	5.5	2.3	3.2	-----	-----	-----
100	Buffalo Creek near Greensboro, N. C.	32.8	5.5	1.8	3.7	-----	-----	-----
101	North Buffalo Creek near Greens- boro, N. C.	36.4	5.1	1.6	3.5	-----	-----	-----
103	West Fork Deep River near High Point, N. C.	32.1	5.7	2.2	3.5	-----	-----	-----
104	Deep River near Randleman, N. C.	124	6.4	2.1	4.3	-----	-----	-----
105	Deep River at Ramseur, N. C.	346	6.0	1.9	4.1	-----	-----	-----
107	Deep River at Moncure, N. C.	1,410	5.0	.8	4.2	-----	-----	-----
108	East Fork Deep River near High Point, N. C.	14.2	5.9	1.9	4.0	-----	-----	-----
109	Muddy Creek near Archdale, N. C.	16.2	6.2	1.6	4.6	-----	-----	-----
109.5	Lower Little River at Manches- ter, N. C.	348	4.1	.1	4.0	-----	-----	-----
110	Lower Little River at Linden, N. C.	460	3.9	.1	3.8	-----	-----	-----
111	Rockfish Creek near Hope Mills, N. C.	284	3.6	.3	3.3	-----	-----	-----
111.1	Northeast Cape Fear River at Chinquapin, N. C.	600	4.0	.5	3.5	-----	-----	-----
WACCAMAW RIVER BASIN								
111.3	Waccamaw River at Freeland, N. C.	667	3.7	5.5	.2	5.3	-----	-----
111.5	Middle Swamp near Elkton, N. C.	3.7	5.5	.2	5.3	-----	-----	-----
111.7	Beaverdam Swamp at Lebanon, N. C.	21.3	2.2	.1	2.1	-----	-----	-----

TABLE 16.—*Rainfall and associated direct runoff of floods of August 1940—Continued*

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipi- tation (inches)	Direct runoff (inches)	Difference (inches)	Precipi- tation (inches)	Direct runoff (inches)	Difference (inches)
PEE DEE RIVER BASIN								
111.9	Yadkin River at Patterson, N. C.	28.8	12.5	4.5	8.0			
112	Yadkin River at Wilkesboro, N. C.	493	12.7	6.5	6.2			
115	Yadkin River at Yadkin College, N. C.	2,280	8.0	2.3	5.7			
117	Yadkin River at High Rock Reser- voir, at High Rock, N. C.	3,980						
117.5	Yadkin River at Narrows Reser- voir, near Badin, N. C.	4,160						
118	Pee Dee River at Tillery Reser- voir, near Norwood, N. C.	4,600						
118.5	Pee Dee River near Ansonville, N. C.	6,330	6.4	1.1	5.3			
118.8	Pee Dee River at Blewett Reser- voir, near Rockingham, N. C.	6,600						
120	Pee Dee River near Rockingham, N. C.	6,870	6.4	1.2	5.2			
120.1	Pee Dee River near Mars Bluff, S. C.	8,870	6.2	1.0	5.2			
120.7	Reddies River at North Wilkes- boro, N. C.	93.9	12.9	4.5	8.4			
122	Fisher River near Copeland, N. C.	121	6.4	2.4	4.0			
123.1	Little Yadkin River near Don- naha, N. C.	59.7	5.6	1.9	3.7			
123.2	Forbush Creek near Yadkinville, N. C.	21.7	6.0	1.0	5.0			
123.3	Reedy Creek near Yadkin Col- lege, N. C.	13.3	5.0	1.3	3.7			
123.4	Dutchman Creek near Cornatzer, N. C.	83.6	4.8	1.7	3.1			
123.5	South Yadkin River near Mocks- ville, N. C.	313	7.4	1.3	6.1			
124	South Yadkin River at Coolee- mee, N. C.	569	7.0	1.4	5.6			
124.5	Rocky River at Turnersburg, N. C.	85.5	7.6	1.4	6.2			
125.2	Third Creek at Cleveland, N. C.	87.4	6.0	1.1	4.9			
125.5	Abbotts Creek at Lexington, N. C.	174	6.5	2.1	4.4			
125.8	Fourmile Branch near South- mont, N. C.	19.4	7.5	1.5	6.0			
126	Uwharrie River near Trinity, N. C.	11.3	7.1	2.0	5.1			
126.5	Uwharrie River near Eldorado, N. C.	347	6.0	.7	5.3			
127	Rocky River near Norwood, N. C.	1,370	4.5	.5	4.0			
127.3	Richardson Creek near Marsh- ville, N. C.	170	3.5	0.1	3.4			
127.5	Brown Creek near Polkton, N. C.	110	5.0	.4	4.6			
128	Little Brown Creek near Polkton, N. C.	13.5	5.3	.4	4.9			
128.5	Mountain Creek near Ellerbe, N. C.	33.4	6.0	.3	5.7			
129	North Fork Jones Creek near Wadesboro, N. C.	10.0	4.9	.4	4.5			
130	Lynches River at Effingham, S. C.	1,030	4.5	.5	4.0			
130.3	Little Pee Dee River near Dillon, S. C.	524	5.8	.3	5.5			
130.7	Drowning Creek near Hoffman, N. C.	178	5.3	.4	4.9			
131	Lumber River at Boardman, N. C.	1,220	4.8	1.4	4.4			
131.3	Deep Creek near Roseland, N. C.	18.9	5.3	.3	5.0			
131.7	Little Raft Swamp at Red Springs, N. C.	23.1	3.0	.2	2.8			
132	Black River at Kingstree, S. C.	1,260	5.0	1.2	4.8			
SANTEE RIVER BASIN								
133.8	Catawba River near Bridgewater, N. C.	380	12.0	7.2	4.8			
136	Catawba River at Catawba, N. C.	1,535	11.9	5.0	6.9			
139	Wateree River near Camden, S. C.	5,070	6.8	2.1	4.7			
140	Santee River at Ferguson, S. C.	14,600	6.7	1.9	4.8			
142	Linville River at Branch, N. C.	65	14.1	11.0	3.1			

¹ Includes base flow.

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TABLE 16.—*Rainfall and associated direct runoff of floods of August 1940—Continued*

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipi- tation (inches)	Direct runoff (inches)	Differ- ence (inches)	Precipi- tation (inches)	Direct runoff (inches)	Differ- ence (inches)
151	Little Sugar Creek near Char- lotte, N. C.	41.4	4.6	0.7	3.9	-----	-----	-----
152	Broad River near Chimney Rock, N. C.	97	9.5	3.0	6.5	-----	-----	-----
153	Broad River near Boiling Springs, N. C.	864	9.1	3.0	6.1	-----	-----	-----
154	Broad River near Gaffney, S. C.	1,490	8.4	2.9	5.5	-----	-----	-----
154.5	Broad River near Carlisle, S. C.	2,790	7.7	2.1	5.6	-----	-----	-----
156	Broad River at Richtex, S. C.	4,850	7.2	1.9	5.3	-----	-----	-----
157.5	Green River near Millspring, N. C.	174	9.7	-----	-----	-----	-----	-----
158	Second Broad River at Cliffside, N. C.	211	8.4	2.9	5.5	-----	-----	-----
159.5	First Broad River near Lawndale, N. C.	198	8.8	4.4	4.4	-----	-----	-----
161	North Pacolet River at Finger- ville, S. C.	116	10.4	3.1	7.3	-----	-----	-----
162	Pacolet River near Fingerville, ville, S. C.	212	10.4	3.4	7.0	-----	-----	-----
164	North Tyger River near Moore, S. C.	162	9.7	3.3	6.4	-----	-----	-----
165	Tyger River near Woodruff, S. C.	351	9.4	2.7	6.7	-----	-----	-----
165.5	Middle Tyger River at Lyman, S. C.	68.3	9.6	2.8	6.8	-----	-----	-----
166	South Tyger River near Reid- ville, S. C.	106	9.3	2.1	7.2	-----	-----	-----
167	South Tyger River near Wood- ruff, S. C.	174	9.2	2.1	7.1	-----	-----	-----
167.5	Fair Forest Creek near Union, S. C.	183	6.5	2.0	4.5	-----	-----	-----
168	Enoree River near Enoree, S. C.	307	7.6	2.5	5.1	-----	-----	-----
170	Saluda River near Pelzer, S. C.	405	9.6	1.8	7.8	-----	-----	-----
170.5	Saluda River near Ware Shoals, S. C.	569	9.1	2.5	6.6	-----	-----	-----
172	Saluda River at Chappells, S. C.	1,350	9.3	-----	-----	-----	-----	-----
173	Saluda River near Silverstreet, S. C.	1,620	9.2	-----	-----	-----	-----	-----
175	Saluda River near Columbia, S. C.	2,510	8.3	2.8	5.5	-----	-----	-----
176	Reedy River near Ware Shoals, S. C.	228	7.9	2.7	5.2	-----	-----	-----
EDISTO RIVER BASIN								
176.5	South Fork Edisto River near Montmorenci, S. C.	198	4.8	.8	4.0	-----	-----	-----
SAVANNAH RIVER BASIN								
179	Chattooga River near Clayton, Ga.	203	11.6	2.3	9.3	11.2	3.0	8.2
183	Tugaloo River near Hartwell, Ga.	905	9.8	2.2	7.6	7.2	1.5	5.7
184	Savannah River near Calhoun Falls, S. C.	2,876	9.0	2.3	6.7	5.5	1.0	4.5
186	Savannah River at Augusta, Ga.	7,508	8.8	3.0	5.8	-----	-----	-----
186.3	Savannah River at Burtons Ferry Bridge, near Millhaven, Ga.	8,650	8.5	2.8	5.7	-----	-----	-----
186.7	Savannah River near Cloy, Ga.	9,850	8.5	2.6	5.9	-----	-----	-----
194	Seneca River near Anderson, S. C.	1,026	11.0	2.7	8.3	6.7	1.5	5.2
196	Broad River near Bell, Ga.	1,420	7.8	1.7	6.1	-----	-----	-----
197	Brier Creek at Millhaven, Ga.	656	9.2	3.6	5.6	-----	-----	-----
OGEECHEE RIVER BASIN								
198	Ogeechee River near Louisville, Ga.	800	9.1	3.5	5.6	-----	-----	-----
200	Ogeechee River at Scarboro, Ga.	1,940	9.3	2.6	6.7	-----	-----	-----
201	Ogeechee River near Eden, Ga.	2,650	8.5	2.2	6.3	-----	-----	-----
203	Canoochee River near Claxton, Ga.	555	5.6	1.4	4.2	-----	-----	-----
KANAWHA RIVER BASIN								
177	South Fork New River near Jeffer- son, N. C.	207	13.3	8.0	5.3	7.0	3.0	4.0
180	New River near Galax, Va.	1,131	9.7	4.4	5.3	4.3	1.1	3.2
182	New River at Ivanhoe, Va.	1,340	9.2	3.9	5.3	4.2	1.1	3.1
183	New River at Allsionia, Va.	2,202	8.0	2.9	5.1	3.6	.9	2.7
184	New River at Radford, Va.	2,748	8.0	2.7	5.3	-----	-----	-----

TABLE 16.—Rainfall and associated direct runoff of floods of August 1940—Continued

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipitation (inches)	Direct runoff (inches)	Difference (inches)	Precipitation (inches)	Direct runoff (inches)	Difference (inches)
185	New River at Eggleston, Va.-----	2,941	7.9	2.6	5.3	-----	-----	-----
186	New River at Glenlyn, Va.-----	3,768	7.3	2.3	5.0	-----	-----	-----
192	North Fork New River at Crumpler, N. C.-----	277	10.1	6.9	3.2	3.2	0.4	2.8
194	Reed Creek at Grahams Forge, Va.-----	247	4.5	.8	3.7	1.2	.1	1.1
195	Big Reed Island Creek near Allisonia, Va.-----	278	8.4	2.3	6.1	4.1	.6	3.5
198	Little River at Graysonton, Va.---	302	10.0	3.3	6.7	-----	-----	-----
199	Walker Creek at Bane, Va.-----	305	4.3	1.0	3.3	-----	-----	-----
201	Wolf Creek near Narrows, Va.-----	223	3.8	1.1	2.7	-----	-----	-----
TENNESSEE RIVER BASIN								
454	French Broad River at Rosman, N. C.-----	67.9	10.9	2.8	8.1	9.1	2.2	6.9
455	French Broad River at Calvert, N. C.-----	103	11.3	2.9	8.4	8.5	1.9	6.6
456	French Broad River at Blantyre, N. C.-----	296	11.2	4.3	6.9	7.7	2.5	5.2
458	French Broad River at Bent Creek, N. C.-----	676	9.6	2.9	6.7	7.5	2.2	5.3
459	French Broad River at Asheville, N. C.-----	945	9.3	2.6	6.7	7.6	2.3	5.3
460	French Broad River at Hot Springs, N. C.-----	1,567	7.1	1.8	5.3	6.9	2.1	4.8
461	French Broad River near Newport, Tenn.-----	1,858	6.5	1.6	4.9	6.5	2.0	4.5
478	Davidson River near Brevard, N. C.-----	40.4	11.0	2.8	8.2	7.8	1.8	6.0
480	South Fork Mills River at The Pink Beds, N. C.-----	9.99	12.1	5.4	6.7	8.8	2.5	6.3
482	Mills River near Mills River, N. C.-----	66.7	9.7	3.4	6.3	8.9	2.4	6.5
484	Mud Creek at Naples, N. C.-----	109	8.4	3.2	5.2	6.7	2.5	4.2
486	Swannanoa River at Biltmore, N. C.-----	130	9.9	3.5	6.4	7.1	2.1	5.0
487	North Fork of Swannanoa River near Black Mountain, N. C.---	23.8	12.5	8.9	3.6	8.2	4.4	3.8
488	Beetree Creek near Swannanoa, N. C.-----	5.46	10.0	4.9	5.1	7.0	4.1	2.9
489	Ivy River near Marshall, N. C.---	158	4.9	1.0	3.9	5.2	1.1	4.1
490	Big Laurel Creek near Stackhouse, N. C.-----	126	2.8	.5	2.3	4.4	1.0	3.4
491	Pigeon River at Canton, N. C.---	133	10.6	5.3	5.3	9.4	3.6	5.8
493	Pigeon River near Hepco, N. C.---	350	7.3	2.7	4.6	7.3	1.9	5.4
495	Pigeon River at Hartford, Tenn.---	547	6.4	1.7	4.7	6.5	1.6	4.9
497	Jonathan Creek near Cove Creek, N. C.-----	65.3	5.4	1.1	4.3	5.4	1.0	4.4
498	Cataloochee Creek near Cataloochee, N. C.-----	49.2	5.8	1.0	4.8	5.3	1.0	4.3
499	North Toe River at Altapass, N. C.-----	104	10.9	5.0	5.9	5.5	1.5	4.0
501	Nolichucky River at Poplar, N. C.---	608	8.8	3.8	5.0	5.8	1.7	4.1
502	Nolichucky River at Embreeville, Tenn.-----	805	7.7	3.1	4.6	5.3	1.5	3.8
506	South Toe River at Newdale, N. C.---	60.8	14.5	11.0	3.5	9.6	5.2	4.4
507	Cane River near Sioux, N. C.-----	157	7.3	3.9	3.4	5.3	1.4	3.9
508	Little Pigeon River at Sevierville, Tenn.-----	353	2.3	.7	1.6	-----	-----	-----
510	South Fork Holston River at Vestal, Va.-----	301	5.6	1.4	4.2	-----	-----	-----
511	South Fork Holston River at Bluff City, Tenn.-----	813	4.6	1.4	3.2	-----	-----	-----
512	South Fork Holston River at Kingsport, Tenn.-----	1,931	5.2	1.3	3.9	-----	-----	-----
516	Middle Fork Holston River near Meadowview, Va.-----	211	3.9	.7	3.2	-----	-----	-----
517.8	Watauga River near Sugar Grove, N. C.-----	90.8	12.2	7.9	4.3	6.5	2.0	4.5
518	Watauga River at Stump Knob, Tenn.-----	171	10.4	5.2	5.2	5.0	1.2	3.8
519	Watauga River at Butler, Tenn.---	427	8.4	3.2	5.2	3.3	.7	2.6
520	Watauga River at Horseshoe Dam, at Wilbur, Tenn.-----	471	7.7	3.0	4.7	-----	-----	-----

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TABLE 16.—*Rainfall and associated direct runoff of floods of August 1940—Continued*

No. on pl. 20	Stream and point of measurement	Drainage area (square miles)	August 10-17			August 28-31		
			Precipitation (inches)	Direct runoff (inches)	Difference (inches)	Precipitation (inches)	Direct runoff (inches)	Difference (inches)
521	Watauga River at Elizabethton, Tenn.	692	7.0	2.5	4.5			
523	Elk Creek near Elk Park, N. C.	42.0	11.2	5.2	6.0	6.2	2.0	4.2
524	Roan Creek at Butler, Tenn.	166	6.2	1.3	4.9			
527	Doe River at Elizabethton, Tenn.	137	5.5	.8	4.7			
528	North Fork Holston River near Saltville, Va.	222	4.5	1.2	3.3			
530	North Fork Holston River near Gate City, Va.	672	4.9	1.5	3.4			
534	Little River near Walland, Tenn.	192	2.9	.5	2.4			
537	Little Tennessee River at Iotla, N. C.	323	6.7	1.2	5.5	8.3	1.9	6.4
540	Little Tennessee River at Jud- son, N. C.	664	6.1	.8	5.3	6.5	1.3	5.2
540.5	Little Tennessee River near Fon- tana, N. C.	1,571	5.5	.9	4.6	6.1	1.4	4.7
541	Little Tennessee River at Calder- wood, Tenn.	1,862	5.0	.6	4.4			
543	Cullasaja Creek at Highlands, N. C.	14.9	12.2	5.0	7.2	11.4	4.7	9.7
544	Cullasaja Creek at Cullasaja, N. C.	86.5	7.8	2.6	5.2	9.6	3.8	5.8
546	Nantahala River at Almond, N. C.	174	4.4	.8	3.6	4.0	.5	3.5
547	Tuckasegee River at Tuckasegee, N. C.	143	10.7	3.1	7.6	9.6	4.3	5.3
549	Tuckasegee River at Dillsboro, N. C.	347	7.8	1.7	6.1	8.2	2.3	5.9
550	Tuckasegee River at Bryson City, N. C.	655	5.7	1.2	4.5	7.0	1.8	5.2
551	Scott Creek at Sylva, N. C.	55.0	4.7	.6	4.1	7.1	.9	6.2
552	Oconalufy River at Cherokee, N. C.	131	4.2	1.0	3.2	5.3	.7	4.6
553	Noland Creek near Bryson City, N. C.	13.8	4.7	1.3	3.4	6.4	1.4	5.0
556	Tellico River at Tellico Plains, Tenn.	118	3.8	.3	3.5			
557	Clinch River at Cleveland, Va.	528	4.9	1.4	3.5			
558	Clinch River at Speers Ferry, Va.	1,126	4.0	1.1	2.9			
582	Hiwassee River below Hayesville, N. C.	252	5.9	.7	5.2	4.0	.4	3.6
583	Hiwassee River above Murphy, N. C.	404	5.0	.6	4.4	3.6	.3	3.3
584	Hiwassee River at Hiwassee Dam, N. C.	968	4.2					
591	Valley River at Tomotla, N. C.	104	3.2	.1	3.1			
592	Nottely River near Ivylog, Ga.	191	5.9	.6	5.3			
593	Nottely River near Ranger, N. C.	272	4.7	.4	4.3			
600	Ocoee River at Parksville, Tenn.	595	3.9					

The volume of runoff varies with a number of factors, such as moisture condition of the soil and intensity of rainfall, but the volume of rainfall seems to be the dominant factor. Accordingly, volumes of direct runoff have been plotted against total rainfall on figures 26 and 27. In order to compare the relative plotting of the several points, lines of equal infiltration index, ¹³ in inches per hour, have been drawn on figures 26 and 27. By definition, the infiltration index is a rate of rainfall such that the volume of rainfall at greater rates equals the volume of direct runoff. It is intended to serve as a measure of the absorptive capacity of the ground.

¹³ For methods of computing infiltration index, see Langbein, W. B., and others, Major winter and non-winter floods in selected basins in New York and Pennsylvania: U. S. Geol. Survey Water-Supply Paper 915, pp. 11-13.

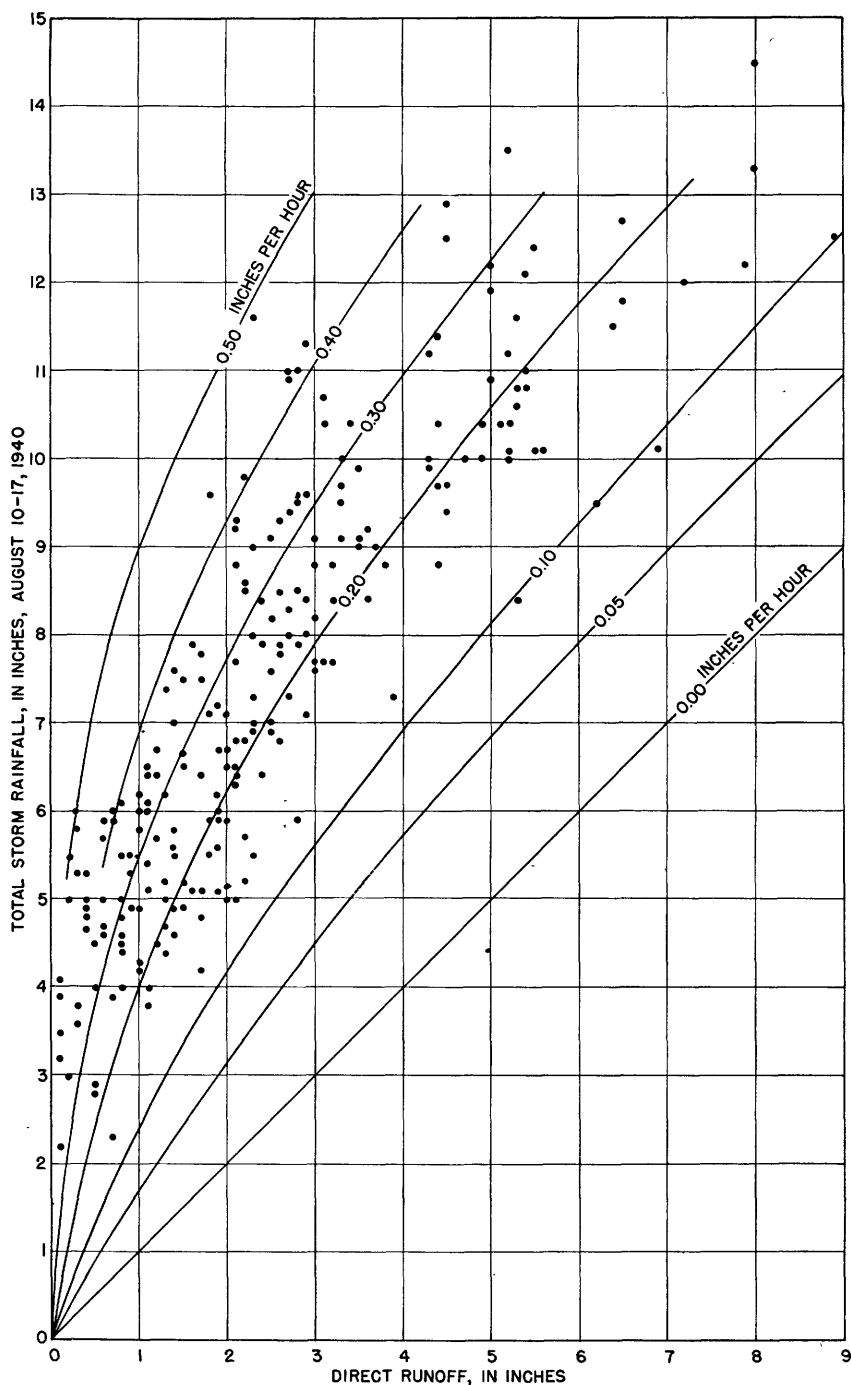


FIGURE 26.—Chart showing total rainfall and direct runoff for mid-August storm, in relation to indicated infiltration indices.

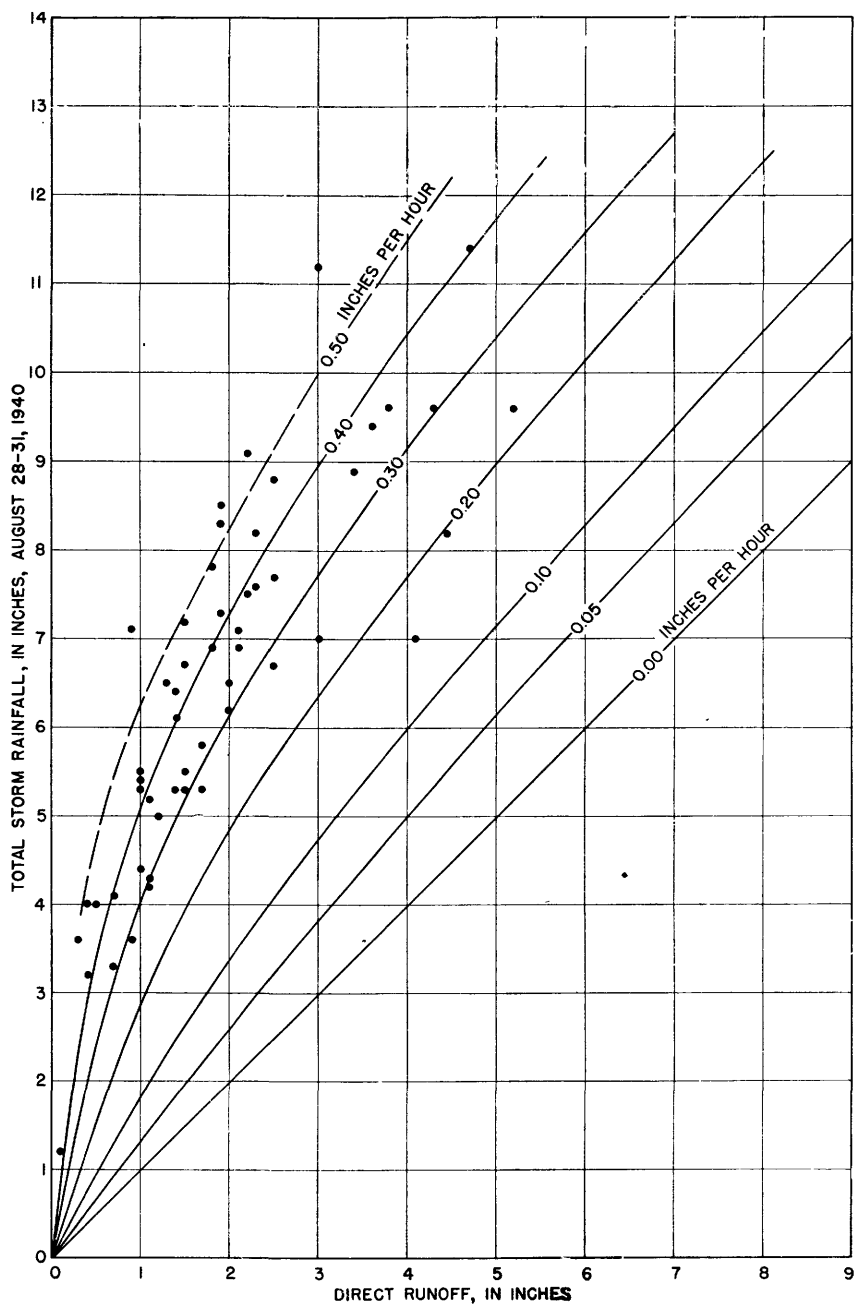
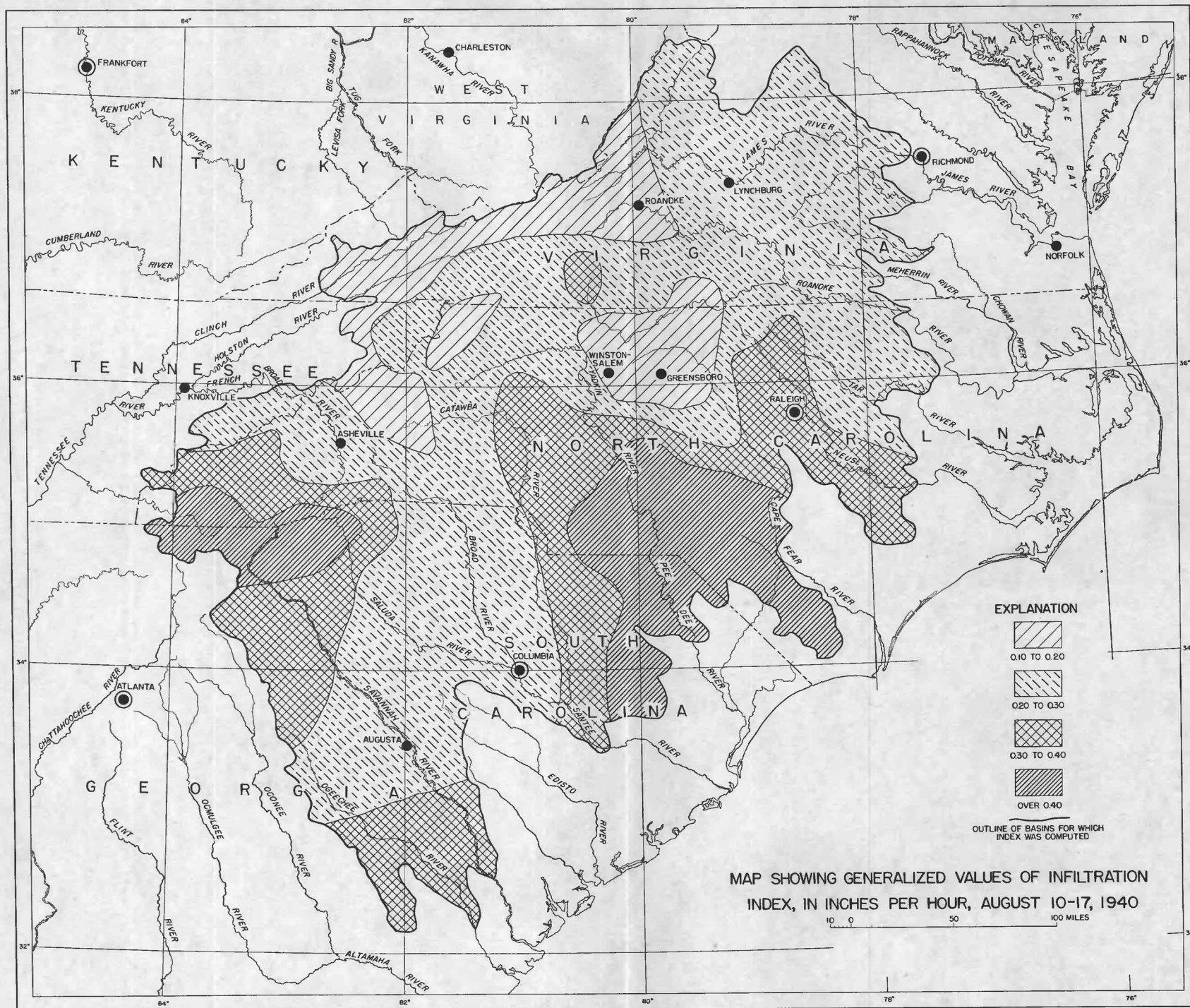


FIGURE 27.—Chart showing total rainfall and direct runoff for late-August storm, in relation to indicated infiltration indices.

It has been found that during a given storm empirical relations exist between the total storm rainfall and the volume of rainfall in excess of



selected rates. The lines of figures 26 and 27 express this relation for the mid-August and late-August storms, respectively. Total storm rainfall is given as ordinate, and if by definition the lines representing the selected rainfall rates are interpreted as the infiltration index, the rainfall excess is equivalent to the volume of direct runoff shown as the abscissa.

These lines have been used for computing values of the infiltration index for the several plotted points representing the precipitation and direct runoff for each basin listed in table 16.

DISCUSSION OF RESULTS

There are about 250 computations of mean areal rainfall and associated direct runoff listed in table 16 for the mid-August storm and 55 for the late-August storm. Basin-wide precipitation averages of 10 inches or more were common, and there were three for which mean areal rainfall during the mid-August storm exceeded 14 inches. Two of these basins adjoin the Atlantic-Gulf divide between the Tennessee and Santee River Basins, South Toe River being a tributary of Tennessee River and Linville River a tributary of Santee River. Each of these tributaries drains about 65 square miles and discharged a direct-runoff volume of 11 inches, which was greater than the runoff of any other stream listed in table 16. Eleven inches of direct runoff is an extraordinary amount and closely approaches a limit of storm runoff experienced in this region, especially in the nonwinter season. The previous maximum 5-day runoff (approximately equivalent to the direct runoff) on record of any stream in the storm region was 9.18 inches measured on Daddy Creek near Grassy Cove, Tenn., March 22-26, 1929.

The third basin having mean areal rainfall in excess of 14 inches was Meherrin River above Lawrenceville, Va. The runoff from this basin, 553 square miles in area, was 8 inches, greater than that of any other basin of comparable size. In point of size of area, Roanoke River discharged the greatest flood volume. The runoff at Scotland Neck, N. C. (8,700 square miles), was 4.7 inches.

