pply and Irrigation Paper No. 204 Series P, Hydrographic Progress Reports, 58

DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

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OF
THERN ATLANTIC AND EASTERN GULF STATES, 1906

NTEE, SAVANNAH, OGEECHEE, AND ALTAMAHA RIVERS AND EASTERN GULF OF MEXICO DRAINAGES)

M. R. HALL
DISTRICT HYDROGRAPHER

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SURFACE WATER SUPPLY OF THE SOUTHERN ATLANTIC AND EASTERN GULF STATES, 1906.[a]

M. R. HALL,
District hydrographer.[b]

INTRODUCTION.

SCOPE OF WORK.

The water supply of the United States is of more importance to the life and pursuits of the people than is any other natural resource. In the arid States the limit of agricultural development is determined by the amount of water available for irrigation; while in all parts of the country the increase in the population of cities and towns makes necessary additional water supplies for domestic and industrial uses, in procuring which both the quantity and the quality of the water that may be obtained must be considered. The location of manufacturing plants may depend largely on the water-power facilities and on the character of the water. The notable advances made in the electric transmission of power have led to the utilization of water powers for the operation of manufacturing establishments, railroads, and municipal lighting plants, many of which are at some distance from the places at which the power is developed.

The intelligent establishment and maintenance of enterprises or industries that depend on the use of water demands a thorough knowledge of the flow of the streams and an understanding of the conditions affecting that flow. This knowledge should be based on data showing both the total flow and the distribution of the flow throughout the year, in order that normal fluctuations may be provided for. As the flow of a stream is variable from year to year

[a] This report contains information similar to that published in previous years under the title "Report on Progress of Stream Measurements."

[b] The data in this report have been collected under the direction of M. R. Hall, district hydrographer, assisted by W. E. Hall and F. A. Murray.

The data have been prepared for publication under the direction of John C. Hoyt, by R. H. Bolster, Robert Follansbee, F. F. Henshaw, J. E. Stewart, and H. D. Padgett.

estimates of future flow can be made only from a study of observations covering several years. The rapid increase in the development of the water resources of the United States has caused a great demand by engineers for information in regard to the flow of streams, as it is now generally realized that the failure of many large power, irrigation, and other projects has been due to the fact that the plans were made without sufficient trustworthy information in respect to the water supply.

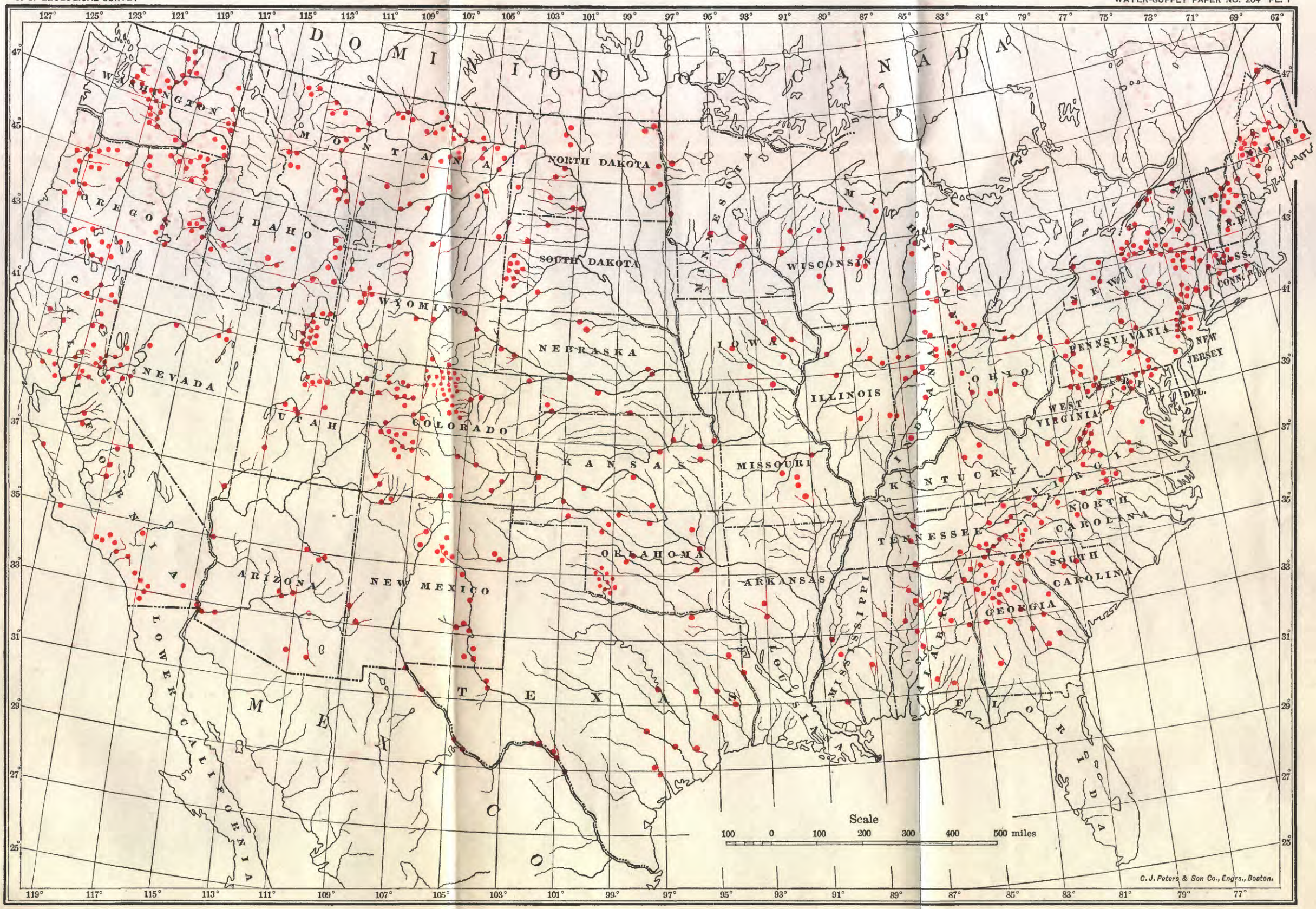
Owing to the broad scope of these hydrographic investigations and the length of time they should cover in order that the records may be of greatest value, it is in general impossible for private individuals to collect the necessary data, and as many of the streams traverse more than one State this work does not properly fall within the province of the State authorities. The United States Geological Survey has therefore, by means of specific appropriations by Congress, for several years systematically made records of stream flow, with the view of ultimately determining all the important features governing the flow of the principal streams of the country. In carrying out this plan stations are established on the streams and maintained for a period long enough to show their regimen or general behavior. When a record that is sufficient for this purpose has been obtained for any stream the work on that stream is discontinued. The order in which the streams are measured is determined by the degree of their importance.

During 1906 the regimen of flow was studied at about 700 stations distributed along the various rivers throughout the United States, as shown on Pl. I. In addition to these records data in regard to precipitation, evaporation, water power, and river profiles were obtained in many sections of the country.

These data have been assembled by drainage areas, and are published in a series of fourteen Water-Supply and Irrigation Papers, Nos. 201 to 214, inclusive, each of which pertains to the surface water resources of a group of adjacent areas. In these papers are embodied not only the data collected in the field, but also the results of computations based on these data, and other information that has a direct bearing on the subject, such as descriptions of basins and the streams draining them, utility of the water resources, etc. The list follows:

Water-Supply and Irrigation Papers on Surface Water Supply, 1906.

201. Surface water supply of New England, 1906 (Atlantic coast of New England drainage).
202. Surface water supply of the Hudson, Passaic, Raritan, and Delaware river drainages, 1906.



MAP OF UNITED STATES SHOWING LOCATION OF PRINCIPAL RIVER STATIONS MAINTAINED DURING 1906.

203. Surface water supply of the Middle Atlantic States, 1906. (Susquehanna, Gunpowder, Patapsco, Potomac, James, Roanoke, and Yadkin river drainages.)
204. Surface water supply of the Southern Atlantic and Eastern Gulf States, 1906. (Santee, Savannah, Ogeechee, and Altamaha rivers and eastern Gulf of Mexico drainages.)
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210. Surface water supply of the western Gulf of Mexico and Rio Grande drainages, 1906.
211. Surface water supply of the Colorado River drainage above Yuma, 1906.
212. Surface water supply of the Great Basin drainage, 1906.
213. Surface water supply of California, 1906. (The Great Basin and Pacific Ocean drainages in California, and Colorado River drainage below Yuma.)
214. Surface water supply of the North Pacific Coast drainage, 1906.

The records at most of the stations discussed in these reports extend over a series of years. An index of the reports containing such records up to and including 1903 has been published in Water-Supply Paper No. 119. The following table gives, by years and primary drainage basins, the numbers of the papers on surface water supply published from 1901 to 1906:

Numbers of Water-Supply Papers containing results of stream measurements, 1901–1906.[a]

	1901.	1902.	1903.	1904.	1905.	1906.
	No.	*No.*	*No.*	*No.*	*No.*	*No.*
Atlantic coast of New England drainage	65, 75	82	97	124	165	201
Hudson, Passaic, Raritan, and Delaware rivers drainages	65, 75	82	97	125	166	202
Susquehanna, Gunpowder, Patapsco, Potomac, James, Roanoke, and Yadkin river drainages	65, 75	82, 83	97, 98	126	167	203
Santee, Savannah, Ogeechee, and Altamaha rivers, and eastern Gulf of Mexico drainages	65, 75	83	98	127	168	204
Ohio and lower eastern Mississippi river drainages	65, 75	83	98	128	169	205
Great Lakes and St. Lawrence River drainages	65	83	97	129	170	206
Hudson Bay and upper eastern and western Mississippi River drainages	65, 66, 75	83, 84, 85	98, 99, 100	128, 130	171	207
Missouri River drainage	66, 75	84	99	130, 131	172	208
Meramec, Arkansas, Red, and lower western Mississippi river drainages	66, 75	84	99	131	173	209
Western Gulf of Mexico and Rio Grande drainages	66, 75	84	99	132	174	210
Colorado River drainage above Yuma	66, 75	85	100	133	175	211
The Great Basin drainage	66, 75	85	100	133	176	212
The Great Basin and Pacific Ocean drainages in California, and Colorado River drainage below Yuma	66, 75	85	100	134	177	213
North Pacific Coast drainage	66, 75	85	100	135	178	214

[a] Reports containing data for years prior to 1901 are noted in the series list at the end of this paper.

DEFINITIONS.

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups: (1) Those which represent a rate of flow, as second-feet, gallons per minute, miner's inches, and run-off in second-feet per square mile, and (2) those which represent the actual quantity of water, as run-off in depth in inches and acre-feet. They may be defined as follows:

"Second-foot" is an abbreviation for cubic foot per second, and is the quantity of water flowing in a stream 1 foot wide, 1 foot deep, at a rate of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

"Gallons per minute" is generally used in connection with pumping and city water supply.

The "miner's inch" is the quantity of water that passes through an orifice 1 inch square under a head which varies locally. It has been commonly used by miners and irrigators throughout the West, and is defined by statute in each State in which it is used.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off in inches" is the depth to which the drainage area would be covered if all the water flowing from it in a given period were conserved and uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in depth in inches.

"Acre-foot" is equivalent to 43,560 cubic feet, and is the quantity required to cover an acre to the depth of 1 foot. It is commonly used in connection with storage for irrigation work. There is a convenient relation between the second-foot and the acre-foot: One second-foot flowing for twenty-four hours will deliver 86,400 cubic feet, or approximately 2 acre-feet.

EXPLANATION AND USE OF TABLES.

For each regular gaging station are given, as far as available, the following data:

1. Description of station.
2. List of discharge measurements.
3. Gage-height table.
4. Rating table.
5. Table of monthly and yearly discharges and run-off.

A second-foot, an abbreviation for cubic foot per second, is a unit for measuring rate of flow of a liquid. It must therefore be based on three fundamental units, ~~i.e., it is~~ a unit of volume ~~moving~~ a ~~unit distance in a~~ unit of time. Hence it measures a flow of a liquid which, with any velocity, in one second, passes a cross section of any area.

6. Tables showing discharge and horsepower and the number of days during the year when the same are available.

The descriptions of stations give such general information about the locality and equipment as would enable the reader to find and use the station, and they also give, as far as possible, a complete history of all the changes that have occurred since the establishment of the station that would be factors in using the data collected.

The discharge-measurement table gives the results of the discharge measurements made during the year, including the date, the name of the hydrographer, the width and area of cross section, the gage height, and the discharge in second-feet.

The table of daily gage heights gives the daily fluctuations of the surface of the river as found from the mean of the gage readings taken each day. The gage height given in the table represents the elevation of the surface of the water above the zero of the gage. At most stations the gage is read in the morning and in the evening.

The discharge measurements and gage heights are the base data from which the other tables are computed. In cases of extensive development it is expected that engineers will use these original data in making their calculations, as the computations made by the Survey are based on the data available at the time they are made and should be reviewed and, if necessary, revised when additional data are available.

The rating table gives the discharge in second-feet corresponding to various stages of the river as given by the gage heights. It is published to enable engineers to determine the daily discharge in case this information is desired.

In the table of monthly discharge the column headed "Maximum" gives the mean flow for the day when the mean gage height was highest, and it is the flow as given in the rating table for that mean gage height. As the gage height is the mean for the day, there might have been short periods when the water was higher and the corresponding discharge larger than given in this column. Likewise in the column of "Minimum" the quantity given is the mean flow for the day when the mean gage height was lowest. The column headed "Mean" is the average flow for each second during the month. Upon this the computations for the remaining columns, which are defined on page 4, are based.

The values in the table of monthly discharge are intended to give only a general idea of the conditions of flow at the station, and it is not expected that they will be used for other than preliminary estimates.

In most work where data in regard to flow are used the regimen of flow is of primary importance. Therefore for the principal stations tables have been prepared showing the horsepower that can be

developed at various rates of flow, and the length of time that these rates of flow and the corresponding horsepower are available. These tables have been prepared on a basis of 80 per cent efficiency on the turbines, and the horsepower per foot of fall is given in order that the reader can determine the horsepower for any fall.

In the computations, sufficient significant figures have been used so that the percentage of error in the tables will not in general exceed 1 per cent. Therefore, most of the values in the tables are given to only three significant figures. In making the various computations, Thatcher's slide rule, Crelle's tables, and computation machines have been generally used.

In order to give engineers an idea of the relative value of the various data, notes in regard to accuracy are given as far as possible. This accuracy depends on the general local conditions at the gaging stations and the amount of data collected. Every effort possible is made to so locate the stations that the data collected will give a high degree of accuracy. This is not always possible, but it is considered better to publish rough values with explanatory notes rather than no data.

In the accuracy notes the following terms have been used, indicating the probable accuracy, in per cent, of the mean monthly flow. As these values are mean values, the error in the value for the flow of any individual day may be much larger.

Excellent indicates that the mean monthly flow is probably accurate to within 5 per cent; good, to within 10 per cent; fair, to within 15 per cent; approximate, to within 25 per cent.

CONVENIENT EQUIVALENTS.

Following is a table of convenient equivalents for use in hydraulic computations:

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

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

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

1 second-foot equals 7.48 United States gallons per second; equals 448.8 gallons per minute; equals 646,272 gallons for one day.

1 second-foot equals 6.23 British imperial gallons per second.

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

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

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

1 second-foot for one day covers 1 square mile .03719 inch deep.

1 second-foot for one 28-day month covers 1 square mile 1.041 inches deep.

1 second-foot for one 29-day month covers 1 square mile 1.079 inches deep.

1 second-foot for one 30-day month covers 1 square mile 1.116 inches deep.

1 second-foot for one 31-day month covers 1 square mile 1.153 inches deep.

1 second-foot for one day equals 1.983 acre-feet.

1 second-foot for one 28-day month equals 55.54 acre-feet.

1 second-foot for one 29-day month equals 57.52 acre-feet.

1 second-foot for one 30-day month equals 59.50 acre-feet.
1 second-foot for one 31-day month equals 61.49 acre-feet.
100 California miner's inches equal 15.7 United States gallons per second.
100 California miner's inches equal 96.0 Colorado miner's inches.
100 California miner's inches for one day equal 4.96 acre-feet.
100 Colorado miner's inches equal 2.60 second-feet.
100 Colorado miner's inches equal 19.5 United States gallons per second.
100 Colorado miner's inches equal 104 California miner's inches.
100 Colorado miner's inches for one day equal 5.17 acre-feet.
100 United States gallons per minute equal 0.223 second-foot.
100 United States gallons per minute for one day equal 0.442 acre-foot.
1,000,000 United States gallons per day equal 1.55 second-feet.
1,000,000 United States gallons equal 3.07 acre-feet.
1,000,000 cubic feet equal 22.95 acre-feet.
1 acre-foot equals 325,850 gallons.
1 inch deep on 1 square mile equals 2,323,200 cubic feet.
1 inch deep on 1 square mile equals 0.0737 second-foot per year.
1 foot equals 0.3048 meter.
1 mile equals 1.60935 kilometers.
1 mile equals 5,280 feet.
1 acre equals 0.4047 hectare.
1 acre equals 43,560 square feet.
1 acre equals 209 feet square, nearly.
1 square mile equals 2.59 square kilometers.
1 cubic foot equals 0.0283 cubic meter.
1 cubic foot equals 7.48 gallons.
1 cubic foot of water weighs 62.5 pounds.
1 cubic meter per minute equals 0.5886 second-foot.
1 horsepower equals 550 foot-pounds per second.
1 horsepower equals 76.0 kilogram-meters per second.
1 horsepower equals 746 watts.
1 horsepower equals 1 second-foot falling 8.80 feet.
1⅓ horsepower equal about 1 kilowatt.

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

FIELD METHODS OF MEASURING STREAM FLOW.

The methods used in collecting these data and in preparing them for publication are given in detail in Water-Supply Papers No. 94 (Hydrographic Manual, U. S Geological Survey) and No. 95 (Accuracy of Stream Measurements). In order that those who use this report may readily become acquainted with the general methods employed, the following brief descriptions are given:

Streams may be divided, with respect to their physical conditions, into three classes: (1) Those with permanent beds; (2) those with beds which change only during extreme low or high water; (3) those with constantly shifting beds. In determining the daily flow, special methods are necessary for each class. The data upon which these

determinations are based and the method of collecting them are, however, in general the same.

There are three distinct methods of determining the flow of open-channel streams: (1) By measurements of slope and cross section and the use of Chezy's and Kutter's formulas; (2) by means of a weir; (3) by measurements of the velocity of the current and the area of the cross section. The method chosen for any case depends upon the local physical conditions, the degree of accuracy desired, the funds available, and the length of time that the record is to be continued.

Slope method.—Much information has been collected relative to the coefficients to be used in the Chezy formula, $v = c\sqrt{Rs}$. This has been utilized by Kutter, both in developing his formula for c and in determining the values of the coefficient n which appears therein. The results obtained by the slope method are, in general, only roughly approximate, owing to the difficulty in obtaining accurate data and the uncertainty of the values for n to be used in Kutter's formula. The most common use of this method is in estimating the flood discharge of a stream when the only data available are the cross section, the slope as shown by marks along the bank, and a knowledge of the general conditions.

Weir method.—When funds are available and the conditions are such that sharp-crested weirs can be erected, these offer the best facilities for determining the flow. If dams are suitably situated and constructed, they may be utilized for obtaining reliable measurements of flow. The conditions necessary to insure good results may be divided into two classes—(1) those relating to the physical characteristics of the dam itself, and (2) those relating to the diversion and use of water around and through the dam.

The physical requirements are as follows: (*a*) Sufficient height of dam, so that backwater will not interfere with free fall over it; (*b*) absence of leaks of appreciable magnitude; (*c*) topography or abutments which confine the flow over the dam at high stages; (*d*) level crests which are kept free from obstructions caused by floating logs or ice; (*e*) crests of a type for which the coefficients to be used in $Q = c\,b\,h^{\frac{3}{2}}$, or some similar standard weir formula, are known (see Water-Supply Papers Nos. 180 and 200[a]); (*f*) either no flashboards or exceptional care in reducing leakage through them and in recording their condition.

Preferably there should be no diversion of water through or around the dam. Generally, however, the dam is built for purposes of power or navigation, and part or all of the water flowing past it is diverted for such uses. This water is measured and added to that passing over the dam. To insure accuracy in such determinations of

[a] Water-Supply Paper No. 200 replaces No. 150, the edition of which has been exhausted.

flow, the amount of water diverted should be reasonably constant. Furthermore, it should be so diverted that it can be measured, either by a weir, a current meter, or a simple system of water wheels which are of standard make or which have been rated as meters under working conditions and so installed that the gate openings, the heads under which they work, and their angular velocities may be accurately observed.

The combination of physical conditions and uses of the water should be such that the determinations of flow will not involve, for a critical stage of considerable duration, the use of a head on a broad-crested dam of less than 6 inches. Moreover, when all other conditions are good the cooperation of the owners or operators of the plant is still essential if reliable results are to be obtained.

A gaging station at a weir or dam has the general advantage of continuity of record through the period of ice and floods and the disadvantages of uncertainty of coefficient to be used in the weir formula and of complications in the diversion and use of the water.

Velocity method.—The determination of the quantity of water flowing past a certain section of a stream at a given time is termed a discharge measurement. This quantity is the product of two factors—the mean velocity and the area of the cross section. The mean velocity is a function of surface slope, wetted perimeter, roughness of bed, and the channel conditions at, above, and below the gaging section. The area depends on the contour of the bed and the fluctuations of the water surface. The two principal ways of measuring the velocity of a stream are by floats and current meters.

Great care is taken in the selection and equipment of gaging stations for determining discharge by velocity measurements, in order that the data may have the required degree of accuracy. Their essential requirements are practically the same, whether the velocity is determined by meters or floats. They are located as far as possible where the channel is straight both above and below the gaging section; where there are no cross currents, backwater, or boils; where the bed of the stream is reasonably free from large projections of a permanent character, and where the banks are high and subject to overflow only at flood stages. The station must be so far removed from the effects of tributary streams and of dams or other artificial obstructions that the gage height shall be an index of the discharge.

Certain permanent or semipermanent structures, usually referred to as equipment, are generally pertinent to a gaging station. These are a gage for determining the fluctuations of the water surface, bench marks to which the datum of the gage is referred, permanent marks on a bridge or a tagged line indicating the points of measurement, and where the current is swift some appliance (generally a secondary

cable) to hold the meter in position in the water. As a rule the stations are located at bridges if the channel conditions are satisfactory, as from them the observations can more readily be made and the cost of the equipment is small.

The floats in common use are the surface, subsurface, and tube or rod floats. A corked bottle with a flag in the top and weighted at the bottom makes one of the most satisfactory surface floats, as it is affected but little by wind. In case of flood measurements good results can be obtained by observing the velocity of floating cakes of ice or débris. In case of all surface-float measurements coefficients must be used to reduce the observed velocity to the mean velocity. The subsurface and tube or rod floats are intended to give directly the mean velocity in the vertical. Tubes give excellent results when the channel conditions are good, as in canals.

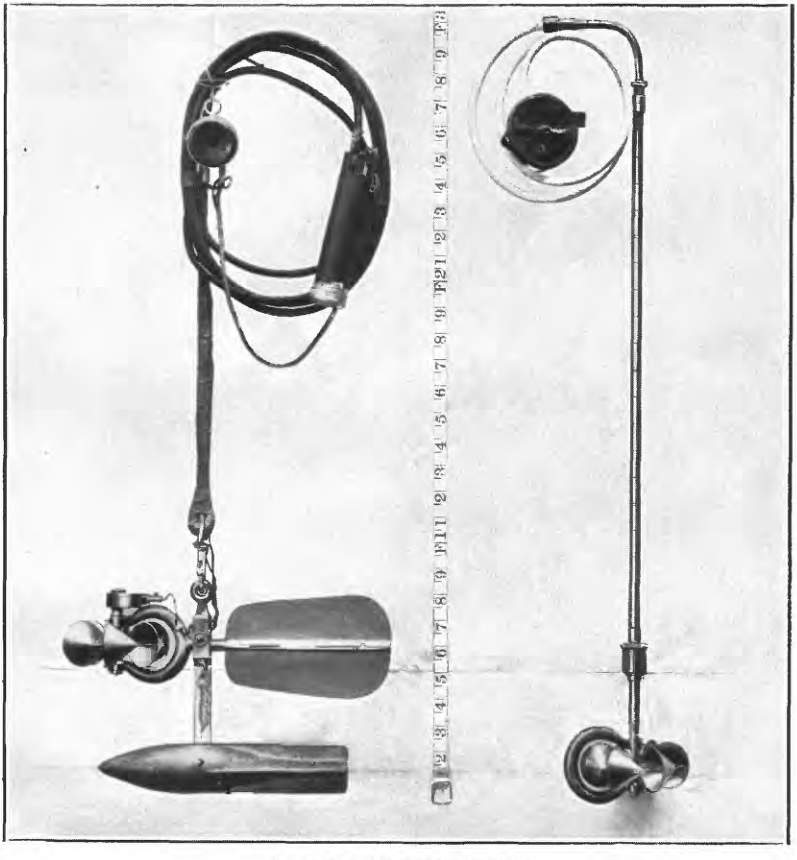
In measuring velocity by a float, observation is made of the time taken by the float to pass over the "run," a selected stretch of river from 50 to 200 feet long. In each discharge measurement a large number of velocity determinations are made at different points across the stream, and from these observations the mean velocity for the whole section is determined. This may be done by plotting the mean positions of the floats, as indicated by the distances from the bank, as ordinates, and the corresponding times as abscissas. A curve through these points shows the mean time of run at any point across the stream, and the mean time for the whole stream is obtained by dividing the area bounded by this curve and its axis by the width. The length of the run divided by the mean time gives the mean velocity.

The area used in float measurements is the mean of the areas at the two ends of the run and at several intermediate sections.

The essential parts of the current meters in use are a wheel of some type, so constructed that the impact of flowing water causes it to revolve, and a device for recording or indicating the number of revolutions. The relation between the velocity of the moving water and the revolutions of the wheel is determined for each meter. This rating is done by drawing the meter through still water for a given distance at different speeds, and noting the number of revolutions for each run. From these data a rating table is prepared which gives the velocity per second for any number of revolutions.

Many kinds of current meters have been constructed. They may, however, be classed in two general types: Those in which the wheel is made up of a series of cups, as the Price, and those having a screw propeller wheel, as the Haskell. Each meter has been developed for use under some special condition. In the case of the small Price meter, shown in Pl. II, *B*, which has been largely developed and extensively used by the United States Geological Survey, an attempt

A. CURRENT-METER RATING STATION AT LOS ANGELES, CAL.



B. PRICE CURRENT METERS.

has been made to get an instrument which could be used under practically all conditions.

Current-meter measurements may be made from a bridge, a cable, a boat, or by wading, and gaging stations may be classified in accordance with such use. Fig. 1 shows a typical cable station.

In making the measurement an arbitrary number of points are laid off on a line perpendicular to the thread of the stream. The points at which the velocity and depth are observed are known as measuring points, and are usually fixed at regular intervals, varying from 2 to 20 feet, depending upon the size and condition of the stream. Perpendiculars dropped from the measuring points divide the gaging section into strips. For each strip or pair of strips the mean velocity, area, and discharge are determined independently, so that conditions existing in one part of the stream may not be extended to parts where they do not apply.

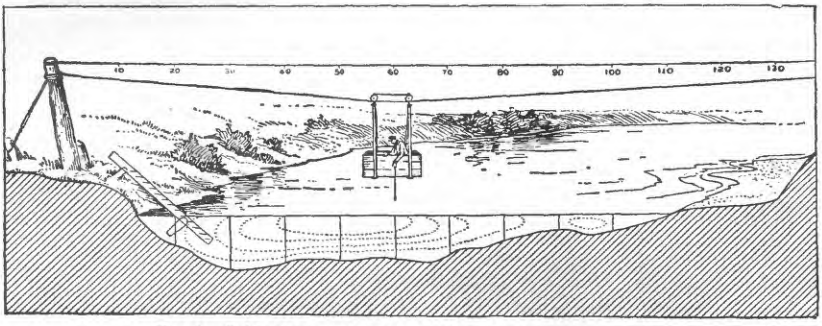


FIG. 1.—Cable station, showing section of river, car, gage, etc.

Three classes of methods of measuring velocity with current meters are in general use—multiple-point, single-point, and integration.

The three principal multiple-point methods in general use are the vertical velocity-curve; 0.2 and 0.8 depth; and top, bottom, and mid-depth.

In the vertical velocity-curve method a series of velocity determinations are made in each vertical at regular intervals, usually from 0.5 to 1 foot apart. By plotting these velocities as abscissas and their depths as ordinates, and drawing a smooth curve among the resulting points, the vertical velocity-curve is developed. This curve shows graphically the magnitude and changes in velocity from the surface to the bottom of the stream. The mean velocity in the vertical is then obtained by dividing the area bounded by this velocity-curve and its axis by the depth. On account of the length of time required to make a complete measurement by this method its use is limited to the determination of coefficients for purposes of comparison and to measurements under ice.

In the second multiple-point method the meter is held successively at 0.2 and 0.8 of the depth, and the mean of the velocities at these two points is taken as the mean velocity for that vertical. On the assumption that the vertical velocity-curve is a common parabola with horizontal axis, the mean of the velocities at 0.22 and 0.79 of the depth will give (closely) the mean velocity in the vertical. Actual observations under a wide range of conditions show that this second multiple-point method gives the mean velocity very closely for open-water conditions, and moreover the indications are that it holds nearly as well for ice-covered rivers.

In the third multiple-point method the meter is held at mid-depth, at 0.5 foot below the surface, and at 0.5 foot above the bottom, and the mean velocity is determined by dividing by 6 the sum of the top velocity, 4 times the mid-depth velocity, and the bottom velocity. This method may be modified by observing at 0.2, 0.6, and 0.8 depth.

The single-point method consists in holding the meter either at the depth of the thread of mean velocity or at an arbitrary depth for which the coefficient for reducing to mean velocity has been determined.

Extensive experiments by vertical velocity-curves show that the thread of mean velocity generally occurs at from 0.5 to 0.7 of the total depth. In general practice the thread of mean velocity is considered to be at 0.6 depth, at which point the meter is held in a majority of the measurements. A large number of vertical velocity-curve measurements, taken on many streams and under varying conditions, show that the average coefficient for reducing the velocity obtained at 0.6 depth to mean velocity is practically unity.

In the other principal single-point method the meter is held near the surface, usually 1 foot below, or low enough to be out of the effect of the wind or other disturbing influences. This is known as the subsurface method. The coefficient for reducing the velocity taken at the subsurface to the mean has been found to be from 0.85 to 0.95, depending upon the stage, velocity, and channel conditions. The higher the stage the larger the coefficient. This method is specially adapted for flood measurements or when the velocity is so great that the meter can not be kept at 0.6 depth.

The vertical-integration method consists in moving the meter at a slow, uniform speed from the surface to the bottom and back again to the surface and noting the number of revolutions and the time taken in the operation. This method has the advantage that the velocity at each point of the vertical is measured twice. It is useful as a check on the point methods.

The area, which is the other factor in the velocity method of determining the discharge of a stream, depends on the stage of the river,

which is observed on the gage, and on the general contour of the bed of the stream, which is determined by soundings. The soundings are usually taken at each measuring point at the time of the discharge measurement, either by using the meter and cable or by a special sounding line or rod. For streams with permanent beds standard cross sections are usually taken during low water. These sections serve to check the soundings which are taken at the time of the measurements, and from them any change which may have taken place in the bed of the stream can be detected. They are also of value in obtaining the area for use in computations of high-water measurements, as accurate soundings are hard to obtain at high stages.

In computing the discharge measurements from the observed velocities and depths at various points of measurement the measuring section is divided into elementary strips, as shown in fig. 1, and the mean velocity, area, and discharge are determined separately for either a single or a double strip. The total discharge and the area are the sums of those for the various strips, and the mean velocity is obtained by dividing the total discharge by the total area.

The determination of the flow of an ice-covered stream is difficult, owing to diversity and instability of conditions during the winter period and also to lack of definite information in regard to the laws of flow of water under ice. The method now employed is to make frequent discharge measurements during the frozen periods by the 0.2 and 0.8, and vertical velocity-curve methods, and to keep an accurate record of the conditions, such as the gage height to the surface of the water as it rises in a hole cut in the ice, the thickness and character of the ice, etc. From these data an approximate estimate of the daily flow can be made by constructing a rating curve (really a series of curves) similar to that used for open channels, but considering, in addition to gage heights and discharge, the varying thickness of ice. For information in regard to flow under ice cover see Water-Supply Paper No. 187.

OFFICE METHODS OF COMPUTING RUN-OFF.

There are two principal methods of determining run-off, depending upon whether or not the bed of the stream is permanent.

For stations of streams with permanent beds the first step in computing the run-off is the construction of a rating table, which shows the discharge corresponding to any stage of the stream. This rating table is applied to the record of stage to determine the amount of water flowing. The construction of the rating table depends upon the method used in measuring flow.

For a station at a weir or dam the basis for the rating table is some standard weir formula. The coefficients to be used in its application

depend upon the type of dam and other conditions near its crest. After inserting in the weir formula the measured length of crest and assumed coefficient the discharge is computed for various heads and the rating table constructed.

The data necessary for the construction of a rating table for a velocity-area station are the results of the discharge measurements, which include the record of stage of the river at the time of measurement, the area of the cross section, the mean velocity of the current, and the quantity of water flowing. A thorough knowledge of the conditions at and in the vicinity of the station is also necessary.

The construction of the rating table depends upon the following laws of flow for open permanent channels: (1) The discharge will remain constant so long as conditions at or near the gaging station remain constant. (2) The discharge will be the same whenever the stream is at a given stage if the change of slope due to the rise and fall of the stream be neglected. (3) The discharge is a function of and increases gradually with the stage.

The plotting of results of the various discharge measurements, using gage heights as ordinates, and discharge, mean velocity, and area as abscissas, will define curves which show the discharge, mean velocity, and area corresponding to any gage height. For the development of these curves there should be, therefore, a sufficient number of discharge measurements to cover the range of the stage of the stream. Fig. 2 shows a typical rating curve with its corresponding mean-velocity and area curves.

As the discharge is the product of two factors, the area and the mean velocity, any change in either factor will produce a corresponding change in the discharge. Their curves are therefore constructed in order to study each independently of the other.

The area curve can be definitely determined from accurate soundings extending to the limits of high water. It is always concave toward the horizontal axis or on a straight line, unless the banks of the stream are overhanging.

The form of the mean-velocity curve depends chiefly upon the surface slope, the roughness of the bed, and the cross section of the stream. Of these the slope is the principal factor. In accordance with the relative changes of these factors the curve may be either a straight line, convex or concave toward either axis, or a combination of the three. From a careful study of the conditions at any gaging station the form which the vertical velocity-curve will take can be predicted, and it may be extended with reasonable certainty to stages beyond the limits of actual measurements. Its principal use is in connection with the area curve in locating errors in discharge measurements and in constructing the rating table.

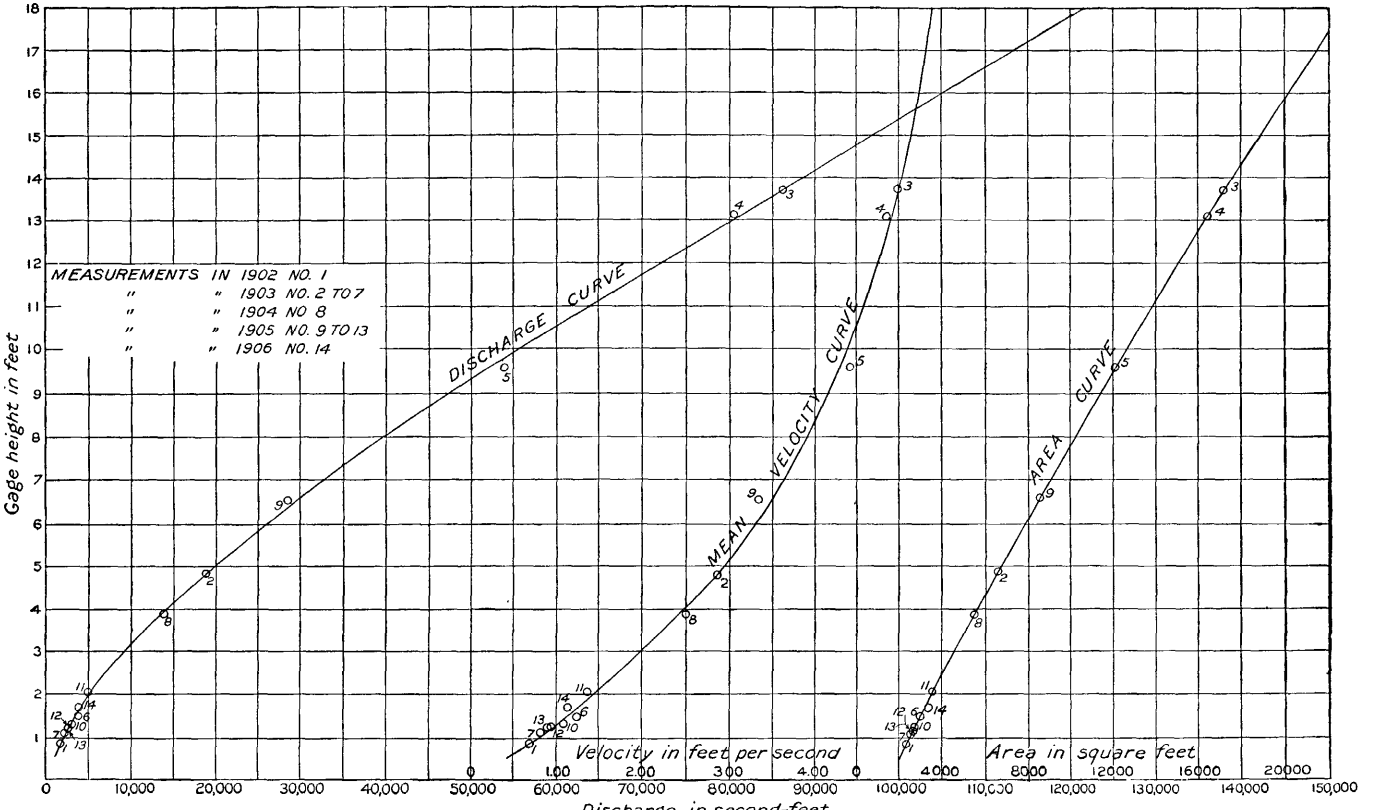


FIG. 2.—Discharge, area, and mean-velocity curves for Potomac River at Point of Rocks, Md.

The discharge curve is defined primarily by the measurements of discharge, which are studied and weighted in accordance with the local conditions existing at the time of each measurement. The curve may, however, best be located between and beyond the measurements by means of curves of area and mean velocity. The discharge curve under normal conditions is concave toward the horizontal axis and is generally parabolic in form.

In the preparation of the rating table the discharge for each tenth or half tenth on the gage is taken from the curve. The differences between successive discharges are then taken and adjusted according to the law that they shall either be constant or increasing.

The determination of daily discharge of streams with changeable beds is a difficult problem. In case there is a weir or dam available, a condition which seldom exists on streams of this class, the discharge can be determined by its use. In case of velocity-area stations frequent discharge measurements must be made if the determinations of flow are to be other than rough approximations. For stations with beds which shift slowly, or are materially changed only during floods, rating tables can be prepared for periods between such changes and satisfactory results obtained with a limited number of measurements, provided that some of them are taken soon after the change occurs. For streams with continually shifting beds, such as the Colorado and Rio Grande, discharge measurements should be made every two or three days and the discharge for intervening days obtained either by interpolation modified by gage height or by Professor Stout's method, which has been described in full in the Nineteenth Annual Report of the United States Geological Survey, Part IV, p. 323, and in the Engineering News of April 21, 1904. This method, or a graphical application of it, is also much used in determining the flow at stations where the bed shifts but slowly.

COOPERATION AND ACKNOWLEDGMENTS.

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SOUTHERN ATLANTIC STATES DRAINAGES.

SANTEE RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Santee River, which is formed in the central part of South Carolina by the junction of Congaree and Wateree rivers, flows southeastward and enters the Atlantic Ocean about 10 miles north of Cape Roumain. It has a total length of about 180 miles (following the course of the river) and drains an area of about 15,000 square miles. It is a navigable stream for its entire length and of course offers no opportunities for the development of power.

Wateree River, the more northerly of the two parent streams, rises on the eastern slope of the Blue Ridge, in McDowell County, N. C., and flows northeastward and then eastward, then bends abruptly to the southeast and flows in this general direction across the south central part of North Carolina and the north central part of South Carolina to its junction with the Congaree, practically paralleling Yadkin and Pedee rivers. Throughout its course in North Carolina, and also through that part of its course in South Carolina above the mouth of Wateree Creek it is known as Catawba River. The total length of the stream is about 270 miles in a straight line and about 450 miles when all the windings are followed.

The Wateree is navigable as far as Camden, but above that point the fall is so great that navigation is impracticable. In 1826 and following years the State of South Carolina spent large sums in the attempt to render the river navigable by means of locks and dams. Some large and important works were constructed at great expense, but the undertaking was abandoned before their completion. Linville and John rivers are the principal tributaries in North Carolina.

Wateree River crosses the fall line about 5 miles above Camden, S. C., in rapids about 5 miles in length, with a total fall of about 52 feet. The great falls of the Catawba are some distance above. This is the largest power in South Carolina and one of the largest in the Southern States, the available fall being 173 feet.

The average rainfall in the basin is about 50 inches, the annual total increasing as the stream is ascended. The greatest recorded flood on the river was in May, 1901, the gage reading at the Rockhill station being 24.15 feet and the measured discharge nearly 151,000 second-feet, or nearly 50 second-feet per square mile from the drainage basin above the station. The greatest flood previously experienced on the stream was in 1865. This was only 2 feet lower than the flood of May, 1901, on the lower part of the river, but the latter rise exceeded all previous records on the upper part of the river by from 8 to 15 feet.

The minimum flow recorded for the Rockhill station is 1,300 second-

feet, or about 0.43 second-foot per square mile. This occurred in September, 1895 and 1896. The maximum flow is about 116 times the minimum. During 1904 the minimum flow was 810 second-feet at the Catawba station. This was due to the storing of water at the new dam near Rockhill.

The Congaree, the second and more southerly of the two streams which by their union form the Santee, is formed by the junction of Broad and Saluda rivers between Lexington and Richland counties, S. C., whence it flows in a general southeasterly direction, but in a very tortuous channel, for about 60 miles to its junction with the Wateree. The stream is navigable to Columbia, the capital of the State. There it crosses the fall line, giving rise to a very fine water power, the only one on the stream, which is being extensively used in the manufacturing enterprises of Columbia.

Broad River rises on the eastern slope of the Blue Ridge near Hickory Nut Gap, in the southwestern part of McDowell County and the northeastern part of Henderson County, N. C., and flows in a general southeasterly direction across a portion of south-central North Carolina and north-central South Carolina to its junction with the Saluda at Columbia. The length of the river in a straight line is about 128 miles, but is much greater if the course of the river is followed.

The rainfall of the basin averages about 51 inches, of which about 13 inches fall in spring, the same in summer, about 10 in autumn, and about 15 in winter. It is probable that the precipitation in the region about the headwaters is much greater than these amounts indicate.