On figure 26 have been plotted volumes of direct runoff against associated amounts of mean areal rainfall, as listed for the mid-August storm in table 16. On this graph, as previously explained, have been drawn lines of equal infiltration index. It is assumed, therefore, that points conforming to a constant infiltration index represent basins of equal "runoff potentiality." For example, the mean areal rainfall of Rivanna River at Palmyra, Va., August 10-17 was 5.9 inches, and the associated direct runoff was 1.9 inches, indicating an infiltration index of 0.20 inch per hour. It is assumed that if the precipitation were 10.8 inches (as on Tye River in Virginia) then the direct runoff would be 5.3 inches. There is no rigorous way in which this theory can be tested. The following, however, was developed to check the shape of the lines

on figure 26. The basins listed in table 16 were grouped by precipitation amounts during the mid-August storm, and the direct runoff for groups of basins of equal precipitation was averaged, with the results shown on figure 28. These points represent basins with essentially equal precipitation but with different absorptive capacities, due either to differences in initial soil moisture or to factors inherent in the basin. The range of conditions in each precipitation group may be assumed to be the same, and therefore the several points may be said to represent the

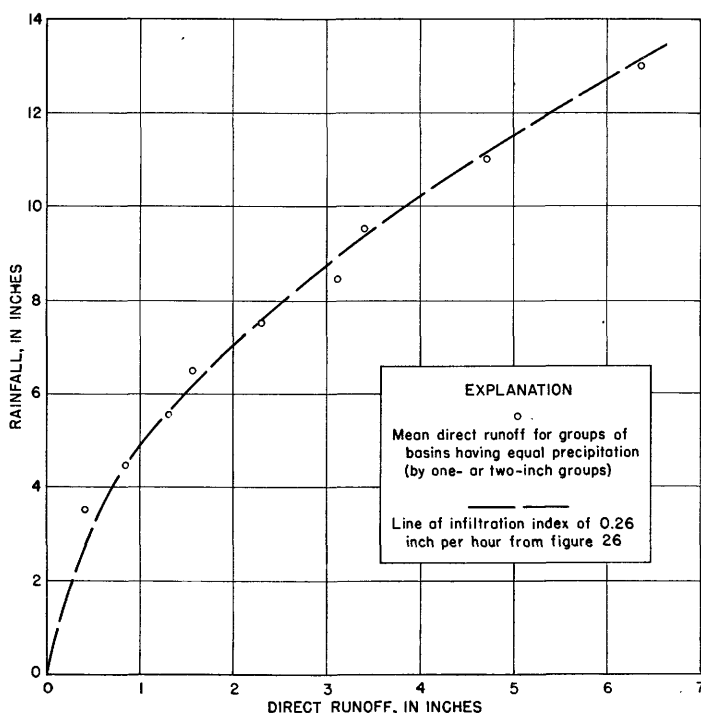


FIGURE 28.—Mean rainfall-runoff relation, mid-August storm.

runoff from a hypothetical “average” basin but with different amounts of rainfall. On this graph has been drawn a line representing an infiltration index of 0.26 inch per hour interpolated from figure 26. This line conforms quite well to the points as plotted.

Figure 26 suggests a curvilinear relation of rainfall to runoff, and such a relation would have an effect on the significance of the figures of “mean areal rainfall” when used in comparison with runoff. The method used assumes a linear or proportional relation of rainfall to runoff. This is in error to an extent depending on the range in rainfall within the basin and on the shape of the rainfall-runoff relation.

Again referring to figure 26, it will be noted that most points are located within lines representing infiltration indices of 0.10 and 0.50

inch per hour. The infiltration index for each plotted point was read by interpolation and entered on a map, with the plotting in the center of the basin. It is thought that erratic variations in the infiltration index between adjoining or nearby basins are not logical. Therefore the values of the infiltration index of adjoining or nesting basins were examined with the view to detecting irregularities or possible errors. Some of these seeming inconsistencies remain in the record and must be ascribed either to deficiency of the method of analysis or to errors of base data not apparent. Erratic variations seemed greatest between basins of 100 square miles or less in area, for which determinations of rainfall were not supported by measurements within the basin.

A tendency toward geographic grouping of values of the infiltration index was sufficiently well marked to permit the preparation of a map of generalized values during the mid-August storm. This map is reproduced in reduced scale as plate 21. The values of the infiltration index had the following distribution according to area:

<i>Infiltration index</i>	<i>Area (square miles)</i>
Over 0.40 inch per hour	11,500
Between 0.30 and 0.40 inch per hour	20,500
Between 0.20 and 0.30 inch per hour	41,000
Between 0.10 and 0.20 inch per hour	10,500
Total area (average=0.29 inch per hour)	83,500

The map indicates that low values of infiltration index (under 0.20) seem to be limited to the northern and higher parts of the region, whereas high values, indicative of good absorptive conditions (over 0.40), seem to occur only in the southern and lower parts of the region. There are some groups of basins for which the values of the infiltration index are consistent among themselves yet differ greatly from values in nearby groups that seem to be not greatly different in character. For example, the infiltration index in the upper Savannah and Hiwassee River Basins ranged between 0.40 and 0.50 inch per hour. Northward along the divide, in the upper Catawba and Nolichucky River Basins, the infiltration index was less than 0.20 inch per hour. According to available data, amounts of precipitation in these regions were of comparable magnitude, yet volumes of runoff in the latter were twice to three times that of the former. Differences of this extent reflect either inherent differences in the structure of these basins, differences in antecedent soil conditions as they affect the generation of direct runoff, or systematic or regional errors in base data or their interpretation.

The rainfall and runoff during the late-August storm were studied in the same fashion. Figure 27 is a plot of the total storm rainfall and direct runoff. Lines of equal infiltration index have also been drawn on this graph from a study of the rates of rainfall at recording rain

gages within the storm region. Most of the points plot within the indices of 0.5 and 0.3 inch per hour. If figures 26 and 27 are compared it will be noted that the lines of equal infiltration index in figure 27 are farther to the right than those in figure 26. This is due to the shorter duration and generally higher rainfall rates of the late-August storm as compared with the mid-August storm. For the same precipitation and volume of direct runoff the infiltration index would be higher during the late-August storm than during the mid-August storm.

Plate 22 shows the generalized areal distribution of infiltration indices during the late-August storm. An area of high infiltration index (> 0.40 inch per hour) is shown in the southern part of the storm region, whereas in the northern part the infiltration index was generally less than 0.40 inch per hour.

This manner of distribution was comparable to that during the mid-August storm. The general average over the whole area was 0.37 inch per hour.

For comparable volume of rainfall, direct runoff during the late-August storm was about the same as during the mid-August storm. This is shown by figure 29. A mean rainfall-runoff relation during the

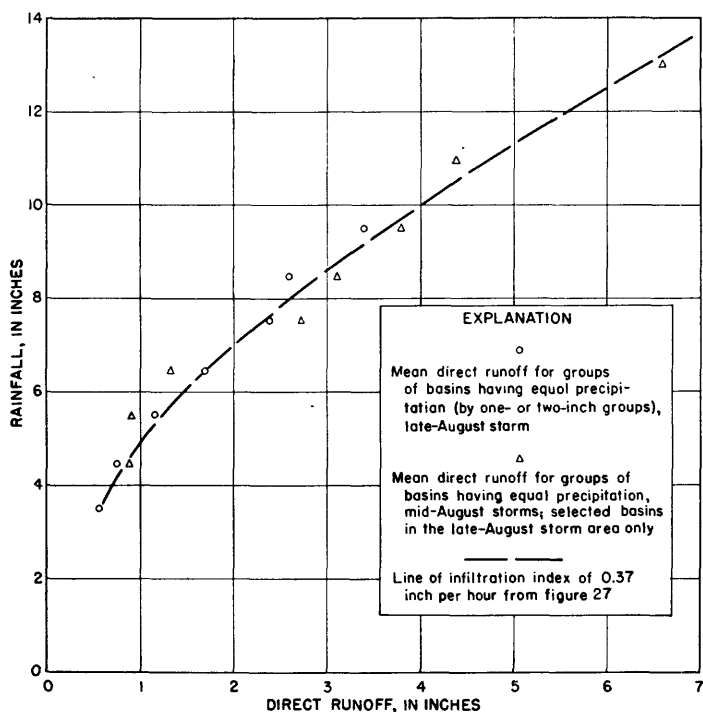


FIGURE 29.—Mean rainfall-runoff relation, late-August storm, and comparison with mid-August storm.

late-August storm was prepared by averaging the direct runoff for groups containing basins with approximately equal rainfall (by 1- or 2-inch intervals), and the mean rainfall and mean direct runoff for each group is plotted on figure 29. A line conforming to an infiltration index of 0.37 inch per hour as interpolated from figure 27 is drawn on figure 29 and averages the plotted points. Also plotted on figure 29 are averages of the direct runoff during the mid-August storm of groups of basins having approximately the same precipitation, but within the area of the late-August storm only. Thus the two series of points on figure 29 represent the same group of basins. Although there is some scattering, the points for the mid-August storm in general conform to those during the late-August storm. In this sense the dashed line on figure 29 also corresponds to an infiltration index of 0.26 inch per hour during the mid-August storm. The difference between 0.26 inch per hour during the mid-August storm and 0.37 inch per hour during the late-August storm for the same general rainfall-runoff relation is due entirely to difference in rainfall intensities during the two storms as they affect the computation of the infiltration index.

It is somewhat surprising that the volumes of direct runoff for the two storms were so nearly comparable. It might be expected that for equivalent amounts of precipitation the runoff volumes of the late-August storm would exceed those of the mid-August storm, for two reasons: (1) The retention from the first storm would tend to increase soil moisture, unless the drying out between storms was sufficient to deplete this retention; however, the base flow of the rivers was uniformly greater on August 28 than on August 10. (2) Rainfall intensities were greater during the late-August storm than during the mid-August storm, but the agreement between volumes of runoff during the two storms suggests a uniformity of the rainfall-runoff relation.

VARIATION OF RAINFALL-RUNOFF RELATIONS DURING MID-AUGUST STORM

The curve representing the relation of total storm rainfall to total direct runoff for the mid-August storm indicates a greater proportional conversion of rainfall into runoff for large amounts than for small amounts. A similar condition existed with respect to time, that is, as the storm continued there was an increase in the proportional amount of rainfall that was converted into runoff.

The smaller streams in Virginia and parts of North Carolina had two or more distinct peaks associated with distinct periods of rainfall, permitting division into separate storm periods. The volume of rainfall and direct runoff associated with each of the peaks during the mid-

August storm has been estimated for six selected streams in the James, Roanoke, and Pamlico River Basins. The results are given in table 17.

TABLE 17.—*Rainfall and associated direct runoff on selected streams having several peak flows during the mid-August flood*

No. on pl. 20	Stream and location	Initial period		First peak		Second peak		Total	
		Rain-fall	Run-off	Rain-fall	Run-off	Rain-fall	Run-off	Rain-fall	Run-off
11	Dunlap Creek near Covington, Va.	0.5	0.0	2.5	1.1	1.2	0.6	4.2	1.7
24.5	Tye River near Lovings-ton, Va. . . . .	.8	0.0	7.0	3.1	3.0	2.2	10.8	5.3
31	Appomattox River at Farmville, Va. . . . .	.4	0.0	9.1	3.0	2.9	1.6	12.4	5.5
51	Goose Creek near Huddleston, Va.	1.3	0.0	4.9	1.6	1.9	1.9	8.2	3.3
66.5	Smith River at Bassett, Va.	1.3	.1	5.8	2.1	2.4	1.1	9.5	3.3
72.5	Tar River near Tar River, N. C. . . . .	.8	0.0	2.8	.25	2.4	.50	6.0	.75

1 Includes a third peak with rainfall 1.1 inches, runoff 0.8 inch.

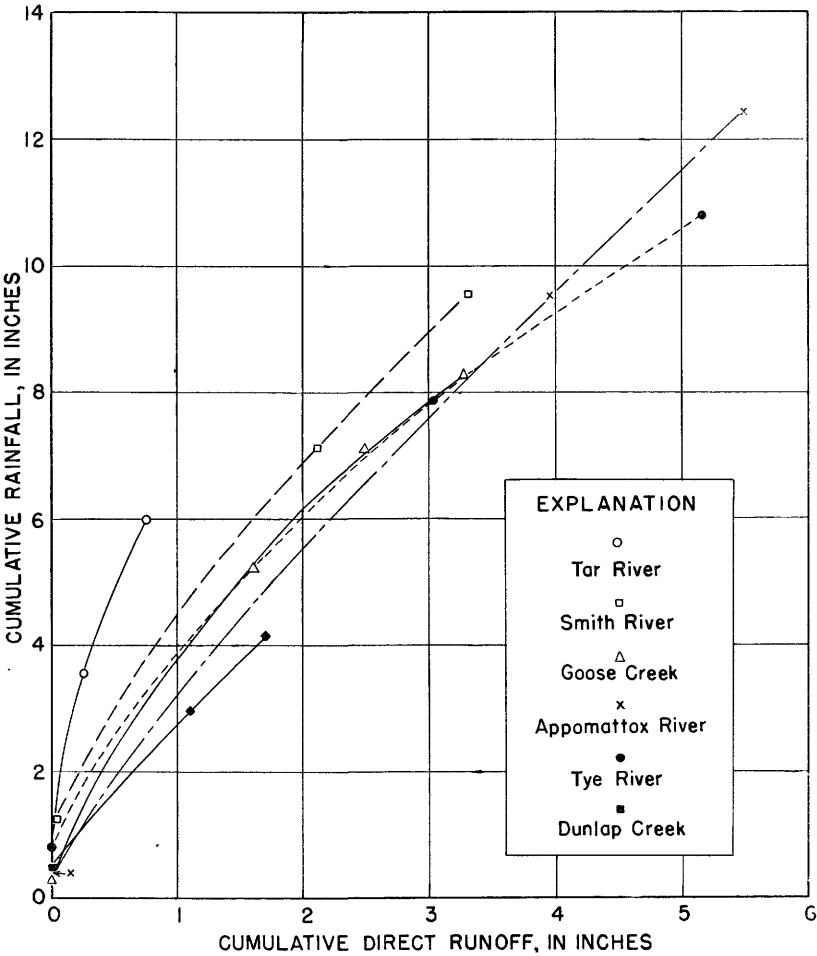


FIGURE 30.—Cumulative direct runoff in relation to cumulative rainfall for selected basins in Virginia and North Carolina, mid-August storm.

The initial period includes rainfall that preceded any significant rise in stream flow. This rain, averaging about 0.6 inch, supplied losses by interception, ground wetting, and similar abstractions, which were satisfied before runoff began. On most streams in this area the rainfall producing the first peak, generally August 14-15, was greater than during the subsequent periods, and direct runoff was likewise greater. But it will be noted that the proportion of rainfall converted into runoff increased from one period to the next, a result of the effect of rainfall on the retention of subsequent rainfall. Figure 30 is a graphical presentation of the data given above. Curves drawn through the plotted points are concave to the right and similar in shape to the curves of infiltration index on figure 26.

CONCENTRATION OF DISCHARGE

The degree to which direct runoff was concentrated with respect to time as measured by the ratio between the peak discharge above base flow, in second-feet, and the total direct runoff, in second-foot-days, varied widely. The factors that are believed to be of greatest influence upon these concentration ratios involve such storm variables as duration and intensity of storm and direction of storm movement, and such inherent basin characteristics as channel hydraulics, tributary arrangement, and shape and slope of drainage basins. The lag in days between centers of mass of effective rainfall and the direct runoff as estimated by analysis of the recession graph¹⁴ is a convenient measure of the inherent basin characteristics insofar as they affect the concentration of runoff. Figure 31 is a study of the concentration ratios for several basins in relation to the lag. The product of the concentration ratio and the lag (which product is dimensionless) for points in this figure shows a variation on the average from about 0.4 for streams with long lag to about 0.7 for streams with short lag. Departures from the line on figure 31 may be ascribed in part to differences in characteristics of rainfall in the various parts of the region. Basins in which storm rainfall was more concentrated than the average would plot above the line; points below the line represent basins in which rainfall was more spread out, and in some was so distributed as to produce two separate flood peaks.

Another measure of the concentration of discharge with respect to time is provided by the rate of rise in discharge in response to rainfall. Little Sugar Creek near Charlotte, N. C. (drainage area, 41.4 square miles), rose from 26 second-feet to 2,230 second-feet in 3 hours on August 14. Kanawha River at Kanawha Falls, W. Va. (drainage area, 8,367 square miles), increased in flow from 31,200 second-feet to

¹⁴ Langbein, W. B., Channel storage and unit-hydrograph studies: Am. Geophys. Union Trans. 1940, pt. 2, pp. 620-627.

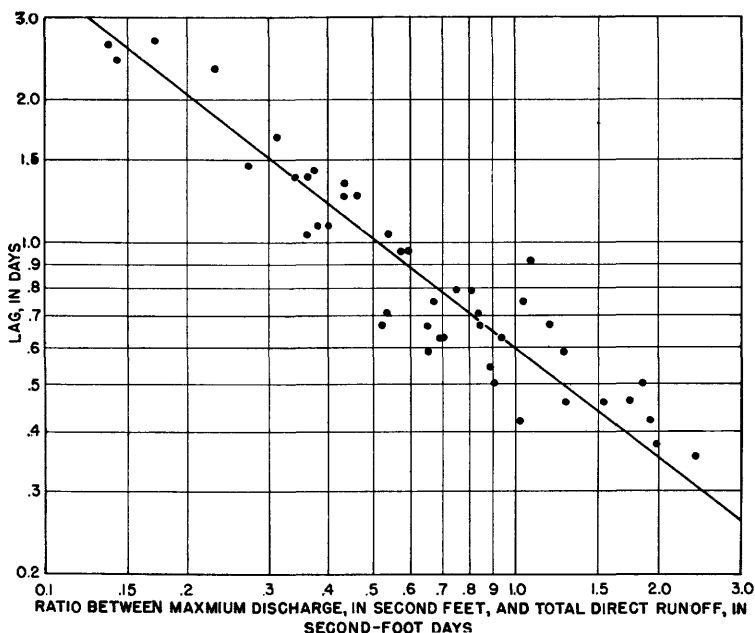


FIGURE 31.—Relation between concentration ratio and lag, mid-August flood.

208,000 second-feet in 4 hours on August 15. The above are “flashy” streams. Tar River in eastern North Carolina is an example of a sluggish stream. This river required 6 days to rise from 1,200 second-feet to a peak of 37,200 second-feet at Tarboro, N. C. (drainage area, 2,100 square miles).

Most hydrograph shapes were normal in appearance and were such as might be simply explained by details of rainfall distribution, inflow from tributaries, and like effects. But there were a few anomalies of special interest. The hydrographs at some of the downstream stations on the larger streams, especially the James, Neuse, Cape Fear, and Pee Dee Rivers, were somewhat odd in shape. It can be noted on figures 7, 8, 11, 12, and 13 that the recession in discharge was unusually rapid in comparison with the slow rise, the rounded peaks, and the lag between rainfall and time of peak discharge of these streams. Normally a stream that is long in reaching the crest would require a longer time to recede. On some streams the rate of recession after the peak appeared to be greater at downstream points than at upstream points. For example, the discharge of James River at Bent Creek, Va., decreased by 46 percent during the first calendar day following the peak; downstream at Richmond, Va., the discharge decreased by 58 percent during the first calendar day following the peak at Richmond, which occurred 2 days later than that at Bent Creek.

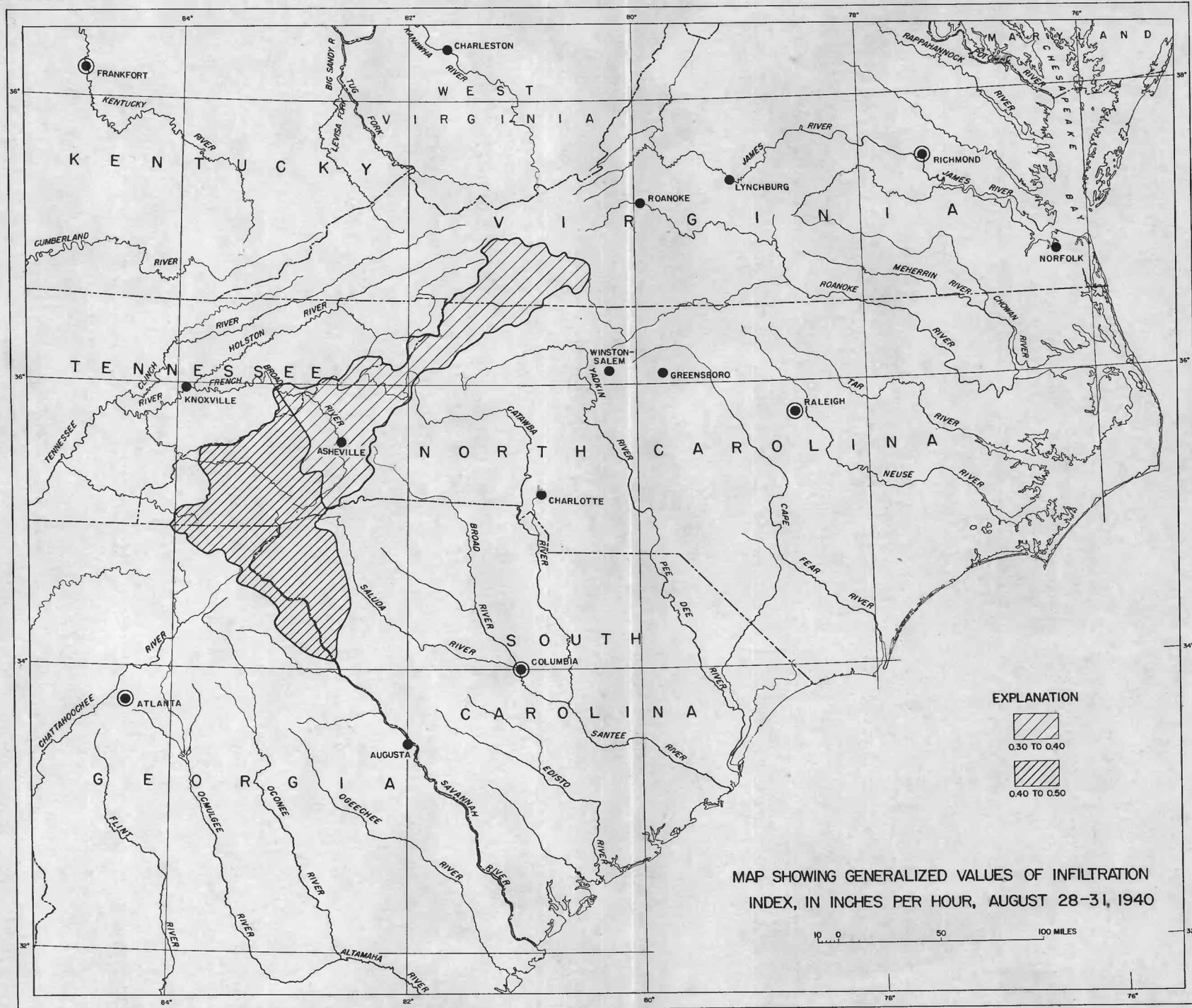


Figure 10 shows the hydrograph of Tar River near Nashville, N. C., a stream unaffected by artificial storage. This stream rose rapidly on August 14, apparently as a result of local inflow. Then for the next 4 days the discharge rose very slowly until noon of the 18th; rainfall had ended on August 16. The discharge then slowly receded from noon of the 18th to noon of the 20th. During the 4-day period August 15-19 the hydrograph was characteristic of a sluggish stream. Then during the afternoon of August 20 the stream abruptly receded, reaching base-flow level by midnight. The recession part of the hydrograph seems inconsistent with the remainder.

Sweetwater Creek (an unregulated stream), as shown by figure 32, rose from 80 second-feet at noon of August 12 to 2,100 second-feet at midnight. Then for 36 hours until noon of August 14 the discharge remained nearly constant, rising only to a maximum of 2,280 second-feet. At noon of August 14 the stream receded in a common recession curve. The hydrograph in appearance is that of a common hydrograph truncated at about 2,150 second-feet. Examination of other flood hydrographs indicates that this behavior is normal for this stream.

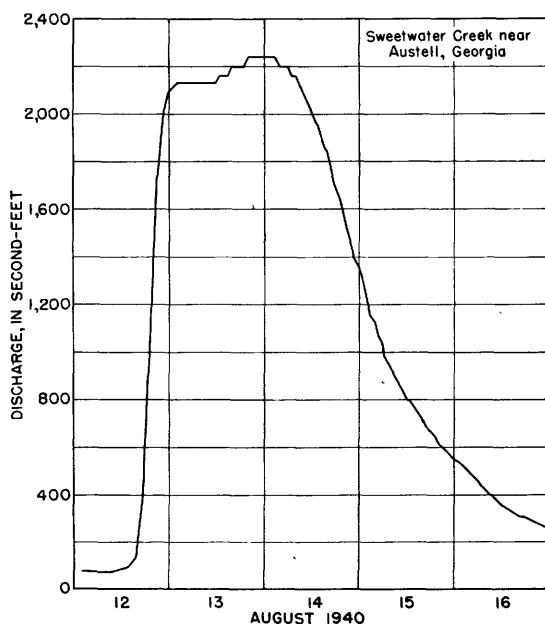


FIGURE 32.—Hydrograph of Sweetwater Creek near Austell, Ga., August 12-16, 1940.

INVENTORY

The amounts of rainfall and their disposal by basins during the mid-August flood are summarized in table 18. This table lists the number of gaging stations operated in the basins indicated and for which rainfall and runoff data are given in table 16. The table also gives the

number of rain gages per square mile of area as an indication of the reliability of the amount of rainfall. The next two columns give mean rainfall and mean runoff expressed in inches. These two quantities are the averages of the corresponding quantities for the gaging stations in the indicated basins as given in table 16. Base runoff in inches was computed as explained in the section on "Methods of analysis" (p. 476) for several rivers in each basin and the average listed in table 18.

TABLE 18.—*Inventory of rainfall and runoff, mid-August flood*

Basin	Number of gaging stations	Number of precipitation stations (per square mile)	Precipitation (inches)	Direct runoff (inches)	Base runoff (inches)	Net retention ¹ (inches)	Infiltration index (inches per hour)
James.....	28	0.0063	7.6	2.7	0.9	4.0	0.21
Roanoke.....	28	.0037	9.3	4.0	1.0	4.3	.20
Pamlico.....	5	.0052	8.3	2.8	.5	5.0	.25
Neuse.....	12	.0055	6.2	1.1	.3	4.8	.32
Cape Fear.....	20	.0061	5.1	1.3	.4	3.4	.23
Pee Dee.....	34	.0047	6.4	1.4	.5	4.5	.30
Santee.....	24	.0056	8.8	2.9	.7	5.2	.27
Savannah.....	9	.0025	9.4	2.6	1.0	5.8	.34
Ogeechee.....	4	.0028	8.1	2.4	.8	4.9	.28
Upper Kanawha.....	13	.0085	8.0	3.1	1.6	3.3	.20
Upper Tennessee.....	62	.0135	7.4	2.4	1.8	3.2	.24

¹ Except for initial losses this quantity mainly represents the accretion in soil moisture and ground water, which is subsequently lost through processes of evapotranspiration.

Of the 5 to 9 inches of rainfall, from 1.1 to 4.0 inches was discharged during or soon after the cessation of rain, as direct runoff. Volumes of direct runoff were greatest in the Roanoke River Basin for two reasons, namely, high rainfall and low infiltration index. It is estimated that from 0.3 inch to 1.8 inches was discharged as base runoff, of which the greater part appeared as stream flow after the cessation of the rain-storm. The quantity of base runoff was least in the Neuse, Cape Fear, and Pee Dee Basins and greatest in the Kanawha and upper Tennessee Basins. There seems to be no apparent proportional relation of base runoff to direct runoff or to the volume of net retention. In the upper Tennessee River Basin the volume of base runoff nearly equaled the volume of direct runoff, and in some rivers in that region the base runoff exceeded the direct runoff. On the average, the volumes of rainfall and runoff in the upper Tennessee Basin were not greatly different from those in the James Basin, yet the base runoff in the latter averaged only 42 percent of the base runoff in the Tennessee Basin. The reason for this does not seem to be explained by the small difference in the infiltration index of these two basins as given in the last column of table 18.

The average amounts of the net retention given in table 18 include about 0.5 inch of rainfall that fell during the initial periods of the storm prior to any significant rise in stream flow and was mainly intercepted by vegetation. The remainder first became an increment to soil moisture and to ground water and was subsequently lost through processes of transpiration and evaporation. Losses through these processes during the rainstorms were probably not great.

A summary of the basin-wide averages of rainfall and runoff involved in the areas affected during the late-August flood is given in table 19. In general the amounts are less than during the mid-August flood. Base runoff, however, is notably greater in relation to the amount of direct runoff, reflecting the higher base flow during the later flood. The amounts of net retention noted in the next to the last column are also less than the retentions during the first storm. However, total net retention during August in the upper Savannah, Kanawha, and Tennessee River Basins ranged between 5 and 10 inches, sufficient to maintain soil moisture at more than average amounts during the following September and October, when precipitation was greatly deficient.

TABLE 19.—*Inventory of rainfall and runoff, late-August flood*

Basin	Number of gaging stations	Number of precipitation stations (per square mile)	Precipitation (inches)	Direct runoff (inches)	Base runoff (inches)	Net retention (inches)	Infiltration index (inches per hour)
Upper Savannah.....	4	-----	7.5	1.7	1.5	4.3	0.48
Upper Kanawha.....	7	-----	4.0	.9	.9	2.2	.32
Upper Tennessee.....	44	-----	6.9	2.1	1.8	3.0	.37

The infiltration indices during the late-August flood are greater than those over the same areas during the mid-August flood. This mainly reflects the difference in rates of rainfall during the two rainstorms. It may be noted that the infiltration indices during the late-August storm for the three basins noted are in the same proportion to one another as the infiltration indices for the same basins during the mid-August storm.

COMPARISONS OF MAXIMUM RAINFALL RATES AND VOLUMES WITH MAXIMUM FLOOD DISCHARGES AND VOLUMES

Flood-control works are usually designed on the basis of maximum observed or theoretically possible rates and volumes of rainfall and discharge. In addition to reviewing records of outstanding rainfall and floods, it is often of value with respect to such design to consider how the observed magnitudes might reasonably have been greater had the events occurred under more adverse conditions.

In the section on "Meteorologic and hydrologic conditions," results of studies of rainfall depth, area, and duration of the mid-August storm are presented in the form of tables of maximum observed rainfall of given duration and over given areas. (See pp. 59, 60.) Also listed in this report are many records of flood discharge and volume. It is the purpose of this discussion to compare the amounts of rainfall and discharge to find which seem to approximate limiting value. For example, high rainfall may be recorded in a region in which no observations of stream flow were made, and, conversely, stream-flow data may be available in a region not adequately covered by rain gages. Thus extremes

of discharge or rainfall may be inferred if one or the other is known.

The data of maximum rainfall have been converted into rates of discharge on the basis of the most adverse conditions by the following method:

The basic formula used is $q_p = S \frac{\text{vol}}{\text{lag}}$, in which q_p is peak discharge in second-feet per square mile; S is the ordinate of the unit hydrograph and is dimensionless; vol is the volume of direct runoff per square mile expressed in second-foot-days; and the lag is the time interval, in days, between centers of mass of effective rainfall and direct runoff. If quantities representing the critical or the most adverse combinations are inserted in this formula, the result should indicate the limiting discharge under the given conditions in the storm area.

The value of S is a function of the duration and distribution of rainfall and of the hydrograph shape. For the storm as a whole, it was computed that the value of S was about 0.5 (see section on "Concentration of discharge," pp. 495-497), but studies of many unit hydrographs indicate that it varies from 0.45 for storms of long duration to 0.9 for storms of short duration.

A computation of lag intervals for the basins in the mid-August storm area indicates that the shortest lag for an area of 10 square miles would be about 1.5 hours (= 0.062 day). Maximum rainfall over 10 square miles, based on the list of maximum observed point rainfalls in table 10, was as follows: 1 hour, 2.75 inches; 2 hours, 3.90 inches; 3 hours, 4.6 inches. Maximum short-period rainfall during the late-August storm is indefinite. A study of the infiltration index with respect to drainage area indicates that the lowest or most adverse values ranged from about 0.10 inch per hour for 10 square miles to 0.20 inch per hour for areas of 10,000 square miles, and the amounts of rainfall will be reduced accordingly.

It will be noted that for lengthening storm duration the volume of supply increases, whereas the value of S decreases. The critical or maximum values of peak discharge for an area of 10 square miles can be computed as follows:

Duration (hours)	Rainfall (inches)	Retention (inches)	Net		S	Lag (days)	Peak discharge (second-feet per square mile)
			Inches	Second-foot- days per square mile			
1	2.75	0.10	2.65	71	0.82	0.062	940
2	3.9	.20	3.70	99	.63	.062	1,000 = max.
3	4.6	.30	4.3	115	.48	.062	890

Similarly for an area of 10,000 square miles the shortest lag would be about 48 hours, and, basing the retention on an infiltration index of 0.20 inch per hour, the maximum discharge is computed as follows:

Duration (hours)	Rainfall (inches)	Retention (inches)	Net		S	Lag (days)	Peak discharge (second-feet per square mile)
			Inches	Second-foot- days per square mile			
24	6.3	2.1	4.2	113	0.85	2	48
48	9.5	3.8	5.7	153	.69	2	53 = max.
72	10.8	4.8	6.0	161	.59	2	48

Similar computations for 100 square miles and 1,000 square miles indicate discharges of about 425 and 180 second-feet per square mile, respectively.

In tables 12-14 and plotted on figure 21 are many recorded discharges of 1,000 second-feet or more per square mile for areas of 10 square miles or thereabouts. It may thus be inferred that rainfall of short-period intensity occurred that was greater than any recorded.

By reference to figure 21 it will be seen that the greatest discharge for areas of 10,000 square miles is about 30 second-feet per square mile. As there are gaging stations in operation on all the principal rivers in the region, it is probable that the maximum discharge was measured in every river draining as much as 10,000 square miles. The highest recorded was on Roanoke River. However, the axis of the storm lay in a direction generally at right angles to the rivers so that no drainage basin with an area of 10,000 square miles was so located as to be critical with respect to the areal distribution of rainfall. A different storm position might have produced on the larger streams a discharge nearly 50 percent greater than recorded, although such transposition may not be meteorologically possible.

On figure 33 have been plotted depths of runoff during the mid-August flood with respect to size of drainage area. Only outstanding depths are plotted, as the graph was designed to delimit the maximum volume of runoff experienced during the flood. There are only four points available to define an enveloping curve—two at about 60 square miles, one at 550 square miles, and one at 8,700 square miles, the last being the Roanoke River. It is therefore only poorly defined.