The maximum flood recorded at the Alston station on this stream, 25 miles above Columbia, occurred in May, 1901, the estimated discharge being 131,000 second-feet, equivalent to about 28 second-feet per square mile. The minimum flow recorded at the same place is 1,250 second-feet, equivalent to 0.27 second-foot per square mile. This occurred during October, 1904. The maximum flow is therefore about 105 times the minimum.

Saluda River is formed in western South Carolina by the junction of North, South, and Middle forks and flows southeastward to its junction with Broad River, the length of the stream being about 110 miles in a straight line. The three forks are mountain streams, and the character of the drainage basin is similar to that of Broad River.

The average rainfall over the basin of the stream is 51 inches, the amount and seasonal distribution being similar to that on the Broad. The maximum flood recorded at the Waterloo station on this stream occurred in February, 1902, the rise being 23 feet above low water and the estimated discharge being about 18,500 second-feet, equivalent to about 18 second-feet per square mile. The minimum discharge so far recorded is 200 second-feet, or about 0.19 second-foot per square mile. This occurred during October, 1904. The maximum discharge is therefore about 108 times the minimum.

CATAWBA RIVER NEAR MORGANTON, N. C.

The original station was established, in connection with the hydrographic investigation of the southern Apalachian area, on June 19, 1900, at which time a wire gage was installed on the highway bridge on the road from Morganton to Hartland. In May, 1901, the river throughout this part of its course rose from 8 to 15 feet higher than ever before known and the bridge and gage were destroyed. The present station was established May 15, 1903, at the bridge which was built to replace the one carried away by the flood of May, 1901. The station is 1 mile north of Morganton and about 200 yards below the mouth of Upper Creek. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 21, where are given also references to publications that contain data for previous years.

Discharge measurements of Catawba River near Morganton, N. C., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 2	Murphy and Hall	160	709	1.84	1,240
June 18	W. E. Hall	216	1,220	4.36	4,640

Daily gage height, in feet, of Catawba River near Morganton, N. C., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	Day.	Jan.	Feb.	Mar.	Apr.	May.	June.
1	1.65	3.3	1.9	3.1	2.15	1.5	17	2.35	2.05	2.6	2.8	1.7	4.0
2	1.65	2.8	1.85	2.8	2.05	1.45	18	2.15	2.0	2.1	2.6	1.6	3.35
3	3.4	2.7	1.85	2.4	2.05	1.4	19	2.15	2.0	2.85	2.5	1.6	2.85
4	5.6	2.6	2.05	2.25	2.0	2.75	20	2.0	1.95	2.8	2.35	1.55	3.3
5	2.8	2.6	2.35	2.15	2.3	2.2	21	1.9	2.1	2.5	2.2	1.55	2.7
6	2.45	2.5	2.25	2.2	2.05	1.95	22	2.3	2.0	2.35	2.15	1.5	3.45
7	2.3	2.3	2.1	2.2	2.05	1.7	23	13.1	2.2	2.35	2.1	1.6	3.0
8	2.2	2.25	2.3	2.1	2.0	1.65	24	5.4	2.2	2.2	2.1	1.55	2.1
9	2.0	2.2	2.2	2.0	1.9	1.6	25	4.0	2.1	2.05	1.95	1.45	2.05
10	1.85	2.1	2.1	1.95	1.9	2.4	26	3.8	2.1	2.0	1.9	1.6	2.05
11	2.9	2.05	1.95	1.9	1.85	2.1	27	4.0	2.05	1.9	1.8	2.05	1.9
12	3.3	2.2	1.9	1.9	1.7	2.5	28	3.9	1.95	1.9	1.8	1.7	1.85
13	2.6	2.2	1.8	1.8	1.9	3.15	29	3.8	.....	1.8	1.85	1.65	1.85
14	2.05	2.15	1.95	2.6	1.95	6.4	30	3.65	.....	4.3	1.9	1.65	1.8
15	3.15	2.15	4.2	2.0	1.8	9.8	31	3.5	.....	3.3	.....	1.55	.....
16	2.8	2.15	3.15	2.9	1.75	5.2							

NOTE.—Gage reading not taken during last six months.

Rating table for Catawba River near Morganton, N. C., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.40	740	2.60	2,160	3.80	3,800	6.00	7,700
1.50	840	2.70	2,290	3.90	3,950	7.00	9,800
1.60	950	2.80	2,420	4.00	4,100	8.00	12,000
1.70	1,060	2.90	2,550	4.20	4,400	9.00	14,300
1.80	1,180	3.00	2,680	4.40	4,710	10.00	16,600
1.90	1,300	3.10	2,810	4.60	5,040	11.00	19,000
2.00	1,420	3.20	2,940	4.80	5,390	12.00	21,400
2.10	1,540	3.30	3,080	5.00	5,750	13.00	23,900
2.20	1,660	3.40	3,220	5.20	6,110	14.00	26,400
2.30	1,780	3.50	3,360	5.40	6,490		
2.40	1,900	3.60	3,500	5.60	6,880		
2.50	2,030	3.70	3,650	5.80	7,280		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is well defined below gage height 2 feet.

Monthly discharge of Catawba River near Morganton, N. C., for 1906.

[Drainage area, 758 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	24,200	1,000	3,360	4.43	5.11
February	3,080	1,360	1,730	2.28	2.37
March	4,550	1,180	1,870	2.47	2.85
April	2,810	1,180	1,680	2.22	2.48
May	1,780	790	1,180	1.56	1.80
June	16,100	740	2,680	3.54	3.95

NOTE.—Values are rated as follows: January to April and June, good; May, excellent.

CATAWBA RIVER SURVEY.

In order to point out the power possibilities along Catawba River, a profile has been prepared showing the fall between Halltown Road Ford, N. C., and Camden, S. C. In connection with this survey notes showing tributary streams and other natural and artificial features along the river are indicated.

Sheets showing this profile may be obtained on application to the Director of the Geological Survey.

WATEREE RIVER NEAR CAMDEN, S. C.

Camden, S. C., is on Wateree River, 45 miles above its mouth and about 5 miles below the fall line. A station has been maintained by the United States Weather Bureau since 1891 at the toll bridge about 2 miles west of Camden. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 25, where are given also references to publications that contain data for previous years.

Discharge measurements of Wateree River near Camden, S. C., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 28	W. E. Hall	303	4,690	12.54	10,000
October 17	do	288	3,360	8.52	5,160

Daily gage height, in feet, of Wateree River near Camden, S. C., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.0	15.2	8.0	19.2	8.2	6.4	7.0	13.6	28.0	15.0	8.8	8.0
2	10.2	13.6	7.9	17.9	8.1	6.0	10.0	17.8	23.0	13.8	8.5	7.4
3	9.4	12.4	7.9	14.0	8.2	5.8	14.6	22.6	17.8	12.2	8.6	6.8
4	25.1	11.3	8.1	11.9	8.7	6.5	11.0	22.5	14.8	14.2	8.2	8.2
5	28.4	10.4	8.2	10.6	8.0	8.3	10.6	19.8	13.6	22.4	7.7	7.4
6	25.2	10.6	10.5	10.2	9.8	7.1	9.6	14.6	11.3	21.1	8.7	7.4
7	18.4	10.2	9.8	9.6	8.7	6.8	8.0	11.8	10.4	16.8	8.2	7.7
8	13.2	10.2	10.1	8.7	10.0	8.0	11.0	9.8	10.2	14.1	8.0	7.4
9	11.2	12.2	13.6	8.3	8.9	7.4	8.5	8.8	9.0	13.0	8.0	7.3
10	9.8	11.8	12.0	9.0	8.4	7.6	9.0	8.6	8.6	11.2	7.8	6.4
11	9.2	9.8	9.5	8.8	7.4	8.0	9.8	7.9	9.2	10.2	7.5	8.6
12	8.8	9.2	8.3	8.6	6.8	10.2	8.8	7.6	8.5	9.8	7.3	11.8
13	14.8	10.0	8.8	8.4	6.6	11.0	7.4	7.2	10.6	9.2	7.8	10.5
14	16.4	9.4	8.3	8.0	5.9	14.2	6.7	11.2	9.0	8.6	7.6	9.0
15	13.6	9.1	9.6	8.6	7.0	21.0	6.4	16.2	11.0	8.0	7.8	8.1
16	13.3	8.9	19.4	9.3	6.2	24.6	5.3	12.0	10.0	9.0	7.6	7.4
17	12.8	8.6	19.2	14.7	6.1	25.0	10.0	11.6	8.5	8.4	7.8	7.3
18	11.3	8.4	15.1	12.2	6.0	24.0	13.2	14.6	11.0	8.3	7.7	8.1
19	10.0	7.9	12.0	10.2	6.2	18.2	13.0	21.0	13.8	21.1	7.3	8.0
20	9.4	8.6	22.5	9.4	5.65	14.4	17.7	18.6	13.1	27.5	9.0	10.3
21	8.7	8.6	24.9	8.8	4.8	11.6	15.5	13.8	20.5	28.2	21.4	11.6
22	8.6	8.8	20.6	8.0	7.0	9.6	12.4	11.6	17.4	23.6	16.4	10.2
23	19.8	11.0	14.0	7.5	5.35	8.5	14.2	16.7	13.4	18.3	12.2	8.8
24	27.2	9.3	11.2	8.2	5.5	8.0	16.2	15.7	13.5	15.2	10.3	7.9
25	28.0	8.8	9.9	7.4	5.7	7.9	14.4	12.2	13.1	12.4	9.2	7.6
26	25.4	8.0	9.8	7.4	6.0	11.3	15.2	11.8	11.0	11.0	8.3	7.1
27	27.0	8.7	10.0	7.2	6.0	12.8	14.0	12.6	10.0	10.6	8.6	7.2
28	26.1	8.2	12.4	7.4	6.5	11.1	16.6	12.6	9.8	9.8	8.4	7.2
29	26.4	.....	12.8	7.4	8.4	8.6	13.6	20.0	10.7	9.0	8.0	7.6
30	22.1	.....	14.2	6.8	7.6	7.8	13.6	24.3	12.5	9.4	7.7	7.8
31	19.6	.....	17.7	.....	6.7	.....	13.8	27.5	.....	9.0	.....	7.4

Rating table for Wateree River near Camden, S. C., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
4.80	2,620	6.50	4,150	8.40	5,955	15.00	12,420
4.90	2,710	6.60	4,245	8.60	6,145	16.00	13,520
5.00	2,800	6.70	4,340	8.80	6,335	17.00	14,620
5.10	2,890	6.80	4,435	9.00	6,525	18.00	15,720
5.20	2,980	6.90	4,530	9.20	6,715	19.00	16,820
5.30	3,070	7.00	4,625	9.40	6,905	20.00	17,920
5.40	3,160	7.10	4,720	9.60	7,095	21.00	19,120
5.50	3,250	7.20	4,815	9.80	7,285	22.00	20,320
5.60	3,340	7.30	4,910	10.00	7,475	23.00	21,520
5.70	3,430	7.40	5,005	10.20	7,665	24.00	22,720
5.80	3,520	7.50	5,100	10.40	7,855	25.00	23,920
5.90	3,610	7.60	5,195	10.60	8,045	26.00	25,220
6.00	3,700	7.70	5,290	10.80	8,235	27.00	26,520
6.10	3,790	7.80	5,385	11.00	8,425	28.00	27,820
6.20	3,880	7.90	5,480	12.00	9,420		
6.30	3,970	8.00	5,575	13.00	10,420		
6.40	4,060	8.20	5,765	14.00	11,420		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 13 feet.

Monthly discharge of Wateree River near Camden, S. C., for 1906.

[Drainage area, 2,640 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	28,300	6,140	14,800	5.61	6.47
February	12,600	5,480	7,460	2.83	2.95
March	23,800	5,480	9,880	3.74	4.31
April	17,000	4,440	7,330	2.78	3.10
May	7,480	2,620	4,740	1.80	2.08
June	23,900	3,520	8,950	3.39	3.78
July	15,400	3,070	9,020	3.42	3.94
August	27,200	4,820	12,400	4.70	5.42
September	27,800	6,050	10,400	3.94	4.40
October	28,100	5,580	11,600	4.39	5.06
November	19,600	4,910	6,600	2.50	2.79
December	9,220	4,440	5,750	2.18	2.51
The year	28,300	2,620	9,080	3.44	46.81

NOTE.—Values for 1906 are rated as follows: January to October, good; November and December fair.

BROAD RIVER (OF THE CAROLINAS) AT ALSTON, S. C.

This station was established July 3, 1896, at the Southern Railway bridge at Alston, S. C., about 27 miles above Columbia. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 28, where are given also references to publications that contain data for previous years.

Discharge measurements of Broad River (of the Carolinas) at Alston, S. C., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 29	W. E. Hall	521	3,200	5.50	7,980
June 23	do	517	2,680	4.52	5,840
October 18	do	507	2,310	3.79	4,580

Daily gage height, in feet, of Broad River (of the Carolinas) at Alston, S. C., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.1	7.8	3.7	8.3	4.5	3.85	3.7	9.4	11.6	5.9	4.25	3.8
2	4.6	6.8	3.95	6.6	4.4	3.8	4.05	13.5	8.5	4.9	4.35	3.8
3	6.6	6.2	3.9	6.1	4.4	5.5	3.85	17.5	6.3	6.2	4.1	3.85
4	17.8	5.8	4.15	5.4	4.45	5.5	3.85	11.2	6.0	10.1	4.1	3.35
5	18.9	5.3	4.6	4.8	4.2	4.75	5.0	6.8	6.2	10.4	4.05	4.0
6	12.9	5.4	4.5	4.55	4.6	4.4	4.35	5.6	8.4	8.0	3.9	3.8
7	8.6	5.3	4.2	4.75	4.5	4.5	4.05	4.7	8.2	6.7	3.95	3.8
8	6.0	5.2	5.4	4.6	5.2	3.8	4.4	4.2	5.8	6.4	4.1	3.7
9	5.6	5.2	6.5	4.6	4.7	3.7	6.0	4.3	5.0	5.3	4.0	3.75
10	5.0	4.9	5.6	4.8	4.25	3.9	7.0	4.1	4.75	5.0	4.05	3.9
11	4.85	4.6	5.0	4.65	4.15	5.7	4.85	4.05	4.6	4.85	3.95	3.85
12	8.5	4.6	4.7	4.4	4.0	6.2	5.3	4.45	5.4	4.85	4.05	5.7
13	11.3	4.4	4.4	4.2	3.6	7.0	4.5	4.7	6.2	4.8	4.1	4.75
14	9.0	4.6	4.4	4.35	3.7	10.2	3.0	7.8	5.0	4.55	4.0	4.7
15	7.4	4.6	6.5	5.2	3.65	10.8	3.75	7.7	4.55	4.55	4.2	4.0
16	6.6	4.4	11.1	7.2	3.8	9.3	3.8	7.8	4.35	4.55	4.3	4.3
17	6.0	4.3	9.2	5.6	3.7	8.2	4.15	7.2	4.05	4.5	4.3	4.15
18	5.4	4.2	7.0	5.0	3.7	7.8	6.8	6.7	4.1	4.95	4.3	4.3
19	5.9	4.1	7.7	4.55	3.35	6.3	7.6	6.2	7.0	4.55	4.4	4.1
20	4.9	4.2	15.7	4.4	3.2	5.7	8.5	6.1	9.9	6.9	5.8	5.5

Daily gage height, in feet, of Broad River (of the Carolinas) at Alston, S. C., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	4.75	4.3	13.5	4.25	3.3	4.65	6.1	5.2	8.3	6.4	5.6	6.1
22	4.9	5.8	9.8	4.2	3.05	4.65	5.3	5.9	7.3	5.2	4.45	5.6
23	10.6	5.2	6.8	4.25	3.9	4.3	5.7	7.6	6.0	5.1	4.2	4.6
24	13.0	4.7	5.9	4.9	3.75	4.15	5.7	5.9	6.2	4.9	4.3	4.45
25	9.0	4.45	5.6	4.0	2.78	4.25	5.9	4.85	6.2	4.4	4.25	4.4
26	9.2	4.3	5.4	3.9	3.3	6.4	8.5	5.6	5.6	4.3	4.25	4.35
27	11.8	4.25	5.2	3.95	5.6	6.0	7.4	5.6	6.6	4.15	4.2	4.4
28	12.0	3.85	5.7	4.2	6.4	5.1	5.4	5.1	6.2	4.4	4.25	3.8
29	11.7	.....	5.7	4.05	5.6	4.45	4.9	9.8	5.9	4.4	3.2	4.4
30	10.0	.....	8.5	4.1	4.3	4.15	5.3	13.1	6.4	3.6	3.9	4.45
31	8.3	.....	10.3	.....	3.9	.....	5.9	15.2	.....	4.2	.....	5.2

Rating table for Broad River (of the Carolinas) at Alston, S. C., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.70	1,800	4.20	4,750	5.70	8,775	8.40	16,950
2.80	1,940	4.30	5,000	5.80	9,050	8.60	17,600
2.90	2,090	4.40	5,250	5.90	9,325	8.80	18,250
3.00	2,250	4.50	5,500	6.00	9,600	9.00	18,900
3.10	2,420	4.60	5,750	6.20	10,200	10.00	22,150
3.20	2,590	4.70	6,025	6.40	10,800	11.00	25,500
3.30	2,770	4.80	6,300	6.60	11,400	12.00	29,000
3.40	2,960	4.90	6,575	6.80	12,000	13.00	32,800
3.50	3,150	5.00	6,850	7.00	12,600	14.00	36,800
3.60	3,350	5.10	7,125	7.20	13,200	15.00	41,400
3.70	3,560	5.20	7,400	7.40	13,800	16.00	46,500
3.80	3,780	5.30	7,675	7.60	14,400	17.00	52,400
3.90	4,010	5.40	7,950	7.80	15,000	18.00	58,800
4.00	4,250	5.50	8,225	8.00	15,650	19.00	65,300
4.10	4,500	5.60	8,500	8.20	16,300		

NOTE.—The above table is based on discharge measurements made during 1901-1906, and is well defined between gage heights 3 feet and 10 feet.

Monthly discharge of Broad River (of the Carolinas) at Alston, S. C., for 1906.

[Drainage area, 4,610 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches
January	64,600	5,750	18,800	4.08	4.70
February	15,000	3,900	6,790	1.47	1.53
March	45,000	3,560	12,000	2.60	3.00
April	16,600	4,010	6,560	1.42	1.58
May	10,800	1,910	4,700	1.02	1.18
June	24,800	3,560	8,860	1.92	2.14
July	17,300	2,250	7,880	1.71	1.97
August	55,600	4,380	14,600	3.17	3.66
September	27,600	4,380	10,900	2.36	2.63
October	23,500	3,350	8,270	1.79	2.06
November	9,050	2,590	4,850	1.05	1.17
December	9,900	2,860	5,190	1.13	1.30
The year	6,460	1,910	9,120	1.98	26.92

NOTE.—Values are rated as follows: January to March and June to September, excellent; April, May, and October to December, good.

BROAD RIVER SURVEY.

In order to show the power possibilities along Broad River a profile has been compiled from data collected by the army engineers showing the fall of the river between Columbia, S. C., and Green River, N. C.

Sheets showing this profile may be obtained upon application to the Director of the Geological Survey.

MISCELLANEOUS MEASUREMENTS IN SANTEE RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Santee River drainage basin during 1906:

John River near Morganton, N. C.—Measurements were made at the highway bridge on the Lenoir road, about 3 miles from Morganton, N. C. The bench mark is the upper edge of the end of a bar extending from the floor beam to a brace at the downstream end of the second floor beam from the left pier, 32 feet from the left end of the main span; elevation, 30 feet above the datum of the assumed gage.

March 2: Width, 63 feet; area, 182 square feet; gage height, 1.80 feet; discharge, 362 second-feet.

June 18: Width, 70 feet; area, 310 square feet; gage height, 3.67 feet; discharge, 1,530 second-feet.

Green River near Flat Rock, N. C.—Measurements were made at a single 50-foot span wagon bridge, 3½ miles northeast of Flat Rock, N. C. and about the same distance downstream from the crossing of the Southern Railway. The bench mark is the top of the drowstream end of the first floor beam from the left end of the bridge; elevation, 16 feet above the datum of the assumed gage.

June 13: Width, 45 feet; area, 184 square feet; gage height, 3.30 feet; discharge, 657 second-feet.

September 14: Width, 45 feet; area, 125 square feet; gage height, 1.14 feet; discharge, 158 second-feet.

SAVANNAH RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Savannah River is formed by the junction of Tugaloo and Seneca rivers, which unite about 100 miles above Augusta, Ga. It flows in a southeasterly direction, forming the boundary between Georgia and South Carolina, and empties into the Atlantic Ocean near Savannah, Ga. It is navigable to Augusta, which is at the fall line.

Seneca River is formed by the junction of Little and Keowee river, about 5 miles northeast of Seneca, S. C. Both of these tributaries rise in the Blue Ridge in North Carolina and the northwestern part of South Carolina.

Tugaloo River is formed by the junction of Chattooga and Tallulah rivers, which join at the west corner of Oconee County, S. C. It flows in a southeasterly direction, and is a part of the boundary between Georgia and South Carolina. Chattooga River rises in Jackson County, N. C., and flows in a southwesterly direction along the boundary between Georgia and South Carolina. Tallulah River rises in Macon County, N. C., and the northwestern part of Rabun County, Ga., and flows in a southeasterly direction. Parts of its course are cut

through solid rock for hundreds of feet, forming canyons and steep bluffs. Throughout its entire length the fall is very great, and at Tallulah Falls the stream drops more than 500 feet in a short distance.

Broad River joins the Savannah at the southeast corner of Elbert County, Ga. It rises in Habersham and Bank counties and flows in a southeasterly direction to the southeast corner of Madison County, Ga., where South Fork joins it. Thence it flows east to Savannah River. Its drainage is from a rolling country, and there is a considerable amount of fall at various points. At Anthony Shoals the fall is more than 50 feet in a short distance. Above Augusta, Ga., there is much fall, which can be developed for water power. With exception of the large plant at Augusta, very little of this is being used.

TALLULAH RIVER AT TALLULAH FALLS, GA.

This station was originally established August 29, 1900, and records of gage heights were obtained until October 19, 1900. The record was resumed January 18, 1901, and maintained until December 31, 1901. The station was reestablished July 10, 1904, when bench marks were determined and regular gage readings begun. The station is located at the wagon bridge about one-fourth mile above the falls and about the same distance from the village of Tallulah Falls, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 35, and in Water-Supply Paper No. 197, where are given also the data for previous years.

Discharge measurements of Tallulah River at Tallulah Falls, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
January 24	W. E. Hall	65	554	3.26	1,490
February 14	M. R. Hall	59	426	1.82	577
June 27	W. E. Hall	60	408	1.50	416
July 26	do	60	434	2.20	788
September 28	do	65	556	3.81	2,060
September 29	do	80	691	5.59	4,450
September 29	do	80	691	5.56	4,340
December 31	F. A. Murray	71	595	4.22	2,600
December 31	do	71	588	4.12	2,440

Daily gage height, in feet, of Tallulah River at Tallulah Falls, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	2.3	1.7	2.6	2.0	1.4	1.3	2.5	3.7	4.4	2.3	2.1
2	1.5	2.2	1.7	2.6	2.0	2.0	1.3	2.4	3.4	5.0	2.2	2.1
3	7.0	2.2	1.8	2.5	1.9	1.8	1.4	2.3	2.9	5.4	2.2	2.0
4	4.5	2.3	1.8	2.5	1.9	1.7	1.9	3.2	2.7	4.3	2.2	2.0
5	3.0	2.2	1.8	2.4	1.9	1.7	1.5	2.8	2.7	4.1	2.2	2.0
6	2.5	2.2	1.7	2.2	2.0	1.6	1.4	2.4	2.6	4.0	2.2	2.7
7	2.2	2.2	1.7	2.2	2.2	1.6	1.5	2.5	3.4	4.0	2.1	2.1
8	2.1	2.2	1.9	2.2	2.1	1.5	1.5	2.2	2.0	3.8	2.1	2.0
9	2.0	2.1	1.9	2.3	2.0	1.4	1.8	2.0	2.2	3.4	2.1	2.0
10	2.0	2.1	1.8	2.3	2.0	1.4	1.4	1.9	2.8	3.3	2.1	3.2

Daily gage height, in feet, of Tallulah River at Tallulah Falls, Ga., for 1906—Cont'd.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	1.9	2.0	1.8	2.3	1.8	1.7	1.4	1.7	2.7	3.2	2.1	2.6
12	2.5	1.9	1.8	2.2	1.7	1.9	1.5	1.3	2.6	3.1	2.1	2.0
13	2.2	1.8	1.8	2.1	1.7	2.8	1.5	2.0	3.0	3.0	2.1	2.0
14	2.2	1.8	1.9	2.2	1.7	2.6	3.8	2.0	2.6	3.0	2.0	2.0
15	2.2	1.7	3.7	2.8	1.6	2.4	3.4	2.1	2.4	3.0	2.0	2.0
16	2.0	1.6	2.7	2.6	1.6	2.5	3.2	2.6	2.4	2.8	2.0	2.2
17	2.0	1.7	2.6	2.3	1.6	2.4	2.4	3.1	2.4	4.0	2.0	2.4
18	2.0	1.7	2.4	2.2	1.5	2.0	4.7	4.1	2.5	3.4	2.3	2.7
19	2.0	1.7	4.7	2.0	1.5	1.8	4.0	3.1	3.1	3.1	4.9	2.4
20	1.9	1.8	3.4	2.0	1.5	1.7	3.1	3.1	4.4	2.9	3.5	2.5
21	1.8	1.7	2.7	2.0	1.5	1.7	3.2	2.9	3.7	2.9	3.0	2.2
22	3.8	1.6	2.5	2.0	1.5	1.6	2.6	3.7	3.6	2.8	2.8	2.1
23	4.7	1.7	2.5	2.0	1.4	1.5	2.4	2.9	3.5	2.7	2.6	2.1
24	3.4	1.7	2.5	1.9	1.4	1.9	2.8	2.4	3.2	2.6	2.4	2.2
25	2.9	1.7	2.4	1.9	1.4	1.8	2.3	2.3	2.0	2.5	2.4	2.2
26	2.9	1.7	2.5	1.9	1.5	1.8	2.3	2.2	2.9	2.5	2.3	2.0
27	2.8	1.9	2.6	2.0	2.2	1.7	2.1	2.2	2.5	2.4	2.3	2.0
28	2.8	1.8	2.6	2.0	1.9	1.9	2.8	2.2	2.8	2.4	2.2	2.3
29	2.5	.....	2.7	2.1	1.7	2.6	2.1	3.2	4.4	2.4	2.2	2.3
30	2.4	.....	3.4	2.1	1.6	1.4	2.5	8.0	5.4	2.4	2.1	3.0
31	2.3	.....	2.8	.....	1.5	.....	2.4	4.1	.....	2.4	.....	5.0

Rating table for Tallulah River at Tallulah Falls, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.30	355	2.30	860	3.30	1,600	4.60	3,000
1.40	395	2.40	930	3.40	1,690	4.80	3,260
1.50	435	2.50	1,000	3.50	1,780	5.00	3,530
1.60	480	2.60	1,070	3.60	1,880	5.20	3,810
1.70	525	2.70	1,140	3.70	1,980	5.40	4,110
1.80	575	2.80	1,210	3.80	2,080	5.60	4,410
1.90	630	2.90	1,280	3.90	2,180	5.80	4,730
2.00	685	3.00	1,360	4.00	2,290	6.00	5,060
2.10	740	3.10	1,440	4.20	2,510	7.00	6,930
2.20	800	3.20	1,520	4.40	2,750	8.00	9,000

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 6 feet.

Monthly discharge of Tallulah River at Tallulah Falls, Ga., for 1906.

[Drainage area, 191 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	6,930	435	1,250	6.54	7.54
February	860	480	640	3.35	3.49
March	3,130	525	974	5.10	5.88
April	1,210	630	816	4.27	4.76
May	800	395	552	2.89	3.33
June	1,210	395	627	3.28	3.66
July	3,130	355	962	5.04	5.81
August	9,000	355	1,350	7.07	8.15
September	4,110	685	1,450	7.59	8.47
October	4,110	930	1,670	8.74	10.08
November	3,390	685	946	4.95	5.52
December	3,530	685	928	4.86	5.60
The year	9,000	355	1,010	5.31	72.29

NOTE.—Values for 1906 are excellent.

TUGALOO RIVER NEAR MADISON, S. C.

This station was originally established July 19, 1898, at Cooks Ferry, and was discontinued December 31, 1901, when the ferry was moved. It was reestablished July 7, 1903, at Holcombs Ferry, 1 mile west of Madison, S. C., and 900 feet below the Southern Railway bridge. This station is about 1½ miles above the point where the old station was located. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 38, where are given also references to publications that contain data for previous years.

Discharge measurements of Tugaloo River near Madison, S. C., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
May 16	M. R. Hall	156	557	3.45	1,330
June 26	W. E. Hall	160	634	3.68	1,410

Daily gage height, in feet, of Tugaloo River near Madison, S. C., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.45	5.2	3.6	6.6	4.45	3.25	3.2	7.3	8.0	14.4	5.2	4.6
2	3.35	5.0	3.5	6.0	4.15	3.5	3.0	6.0	6.8	11.2	5.1	4.55
3	13.4	4.85	4.25	5.6	4.05	3.65	3.1	5.2	6.3	15.4	5.0	4.5
4	18.0	4.75	6.6	5.4	4.35	4.5	4.9	6.0	6.0	14.0	4.95	4.45
5	9.0	4.65	5.6	5.2	4.05	3.7	3.7	5.8	6.4	11.1	4.9	4.35
6	6.2	4.55	4.55	5.2	3.95	3.7	3.3	5.4	5.8	11.2	4.85	4.3
7	5.4	4.55	4.25	5.0	4.35	3.35	3.75	5.4	9.4	10.6	5.2	4.8
8	5.0	4.4	4.85	4.85	4.05	3.25	3.6	5.0	7.3	9.6	4.7	4.3
9	5.2	4.35	4.65	4.8	3.9	3.15	4.6	4.7	5.7	8.8	4.65	4.3
10	4.75	4.25	4.35	5.6	3.75	3.3	3.6	4.5	5.5	8.4	4.6	4.2
11	4.35	4.15	4.15	4.85	3.75	4.2	3.3	4.4	5.2	8.0	4.6	7.1
12	5.2	4.25	4.05	4.7	3.7	3.4	3.8	4.2	8.0	7.7	4.55	5.1
13	4.85	4.3	3.95	4.6	3.65	5.8	3.35	4.2	9.2	7.4	4.5	4.7
14	4.85	4.15	3.95	4.55	3.6	6.9	3.2	4.8	5.6	9.2	4.4	4.6
15	4.65	4.05	12.2	7.2	3.55	5.2	17.5	7.2	5.3	7.0	4.6	4.45
16	4.85	3.95	7.2	5.8	3.45	6.2	9.3	7.2	5.1	6.9	4.5	4.3
17	4.55	3.85	5.6	5.2	3.4	5.4	8.3	5.4	4.95	6.7	4.5	5.9
18	4.35	3.8	5.0	4.95	3.35	4.7	12.9	12.7	9.2	6.6	9.7	7.4
19	4.35	3.75	11.2	4.75	3.25	4.15	7.9	7.1	16.2	8.7	11.5	5.4
20	4.15	3.75	9.0	4.65	3.3	4.0	7.4	7.6	14.0	7.1	8.4	5.6
21	4.05	3.85	6.8	4.55	3.2	3.75	7.6	6.1	9.5	6.7	6.9	5.3
22	10.2	4.35	6.0	4.45	3.3	3.55	6.5	6.1	8.8	6.4	6.3	5.2
23	18.0	3.95	5.6	4.4	3.25	3.4	5.9	6.6	8.1	6.3	5.8	4.8
24	9.0	3.85	5.2	4.25	3.15	3.7	6.8	6.6	7.7	6.1	5.5	4.6
25	7.2	3.8	5.0	4.25	3.1	3.6	5.4	5.8	7.4	6.0	5.2	4.4
26	6.8	3.7	4.95	4.15	3.45	3.75	5.1	5.6	7.3	5.8	5.1	4.35
27	6.8	3.7	4.95	4.15	5.5	3.4	4.8	6.1	6.9	5.7	5.0	4.3
28	6.6	3.65	5.2	4.45	3.9	3.3	5.4	5.2	7.3	5.6	5.5	4.5
29	6.2	.....	5.8	4.25	3.8	3.35	4.9	5.2	11.5	5.5	4.8	4.8
30	5.8	.....	8.9	4.85	3.5	3.2	5.9	16.8	19.6	5.4	4.7	4.6
31	5.6	.....	8.4	.....	3.35	.....	7.3	11.4	.....	5.3	.....	15.5

Rating table for Tugaloo River near Madison, S. C., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
3.00	1,075	3.80	1,575	4.60	2,170	5.80	3,180
3.10	1,130	3.90	1,640	4.70	2,250	6.00	3,365
3.20	1,190	4.00	1,710	4.80	2,330	6.20	3,555
3.30	1,250	4.10	1,780	4.90	2,410	6.40	3,745
3.40	1,315	4.20	1,855	5.00	2,490	6.60	3,940
3.50	1,380	4.30	1,930	5.20	2,660	6.80	4,140
3.60	1,445	4.40	2,010	5.40	2,830	7.00	4,340
3.70	1,510	4.50	2,090	5.60	3,000		

NOTE.—The above table is based on eleven discharge measurements made during 1905–6, and is well defined below gage height 4 feet. Above gage height 6.5 feet the rating curve is a tangent, the difference being 100 per tenth.

Monthly discharge of Tugaloo River near Madison, S. C., for 1906.

[Drainage area, 593 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	15,300	1,280	4,130	6.96	8.02
February	2,660	1,480	1,870	3.15	3.28
March	9,540	1,380	3,290	5.55	6.40
April	4,540	1,820	2,490	4.20	4.69
May	2,920	1,130	1,540	2.60	3.00
June	4,240	1,160	1,780	3.00	3.35
July	14,800	1,080	2,950	4.97	5.73
August	14,100	1,860	3,920	6.61	7.62
September	16,900	2,450	5,500	9.27	10.34
October	12,700	2,740	5,570	9.39	10.83
November	8,840	2,010	2,990	5.04	5.62
December	12,800	1,860	2,740	4.62	5.33
The year	16,900	1,080	3,230	5.45	74.21

NOTE.—The monthly values are rated as follows: January, March, and July to December, fair; February and April to June, good. The values for the low-water periods of the various months are excellent.

SAVANNAH RIVER AT WOODLAWN, S. C.

This station was established November 9, 1905. It is located at the Charleston and Western Carolina Railway bridge, 1,000 feet from the depot at Woodlawn, S. C., 17 miles above Augusta, Ga., and 10 miles above the Augusta water-power dam. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 40.

Discharge measurements of Savannah River at Woodlawn, S. C., in 1905–6.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
1905.		*Feet.*	*Sq. ft.*	*Feet.*	*Sec.-ft.*
November 9	M. R. Hall	409	2,120	3.49	3,220
November 21	F. A. Murray	417	2,200	3.31	3,060
1906.					
March 6	M. R. Hall	594	3,470	5.52	8,940
March 7	do	593	3,290	5.30	8,400
April 26	do	590	3,140	5.04	7,680
June 29	do	535	2,780	4.52	6,150
August 21	do	607	5,350	8.65	21,200
October 30	do	588	3,310	5.30	8,540

Daily gage height, in feet, of Savannah River at Woodlawn, S. C., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.0	6.8	5.0	8.1	5.25	4.6	4.4	9.7	9.2	10.8	5.3	5.1
2	5.6	6.4	4.9	7.0	5.2	4.2	6.2	8.4	7.2	9.4	5.2	5.0
3	5.8	6.2	4.95	6.6	5.05	4.5	5.6	8.1	6.4	10.6	5.2	5.0
4	16.5	6.1	5.1	6.2	5.2	5.65	6.4	7.4	6.0	13.4	5.2	5.05
5	18.6	5.9	6.5	6.0	5.5	6.7	7.6	7.4	6.3	12.1	5.2	4.9
6	12.6	5.7	5.6	5.95	5.4	5.6	5.8	6.8	7.0	9.8	5.15	4.9
7	8.0	5.8	5.3	5.8	6.3	5.05	5.0	6.1	6.3	9.3	5.1	5.1
8	6.8	6.0	5.8	5.7	7.0	4.7	5.2	5.7	6.0	8.2	5.1	5.2
9	6.3	6.8	8.8	5.7	6.2	4.5	9.4	5.4	5.5	7.3	5.05	5.0
10	6.2	6.4	7.6	6.2	5.3	4.55	8.8	5.35	5.35	7.0	5.0	5.0
11	5.8	6.0	6.4	6.2	5.0	4.9	6.6	5.35	5.2	6.8	5.0	6.2
12	8.1	6.0	5.8	5.8	4.9	5.1	5.75	5.3	6.8	6.4	5.0	7.9
13	8.4	5.95	5.35	5.5	4.8	9.7	5.5	5.5	9.2	6.3	5.05	6.3
14	7.1	6.1	6.4	5.5	4.85	11.3	5.1	6.6	7.7	6.2	5.05	5.7
15	6.4	5.8	11.4	6.4	4.65	10.0	5.15	6.4	6.0	6.1	5.1	5.4
16	6.1	5.65	14.6	7.2	4.65	12.0	11.2	6.3	5.55	6.0	5.3	5.2
17	6.1	5.45	12.2	6.3	4.6	12.4	10.0	6.2	5.2	6.0	5.3	5.2
18	6.0	5.3	8.3	5.75	4.5	9.9	10.1	6.1	7.5	6.0	5.3	5.35
19	5.7	5.3	8.2	5.7	4.5	7.7	11.3	6.9	10.1	6.8	6.3	7.0
20	5.6	5.2	16.7	5.4	4.5	6.2	9.6	7.8	12.6	7.5	8.4	7.2
21	5.7	5.5	15.6	5.4	4.45	5.5	8.4	8.8	12.1	6.4	6.9	7.2
22	5.5	6.2	10.3	5.3	4.4	5.2	7.3	7.6	8.6	6.0	6.1	6.5
23	14.0	6.1	7.6	5.2	4.4	4.95	7.6	6.4	7.3	5.85	5.75	5.9
24	19.2	5.5	6.8	4.85	4.5	4.75	6.8	6.0	7.6	5.8	5.6	5.6
25	13.2	5.3	6.5	5.1	4.5	4.8	7.6	5.8	7.7	5.65	5.4	5.4
26	11.6	5.2	6.2	5.0	4.4	4.7	7.7	5.2	7.7	5.6	5.3	5.3
27	12.4	5.1	6.1	5.0	7.0	4.7	6.2	6.8	7.4	5.55	5.3	5.3
28	11.4	5.0	7.1	5.45	7.5	4.7	5.9	7.4	6.7	5.45	5.25	5.25
29	9.4	.....	7.3	6.0	5.9	4.5	6.4	8.8	7.2	5.3	5.2	5.35
30	7.9	.....	7.6	5.6	5.1	4.5	7.1	8.3	8.6	5.3	5.15	5.65
31	7.1	.....	8.4	.....	4.8	.....	10.5	9.8	.....	5.3	.....	6.2

Rating table for Savannah River at Woodlawn, S. C., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
3.00	2,440	4.40	5,760	5.80	10,160	8.40	20,120
3.10	2,640	4.50	6,040	5.90	10,510	8.60	20,940
3.20	2,850	4.60	6,330	6.00	10,860	8.80	21,760
3.30	3,060	4.70	6,630	6.20	11,560	9.00	22,600
3.40	3,280	4.80	6,930	6.40	12,280	10.00	27,000
3.50	3,500	4.90	7,230	6.60	13,010	11.00	31,600
3.60	3,730	5.00	7,540	6.80	13,760	12.00	36,300
3.70	3,960	5.10	7,850	7.00	14,520	13.00	41,100
3.80	4,200	5.20	8,170	7.20	15,300	14.00	46,000
3.90	4,450	5.30	8,490	7.40	16,080	15.00	51,000
4.00	4,700	5.40	8,810	7.60	16,880	16.00	56,000
4.10	4,960	5.50	9,140	7.80	17,680	17.00	61,000
4.20	5,220	5.60	9,480	8.00	18,480	18.00	66,000
4.30	5,490	5.70	9,820	8.20	19,300	19.00	71,000

NOTE.—The above table is based on seven discharge measurements made during 1905–6, and is well defined below gage height 8 feet. Above gage height 14 feet the rating curve is a tangent, the difference being 500 per tenth.

Monthly discharge of Savannah River at Woodlawn, S. C., for 1905–6.

[Drainage area, 6,600 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
1905.					
November 9–30	4,930	3,060	3,820	0.579	0.47
December	53,500	3,730	15,900	2.41	2.78
1906.					
January	72,000	9,140	23,400	3.55	4.09
February	13,800	7,540	10,300	1.56	1.62
March	59,500	7,230	18,900	2.86	3.30
April	18,900	7,080	10,500	1.59	1.77
May	16,500	5,760	8,210	1.24	1.43
June	38,200	5,220	12,600	1.91	2.13
July	33,000	5,760	16,100	2.44	2.81
August	26,100	8,170	14,400	2.18	2.51
September	39,200	8,170	16,500	2.50	2.79
October	43,100	8,490	16,000	2.42	2.79
November	20,100	7,540	9,030	1.37	1.53
December	18,100	7,230	9,780	1.48	1.71
The year	72,000	5,220	13,800	2.09	28.48

NOTE.—Values for 1905 and 1906 are excellent.

SAVANNAH RIVER AT AUGUSTA, GA.