On figure 33 there is also drawn a line showing maximum total storm rainfall over indicated areas, taken from figure 6. The two graphs are nearly parallel, the maximum rainfall graph being about 7.5 inches above the enveloping graph of runoff. This difference between rainfall and runoff is about the same as the difference at the upper limits of the line of infiltration index of 0.30 inch per hour on figure 26, close to an average value, but there was a considerable area with lower or more adverse infiltration indices. The enveloping curve then does not represent the most unfavorable condition that might have prevailed with a more critical combination of storm rainfall and low infiltration indices. There are several areas of about 100 square miles with infiltration indices of 0.10 inch per hour, but none lower. With this value of

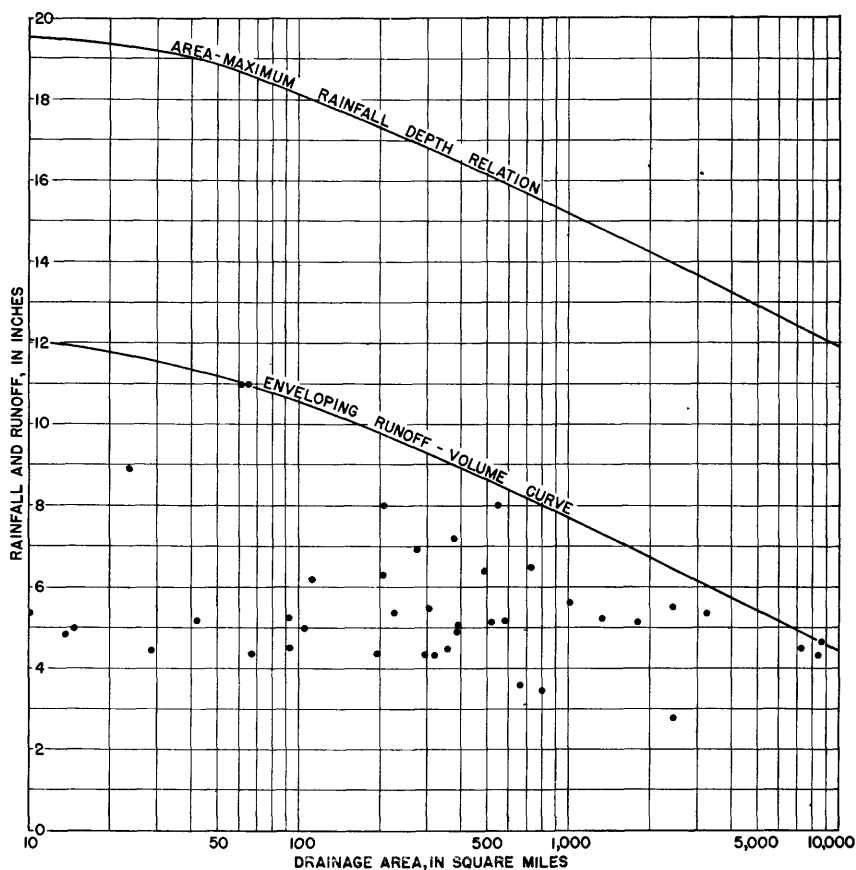


FIGURE 33.—Chart showing volume of runoff, in inches, in relation to drainage area and in relation to maximum rainfall, mid-August flood.

the infiltration index the retention would be about 3.5 inches for the high rainfall amounts, leaving a runoff of $18.1 - 3.5 = 14.6$ inches, in comparison with 10.6 inches, according to the enveloping curve of figure 33. For an area of 10,000 square miles the most adverse infiltration index experienced was 0.20 inch per hour, indicating a runoff volume of 6.2 inches, in comparison with about 4.5 inches discharged by the Roanoke River. A direct runoff volume of 6.2 inches essentially represents a transposition of the storm over a basin of about 10,000 square miles having an infiltration index of 0.20 inch per hour as did the Roanoke Basin. The transposition of the storm may not be meteorologically possible.

BASE FLOW AND GROUND-WATER LEVELS

Flood discharge is chiefly associated with the runoff that reaches the streams during the rainstorm or soon thereafter. This runoff has been

termed direct runoff, its sharp concentration with respect to time being its identifying characteristic. The flood-peak discharges listed in tables 12, 13, and 14 are representative of direct flow. Volumes of direct runoff are reported in table 16.

Base flow, on the other hand, is the persistent constituent of river discharge. It is that component which maintains river discharge during rainless periods and consequently has great economic value. Base flow is composed largely of ground-water effluent, and the rate of such flow is an indication of the state of the ground-water levels and associated storage. An increment in base flow as a result of a rainstorm is indicative of ground-water recharge, drainage from which will sustain flow for some days at a rate above the antecedent rates. Base flow rose in all basins as a result of the rainstorm of August 10-17. The increment was especially large in the James, Savannah, and Kanawha River Basins, where base flow rose, respectively, 2.0, 2.7, and 2.5 second-feet per square mile. From an analysis of several base-flow depletion hydrographs it was computed that such increments were sufficient to maintain river flow at rates above that of August 10 for about 25 days, even if there were no subsequent rain. This rise in stream flow also represents increment in ground-water storage of about 0.7, 0.9, and 0.8 inch in the three river basins. Total base runoff in these basins, as reported in table 18, was greater by an amount equal to the base flow during the interval August 10-21.

A study of the increment in base flow and of the total base runoff in the several basins discloses a marked tendency to increase with storm precipitation and with initial rate of base flow, that is, the base flow on August 10 in second-feet per square mile. Base flow to a less extent also is indicative of soil moisture, although in those areas where the ground-water table is deep relative to soil-moisture penetration, the relationship might be very tenuous.

The flow of the rivers on August 10, 20, 28, and September 5 (respectively corresponding approximately to points A, E, F, and I on fig. 25) was composed almost entirely of ground-water outflow. In order to aid comparisons, the discharges on these dates at the several gaging stations have been converted into second-feet per square mile. The average flow at these gaging stations, grouped by drainage basins, is shown in table 20. Regulated streams are excluded from these averages.

The depletion in base flow following the mid-August storm was rapid, and on August 28, in the basins affected by the late-August storm, it was less than half what it was on August 20, though somewhat greater than on August 10. The increment due to the rainfall of August 28-30 was not so great as that due to the mid-August storm, so that base flow on September 5 was less than on August 20.

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TABLE 20.—Average base flow in second-feet per square mile, by drainage basins

Basin	Aug. 10	Aug. 20 ¹	Aug. 28	Sept. 5
James	0.6	2.6		
Roanoke	.7	2.1		
Pamlico	.5	1.3		
Neuse	.2	.6		
Cape Fear	.2	.75		
Pee Dee	.3	.9		
Santee	.4	1.3		
Savannah	.6	3.2	1.1	1.9
Ogeechee	.2	2.1		
Kanawha	1.0	3.5	1.65	2.2
Upper Tennessee	1.10	2.9	1.4	2.7

¹ On some large streams a discharge corresponding to point D of fig. 25 was taken where this occurred after August 20.

Records of ground-water levels during the flood are available only in North Carolina. A summary is given in table 21.

TABLE 21.—Water levels in wells in North Carolina during flood periods

	Approximate depth below ground surface to water level Aug. 9	Stage on Aug. 9 (feet)	Precipitation Aug. 10-17 (inches)	Stage on Aug. 17 (feet)	Stage on Aug. 28 (feet)	Precipitation Aug. 28-31 (inches)	Stage on Sept. 1 (feet)
Freuler well near Roanoke Rapids	7.8	4.60	10.0	9.47	7.60	(¹)	7.72
Kurtee well at Mocksville	23.0	7.42	5.8	8.77	8.76	(¹)	8.66
Brick Pit well near Goldsboro		2.74	7.2	23.30	4.2	(³)	4.4
Baldwin well at Blantyre	34.5	5.49	9.7	5.46	5.18	6.0	5.26
Alston well near Nashville	10.6	10.81	11.5	17.00	15.38	(¹)	14.11
Governor Holt well at Haw River	23.8	5.17	6.0	9.17	7.89	(¹)	7.53
McCauley well near Chapel Hill	41.0	4.95	5.0	4.91	4.70	(¹)	4.64
Terrell well near Copeland	47.7	1.30	5.7	2.07	1.75	1.7	1.74

¹ Less than 2 inches.

² Possibly affected by surface inflow.

³ Less than 1 inch.

Ground-water levels on August 9 were below normal for August. The storm rainfall of August 10-17 produced a substantial rise in all wells in areas where there was more than 5 inches of rain except in the Baldwin well near Blantyre, N. C., in the upper French Broad River Basin. The water level in the Baldwin well is deep, and it responds very slowly to rainfall, as noted below.

After August 17 the water levels receded. None of the wells listed, except the Baldwin well, was in the area affected by the storm of August 28-30, so that the recession of the water levels was not interrupted by the late-August rainfall; but on September 1 the levels were above those of August 9. The rise in water level cannot readily be translated into volume of recharge for lack of sufficient water-level data and information as to specific yield.

The fluctuations of water level in the Freuler well during August are shown in figure 34. The water level rose sharply in this shallow well owing to the mid-August rainstorm and then slowly receded. The recession was interrupted by light rains on August 25 and 28. Rainfall during September and October was light and was insufficient to produce any significant rise in the water level, which receded from a stage of 7.84 feet on August 31 to 6.06 feet on September 30 and 5.17 feet on

October 31. The recharge during the period August 10-17 was sufficient therefore to maintain the water level above that on August 10 for at least 2 months.

The deep Baldwin well at Blantyre, N. C., in the upper French Broad Basin, exhibited a different kind of behavior, as shown in figure 35.

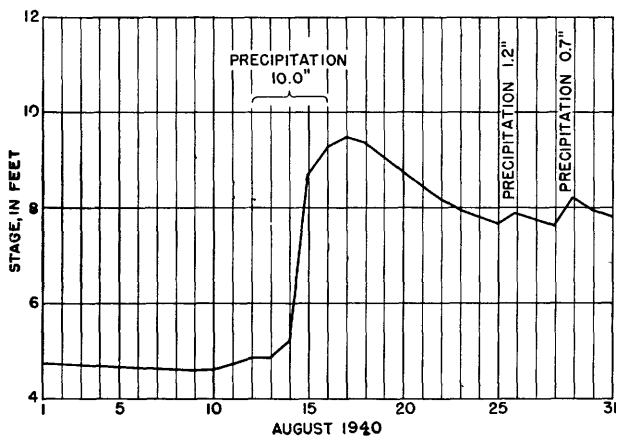


FIGURE 34.—Hydrograph of water level in Freuler well near Roanoke Rapids, N. C., August 1940.

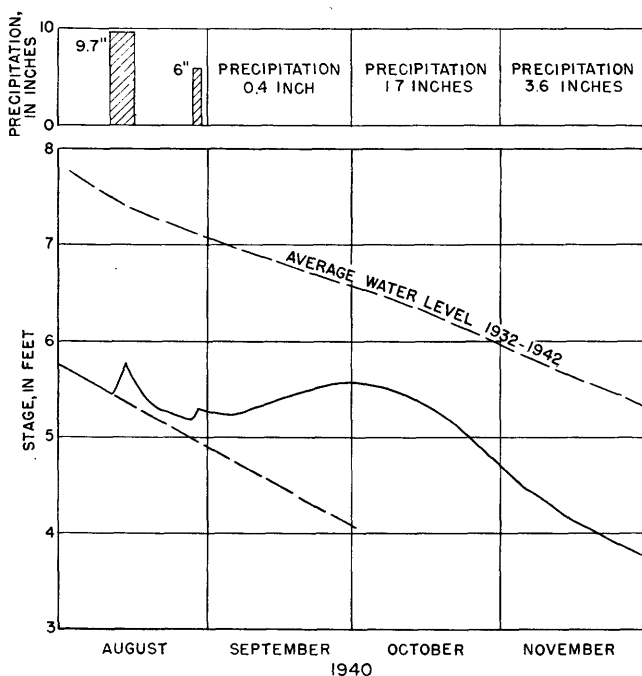


FIGURE 35.—Hydrograph of water level in Baldwin well at Blantyre, N. C., August–November 1940.

There was a sharp but minor rise after the mid-August rains, followed by a nearly equally rapid recession; this minor fluctuation is suggestive of local inflow and drainage from the well. But the water level rose slowly during September, and on September 30 reached a peak of 5.56 feet. As the September rainfall was less than 1 inch, this rise must be attributed to the August rainfall. The September peak was only 0.07 foot higher than the water level on August 9, but the recharge from the August rainfall was doubtless greater than that, because without such recharge the water level would possibly have receded to nearly 4 feet. The fact that the heavy August rainfall was followed by 2 months of deficient precipitation provides an opportunity to study the delayed rise and recession of the Baldwin well, unobscured by recharge by subsequent rains.

Differences in time required for outflow of ground water are illustrated by the Freuler and Baldwin wells. Some ground-water aquifers respond relatively promptly to rainfall as illustrated by the water level in the shallow Freuler well. Deeper ground-water aquifers lag greatly behind the causative rainfall. The base flow in rivers therefore represents an integration of the outflow from many ground-water aquifers of a wide range in hydraulic behavior.

FLOOD CRESTS

Records of flood-crest stages were collected in the Tennessee River Basin by the Tennessee Valley Authority and in the James, Chowan, Roanoke, and Pee Dee River Basins by the Corps of Engineers, War Department. These data, together with crest stages obtained at Geological Survey gaging stations, are given in tables 22 and 23. Such records are of special interest in presenting a limiting factor with respect to future developments along rivers and in furnishing basic information as to velocity of transmission of flood crests, valley or channel storage, the effects of natural or artificial channel constrictions, and other aspects of river behavior.

The tables describe the observation points by reference to local features and river distances above the mouth. The date and time of crest are given where known and the elevation of the crest at the observation point. 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 be materially different from those along the main river channel, as a result of various factors. Consequently, inconsistencies may occasionally appear to exist between local information and the records herein published. Flood crests on opposite banks of a stream are frequently at different elevations owing to the effect of bends and obstructions in the channel.

TABLE 22.—*Flood-crest stages of mid-August flood*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
JAMES RIVER BASIN²			
James River:			
Lick Run, Va., U. S. Geological Survey gage.....	338.9	Aug. 16, 10 a.m.	991.5
Buchanan, Va., U. S. Geological Survey gage.....	301.22	Aug. 15, 12 m.	818.6
Holcombs Rock, Va., U. S. Geological Survey gage....	263.17	Aug. 16, 3 p.m.	572.8
Lynchburg, Va., U. S. Weather Bureau gage.....	251.70	Aug. 16, 4 p.m.	517.4
Lynchburg, Va., at Lynchburg Iron and Metal Co. on left bank.....	251.00	-----	521.0
Mount Athos, Va., near Norfolk & Western Ry. bridge, on right bank.....	246.03	-----	492.3
Galts Mill, Va., 4.5 miles upstream from, near Chesapeake & Ohio Ry. bridge, on left bank.....	243.07	-----	478.7
Galts Mill, Va., on left bank.....	238.53	-----	462.5
Stapleton, Va., on left bank.....	235.55	-----	450.0
Walkerford, Va., 1.7 miles SW. of, on left bank.....	232.87	-----	442.7
Riverville, Va., 2.1 miles SW. of, on left bank.....	230.40	-----	430.2
Riverville, Va., on left bank.....	228.10	-----	421.9
Gladstone, Va., at pump house of Chesapeake & Ohio Ry., on left bank.....	224.45	-----	409.5
Gladstone, Va., at loading pen of Chesapeake & Ohio Ry., on left bank.....	224.22	-----	408.04
Bent Creek, Va., U. S. Geological Survey gage.....	222.90	Aug. 16, 4:30 p.m.	401.0
Greenway, Va., on left bank.....	218.72	-----	385.4
Buffalo Station, Va., on left bank.....	215.62	-----	375.2
Norwood, Va., on left bank.....	213.74	-----	368.4
Winginia, Va., 2.0 miles upstream from, on left bank.....	211.10	-----	358.4
Winginia, Va., on left bank.....	209.03	-----	353.2
Manteo, Va., 4.8 miles upstream from, on left bank.....	205.97	-----	345.1
Manteo, Va., Chesapeake & Ohio Ry. depot, on left bank.....	201.5	-----	334.4
Highland, Va., near Chesapeake & Ohio Ry., depot, on left bank.....	199.03	-----	323.8
Howardsville, Va., on left bank.....	196.53	-----	316.1
Warren, Va., 1.7 miles upstream from, on left bank.....	192.77	-----	302.8
Warren, Va., 300 feet upstream from Chesapeake & Ohio Ry. depot, on left bank.....	191.09	-----	295.3
Hatton, Va., at loading pen of Chesapeake & Ohio Ry., on left bank.....	188.35	-----	287.2
Scottsville, Va., 1,200 feet upstream from bridge on Va. Highway 20, on left bank.....	184.90	-----	279.4
Scottsville, Va., U. S. Geological Survey gage.....	184.65	Aug. 16, 12 p.m.	279.0
Scottsville, Va., 2.0 miles downstream from, on left bank.....	182.72	-----	272.8
Hardware, Va., 60 feet E. of Chesapeake & Ohio Ry. depot, on left bank.....	178.00	-----	255.7
Strathmore, Va., at coal elevator of Chesapeake & Ohio Ry., on left bank.....	173.68	-----	230.8
Bremo Bluff, Va., 200 feet SE. of post office, on left bank.....	171.50	-----	226.1
Bremo Bluff, Va., U. S. Weather Bureau gage.....	171.0	-----	224.9
Bremo Bluff, Va., 2.2 miles downstream from, on left bank.....	169.25	-----	221.8
Bremo Bluff, Va., 4.2 miles downstream from, at dairy building, on left bank.....	167.37	-----	218.5
Rivans, Va., 80 feet north of Chesapeake & Ohio Ry. depot, on left bank.....	164.57	-----	213.0
Columbia, Va., U. S. Weather Bureau gage.....	161.80	Aug. 17, 10 a.m.	208.4
Elk Hill, Va., at loading pen of Chesapeake & Ohio Ry., on left bank.....	157.08	-----	201.5
Pemberton, Va., 3.0 miles upstream from, on left bank.....	155.42	-----	198.3
Pemberton, Va., 150 feet NW. of Chesapeake & Ohio Ry. depot, on left bank.....	152.47	-----	192.6
Cartersville, Va., U. S. Geological Survey gage.....	152.36	Aug. 17, 3 p.m.	189.9
Stokes, Va., 60 feet N. of Chesapeake & Ohio Ry. depot, on left bank.....	149.37	-----	185.8
Rock Castle, Va., at Chesapeake & Ohio Ry. depot, on left bank.....	145.25	-----	178.1
Rock Castle, Va., 2.0 miles downstream from, on left bank.....	142.65	-----	173.2
Irwin, Va., 2.0 miles upstream from, on left bank.....	139.81	-----	168.1
Irwin, Va., at loading pen of Chesapeake & Ohio Ry., on left bank.....	137.79	-----	166.0
Maidens, Va., 600 feet upstream from Chesapeake & Ohio Ry. depot, on left bank.....	135.08	-----	161.6

¹ Eastern standard time except as noted.² Furnished by Corps of Engineers, War Department.

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TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
James River—Con.			
Maidens, Va., 1.7 miles downstream from, on left bank	133.24	-----	159.2
State Farm, Va., U. S. Weather Bureau gage	131.35	-----	156.8
Lee, Va., at Chesapeake & Ohio Ry. depot, on left bank	129.12	-----	151.3
Crozier, Va., 1.3 miles east of, 600 ft. SE. of mouth of Genito Creek, on left bank.	126.38	-----	146.4
Sabot, Va., 2.3 miles downstream from, on left bank	122.42	-----	138.7
Sabot, Va., 4.2 miles downstream from, on left bank	120.60	-----	138.5
Tuckahoe, Va., 130 feet SW. of Chesapeake & Ohio Ry. depot, on left bank.	118.09	-----	134.6
Lorraine, Va., 1,200 feet S. of Chesapeake & Ohio Ry. depot, on left bank.	116.13	-----	132.0
Westham, Va., 1.7 miles upstream from, at Boshier Dam.	113.36	-----	127.1
Westham, Va., near Richmond, U. S. Geological Survey gage.	111.73	Aug. 18, 8:30 a.m.	120.6
Richmond, Va., at Atlantic Coast Line R.R. bridge, on left bank.	108.19	-----	91.8
Richmond, Va., 35 feet W. of Boulevard Bridge, on left bank.	107.54	-----	81.2
Richmond, Va., at Haxall water station, on left bank	107.06	-----	74.4
Richmond, Va., 300 feet W. of Chesapeake & Ohio Ry., milepost 2, on left bank.	106.65	-----	68.5
Richmond, Va., 2,000 feet upstream from Hollywood Power Plant, on left bank.	106.20	-----	62.3
Richmond, Va., at Hollywood Power Plant, on left bank.	105.77	-----	44.5
Richmond, Va., 100 feet E. of Robert E. Lee Bridge, on left bank.	105.48	-----	40.8
Richmond, Va., on Tredegar St., at Virginia Electric & Power Co. Canal gates on left bank.	105.26	-----	39.9
Richmond, Va., at abutment of Virginia Electric & Power Co. dam, on right bank.	105.21	-----	39.8
Richmond, Va., 100 feet downstream from 9th Street bridge, on right bank.	105.04	-----	32.6
Richmond, Va., at Chesapeake & Ohio Ry. trestle, 275 feet downstream from 9th Street bridge, on left bank.	105.02	-----	28.7
Richmond, Va., 125 feet upstream from Manchester Canal dam, on right bank.	104.93	-----	31.0
Richmond, Va., 100 feet downstream from Manchester Canal dam, on right bank.	104.87	-----	26.8
Richmond, Va., 250 feet downstream from Manchester Canal dam, on right bank.	104.86	-----	25.9
Richmond, Va., 225 feet upstream from Southern Ry. bridge, on left bank.	104.72	-----	25.7
Richmond, Va., near Southern Ry. bridge, on right bank.	104.68	-----	26.6
Richmond, Va., 500 feet upstream from Hull Street bridge over Manchester Canal on right bank.	104.63	-----	25.7
Richmond, Va., U. S. Weather Bureau gage	104.60	Aug. 18, 11 a.m.	25.6
Richmond, Va., 140 feet upstream from 14th Street, on left bank.	104.59	-----	25.3
Richmond, Va., at end of Mayo Bridge, on right bank.	104.58	-----	24.8
Richmond, Va., at Southern Ry. Freight Depot, on left bank.	104.44	-----	24.3
Richmond, Va., at Chesapeake & Ohio Ry. trestle	104.38	-----	24.2
Richmond, Va., near Richmond Structural Steel Co., on left bank.	104.17	-----	24.3
Richmond, Va., at Chesapeake & Ohio Ry. trestle on left bank of James River and Kanawha Canal.	104.06	-----	24.2
Richmond, Va., City Lock gage	103.80	-----	23.8
Richmond, Va., at Richmond Waterfront Terminal building, on left bank.	103.52	-----	23.7
Richmond, Va., 120 feet northwest of intersection of Lester and Orleans Streets, on left bank.	103.26	-----	23.4
Richmond, Va., at galvanized iron conveyor building of Virginia-Carolina Chemical Corp., on left bank.	102.96	-----	22.5
Richmond, Va., 3.3 miles S. of, Dupont Pumping Plant gage.	99.7	-----	17.9
Bellwood, Va., 1.0 mile NE. of, on right bank	95.79	-----	14.2
Dutch Gap, Va., Corps of Engineers gage	91.8	-----	9.6
Varina Grove, Va., 4.6 miles S. of, on left bank	90.63	-----	9.1
Dutch Gap, Va., at bridge to pit of Richmond Sand & Gravel Corp., on right bank.	89.5	-----	9.3
Meadowville, Va., Corps of Engineers gage	87.4	-----	7.3
Varina Grove, Va., 3.5 miles SE. of, 0.1 mile upstream from Baileys Creek, on left bank.	85.24	-----	6.4
Varina Grove, Va., 4.2 miles SE. of, at ramp of Curles Neck Farm wharf, on left bank.	84.24	-----	6.5

Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
James River—Con.			
Meadowville, Va., 0.7 mile SE. of, Corps of Engineers gage.	82.4	-----	6.5
Bermuda Hundred, Va., 1.0 mile NW. of, 0.5 mile upstream from Turkey Island Cutoff, on right bank.	80.26	-----	5.8
Bermuda Hundred, Va., 3.1 miles N. of, 0.6 mile upstream from Turkey Island Creek, on left bank.	76.87	-----	5.1
Bermuda Hundred, Va., Corps of Engineers gage.	73.3	-----	4.5
Appomattox River:			
Farmville, Va., at W. C. Newman Ice Co., on right bank.	109.9	-----	306.7
Farmville, Va., 30 feet north of Virginia Public Service Co. building, on right bank.	109.8	-----	304.2
Farmville, Va., U. S. Geological Survey gage.	109.41	Aug. 15, 4 p.m.	305.5
Farmville, Va., 20 feet S. of building of Kilkare Laundry on left bank.	109.32	-----	304.4
Farmville, Va., 75 feet E. of Norfolk & Western Ry. trestle, on left bank.	109.2	-----	302.0
Farmville, Va., 2.7 miles NE. of, on left bank.	105.6	-----	296.7
Rice, Va., 3.1 miles NW. of, at bridge of Norfolk and Western Ry., on left bank.	103.6	-----	298.2
Angola, Va., 2.2 miles S. of, on left bank.	95.0	-----	277.9
Stony Point Mills, Va., 0.6 miles S. of, 500 feet NW. of Stony Point Bridge, on left bank.	89.9	-----	267.4
Clementown Mills, Va., at bridge on Va. Highway 38, on right bank.	81.04	-----	248.3
Mattoax, Va., U. S. Geological Survey gage.	59.06	Aug. 18, 8-12 a.m.	209.8
Skinquarter, Va., 6.0 miles SW. of, on left bank.	54.5	-----	200.8
Rowlet Mill, Va., 2.2 miles E. of, 400 feet NE. of bridge on U. S. Highway 360, on left bank.	50.95	-----	195.1
Springfield Church, Va., 1.5 miles SE. of, at bridge over Wipponneck Creek on Va. Highway 623, on right bank.	23.7	-----	151.2
Sutherland, Va., 3.0 miles NE. of, on right bank.	20.2	-----	136.1
Petersburg, Va., 7.0 miles W. of, U. S. Geological Survey gage.	19.76	Aug. 20, 10-12 a.m.	134.4
Petersburg, Va., at mouth of Indian Town Creek, on right bank.	13.88	-----	49.4
Petersburg, Va., 1,200 feet upstream from Belt Line Bridge, on right bank.	13.66	-----	46.0
Petersburg, Va., 50 feet downstream from Belt Line Bridge, on right bank.	13.47	-----	43.8
Petersburg, Va., on Bocslee Street, 100 feet north of Norfolk & Western Ry. track, on right bank.	13.10	-----	38.9
Petersburg, Va., 1,100 feet upstream from Fleet Street Bridge, on right bank.	12.68	-----	34.3
Petersburg, Va., at upstream side of Fleet Street., on right bank.	12.48	-----	29.9
Petersburg, Va., 200 feet downstream from Fleet Street Bridge, on right bank.	12.43	-----	20.4
Petersburg, Va., at intersection of Squaw Alley and Pimingo Street, on right bank.	12.30	-----	20.3
Petersburg, Va., at Virginia Electric & Power Co. Harvell Plant, on right bank.	12.15	-----	18.3
Petersburg, Va., 1,400 feet upstream from bridge on U. S. Highway 1, on right bank.	11.91	-----	17.7
Petersburg, Va., at bridge on U. S. Highway 1, on right bank.	11.62	-----	16.6
Petersburg, Va., at intersection of River and Fifth Streets on right bank of Navigation Channel.	11.45	-----	9.1
Petersburg, Va., at Atlantic Coast Line R.R. bridge, on right bank.	11.24	-----	14.1
Petersburg, Va., on Magazine Road, near old powder magazine, on right bank.	10.92	-----	13.3
Petersburg, Va., at riverward toe of Pocohontas Levee, 200 feet downstream from old foundation of Veteran Club house, on right bank.	10.37	-----	10.9
Petersburg, Va., 50 feet downstream from end of Pocohontas Levee, on right bank.	8.99	-----	7.6
CHOWAN RIVER BASIN²			
Nottoway River:			
Blackstone, Va., 7.5 miles SE. of, 100 feet NE. of Jonesboro Bridge on Va. Highway 46, on left bank.	115.9	-----	238.8
Blackstone, Va., 7.5 miles SE. of, Kennedy Bridge, on Va. Highway 46, on left bank.	114.9	-----	232.5
Ordsburg, Va., 2.5 miles W. of, on right bank.	109.6	-----	215.2

¹ Eastern standard time except as noted.² Furnished by Corps of Engineers, War Department.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Nottoway River—Con.			
Ordsburg, Va., 3.0 miles NE. of, 900 feet south of Gills Bridge on Va. Highway 613, on right bank.	107.42	-----	206.3
Concord, Va., 2.0 miles N. of, 600 feet NW. of Har- pers Bridge on Va. Highway 612, on left bank.	104.73	-----	198.9
Rawlings, Va., 2.0 miles NE. of, 125 feet SE. of Sea- board Ry. bridge, on right bank.	100.5	-----	186.4
McKenney, Va., 2.8 miles S. of, 400 feet N. of bridge on U. S. Highway 1, on left bank.	98.39	-----	185.8
Warfield, Va., 6.4 miles E. of, on right bank.	95.7	-----	180.8
Cherry Hill, Va., 4.0 miles SW. of, 800 feet NE. of Cutbank Bridge on Va. Highway 609, on left bank.	92.7	-----	175.8
Concord Church, Va., 2.0 miles S. of, 300 feet N. of bridge on Va. Highway 619, on left bank.	82.31	-----	124.2
Jarratt, Va., 3.1 miles NW. of, 1,100 feet N. of Smith's Bridge on Va. Highway 630 on left bank.	77.9	-----	99.0
Stony Creek, Va., 6.5 miles S. of, 0.3 mile NW. of Atlantic Coast Line R. R. crossing, on right bank.	73.6	-----	90.0
Stony Creek, Va., 3.5 miles S. of, U. S. Geological Survey gage.	69.5	Aug. 17, 9 a.m.-----	82.1
Stony Creek, Va., 0.8 miles SE. of, 900 feet W. of bridge on Va. Highway 636, on left bank.	66.3	-----	71.8
Stony Creek, Va., 4.0 miles NE. of, on right bank.	63.0	-----	69.8
Stony Creek, Va., 7.6 miles NE. of, 30 feet NE. of Va. Highway 637, on left bank.	59.15	-----	66.6
Niblets Mill, Va., 4.0 miles W. of, on left bank.	56.67	-----	62.0
Homeville, Va., 3.4 miles NW. of, at bridge on Va. Highway 35 over Niblets Run Creek, on left bank.	51.25	-----	52.6
Homeville, Va., 1.5 miles SW. of, on left bank.	47.3	-----	49.2
Littleton, Va., 3.4 miles SW. of, 1,600 feet SW. of intersection of Va. Highway 631 and 607, on left bank.	41.91	-----	43.4
Sebrell, Va., 3.9 miles NW. of, on left bank.	36.2	-----	38.2
Sebrell, Va., 2.3 miles SW. of, 200 feet W. of bridge on Va. Highway 653 on right bank.	32.4	-----	35.3
Sebrell, Va., 1.5 miles S. of, on left bank.	30.5	-----	32.5
Courtland, Va., 0.8 mile N. of, on Va. Highway 35, 350 feet W. of county home, on left bank.	25.2	-----	27.1
Courtland, Va., 2.9 miles SE. of, 1.0 mile S. of inter- section of Va. Highway 674 and U. S. Highway 58, on left bank.	20.1	-----	23.0
Courtland, Va., 4.0 miles SE. of, at bridge on U. S. Highway 58 over a swamp, on left bank.	17.3	-----	21.5
Courtland, Va., 6.0 miles SW. of, 2.5 miles S. along Va. Highway 650 from its intersection with U. S. Highway 58, on left bank.	14.7	-----	21.3
Franklin, Va., 4.0 miles SW. of, on left bank of stream.	11.8	-----	18.1
Franklin, Va., 8.4 miles SW. of, 1.5 miles S. along Va. Highway 687 from its intersection with Va. High- way 684, on left bank.	8.5	-----	16.8
Chowan River:			
Winton, N. C., at bridge on N. C. Highway 30-----	37.7	-----	5.2
Blackwater River:			
New Bohemia, Va., 2.0 miles N. of, 50 feet upstream from bridge on Va. Highway 630, on right bank.	86.6	-----	111.7
Prince George, Va., 2.6 miles SE. of, 200 feet upstream from bridge on Va. Highway 638, on right bank.	83.0	-----	97.8
New Bohemia, Va., 5.5 miles E. of, 150 feet down- stream from bridge on Va. Highway 635, on right bank.	79.9	-----	89.9
Disputanta, Va., 1.2 miles NE. of, 100 feet upstream from bridge on Va. Highway 154, on right bank.	76.9	-----	82.8
Waverly, Va., 5.8 miles NW. of, on left bank.	71.3	-----	74.7
Waverly, Va., 3.0 miles NE. of, 100 feet upstream from bridge on Va. Highway 40, on right bank.	65.01	-----	64.2
Wakefield, Va., 5.6 miles N. of, 200 feet S. of bridge on Va. Highway 603, on right bank.	60.31	-----	57.9
Dendron, Va., 2.0 miles SW. of, on left bank.	56.5	-----	50.2
Sexton, Va., 3.1 miles SW. of, at Walls Bridge on Va. Highway 196, on left bank.	50.3	-----	44.1
Ivor, Va., 6.2 miles N. of, at Proctors Bridge on Va. Highway 621, on left bank.	44.9	-----	39.9
Ivor, Va., 3.7 miles E. of, at Broadwater Bridge on Va. Highway 620, on left bank.	37.9	-----	33.1
Zuni, Va., at Norfolk & Western Ry. bridge, on left bank.	33.8	-----	30.9
Burdette, Va., 3.0 miles NE. of, at bridge on Va. Highway 603, on left bank.	27.15	-----	27.2

¹ Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Blackwater River—Con.			
Burdette, Va., 3.0 miles NE. of; from flood mark at U. S. Geological Survey gage established in 1941.	27.15	-----	26.5
Burdette, Va., 2.2 miles E. of, 35 feet upstream from bridge on Va. Highway 619, on right bank.	24.1	-----	22.8
Franklin, Va., 3.2 miles upstream from, on right bank.	19.4	-----	19.6
Franklin, Va., near lumber yard office of Camp Manufacturing Co., on left bank.	13.6	-----	18.4
Franklin, Va., near Franklin Peanut Co., on right bank.	13.4	-----	17.8
Franklin, Va., 500 feet SW. of bridge on U. S. Highway 58, on right bank.	13.2	-----	17.0
Franklin, Va., at Warehouse of Pretlow Peanut Co., on right bank.	12.6	-----	16.3
Franklin, Va., near J. C. Whitley Lumber Co., on right bank.	12.4	-----	16.3
Franklin, Va., 3.5 miles E. of, at bridge on Va. Highway 189, on left bank.	8.3	-----	13.7
South Quay, Va., 5.4 miles downstream from, on left bank.	2.9	-----	12.5
Meherrin River:			
Brodnax, Va., 6.3 miles N. of, 0.5 miles W. of intersection of U. S. Highway 1 and Va. Highway 657, on right bank.	115.4	-----	221.6
Grandy, Va., 2.4 miles SW. of, 400 feet SW. of Gees Bridge, on right bank.	111.1	-----	207.9
Lawrenceville, Va., 6.5 miles SW. of, near bridge of Southern Ry., on right bank.	105.15	-----	191.9
Lawrenceville, Va., 3.0 miles S. of, 380 feet NW. of bridge on Va. Highway 686, on left bank.	97.55	-----	181.4
Lawrenceville, Va., 4.3 miles SE. of, near U. S. Geological Survey gage.	95.65	Aug. 17	178.6
Fitzhugh, Va., 4.2 miles N. of, 110 feet W. of bridge over Little Cove Creek, on Va. Highway 683, on right bank.	91.8	-----	168.5
Independence Church, Va., 1.9 miles N. of, on right bank.	82.6	-----	135.1
Durand, Va., 1.3 miles SE. of, on left bank of stream.	79.3	-----	123.0
Emporia, Va., headwater gage of Va. Public Service Co.	76.8	-----	120.0
Emporia, Va., tailwater gage of Va. Public Service Co.	76.8	-----	104.5
Emporia, Va., at Atlantic Coast Line R.R. trestle, on left bank.	75.60	-----	98.4
Emporia, Va., 75 feet downstream from bridge on Lee Street, on right bank.	75.3	-----	97.1
Emporia, Va., 5.0 miles SE. of, on right bank.	71.7	-----	81.8
Lanes Corner, Va., 4.0 miles SE. of, on right bank.	67.40	-----	74.8
Clareville, Va., 1.0 miles N. of, on right bank.	63.20	-----	64.8
Bryants Corner, Va., 2.5 miles NW. of, on right bank.	55.80	-----	55.4
Bryants Corner, Va., 4.8 miles SE. of, on right bank.	52.40	-----	47.1
Margarettsville, N. C., 2.0 miles NE. of, on right bank.	48.90	-----	48.9
Branches Bridge, N. C., 100 feet E. of bridge, on left bank.	43.30	-----	42.3
Branches Bridge, N. C., 4.1 miles downstream from, on right bank.	39.40	-----	39.3
Severn, N. C., 2.5 miles N. of, on left bank.	35.0	-----	35.6
Severn, N. C., 1.5 miles N. of, on right bank.	32.00	-----	30.0
Severn, N. C., 2.5 miles NE. of, 0.2 miles SW. of Boon's Bridge, on right bank.	28.05	-----	24.9
Murfreesboro, N. C., 5.0 miles NW. of, on right bank.	16.70	-----	20.9
Murfreesboro, N. C., 0.4 mile NE. of, 100 feet SW. of bridge on U. S. Highway 158, on right bank.	11.96	-----	18.2
Mapleton, N. C., 4.0 miles NE. of, 600 feet SW. of Cutoff Canal, on right bank.	6.2	-----	10.7
Winton, N. C., 4.2 miles NW. of, 25 feet NE. of highway at Parker's Ferry, on right bank.	0.4	-----	6.9
ROANOKE RIVER BASIN²			
Roanoke River:			
Salem, Va., about a mile SW. of, on right bank.	370.90	-----	1,017.66
Do.	370.70	-----	1,015.67
Salem, Va., 1,000 feet upstream from highway bridge, on right bank.	370.30	-----	1,011.30
Salem, Va., near highway bridge, on right bank.	370.10	-----	1,006.74
Salem, Va., a quarter of a mile upstream from bridge on U. S. Highway 11, on right bank.	369.80	-----	1,004.84
Salem, Va., about 300 feet upstream from bridge on U. S. Highway 11, on right bank.	369.60	-----	1,002.58
Salem, Va., at bridge on U. S. Highway 11, on SE. abutment.	369.54	-----	999.29

¹ Eastern standard time except as noted.² Furnished by Corps of Engineers, War Department.