Observations of river heights have been maintained since 1875 by the city of Augusta, Ga., at the city highway bridge. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 41, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Savannah River at Augusta, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 8	M. R. Hall	561	4,140	9.42	8,640
April 27	do	550	3,880	8.89	7,200
August 20	do	576	6,590	13.92	20,000
October 29	do	557	3,840	9.44	8,400

Daily gage height, in feet, of Savannah River at Augusta, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.2	12.4	8.9	15.6	9.4	8.2	7.8	19.5	17.8	18.4	9.5	9.0
2	10.4	11.9	8.8	13.6	9.4	7.8	12.7	18.4	14.6	18.1	9.4	8.8
3	9.9	11.2	8.7	11.9	8.9	7.6	10.7	16.4	12.1	18.6	9.4	8.9
4	26.1	10.8	8.8	11.2	9.0	9.5	11.0	13.8	10.7	23.2	9.0	8.8
5	29.3	10.8	10.9	11.0	9.7	12.1	13.7	12.6	10.5	22.5	9.1	8.7
6	23.9	9.9	10.1	10.5	9.4	10.5	11.5	11.6	12.3	19.2	9.1	8.7
7	17.6	10.5	9.5	10.3	10.9	9.5	10.5	11.8	11.7	17.8	9.1	9.0
8	13.1	10.4	9.9	10.0	12.8	8.6	9.7	10.6	10.7	16.1	9.0	9.2
9	11.6	12.3	16.4	10.0	11.4	8.1	14.6	9.9	9.8	13.8	9.0	9.0
10	11.1	12.1	15.2	10.7	9.6	8.0	17.7	9.3	9.8	12.7	9.0	8.8
11	10.6	11.0	11.6	11.1	9.0	8.0	13.7	8.9	9.3	12.0	8.8	9.0
12	12.6	11.0	10.9	10.6	8.8	9.3	11.5	8.8	9.4	11.7	9.1	13.4
13	15.8	11.2	9.8	10.0	8.6	15.4	9.7	9.2	16.9	11.0	9.0	11.8
14	14.0	11.1	9.7	9.8	8.5	21.0	9.9	10.8	14.5	10.6	9.0	10.5
15	11.8	10.6	11.0	10.7	8.4	19.4	9.1	11.6	12.5	10.6	9.1	9.8

Daily gage height, in feet, of Savannah River at Augusta, Ga., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	11.0	10.2	24.3	12.0	8.2	23.7	17.8	11.2	10.6	10.6	9.2	9.2
17	10.8	9.6	22.8	11.5	8.0	24.3	19.5	11.4	9.4	10.5	9.3	9.2
18	10.8	9.5	18.8	10.5	8.0	20.4	18.0	10.6	11.6	10.5	9.2	9.5
19	10.1	9.4	13.4	9.8	8.0	16.0	20.9	11.0	17.9	11.2	10.0	11.1
20	9.9	9.3	26.9	9.6	7.8	12.6	17.9	13.8	21.9	13.5	14.5	12.5
21	9.7	9.2	27.2	9.5	7.8	10.5	16.5	15.2	22.4	11.7	12.7	13.5
22	10.0	10.8	21.5	9.4	7.8	9.4	14.0	14.5	17.5	11.0	11.0	12.1
23	20.0	10.9	15.6	9.5	7.7	9.1	13.9	12.7	14.1	10.5	10.2	10.5
24	28.8	10.1	13.1	8.9	7.8	8.5	12.9	12.3	13.4	10.0	9.9	10.0
25	25.1	9.4	11.8	8.8	8.2	8.6	13.3	10.9	15.9	9.9	9.5	9.5
26	22.6	9.3	11.4	8.8	8.0	9.0	14.2	10.5	14.2	9.9	9.5	9.5
27	24.2	9.2	11.1	8.8	10.5	8.6	12.4	11.3	14.0	9.6	9.3	9.3
28	22.3	9.0	13.2	9.1	13.3	8.7	10.6	12.2	12.7	9.5	9.2	9.3
29	18.8	.....	14.4	10.6	11.2	8.0	11.1	14.8	12.7	9.5	9.2	9.6
30	15.6	.....	13.7	10.2	9.2	7.9	11.9	14.8	15.0	9.4	9.1	10.0
31	13.6	.....	15.2	.....	8.6	.....	19.8	16.6	.....	9.4	.....	10.2

NOTE.—These gage heights are the mean of four readings per day.

Rating table for Savannah River at Augusta, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
7.60	5,100	9.30	8,040	11.00	11,800	16.00	25,900
7.70	5,250	9.40	8,250	11.20	12,260	17.00	29,400
7.80	5,400	9.50	8,460	11.40	12,740	18.00	33,200
7.90	5,560	9.60	8,670	11.60	13,220	19.00	37,300
8.00	5,720	9.70	8,890	11.80	13,700	20.00	41,700
8.10	5,880	9.80	9,110	12.00	14,200	21.00	46,400
8.20	6,040	9.90	9,330	12.20	14,700	22.00	51,500
8.30	6,210	10.00	9,550	12.40	15,220	23.00	57,000
8.40	6,380	10.10	9,770	12.60	15,740	24.00	62,900
8.50	6,550	10.20	9,990	12.80	16,260	25.00	69,000
8.60	6,720	10.30	10,210	13.00	16,800	26.00	75,500
8.70	6,900	10.40	10,430	13.20	17,340	27.00	82,300
8.80	7,080	10.50	10,650	13.40	17,900	28.00	89,500
8.90	7,260	10.60	10,880	13.60	18,460	29.00	97,000
9.00	7,450	10.70	11,110	13.80	19,020	30.00	105,000
9.10	7,640	10.80	11,340	14.00	19,600		
9.20	7,840	10.90	11,570	15.00	22,650		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and earlier high-water measurements, and is well defined.

Monthly discharge of Savannah River at Augusta, Ga., for 1906.

[Drainage area, 7,300 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	99,400	8,890	30,900	4.23	4.88
February	15,200	7,450	10,600	1.45	1.51
March	83,700	6,900	23,300	3.19	3.68
April	24,600	7,080	10,800	1.48	1.65
May	17,600	5,250	8,020	1.10	1.27
June	64,700	5,100	16,100	2.21	2.47
July	45,900	5,400	19,500	2.67	3.08
August	39,500	7,080	16,200	2.22	2.56
September	53,700	8,040	19,600	2.68	2.99
October	58,200	8,250	18,700	2.56	2.95
November	21,100	7,080	8,820	1.21	1.35
December	18,200	6,900	9,580	1.31	1.51
The year	99,400	5,100	16,000	2.19	29.90

NOTE.—Values for 1906 are good; the records at Woodlawn are better than at Augusta.

BROAD RIVER (OF GEORGIA) NEAR CARLTON, GA.

This station was established May 27, 1897. It is located at the Seaboard Air Line bridge 3 miles east of Carlton, Ga., and 2 miles above the mouth of the South Fork, and is now maintained and the observer paid by the United States Weather Bureau. The gage was read during 1906 by M. C. Power. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 48, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Broad River (of Georgia) near Carlton, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 31	W. E. Hall	202	914	4.71	2,560
July 18	M. R. Hall	196	1,030	5.95	3,990
October 19	W. E. Hall	200	817	4.10	1,970

Daily gage height, in feet, of Broad River (of Georgia) near Carlton, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2 6	3.5	2.4	4.2	2 8	2.4	2.4	3.8	3.7	3.6	2.6	2 5
2	2 5	3.3	2.4	3.5	2.7	2.4	2.4	3.3	3.0	3.9	2.6	2 5
3	4 6	3.0	2.5	3.5	2.7	2.6	2.6	3.2	2 9	5 5	2 6	2 5
4	14 3	2.9	3.0	3.2	3.7	3.4	3.1	3.2	2.7	6 0	2 5	2 5
5	12.9	2.9	2.9	3.2	3.0	2.7	2.8	4.2	2 7	4 7	2 5	2 5
6	7.0	3.0	2.5	3.1	2 8	2 6	2.6	4.4	2 6	4 0	2 5	2 5
7	3 5	3.0	2 5	3.0	3.3	2.5	3.0	3.0	2 8	3.8	2 5	2.6
8	3 3	2 8	3.3	3.0	4.0	2 5	4.3	2.8	2.6	3.6	2.5	2.6
9	3.1	2.7	5 5	3.0	3.5	2 4	6 3	2.6	2.6	3.4	2.5	2.5
10	3 0	2 6	3.9	3.1	3.0	2.4	6.0	2.5	2.6	3.0	2 5	2.5
11	3 0	2 6	3.2	3.0	2.8	3.1	5.0	2.5	2.6	3.0	2 5	4.6
12	3.4	2 6	3.0	3.0	2.7	2.9	3.5	2.4	3.9	3.0	2 5	4.4
13	4.0	2.6	3 0	2.9	2.7	4.4	3.3	2.5	3.2	2 9	2.5	3.4
14	3.0	2 5	2.8	2.9	2.6	5 3	3.6	4.1	3 0	2 8	2 5	3.0
15	2.9	2 5	11.0	3.7	2 5	4 5	4 2	3.4	2 8	2.8	2.6	3.0
16	2 8	2 5	14 0	3.5	2.5	3.8	5 5	3.1	2 5	2.6	2.6	2 8
17	2 8	2.5	8 3	3.1	2 5	5 6	7.9	2 8	2.5	2.6	2.6	2 8
18	2.7	2 5	4 2	3.0	2.5	4 0	6.4	2.6	4.0	2.6	3.0	3.0
19	2 7	2 5	8.8	2.9	2.5	3.6	6.2	8.2	4.5	4.0	3.1	3 0
20	2.6	2 5	15.7	2.8	2.5	2 8	5.2	7.9	8 2	3.6	3.1	4 0
21	2 6	2 6	11.2	2 8	2 4	2 7	4 6	6 4	5 0	2 9	3.0	3.8
22	2 8	2 7	6.0	2 8	2 4	2 6	4.1	5 8	4 0	2 9	3.0	3.6
23	19 0	2 5	3.8	2 7	2 4	2 6	5 0	3.5	3.3	2 8	2 8	3.1
24	9 8	2 5	3 6	2 7	2 4	2 5	4.2	3.1	3.0	2 8	2 7	3 0
25	6 0	2 5	3.5	2.7	2 3	2.5	3.6	2.8	3.9	2.7	2.6	3.0
26	4 4	2.5	3.3	2.7	2.8	2.5	3.2	3.2	4.7	2.6	2.6	2 8
27	6 9	2.5	3.3	2.8	4.1	2.9	2.9	3.1	3.8	2.6	2.6	2.8
28	5.3	2.5	3.8	3.9	3.7	2.7	3.0	3.6	3.2	2.6	2.5	2.9
29	4.0		4.0	3.0	3.2	2.6	3.8	4.6	3.6	2.6	2.5	3.0
30	3.8		4.6	3.0	2.6	2 6	7.6	4 6	4.0	2.6	2.5	3.0
31	3.5		4.8		2 5		4.6	4 0		2.6		3.6

Rating table for Broad River (of Georgia) near Carlton, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.30	645	3.60	1,535	4.90	2,770	9.00	8,220
2.40	695	3.70	1,620	5.00	2,880	10.00	9,760
2.50	750	3.80	1,705	5.20	3,100	11.00	11,360
2.60	805	3.90	1,790	5.40	3,325	12.00	13,000
2.70	865	4.00	1,880	5.60	3,560	13.00	14,700
2.80	930	4.10	1,970	5.80	3,800	14.00	16,400
2.90	1,000	4.20	2,065	6.00	4,050	15.00	18,100
3.00	1,070	4.30	2,160	6.20	4,300	16.00	19,800
3.10	1,140	4.40	2,255	6.40	4,560	17.00	21,500
3.20	1,215	4.50	2,350	6.60	4,820	18.00	23,200
3.30	1,290	4.60	2,450	6.80	5,090	19.00	24,900
3.40	1,370	4.70	2,555	7.00	5,360		
3.50	1,450	4.80	2,660	8.00	6,760		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 6 feet. Above gage height 6 feet it is based on one high-water measurement in 1899.

Monthly discharge of Broad River (of Georgia) near Carlton, Ga., for 1906.

[Drainage area, 762 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	24,900	750	3,620	4.75	5.48
February	1,450	750	871	1.14	1.19
March	19,300	695	3,630	4.76	5.49
April	2,060	865	1,150	1.51	1.68
May	1,970	645	989	1.30	1.50
June	3,560	695	1,200	1.57	1.75
July	6,620	695	2,340	3.07	3.54
August	7,050	695	1,870	2.45	2.82
September	7,050	750	1,530	2.01	2.24
October	4,050	805	1,330	1.75	2.02
November	1,140	750	834	1.09	1.22
December	2,450	750	1,120	1.47	1.70
The year	24,900	645	1,710	2.24	30.63

NOTE.—Values for 1906 are excellent.

MISCELLANEOUS MEASUREMENTS IN SAVANNAH RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Savannah River drainage basin during 1906:

Chauga River near Madison, S. C.—On May 16, 1906, a measurement was made at a new wagon bridge replacing the one formerly used, which was washed away during 1905. The new bridge, which is 30 feet upstream from the old location, is 2 miles east of Madison, S. C., and about 1 mile above mouth of the river. One of the old bench marks was in place and used to preserve the data formerly used in establishing new bench marks. The bench mark is the lower side of a hole drilled horizontally in the vertical face of a solid rock on the left bank, 10 feet above the bridge; elevation, 4.76 feet above the datum of the assumed gage.

Width, 51 feet; area, 100 square feet; gage height, 3.48 feet; discharge, 213 second-feet.

Broad River (of Georgia) at Anthony Shoals, Georgia.—Measurements were made by W. J. Lester during September, 1905, to determine the low-water flow for purposes of power development. The gage is an upright post sunk in the river bed at a point one-half mile above the shoals. Measurements were made at different sections.

Discharge measurements of Broad River (of Georgia) at Anthony Shoals, Georgia, in 1905.

Date.	Width.	Area of section.	Gage height.	Discharge.
	Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
September 13	224	1,800	2.16	867
September 14	222	1,730	1.82	641
September 15	221	1,690	1.64	530
September 16	206	1,010	1.60	500
September 18	186	592	1.54	464
September 19	186	590	1.53	451
September 25	185	572	1.43	397

OGEECHEE RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Ogeechee River is formed by the junction of Williamsons Swamp Creek and Rocky Comfort Creek in Jefferson County, Ga., and drains a small basin in southeastern Georgia lying between the Savannah and Altamaha basins. It flows in a southeasterly direction and empties into the Atlantic Ocean. Its main tributary is Cannoochee River, which rises in Emanuel County, Ga., flows southeastward, and joins it about 20 miles from the Atlantic Ocean. The streams in this basin flow through a country that is mostly low. The current is generally good, but the fall available for power is probably small. The bank on one side or the other of the stream is generally low and swampy.

CANNOOCHEE RIVER NEAR GROVELAND, GA.

This station was established June 12, 1903. It is located at Moody's bridge, 3 miles south of Groveland, Bryan County, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 51, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Cannoochee River near Groveland, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 7	F. A. Murray	132	1,270	11.21	2,650
May 25	do	91	345	3.06	244
August 31	W. E. Hall	108	717	6.65	1,080

Daily gage height, in feet, of Cannoochee River near Groveland, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.8	10.1	7.7	7.3	2.4	3.4	4.7	9.0	5.8	3.8	2.4	2.1
2	5.0	9.6	7.0	6.9	2.3	3.1	5.7	10.5	6.0	3.8	2.4	2.1
3	5.4	8.6	6.8	6.6	2.2	2.9	5.2	13.0	6.2	3.9	2.3	2.1
4	5.7	7.0	8.9	6.4	2.2	3.9	5.8	11.9	6.1	5.3	2.2	2.2
5	6.0	6.6	11.7	5.8	2.2	4.5	6.4	10.5	6.0	7.4	2.3	2.5
6	6.6	6.1	12.5	5.2	2.1	5.7	7.1	10.0	5.9	8.4	2.3	2.5
7	7.1	6.1	11.4	4.8	2.5	7.6	7.6	9.7	5.8	7.4	2.3	2.7
8	7.0	7.0	10.0	4.8	5.0	8.4	7.7	9.0	5.0	6.8	2.2	2.9
9	6.6	7.8	10.4	4.6	5.5	7.5	7.8	8.0	4.6	5.2	2.1	2.7
10	6.2	9.1	11.1	4.1	4.6	4.7	9.1	7.0	4.0	4.5	2.1	2.5
11	6.1	10.0	11.3	4.0	4.3	4.2	10.4	6.5	3.6	4.3	2.1	2.3
12	5.8	11.1	10.9	3.9	3.7	7.0	12.7	5.0	3.3	4.0	2.0	2.3
13	5.6	11.7	10.5	3.8	3.3	9.6	10.8	5.5	3.3	3.5	2.0	2.3
14	5.4	12.0	9.9	3.7	3.0	11.9	9.6	4.9	3.3	3.5	2.0	2.3
15	5.3	11.6	9.2	4.0	2.8	14.0	8.0	4.9	3.0	3.0	2.1	2.3
16	5.2	11.2	8.3	4.8	2.6	17.0	7.2	5.0	3.3	3.0	2.2	2.2
17	5.2	11.0	7.4	4.8	2.6	17.2	9.2	4.6	3.3	2.8	2.3	2.1
18	5.1	10.5	6.8	4.9	2.5	16.4	10.9	4.5	3.4	2.7	2.4	2.0
19	5.0	9.8	6.4	5.0	2.3	15.2	12.2	4.4	3.4	2.7	2.4	2.0
20	4.9	8.9	7.0	4.9	2.3	13.2	12.5	4.3	3.5	2.9	2.4	2.0
21	4.8	7.8	8.6	4.5	2.2	11.4	13.2	3.3	3.4	3.0	2.4	2.0
22	5.0	8.5	9.7	4.3	2.1	10.2	11.9	4.0	3.2	3.2	2.4	2.1
23	5.1	9.8	9.5	3.9	2.0	8.2	10.9	4.5	3.1	3.2	2.4	2.3
24	6.4	10.3	9.4	3.3	2.1	7.2	10.7	6.0	3.0	3.1	2.4	2.5
25	6.7	9.2	9.3	3.1	3.8	6.6	10.9	6.8	3.4	3.0	2.4	2.6
26	7.5	9.42	8.9	3.0	4.8	5.5	11.9	6.4	3.6	2.9	2.3	2.6
27	9.0	8.5	8.0	2.8	5.1	4.4	12.4	6.2	3.8	2.9	2.2	2.6
28	10.3	8.2	7.3	2.6	4.4	4.3	12.2	6.5	4.3	2.8	2.2	2.6
29	11.1	.....	7.0	2.5	4.2	4.1	10.5	5.8	4.3	2.7	2.1	2.6
30	10.5	.....	7.2	2.4	3.8	4.4	9.4	5.8	3.9	2.7	2.1	2.7
31	10.7	.....	7.4	.....	3.5	.....	8.3	5.8	.....	2.7	.....	2.9

Rating table for Cannoochee River near Groveland, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet*	*Sec.-ft.*
2.00	75	3.30	257	4.60	554	6.80	1,183
2.10	85	3.40	276	4.70	580	7.00	1,245
2.20	96	3.50	296	4.80	606	7.20	1,309
2.30	107	3.60	317	4.90	633	7.40	1,373
2.40	119	3.70	338	5.00	660	7.60	1,438
2.50	131	3.80	360	5.20	714	7.80	1,504
2.60	144	3.90	382	5.40	769	8.00	1,570
2.70	158	4.00	405	5.60	825	9.00	1,915
2.80	172	4.10	429	5.80	882	10.00	2,275
2.90	187	4.20	453	6.00	940	11.00	2,650
3.00	203	4.30	478	6.20	1,000	12.00	3,025
3.10	220	4.40	503	6.40	1,060		
3.20	238	4.50	528	6.60	1,121		

NOTE.—The above table is based on discharge measurements made during 1903-1906 and is well defined below gage height 6.2 feet. Above gage height 10 feet the rating curve is a tangent, the difference being 375 per foot.

Monthly discharge of Cannoochee River near Groveland, Ga., for 1906.

[Drainage area, 960 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	2,690	606	1,120	1.17	1.35
February	3,020	970	2,010	2.09	2.18
March	3,210	1,060	1,920	2.00	2.31
April	1,340	119	539	.561	.63
May	797	75	272	.283	.33
June	4,980	187	1,750	1.82	2.03
July	3,480	580	2,120	2.21	2.55
August	3,400	257	1,230	1.28	1.48
September	1,000	203	468	.488	.54
October	1,710	158	432	.450	.52
November	119	75	102	.106	.12
December	187	75	118	.123	.14
The year	4,980	75	1,010	1.05	14.18

NOTE.—Values are rated as follows: January to April and June to October, good; May, November, and December, fair.

ALTAMAHA RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Altamaha River is formed by the junction of Oconee and Ocmulgee rivers, which unite at the southern boundary of Montgomery County, Ga. Ohoopee River is also a tributary and enters it from the north side, about 50 miles below the junction of the Oconee and Ocmulgee. The Altamaha River drainage basin is entirely within the State of Georgia. The river rises in the north-central part and flows in a southeasterly direction, emptying into the Atlantic Ocean near Darien. Below the junction of the Oconee and Ocmulgee and for a long distance above on both rivers there is no great amount of fall. Steamboat navigation is carried on from Darien to Macon on the Ocmulgee, and to Dublin, and at times to Milledgeville, on the Oconee.

Ohoopee River rises in Washington County and flows in a southeasterly direction to the Altamaha. It flows from low hills of southeastern Georgia into the flat pine lands. Though it has not so much fall as the more northern streams, it has considerable fall that can be developed into power.

Oconee River rises on the southern slope of the Chattahoochee Ridge, in Hall County, and joins the Middle Oconee on the southwest boundary of Clarke County. Thence it flows in a southeasterly direction to the Altamaha. Apalachee River is a large tributary which rises in Gwinnett and Walton counties and enters the Oconee near the southeast corner of Morgan County. Little River enters the main stream at the corner of Putnam, Hancock, and Baldwin counties, about 15 miles above Milledgeville, Ga. These tributaries have much

fall, and a small part of it is developed. The Oconee has a fall of 250 feet in 45 miles. It has some very large water powers available from its source down to Milledgeville, where it crosses the fall line.

Ocmulgee River, the westernmost of the main tributaries, rises in the north-central part of Georgia on the southern slope of the Chattahoochee Ridge, in Fulton, Dekalb, and Gwinnett counties. It is formed by the junction of Yellow and South rivers just south of the south corner of Newton County. Yellow River rises in Gwinnett County and flows in a southerly direction into the Ocmulgee. South River rises in Fulton and Dekalb counties and flows in a southeasterly direction. Alcovy River joins the Ocmulgee about 5 miles below the junction of South and Yellow rivers. Towaliga River enters the Ocmulgee at about the southwest corner of Jasper County.

All these tributaries rise in and flow through a very hilly country and have a great deal of fall. Ocmulgee River has a fall of over 210 feet in 35 miles. The last fall of much size is only a few miles above Macon, Ga.

OCMULGEE RIVER NEAR JACKSON, GA.

This station, located at Pittmans Ferry, 8 miles southeast from Jackson, Ga., was established on May 18, 1906, to take the place of the old Flovilla station 5 miles below, the conditions being much more favorable for a constant rating.

Measurements are made from a boat, but as the meter is suspended from the ferry cable the boat is merely for carrying the hydrographer. The vertical gage is at the right bank about 15 feet above the ferry landing. Section 0 to 7 feet is attached to a post, which is securely placed and braced to a tree, and section 7 feet to 15 feet is attached to the tree. The observer is C. A. Pittman.

The section is deep at the measuring point and may change considerably, owing to the filling of the bed, but the permanent rock shoal about 400 feet below will control the height of water at the gage.

The bench mark is the top of an iron-pipe post firmly planted 4 feet south of a cedar tree, which is 20 feet south of the road and 450 feet west of the gage; elevation, 27.99 feet above gage datum.

Discharge measurements of Ocmulgee River near Jackson, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
April 14	F. A. Murray	298	1,530	4.92	1,680
May 18	do	298	1,440	4.43	920
October 9	W. E. Hall	300	1,670	5.19	2,170
October 10	do	300	1,610	5.02	1,810

Daily gage height, in feet, of Ocmulgee River near Jackson, Ga., for 1906.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		4.4	4.4	5.6	5.1	4.9	4.5	4.5
2		4.4	4.4	5.3	5.4	10.8	4.4	4.5
3		4.5	4.5	5.1	5.5	12.4	4.4	4.5
4		5.8	4.7	5.5	4.8	12.4	4.5	4.5
5		4.7	4.5	5.6	4.6	9.2	4.5	4.5
6		4.5	4.45	5.6	4.5	6.6	4.5	4.45
7		4.45	4.4	5.3	4.4	6.0	4.5	4.45
8		4.4	4.45	5.2	4.4	5.5	4.5	4.6
9		4.4	5.8	4.8	4.4	5.3	4.5	4.55
10		4.4	5.3	4.6	4.4	5.1	4.5	4.5
11		4.4	4.8	4.6	4.4	4.9	4.5	4.8
12		4.4	4.7	4.7	4.4	4.8	4.5	5.0
13		12.9	4.5	4.5	5.3	4.8	4.5	4.8
14		12.4	4.5	6.6	4.8	4.8	4.5	4.7
15		9.9	5.0	5.5	4.5	4.7	4.7	4.65
16		8.2	5.2	5.2	4.4	4.7	4.75	4.6
17		7.8	4.8	5.0	4.3	4.7	4.7	4.6
18	4.4	7.0	5.5	5.0	4.8	4.6	4.8	4.8
19	4.4	6.0	6.7	4.7	5.5	5.1	5.4	4.95
20	4.4	5.55	6.2	4.6	5.5	5.0	5.0	5.2
21	4.4	5.1	5.4	4.6	6.8	4.8	4.8	5.25
22	4.5	5.0	5.0	4.5	6.0	4.7	4.75	5.1
23	4.45	4.8	6.6	6.0	5.9	4.7	4.75	4.9
24	4.45	4.7	6.7	5.4	5.6	4.7	4.65	4.8
25	4.45	4.6	5.5	4.8	6.0	4.7	4.65	4.7
26	4.45	4.6	5.4	4.7	5.4	4.6	4.6	4.6
27	4.7	4.6	4.9	5.0	5.0	4.6	4.55	4.6
28	4.75	4.5	4.7	4.9	5.5	4.6	4.55	4.7
29	4.7	4.5	5.9	5.1	5.2	4.6	4.5	5.0
30	4.55	4.45	5.4	5.5	5.1	4.55	4.5	5.25
31	4.5	.....	5.9	5.3	.....	4.55	.....	6.0

Rating table for Ocmulgee River near Jackson, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
4.30	750	5.40	2,560	6.50	5,000	8.20	9,700
4.40	870	5.50	2,760	6.60	5,250	8.40	10,300
4.50	1,000	5.60	2,970	6.70	5,510	8.60	10,920
4.60	1,140	5.70	3,180	6.80	5,770	8.80	11,540
4.70	1,290	5.80	3,390	6.90	6,030	9.00	12,170
4.80	1,450	5.90	3,610	7.00	6,300	10.00	15,500
4.90	1,620	6.00	3,830	7.20	6,840	11.00	18,900
5.00	1,800	6.10	4,060	7.40	7,380	12.00	22,300
5.10	1,980	6.20	4,290	7.60	7,940	13.00	25,700
5.20	2,170	6.30	4,520	7.80	8,510		
5.30	2,360	6.40	4,760	8.00	9,100		

NOTE.—The above table is based on four discharge measurements made during 1906 and is well defined below gage height 5.2 feet. Above gage height 6 feet the curve becomes uncertain and is only approximate at the higher stages.

Monthly discharge of Ocmulgee River near Jackson, Ga., for 1906.

[Drainage area, 1,500 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
May (18–31)	1,370	870	1,020	0.680	0.36
June	25,400	870	4,070	2.71	3.02
July	5,510	870	2,240	1.49	1.72
August	5,250	1,000	2,080	1.39	1.60
September	5,770	750	2,030	1.35	1.51
October	23,700	1,070	4,010	2.67	3.08
November	2,560	870	1,180	.787	.88
December	3,830	935	1,450	.967	1.11

NOTE.—Values are rated as follows: May, July to September, November, and December, excellent; June and October, good.

OCMULGEE RIVER AT MACON, GA.

A station was established at Macon, Ga., January 21, 1893, by the United States Weather Bureau. Discharge measurements were begun by the United States Geological Survey in 1895, and a wire gage was established on the bridge of the Macon, Dublin and Savannah Railroad and was set on the same datum as the Weather Bureau gage. For a time gage-height records were maintained by the Geological Survey, as the Weather Bureau records were for a part of the year only and were discontinued altogether from June 30, 1897, to June 1, 1899. Since June 1, 1899, the Weather Bureau gage-height records have been taken continuously and have been furnished to the Geological Survey. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 58, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Ocmulgee River at Macon, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 5	F. A. Murray	255	2,130	4.54	2,500
May 24	do	231	1,440	2.40	1,300
August 29	W. E. Hall	228	3,160	9.14	5,040
October 11	do	257	1,890	4.91	2,530

Daily gage height, in feet, of Ocmulgee River at Macon, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.2	6.2	3.5	9.2	3.2	2.2	3.3	8.2	4.7	4.8	2.9	2.8
2	4.8	6.0	3.4	8.0	3.1	2.1	2.4	6.5	6.7	16.6	2.9	2.7
3	5.0	5.4	4.2	6.9	3.0	2.0	2.5	5.6	8.5	17.6	2.9	2.8
4	16.1	5.3	4.2	6.1	3.3	3.4	2.8	4.9	6.9	18.2	2.8	2.9
5	15.3	4.9	4.5	5.7	3.4	5.2	2.9	8.1	4.5	17.6	2.9	2.9
6	14.2	4.8	4.1	5.4	3.4	3.0	2.6	7.1	3.7	12.9	2.9	2.8
7	10.5	4.5	3.8	5.2	3.5	2.4	2.4	6.6	3.5	13.3	2.9	2.9
8	9.9	4.9	4.1	5.0	4.8	2.1	2.3	9.2	3.0	9.3	2.8	3.0
9	7.3	6.5	9.7	4.9	4.8	2.0	3.5	5.0	2.5	7.2	2.8	3.1
10	6.4	5.6	11.0	5.5	4.0	2.1	6.6	3.8	2.4	6.0	2.8	2.9
11	6.4	5.3	8.5	6.3	3.4	2.1	4.9	3.5	2.7	5.1	2.7	2.9
12	5.9	5.0	6.9	5.7	3.2	2.0	3.6	3.0	2.6	4.5	2.8	4.0
13	7.0	5.0	6.2	5.1	3.2	13.5	3.3	3.2	3.2	4.2	2.9	4.2
14	6.6	4.8	5.2	4.8	3.1	18.0	2.9	4.4	5.0	4.1	2.9	3.6
15	6.3	4.5	8.7	5.0	2.9	17.2	4.3	11.2	3.2	3.8	3.2	3.4
16	5.4	4.2	14.1	4.8	2.8	17.0	4.5	9.5	2.6	3.8	3.6	3.2
17	5.1	4.1	14.5	4.5	2.7	13.4	4.5	5.3	2.3	3.6	3.5	3.0
18	5.0	4.1	11.8	4.2	2.6	12.9	4.8	4.2	2.2	3.6	3.5	3.4
19	4.8	4.0	9.5	4.1	2.5	10.4	7.7	4.1	6.2	3.8	5.5	4.1
20	4.7	3.9	16.3	4.0	2.5	8.0	10.5	3.3	7.2	4.6	5.4	6.1
21	4.7	4.1	17.0	3.9	2.3	5.9	9.2	3.2	8.1	4.5	4.8	5.6
22	5.2	4.9	15.9	3.9	2.3	5.1	6.3	4.4	9.8	3.8	4.1	5.2
23	19.9	4.0	12.5	3.8	2.4	5.1	7.9	7.3	7.6	3.7	3.9	4.5
24	14.3	3.9	9.9	3.5	2.4	4.0	10.0	7.8	7.4	3.5	3.6	3.9
25	11.3	3.9	8.2	3.3	2.2	3.5	9.0	5.1	8.5	3.5	3.4	3.6
26	11.9	3.9	7.0	3.3	2.4	3.2	6.4	3.8	8.2	3.4	3.1	3.3
27	12.0	3.8	6.3	3.3	2.2	3.2	5.9	4.6	5.5	3.2	3.1	3.2
28	11.0	3.6	11.0	3.2	3.2	3.1	4.2	5.6	6.7	3.1	3.0	3.1
29	9.6	.....	11.9	3.3	3.2	2.8	3.7	9.8	5.9	3.0	2.9	3.6
30	8.5	.....	10.3	3.3	2.9	2.6	8.3	8.5	5.4	2.9	2.8	5.1
31	7.2	.....	10.7	.....	2.5	.....	9.2	7.7	.....	2.9	.....	6.8

Rating table for Ocmulgee River at Macon, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	1,075	3.50	1,750	5.00	2,610	8.00	4,580
2.10	1,110	3.60	1,800	5.20	2,730	9.00	5,340
2.20	1,150	3.70	1,855	5.40	2,850	10.00	6,240
2.30	1,190	3.80	1,910	5.60	2,980	11.00	7,270
2.40	1,230	3.90	1,965	5.80	3,110	12.00	8,400
2.50	1,270	4.00	2,020	6.00	3,240	13.00	9,600
2.60	1,315	4.10	2,075	6.20	3,372	14.00	10,900
2.70	1,360	4.20	2,130	6.40	3,504	15.00	12,300
2.80	1,405	4.30	2,190	6.60	3,636	16.00	13,800
2.90	1,450	4.40	2,250	6.80	3,768	17.00	15,400
3.00	1,500	4.50	2,310	7.00	3,900	18.00	17,100
3.10	1,550	4.60	2,370	7.20	4,032	19.00	18,900
3.20	1,600	4.70	2,430	7.40	4,164	20.00	20,800
3.30	1,650	4.80	2,490	7.60	4,300		
3.40	1,700	4.90	2,550	7.80	4,440		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is fairly well defined.

Monthly discharge of Ocmulgee River at Macon, Ga., for 1906.

[Drainage area, 2,420 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	20,600	2,430	5,820	2.40	2.77
February	3,570	1,800	2,430	1.00	1.04
March	15,400	1,700	5,980	2.47	2.85
April	5,520	1,600	2,560	1.06	1.18
May	2,490	1,150	1,520	.628	.72
June	17,100	1,080	4,170	1.72	1.92
July	6,740	1,190	2,800	1.19	1.37
August	7,490	1,500	3,300	1.36	1.57
September	6,060	1,150	2,860	1.18	1.32
October	17,500	1,450	4,510	1.86	2.14
November	2,920	1,360	1,670	.690	.77
December	3,770	1,360	1,890	.781	.90
The year	20,600	1,080	3,300	1.36	18.55

NOTE.—Values for 1906 are good.

ALCOVY RIVER NEAR STEWART, GA.

This station was established September 16, 1905. It is located at a single-span steel wagon bridge known as "Waters Bridge," about 15 miles south of Covington, Ga., and 5 miles from Stewart, Ga. The bridge is below the mouth of Bear Creek and about 4 miles from the mouth of the river. The station is important because it is a short distance below a large amount of fall at the old Newton factory site. The gage which was read during 1906 by C. M. Fincher is attached to a birch tree on the right edge of stream, 40 feet upstream from bridge. Rocks on which bench mark is cut are about 20 feet above bridge. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 61, and in Water-Supply Paper No. 197.

Discharge measurements of Alcovy River near Stewart, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
January 13	W. E. Hall	73	255	4.80	580
January 13	do	73	259	4.82	600
April 13	F. A. Murray	72	209	4.22	483
June 28	W. E. Hall	54	122	2.89	242
August 15	M. R. Hall	75	341	5.64	810
October 31	do	59	121	3.02	242

Daily gage height, in feet, of Alcovy River near Stewart, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.05	4.5	3.2	5.5	2.95	2.6	2.75	6.0	6.5	4.3	2.9	3.0
2	3.9	4.8	3.2	5.1	3.1	2.5	2.65	6.0	4.5	10.4	2.9	3.0
3	7.0	4.4	3.2	4.0	3.05	2.75	2.8	5.8	4.0	8.5	2.85	3.0
4	8.0	4.2	3.5	4.2	3.0	4.0	2.75	4.5	3.1	9.0	3.0	3.0
5	7.0	4.1	3.6	4.1	3.0	3.1	2.85	4.0	2.8	8.5	3.0	3.0
6	8.0	4.0	3.5	4.0	3.1	2.75	2.9	4.2	2.75	9.0	3.0	3.0
7	7.5	4.0	3.5	4.0	3.3	2.7	2.7	4.0	2.7	6.5	3.0	3.0
8	7.0	3.9	4.4	3.9	3.6	2.6	2.9	3.8	2.7	5.8	3.0	3.25
9	5.8	4.0	4.9	3.9	3.8	2.6	6.6	3.5	2.6	5.3	3.0	3.25
10	4.7	4.0	5.0	3.85	3.65	2.5	7.2	3.1	2.5	4.8	3.0	3.25
11	4.6	3.9	5.5	4.3	3.35	2.5	5.0	3.0	2.6	4.0	3.0	3.5
12	4.5	3.9	5.5	4.5	3.1	2.6	4.1	2.9	2.5	3.8	3.15	3.75
13	4.5	3.85	4.8	4.3	3.0	10.5	3.4	8.0	3.3	3.6	3.2	3.7
14	4.4	3.8	4.0	3.9	2.9	10.5	3.5	5.0	3.25	3.5	3.2	3.7
15	4.4	3.8	6.5	3.75	2.8	10.0	3.5	6.2	3.0	3.4	3.3	3.7
16	4.6	3.7	6.2	3.7	2.75	11.0	3.7	6.0	3.1	3.3	3.35	3.4
17	4.5	3.7	6.8	3.6	2.65	11.5	4.4	5.0	2.9	3.3	3.4	3.4
18	4.2	3.5	7.0	3.55	2.6	11.0	6.8	4.0	6.5	3.4	4.8	3.6
19	4.1	3.45	8.0	3.5	2.6	8.5	7.0	3.5	6.0	3.5	4.4	3.6
20	3.9	3.4	8.0	3.4	2.55	6.5	6.5	3.0	5.5	3.6	4.0	4.0
21	4.0	3.85	9.5	3.3	2.5	5.0	5.8	2.9	4.5	3.5	4.0	4.0
22	4.9	3.6	9.0	3.3	2.65	4.0	5.0	2.9	6.0	3.55	3.9	4.3
23	7.5	3.5	8.0	3.2	2.9	3.75	7.0	3.4	8.0	3.4	3.65	4.3
24	7.0	3.45	6.5	3.1	2.8	3.45	5.0	3.25	6.8	3.35	3.4	4.1
25	6.5	3.45	5.5	3.1	2.6	3.1	4.8	3.1	4.5	3.3	3.3	(a)
26	6.5	3.4	5.0	3.0	2.8	2.9	5.5	3.7	4.6	3.2	3.2	.....
27	6.2	3.35	4.9	3.0	3.0	2.9	4.5	4.0	6.0	3.1	3.2	.....
28	6.1	3.25	5.5	3.0	3.25	2.9	3.5	3.0	4.5	3.1	3.15	.....
29	6.0	.....	4.9	3.0	3.9	2.8	5.5	3.0	4.4	3.1	3.1	.....
30	5.5	.....	5.4	2.95	3.25	2.8	5.0	3.0	4.4	3.0	3.05	.....
31	5.0	.....	6.0	.....	2.8	.....	4.8	3.6	.....	3.0	.....	.....

(a) No records after December 24.

Rating table for Alcovy River near Stewart, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.50	170	3.50	334	4.50	530	6.00	910
2.60	185	3.60	352	4.60	552	6.20	970
2.70	200	3.70	370	4.70	585	6.40	1,030
2.80	216	3.80	388	4.80	608	6.60	1,090
2.90	232	3.90	406	4.90	631	6.80	1,150
3.00	248	4.00	425	5.00	645	7.00	1,210
3.10	265	4.10	445	5.20	693	7.20	1,274
3.20	282	4.20	466	5.40	743	7.40	1,338
3.30	299	4.30	487	5.60	796	7.60	1,402
3.40	316	4.40	508	5.80	852	7.80	1,466

NOTE.—The above table is based on ten discharge measurements made during 1905–6 and is fairly well defined below gage height 5.7 feet. Above gage height 7.0 feet the rating curve is a tangent, the difference being 32 per tenth.

Monthly discharge of Alcovy River near Stewart, Ga., for 1906.

[Drainage area, 395 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	1,530	406	818	2.07	2.39
February	608	290	393	.995	1.04
March	2,010	282	824	2.09	2.41
April	768	240	383	.970	1.08
May	406	176	252	.638	.74
June	2,650	170	764	1.93	2.15
July	1,270	192	582	1.47	1.70
August	1,530	232	481	1.22	1.41
September	1,530	170	518	1.31	1.46
October	2,300	248	635	1.61	1.86
November	608	224	305	.772	.86
December (1-24)	487	248	335	.848	.76
The period	2,650	170	524	1.32	17.86

NOTE.—Values for 1906 are excellent.

APALACHEE RIVER NEAR BUCKHEAD, GA.

This station was established February 13, 1901. It is located at the iron wagon bridge over Apalachee River, about 3½ miles north of Buckhead, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 63, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Apalachee River near Buckhead, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 10	Hall and Murphy	86	386	3.28	615
April 28	M. R. Hall	85	309	2.51	488
June 28	do	82	239	2.01	333
August 17	do	85	368	3.36	714
October 17	do	83	221	1.99	325

Daily gage height, in feet, of Apalachee River near Buckhead, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.5	4.2	2.5	4.9	2.9	2.05	2.3	9.0	2.6	3.5	2.3	2.1
2	4.2	3.9	2.55	4.3	2.6	2.0	2.1	5.4	4.0	4.8	2.35	2.15
3	4.8	3.6	2.7	3.8	2.35	4.5	2.5	3.8	3.2	5.7	2.3	2.2
4	13.0	3.4	2.95	3.6	2.3	3.6	3.1	4.3	2.5	7.2	2.3	2.3
5	14.2	3.3	2.7	3.4	2.4	2.6	2.5	6.2	2.35	6.1	2.3	2.3
6	9.8	3.4	2.7	3.3	2.3	2.35	2.0	4.2	2.25	4.8	2.3	2.3
7	6.4	3.4	2.9	3.2	3.3	2.2	2.15	3.5	2.2	3.5	2.3	2.4
8	5.2	3.5	3.7	3.0	4.4	2.1	3.6	3.4	2.15	3.1	2.3	2.5
9	4.9	3.4	6.3	2.95	3.7	2.0	10.0	3.6	1.9	2.7	2.35	2.2
10	4.1	3.3	6.4	4.8	2.8	2.05	8.7	2.7	1.7	2.65	2.35	2.35
11	3.3	3.3	4.3	4.1	2.45	2.1	3.5	2.85	2.0	2.55	2.35	2.85
12	3.8	3.2	2.5	3.5	2.3	2.3	3.6	2.65	2.35	2.5	2.6	3.4
13	4.7	3.1	2.85	3.1	2.25	7.6	2.9	2.4	3.1	2.4	2.55	3.0
14	4.2	3.0	3.0	2.5	2.2	11.5	2.4	2.7	2.7	2.2	2.5	2.75
15	3.7	3.0	7.0	3.9	2.15	13.1	4.2	7.0	2.3	2.2	2.6	2.6
16	3.5	2.95	12.5	3.4	2.15	13.2	6.7	7.7	1.9	2.3	2.55	2.2
17	3.4	2.8	10.5	3.1	2.1	10.5	5.4	3.6	1.7	2.2	2.5	1.9
18	3.1	2.8	6.0	2.9	2.1	13.9	7.5	3.1	2.1	2.15	3.0	2.45
19	3.0	2.6	7.2	2.75	2.1	8.0	9.6	3.8	5.7	2.5	3.5	2.6
20	3.1	2.7	14.8	2.6	2.0	4.0	5.8	3.0	6.0	2.7	3.8	3.5

Daily gage height, in feet, of Apalachee River near Buckhead, Ga., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	2.9	3.1	15.3	2.6	1.9	3.4	4.1	2.9	6.8	2.5	3.1	3.8
22	6.3	3.2	9.4	2.6	2.05	3.0	3.2	2.8	5.2	2.3	2.7	3.5
23	19.9	3.9	5.7	2.45	2.05	2.8	6.0	2.85	4.3	2.45	2.65	3.1
24	15.1	2.75	4.7	2.45	2.1	2.6	5.8	2.95	3.8	2.45	2.6	2.6
25	8.0	2.7	3.6	2.5	2.2	2.4	6.4	3.1	3.4	2.5	2.45	2.4
26	7.8	2.7	3.0	2.5	2.35	3.4	3.2	2.4	3.3	2.4	2.4	2.35
27	9.4	2.7	3.1	2.5	2.55	2.85	2.7	3.4	3.5	2.3	2.4	2.3
28	8.3	2.6	4.5	2.6	2.5	2.45	2.55	3.6	3.6	2.3	2.4	2.85
29	6.8	.....	5.1	3.0	2.4	2.4	3.0	3.5	3.8	2.3	2.3	3.55
30	5.5	.....	5.2	4.1	2.2	2.3	6.2	3.6	3.1	2.35	2.15	3.8
31	4.8	.....	6.9	.....	2.1	.....	8.2	2.95	.....	2.2	.....	4.6

Rating table for Apalachee River near Buckhead, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.70	264	2.20	384	2.70	520	3.20	670
1.80	286	2.30	410	2.80	550	3.30	700
1.90	310	2.40	436	2.90	580	3.40	730
2.00	334	2.50	464	3.00	610	3.50	760
2.10	358	2.60	492	3.10	640		

NOTE.—The above table is based on discharge measurements made during 1903–1906, and is fairly well defined below gage height 7.3 feet. Above gage height 3 feet the rating curve is a tangent, the difference being 30 per tenth.