512 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Roanoke River—Con.			
Salem, Va., a quarter of a mile downstream from bridge on U. S. Highway 11, on right bank.	369.30		997.98
Salem, Va., about 1.5 miles SE. of, about 100 feet upstream from bridge on U. S. Highway 11, on right bank.	368.70		991.67
Salem, Va., about 2.5 miles SE. of, on bridge on U. S. Highway 11.	367.65		984.07
Roanoke, Va., at pump house of Norfolk & Western Ry. on left bank.	365.30		963.12
Roanoke, Va., about 1,000 feet upstream from Virginian Ry. bridge, on left bank.	365.10		961.43
Roanoke, Va., NE. end of Virginian Ry. bridge	364.92		960.39
Roanoke, Va., about 500 feet downstream from Virginian Ry. bridge, on right bank.	364.80		957.58
Roanoke, Va., about 2,000 feet downstream from Virginian Ry. bridge, on right bank.	364.60		954.85
Roanoke, Va., SE. abutment of bridge on Va. Highway 709.	364.45		954.07
Roanoke, Va., at Harris Lumber Co., on right bank.	364.30		953.07
Do	364.20		952.53
Roanoke, Va., near Roanoke Cinder Block Co., on left bank.	363.95		951.40
Roanoke, Va., at foot of 18th Street, on left bank	363.90		950.83
Roanoke, Va., at Woods Lumber & Supply Co., on left bank.	363.8		950.21
Roanoke, Va., near Woods Lumber & Supply Co., on left bank.	363.75		949.59
Roanoke, Va., at bridge on U. S. Highway 11	363.55		948.71
Roanoke, Va., about 500 feet downstream from bridge on U. S. Highway 11, at Sam E. Finley Asphalt Co., on right bank.	363.45		949.70
Roanoke, Va., about 2,000 feet downstream from bridge on U. S. Highway 11, in Skyline Lumber Yard, on left bank.	363.20		946.80
Roanoke, Va., about 2,000 feet upstream from bridge on U. S. Highway 221, in Wasena Park, on right bank.	363.00		945.36
Roanoke, Va., about 1,000 feet upstream from bridge on U. S. Highway 221, in Wasena Park, on right bank.	362.80		942.79
Roanoke, Va., at Virginian Ry. track-scale house, on left bank.	362.60		941.09
Roanoke, Va., near Roanoke Ice & Cold Storage Co., about 550 feet south of bridge on U. S. Highway 221, on right bank.	362.40		938.61
Roanoke, Va., Virginian Ry. pumphouse, on left bank.	361.70		932.03
Roanoke, Va., at bridge on U. S. Highway 220.	361.53		931.96
Roanoke, Va., about 200 feet downstream from bridge on U. S. Highway 220, on left bank.	361.50		931.44
Roanoke, Va., at Maher Field, on left bank.	361.40		930.77
Roanoke, Va., Pleasant Avenue, fence of athletic field, on left bank.	361.20		930.58
Roanoke, Va., 425 feet upstream from Norfolk & Western Ry. bridge, in athletic field.	361.20		930.53
Roanoke, Va., about 100 feet upstream from Jefferson Avenue bridge, on right bank.	361.11		929.76
Roanoke, Va., at Pittsburgh Plate Glass Co., on left bank.	360.90		928.22
Roanoke, Va., opposite Metropolitan Flour Mills, on right bank.	360.80		927.59
Roanoke, Va., about 250 feet upstream from Walnut Street bridge, on right bank.	360.65		926.62
Roanoke, Va., Dominion Metal & Culvert Corp., on left bank.	360.57		925.32
Roanoke, Va., U. S. Geological Survey gage, at Walnut Street bridge.	360.57	Aug. 14, 10.30 p.m.	925.09
Roanoke, Va., about 350 feet downstream from Walnut Street bridge, in yard of Roanoke Iron & Bridge Co., on left bank.	360.53		924.72
Roanoke, Va., about 800 feet downstream from Walnut Street bridge, at Roanoke Iron & Bridge Co. bldg., on left bank.	360.40		924.23
Roanoke, Va., L. E. Pagahardt Garage, on right bank.	360.25		923.88
Roanoke, Va., on right bank.	360.05		921.93
Do	359.90		919.27
Roanoke, Va., 0.4 mile upstream from American Viscose Corp., on right bank.	359.85		919.85
Roanoke, Va., 0.2 mile upstream from bridge of American Viscose Corp., on right bank.	359.60		917.74

¹ Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Roanoke River—Con.			
Roanoke, Va., about 150 feet upstream from bridge of American Viscose Corp., on left bank.	359.44	-----	916.31
Roanoke, Va., near American Viscose Corp., on right bank.	359.43	-----	916.10
Roanoke, Va., about 300 feet downstream from bridge of American Viscose Corp., on right bank.	359.34	-----	915.69
Roanoke, Va., about 500 feet downstream from bridge of American Viscose Corp., on left bank.	359.30	-----	915.31
Roanoke, Va., about 550 feet downstream from bridge of American Viscose Corp., on right bank.	359.30	-----	914.67
Roanoke, Va., near American Viscose Corp., on left bank.	359.25	-----	914.84
Roanoke, Va., about 0.2 mile upstream from highway bridge, at R. M. Hodges grocery store, on right bank.	358.15	-----	904.71
Roanoke, Va., at Eastover service station, at highway bridge, on right bank.	357.95	-----	903.85
Roanoke, Va., mouth of Tinker Creek.	357.24	-----	899.32
Niagara, Va., at dam of Appalachian Electric Power Co.	355.40	-----	892.53
Niagara, Va., at power plant of Appalachian Electric Power Co.	355.32	-----	835.70
Niagara, Va. U. S. Geological Survey gage.	355.28	-----	837.65
Blackwater Ford, Va., 75 feet upstream from Back Creek, on right bank.	352.26	-----	810.7
Hardys Ford, Va., 75 feet north of Hardys Ford Bridge on Va. Highway 634, on left bank.	347.87	-----	784.5
Webbs Ford, Va., on left bank.	345.08	-----	765.5
Lynnville Ford, Va., 35 feet downstream from Lynn- ville Creek, on right bank.	340.97	-----	737.7
Carters Island Ford, Va., 0.4 mile downstream from, on left bank.	337.80	-----	732.6
Turners Ford, Va., 300 feet downstream from Indian Creek, on right bank.	335.76	-----	732.3
Hales Ford, Va., 1,000 feet upstream from bridge on Va. Highway 122, on right bank.	331.35	-----	699.6
Radford Ford, Va., 700 feet downstream from, on right bank.	328.00	-----	681.2
Greers Ford, Va., 0.9 mile downstream from, on left bank.	325.90	-----	672.0
Shallow Ford, Va., on right bank.	322.29	-----	653.4
Anthony's Ford, Va., 2.1 miles downstream from, 0.5 mile downstream from Craddock Creek, on left bank.	319.17	-----	646.3
Toshes, Va., 5 miles NW. of, U. S. Geological Survey gage.	313.11	Aug. 15, 1:30 a.m.	616.4
Tolers Ferry, Va., at bridge on Va. Highway 608, on left bank.	309.29	-----	609.7
Taylor's Ford, Va., 2.3 miles upstream from, on right bank.	304.40	-----	587.5
Chells Ford, Va., on left bank.	299.99	-----	577.1
Millers Ford, Va., on left bank.	296.66	-----	562.1
Leesville, Va., 450 feet upstream from Virginian Ry. trestle, on right bank.	293.82	-----	560.3
Leesville, Va., at Virginian Ry. trestle, on right bank.	293.68	-----	558.6
Leesville, Va., 700 feet downstream from Virginian Ry. trestle, on left bank.	293.50	-----	559.9
Leesville, Va., 3.3 miles downstream from, on right bank.	290.02	-----	551.6
Altavista, Va., 0.5 mile upstream from, near Virginian Ry. trestle, on left bank.	287.00	-----	544.2
Altavista, Va., U. S. Geological Survey gage.	286.45	Aug. 15, 6 a.m.	543.3
Altavista, Va., 500 feet NW. of bridge on Va. Highway 634, on left bank.	286.10	-----	541.8
Altavista, Va., 400 feet north of Lynch Creek, on left bank.	285.88	-----	541.1
Altavista, Va., at Lane Co., on left bank.	285.60	-----	541.2
Altavista, Va., 0.2 mile downstream from silk mill, on left bank.	285.20	-----	541.4
Mansion, Va., at Wards Bridge on Va. Highway 640, on left bank.	281.81	-----	532.4
Mansion, Va., 3.7 miles downstream from, on left bank.	278.18	-----	522.4
Taber, Va., on left bank.	274.85	-----	512.9
Taber, Va., 3.2 miles downstream from, at Virginian Ry. bridge over Mill Creek, on left bank.	271.60	-----	499.3
Seneca, Va., at Virginian Ry. bridge over Seneca River, on left bank.	267.94	-----	477.6
Long Island, Va., at bridge on Va. Highway 126, on left bank.	266.20	-----	463.6
Melrose, Va., at Virginian Ry. depot, on left bank.	263.10	-----	443.6
Melrose, Va., 2.6 miles downstream from, on left bank.	260.55	-----	418.6

¹ Eastern standard time except as noted.

514 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Roanoke River—Con.			
Brookneal, Va., 3.4 miles upstream from, at Virginian Ry. trestle over Whipping Creek, on left bank.	258.92	-----	403.0
Brookneal, Va., 75 feet SW. of Virginian Ry. underpass, on left bank, bridge on U. S. Highway 501.	255.64	-----	397.9
Brookneal, Va., U. S. Geological Survey gage	255.54	Aug. 15, 7. p.m.	398.0
Brookneal, Va., 2.3 miles downstream from, near Norfolk & Western Ry. trestle, on right bank.	253.26	-----	393.1
Clarkton, Va., at Norfolk & Western Ry. depot, on right bank.	249.91	-----	388.6
Coles Ferry Landing, Va., 400 feet SW. of Coles Ferry store (abandoned), on left bank.	245.05	Aug. 15	383.0
Staunton River Church, Va., 3.2 miles south of, on left bank.	241.75	-----	374.8
Staunton River Church, Va., 1.5 miles SE. of, on left bank.	239.00	-----	371.2
Clarkton, Va., 8 miles E. of, at mouth of Cub Creek, on left bank.	236.20	-----	365.8
Harrisburg, Va., 3.5 miles S. of, on left bank	233.20	-----	361.8
Watkins, Va., 2.0 miles SE. of, at Martins Ferry (abandoned), on right bank.	230.20	-----	356.0
Watkins, Va., 4.5 miles SE. of, 200 feet upstream from Watkins Bridge on Va. Highway 26, on right bank.	227.15	-----	348.2
Randolph, Va., 200 feet upstream from Southern Railway trestle, on right bank.	224.20	-----	345.5
Randolph, Va., U. S. Weather Bureau gage	224.18	-----	345.3
Clover, Va., 5.0 miles NE. of, 200 feet upstream from bridge on U. S. Highway 360, on left bank.	220.12	-----	338.5
Clover, Va., 6 miles E. of, U. S. Geological Survey gage.	220.03	Aug. 16	340.1
Clover, Va., 4.4 miles E. of, on right bank.	216.47	-----	333.5
Clover, Va., 5.4 miles E. of, on right bank.	214.45	-----	329.5
Red Oak, Va., 6.1 miles SW. of, on left bank.	210.80	-----	318.3
Staunton River State Park, Va., on right bank.	206.65	-----	305.5
Mooreville School, Va., 2.0 miles E. of, 500 feet downstream from Bluestone Creek, on left bank.	201.95	-----	293.7
Clarksville, Va., 300 feet downstream from Southern Ry. trestle, on left bank.	199.35	-----	286.3
Clarksville, Va., NE. of, 60 feet from intersection of U. S. Highway 15 and 58, on left bank.	199.10	-----	285.7
Clarksville, Va., U. S. Geological Survey gage	199.00	Aug. 17	284.9
Soudan, Va., 2.7 miles SE. of, on right bank.	192.14	-----	263.6
Finchley, Va., 5.3 miles SE. of, near Pan Handle Creek, on left bank.	189.17	-----	254.6
Greenwood Burch, Va., 3.6 miles SE. of, near Taylors Ferry (abandoned), on left bank.	186.10	-----	244.8
Eppes Fork, Va., 3.2 miles E. of, on right bank.	181.63	-----	238.0
Shiloh School, Va., 4.3 miles E. of, opposite Bugg Island, on left bank.	177.93	-----	230.7
Red Lawn, Va., 1.7 miles S. of, on left bank.	174.65	-----	225.5
Bracey, Va., 3.0 miles NW. of, on left bank.	171.52	-----	219.7
Bracey, Va., 2.2 miles SW. of, 150 feet upstream from Seaboard Ry. bridge, on left bank.	168.40	-----	214.0
Boyd's Mill, Va., 150 feet NW. of mill, on left bank.	164.77	-----	207.4
Oakville, N. C., 5.1 miles NE. of, on right bank.	161.50	-----	200.8
Elams, N. C., 4.0 miles W. of, 50 feet N. of road at Robinsons Ferry, on left bank.	157.30	-----	191.5
Elams, N. C., 1.7 miles S. of, 350 feet N. of landing at Eatons Ferry, on left bank.	153.21	-----	183.2
Weavers, N. C., 2.1 miles N. of, near Gosen's mill dam (abandoned), on right bank.	149.80	-----	168.6
Henrico, N. C., 2.6 miles SW. of, on left bank.	146.70	-----	153.8
Thelma, N. C., 1.8 miles N. of, 500 feet upstream from abandoned railway bridge, on right bank.	143.57	-----	140.7
Roanoke Rapids, N. C., 4.0 miles W. of, on right bank.	140.00	-----	127.3
Roanoke Rapids, N. C., 500 feet upstream from dam of Virginia Electric & Power Co., on right bank.	136.10	-----	90.0
Roanoke Rapids, N. C., 1,100 feet downstream from dam of Virginia Electric & Power Co., on right bank.	135.75	-----	88.7
Roanoke Rapids, N. C., 250 feet upstream from bridge on N. C. Highway 47, on right bank.	135.35	-----	85.6
Roanoke Rapids, N. C., on right bank.	135.00	-----	85.2
Roanoke Rapids, N. C., 500 feet NE. along N. C. Highway 47 from a railroad crossing, 60 feet east of the highway, on right bank.	134.80	-----	85.1
Roanoke Rapids, N. C., 300 feet N. of intersection of 1st and Jefferson Streets, on right bank.	134.50	-----	85.1
Roanoke Rapids, N. C., 1.5 miles downstream from, U. S. Geological Survey gage.	133.62	Aug. 18	82.8
Weldon, N. C., 0.7 mile W. along 1st Street from end of pavement, on right bank.	131.10	-----	78.0

¹ Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Roanoke River—Con.			
Weldon, N. C., 500 feet W. along 1st Street from end of pavement, on right bank.	130.77	-----	77.7
Weldon, N. C., 400 feet W. of schoolhouse along 1st Street, on right bank.	130.55	-----	76.3
Weldon, N. C., 300 feet N. of Eddie & Brothers Store on 1st Street, on right bank.	130.30	-----	76.2
Weldon, N. C., 150 feet N. of depot, on right bank.	130.10	-----	75.8
Weldon, N. C., U. S. Weather Bureau gage.	130.02	Aug. 18, 2-5 p.m.	74.0
Weldon, N. C., 500 feet east of U. S. Highway 158, on right bank.	129.90	-----	72.9
Weldon, N. C., 3.4 miles SE. of, on right bank.	127.25	-----	71.7
Mud Castle, N. C., on left bank.	124.05	-----	65.8
Halifax, N. C., on right bank.	120.75	-----	65.0
Halifax, N. C., 350 feet E. of a gravel pit, on right bank.	120.55	-----	64.8
Halifax, N. C., 3.6 miles SE. of, near Little Zion Church, on right bank.	117.60	-----	63.6
Caledonia State Prison Farm, N. C., 1.9 miles NW. of the farm office, on right bank.	113.44	-----	58.8
Boones Crossroads, N. C., 1.4 miles SW. of, on left bank.	111.31	-----	56.0
Tillery, N. C., 0.8 mile north of, on right bank.	108.50	-----	54.9
Tillery, N. C., 3.7 miles E. of, on right bank.	105.90	-----	53.4
Scotland Neck, N. C., 5.7 miles N., of U. S. Weather Bureau gage.	102.49	Aug. 19, 2 p.m.	47.75
Scotland Neck, N. C., 4.3 miles NE. of, 600 feet NE. along U. S. Highway 258 from its intersection with N. C. Highway 561, on right bank.	102.18	-----	47.8
Norfleet, N. C., 4.4 miles NW. of, on right bank.	99.63	-----	45.7
Norfleet, N. C., 2.3 miles W. of, on right bank.	97.57	-----	41.6
Roxodel, N. C., 2.4 miles SW. of, on left bank.	95.00	-----	42.1
Kelford, N. C., 2.8 miles SW. of, temporary gage of Corps of Engineers.	93.79	-----	40.6
Kelford, N. C., 2.8 miles SW. of, at main trestle of Atlantic Coast Line R. R., on left bank.	93.60	-----	40.2
Woodville, N. C., 4.1 miles SW. of, on left bank.	85.70	-----	36.7
Palmyra, N. C., on right bank.	79.25	-----	35.1
Woodville, N. C., 3.9 miles S. of, on left bank.	72.04	-----	32.5
Cahaba, N. C., 2.5 miles SW. of, on left bank.	69.50	-----	31.9
Hamilton, N. C., 1.7 miles N. of, on right bank.	66.10	-----	28.7
Hamilton, N. C., at landing, on right bank.	62.07	-----	28.9
Hamilton, N. C., 2.7 miles downstream.	59.10	-----	27.0
Quitsna, N. C., 1.1 miles SE. of, on left bank.	55.05	-----	25.2
Quitsna, N. C., 2.5 miles SE. of, near road to Coniot Landing, on left bank.	51.55	-----	22.3
Williamston, N. C., at 117 Thelma Street, on right bank.	37.85	-----	18.1
Williamston, N. C., at U. S. Highway 17 near Standard Oil Co.'s plant, on right bank.	37.63	-----	17.8
Williamston, N. C., U. S. Weather Bureau gage.	37.48	-----	17.7
Williamston, N. C., 4.6 miles SE. of, on right bank.	31.95	-----	15.5
Jamesville, N. C., 2.0 miles W. of, 175 feet NW. of bridge on U. S. Highway 64 over Gardners Creek, on right bank.	28.30	-----	14.3
Jamesville, N. C., on right bank.	17.92	-----	13.1
Dardens, N. C., 1.2 miles NW. of, on right bank.	12.55	-----	11.4
Plymouth, N. C. 1.8 miles upstream from, at Hampton's Fishery, on right bank.	9.30	-----	8.0
Plymouth, N. C., at west end of West Water Street, on right bank.	7.50	-----	7.1
Plymouth, N. C., at Dare's Cut Rate Store on West Water Street, on right bank.	7.24	-----	6.9
Plymouth, N. C., at city pump house on right bank.	7.11	-----	6.8
Plymouth, N. C., at Plymouth Board & Box Co., on right bank.	6.50	-----	6.4
Dan River:			
Francisco, N. C., 2.0 miles E. of, U. S. Geological Survey gage.	159.06	Aug. 14, 10:30 a.m.	39.4
Wentworth, N. C., 3.0 miles NW. of, U. S. Geological Survey gage.	103.74	Aug. 15, 10-12 a.m.	326.9
Leaksville, N. C., U. S. Geological Survey gage.	93.56	Aug. 15, 6:30 a.m.	518.6
Leaksville, N. C., 2.5 miles S. of, 400 feet downstream from Fishing Creek, on right bank.	92.40	-----	515.7
Draper, N. C., 1.0 mile S. of, 160 feet NE. of bridge on N. C. Highway 700, on left bank.	87.81	-----	504.1
Berry Hill, Va., 1,000 feet SW. of Danville & Western Ry. flag station, on left bank.	81.60	-----	487.1
Buford, Va., on left bank.	77.40	-----	478.2

¹ Eastern standard time except as noted.² Local gage datum; elevation above mean sea level not determined.

516 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Dau River—Con.			
Powell, Va., 900 feet S. of Danville & Western Ry. flag station, on left bank.	73.28		463.6
Schoolfield, Va., 400 feet upstream from Schoolfield powerhouse, on right bank.	66.02		441.8
Schoolfield, Va., 300 feet downstream from Schoolfield powerhouse, 50 feet upstream from bridge on U. S. Highway 58, on right bank.	65.87		425.5
Schoolfield, Va., 300 feet downstream from bridge on Va. Highway 125, on right bank.	65.69		424.9
Schoolfield, Va., at old city waterworks, on right bank.	65.6		424.5
Danville, Va., at intersection of Union and Randolph Streets, on right bank.	64.4		417.3
Danville, Va., at intersection of Union and Floyd Streets, on right bank.	63.74		413.5
Danville, Va., 25 feet SW. of Union Street Bridge on U. S. Highway 58, on right bank.	63.6		412.7
Danville, Va., 300 feet downstream from Main Street bridge on U. S. Highway 58, on right bank.	63.1		401.5
Danville, Va., U. S. Geological Survey gage.	62.74	Aug. 15	400.4
Danville, Va., 100 feet downstream from Southern Ry. bridge, on right bank.	62.62		399.7
Danville, Va., 2.0 miles downstream from, on right bank.	60.5		396.1
Blanche, N. C., 2.5 miles NW. of, at Walters Mill on Hogan Creek, on right bank.	58.45		394.9
Blanche, N. C., at Southern Ry. depot, on right bank.	55.25		385.9
Blanche, N. C., 3.0 miles E. of, on right bank.	52.1		379.9
Milton, N. C., at Southern Ry. depot, on right bank.	49.45		374.4
Jerdens Mill, Va., on left bank.	45.4		368.8
Jerdens Mill, Va., 0.7 mile NE. of, on left bank.	42.4		365.7
Barksdale, Va., 75 feet S. of Southern Ry. flag station.	41.0		363.2
Paces, Va., 400 feet E. of highway bridge, on right bank.	35.85		355.4
Tubeville, Va., 2.0 miles N. of, on right bank.	31.3		347.7
Stovers Mill, Va., 100 feet E. of Hupps Mill (abandoned), on right bank.	28.15		342.4
South Boston, Va., 4.0 miles upstream from, on left bank.	26.51		336.6
South Boston, Va., 1.2 miles W. of, at bridge on U. S. Highway 58 over Lawson Creek, on right bank.	23.50		332.7
South Boston, Va., U. S. Geological Survey gage.	22.61	Aug. 16, 12 p.m.	331.9
South Boston, Va., near intersection of U. S. Highways 58 and 501, on right bank.	22.49		330.1
South Boston, Va., 1,200 feet E. of intersection of U. S. Highways 58 and 501, on right bank.	22.25		330.0
South Boston, Va., 1,500 feet downstream from Southern Ry. depot, on left bank.	22.13		329.9
South Boston, Va., on right bank.	21.97		329.6
South Boston, Va., 3.5 miles E. of, on left bank.	20.10		325.5
Nelsons Ferry, Va., on left bank.	16.70		321.6
Buffalo Lithia Springs, Va., 4 miles NW. of, at mouth of Hyco River, on left bank.	12.15		314.4
Buffalo Lithia Springs, Va., 3½ miles NW. of, 0.5 mile downstream from mouth of Hyco River, on right bank.	11.7		309.6
Gravel Hill Church, Va., 2.1 miles NE. of, on right bank.	8.4		306.7
Saint Johns Church, Va., 1.7 miles NW. of, near bridge on Va. Highway 722 over Big Buffalo Creek, on right bank.	5.3		299.7
Oceanechee Island, Va., on left bank.	2.10		290.5
Clarksville, Va., 200 feet NW. of Southern Ry. depot, on right bank.	.12		285.2
Smith River:			
Union Church, Va., 350 feet upstream from bridge on Va. Highway 623, on right bank.	53.56		925.2
Jameson's Mill, Va., 1.5 miles downstream from, on left bank.	50.3		877.0
Jameson's Mill, Va., 4.0 miles downstream from, on left bank.	47.85		856.0
Philpott, Va., 3.6 miles upstream from, on left bank.	44.65		836.7
Philpott, Va., 60 feet downstream from bridge on Va. Highway 674, on right bank.	41.07		796.4
Bassett, Va., U. S. Geological Survey gage.	38.05	Aug. 14, 5 p.m.	771.4
Bassett, Va., on right bank.	37.84		772.1
Bassett, Va., at end of Fourth Street, on left bank.	37.55		769.7
Bassett, Va., 200 feet S. of end of First Street, on left bank.	37.35		768.0

¹ Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood*—Continued

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Smith River—Con.			
Bassett, Va., 400 feet downstream from intersection of Va. Highway 57 and Riverside Drive, on left bank.	37.10	-----	766.8
Bassett, Va., 75 feet SE. of signal tower along Norfolk & Western Ry., on left bank.	36.76	-----	766.4
Bassett, Va., 225 feet NW. of intersection of Riverside Drive and Va. Highway 712, on right bank.	36.56	-----	763.6
Bassett, Va., at Riverside Hotel, on left bank.	36.39	-----	761.2
Bassett, Va., 1,000 feet SE. of Norfolk & Western Ry. depot, on left bank.	36.25	-----	759.8
Bassett, Va., 1,700 feet SE. of Norfolk & Western depot, on left bank.	35.95	-----	759.1
Bassett, Va., 650 feet NW. of intersection of Va. Highways 682 and 698, on right bank.	35.8	-----	756.3
Bassett, Va., 40 feet W. of mouth of Blackberry Creek, on right bank.	35.6	-----	751.8
Bassett, Va., 400 feet S. of Esso Bulk Plant, on left bank.	35.3	-----	755.5
Firestone, Va., 1,000 feet SE. of brickyard, on left bank.	32.9	-----	739.5
Fieldale, Va., at Esso Service station, U. S. Highway 220, on left bank.	30.7	-----	728.8
Martinsville, Va., 1.5 miles W. of, on left bank.	28.4	-----	715.4
Martinsville, Va., 1.3 miles S. of, 250 feet upstream from Martinsville Dam, on left bank.	24.7	-----	699.8
Martinsville, Va., 2 miles S. of, U. S. Geological Survey gage.	24.5	Aug. 14, 9 p.m.	676.4
Fontaine, Va., 1.0 mile E. of, on right bank.	21.4	-----	659.8
Egglesstone Ford, Va., 1,200 feet upstream from Va. Highway 641 bridge, on right bank.	17.8	-----	633.8
Egglesstone Ford, Va., 1.5 miles downstream from, on right bank.	16.2	-----	618.0
Long Island, Va., on right bank.	13.9	-----	604.7
Break Reed Ford, Va., 0.5 mile N. of Va. Highway 622, on right bank.	10.0	-----	587.3
Morgan Ford Bridge, Va., 200 feet downstream from bridge on Va. Highway 622, on right bank.	7.1	-----	578.0
Spray, N. C., U. S. Geological Survey gage.	3.86	Aug. 15, 1 a.m.	558.8
Spray, N. C., 150 feet downstream from Aiken Road Bridge, on left bank.	2.9	-----	548.5
Spray, N. C., 200 feet upstream from Spray Cotton Mill dam, on right bank.	2.5	-----	546.1
Spray, N. C., at Danville & Western Ry. trestle, on right bank.	2.4	-----	533.1
Spray, N. C., on Spray Cotton Mills gage.	1.8	-----	525.6
Spray, N. C., at bridge on N. C. Highway 700, on left bank.	1.7	-----	524.4
Spray, N. C., at Morehead Cotton Mill, on right bank.	1.6	-----	524.7
Leakesville, N. C., 0.5 mile SE. of, 800 feet north of confluence with Dan River, on right bank.	0.2	-----	518.6
PAMLICO RIVER BASIN²			
Tar River:			
Tar River, N. C., U. S. Geological Survey gage.	172	Aug. 16, 10-10:30 a.m.	37.38
Nashville, N. C., U. S. Geological Survey gage.	103.6	Aug. 18, 8 a.m.	317.37
Rocky Mount, N. C., Weather Bureau gage.	92.5	Aug. 18, 8 a.m.	92.7
Rocky Mount, N. C., crest of mill dam.	90.0	-----	88.3
New Bridge, N. C., left bank.	86.0	-----	69.02
Dunbars Bridge, N. C., right bank.	73.0	-----	57.57
Bells Bridge, N. C., left bank.	60.0	-----	47.36
Tarboro, N. C., U. S. Geological Survey gage.	49.2	Aug. 20, 6-8 p.m.	42.14
Tarboro, N. C., from observation at U. S. Weather Bureau gage.	46.2	Aug. 20, 1 p.m.	42.02
Old Sparta, N. C., at Town Creek Bridge, right bank.	41.6	-----	37.09
Falkland Bridge, N. C., right bank.	32.8	-----	28.25
Greenville, N. C., U. S. Geological Survey gage.	23.1	Aug. 22, 6-8 a.m.	19.69
Hardee Creek, N. C., Corps of Engineers gage.	18.1	-----	15.10
Washington, N. C., Corps of Engineers gage.	0.0	-----	0.0
PEE DEE RIVER BASIN^{2 4}			
Yadkin River:			
Patterson, N. C., 1¼ miles NW. of, at mouth of Mill Creek, right bank.	197.4	Aug. 13	1,337.1
Patterson, N. C., half a mile NW. of, right bank.	196.0	do.	1,283.2
Patterson, N. C., U. S. Geological Survey gage, left bank.	195.1	Aug. 13, 8 p.m.	1,127.70
Patterson, N. C., 200 feet below U. S. Geological Survey gage, left bank.	195.1	Aug. 13	1,224.1