Monthly discharge of Apalachee River near Buckhead, Ga., for 1906.

[Drainage area, 440 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	5,680	580	1,650	3.75	4.32
February	970	492	658	1.50	1.56
March	4,300	464	1,380	3.14	3.62
April	1,180	450	675	1.53	1.71
May	1,030	310	449	1.02	1.18
June	3,880	334	1,110	2.52	2.81
July	2,710	334	1,090	2.48	2.86
August	2,410	436	894	2.03	2.34
September	1,750	264	674	1.53	1.71
October	1,870	371	623	1.42	1.64
November	850	371	478	1.09	1.22
December	1,090	310	538	1.22	1.41
The year	5,680	264	852	1.94	26.38

NOTE.—At times the accuracy of the above results may be more or less affected by daily fluctuations caused by stored water above, but otherwise the results can, in general, be accepted as excellent.

OCONEE RIVER NEAR GREENSBORO, GA.

This station was established July 25, 1903. It is located at the new wagon bridge, about 5 miles west of Greensboro, on the road to Madison, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 66, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Oconee River near Greensboro, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 10	M. R. Hall	122	861	3.62	1,310
April 28	do	122	843	4.35	1,710
June 28	do	118	471	2.13	835
August 17	do	121	863	5.75	2,500
October 17	do	118	514	2.70	961

Daily gage height, in feet, of Oconee River near Greensboro, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov	Dec.
1	3.5	5.1	3.6	5.6	3.4	2.0	1.8	8.4	5.6	3.5	2.5	2.3
2	3.5	5.0	3.6	5.4	3.0	1.8	4.9	8.4	3.6	5.7	2.5	2.3
3	3.8	4.9	3.8	5.4	2.7	4.3	2.6	3.7	2.8	6.1	2.4	2.3
4	13.9	4.5	3.5	5.2	2.9	5.6	3.3	9.5	2.6	8.7	2.4	2.3
5	16.3	3.8	3.4	5.0	2.9	3.3	2.1	7.7	2.3	10.2	2.3	2.2
6	16.8	3.6	3.2	4.0	2.9	2.3	2.0	6.2	2.4	9.3	2.4	2.3
7	12.5	3.8	2.0	4.1	5.2	2.1	2.1	5.2	3.6	5.8	2.5	2.4
8	9.3	4.0	2.8	3.6	4.6	2.0	6.5	3.7	2.6	4.2	2.4	2.4
9	5.1	3.8	4.3	3.4	3.7	1.7	7.6	3.1	2.2	3.6	2.4	2.3
10	4.8	3.7	8.2	5.5	3.0	2.3	8.2	2.8	2.2	3.4	2.4	2.3
11	4.5	3.7	4.9	4.0	2.6	2.0	4.5	2.6	2.7	3.2	2.3	4.1
12	4.7	3.5	4.5	3.7	2.5	3.7	3.7	2.5	2.6	3.0	2.6	4.9
13	5.2	3.5	3.0	3.7	2.5	8.6	3.1	2.6	5.6	2.9	2.5	4.0
14	5.2	3.3	2.8	4.0	2.4	10.8	2.6	3.4	3.7	2.8	2.6	3.1
15	5.1	3.2	8.6	4.1	2.3	12.3	7.4	5.2	2.5	2.8	2.9	2.8
16	4.3	3.1	13.5	4.2	2.3	10.4	7.9	5.7	2.2	2.8	2.8	2.7
17	4.3	3.1	16.3	3.5	2.2	11.3	7.5	5.3	2.0	2.7	2.7	2.7
18	4.0	3.0	15.2	3.2	2.2	7.4	10.3	4.1	2.3	2.7	3.8	3.3
19	3.4	3.0	10.1	3.1	2.1	4.5	12.3	4.3	5.3	3.7	3.7	4.3
20	3.6	2.9	14.9	3.0	2.0	3.4	9.9	5.1	8.4	4.3	3.4	4.9
21	3.6	2.9	18.5	3.0	1.9	3.1	5.4	6.8	8.4	3.5	2.9	4.9
22	6.5	3.4	18.1	2.9	2.3	2.8	3.8	8.2	8.0	3.0	2.8	4.1
23	16.5	3.0	10.5	2.8	2.1	2.6	8.2	5.9	6.1	2.9	2.8	3.4
24	18.9	3.0	6.1	2.7	1.9	2.2	7.5	4.0	4.0	2.7	2.6	3.1
25	16.2	3.0	6.0	2.6	1.9	2.2	5.0	3.4	4.8	2.7	2.5	2.9
26	11.3	3.9	5.8	2.6	2.3	3.0	4.3	4.0	4.1	2.7	2.5	2.8
27	10.4	3.8	5.5	2.5	2.6	2.4	3.0	4.6	5.8	2.5	2.5	2.7
28	9.8	3.8	5.8	4.2	3.2	2.3	2.9	4.7	5.9	2.5	2.4	2.6
29	8.6	.....	5.6	4.7	2.3	2.1	3.5	4.9	5.3	2.5	2.4	4.0
30	7.0	.....	5.6	4.2	2.2	2.0	6.9	5.8	3.8	2.8	2.2	3.6
31	6.3	.....	5.5	.....	1.9	.....	11.0	4.9	.....	2.5	.....	5.8

Rating table for Oconee River near Greensboro, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.70	620	3.00	1,090	4.30	1,670	6.20	2,660
1.80	655	3.10	1,130	4.40	1,720	6.40	2,770
1.90	690	3.20	1,170	4.50	1,770	6.60	2,880
2.00	725	3.30	1,210	4.60	1,820	6.80	3,000
2.10	760	3.40	1,250	4.70	1,870	7.00	3,120
2.20	795	3.50	1,295	4.80	1,920	8.00	3,740
2.30	830	3.70	1,340	4.90	1,970	9.00	4,410
2.40	865	3.70	1,385	5.00	2,020	10.00	5,110
2.50	900	3.80	1,430	5.20	2,120	11.00	5,840
2.60	935	3.90	1,475	5.40	2,220	12.00	6,590
2.70	970	4.00	1,520	5.60	2,330		
2.80	1,010	4.10	1,570	5.80	2,440		
2.90	1,050	4.20	1,620	6.00	2,550		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is well defined below gage height 10.5 feet. Above gage height 10.4 feet the rating curve is a tangent, the difference being 75 per tenth.

Monthly discharge of Oconee River near Greensboro, Ga., for 1906.

[Drainage area, 1,100 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	11,800	1,250	4,100	3.73	4.30
February	2,070	1,010	1,330	1.21	1.26
March	11,500	725	3,640	3.31	3.82
April	2,330	900	1,480	1.35	1.51
May	2,120	690	971	.883	1.02
June	6,820	620	1,860	1.69	1.89
July	6,820	655	2,480	2.25	2.59
August	4,760	900	2,120	1.93	2.22
September	4,000	725	1,670	1.52	1.70
October	5,250	900	1,590	1.45	1.67
November	1,430	795	955	.868	.97
December	2,440	795	1,210	1.10	1.27
The year	11,800	620	1,950	1.77	24.22

NOTE.—Values for 1906 are excellent.

OCONEE RIVER AT FRALEYS FERRY, NEAR MILLEDGEVILLE, GA.

This station is located at Fraleys Ferry, about 6 miles above Milledgeville, Ga., and about 4 miles below the mouth of Little River. This point, being above the dam at Milledgeville, has a nearly natural flow, being but slightly affected by dams a great distance upstream.

The channel is straight for some distance above and below the station. The current is moderate or slow at low stages. The bed is sandy and changing, but the rock shoals below will probably control the water level at the station.

Discharge measurements are made from the ferryboat or from a small boat controlled by the ferry cable, along which the distances are marked. Measurements can be made at low and medium stages only, as at higher stages the current soon becomes too swift for safety in boat measurements.

The gage is a heart-pine timber bolted to solid rock on the left bank 100 feet above the ferry and capped with a 1 by 2 inch walnut gage, which reads from 4.1 feet to 9 feet. The gage is read twice a day by Jesse Cummings. The bench mark is a point and circle cut into solid rock on the left bank 35 feet from edge of water and 20 feet above the ferry cable; elevation, 17.02 feet above gage datum. These are set to accord with the former temporary gage used during October and November, 1905.

Discharge measurements of Oconee River at Fraleys Ferry, near Milledgeville, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
May 23	F. A. Murray	273	1,960	5.59	1,540
October 12	W. E. Hall	276	1,910	6.02	2,200

Daily gage height, in feet, of Oconee River at Fraleys Ferry, near Milledgeville, Ga., for 1906.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		5.4	5.6	8.8	6.8	7.2	5.6	5.6
2		5.4	5.6	8.2	7.2	(a)	5.6	5.6
3		5.6	6.0	7.5	6.8	(a)	5.6	5.7
4		6.8	6.8	7.7	6.0	8.7	5.6	5.7
5		6.8	6.3	7.9	5.8	8.4	5.6	5.6
6		5.9	5.6	7.3	5.6	8.8	5.6	5.7
7		5.6	6.4	7.0	5.5	8.0	5.6	5.8
8		5.6	6.9	6.6	5.5	7.0	5.6	5.8
9		5.5	8.6	6.3	5.5	6.4	5.6	5.7
10		5.6	8.8	6.0	5.4	6.2	5.6	5.8
11		5.6	7.4	5.8	5.6	6.2	5.6	5.9
12		5.9	6.3	5.8	5.6	6.0	5.7	6.5
13		(a)	6.2	6.0	6.6	6.0	5.8	6.4
14		(a)	7.0	6.4	6.6	5.9	5.7	6.1
15		(a)	7.9	7.4	6.0	5.9	5.9	6.0
16		(a)	8.2	7.8	5.5	5.9	6.0	5.8
17		(a)	7.9	8.2	5.4	5.8	6.1	5.9
18		(a)	8.4	7.0	5.9	5.9	6.1	6.0
19		8.6	11.0	6.4	7.2	6.0	6.4	7.3
20		7.4	8.2	6.8	8.0	6.4	6.6	7.4
21		6.6	7.2	7.3	8.0	6.2	6.2	7.0
22		7.0	7.4	7.1	7.8	6.0	6.0	6.7
23	5.6	6.8	7.2	6.8	7.0	5.9	5.9	6.4
24	5.5	6.0	8.0	6.6	7.1	5.8	5.8	6.2
25	5.5	5.8	7.2	6.2	7.1	5.8	5.8	6.0
26	5.6	5.8	6.6	6.2	6.6	5.8	5.7	5.9
27	5.8	6.2	6.2	5.4	7.2	5.8	5.6	5.9
28	6.0	5.9	6.0	7.2	7.5	5.7	5.6	5.9
29	5.9	5.6	6.6	6.8	7.0	5.6	5.7	6.6
30	5.7	5.6	8.5	7.0	6.6	5.6	5.6	6.8
31	5.5	.....	8.8	6.8	.....	5.6	.....	7.6

(a) Water over the gage.

Rating table for Oconee River at Fraleys Ferry near Milledgeville, Ga., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
4.30	530	5.00	1,000	5.70	1,770	6.40	2,860
4.40	580	5.10	1,090	5.80	1,900	6.50	3,040
4.50	640	5.20	1,190	5.90	2,040	6.60	3,220
4.60	700	5.30	1,290	6.00	2,190	6.70	3,410
4.70	770	5.40	1,400	6.10	2,350	6.80	3,600
4.80	840	5.50	1,520	6.20	2,520	6.90	3,800
4.90	920	5.60	1,640	6.30	2,690	7.00	4,000

NOTE.—The above table is based on five discharge measurements made during 1904–1906, and is well defined below gage height 6 feet.

OCONEE RIVER AT DUBLIN, GA.

A station was established by the United States Weather Bureau in 1894 at Dublin, Ga., about 60 miles above the junction of the Oconee with the Ocmulgee. Records were kept, with the exception of the summer months of 1896, until April 30, 1897, when the station was discontinued. In 1898 discharge measurements were commenced by the United States Geological Survey, and February 11 an observer was employed to read the gage. October 15, 1898, the Weather Bureau again adopted the station and has maintained the gage and furnished gage heights to the Geological Survey continuously since that time. The conditions at this station and the bench marks are

described in Water-Supply Paper No. 168, page 71, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Oconee River at Dublin, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 6	F. A. Murray	237	1,690	3.14	4,320
March 6	do	237	1,690	3.11	4,300
May 28	do	222	957	.82	2,280
September 1	W. E. Hall	258	2,150	5.50	6,560

Daily gage height, in feet, of Oconee River at Dublin, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.9	13.9	3.1	9.7	1.4	1.6	1.3	6.7	5.6	3.9	0.5	1.0
2	6.2	11.8	2.7	10.0	2.4	1.5	.9	7.8	7.5	2.7	.5	.9
3	5.6	8.9	2.7	9.2	2.4	1.5	.9	8.3	5.0	5.6	.2	.7
4	5.6	7.6	2.5	7.7	2.2	1.4	1.9	8.9	4.0	6.8	.2	.8
5	7.5	6.4	3.0	6.5	1.8	1.4	2.5	8.5	3.0	8.2	.7	.8
6	8.5	4.4	3.3	5.0	1.5	1.6	2.9	6.9	2.5	9.1	.7	.7
7	10.0	4.7	3.3	3.5	1.2	1.8	2.6	6.9	2.0	9.1	.6	.7
8	12.6	4.4	3.0	3.0	1.0	2.1	1.9	5.9	1.5	9.8	.5	1.0
9	14.4	5.7	4.0	3.0	1.5	1.8	3.9	4.5	1.5	10.0	.5	1.0
10	14.4	7.2	5.6	2.7	2.3	1.0	4.2	3.4	1.0	10.3	.7	1.0
11	13.3	6.2	6.9	2.5	3.0	.8	4.9	2.5	.9	9.0	.6	1.0
12	10.0	6.9	7.3	4.3	2.2	.6	6.2	1.7	.7	8.0	.6	1.0
13	6.4	6.5	6.5	5.0	1.5	.3	7.1	1.4	.7	4.0	.7	1.7
14	6.0	6.3	4.9	4.2	1.5	.3	6.0	1.5	1.0	2.0	.6	2.7
15	6.1	6.5	4.0	3.3	1.2	5.6	4.5	1.7	1.5	1.5	.7	3.6
16	5.7	5.5	3.5	2.9	.9	7.7	5.8	1.9	2.0	1.0	1.5	2.6
17	4.8	4.9	6.7	3.0	.8	11.1	6.5	2.0	2.5	.3	1.5	1.3
18	4.3	3.9	7.7	3.8	.8	14.7	7.2	2.4	2.0	1.0	1.8	1.5
19	4.4	3.3	9.5	3.2	.7	18.7	7.7	3.4	1.8	1.0	1.7	2.8
20	3.8	3.3	12.5	3.0	.7	18.2	8.0	4.5	1.2	1.5	2.0	2.0
21	3.7	3.5	15.0	2.4	.8	17.0	9.0	5.6	1.9	1.8	2.6	4.5
22	3.4	3.4	15.7	2.0	.9	14.6	9.9	4.8	4.5	2.0	2.8	5.3
23	4.2	4.6	15.7	2.2	1.0	13.0	10.2	5.5	5.0	2.5	2.0	4.5
24	4.5	4.4	16.4	1.8	1.0	6.8	9.0	6.0	6.0	1.5	1.7	3.5
25	9.2	4.0	17.5	1.7	1.2	3.9	8.0	5.0	4.8	1.0	1.5	3.0
26	14.7	3.2	16.7	1.6	1.4	2.0	7.4	4.2	3.8	1.0	1.7	3.0
27	19.1	3.0	14.0	1.4	1.3	1.6	8.0	3.0	3.7	.9	1.0	3.0
28	19.2	3.0	13.1	1.0	1.3	1.5	8.0	3.3	3.4	.7	1.0	1.7
29	18.8	.....	9.0	.9	1.6	2.0	6.0	5.5	3.0	1.0	1.0	1.6
30	17.0	.....	7.8	1.0	1.7	1.6	4.0	6.5	4.8	1.0	1.0	1.5
31	15.2	.....	8.5	.....	1.6	.....	5.0	6.0	.....	.7	.....	2.0

Rating table for Oconee River at Dublin, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
0.20	1,800	1.60	2,945	3.00	4,150	5.80	6,870
.30	1,880	1.70	3,030	3.20	4,330	6.00	7,090
.40	1,960	1.80	3,115	3.40	4,510	7.00	8,190
.50	2,040	1.90	3,200	3.60	4,695	8.00	9,390
.60	2,120	2.00	3,285	3.80	4,885	9.00	10,640
.70	2,200	2.10	3,370	4.00	5,075	10.00	11,990
.80	2,280	2.20	3,455	4.20	5,265	11.00	13,430
.90	2,360	2.30	3,540	4.40	5,455	12.00	14,930
1.00	2,440	2.40	3,625	4.60	5,650	13.00	16,500
1.10	2,520	2.50	3,710	4.80	5,850	14.00	18,100
1.20	2,605	2.60	3,795	5.00	6,050	15.00	19,800
1.30	2,690	2.70	3,880	5.20	6,250		
1.40	2,775	2.80	3,970	5.40	6,450		
1.50	2,860	2.90	4,060	5.60	6,650		

NOTE.—The above table is based on discharge measurements made during 1903-1906, and is well defined below gage height 7 feet. Above gage height 14 feet the rating curve is a tangent, the difference being 170 per tenth.

Monthly discharge of Oconee River at Dublin, Ga., for 1906.

[Drainage area, 4,180 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	26,900	4,510	11,800	2.82	3.25
February	17,900	4,150	6,920	1.66	1.73
March	24,000	3,710	10,400	2.49	2.87
April	12,000	2,360	4,990	1.19	1.33
May	4,150	2,200	2,810	.672	.77
June	26,100	1,880	7,480	1.79	2.00
July	12,300	2,360	6,820	1.63	1.88
August	10,500	2,780	5,910	1.41	1.63
September	8,790	2,200	4,190	1.00	1.12
October	12,400	1,880	5,280	1.26	1.45
November	3,970	1,800	2,540	.608	.68
December	6,350	2,200	3,320	.794	.92
The year	26,900	1,800	6,040	1.44	19.63

NOTE.—Values for 1906 are probably excellent except those for May which are fair, owing to erroneous gage heights.

OHOOPEE RIVER NEAR REIDSVILLE, GA.

This station was established June 13, 1903. It is located at the wooden highway bridge known as Sheppards Bridge, 4½ miles west of Reidsville, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 75, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Ohoopee River near Reidsville, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 8	F. A. Murray	128	1,150	7.75	2,220
May 26	do	113	590	3.57	642
August 30	W. E. Hall	133	1,340	9.09	3,130

Daily gage height, in feet, of Ohoopee River near Reidsville, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.8	8.7	6.2	6.3	1.1	3.5	4.6	8.6	8.1	3.2	1.2	1.0
2	8.8	8.3	6.0	6.1	1.0	2.8	3.7	8.4	7.2	3.4	1.2	.9
3	8.7	7.9	6.1	5.8	1.0	3.9	3.5	7.6	7.8	4.8	1.0	.9
4	8.9	7.5	7.9	5.5	1.0	5.0	3.5	7.3	7.0	5.2	.9	.8
5	9.0	7.2	8.1	5.1	1.0	7.6	4.7	7.4	6.3	6.5	.9	.8
6	9.1	6.9	7.6	4.7	1.4	9.9	5.0	7.5	5.1	5.0	.9	.7
7	9.3	6.5	7.5	4.4	1.9	9.5	5.1	6.8	4.9	4.7	.8	.7
8	9.6	6.5	7.7	4.1	2.9	8.9	5.8	5.9	4.3	4.3	.8	.9
9	9.2	7.2	8.1	3.7	3.5	7.8	6.0	4.3	3.8	4.0	.8	1.2
10	8.8	8.0	8.4	3.5	3.5	6.2	5.2	4.6	3.4	3.9	.8	1.7
11	8.3	8.5	8.2	3.3	3.3	4.4	4.2	4.0	2.9	3.7	.7	1.6
12	8.0	8.9	8.2	3.3	2.8	4.1	4.5	3.3	2.3	3.1	.7	1.4
13	7.7	9.2	8.0	3.0	2.0	6.0	4.2	3.6	2.9	2.7	.8	1.2
14	7.3	9.4	7.6	2.9	1.7	7.4	4.5	3.2	2.6	2.5	.8	1.0
15	7.1	9.5	7.1	3.0	1.5	8.4	4.9	2.9	3.7	2.3	.9	1.0
16	7.0	9.3	6.8	3.2	1.4	7.9	5.0	3.1	3.8	2.1	1.2	1.0
17	6.8	9.0	6.4	3.7	1.2	10.1	5.9	3.9	3.9	2.0	1.6	1.0
18	6.6	8.7	6.1	3.4	1.0	10.6	6.6	4.3	3.8	2.0	1.7	1.0
19	6.6	8.1	5.8	3.0	1.0	10.6	7.0	3.4	3.6	2.1	1.8	1.2
20	6.6	7.6	6.9	2.8	.9	11.0	7.8	2.9	3.4	2.3	1.8	1.7

Daily gage height, in feet, of Ohoopee River near Reidsville, Ga., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
21	6.3	7.5	7.6	2.7	.9	10.9	9.2	2.3	3.9	2.4	1.9	2.0
22	6.1	8.1	8.0	2.4	.9	10.0	8.4	2.8	3.4	2.4	1.8	2.3
23	6.5	8.2	8.7	2.2	.9	9.2	7.6	3.1	3.2	2.3	1.7	2.3
24	7.0	8.0	9.0	2.0	1.3	8.1	7.3	4.1	3.1	2.3	1.6	2.3
25	7.5	7.6	8.6	1.8	2.5	7.2	7.3	4.8	2.9	2.1	1.6	2.3
26	8.0	7.2	7.7	1.7	3.5	6.5	7.5	5.2	2.7	2.0	1.6	2.3
27	8.5	6.8	7.2	1.5	4.0	5.9	7.2	6.7	3.1	1.9	1.5	2.0
28	9.0	6.5	6.8	1.4	4.5	5.5	6.9	8.1	3.4	1.8	1.2	2.0
29	9.4	.....	6.8	1.3	4.8	5.3	7.8	8.6	3.5	1.7	1.1	2.0
30	9.3	.....	6.7	1.2	5.1	5.2	8.6	9.1	3.3	1.6	1.0	2.1
31	9.0	.....	6.7	.....	4.4	.....	9.0	8.9	.....	1.6	.....	2.4

Rating table for Ohoopee River near Reidsville, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
0.70	83	2.10	283	3.50	600	5.80	1,438
.80	93	2.20	302	3.60	629	6.00	1,520
.90	104	2.30	321	3.70	659	6.20	1,602
1.00	115	2.40	341	3.80	690	6.40	1,685
1.10	127	2.50	361	3.90	722	6.60	1,771
1.20	140	2.60	382	4.00	755	6.80	1,860
1.30	153	2.70	403	4.20	824	7.00	1,950
1.40	167	2.80	425	4.40	895	8.00	2,430
1.50	182	2.90	447	4.60	968	9.00	2,950
1.60	197	3.00	470	4.80	1,043	10.00	3,500
1.70	213	3.10	494	5.00	1,120	11.00	4,120
1.80	230	3.20	519	5.20	1,198		
1.90	247	3.30	545	5.40	1,277		
2.00	265	3.40	572	5.60	1,357		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is well defined.

Monthly discharge of Ohoopee River near Reidsville, Ga., for 1906.

[Drainage area, 1,280 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	3,280	1,560	2,470	1.93	2.22
February	3,220	1,730	2,420	1.89	1.97
March	2,950	1,440	2,140	1.67	1.92
April	1,640	140	619	.484	.54
May	1,160	104	359	.280	.32
June	4,120	425	2,210	1.73	1.93
July	3,060	600	1,600	1.25	1.44
August	3,000	321	1,370	1.07	1.23
September	2,480	321	858	.670	.75
October	1,730	197	520	.406	.47
November	247	83	146	.114	.13
December	341	83	189	.148	.17
The year	4,120	83	1,240	.970	13.09

NOTE.—Values are rated as follows: January to April and June to October, excellent; May, November, and December, good.

ST. JOHNS RIVER DRAINAGE BASIN.

SILVER SPRINGS AT SILVER SPRINGS, FLA.

Silver Springs form the outlet of an underground stream or system of streams so large that steamboats run on the stream leading from it into the basin of the spring. This water flows eastward about 9 miles into the Oklawaha River, which has its source in a number of lakes in central Florida, and flows north for a considerable distance, then eastward into the St. Johns River, which empties into the Atlantic Ocean.

On May 25, 1906, a station was established at Silver Springs for the purpose of observing the amount and fluctuation of the flow from this remarkable spring. The vertical gage is attached to a post in the basin, and discharge measurements are made from a boat at a point on the outlet stream just below.

The bed of the stream is sandy and is covered with vegetation, making it difficult to measure. At the point usually measured the width is about 100 feet, with a depth of 10 feet.

A measurement was made May 26, 1906, by W. E. Hall, with the following results:

Width, 110 feet; area, 876 square feet; gage height, 3.02 feet; discharge, 545 second-feet.

Daily gage height, in feet, of Silver Springs at Silverspring, Fla., for 1906.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1			3.45	4.2	4.35	3.15	3.8	3.7
2			3.45	4.2	4.35	3.1	3.8	3.7
3		3.05	3.45	4.05	4.35	3.1	3.8	3.7
4		3.0	3.45	4.0	4.3	3.05	3.8	3.7
5		3.0	3.45	4.0	4.3	3.05	3.8	3.7
6		3.0	3.5	4.0	4.25	3.05	3.8	3.7
7		3.0	3.5	3.95	4.2	3.05	3.8	3.7
8		3.0	3.5	3.95	4.2	3.0	3.85	3.65
9		3.05	3.5	3.95	4.2	3.0	3.85	3.65
10		3.15	3.5	3.9	4.15	3.0	3.85	3.65
11		3.15	3.55	3.9	4.1	3.0	3.8	3.6
12		3.35	3.6	3.95	4.1	3.25	3.8	3.6
13		3.6	3.7	4.0	4.1	3.4	3.8	3.6
14		3.4	3.75	4.05	4.05	3.6	3.8	3.6
15		3.4	3.8	4.05	4.05	3.75	3.8	3.6
16		3.4	3.85	4.1	4.05	3.85	3.8	3.6
17		3.45	4.1	4.05	4.05	3.9	3.75	3.6
18		3.5	4.1	4.0	4.0	3.9	3.75	3.6
19		3.5	4.05	4.05	4.0	3.9	3.75	3.6
20		3.45	4.05	4.1	3.05	3.9	3.75	3.6
21		3.45	4.0	4.15	3.05	3.9	3.75	3.6
22		3.45	4.0	4.2	3.05	3.9	3.75	3.6
23		3.45	4.05	4.2	3.05	3.85	3.75	3.6
24		3.45	4.1	4.2	3.1	3.85	3.75	3.55
25	3.0	3.45	4.1	4.25	3.1	3.85	3.75	3.55
26	3.1	3.4	4.2	4.3	3.1	3.8	3.75	3.55
27	3.1	3.4	4.05	4.3	3.05	3.8	3.75	3.55
28	3.1	3.45	4.05	4.35	3.05	3.8	3.7	3.55
29	3.1	3.45	4.0	4.4	3.05	3.8	3.7	3.5
30	3.05	3.45	4.05	4.4	3.1	3.8	3.7	3.5
31	3.05		4.1	4.35		3.8		3.5

EASTERN GULF STATES DRAINAGES.

WITHLACOOCHEE RIVER (OF FLORIDA) DRAINAGE BASIN.

MISCELLANEOUS MEASUREMENT.

The following miscellaneous discharge measurement was made on Withlacoochee River May 24, 1906, at an old wagon bridge about 10 miles southeast of Dade City, Fla.:

Width, 25 feet; area, 26 square feet; discharge, 11 second-feet.

SUWANEE RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Suwanee River and its principal tributary, Withlacoochee River of Georgia, drain a considerable area in the southern-central portion of Georgia. These unite after passing into Florida and continue a southerly course to the Gulf of Mexico, about 10 miles north of Cedar Keys. The eastern branch—Suwanee River—drains a portion of the Okefinokee Swamp, in Georgia, and Santa Fe River, a tributary from the east, coming in lower down, drains the upper central portion of Florida lying west of St. Johns River.

SUWANEE RIVER AT WHITE SPRINGS, FLA.

This station was established on May 28, 1906. It is located at the county bridge, in the town of White Springs, about 600 feet above the point where the flow from White Spring enters the river.

Measurements are made from the single-span steel bridge and the trestle approaches.

The standard chain gage is bolted to the top plank of the downstream fencing, in the second panel of the bridge from the right bank. Chain length is 47.33 feet. The gage is read once a day by J. H. Hunt.

The river channel is cut through soft rock, but the bed is sandy and has some moss and other vegetation. The current is moderately slow, becoming sluggish at low water.

The bench mark is the top of the downstream end of the second floor beam from the right bank; elevation, 41 feet above the datum of the gage.

Discharge measurements of Suwanee River at White Springs, Fla., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
May 16	W. E. Hall	88	397	2.68	154
May 28	do	131	1,860	15.67	5,350

Daily gage height, in feet, of Suwanee River at White Springs, Fla., for 1906.

Day.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		10.8	17.6	15.5	12.5	5.3	3.8	2.9
2		9.8	16.1	15.0	12.9	5.7	3.8	2.9
3		8.7	14.6	14.8	13.0	6.2	3.8	2.9
4		8.1	13.5	14.8	13.3	6.4	3.7	2.9
5		7.8	12.6	14.5	13.0	6.1	3.6	2.9
6		8.0	13.7	15.4	12.7	6.0	3.6	2.9
7		8.8	14.3	15.0	12.1	5.8	3.6	2.9
8		8.7	14.0	14.2	11.8	5.7	3.4	2.8
9		8.5	13.8	13.5	11.1	5.6	3.4	2.8
10		8.3	12.7	12.9	10.9	5.4	3.3	2.8
11		8.5	13.0	12.2	10.5	5.3	3.3	2.8
12		9.2	19.0	11.5	10.1	5.1	3.2	2.8
13		12.1	21.9	11.0	9.5	4.9	3.2	2.8
14		13.0	21.7	10.4	9.3	4.8	3.2	2.8
15		12.9	23.0	10.0	9.0	4.7	3.2	2.8
16		13.5	23.2	10.0	8.7	4.6	3.2	2.8
17		20.1	22.2	10.3	8.0	4.5	3.1	2.8
18		21.1	21.5	10.0	7.8	4.5	3.1	2.8
19		20.5	20.1	9.5	7.4	4.4	3.1	2.8
20		20.1	18.6	9.0	7.1	4.4	3.1	2.8
21		20.2	17.4	8.6	6.7	4.4	3.1	2.8
22		20.3	17.8	8.3	6.4	4.4	3.1	2.8
23		20.5	17.5	8.3	6.1	4.4	3.0	2.7
24		20.5	18.2	9.0	5.8	4.3	3.0	2.7
25		20.4	18.0	9.3	5.7	4.2	3.0	2.7
26		20.1	16.8	9.7	5.6	4.2	3.0	2.7
27		19.6	16.4	9.2	5.5	4.1	3.0	2.7
28	15.6	19.2	15.8	9.5	5.5	4.0	3.0	2.7
29	14.8	18.5	16.3	10.0	5.5	4.0	3.0	2.7
30	13.3	18.0	15.6	11.0	5.3	3.9	2.9	2.7
31	12.0		15.4	11.9		3.9		2.7

MISCELLANEOUS MEASUREMENTS IN SUWANEE RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Suwanee River drainage basin during 1906:

Suwanee River near Suwanee, Fla.—A measurement was made May 17, 1906, at a single-span steel truss bridge about 1 mile northeast from Suwanee railroad station. The bench mark is the top of the downstream end of second floor beam from right end of the bridge; elevation, 35 feet above the datum of the assumed gage.

Width, 95 feet; area, 330 square feet; gage height, 2.78 feet; discharge, 317 second-feet.

Suwanee River at Ellaville, Fla.—A measurement was made May 18, 1906, at the Seaboard Air Line Railway bridge, about 300 feet below junction of Withlacoochee and Suwanee rivers. The bench mark is top of upstream end of second floor beam from left end of the bridge; elevation, 41 feet above the datum of the assumed gage.

Width, 250 feet; area, 2,260 square feet; gage height, 5.45 feet; discharge, 4,630 second-feet.

Suwanee Springs near Suwanee, Fla.—A measurement was made May 17, 1906, between the spring outlet and the river, about 200 feet below the wagon bridge.

Width, 5 feet; area, 13 square feet; discharge, 44 second-feet.

Withlacoochee River near Ousley, Ga.—A measurement was made May 22, 1906, at a low wooden wagon bridge 4 miles west of Valdosta,

Ga. The bench mark is top of the downstream end of cap of third bent from the left edge of the river; elevation, 21 feet above the datum of the assumed gage.

Width, 113 feet; area, 233 square feet; gage height, 1.22 feet; discharge, 456 second-feet.

A measurement was made February 20, 1906, at a highway bridge one-half mile west of Ousley. The bench mark is the downstream end of top of third bent from right end of bridge; elevation, 20 feet above the datum of the assumed gage.

Width, 153 feet; area, 1,890 square feet; gage height, 12.10 feet; discharge 6,110 second-feet.

APALACHICOLA RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Apalachicola River is formed by the union of Flint and Chattahoochee rivers at the Georgia-Florida line, and flows in a southerly direction through Florida to the Gulf of Mexico. It is navigable, and boats run up Flint River to Albany, Ga., and up Chattahoochee River to Columbus, Ga.

Flint River rises in Fulton County, Ga., a few miles south of Atlanta. It flows in a southerly direction to Talbot County, southeastward to Macon County, southward to Worth County, and southwestward to Apalachicola River. It drains the south-central portion of Georgia, extending from Atlanta south to the Florida line. The tributaries of Flint River are mainly large creeks with much fall. The principal ones among these are Whitewater, Whiteoak, Redoak, Elkins, Big Potato, Muckalee, Kinchafoonee, Ichawaynochaway, and Spring creeks.

Flint River has many good water powers on its course. Between a point opposite Woodbury, Ga., and a point opposite Knoxville, Ga., in Crawford County, a distance of about 45 miles, the river falls 334 feet. Very little of its power is yet developed.

Chattahoochee River rises in the Blue Ridge, in White County, and flows in a southwesterly direction until it reaches the Alabama line at the southeast corner of Troup County, Ga. Thence it flows in a southerly direction, forming the western boundary of Georgia, until it flows into Apalachicola River at the southern boundary of the State. It drains almost all the north-central, middle-western, and southwestern portions of Georgia, and has a drainage area of 4,900 square miles at Columbus, Ga., which is at the fall line.

Soque River joins the Chattahoochee on the western edge of Habersham County. This river rises in Habersham County and flows in a southwesterly direction. It has considerable fall, dropping as much as 40 feet within a few hundred feet.

Farther down the Chattahoochee, at the west boundary of Hall County, Chestatee River enters. It rises in Lumpkin County and

flows in a southerly direction through a very hilly and steep country and has much fall all along its course.

From its source down to Columbus, Ga., Chattahoochee River is an excellent water-power stream. Two of the water-power plants are shown on Pl. III. From the lower edge of Lumpkin County down to Columbus, Ga., there is a fall of over 850 feet, 366 feet of this fall being between West Point and Columbus. All along its course there are many small tributaries flowing from a high, hilly country. These have much fall, and many water powers are available.

CHATTAHOOCHEE RIVER NEAR NORCROSS, GA.

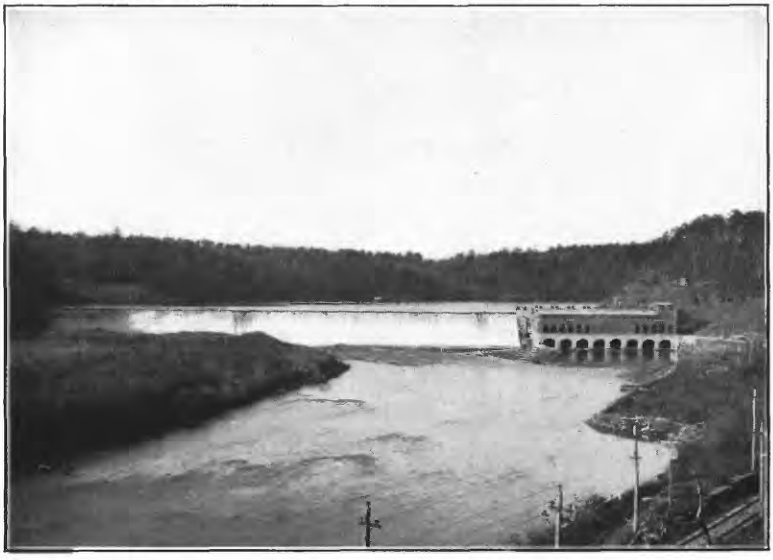
This station was established June 10, 1902. It is located at Medlock's toll bridge, about 4½ miles north of Norcross, Ga., above the mouth of Johns Creek and below the mouth of Sewannee Creek. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 80, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Chattahoochee River near Norcross, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 9	Hall and Murphy	174	1,240	3.11	2,190
June 11	M. R. Hall	286	1,630	2.53	1,630
July 28	W. E. Hall	173	1,590	3.70	2,870
August 25	M. R. Hall	166	1,450	3.45	2,670
October 27	do	168	1,430	3.60	2,790

Daily gage height, in feet, of Chattahooche River near Norcross, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.75	3.65	2.6	5.1	3.15	2.6	2.45	5.2	6.2	6.2	3.45	3.1
2	2.65	3.5	2.6	4.4	3.05	2.7	2.3	4.3	5.0	7.8	3.4	3.1
3	6.0	3.4	2.9	4.2	3.0	3.1	2.3	4.2	4.3	11.0	3.35	3.1
4	14.6	3.3	4.4	3.95	3.7	2.75	2.8	3.8	4.1	10.4	3.3	3.1
5	12.2	3.25	3.45	3.8	3.3	2.8	2.6	4.4	5.0	7.0	3.3	3.0
6	5.5	3.3	3.05	3.7	3.15	2.85	2.75	3.85	5.8	6.2	3.3	3.0
7	4.4	3.2	2.95	3.7	4.0	2.7	5.0	4.2	4.8	6.6	3.3	3.1
8	4.0	3.15	4.0	3.6	3.6	2.5	3.8	3.75	5.5	5.6	3.3	3.05
9	3.95	3.1	4.0	3.6	3.2	2.5	5.2	3.35	4.8	5.0	3.25	3.0
10	3.7	3.05	3.45	3.9	3.05	2.45	4.0	3.15	6.0	4.8	3.2	3.2
11	3.5	3.0	3.25	3.65	2.9	2.5	3.0	3.1	4.4	4.5	3.2	5.7
12	3.9	3.0	3.0	3.5	2.9	2.65	3.3	3.0	4.8	4.4	3.25	4.4
13	4.2	3.0	3.0	3.4	2.9	5.0	3.4	3.6	4.0	4.2	3.2	3.6
14	3.75	3.0	3.45	3.35	2.8	4.85	3.9	3.45	3.7	4.1	3.15	3.4
15	3.55	2.95	11.5	3.6	2.8	3.9	7.7	5.4	3.5	4.0	3.3	3.3
16	3.8	2.9	11.1	3.85	2.75	3.85	6.6	6.8	3.4	4.0	3.35	3.2
17	3.9	2.8	5.4	3.55	2.7	3.35	4.7	3.9	3.3	3.9	3.3	3.8
18	3.6	2.8	4.3	3.4	2.7	3.05	8.0	7.3	3.7	4.2	3.85	5.4
19	3.5	2.8	9.0	3.3	2.65	2.9	7.6	8.6	7.0	6.0	6.0	4.4
20	3.4	2.8	14.2	3.3	2.65	2.8	5.6	7.8	7.6	4.4	4.9	4.3
21	3.25	2.8	6.8	3.2	2.6	2.65	5.7	6.8	6.0	4.0	4.1	4.2
22	4.5	2.9	5.2	3.2	2.6	2.5	4.7	4.1	5.9	3.95	3.85	3.85
23	9.4	2.85	4.6	3.15	2.6	2.5	5.1	4.1	5.1	3.85	3.65	3.65
24	6.5	2.75	4.2	3.1	2.5	2.5	5.8	3.8	5.8	3.8	3.45	3.45
25	4.8	2.7	4.0	3.1	2.5	3.05	5.0	3.45	4.8	3.75	3.4	3.35
26	4.4	2.7	3.85	3.1	3.0	2.7	3.8	3.4	5.3	3.7	3.3	3.25
27	4.8	2.7	3.9	3.2	4.2	2.6	3.6	3.9	4.4	3.6	3.3	3.2
28	4.8	2.7	4.4	3.6	3.4	2.4	3.75	4.5	4.2	3.55	3.25	3.4
29	4.6	.....	4.2	3.4	2.9	2.5	4.2	5.2	5.1	3.5	3.15	3.85
30	4.1	.....	5.2	3.25	2.75	2.8	4.6	8.2	5.8	3.5	3.1	3.65
31	3.85	.....	7.0	.....	2.65	.....	5.3	10.8	.....	3.5	.....	8.4



A. ATLANTA WATER AND ELECTRIC POWER COMPANY PLANT ON CHATTAHOOCHEE RIVER AT BULL SLUICE, ABOVE ATLANTA, GA.

B. NORTH GEORGIA ELECTRIC POWER COMPANY PLANT ON CHATTAHOOCHEE RIVER NEAR GAINESVILLE, GA.

Rating table for Chattahoochee River near Norcross, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.30	1,360	3.60	2,780	4.90	4,370	7.40	7,885
2.40	1,460	3.70	2,900	5.00	4,500	7.60	8,185
2.50	1,560	3.80	3,020	5.20	4,760	7.80	8,495
2.60	1,660	3.90	3,140	5.40	5,040	8.00	8,805
2.70	1,770	4.00	3,260	5.60	5,320	9.00	10,440
2.80	1,880	4.10	3,380	5.80	5,600	10.00	12,155
2.90	1,990	4.20	3,500	6.00	5,880	11.00	13,920
3.00	2,100	4.30	3,620	6.20	6,160	12.00	15,760
3.10	2,210	4.40	3,740	6.40	6,440	13.00	17,700
3.20	2,320	4.50	3,860	6.60	6,720	14.00	19,650
3.30	2,430	4.60	3,980	6.80	7,005	15.00	21,600
3.40	2,540	4.70	4,110	7.00	7,295		
3.50	2,660	4.80	4,240	7.20	7,585		

NOTE.—The above table is based on discharge measurements made during 1905-6 and is well defined.

Monthly discharge of Chattahoochee River near Norcross, Ga., for 1906.

[Drainage area, 1,170 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	20,800	1,720	4,660	3.98	4.59
February	2,840	1,770	2,100	1.79	1.86
March	20,000	1,660	4,840	4.14	4.77
April	4,630	2,210	2,750	2.35	2.62
May	3,500	1,560	2,090	1.79	2.06
June	4,500	1,460	2,050	1.75	1.95
July	8,800	1,360	3,940	3.37	3.88
August	13,600	2,100	4,520	3.86	4.45
September	8,180	2,430	4,550	3.89	4.34
October	13,900	2,660	4,670	3.99	4.60
November	5,880	2,210	2,690	2.30	2.57
December	9,440	2,100	3,020	2.58	2.97
The year	20,800	1,360	3,490	2.98	40.66

NOTE.—Values for 1906 are excellent.

CHATTAHOOCHEE RIVER AT WEST POINT, GA.

This station was established July 30, 1896. It is located at the Montgomery street wagon bridge, and is now maintained by the United States Weather Bureau. The conditions at this station and the bench marks [a] are described in Water-Supply Paper No. 168, page 84, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Chattahoochee River at West Point, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
January 24	F. A. Murr y	458	7,360	12.91	30,100
January 24	do	344	6,880	11.92	27,100
January 25	do	408	5,690	9.20	18,100
January 26	do	399	4,530	6.14	10,300
February 15	E. C. Murphy	390	3,340	3.60	4,390
May 10	M. R. Hall	390	3,540	3.75	4,910
June 9	do	384	3,160	2.78	3,120
November 10	W. E. Hall	386	3,040	3.25	3,720

[a] The reference point is the top of the downstream end of the second iron floor beam under the bridge floor from the right-bank end of the bridge; elevation, 24.19 feet.

Daily gage height, in feet, of Chattahoochee River at West Point, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.7	4.6	3.1	6.4	3.6	3.0	2.5	6.4	7.2	6.3	3.5	3.3
2	3.6	4.4	3.1	6.4	3.5	2.8	3.0	5.1	8.2	6.2	3.45	3.25
3	5.3	4.2	3.5	5.4	3.4	2.7	2.5	4.9	5.9	7.0	3.4	3.25
4	13.1	4.0	4.2	5.0	3.7	2.8	4.0	5.2	4.9	8.5	3.4	3.25
5	12.9	4.0	3.8	4.7	4.1	3.3	3.2	6.0	4.1	9.4	3.35	3.2
6	12.2	3.9	4.1	4.6	4.1	3.2	2.8	6.8	11.2	7.6	3.35	3.25
7	12.6	4.0	3.8	4.4	4.3	2.9	2.6	4.9	9.4	5.6	3.4	3.35
8	5.7	4.0	5.6	4.3	5.5	2.8	3.1	4.1	6.1	5.3	3.3	3.3
9	4.9	3.9	8.1	4.2	4.9	2.8	6.0	4.0	4.3	5.0	3.3	3.25
10	4.6	3.9	6.4	4.5	4.1	2.6	4.3	3.9	4.7	4.4	3.3	3.3
11	4.4	3.7	5.2	4.7	3.7	2.6	4.4	3.6	4.5	4.2	3.25	4.0
12	4.3	3.7	4.5	4.4	3.5	2.6	3.9	4.3	5.7	4.0	3.25	4.4
13	4.4	3.6	4.1	4.3	3.4	4.6	3.5	3.7	4.6	3.9	3.3	5.0
14	4.4	3.6	3.9	4.0	3.3	8.5	3.8	6.2	4.2	3.8	3.3	4.1
15	4.4	3.6	7.6	4.1	3.2	8.6	7.0	8.2	3.8	3.7	3.6	3.7
16	4.2	3.6	11.6	4.1	3.2	6.8	6.8	5.6	3.5	3.7	3.55	3.5
17	4.1	3.5	11.7	4.0	3.1	5.2	7.6	6.1	3.4	3.6	3.6	3.75
18	4.1	3.4	11.0	4.1	3.0	4.6	6.5	5.2	3.3	10.6	4.5	3.8
19	4.2	3.4	11.0	3.9	3.0	3.8	8.5	5.9	3.3	12.3	5.0	5.0
20	4.1	3.4	18.9	3.8	2.95	3.6	8.6	7.5	4.0	7.8	5.1	5.6
21	4.0	3.4	17.6	3.8	2.9	3.4	6.4	6.8	7.4	6.2	5.5	5.1
22	5.4	3.4	15.1	3.8	2.5	3.15	5.1	6.4	6.5	4.7	4.6	4.7
23	11.6	3.4	9.2	3.8	3.0	3.0	5.7	5.0	5.9	4.3	4.1	4.3
24	13.4	3.3	6.0	3.5	2.8	2.8	8.0	4.3	5.3	4.0	3.6	4.1
25	9.8	3.4	5.2	3.6	2.8	2.7	5.5	4.5	5.3	3.95	3.65	3.8
26	6.6	3.4	4.9	3.7	2.8	2.6	5.6	4.0	5.4	3.85	3.5	3.6
27	5.7	3.2	4.8	3.5	3.3	3.1	5.4	3.6	4.3	3.75	3.45	3.6
28	5.4	3.2	7.2	3.1	3.4	3.1	3.9	4.2	4.5	3.55	3.4	3.65
29	5.4	.....	7.6	3.5	3.9	3.0	4.0	4.0	4.5	3.55	3.35	4.0
30	5.3	.....	6.5	3.8	3.4	2.8	4.3	5.4	5.0	3.55	3.3	4.4
31	4.9	.....	6.6	.....	3.1	.....	5.0	6.0	.....	3.5	.....	7.0

Rating table for Chattahoochee River at West Point, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.50	2,530	3.70	4,680	4.90	7,290	8.00	14,900
2.60	2,680	3.80	4,880	5.00	7,520	9.00	17,740
2.70	2,840	3.90	5,090	5.20	7,980	10.00	20,700
2.80	3,000	4.00	5,300	5.40	8,440	11.00	23,860
2.90	3,170	4.10	5,510	5.60	8,920	12.00	27,100
3.00	3.340	4.20	5,730	5.80	9,400	13.00	30,500
3.10	3.520	4.30	5,950	6.00	9,880	14.00	33,900
3.20	3,700	4.40	6,170	6.20	10,360	15.00	37,350
3.30	3,890	4.50	6,390	6.40	10,840	16.00	40,800
3.40	4,080	4.60	6,610	6.60	11,320	17.00	44,250
3.50	4,280	4.70	6,830	6.80	11,820	18.00	47,700
3.60	4,480	4.80	7,060	7.00	12,320	19.00	51,150

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is well defined.

Monthly discharge of Chattahoochee River at West Point, Ga., for 1906.

[Drainage area, 3,300 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	31,900	4,480	11,700	3.55	4.09
February	6,610	3,700	4,660	1.41	1.47
March	50,800	3,520	14,200	4.30	4.96
April	10,800	3,520	5,880	1.78	1.99
May	8,680	2,530	4,270	1.29	1.49
June	16,600	2,680	4,840	1.47	1.64
July	16,600	2,530	7,660	2.32	2.68
August	15,400	4,480	8,110	2.46	2.84
September	24,500	3,890	8,540	2.59	2.89
October	28,100	4,280	8,810	2.68	3.09
November	8,680	3,800	4,700	1.42	1.58
December	12,300	3,700	5,360	1.62	1.87
The year	50,800	2,530	7,400	2.24	30.59

NOTE.—Values are probably excellent.

SOQUE RIVER NEAR DEMOREST, GA.

This station was established July 16, 1904. It is located at Cannon Bridge, on the road from Cornelia to Acorn, 2½ miles from Demorest and about 4 miles above the mouth of the river. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 86, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Soque River near Demorest, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
January 23	W. E. Hall	85	394	4.16	1,080
January 23	do	85	366	3.81	905
June 27	do	84	209	2.08	242
July 27	do	84	285	2.82	488
October 1	do	85	322	3.48	790
October 2	do	88	478	5.33	1,750
October 2	do	88	487	5.37	1,770

Daily gage height, in feet, of Soque River near Demorest, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.1	2.65	2.2	2.75	2.5	2.2	2.05	2.85	4.4	4.4	2.55	2.4
2	2.05	2.55	2.15	2.75	2.5	2.25	2.05	2.7	3.7	5.6	2.5	2.4
3	8.2	2.5	2.25	2.7	3.0	2.3	2.05	3.0	3.0	7.5	2.5	2.4
4	5.8	2.45	2.2	2.65	2.75	2.6	2.0	2.75	6.4	3.8	2.6	2.45
5	3.6	2.4	2.2	2.7	2.5	2.3	2.1	2.7	5.2	2.5	2.6	2.4
6	3.0	2.35	2.25	2.65	2.5	2.3	3.3	2.6	3.5	2.3	2.55	2.45
7	2.4	2.35	2.2	2.65	2.85	2.2	2.45	2.75	3.2	2.35	2.55	2.45
8	2.35	2.3	3.2	2.65	2.5	2.2	3.0	2.7	2.85	3.7	2.55	2.45
9	2.5	2.3	2.5	2.8	2.4	2.2	2.85	2.6	2.8	3.5	2.55	2.5
10	2.4	2.3	2.3	2.75	2.4	2.2	2.7	2.6	4.3	3.1	2.6	2.55
11	3.0	2.25	2.25	2.7	2.4	2.25	2.95	2.65	3.8	2.8	2.6	6.1
12	2.9	2.4	2.2	2.6	2.35	5.0	2.9	2.5	3.9	2.45	2.55	4.3
13	2.7	2.3	2.25	2.55	2.35	3.2	2.65	2.4	3.6	2.35	2.55	3.0
14	2.55	2.25	2.8	2.6	2.3	2.85	2.1	2.35	2.9	2.8	2.5	2.9
15	2.45	2.25	8.1	2.9	2.25	2.8	5.0	4.8	2.85	3.1	2.5	2.85
16	2.65	2.2	3.4	2.8	2.25	2.75	2.8	3.0	2.5	3.15	2.7	2.95
17	2.55	2.2	3.1	2.75	2.2	2.55	2.8	2.8	2.35	3.9	2.65	4.8
18	2.4	2.2	3.7	2.55	2.2	2.4	4.6	[a]13.5	5.8	4.8	2.65	3.6
19	2.3	2.2	8.3	2.5	2.2	2.35	3.2	4.0	5.0	3.8	4.0	3.4
20	2.25	2.2	3.8	2.5	2.25	2.25	2.9	3.4	4.0	3.4	3.8	2.95
21	2.2	2.25	3.2	2.5	2.25	2.2	2.95	2.9	3.2	3.1	3.6	2.9
22	6.7	2.4	3.1	2.45	2.2	2.2	5.5	2.8	6.2	3.0	3.2	2.85
23	5.6	2.2	2.85	2.45	2.2	2.2	4.4	3.2	5.3	2.95	3.0	2.6
24	3.4	2.2	2.7	2.45	2.2	2.5	3.2	2.9	4.0	2.9	2.8	2.6
25	2.8	2.2	2.65	2.4	2.25	2.2	2.95	2.8	3.6	2.85	2.6	2.55
26	2.55	2.2	2.5	2.4	2.45	2.15	2.7	2.7	3.7	2.8	2.55	2.55
27	2.45	2.25	3.2	2.5	3.2	2.1	2.75	2.65	3.8	2.8	2.5	2.7
28	2.95	2.2	3.1	3.0	3.0	2.1	2.9	2.6	3.8	2.75	2.45	2.8
29	2.9	.....	3.2	2.55	2.3	2.8	2.75	8.2	3.3	2.7	2.5	2.75
30	2.7	.....	4.0	2.5	2.35	2.2	2.7	4.9	4.2	2.65	2.45	2.9
31	2.6	.....	2.85	.....	2.25	.....	3.4	6.2	.....	2.6	.....	6.2

[a] Maximum gage height 17.0 feet.

Rating table for Soque River near Demorest, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	243	3.00	508	4.00	1,000	5.80	2,070
2.10	271	3.10	606	4.20	1,100	6.00	2,220
2.20	300	3.20	645	4.40	1,200	6.20	2,370
2.30	330	3.30	685	4.60	1,310	6.40	2,520
2.40	361	3.40	725	4.80	1,420	6.60	2,680
2.50	393	3.50	770	5.00	1,540	6.80	2,840
2.60	426	3.60	815	5.20	1,665	7.00	3,000
2.70	460	3.70	860	5.40	1,795	8.00	3,880
2.80	495	3.80	905	5.60	1,930	9.00	4,780
2.90	531	3.90	950				

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 6 feet. Above gage height 7.4 feet the rating curve is a tangent, the difference being 90 per tenth.

Monthly discharge of Soque River near Demorest, Ga., for 1906.

[Drainage area, 112 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	4,060	257	731	6.53	7.53
February	443	300	332	2.96	3.08
March	4,150	286	729	6.51	7.50
April	568	361	435	3.88	4.33
May	645	300	374	3.34	3.85
June	1,540	271	396	3.54	3.95
July	1,860	243	601	5.37	6.19
August	8,830	346	1,070	9.55	11.01
September	2,520	346	1,010	9.02	10.06
October	3,430	330	751	6.71	7.74
November	1,000	377	477	4.26	4.75
December	2,370	361	643	5.74	6.62
The year	8,830	257	629	5.62	76.61

NOTE.—Values can probably be considered excellent.

FLINT RIVER NEAR WOODBURY, GA.

Measurements of the flow of Flint River were made during 1897 and 1898 at Molina, Ga., but the river bed was so shifting that the station was discontinued June 2, 1898. Measurements were made in 1899 at the Macon and Birmingham Railroad bridge, near Woodbury, Ga., 5 miles below the Molina station. March 29, 1900, a gage was put in near this bridge and the station was reestablished. Gage readings are furnished by the U. S. Weather Bureau. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 90, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Flint River near Woodbury, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 10	W. E. Hall	273	1,070	1.40	1,440
April 12	F. A. Murray	287	1,080	1.22	1,180
May 29	do	282	894	.52	564
June 18	do	290	1,360	2.13	2,260
September 11	do	283	1,040	1.06	937
November 15	W. E. Hall	253	898	.93	776

Daily gage height, in feet, of Flint River near Woodbury, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.3	1.6	0.8	2.5	0.5	0.3	0.2	1.3	0.9	1.6	0.6	0.7
2	1.3	1.5	.9	2.1	.5	.3	1.0	1.0	.9	2.1	.7	.7
3	1.7	1.4	1.1	1.8	.5	.3	.4	1.0	1.3	2.6	.7	.7
4	4.5	1.2	1.5	1.6	.8	.4	1.5	1.1	.9	2.6	.6	.7
5	4.7	1.2	1.4	1.4	1.2	.6	1.0	3.5	.8	2.2	.6	.6
6	4.9	1.2	1.1	1.3	1.1	.5	.6	3.3	3.6	3.0	.6	.7
7	4.0	1.3	1.0	1.2	1.0	.3	.4	1.9	2.7	2.3	.6	.6
8	2.9	1.4	1.9	1.2	1.4	.2	.5	1.7	1.1	1.6	.6	.7
9	2.0	1.5	3.2	1.2	1.3	.2	1.3	1.7	.8	1.0	.5	.8
10	1.7	1.5	3.2	1.5	1.1	.5	1.5	1.3	1.2	.8	.6	.8
11	1.5	1.4	2.8	1.4	.9	.3	1.0	1.1	1.0	.7	.6	.9
12	1.7	1.2	2.2	1.3	.8	.2	3.6	1.2	1.0	.6	.6	1.0
13	1.8	1.2	1.8	1.1	.6	4.3	2.3	1.2	1.4	.6	.6	1.0
14	1.8	1.2	1.5	1.0	.6	5.9	1.6	2.1	1.3	.5	.5	.9
15	1.7	1.3	2.8	1.3	.5	6.2	1.8	2.9	.8	.5	.9	.9
16	1.5	1.2	3.9	1.2	.5	6.2	1.5	3.5	.6	.5	1.0	.8
17	1.4	1.1	3.9	1.0	.4	4.5	1.2	2.1	.5	.5	.9	.8
18	1.3	1.0	3.5	.9	.4	2.5	1.2	1.0	.4	1.3	1.7	1.1
19	1.3	1.0	3.0	.9	.4	1.7	2.3	1.2	.8	3.8	2.4	1.2
20	1.3	1.0	7.5	.8	.3	1.7	2.1	.8	1.4	3.1	2.0	1.6
21	1.3	1.0	7.8	.8	.4	1.2	1.7	.6	1.4	2.9	1.7	1.7
22	2.7	1.1	7.3	.8	.4	.8	1.1	.8	1.8	1.8	1.3	1.6
23	4.7	1.1	5.2	.7	.4	.7	2.6	1.7	1.6	1.5	1.1	1.3
24	6.3	1.0	2.9	.7	.4	.6	3.1	2.7	1.5	1.2	1.0	1.1
25	5.6	1.0	2.1	.6	.3	.5	2.5	1.2	1.4	1.0	.9	1.0
26	3.7	.9	1.7	.6	.4	.4	1.7	.9	1.5	.9	.8	.9
27	3.0	.9	1.6	.6	.6	.4	1.8	1.1	1.2	.9	.8	.8
28	2.6	.9	2.3	.6	.6	.4	1.7	1.8	1.0	.8	.8	.9
29	2.3	.....	3.1	.5	.5	.3	1.1	1.5	1.0	.7	.7	1.2
30	2.0	.....	3.6	.6	.5	.3	1.7	3.0	.8	.7	.7	1.4
31	1.8	.....	2.9	.....	.4	.....	1.4	1.4	.....	.7	.....	2.2

Rating table for Flint River near Woodbury, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
0.00	280	1.10	1,050	2.20	2,220	3.60	4,160
.10	320	1.20	1,140	2.30	2,340	3.80	4,480
.20	370	1.30	1,230	2.40	2,460	4.00	4,800
.30	420	1.40	1,320	2.50	2,590	4.20	5,140
.40	480	1.50	1,420	2.60	2,720	4.40	5,480
.50	540	1.60	1,520	2.70	2,860	4.60	5,820
.60	610	1.70	1,630	2.80	3,000	4.80	6,160
.70	690	1.80	1,740	2.90	3,140	5.00	6,520
.80	780	1.90	1,860	3.00	3,280	6.00	8,450
.90	870	2.00	1,980	3.20	3,560	7.00	10,750
1.00	960	2.10	2,100	3.40	3,850	8.00	13,250

NOTE.—The above table is based on discharge measurements made during 1904–1906, and is fairly well defined below gage height 5 feet.

Monthly discharge of Flint River near Woodbury, Ga., for 1906.

[Drainage area, 990 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft per sq. mile.	Depth in inches.
January	9,100	1,230	2,950	2.98	3.44
February	1,520	870	1,130	1.14	1.19
March	12,800	780	3,520	3.56	4.10
April	2,590	540	1,080	1.09	1.22
May	1,320	420	663	.670	.77
June	8,880	370	1,810	1.83	2.04
July	4,160	370	1,540	1.56	1.80
August	4,000	610	1,690	1.71	1.97
September	4,160	480	1,210	1.22	1.36
October	4,480	540	1,500	1.52	1.75
November	2,460	540	893	.902	1.01
December	2,220	610	978	.988	1.14
The year	12,800	370	1,580	1.60	21.79

NOTE.—Values for 1906 are excellent.

FLINT RIVER NEAR MONTEZUMA, GA.

This station is located at the iron highway bridge about 1 mile west of Montezuma, Ga. Some discharge measurements had already been made at this point when the United States Weather Bureau established a standard chain gage on the bridge, late in 1904. During 1906 the daily gage heights have been furnished by the Weather Bureau. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 92, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Flint River near Montezuma, Ga., in 1901–1906

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
1901.		*Feet.*	*Sq. ft.*	*Feet.*	*Sec.-ft.*
July 18	F. A. Murray	173	1,980	4.38	2,400
1904.					
September 21	J. M. Giles	188	1,300	1.85	971
1905.					
August 23	F. A. Murray	198	1,550	3.15	1,610
August 31	do	198	1,390	2.41	1,250
October 12	W. E. Hall	195	1,330	2.25	1,150
1906.					
April 11	W. E. Hall	202	2,200	6.38	3,420
June 16	F. A. Murray	225	3,260	11.92	8,110
November 30	W. E. Hall	196	1,490	3.94	1,960

Daily gage height, in feet, of Flint River near Montezuma, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.5	8.5	4.9	11.8	3.4	2.8	3.0	5.4	8.8	4.5	2.9	3.7
2	6.3	7.6	4.9	10.0	3.4	2.8	3.0	5.6	6.6	4.4	2.9	3.6
3	6.2	7.0	5.1	8.1	3.4	2.7	3.6	5.5	5.4	7.2	2.8	3.6
4	7.4	6.7	5.7	7.0	3.5	2.7	3.5	5.3	5.3	10.0	2.8	3.6
5	10.4	6.3	5.6	6.9	4.0	2.7	3.4	5.0	5.5	11.9	2.8	3.5
6	12.4	6.1	5.5	6.8	4.4	2.9	4.0	4.6	5.1	12.4	2.8	3.5
7	13.0	5.9	5.4	6.6	5.2	3.2	3.8	4.4	5.6	12.0	2.8	3.6
8	13.4	6.0	5.6	6.4	6.0	3.0	3.4	4.1	10.3	10.2	2.7	3.9
9	12.0	6.5	6.7	6.2	6.4	2.9	3.2	8.0	11.4	9.0	2.7	4.0
10	11.4	7.5	8.5	6.4	6.2	2.6	6.3	6.5	11.7	8.0	2.7	4.0
11	10.6	8.0	8.0	6.6	5.6	2.5	6.9	6.0	9.0	6.5	2.9	4.0
12	8.0	7.7	7.6	6.7	4.8	2.5	5.5	6.0	7.0	5.8	3.1	3.8
13	7.0	7.0	7.0	6.6	4.2	3.0	5.0	5.5	6.0	5.0	3.3	3.7
14	6.9	6.5	7.4	6.3	3.8	3.8	8.4	6.0	5.5	4.6	3.5	3.7
15	7.2	6.4	6.6	6.4	3.5	8.8	8.6	5.8	7.5	4.4	3.8	3.7
16	7.0	6.2	6.0	6.6	3.2	10.6	7.6	7.0	5.7	4.2	4.6	3.8
17	6.9	6.0	6.0	6.4	3.1	11.9	6.4	7.8	5.0	4.0	5.0	3.9
18	6.8	5.7	9.0	6.0	3.0	12.6	6.0	7.0	4.8	3.7	5.5	4.2
19	6.8	5.7	9.6	5.6	2.8	13.0	5.9	6.7	4.7	3.6	5.8	4.2
20	6.4	5.7	10.5	5.0	2.7	12.1	6.7	6.0	4.4	7.3	5.6	4.8
21	6.0	5.7	10.8	4.5	2.7	10.0	7.0	5.0	4.0	7.8	6.0	6.2
22	6.1	5.7	12.0	4.2	2.6	8.0	7.2	4.4	5.8	9.7	6.6	7.0
23	11.4	6.6	13.7	4.0	2.5	7.0	6.4	6.0	5.4	7.7	6.0	7.6
24	12.2	6.0	14.4	3.8	2.7	6.1	6.0	6.9	4.6	5.0	5.5	6.5
25	14.2	5.7	13.8	3.6	3.0	5.6	9.3	7.5	4.0	4.0	5.2	5.2
26	15.0	5.4	12.1	3.5	3.1	5.0	10.0	7.2	4.0	3.5	4.6	4.8
27	14.3	5.2	9.0	3.5	3.4	4.4	9.6	6.5	4.0	3.3	4.0	4.6
28	12.0	5.0	7.8	3.5	3.4	3.6	8.4	6.0	4.4	3.2	3.8	4.5
29	11.6	.....	6.8	3.5	3.2	3.4	7.0	5.6	5.0	3.1	3.7	4.6
30	9.8	.....	6.4	3.4	3.0	3.2	6.6	5.4	4.7	3.0	3.7	5.0
31	10.0	.....	8.0	.....	2.9	.....	6.0	8.0	.....	3.0	.....	5.2

Rating table for Flint River near Montezuma, Ga., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.00	640	2.40	1,215	3.80	1,900	6.40	3,550
1.10	675	2.50	1,260	3.90	1,955	6.60	3,690
1.20	710	2.60	1,305	4.00	2,010	6.80	3,840
1.30	750	2.70	1,350	4.20	2,120	7.00	3 990
1.40	790	2.80	1,400	4.40	2,240	8.00	4,750
1.50	830	2.90	1,450	4.60	2,360	9.00	5,570
1.60	870	3.00	1,500	4.80	3,480	10.00	6,420
1.70	910	3.10	1,550	5.00	2,600	11.00	7,300
1.80	950	3.20	1,600	5.20	2,725	12.00	8,200
1 90	990	3.30	1,650	5.40	2,855	13.00	9,160
2.00	1,035	3.40	1,700	5.60	2,990	14.00	10,200
2.10	1,080	3.50	1,750	5.80	3,130	15.00	11,270
2.20	1,125	3.60	1,800	6.00	3,270	16.00	12,400
2.30	1,170	3.70	1,850	6.20	3,410	17.00	13,530

NOTE.—The above table is based on discharge measurements made during 1901–1906, and is well defined between gage heights 1.8 feet and 6 feet.

Monthly discharge of Flint River near Montezuma, Ga., for 1905–6.

[Drainage area, 2,700 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
1905.					
January	4,440	1,600	2,230	0.826	0.95
February	13,900	1,600	5,930	2.20	2.29
March	5,230	2,300	3,200	1.19	1.37
April	5,150	1,850	2,480	.918	1.02
May	3,690	1,600	2,470	.915	1.05
June	2,010	1,040	1,350	.500	.56
July	4,360	950	1,770	.656	.76
August	4,910	750	2,250	.833	.96
September	2,360	640	1,140	.422	.47
October	2,060	950	1,280	.474	.55
November	2,420	990	1,430	.530	.59
December	10,100	1,170	4,910	1.82	2.10
The year	13,900	640	2,540	.940	12.67
1906.					
January	11,300	3,270	6,170	2.29	2.64
February	5,150	2,600	3,540	1.31	1.36
March	10,600	2,540	4,970	1.84	2.12
April	8,020	1,700	3,280	1.21	1.35
May	3,550	1,260	1,900	.704	.81
June	9,160	1,260	3,270	1.21	1.35
July	6,420	1,500	3,420	1.27	1.46
August	4,750	2,060	3,310	1.23	1.42
September	7,930	2,010	3,430	1.27	1.42
October	8,580	1,500	3,620	1.34	1.54
November	3,690	1,350	2,070	.767	.86
December	4,440	1,750	2,310	.856	.99
The year	11,300	1,260	3,440	1.27	17.32

NOTE.—Values for 1905 and 1906 are excellent.

FLINT RIVER AT ALBANY, GA.

This station was originally established by the United States Weather Bureau April 10, 1893, and has been maintained from that date to the present. Discharge measurements by the Geological Survey were begun in 1901, and the gage-height records furnished by the Weather Bureau have been used, except for a portion of the

year 1903. The present observer, D. W. Brosnan, is paid by the Weather Bureau. Discharge measurements are made from the bridge of the Georgia Northern Railroad. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 94, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Flint River at Albany, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 12	W. E. Hall	134	2,960	9.62	13,300
February 13	do	288	3,660	9.06	12,800
April 14	do	122	2,640	4.90	6,910
June 14	F. A. Murray	122	2,400	3.64	5,560
August 13	W. E. Hall	118	2,490	3.35	4,720
November 28	do	115	2,350	2.33	3,930

Daily gage-height, in feet, of Flint River at Albany, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.9	14.1	4.6	7.9	1.8	2.7	2.0	5.8	5.1	2.8	2.2	1.9
2	7.3	11.6	4.3	9.1	1.8	2.4	1.9	5.4	5.0	2.7	2.0	1.8
3	6.9	9.0	5.1	10.4	1.7	1.9	2.1	5.0	6.1	2.7	2.0	1.8
4	7.9	7.5	6.4	10.2	1.7	1.8	2.5	4.9	5.0	3.7	1.9	1.7
5	8.6	6.5	7.2	8.8	3.1	1.7	2.5	4.6	4.2	5.8	1.8	1.7
6	10.2	6.1	8.0	7.1	4.2	1.6	2.8	3.8	4.0	6.9	1.8	1.7
7	10.5	5.8	7.9	6.0	5.1	1.9	2.8	3.2	4.0	8.5	1.8	1.8
8	11.1	6.2	7.7	5.3	6.4	2.1	2.7	4.2	5.3	9.3	1.8	1.9
9	12.0	6.8	7.7	4.9	7.2	1.8	2.8	5.1	7.6	9.7	1.8	2.0
10	12.7	7.3	7.9	4.6	7.1	1.2	2.9	5.6	9.7	9.0	1.7	2.0
11	12.9	9.2	8.5	4.5	6.3	1.5	5.0	5.8	10.2	7.7	1.7	2.1
12	12.5	9.7	8.9	4.5	5.5	1.4	5.6	4.8	9.9	6.5	1.6	2.3
13	11.2	9.3	9.1	4.8	4.6	2.0	5.8	3.6	7.8	4.2	1.6	2.0
14	8.8	8.9	9.2	4.9	3.8	3.3	6.5	3.4	6.0	2.5	1.5	2.0
15	7.9	7.9	8.8	4.7	3.1	4.9	7.6	3.6	4.5	2.2	1.8	2.2
16	7.6	7.0	8.1	4.5	2.6	7.3	7.9	3.5	4.5	2.0	2.0	2.1
17	7.1	6.6	6.7	4.5	2.3	9.5	8.1	4.0	4.4	2.0	2.1	2.0
18	6.7	6.4	6.2	4.4	2.3	10.4	8.3	5.3	4.3	2.1	3.0	1.8
19	6.3	6.0	6.2	4.3	2.2	10.4	8.4	5.5	3.5	2.1	3.5	1.8
20	6.0	5.5	8.0	3.9	2.2	10.6	7.7	5.7	2.6	2.0	3.1	2.1
21	5.8	5.2	9.0	3.5	2.1	11.1	7.4	5.9	2.0	3.4	2.9	3.0
22	6.2	5.6	10.4	3.3	2.2	11.4	7.3	5.3	1.7	4.8	3.5	3.6
23	8.1	5.9	10.8	3.2	2.5	10.4	7.0	4.3	2.3	6.7	4.3	4.6
24	13.2	6.4	11.2	2.9	2.6	8.0	6.4	4.1	3.6	7.1	4.0	5.0
25	17.0	6.3	12.1	2.6	2.6	5.2	5.7	5.3	3.7	6.7	3.6	5.0
26	17.5	6.0	13.1	2.5	2.8	3.5	6.2	6.1	3.4	5.5	3.3	4.2
27	18.1	5.5	13.7	2.4	3.7	2.8	7.0	6.2	3.1	3.7	2.6	3.5
28	18.0	5.0	13.6	2.3	4.2	2.5	7.4	5.5	3.1	3.2	2.4	3.0
29	17.1	.....	12.2	2.1	4.5	2.4	7.8	5.3	3.0	2.8	2.2	2.8
30	16.8	.....	9.0	1.9	4.0	2.6	7.2	5.0	3.0	2.5	2.1	2.9
31	15.9	.....	8.0	.....	3.4	.....	6.2	4.6	.....	2.4	.....	3.5

Rating table for Flint River at Albany, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.20	2,960	2.60	4,300	4.00	5,785	6.80	9,170
1.30	3,050	2.70	4,400	4.20	6,015	7.00	9,420
1.40	3,140	2.80	4,500	4.40	6,245	8.00	10,670
1.50	3,235	2.90	4,600	4.60	6,475	9.00	11,920
1.60	3,330	3.00	4,700	4.80	6,705	10.00	13,170
1.70	3,425	3.10	4,805	5.00	6,940	11.00	14,420
1.80	3,520	3.20	4,910	5.20	7,180	12.00	15,750
1.90	3,615	3.30	5,015	5.40	7,420	13.00	17,150
2.00	3,710	3.40	5,120	5.60	7,670	14.00	18,650
2.10	3,805	3.50	5,230	5.80	7,920	15.00	20,140
2.20	3,900	3.60	5,340	6.00	8,170	16.00	21,700
2.30	4,000	3.70	5,450	6.20	8,420	17.00	23,300
2.40	4,100	3.80	5,560	6.40	8,670	18.00	24,900
2.50	4,200	3.90	5,670	6.60	8,920		

NOTE.—The above table is based on eighteen discharge measurements made during 1904–1906 and earlier high-water measurements. It is well defined.

Monthly discharge of Flint River at Albany, Ga., for 1906.

[Drainage area, 5,000 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	25,100	7,920	14,600	2.92	3.37
February	18,800	6,940	9,760	1.95	2.03
March	18,200	6,130	11,600	2.32	2.68
April	13,700	3,620	6,900	1.38	1.54
May	9,670	3,420	5,370	1.07	1.23
June	14,900	2,960	6,840	1.37	1.53
July	11,200	3,620	7,720	1.54	1.78
August	8,420	4,910	6,790	1.36	1.57
September	13,400	3,420	6,800	1.36	1.52
October	12,800	3,710	6,660	1.33	1.53
November	6,130	3,240	4,110	.822	.92
December	6,940	3,420	4,310	.862	.99
The year	25,100	2,960	7,620	1.52	20.69

NOTE.—Values for 1906 are excellent.

KINCHAFOONEE CREEK NEAR LEESBURG, GA.

This station was established August 30, 1905. It is located at the iron highway bridge 1 mile east of Leesburg, Ga.

A standard chain gage was installed May 12, 1906, and set to read the same as the old vertical gage. It is attached to the downstream lower chord. The bottom of the box is 24.09 feet above the zero of the gage, and the length of the chain is 26.09 feet. The gage is read by H. B. Johnson. The bench mark is a cross on a bowlder embedded in the earth opposite the left end of the bridge approach and 25 feet upstream; elevation, 23.09 feet above gage datum. The conditions at this station are described in Water-Supply Paper No. 168, page 98, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Kinchafoonee Creek near Leesburg, Ga., in 1905–1907.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
1905.		*Feet.*	*Sq. ft.*	*Feet.*	*Sec.-ft.*
August 30	F. A. Murray	90	180	0.98	216
October 13	W. E. Hall	90	238	1.70	323
1906.					
February 14	W. E. Hall	130	759	6.67	1,490
April 13	do	115	438	3.87	736
June 15	F. A. Murray	152	888	6.94	1,750
November 29	W. E. Hall	105	333	2.44	463
1907.					
January 19	M. R. Hall	107	342	2.72	503

Daily gage height, in feet, of Kinchafoonee Creek near Leesburg, Ga., for 1906.

Day.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec
1		2.0	2.3	2.5	3.8	3.5	2.8	2.5	2.4
2		2.0	2.1	2.4	3.6	3.3	3.4	2.5	2.3
3		1.9	1.9	2.5	3.5	3.1	4.1	2.5	2.3
4		2.0	1.8	2.7	3.1	2.9	5.2	2.7	2.3
5		3.6	2.0	2.9	2.7	2.8	5.0	2.9	2.3
6		5.0	2.3	3.0	2.5	3.4	5.1	2.7	2.2
7		5.5	2.5	2.9	2.7	5.6	5.2	2.5	2.3
8		6.0	2.1	2.8	2.9	7.7	5.3	2.3	2.3
9		6.5	1.4	3.0	3.3	10.5	4.9	2.3	2.3
10		5.9	1.1	3.6	2.3	9.7	4.5	2.2	2.3
11		4.8	1.0	4.5	2.0	7.1	3.9	2.2	2.3
12	3.8	4.6	2.3	5.9	2.1	4.4	3.0	2.2	2.4
13	3.8	3.7	4.1	7.1	2.2	3.8	2.3	2.1	2.5
14	3.8	2.9	5.6	8.2	2.3	3.1	2.1	2.0	2.5
15	3.7	2.7	7.2	6.8	2.5	2.9	2.0	2.5	2.5
16	3.8	2.5	11.5	5.1	2.6	2.7	1.9	2.9	2.4
17	3.9	2.3	10.0	5.2	2.6	2.5	1.8	3.1	2.4
18	3.8	2.2	8.6	5.8	2.5	2.3	1.9	3.3	2.5
19	3.4	2.5	7.8	5.3	2.2	2.2	2.6	3.4	3.0
20	2.9	2.4	7.2	4.9	1.9	2.1	3.5	3.5	3.6
21	2.7	2.3	7.1	4.7	1.7	2.0	4.7	3.5	4.2
22	2.6	2.2	7.3	4.9	1.7	1.8	6.3	3.3	4.8
23	2.5	2.1	5.5	5.1	2.8	1.9	7.8	3.1	5.0
24	2.5	2.2	4.6	4.3	3.1	2.0	6.5	2.8	4.5
25	2.3	2.7	3.7	3.9	3.5	1.8	4.9	2.7	3.9
26	2.2	3.4	3.3	3.6	3.4	1.6	3.4	2.6	3.2
27	2.1	3.9	2.9	3.1	3.3	1.8	2.9	2.5	2.9
28	2.1	4.5	2.8	3.0	3.4	2.0	2.8	2.5	2.7
29	2.1	4.3	2.7	3.6	3.5	2.1	2.7	2.4	2.8
30	2.0	3.6	2.6	4.5	3.7	2.3	2.7	2.4	3.0
31		2.5		4.1	3.6		2.6		3.3

Rating table for Kinchafoonee Creek near Leesburg, Ga., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
0.60	164	2.00	380	3.40	638	5.60	1,189
.70	177	2.10	397	3.50	658	5.80	1,251
.80	191	2.20	414	3.60	679	6.00	1,315
.90	205	2.30	432	3.70	700	6.20	1,381
1.00	220	2.40	450	3.80	721	6.40	1,447
1.10	235	2.50	468	3.90	743	6.60	1,515
1.20	250	2.60	486	4.00	765	6.80	1,583
1.30	266	2.70	504	4.20	811	7.00	1,653
1.40	282	2.80	522	4.40	859	8.00	2,015
1.50	298	2.90	541	4.60	909	9.00	2,400
1.60	314	3.00	560	4.80	961	10.00	2,800
1.70	330	3.10	579	5.00	1,015	11.00	3,200
1.80	346	3.20	598	5.20	1,071		
1.90	363	3.30	618	5.40	1,129		

NOTE.—The above table is based on seven discharge measurements made during 1905–1907 and is well defined below gage height 4 feet.

Monthly discharge of Kinchafoonee Creek near Leesburg, Ga., for 1905–6.

Month.	Discharge in second-feet.		
	Maximum.	Minimum.	Mean.
1905.			
September	298	164	211
October	560	250	328
November	522	250	311
1906.			
April (12-30)	743	380	556
May	1,480	363	668
June	3,400	220	969
July	2,090	450	870
August	721	330	528
September	3,000	314	754
October	1,940	346	768
November	658	380	500
December	1,020	414	548

NOTE.—Values for 1905 and 1906 are excellent.

ICHAWAYNOCHAWAY CREEK AT MILFORD, GA.

This station is located at the wagon bridge at Milford, Ga. When first established, on August 29, 1905, the bridge was an old wooden structure, which was shortly afterwards replaced by a new steel bridge, with one span of 110 feet, with short trestle approaches at both ends. The temporary vertical gage was also replaced by a standard chain gage, attached to the downstream side of the new bridge; length of chain, 23.46 feet. The observer is W. J. Kidd.

The current is moderately swift and is broken by old bridge timbers still remaining in the channel. The station is about 100 feet above the remains of an old wooden dam, which retains the water at a higher level than it would otherwise have. Gage heights for 1905 and 1906 are from the chain gage described above, but future records will be from a gage located below the dam.

Discharge measurements of Ichawaynochaway Creek at Milford, Ga., in 1905–1907.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
1905.		*Feet.*	*Sq. ft.*	*Feet.*	*Sec.-ft.*
August 29	F. A. Murray	111	458	2.89	364
October 16	W. E. Hall	116	452	3.05	386
1906.					
February 15	W. E. Hall	137	666	4.65	1,390
April 18	do	123	574	3.78	715
April 18	do	123	574	3.76	693
June 13	F. A. Murray	144	718	4.80	1,770
August 14	W. E. Hall	12	555	3.45	726
November 26	do	125	493	3.46	592
1907.					
January 22	M. R. Hall	120	496	3.56	690
January 22	do	120	499	3.57	705

Daily gage height, in feet, of Ichawaynochaway Creek at Milford, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.4	4.9	4.1	4.3	3.1	3.7	3.9	3.4	4.4	3.5	3.2	4.3
2	4.4	4.8	4.05	4.2	3.1	3.6	3.8	3.35	4.1	3.7	3.25	4.3
3	4.6	4.7	4.0	4.1	3.3	3.5	3.7	3.3	4.1	4.0	3.25	4.2
4	5.0	4.6	4.0	4.05	3.5	3.4	3.6	3.3	4.2	4.4	3.25	4.1
5	5.6	4.5	4.2	4.0	4.0	3.3	3.5	3.2	4.3	4.8	3.3	4.0
6	6.0	4.5	4.8	3.9	4.8	3.2	3.5	3.2	4.2	4.7	3.3	3.9
7	5.8	4.6	5.4	3.8	5.3	3.25	3.6	3.3	4.0	4.3	3.3	3.8
8	5.2	4.7	5.0	3.9	5.8	3.3	3.8	3.3	4.1	4.0	3.3	3.7
9	4.8	5.0	4.6	4.0	6.3	3.3	4.0	3.2	4.2	3.7	3.3	3.6
10	4.7	5.3	4.5	4.05	5.6	3.35	4.1	3.2	4.3	3.5	3.3	3.5
11	4.6	5.5	4.4	4.1	5.3	3.4	4.4	3.3	4.05	3.4	3.3	3.4
12	4.45	5.2	4.3	4.0	4.6	3.45	4.8	3.4	3.9	3.3	3.3	3.4
13	4.3	5.0	4.35	3.9	4.1	4.5	5.2	3.35	3.7	3.2	3.35	3.4
14	4.2	4.9	4.4	3.8	3.7	10.9	5.0	3.35	3.5	3.1	3.4	3.4
15	4.0	4.8	4.45	3.8	3.55	11.6	4.6	3.4	3.4	3.0	3.4	3.5
16	4.0	4.7	4.35	3.8	3.4	11.5	4.4	3.45	3.3	2.9	3.4	3.6
17	4.0	4.6	4.3	3.85	3.3	8.6	4.4	3.5	3.3	3.2	4.5	3.7
18	3.9	4.5	4.35	3.8	3.2	6.7	6.2	3.45	3.25	3.6	4.55	3.8
19	3.9	4.4	4.4	3.7	3.1	5.1	5.8	3.45	3.2	3.7	4.5	3.9
20	4.0	4.35	4.4	3.65	3.1	4.7	5.2	3.5	3.1	3.8	4.55	4.0
21	4.1	4.35	4.45	3.6	3.2	4.6	4.6	3.6	3.1	3.8	4.6	4.1
22	4.8	4.4	4.45	3.55	3.3	4.5	4.2	3.7	3.0	3.7	4.7	4.25
23	6.8	4.45	4.45	3.5	3.4	4.35	4.0	3.8	3.0	3.3	4.6	4.4
24	10.3	4.45	4.5	3.45	3.7	4.3	3.9	4.1	2.9	3.2	4.5	4.6
25	10.9	4.4	4.5	3.4	4.1	4.1	3.8	4.5	2.9	3.0	4.4	4.7
26	8.0	4.3	4.5	3.35	4.4	3.9	3.7	4.3	3.0	3.1	4.4	4.6
27	6.5	4.2	4.45	3.3	4.5	3.65	3.6	4.2	3.2	3.2	4.35	4.5
28	6.0	4.15	4.45	3.25	4.55	3.5	3.6	4.0	3.35	3.2	4.3	4.3
29	5.5	.....	4.4	3.2	4.6	3.4	3.55	3.85	3.5	3.3	4.3	4.2
30	5.3	.....	4.35	3.15	4.4	3.6	3.5	3.6	3.5	3.3	4.3	4.1
31	5.1	.....	4.3	.....	3.9	.....	3.4	3.9	.....	3.2	.....	4.1

Rating table for Ichawaynochaway Creek at Milford, Ga., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.40	170	3.30	540	4.20	1,120	6.00	2,800
2.50	200	3.40	595	4.30	1,200	7.00	3,800
2.60	235	3.50	650	4.40	1,280	8.00	4,800
2.70	270	3.60	710	4.50	1,360	9.00	5,800
2.80	310	3.70	770	4.60	1,445	10.00	6,800
2.90	350	3.80	835	4.70	1,530	11.00	7,800
3.00	395	3.90	900	4.80	1,620		
3.10	440	4.00	970	4.90	1,710		
3.20	490	4.10	1,045	5.00	1,800		

NOTE.—The above table is based on ten discharge measurements made during 1905–1907 and is not well defined.