¹ Eastern standard time except as noted.² Furnished by Corps of Engineers, War Department.³ Local gage datum; elevation above mean sea level not determined.⁴ Elevations are above mean sea level, datum of 1929, supplementary adjustment of 1936, except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Yadkin River—Con.			
Patterson, N. C., 3 miles E. of, at mouth of Buffalo Creek, left bank.	191.1	Aug. 13.....	1,161.5
Patterson, N. C., 5 miles NE. of, near bridge on N. C. Highway 268.	188.5	.....do.....	1,139.6
Elkville, N. C., 2½ miles SW. of, at Caldwell dam site.	186.4	.....do.....	1,131.0
Elkville, N. C., half a mile SW. of, on Kings Creek Road, 250 feet S. of river, right bank.	184.5	.....do.....	1,107.2
Elkville, N. C., 100 feet E. of Elk Creek, left bank.	181.9	.....do.....	1,096.3
Elkville, N. C., about 1 mile NE. of, at Reedy Branch, left bank.	180.5	.....do.....	1,092.8
Elkville, N. C., 2 miles NE. of, at Ferguson.	178.9	.....do.....	1,082.7
Goshen, N. C., about 3 miles W. of, about 1 mile below Stony Fork, right bank.	175.2	Aug. 13 or 14.....	1,060.0
Goshen, N. C., 2¼ miles W. of, at Marley Ford bridge, right bank.	174.0	.....do.....	1,046.4
Goshen, N. C., about ¾ mile W. of, on Warrior Creek Road, right bank.	170.6	.....do.....	1,014.7
Goshen, N. C., right bank.	169.8	.....do.....	1,010.0
Goshen, N. C., ¾ mile east of, above Whites Creek, right bank.	168.9	.....do.....	1,008.3
Goshen, N. C., 1¼ miles NE. of, half a mile below Smithies Creek, right bank.	168.3	.....do.....	1,006.6
Goshen, N. C., 3½ miles NE. of, ¾ mile above Milers Creek, right bank.	165.6	.....do.....	990.2
Wilkesboro, N. C., 2 miles W. of, ¾ mile below Milers Creek, right bank.	164.1	.....do.....	988.0
Wilkesboro, N. C., 1½ miles W. of, near mouth of Moravian Creek, right bank.	163.4	.....do.....	984.6
Wilkesboro, N. C., 1¼ miles W. of, road leading to Curtis Bridge.	162.6	Aug. 14.....	980.0
Wilkesboro, N. C., U. S. Geological Survey gage, right bank.	161.0	Aug. 14, about 3:30 a.m.	979.9
North Wilkesboro, N. C., Southern Ry. depot, left bank.	160.7	Aug. 14.....	979.4
North Wilkesboro, N. C., 2¼ miles NE. of, Southern Ry. bridge over Mulberry Creek, left bank.	157.5	.....do.....	965.4
North Wilkesboro, N. C., 4¼ miles NE. of, Southern Ry. bridge over Rock Creek, left bank.	155.0	.....do.....	961.0
Roaring River, N. C., Southern Ry. bridge over Roaring River, left bank.	151.9	.....do.....	948.7
Ronda, N. C., left bank.	144.2	.....do.....	923.3
Elkin, N. C., 2½ miles W. of, Southern Ry. trestle over Little Elkin River, left bank.	140.1	.....do.....	911.3
Elkin, N. C., Southern Ry. bridge over Elkin River, left bank.	137.4	.....do.....	904.9
Elkin, N. C., 2.3 miles NE. of, on Highway 268, left bank.	135.2	.....do.....	894.6
Crutchfield, N. C., 2½ miles W. of, Southern Ry. trestle over Mitchell River, left bank.	131.3	Aug. 14 or 15.....	886.0
Crutchfield, N. C., Southern Ry. depot, left bank.	127.0	.....do.....	868.3
Crutchfield, N. C., 1¼ miles E. of, Southern Ry. bridge over Fisher River, left bank.	125.4	.....do.....	864.6
Rockford, N. C., Southern Ry. depot, left bank.	120.8	.....do.....	838.0
Siloam, N. C., 2 miles W. of, highway intersection ¼ mile E. of Limerock railroad depot, left bank.	116.9	.....do.....	821.6
Siloam, N. C., Southern Ry. depot, left bank.	113.9	.....do.....	816.7
Shoals, N. C., 0.4 mile E. of, N. of Southern Ry. tracks, left bank.	109.4	.....do.....	789.3
Shoals, N. C., 2¼ miles E. of, Southern Ry. depot at Boyden, left bank.	107.2	.....do.....	773.3
Donnaha, N. C., 2 miles NW. of, Southern Ry. trestle over Little Yadkin River, left bank.	105.5	.....do.....	766.0
Donnaha, N. C., Southern Ry. depot, left bank.	103.9	.....do.....	763.4
Donnaha, N. C., 6 miles S. of, E. of bridge on U. S. Highway 421, left bank.	96.3	.....do.....	737.5
Huntsville, N. C., 1 mile NE. of, near highway bridge.	90.8	Aug. 15.....	724.1
Clemmons, N. C., 5½ miles NW. of, Styers dam site.	83.4	.....do.....	710.6
Clemmons, N. C., 2¼ miles NW. of, U. S. Highway 158, left bank.	79.9	.....do.....	702.7
Advance, N. C., 2 miles NE. of, Idols hydrostation.	76.2	.....do.....	693.8
Advance, N. C., 2 miles E. of, on Baileys Ferry road.	73.7	.....do.....	688.2
Advance, N. C., 2½ miles SE. of, near Muddy Creek.	72.3	.....do.....	686.1
Advance, N. C., 4 miles S. of, on Highway 801 at Fulton Creek, right bank.	65.9	.....do.....	676.6
Yadkin College, N. C., U. S. Geological Survey gage, left bank.	62.9	Aug. 15, 10:30 p.m.	{ 672.4 333.75

¹ Eastern standard time except as noted.² Local gage datum; elevation above mean sea level not determined.³ From levels by Corps of Engineers to floodmark on gage well.

TABLE 22.—Flood-crest stages of mid-August flood—Continued

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Yadkin River—Con.			
Yadkin College, N. C., 2½ miles SW. of, near Harleston Ferry road, right bank.	60.4	Aug. 15-----	668.3
Yadkin College, N. C., 4 miles SW. of, 2¾ miles above Dutchman Creek, right bank.	57.9	Aug. 15 or 16-----	662.3
Yadkin College, N. C., 6½ miles SW. of, at Hartleys Ferry, right bank.	52.2	-----do-----	651.2
Spencer, N. C., 4½ miles N. of, about 1 mile above South Yadkin River, site of proposed Junction Dam, right bank.	46.6	-----do-----	636.9
Mouth, confluence with Uwharrie River to form Pee Dee River.	0.0	-----do-----	-----
KANAWHA RIVER BASIN			
New River:			
Dickerson Mill, Va., just above West Virginia Stateline.	87	-----do-----	⁷ 1,486.4
Lick Creek, mouth of.	80	-----do-----	^a 1,465.0
Buffalo Creek, mouth of.	73	-----do-----	^a 1,430.4
Hinton, W. Va., U. S. Geological Survey recording gage above.	66.1	Aug. 15, 4:45 a.m.---	^a 1,392.57
Hinton, W. Va., U. S. Geological Survey recording gage at.	62.6	Aug. 15, 5 a.m.-----	^a 1,374.15
Hinton, W. Va., U. S. Weather Bureau gage at ⁷	62.5	Aug. 15, 3 a.m.-----	1,370.54
Tug Branch, mouth of.	60.5	Aug. 15-----	^a 1,353.1
Mill Branch, mouth of.	57	-----do-----	^a 1,335.4
Sandstone Falls, just below.	54	-----do-----	^a 1,301.4
Laurel Creek, mouth of.	53	-----do-----	^a 1,290.2
Meadow Creek, mouth of.	49	-----do-----	^a 1,266.4
Camp Branch, mouth of.	47	-----do-----	^a 1,247.1
Glades, W. Va., above railroad bridge at depot.	45	-----do-----	^a 1,239.7
Quinnimont, W. Va., mouth of Laurel Creek.	40	-----do-----	^a 1,198.8
Prince, W. Va., at right bank abutment of railroad bridge at.	39	-----do-----	^a 1,179.7
Stretchers Neck tunnel, 400 ft. downstream from lower portal.	35	-----do-----	^a 1,151.9
Buffalo Creek, 250 ft. above mouth of.	30	-----do-----	^a 1,101.7
Stonecliff Bridge.	27	-----do-----	^a 1,071.6
Thurmond, W. Va., 800 ft. above bridge at.	25	-----do-----	^a 1,060.1
Ephraim Creek, mouth of.	21	-----do-----	^a 1,018.6
Sewell, W. Va., above railroad bridge at.	18	-----do-----	^a 993.2
Caperton, W. Va., U. S. Geological Survey gage.	17.5	Aug. 15, 9 a.m.-----	^a 974.44
Fayette, W. Va., site of U. S. Geological Survey gage, average of flood marks on left and right banks.	12.5	Aug. 15-----	881.9
Hawks Nest, W. Va., at E. abutment of railway bridge.	7	-----do-----	^a 820.4
Cotton Hill, W. Va., at Highway bridge (Laurel Creek).	6	-----do-----	^a 774.2
At light signal tower of Chesapeake & Ohio Ry.	3	-----do-----	^a 708.6
Cane Branch, W. Va.	1	-----do-----	^a 671.3
Kanawha River:			
Confluence of New and Gauley Rivers.	97.0	-----do-----	-----
Gauley Bridge, W. Va., Bracken's restaurant.	97.0	Aug. 15-----	^a 668.64
Gauley Bridge, W. Va., garage 100 feet below Bracken's restaurant.	97.0	-----do-----	^a 668.61
Kanawha Falls, W. Va., navigation gage.	94.6	Aug. 15, 11:30 a.m.---	^a 654.48
Kanawha Falls, U. S. Geological Survey recording gage.	94.4	-----do-----	^a 652.38
London Dam, upper pool, U. S. Geological Survey recording gage.	82.8	Aug. 15, 2 p.m.-----	^a 623.3
London Dam, lower pool, U. S. Geological Survey recording gage.	82.8	Aug. 15, 1:30 p.m.---	^a 622.9
Marmet, upper pool, U. S. Geological Survey recording gage.	67.7	Aug. 15, 4:30 p.m.---	^a 601.4
Marmet, lower pool, U. S. Geological Survey recording gage.	67.7	-----do-----	^a 600.8
Charleston, South Side Bridge, U. S. Weather Bureau gage. ¹⁰	58.5	Aug. 15, 9:30 p.m.---	^a 590.0
Charleston, mouth of Elk River, Corps of Engineers recording gage.	57.8	Aug. 15, 9 p.m.-----	^a 589.48
South Charleston, old lock 6, Corps of Engineers recording gage.	54.3	-----do-----	^a 586.36
Winfield, upper pool, U. S. Geological Survey recording gage.	31.1	Aug. 16, 3 a.m.-----	^a 568.4
Winfield, lower pool, U. S. Geological Survey recording gage.	31.1	-----do-----	^a 567.6
Point Pleasant, at mouth, Corps of Engineers recording gage.	0.0	Aug. 15, 11 p.m.---	¹¹ 537.3

^a Datum of 1929.^b Furnished by Electro-Metallurgical Co., Glen Ferris, W. Va.^c Eastern Standard time except as noted.^d Sea-level datum, adjustment of 1912.⁷ Furnished by U. S. Weather Bureau.⁸ Maximum observed.⁹ Winfield datum, Corps of Engineers, War Department.¹⁰ Furnished by R. W. Jackson.¹¹ Sandy Hook datum.

TABLE 22.—*Flood-crest stages of mid-August flood*—Continued

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
TENNESSEE RIVER BASIN ¹²			
French Broad River:			
Rosman, N. C., U. S. Geological Survey gage, left bank.	216.3	Aug. 13, 11 a.m.----	2,185.61
Calvert, N. C., U. S. Geological Survey gage, right bank.	213.9	Aug. 13, 1 p.m.----	2,166.29
Calvert, N. C., at bridge 1.2 miles below gage, right bank.	212.7	Aug. 13.-----	2,159.0
Selica, N. C., 1.05 miles below Catheys Creek, right bank.	207.2	----do-----	2,135.5
Brevard, N. C., 0.7 mile above bridge on U. S. Highway 276, left bank.	197.2	Aug. 14.-----	2,111.2
Brevard, N. C., 0.35 mile below bridge on U. S. Highway 276, right bank.	196.2	----do-----	2,109.4
Brevard, N. C., at first bridge below U. S. Highway 276, right bank.	195.4	----do-----	2,106.4
Brevard, N. C., 0.4 mile below crossing of transmission line from Cascade Lake, right bank.	194.6	----do-----	2,103.5
Pisgah Forest, N. C., 1.1 miles above Davidson River, right bank.	192.8	----do-----	2,098.8
Pisgah Forest, N. C., 100 feet upstream from mouth of Davidson River, left bank.	191.8	----do-----	2,098.2
Davidson River, N. C., 1.5 miles below Calhoun highway bridge, left bank.	189.2	----do-----	2,089.8
Penrose, N. C., left bank.	186.9	----do-----	2,088.3
Blantyre, N. C., U. S. Geological Survey gage at Blantyre bridge, left bank.	183.7	Aug. 14, 9 a.m.----	2,082.21
Blantyre, N. C., 1.5 miles below Blantyre bridge, right bank.	182.2	Aug. 14.-----	2,078.0
Blantyre, N. C., 2.2 miles below Blantyre bridge at Little Willow Creek, right bank.	181.5	----do-----	2,077.6
Bowman Bluff, N. C., 2,500 feet above Willow Creek, right bank.	180.2	----do-----	2,076.9
Bowman Bluff, N. C., 1.9 miles above bridge on U. S. Highway 64, right bank.	179.1	----do-----	2,075.1
Etowah, N. C., 1 mile above bridge on U. S. Highway 64, right bank.	178.2	----do-----	2,074.0
Etowah, N. C., 450 feet above bridge on U. S. Highway 64, right bank.	177.2	----do-----	2,071.8
Horseshoe, N. C., 0.9 mile above bridge, right bank.	174.2	----do-----	2,067.4
Horseshoe, N. C., 0.2 mile below bridge, left bank.	173.0	----do-----	2,062.7
Rugby, N. C., 0.6 mile above bridge on N. C. Highway 191, left bank.	171.2	----do-----	2,059.4
Rugby, N. C., 1,400 feet below bridge on N. C. Highway 191, left bank.	170.4	----do-----	2,058.6
Rugby, N. C., right bank of Mills River.	169.2	----do-----	2,056.4
Brickton, N. C., at Butlers Bridge, 1 mile below Mud Creek, left bank.	167.4	----do-----	2,054.9
Fletcher, N. C., at Fanning Bridge, 1.5 miles below Cane Creek, left bank.	165.4	----do-----	2,049.6
Arden, N. C., 1,600 feet above Glenn Bridge, right bank.	163.2	----do-----	2,043.1
Arden, N. C., 600 feet above Glenn Bridge, left bank.	162.8	----do-----	2,041.4
Skyland, N. C., 25 feet above Long Shoals Bridge on N. C. Highway 280, right bank.	160.6	----do-----	2,027.4
Bent Creek, N. C., 1.7 miles below Long Shoals Bridge, right bank.	158.9	----do-----	2,015.5
Bent Creek, N. C., U. S. Geological Survey gage, left bank.	157.7	Aug. 14, 6 a.m.----	2,008.55
Bent Creek, N. C., 1.5 miles above Dingle Creek, right bank.	157.1	Aug. 14.-----	2,005.2
Bent Creek, N. C., at Dingle Creek, right bank.	155.6	----do-----	1,999.0
Biltmore Forest, N. C., 2.7 miles above Hominy Creek, right bank.	154.2	----do-----	1,994.5
Biltmore Forest, N. C., 1.2 miles above Hominy Creek, right bank.	152.7	----do-----	1,988.7
Asheville, N. C., 0.6 mile above West Asheville viaduct, right bank.	148.2	----do-----	1,976.4
Asheville, N. C., at West Asheville viaduct, left bank.	147.65	----do-----	1,973.8
Asheville, N. C., 1,300 feet below Southern Ry. bridge, right bank.	146.9	----do-----	1,970.1
Asheville, N. C., U. S. Geological Survey gage, right bank.	145.7	Aug. 14, 1 a.m.----	1,961.93
Hot Springs, N. C., U. S. Geological Survey gage, right bank.	109.1	Aug. 14, 6 a.m.----	1,320.62

¹ Eastern standard time except as noted.¹² From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplementary adjustment of 1936, except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
French Broad River—Con.			
Newport, Tenn., U. S. Geological Survey gage.....	77.4	Aug. 14, 7:30 a.m. ¹³	1,024.20
Dandridge, Tenn., U. S. Geological Survey gage, right bank.	45.3	Aug. 15, 7 a.m. ¹³	922.06
Shady Grove, Tenn., 1.3 miles above Duncan Branch, right bank.	39.3	Aug. 15.....	906.6
Shady Grove, Tenn., 0.4 mile above head of Ernest Fox Island, right bank.	36.3	----do-----	900.1
Shady Grove, Tenn., Island Ford Mill, right bank....	35.1	----do-----	896.5
Shady Grove, Tenn., 1 mile above foot of Zimmerman Island, right bank.	33.9	----do-----	893.9
Catlettsburg, Tenn., 1 mile above Kykers Ferry, right bank.	29.7	----do-----	885.8
Catlettsburg, Tenn., at Kykers Ferry, left bank.....	28.8	----do-----	882.4
Reville, Tenn., at Hodges Ferry, right bank.....	26.3	----do-----	876.7
Boysds Creek, Tenn., 500 feet below Boysds Creek, left bank.	24.0	----do-----	874.2
Boysds Creek, Tenn., opposite middle of Bryant Island, left bank.	22.0	----do-----	869.3
Kodak, Tenn., opposite mouth of Dumplin Creek, left bank.	19.9	----do-----	864.2
Kodak, Tenn., 500 feet below foot of Cain Island, right bank.	18.9	----do-----	862.2
Boysds Creek, Tenn., in point of Horseshoe Bend, left bank.	16.4	----do-----	858.4
Boysds Creek, Tenn., opposite lower island of Seven Islands, right bank.	14.6	----do-----	853.8
Kimberlin Heights, Tenn., 0.4 mile above head of Johnson Island, right bank.	11.1	----do-----	845.1
Riverdale, Tenn., at Riverdale Ferry, left bank.....	7.4	----do-----	837.7
Tennessee River:			
Knoxville, Tenn., U. S. Geological Survey gage, right bank.	648.4	Aug. 16, 2 a.m. ¹³	821.58
London, Tenn., U. S. Geological Survey gage, bridge pier.	591.5	Aug. 16, 4 p.m. ¹³	746.15
Watts Bar Dam, Tenn., TVA headwater gage.....	530.2	Aug. 17, 7 a.m. ¹³	691.0
Watts Bar Dam, Tenn., TVA tailwater gage, right bank (head of Chickamauga Reservoir).	529.5	Aug. 17, 8 a.m. ¹³	687.8
Breedenton, Tenn., U. S. Geological Survey gage, left bank.	523.1	Aug. 17, 3-6 p.m. ¹³	685.54
Washington, Tenn., TVA gage at Armstrong's Ferry, right bank.	503.8	Aug. 18, 9 p.m. ¹³	682.9
Sale Creek, Tenn., TVA gage at Doughty's Ferry, right bank.	497.2	----do ¹³ -----	682.8
Birchwood, Tenn., TVA gage at TVA safety harbor, left bank.	488.5	Aug. 18, 8 p.m. ¹³	682.7
Chickamauga Reservoir, Tenn., TVA gage.....	471.0	Aug. 18, 9 p.m. ¹³	682.5
Chickamauga Dam, Tenn., TVA tailwater gage.....	471.0	Aug. 16, 3 p.m. ¹³	642.3
Chattanooga, Tenn., U. S. Geological Survey base gage at Meadow Lake, right bank.	467.6	Aug. 16, 4 p.m. ¹³	640.97
Chattanooga, Tenn., U. S. Geological Survey auxiliary gage of Citico Bar, left bank.	465.4	----do ¹³ -----	640.0
Chattanooga, Tenn., U. S. Weather Bureau Walnut Street gage, left bank.	464.2	----do ¹³ -----	639.5
Davidson River:			
Brevard, N. C., 0.9 mile above Avery Creek, right bank.	5.2	Aug. 13.....	2,204.3
Brevard, N. C., above Avery Creek, 400 feet below site of former U. S. Geological Survey gage known as Davidson River near Davidson River, N. C., right bank.	4.3	----do-----	2,177.4
Brevard, N. C., 0.55 mile below Avery Creek, right bank.	3.5	----do-----	2,154.3
Brevard, N. C., U. S. Geological Survey gage, right bank.	2.05	Aug. 13, 10:30 a.m.	2,124.33
Pisgah Forest, N. C., at Ecusta Paper Corp. plant, right bank.	1.1	Aug. 13.....	2,114.0
Pisgah Forest, N. C., at bridge on U. S. Highway 64, left bank.	.35	----do-----	2,100.0
Mills River:			
Mills River, N. C., 1½ miles downstream from confluence of North and South Forks, U. S. Geological Survey gage, right bank.	4.4	Aug. 13, 4 p.m.----	2,101.62
Mills River, N. C., 30 feet below bridge on N. C. Highway 191, right bank.	2.4	Aug. 13.....	2,076.8
Mills River, N. C., left bank.....	1.35	----do-----	2,063.1

¹ Eastern standard time except as noted.¹³ Central standard time.

TABLE 22.—*Flood-crest stages of mid-August flood*—Continued

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Mud Creek:			
Hendersonville, N. C., at highway bridge at mouth of Shephard Creek, right bank.	9.9	Aug. 13.....	2,091.6
Hendersonville, N. C., near bridge on U. S. Highway 25, right bank.	9.4	.....do.....	2,087.9
Hendersonville, N. C., at bridge on U. S. Highway 176, right bank.	8.8	.....do.....	2,084.5
Hendersonville, N. C., at bridge on U. S. Highway 64, left bank.	7.7	.....do.....	2,079.7
Balfour, N. C., near Smyth Station bridge, right bank.	6.3	.....do.....	2,072.8
Balfour, N. C., at Balfour quarry, 0.6 mile below Clear Creek, left bank.	5.0	.....do.....	2,070.7
Mountain Home, N. C., left bank.	3.0	.....do.....	2,063.7
Mountain Home, N. C., Southern Ry. fill, left bank.	2.5	.....do.....	2,062.8
Naples, N. C., U. S. Geological Survey gage, left bank.	2.2	Aug. 13, 11-12 p.m.	2,060.55
Naples, N. C., at bridge on U. S. Highway 25, right bank.	1.7	Aug. 13.....	2,058.8
Naples, N. C., 0.4 mile above first highway bridge above mouth, right bank.	1.0	.....do.....	2,057.4
Naples, N. C., 1,500 feet below first highway bridge above mouth, right bank.	.3	.....do.....	2,056.2
Cane Creek:			
Fairview, N. C., 0.3 mile above Fairview, right bank.	12.5	.....do.....	2,213.2
Fairview, N. C., 0.4 mile below Fairview, right bank.	11.85	.....do.....	2,197.3
Fairview, N. C., 0.3 mile above Shoal Creek, left bank.	10.95	.....do.....	2,179.0
Fairview, N. C., 0.2 mile above Gap Creek, right bank.	10.2	.....do.....	2,164.8
Fairview, N. C., 0.7 mile below Gap Creek, right bank.	9.2	.....do.....	2,149.0
Fletcher, N. C., 0.5 mile above Robinson Creek, right bank.	5.5	.....do.....	2,100.7
Fletcher, N. C., at first highway bridge above Fletcher, left bank.	3.8	.....do.....	2,081.0
Brickton, N. C., 0.4 mile below Kimsey Creek, right bank.	.4	.....do.....	2,054.1
Hominy Creek:			
Candler, N. C., 100 feet above lower highway bridge, left bank.	11.1	.....do.....	2,097.0
Candler, N. C., 0.7 mile below Candler, left bank.	10.3	.....do.....	2,081.3
Enka, N. C., at American Enka Corp. intake dam, right bank.	8.0	.....do.....	2,057.9
Swannanoa River:			
Swannanoa, N. C., 275 feet above street bridge, right bank.	15.5	.....do.....	2,188.4
Swannanoa, N. C., at bridge on U. S. Highway 70, left bank.	14.8	.....do.....	2,175.0
Swannanoa, N. C., 0.9 mile below bridge on U. S. Highway 70, left bank.	13.9	.....do.....	2,154.1
Swannanoa, N. C., near Asheville Farm School, right bank.	12.4	.....do.....	2,127.2
Swannanoa, N. C., 0.5 mile below Bull Creek, right bank.	10.5	.....do.....	2,097.2
Azalea, N. C., 1.5 miles above bridge on U. S. Highway 70, left bank.	9.1	.....do.....	2,079.2
Azalea, N. C., 0.5 mile above bridge on U. S. Highway 70, left bank.	8.1	.....do.....	2,069.0
Azalea, N. C., near bridge on U. S. Highway 70, left bank.	7.6	.....do.....	2,063.6
Azalea, N. C., at Azalea Woodworking Co. plant, left bank.	6.9	.....do.....	2,052.5
Oteen, N. C., just above Lake Craig Dam.	5.1	.....do.....	2,043.43
Oteen, N. C., just below Lake Craig Dam.	5.1	.....do.....	2,030.1
Oteen, N. C., 230 feet below bridge on U. S. Highway 74, right bank.	4.3	.....do.....	2,021.5
Biltmore, N. C., 150 feet above bridge at Sayles Biltmore Bleacheries, right bank.	3.6	.....do.....	2,014.6
Biltmore, N. C., 130 feet below bridge about 0.3 mile below Haw Creek, left bank.	2.6	.....do.....	2,003.5
Biltmore, N. C., U. S. Geological Survey gage, left bank.	1.6	Aug. 13, 7:30 p.m.	1,995.58
Biltmore, N. C., at gate entrance to Biltmore Estate, left bank.	1.4	Aug. 13.....	1,992.6
Asheville, N. C., 3,500 feet above mouth, right bank.	.7	.....do.....	1,984.1
Ivy River:			
Barnardsville, N. C., left bank.	18.2	.....do.....	2,187.7
Barnardsville, N. C., about 0.15 mile below Whittemore Creek, right bank.	17.2	.....do.....	2,138.9

¹Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Ivy River—Con.			
Democrat, N. C., 100 feet below bridge on N. C. Highway 695, left bank.	16.1	Aug. 13.-----	2,099.3
Democrat, N. C., 0.4 mile above Morgan Branch, left bank.	15.0	----do-----	2,067.1
Democrat, N. C., at highway bridge 0.3 mile below Morgan Branch.	14.2	----do-----	2,046.2
Forks of Ivy, N. C., 1.3 miles above Middle Fork, right bank.	13.1	----do-----	2,009.0
Marshall, N. C., U. S. Geological Survey gage, right bank.	1.8	Aug. 13, 8 p.m.----	1,710.73
Marshall, N. C., 100 feet above Laurel Branch, right bank.	1.3	Aug. 13.-----	1,695.3
Marshall, N. C., 0.5 mile below Laurel Branch, right bank.	.9	----do-----	1,685.8
West Fork Pigeon River:			
Sunburst, N. C., mouth of Little East Fork, right bank.	6.4	----do-----	2,840.1
Sunburst, N. C., near Cecil School, 0.1 mile above Nick Creek, right bank.	5.5	----do-----	2,804.8
Retreat, N. C., 0.6 mile below Nick Creek, right bank.	4.7	----do-----	2,771.7
Retreat, N. C., 1.4 miles below Nick Creek, right bank.	3.9	----do-----	2,742.2
Retreat, N. C., 2.0 miles below Nick Creek, left bank.	3.3	----do-----	2,722.6
Retreat, N. C., 0.6 mile by highway NE. of Retreat, left bank.	2.15	----do-----	2,693.4
Woodrow, N. C., 0.3 mile above Bird Creek, left bank.	.7	----do-----	2,664.5
Woodrow, N. C., 1,000 feet above confluence of West and East Forks, right bank.	.2	----do-----	2,654.1
Pigeon River:			
Woodrow, N. C., 1 mile below confluence of East and West Forks, left bank.	68.5	----do-----	2,637.1
Canton, N. C., U. S. Geological Survey gage, left bank.	64.0	Aug. 13, 12:30 p.m.---	2,590.22
Canton, N. C., 2,000 feet above Beaverdam Creek, right bank.	63.1	Aug. 13.-----	2,580.3
Canton, N. C., at mouth of Beaverdam Creek, right bank.	62.8	----do-----	2,577.6
Canton, N. C., 0.8 mile below Beaverdam Creek, right bank.	62.0	----do-----	2,569.7
Canton, N. C., 2,000 feet above Cogburn Ford, right bank.	59.4	----do-----	2,542.5
Clyde, N. C., 0.5 mile below highway bridge in Clyde, left bank.	58.2	----do-----	2,533.8
Clyde, N. C., 0.4 mile above Richland Creek, left bank.	55.4	----do-----	2,508.2
Clyde, N. C., 1.0 mile below Richland Creek, left bank.	54.0	----do-----	2,493.6
Crabtree, N. C., at bridge on N. C. Highway 209, 2.5 miles below Richland Creek, right bank, site of former U. S. Geological Survey gage.	52.2	----do-----	2,479.0
Crabtree, N. C., 0.8 mile above Crabtree Creek, right bank.	50.6	----do-----	2,462.7
Crabtree, N. C., 0.9 mile below Crabtree Creek, right bank.	48.8	----do-----	2,439.1
Crabtree, N. C., 1,000 feet below first highway bridge below Crabtree Creek, left bank.	48.1	----do-----	2,432.6
Cove Creek, N. C., 1.1 miles above Jonathan Creek, right bank.	47.2	----do-----	2,409.9
Cove Creek, N. C., near mouth of Jonathan Creek, left bank.	45.9	----do-----	2,370.5
Hepco, N. C., 0.8 mile below Jonathan Creek, U. S. Geological Survey gage, left bank.	45.1	Aug. 13, 6:30 p.m.---	2,350.89
Hepco, N. C., left bank.	42.8	Aug. 13.-----	2,271.6
Hepco, N. C., Waterville Lake at Waterville Dam.	38.0	Aug. 12, 12 p.m., to Aug. 20, 9 a.m.-----	2,258.00
Waterville, N. C., at Waterville power plant, left bank.	25.8	Aug. 13.-----	1,406.0
Browns, Tenn., left bank.	24.7	----do-----	1,364.9
Hartford, Tenn., U. S. Geological Survey gage, right bank.	21.4	Aug. 13, 7:30 p.m.---	1,257.94 ¹⁴
Bluffton, Tenn., left bank.	19.3	Aug. 13.-----	1,231.4
Denton, Tenn., right bank.	15.9	----do-----	1,163.6
Wilton Springs, Tenn., near first footbridge below Woods Island, left bank.	13.9	----do-----	1,130.0
Newport, Tenn., 3 miles above at Edwina, right bank.	10.8	----do-----	1,091.8
Newport, Tenn., at mouth of English Creek, left bank.	8.5	----do-----	1,068.7
Newport, Tenn., U. S. Weather Bureau gage, right bank.	6.8	----do-----	1,056.7
Newport, Tenn., Deep Ford Bridge, left bank.	2.1	----do-----	1,026.5

¹ Eastern standard time except as noted.¹⁴ Tennessee River Survey datum.