Monthly discharge of Ichawaynochaway Creek at Milford, Ga., for 1905–6.

Month.	Discharge in second-feet.		
	Maximum.	Minimum.	Mean.
1905.			
September	395	185	270
October	770	395	539
November	710	395	516
December	2,800	350	1,130
1906.			
January	7,700	900	2,190
February	2,300	1,080	1,500
March	2,200	970	1,310
April	1,200	465	814
May	3,100	440	1,110
June	8,400	490	1,840
July	3,000	595	1,150
August	1,360	490	703
September	1,280	350	742
October	1,620	350	711
November	1,550	490	913
December	1,550	595	976
The year	8,400	350	1,160

NOTE.—Values for 1905 and 1906 good.

MISCELLANEOUS MEASUREMENTS IN APALACHICOLA RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Apalachicola River drainage basin during 1906:

Chattahoochee River near Vinings, Ga.—Measurements were made at a new iron highway bridge 1 mile east of Vinings, Ga., and about 10 miles northwest of Atlanta, Ga. It is about 10 miles below the developed power at Bull Sluice. The bench mark is the top of the upstream end of the second floor beam from the left bank; elevation, 31 feet above the datum of the assumed gage.

June 8: Width, 258 feet; area, 1,140 square feet; gage height, 4.72 feet; discharge, 2,080 second-feet.

August 8: Width, 259 feet; area, 1,280 square feet; gage height, 5.72 feet; discharge, 3,620 second-feet.

Red Oak Creek near Woodbury, Ga.—This stream enters Flint River from the right, 5 miles above the regular gaging station, on Flint River near Woodbury, Ga. A measurement was made May 29, 1906, at a wooden wagon bridge about 1 mile above the mouth of the creek. The bench mark is the top of the first post from the right bank edge, downstream side, 15 feet from a large white oak tree; elevation 20 feet above the datum of the assumed gage.

Width, 62 feet; area, 157 square feet; gage height, 3.31 feet; discharge, 75 second-feet.

Big Potato Creek near Thomaston, Ga.—A measurement was made May 30, 1906, at a covered wagon bridge 2½ miles west of Thomaston, Ga. The bench mark is the top of the downstream lower stringer,

at a point 80 feet from the left end of the bridge; elevation 15 feet above the datum of the assumed gage.

Width, 81 feet; area, 182 square feet; gage height, 3.07 feet; discharge, 97 second-feet.

Another measurement was made May 30, 1906, at the highway bridge about 5 miles southwest of Thomaston, Ga., 200 yards above Daniel's old gristmill. The bench mark is a chisel mark on the intermediate post at the downstream end of the second floor beam; elevation, 28 feet above the datum of the assumed gage.

Width, 84 feet; area, 144 square feet; gage height, 2.07feet; discharge, 101 second-feet.

Muckalee Creek near Leesburg, Ga.—A measurement was made June 15, 1906, about 3 miles east of Leesburg, Ga., at a wooden highway bridge consisting of two truss spans, with trestle approaches about 50 feet each. The bench mark is the top of the upstream end of the wooden cap of the middle bent of the bridge; elevation, 17 feet above the datum of the assumed gage.

Width, 83 feet; area, 624 square feet; gage height, 7.02; discharge, 1,160 second-feet.

Spring Creek near Bainsbridge, Ga.—A measurement was made February 16, 1906, at a steel wagon bridge on the road to Fairchilds, Ga. The bench mark is the top of the downstream end of the second floor beam from the right-bank pier; elevation, 20 feet above the datum of the assumed gage.

Width, 169 feet; area, 1,040 square feet; gage height, 8.45 feet; discharge, 2,110 second-feet.

CHOCTAWHATCHEE RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Choctawhatchee River drains the southeastern part of Alabama and that portion of Florida lying immediately south. The main river rises in Barbour County, Ala., a short distance west of Eufaula, Ala., and flows in a southwesterly and southerly direction through Choctawhatchee Bay to the Gulf of Mexico. Pea River is the principal tributary and enters from the west at Geneva, Ala. This branch is the longer of the two above the junction, having its head in Bullock County, near Union Springs, Ala. Double Bridges Creek is an important but small tributary lying between the main branches and entering Choctawhatchee River just above the mouth of Pea River. These are all moderately swift streams, even at low water, and at places the fall is sufficient to make considerable shoals or rapids and offer practicable sites for waterpower developments.

CHOCTAWHATCHEE RIVER NEAR NEWTON, ALA.

This station was established in June, 1906, and is located at the steel highway bridge about 1 mile north of Newton and the same dis-

tance from Elba Junction. Gage-height records have been maintained for a portion of the time only, as it has been difficult to keep an observer. The current is swift and the main portion of the section is deep, it having been excavated for boating. Both banks are high and not liable to overflow.

A standard chain gage is attached to the downstream side of the bridge; length of chain, 45.76 feet. The reference point is the top of the ½-inch rod, the top rod of the bridge fencing on the downstream side, at the third intermediate post from the left end of the bridge; elevation, 45 feet.

Discharge measurements of Choctawhatchee River near Newton, Ala., in 1906–7.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
1906		*Feet.*	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 21	W. E. Hall	115	291	4.40	1,260
June 11	F. A. Murray	96	574	3.08	416
August 15	W. E. Hall	111	259	3.98	867
September 20	F. A. Murray	98	106	2.71	312
1907					
January 23	M. R. Hall	113	198	3.76	747

Daily gage height, in feet, of Choctawhatchee River near Newton, Ala., for 1906.

Day.	June.	July.	Aug.	Sept.	Oct.	Day.	June.	July.	Aug.	Sept.	Oct.
1	.....	3.6	3.3	2.8	4.5	17	4.4	4.5	3.1	2.5	.....
2	.....	4.5	3.1	2.8	5.0	18	4.1	4.5	3.2	2.5	.....
3	.....	3.4	2.9	2.8	5.1	19	3.8	4.5	2.8	2.7	.....
4	.....	3.2	2.7	2.8	5.1	20	3.2	4.3	2.5	2.9	.....
5	.....	3.2	.....	2.3	4.3	21	3.1	3.6	2.5	3.3	.....
6	.....	3.2	.....	2.3	5.0	22	2.85	3.5	2.5	3.9	.....
7	.....	3.1	.....	3.0	5.0	23	2.8	3.2	2.8	3.5	.....
8	.....	2.7	.....	3.8	4.9	24	2.7	3.3	3.0	3.0	.....
9	.....	3.2	.....	4.1	4.7	25	2.7	3.5	3.9	3.0	.....
10	.....	3.3	.....	4.3	4.3	26	2.7	3.8	3.3	3.0	.....
11	3.1	3.7	.....	5.0	4.0	27	3.1	4.3	3.1	3.0	.....
12	3.3	4.6	2.7	4.3	4.0	28	3.1	4.5	3.1	4.1	.....
13	3.4	4.9	2.7	4.1	3.9	29	3.0	4.5	2.8	4.8	.....
14	3.5	4.5	3.3	3.1	.....	30	3.2	3.7	2.8	4.7	.....
15	4.2	4.5	3.5	3.0	.....	31	.....	3.5	2.8	.....	.....
16	4.5	4.5	3.9	2.5	.....						

Rating table for Choctawhatchee River near Newton, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.50	270	3.20	455	3.90	830	4.60	1,485
2.60	290	3.30	495	4.00	900	4.70	1,610
2.70	310	3.40	540	4.10	975	4.80	1,740
2.80	335	3.50	590	4.20	1,060	4.90	1,880
2.90	360	3.60	645	4.30	1,155	5.00	2,020
3.00	390	3.70	705	4.40	1,255		
3.10	420	3.80	765	4.50	1,365		

NOTE.—The above table is based on five discharge measurements made during 1906–7, and is well defined.

PEA RIVER AT ELBA, ALA.

This station, located at the railroad bridge of the Atlantic Coast Line, was established on June 8, 1906. The bridge is in the town, about 800 feet from the station. Measurements are made from the downstream side of the bridge and its trestle approaches. The current is moderately swift, and the bed is rocky and rough.

The standard chain gage is attached to the downstream guard rail; length of chain, 52.21 feet. Gage readings are furnished by the Pea River Power Company. The bench mark is the top of the downstream end of the second floor beam from the right bank; elevation, 48.47 feet above gage datum.

Discharge measurements of Pea River at Elba, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 21	W. E. Hall	125	438	4.10	1,630
September 15	F. A. Murray	116	191	3.20	325
September 17	do	116	172	3.10	261
September 18	do	115	169	3.10	297

Daily gage height, in feet, of Pea River at Elba, Ala., for 1906.

Day.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1		4.1	3.55	3.3	8.4	3.6	4.1
2		3.65	3.4	3.3	7.5	3.6	4.0
3		4.5	3.4	3.2	7.9	3.5	4.1
4		3.85	3.85	3.1	6.2	3.5	4.1
5		3.55	3.55	3.1	5.5	3.5	4.0
6		3.3	3.55	3.55	6.1	3.5	4.0
7		3.2	3.65	3.55	6.8	3.5	4.0
8	3.55	3.2	3.4	3.55	5.4	3.5	3.9
9	3.4	3.65	3.3	4.3	4.8	3.5	3.9
10	3.55	6.6	3.3	3.55	4.7	3.5	4.0
11	3.75	4.6	4.2	3.55	4.4	3.4	4.4
12	3.75	5.6	6.6	3.4	4.2	3.6	4.32
13	3.65	6.6	5.0	3.3	4.2	3.55	4.2
14	3.95	6.6	5.2	3.2	4.0	4.6	4.1
15	4.3	7.6	5.5	3.2	3.8	4.3	4.0
16	3.95	6.6	4.7	3.1	3.7	4.0	4.1
17	5.3	7.6	4.3	3.0	3.6	4.1	4.5
18	4.5	5.6	3.95	3.0	3.7	[b] 7.0	4.9
19	3.95	5.1	3.85	2.9	3.9	[b] 10.0	4.7
20	3.85	5.1	3.65	2.9	4.0	5.9	5.3
21	3.65	5.0	3.4	3.1	4.1	6.0	5.0
22	3.4	4.9	3.55	3.3	4.4	6.0	4.8
23	3.2	4.5	3.4	3.3	4.3	5.6	4.7
24	3.2	4.4	3.4	3.2	4.2	5.4	4.5
25	3.1	4.1	3.3	3.2	4.1	5.3	4.4
26	3.3	3.75	3.3	3.2	4.0	5.0	4.3
27	3.2	4.5	3.4	3.3	3.8	4.8	4.2
28	3.2	4.2	3.4	6.6	3.8	4.4	4.2
29	3.1	4.1	3.2	9.6	3.7	4.3	4.5
30	3.1	4.1	3.1	[a]	3.6	4.1	4.8
31		3.75	3.1		3.6		11.8

[a] Water over gage.
[b] Gage heights estimated from records at Pera.

PEA RIVER AT PERA, ALA.

This station was established August 27, 1904. It is located at the Elton wagon bridge, about one-half mile west of Pera, Ala., a station on the Georgiana and Graceville branch of the Louisville and Nashville Railroad. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 103, where are given also references to publications that contain data for previous years.

Discharge measurements of Pea River at Pera, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 22	W. E. Hall	90	768	8.01	1,810
June 7	F. A. Murray	74	393	3.52	474
September 14	do	75	306	3.38	480
September 14	do	75	306	3.42	488
September 14	do	75	300	3.38	465

Daily gage height, in feet, of Pea River at Pera, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.1	9.1	7.3	7.7	3.9	4.5	3.9	4.5	3.2	17.4	4.0	5.1
2	9.4	8.7	7.0	8.0	3.7	4.3	5.0	4.2	3.5	15.1	4.0	5.1
3	9.4	8.4	14.0	8.5	3.6	4.6	5.3	4.0	3.6	12.9	3.9	4.9
4	15.8	7.9	16.0	7.8	4.3	4.2	4.0	3.9	3.3	13.5	3.8	4.9
5	14.8	7.6	15.1	7.1	7.0	3.8	5.4	3.7	3.1	10.1	3.8	4.8
6	12.0	7.5	13.1	6.6	10.4	3.6	4.4	4.2	3.1	10.1	3.7	4.8
7	11.1	7.3	11.9	6.2	7.2	3.4	3.8	4.5	3.8	11.2	3.7	4.8
8	10.8	8.5	15.1	6.0	14.2	3.3	3.4	4.4	3.8	9.2	3.7	4.6
9	11.3	12.3	17.8	5.8	12.8	3.3	3.3	4.1	4.7	8.0	3.6	4.5
10	10.9	11.6	15.4	5.8	9.5	4.2	5.0	3.5	5.4	7.1	3.7	4.5
11	9.4	10.5	13.3	5.9	8.4	4.3	10.0	3.4	4.4	6.4	3.6	5.7
12	10.0	9.7	12.4	5.7	7.7	4.2	8.8	7.9	4.1	6.0	3.8	5.9
13	10.7	9.2	12.3	5.7	7.1	4.8	10.2	9.1	3.6	5.6	3.6	5.2
14	9.7	9.4	11.4	5.9	6.1	4.5	12.6	7.2	3.4	5.3	3.6	5.0
15	9.2	9.7	11.0	7.5	5.7	6.9	14.1	8.9	3.3	5.0	3.7	4.8
16	8.8	9.1	10.7	7.4	5.0	6.0	15.0	7.5	3.1	4.7	5.2	4.6
17	8.4	8.3	9.3	6.6	4.8	5.2	15.6	7.1	2.8	4.6	4.8	4.8
18	8.0	7.8	8.6	6.2	4.8	8.7	14.3	5.4	2.8	4.4	8.4	6.9
19	7.9	7.4	8.2	5.7	4.6	6.2	11.2	4.7	2.7	4.8	12.2	6.6
20	7.8	7.4	10.0	5.5	4.4	5.8	9.8	4.3	2.6	4.9	11.0	7.6
21	7.5	7.5	9.8	5.4	4.3	5.4	10.5	4.1	3.0	4.9	10.4	7.8
22	9.5	8.2	9.0	5.1	8.8	4.2	9.3	4.0	3.3	5.0	9.3	6.8
23	16.7	7.7	8.4	4.9	5.0	3.7	7.0	3.8	3.3	5.6	8.4	6.4
24	17.0	7.3	8.4	4.7	4.5	3.5	6.5	3.8	3.1	5.6	8.0	6.0
25	17.5	7.6	9.2	4.4	5.4	3.4	6.4	3.6	3.3	5.3	7.6	5.8
26	19.5	7.7	8.8	4.1	7.6	3.3	5.7	3.5	3.1	5.0	7.3	5.4
27	18.8	7.2	8.3	3.9	7.3	3.3	7.4	3.2	4.5	4.6	6.9	5.4
28	14.6	7.0	7.7	4.1	7.0	3.0	6.0	3.1	13.9	4.4	6.2	5.2
29	11.6	.....	7.2	4.0	6.4	3.6	5.4	3.4	20.7	4.3	5.6	5.2
30	10.3	.....	7.9	4.0	5.5	3.1	5.6	3.1	19.2	4.2	5.3	5.1
31	9.5	.....	7.9	.....	4.9	.....	5.4	3.0	.....	4.1	.....	12.8

Rating table for Pea River at Pera, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.60	342	3.10	528	4.60	754	6.20	1,245
2.70	360	3.70	548	4.70	780	6.40	1,315
2.80	378	3.80	568	4.80	806	6.60	1,385
2.90	396	3.90	590	4.90	834	6.80	1,460
3.00	414	4.00	612	5.00	862	7.00	1,540
3.10	432	4.10	634	5.20	920	8.00	1,940
3.20	450	4.20	656	5.40	980	9.00	2,400
3.30	468	4.30	680	5.60	1,040	10.00	2,900
3.40	488	4.40	704	5.80	1,105		
3.50	508	4.50	728	6.00	1,175		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 7 feet. Above gage height 8.80 feet the rating curve is a tangent, the difference being 50 per tenth.

Monthly discharge of Pea River at Pera, Ala., for 1906.

[Drainage area, 1,180 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	7,650	1,740	3,680	3.12	3.60
February	4,050	1,540	2,190	1.86	1.94
March	6,800	1,540	3,280	2.78	3.20
April	2,160	590	1,170	.992	1.11
May	5,000	528	1,480	1.25	1.44
June	2,260	414	752	.637	.71
July	5,700	468	2,060	1.75	2.02
August	2,450	414	857	.726	.84
September	8,250	342	1,150	.975	1.09
October	6,600	634	1,760	1.49	1.72
November	4,000	528	1,250	1.06	1.18
December	4,300	728	1,130	.958	1.10
The year	8,250	342	1,730	1.47	19.95

NOTE.—Values for 1906 are good.

MISCELLANEOUS MEASUREMENTS IN CHOCTAWHATCHEE RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Choctawhatchee River drainage basin during 1906:

Pea River near Elba, Ala.—A measurement was made September 18, 1906, from a bateau about 700 feet below the Pea River Power Company's dam, which is located 6 miles from Elba, Ala. The stage of the river at this time was very low.

Width, 89 feet; area, 217 square feet; discharge, 197 second-feet.

Whitewater River at Elba, Ala.—Measurements were made from the downstream side of a single-span iron highway bridge in Elba, Ala. The bench mark is the center of the steel connecting pin which connects the second downstream vertical post from the right end of the bridge to the second floor beam; elevation, 42.44 feet above the datum of the assumed gage.

Discharge measurements of Whitewater River at Elba, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 21	W. E. Hall	65	242	5.14	585
June 8	F. A. Murray	54	119	3.26	115
September 19	do	49	105	3.03	60

ESCAMBIA RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Escambia River drains the south-central portion of Alabama and empties into the Gulf of Mexico through Escambia Bay and Pensacola Bay. Conecuh River joins the Escambia about 5 miles south of the Alabama-Florida State line, and is very much the larger of the two branches. Conecuh River rises in Bullock County, Ala., very close to the headwaters of Pea River in the Choctawhatchee drainage, and flows southwestward throughout its course. Pigeon and Patsaliga creeks, both from the west, are the principal tributaries of Conecuh River. The Conecuh and its tributaries are swift streams and at places there are rocky shoals and rapids.

CONECUH RIVER AT BECK, ALA.

This station was established August 24, 1904. It is located at Simmons Bridge at Beck, Ala., about 12 miles below the mouth of Patsaliga Creek. The nearest railway station is Andalusia, Ala., 8 miles east, on the Central of Georgia and Louisville and Nashville railways. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 106, where are given also references to publications that contain data for previous years.

Discharge measurements of Conecuh River at Beck, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
February 23	W. E. Hall	121	654	5.18	1,680
June 7	F. A. Murray	115	332	2.06	431
September 13	do	118	469	3.22	871

Daily gage height, in feet, of Conecuh River at Beck, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.3	6.5	5.3	6.3	2.5	2.8	1.6	2.9	1.6	15.1	2.9	3.5
2	6.6	5.8	5.2	6.7	2.4	2.6	2.4	2.7	1.6	15.3	2.9	3.3
3	8.0	5.2	10.3	7.2	2.2	2.5	2.0	2.5	1.6	16.9	2.9	3.2
4	10.4	4.8	11.2	7.5	2.7	2.3	2.3	2.4	1.4	17.6	2.8	3.0
5	9.2	4.5	10.4	7.0	5.2	2.2	2.2	2.9	1.8	16.6	2.8	3.0

Daily gage height, in feet, of Conecuh River at Beck, Ala., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
6	7.8	4.2	8.5	6.1	6.0	2.2	2.3	2.5	2.1	16.3	2.7	2.9
7	7.7	4.5	7.6	5.4	6.5	2.1	2.3	2.3	1.9	14.1	2.7	2.9
8	6.8	6.0	10.4	4.7	7.3	1.9	2.35	2.2	1.8	11.8	2.7	2.8
9	6.9	8.1	11.3	4.3	7.1	1.9	2.45	2.0	2.8	9.0	2.6	2.8
10	6.6	8.8	11.0	4.2	6.2	2.1	2.5	1.9	3.0	7.6	2.6	3.0
11	6.5	7.7	9.7	4.2	5.9	2.0	3.7	3.9	4.5	6.9	2.6	3.3
12	6.8	7.2	9.2	4.2	5.6	1.9	4.8	4.8	4.3	6.4	2.6	3.4
13	6.6	6.8	8.8	4.1	5.9	2.2	4.1	3.0	3.3	5.5	2.5	3.4
14	6.0	7.1	8.9	4.1	5.7	2.6	4.2	7.2	3.0	5.2	2.5	3.3
15	5.8	7.5	10.5	5.8	4.8	3.2	6.2	5.5	2.6	4.5	3.5	3.2
16	5.5	7.2	9.7	6.2	4.2	2.7	7.3	4.3	2.8	4.3	3.1	3.1
17	5.2	7.0	8.4	5.6	3.4	2.7	6.8	3.7	2.8	4.0	3.2	3.3
18	4.9	6.1	7.6	5.3	3.1	2.7	6.7	3.1	2.3	3.9	4.5	3.4
19	5.0	5.4	6.8	4.9	2.9	2.4	7.7	2.8	2.0	3.8	4.9	3.9
20	5.1	5.1	6.7	4.5	2.7	2.8	7.4	2.6	1.9	3.8	4.9	4.0
21	5.3	5.4	6.7	4.1	2.7	2.4	6.1	2.4	1.8	3.7	5.0	3.9
22	6.5	5.3	6.2	3.7	2.7	1.9	6.2	2.4	2.1	3.6	5.2	3.8
23	8.9	5.2	6.3	3.5	2.6	1.8	5.9	2.2	2.4	3.6	4.9	3.8
24	9.0	5.0	6.2	3.2	2.6	1.8	4.9	2.0	2.8	3.6	4.7	3.7
25	7.6	5.2	6.1	3.0	3.0	1.7	4.2	1.8	2.6	3.5	4.5	3.6
26	7.3	5.6	6.3	2.9	3.1	1.6	4.0	1.8	2.4	3.4	4.4	3.4
27	7.2	5.4	6.0	2.8	3.2	1.5	4.4	1.9	6.0	3.3	4.2	3.2
28	7.6	5.7	6.0	2.7	3.7	1.5	5.1	1.9	16.0	3.2	4.0	3.2
29	8.4	.....	5.8	2.6	3.5	1.5	4.4	1.8	16.5	3.1	3.9	3.3
30	8.4	.....	5.8	2.5	3.5	1.5	4.4	1.7	16.3	3.0	3.8	3.4
31	7.6	.....	5.7	.....	3.1	.....	3.4	1.6	.....	3.0	.....	8.3

Rating table for Conecuh River at Beck, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.40	278	2.70	600	4.00	1,155	6.60	2,575
1.50	295	2.80	640	4.20	1,245	6.80	2,705
1.60	313	2.90	680	4.40	1,340	7.00	2,840
1.70	332	3.00	720	4.60	1,440	8.00	3,560
1.80	352	3.10	760	4.80	1,540	9.00	4,360
1.90	373	3.20	800	5.00	1,640	10.00	5,200
2.00	395	3.30	840	5.20	1,750	11.00	6,100
2.10	418	3.40	885	5.40	1,860	12.00	7,050
2.20	443	3.50	930	5.60	1,970	13.00	8,000
2.30	470	3.60	975	5.80	2.080	14.00	9.000
2.40	500	3.70	1,020	6.00	2.190		
2.50	530	3.80	1.065	6.20	2,315		
2.60	565	3.90	1,110	6.40	2,445		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 5.1 feet. Above 13 feet the rating curve is a tangent, the difference being 100 per tenth.

Monthly discharge of Conecuh River at Beck, Ala., for 1906.

[Drainage area, 1,290 square miles.]

Month.	Discbarge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	5,560	1,590	2,940	2.28	2.63
February	4,200	1,240	2,260	1.75	1.82
March	6,380	1,750	3,620	2.81	3.24
April	3,190	530	1,530	1.19	1.33
May	3,050	443	1,260	.977	1.13
June	800	295	453	.351	.39
July	3,340	343	1,420	1.10	1.27
August	2,980	313	711	.551	.64
September	11,500	278	1,680	1.30	1.45
October	12,600	720	3,760	2.91	3.36
November	1,750	530	974	.755	.84
December	3,800	640	955	.740	.85
The year	12,600	278	1,800	1.39	18.95

NOTE.—Values for 1906 are good.

MISCELLANEOUS MEASUREMENT IN ESCAMBIA RIVER DRAINAGE BASIN.

The following miscellaneous discharge measurement was made in Escambia River drainage basin during 1906:

Conecuh River near Brantley, Ala.—A measurement was made June 6, 1906, at a logging railway bridge one-half mile southeast of Brantley, Ala. The bench mark is the top of the upstream end of the second wooden crossbeam from the right end of the bridge; elevation, 21 feet above the datum of the assumed gage.

Width, 60 feet; area, 266 square feet; gage height, 4.95 feet; discharge, 131 second-feet.

MOBILE RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

This is the largest drainage basin in Georgia and Alabama and is designated the Mobile basin because its waters all enter the Gulf through Mobile River at Mobile, Ala. Beginning at the headwaters, Cartecay and Ellijay rivers unite at Ellijay, Ga., to form Coosawattee River. Just above Resaca, Ga., this unites with the Conasauga to form Oostanaula River. At Rome, Ga., the Oostanaula and the Etowah unite to form Coosa River. Six miles above Montgomery, Ala., the Coosa and the Tallapoosa unite to form Alabama River, and not far from the coast the Tombigbee unites with the Alabama to form Mobile River, which flows into Mobile Bay, an arm of the Gulf of Mexico.

Cahaba River is the principal tributary of the Alabama and joins it about 10 miles below Selma. Hillabee Creek flows into Tallapoosa River just above Sturdevant and near Alexander. Talladega Creek is a tributary of the Coosa.

Tombigbee River rises in the northeastern part of Mississippi and enters Alabama in Pickens County. Its principal tributary is the Black Warrior, which is formed by the junction of Mulberry Fork and Sipsey Fork. Locust Fork enters the Black Warrior some distance below the junction.

ALABAMA RIVER AT SELMA, ALA.

This station, which was originally established by the United States Engineer Corps, is now maintained by the United States Weather Bureau. It is located at the iron highway bridge one block from Water street, Selma, Ala. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 109, where are given also references to publications that contain data for previous years.

Discharge measurements of Alabama River at Selma, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 21	F. A. Murray	573	23,400	42.26	114,000
March 22	do	679	26,500	47.40	128,000
March 23	do	696	28,100	49.78	143,000
March 24	do	709	28,700	50.42	144,000
March 26	do	684	26,900	47.95	134,000
March 27	do	581	25,000	45.08	116,000
March 28	do	580	23,900	4..08	106,000
June 27	do	393	4,760	3.88	13,600
October 26	W. E. Hall	449	7,230	9.94	26,700

Daily gage height, in feet, of Alabama River at Selma, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.5	13.4	8.2	43.4	5.7	4.6	5.2	11.9	6.5	26.9	5.3	13.2
2	12.7	12.0	7.2	42.3	5.5	4.8	4.7	12.6	6.4	28.9	5.0	8.9
3	10.0	11.1	7.0	39.8	5.5	4.1	3.9	11.5	6.5	32.3	4.8	7.0
4	12.0	10.0	10.6	36.2	5.7	3.6	3.3	10.5	6.8	34.2	4.7	6.4
5	20.0	9.3	16.6	31.5	6.8	3.2	3.9	9.8	7.1	34.3	4.4	5.8
6	25.8	8.6	19.4	26.0	10.0	3.1	4.5	11.6	7.3	33.6	4.3	5.7
7	28.6	8.0	19.5	20.3	11.7	3.3	4.0	11.2	8.3	32.9	4.1	5.3
8	29.0	7.7	18.8	16.0	14.7	3.3	3.4	10.4	10.0	31.5	4.0	5.2
9	27.8	8.0	19.2	13.3	17.5	3.5	3.6	9.7	13.1	29.2	3.9	5.2
10	25.2	9.3	20.1	12.1	18.0	3.4	5.0	9.1	13.2	26.0	3.8	5.1
11	22.4	9.9	19.7	11.6	15.7	3.3	7.4	8.7	11.1	21.7	3.7	5.1
12	18.5	9.5	17.4	11.9	13.1	3.4	7.9	8.0	9.3	16.8	3.6	5.3
13	14.9	8.7	14.8	12.0	10.5	3.2	7.5	7.9	10.3	12.8	3.5	7.3
14	13.0	7.9	12.7	11.6	8.3	3.0	7.5	8.7	12.0	10.1	3.4	8.9
15	12.1	7.4	11.2	11.2	6.8	3.0	5.9	10.7	10.8	8.6	3.5	9.4
16	11.4	7.2	11.1	11.0	6.0	5.2	11.6	14.5	8.5	7.5	3.7	9.5
17	10.7	7.1	13.2	10.8	5.5	10.5	15.3	15.0	7.0	6.8	4.0	9.0
18	10.0	7.0	18.1	10.1	5.1	14.3	18.2	13.2	6.2	6.4	4.5	8.9
19	9.8	6.2	24.3	9.6	4.8	15.2	19.3	10.8	5.5	6.2	6.8	10.4
20	9.7	6.0	34.2	9.2	4.6	14.7	22.1	8.9	4.9	7.6	9.5	12.0
21	9.7	5.7	41.0	8.7	4.4	13.2	24.5	8.1	4.3	13.1	17.1	12.2
22	9.8	6.5	46.5	8.2	4.1	10.9	25.6	7.8	4.9	16.5	21.2	12.4
23	14.4	7.3	49.2	7.7	4.1	8.3	25.4	8.0	7.5	18.0	23.0	12.5
24	20.0	7.2	50.2	7.4	4.6	6.2	24.9	7.2	8.2	16.9	23.3	11.9
25	22.8	7.0	50.0	7.2	4.7	4.9	24.6	6.1	8.3	14.2	22.7	10.8
26	23.6	7.3	48.7	6.9	4.3	4.2	23.3	5.5	7.5	11.0	22.0	9.5
27	23.6	8.0	46.3	6.6	4.1	3.8	20.4	5.2	6.7	8.7	21.1	8.5
28	22.4	8.7	43.3	6.3	3.9	4.0	16.9	5.0	9.1	7.6	20.3	7.7
29	21.0	.....	42.5	6.0	3.8	4.1	13.5	5.5	15.1	6.6	19.6	7.5
30	18.9	.....	43.2	5.8	3.7	4.8	12.2	5.6	22.7	6.0	17.5	8.3
31	16.0	.....	43.6	.....	3.6	.....	11.9	6.1	.....	5.7	.....	10.6

Rating table for Alabama River at Selma, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
3.00	11,500	5.20	15,820	8.80	23,560	30.00	79,200
3.10	11,690	5.30	16,030	9.00	24,000	31.00	82,000
3.20	11,880	5.40	16,240	10.00	26,300	32.00	84,800
3.30	12,070	5.50	16,450	11.00	28,600	33.00	87,600
3.40	12,260	5.60	16,660	12.00	31,000	34.00	90,400
3.50	12,450	5.70	16,870	13.00	33,450	35.00	93,200
3.60	12,640	5.80	17,080	14.00	36,000	36.00	96,000
3.70	12,830	5.90	17,290	15.00	38,600	37.00	98,900
3.80	13,020	6.00	17,500	16.00	41,200	38.00	101,800
3.90	13,210	6.20	17,920	17.00	43,800	39.00	104,700
4.00	13,400	6.40	18,340	18.00	46,400	40.00	107,600
4.10	13,600	6.60	18,760	19.00	49,100	41.00	110,500
4.20	13,800	6.80	19,180	20.00	51,800	42.00	113,400
4.30	14,000	7.00	19,600	21.00	54,500	43.00	116,300
4.40	14,200	7.20	20,040	22.00	57,200	44.00	119,200
4.50	14,400	7.40	20,480	23.00	59,900	45.00	122,100
4.60	14,600	7.60	20,920	24.00	62,600	46.00	125,000
4.70	14,800	7.80	21,360	25.00	65,300	47.00	128,000
4.80	15,000	8.00	21,800	26.00	68,000	48.00	131,000
4.90	15,200	8.20	22,240	27.00	70,800	49.00	134,000
5.00	15,400	8.40	22,680	28.00	73,600	50.00	137,000
5.10	15,610	8.60	23,120	29.00	76,400	51.00	140,000

NOTE.—The above table is based on discharge measurements made during 1900–1906, and is well defined.

Monthly discharge of Alabama River at Selma, Ala., for 1906.

[Drainage area, 15,400 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	76,400	25,600	45,300	2.94	3.39
February	34,400	16,900	22,500	1.46	1.52
March	138,000	19,600	71,400	4.64	5.35
April	117,000	17,100	40,900	2.66	2.97
May	46,400	12,600	20,800	1.35	1.56
June	39,100	11,500	17,700	1.15	1.28
July	66,900	12,100	33,600	2.18	2.51
August	38,600	15,400	24,600	1.60	1.84
September	59,100	14,000	24,000	1.56	1.74
October	91,200	16,900	46,000	2.99	3.45
November	60,700	12,300	27,600	1.79	2.00
December	34,000	15,600	23,200	1.51	1.74
The year	138,000	11,500	33,100	2.15	29.35

NOTE.—Values for 1906 are excellent.

ETOWAH RIVER NEAR ROME, GA.

This station was established August 17, 1904. It is located at Freemans Ferry, about 5 miles above Rome, Ga. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 115, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Etowah River near Rome, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
May 8	F. A. Murray	307	1,310	3.85	3,690
June 27	O. P. Hall	305	1,140	3.30	2,850
October 16	F. A. Murray	300	988	2.88	2,180
October 16	do	300	988	2.89	2,160

Daily gage height, in feet, of Etowah River near Rome, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	3.8	2.6	5.4	3.3	2.7	2.6	4.0	3.4	10.8	2.75	2.8
2	2.8	3.5	2.6	5.0	3.1	2.9	2.5	3.9	3.1	8.8	2.75	2.8
3	3.9	3.4	4.8	4.5	3.0	3.0	2.5	3.8	2.8	7.9	2.7	2.8
4	15.4	3.4	5.6	4.1	3.5	3.0	2.9	3.7	2.7	6.8	2.7	2.8
5	13.3	3.3	4.9	4.0	3.3	2.9	2.8	3.6	2.7	4.8	2.7	2.7
6	6.5	3.3	3.5	3.9	3.1	2.8	2.6	3.5	5.5	4.5	2.7	2.7
7	4.3	3.2	3.0	3.8	4.0	2.7	3.0	3.3	4.0	4.1	2.7	2.7
8	3.9	3.2	3.0	3.7	4.2	2.6	2.7	3.1	3.9	4.0	2.65	2.7
9	4.0	3.2	4.8	3.6	3.3	2.6	2.6	2.8	4.8	3.8	2.65	2.7
10	3.8	3.1	4.0	4.5	3.0	2.5	3.2	2.7	3.3	3.4	2.6	2.9
11	3.5	3.1	3.5	4.0	2.9	2.5	3.0	3.2	3.3	3.2	2.6	5.8
12	3.5	3.0	3.2	3.5	2.9	3.0	2.8	2.8	3.2	3.2	2.6	5.0
13	3.7	3.0	3.1	3.4	2.8	7.3	2.6	2.7	3.1	3.0	2.6	3.6
14	3.5	3.0	3.2	3.4	2.8	9.5	2.5	2.9	2.9	3.0	2.6	3.6
15	3.4	3.0	15.4	4.0	2.8	7.7	5.5	3.2	2.8	2.9	2.65	3.5
16	3.0	3.0	16.7	3.7	2.7	4.8	4.7	4.0	2.6	2.8	2.7	3.2
17	4.0	2.9	9.4	3.5	2.7	6.5	3.5	4.2	2.5	2.85	2.8	3.0
18	3.6	2.9	5.8	3.5	2.6	3.6	10.5	4.9	2.5	4.0	3.0	4.8
19	3.4	2.8	14.3	3.4	2.6	3.3	8.8	5.0	3.1	8.5	12.9	4.5
20	3.5	2.8	22.7	3.3	2.6	3.1	6.0	3.3	4.8	4.5	10.5	4.0
21	3.2	2.8	20.0	3.3	2.6	3.0	4.3	4.2	3.6	3.6	9.0	4.0
22	7.3	2.9	10.0	3.2	2.6	2.9	4.7	4.0	3.6	3.3	9.0	3.8
23	11.3	3.0	5.3	3.2	2.6	2.8	4.8	4.0	3.5	3.2	8.5	3.4
24	10.7	2.8	4.5	3.1	2.5	2.7	5.3	3.9	3.5	3.1	7.5	3.4
25	5.5	2.8	4.2	3.1	2.5	2.7	3.6	3.5	3.4	3.0	4.0	3.2
26	4.5	2.8	4.0	3.1	2.5	4.4	3.2	3.3	3.4	3.0	3.0	3.0
27	4.5	2.7	4.1	3.0	5.1	3.4	3.0	3.2	3.3	2.9	3.0	3.4
28	4.7	2.7	4.9	3.2	3.7	3.0	2.9	3.0	3.2	2.9	2.9	3.4
29	4.5	.....	5.5	3.5	3.2	2.8	3.3	4.0	3.0	2.8	2.9	3.8
30	4.2	.....	6.0	3.4	2.9	2.7	4.6	4.2	3.2	2.8	2.8	3.7
31	4.0	.....	7.1	.....	2.8	.....	4.4	3.9	.....	2.8	.....	9.8

Rating table for Etowah River near Rome, Ga., for 1905–6.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.50	570	2.90	2,175	4.60	5,100	9.00	15,180
1.60	650	3.00	2,320	4.80	5,480	10.00	17,880
1.70	735	3.10	2,470	5.00	5,860	11.00	20,700
1.80	830	3.20	2,625	5.20	6,260	12.00	23,600
1.90	930	3.30	2,785	5.40	6,660	13.00	26,660
2.00	1,035	3.40	2,950	5.60	7,080	14.00	29,800
2.10	1,145	3.50	3,120	5.80	7,500	15.00	33,000
2.20	1,260	3.60	3,295	6.00	7,930	16.00	36,300
2.30	1,380	3.70	3,470	6.20	8,370	17.00	39,600
2.40	1,500	3.80	3,645	6.40	8,820	18.00	43,000
2.50	1,625	3.90	3,820	6.60	9,280	19.00	46,500
2.60	1,755	4.00	4,000	6.80	9,740	20.00	50,000
2.70	1,890	4.20	4,360	7.00	10,200		
2.80	2,030	4.40	4,720	8.00	12,600		

NOTE.—The above table is based on discharge measurements made during 1904–1906 and is well defined below gage height 4 feet. Above gage height 7 feet the curve becomes uncertain and is only approximate at the high stages.

Monthly discharge of Etowah River near Rome, Ga., for 1905–6.

[Drainage area, 1,800 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
1905.					
January	35,300	930	3,350	1.86	2.14
February	20,700	1,140	5,250	2.92	3.04
March	4,910	1,620	2,160	1.20	1.38
April	2,320	1,380	1,720	.956	1.07
May	15,200	1,380	2,940	1.63	1.88
June	3,640	1,260	1,610	.894	1.00
July	10,200	1,140	2,650	1.47	1.70
August	6,060	930	1,840	1.02	1.18
September	2,320	650	1,050	.583	.65
October	3,470	650	1,310	.728	.84
November	2,780	570	985	.547	.61
December	37,000	1,040	[a] 7,130	3.96	4.56
The year	37,000	570	2,670	1.48	20.05
1906.					
January	34,300	2,030	6,990	3.88	4.47
February	3,640	1,890	2,410	1.34	1.40
March	59,400	1,760	11,700	6.50	7.49
April	6,660	2,320	3,460	1.92	2.14
May	6,060	1,620	2,430	1.35	1.56
June	16,500	1,620	3,900	2.17	2.42
July	19,300	1,620	4,170	2.32	2.68
August	5,860	1,890	3,350	1.86	2.14
September	6,870	1,620	2,940	1.63	1.82
October	20,100	2,030	4,750	2.64	3.04
November	26,400	1,760	5,010	2.78	3.10
December	17,300	1,890	3,580	1.99	2.29
The year	59,400	1,620	4,560	2.53	34.55

[a] December 21–23 estimated.

NOTE.—Values for 1905 and 1906 are excellent, except March, 1906, which is good.

COOSA RIVER AT RIVERSIDE, ALA.

This station was established September 25, 1896. It is located at the Southern Railway bridge, Riverside, Ala., about 4 miles below Lock No. 4. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 119, where are given also references to publications that contain data for previous years.

Discharge measurements of Coosa River at Riverside, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 29	F. A. Murray	564	9,630	12.40	44,200
March 29	do	564	9,640	12.45	44,700
March 30	do	564	9,490	12.10	43,300
April 19	do	553	5,130	4.16	11,100
June 21	do	543	4,960	4.03	10,300
August 30	M. R. Hall	543	4,590	3.78	9,780
October 24	W. E. Hall	546	5,290	4.77	12,800

Daily gage height, in feet, of Coosa River at Riverside, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.9	5.6	2.8	10.8	3.3	2.55	2.6	6.0	3.8	7.5	2.85	3.8
2	4.4	5.2	2.8	10.6	3.15	2.35	2.35	5.5	4.1	11.5	2.8	3.5
3	6.0	4.8	6.0	9.3	3.0	2.3	2.25	4.9	4.4	12.4	2.8	3.4
4	8.8	4.6	8.5	8.4	3.0	2.5	2.4	4.5	4.5	12.5	2.7	3.3
5	10.4	4.4	8.9	6.9	3.2	2.75	2.5	5.0	4.2	12.3	2.6	3.25
6	11.7	4.0	8.3	6.0	3.4	2.85	2.5	5.4	3.7	12.0	2.55	3.2
7	11.9	3.6	7.1	5.5	4.0	2.85	2.5	5.1	5.3	11.0	2.5	3.15
8	10.7	3.6	6.0	5.1	3.9	2.9	3.2	5.2	4.6	9.5	2.45	3.1
9	7.3	3.6	5.2	4.8	4.2	2.95	3.2	4.8	4.5	8.3	2.4	3.05
10	6.1	3.4	4.9	5.5	4.2	2.75	3.3	4.3	4.4	6.8	2.4	3.45
11	5.8	3.2	5.2	5.6	3.6	2.25	2.65	3.7	5.4	5.5	2.4	4.8
12	5.5	3.1	4.7	5.6	3.2	2.0	2.55	3.7	4.9	4.8	2.35	5.0
13	5.5	3.05	4.2	6.1	2.85	2.0	2.55	3.9	4.4	4.2	2.3	5.8
14	5.4	3.0	3.8	5.4	2.7	2.0	2.8	3.5	3.9	3.9	2.3	5.5
15	5.2	3.0	3.6	4.9	2.65	5.2	5.8	3.5	3.85	3.55	2.35	5.0
16	5.2	3.0	10.5	4.4	2.55	8.5	7.5	4.2	3.7	3.3	2.5	4.1
17	5.1	2.9	12.9	4.3	2.5	9.5	7.4	4.1	3.2	3.2	2.5	4.0
18	5.1	2.8	13.5	4.3	2.4	9.0	10.6	4.0	2.8	3.2	2.75	4.4
19	5.1	2.7	16.1	4.2	2.35	7.6	12.3	4.0	2.45	6.0	7.7	4.9
20	5.0	2.55	19.8	3.95	2.3	5.9	12.9	4.4	2.45	8.6	10.9	5.7
21	4.8	2.5	18.4	3.7	2.3	4.2	12.1	4.9	4.0	9.4	12.5	6.2
22	5.6	2.5	17.1	3.6	2.25	3.5	11.2	3.9	4.9	8.2	12.9	5.9
23	7.0	2.7	16.1	3.5	2.2	3.1	10.3	3.6	4.6	6.2	12.8	5.4
24	8.9	3.1	15.3	3.4	2.15	2.85	9.0	3.3	4.0	4.9	12.7	5.0
25	10.4	3.4	14.9	3.3	2.15	2.6	7.4	3.1	3.8	4.0	12.4	4.1
26	11.1	3.25	13.9	3.2	2.1	2.6	7.2	3.45	3.9	3.65	12.1	4.0
27	10.2	3.1	10.2	3.1	2.1	2.8	6.9	3.45	3.45	3.5	10.8	3.95
28	9.1	3.0	11.8	3.0	2.15	3.7	4.7	4.0	3.3	3.35	9.4	3.9
29	8.0	.....	12.3	3.0	2.75	3.35	4.0	4.5	3.3	3.15	5.1	4.6
30	6.4	.....	12.2	3.15	3.55	2.95	5.0	3.8	5.3	3.05	4.1	5.0
31	6.2	.....	11.2	.....	2.95	.....	6.4	3.65	.....	2.95	.....	9.5

Rating table for Coosa River at Riverside, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	4,380	3.30	8,060	4.60	12,360	6.80	20,640
2.10	4,635	3.40	8,380	4.70	12,710	7.00	21,440
2.20	4,895	3.50	8,700	4.80	13,070	7.20	22,260
2.30	5,160	3.60	9,020	4.90	13,430	7.40	23,080
2.40	5,425	3.70	9,340	5.00	13,800	7.60	23,920
2.50	5,695	3.80	9,660	5.20	14,540	7.80	24,760
2.60	5,970	3.90	9,980	5.40	15,280	8.00	25,600
2.70	6,250	4.00	10,300	5.60	16,020	9.00	29,800
2.80	6,540	4.10	10,630	5.80	16,760	10.00	34,060
2.90	6,835	4.20	10,970	6.00	17,500	11.00	38,320
3.00	7,135	4.30	11,310	6.20	18,270		
3.10	7,440	4.40	11,660	6.40	19,050		
3.20	7,750	4.50	12,010	6.60	19,840		

NOTE.—The above table is based on discharge measurements made during 1905-1906 and is well defined below gage height 13 feet. Above gage height 9 feet the rating curve is a tangent, the difference being 426 per tenth.

Monthly discharge of Coosa River at Riverside, Ala., for 1906.

[Drainage area, 7,060 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	42,200	11,700	22,600	3.20	3.69
February	16,000	5,700	8,530	1.21	1.26
March	75,800	6,540	34,400	4.87	5.62
April	37,500	7,140	14,800	2.10	2.34
May	11,000	4,640	6,850	.970	1.12
June	31,900	4,380	10,100	1.43	1.60
July	46,400	5,030	17,600	2.49	2.87
August	17,500	7,440	11,200	1.59	1.83
September	15,300	5,560	10,500	1.49	1.66
October	44,700	6,980	20,400	2.89	3.33
November	46,400	5,160	17,700	2.51	2.80
December	31,900	7,290	12,300	1.74	2.01
The year	75,800	4,380	15,600	2.21	30.13

NOTE.—Values for 1906 are excellent.

OOSTANAULA RIVER AT RESACA, GA.

This station was maintained by the United States Geological Survey from August 1, 1896, to April 30, 1899, and was reestablished at the beginning of 1905; gage-height records are maintained half the year by the United States Weather Bureau. It is located at the bridge of the Western and Atlantic Railway in the town of Resaca, 800 feet south of the station. A standard gage belonging to the United States Geological Survey is located on the downstream side of the bridge at the middle of the first span from the right bank; length of chain, 41.35 feet. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 121, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Oostanaula River at Resaca, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
January 2	M. R. Hall	156	1,080	4.60	2,170
May 22	O. P. Hall	138	944	3.42	1,510
June 6	do	165	1,340	5.51	3,080
June 28	do	158	1,080	4.37	2,120
July 26	M. R. Hall	163	1,280	5.97	3,290

Daily gage height, in feet, of Oostanaula River at Resaca, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.8	6.6	3.8	11.8	4.6	3.6	3.8	6.3	9.6	17.3	4.0	4.2
2	4.6	6.4	3.8	8.8	4.4	3.6	3.8	7.6	8.3	17.6	4.0	4.0
3	8.6	5.8	6.8	7.6	4.4	4.6	3.6	5.9	5.0	18.1	4.0	3.8
4	17.5	5.4	10.6	6.6	7.0	4.2	3.6	6.4	5.0	17.8	3.9	3.8
5	17.6	5.0	9.2	6.2	5.4	4.2	3.4	8.6	4.6	15.9	3.9	3.6
6	13.6	5.2	6.2	6.2	5.0	6.6	3.4	7.4	4.8	12.6	3.9	3.8
7	7.6	5.0	5.4	6.0	6.0	4.6	3.4	7.9	4.9	11.0	3.8	4.6
8	6.4	4.8	5.8	5.8	5.4	4.0	3.2	6.0	4.5	10.7	3.8	4.6
9	7.2	4.8	6.2	5.6	5.2	3.8	3.2	5.2	5.9	8.2	3.7	4.8
10	6.8	4.8	5.4	8.6	4.8	3.8	3.4	4.9	4.9	6.6	3.7	6.4

Daily gage height, in feet, of Oostanaula River at Resaca, Ga., in 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
11	6.2	4.6	4.0	7.0	4.6	3.6	3.4	5.2	4.9	6.0	3.6	8.6
12	6.8	4.2	4.8	6.2	4.2	3.8	3.2	4.5	7.2	5.6	3.6	7.3
13	6.2	4.2	4.6	5.8	4.2	10.6	3.2	4.4	7.5	5.2	3.6	6.4
14	5.9	4.2	4.4	5.2	4.0	17.5	3.6	8.6	6.5	5.0	3.5	5.8
15	6.0	4.2	19.1	6.6	4.0	17.0	9.0	5.0	4.8	4.8	4.4	4.6
16	5.6	4.0	21.8	6.4	4.0	15.6	8.6	7.5	4.3	4.7	4.4	4.2
17	6.2	4.0	20.8	5.6	3.9	13.2	9.8	6.2	4.0	4.6	4.8	4.6
18	5.6	4.0	13.4	5.2	3.8	7.6	14.6	5.2	3.8	9.4	7.8	8.6
19	5.6	3.8	13.4	5.0	3.8	6.0	15.4	5.8	6.6	13.8	23.0	9.6
20	5.4	3.8	19.6	4.8	3.8	5.2	16.4	5.1	7.5	11.5	29.0	8.4
21	5.2	3.8	17.2	4.8	3.6	5.0	14.6	5.1	6.9	7.4	30.0	7.6
22	10.2	5.0	12.4	4.4	3.6	4.6	10.0	4.6	6.2	5.8	27.8	6.6
23	17.2	4.2	8.2	4.4	3.4	4.4	12.2	4.9	6.2	5.4	24.0	6.4
24	17.4	4.2	7.4	4.4	3.2	4.8	11.0	4.8	6.4	5.1	16.0	6.4
25	11.4	4.0	6.6	4.4	3.2	5.8	8.6	5.2	6.0	4.9	7.6	6.8
26	8.4	4.0	6.2	4.4	3.2	5.0	6.0	4.9	5.2	4.7	5.8	6.6
27	8.2	3.8	6.7	4.4	6.4	4.6	5.4	5.3	4.7	4.6	5.4	6.3
28	9.2	3.8	8.2	5.6	5.4	4.0	5.0	5.1	4.4	4.4	4.9	6.0
29	8.2	.....	9.2	5.4	4.0	3.8	5.8	4.8	4.3	4.3	4.7	6.0
30	7.8	.....	10.8	5.2	4.0	3.8	8.1	5.9	6.3	4.2	4.5	7.5
31	7.8	.....	13.8	.....	3.8	.....	7.4	7.8	.....	4.2	.....	14.2

Rating table for Oostanaula River at Resaca, Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
3.20	1,290	4.60	2,520	6.00	3,340	8.80	6,060
3.30	1,350	4.70	2,305	6.20	3,520	9.00	6,280
3.40	1,410	4.80	2,380	6.40	3,700	10.00	7,420
3.50	1,475	4.90	2,455	6.60	3,880	11.00	8,640
3.60	1,540	5.00	2,530	6.80	4,060	12.00	9,930
3.70	1,605	5.10	2,610	7.00	4,250	13.00	11,280
3.80	1,670	5.20	2,690	7.20	4,450	14.00	12,680
3.90	1,735	5.30	2,770	7.40	4,650	15.00	14,120
4.00	1,800	5.40	2,850	7.60	4,850	16.00	15,600
4.10	1,870	5.50	2,930	7.80	5,050	17.00	17,100
4.20	1,940	5.60	3,010	8.00	5,250	18.00	18,600
4.30	2,010	5.70	3,090	8.20	5,450		
4.40	2,080	5.80	3,170	8.40	5,650		
4.50	2,155	5.90	3,250	8.60	5,850		

NOTE.—The above table is based on eleven discharge measurements made during 1904–1906 and is well defined below gage height 6 feet. Above gage height 16 feet the rating curve is a tangent, the difference being 150 per tenth.

Monthly discharge of Oostanaula River at Resaca, Ga., for 1906.

[Drainage area, 1,610 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	18,000	2,230	6,330	3.93	4.53
February	3,880	1,670	2,220	1.38	1.44
March	24,300	1,670	7,760	4.82	5.56
April	9,670	2,080	3,410	2.12	2.36
May	4,250	1,290	2,100	1.30	1.50
June	17,800	1,540	4,220	2.62	2.92
July	16,200	1,290	4,880	3.03	3.49
August	5,850	2,080	3,320	2.06	2.38
September	6,940	1,670	3,180	1.98	2.21
October	18,800	1,940	6,460	4.01	4.62
November	36,600	1,480	7,560	4.70	5.24
December	13,000	1,540	3,710	2.30	2.65
The year	36,600	1,290	4,600	2.86	38.90

NOTE.—Values are rated as follows: March and November good; remainder of 1906 excellent.

COOSAWATTEE RIVER AT CARTERS, GA.

This gaging station was established August 15, 1896, at the iron highway bridge at Carters, Murray County, Ga. It is at the foot of the great shoals made by this stream in cutting through the Cohutta Mountains. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 124, and in Water-Supply Paper No. 197, where are given also data for previous years.

Discharge measurements of Coosawattee River at Carters, Ga., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 17	O. P. Hall	115	615	4.38	2,140
March 30	do	127	1,130	8.25	4,540
June 5	do	112	1,080	7.90	4,660

Daily gage height, in feet, of Coosawattee River at Carters, Ga., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.4	3.2	2.3	4.6	2.8	2.5	2.1	3.0	2.8	7.0	2.3	2.9
2	3.0	3.2	2.4	4.0	2.8	3.0	2.1	4.0	2.8	6.0	2.3	2.8
3	10.5	3.1	5.0	3.9	4.2	2.6	2.4	3.5	2.7	5.6	2.3	2.8
4	4.0	3.1	4.0	3.7	3.3	2.5	2.5	3.0	2.6	5.0	2.2	2.8
5	3.0	3.0	3.0	3.5	3.0	5.5	2.3	7.0	2.6	5.0	2.2	2.7
6	2.6	3.0	2.9	3.6	5.0	3.0	2.2	5.0	2.5	4.8	2.1	2.8
7	2.5	3.2	2.8	4.0	3.9	2.5	2.2	3.5	2.5	4.5	2.1	2.8
8	2.5	3.2	2.8	3.8	3.6	2.5	2.1	3.0	7.0	4.3	2.1	2.7
9	2.8	3.0	2.8	5.0	3.0	2.4	2.3	2.6	4.0	3.5	2.2	2.7
10	3.0	2.9	2.7	4.5	2.8	2.4	2.3	2.8	3.5	3.3	2.3	4.5
11	3.5	2.9	2.7	4.0	2.6	2.8	2.2	3.0	3.4	3.1	2.4	3.2
12	3.0	2.8	2.7	3.0	2.6	2.7	2.2	2.8	3.0	3.0	2.4	3.0
13	2.5	2.7	3.0	2.8	2.5	14.0	2.1	2.6	2.8	2.9	2.3	2.8
14	2.5	2.6	4.0	2.8	2.5	5.5	3.5	2.6	2.7	2.8	2.3	2.8
15	2.5	2.5	18.8	4.0	2.5	8.0	2.5	2.5	2.7	2.7	2.4	2.8
16	3.6	2.4	6.0	3.6	2.4	5.0	2.0	2.5	2.6	2.6	2.4	3.0
17	3.5	2.4	5.0	3.4	2.4	4.5	3.0	2.5	2.5	2.6	2.6	3.6
18	3.5	2.4	4.8	3.2	2.3	3.5	5.5	2.6	2.5	5.0	13.2	4.0
19	3.6	2.4	13.0	3.1	2.3	3.0	8.2	2.8	5.0	3.5	26.0	4.8
20	3.6	2.4	7.0	3.0	2.2	2.8	5.0	2.7	4.0	3.3	9.4	3.8
21	3.8	2.4	5.0	3.0	2.2	2.7	4.2	2.6	3.0	3.1	5.4	3.7
22	10.5	2.6	4.0	3.0	2.1	2.6	5.0	2.5	2.8	3.0	4.8	3.7
23	11.0	2.5	3.8	2.9	2.1	2.5	4.6	2.5	2.5	3.8	4.0	3.6
24	6.5	2.5	3.7	2.9	2.1	3.1	4.0	2.8	2.6	3.6	3.6	3.6
25	4.5	2.5	3.6	2.8	2.1	3.0	3.5	2.7	4.2	3.4	3.4	3.6
26	4.0	2.4	3.5	2.8	7.0	2.9	3.0	2.6	2.8	3.2	3.2	3.5
27	3.5	2.4	4.3	2.7	3.0	2.8	3.5	2.6	2.6	3.0	3.1	3.5
28	3.5	2.4	4.2	4.0	2.8	2.5	3.5	2.8	2.5	2.6	3.05	4.5
29	3.4	.....	4.1	3.0	2.6	2.4	4.0	2.7	2.5	2.4	3.0	5.0
30	3.4	.....	8.5	3.0	2.5	2.3	4.7	2.6	4.0	2.4	3.0	5.0
31	3.3	.....	5.4	.....	2.5	.....	3.1	3.0	.....	2.4	.....	9.0

Rating table for Coosawattee River at Carters. Ga., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	785	2.80	1,170	3.60	1,620	4.80	2,410
2.10	830	2.90	1,220	3.70	1,680	5.00	2,550
2.20	875	3.00	1,275	3.80	1,740	5.20	2,694
2.30	920	3.10	1,330	3.90	1,805	5.40	2,838
2.40	970	3.20	1,385	4.00	1,870	5.60	2,982
2.50	1,020	3.30	1,440	4.20	2,000	5.80	3,126
2.60	1,070	3.40	1,500	4.40	2,130	6.00	3,270
2.70	1,120	3.50	1,560	4.60	2,270	7.00	3,990

NOTE.—The above table is based on discharge measurements made during 1902–1906 and is well defined below gage height 8 feet. Above gage height 5 feet the rating curve is a tangent, the difference being 72 per tenth.

Monthly discharge of Coosawattee River at Carters, Ga., for 1906.

[Drainage area, 531 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	6,870	970	1,990	3.75	4.32
February	1,380	970	1,130	2.13	2.22
March	12,500	920	2,480	4.67	5.38
April	2,550	1,120	1,550	2.92	3.26
May	3,990	830	1,260	2.37	2.73
June	9,030	920	1,710	3.22	3.59
July	4,850	785	1,510	2.84	3.27
August	3,990	1,020	1,320	2.49	2.87
September	3,990	1,020	1,380	2.60	2.90
October	3,990	970	1,710	3.22	3.71
November	17,700	830	2,140	4.03	4.50
December	5,430	1,120	1,670	3.15	3.63
The year	17,700	785	1,650	3.12	42.38

NOTE.—Values are rated as follows: January February, April to October, and December, excellent; March and November are only good, owing to liability of backwater at high stages.

CHOCCOLOCCO CREEK NEAR JENIFER, ALA.

The gage at this station was established August 20, 1902. It is located at the Louisville and Nashville Railroad bridge, 1¼ miles north of Jenifer, Ala. There are small shoals both above and below the bridge. The conditions[a] at this station and the bench marks are described in Water-Supply Paper No. 168, page 130, where are given also references to publications that contain data for previous years.

Discharge measurements of Choccolocco Creek near Jenifer, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 16	M. R. Hall	144	582	5.85	2,330
March 16	F. A. Murray	144	585	5.85	2,290
April 18	do	107	231	2.84	412
June 20	do	102	178	2.40	225
June 20	do	102	178	2.41	238
August 29	M. R. Hall	100	205	2.62	336

Daily gage height, in feet, of Choccolocco Creek near Jenifer, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	2.7	2.3	4.4	2.5	2.3	2.15	2.8	2.7	6.1	2.6	2.7
2	2.75	2.65	2.3	3.9	2.45	2.3	2.2	2.7	3.0	7.1	2.7	2.7
3	2.9	2.6	2.6	3.5	2.4	2.3	2.3	2.9	2.7	6.9	2.5	2.65
4	5.4	2.6	3.7	3.4	2.5	2.3	2.2	2.8	2.6	5.1	2.8	2.6
5	5.6	2.5	3.3	3.3	2.85	2.25	2.2	3.6	2.5	4.0	2.5	2.6
6	4.4	2.5	3.3	3.2	3.0	2.2	2.1	3.1	4.0	3.8	2.5	2.6
7	3.45	2.5	2.85	3.1	3.5	2.3	2.1	3.0	6.4	3.6	2.5	2.6
8	3.3	2.5	2.7	3.0	3.5	2.2	4.4	2.9	5.1	3.3	2.5	2.6
9	3.2	2.5	3.1	2.9	2.9	2.2	3.9	2.8	3.5	3.1	2.5	2.5
10	2.9	2.5	2.9	3.7	2.7	2.2	2.7	2.7	4.4	3.0	2.5	2.5
11	3.0	2.45	2.8	3.4	2.6	2.2	2.5	2.7	4.0	2.9	2.5	4.5
12	3.0	2.4	2.8	3.1	2.5	2.1	2.4	4.1	3.2	2.8	2.5	4.5
13	3.0	2.4	2.6	3.0	2.5	2.1	2.3	3.6	3.4	2.7	2.5	3.2
14	2.9	2.4	2.5	3.0	2.45	2.2	2.5	4.6	2.9	2.7	2.5	3.0
15	2.8	2.4	4.1	3.2	2.45	3.7	6.7	6.5	2.8	2.6	2.8	2.9

[a] A second section of the gage is attached to the upstream wing wall of the left bank abutment, reading from 10 feet to 15 feet.

Daily gage height, in feet, of Choccolocco Creek near Jenifer, Ala., for 1906—Continued.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	2.8	2.35	5.2	3.0	2.4	3.8	5.0	4.5	2.7	2.7	2.8	2.8
17	2.9	2.3	5.6	2.9	2.4	2.8	3.2	3.6	2.6	2.6	2.5	3.1
18	2.8	2.3	3.6	2.8	2.4	2.5	6.9	3.0	2.7	3.9	2.5	3.1
19	2.9	2.3	11.5	2.75	2.4	2.45	8.4	2.9	2.6	4.9	4.5	3.5
20	2.9	2.3	14.2	2.7	2.4	2.5	6.5	2.9	2.6	4.5	5.2	3.4
21	2.9	2.3	7.5	2.7	2.4	2.4	4.5	3.0	2.8	3.5	5.5	3.3
22	3.2	2.4	5.2	2.7	2.4	2.3	3.5	2.7	2.8	3.0	4.6	3.2
23	4.6	2.4	4.3	2.65	2.35	2.3	4.0	2.6	2.7	3.0	3.2	3.1
24	4.5	2.4	3.8	2.65	2.3	2.3	4.4	2.6	2.6	2.9	3.0	3.0
25	3.6	2.4	3.6	2.6	2.25	2.2	3.5	2.6	2.9	2.9	2.9	2.9
26	3.25	2.4	3.3	2.55	2.3	2.2	3.1	2.85	2.7	2.8	2.8	2.8
27	3.1	2.4	3.3	2.5	2.3	2.3	2.8	2.6	2.6	2.8	2.8	2.8
28	3.0	2.4	5.6	2.5	2.4	2.2	2.8	3.2	2.6	2.7	2.7	2.9
29	2.9	.....	5.8	2.5	2.3	2.2	2.8	2.6	2.6	2.7	2.7	3.4
30	2.8	.....	5.3	2.5	2.3	2.2	3.1	2.7	4.1	2.6	2.7	3.6
31	2.75	.....	4.9	.....	2.3	.....	3.1	3.0	.....	2.7	.....	6.0

Rating table for Choccolocco Creek near Jenifer, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	125	3.20	560	4.40	1,195	6.20	2,620
2.10	145	3.30	605	4.50	1,260	6.40	2,800
2.20	170	3.40	650	4.60	1,325	6.60	3,000
2.30	200	3.50	700	4.70	1,395	6.80	3,200
2.40	235	3.60	750	4.80	1,465	7.00	3,400
2.50	270	3.70	800	4.90	1,535	8.00	4,500
2.60	305	3.80	850	5.00	1,610	9.00	5,600
2.70	345	3.90	905	5.20	1,760	10.00	6,800
2.80	385	4.00	960	5.40	1,920	11.00	8,000
2.90	425	4.10	1,015	5.60	2,080		
3.00	470	4.20	1,075	5.80	2,260		
3.10	515	4.30	1,135	6.00	2,440		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is well defined below gage height 6 feet. Above gage height 9 feet the rating curve is a tangent, the difference being 120 per tenth.

Monthly discharge of Choccolocco Creek near Jenifer, Ala., for 1906.

[Drainage area, 272 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	2,080	365	645	2.37	2.73
February	345	200	248	.912	.95
March	11,800	200	1,590	5.85	6.74
April	1,200	270	483	1.78	1.99
May	700	185	287	1.06	1.22
June	850	145	240	.882	.98
July	4,940	145	920	3.38	3.90
August	2,900	305	588	2.16	2.49
September	2,800	270	593	2.18	2.43
October	3,510	305	836	3.07	3.54
November	2,000	270	497	1.83	2.04
December	2,440	270	562	2.07	2.39
The year	11,800	145	624	2.30	31.40

NOTE.—Values for 1906 are excellent.

TALLAPOOSA RIVER AT STURDEVANT, ALA.

This station was established July 19, 1900. It is located at the Columbus and Western Railroad bridge, one-fourth mile west of Sturdevant. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 132, where are given also references to publications that contain data for previous years.

Discharge measurements of Tallapoosa River at Sturdevant, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 17	M. R. Hall	411	3,870	6.36	10,500
March 17	F. A. Murray	411	3,880	6.36	10,100
June 8	M. R. Hall	346	2,420	2.18	1,770

Daily gage height, in feet, of Tallapoosa River at Sturdevant, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.15	3.45	2.85	5.4	2.85	2.3	2.0	3.6	4.5	8.6	2.9	2.9
2	3.0	3.3	2.8	4.8	2.8	2.2	2.5	3.9	4.3	8.1	2.85	2.9
3	6.8	3.2	5.4	4.4	2.75	2.2	4.4	4.4	3.8	7.4	2.8	2.85
4	12.4	3.1	5.6	4.2	3.1	2.15	3.7	6.0	4.1	6.2	2.8	2.9
5	9.0	3.1	5.1	4.0	4.3	2.2	3.1	4.3	3.9	5.0	2.7	2.85
6	7.5	3.0	4.0	3.9	4.2	2.5	2.9	4.5	7.0	4.7	2.7	2.8
7	5.2	3.1	3.4	3.7	4.8	2.25	2.35	4.6	9.1	4.3	2.7	2.95
8	4.3	3.2	6.8	3.6	6.7	2.2	3.0	4.0	5.4	3.8	2.7	2.95
9	3.9	3.45	6.4	3.5	4.9	2.1	6.5	3.1	4.3	3.5	2.65	2.95
10	3.6	3.35	5.2	3.8	4.1	2.0	4.4	2.8	5.4	3.25	2.7	2.9
11	3.6	3.3	4.5	4.0	3.5	2.15	4.0	4.0	5.5	3.05	2.65	3.5
12	3.65	3.2	4.1	4.5	3.2	2.2	3.0	4.7	6.7	2.95	2.6	4.7
13	3.55	3.15	3.75	3.9	3.1	2.3	2.9	4.0	4.7	2.9	2.6	4.0
14	3.45	3.1	3.6	3.9	3.0	5.4	3.4	9.4	3.9	2.8	2.65	3.6
15	3.35	3.1	6.1	4.2	2.95	8.3	8.5	6.3	3.4	2.75	2.95	3.25
16	3.3	3.0	6.5	4.1	2.8	6.8	7.0	5.5	3.05	2.7	3.25	3.05
17	3.25	2.9	6.7	3.9	2.75	5.0	5.1	4.3	2.9	2.7	3.05	4.9
18	3.25	2.8	5.0	3.6	2.7	4.1	5.6	3.5	2.8	5.3	3.45	6.5
19	3.2	2.8	18.8	3.5	2.65	3.5	6.4	4.2	2.7	9.4	9.6	5.4
20	3.2	2.75	21.6	3.4	2.6	3.1	7.8	4.1	3.25	7.8	7.1	5.1
21	3.5	3.8	14.6	3.35	2.5	2.7	5.5	3.7	3.6	6.6	6.3	4.7
22	6.8	3.7	12.0	3.3	2.7	2.55	4.0	3.4	3.8	4.7	4.8	4.3
23	7.9	3.5	9.2	3.3	2.6	2.4	5.8	3.35	3.6	3.9	4.1	3.9
24	6.5	3.25	5.6	3.25	2.5	2.3	6.5	3.25	3.8	3.5	3.6	3.6
25	5.7	3.35	4.6	3.15	2.45	2.15	5.5	3.25	3.7	3.4	3.35	3.4
26	4.5	3.15	4.3	3.1	2.4	2.25	4.3	4.0	3.6	3.35	3.2	3.3
27	4.2	3.05	4.5	3.05	2.5	2.8	4.0	3.35	3.25	3.15	3.15	3.25
28	4.0	2.9	7.6	3.0	2.55	3.1	3.3	3.4	3.6	3.05	3.05	3.45
29	3.85	.....	8.2	3.0	2.6	2.9	3.6	5.2	4.6	2.95	2.95	4.1
30	3.8	.....	7.2	2.95	2.5	2.4	4.4	3.8	5.6	2.9	2.9	4.4
31	3.6	.....	6.2	.....	2.4	.....	4.7	4.3	.....	2.85	.....	9.7

A. DAM AND POWER HOUSE OF MONTGOMERY POWER COMPANY ON TALLAPOOSA RIVER ABOVE TALLASSEE, ALA.

B. INTERIOR OF POWER HOUSE OF MONTGOMERY POWER COMPANY ON TALLAPOOSA RIVER ABOVE TALLASSEE, ALA.

Rating table for Tallapoosa River at Sturdevant, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
2.00	1,460	3.10	2,880	4.20	4,870	5.60	8,350
2.10	1,560	3.20	3,020	4.30	5,090	5.80	8,880
2.20	1,670	3.30	3,190	4.40	5,310	6.00	9,440
2.30	1,790	3.40	3,350	4.50	5,540	6.20	10,000
2.40	1,910	3.50	3,520	4.60	5,770	6.40	10,560
2.50	2,040	3.60	3,690	4.70	6,010	6.60	11,140
2.60	2,170	3.70	3,870	4.80	6,250	6.80	11,740
2.70	2,300	3.80	4,060	4.90	6,500	7.00	12,350
2.80	2,440	3.90	4,250	5.00	6,760	7.20	12,990
2.90	2,580	4.00	4,450	5.20	7,280	7.40	13,630
3.00	2,730	4.10	4,660	5.40	7,800		

NOTE.—The above table is based on discharge measurements made during 1904–1906, and is well defined below gage height 10 feet. Above gage height 7 feet the rating curve is a tangent, the difference being 320 per tenth.

Monthly discharge of Tallapoosa River at Sturdevant, Ala., for 1906.

[Drainage area, 2,500 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	29,600	2,730	6,770	2.71	3.12
February	4,060	2,370	3,020	1.21	1.26
March	59,100	2,440	12,700	5.08	5.86
April	7,800	2,660	4,010	1.60	1.78
May	11,400	1,910	3,160	1.26	1.45
June	16,500	1,460	3,230	1.29	1.44
July	17,200	1,460	6,140	2.46	2.84
August	20,000	2,440	5,310	2.12	2.44
September	19,100	2,300	5,540	2.22	2.48
October	20,000	2,300	6,140	2.46	2.84
November	20,700	2,170	4,000	1.60	1.78
December	21,000	2,440	4,660	1.86	2.14
The year	59,100	1,460	5,390	2.16	29.43

NOTE.—Values for 1906 are excellent.

TALLAPOOSA RIVER SURVEY.

In order to point out the power possibilities along the Tallapoosa River, a profile has been prepared showing the fall between Tallapoosa, Ga., and Matilda, Ala. In connection with this profile, notes showing tributary streams and other prominent natural and artificial features along the river are indicated.

Sheets showing this profile may be obtained upon application to the Director of the Geological Survey.

Some of the water-power plants on Tallapoosa River are shown on Pls. IV and V.

CAHABA RIVER AT CENTERVILLE, ALA.

This station was established August 7, 1901, and is situated at the iron highway bridge one-fourth mile west of Centerville, Ala., one-half mile above the Mobile and Ohio Railroad bridge. The gage was read during 1906 by Mrs. W. C. Edmonds. The conditions at this

station and the bench marks are described in Water-Supply Paper No. 168, page 134, where are given also references to publications that contain data for previous years.

Discharge measurements of Cahaba River at Centerville, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
May 4	W. E. Hall	150	656	3.35	779
June 25	F. A. Murray	125	399	1.60	280
October 25	W. E. Hall	154	646	3.26	686

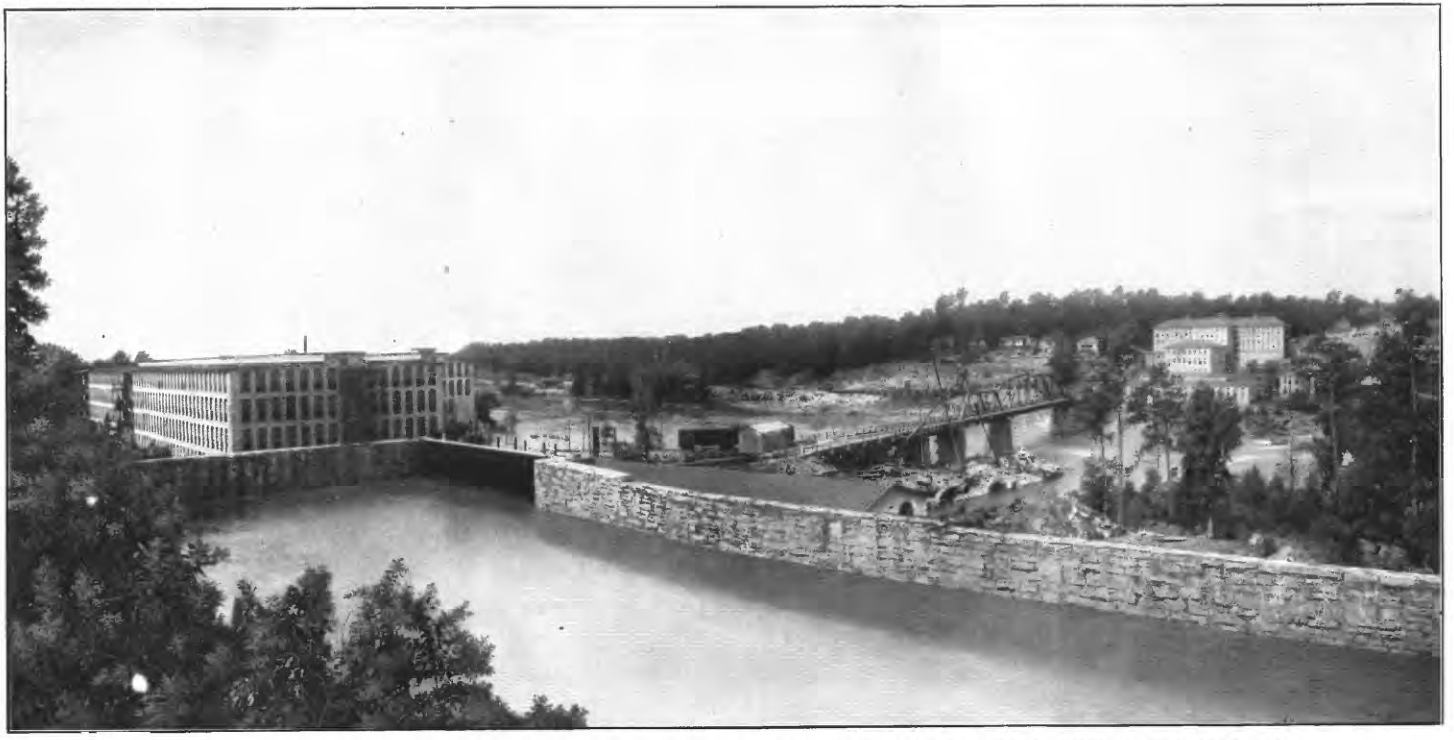
Daily gage height, in feet, of Cahaba River at Centerville, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.1	4.0	4.7	18.7	2.8	2.2	1.9	4.2	3.0	22.9	2.8	2.9
2	3.9	3.5	3.9	13.5	2.8	2.2	2.3	3.4	2.8	21.2	2.7	2.8
3	12.3	3.3	18.2	10.7	2.8	2.3	3.0	3.2	2.7	21.3	2.6	2.8
4	20.9	3.1	20.4	8.7	3.2	2.4	2.2	3.4	2.6	16.2	2.5	2.7
5	17.5	3.0	16.3	7.8	7.6	2.2	1.7	3.2	2.5	10.8	2.7	2.8
6	12.8	2.9	9.7	7.1	5.3	2.3	1.6	2.8	2.1	21.6	2.7	2.8
7	7.6	2.9	6.9	6.5	5.8	2.2	1.6	3.2	2.4	17.8	2.6	2.9
8	6.1	2.9	8.0	5.9	7.8	2.3	1.6	3.0	2.6	12.5	2.6	2.7
9	5.8	2.8	8.1	5.8	5.9	2.1	1.9	2.8	3.2	9.4	2.6	2.9
10	5.3	2.8	6.7	6.3	4.2	2.0	4.4	2.4	2.8	7.4	2.5	3.0
11	4.8	2.6	5.7	6.5	3.7	1.9	3.4	2.6	3.5	6.3	2.4	5.6
12	5.2	2.5	5.5	5.4	3.4	1.8	3.9	4.4	5.0	5.6	2.5	7.2
13	5.7	2.5	4.7	4.9	3.2	1.7	2.9	3.4	5.5	5.1	2.5	5.2
14	5.2	2.7	4.5	4.6	3.0	2.0	10.0	4.2	6.2	4.6	2.4	4.4
15	4.9	2.9	5.3	4.4	2.9	3.0	8.1	5.1	4.8	4.4	2.9	4.0
16	4.5	2.6	5.0	4.3	2.8	2.8	5.7	4.6	3.0	4.1	2.9	3.6
17	4.2	2.5	4.6	4.1	2.7	2.6	5.5	3.6	2.5	4.0	2.7	3.9
18	4.2	2.4	4.1	3.9	2.6	2.4	11.7	3.1	2.3	4.1	3.1	5.0
19	4.2	2.3	33.8	3.8	2.7	2.2	15.8	2.6	2.1	4.6	9.6	4.9
20	4.3	2.2	30.8	3.7	2.6	2.0	10.7	2.4	2.3	4.8	9.8	4.8
21	4.0	2.4	27.0	3.6	2.5	1.9	6.1	2.2	3.6	4.0	6.3	4.7
22	4.7	2.5	19.5	3.9	2.5	1.8	5.0	2.4	3.8	3.7	5.1	4.5
23	17.0	2.6	14.6	3.7	2.5	1.7	8.4	2.8	3.5	3.5	4.3	4.2
24	16.0	2.7	10.0	3.5	2.5	1.6	9.6	2.2	3.3	3.3	3.9	3.9
25	10.4	6.6	8.4	3.4	2.7	1.6	5.7	2.0	3.7	3.2	3.7	3.7
26	7.4	5.6	7.4	3.3	2.7	1.6	4.2	2.4	3.4	3.1	3.3	3.5
27	6.1	5.2	6.9	3.1	2.8	2.6	3.5	1.9	3.1	3.1	3.2	3.5
28	5.2	4.6	24.6	3.0	2.6	3.5	3.1	3.2	20.7	3.0	3.2	3.9
29	4.7	.....	24.5	3.0	2.5	2.9	4.3	2.5	33.7	2.8	3.0	6.5
30	4.0	.....	26.5	2.9	2.4	2.2	6.9	3.2	29.6	2.8	3.0	5.9
31	4.1	.....	23.4	.....	2.3	.....	5.3	2.4	.....	2.9	.....	20.0

Rating table for Cahaba River at Centerville, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.60	280	2.80	583	4.00	930	5.40	1,604
1.70	301	2.90	611	4.10	1,030	5.60	1,698
1.80	323	3.00	640	4.20	1,072	5.80	1,794
1.90	346	3.10	670	4.30	1,114	6.00	1,890
2.00	370	3.20	701	4.40	1,156	6.20	1,990
2.10	395	3.30	733	4.50	1,200	6.40	2,090
2.20	421	3.40	766	4.60	1,244	6.60	2,192
2.30	447	3.50	800	4.70	1,288	6.80	2,296
2.40	473	3.60	836	4.80	1,332	7.00	2,400
2.50	500	3.70	874	4.90	1,376	8.00	2,950
2.60	527	3.80	912	5.00	1,420	9.00	3,500
2.70	555	3.90	950	5.20	1,512	10.00	4,050

NOTE.—The above table is based on three discharge measurements made during 1906 and on the forms of previous curves. It is not well defined. Above gage height 7 feet it is a tangent, the difference being 55 per tenth.



CANAL, POWER HOUSE, AND MILLS OF TALLASSEE FALLS MANUFACTURING COMPANY ON TALLAPOOSA RIVER AT TALLASSEE, ALA.

Monthly discharge of Cahaba River at Centerville, Ala., for 1906.

[Drainage area, 1,040 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	10,000	950	2,680	2.58	2.97
February	2,190	421	735	.707	.74
March	1,100	950	5,690	5.47	6.31
April	8,840	611	1,850	1.78	1.99
May	2,840	447	847	.814	.94
June	800	280	426	.410	.46
July	7,240	280	1,740	1.67	1.92
August	1,470	346	683	.657	.76
September	17,100	395	2,080	2.00	2.23
October	11,100	583	3,070	2.95	3.40
November	3,940	473	913	.878	.98
December	9,550	555	1,330	1.28	1.48
The year	17,100	280	1,840	1.77	24.18

NOTE.—Values for 1906 are good.

TOMBIGBEE RIVER AT COLUMBUS, MISS.

This station is located at the county highway bridge at the south end of Main street, in the city of Columbus, Miss. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 137, where are given also references to publications that contain data for previous years.

Discharge measurements of Tombigbee River at Columbus, Miss., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
April 21	F. A. Murray	127	1,230	−0.64	2,040
April 23	do	125	1,210	−.82	1,910
April 26	do	119	1,170	−1.10	1,680
May 3	W. E. Hall	109	1,190	−1.38	1,590
September 18	M. R. Hall	72	876	−3.40	424

Daily gage height, in feet, of Tombigbee River at Columbus, Miss., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.7	1.5	3.3	18.2	−1.3	−2.3	−3.3	−2.6	−3.2	6.8	−2.3	−0.4
2	3.3	.9	2.8	18.2	−1.4	−2.4	−3.2	−2.3	−3.4	7.7	−2.4	−.5
3	5.4	.3	4.0	17.3	−1.6	−2.2	−3.3	−2.2	−3.4	8.3	−2.5	−.9
4	9.6	−.1	4.4	15.6	−.9	−1.1	−3.4	−2.1	−3.4	8.2	−2.5	−1.2
5	11.0	−.3	4.4	13.0	+6.9	−.6	−3.4	−2.3	−3.5	7.6	−2.6	−1.3
6	9.9	−.6	4.7	9.2	8.0	−.9	−3.3	−2.7	−3.5	11.2	−2.6	−1.2
7	10.3	−.7	4.6	6.0	8.9	−1.6	−3.4	−2.9	−3.5	12.3	−2.6	−1.1
8	10.4	−.8	4.0	4.0	9.6	−1.9	−3.5	−3.2	−3.0	11.1	−2.6	−.6
9	9.0	−.9	2.9	2.8	8.9	−2.2	−3.5	−3.2	−2.8	9.9	−2.7	−.5
10	7.2	−1.0	2.0	2.1	7.8	−2.3	−3.5	−3.2	−3.1	9.2	−2.7	+.2
11	5.2	−1.1	1.4	1.7	6.3	−2.5	−3.5	−3.2	−3.3	8.1	−2.7	2.7
12	4.8	−1.2	.9	1.5	4.5	−2.7	−3.5	−2.8	−3.3	6.0	−2.7	2.6
13	4.6	−1.2	.3	1.2	2.3	−2.9	−3.5	−2.6	−3.3	3.3	−2.7	1.5
14	4.2	−1.1	−.1	.9	−.1	−3.0	−3.2	−2.7	−3.4	1.5	−2.7	1.4
15	3.8	−1.1	+5.2	.7	−1.0	−2.6	−2.9	−2.5	−3.5	.4	−2.6	1.4
16	3.3	−.9	9.1	.6	−1.3	−1.3	−2.7	−1.5	−3.5	−.5	−2.5	1.3
17	2.4	−.9	9.9	.7	−1.5	−1.2	−.9	−1.8	−3.5	−1.1	−2.4	1.3
18	2.0	−1.0	10.3	.5	−1.7	−2.0	+2.0	−1.7	−3.4	−1.4	−1.3	4.6
19	2.3	−1.1	13.0	.1	−2.0	−2.3	3.7	−1.8	−3.4	−1.0	+2.1	5.5
20	1.9	−1.2	16.8	−.5	−1.9	−2.8	3.2	−2.2	−3.4	−.2	6.1	5.8
21	1.7	−1.3	16.6	−.7	−2.1	−3.0	2.3	−2.6	−3.4	+.3	6.5	6.0
22	2.9	−1.2	15.7	−.8	−2.2	−3.1	1.3	−2.4	−3.2	.6	6.8	5.3
23	6.4	−.9	14.5	−.9	−2.2	−3.3	.8	−2.3	−2.4	.1	7.1	5.0
24	6.6	−.3	12.6	−.8	−2.3	−3.3	.4	−2.7	−1.6	−.3	6.6	4.3
25	6.7	+2.4	9.4	−.8	−2.0	−3.3	−.6	−3.0	−1.0	−.7	5.7	3.3

Daily gage height, in feet, of Tombigbee River at Columbus, Miss., for 1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
26	7.1	3.5	5.8	−1.0	−2.1	−3.3	−1.3	−2.9	− .6	− .9	4.2	2.3
27	7.0	3.4	4.3	−1.3	−1.9	−3.3	−1.6	−3.0	− .3	−1.1	3.2	1.4
28	6.0	3.8	12.1	−1.4	−1.3	−3.2	−2.2	−3.2	+3.6	−1.5	2.1	.5
29	4.8	.....	14.0	.0	−1.8	−3.2	−2.4	−3.0	8.5	−1.8	1.2	.2
30	3.5	.....	16.0	−1.0	−1.9	−3.2	−2.6	−3.1	7.3	−2.1	.1	.1
31	2.5	.....	17.7	.....	−2.1	.....	−2.8	−3.2	.....	−2.3	.....	4.3

Rating table for Tombigbee River at Columbus, Miss., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
−3.50	340	−1.80	1,260	− .10	2,495	4.00	6,920
−3.40	380	−1.70	1,325	.00	2,580	5.00	8,240
−3.30	425	−1.60	1,390	.20	2,755	6.00	9,620
−3.20	470	−1.50	1,455	.40	2,935	7.00	11,060
−3.10	520	−1.40	1,520	.60	3,115	8.00	12,540
−3.00	570	−1.30	1,590	.80	3,305	9.00	14,040
−2.90	620	−1.20	1,660	1.00	3,500	10.00	15,590
−2.80	675	−1.10	1,730	1.20	3,700	11.00	17,170
−2.70	730	−1.00	1,800	1.40	3,900	12.00	18,800
−2.60	785	− .90	1,870	1.60	4,110	13.00	20,500
−2.50	840	− .80	1,940	1.80	4,320	14.00	22,200
−2.40	895	− .70	2,015	2.00	4,540	15.00	23,900
−2.30	950	− .60	2,090	2.20	4,760	16.00	25,600
−2.20	1,010	− .50	2,170	2.40	4,990	17.00	27,300
−2.10	1,070	− .40	2,250	2.60	5,220	18.00	29,000
−2.00	1,130	− .30	2,330	2.80	5,450		
−1.90	1,195	− .20	2,410	3.00	5,680		

NOTE.—The above table is based on five discharge measurements made during 1906, and on ten high-water measurements made before 1906. It is well defined below gage height 0.0 feet. Above gage height 12 feet the rating curve is a tangent, the difference being 170 per tenth.