524 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
East Fork Pigeon River:			
Cruso, N. C., right bank	8.45	Aug. 13	2,934.4
Cruso, N. C., 0.3 mile below Cold Creek, left bank	7.5	do	2,884.8
Springdale, N. C., 0.9 mile below Cold Creek, right bank	6.85	do	2,856.8
Springdale, N. C., 0.95 mile below Cold Creek, left bank	6.8	do	2,855.4
Springdale, N. C., 0.4 mile below, right bank	5.9	do	2,816.6
Springdale, N. C., 0.45 mile above Burnett Creek, right bank	5.5	do	2,798.2
Springdale, N. C., 0.4 mile below Burnett Creek, right bank	4.6	do	2,771.7
Springdale, N. C., at new bridge on N. C. Highway 284, right bank	4.0	do	2,758.1
Springdale, N. C., at new bridge on N. C. Highway 284, left bank	3.6	do	2,739.5
Silver Bluff, N. C., near mouth of Dicks Creek, left bank	2.0	do	2,698.6
Silver Bluff, N. C., 0.8 mile above Silver Bluff, right bank	1.0	do	2,672.7
North Toe River:			
Spruce Pine, N. C., 1,000 feet above bridge on N. C. Highway 19, right bank	31.6	do	2,512.8
Ninpo, N. C., right bank	29.6	do	2,486.9
Penland, N. C., right bank	27.9	do	2,457.5
Wing Station, N. C., 1.0 mile above	26.7	do	2,450.3
Wing Station, N. C., right bank	25.7	do	2,425.1
Wing Station, N. C., 0.6 mile above Crabtree Creek, right bank	25.4	do	2,423.8
Boonford, N. C., at bridge on N. C. Highway 104, left bank	23.0	do	2,386.7
Kona, N. C., 0.15 mile below South Toe River, right bank	21.4	do	2,347.1
Bandana Station, N. C., right bank	19.2	do	2,320.2
Toecane, N. C., near mouth of Rose Branch, 3.0 miles above Cane Creek, right bank	17.0	do	2,273.5
Toecane, N. C., 1.0 mile above Cane Creek, right bank	14.9	do	2,254.1
Toecane, N. C., at highway bridge, 0.3 mile above Cane Creek, right bank	14.2	do	2,250.2
Forbes, N. C., at bridge on N. C. Highway 197, left bank	11.7	do	2,178.5
Green Mountain, N. C., 1,000 feet above highway bridge, left bank	8.0	do	2,147.5
Green Mountain, N. C., 1.2 miles below, at mouth of Jacks Creek, left bank	6.6	do	2,135.5
Relief, N. C., 0.6 mile above, at mouth of Bee Branch, left bank	4.2	do	2,092.6
Relief, N. C., 1,200 feet above highway bridge, right bank	3.8	do	2,089.7
Huntale, N. C., 0.6 mile above, right bank	1.3	do	2,056.6
Huntale, N. C., 1,000 feet above bridge on N. C., Highway 26, left bank	.6	do	2,051.6
Nolichucky River:			
Poplar, N. C., U. S. Geological Survey gage, right bank	106.7	Aug. 13, 7 p.m.	1,991.66
Lost Cove, N. C., 2.0 miles above, left bank	103.4	Aug. 13	1,854.4
Lost Cove, N. C., 1.5 miles above, left bank	103.0	do	1,851.1
Lost Cove, N. C., 1.0 mile above, left bank	102.5	do	1,836.1
Lost Cove, N. C., near, left bank	101.2	do	1,780.8
Lost Cove, N. C., 1,500 feet above State line, left bank	100.9	do	1,779.1
Lost Cove, N. C., near mouth of Devils Creek, left bank	100.6	do	1,769.3
Unaka Springs, Tenn., 0.5 mile above Long Branch, left bank	99.7	do	1,741.4
Unaka Springs, Tenn., left bank	98.0	do	1,694.5
Erwin, Tenn., bridge at Riverview, right bank	95.7	do	1,645.6
Erwin, Tenn., 500 feet above Garland Cemetery, right bank	93.9	do	1,611.6
Erwin, Tenn., 1,500 feet above Stony Point, right bank	93.0	do	1,591.5
Embreeville, Tenn., U. S. Geological Survey gage, left bank	89.0	Aug. 13, 9:30 p.m.	1,537.87
Embreeville, Tenn., 200 feet below highway bridge, right bank	88.6	Aug. 13	1,532.8
Garber, Tenn., opposite mouth of Dry Creek, left bank	86.9	do	1,509.8
Garber, Tenn., Taylor Bridge, left bank	86.0	do	1,498.0

¹ Eastern standard time except as noted.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Nolichucky River—Con.			
Conklin, Tenn., 100 feet below Jackson Bridge, left bank.	81.6	Aug. 13.-----	1,459.7
Mount Carmal, Tenn., 150 feet below Bailey Bridge, left bank.	77.1	Aug. 14.-----	1,420.4
Limestone, Tenn., Snapp Bridge, right bank.-----	74.0	-----do-----	1,393.4
Limestone, Tenn., Glaze Bridge, left bank.-----	70.0	-----do-----	1,361.3
Chuckey, Tenn., Earnest Bridge, left bank.-----	66.7	-----do-----	1,336.5
Tusculum, Tenn., 150 feet above Brown Bridge, right bank.	59.8	-----do-----	1,290.4
Greeneville, Tenn., Jones Bridge, left bank.-----	54.1	-----do-----	1,264.7
Bird Bridge, Tenn., right bank.-----	50.3	-----do-----	1,257.0
Greeneville Dam, Tenn., right bank, headwater.-----	45.9	Aug. 14, 8 a.m. ¹³	1,255.9
Greeneville Dam, Tenn., right bank, tailwater.-----	45.9	Aug. 14.-----	1,199.5
Cedar Creek, Tenn., Allen Bridge, left bank.-----	42.1	-----do-----	1,180.4
Caney Branch, Tenn., 200 feet above Love Bridge, left bank.	36.8	-----do-----	1,150.6
Caney Branch, Tenn., near mouth of Dry Branch, left bank.	34.8	-----do-----	1,139.0
Bright Hope, Tenn., Easterly Bridge, right bank.-----	32.1	-----do-----	1,121.8
Bright Hope, Tenn., near Hale Bridge, left bank.-----	28.0	-----do-----	1,096.9
Warrensburg, Tenn., Conway Bridge, left bank.-----	20.8	-----do-----	1,063.2
Morristown, Tenn., Susong Bridge, right bank.-----	14.0	-----do-----	1,037.8
Morristown, Tenn., U. S. Geological Survey gage near, left bank.	10.6	Aug. 14, 8 p.m. ¹³	¹⁴ 1,027.08
Morristown, Tenn., opposite Thomas Island, near, right bank.	8.8	Aug. 14.-----	1,022.2
White Pine, Tenn., Solomon Ferry, right bank.-----	3.2	-----do-----	1,004.9
Leadvale, Tenn., opposite foot of Clark Island, right bank.	1.2	-----do-----	991.0
Leadvale, Tenn., 100 feet above bridge near mouth, right bank.	.3	-----do-----	984.0
Cane River:			
Burnsville, N. C., at Northwest Carolina Utilities Dam, right bank.	22.9	Aug. 13.-----	2,597.4
Riverside, N. C., at bridge on U. S. Highway 19E, left bank.	21.6	-----do-----	2,529.7
Riverside, N. C., 800 feet above Phipps Creek, left bank.	20.0	-----do-----	2,501.6
Cane River, N. C., 500 feet above Bald Creek, left bank.	18.7	-----do-----	2,493.2
Higgins, N. C., 1.9 miles above, left bank.-----	14.7	-----do-----	2,420.5
Higgins, N. C., 0.8 mile below, right bank.-----	12.0	-----do-----	2,363.2
Lewisburg, N. C., 300 feet above Little Hensley Branch, 1.0 mile above Lewisburg, left bank.	11.0	-----do-----	2,325.4
Lewisburg, N. C., 1.05 miles below bridge on U. S. Highway 23, right bank.	8.8	-----do-----	2,248.2
Ramsaytown, N. C., 1,000 feet above Pounding Mill Cove, right bank.	4.7	-----do-----	2,126.9
Sioux, N. C., 0.25 mile above bridge on U. S. Highway 23, right bank.	3.8	-----do-----	2,113.65
Sioux, N. C., U. S. Geological Survey gage, right bank.	1.2	Aug. 13, 4:30 p.m.---	2,063.0
South Fork Holston River:			
Bluff City, Tenn., U. S. Geological Survey gage, right bank.	34.4	Aug. 14, 4 p.m. Aug. 15, 4 a.m.	1,379.95
Holston, Tenn., 0.75 mile below Bowman Ford, left bank.	21.9	Aug. 14.-----	1,288.8
Watauga River, mouth of, left bank.-----	20.0	-----do-----	1,288.6
Fordtown, Tenn., 0.5 mile below Smith Shoal Bridge, left bank.	16.1	-----do-----	1,265.7
Fordtown, Tenn., 0.9 mile below Smith Shoal Bridge, 200 feet below falls, right bank.	15.7	-----do-----	1,263.0
Fordtown, Tenn., 400 feet below Sinking Creek, left bank.	14.1	-----do-----	1,252.5
Samuel, Tenn., 0.9 mile below Brown Creek, right bank.	12.7	-----do-----	1,244.8
Hemlock, Tenn., opposite island, right bank.-----	10.4	-----do-----	1,229.8
Pactolus, Tenn., 0.2 mile above foot of Wexler Island, right bank.	7.6	-----do-----	1,214.1
Kingsport, Tenn., U. S. Geological Survey gage, left bank.	5.7	Aug. 14, 9:30 a.m.---	1,203.11
Kingsport, Tenn., 0.5 mile above highway bridge at Long Island, right bank.	5.1	Aug. 14.-----	1,199.7
Kingsport, Tenn., 0.7 mile below highway bridge at Long Island, right bank.	3.9	-----do-----	1,191.7

¹ Eastern standard time except as noted.¹³ Central standard time.¹⁴ Tennessee River Survey datum.

TABLE 22.—*Flood-crest stages of mid-August flood*—Continued

Stream and location	Miles above mouth	Day and hour	Elevation (feet)
South Fork Holston River—Con.			
Kingsport, Tenn., on city boundary at mouth of Reedy Creek, right bank.	2.0	Aug. 14	1,184.6
Kingsport, Tenn., 0.9 mile above North Fork Holston River, 900 feet below small branch, right bank.	.9	do	1,178.1
Holston River:			
Click, Tenn., 0.2 mile below Parker Creek, right bank.	137.9	do	1,162.6
Church Hill, Tenn., near mouth of Laurel Run, left bank.	134.2	do	1,148.6
Church Hill, Tenn., 0.3 mile above highway bridge, left bank.	131.8	do	1,142.2
New Canton, Tenn., 0.2 mile above head of Hord Islands, left bank.	128.5	do	1,134.4
Stony Point, Tenn., in point of Hord Bend, left bank.	127.2	do	1,131.0
Stony Point, Tenn., between Christian Islands, left bank.	126.0	do	1,126.9
Stony Point, Tenn., near point of Christian Bend, left bank.	124.1	do	1,121.4
Stony Point, Tenn., 0.8 mile below Stony Point Creek, left bank.	122.3	do	1,117.3
Surgoinsville, Tenn., 0.8 mile above Terrill Creek, right bank.	120.2	Aug. 15	1,111.8
Surgoinsville, Tenn., 0.5 mile above county ferry, right bank.	118.9	do	1,107.8
Surgoinsville, Tenn., county ferry, left bank.	118.4	do	1,105.8
Surgoinsville, Tenn., county ferry, right bank.	118.4	do	1,106.2
Burem, Tenn., 0.1 mile above head of Miller Island, left bank.	115.1	do	1,099.2
Burem, Tenn., 0.5 mile above Honeycutt Creek, left bank.	113.5	do	1,094.4
Burem, Tenn., 0.2 mile above Sensabaugh Branch, right bank.	110.2	do	1,086.1
Burem, Tenn., 1.1 mile below Beech Creek, left bank.	107.7	do	1,081.2
McCloud, Tenn., left bank.	105.7	do	1,076.8
Rogersville, Tenn., McDonald mill, right bank.	104.6	do	1,074.8
Rogersville, Tenn., U. S. Geological Survey gage, right bank.	104.3	Aug. 15, 6 a.m. ¹³	1,072.59
Rogersville, Tenn., 50 feet above Southern Ry. bridge, right bank.	103.8	Aug. 15	1,072.1
Rogersville, Tenn., 0.25 mile below Southern Ry. bridge, left bank.	103.5	do	1,071.4
Rogersville, Tenn., 0.75 mile below Southern Ry. bridge, left bank.	103.0	do	1,069.2
Rogersville, Tenn., transmission line crossing, 1.2 miles above Robertson Creek, left bank.	102.5	do	1,069.1
Rogersville, Tenn., 0.3 mile above Robertson Creek, left bank.	101.6	do	1,065.4
Rogersville, Tenn., near mouth of Robertson Creek, left bank.	101.2	do	1,064.0
Rogersville, Tenn., 0.5 mile below Robertson Creek, right bank.	100.7	do	1,062.7
St. Clair, Tenn., 0.6 mile below Crockett Creek, near Marble School, right bank.	99.1	do	1,056.2
St. Clair, Tenn., 0.4 mile above Price Island, right bank.	94.0	do	1,039.5
Mooresburg, Tenn., Galbraith School, right bank.	91.2	do	1,034.0
Mooresburg, Tenn., 100 feet below highway bridge, at Anderson Bend, left bank.	87.3	do	1,022.0
Russellville, Tenn., 0.2 mile below Bright Ferry, left bank.	79.8	do	1,001.5
Morristown, Tenn., U. S. Geological Survey gage, left bank.	75.2	Aug. 15, 2-2:30 p.m. ¹³	990.72
Noeton, Tenn., 0.5 mile below German Creek, right bank.	69.8	Aug. 15	977.3
Turley Island, Tenn., 1,000 feet below foot of, right bank.	65.0	do	967.5
Mayes Islands, Tenn., at foot of right bank.	63.1	do	963.6
May Springs, Tenn., 0.2 mile below Lambdin Branch, right bank.	62.0	do	961.5
May Springs, Tenn., 0.6 mile above May Springs Branch, left bank.	58.1	do	953.5
May Springs, Tenn., mouth of May Springs Branch, right bank.	57.6	do	952.4
May Springs, Tenn., 0.55 miles above head of Tarr Island, right bank.	55.2	do	943.5
Jefferson City, Tenn., U. S. Geological Survey gage, right bank.	52.0	Aug. 15, 9 p.m. ¹³	941.82
Jefferson City, Tenn., at bridge on Tenn. Highway 92, right bank.	51.9	Aug. 15	941.4

¹ Eastern standard time except as noted.¹³ Central standard time.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Holston River—Con.			
Jefferson City, Tenn., 0.7 mile below bridge on Tenn. Highway 92, right bank.	51.2	Aug. 15	940.1
Tampico, Tenn., 0.8 mile above West Branch, right bank.	49.0	do	933.9
Tampico, Tenn., mouth of West Branch, right bank.	48.2	do	932.0
Tampico, Tenn., in point of Horse Shoe Bend, right bank.	45.9	do	925.2
Tampico, Tenn., upper end of Vineyard Bend, right bank.	42.9	do	917.5
Tampico, Tenn., lower end of Vineyard Bend, right bank.	40.9	Aug. 16	911.5
Tampico, Tenn., Indian Cave, right bank	40.0	do	907.0
Tampico, Tenn., 1.1 miles below Indian Cave, left bank.	38.9	do	908.1
Mule Shoe Bend, Tenn., upper end, right bank	38.1	do	902.0
Mule Shoe Bend, Tenn., mouth of Buck Hollow Branch, left bank.	37.2	do	902.7
East Hodges, Tenn., lower end of Mule Shoe Bend, right bank.	36.1	do	897.5
East Hodges, Tenn., mouth of Perrin Hollow Branch, right bank.	34.5	do	894.0
East Hodges, Tenn., Nances Ferry, left bank	33.2	do	890.1
Hodges, Tenn., near mouth of Beaver Creek, left bank	30.4	do	884.8
Hodges, Tenn., 0.25 mile above foot of Snaggy Island, left bank.	27.0	do	877.6
Hodges, Tenn., opposite center of McKinney Islands, right bank.	25.0	do	874.0
Strawberry Plains, Tenn., 0.2 mile above head of Trent Island, right bank.	22.1	do	867.7
Strawberry Plains, Tenn., 1.3 miles above Southern Ry. bridge, right bank.	19.2	do	861.5
Strawberry Plains, Tenn., 0.1 mile above Southern Ry. bridge, left bank.	18.0	do	859.4
Strawberry Plains, Tenn., U. S. Geological Survey gage, left bank.	17.0	Aug. 16, 9 a.m. ¹³	857.01
Mascot, Tenn., 0.9 mile below McBee Bridge, right bank.	16.1	Aug. 16	856.0
Mascot, Tenn., mouth of Flat Creek, right bank	14.1	do	852.6
Mascot, Tenn., 0.5 mile above Roseberry Creek, left bank.	13.4	do	851.7
Mascot, Tenn., 0.5 mile below Roseberry Creek, right bank.	12.4	do	848.8
Mascot, Tenn., 0.6 mile above Turkey Creek, right bank.	11.5	do	846.7
McMillan, Tenn., 0.4 mile below Turkey Creek, left bank.	10.5	do	844.2
McMillan, Tenn., 0.2 mile above Strong Creek, right bank.	10.1	do	844.1
John Sevier, Tenn., near reservoir, right bank	8.1	do	840.3
John Sevier, Tenn., 0.4 mile above head of Cabbage Island, left bank.	6.7	do	838.7
John Sevier, Tenn., 0.2 mile below foot of Cabbage Island, right bank.	5.7	do	836.7
Knoxville, Tenn., 100 feet above Inman Branch, left bank.	4.6	do	834.0
Knoxville, Tenn., mouth of Swanpond Creek, left bank	3.3	do	832.9
Knoxville, Tenn., 0.4 mile above Boyd Bridge, right bank.	2.2	do	831.3
Knoxville, Tenn., 1,200 feet below head of Boyd Island, left bank.	1.4	do	830.3
Knoxville, Tenn., 1,000 feet below foot of Boyd Island, left bank.	.3	do	827.2
Watauga River:			
Butler, Tenn., mouth of Gregg Branch, left bank	47.9	Aug. 13	1,899.4
Butler, Tenn., U. S. Geological Survey gage at Stump Knob, right bank.	47.6	Aug. 13, 8:30 p.m.	1,893.0
Butler, Tenn., Blue Springs, right bank	46.5	Aug. 13	1,876.6
Butler, Tenn., 0.2 mile above Roan Creek, left bank	44.0	do	1,837.4
Butler, Tenn., 200 feet above highway bridge, left bank	43.8	do	1,836.3
Butler, Tenn., 0.1 mile above gaging station, right bank.	43.7	do	1,835.0
Butler, Tenn., U. S. Geological Survey gage, right bank.	43.6	Aug. 13, 10 p.m.	1,834.8
Butler, Tenn., 0.3 mile below gaging station, left bank	43.3	Aug. 13	1,830.3
Butler, Tenn., 2.0 miles below gaging station, left bank	41.6	do	1,805.0
Fish Springs, Tenn., a mile above, at highway bridge, left bank.	40.5	do	1,787.0

¹ Eastern standard time except as noted.¹³ Central standard time.

528 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Watauga River—Con.			
Fish Springs, Tenn., 500 feet above Ward Branch, left bank.	39.5	Aug. 13.....	1,776.8
Wilbur, Tenn., 0.45 mile above Horseshoe Dam, left bank.	33.4	Aug. 13, 11 p.m....	1,658.2
Wilbur, Tenn., at Horseshoe Dam.....	32.95	Aug. 13, 11:30 p.m....	1,657.5
Siam, Tenn., 0.7 mile above North Pierce Branch.....	31.7	.....	1,592.3
Siam, Tenn., 0.2 mile below Southern Ry. bridge, left bank.	30.7	Aug. 13.....	1,579.9
Watauga Valley, Tenn., opposite Wagners Island, right bank.	30.1	Aug. 14.....	1,573.9
Elizabethhton, Tenn., opposite Brumit Island, right bank.	27.4	....do.....	1,537.9
Elizabethhton, Tenn., 0.1 mile below Rocky Branch, left bank.	26.5	....do.....	1,525.9
Elizabethhton, Tenn., 1,500 feet above Doe River, left bank.	26.0	....do.....	1,520.5
Elizabethhton, Tenn., 0.3 mile above gaging station, left bank.	25.3	....do.....	1,514.3
Elizabethhton, Tenn., U. S. Geological Survey gage, left bank.	25.0	Aug. 14, 12:30 a.m....	1,507.10
Elizabethhton, Tenn., 0.6 mile below gaging station, left bank.	24.4	Aug. 14.....	1,502.7
Elizabethhton, Tenn., opposite mouth of Holly Branch.	24.0	....do.....	1,496.5
Elizabethhton, Tenn., 700 feet below Bemberg Corp....	23.5	....do.....	1,492.4
Elizabethhton, Tenn., 400 feet above city boundary, left bank.	22.9	....do.....	1,484.7
Elizabethhton, Tenn., 700 feet below Sycamore Shoals, left bank.	22.5	....do.....	1,484.2
Watauga Point, Tenn., 0.55 mile above Gap Creek, left bank.	22.0	....do.....	1,480.6
Watauga Point, Tenn., 0.6 mile above Hart Ford, left bank.	21.0	....do.....	1,472.8
Watauga Point, Tenn., 0.15 mile above Hart Ford, left bank.	20.55	....do.....	1,468.3
Watauga Point, Tenn., 0.3 mile below Hart Ford, left bank.	20.1	....do.....	1,462.4
Watauga Point, Tenn., at Smalling Bridge, left bank.	19.5	....do.....	1,454.4
Watauga, Tenn., 200 feet above Dungans Ford Bridge, left bank.	16.9	....do.....	1,424.0
Watauga, Tenn., 1,000 feet above Hodge Island, left bank.	14.4	....do.....	1,398.9
Austin Springs, Tenn., 0.6 mile above Cobb Creek, left bank.	11.2	....do.....	1,382.1
Austin Springs, Tenn., mouth of Boone Creek, left bank.	8.3	....do.....	1,358.8
Austin Springs, Tenn., 500 feet above Allison Mill, right bank.	5.8	....do.....	1,338.8
Austin Springs, Tenn., opposite head of island, at Boring Ford, right bank.	3.7	....do.....	1,318.7
Deerlick Bend, Tenn., lower end, left bank.....	1.5	....do.....	1,300.7
Hall Ford, Tenn., opposite center of island, left bank.	.9	....do.....	1,295.3
Mouth of Watauga River, 0.5 mile above, right bank.	.5	....do.....	1,290.4
Mouth of Watauga River, right bank.....	.0	....do.....	1,288.6
Little Tennessee River:			
Iotla, N. C., U. S. Geological Survey gage, right bank.	109.7	Aug. 13, 9:30 p.m....	1,966.5
Judson, N. C., U. S. Geological Survey gage, 0.6 mile above Southern Ry. trestle, right bank.	81.4	Aug. 13, 10:30 p.m....	1,545.92
Fontana, N. C., U. S. Geological Survey gage, right bank.	62	Aug. 14, 2 a.m.....	1,286.18
Tuckasegee River:			
Tuckasegee, N. C., near bridge on N. C. Highway 106, left bank.	49.2	Aug. 13.....	2,148.3
Tuckasegee, N. C., U. S. Geological Survey gage, right bank.	48.1	Aug. 13, 11 a.m....	*2,138.93
Tuckasegee, N. C., 0.25 mile above county road bridge, right bank.	47.1	Aug. 13.....	2,131.5
East Laport, N. C., 1,000 feet above Caney Fork, left bank.	46.0	....do.....	2,121.0
East Laport, N. C., 1.0 mile below East Laport, left bank.	44.4	....do.....	2,101.9
East Laport, N. C., 1,000 feet below bridge on N. C. Highway 106, right bank.	43.4	....do.....	2,091.2
Cullowhee, N. C., near mouth of Wayehutta Creek, right bank.	41.5	....do.....	2,074.7
Cullowhee, N. C., 0.4 mile below Cane Creek, left bank.	38.7	....do.....	2,051.0
Cullowhee, N. C., at highway bridge, 1.9 miles below Cane Creek, right bank.	37.1	....do.....	2,038.9

¹ Eastern standard time except as noted.⁶ Sea level datum, adjustment of 1912.

TABLE 22.—*Flood-crest stages of mid-August flood—Continued*

Stream and location	Miles above mouth	Day and hour ¹	Elevation (feet)
Tuckasegee River—Con.			
Webster, N. C., 0.3 mile above bridge on N. C. Highway 116, left bank.	35.2	Aug. 13	2,020.4
Webster, N. C., 800 feet above bridge on N. C. Highway 116, left bank.	35.0	do	2,019.3
Webster, N. C., 0.8 mile below bridge on N. C. Highway 116, right bank.	34.0	do	2,011.4
Dillsboro, N. C., 1.5 miles above bridge on U. S. Highway 23, right bank.	32.9	do	{ 1,995.1 1,995.0
Dillsboro, N. C., 0.7 mile above Dillsboro, right bank.	32.0	do	1,983.8
Dillsboro, N. C., 200 feet below dam, left bank.	31.2	do	1,967.8
Dillsboro, N. C., U. S. Geological Survey gage, 0.5 mile below bridge on U. S. Highway 23, left bank.	30.9	Aug. 13, 3:30 p.m.	1,964.47
Dillsboro, N. C., at mouth of Long Branch, right bank.	29.7	Aug. 13	1,945.6
Barkers Creek, N. C., at mouth of Dicks Creek, right bank.	29.0	do	1,930.6
Barkers Creek, N. C., 500 feet below Laurel Branch, right bank.	28.1	do	1,910.1
Barkers Creek, N. C., left bank.	27.0	do	1,894.5
Wilmont, N. C., right bank.	24.0	do	1,863.0
Whittier, N. C., about 1.0 mile above highway bridge, right bank.	21.2	do	1,844.8
Whittier, N. C., left bank.	20.1	do	1,836.6
Ela, N. C., 500 feet below Oconalufly River, left bank.	18.1	do	1,794.5
Ela, N. C., at Southern Ry. trestle, left bank.	16.8	do	1,780.0
Bryson City, N. C., 1.9 miles above, at bridge on U. S. Highway 19, right bank.	14.5	do	1,759.6
Bryson City, N. C., 0.3 mile above Deep Gap, left bank.	13.4	do	1,735.0
Bryson City, N. C., U. S. Geological Survey gage, left bank.	12.5	Aug. 13, 9 p.m.	1,725.59
Bryson City, N. C., 2.0 miles below, right bank.	10.5	Aug. 13	1,705.7
Noland, N. C., mouth of Peachtree Creek, right bank.	8.5	do	1,664.4
Noland, N. C., 100 feet above Noland Creek, right bank.	6.1	do	1,608.3
Noland, N. C., near mouth of Goldmine Branch, right bank.	3.8	do	1,548.2
Bushnell, N. C., 100 feet above Jenny Branch, right bank.	1.8	do	1,493.2
Bushnell, N. C., 1,000 feet above large island, right bank.	.3	do	1,462.1

¹ Eastern standard time except as noted.

TABLE 23.—*Flood-crest stages of late-August flood¹*

Stream and location	Miles above mouth	Day and hour ²	Elevation (feet)
TENNESSEE RIVER BASIN			
French Broad River:			
Rosman, N. C., U. S. Geological Survey gage, left bank	216.3	Aug. 30, 6 a.m.-----	2,185.69
Calvert, N. C., U. S. Geological Survey gage, right bank	213.9	Aug. 30, 6:30 a.m.---	2,165.46
Blantyre, N. C., U. S. Geological Survey gage, left bank	183.7	Aug. 31, 8 a.m.-----	2,079.64
Bent Creek, N. C., U. S. Geological Survey gage, left bank	157.7	Aug. 30, 6 p.m.-----	2,007.03
Asheville, N. C., mouth of Swannanoa River, right bank	149.0	Aug. 30-----	1,981.2
Asheville, N. C., 0.6 mile above West Asheville viaduct, right bank	148.2	-----do-----	1,977.2
Asheville, N. C., 800 feet above Smith Street Bridge, right bank	147.5	-----do-----	1,973.8
Asheville, N. C., 1,300 feet below Southern Ry. bridge, right bank	146.9	-----do-----	1,970.6
Asheville, N. C., U. S. Geological Survey gage, right bank	145.7	Aug. 30, 12 m.-----	1,962.43
Craggy, N. C., near mouth of Beaverdam Creek, right bank	142.2	Aug. 30-----	1,934.4
Alexander, N. C., 0.6 mile below Newfound Creek, left bank	138.9	-----do-----	1,856.2
Alexander, N. C., at highway bridge, left bank	136.4	-----do-----	1,787.3
Alexander, N. C., near mouth of Flat Creek, right bank	135.3	-----do-----	1,765.5
French Broad, N. C., opposite mouth of Sandymush Creek, right bank	131.9	-----do-----	1,727.1
Marshall, N. C., at mouth of Allman Branch, right bank	129.7	-----do-----	1,708.3
Marshall, N. C., 0.25 mile above Ivy River, left bank	128.1	-----do-----	1,680.9
Marshall, N. C., 0.45 mile below Ivy River, right bank	127.2	-----do-----	1,670.8
Marshall, N. C., at mouth of Hayes Creek, right bank	126.0	-----do-----	1,656.5
Marshall, N. C., 125 feet above lower bridge, right bank	125.1	-----do-----	1,644.6
Marshall, N. C., 1.1 miles below Southern Ry. station, right bank	124.2	-----do-----	1,638.5
Marshall, N. C., 50 feet below first highway bridge below Redmon Dam, right bank	122.5	-----do-----	1,598.1
Marshall, N. C., opposite Nocona railroad siding, left bank	120.7	-----do-----	1,575.0
Walnut, N. C., 1 mile below Walnut Creek, right bank	119.0	-----do-----	1,554.1
Barnard, N. C., right bank	117.4	-----do-----	1,523.4
Barnard, N. C., 1.2 miles below highway bridge, right bank	116.1	-----do-----	1,502.0
Sandy Bottoms, N. C., right bank	114.5	-----do-----	1,457.2
Stackhouse, N. C., at mouth of Woolsey Creek, right bank	113.2	-----do-----	1,410.3
Hot Springs, N. C., U. S. Geological Survey gage, right bank	109.1	Aug. 30, 7:30 a.m.---	1,327.6
Paint Rock, N. C., left bank	103.1	Aug. 30-----	1,265.7
Wolf Creek, Tenn., near mouth of Wolf Creek, left bank	96.8	-----do-----	1,188.3
Del Rio, Tenn., 0.1 mile above Big Creek, left bank	90.6	-----do-----	1,138.5
Bridgeport, Tenn., 0.3 mile above head of Huff Island, right bank	84.6	-----do-----	1,077.1
Bridgeport, Tenn., near mouth of Good Hope Branch, right bank	80.1	-----do-----	1,045.8
Newport, Tenn., U. S. Geological Survey gage, left bank	77.4	Aug. 30, 12 m. ³ -----	1,030.86
Rankin, Tenn., 0.1 mile above Pigeon River, left bank	74.1	Aug. 30-----	1,012.4
Rankin, Tenn., 1.1 miles above Nolichucky River, left bank	70.3	-----do-----	992.5
Dandridge, Tenn., U. S. Geological Survey gage, right bank	45.3	Aug. 31, 1 a.m. ³ ----	924.26
Tennessee River:			
Knoxville, Tenn., U. S. Geological Survey gage, right bank	648.4	Aug. 31, 7 p.m. ³ ----	817.96
Loudon, Tenn., U. S. Geological Survey gage, bridge pier	591.5	Sept. 1, 7 a.m. ³ -----	744.95
Watts Bar Dam, TVA headwater gage	530.2	Sept. 1, 8 p.m. ³ -----	691.2
Watts Bar Dam, TVA tailwater gage (head of Chickamauga Reservoir)	529.5	Sept. 1, 3 p.m. ³ -----	688.2
Breedenton, Tenn., U. S. Geological Survey gage, left bank	523.1	Sept. 2, 1-2 a.m. ³ -----	686.26
Washington, Tenn., near, at Armstrong's Ferry, TVA gage, right bank	503.8	Sept. 2, 8 p.m. ³ -----	683.3
Sale Creek, Tenn., TVA gage at Doughty's Ferry, right bank	497.2	Sept. 2, 9 p.m. ³ -----	683.1

¹ From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplemented by adjustment of 1936, except as noted.

² Eastern standard time except as noted.

³ Central standard time.

TABLE 23.—*Flood-crest stages of late-August flood*¹—Continued

Stream and location	Miles above mouth	Day and hour ²	Elevation (feet)
Tennessee River—Con.			
Birchwood, Tenn., TVA gage at TVA Safety Harbor, left bank	488.5	Sept. 2, 9 p.m. ³	683.1
Chickamauga Reservoir, Tenn., TVA gage	471.0	Sept. 2, 10 p.m. ³	682.8
Chickamauga Dam, Tenn., TVA tailwater gage	471.0	Sept. 2, 12 m. ³	643.4
Chattanooga, Tenn., U. S. Geological Survey base gage at Meadow Lake, right bank	467.6	Sept. 2, 10 a.m. ³	642.19
Chattanooga, Tenn., U. S. Geological Survey auxiliary gage at Citico Bar, left bank	465.4	Sept. 2, 12 m. ³	641.2
Chattanooga, Tenn., U. S. Weather Bureau Walnut Street gage, left bank	464.2	do ³	640.7
South Fork Mills River:			
Mills River, N. C., 2.1 miles above confluence with North Fork, right bank.	8.0	Aug. 30	2,154.3
Mills River:			
Mills River, N. C., 0.4 mile below confluence of North and South Forks, left bank.	5.4	do	2,114.3
Mills River, N. C., U. S. Geological Survey gage, 0.75 mile above Foster Creek, right bank.	4.4	Aug. 30, 7 a.m.	2,102.09
Mills River, N. C., 0.25 mile below Foster Creek, left bank.	3.5	Aug. 30	2,090.2
Mills River, N. C. 30 feet below bridge on N. C. Highway 191, right bank.	2.4	do	2,077.0
Mills River, N. C., 2,500 feet below bridge on N. C. Highway 191, left bank.	1.9	do	2,071.3
Mills River, N. C., left bank	1.35	do	2,064.1
Mills River, N. C., 2,000 feet above first highway bridge above mouth, right bank.	1.25	do	2,062.0
Mills River, N. C., 1,200 feet below first highway bridge above mouth, right bank.	.6	do	2,056.7
North Fork Mills River:			
Mills River, N. C., 2,000 feet above confluence with South Fork, left bank.	6.25	do	2,128.5
Mud Creek:			
Hendersonville, N. C., at bridge on U. S. Highway 64, left bank.	7.7	do	2,078.9
Balfour, N. C., at Balfour quarry, 0.6 mile below Clear Creek, left bank.	5.0	do	2,069.7
Mountain Home, N. C., left bank	3.0	do	2,062.5
Naples, N. C., U. S. Geological Survey gage, left bank.	2.2	Aug. 30, 5 p.m.	2,058.47
Naples, N. C., at bridge on U. S. Highway 25, right bank.	1.7	Aug. 30	2,056.8
Cane Creek:			
Fairview, N. C., 0.3 mile above, right bank	12.5	do	2,212.2
Fairview, N. C., 0.2 mile above Gap Creek, right bank.	10.2	do	2,163.8
Fairview, N. C., 0.5 mile above Gravel Creek	8.5	do	2,139.7
Fairview, N. C., mouth of Gravel Creek, right bank	8.0	do	2,131.4
Fairview, N. C., 0.3 mile above Miller Creek	7.3	do	2,121.9
Fletcher, N. C., at bridge just below mouth of Limestone Creek.	6.1	do	2,109.9
Fletcher, N. C., 0.5 mile above Robinson Creek, right bank.	5.5	do	2,102.7
Fletcher, N. C., 0.4 mile below Robinson Creek, left bank.	4.5	do	2,088.5
Fletcher, N. C., at first highway bridge above Fletcher, left bank.	3.8	do	2,081.6
Fletcher, N. C., 500 feet above Hooper Creek, right bank.	3.4	do	2,075.5
Fletcher, N. C., at bridge on U. S. Highway 25, right bank.	2.7	do	2,071.1
Brickton, N. C., 0.2 mile above Fletcher Creek, left bank.	1.6	do	2,061.9
Brickton, N. C., 0.2 mile below Kinsey Creek, right bank.	.6	do	2,054.2
Hominy Creek:			
Candler, N. C., 100 feet above lower highway bridge, left bank.	11.1	do	2,103.5
Candler, N. C., 0.7 mile below, left bank	10.3	do	2,088.0
Enka, N. C., 0.7 mile above highway bridge, right bank.	9.1	do	2,074.25
Enka, N. C., at American Enka Corp. intake dam, right bank.	8.0	do	2,061.4
Enka, N. C., 0.4 mile below railroad bridge, left bank	7.2	do	2,056.9
Enka, N. C., 25 feet below first highway bridge below Enka, right bank.	6.6	do	2,048.7

¹ From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplementary adjustment of 1936, except as noted.² Eastern standard time except as noted.³ Central standard time.