Monthly discharge of Tombigbee River at Columbus, Miss., for 1906.

[Drainage area, 4,440 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	17,200	4,220	9,090	2.05	2.36
February	6,660	1,590	2,630	.592	.62
March	28,500	2,500	12,900	2.91	3.36
April	29,300	1,520	7,480	1.68	1.87
May	15,000	950	4,220	.950	1.10
June	2,090	425	909	.205	.23
July	6,540	340	1,580	.356	.41
August	1,460	470	790	.178	.21
September	13,300	340	1,630	.367	.41
October	19,300	950	6,800	1.53	1.76
November	11,200	730	3,520	.793	.88
December	9,620	1,590	4,520	1.02	1.18
The year	29,300	340	4,670	1.05	14.39

NOTE.—Values are rated as follows: June and August, good; remainder of 1906, excellent

TOMBIGBEE RIVER AT EPES, ALA.

This station was established November 29, 1904. It is located at the bridge of the Alabama Great Southern Railway, one-half mile from Epes, Ala. The conditions at this station and the bench marks

are described in Water-Supply Paper No. 168, page 139, where are given also references to publications that contain data for previous years.

Discharge measurements of Tombigbee River at Epes, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
September 24	M. R. Hall	125	786	1.39	1,290
October 27	W. E. Hall	175	1,300	4.03	3,190

Daily gage height, in feet, of Tombigbee River at Epes, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.2	14.1	12.7	39.9	4.45	2.95	1.4	4.3	1.1	21.0	2.55	5.7
2	11.0	11.6	11.6	39.9	3.75	2.7	1.2	2.95	1.05	22.5	2.85	5.2
3	12.2	9.5	13.1	40.2	3.85	2.45	1.0	2.65	0.95	24.0	2.2	4.9
4	18.6	8 0	12.9	40.4	4.6	2.3	0.95	2.2	.9	24.4	2.2	4.15
5	21.4	7.2	13.2	40.5	6.7	2.7	.95	3.1	.9	25.1	2.1	3.75
6	22.4	6.4	12.6	40.2	12.4	3.15	.95	2.9	.8	26.2	2.0	3.7
7	21.9	5 8	12.4	39.1	17.2	3.3	.95	2.65	.6	31.4	1.9	3.6
8	21.3	5.3	12.6	36.8	19.2	3.0	.95	2.15	.6	33.1	1.9	3.65
9	21.0	5.0	11.8	32.6	20.0	2.65	.95	1.65	.55	33.2	1.85	3.9
10	20.4	4.7	10.3	27.0	19.2	2.45	1.1	1.4	.8	32.6	1.8	5.4
11	18.4	4.5	9.2	22.2	17.5	2.25	1.1	1.5	1.35	31.0	1.75	8.6
12	15.6	4.3	8.2	18.2	15.3	2.05	1.35	1.45	1.25	29.1	1.7	11.2
13	13.6	4.2	7.6	14.5	12.6	1.85	1.4	1.8	1.1	25.9	1.7	11.6
14	12.9	4.2	7.2	12.0	9.2	1.8	1.9	2.15	1.1	21.2	1.7	9.9
15	12.0	4.1	6.8	8.8	6.6	1.65	5.8	2.65	1.0	15.1	1.65	8.7
16	11.2	4.2	9.7	7.6	4.95	1.6	4.7	2.35	.9	10.7	1.55	8.3
17	10.2	4.35	14.2	7.1	4.2	2.15	4.3	2.55	.8	6.8	1.45	8.2
18	9.3	4.4	17.0	6.8	3.7	2.85	10.2	2.7	.8	5.8	1.85	10.4
19	8.6	4.35	35.1	6.5	3.45	2.6	14.4	2.5	.8	5.0	3.0	12.0
20	8.4	4.15	39.8	6.0	3.15	2.1	12.8	2.45	.8	4.5	6.2	12.6
21	8.4	4.25	41.2	6.2	2.9	1.8	11.4	2.3	.8	4.9	9.8	12.8
22	18.0	4.4	41.6	5.3	2.9	1.55	9.4	1.95	.7	5.3	11.8	12.8
23	22.3	4.4	41.7	4.9	2.6	1.35	7.5	1.8	.7	5.5	13.0	12.4
24	21.3	5.6	41.6	4.75	2.65	1.2	6.4	1.65	1.45	5.4	13.4	11.6
25	21.2	9.4	41.3	4.55	2.7	1.2	5.8	1.7	2.55	5.0	13.2	10.6
26	20.6	10.7	40.6	4.4	2.75	1.75	4.65	1.5	3.35	4.4	12.2	9.6
27	20.0	12.4	38.4	4.2	3.2	2.65	3.7	1.25	4.9	4.0	11.1	8.6
28	19.6	12.8	38.6	3.85	3.65	2.1	3.1	1.15	12.7	3.6	8.9	7.8
29	18.6	.....	38.7	3.8	3.75	1.75	2.85	1.05	17.6	3.3	8.0	7.2
30	17.2	.....	39.2	3.9	3.55	1.45	4.45	1.1	19.5	3.0	7.0	7.7
31	15.3	.....	39.7	.....	3.3	.....	5.5	1.15	.....	2.75	.....	16.2

Rating table for Tombigbee River at Epes, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
0.50	770	1.80	1,480	3.10	2,370	4.80	3,870
0.60	810	1.90	1,540	3.20	2,450	5.00	4,060
0.70	850	2.00	1,600	3.30	2,530	5.20	4,250
0.80	900	2.10	1,660	3.40	2,610	5.40	4,450
0.90	950	2.20	1,725	3.50	2,690	5.60	4,652
1.00	1,000	2.30	1,790	3.60	2,780	5.80	4,856
1.10	1,060	2.40	1,855	3.70	2,870	6.00	5,060
1.20	1,120	2.50	1,925	3.80	2,960	6.20	5,268
1.30	1,180	2.60	1,995	3.90	3,050	6.40	5,476
1.40	1,240	2.70	2,065	4.00	3,140	6.60	5,684
1.50	1,300	2.80	2,140	4.20	3,320	6.80	5,892
1.60	1,360	2.90	2,215	4.40	3,500	7.00	6,100
1.70	1,420	3.00	2,290	4.60	3,680		

NOTE.—The above table is based on nine discharge measurements made during 1904-1906, and is well defined between gage heights 0.9 feet and 15.6 feet. Above gage height 6 feet the rating curve is a tangent, the difference being 104 per tenth.

Monthly discharge of Tombigbee River at Epes, Ala., for 1906.

[Drainage area, 8,830 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	22,100	7,560	15,800	1.79	2.06
February	13,500	3,230	5,720	.648	.67
March	42,200	5,890	23,000	2.60	3.00
April	40,900	2,960	17,300	1.96	2.19
May	19,600	2,000	6,570	.744	.86
June	2,530	1,120	1,730	.196	.22
July	13,800	975	3,810	.432	.50
August	3,410	1,030	1,680	.190	.22
September	19,100	790	2,660	.301	.34
October	33,300	2,100	14,900	1.69	1.95
November	12,800	1,270	4,550	.515	.57
December	15,700	2,780	7,670	.869	1.00
The year	42,200	790	8,780	.995	13.58

NOTE.—Values for 1906 are excellent.

BLACK WARRIOR RIVER NEAR CORDOVA, ALA.

This station is located at the Kansas City, Memphis and Birmingham Railroad bridge, which crosses the river below the junction of Mulberry and Sipsey forks and about three-fourths mile from Cordova, Ala. The gage was established by the United States Weather Bureau. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 142, where are given also references to publications that contain data for previous years.

Discharge measurements of Black Warrior River near Cordova, Ala., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
April 20	F. A. Murray	170	1,210	1.05	1,440
April 27	do	168	1,120	0.71	1,080
June 22	do	165	967	−0.28	333
June 23	do	180	573	−0.33	264

Daily gage height, in feet, of Black Warrior River near Cordova, Ala., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.4	2.7	1.9	14.2	0.4	1.1	− .6	0.6	0.1	13.0	0.1	0.6
2	3.0	2.4	1.6	9.8	.45	.8	− .6	.45	1.1	17.0	.0	.6
3	6.9	2.1	8.0	7.2	.4	.65	− .6	.2	1.0	12.0	.0	.55
4	14.0	1.85	14.6	5.6	.8	.9	− .65	.1	.9	9.4	.0	.5
5	11.0	1.6	8.7	4.3	2.4	1.1	− .65	.1	1.1	6.1	.05	.4
6	6.8	1.5	6.8	3.8	2.2	.9	− .65	.0	1.0	8.6	.05	.6
7	5.3	1.4	5.7	3.4	2.0	.7	− .65	.0	1.0	13.9	.05	.9
8	4.6	1.3	4.4	3.1	1.6	.5	− .6	.1	.9	9.5	.05	.7
9	4.6	1.2	3.8	2.9	1.1	.4	− .6	− .1	.8	6.4	.1	.6
10	4.3	1.15	3.3	2.85	.8	.4	− .5	− .1	.6	3.8	.1	.7
11	4.0	1.0	2.6	2.8	.5	.35	− .4	− .2	.4	2.9	.05	1.5
12	4.6	.9	2.15	2.5	.3	.3	− .5	3.1	.3	2.2	.05	1.5
13	5.6	.9	2.1	2.3	.3	.2	− .6	3.4	.2	1.0	.05	1.4
14	4.8	1.0	2.0	2.1	.25	.15	+5.7	3.6	.5	1.2	.0	1.3
15	4.6	1.05	22.0	2.1	.2	.2	6.6	3.9	.4	1.0	.02	1.2

Daily gage height, in feet, of Black Warrior River near Cordova, Ala., for 1906—Con.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
16	3.8	1.0	24.0	1.9	.1	.6	4.6	2.8	.0	.8	.05	1.1
17	3.2	1.0	14.3	1.8	.0	.4	2.6	1.7	− .2	.7	.05	1.0
18	3.0	.85	8.5	1.65	.0	.2	9.8	1.1	− .3	.9	.5	1.8
19	2.8	.7	15.5	1.4	− .05	.1	6.7	.9	.0	3.8	3.4	1.5
20	2.65	.6	22.7	1.2	− .1	.0	3.6	.6	+ .1	3.2	7.2	2.7
21	2.9	1.3	15.2	1.0	.0	− .25	3.2	.4	.3	2.1	4.7	2.3
22	18.5	2.0	8.0	1.2	+ .2	− .3	2.0	.2	.4	1.5	3.2	2.0
23	34.2	2.0	7.6	1.5	.4	− .4	1.6	.1	1.8	1.2	2.8	1.7
24	27.9	1.9	6.0	1.2	.5	− .4	3.2	.1	1.2	1.0	2.0	1.5
25	14.6	4.1	5.2	1.0	.8	− .55	2.3	.0	.7	.7	1.5	1.2
26	9.4	3.2	4.0	0.85	4.2	− .5	1.5	− .1	.6	.5	1.2	1.0
27	6.2	2.5	5.6	.7	3.9	− .4	1.0	− .1	.9	.3	1.1	.9
28	5.1	2.6	24.5	.5	3.1	− .5	.6	.9	1.2	.3	1.0	1.7
29	4.2	.....	19.5	.5	2.6	− .6	.6	2.1	17.0	.3	.9	2.6
30	3.6	.....	21.1	.45	2.2	− .5	1.5	1.0	20.5	.2	.7	3.1
31	3.0	.....	21.5	.....	1.7	.....	1.1	.4	.....	.2	.....	14.5

Rating table for Black Warrior River near Cordova, Ala., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
−0.70	110	0.80	1,170	2.30	2,715	4.60	5,560
−0.60	145	0.90	1,265	2.40	2,830	4.80	5,820
−0.50	190	1.00	1,360	2.50	2,945	5.00	6,080
−0.40	240	1.10	1,455	2.60	3,060	5.20	6,340
−0.30	300	1.20	1,550	2.70	3,175	5.40	6,600
−0.20	365	1.30	1,650	2.80	3,290	5.60	6,870
−0.10	430	1.40	1,750	2.90	3,405	5.80	7,150
0.00	500	1.50	1,850	3.00	3,525	6.00	7,430
0.10	575	1.60	1,955	3.20	3,765	7.00	8,830
0.20	650	1.70	2,060	3.40	4,005	8.00	10,230
0.30	730	1.80	2,165	3.60	4,260	9.00	11,650
0.40	810	1.90	2,270	3.80	4,520	10.00	13,150
0.50	895	2.00	2,380	4.00	4,780	11.00	14,650
0.60	985	2.10	2,490	4.20	5,040		
0.70	1,075	2.20	2,600	4.40	5,300		

NOTE.—The above table is based on discharge measurements made during 1900–1906 and is well defined below gage height 14 feet. Above gage height 8.8 feet it is a tangent, the difference being 150 per tenth.

Monthly discharge of Black Warrior River near Cordova, Ala., for 1906.

[Drainage area, 1,900 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	49,400	3,120	9,860	5.19	5.98
February	4,910	985	2,040	1.07	1.11
March	34,900	1,960	13,700	7.21	8.31
April	19,400	852	3,620	1.91	2.13
May	5,040	430	1,530	.805	.93
June	1,460	145	680	.358	.40
July	12,800	128	2,400	1.26	1.45
August	4,650	365	1,350	.71	.82
September	28,900	300	2,700	1.42	1.58
October	23,600	650	5,390	2.84	3.27
November	9,110	500	1,560	.821	.92
December	19,900	810	2,270	1.19	1.37
The year	49,400	128	3,930	2.07	28.27

NOTE.—Values are rated as follows: June, good; remainder of 1906, excellent.

MISCELLANEOUS MEASUREMENTS IN MOBILE RIVER DRAINAGE BASIN.

The following is a list of miscellaneous discharge measurements made in Mobile River drainage basin during 1906:

Etowah River near Canton, Ga.—A measurement was made February 23, 1906, at Field's bridge, a single-span iron highway bridge, 6 miles downstream from Canton, Ga. The bench mark is a chisel cut on the right side of the intermediate post, 145 feet from the right end of the bridge, downstream side; elevation, 36 feet above the datum of the assumed gage.

Width, 132 feet; area, 613 square feet; gage height, 4.94 feet; discharge, 1,290 second-feet.

Little River near Toonigh, Ga.—Measurements were made from a boat at a point about 300 feet downstream from Little River Mills. The bench mark is a nail in a willow tree which stands on right bank about 50 feet below the old rope ferry landing; elevation, 5 feet above the datum of the assumed gage.

February 23: Width, 40 feet; area, 76 square feet; gage height, 3.00 feet; discharge, 143 second-feet.

February 24: Width, 40 feet; area, 74 square feet; gage height, 2.97 feet; discharge, 133 second-feet.

Toonigh Creek near Toonigh, Ga.—A measurement was made February 24, 1906, from the foot plank at a point about 150 feet above the mouth of the creek. The bench mark is a nail driven into the water side of an ash tree on the right bank at the mouth of the creek; elevation, 9 feet above the datum of the assumed gage.

Width, 7.5 feet; area, 5.1 square feet; gage height, 1.42 feet; discharge, 8.8 second-feet.

Noonday Creek near Toonigh, Ga.—A measurement was made February 24, 1906, from the foot log, about one-fourth mile above the mouth of the creek. The bench mark is a nail driven into the water side of a 3-pronged ironwood tree on the right bank about 70 feet below the foot log; elevation, 4.60 feet above the datum of the assumed gage.

Width, 22 feet; area, 40 square feet; gage height, 2.60 feet; discharge, 58 second-feet.

Big Cedar Creek near Cavespring, Ga.—This stream enters Coosa River 6 miles northwest of Cavespring. A measurement was made May 14, 1906, at the bridge, 2½ miles northeast of Cavespring. The bench mark is the top of the second iron floor beam from the right end of the bridge, upstream side; elevation, 17 feet above the datum of the assumed gage.

Width, 77 feet; area, 230 square feet; gage height, 3.32 feet; discharge, 124 second-feet.

A measurement was made May 14, 1906, from a single-span iron wagon bridge, 3 miles north of Cavespring, near Wetsels Ford. The bench mark is the top of the upstream end of the second cross beam from the right end of the bridge; elevation, 20 feet above the datum of the assumed gage.

Width, 61 feet; area, 239 square feet; gage height, 2.92 feet; discharge, 161 second-feet.

Little Cedar Creek at Cavespring, Ga.—A measurement was made May 14, 1906, at a single-span iron footbridge on the road to the Cave Spring on the main street of the city. The bench mark is the top of the downstream end of the first iron cross beam from the right end of the bridge; elevation, 8 feet above the datum of the assumed gage.

Width, 32 feet; area, 14.7 square feet; gage height, 1.26 feet; discharge, 21.7 second-feet.

A measurement was made May 14, 1906, at a wagon bridge one-fourth mile north of Cavespring, Ga. The bench mark is the top of the downstream end of the first cross beam from the left end of the bridge; elevation, 7 feet above the datum of the assumed gage.

Width, 31 feet; area, 15 square feet; gage height, 1.01 feet; discharge, 31 second-feet.

Cave Spring near Cavespring, Ga.—A measurement was made May 14, 1906, at the footbridge, about 15 feet from the spring.

Width, 16 feet; area, 7 square feet; discharge, 4.5 second feet.

Tallapoosa River near Tallapoosa, Ga.—A measurement was made June 29, 1906, at Buchanan Bridge, about 4 miles north of Tallapoosa, Ga. The bench mark is the top of the downstream end of the center floor beam, the third from either end; elevation, 25.25 feet above the datum of the assumed gage.

Width, 41 feet; area, 101 square feet; gage height, 1.09 feet; discharge, 97 second-feet.

A measurement was made June 29, 1906, at Adderhold Bridge, about 2 miles north of Tallapoosa, Ga., and about 2 miles below Buchanan Bridge. The bench mark is the top of the downstream end of the first floor beam from the left bank; elevation, 22 feet above the datum of the assumed gage.

Width, 81 feet; area, 216 square feet; gage height, 0.93 feet; discharge, 146 second-feet.

Tallapoosa River near Heflin, Ala.—A measurement was made June 28, 1906, at Denman's wagon bridge, about 7 miles southwest of Heflin, Ala., on the road to Wedowee, Ala. The bench mark is the top of the downstream end of the cap beam of the center pile bent of the bridge; elevation, 24 feet above the datum of the assumed gage.

Width, 127 feet; area, 412 square feet; gage height, 2.90 feet; discharge, 452 second-feet.

Tallapoosa River at Luoina, Ala.—A measurement was made June 23, 1906, from the Louina highway bridge.

Width, 238 feet; area, 1,510 square feet; discharge, 1,300 second-feet.

Tallapoosa River near Dadeville, Ala.—A measurement was made June 21, 1906, from a ferryboat at Germany Ferry, 7 miles northeast of Dadeville, Ala. The Geodetic Survey bench mark was used in getting the elevation of water surface. It is located on the right bank of the river on a large water-oak tree; elevation, 22 feet above the datum of the assumed gage.

Width, 337 feet; area, 1,820 square feet; gage height, 5.63 feet; discharge, 1,780 second-feet.

A measurement was made June 20, 1906, from a ferryboat at Millers Ferry, 6 miles north of Dadeville, Ala. The bench mark is a spike driven into a water-oak tree on the east side of the road, 20 feet from the left bank of the river; elevation, 24 feet above the datum of the assumed gage.

Width, 357 feet; area, 4,370 square feet; gage height, 15 feet; discharge, 1,960 second-feet.

Highpine Creek at Liles Mill, Ala.—A measurement was made June 22, 1906, at a point about 150 feet below Liles Mill dam. The bench mark is a cut in the top of the bridge flooring just east of the first pier from the left bank; elevation, 16 feet above the datum of the assumed gage.

Width, 32 feet; area, 80 square feet; gage height, 2.90 feet; discharge, 67 second-feet.

Chickasanocsa Creek near Hampton, Ala.—A measurement was made June 22, 1906, by wading, at Leveretts Bridge, about 150 feet below the mill dam.

Width, 49 feet; area, 63 square feet; discharge, 54 second-feet.

Chattahaspee Creek near Hampton, Ala.—A measurement was made June 22, 1906, from Smiths Bridge, 1 mile west of the county line between Tallapoosa and Chambers counties. The bench mark is a cut in the top of the bridge flooring in the middle of the second crib from the left bank; elevation, 8 feet above the datum of the assumed gage.

Width, 34 feet; area, 171 square feet; gage height, 4.50 feet; discharge, 66 second-feet.

Emuckfaw Creek at Hamlet, Ala.—A measurement was made June 21, 1906, by wading, near Hamlet's mill. The bench mark is the top of the cap of the second pier from the west side of the bridge; elevation, 18 feet above the datum of the assumed gage.

Width, 35 feet; area, 29 square feet; gage height, 1.20 feet; discharge, 65 second-feet.

Sandy Creek near Camphill, Ala.—A measurement was made June 26, 1906, from a foot log about 1 mile above the forks of the creek.

Width, 31 feet; area, 93 square feet; discharge, 23 second-feet.

Sandy Creek near Dadeville, Ala.—A measurement was made June 25, 1906, at Smiths Bridge.

Width, 97 feet; area, 93 square feet; discharge, 118 second-feet.

South Fork Sandy Creek near Camphill, Ala.—A measurement was made June 26, 1906, from a highway bridge near Bulger's mill. The bench mark is the top of the floor on the south side of the second pier from the south side of the creek; elevation, 8 feet above the datum of the assumed gage.

Width, 49 feet; area, 46 square feet; gage height, 1.50 feet; discharge, 47 second-feet.

Little Sandy Creek near Camphill, Ala.—A measurement was made June 26, 1906, at a highway bridge which crosses the creek just above the railroad bridge. The bench mark is the top of the cap of the first bent from the right bank of the river; elevation, 8 feet above the datum of the assumed gage.

Width, 27 feet; area, 51 square feet; gage height, 3.90 feet; discharge, 21 second-feet.

North Fork Sandy Creek near Dadeville, Ala.—A measurement was made June 26, 1906, by wading, about 150 feet below Duncan's bridge.

Width, 29 feet; area, 25 square feet; discharge, 25 second-feet.

Timbercut Creek near Dadeville, Ala.—A measurement was made June 20, 1906, at a foot log about 1 mile above the mouth of the creek at a ford on the road to Welch Ferry.

Width, 24 feet; area, 27 square feet; discharge, 22 second-feet.

Blue Creek at Susanna, Ala.—A measurement was made June 25, 1906, at the highway bridge.

Width, 27 feet; area, 40 square feet; discharge, 22 second-feet.

Wind Creek near Meltons Mill, Ala.—A measurement was made June 25, 1906, at Ledbetters Bridge. The creek was at a low stage.

Width, 13 feet; area, 11 square feet; discharge, 9 second-feet.

Sougahatchee Creek near Thaddeus, Ala.—A measurement was made June 25, 1906, from Loveladys Bridge. The bench mark is the top of the cap on the north side of the main bent, upstream side; elevation, 28 feet above the datum of the assumed gage.

Width, 77 feet; area, 107 square feet; gage height, 4.10 feet; discharge, 103 second-feet.

Buttahatchee River near Columbus, Miss.—A measurement was made April 26, 1906, at a covered wooden wagon bridge 15 miles north of Columbus, Miss., on the road to Aberdeen, Miss. The bench mark is the top of the upstream end of the second wooden crossbeam from the left bank wooden trestle pier; elevation, 23 feet above the datum of the assumed gage.

Width, 108 feet; area, 507 square feet; gage height, 6.76 feet; discharge, 587 second-feet.

Luxapelila Creek near Columbus, Miss.—A measurement was made April 23, 1906, at a single-span iron highway bridge at the Columbus waterworks. The bench mark is the top of the upstream end of the crossbeam 90 feet from the right end of the bridge; elevation, 26.45 feet above the datum of the assumed gage.

Width, 96 feet; area, 646 square feet; gage height, 3.20 feet; discharge, 312 second-feet.

Tibbee River near West Point, Miss.—A measurement was made April 26, 1906, at a single-span iron highway bridge 3 miles southwest of West Point and about 600 feet downstream from the Illinois Central Railroad bridge. The bench mark is the top of the upstream end of an iron crossbeam, 31 feet from the left end of the bridge; elevation, 28 feet above the datum of the assumed gage.

Width, 56 feet; area, 248 square feet; gage height, 5.94 feet; discharge, 227 second-feet.

A measurement was made April 24, 1906, from a single-span iron highway bridge 5 miles south of West Point, Miss., and about 500 feet above the Mobile and Ohio Railroad bridge. The bench mark is the top of the upstream end of the second iron crossbeam from the right end of the bridge; elevation, 32 feet above the datum of the assumed gage.

Width, 52 feet; area, 140 square feet; gage height, 4.88 feet; discharge, 238 second-feet.

Sahatonchee Creek near West Point, Miss.—A measurement was made April 24, 1906, from a two-span iron highway bridge 3 miles west of West Point, Miss. The bench mark is the top of the upstream end of an iron crossbeam 90 feet from the left end of the bridge; elevation, 25 feet above the datum of the assumed gage.

Width, 96 feet; area, 168 square feet; gage height, 3.48 feet; discharge, 125 second-feet.

Oaknoxubee River near Macon, Miss.—A measurement was made April 25, 1906, at a single-span iron highway bridge one-fourth mile south of Macon. The bench mark is the top of the upstream end of an iron cross-beam 68 feet from the left bank end of the hand rail; elevation, 37 feet above the datum of the assumed gage.

Width, 51 feet; area, 229 square feet; gage height, 6.42 feet; discharge, 173 second-feet.

PEARL RIVER DRAINAGE BASIN.

DESCRIPTION OF BASIN.

Pearl River rises in the eastern part of Mississippi. It flows south into Lake Borgne, an arm of the Gulf of Mexico, forming part of the boundary between Louisiana and Mississippi.

PEARL RIVER AT JACKSON, MISS.

This station was established June 24, 1901. It is located at a highway bridge, 2 miles from the union station at Jackson, Miss., one-eighth mile above the Alabama and Vicksburg Railroad, and two blocks east from the end of the South State street car line. The conditions at this station and the bench marks are described in Water-Supply Paper No. 168, page 152, where are given also references to publications that contain data for previous years.

Discharge measurements of Pearl River at Jackson, Miss., in 1906.

Date.	Hydrographer.	Width.	Area of section.	Gage height.	Discharge.
		Feet.	*Sq. ft.*	*Feet.*	*Sec.-ft.*
March 20[a]	W. E. Hall	891	7,010	23.47	9,120
May 1	do	119	579	3.24	898
September 21	M. R. Hall	106	381	1.66	429

[a] Discharge affected by backwater.

Daily gage height, in feet, of Pearl River at Jackson, Miss., for 1906.

Day.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	10.0	4.8	28.8	3.2	6.3	2.3	2.1	1.0	21.3	3.0	3.5
2	6.7	8.8	5.4	28.4	3.3	6.8	2.4	2.0	1.0	21.6	2.8	3.4
3	9.2	7.9	5.7	27.8	3.3	6.8	2.2	2.0	1.0	21.6	2.7	3.2
4	11.8	7.2	5.9	27.1	4.7	6.7	2.0	2.5	1.0	21.7	2.6	2.9
5	11.5	6.8	6.2	26.6	8.1	6.6	1.9	2.9	2.1	23.4	2.5	2.7
6	11.3	6.4	6.2	26.0	9.7	6.0	1.8	3.3	1.2	26.4	2.4	2.5
7	10.4	5.9	6.1	25.4	12.6	5.4	1.7	3.6	1.4	27.6	2.3	2.4
8	10.8	5.4	6.0	24.8	14.9	4.9	1.7	3.7	2.4	28.3	2.2	2.3
9	10.7	4.7	5.9	23.4	15.5	4.1	1.7	3.7	2.8	28.6	2.1	2.3
10	10.6	4.3	5.8	21.9	15.9	3.6	1.7	3.6	3.2	29.0	2.1	2.4
11	10.7	4.2	5.6	20.1	15.7	3.1	2.6	3.5	3.2	29.6	2.0	3.5
12	11.1	3.8	5.4	18.5	15.3	2.8	2.7	3.3	3.0	30.0	1.9	2.8
13	11.0	3.7	5.0	15.4	14.9	2.6	2.9	2.9	3.1	30.1	1.9	4.1
14	10.6	3.6	4.8	13.2	14.7	2.5	2.3	2.2	3.2	29.8	1.9	5.8
15	10.1	3.5	4.5	9.8	14.0	2.4	2.2	2.1	2.8	29.3	1.9	7.0
16	9.4	3.3	4.1	8.9	12.7	2.3	2.1	2.1	2.2	28.4	1.9	8.1
17	9.2	3.3	3.7	8.1	10.9	2.2	2.4	2.0	1.9	27.4	1.8	8.5
18	9.0	3.3	3.9	7.6	8.9	2.1	3.9	1.9	1.8	26.2	1.9	8.2
19	8.7	3.3	17.9	7.1	7.6	2.2	3.5	1.9	1.8	24.6	2.3	7.4
20	8.3	3.3	23.2	6.7	6.5	2.2	3.7	1.8	1.7	23.1	2.3	7.1
21	7.9	3.2	24.9	6.1	6.0	2.1	4.3	1.7	1.7	20.0	2.2	7.0
22	10.1	3.2	25.2	6.6	5.2	2.0	4.4	1.7	1.7	16.5	2.2	7.0
23	12.6	3.2	25.0	5.1	4.5	1.9	4.6	1.6	1.7	11.1	2.6	6.9
24	13.2	4.0	25.2	4.7	4.1	1.8	4.3	1.5	1.8	7.5	3.2	6.8
25	14.1	4.6	26.4	4.4	3.8	1.8	4.0	1.4	2.0	6.0	3.5	6.7
26	14.5	3.8	27.2	4.0	3.5	1.7	3.6	2.5	2.2	5.1	3.7	6.5
27	14.1	4.0	27.8	3.8	3.6	2.0	3.3	2.0	4.1	4.5	3.8	6.2
28	12.1	4.4	29.0	3.5	3.6	1.8	3.0	1.4	16.4	4.0	3.8	5.9
29	11.6	.....	29.8	3.4	4.0	2.0	2.7	1.3	19.4	3.6	3.7	5.4
30	11.2	.....	29.6	3.3	4.7	2.4	2.4	1.2	20.8	3.4	3.6	5.6
31	10.8	.....	29.4	.....	5.7	.....	2.2	1.0	.....	3.1	.....	7.8

Rating table for Pearl River at Jackson, Miss., for 1906.

Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.	Gage height.	Discharge.
Feet.	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*	*Feet.*	*Sec.-ft.*
1.00	320	2.80	732	5.20	1,870	16.00	8,700
1.10	335	2.90	770	5.40	1,980	17.00	9,500
1.20	350	3.00	810	5.60	2,090	18.00	10,300
1.30	366	3.10	852	5.80	2,200	19.00	11,100
1.40	383	3.20	894	6.00	2,310	20.00	12,000
1.50	400	3.30	938	6.20	2,420	21.00	12,900
1.60	418	3.40	984	6.40	2,530	22.00	13,900
1.70	436	3.50	1,030	6.60	2,640	23.00	15,000
1.80	455	3.60	1,078	6.80	2,750	24.00	16,200
1.90	475	3.70	1,126	7.00	2,860	25.00	17,500
2.00	495	3.80	1,174	8.00	3,435	26.00	19,000
2.10	518	3.90	1,223	9.00	4,035	27.00	20,700
2.20	543	4.00	1,272	10.00	4,635	28.00	22,600
2.30	570	4.20	1,370	11.00	5,285	29.00	24,500
2.40	599	4.40	1,470	12.00	5,935	30.00	26,400
2.50	630	4.60	1,570	13.00	6,600		
2.60	662	4.80	1,670	14.00	7,300		
2.70	696	5.00	1,770	15.00	8,000		

NOTE.—The above table is based on discharge measurements made during 1903–1906 and is fairly well defined.

Monthly discharge of Pearl River at Jackson, Miss., for 1906.

[Drainage area, 3,120 square miles.]

Month.	Discharge in second-feet.			Run-off.	
	Maximum.	Minimum.	Mean.	Sec.-ft. per sq. mile.	Depth in inches.
January	7,650	2,530	5,090	1.63	1.88
February	4,640	894	1,690	.542	.56
March	26,000	1,130	9,520	3.05	3.52
April	24,100	938	8,940	2.87	3.20
May	8,630	894	3,910	1.25	1.44
June	2,750	436	1,130	.362	.40
July	1,570	436	788	.253	.29
August	1,130	320	616	.197	.23
September	12,700	320	1,620	.519	.58
October	26,600	852	14,400	4.62	5.33
November	1,170	455	686	.220	.25
December	3,740	570	1,960	.628	.72
The year	26,600	320	4,200	1.35	18.40

NOTE.—Values are rated as follows: March, April, and October, fair; remainder of the year excellent There is liable to be gorging at this station for stages above about 15 feet. This probably does not always occur and usually lasts only a few days.

BOGUE CHITTO AT WARNERTON, LA.

On April 28, 1906, a station was established on this stream, located at the Kentwood and Eastern Railroad bridge, one-fourth mile west of Warnerton, La. The gage is a vertical rod attached to the bridge piling on the upstream side of the bridge, about 15 feet from the left bank. The gage was read for a short while only by J. W. Warner.

The current is moderately slow and is broken by the wooden piers and a number of trestle bents.

The bench mark is the top of the right bank end of the lower chord of the wooden truss, downstream side of the bridge; elevation, 23.00 feet above the datum of the gage.

A measurement was made April 27, 1906, by W. E. Hall, with the following results:

Width, 111 feet; area, 823 square feet; gage height, 2.90 feet; discharge, 571 second-feet.

Daily gage height, in feet, of Bogue Chitto River at Warnerton, La., for 1906.

Day.	Apr.	May.	June.	July.	Day.	Apr.	May.	June.	July.
1		2.9	4.9	2.7	17		2.7	2.8	3.6
2		2.9	4.4	2.7	18		2.7	2.8	3.4
3		2.8	4.2	2.8	19		2.7	2.8	3.2
4		2.8	3.9	2.8	20		2.7	2.7	3.1
5		2.8	3.7	2.9	21		2.7	2.7	3.0
6		2.8	3.5	3.0	22		2.7	2.7	3.0
7		2.8	3.2	3.1	23		3.8	2.8	2.9
8		2.8	3.0	3.0	24		4.6	2.8	2.9
9		2.8	3.0	2.9	25		4.9	2.9	2.8
10		2.8	2.9	2.9	26		5.2	2.9	2.8
11		2.8	2.8	2.8	27	2.9	5.2	2.8	2.7
12		2.7	2.8	2.8	28	2.9	5.9	2.8	2.7
13		2.7	2.8	2.7	29	3.0	5.8	2.7	2.7
14		2.7	2.8	2.7	30	3.0	5.7	2.7	2.7
15		2.7	2.8	2.9	31		5.3		2.7
16		2.7	2.8	3.2					

LAKE PONTCHARTRAIN DRAINAGE BASIN.

MISCELLANEOUS MEASUREMENTS.

The following is a list of miscellaneous discharge measurements made in Lake Pontchartrain drainage basin during 1906:

Tangipahoa River near Kentwood, La.—A measurement was made April 27, 1906, at the Kentwood and Eastern Railroad bridge. The bench mark is the top of the downstream end of the cap of the fourth bent from the right bank; elevation, 13 feet above the datum of the assumed gage.

Width, 88 feet; area, 310 square feet; gage height, 3.75 feet; discharge, 242 second-feet.

Tangipahoa River near Tangipahoa, La.—A measurement was made June 20, 1906, at a wooden highway bridge 1 mile east of Tangipahoa, La. The bench mark is the top of the downstream end of the right bent of the middle of a wooden pier; elevation, 15 feet above the datum of the assumed gage.

Width, 96 feet; area, 324 square feet; gage height, 3.60 feet; discharge, 242 second-feet.

Tangipahoa River near Amite, La.—A measurement was made April 25, 1906, from the steel wagon bridge 1 mile from Amite, La. The bench mark is the top of the outer eyebar of the lower chord on the upstream side of the bridge, at a point 1 foot to the right of the

first intermediate post from the right bank pier; elevation, 18 feet above the datum of the assumed gage.

Width, 133 feet; area, 470, square feet; gage height, 2.57 feet; discharge, 462 second-feet.

Tickfaw River near Montpelier, La.—A measurement was made April 26, 1906, at a wooden wagon bridge 1 mile east of Montpelier and about 9 miles west of Amite. The bench mark is the top of the downstream end of the cap of the second bent from the right end of the bridge; elevation, 14 feet above the datum of the assumed gage.

Width, 90 feet; area, 213 square feet; gage height, 2.65 feet; discharge, 155 second-feet.

INDEX.

CLASSIFICATION OF THE PUBLICATIONS OF THE UNITED STATES GEOLOGICAL SURVEY.

[Water-Supply Paper No. 204.]

The publications of the United States Geological Survey consist of (1) Annual Reports; (2) Monographs; (3) Professional Papers; (4) Bulletins; (5) Mineral Resources; (6) Water-Supply and Irrigation Papers; (7) Topographic Atlas of United States, folios and separate sheets thereof; (8) Geologic Atlas of United States, folios thereof. The classes numbered 2, 7, and 8 are sold at cost of publication; the others are distributed free. A circular giving complete lists can be had on application.

Most of the above publications can be obtained or consulted in the following ways:

1. A limited number are delivered to the Director of the Survey, from whom they can be obtained, free of charge (except classes 2, 7, and 8), on application.

2. A certain number are delivered to Senators and Representatives in Congress, for distribution.

3. Other copies are deposited with the Superintendent of Documents, Washington, D. C., from whom they can be had at practically cost.

4. Copies of all Government publications are furnished to the principal public libraries in the large cities throughout the United States, where they can be consulted by those interested.

The Professional Papers, Bulletins, and Water-Supply Papers treat of a variety of subjects, and the total number issued is large. They have therefore been classified into the following series: A, Economic geology; B, Descriptive geology; C, Systematic geology and paleontology; D, Petrography and mineralogy; E, Chemistry and physics; F, Geography; G, Miscellaneous; H, Forestry; I, Irrigation; J, Water storage; K, Pumping water; L, Quality of water; M, General hydrographic investigations; N, Water power; O, Underground waters; P, Hydrographic progress reports.

Series P.—The hydrographic progress reports contain the results of stream measurements. A report is issued for every calendar year, containing the results of data collected during that year. These reports were first published as a part of the Director's annual report or as a bulletin; they are now published as water-supply and irrigation papers. The following is a list, by years, of the publications containing the progress reports of stream measurements (* means out of stock). A detailed index of these reports (1888–1903) is published as Water-Supply Paper No. 119.

1888. Tenth Annual Report, Part II*.
1889. Eleventh Annual Report, Part II*.
1890. Twelfth Annual Report, Part II*.
1891. Thirteenth Annual Report, Part III*.
1892. Fourteenth Annual Report, Part II*.
1893. Bulletin No. 131*.
1894. Bulletin No. 131*; Sixteenth Annual Report, Part II*.
1895. Bulletin No. 140*.
1896. Water-Supply Paper No. 11*; Eighteenth Annual Report, Part IV*.
1897. Water-Supply Papers Nos. 15* and 16*: Nineteenth Annual Report, Part IV*.
1898. Water-Supply Papers Nos. 27* and 28*; Twentieth Annual Report, Part IV*.
1899. Water-Supply Papers Nos. 35*, 36*, 37*, 38*, and 39*; Twenty-first Annual Report, Part IV*.
1900. Water-Supply Papers Nos. 47, 48, 49, 50, 51, and 52; Twenty-second Annual Report, Part IV.
1901. East of Mississippi River, Water-Supply Papers Nos. 65* and 75*.
West of Mississippi River, Water-Supply Papers Nos. 66 and 75*.

1902. East of Mississippi River, Water-Supply Papers Nos. 82 and 83.
West of Mississippi River, Water-Supply Papers Nos. 84 and 85.
1903. East of Mississippi River, Water-Supply Papers Nos. 97 and 98.
West of Mississippi River, Water-Supply Papers Nos. 99 and 100.
1904. East of Mississippi River, Water-Supply Papers Nos. 124, 125, 126, 127, 128, and 129.
West of Mississippi River, Water-Supply Papers Nos. 130, 131, 132, 133, 134, and 135.
1905. East of Mississippi River, Watter-Supply Papers Nos. 165*, 166*, 167, 168*, 169, 170, and 171.
West of Mississippi River, Water-Supply Papers Nos. 171, 172*, 173*, 174, 175*, 176, 177, and 178.
1906. East of Mississippi River, Water-Supply Papers Nos. 201, 202, 203, 204, 205, 206, and 207.
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