532 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 23.—*Flood-crest stages of late-August flood*¹—Continued

Stream and location	Miles above mouth	Day and hour ²	Elevation (feet)
Hominy Creek—Con.			
Enka, N. C., 0.5 mile above second highway bridge below Enka, right bank.	5.5	Aug. 30	2,064.2
Enka, N. C., 100 feet below second highway bridge below Enka, right bank.	5.0	do.	2,040.5
Asheville, N. C., at third bridge above N. C. Highway 191, left bank.	4.1	do.	2,034.6
Asheville, N. C., at second bridge above N. C. Highway 191, left bank.	3.2	do.	2,017.9
Asheville, N. C., 0.5 mile below second bridge above N. C. Highway 191, right bank.	2.6	do.	2,016.2
Asheville, N. C., at Canie Creek, left bank.	1.7	do.	2,007.4
Asheville, N. C., 0.2 mile below bridge on N. C. Highway 191.	.7	do.	1,995.6
South Hominy Creek:			
Candler, N. C., 0.27 mile above mouth, left bank	11.3	do.	2,102.6
Swannanoa River:			
Swannanoa, N. C., at garage near street bridge	15.5	do.	2,186.7
Swannanoa, N. C., at bridge on U. S. Highway 70, left bank.	14.8	do.	2,172.5
Azalea, N. C., 1.5 miles above bridge on U. S. Highway 70, left bank.	9.1	do.	2,076.2
Azalea, N. C., at Azalea Woodworking Co. plant, left bank.	6.9	do.	2,050.4
Oteen, N. C., just above Lake Craig dam	5.1	do.	2,040.08
Oteen, N. C., just below Lake Craig dam, left bank	5.1	do.	2,028.8
Oteen, N. C., 230 feet below bridge on U. S. Highway 74, right bank.	4.3	do.	2,018.4
Biltmore, N. C., 150 feet above bridge at Sayles Biltmore Bleacheries, right bank.	3.6	do.	2,012.3
Biltmore, N. C., 130 feet below bridge about 0.3 mile below Haw Creek, left bank.	2.6	do.	2,001.3
Biltmore, N. C., U. S. Geological Survey gage, left bank.	1.6	Aug. 30, 1:30 p.m.	1,991.92
Biltmore, N. C., at gate entrance to Biltmore Estate, left bank.	1.4	Aug. 30	1,989.8
Asheville, N. C., 3,500 feet above mouth, right bank	.7	do.	1,983.6
Asheville, N. C., 25 feet above mouth	0.0	do.	1,981.5
Ivy River:			
Barnardsville, N. C., left bank	18.2	do.	2,187.2
Democrat, N. C., 100 feet below bridge on N. C. Highway 695, left bank.	16.1	do.	2,098.8
Democrat, N. C., at highway bridge 0.3 mile below Morgan Branch.	14.2	do.	2,045.3
Forks of Ivy, N. C., at bridge on U. S. Highways 19 and 23.	11.8	do.	1,965.0
Jupiter, N. C., at highway bridge 0.5 mile below Gabriels Creek, right bank.	8.4	do.	1,881.5
Jupiter, N. C., opposite mouth of Eller Branch, right bank.	7.3	do.	1,859.8
Sexton, N. C., 0.7 mile above Bull Creek, right bank	6.1	do.	1,827.6
Sexton, N. C., at highway bridge 100 feet below Bull Creek.	5.35	do.	1,812.1
Sexton, N. C., 0.7 mile below Bull Creek, left bank	4.6	do.	1,803.1
Sexton, N. C., 1.5 miles above abandoned power dam, left bank.	3.7	do.	1,796.6
Marshall, N. C., at highway bridge 0.2 mile below abandoned power dam, right bank.	2.1	do.	1,718.0
Marshall, N. C., U. S. Geological Survey gage, right bank.	1.8	Aug. 30, 5:30 a.m.	1,713.08
Marshall, N. C., 100 feet above Laurel Branch, right bank.	1.3	Aug. 30	1,697.6
Marshall, N. C., 0.5 mile below Laurel Branch, right bank.	.9	do.	1,687.4
West Fork Pigeon River:			
Sunburst, N. C., near mouth of Big Creek, left bank	8.9	do.	2,971.3
Sunburst, N. C., bridge over Lake Logan, left bank	8.0	do.	2,914.4
Sunburst, N. C., 0.6 mile above Lake Logan dam, right bank.	7.6	do.	2,912.1
Sunburst, N. C., Lake Logan dam, right bank	7.0	do.	2,912.0
Sunburst, N. C., 200 feet below Lake Logan dam, right bank.	7.0	do.	2,866.4
Sunburst, N. C., at mouth of Little East Fork Pigeon River, right bank.	6.4	do.	2,843.9

¹ From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplementary adjustment of 1936, except as noted.² Eastern standard time except as noted.

TABLE 23.—*Flood-crest stages of late-August flood*¹—Continued

Stream and location	Miles above mouth	Day and hour ²	Elevation (feet)
West Fork Pigeon River—Con.			
Sunburst, N. C., near Cecil School, 0.1 mile above Nick Creek, right bank	5.5	Aug. 30	2,807.4
Retreat, N. C., 0.6 mile below Nick Creek, right bank	4.7	do	2,775.2
Retreat, N. C., 1.4 miles below Nick Creek, right bank	3.9	do	2,746.2
Retreat, N. C., 2.0 miles below Nick Creek, left bank	3.3	do	2,723.8
Retreat, N. C., 0.6 mile by highway NE. of Retreat, left bank	2.15	do	2,698.2
Woodrow, N. C., 0.3 mile above Bird Creek, left bank	.7	do	2,666.5
Woodrow, N. C., 1,000 feet above confluence of West and East Forks, right bank	.2	do	2,655.6
Pigeon River:			
Woodrow, N. C., 1 mile below confluence of East and West Forks, left bank	68.5	do	2,640.1
Woodrow, N. C., 0.6 mile above Stamey Cove Creek, left bank	67.1	do	2,627.8
Woodrow, N. C., 0.7 mile below Stamey Cove Creek, left bank	65.8	do	2,609.2
Canton, N. C., U. S. Geological Survey gage, left bank	64.0	Aug. 30, 6:30 a.m.	2,592.97
Canton, N. C., on upper highway bridge in Canton	63.7	Aug. 30	2,589.4
Canton, N. C., 2,000 feet above Beaverdam Creek, right bank	63.1	do	2,583.0
Canton, N. C., mouth of Beaverdam Creek, right bank	62.8	do	2,581.3
Canton, N. C., 0.8 mile below Beaverdam Creek, right bank	62.0	do	2,573.9
Canton, N. C., 2,000 feet above Cogburn Ford, right bank	59.4	do	2,544.7
Clyde, N. C., 0.5 mile below highway bridge in Clyde, left bank	58.2	do	2,535.4
Clyde, N. C., 0.4 mile above Richland Creek, left bank	55.4	do	2,511.0
Clyde, N. C., 1.0 mile below Richland Creek, left bank	54.0	do	2,496.5
Crabtree, N. C., 1,500 feet below bridge on N. C. Highway 209, right bank	51.9	do	2,479.6
Crabtree, N. C., 0.9 mile below Crabtree Creek, right bank	48.8	do	2,442.4
Crabtree, N. C., 1,000 feet below first highway bridge below Crabtree Creek, left bank	48.1	do	2,435.8
Cove Creek, N. C., 1.1 miles above Jonathan Creek, right bank	47.2	do	2,411.1
Hepto, N. C., U. S. Geological Survey gage, 0.8 mile below Jonathan Creek, left bank	45.1	Aug. 30, 10:30 a.m.	2,351.77
Hepto, N. C., Waterville Lake at Waterville Dam	38.0	Aug. 30, 2 a.m. through Sept. 1.	2,258.0
Waterville, N. C., at Waterville power plant, left bank	25.8	Aug. 30	1,407.3
Naillontown, Tenn., above, at old Tennessee & North Carolina Ry. trestle, right bank	23.4	do	1,321.8
Hartford, Tenn., U. S. Geological Survey gage, right bank	21.4	Aug. 30, 1:30 p.m.	1,258.63
Bluffton, Tenn., opposite, right bank	19.2	Aug. 30	1,227.9
Denton, Tenn., 200 feet below toe of Brown Island, right bank	16.8	do	1,179.2
Wilton Springs, Tenn., opposite Woods Island, right bank	14.4	do	1,139.7
Pleasant Grove, Tenn., opposite Vinson Island, right bank	12.5	do	1,115.4
Newport, Tenn., 3 miles above at Edwina, right bank	10.8	do	1,093.7
Newport, Tenn., 800 feet below English Creek, left bank	8.4	do	1,070.6
Newport, Tenn., U. S. Weather Bureau gage, right bank	6.8	do	1,058.0
Newport, Tenn., 1,000 feet below lower bridge, left bank	5.4	do	1,050.4
Newport, Tenn., 0.5 mile below lower bridge, left bank	5.1	do	1,043.9
Newport, Tenn., Deep Ford Bridge, left bank	2.1	do	1,028.1
East Fork Pigeon River:			
Cruso, N. C., 0.3 mile below Cold Creek, left bank	7.5	do	2,882.8
Springdale, N. C., 0.4 mile below Springdale, right bank	5.9	do	2,814.6
Silver Bluff, N. C., 0.8 mile above Silver Bluff, right bank	1.0	do	2,671.5
Little Tennessee River:			
Franklin, N. C., on downstream side of bridge on U. S. Highway 64	115.8	do	2,011.5
Franklin, N. C., 0.9 mile below bridge on U. S. Highway 64, left bank	114.8	do	2,006.3
Franklin, N. C., 0.5 mile below Nantahala Power & Light Co. dam, left bank	111.7	do	1,984.3

¹ From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplementary adjustment of 1936, except as noted.² Eastern standard time except as noted.⁴ Tennessee River Survey datum.

534 FLOODS OF AUGUST 1940 IN THE SOUTHEASTERN STATES

TABLE 23.—*Flood-crest stages of late-August flood*¹—Continued

Stream and location	Miles above mouth	Day and hour ²	Elevation (feet)
Iotla, N. C., U. S. Geological Survey gage, right bank	109.7	Aug. 30, 10 a.m.	1,972.4
Iotla, N. C., on bridge on N. C. Highway 286, 500 feet below Iotla Creek.	109.4	Aug. 30	1,970.3
Cowee, N. C., 1.0 mile above Cowee, left bank	107.4	do	1,958.6
Cowee, N. C., right bank	106.4	do	1,954.7
Etna, N. C., 0.4 mile below McCoy Ford, right bank	102.8	do	1,932.8
Etna, N. C., 900 feet above Dean Island, 1.5 miles above Burningtown Creek, left bank.	100.8	do	1,906.8
Needmore, N. C., 1,000 feet above Rattlesnake Creek, left bank.	95.8	do	1,817.1
Needmore, N. C., at dam, left bank	94.3	do	1,791.9
Needmore, N. C., 1,000 feet above Wiggins Creek, left bank.	92.2	do	1,766.1
Needmore, N. C., 200 feet above Sawmill Creek, 1.9 miles above bridge on U. S. Highway 19, right bank.	89.4	do	1,716.9
Needmore, N. C., 100 feet above Sawmill Creek, 1.9 miles above bridge on U. S. Highway 19, right bank.	89.4	do	1,715.3
Almond, N. C., 1.1 miles above highway bridge, right bank.	86.0	do	1,610.6
Almond, N. C., at highway bridge, near site of former U. S. Geological Survey gage, right bank.	84.9	do	1,600.1
Judson, N. C., U. S. Geological Survey gage, 0.6 mile above Southern Ry. trestle, right bank.	81.4	Aug. 30, 3:30 p.m.	1,549.38
Fontana, N. C., U. S. Geological Survey gage, right bank.	62	Aug. 30, 4:15 p.m.	1,291.03
Tuckasegee River:			
Tuckasegee, N. C., near bridge on N. C. Highway 106, left bank.	49.2	Aug. 30	2,154.7
Tuckasegee, N. C., U. S. Geological Survey gage, right bank.	48.1	Aug. 30, 3:30 a.m.	2,145.7
East Laport, N. C., 1,000 feet above Caney Fork, left bank.	46.0	Aug. 30	2,129.3
East Laport, N. C., 1.0 mile below, left bank	44.4	do	2,112.9
East Laport, N. C., 0.45 mile above bridge on N. C. Highway 106, right bank.	44.0	do	2,105.4
East Laport, N. C., 1,000 feet below bridge on N. C. Highway 106, right bank.	43.4	do	2,103.0
Cullowhee, N. C., near mouth of Wayehutta Creek, right bank.	41.5	do	2,083.8
Cullowhee, N. C., 800 feet below bridge on N. C. Highway 106, left bank.	40.5	do	2,074.3
Cullowhee, N. C., 0.4 mile below Cane Creek, left bank.	38.7	do	2,060.3
Cullowhee, N. C., at highway bridge, 1.9 miles below Cane Creek, right bank.	37.1	do	2,048.5
Webster, N. C., 0.3 mile above bridge on N. C. Highway 116, left bank.	35.2	do	2,028.8
Dillsboro, N. C., 1.5 miles above bridge on U. S. Highway 23, right bank.	32.9	do	2,001.5
Dillsboro, N. C., 0.7 mile above, right bank	32.0	do	1,990.0
Dillsboro, N. C., U. S. Geological Survey gage, left bank.	30.9	Aug. 30, 6 a.m.	1,972.11
Dillsboro, N. C., 1.0 mile below bridge on U. S. Highway 23, right bank.	30.4	Aug. 30	1,967.5
Barkers Creek, N. C., 0.9 mile above highway bridge, left bank.	27.9	do	1,917.0
Barkers Creek, N. C., left bank	27.0	do	1,901.8
Wilmont, N. C., right bank	24.0	do	1,870.8
Whittier, N. C., about 1 mile above highway bridge, right bank.	21.2	do	1,851.5
Whittier, N. C., left bank	20.1	do	1,842.2
Ela, N. C., 200 feet above highway bridge, right bank	17.5	do	1,795.2
Ela, N. C., at Southern Ry. trestle, left bank	16.8	do	1,787.5
Bryson City, N. C., at bridge on U. S. Highway 19, right bank.	14.5	do	1,766.5
Bryson City, N. C., 0.3 mile above Deep Creek, left bank.	13.4	do	1,743.2
Bryson City, N. C., U. S. Geological Survey gage, left bank.	12.5	Aug. 30, 10:30 a.m.	1,732.50
Bryson City, N. C., 2.0 miles below, right bank	10.5	Aug. 30	1,710.9
Noland, N. C., at mouth of Peachtree Creek, right bank.	8.5	do	1,670.7
Noland, N. C., 100 feet above Noland Creek, right bank.	6.1	do	1,613.5
Noland, N. C., near mouth of Goldmine Branch, right bank.	3.8	do	1,556.8
Bushnell, N. C., 100 feet above Jenny Branch, right bank.	1.8	do	1,498.9
Bushnell, N. C., 1,000 feet above large island, right bank.	.3	do	1,468.0

¹ From tabulations and surveys by Tennessee Valley Authority, sea-level datum of 1929, supplementary adjustment of 1936, except as noted.

² Eastern standard time except as noted.

³ Adjustment of 1912.

RECORDS OF PREVIOUS FLOODS

Man's vision seems commonly to be seriously inadequate in foreseeing the potentialities of floods and in providing protection or remedies for lessening their destructive consequences. Foresight in such matters is greatly aided by the widest possible knowledge of great floods of the past. The longer the records bearing upon the magnitude and frequency of great floods the more enlightened and adequate will be the solution of flood problems.

Systematic observations of the stages and discharges of rivers in the United States cover a relatively short period of time; few exceed 50 years in length. In recent years information regarding many floods has been 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, from water-supply papers and other sources, of records of floods on some of the rivers covered in this report, for which, in general, the periods of systematic observation exceed 25 or 30 years.

The present report does not attempt to present records of previous floods in an exhaustive manner. This section is intended to afford a general view of some of the great floods of the past and to furnish references to data that will be helpful in the pursuance of more detailed investigations of the subject.

Records of historic floods and references to flood information are given in reports prepared by the Corps of Engineers, War Department, under provisions of House Document 308, 69th Congress, 1st session, enacted into law with modifications in the River and Harbor Act of January 21, 1927. Reports published for the various drainage basins are listed below, page references being given for the sections on historic floods.

James River, Va., 73d Cong., 2d sess., Appendix 2.¹⁵

Meherrin River, Va. and N. C., 71st Cong., 2d sess., H. doc. 446, pp. 32-34.

Roanoke River, Va. and N. C., 74th Cong., 1st sess., H. doc. 65, pp. 63-66.

Neuse River, N. C., 72d Cong., 2d sess., H. doc. 500, p. 31.

Cape Fear River, N. C., 73d Cong., 2d sess., H. doc. 193, p. 36.

Santee River, N. C. and S. C., 73d Cong., 1st sess., pp. 96-100.

Savannah River, Ga., S. C., and N. C., 74th Cong., 1st sess., H. doc. 64, pp. 36-37.

Kanawha River, W. Va. and N. C., 74th Cong., 1st sess., H. doc. 91, pp. 63-65.

Tennessee River and tributaries, N. C., Tenn., Ala., and Ky., 71st Cong., 2d sess., H. doc. 328, pp. 148-157, 187-189.

Publications of the Tennessee Valley Authority, particularly "Flood

¹⁵ Unpublished, but photostatic copy can be procured, at cost of reproduction, from the District Engineer, U. S. Engineer Office, Norfolk, Va. An abstract of this report is given in *Floods of March 1936*, pt. 3, Potomac, James, and upper Ohio Rivers; U. S. Geological Survey Water-Supply Paper 800, pp. 335-340, 1937.

Control for upper French Broad River and tributaries,¹⁶ also contain much information on previous floods, as do many official State reports of agencies and departments that are concerned with the use of water.

Detailed information concerning floods, in satisfactory form for significant comparisons, is relatively scarce for floods antedating the period of systematic observation, which began generally within the last 50 years. It is natural, however, that records of the more outstanding early floods should have been preserved through the years and comparisons made with later floods.

Although flood records are invaluable, it must be emphasized that the experience disclosed even by 100- or 200-year records may not be sufficient for establishing reliable long-time conclusions with relation to the magnitude and frequency of outstanding floods. A broad knowledge of practical meteorology, hydrology, and hydraulics is essential to the most effective interpretation of the records in respect to the occurrence of rare floods.

Records of previous floods are generally compiled only for the major rivers; ordinarily, little definite information is available regarding floods on the smaller streams. However, the occurrences of floods on such smaller streams, except those caused by cloudbursts, undoubtedly is associated more or less closely with the occurrence of the floods on the neighboring larger streams.

Information regarding some notable floods at gaging stations in the Roanoke, Kanawha, and Tennessee River Basins, including floods that occurred prior to the comparatively short period of systematic observations, is given on succeeding pages. This information has been assembled in connection with the preparation of the report on the floods of August 1940. Variations in the nature and origin of the information obtained from different sources have necessitated variation in the form of presentation for different basins.

ROANOKE RIVER BASIN

Outstanding flood stages and discharges on Roanoke River at Old Gaston, N. C., are given below. Old Gaston was the site of the former gaging station, 9 miles upstream from the present station at Roanoke Rapids. The discharges here given were obtained from a revised rating curve based on measurements made during the floods of August 1940 at Roanoke Rapids and subsequent studies; they supersede other values previously published, including revised records for the flood of 1912 published in Water-Supply Paper 782.

1877: A stage of about 19 feet was reached (discharge, 212,000 second-feet, revised); from statements made by local residents in 1912.

¹⁶ Flood control for upper French Broad River and tributaries, a preliminary report: TVA Water Control Planning Dept. Rept. 0-3075, Appendix A, Past floods in upper French Broad River Basin, August 1942. [Processed.]

1889: A stage of about 15 feet was reached (discharge, 137,000 second-feet); from statements made by local residents in 1912.

1912: Maximum discharge during flood of March 18, 158,000 second-feet (gage height 16.2 feet); from graph based on several readings daily of chain gage.

1936: Flood of January 23 reached a stage of 13.94 feet (discharge, 118,000 second-feet); from floodmarks.

1940: Flood of August 18 reached a stage of 21.48 feet (discharge, 261,000 second-feet); from floodmarks.

KANAWHA RIVER BASIN

Continuous records of stage and discharge in the Kanawha River Basin are relatively long, those on Kanawha River extending back to 1877. As a result of the flood of August 1940, however, studies were made which show that the published discharges for some previous floods should be revised. The revised figures are given in tables 24 and 25 and supersede those previously published.

TABLE 24.—*Annual maximum daily mean and momentary peak discharges at gaging stations on New River, W. Va.*

Year	Near Hinton (above Greenbrier River)				Caperton			
	Day	Daily mean (second-feet)	Day	Peak (second-feet)	Day	Daily mean (second-feet)	Day	Peak (second-feet)
1924	Sept. 30	48,600	Jan. 17	55,400				
1925	Jan. 12	21,800	Jan. 12	22,400				
1926	Dec. 22	45,400	Dec. 22	48,600				
1927	Feb. 23	41,600	Apr. 23	44,600				
1928	Aug. 17	47,000	Aug. 17	48,600				
1929	Oct. 3	80,300	Oct. 3	105,000	Oct. 3	86,400	Oct. 3	121,000
1930	Feb. 5	25,400	Feb. 5	26,000	Feb. 5	39,000	Feb. 5	46,400
1931	Apr. 5	21,800	Apr. 5	23,000	Apr. 5	37,500	Apr. 5	43,400
1932	Dec. 29	34,800	Dec. 29	37,000	Feb. 5	68,300	Feb. 5	79,500
1933	Feb. 9	23,000	Feb. 9	24,200	Mar. 20	54,800	Mar. 20	59,600
1934	Mar. 5	50,200	Mar. 5	53,600	Mar. 5	109,000	Mar. 5	114,000
1935	Jan. 23	59,900	Jan. 23	76,700	Jan. 23	115,000	Jan. 23	142,000
1936	Feb. 15	59,000	Feb. 15	62,800	Mar. 18	122,000	Mar. 18	135,000
1937	Oct. 28	47,000	Jan. 20	55,400	Jan. 21	97,300	Jan. 21	102,000
1938	July 24	37,800	July 24	44,600	July 24	52,100	July 24	61,900
1939	Feb. 11	26,000	Feb. 11	27,300	Jan. 31	59,600	Jan. 31	71,500
1940	Aug. 15	153,000	Aug. 15	232,000	Aug. 15	177,000	Aug. 15	244,000

NOTE.—Figures of discharge in this table supersede those previously published.

Table 25, for Kanawha River at Kanawha Falls, W. Va., is based on a similar table in Water-Supply Paper 838.¹⁷ The discharges have been revised as a result of studies made since the floods of August 1940. Gage heights have been added, using those given in Water-Supply Paper 771.¹⁸ Gage heights prior to 1928 refer to the navigation gage of the Corps of Engineers, War Department, about a quarter of a mile above the Geological Survey recording gage. Gage heights at the recording gage site for floods prior to 1928 were obtained from a curve of relation between the navigation and recording gages.

¹⁷ Floods of Ohio and Mississippi Rivers, January–February 1937: U. S. Geol. Survey Water-Supply Paper 838, p. 647, 1938.

¹⁸ Jarvis, C. S., and others, Floods in the United States, magnitude and frequency: U. S. Geol. Survey Water-Supply Paper 771, p. 181, 1936.

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TABLE 25.—*Annual maximum daily mean and momentary peak gage heights and discharges for Kanawha River at Kanawha Falls, W. Va.*

Year	Date	Daily mean			Momentary peak		
		Navigation gage (feet)	Recording gage (feet)	Discharge (second- feet)	Navigation gage (feet)	Recording gage (feet)	Discharge (second- feet)
1877	Nov. 25.....	26.5	(24.6)	193,000	30.2	(28.1)	232,000
1878	Sept. 14.....	33.0	(30.9)	263,000	37.8	(35.8)	320,000
1879	Jan. 13.....	20.2	(18.4)	130,000	21.2	(19.4)	140,000
1880	Feb. 14.....	17.5	(15.8)	105,000	17.5	(15.8)	105,000
1881	Feb. 11.....	17.1	(15.4)	101,000	-----	-----	-----
1882	Jan. 22.....	17.4	(15.7)	104,000	18.3	(16.5)	111,000
1883	Apr. 1.....	17.4	(15.7)	104,000	18.2	(16.4)	110,000
1884	Feb. 10.....	18.0	(16.2)	108,000	19.5	(17.7)	123,000
1885	Jan. 17.....	13.0	(11.4)	65,100	13.2	(11.6)	66,900
1886	Apr. 1.....	30.0	(27.9)	229,000	-----	-----	-----
1887	Jan. 25.....	17.1	(15.4)	101,000	-----	-----	-----
1888	Sept. 17.....	-----	-----	-----	16.5	(14.8)	95,700
1889	June 1.....	24.8	(22.9)	175,000	24.8	(22.9)	175,000
1890	Feb. 26.....	20.0	(18.2)	128,000	20.0	(18.2)	128,000
1891	Apr. 12.....	17.9	(16.1)	107,000	19.2	(17.4)	120,000
1892	Jan. 15.....	21.95	(20.2)	148,000	22.0	(20.2)	148,000
1893	May 4.....	18.5	(16.7)	113,000	20.95	(19.2)	138,000
1894	Feb. 4.....	-----	-----	-----	14.25	(12.65)	75,900
1895	Apr. 9.....	23.5	(21.7)	163,000	24.0	(22.1)	167,000
1896	Mar. 31.....	19.4	(15.7)	104,000	19.60	(17.8)	124,000
1897	Feb. 23.....	28.25	(25.25)	211,000	28.50	(26.5)	214,000
1898	Aug. 10.....	-----	-----	-----	20.75	(18.95)	136,000
1899	Mar. 5.....	30.5	(28.4)	235,000	30.6	(28.5)	236,000
1900	Nov. 26.....	-----	-----	-----	24.6	(22.7)	173,000
1901	May 23.....	33.30	(31.2)	266,000	34.50	(32.5)	281,000
1902	Mar. 1.....	29.1	(27.1)	221,000	29.25	(27.25)	222,000
1903	Mar. 24.....	25.80	(23.9)	186,000	26.0	(24.1)	188,000
1904	Mar. 9.....	10.1	(8.8)	43,800	-----	-----	-----
1905	July 13.....	-----	-----	-----	20.1	(18.3)	128,000
1906	Jan. 24.....	22.8	(21.0)	156,000	23.1	(21.3)	159,000
1907	June 14.....	23.7	(21.9)	165,000	-----	-----	-----
1908	Feb. 16.....	22.0	(20.2)	148,000	23.1	(21.3)	159,000
1909	Apr. 15.....	12.3	(10.8)	59,800	13.3	(11.7)	67,800
1910	June 17.....	17.2	(15.5)	102,000	17.8	(16.0)	106,000
1911	Jan. 30.....	-----	-----	-----	17.0	(15.3)	100,000
1912	Mar. 16.....	16.5	(14.8)	95,700	19.7	(17.9)	125,000
1913	Mar. 28.....	26.3	(24.4)	191,000	27.5	(25.5)	203,000
1914	Dec. 6.....	13.3	(11.7)	67,800	13.3	(11.7)	67,800
1915	Jan. 8.....	21.0	(19.2)	138,000	21.5	(19.7)	142,000
1916	July 17.....	23.0	(21.2)	158,000	31.7	(29.6)	248,000
1917	Mar. 5.....	-----	-----	134,000	22.0	(20.2)	148,000
1918	Mar. 13.....	-----	-----	-----	25.4	(23.5)	182,000
1919	Jan. 2.....	21.6	(19.8)	144,000	24.2	(22.3)	169,000
1920	Jan. 23.....	16.5	(14.8)	95,700	-----	-----	-----
1921	Dec. 24.....	14.2	(12.6)	75,900	-----	-----	-----
1922	Feb. 21.....	-----	-----	-----	14.6	(13.0)	79,500
1923	Feb. 3.....	16.8	(15.1)	98,400	17.2	(15.5)	102,000
1924	May 13.....	19.4	(17.6)	122,000	-----	-----	-----
1925	Feb. 16.....	10.0	(8.7)	43,000	-----	-----	-----
1926	Nov. 16.....	19.7	(17.9)	125,000	-----	-----	-----
1927	Feb. 24.....	15.8	(14.1)	89,400	-----	-----	-----
1928	May 1.....	-----	-----	174,000	-----	-----	182,900
1929	Oct. 3.....	-----	18.80	134,000	-----	21.35	160,000
1930	Feb. 5.....	-----	-----	-----	-----	10.42	56,400
1931	Apr. 5.....	-----	9.90	52,200	-----	10.33	55,600
1932	July 5.....	-----	-----	65,100	-----	16.30	109,000
1933	Mar. 20.....	-----	12.50	75,000	-----	12.97	79,500
1934	Mar. 5.....	-----	20.07	146,000	-----	21.43	160,000
1935	Jan. 23.....	-----	-----	123,000	-----	-----	159,000
1936	Mar. 18.....	-----	19.55	142,000	-----	20.52	150,000
1937	Oct. 28.....	-----	19.27	138,000	-----	21.00	155,000
1938	July 24.....	-----	10.40	56,500	-----	11.1	62,400
1939	Feb. 4.....	-----	14.81	95,700	-----	15.68	104,000
1940	Aug. 15.....	-----	21.11	163,000	31.7	(29.6)	248,000

¹ Discharge at lock 2, 9 miles downstream.² Discharge computed from flow of New River at Caperton and Gauley River above Belva.

NOTE.—Figures of discharge in this table supersede those previously published. Gage heights in parenthesis were derived by relation curves from the navigation gage.

TENNESSEE RIVER BASIN

Crest gage heights at gaging stations on French Broad, Tennessee, Nolichucky, Holston, Watauga, Little Tennessee, Hiwassee, Clinch, Toccoa, and Ocoee Rivers are given in tables 26 to 33. In each table the gage heights are given for those floods that exceeded an arbitrarily chosen gage height at a key station.

TABLE 26.—*Flood-crest stages, in feet, at stations on French Broad River when stage was 12 feet or more at Dandridge, Tenn.*

Year	Date	French Broad River at Newport (Oldtown), Tenn. ¹	French Broad River at Dandridge, Tenn. ²	Year	Date	French Broad River at Newport (Oldtown), Tenn. ¹	French Broad River at Dandridge, Tenn. ²
1867	March.....		³ 40	1927	Feb. 23-24.....	7.5	13.0
1875	May.....		³ 32	1928	June 30.....	9.40	13.9
or					Aug. 16, 17.....	13.45	⁵ 17.2
1876				1929	Mar. 24.....	6.91	12.3
1901	May 21.....	⁵ ⁶ 10.5	⁴ 28	1932	Dec. 28, 29.....	9.12	14.65
1902	Feb. 28.....	⁴ ⁷ 23.0		1933	Feb. 15.....	8.00	13.83
1906	Jan. 23.....		15.0	1934	Mar. 3, 4.....	8.65	12.5
1909	June 5.....		12.0	1935	Mar. 26, 27.....	9.15	16.63
1913	Mar. 15.....		⁵ 12.5	1936	Jan. 19, 20.....	13.38	18.49
	Mar. 28.....		16.0		Feb. 4, 5.....	9.10	12.70
1915	Dec. 19.....		13.0		Mar. 25.....	8.31	12.13
1916	July 11.....		⁵ 12.0		Mar. 26-28.....	11.13	15.15
	July 17.....	⁴ 22.5	⁵ 21.0		Apr. 2.....	10.84	13.28
1917	Mar. 5.....		⁵ 16.0		Apr. 6.....	12.32	16.38
1918	Jan. 29.....		15.3		Oct. 16, 17.....	10.80	12.33
	Oct. 30.....		14.0	1937	Jan. 3.....	11.43	15.28
1920	Apr. 2.....		18.7	1940	Aug. 14, 15.....	12.60	18.73
1921	Feb. 10-11.....	⁹ 9.4	⁵ 13.4		Aug. 30, 31.....	19.25	20.93
1922	Jan. 21-22.....	⁶ 6.9	⁵ 12.6				

¹ Datum of gage is 1,011.61 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

² Datum of gage is 903.33 feet above mean sea level, datum of 1929, supplementary adjustment of 1936; prior to Dec. 6, 1916, gage was 300 feet upstream at same datum. Records prior to 1931 by U. S. Weather Bureau.

³ Traditional stage.

⁴ From floodmark.

⁵ Maximum observed.

⁶ From gage with datum approximately 1,010.3 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁷ Maximum stage known.

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TABLE 27.—*Flood-crest stages, in feet, at stations on Tennessee River during years in which stage was 35.0 feet or more at Chattanooga, Tenn.*

Year	Date	Tennessee River at Knoxville, Tenn. ¹	Tennessee River at Loudon, Tenn. ²	Tennessee River near Rockwood, Tenn. ³	Tennessee River at Breedenton, Tenn. ⁴	Tennessee River at Chattanooga, Tenn. ⁵
1867	Mar. 10-11	⁶ 45.8	⁷ 49.7	44.5	⁶ 43.8	⁶ 57.9
1875	Feb. 27—Mar. 1		⁷ 42.7			⁶ 53.8
1879	Jan. 15					⁶ 38.0
1880	Mar. 18					⁶ 38.3
1881	Jan. 19					⁶ 40.2
1883	Jan. 23					⁶ 38.2
1884	Feb. 10-11	⁸ 16.1				⁶ 36.8
	Mar. 7-10	⁸ 22.3				⁶ 42.8
1886	Mar. 31—Apr. 3	⁸ 29.6	⁸ 34.9			⁶ 52.2
1890	Feb. 28—Mar. 2	⁸ 23.0	⁸ 25.0	⁸ 29.6		⁶ 42.5
1891	Feb. 11-14	⁸ 21.9	⁸ 23.0	⁸ 25.1		⁶ 37.5
	Mar. 10-11	⁸ 16.9	⁸ 20.9	⁸ 26.0		⁶ 38.9
1892	Jan. 15-17	⁸ 23.3	⁸ 26.0	⁸ 25.0		⁶ 37.9
1896	Apr. 3-5	⁸ 28.7		⁸ 31.4		⁶ 40.5
1897	Mar. 11-15	⁸ 22.5		⁸ 26.4		⁶ 37.9
1899	Feb. 7-9	⁸ 23.1				⁶ 38.3
	Mar. 16-17	⁸ 19.8				⁶ 36.7
	Mar. 20-22	⁸ 28.2				⁶ 40.0
1902	Dec. 31, 1901—Jan. 2	⁸ 1031.0				⁶ 40.8
	Mar. 1-4	⁸ 36.0				⁶ 38.0
1917	Mar. 5-7	⁸ 28.2	32.9			⁶ 47.7
1918	Jan. 29—Feb. 2	24.2	⁸ 23.5			⁶ 42.5
1920	Apr. 3-5	⁸ 26.7	⁸ 27.5			⁶ 43.6
1922	Jan. 22-24	⁸ 19.0	⁸ 21.2			⁶ 35.8
1926	Dec. 26-29	14.8	⁸ 20.70	⁸ 25.2		38.45
1929	Mar. 24-26	17.20	⁸ 21.50	⁸ 27.6		38.50
1932	Dec. 29-31	20.15	24.73	⁸ 24.6		37.50
1936	Mar. 28-29	23.80	25.75		27.70	37.08
	Apr. 7-9	21.69	24.30		25.60	35.40

¹ Records from 1883 to 1889 by U. S. Signal Service; 1890 to August 1925 by U. S. Weather Bureau; August 1925 to date by U. S. Geological Survey. All readings are comparable unless otherwise noted. Datum of gage is 797.68 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

² Datum of gages, 726.29 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Oct. 1, 1922, to Sept. 30, 1929, staff gage 4.5 miles downstream, datum 726.0 feet above mean sea level. Records prior to Oct. 1, 1922, by U. S. Weather Bureau at Southern Ry. bridge 1,600 feet downstream; datum of gages Dec. 1, 1883, to June 28, 1907, 727.7 feet above mean sea level, 1929 general adjustment; June 29, 1907, to Sept. 30, 1922, 724.6 feet above mean sea level.

³ Gage heights obtained from Daily river stages of U. S. Weather Bureau without attempt to correlate datum of various gages used.

⁴ Datum of gage, 666.22 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁵ Datum of gage, 621.12 feet above mean sea level, general adjustment of 1929. Records prior to June 16, 1926, from Water-Supply Paper 353 and Daily river stages published by U. S. Weather Bureau; subsequent to June 16, 1926, from recorder charts furnished by U. S. Weather Bureau. The datum is believed to have remained the same for the period of use.

⁶ From floodmark.

⁷ Traditional stage.

⁸ Maximum observed.

⁹ Read on temporary gage about 2,000 feet downstream from original gage with datum 0.42 foot lower. No comparative readings available.

¹⁰ Read on gage about 2,600 feet downstream from original gage with datum 2.3 feet lower. Comparative readings at stage 23.6 feet on this gage indicate a minus correction of about 2 feet is required to make readings at that stage comparable with previous and subsequent readings.

TABLE 28.—*Flood-crest stages, in feet, at stations on Nolichucky River when stage was 7.5 feet or more at Embreeville, Tenn.*

Year	Date	Nolichucky River at Embreeville, Tenn. ¹	Nolichucky River near Greeneville, Tenn. ^{2,3}	Nolichucky River near Morristown, Tenn. ⁴
1905	July 12		8.65	
1906	Jan. 23		⁵ 19.3	
	Sept. 19		⁵ 8.20	
	Nov. 19		13.60	
1908	Jan. 12		⁵ 9.10	
1921	Feb. 10-11	⁵ 8.75	⁵ 8.5	⁵ 14.45
	Aug. 3-4	11.0	⁵ 14.10	⁵ 14.57
1922	Jan. 21-22	⁵ 9.03	⁵ 7.9	⁵ 15.10
1923	Mar. 16-17	⁵ 7.80	⁵ 9.25	⁵ 13.10
	May 29-30	⁵ 7.64	⁵ 7.25	
1924	Mar. 6-7	⁵ 7.65	⁵ 8.1	⁵ 13.30
	Sept. 29	⁵ 7.82	⁵ 6.25	⁵ 9.70
1926	Jan. 18-19	⁵ 7.58		10.64
	Nov. 16	⁵ 8.40		13.56
1927	Feb. 23-24	⁵ 7.69		17.11
1928	Aug. 16	⁵ 13.85		18.90
	Sept. 6	⁵ 7.71		11.63
1929	Feb. 28	⁵ 7.56		
	Mar. 5-6	⁵ 8.32		13.83
	Mar. 14-15	⁵ 8.01		11.87
	Sept. 26-27	⁵ 7.65		10.51
	Oct. 2	⁵ 8.50		11.50
	Oct. 22	⁵ 10.55		16.99
1934	July 15-16	10.30		16.14
1935	Jan. 8, 9	10.23		17.15
	Mar. 26	10.69		22.00
1936	Jan. 19-20	8.76		18.97
	Oct. 16-17	8.80		16.04
1940	Aug. 13-14	18.57		22.68
	Aug. 30-31	11.23		19.79

¹ Datum of gage is 1,519.30 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Oct. 1, 1931, from chain gage 2,000 feet downstream; datum of gage 1,512.97 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

² Datum unknown. Prior to Apr. 7, 1908, gage was located on opposite side of bridge with datum 2.04 feet higher than present gage.

³ Prior to 1919, flood crests tabulated for stages 6.0 feet or over.

⁴ Datum of gage is 1,004.40 feet above mean sea level, Tennessee River Survey datum.

⁵ Maximum observed.

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TABLE 29.—*Flood-crest stages, in feet, at stations on Holston River when stage was 13.0 feet or more at Rogersville, Tenn.*

Year	Date	South Fork Holston River at Bluff City, Tenn. ¹	South Fork Holston River at Kingsport, Tenn. ²	Holston River near Rogersville, Tenn. ³	Holston River near Morristown, Tenn. ⁴	Holston River near Jefferson City, Tenn. ⁵	Holston River at Straw- berry Plains, Tenn. ⁶
1867	Mar. 10			738.4			
1901	May 22	⁸ 915.0					
	Dec. 29	⁸ 912.6					
1902	Feb. 28	⁸ 911.4					
1903	Feb. 17	⁸ 9.4		⁸ 17.0			
	Mar. 23-24	⁸ 7.5		⁸ 14.3			
1906	Jan. 23	11.6		17.5			
	Nov. 20	⁸ 5.8		⁸ 13.5			
1907	June 14-15	⁸ 11.7		⁸ 14.0			
1912	Apr. 3	⁸ 8.1		⁸ 14.4			
1913	Mar. 27-28	10.9		⁸ 19.1			
1915	Dec. 18-19	10.0		15.3			
1916	July 17	⁸ 6.3		⁸ 15.4			
1917	Mar. 5	9.3		⁸ 17.1			
1918	Jan. 29	⁸ 9.1		20.0			
1920	Apr. 2-3	8.2		15.0			
1922	Jan. 20-22	⁸ 8.9		13.3			
	Apr. 28-29	8.6		⁸ 13.0			
1923	Feb. 3-4	11.3		17.0			
	Feb. 13-14	8.4		⁸ 13.0			
1926	Dec. 22-23	10.0	9.1	13.6			
1927	Feb. 23-24	11.4	13.9	17.0			
	May 30	⁸ 6.4	12.7	15.9			
1932	Feb. 4-5	10.0	12.6	14.6			16.6
1935	Mar. 26-28	12.5	15.2	18.4			20.2
1936	Jan. 19-21	8.6	11.0	13.4	728.4		14.2
	Apr. 6-8	8.8	10.8	13.0			14.3
1940	Aug. 13-16	11.6	18.8	17.8	26.7	21.8	18.6

¹ Datum of gage is 1,368.35 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

² Datum of gage is 1,184.31 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

³ Prior to Oct. 26, 1923, gage located at railroad bridge about ½ mile downstream from present site; records by U. S. Weather Bureau; datum of gage 1,052.42 feet above mean sea level, datum of 1929, supplementary adjustment of 1936; October 1923 to May 1934, gages at highway bridge 300 feet upstream, datum of gages, 1,054.80 feet above mean sea level, datum of 1929, supplementary adjustment of 1936; since May 1934, datum of gage 1,054.83 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁴ Datum of gage is 964.02 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁵ Datum of gage is 920.02 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁶ Datum of gage is 838.39 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁷ From floodmark.

⁸ Maximum observed.

⁹ No records available at Rogersville for this rise.

TABLE 30.—*Flood-crest stages, in feet, at stations on Watauga River when stage was 10.0 feet or more at Elizabethton, Tenn.*

Year	Date	Watauga River at Stump Knob, Tenn. ¹	Watauga River at Butler, Tenn. ²	Watauga River at Elizabethton, Tenn. ³
1900	Oct. 23		⁴ 15.00	
1901	May 21	⁵ 19.5	⁴ 16.27	
1902	Feb. 27 or 28			22.0
1913	Mar. 14			10.4
	Mar. 27			10.0
1916	July 16			15.6
1918	Jan. 28			11.1
1920	Apr. 1			10.2
1924	June 14		⁷ 5.30	10.9
1927	Feb. 23		⁷ 7.55	11.1
	Nov. 17	⁷ 9.20	⁷ 8.60	10.39
1932	Feb. 3		9.70	11.8
1935	Jan. 9	12.44	11.85	12.32
	Mar. 26	8.05	10.80	12.97
	Nov. 13	9.2	8.40	10.23
1936	Jan. 19	5.91	7.45	10.79
	Mar. 24-25	5.80	7.51	10.96
	Apr. 6	6.50	7.85	10.62
1940	Aug. 13-14	⁶ 24.0	⁶ 25.40	20.87
	Aug. 30	¹⁰ 10.35	9.78	11.37

¹ Datum of gage is 1,869.03 feet above mean sea level, datum of 1929, supplementary adjustment of 1956.

² Datum of gage is 1,809.38 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

³ Datum of gage is 1,486.23 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁴ From staff gage 200 feet below highway bridge. Datum unknown.

⁵ No records available at Elizabethton for this rise.

⁶ From floodmarks.

⁷ Maximum observed.

⁸ From chain gage at highway bridge. Datum was 2.88 feet higher than present gage.

⁹ From staff gage at highway bridge; same datum as chain gage.

¹⁰ From graph based on observer's readings.

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TABLE 31.—Flood-crest stages, in feet, at stations on Little Tennessee and Hiwassee Rivers when stage was 20.0 feet or more on Little Tennessee River at McGhee, Tenn.

Year	Date	Little Tennessee River at Calderwood, Tenn. ²	Little Tennessee River at McGhee, Tenn. ¹	Hiwassee River at Charleston, Tenn. ³	Hiwassee River near Reliance, Tenn. ⁴
1867	March		⁵ 39.0		
1884			⁵ 38.5		
1886	Mar. 31			⁶ 734.0	
1899	Mar. 16			⁵ 727.3	
	Mar. 20			⁵ 727.6	
1906	Nov. 19-20		⁵ 30.0	30.0	⁵ 15.20
1913	Mar. 27-28	⁷ 748.27	⁵ 21.5	⁵ 20.0	⁵ 8.6
1917	Mar. 4-5	⁶ 711.75	⁵ 27.2	28.3	
1918	Jan. 29-31		⁵ 20.15	⁵ 21.5	
1920	Apr. 2-3		⁵ 30.5	⁵ 30.5	⁵ 13.90
1922	Jan. 20-22		23.7	⁶ 28.2	⁵ 11.56
1926	Dec. 25-26-29	746.3	20.9	24.4	¹⁰ 15.1
1932	Jan. 30-31	7.14	20.6	22.1	14.63
	Dec. 28-29	9.80	27.0	28.58	22.0
1933	Feb. 15	6.72	20.7	21.98	13.53
1934	Mar. 3-4	8.07	21.97	23.5	17.9
1936	Jan. 19-20	8.60	23.5	24.86	18.49
	Feb. 4-5	8.77	24.9	27.19	23.01
	Mar. 28	6.60	21.1	21.67	15.00
	Apr. 2-3	7.69	20.7	25.5	21.40
	Apr. 6-7	10.03	25.78	27.12	19.88
1937	Jan. 3	7.66	20.55	22.17	16.16
1939	Feb. 15-16	7.11	20.13	22.94	16.18
1940	Aug. 30	9.70	21.56		¹¹ 6.08

¹ Datum of gage, 760.18 feet above mean sea level, datum of 1929, supplementary adjustment of 1936; Sept. 18, 1925, to Sept. 5, 1929, staff gage 100 feet downstream was used, same datum; Oct. 1, 1918, to Sept. 17, 1925, U. S. Weather Bureau gages 0.3 mile downstream were used, same datum; Dec. 1, 1905, to Sept. 30, 1918, U. S. Weather Bureau gage 0.3 mile downstream was used; datum of gage 0.79 feet higher than present gage; Nov. 29, 1904, to Nov. 30, 1905, U. S. Weather Bureau gage 0.4 mile downstream was used, datum of gage 0.3 feet lower than succeeding gage. Records prior to 1904 from U. S. Weather Bureau.

² Datum of gage 861.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936; June 1, 1923, to Sept. 30, 1927, datum of gage was 122.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Jan. 1, 1921, to May 31, 1923, gages at highway bridge 2,000 feet upstream were used; datum was 863.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Jan. 1, 1914, to Dec. 31, 1918, gage 1 mile downstream was used; datum of gage 122.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Jan. 1, 1912, to Dec. 31, 1913, gage at present site was used; datum of gage 122.41 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

³ Datum of gage 665.56 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Sept. 7, 1926, gages 250 feet downstream were used; datum of gages 667.32 feet above mean sea level, general adjustment of 1929. Records prior to 1899 and from 1903 to 1919, from U. S. Weather Bureau.

⁴ Datum of gage 718.34 feet, datum of 1929, supplementary adjustment of 1936. Prior to Oct. 1, 1926, gage 3 miles upstream, published as Hiwassee River at Reliance, was used; datum of gage 748.36 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.

⁵ Maximum observed.

⁶ Present datum.

⁷ No records available at McGhee for this rise.

⁸ Daily mean gage height.

⁹ Before breaking of levee.

¹⁰ From graph based on observer's readings.

¹¹ Flow regulated by storage in Hiwassee Reservoir.

TABLE 32.—*Flood-crest stages in feet, at stations on Clinch River when stage was 30 feet or more at Clinton, 10 feet or more near Tazewell, or 12 feet or more above Tazewell*

Year	Date	Clinch River above Tazewell, Tenn. ¹	Clinch River near Tazewell, Tenn. ²	Clinch River near Lone Mountain, Tenn. ³	Clinch River below Norris Dam, Tenn. ⁴	Clinch River near Coal Creek, Tenn. ⁵	Clinch River at Clinton, Tenn. ⁶	Clinch River near Wheat, Tenn. ⁷
1862		24	24.5					
1884	Mar. 8						\$31.10	
1886	Mar. 31						\$45.0	
	Apr. 7						\$38.0	
1890	Feb. 28						\$35.5	
1893	Feb. 19						\$32.5	
1896	Apr. 2						\$37.0	
1897	Feb. 23						\$37.5	
1901	Dec. 31						\$31.0	
1902	Mar. 2						\$32.5	
1906	Nov. 21						\$31.0	
1912	Apr. 4						\$31.0	
1913	Mar. 29						30.2	
1917	Jan. 7						\$31.5	
	Mar. 5		21.5				\$38.0	
1918	Jan. 30						\$37.6	
1919	Jan. 4						\$31.0	
1923	Feb. 4-5			\$20.34			32.7	
1926	Dec. 23-24			\$19.95			32.30	
	Dec. 26-27			\$16.25			\$31.66	
1929	Mar. 23-24		13.02			30.7		
	May 20-21		10.30			24.49		
1932	Jan. 31-Feb. 1		14.90			28.20		
	Feb. 4-5		10.98			23.50		
	Dec. 29-30		11.07			21.65		
1934	Mar. 4-5		10.48			21.55		
	Mar. 24-25		10.84			22.49		
1935	Mar. 26-27		10.36			23.92		
	Apr. 2-3		10.79			19.90		
1936	Jan. 20	12.10	9.82					
	Mar. 25	12.26	10.00					
	Apr. 7	13.69	11.20					
1937	Jan. 3	12.54			\$ 1.14			15.57
	Jan. 19	13.99			\$ 1.24			10.00
	Jan. 25-26	12.07			\$ 1.32			10.86
	Feb. 9-10	12.96			13.0			23.45
1939	Feb. 4	14.90			3.20			17.37
	Feb. 12	12.15			7.98			15.53
1940	Aug. 15	13.29			1.27			2.67

¹ Datum of gage, 1,060.7 feet above mean sea level, datum of 1929, supplementary adjustment of 1936.² Datum of gage, 1,012.55 feet above mean sea level, Tennessee River Survey datum. Affected by backwater from Norris Dam after December 1936.³ Datum of gage, 958.19 feet above mean sea level.⁴ Datum of gage, 819.11 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Flow regulated by storage in Norris Reservoir.⁵ Datum of gage, 805.61 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Aug. 24, 1935, datum of gage was 3.00 feet higher than present datum. Flow regulated by storage in Norris Reservoir after June 1935.⁶ Datum of gage, 776.96 feet above mean sea level, general adjustment of 1929. Prior to July 1920 datum of gage was 777.1 feet above mean sea level, general adjustment of 1929; records by U. S. Weather Bureau.⁷ Datum of gage, 717.36 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Flow regulated by storage in Norris Reservoir.⁸ Maximum observed.

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TABLE 33.—*Flood-crest stages, in feet, at stations on Toccoa and Ocoee Rivers, when stage exceeded 7.0 feet at Dial, Ga.*

Year	Date	Toccoa River near Dial, Ga. ¹	Toccoa River near Blue Ridge, Ga. ²	Ocoee River at Copperhill, Tenn. ³	Ocoee River at McHarg, Tenn. ⁴	Ocoee River at Emf, Tenn. ⁵	Ocoee River at Parksville, Tenn. ⁶
1906	Nov. 19			⁷ 18.5			
1908	Feb. 15	⁷ 7.6		⁷ 6.50			
1915	Dec. 29	⁹ 7.1				10.0	
1916	July 9-10	10.0	13.0			13.7	15.75
1918	Dec. 22	⁹ 7.6	⁹ 8.3	⁷ 7.15	⁷ 9.6	⁹ 10.4	
1920	Apr. 2	7.20	⁹ 11.9	⁷ 11.74	⁷ 9.9	12.40	
1921	Feb. 10	9.25	11.7	⁷ 7.4	⁷ 9.7	10.75	
1922	Jan. 21	8.0	10.4	⁷ 7.9	⁷ 11.4	12.5	
1929	Sept. 25-26	7.05	7.52		⁷ 5.50	7.85	6.71
1931	Dec. 13-14	8.05	2.44		5.38	7.94	7.90
1932	Dec. 28	8.10	7.40		7.20	9.71	15.3
1934	Mar. 3	7.05	1.31		4.70	⁷ 7.4	6.70
1936	Feb. 4-5	8.3	4.93		8.95	11.7	9.58
	Apr. 2	9.60	7.22		8.10	10.4	12.60
	Apr. 6	7.3	8.04		8.80	11.95	18.32
1938	Apr. 8	8.28	¹⁰ 4.05		7.51	10.07	6.53

¹ Records prior to 1925 by Tennessee Electric Power Co. Datum of gage is 1,781.13 feet above mean sea level, datum of Tennessee Electric Power Co.

² Datum of gage is 1,538.77 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Flow regulated by storage in Blue Ridge Reservoir after December 1930. Prior to Apr. 1, 1931, gage 800 feet upstream set to datum 0.56 foot lower was used.

³ Datum of gage not known.

⁴ Datum of present gage is 1,427.16 feet above mean sea level, datum of 1929, supplementary adjustment of 1936. Prior to Oct. 10, 1931, datum of gage was 1,430.00 feet above mean sea level, same datum. Flow regulated by storage in Blue Ridge Reservoir after December 1930.

⁵ Datum of gage is 838.15 feet above mean sea level, general adjustment of 1929. Flow regulated by storage in Blue Ridge Reservoir after December 1930.

⁶ Datum of gage is 717.58 feet above mean sea level, Tennessee River Survey datum. Flow regulated by storage in Parksville Reservoir from beginning of record, and in Blue Ridge Reservoir after December 1930.

⁷ Maximum gage height observed.

⁸ No record at Dial, Ga.

⁹ Maximum daily mean gage height.

¹⁰ Estimated.

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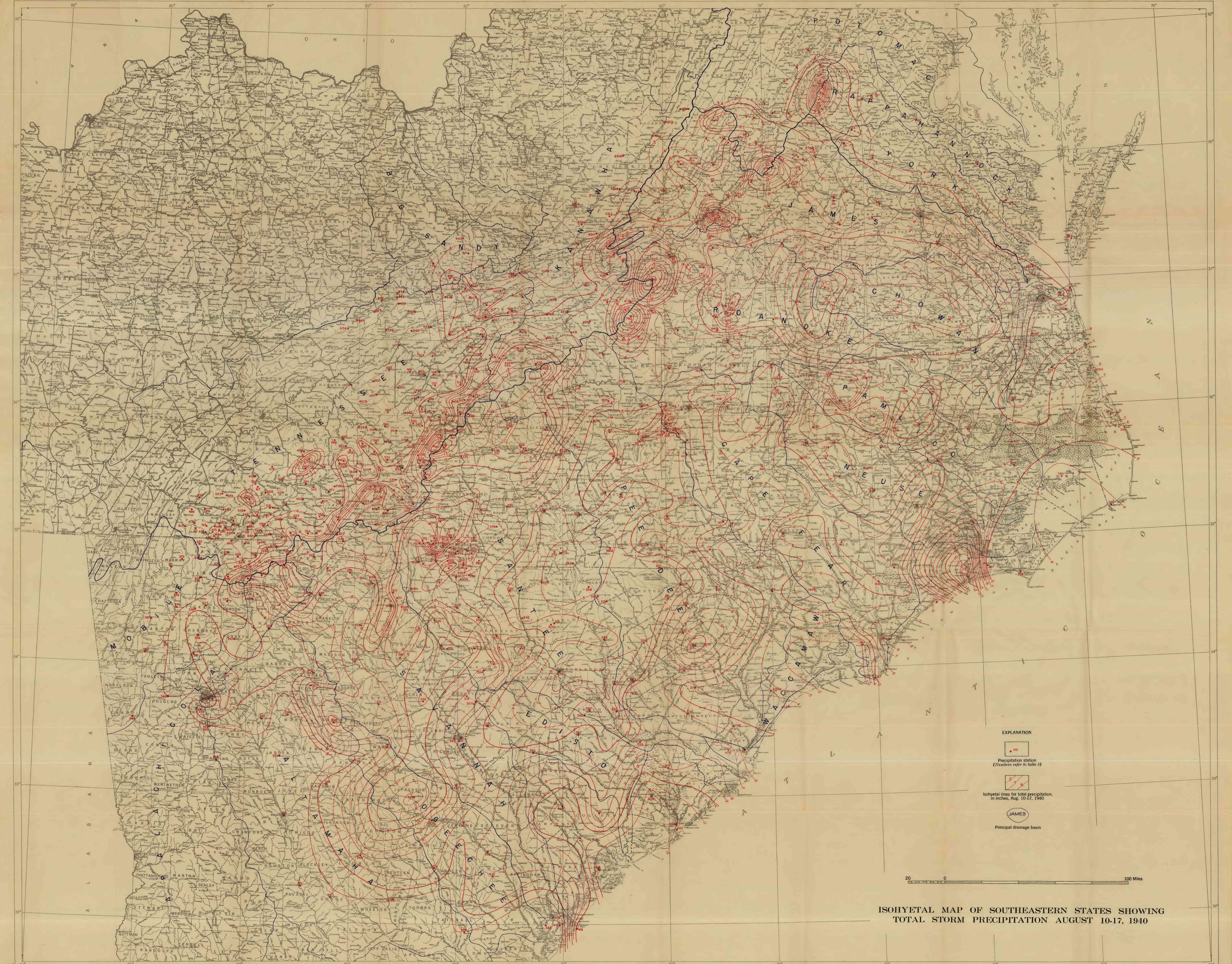
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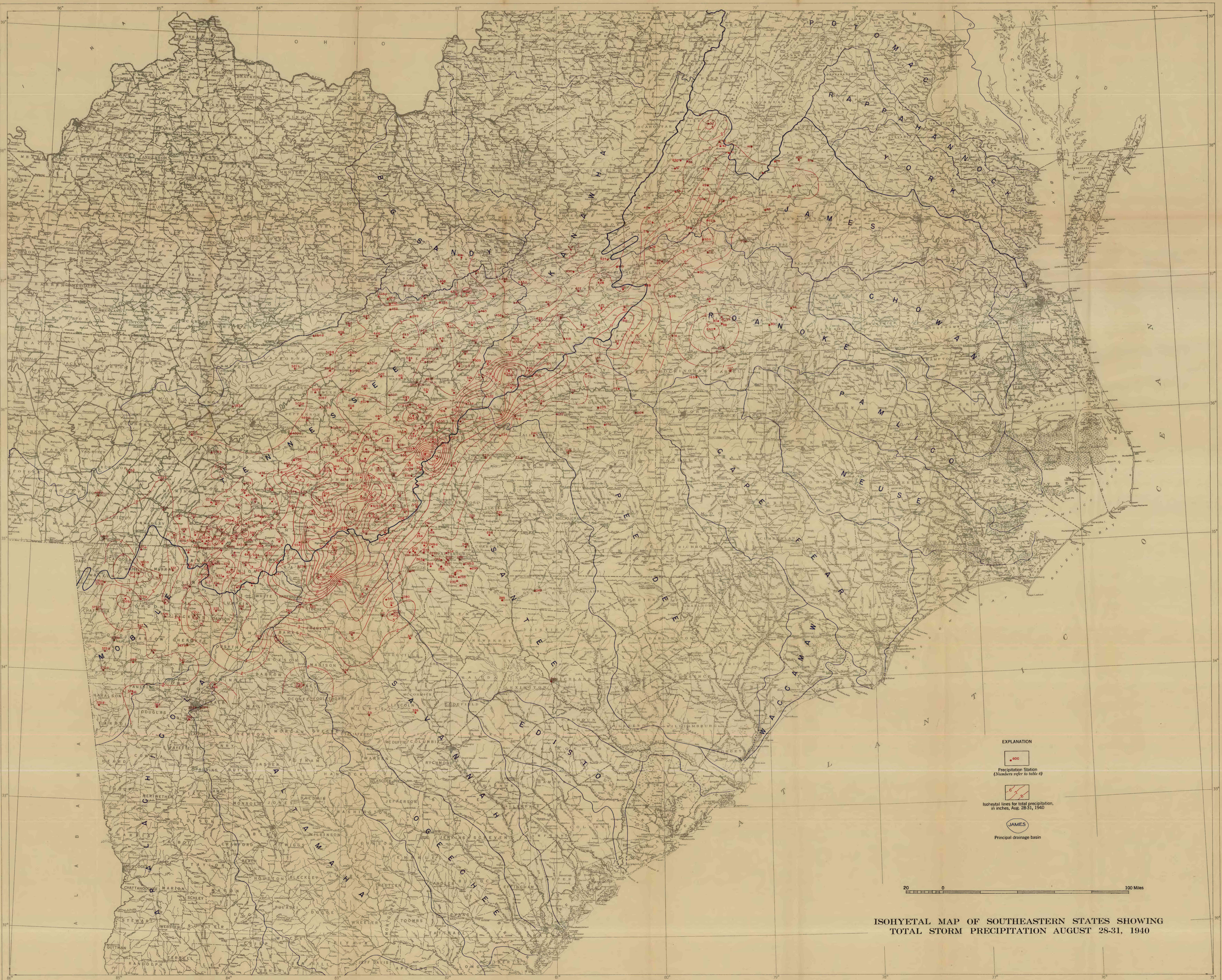
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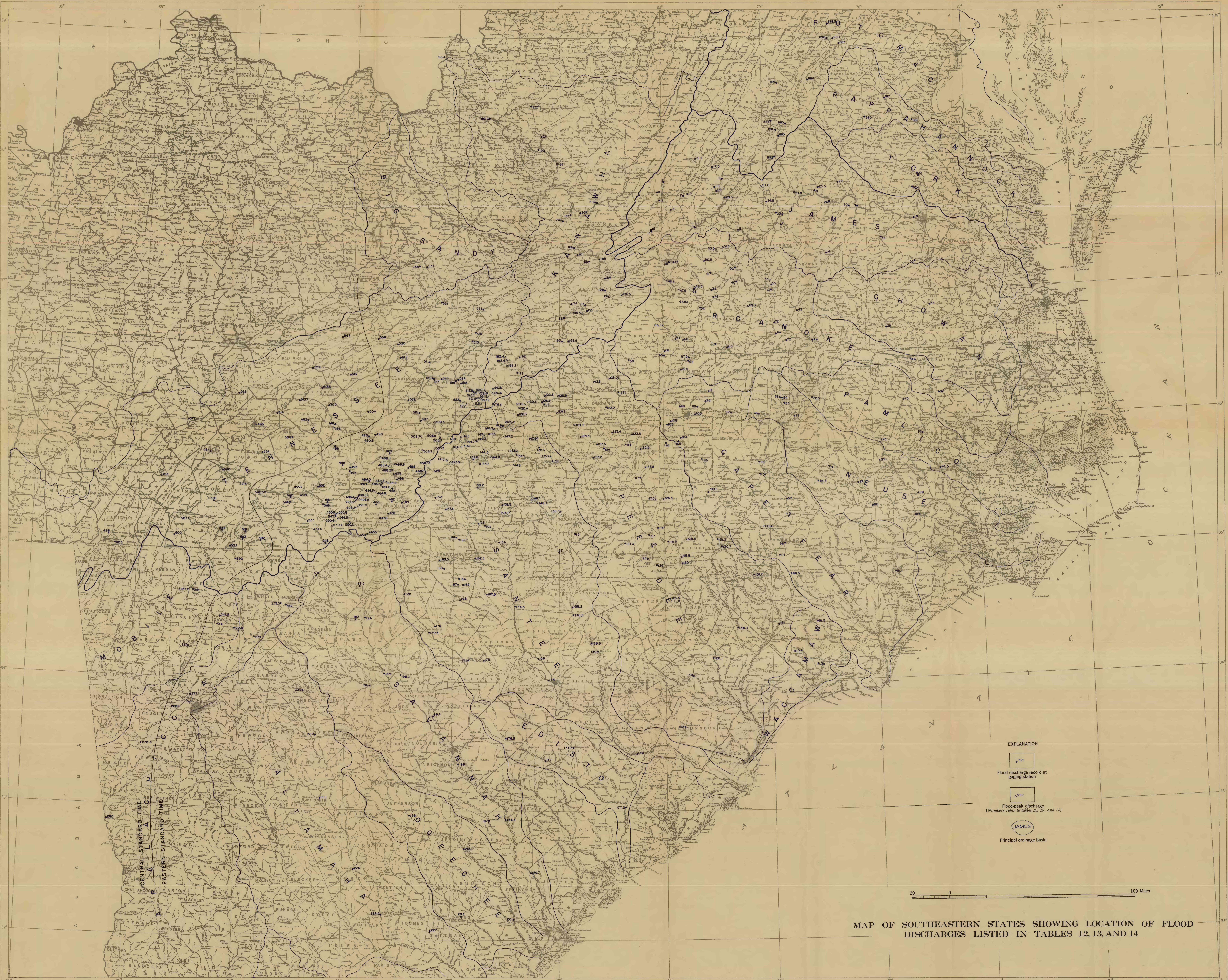
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ISOHYETAL MAP OF SOUTHEASTERN STATES SHOWING
TOTAL STORM PRECIPITATION AUGUST 10-17, 1940



ISOHYETAL MAP OF SOUTHEASTERN STATES SHOWING
TOTAL STORM PRECIPITATION AUGUST 28-31, 1940

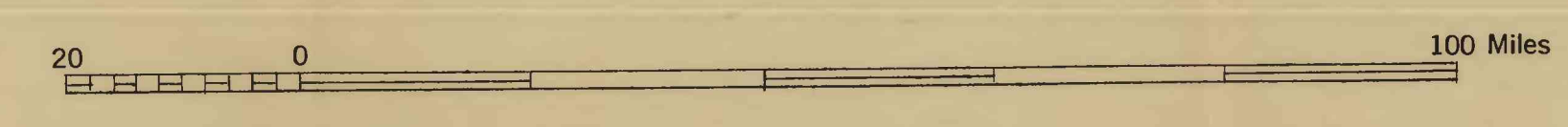


EXPLANATION

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gaging station

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Flood-peak discharge
(Numbers refer to tables 12, 13, and 14)

JAMES
Principal drainage basin



MAP OF SOUTHEASTERN STATES SHOWING LOCATION OF FLOOD DISCHARGES LISTED IN TABLES 12, 13, AND 14